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												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200824A00005	8/24/2020	0.25	8/24/2021	8/24/2020	100.28135	100.2116437	100.1420407	100.0725448	100.0031559	99.93387351	99.86469754	99.79562772	99.72666381
200825A00005	8/25/2020	0.43	8/25/2021	8/25/2020	100.2991	100.2266551	100.1543235	100.0821046	100.009998	99.93800348	99.86612081	99.79434973	99.72268999
200908A00006	9/8/2020	0.42	9/8/2021	9/8/2020	100.45935	100.3476013	100.2361131	100.1248852	100.0139165	99.90320625	99.79275339	99.68255703	99.57261624
200914A00001	9/14/2020	0.25	9/14/2021	9/14/2020	100.51823	100.3894608	100.2610351	100.1329543	100.0052171	99.87782194	99.75076745	99.62405221	99.49767482
201026A00001	10/26/2020	0.26	10/26/2021	10/26/2020	100.99624	100.7480071	100.500996	100.2551983	100.010605	99.76720747	99.52499678	99.28396431	99.04410146
201116A00006	11/16/2020	0.42	11/16/2021	11/16/2020	101.25743	100.9489658	100.642385	100.3376743	100.0348166	99.73379488	99.43459244	99.13719274	98.84157946
201117A00004	11/17/2020	0.42	11/17/2021	11/17/2020	101.2691	100.9577442	100.6483102	100.3407804	100.0351373	99.73136349	99.42944174	99.1293551	98.83108681
201210A00008	12/10/2020	0.37	8/10/2021	12/10/2020	100.12462	100.0940083	100.0634362	100.0328989	100.0023965	99.97192884	99.94149586	99.91109752	99.88073375
201230A00011	12/30/2020	0.38	9/30/2021	12/30/2020	100.70408	100.5302576	100.3570311	100.1843966	100.0123511	99.84089184	99.67001571	99.49971983	99.33000128
210223A00013	2/23/2021	0.32	11/23/2021	2/23/2021	101.30665	100.9780249	100.6515309	100.3271494	100.0048597	99.68464164	99.36647535	99.0503411	98.73621944
210226A00016	2/26/2021	0.26	2/25/2022	2/26/2021	102.40536	101.7989613	101.199703	100.6074635	100.0221202	99.44355333	98.87164576	98.30628315	97.74735376
210301A00006	3/1/2021	0.33	9/15/2021	3/1/2021	100.5268	100.3953454	100.2642504	100.1335129	100.0031314	99.87310427	99.74343018	99.61410761	99.48513511
210301A00007	3/1/2021	0.34	10/14/2021	3/1/2021	100.8552	100.6415096	100.4287367	100.2168746	100.0059175	99.79585935	99.58669452	99.37841723	99.17102179
210301A00008	3/1/2021	0.34	11/15/2021	3/1/2021	101.22159	100.9160607	100.6123801	100.3105355	100.01051	99.71228728	99.41585092	99.12118489	98.82827326
210301A00011	3/1/2021	0.35	12/15/2021	3/1/2021	101.56944	101.1768065	100.7872117	100.4006181	100.0169912	99.63629671	99.25850109	98.88357123	98.51147454
210304A00003	3/4/2021	0.34	3/4/2022	3/4/2021	102.47251	101.845906	101.2269243	100.6154268	100.0112783	99.41434726	98.8245049	98.24162567	97.66558692
210324A00001	3/24/2021	0.37	3/24/2022	3/24/2021	102.72476	102.0377018	101.3597827	100.6908232	100.0306466	99.37908103	98.73595891	98.10111704	97.47439641
210330A00009	3/30/2021	0.32	11/30/2021	3/30/2021	101.38642	101.0375516	100.6910672	100.3469456	100.0051629	99.66569519	99.32851927	98.99361204	98.66095075
210413A00007	4/13/2021	0.25	4/13/2022	4/13/2021	102.94796	102.1990734	101.4610224	100.7335757	100.0165062	99.30959298	98.61262137	97.92538281	97.24767451
210524A00009	5/24/2021	0.29	12/1/2021	5/24/2021	101.38743	101.035666	100.6863343	100.3394068	99.99485862	99.65266556	99.31280355	98.97524892	98.63997828
210604A00004	6/4/2021	0.23	6/3/2022	6/4/2021	103.52932	102.6230965	101.7326161	100.8574714	99.99726954	99.15163073	98.32018804	97.50258673	96.69848382
210623A00008	6/23/2021	0.38	6/23/2022	6/23/2021	103.79664	102.8292282	101.8797077	100.9475903	100.0324017	99.13368424	98.25099694	97.38391429	96.53202575
210624A00001	6/24/2021	0.39	6/24/2022	6/24/2021	103.8178	102.8472022	101.8946176	100.9595441	100.041503	99.14003262	98.25468805	97.38504003	96.53067446
210714A00022	7/14/2021	0.35	7/14/2022	7/14/2021	104.00459	102.9714739	101.9587193	100.9657282	99.99192714	99.0367645	98.09970964	97.18025192	96.2778997
210713A00002	7/13/2021	0.33	3/14/2022	7/13/2021	102.58218	101.9254336	101.2770615	100.6369022	100.0048003	99.38060442	98.76416695	98.15534387	97.55399474
210701A00012	7/1/2021	0.38	7/1/2022	7/1/2021	103.89133	102.8988492	101.9251697	100.9697629	100.032119	99.11174695	98.20817377	97.32094352	96.44961664
210715A00016	7/15/2021	0.27	1/18/2022	7/15/2021	101.924	101.4315626	100.9438752	100.460868	99.98247366	99.50862635	99.03926136	98.57431525	98.11372576
150601A00342	6/1/2015	3.97	8/26/2033	6/1/2015	144.54111	136.126621	128.3998595	121.2954862	114.7549976	108.7259599	103.1613311	98.01886355	93.26057697
150601A00439	6/1/2015	2.57	3/18/2024	6/1/2015	108.37838	106.9214602	105.4992213	104.1105326	102.7543146	101.4295318	100.1351907	98.87033749	97.63405627
150601A00440	6/1/2015	3.27	3/16/2029	6/1/2015	125.95856	121.1880833	116.6799149	112.4169094	108.3831855	104.5640201	100.9457559	97.51571664	94.2621295
150601A00450	6/1/2015	3.28	4/27/2029	6/1/2015	126.35928	121.5057347	116.9224628	112.5915965	108.4965917	104.6221243	100.9539921	97.47902409	94.18499845
150601A00460	6/1/2015	3.05	5/16/2029	6/1/2015	125.535	120.6730044	116.0835256	111.7484371	107.6509705	103.7755999	100.1079421	96.63466314	93.34339531
150601A00506	6/1/2015	3.14	7/6/2029	6/1/2015	126.3672	121.3892981	116.6947779	112.2645231	108.0808612	104.1274472	100.3891545	96.85197518	93.50292978

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180321A00015	3/21/2018	3.02	3/21/2025	3/21/2018	114.20762	111.8083588	109.4872013	107.2409554	105.0665884	102.9612131	100.9220803	98.94657088	97.03218861
180322A00030	3/22/2018	2.79	3/24/2025	3/22/2018	112.57509	110.4465818	108.3826128	106.3806832	104.4384093	102.5535175	100.7238385	98.94730156	97.2219296
180329A00011	3/29/2018	2.77	3/29/2023	3/29/2018	105.58601	104.6704611	103.772185	102.8906755	102.0254509	101.1760484	100.3420231	99.52294734	98.71840985
180508A00038	5/8/2018	3.57	5/9/2033	5/8/2018	144.20203	135.4458983	127.4141367	120.037821	113.2552154	107.0109684	101.255404	95.94389634	91.0363177
180612A00012	6/12/2018	2.94	6/12/2023	6/12/2018	106.57157	105.5150982	104.4796286	103.4645479	102.469263	101.4932039	100.5358224	99.59659153	98.67500403
170406A00031	4/6/2017	3.01	4/6/2027	4/6/2017	133.22359	126.8262646	120.7966813	115.1113685	109.7484925	104.6877324	99.91016615	95.39816613	91.13530312
170417A00059	4/17/2017	2.14	4/18/2022	4/17/2017	104.23386	103.4818334	102.7407949	102.0105037	101.2907265	100.5812365	99.88181344	99.19224352	98.51231876
170518A00028	5/18/2017	2.45	5/20/2024	5/18/2017	116.44671	113.4279393	110.5061704	107.6776937	104.9389674	102.2866069	99.71737718	97.22818516	94.81607218
170830A00040	8/30/2017	1.84	8/30/2022	8/30/2017	103.10329	102.5195112	101.944785	101.3788725	100.821548	100.2725938	99.73180012	99.19896454	98.67389167
170921A00056	9/21/2017	2.82	9/21/2027	9/21/2017	134.17209	127.2717367	120.7950718	114.7133809	109.0000585	103.6304436	98.58166667	93.83250955	89.36327702
180302A00014	3/2/2018	2.69	3/2/2023	3/2/2018	105.24326	104.3746339	103.5221299	102.6852815	101.8636422	101.0567832	100.264292	99.48577206	98.72084195
160608A00032	6/8/2016	2.36	6/8/2026	6/8/2016	125.80829	120.5197069	115.4976229	110.7270649	106.1939795	101.8851735	97.78825651	93.89158803	90.18422826
160609A00075	6/9/2016	1.94	6/9/2026	6/9/2016	113.95552	111.076553	108.3077751	105.6440081	103.0803557	100.6121871	98.23512007	95.94500632	93.7379172
160628A00006	6/28/2016	1.44	6/28/2023	6/28/2016	105.04307	104.0008133	102.9793296	101.9780103	100.9962673	100.0335356	99.08927205	98.1629543	97.25407974
161222A00035	12/22/2016	2.29	12/22/2023	12/22/2016	107.37465	106.0489539	104.7531178	103.4862099	102.2473321	101.0356218	99.85025078	98.6904233	97.55537448
161222A00036	12/22/2016	2.69	12/22/2026	12/22/2016	117.2092	114.0180983	110.9582411	108.0230447	105.2063022	102.5021632	99.90511062	97.40993962	95.01173756
161222A00037	12/22/2016	3.08	12/22/2031	12/22/2016	133.8373	126.992575	120.6419644	114.7438237	109.2603911	104.1573991	99.40372401	94.97107468	90.83371257
150601A00528	6/1/2015	3.08	7/27/2029	6/1/2015	126.27136	121.2616323	116.5388691	112.0836014	107.8778394	103.9049517	100.1495532	96.59740286	93.23531004
150601A00559	6/1/2015	3.06	8/31/2029	6/1/2015	126.47925	121.401366	116.6174535	112.1073701	107.8525188	103.8357197	100.0410921	96.45394671	93.06068801
150601A00684	6/1/2015	2.25	2/7/2025	6/1/2015	110.55629	108.5730219	106.6477931	104.778414	102.962797	101.1989491	99.48496652	97.81903017	96.19940122
160603A00015	6/3/2016	1.95	6/5/2023	6/3/2016	110.26066	108.3011596	106.3870783	104.5170817	102.6898878	100.9042603	99.15900639	97.45297548	95.78505697
160608A00026	6/8/2016	2.36	6/8/2026	6/8/2016	125.80829	120.5197069	115.4976229	110.7270649	106.1939795	101.8851735	97.78825651	93.89158803	90.18422826
160608A00031	6/8/2016	2.36	6/8/2026	6/8/2016	125.80829	120.5197069	115.4976229	110.7270649	106.1939795	101.8851735	97.78825651	93.89158803	90.18422826
150601A00571	6/1/2015	2.5	9/23/2022	6/1/2015	104.21357	103.4870325	102.7759255	102.0797129	101.3978851	100.7299561	100.0754616	99.43395835	98.80502254
200108A00015	12/18/2020	1.98	12/18/2023	12/18/2020	113.66172	111.003294	108.4207545	105.9115097	103.4730677	101.1030369	98.79912032	96.55911195	94.38089229
200108A00016	12/18/2020	1.98	12/18/2023	12/18/2020	113.66172	111.003294	108.4207545	105.9115097	103.4730677	101.1030369	98.79912032	96.55911195	94.38089229
200114A00017	1/11/2021	1.93	1/11/2024	1/11/2021	113.89572	111.1583747	108.5012465	105.9215146	103.4164762	100.98354	98.62022081	96.32413441	94.09299287
200114A00021	1/11/2021	1.93	1/11/2024	1/11/2021	113.89572	111.1583747	108.5012465	105.9215146	103.4164762	100.98354	98.62022081	96.32413441	94.09299287
200207A00007	2/7/2020	1.74	2/7/2023	2/7/2020	108.39261	106.749256	105.1395716	103.5626061	102.0174412	100.5031926	99.01900802	97.56406624	96.13757535
200207A00013	2/12/2020	1.73	2/10/2023	2/12/2020	108.42329	106.7703483	105.1513867	103.5654375	102.0115692	100.4888847	98.99652009	97.53364274	96.0994501
210706A00014	7/6/2021	1.15	6/26/2026	7/6/2021	122.32152	116.5084507	111.0025997	105.7862053	100.8426189	96.15623231	91.71240751	87.4974114	83.49835543
210706A00006	7/6/2021	1.15	7/6/2026	7/6/2021	122.43205	116.5820708	111.0429371	105.7965731	100.8260476	96.11549377	91.65003626	87.41572466	83.39947118
210729A00006	7/29/2021	1.87	11/30/2032	7/29/2021	154.07746	138.3858033	124.4261692	111.9983139	100.9260641	91.05431671	82.24642736	74.38193333	67.35456732

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210714A00020	7/14/2021	0.9	3/14/2025	7/14/2021	116.0856	111.9526562	107.9880257	104.1838955	100.5328684	97.02793362	93.66244385	90.43009437	87.32490295
210721A00009	7/21/2021	1.7	7/21/2031	7/21/2021	146.71619	133.3273695	121.2616455	110.3815126	100.5643945	91.70095714	83.69361839	76.4552325	69.90792731
210729A00003	7/29/2021	1.11	7/29/2026	7/29/2021	122.40765	116.4807466	110.8728193	105.5650765	100.5399341	95.78092845	91.27263841	87.00061433	82.95131174
210730A00009	7/30/2021	0.74	7/31/2024	7/30/2021	113.0493	109.6883934	106.4446686	103.3133776	100.2899972	97.37021368	94.54991114	91.82516166	89.19221527
210709A00005	7/9/2021	1.69	7/9/2031	7/9/2021	146.46635	133.1371281	121.1211138	110.2822588	100.4992362	91.66378435	83.67924181	76.45925274	69.92662241
210709A00006	7/13/2021	2.4	7/11/2031	7/13/2021	154.75322	140.9903422	128.5723051	117.3603532	107.230712	98.07290357	89.78825733	82.28859439	75.49506438
210701A00007	7/1/2021	1.22	7/1/2026	7/1/2021	122.75597	116.9149854	111.3833699	106.143188	101.177637	96.47096717	92.00841011	87.77611286	83.76107649
210707A00002	7/7/2021	1.12	6/26/2026	7/7/2021	122.15916	116.350241	110.8483811	105.6358266	100.6959361	96.01310798	91.57271044	87.3610164	83.36514297
210729A00004	7/29/2021	1.74	7/29/2031	7/29/2021	147.27336	133.8246008	121.7069841	110.7819122	100.9258639	92.02868871	83.99209904	76.72833916	70.15900964
210719A00009	7/19/2021	1.04	7/17/2026	7/19/2021	121.95262	116.0769831	110.5156762	105.2503043	100.263641	95.5395501	91.06291061	86.8195478	82.79616917
210706A00015	7/6/2021	1.06	12/31/2025	7/6/2021	119.92884	114.7656068	109.8516176	105.1735846	100.7189962	96.47606793	92.43369668	88.58141759	84.90936416
210629A00009	6/29/2021	1.14	12/31/2025	6/29/2021	120.31634	115.1441686	110.2215522	105.5351922	101.0725637	96.82187011	92.77199652	88.91246697	85.23340439
210629A00012	6/29/2021	1.14	12/29/2025	6/29/2021	120.29408	115.1291077	110.213053	105.5326599	101.0754503	96.82967039	92.78424504	88.92873483	85.25329642
210629A00014	6/29/2021	1.78	12/28/2029	6/29/2021	140.98025	130.0099349	119.9697614	110.7761713	102.3535087	94.63323271	87.55321634	81.05711675	75.09381067
210629A00015	6/29/2021	1.89	6/27/2031	6/29/2021	148.65267	135.2578324	123.1752518	112.269582	102.4200678	93.51890594	85.46979764	78.18666963	71.59254297
210719A00004	7/19/2021	1	4/20/2026	7/19/2021	120.75263	115.2035741	109.9386675	104.9418103	100.1979096	95.69281051	91.41323175	87.34670622	83.48152621
210707A00008	7/9/2021	2.44	7/7/2031	7/9/2021	155.16391	141.3959883	128.9713514	117.7515849	107.6132021	98.44596549	90.15140475	82.64150708	75.83755916
210624A00003	6/24/2021	0.78	6/24/2024	6/24/2021	112.75878	109.5213868	106.3930987	103.3696512	100.4469717	97.62116883	94.88852326	92.24547928	89.68863653
210624A00004	6/24/2021	1.01	6/24/2025	6/24/2021	117.64124	113.1492758	108.8518676	104.7395941	100.8035422	97.03527439	93.42680066	89.97055264	86.659359
210624A00005	6/24/2021	1.22	6/24/2026	6/24/2021	122.67828	116.8627561	111.3541244	106.1346601	101.1877523	96.49782695	92.0502767	87.83139635	83.82832246
210624A00025	6/24/2021	1.43	6/24/2027	6/24/2021	127.86638	120.6618486	113.9044582	107.564251	101.6134188	96.02614118	90.77843431	85.84801101	81.2141528
210624A00026	6/24/2021	1.6	6/23/2028	6/24/2021	133.05259	124.399131	116.3617604	108.8935651	101.951428	95.49570276	89.48991834	83.90050945	78.69657176
210629A00005	6/29/2021	1.25	6/29/2026	6/29/2021	122.89614	117.0583671	111.529401	106.2913602	101.3274913	96.62208908	92.16042614	87.92868668	83.91390572
210610A00012	6/11/2021	1.9	6/10/2026	6/11/2021	126.1688	120.3115206	114.7597541	109.4960209	104.5039314	99.76810977	95.27412666	91.00843591	86.95831628
210610A00014	6/11/2021	2.03	6/10/2026	6/11/2021	126.86565	120.9907138	115.4219625	110.141883	105.1340561	100.383078	95.874493	91.59472978	87.53104337
210611A00006	6/11/2021	1.85	6/11/2031	6/11/2021	147.86925	134.5822396	122.5921796	111.7658201	101.9842187	93.14113972	85.14164038	77.9008204	71.34271534
210623A00026	6/23/2021	0.78	6/24/2024	6/23/2021	112.75878	109.5213868	106.3930987	103.3696512	100.4469717	97.62116883	94.88852326	92.24547928	89.68863653
210623A00028	6/23/2021	1.22	6/23/2026	6/23/2021	122.66724	116.855331	111.3499651	106.1334459	101.1891896	96.5016467	92.05623281	87.83926349	83.83789445
210624A00002	6/24/2021	0.57	6/23/2023	6/24/2021	108.10523	106.054638	104.0530834	102.0990895	100.1912383	98.32816371	96.50854914	94.73112531	92.99466828
210518A00023	5/18/2021	1.17	5/18/2026	5/18/2021	122.00252	116.3276151	110.9468255	105.8433936	101.0016074	96.40672785	92.04492368	87.90321007	83.96939249
210525A00004	5/25/2021	1.02	12/19/2025	5/25/2021	119.60412	114.4888601	109.6188185	104.981016	100.5632247	96.35392248	92.34224819	88.51796067	84.87140009
210526A00014	5/26/2021	1.01	12/19/2025	5/26/2021	119.55607	114.4419057	109.5729265	104.9361497	100.5193489	96.3110035	92.30025386	88.47686015	84.83116379
210526A00017	5/26/2021	2.13	5/26/2033	5/26/2021	159.66223	142.9349582	128.1174905	114.9813249	103.326371	92.97728988	83.78032381	75.60054465	68.31946529

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210526A00018	5/26/2021	1.11	5/26/2026	5/26/2021	121.71366	116.0210782	110.6246455	105.507487	100.6537704	96.04863992	91.67815163	87.52921244	83.58952407
210609A00003	6/9/2021	0.47	6/9/2023	6/9/2021	107.74885	105.7437575	103.7857321	101.873385	100.0053803	98.18042981	96.39729101	94.65476514	92.95169541
210330A00022	3/30/2021	1.27	3/30/2026	3/30/2021	121.92152	116.412677	111.1824494	106.2152385	101.4964102	97.01222805	92.74979238	88.69698466	84.84241538
210330A00024	3/30/2021	0.68	3/29/2024	3/30/2021	111.50799	108.5586287	105.7021311	102.9349561	100.2537286	97.65522644	95.13637261	92.69422706	90.3259797
210407A00012	4/7/2021	0.94	4/7/2025	4/7/2021	116.50549	112.2870675	108.2430556	104.3652243	100.6457894	97.07738159	93.65302095	90.36609388	87.2103313
210407A00013	4/7/2021	1.23	4/7/2026	4/7/2021	121.86193	116.3264588	111.0721957	106.0833272	101.3450207	96.84335802	92.5652731	88.49849483	84.63149381
210420A00009	4/20/2021	1.08	12/5/2025	4/20/2021	119.73661	114.6656611	109.8356776	105.2340151	100.8487553	96.66866186	92.68313721	88.88218347	85.25636536
210420A00010	4/20/2021	1.08	12/12/2025	4/20/2021	119.81452	114.7181193	109.8649237	105.2421137	100.8376124	96.64003631	92.63865249	88.82333774	85.18454105
210318A00007	3/22/2021	1.41	3/21/2024	3/22/2021	113.47411	110.5223652	107.6627263	104.8917153	102.2060122	99.60244575	97.0779863	94.62973774	92.25493075
210319A00003	3/19/2021	0.95	3/19/2025	3/19/2021	116.33727	112.183282	108.1989562	104.3763993	100.7081311	97.18706359	93.80647801	90.56000296	87.44159422
210324A00002	3/24/2021	2.06	3/24/2031	3/24/2021	149.47005	136.3950017	124.5687606	113.8653984	104.1722995	95.38868785	87.42432624	80.19836492	73.63832113
210324A00003	3/24/2021	1.18	3/24/2026	3/24/2021	121.39276	115.9169617	110.7174185	105.7787056	101.0863516	96.62676972	92.38719837	88.35564604	84.52084043
210330A00015	3/30/2021	0.47	3/30/2023	3/30/2021	106.96354	105.1767713	103.428894	101.7187081	100.0450622	98.40685206	96.80301801	95.23254282	93.69444945
210330A00021	3/30/2021	2.16	3/28/2031	3/30/2021	150.64689	137.4976335	125.6040374	114.8394362	105.0905642	96.2560703	88.24520876	80.97667905	74.37759869
210310A00003	3/15/2021	0.79	8/26/2024	3/15/2021	113.49181	110.0441977	106.7188582	103.5107397	100.4150347	97.42716332	94.54276109	91.75766742	89.06791463
210310A00014	3/11/2021	0.41	5/16/2022	3/11/2021	103.38086	102.5314152	101.6958429	100.8738055	100.0649761	99.26903871	98.48568701	97.71462447	96.95556378
210310A00015	3/11/2021	0.51	5/15/2023	3/11/2021	107.55995	105.6313456	103.7468797	101.9052019	100.1050145	98.34507088	96.62417272	94.94116799	93.29494853
210311A00007	3/11/2021	1.06	3/11/2026	3/11/2021	120.63902	115.2250976	110.0826914	105.1967443	100.5531188	96.13853486	91.94051342	87.94732294	84.14793055
210312A00008	3/12/2021	1.13	3/12/2026	3/12/2021	121.00472	115.5786447	110.4247149	105.5278359	100.8738331	96.44939242	92.24200269	88.23990279	84.43203227
210315A00003	3/15/2021	1.13	3/13/2026	3/15/2021	121.01577	115.5860687	110.4288356	105.5289492	100.8722112	96.44528567	92.23564137	88.23149879	84.42178055
210304A00006	3/4/2021	1.02	3/4/2026	3/4/2021	120.41747	115.0305938	109.9130005	105.0498091	100.4270439	96.03157367	91.85105577	87.87388423	84.08914165
210305A00005	3/9/2021	0.54	8/11/2023	3/9/2021	108.60827	106.4024932	104.2528317	102.1574848	100.1147202	98.12287409	96.18034757	94.28560385	92.4371652
210305A00006	3/8/2021	1.02	8/11/2025	3/8/2021	118.21302	113.551046	109.097335	104.8414791	100.7736454	96.8845439	93.16539486	89.60789742	86.2042009
210308A00009	3/8/2021	0.62	3/8/2024	3/8/2021	111.10822	108.2302784	105.4413792	102.7382037	100.1175772	97.57646548	95.11196731	92.72130776	90.40183158
210309A00002	3/11/2021	0.77	7/25/2024	3/11/2021	113.07817	109.7360919	106.5099139	103.3949681	100.3868044	97.48117727	94.67403496	91.96150954	89.33990735
210309A00004	3/11/2021	0.87	11/25/2024	3/11/2021	114.76234	111.0083063	107.3958112	103.9187657	100.5713811	97.34814831	94.24382254	91.25340931	88.37215093
210226A00002	2/26/2021	0.86	2/26/2025	2/26/2021	115.75444	111.6798983	107.769627	104.0160891	100.412139	96.95099949	93.62624041	90.43175871	87.36175976
210226A00004	3/1/2021	1.04	12/5/2025	3/1/2021	119.54618	114.4795508	109.6537422	105.0561112	100.6747459	96.49841549	92.51652812	88.71909115	85.09667427
210302A00005	3/5/2021	0.92	9/10/2025	3/5/2021	118.08245	113.3277994	108.7891263	104.4554445	100.3163921	96.36219058	92.58360888	88.97192905	85.5189148
210302A00019	3/4/2021	1.06	3/4/2024	3/4/2021	112.28044	109.3988992	106.6060983	103.8987376	101.2736671	98.72787562	96.25848337	93.86273509	91.53799383
210303A00006	3/4/2021	0.97	10/10/2025	3/4/2021	118.62358	113.7599582	109.120963	104.6949639	100.4710048	96.43875947	92.58849111	88.91101495	85.39766333
210304A00002	3/5/2021	0.93	7/10/2025	3/5/2021	117.4749	112.9334821	108.5909927	104.4376934	100.4643723	96.66231506	93.02327521	89.53944631	86.20343626
210225A00006	2/25/2021	0.98	2/25/2026	2/25/2021	120.14024	114.7837164	109.6940597	104.8565786	100.2574686	95.88375606	91.72324316	87.7644574	83.99660426

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210225A00007	2/25/2021	1.79	8/23/2030	2/25/2021	143.85556	131.8674474	120.9659382	111.0469549	102.0168861	93.79148495	86.29488819	79.45874337	73.22143049
210225A00012	3/1/2021	0.91	8/25/2025	3/1/2021	117.87355	113.1743563	108.6867721	104.4001361	100.3043823	96.39000558	92.6480273	89.069963	85.64779225
210225A00013	3/1/2021	0.93	10/6/2025	3/1/2021	118.39759	113.552226	108.9301664	104.5198813	100.3105029	96.29178634	92.45407025	88.78823933	85.28569026
210225A00015	3/1/2021	0.7	8/26/2024	3/1/2021	113.19487	109.7520664	106.4314058	103.2278431	100.136575	97.1530257	94.27283469	91.49184512	88.80609288
210225A00016	3/1/2021	0.88	7/15/2025	3/1/2021	117.31424	112.7593928	108.4048087	104.2406465	100.2576003	96.44686864	92.80012428	89.30948616	85.96749305
210224A00002	2/25/2021	0.88	11/3/2025	2/25/2021	118.4615	113.5221925	108.814226	104.3254775	100.0445312	95.96063497	92.06365754	88.34404825	84.79280021
210224A00003	2/26/2021	0.9	12/3/2025	2/26/2021	118.85855	113.8142758	109.0096619	104.432138	100.0698588	95.91165557	91.94699426	88.16593613	84.55910124
210224A00004	2/26/2021	0.91	12/18/2025	2/26/2021	119.06492	113.9653846	109.1103241	104.4868029	100.0826337	95.88633182	91.88707149	88.07464443	84.43942162
210224A00006	2/26/2021	0.88	10/21/2025	2/26/2021	118.32678	113.4331066	108.7670144	104.3166417	100.0708149	96.01900784	92.15129977	88.45833674	84.93129539
210224A00007	2/26/2021	0.68	10/21/2024	2/26/2021	113.71984	110.092867	106.5998635	103.2350458	99.99291792	96.86825906	93.85610728	90.9517447	88.15068358
210225A00003	3/1/2021	0.93	9/24/2025	3/1/2021	118.2717	113.4682061	108.8845896	104.5095718	100.3325238	96.34342079	92.53280434	88.89174648	85.41181675
210218A00010	2/18/2021	1.72	2/18/2031	2/18/2021	145.25619	132.521758	120.9980998	110.5638926	101.1105445	92.5407991	84.7675	77.71249573	71.30566851
210218A00011	2/22/2021	0.85	10/24/2025	2/22/2021	118.21952	113.3182427	108.6453403	104.1888838	99.93764058	95.8810303	92.0090825	88.31239749	84.78210981
210219A00002	2/19/2021	0.32	2/22/2022	2/19/2021	102.34517	101.7486042	101.1589639	100.5761257	99.9999725	99.43038977	98.86726572	98.31049102	97.75995881
210219A00004	2/19/2021	0.91	2/19/2026	2/19/2021	119.66863	114.3456596	109.2871643	104.4786228	99.90639328	95.55765169	91.4203385	87.4831088	83.73528594
210219A00008	2/22/2021	0.86	12/1/2025	2/22/2021	118.64752	113.614765	108.8208866	104.2533707	99.90042298	95.75092209	91.79437775	88.02089192	84.42112238
210223A00014	2/23/2021	0.31	2/23/2022	2/23/2021	102.35081	101.7512766	101.1587323	100.5730553	99.99412689	99.42183098	98.85605419	98.29668571	97.74361721
210216A00011	2/17/2021	0.83	12/15/2025	2/17/2021	118.64973	113.5697937	108.7330734	104.1267148	99.7386116	95.55735437	91.57218705	87.77296611	84.1501226
210217A00008	2/18/2021	0.63	8/15/2024	2/18/2021	112.85017	109.4465754	106.1628902	102.9942012	99.93582874	96.98331278	94.132401	91.37903775	88.71935374
210217A00009	2/18/2021	0.68	11/15/2024	2/18/2021	113.97985	110.2702568	106.6998513	103.2626242	99.95286078	96.7651273	93.69425488	90.73532501	87.88365568
210218A00005	2/18/2021	0.32	2/18/2022	2/18/2021	102.3051	101.7204023	101.1423608	100.5708634	100.0057994	99.44706071	98.89454152	98.34813841	97.80775024
210218A00006	2/18/2021	0.5	2/20/2024	2/18/2021	110.59551	107.7775292	105.0455784	102.3964981	99.82726818	97.3349996	94.91692734	92.57040437	90.29289563
210218A00009	2/19/2021	0.62	7/15/2024	2/19/2021	112.48883	109.1883904	106.0014133	102.9233756	99.9499593	97.07704276	94.30069062	91.61714429	89.02281286
210208A00004	2/11/2021	0.76	10/15/2025	2/11/2021	117.71185	112.8516477	108.216833	103.7956985	99.57721277	95.55098079	91.70720336	88.03663889	84.53056806
210208A00006	2/9/2021	0.46	8/15/2023	2/9/2021	108.47998	106.2638264	104.1042611	101.9994576	99.947661	97.94718606	95.9964138	94.09378842	92.23781429
210208A00008	2/11/2021	0.78	11/17/2025	2/11/2021	118.13136	113.154942	108.4132702	103.8940443	99.58567892	95.47725553	91.55848018	87.81964415	84.25158737
210208A00015	2/10/2021	0.46	8/25/2023	2/10/2021	108.58775	106.3409623	104.152048	102.0191179	99.94035668	97.91402247	95.93844277	94.01201135	92.13318496
210211A00005	2/11/2021	0.45	6/15/2023	2/11/2021	107.77657	105.753262	103.7778351	101.8488648	99.96498112	98.12486339	96.32723826	94.57087765	92.85459682
210211A00007	2/11/2021	0.47	9/15/2023	2/11/2021	108.83476	106.5229301	104.2718481	102.0794741	99.94385636	97.86312433	95.83548465	93.85921713	91.93267117
210127A00010	1/27/2021	1.41	7/26/2030	1/27/2021	139.58182	127.8952666	117.2649737	107.5902545	98.78048826	90.75406823	83.43746394	76.76438537	70.67503737
210129A00002	2/3/2021	0.59	7/25/2024	2/3/2021	112.50203	109.1690254	105.9516802	102.8453394	99.84556073	96.94810615	94.14893102	91.44417424	88.83014872
210201A00001	2/1/2021	0.77	12/16/2025	2/1/2021	118.37231	113.2953495	108.4616955	103.8584787	99.47357941	95.29557609	91.31370174	87.51780296	83.89830191
210201A00003	2/2/2021	0.74	10/15/2025	2/2/2021	117.61988	112.7616978	108.1288378	103.7095927	99.49293371	95.46846846	91.62640021	87.95748974	84.45301996

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210201A00007	2/3/2021	0.57	8/15/2024	2/3/2021	112.65424	109.2537921	105.9731657	102.8074556	99.75198484	96.80229603	93.95413938	91.20346169	88.54639595
210208A00002	2/10/2021	0.45	6/15/2023	2/10/2021	107.77657	105.753262	103.7778351	101.8488648	99.96498112	98.12486339	96.32723826	94.57087765	92.85459682
210121A00017	1/25/2021	0.48	5/25/2023	1/25/2021	107.59867	105.6399834	103.7264721	101.8568002	100.0296823	98.24388027	96.49820081	94.7914935	93.12264898
210121A00018	1/25/2021	0.5	8/25/2023	1/25/2021	108.67512	106.4273566	104.2374942	102.1036354	100.0239644	97.99673871	96.02028535	94.09299756	92.2133316
210122A00005	1/26/2021	0.6	7/15/2024	1/26/2021	112.42543	109.1259794	105.9399658	102.8628671	99.89036587	97.01834138	94.24285902	91.56016093	88.96665693
210122A00006	1/25/2021	0.61	8/15/2024	1/25/2021	112.78486	109.3823143	106.0996487	102.9319527	99.87454744	96.92297387	94.07298046	91.3205124	88.66170114
210127A00008	1/27/2021	0.93	1/27/2027	1/27/2021	123.18493	116.6277561	110.4545011	104.6407747	99.16386032	94.00258991	89.13723066	84.54938043	80.22187133
210127A00009	1/27/2021	1.3	7/27/2029	1/27/2021	134.79025	124.6398379	115.3164772	106.7487237	98.87164171	91.62618098	84.95861549	78.82003889	73.16590999
210112A00003	1/12/2021	0.53	9/15/2023	1/12/2021	108.96958	106.656215	104.4036317	102.2097876	100.07273	97.99058769	95.96156626	93.98394474	92.05607173
210114A00004	1/14/2021	0.4	1/14/2022	1/14/2021	101.9398	101.459003	100.9827371	100.5109361	100.0435374	99.58047936	99.12170169	98.66714516	98.21675161
210119A00005	1/20/2021	0.52	9/25/2023	1/20/2021	109.05565	106.711541	104.4296147	102.2077579	100.0439502	97.93625673	95.8828235	93.88187328	91.93170174
210119A00007	1/20/2021	0.51	8/25/2023	1/20/2021	108.69696	106.4489552	104.2588557	102.1247647	100.0448663	98.01741777	96.040746	94.11324411	92.23336826
210121A00012	1/22/2021	0.64	10/15/2024	1/22/2021	113.51722	109.9129613	106.4412627	103.0964248	99.87303459	96.76594823	93.77027555	90.88136556	88.09479295
210121A00014	1/22/2021	0.64	10/25/2024	1/22/2021	113.62345	109.9852463	106.4818554	103.1074329	99.85643116	96.72358119	93.70387628	90.79255691	87.98509662
201218A00014	12/18/2020	0.57	12/18/2025	12/18/2020	118.17111	113.0696852	108.2137017	103.5901377	99.18672688	94.9919121	90.99480069	87.18512288	83.55319297
201221A00014	12/21/2020	0.76	12/19/2025	12/21/2020	118.35469	113.2680469	108.4256267	103.8144909	99.42245272	95.23802899	91.25039573	87.449347	83.82525644
201221A00015	12/21/2020	0.88	12/4/2026	12/21/2020	122.36822	116.0182037	110.0304639	104.3825904	99.05366413	94.02415385	89.27581726	84.79160983	80.55560043
201223A00012	12/23/2020	0.91	12/18/2026	12/23/2020	122.68339	116.2762249	110.2370512	104.5429422	99.1725151	94.10581546	89.32421502	84.81031702	80.54786886
201223A00013	12/23/2020	0.9	12/11/2026	12/23/2020	122.55523	116.1758331	110.1615994	104.4898582	99.1394579	94.09065482	89.32501285	84.82531053	80.5754552
210108A00008	1/11/2021	0.51	8/15/2023	1/11/2021	108.58769	106.3703557	104.2096357	102.103701	100.0507961	98.04923496	96.09739808	94.193729	92.3367315
201214A00002	12/14/2020	0.45	12/14/2022	12/14/2020	105.72495	104.268052	102.8383483	101.4351389	100.0577506	98.70553237	97.37785464	96.07410818	94.79370345
201215A00001	12/15/2020	0.76	12/15/2025	12/15/2020	118.31423	113.2419668	108.4126458	103.8134312	99.43222765	95.2576363	91.27891092	87.48591738	83.86909568
201216A00001	12/16/2020	0.49	7/14/2023	12/16/2020	108.186	106.0699791	104.0060605	101.9926335	100.0281469	98.11110806	96.24008004	94.41367943	92.63057381
201216A00003	12/16/2020	0.59	7/1/2024	12/16/2020	112.24224	108.9908732	105.8498397	102.814796	99.88159762	97.04628595	94.30507861	91.65436063	89.09067607
201216A00004	12/16/2020	0.74	9/8/2025	12/16/2020	117.25527	112.5247715	108.0091312	103.6974247	99.5793503	95.6451858	91.88575265	88.29238205	84.85688363
201216A00013	12/16/2020	0.59	12/16/2025	12/16/2020	118.24729	113.1508879	108.2993622	103.6797359	99.27978584	95.08799423	91.09350483	87.28608141	83.65606916
201123A00011	11/25/2020	1.41	11/24/2025	11/25/2020	121.17655	116.1092172	111.2808328	106.6789026	102.2916535	98.10798591	94.11743155	90.31011436	86.67671372
201201A00002	12/1/2020	0.54	12/1/2023	12/1/2020	109.83132	107.2749494	104.7904668	102.3754544	100.027593	97.74465463	95.52449766	93.3650635	91.26437264
201203A00005	12/3/2020	0.78	12/3/2026	12/3/2020	122.75836	116.3667497	110.3404785	104.6569075	99.29490923	94.23476007	89.45804009	84.94754065	80.68717901
201204A00015	12/8/2020	1.07	12/8/2025	12/8/2020	119.72229	114.6415231	109.8026403	105.1929261	100.8003961	96.61375246	92.62234108	88.81611183	85.18558118
201210A00011	12/10/2020	0.41	12/10/2021	12/10/2020	101.53421	101.1561148	100.7808402	100.4083502	100.038614	99.67160086	99.30728088	98.94562437	98.58660215
201210A00021	12/10/2020	0.89	12/10/2027	12/10/2020	127.00287	119.1976508	111.9133684	105.1127756	98.76146232	92.82762788	87.28187079	82.09699655	77.24784176
201119A00002	11/19/2020	0.5	11/18/2022	11/19/2020	105.56118	104.1598978	102.7882207	101.4452206	100.1300092	98.84173484	97.57958111	96.3427648	95.13053424

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201119A00003	11/19/2020	0.56	11/17/2023	11/19/2020	109.73087	107.2174851	104.7740655	102.3982123	100.0876264	97.84010395	95.65353143	93.52588129	91.45520783
201119A00021	11/23/2020	2.22	11/21/2030	11/23/2020	149.53115	136.936796	125.5049346	115.1220988	105.6864376	97.10647528	89.30000712	82.19311679	75.71930291
201119A00023	11/23/2020	2.23	11/21/2030	11/23/2020	149.63936	137.0397976	125.6030753	115.2156989	105.7757927	97.19185855	89.381671	82.27129483	75.79421133
201123A00009	11/25/2020	1.02	11/25/2024	11/25/2020	115.29947	111.5360639	107.9144555	104.4285505	101.0725509	97.840939	94.72846154	91.730116	88.84113703
201123A00010	11/25/2020	1.48	11/24/2025	11/25/2020	121.50736	116.4325643	111.5969754	106.9880866	102.5941144	98.40394899	94.40711291	90.59372099	86.95444408
201117A00005	11/17/2020	0.5	11/17/2022	11/17/2020	105.55521	104.1549779	102.7846751	101.4433516	100.1300968	98.84403839	97.58434046	96.35020167	95.14085337
201117A00006	11/17/2020	0.57	11/17/2023	11/17/2020	109.75523	107.2415502	104.7978387	102.4217	100.1108348	97.86303899	95.67619886	93.54828675	91.47735675
201117A00016	11/17/2020	0.52	11/18/2024	11/17/2020	113.98107	110.248558	106.6566506	103.1992728	99.87064683	96.66527768	93.57793784	90.6036523	87.73768481
201117A00017	11/17/2020	0.39	11/17/2023	11/17/2020	109.68075	107.1604589	104.7104781	102.3283876	100.0118728	97.75871509	95.56678704	93.43404805	91.35853998
201118A00009	11/18/2020	0.61	11/18/2025	11/18/2020	118.06511	113.0653875	108.3022169	103.7631828	99.43658675	95.31140448	91.37724334	87.6243024	84.04333541
201118A00021	11/20/2020	0.97	11/20/2023	11/20/2020	110.76553	108.230531	105.7661676	103.3700353	101.0398243	98.77331933	96.56839465	94.42301015	92.33520703
201105A00003	11/6/2020	2.24	11/4/2030	11/6/2020	149.53127	137.0001491	125.6207302	115.2809373	105.880158	97.32801375	89.54326873	82.4528615	75.99104319
201105A00016	11/9/2020	2.18	11/8/2027	11/9/2020	134.60372	126.7071599	119.3250938	112.4212683	105.9621779	99.91683931	94.2565885	88.95489446	83.98718938
201116A00009	11/16/2020	0.51	11/14/2022	11/16/2020	105.53666	104.1398011	102.7738458	101.4377683	100.1305918	98.8513823	97.59924632	96.37332857	95.17281
201116A00021	11/16/2020	0.53	11/15/2024	11/16/2020	113.98608	110.2627633	106.6794663	103.2301282	99.90898928	96.71057331	93.62967184	90.66132912	87.80082822
201116A00024	11/18/2020	2.36	11/15/2034	11/18/2020	169.46076	149.930437	132.8645629	117.9377257	104.8690463	93.41588806	83.36847958	74.54531604	66.78922415
201116A00025	11/18/2020	1.96	11/15/2032	11/18/2020	155.12303	139.4273235	125.4567471	113.01247	101.9195101	92.02376926	83.18944739	75.2967873	68.24010802
201029A00002	10/29/2020	0.59	10/29/2025	10/29/2020	117.7783	112.8490368	108.1508306	103.6715403	99.3997432	95.3246841	91.4362311	87.72483551	84.18149434
201030A00012	10/30/2020	0.63	10/30/2025	10/30/2020	117.97486	113.0378885	108.3324087	103.8462582	99.56798741	95.48681586	91.59258841	87.87573477	84.32723187
201030A00016	10/30/2020	1.14	10/8/2027	10/30/2020	126.97569	119.4348822	112.3837425	105.787976	99.61586621	93.8380708	88.42743061	83.35879565	78.60886583
201030A00017	10/30/2020	1.14	10/15/2027	10/30/2020	127.04429	119.4767419	112.4019971	105.7854337	99.59504886	93.80124277	88.37662447	83.2958354	78.53538763
201030A00018	10/30/2020	1.15	10/22/2027	10/30/2020	127.1828	119.5862482	112.4857403	105.8463305	99.63572269	93.82405276	88.38369199	83.28906762	78.51649879
201030A00019	10/30/2020	1.15	10/29/2027	10/30/2020	127.25165	119.6283298	112.5041985	105.8439918	99.61512409	93.78747081	88.33316911	83.22643556	78.44339972
201019A00007	10/19/2020	0.64	10/21/2024	10/19/2020	113.58095	109.9563291	106.4656177	103.1030296	99.8630711	96.74052351	93.73042691	90.82806536	88.028953
201021A00011	10/21/2020	1.11	10/21/2027	10/21/2020	126.89348	119.3097889	112.2212676	105.5930425	99.39288084	93.59097645	88.15975345	83.07368736	78.30914147
201021A00012	10/21/2020	1.85	10/19/2035	10/21/2020	164.67138	144.1052659	126.3156779	110.9124062	97.56189474	85.97877039	75.91867189	67.1721768	59.55965348
201028A00011	10/28/2020	0.91	4/28/2026	10/28/2020	120.42281	114.8539208	109.571551	104.5593907	99.8021558	95.28551674	90.99603265	86.92109067	83.04884981
201028A00012	10/28/2020	0.8	7/28/2025	10/28/2020	117.10663	112.5125698	108.1224052	103.9260152	99.91384119	96.07684751	92.40649039	88.89468816	85.53379382
201028A00013	10/28/2020	0.68	10/28/2024	10/28/2020	113.79509	110.1443137	106.6290915	103.243537	99.98205958	96.83935006	93.81036446	90.89030845	88.07462306
201015A00024	10/19/2020	1.53	10/18/2027	10/19/2020	129.79476	122.1279116	114.959307	108.253964	101.9795414	96.10612651	90.60603964	85.45365518	80.62523809
201015A00025	10/19/2020	1.54	10/18/2027	10/19/2020	129.86453	122.1954303	115.0246785	108.3172876	102.0409109	96.1656305	90.66376197	85.50967507	80.67963054
201015A00030	10/19/2020	2.39	10/18/2027	10/19/2020	135.79508	127.9345186	120.5812512	113.6997885	107.2573139	101.2234699	95.5701596	90.2713664	85.3029884
201015A00032	10/19/2020	2.33	10/19/2026	10/19/2020	130.31808	123.9046735	117.8465214	112.1219834	106.7108588	101.5942851	96.75464062	92.17545603	87.8413319

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201019A00005	10/19/2020	0.79	10/20/2025	10/19/2020	117.90096	113.0200029	108.3660232	103.9271912	99.6923668	95.65105495	91.79336405	88.10996726	84.59206655
201019A00006	10/19/2020	0.57	10/19/2023	10/19/2020	109.43851	107.0161593	104.6596665	102.3667253	100.1351361	97.96279547	95.84769112	93.78789704	91.7815689
200928A00009	9/28/2020	1.51	9/28/2032	9/28/2020	148.63756	133.5028351	120.0249906	108.0142432	97.30342582	87.74519086	79.20957122	71.58185248	64.76071496
201001A00011	10/1/2020	0.71	6/17/2025	10/1/2020	116.2996	111.8574819	107.6071709	103.5394207	99.64547615	95.91704692	92.34628074	88.92573775	85.64836675
201001A00012	10/1/2020	0.74	9/16/2025	10/1/2020	117.33293	112.5752875	108.034695	103.7000648	99.56094452	95.60747323	91.83034407	88.22076982	84.77045066
201014A00002	10/14/2020	0.61	10/15/2024	10/14/2020	113.41361	109.811097	106.3411	102.9979176	99.77613826	96.67061979	93.6764735	90.78904984	88.00392489
201015A00002	10/15/2020	0.61	10/15/2024	10/15/2020	113.41361	109.811097	106.3411	102.9979176	99.77613826	96.67061979	93.6764735	90.78904984	88.00392489
201015A00003	10/15/2020	0.75	10/15/2025	10/15/2020	117.66587	112.8066727	108.1728354	103.7526456	99.53507324	95.50972462	91.66680179	87.99706432	84.49179401
200916A00017	9/16/2020	0.54	9/15/2023	9/16/2020	108.99205	106.6784292	104.4255956	102.2315065	100.094209	98.01183158	95.98257986	94.00473268	92.07663849
200916A00019	9/16/2020	0.42	9/16/2024	9/16/2020	112.98205	109.4655839	106.0760634	102.8081445	99.65674597	96.61703297	93.68440303	90.85447333	88.12306861
200916A00023	9/16/2020	0.42	9/16/2024	9/16/2020	112.98205	109.4655839	106.0760634	102.8081445	99.65674597	96.61703297	93.68440303	90.85447333	88.12306861
200922A00015	9/24/2020	1.09	9/24/2025	9/24/2020	118.99681	114.1775891	109.5787622	105.1890371	100.997764	96.99489816	93.17096231	89.51701048	86.02459512
200923A00001	9/23/2020	2.27	9/22/2025	9/23/2020	124.31544	119.3873591	114.6829811	110.1908864	105.9003101	101.8010972	97.88366404	94.13896294	90.55844847
200923A00002	9/23/2020	2.17	9/22/2025	9/23/2020	123.86287	118.9446024	114.2497058	109.7667792	105.4850708	101.3944378	97.48530852	93.7486463	90.1759164
200826A00038	8/28/2020	1.11	8/28/2024	8/28/2020	114.57123	111.0999893	107.7518617	104.5217631	101.4048484	98.39650251	95.49232765	92.68813177	89.97991742
200826A00039	8/28/2020	1.03	7/29/2024	8/28/2020	113.95911	110.5901441	107.338319	104.1989065	101.1673943	98.23947814	95.4110513	92.67819384	90.03716318
200826A00040	8/28/2020	0.92	10/27/2023	8/28/2020	110.35927	107.9010932	105.5102403	103.1843373	100.9211157	98.71840782	96.57414062	94.48633103	92.4530809
200909A00001	9/9/2020	0.98	9/8/2028	9/9/2020	130.29422	121.4114823	113.1834389	105.5586298	98.4898897	91.93397111	85.8511993	80.2051596	74.96241357
200916A00015	9/16/2020	0.72	9/16/2025	9/16/2020	117.24279	112.4871007	107.9483894	103.6155785	99.47821812	95.52644975	91.75096888	88.14299049	84.69421685
200916A00016	9/16/2020	0.6	9/16/2024	9/16/2020	113.07903	109.5734481	106.1941193	102.9357441	99.79327903	96.76192418	93.83711007	91.01448478	88.28990205
200826A00019	8/26/2020	0.98	8/26/2026	8/26/2020	121.97092	115.9638742	110.2844241	104.9130274	99.83140694	95.02246626	90.47020651	86.15965023	82.07677068
200826A00021	8/26/2020	0.83	8/26/2025	8/26/2020	117.52861	112.8335927	108.350199	104.0677603	99.97620238	96.06601318	92.32820773	88.75429595	85.33625247
200826A00028	8/28/2020	1.08	8/28/2024	8/28/2020	114.47207	111.002433	107.6558706	104.4272959	101.3118653	98.30496497	95.40219861	92.59937534	89.89249893
200826A00029	8/28/2020	1.16	11/27/2024	8/28/2020	115.8242	112.0454313	108.40911	104.9091247	101.5396559	98.29516438	95.17037576	92.16026656	89.26005074
200826A00035	8/28/2020	0.78	8/28/2023	8/28/2020	109.32187	107.0580756	104.8527076	102.7038507	100.6096669	98.5683926	96.57833468	94.63786752	92.74542946
200826A00036	8/28/2020	0.88	7/28/2023	8/28/2020	109.16693	106.9967527	104.8810244	102.8180239	100.8060991	98.84366139	96.9291832	95.06119478	93.23828173
200730A00011	7/30/2020	1.15	7/28/2028	7/30/2020	129.88605	121.2204586	113.1827459	105.7243437	98.80067526	92.37080693	86.3971328	80.84508844	75.68289052
200730A00013	7/30/2020	0.74	1/30/2025	7/30/2020	114.99575	111.0251338	107.2119834	103.5492078	100.0300732	96.64818522	93.39747026	90.27215718	87.26676057
200806A00006	8/6/2020	0.76	8/6/2025	8/6/2020	117.022	112.4009228	107.9860253	103.7670238	99.73420277	95.87838183	92.19088312	88.66350098	85.2884736
200818A00016	3/31/2021	0.57	4/1/2024	3/31/2021	111.22718	108.2725387	105.4111954	102.6395832	99.95430127	97.35210345	94.82989018	92.38470053	90.01370485
200818A00018	3/31/2021	0.57	4/1/2024	3/31/2021	111.22718	108.2725387	105.4111954	102.6395832	99.95430127	97.35210345	94.82989018	92.38470053	90.01370485
200824A00020	8/26/2020	1.57	8/26/2025	8/26/2020	120.81429	116.0493034	111.4982444	107.1503442	102.9954384	99.0239289	95.22674899	91.59533069	88.12157446
200629A00020	6/29/2020	1.4	6/28/2030	6/29/2020	139.18493	127.6223257	117.0963017	107.5088632	98.77172953	90.80532769	83.53789442	76.90467486	70.84720693

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200629A00021	6/29/2020	1.21	6/29/2028	6/29/2020	130.06641	121.4989173	113.5449334	106.1575554	99.29368556	92.91370726	86.9811871	81.46260447	76.32710516
200629A00023	6/29/2020	0.95	6/29/2026	6/29/2020	121.26964	115.4735088	109.984588	104.7850739	99.85828357	95.18857911	90.76129636	86.56267955	82.57982052
200708A00011	7/10/2020	2.87	7/10/2031	7/10/2020	160.20897	146.1697994	133.4945441	122.0429303	111.6898024	102.3234202	93.84395919	86.16218434	79.19827844
200729A00015	7/30/2020	0.47	9/21/2021	7/30/2020	100.61493	100.4665175	100.3185584	100.1710464	100.0239794	99.8773555	99.73117262	99.58542875	99.44012193
200729A00016	7/30/2020	0.5	4/1/2022	7/30/2020	102.90826	102.1966019	101.4947223	100.8024252	100.1195156	99.44580389	98.78110533	98.12524023	97.47803361
200529A00022	6/1/2020	0.98	6/1/2026	6/1/2020	121.08567	115.3888814	109.9895506	104.8706971	100.0163911	95.41168507	91.04254856	86.89580707	82.95908593
200605A00005	6/5/2020	0.99	6/5/2025	6/5/2020	117.3516	112.9267773	108.6912384	104.6359351	100.7522982	97.03220939	93.46797582	90.05230505	86.77828241
200611A00019	6/11/2020	0.88	12/11/2025	6/11/2020	118.84739	113.7764153	108.9475703	104.3480912	99.96595506	95.78982898	91.80902742	88.0134718	84.39365302
200611A00020	6/11/2020	0.81	6/11/2025	6/11/2020	116.66023	112.2300621	107.9903329	103.9319003	100.0461062	96.32475066	92.76006472	89.34468594	86.07163481
200611A00021	6/11/2020	0.72	6/11/2024	6/11/2020	112.43153	109.23957	106.1539839	103.1706601	100.2856718	97.4952645	94.79584808	92.18398813	89.65639855
200611A00023	6/11/2020	0.64	6/12/2023	6/11/2020	108.1162	106.0984453	104.1282335	102.2041565	100.3248594	98.48903596	96.6954264	94.94281561	93.23003118
200527A00012	5/27/2020	1.2	5/27/2027	5/27/2020	126.07261	119.0184805	112.3977327	106.1816229	100.3434569	94.85842994	89.70348376	84.85717527	80.29955575
200527A00013	5/27/2020	1.13	11/25/2026	5/27/2020	123.75876	117.4003669	111.4026529	105.7433758	100.4017781	95.35847809	90.59537136	86.09554039	81.8431709
200527A00014	5/27/2020	1.06	5/27/2026	5/27/2020	121.45888	115.7693467	110.3760362	105.2620599	100.4115781	95.80972793	91.4425582	87.29696896	83.36065525
200527A00015	5/27/2020	0.99	11/26/2025	5/27/2020	119.21244	114.1830293	109.3915666	104.8255999	100.4733917	96.32387578	92.36661499	88.59176218	84.99002389
200527A00016	5/27/2020	0.92	5/27/2025	5/27/2020	116.96302	112.5750508	108.3738187	104.3504224	100.496436	96.80387706	93.26518061	89.87317516	86.62106012
200528A00021	5/28/2020	0.63	5/26/2023	5/28/2020	107.89711	105.9324813	104.013193	102.1379061	100.3053351	98.51424091	96.76342909	95.05174791	93.37808644
200515A00021	5/15/2020	1.12	5/17/2027	5/15/2020	125.45331	118.4522097	111.8798757	105.7078999	99.90990489	94.46138407	89.33955941	84.52325048	79.99275431
200518A00019	5/19/2020	0.9	5/19/2025	5/19/2020	116.79359	112.4349523	108.2610374	104.2630331	100.4325957	96.76182401	93.24323397	89.86973363	86.63460048
200521A00013	5/21/2020	2.09	5/21/2035	5/21/2020	167.192	147.0525161	129.551705	114.3288748	101.0743274	89.52192875	79.44279105	70.63989792	62.94352763
200521A00015	5/21/2020	2.14	5/21/2036	5/21/2020	172.0213	150.0328176	131.1051027	114.7942117	100.722681	88.56928728	78.06042437	68.96283785	61.07749854
200521A00016	5/21/2020	2.18	5/21/2037	5/21/2020	176.62147	152.7605688	132.4140642	115.0431754	100.1942746	87.48506295	76.59304629	67.24592113	59.21354507
200521A00017	5/21/2020	2.22	5/21/2038	5/21/2020	181.05249	155.2968948	133.5406075	115.1378215	99.55009666	86.32805065	75.09624567	65.54070137	57.39856728
200504A00005	5/4/2020	0.6	5/4/2022	5/4/2020	103.38725	102.5742057	101.7738726	100.985951	100.2101544	99.44620464	98.69383231	97.952776	97.22278211
200504A00006	5/4/2020	0.94	5/5/2025	5/4/2020	116.8059	112.4923851	108.3603081	104.4009831	100.6061992	96.96818839	93.47959859	90.13346823	86.92320296
200504A00007	5/4/2020	1.47	5/4/2028	5/4/2020	131.50182	123.079812	115.2477398	107.9612496	101.1795494	94.86510642	88.9833695	83.50251644	78.39322446
200511A00006	5/11/2020	1.65	5/13/2030	5/11/2020	141.25442	129.7660224	119.2916774	109.7367343	101.0158316	93.05194006	85.77551007	79.12371021	73.03974705
200515A00019	5/15/2020	0.59	5/15/2023	5/15/2020	107.71039	105.7803241	103.8944309	102.0513533	100.2497926	98.48850141	96.76628082	95.08197804	93.43448421
200515A00020	5/15/2020	0.82	5/15/2025	5/15/2020	116.42121	112.0829262	107.9281923	103.9482408	100.134775	96.47994056	92.97629926	89.61680433	86.39477739
200429A00061	4/29/2020	1.66	10/29/2029	4/29/2020	139.1423	128.471133	118.6904204	109.7212617	101.4921432	93.93820802	87.00060284	80.62589259	74.76553481
200429A00062	4/29/2020	0.65	10/29/2021	4/29/2020	101.10621	100.8495203	100.5941263	100.3400202	100.0871923	99.83563315	99.58533318	99.33628303	99.0884734
200429A00064	4/29/2020	0.69	4/29/2022	4/29/2020	103.39443	102.5965121	101.810831	101.037106	100.2750664	99.5244492	98.78499953	98.05646991	97.33862015
200429A00065	4/29/2020	0.74	10/28/2022	4/29/2020	105.73488	104.3578791	103.0163925	101.7090633	100.434602	99.19178322	97.97944172	96.79646887	95.64180917

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200429A00066	4/29/2020	0.8	4/28/2023	4/29/2020	107.89369	106.0129129	104.174564	102.3772782	100.6197469	98.90071815	97.21899294	95.57342277	93.96290675
200430A00030	4/30/2020	0.96	4/30/2025	4/30/2020	116.83271	112.5348756	108.4173207	104.4714102	100.6889795	97.06230671	93.58408554	90.2473998	87.04569977
200428A00003	4/29/2020	1.01	4/29/2025	4/29/2020	117.0252	112.7267625	108.6084764	104.6617152	100.8783264	97.25059924	93.77123748	90.43333423	87.23034823
200429A00004	5/1/2020	0.74	5/1/2023	5/1/2020	107.8203	105.9313033	104.0850594	102.280195	100.5153925	98.78939112	97.10098327	95.44901205	93.83236847
200429A00021	5/4/2020	0.97	4/29/2025	5/4/2020	116.8626	112.5673575	108.452164	104.5084012	100.7279201	97.10301331	93.62638815	90.29114084	87.09073316
200429A00049	4/29/2020	1.25	4/29/2026	4/29/2020	122.20935	116.5929944	111.2651143	106.2093022	101.4101782	96.85332286	92.52521077	88.41314967	84.50522387
200429A00054	4/29/2020	1.04	4/29/2025	4/29/2020	117.14714	112.8463162	108.7257106	104.7767007	100.9911312	97.36128869	93.87987448	90.53997927	87.33505954
200429A00057	4/29/2020	1.4	4/29/2027	4/29/2020	127.06995	120.0822298	113.5185925	107.3510529	101.5536249	96.10216977	90.97425358	86.14901744	81.60705789
200423A00026	4/28/2020	0.85	12/15/2023	4/28/2020	110.76704	108.15479	105.6170891	103.151392	100.7552568	98.42633906	96.16238717	93.96123815	91.82081363
200423A00027	4/28/2020	0.88	4/15/2024	4/28/2020	112.26881	109.2565002	106.3403488	103.5166325	100.7818023	98.13247376	95.56541735	93.07755042	90.66592909
200424A00014	4/28/2020	1.01	4/23/2025	4/28/2020	116.95972	112.6816487	108.5821982	104.6528501	100.8855516	97.27268418	93.80703733	90.48178333	87.29045439
200427A00017	4/27/2020	1.02	4/25/2025	4/27/2020	117.02207	112.7364168	108.6299196	104.6940217	100.9206361	97.30211303	93.83121242	90.50107949	87.30522126
200427A00018	4/27/2020	1.51	4/27/2028	4/27/2020	131.7317	123.3261936	115.5078437	108.232591	101.4599109	95.15251324	89.27606676	83.79894844	78.69201564
200428A00002	4/28/2020	1.47	4/26/2030	4/28/2020	141.03942	129.5369303	119.0489222	109.4807724	100.7471482	92.77104883	85.48295066	78.82004513	72.72555767
200421A00032	4/21/2020	1.31	4/21/2027	4/21/2020	126.41066	119.4696213	112.9487115	106.8202881	101.05868	95.64003439	90.54217771	85.74448777	81.22777663
200422A00015	4/27/2020	0.73	12/22/2022	4/27/2020	106.20995	104.7253544	103.2688751	101.8397789	100.4373595	99.06093465	97.70984454	96.38345126	95.08113779
200423A00006	4/23/2020	0.82	4/23/2025	4/23/2020	116.81221	112.5200953	108.4076414	104.4662603	100.6878362	97.06469155	93.58956094	90.2555655	87.05618968
200423A00017	4/23/2020	1.82	4/23/2035	4/23/2020	165.55285	145.4320564	127.9512688	112.7496872	99.51750154	87.98846186	77.93356177	69.1556647	61.48492883
200423A00020	4/28/2020	0.68	4/15/2022	4/28/2020	103.20951	102.4545515	101.7105835	100.9773699	100.254679	99.54228545	98.83997027	98.14752077	97.46473016
200423A00022	4/28/2020	0.76	2/15/2023	4/28/2020	106.93192	105.2760342	103.6544037	102.0660449	100.5100106	98.98538904	97.49130238	96.02690507	94.59138237
200421A00021	4/21/2020	0.56	4/21/2023	4/21/2020	107.6231	105.761048	103.9407301	102.1608076	100.4200036	98.71709568	97.05091309	95.42033371	93.82428161
200421A00022	4/21/2020	0.74	4/21/2023	4/21/2020	107.69948	105.8411906	104.0244659	102.2479823	100.5104698	98.81071256	97.14754591	95.51985352	93.92656489
200421A00024	4/24/2020	0.8	10/16/2023	4/24/2020	109.94291	107.523915	105.1704429	102.8802114	100.65104	98.48084306	96.36762501	94.30947537	92.30456437
200421A00028	4/21/2020	0.56	4/21/2023	4/21/2020	107.6231	105.761048	103.9407301	102.1608076	100.4200036	98.71709568	97.05091309	95.42033371	93.82428161
200421A00029	4/24/2020	0.72	12/15/2022	4/24/2020	106.10913	104.6465352	103.2112788	101.8026631	100.4200098	99.06266333	97.72998923	96.42137393	95.13622362
200421A00031	4/21/2020	0.84	4/19/2024	4/21/2020	112.198	109.1744364	106.2477283	103.4141112	100.6699973	98.01196579	95.4367534	92.94124578	90.52246939
200417A00012	4/22/2020	0.71	12/15/2022	4/22/2020	106.09478	104.632286	103.1971368	101.7886264	100.4060767	99.04883186	97.71625771	96.40774064	95.12268692
200417A00013	4/17/2020	0.74	4/17/2023	4/17/2020	107.65127	105.8052253	104.00027	102.2351005	100.5084685	98.81917824	97.1660842	95.54808796	93.96413593
200417A00014	4/17/2020	0.96	4/17/2025	4/17/2020	116.69289	112.439096	108.362274	104.4540227	100.7063928	97.11186203	93.66330863	90.35398754	87.17750767
200417A00018	4/21/2020	0.67	7/25/2022	4/21/2020	104.45961	103.3899317	102.3419925	101.3151334	100.308724	99.32215899	98.35485648	97.40625727	96.47582356
200417A00019	4/17/2020	0.77	4/17/2025	4/17/2020	116.54542	112.277705	108.1879892	104.2678038	100.5091372	96.90440896	93.44644324	90.12844448	86.9439745
200421A00020	4/24/2020	0.83	3/15/2024	4/24/2020	111.77198	108.862892	106.044283	103.3127584	100.665072	98.09812239	95.60894531	93.19470653	90.85269506
200415A00038	4/15/2020	1.37	4/15/2027	4/15/2020	126.73071	119.8004277	113.2883662	107.1670903	101.4111116	95.99674163	90.90195484	86.10626235	81.59059626

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200417A00002	4/17/2020	0.96	4/17/2025	4/17/2020	116.69289	112.439096	108.362274	104.4540227	100.7063928	97.11186203	93.66330863	90.35398754	87.17750767
200417A00004	4/17/2020	0.86	4/17/2024	4/17/2020	112.23353	109.2155864	106.2941539	103.4654842	100.7260089	98.07232546	95.50118751	93.00949655	90.59429389
200417A00006	4/17/2020	0.74	4/17/2023	4/17/2020	107.65127	105.8052253	104.00027	102.2351005	100.5084685	98.81917824	97.1660842	95.54808796	93.96413593
200417A00008	4/17/2020	0.96	4/17/2025	4/17/2020	116.69289	112.439096	108.362274	104.4540227	100.7063928	97.11186203	93.66330863	90.35398754	87.17750767
200417A00011	4/22/2020	0.68	7/15/2022	4/22/2020	104.35382	103.3155716	102.2978316	101.3000016	100.3215021	99.3617761	98.42028764	97.49652109	96.58998004
200415A00026	4/15/2020	0.77	4/14/2023	4/15/2020	107.66878	105.831419	104.0348006	102.2776376	100.5586973	98.87679879	97.23081049	95.61964711	94.04226746
200415A00027	4/15/2020	0.86	4/15/2024	4/15/2020	112.21098	109.1995029	106.2841602	103.4612331	100.7271732	98.0785967	95.51227467	93.02512501	90.61420438
200415A00031	4/15/2020	0.97	4/15/2025	4/15/2020	116.7116	112.463792	108.3924766	104.4892844	100.7462983	97.15602524	93.71137107	90.405616	87.23239242
200415A00033	4/15/2020	0.82	10/13/2023	4/15/2020	109.95366	107.5438648	105.1991366	102.9172173	100.6959493	98.53326807	96.4271981	94.37584769	92.37740467
200415A00036	4/15/2020	0.91	10/15/2024	4/15/2020	114.44975	110.8297406	107.3427269	103.9829898	100.7451016	97.62390421	94.61449399	91.712207	88.91260553
200415A00037	4/15/2020	0.97	4/15/2025	4/15/2020	116.7116	112.463792	108.3924766	104.4892844	100.7462983	97.15602524	93.71137107	90.405616	87.23239242
200414A00015	4/14/2020	0.64	4/14/2023	4/14/2020	107.68283	105.8409455	104.039974	102.2786239	100.5556555	98.86988114	97.22016278	95.6054092	94.02457352
200415A00003	4/15/2020	0.77	4/14/2023	4/15/2020	107.66878	105.831419	104.0348006	102.2776376	100.5586973	98.87679879	97.23081049	95.61964711	94.04226746
200415A00020	4/15/2020	0.86	4/15/2024	4/15/2020	112.21098	109.1995029	106.2841602	103.4612331	100.7271732	98.0785967	95.51227467	93.02512501	90.61420438
200415A00021	4/15/2020	1.37	4/15/2027	4/15/2020	126.73071	119.8004277	113.2883662	107.1670903	101.4111116	95.99674163	90.90195484	86.10626235	81.59059626
200415A00023	4/15/2020	1.71	4/15/2030	4/15/2020	141.54754	130.1487664	119.7478872	110.2523946	101.5788129	93.65177003	86.40317183	79.77146388	73.70097207
200415A00024	4/15/2020	2.2	4/16/2035	4/15/2020	168.63661	148.5368011	131.0501851	115.8218351	102.5467393	90.96255631	80.84345391	71.99486476	64.24901799
200413A00011	4/13/2020	0.94	4/12/2024	4/13/2020	112.40775	109.4026567	106.4932318	103.6757803	100.9467812	98.30287625	95.74086032	93.2576736	90.85039352
200413A00012	4/13/2020	0.64	4/13/2023	4/13/2020	107.67067	105.8318516	104.0338327	102.2753217	100.5550841	98.87193752	97.22474855	95.61243045	94.03394056
200413A00026	4/13/2020	0.82	4/13/2023	4/13/2020	107.74593	105.9108023	104.1163174	102.36119	100.6441925	98.96414859	97.31993089	95.71045821	94.13469316
200413A00027	4/13/2020	0.94	4/12/2024	4/13/2020	112.40775	109.4026567	106.4932318	103.6757803	100.9467812	98.30287625	95.74086032	93.2576736	90.85039352
200414A00013	4/14/2020	0.55	4/14/2022	4/14/2020	103.17801	102.4251637	101.683257	100.9520482	100.2313071	99.52081007	98.8203399	98.12968542	97.44864139
200414A00014	4/14/2020	0.76	4/12/2024	4/14/2020	112.32449	109.3107827	106.3932301	103.5681131	100.831886	98.18116708	95.6127296	93.12349311	90.71051569
200408A00011	4/8/2020	0.82	9/26/2022	4/8/2020	105.42606	104.1529613	102.9103402	101.6971161	100.5122568	99.35477794	98.22374014	97.11824658	96.03744055
200408A00013	4/13/2020	0.87	4/14/2023	4/13/2020	107.84764	106.0086281	104.2103871	102.4516319	100.7311291	99.04769691	97.40020293	95.7875611	94.20872946
200409A00011	4/9/2020	0.7	4/7/2023	4/9/2020	107.7039	105.8825298	104.1012643	102.3588471	100.6540751	98.98579515	97.35290186	95.75433458	94.18907535
200409A00019	4/9/2020	0.58	4/8/2022	4/9/2020	103.1239	102.3893581	101.6652325	100.9513009	100.2473492	99.55316932	98.86855876	98.19332074	97.52726379
200413A00003	4/13/2020	0.64	4/13/2023	4/13/2020	107.67067	105.8318516	104.0338327	102.2753217	100.5550841	98.87193752	97.22474855	95.61243045	94.03394056
200413A00004	4/13/2020	0.89	4/11/2025	4/13/2020	116.9639	112.7072189	108.6273019	104.715771	100.9647032	97.36659969	93.91436	90.60125818	87.42092036
200406A00059	4/6/2020	0.92	4/6/2023	4/6/2020	107.83646	106.021152	104.2456897	102.5088282	100.8093758	99.14619026	97.51817615	95.92428241	94.36350004
200406A00060	4/6/2020	1.03	4/5/2024	4/6/2020	112.58465	109.598535	106.706892	103.9060998	101.192704	98.56340837	96.015066	93.54467137	91.14935273
200407A00004	4/7/2020	0.99	4/7/2025	4/7/2020	117.32051	113.0697268	108.9949245	105.0877904	101.3404587	97.74548302	94.29581154	90.98476303	87.80600489
200407A00016	4/7/2020	0.8	4/7/2022	4/7/2020	103.19324	102.4624212	101.7419044	101.0314742	100.3309199	99.64003682	98.95862567	98.28649273	97.6234495

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200407A00019	4/7/2020	1.06	4/8/2024	4/7/2020	112.7061	109.709038	106.8070295	103.9964178	101.2737181	98.63560553	96.07890636	93.60058995	91.19776102
200408A00004	4/8/2020	0.76	4/8/2022	4/8/2020	103.17781	102.4440464	101.7206674	101.0074572	100.3042026	99.61069625	98.92673651	98.25212733	97.58667796
200403A00017	4/3/2020	0.81	4/3/2023	4/3/2020	107.60557	105.801214	104.0363166	102.3096526	100.6200472	98.96637373	97.34755154	95.7625435	94.21035379
200403A00018	4/3/2020	0.91	4/3/2024	4/3/2020	112.21852	109.2437392	106.3629433	103.5725407	100.8691005	98.2493483	95.71015789	93.2485431	90.86165044
200403A00025	4/3/2020	0.91	4/3/2024	4/3/2020	112.21852	109.2437392	106.3629433	103.5725407	100.8691005	98.2493483	95.71015789	93.2485431	90.86165044
200406A00018	4/6/2020	0.65	4/18/2022	4/6/2020	103.30223	102.5368145	101.7826867	101.0395998	100.3073126	99.58559111	98.8742078	98.17294176	97.48157832
200406A00049	4/6/2020	0.92	4/6/2023	4/6/2020	107.83646	106.021152	104.2456897	102.5088282	100.8093758	99.14619025	97.51817615	95.92428241	94.36350004
200406A00053	4/6/2020	1.13	4/7/2025	4/6/2020	117.2647	113.0316193	108.9733867	105.0817631	101.348948	97.76755604	94.33059253	91.03142948	87.86378413
200402A00041	4/2/2020	1.03	4/2/2025	4/2/2020	116.81029	112.6018732	108.5668146	104.6969716	100.9846334	97.4224982	94.00364862	90.72152879	87.56992299
200402A00044	4/2/2020	1.65	4/2/2030	4/2/2020	140.80187	129.4839138	119.1538718	109.7204591	101.1012725	93.22188072	86.01501504	79.41984538	73.38133361
200402A00048	4/2/2020	0.71	4/2/2024	4/2/2020	112.06732	109.0880943	106.203136	103.4088321	100.7017381	98.0785668	95.53617998	93.07158008	90.68190287
200403A00010	4/6/2020	0.8	4/6/2023	4/6/2020	107.62466	105.8112897	104.0377259	102.3027272	100.6051031	98.94371236	97.3174604	95.72529708	94.1662143
200403A00012	4/3/2020	0.55	4/15/2022	4/3/2020	103.19058	102.4346722	101.6897867	100.9556837	100.2321304	99.51890059	98.81577452	98.12253861	97.43898527
200403A00015	4/3/2020	0.73	4/4/2022	4/3/2020	103.10537	102.3839234	101.6725188	100.97095	100.2790141	99.59651398	98.92325765	98.25905843	97.60373458
200402A00026	4/2/2020	1.28	4/2/2026	4/2/2020	122.00627	116.485505	111.2443712	106.2671866	101.5392425	97.0467337	92.77669778	88.71695842	84.85607309
200402A00028	4/2/2020	0.71	4/4/2022	4/2/2020	103.09139	102.3700008	101.6586507	100.9571358	100.2652533	99.58280604	98.90960209	98.24545475	97.59018228
200402A00030	4/2/2020	0.8	4/3/2023	4/2/2020	107.58801	105.7838126	104.0190719	102.2925617	100.6031072	98.94958182	97.33090507	95.74603987	94.19399046
200402A00035	4/2/2020	0.62	4/3/2023	4/2/2020	107.5139	105.7060969	103.9378999	102.2080789	100.5154524	98.85888793	97.23729928	95.64964403	94.09492142
200402A00036	4/2/2020	0.71	4/2/2024	4/2/2020	112.06732	109.0880943	106.203136	103.4088321	100.7017381	98.0785668	95.53617998	93.07158008	90.68190287
200402A00038	4/2/2020	0.84	4/2/2025	4/2/2020	116.66514	112.443022	108.3952659	104.5136613	100.7904373	97.21823579	93.79008711	90.49938646	87.33987249
200402A00013	4/2/2020	0.89	4/2/2024	4/2/2020	112.15008	109.1793273	106.3023648	103.5156053	100.8156283	98.1991692	95.66311082	93.20447564	90.8204182
200402A00014	4/2/2020	0.84	4/2/2025	4/2/2020	116.66514	112.443022	108.3952659	104.5136613	100.7904373	97.21823579	93.79008711	90.49938646	87.33987249
200402A00017	4/2/2020	0.76	4/1/2022	4/2/2020	103.08774	102.3753841	101.6728136	100.9798322	100.296245	99.62186205	98.95649864	98.29997496	97.65211593
200402A00018	4/2/2020	0.85	4/3/2023	4/2/2020	107.67582	105.8708195	104.1052954	102.3780164	100.6878074	99.03354139	97.4141374	95.82855802	94.27580714
200402A00022	4/2/2020	0.96	4/2/2024	4/2/2020	112.34969	109.3761173	106.4963984	103.7069483	101.0043445	98.38532033	95.84675665	93.38567403	90.9992252
200402A00023	4/2/2020	1.11	4/2/2025	4/2/2020	117.12871	112.9141609	108.8731595	104.9975523	101.2796215	97.71205893	94.28794084	91.00070545	87.84413137
200401A00013	4/1/2020	1.01	4/1/2025	4/1/2020	116.71979	112.516287	108.4858492	104.6203493	100.9120946	97.35379966	93.93856263	90.65984198	87.51143534
200401A00023	4/1/2020	0.82	4/1/2025	4/1/2020	116.57452	112.3573407	108.3142275	104.4369862	100.717864	97.14951949	93.72499855	90.43771086	87.28140853
200402A00002	4/2/2020	0.71	4/4/2022	4/2/2020	103.09139	102.3700008	101.6586507	100.9571358	100.2652533	99.58280604	98.90960209	98.24545475	97.59018228
200402A00003	4/2/2020	0.8	4/3/2023	4/2/2020	107.58801	105.7838126	104.0190719	102.2925617	100.6031072	98.94958182	97.33090507	95.74603987	94.19399046
200402A00009	4/2/2020	1.03	4/2/2025	4/2/2020	116.81029	112.6018732	108.5668146	104.6969716	100.9846334	97.4224982	94.00364862	90.72152879	87.56992299
200402A00010	4/2/2020	0.89	4/2/2024	4/2/2020	112.15008	109.1793273	106.3023648	103.5156053	100.8156283	98.1991692	95.66311082	93.20447564	90.8204182
200331A00017	3/31/2020	0.9	3/31/2025	3/31/2020	116.88252	112.662603	108.616685	104.7365835	101.014555	97.44326679	94.01577228	90.7254882	87.56617295

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200331A00018	3/31/2020	0.82	3/31/2023	3/31/2020	107.58631	105.7909682	104.0347374	102.3164099	100.6348262	98.98887421	97.37748714	95.7996408	94.2543516
200331A00022	4/1/2020	1.07	4/1/2025	4/1/2020	116.95841	112.7503216	108.7154334	104.8456169	101.1331739	97.57081434	94.15163164	90.86907979	87.71695218
200331A00024	3/31/2020	0.64	3/31/2023	3/31/2020	107.51261	105.7136775	103.9540123	102.2323942	100.5476574	98.89868403	97.2844015	95.70378041	94.15583222
200401A00001	4/1/2020	1.01	4/1/2025	4/1/2020	116.71979	112.516287	108.4858492	104.6203493	100.9120946	97.35379966	93.93856263	90.65984198	87.51143534
200401A00012	4/2/2020	1	4/2/2025	4/2/2020	116.69089	112.4847654	108.4519353	104.5842539	100.8740129	97.31391293	93.89703904	90.61683753	87.46709485
200331A00007	3/31/2020	0.72	3/29/2024	3/31/2020	112.05026	109.0836813	106.2106441	103.4275817	100.7310886	98.11791418	95.58495423	93.12924316	90.74794669
200331A00008	3/31/2020	0.64	3/31/2023	3/31/2020	107.51261	105.7136775	103.9540123	102.2323942	100.5476574	98.89868403	97.2844015	95.70378041	94.15583222
200331A00011	3/31/2020	1.09	3/31/2025	3/31/2020	117.0268	112.8205774	108.7873497	104.919005	101.2078596	97.64663683	94.22844233	90.94674149	87.79533821
200331A00014	3/31/2020	0.72	3/29/2024	3/31/2020	112.05026	109.0836813	106.2106441	103.4275817	100.7310886	98.11791418	95.58495423	93.12924316	90.74794669
200331A00015	3/31/2020	0.64	3/31/2023	3/31/2020	107.51261	105.7136775	103.9540123	102.2323942	100.5476574	98.89868403	97.2844015	95.70378041	94.15583222
200331A00016	3/31/2020	1.11	3/31/2026	3/31/2020	121.97156	116.4312324	111.1720017	106.1780901	101.4346941	96.92792075	92.64472601	88.57285767	84.70080263
200330A00043	3/30/2020	0.86	3/30/2023	3/30/2020	107.64381	105.8508934	104.0969848	102.3808803	100.7014252	99.05751213	97.44807838	95.87210387	94.32860882
200330A00044	3/30/2020	1.09	3/28/2025	3/30/2020	116.99251	112.7966481	108.7730338	104.9135991	101.2107088	97.65713062	94.24601186	90.97085635	87.82550375
200330A00046	3/30/2020	0.86	3/30/2023	3/30/2020	107.64381	105.8508934	104.0969848	102.3808803	100.7014252	99.05751213	97.44807838	95.87210387	94.32860882
200330A00054	3/30/2021	1.19	3/30/2026	3/30/2021	121.51133	116.0124606	110.7918422	105.8338914	101.1239898	96.64841575	92.39428376	88.34948863	84.50265353
200330A00064	3/30/2020	0.83	3/30/2023	3/30/2020	107.59148	105.7990378	104.0455932	102.329944	100.6509358	99.00746135	97.39845835	95.82290687	94.27982733
200330A00066	3/30/2020	1.08	3/31/2025	3/30/2020	116.98707	112.7816018	108.7491147	104.8814884	101.17104	97.61049369	94.19295585	90.91189263	87.76110865
200330A00011	3/30/2020	0.93	4/1/2024	3/30/2020	112.25267	109.2835335	106.4080432	103.6226221	100.9238584	98.30849537	95.7734234	93.31567186	90.93240181
200330A00017	3/30/2020	0.86	3/30/2023	3/30/2020	107.64381	105.8508934	104.0969848	102.3808803	100.7014252	99.05751213	97.44807838	95.87210387	94.32860882
200330A00028	3/30/2020	1.09	3/28/2025	3/30/2020	116.99251	112.7966481	108.7730338	104.9135991	101.2107088	97.65713062	94.24601186	90.97085635	87.82550375
200330A00036	3/30/2020	0.86	3/30/2023	3/30/2020	107.64381	105.8508934	104.0969848	102.3808803	100.7014252	99.05751213	97.44807838	95.87210387	94.32860882
200330A00037	3/30/2020	1.09	3/28/2025	3/30/2020	116.99251	112.7966481	108.7730338	104.9135991	101.2107088	97.65713062	94.24601186	90.97085635	87.82550375
200330A00038	3/30/2020	1.79	3/29/2030	3/30/2020	142.15747	130.793397	120.4186094	110.9418715	102.2808107	94.36101015	87.1152022	80.48254705	74.40798809
200327A00077	3/27/2020	0.83	3/27/2024	3/27/2020	112.33912	109.3747943	106.5037511	103.7224411	101.0274747	98.41561626	95.88377553	93.42899994	91.04846733
200327A00079	3/27/2020	0.99	3/27/2025	3/27/2020	117.19451	112.9816563	108.9419911	105.0673972	101.3501884	97.78308471	94.35918831	91.07196099	87.91520286
200327A00088	3/27/2020	1.22	3/27/2025	3/27/2020	117.49591	113.2936748	109.2637247	105.398006	101.6888882	98.12914381	94.7119237	91.43073504	88.27942025
200330A00006	3/30/2020	0.9	3/28/2025	3/30/2020	116.84849	112.638994	108.6027365	104.7315873	101.0178514	97.45424124	94.03385206	90.75013939	87.5968977
200330A00007	3/30/2020	0.93	4/1/2024	3/30/2020	112.25267	109.2835335	106.4080432	103.6226221	100.9238584	98.30849537	95.7734234	93.31567186	90.93240181
200330A00008	3/30/2020	1.09	3/28/2025	3/30/2020	116.99251	112.7966481	108.7730338	104.9135991	101.2107088	97.65713062	94.24601186	90.97085635	87.82550375
200327A00060	3/27/2020	1.18	3/27/2025	3/27/2020	117.33746	113.1382551	109.1112498	105.2483877	101.5420417	97.98498756	94.5703792	91.29172672	88.14287535
200327A00061	3/31/2020	1.18	3/31/2025	3/31/2020	117.38446	113.1713575	109.1314644	105.2566543	101.5392359	97.97192508	94.54782061	91.26038118	88.10340433
200327A00066	6/25/2020	0.93	6/26/2023	6/25/2020	108.86153	106.794202	104.7764713	102.8068436	100.8838793	99.00619132	97.17244338	95.3813473	93.63166117
200327A00068	6/25/2020	0.93	6/26/2023	6/25/2020	108.86153	106.794202	104.7764713	102.8068436	100.8838793	99.00619132	97.17244338	95.3813473	93.63166117

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200327A00073	3/27/2020	0.99	3/27/2025	3/27/2020	117.19451	112.9816563	108.9419911	105.0673972	101.3501884	97.78308471	94.35918831	91.07196099	87.91520286
200327A00076	3/27/2020	1.18	3/27/2026	3/27/2020	122.28528	116.7508326	111.496488	106.5065613	101.7663335	97.2619884	92.98055217	88.90983654	85.03838678
200327A00053	3/27/2020	0.84	3/25/2022	3/27/2020	103.05153	102.3602551	101.6782056	101.0052022	100.3410661	99.68562303	99.03870324	98.40014141	97.76977646
200327A00054	3/27/2020	0.9	3/27/2023	3/27/2020	107.67507	105.8909463	104.1455012	102.4375441	100.7659352	99.12958088	97.52743183	95.95848032	94.42175829
200327A00055	3/27/2020	1.01	3/27/2024	3/27/2020	112.42077	109.4648464	106.6017409	103.8279228	101.1400261	98.53483732	96.00928704	93.56044231	91.18549947
200327A00056	3/27/2020	1.18	3/27/2025	3/27/2020	117.33746	113.1382551	109.1112498	105.2483877	101.5420417	97.98498756	94.5703792	91.29172672	88.14287535
200327A00058	3/27/2020	0.9	3/27/2023	3/27/2020	107.67507	105.8909463	104.1455012	102.4375441	100.7659352	99.12958088	97.52743183	95.95848032	94.42175829
200327A00059	3/27/2020	1.01	3/27/2024	3/27/2020	112.42077	109.4648464	106.6017409	103.8279228	101.1400261	98.53483732	96.00928704	93.56044231	91.18549947
200327A00043	3/27/2020	1.48	3/27/2028	3/27/2020	132.47733	124.1020966	116.3065033	109.0474667	102.2853233	95.98354351	90.10846779	84.62906612	79.51671923
200327A00045	3/27/2020	2.24	3/27/2034	3/27/2020	167.75676	149.1070347	132.7199913	118.3082119	105.6221724	94.44507502	84.58840805	75.8881274	68.20137052
200327A00046	3/27/2020	1.23	3/27/2025	3/27/2020	117.53553	113.3325297	109.3018434	105.4354105	101.7255998	98.16518287	94.74730983	91.46548712	88.31355648
200327A00047	3/27/2020	0.99	3/27/2025	3/27/2020	117.19451	112.9816563	108.9419911	105.0673972	101.3501884	97.78308471	94.35918831	91.07196099	87.91520286
200327A00048	3/27/2020	1.18	3/24/2025	3/27/2020	117.3019	113.1131811	109.0959082	105.2420738	101.5440988	97.99480347	94.58738306	91.31538602	88.17269322
200327A00051	3/27/2020	0.99	3/27/2025	3/27/2020	117.19451	112.9816563	108.9419911	105.0673972	101.3501884	97.78308471	94.35918831	91.07196099	87.91520286
200327A00035	3/27/2020	0.83	3/27/2024	3/27/2020	112.33912	109.3747943	106.5037511	103.7224411	101.0274747	98.41561626	95.88377553	93.42899994	91.04846733
200327A00037	3/27/2020	1.18	3/27/2026	3/27/2020	122.28528	116.7508326	111.496488	106.5065613	101.7663335	97.2619884	92.98055217	88.90983654	85.03838678
200327A00039	3/27/2020	0.84	3/28/2022	3/27/2020	103.09068	102.3902969	101.6993757	101.0177286	100.3451703	99.68151995	99.0266018	98.38024454	97.74228133
200327A00040	3/27/2020	0.72	3/27/2023	3/27/2020	107.60196	105.8142874	104.0654371	102.3542169	100.6794805	99.04012865	97.43510651	95.86340116	94.32403966
200327A00041	3/27/2020	0.9	3/27/2023	3/27/2020	107.67507	105.8909463	104.1455012	102.4375441	100.7659352	99.12958088	97.52743183	95.95848032	94.42175829
200327A00042	3/27/2020	0.83	3/27/2024	3/27/2020	112.33912	109.3747943	106.5037511	103.7224411	101.0274747	98.41561626	95.88377553	93.42899994	91.04846733
200327A00022	3/27/2020	0.9	3/27/2023	3/27/2020	107.67507	105.8909463	104.1455012	102.4375441	100.7659352	99.12958088	97.52743183	95.95848032	94.42175829
200327A00025	3/30/2020	0.86	3/30/2022	3/30/2020	103.13048	102.4239664	101.7270767	101.0396147	100.3613902	99.69221837	99.03191917	98.38031729	97.73724202
200327A00027	3/27/2020	0.9	3/27/2023	3/27/2020	107.67507	105.8909463	104.1455012	102.4375441	100.7659352	99.12958088	97.52743183	95.95848032	94.42175829
200327A00030	3/27/2020	1.01	3/27/2024	3/27/2020	112.42077	109.4648464	106.6017409	103.8279228	101.1400261	98.53483732	96.00928704	93.56044231	91.18549947
200327A00031	3/27/2020	1.18	3/27/2025	3/27/2020	117.33746	113.1382551	109.1112498	105.2483877	101.5420417	97.98498756	94.5703792	91.29172672	88.14287535
200327A00032	3/27/2020	0.66	3/28/2022	3/27/2020	103.03917	102.338046	101.6464131	100.9640776	100.2908532	99.6265586	98.97101715	98.32405691	97.68551041
200326A00009	3/27/2020	1.54	3/27/2025	3/27/2020	118.76356	114.5370317	110.4835237	106.5949522	102.8636601	99.28239379	95.84427975	92.54280163	89.37177945
200326A00011	3/30/2020	1.54	3/31/2025	3/30/2020	118.81507	114.574478	110.5079232	106.6072515	102.8647409	99.27307807	95.82533372	92.51493993	89.33566878
200326A00012	3/26/2020	0.99	3/25/2022	3/26/2020	103.15209	102.4604264	101.7779993	101.1046219	100.4401153	99.78430515	99.13702166	98.49809947	97.86737744
200326A00016	3/26/2020	1.54	3/25/2025	3/26/2020	118.7376	114.5181439	110.4712035	106.5887263	102.8630873	99.28706296	95.85380728	92.55682968	89.38997408
200326A00025	3/26/2020	0.99	3/28/2022	3/26/2020	103.19252	102.4917412	101.8004337	101.1184041	100.4454667	99.781441	99.12615094	98.47942521	97.84109693
200327A00019	3/30/2020	0.85	3/15/2022	3/30/2020	102.92753	102.2665485	101.6140248	100.9697986	100.3337123	99.70561238	99.08534905	98.47277628	97.86775166
200325A00042	3/25/2020	1.58	3/25/2024	3/25/2020	114.00807	111.0361703	108.1572625	105.3678252	102.6644947	100.0440592	97.50345053	95.03973657	92.65011406

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200325A00043	3/25/2020	1.62	6/25/2024	3/25/2020	115.38101	112.1003248	108.9299714	105.8656385	102.9032091	100.0387495	97.2685	94.58886646	91.99641171
200325A00044	3/25/2020	1.7	12/23/2024	3/25/2020	118.11893	114.2143501	110.4595303	106.8479397	103.3733654	100.029898	96.8119144	93.71406299	90.73124862
200325A00046	3/25/2020	1.76	3/25/2025	3/25/2020	119.60773	115.3716248	111.3085365	107.4103945	103.669555	100.0787769	96.63119746	93.32031002	90.13994316
200325A00047	3/25/2020	1.68	9/25/2024	3/25/2020	116.83402	113.2383235	109.7723879	106.430738	103.208166	100.0997177	97.10067855	94.20655977	91.41308626
200325A00048	3/25/2020	1.34	12/27/2022	3/25/2020	107.18453	105.6769471	104.1981704	102.7474434	101.3240358	99.92724212	98.55638077	97.21079276	95.88984097
200324A00066	3/26/2020	1.81	3/26/2025	3/26/2020	119.81931	115.5758558	111.5057843	107.6010064	103.8538584	100.25708	96.80379068	93.48746736	90.30192309
200325A00009	3/27/2020	1.67	3/27/2025	3/27/2020	119.27855	115.0421455	110.979067	107.0812116	103.3409111	99.7509016	96.3042994	92.99457869	89.81555037
200325A00013	3/25/2020	1.03	8/16/2021	3/25/2020	100.22391	100.1765537	100.1292616	100.0820314	100.0348629	99.98775592	99.94071043	99.89372628	99.84680334
200325A00016	3/30/2020	1.67	3/31/2025	3/30/2020	119.33168	115.0811604	111.0049778	107.0949672	103.3433955	99.74293887	96.2866579	92.96797504	89.78065316
200325A00032	3/25/2020	1.29	9/26/2022	3/25/2020	105.99138	104.714614	103.4683899	102.2516218	101.063276	99.90236651	98.7679525	97.6591357	96.57505801
200325A00038	3/25/2020	1.48	9/25/2023	3/25/2020	111.24152	108.8722526	106.5656952	104.3197239	102.1323029	100.0014823	97.9253939	95.90224663	93.93032292
200323A00018	3/23/2020	1.37	3/23/2023	3/23/2020	108.43384	106.6550339	104.9145851	103.2113219	101.5441208	99.91190359	98.31363527	96.74832159	95.21500717
200324A00012	3/25/2020	1.78	3/25/2025	3/25/2020	119.68683	115.449214	111.3846577	107.4850916	103.7428702	100.1507509	96.7018693	93.38971733	90.20812216
200324A00013	3/25/2020	1.78	3/25/2025	3/25/2020	119.68683	115.449214	111.3846577	107.4850916	103.7428702	100.1507509	96.7018693	93.38971733	90.20812216
200324A00029	3/24/2020	1.86	3/24/2025	3/24/2020	119.98926	115.749162	111.6820525	107.7798708	104.0349811	100.4401491	96.98851835	93.67358779	90.489191
200324A00031	3/24/2020	1.64	3/22/2024	3/24/2020	114.13561	111.1714409	108.2997756	105.5171196	102.8201364	100.2056395	97.67058448	95.21206137	92.8272877
200324A00051	3/24/2020	1.73	11/1/2024	3/24/2020	117.51876	113.7916403	110.2026751	106.7458684	103.41553	100.2062558	97.1129105	94.1306125	91.25471926
200319A00039	3/19/2020	1.12	3/18/2022	3/19/2020	103.14234	102.4716197	101.8095913	101.1560892	100.5109494	99.87401206	99.24512153	98.62412596	98.01087733
200320A00013	3/20/2020	1.25	3/20/2024	3/20/2020	113.43818	110.4806314	107.6154869	104.8392581	102.1486107	99.54036038	97.0114646	94.55901537	92.18023207
200320A00026	3/20/2020	2.11	3/20/2029	3/20/2020	140.54	130.6264118	121.4820906	113.0432999	105.2519017	98.05483849	91.40366469	85.25412246	79.56575932
200320A00049	3/25/2020	1.47	3/25/2025	3/25/2020	118.46074	114.2465818	110.2047793	106.3272864	102.606484	99.03515398	95.60645586	92.31390412	89.15134755
200320A00052	3/25/2020	1.47	3/25/2025	3/25/2020	118.46074	114.2465818	110.2047793	106.3272864	102.606484	99.03515398	95.60645586	92.31390412	89.15134755
200323A00011	3/23/2020	1.37	3/23/2023	3/23/2020	108.43384	106.6550339	104.9145851	103.2113219	101.5441208	99.91190359	98.31363527	96.74832159	95.21500717
200318A00044	3/18/2020	1.17	3/18/2024	3/18/2020	113.18659	110.2389165	107.3832087	104.6160002	101.9339782	99.33397864	96.81297805	94.36808633	91.9965397
200318A00047	3/18/2020	1.29	3/18/2025	3/18/2020	118.2718	114.0679828	110.0357576	106.1671328	102.4545418	98.89081517	95.46915695	92.18312287	89.02659974
200318A00054	3/18/2020	1.56	3/18/2025	3/18/2020	118.72541	114.529211	110.5037981	106.641241	102.9340249	99.37502853	95.95750096	92.67503968	89.52157042
200319A00009	3/19/2020	0.94	3/18/2022	3/19/2020	103.09298	102.4215527	101.7588459	101.1046869	100.458911	99.82135781	99.19187088	98.57029781	97.95648999
200319A00025	3/19/2020	1.39	3/21/2024	3/19/2020	113.41781	110.4668508	107.6079805	104.8377198	102.1527493	99.54989843	97.02613803	94.5785725	92.20443303
200319A00038	3/19/2020	1.18	9/17/2021	3/19/2020	100.66547	100.5282361	100.3913928	100.2549366	100.1188658	99.9831786	99.84787347	99.71294873	99.57840276
200317A00064	3/19/2020	1.12	5/16/2022	3/19/2020	103.96238	103.1102916	102.2721067	101.4474862	100.636103	99.83764036	99.05179147	98.27825927	97.51675596
200318A00013	3/18/2020	1.5	3/18/2025	3/18/2020	118.48942	114.2977102	110.2766551	106.418326	102.7152131	99.16019989	95.74653981	92.46783471	89.31801444
200318A00026	3/20/2020	1.08	3/16/2022	3/20/2020	103.08888	102.4243247	101.7683085	101.1206688	100.481246	99.84988419	99.22643171	98.61074056	98.0026664
200318A00037	3/18/2020	1.35	3/18/2024	3/18/2020	113.26576	110.3264202	107.4785823	104.7188054	102.0437999	99.45042335	96.93567258	94.49667668	92.13068991

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200318A00038	3/18/2020	1.48	3/18/2025	3/18/2020	118.41075	114.2205432	110.2009408	106.3440211	102.6422759	99.08859035	95.67621943	92.39876639	89.25016244
200318A00039	3/18/2020	1.08	3/18/2022	3/18/2020	103.11633	102.4456995	101.7837663	101.1303586	100.4853123	99.84846772	99.21966906	98.59876455	97.98560616
200317A00011	3/17/2020	1.04	3/17/2022	3/17/2020	103.0767	102.4092047	101.7503247	101.0998947	100.457753	99.82374168	99.19770711	98.5794994	97.96897239
200317A00023	3/17/2020	1.1	3/17/2025	3/17/2020	117.51031	113.3243211	109.3092348	105.4570995	101.7603803	98.21193772	94.80500404	91.5331615	88.39032191
200317A00027	3/17/2020	1.29	3/17/2025	3/17/2020	117.65125	113.4787693	109.4762213	105.6357111	101.949762	98.41128879	95.0135744	91.75024837	88.61526675
200317A00033	3/19/2020	1.1	2/15/2022	3/19/2020	102.70911	102.1319426	101.561249	100.9969177	100.4388426	99.88692	99.34104857	98.80112911	98.2670646
200317A00039	3/19/2020	1.11	4/15/2022	3/19/2020	103.52355	102.7672988	102.0220567	101.2875821	100.5636429	99.85001358	99.14647504	98.45281432	97.76882444
200317A00045	3/19/2020	1.43	3/19/2025	3/19/2020	118.22673	114.0367363	110.0174951	106.1610634	102.459921	98.90694223	95.49537216	92.21880487	89.07116318
200316A00055	3/16/2020	1.06	3/14/2025	3/16/2020	117.31672	113.1442879	109.1419144	105.3016996	101.61616	98.07820352	94.68110675	91.41849309	88.28431267
200316A00067	3/18/2020	1.1	9/15/2022	3/18/2020	105.61248	104.3729522	103.1623101	101.9795554	100.8237337	99.6939337	98.58928499	97.50895542	96.45214925
200316A00068	3/16/2020	1.05	3/16/2022	3/16/2020	103.06954	102.4050542	101.7491083	101.1015383	100.4621845	99.83089113	99.20750646	98.59188251	97.98387496
200316A00070	3/16/2020	1.05	3/16/2022	3/16/2020	103.06954	102.4050542	101.7491083	101.1015383	100.4621845	99.83089113	99.20750646	98.59188251	97.98387496
200316A00071	3/16/2020	1.18	3/16/2023	3/16/2020	108.01076	106.2569458	104.5406379	102.8607064	101.2160641	99.60566712	98.02851281	96.48363753	94.97011485
200316A00072	3/16/2020	1.18	3/16/2023	3/16/2020	108.01076	106.2569458	104.5406379	102.8607064	101.2160641	99.60566712	98.02851281	96.48363753	94.97011485
200316A00042	3/16/2020	1.23	3/15/2024	3/16/2020	112.89071	109.9660684	107.1322779	104.3859305	101.7237683	99.14267885	96.63968728	94.21194917	91.85674374
200316A00043	3/16/2020	1.3	3/14/2025	3/16/2020	117.65388	113.4911698	109.4976626	105.6655138	101.9872934	98.4559595	95.06483511	91.80758707	88.67820604
200316A00046	3/16/2020	1.18	3/18/2024	3/16/2020	112.78875	109.8560592	107.0147135	104.2612752	101.5924597	99.005129	96.49628476	94.06306036	91.70271427
200316A00048	3/16/2020	1.11	3/16/2023	3/16/2020	107.89155	106.1387905	104.4235178	102.7446022	101.1009573	99.49153955	97.9153469	96.37141619	94.85882145
200316A00049	3/16/2020	1.25	3/14/2025	3/16/2020	117.45784	113.2988556	109.308958	105.4803115	101.8054903	98.27745627	94.8895362	91.63540049	88.50904316
200316A00050	3/16/2020	1.54	3/16/2027	3/16/2020	127.47509	120.6256813	114.1838558	108.1232353	102.4192896	97.0491963	91.99171224	87.22705602	82.73679941
200316A00009	3/16/2020	1.25	3/14/2025	3/16/2020	117.45784	113.2988556	109.308958	105.4803115	101.8054903	98.27745627	94.8895362	91.63540049	88.50904316
200316A00015	3/16/2020	0.99	3/14/2022	3/16/2020	103.00393	102.34565	101.6957568	101.05409	100.4204941	99.79481759	99.17691252	98.56663473	97.96384358
200316A00019	3/16/2020	1.11	3/16/2023	3/16/2020	107.89155	106.1387905	104.4235178	102.7446022	101.1009573	99.49153955	97.9153469	96.37141619	94.85882145
200316A00037	3/16/2020	1.06	3/14/2025	3/16/2020	117.31672	113.1442879	109.1419144	105.3016996	101.61616	98.07820352	94.68110675	91.41849309	88.28431267
200316A00040	3/16/2020	1.04	3/16/2022	3/16/2020	103.06309	102.3986307	101.7427083	101.0951615	100.4558307	99.82456011	99.20119804	98.58559649	97.97761115
200316A00041	3/16/2020	1.16	3/16/2023	3/16/2020	107.9767	106.2231871	104.507175	102.8275338	101.1831764	99.57305924	97.99617969	96.45157429	94.93831673
200312A00014	3/12/2020	1.04	3/12/2025	3/12/2020	117.21425	113.0503421	109.0559457	105.2231958	101.5446422	98.01322407	94.62224673	91.36536049	88.23654052
200312A00015	3/12/2020	1.23	3/10/2025	3/12/2020	117.33142	113.187907	109.2124411	105.3972526	101.7349803	98.21864597	94.84163224	91.59766128	88.48077532
200312A00019	3/17/2020	1.06	5/16/2022	3/17/2020	103.91324	103.0613725	102.2234083	101.3990062	100.5878388	99.78958952	99.00395166	98.23062816	97.46933127
200312A00036	3/12/2020	1.04	3/11/2022	3/12/2020	102.99507	102.3457697	101.7046295	101.0714958	100.4462193	99.82865432	99.21865882	98.61609422	98.02082529
200312A00037	3/12/2020	1.3	3/12/2025	3/12/2020	117.62943	113.4737357	109.4867382	105.6606327	101.9880207	98.46188968	95.07558978	91.82281311	88.69757378
200313A00019	3/13/2020	1.55	3/13/2026	3/13/2020	123.14638	117.6653762	112.4587022	107.5111562	102.8084605	98.33720365	94.08478317	90.03935168	86.18976751
200311A00032	3/11/2020	1.11	3/11/2025	3/11/2020	117.47687	113.311267	109.3150782	105.4804518	101.7999478	98.26651465	94.87346616	91.61446036	88.48347945

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200311A00050	3/2/2021	1.46	3/2/2026	3/2/2021	122.61311	117.1804042	112.018256	107.111755	102.4468913	98.01049951	93.79020359	89.77436455	85.95203257
200311A00052	3/2/2021	1.43	2/28/2025	3/2/2021	117.98682	113.8636789	109.9065375	106.1077755	102.460172	98.95687866	95.59139821	92.35756411	89.24952166
200311A00055	3/11/2020	1.66	12/17/2027	3/11/2020	131.37871	123.4509037	116.0494051	109.1366592	102.6779741	96.64128633	90.99694885	85.71753795	80.77767585
200312A00006	3/12/2020	1.23	3/12/2025	3/12/2020	117.35542	113.204918	109.2229586	105.4017416	101.7338744	98.21234959	94.83052274	91.58209082	88.46107268
200312A00009	3/12/2020	1.46	3/12/2027	3/12/2020	126.92897	120.1094295	113.6952391	107.6602066	101.9799678	96.63185165	91.59475364	86.84901889	82.37633502
200310A00041	3/10/2020	1.39	3/12/2029	3/10/2020	134.17839	124.5454614	115.6634622	107.4701026	99.90856091	92.92697981	86.47800864	80.51838973	75.00858497
200310A00051	3/10/2020	1.41	3/8/2030	3/10/2020	138.13763	127.0312052	116.8900182	107.6253777	99.15716461	91.41296301	84.32728307	77.84086617	71.90006297
200310A00054	3/10/2020	1.1	3/10/2025	3/10/2020	116.82335	112.6894583	108.7233203	104.9171832	101.2636962	97.75589118	94.38716037	91.15123504	88.04216615
200310A00062	3/10/2020	1.05	3/8/2024	3/10/2020	112.30169	109.407275	106.6022926	103.883412	101.2474463	98.69134972	96.21220987	93.80724109	91.47377784
200311A00012	3/11/2020	0.87	3/11/2022	3/11/2020	102.88789	102.2389749	101.5982166	100.9654615	100.3405602	99.72336717	99.11374037	98.51154126	97.91663467
200311A00031	3/11/2020	1.41	12/24/2027	3/11/2020	129.65973	121.7638407	114.3947559	107.5147421	101.088947	95.08516835	89.47363981	84.22683493	79.31928822
200310A00021	3/10/2020	1.1	3/10/2025	3/10/2020	116.82335	112.6894583	108.7233203	104.9171832	101.2636962	97.75589118	94.38716037	91.15123504	88.04216615
200310A00028	3/10/2020	1.1	3/10/2025	3/10/2020	116.82335	112.6894583	108.7233203	104.9171832	101.2636962	97.75589118	94.38716037	91.15123504	88.04216615
200310A00033	3/10/2020	0.91	3/10/2025	3/10/2020	116.68096	112.5337396	108.5552424	104.7376449	101.0735393	97.55590411	94.17808185	90.93375735	87.81693815
200310A00034	3/10/2020	1.41	3/11/2030	3/10/2020	138.16912	127.0502201	116.8984632	107.6249106	99.14922459	91.39879844	84.30797549	77.81735139	71.87314956
200310A00038	3/10/2020	1.41	3/11/2030	3/10/2020	138.16912	127.0502201	116.8984632	107.6249106	99.14922459	91.39879844	84.30797549	77.81735139	71.87314956
200310A00040	3/10/2020	1.36	3/10/2028	3/10/2020	130.09673	121.9156964	114.2970153	107.1991945	100.5840099	94.41623409	88.66338545	83.29550065	78.28492667
200309A00054	3/9/2020	0.98	3/9/2028	3/9/2020	128.52443	120.3501661	112.7404205	105.6534078	99.05064741	92.89668282	87.15882818	81.80693794	76.81319678
200310A00003	3/10/2020	1.1	3/10/2025	3/10/2020	116.82335	112.6894583	108.7233203	104.9171832	101.2636962	97.75589118	94.38716037	91.15123504	88.04216615
200310A00005	3/10/2020	1.41	3/8/2030	3/10/2020	138.13763	127.0312052	116.8900182	107.6253777	99.15716461	91.41296301	84.32728307	77.84086617	71.90006297
200310A00014	3/10/2020	0.91	3/10/2025	3/10/2020	116.68096	112.5337396	108.5552424	104.7376449	101.0735393	97.55590411	94.17808185	90.93375735	87.81693815
200310A00015	3/10/2020	1.37	3/11/2030	3/10/2020	137.77168	126.6704856	116.5353369	107.2773711	98.81632444	91.07965781	84.00177699	77.52333507	71.59060839
200310A00020	3/10/2020	1.1	3/10/2025	3/10/2020	116.82335	112.6894583	108.7233203	104.9171832	101.2636962	97.75589118	94.38716037	91.15123504	88.04216615
200309A00030	3/9/2020	1.11	3/9/2027	3/9/2020	124.71037	117.9659159	111.6228946	105.6553626	100.0391894	94.75192081	89.77265284	85.08191696	80.66157371
200309A00038	3/9/2020	1.26	3/11/2030	3/9/2020	136.67871	125.6262157	115.5367395	106.3216376	97.90084902	90.20202108	83.15973111	76.71479018	70.81362017
200309A00040	3/9/2020	0.91	3/8/2024	3/9/2020	111.91312	109.0240668	106.2243208	103.5105535	100.879582	98.32836415	95.85399136	93.4536814	91.12477208
200309A00043	3/9/2020	0.92	6/7/2024	3/9/2020	112.99887	109.8107934	106.7285118	103.7479506	100.865219	98.07659635	95.37852413	92.7675976	90.24055845
200309A00044	3/9/2020	0.94	9/9/2024	3/9/2020	114.1442	110.6427453	107.2666119	104.010566	100.8696301	97.83906606	94.91436145	92.09121718	89.36553601
200309A00045	3/9/2020	0.97	3/7/2025	3/9/2020	116.28173	112.1678472	108.2206903	104.4325651	100.796178	97.30461467	93.951317	90.73006301	87.63494723
200306A00066	3/6/2020	1.2	3/8/2027	3/6/2020	125.26186	118.5047752	112.1494318	106.1698826	100.5419965	95.24331746	90.2529389	85.55138879	81.12052354
200306A00077	3/6/2020	1.06	3/6/2025	3/6/2020	116.62116	112.504121	108.5537633	104.7623964	101.1227354	97.62787324	94.27125894	91.04667664	87.94822648
200306A00080	11/6/2020	1.12	11/6/2023	11/6/2020	110.9592	108.463592	106.0368406	103.6765378	101.3803826	99.14617384	96.97180463	94.85525732	92.79459897
200306A00087	3/8/2021	1.26	3/7/2025	3/8/2021	117.41238	113.2771475	109.3092778	105.5010525	101.8451553	98.33464914	94.96295508	91.72383082	88.61135156

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200309A00007	3/9/2020	1.11	3/9/2027	3/9/2020	124.71037	117.9659159	111.6228946	105.6553626	100.0391894	94.75192081	89.77265284	85.08191696	80.66157371
200309A00029	3/9/2020	1.02	3/7/2025	3/9/2020	116.47667	112.3591059	108.4083778	104.616787	100.9770362	97.48220682	94.12573736	90.90140229	87.8032928
200306A00036	3/6/2020	1.01	3/6/2025	3/6/2020	116.42637	112.3130131	108.3662211	104.5783144	100.9420122	97.45041124	94.09696408	90.8754584	87.77999766
200306A00040	3/6/2020	1.01	3/6/2025	3/6/2020	116.42637	112.3130131	108.3662211	104.5783144	100.9420122	97.45041124	94.09696408	90.8754584	87.77999766
200306A00049	3/6/2020	1.01	3/6/2025	3/6/2020	116.42637	112.3130131	108.3662211	104.5783144	100.9420122	97.45041124	94.09696408	90.8754584	87.77999766
200306A00054	3/6/2020	1.01	3/6/2025	3/6/2020	116.42637	112.3130131	108.3662211	104.5783144	100.9420122	97.45041124	94.09696408	90.8754584	87.77999766
200306A00055	3/6/2020	0.82	3/6/2025	3/6/2020	116.28335	112.1567789	108.1977221	104.3984417	100.7516001	97.25024155	93.88776936	90.65792522	87.55476963
200306A00064	3/6/2020	1.2	3/8/2027	3/6/2020	125.26186	118.5047752	112.1494318	106.1698826	100.5419965	95.24331746	90.2529389	85.55138879	81.12052354
200306A00003	3/6/2020	0.7	3/6/2023	3/6/2020	107.30132	105.5799738	103.8950777	102.2455456	100.6303357	99.04844721	97.4989181	95.98082316	94.49327229
200306A00010	3/6/2020	0.88	3/6/2023	3/6/2020	107.37224	105.6542687	103.972606	102.3261754	100.713941	99.13490703	97.58811659	96.07264915	94.58761907
200306A00013	3/6/2020	1.01	3/6/2025	3/6/2020	116.42637	112.3130131	108.3662211	104.5783144	100.9420122	97.45041124	94.09696408	90.8754584	87.77999766
200306A00022	3/6/2020	1.2	3/8/2027	3/6/2020	125.26186	118.5047752	112.1494318	106.1698826	100.5419965	95.24331746	90.2529389	85.55138879	81.12052354
200306A00028	3/6/2020	1.01	3/6/2025	3/6/2020	116.42637	112.3130131	108.3662211	104.5783144	100.9420122	97.45041124	94.09696408	90.8754584	87.77999766
200306A00031	3/6/2020	1.01	3/6/2025	3/6/2020	116.42637	112.3130131	108.3662211	104.5783144	100.9420122	97.45041124	94.09696408	90.8754584	87.77999766
200305A00030	3/5/2020	1.58	3/5/2030	3/5/2020	139.79176	128.6228409	118.4219115	109.1001888	100.5774609	92.78121636	85.64586851	79.11206175	73.1260504
200305A00032	3/5/2020	1.58	3/5/2030	3/5/2020	139.79176	128.6228409	118.4219115	109.1001888	100.5774609	92.78121636	85.64586851	79.11206175	73.1260504
200305A00037	3/5/2020	1.43	3/6/2028	3/5/2020	130.57586	122.3925719	114.770619	107.6686564	101.0485921	94.87531468	89.11644517	83.74211045	78.72473689
200305A00038	3/5/2020	1.51	3/5/2029	3/5/2020	135.14396	125.4983502	116.602074	108.393144	100.8150068	93.81603665	87.34908245	81.37105801	75.84257218
200305A00039	3/5/2020	1.58	3/5/2030	3/5/2020	139.79176	128.6228409	118.4219115	109.1001888	100.5774609	92.78121636	85.64586851	79.11206175	73.1260504
200305A00045	3/5/2020	0.99	3/6/2023	3/5/2020	107.55633	105.8367523	104.1535162	102.5055411	100.8917903	99.31126746	97.76301466	96.24611072	94.75966928
200305A00006	3/5/2020	0.99	3/6/2023	3/5/2020	107.55633	105.8367523	104.1535162	102.5055411	100.8917903	99.31126746	97.76301466	96.24611072	94.75966928
200305A00014	3/10/2020	1	2/15/2023	3/10/2020	107.32015	105.6609806	104.0361293	102.4446084	100.8854691	99.35779803	97.86071577	96.3933753	94.95496044
200305A00015	3/5/2020	0.99	3/6/2023	3/5/2020	107.55633	105.8367523	104.1535162	102.5055411	100.8917903	99.31126746	97.76301466	96.24611072	94.75966928
200305A00016	3/5/2020	0.99	3/6/2023	3/5/2020	107.55633	105.8367523	104.1535162	102.5055411	100.8917903	99.31126746	97.76301466	96.24611072	94.75966928
200305A00017	3/5/2020	1.19	3/5/2025	3/5/2020	117.11572	112.992618	109.0362307	105.238877	101.5932774	98.09252916	94.73008539	91.49973366	88.39557711
200305A00019	3/5/2020	0.81	3/6/2023	3/5/2020	107.48562	105.7626639	104.07619	102.4251092	100.8083788	99.22499738	97.67400199	96.15446675	94.66550084
200304A00029	3/4/2020	1.17	3/4/2025	3/4/2020	117.02606	112.9079121	108.9561878	105.163224	101.5217581	98.02490367	94.66612853	91.43923417	88.33833663
200304A00030	3/4/2020	1.6	12/22/2028	3/4/2020	135.09075	125.7139507	117.0473137	109.0335434	101.6202351	94.75943678	88.40725022	82.52346967	77.07125417
200304A00032	3/4/2020	1.6	12/15/2028	3/4/2020	135.01039	125.6623781	117.0206059	109.0282303	101.6332526	94.78808169	88.44913961	82.57650505	77.13358962
200304A00033	3/4/2020	1.17	3/4/2025	3/4/2020	117.02606	112.9079121	108.9561878	105.163224	101.5217581	98.02490367	94.66612853	91.43923417	88.33833663
200304A00035	3/4/2020	1.17	3/4/2025	3/4/2020	117.02606	112.9079121	108.9561878	105.163224	101.5217581	98.02490367	94.66612853	91.43923417	88.33833663
200305A00001	3/5/2020	1.14	3/5/2025	3/5/2020	116.92109	112.8016609	108.8488338	105.0549352	101.4126892	97.91519732	94.55591604	91.32863646	88.22746502
200304A00015	3/4/2020	0.83	3/4/2022	3/4/2020	102.83509	102.2064097	101.5853803	100.9718663	100.3657321	99.76684512	99.17507601	98.5902985	98.01238928

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200304A00018	3/4/2020	0.98	3/4/2025	3/4/2020	116.88491	112.7535222	108.7895084	104.985145	101.3331132	97.82647404	94.45864613	91.22338518	88.11476434
200304A00019	3/4/2020	1.04	3/6/2023	3/4/2020	107.64	105.9196994	104.2357481	102.587071	100.972631	99.39143129	97.84251378	96.32495688	94.83787392
200304A00020	3/4/2020	0.98	3/4/2025	3/4/2020	116.88491	112.7535222	108.7895084	104.985145	101.3331132	97.82647404	94.45864613	91.22338518	88.11476434
200304A00022	3/4/2020	0.86	3/6/2023	3/4/2020	107.56939	105.8457049	104.1585138	102.506729	100.8893075	99.30524745	97.75358558	96.23339566	94.74378655
200304A00025	3/4/2020	1.04	3/6/2023	3/4/2020	107.64	105.9196994	104.2357481	102.587071	100.972631	99.39143129	97.84251378	96.32495688	94.83787392
200302A00056	3/2/2020	1.2	3/2/2023	3/2/2020	107.85297	106.1429142	104.4688106	102.829602	101.2242694	99.65183297	98.11135073	96.60191626	95.12265719
200302A00060	3/2/2021	1.44	3/3/2025	3/2/2021	118.06354	113.9291292	109.9614776	106.1529214	102.4961922	98.98439765	95.61099936	92.36979268	89.25488743
200304A00002	3/4/2020	0.98	3/4/2025	3/4/2020	116.88491	112.7535222	108.7895084	104.985145	101.3331132	97.82647404	94.45864613	91.22338518	88.11476434
200304A00005	3/4/2020	0.98	3/4/2025	3/4/2020	116.88491	112.7535222	108.7895084	104.985145	101.3331132	97.82647404	94.45864613	91.22338518	88.11476434
200304A00011	3/4/2020	0.83	3/4/2022	3/4/2020	102.83509	102.2064097	101.5853803	100.9718663	100.3657321	99.76684512	99.17507601	98.5902985	98.01238928
200304A00012	3/4/2020	0.98	3/4/2025	3/4/2020	116.88491	112.7535222	108.7895084	104.985145	101.3331132	97.82647404	94.45864613	91.22338518	88.11476434
200302A00013	3/2/2020	1.25	3/4/2024	3/2/2020	112.80547	109.9167158	107.1168682	104.4026258	101.7708337	99.21847546	96.7426664	94.34064663	92.00977469
200302A00014	3/2/2020	1.2	3/2/2022	3/2/2020	102.96947	102.3470956	101.7322092	101.1246784	100.524372	99.9311618	99.34492264	98.76553232	98.19287146
200302A00016	3/2/2020	1.36	3/3/2025	3/2/2020	117.75264	113.6240804	109.6621075	105.8590625	102.2076832	98.70108319	95.33273	92.09642445	88.98628167
200302A00017	3/2/2020	1.3	3/4/2024	3/2/2020	112.94364	110.0529834	107.2512813	104.535228	101.901667	99.34758068	96.87008299	94.46641282	92.13392755
200302A00018	3/2/2020	1.25	3/2/2023	3/2/2020	107.93606	106.2252815	104.5504724	102.9105712	101.3045586	99.73145446	98.19031639	96.68023767	95.20034561
200302A00025	3/2/2020	1.02	3/2/2022	3/2/2020	102.92346	102.3004329	101.6849194	101.0767804	100.475884	99.88210151	99.29530733	98.71537871	98.14219576
200228A00071	2/28/2020	1.74	12/14/2029	2/28/2020	140.42764	129.5341392	119.5606756	110.4249423	102.0523774	94.37540209	87.33273514	80.86877736	74.93305931
200228A00091	2/28/2020	1.72	12/7/2029	2/28/2020	140.15281	129.2975709	119.3573498	110.2504555	101.902869	94.2474891	87.22345446	80.77553531	74.8535871
200302A00002	3/2/2020	1.12	3/3/2025	3/2/2020	117.41874	113.2805664	109.3098201	105.4987872	101.8401532	98.32698307	94.95269883	91.71105892	88.59613892
200302A00003	3/2/2020	1.2	3/2/2023	3/2/2020	107.85297	106.1429142	104.4688106	102.829602	101.2242694	99.65183297	98.11135073	96.60191626	95.12265719
200302A00005	3/2/2020	1.31	3/3/2025	3/2/2020	117.55833	113.4334248	109.4750013	105.6754007	102.027365	98.52401165	95.15881164	91.92556931	88.81840306
200302A00006	3/2/2020	1.2	3/2/2023	3/2/2020	107.85297	106.1429142	104.4688106	102.829602	101.2242694	99.65183297	98.11135073	96.60191626	95.12265719
200225A00041	10/30/2020	1.48	10/30/2023	10/30/2020	111.73024	109.2462705	106.8304481	104.480363	102.193713	99.96829813	97.80201524	95.69285256	93.63888484
200226A00004	2/26/2020	1.58	2/26/2025	2/26/2020	118.54131	114.4144927	110.4534997	106.6507335	102.9989919	99.49144393	96.12160805	92.88333212	89.77077457
200227A00055	2/27/2020	1.41	2/27/2023	2/27/2020	108.15871	106.455166	104.7873068	103.1540854	101.5544953	99.98756885	98.45237513	96.94801836	95.47363617
200228A00045	2/28/2020	1.45	2/28/2025	2/28/2020	118.06435	113.9397602	109.9812057	106.1810722	102.5321373	99.0275511	95.66081495	92.42576093	89.31653302
200228A00047	5/18/2020	1.35	5/18/2023	5/18/2020	109.18185	107.2284634	105.3198358	103.4546091	101.6314805	99.8491977	98.10655594	96.40239599	94.73560201
200228A00070	5/18/2020	1.35	5/18/2023	5/18/2020	109.18185	107.2284634	105.3198358	103.4546091	101.6314805	99.8491977	98.10655594	96.40239599	94.73560201
200225A00023	2/25/2020	1.62	2/25/2025	2/25/2020	118.68248	114.5563902	110.5959607	106.7936082	103.142143	99.6347452	96.26494374	93.02659604	89.91386944
200225A00028	2/25/2020	1.89	12/21/2029	2/25/2020	141.95932	130.9729093	120.9148923	111.7021041	103.2592196	95.51797955	88.41649607	81.89862849	75.91342383
200225A00029	2/25/2020	1.89	12/28/2029	2/25/2020	142.04555	131.0288611	120.9451341	111.7106137	103.2494583	95.49295606	88.37882213	81.85056834	75.85693727
200225A00034	10/5/2020	1.5	10/5/2023	10/5/2020	111.4263	109.0242165	106.6863474	104.4104913	102.1945396	100.0364743	97.93436283	95.88635378	93.89067271

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200225A00035	10/5/2020	1.5	10/5/2023	10/5/2020	111.4263	109.0242165	106.6863474	104.4104913	102.1945396	100.0364743	97.93436283	95.88635378	93.89067271
200225A00040	10/30/2020	1.48	10/30/2023	10/30/2020	111.73024	109.2462705	106.8304481	104.480363	102.193713	99.96829813	97.80201524	95.69285256	93.63888484
200220A00014	2/20/2020	2.09	12/21/2029	2/20/2020	143.89143	132.821087	122.6842454	113.3973706	104.8848026	97.07797385	89.91471201	83.33861423	77.29848552
200220A00034	2/25/2020	1.71	3/27/2023	2/25/2020	109.08077	107.284002	105.5261479	103.806013	102.1224509	100.4743616	98.86068969	97.28042147	95.73258325
200221A00011	2/21/2020	1.69	8/21/2024	2/21/2020	116.39314	112.9140985	109.5576115	106.3186455	103.1924056	100.1743233	97.26004369	94.44541403	91.7264733
200221A00023	2/21/2020	2.05	12/7/2029	2/21/2020	143.3249	132.3324946	122.2634118	113.0353703	104.5738078	96.81112269	89.68599212	83.14276058	77.13089052
200221A00024	2/21/2020	2.05	12/28/2029	2/21/2020	143.59508	132.5109354	122.3638579	113.0698027	104.5526579	96.74346276	89.57970327	83.00467975	76.96693959
200224A00006	2/24/2020	1.58	11/15/2024	2/24/2020	117.17474	113.4098088	109.7856174	106.2960932	102.9354678	99.69825603	96.57924008	93.57345447	90.67617228
200211A00014	2/11/2020	1.75	8/11/2023	2/11/2020	111.20034	108.9663345	106.7890235	104.6665892	102.5972828	100.5794246	98.61140028	96.6916584	94.818707
200214A00018	2/18/2020	1.77	1/12/2022	2/18/2020	102.55453	102.0778728	101.6056441	101.1377849	100.6742347	100.2149339	99.75982435	99.30884861	98.86195045
200218A00025	2/21/2020	1.71	2/24/2023	2/21/2020	108.60809	106.9100123	105.2473838	103.6191649	102.0243609	100.462015	98.93120649	97.43104945	95.96069064
200218A00026	2/21/2020	1.73	3/25/2024	2/21/2020	114.43216	111.4543058	108.5695868	105.7744765	103.0656068	100.4397616	97.8938685	95.42499151	93.03032356
200218A00030	2/21/2020	1.71	2/24/2023	2/21/2020	108.60809	106.9100123	105.2473838	103.6191649	102.0243609	100.462015	98.93120649	97.43104945	95.96069064
200220A00013	2/20/2020	2.09	12/14/2029	2/20/2020	143.8004	132.7607237	122.649953	113.3851492	104.8911693	97.09989941	89.94956465	83.38411067	77.35264785
201105A00002	11/5/2020	0.49	11/7/2022	11/5/2020	105.46839	104.0790567	102.7229005	101.3987358	100.1054318	98.84191123	97.60714648	96.40015726	95.2200077
200605A00014	6/5/2020	1.02	6/5/2025	6/5/2020	116.47724	112.3198051	108.3372827	104.5213723	100.864215	97.35836389	93.99676041	90.77271204	87.67987137
200605A00016	6/5/2020	1.02	6/5/2025	6/5/2020	116.47724	112.3198051	108.3372827	104.5213723	100.864215	97.35836389	93.99676041	90.77271203	87.67987137
200605A00017	6/5/2020	1.02	6/5/2025	6/5/2020	116.47724	112.3198051	108.3372827	104.5213723	100.864215	97.35836389	93.99676041	90.77271203	87.67987137
200709A00021	7/9/2020	0.83	7/9/2025	7/9/2020	116.02446	111.7828552	107.7238014	103.8384426	100.1183969	96.55573277	93.14294214	89.87291553	86.73891866
200709A00024	7/9/2020	0.83	7/9/2025	7/9/2020	116.02446	111.7828552	107.7238014	103.8384426	100.1183969	96.55573277	93.14294214	89.87291553	86.73891866
200709A00025	7/9/2020	1.37	7/9/2030	7/9/2020	134.24455	124.2595188	115.1347245	106.7904512	99.1547936	92.16285705	85.75603913	79.88138862	74.49103273
201109A00012	11/9/2020	1.39	11/8/2030	11/9/2020	135.36589	124.9885784	115.5332389	106.9117881	99.04504159	91.86177224	85.2978696	79.29559255	73.80290396
201211A00001	12/11/2020	0.95	12/11/2030	12/11/2020	129.91637	120.6573624	112.1991629	104.4662273	97.39059089	90.91106821	84.97254064	79.52532292	74.52459872
210107A00007	1/7/2021	0.84	1/7/2026	1/7/2021	117.6503	112.8531621	108.2842783	103.9315382	99.78353926	95.82954126	92.05942418	88.46364917	85.033222
210201A00002	2/1/2021	1.19	2/1/2036	2/1/2021	130.80839	121.0498065	112.2670159	104.3489034	97.19810842	90.72921099	84.86717157	79.54598515	74.70751931
210622A00004	6/22/2021	2.42	6/20/2036	6/22/2026	159.623	143.1882528	128.8270793	116.255308	105.2297977	95.54227176	87.01411087	79.49195138	72.84395934
200911A00013	9/11/2020	0.69	9/11/2025	9/11/2020	115.98819	111.5722251	107.3534724	103.3219841	99.46837242	95.783776	92.2598271	88.88862096	85.66268738
201007A00008	10/7/2020	1.22	10/7/2030	10/7/2020	132.26491	122.518763	113.6202642	105.4896436	98.05509634	91.25194741	85.02190556	79.3123996	74.07598686
201007A00010	10/7/2020	1.22	10/7/2030	10/7/2020	132.26491	122.518763	113.6202642	105.4896436	98.05509634	91.25194741	85.02190556	79.3123996	74.07598686
201007A00011	10/7/2020	0.62	10/6/2023	10/7/2020	109.00524	106.7279632	104.5111875	102.3528427	100.2509462	98.20360031	96.20898772	94.26536743	92.37107079
201007A00014	10/7/2020	0.8	10/7/2025	10/7/2020	116.43781	112.0037166	107.7694764	103.7248768	99.8602939	96.16665183	92.6353881	89.25842108	86.02811993
201015A00020	10/15/2020	0.94	10/15/2027	10/15/2020	123.37038	116.5951918	110.249029	104.3021914	98.72720271	93.49863038	88.59292205	83.98825603	79.66440452
200813A00019	8/13/2020	1.44	8/13/2030	8/13/2020	135.16387	125.0351479	115.7866323	107.3360069	99.60910495	92.53905819	86.06554189	80.13410177	74.69555332

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200813A00020	8/13/2020	1.44	8/13/2030	8/13/2020	135.16387	125.0351479	115.7866323	107.3360069	99.60910495	92.53905819	86.06554189	80.13410177	74.69555332
200813A00021	8/13/2020	0.84	8/13/2025	8/13/2020	116.38202	112.0331073	107.8753926	103.8993822	100.0961125	96.45711353	92.97437825	89.64033501	86.44782111
200813A00023	8/13/2020	0.86	10/14/2025	8/13/2020	117.01753	112.4804323	108.1495703	104.0143383	100.0647435	96.29136536	92.68531987	89.23822486	85.94216858
200911A00011	9/11/2020	1.18	9/11/2030	9/11/2020	132.87535	122.8124717	113.6315813	105.2495484	97.59153325	90.59011746	84.18453023	78.31995927	72.94693636
200911A00012	9/11/2020	1.18	9/11/2030	9/11/2020	132.8694	122.808623	113.6295949	105.2492122	97.59265747	90.59253232	84.1880838	78.32451556	72.95237372
210603A00008	6/3/2021	1.74	6/3/2036	6/3/2021	136.94218	126.8174411	117.7111813	109.5061211	102.0996928	95.40207577	89.33450631	83.82782387	78.82121832
020619A00062	6/19/2002	5.86	6/20/2022	6/19/2002	108.90843	107.9228414	106.9551952	106.0050077	105.0718082	104.155143	103.2545743	102.3696796	101.5000513
020627A00001	6/27/2002	6.07	6/27/2022	6/27/2002	109.19061	108.1831507	107.1943978	106.2238305	105.2709491	104.3352726	103.4163368	102.5136945	101.6269141
020916A00006	9/16/2002	5.38	9/16/2022	9/16/2002	110.64991	109.3752957	108.130228	106.9136889	105.7247038	104.5623418	103.4257137	102.3139694	101.2262962
020920A00012	9/20/2002	5.4	9/20/2022	9/20/2002	110.77798	109.489602	108.2313852	107.0022738	105.8012639	104.6273974	103.4797593	102.3574754	101.25971
050902A00032	9/2/2005	4.69	8/22/2025	9/2/2005	135.31378	130.233216	125.3770842	120.7341799	116.2939239	112.0463234	107.9819357	104.091835	100.3675808
050923A00096	9/23/2005	4.86	9/22/2025	9/23/2005	136.79242	131.5726753	126.5871605	121.8239847	117.2719298	112.9204117	108.7594408	104.7795843	100.9719321
190620A00044	6/20/2019	2.04	6/20/2022	6/20/2019	105.28753	104.321788	103.3737059	102.4428024	101.528614	100.6306933	99.74860898	98.88194478	98.03029892
190620A00056	6/25/2019	2.07	1/17/2023	6/25/2019	108.59508	107.013526	105.4633657	103.9437423	102.4538297	100.9928311	99.55997759	98.15452693	96.77576254
190625A00008	6/25/2019	2.04	6/27/2022	6/25/2019	105.40383	104.415863	103.4463475	102.4947684	101.5606316	100.6434611	99.74279801	98.85819985	97.98923985
190625A00016	6/25/2019	2.13	6/25/2024	6/25/2019	116.96638	113.6614062	110.4673818	107.3799763	104.3950524	101.5086573	98.71701271	96.01650671	93.40368513
190625A00027	6/25/2019	2.04	6/24/2022	6/25/2019	105.35398	104.3755417	103.4152141	102.4724971	101.5469097	100.6379883	99.74528589	98.86837127	98.00682845
190529A00013	5/29/2019	2.38	5/29/2024	5/29/2019	117.31326	114.088786	110.9699611	107.9527541	105.0333109	102.2079454	99.47313054	96.82549122	94.26179646
190603A00009	6/3/2019	2.17	7/6/2022	6/3/2019	105.67863	104.6612665	103.6634215	102.6845418	101.7240907	100.7815514	99.8564264	98.94823646	98.05651977
190603A00047	6/3/2019	2.22	6/2/2023	6/3/2019	111.05438	109.0374248	107.0672355	105.1424533	103.2617632	101.4238967	99.62762987	97.87178152	96.1552114
190606A00027	6/6/2019	2.51	6/5/2026	6/6/2019	129.3011	123.3835554	117.7726567	112.4509453	107.4020418	102.6105767	98.06212226	93.74313074	89.64087605
190607A00003	6/7/2019	1.92	6/7/2022	6/7/2019	105.0678	104.1418244	103.2321115	102.3382397	101.4597977	100.5963886	99.747629	98.91314833	98.0925885
190613A00011	6/13/2019	2.26	6/13/2024	6/13/2019	117.18373	113.913535	110.7519296	107.6947231	104.737908	101.8776532	99.11029498	96.43232913	93.84040277
190521A00068	5/21/2019	2.47	9/15/2021	5/21/2019	100.80738	100.675604	100.5441856	100.4131254	100.282422	100.1520738	100.0220793	99.89243708	99.76314569
190522A00003	5/22/2019	2.55	5/22/2024	5/22/2019	117.71079	114.5028114	111.3994147	108.3965883	105.4904983	102.6774807	99.95403296	97.31680556	94.76259457
190523A00014	5/23/2019	2.5	11/15/2023	5/23/2019	114.42434	111.8595322	109.3656864	106.9403641	104.5812303	102.2860475	100.0526706	97.87904237	95.76318922
190523A00018	5/23/2019	2.51	3/15/2024	5/23/2019	116.47064	113.4962328	110.6138618	107.8200812	105.1115964	102.4852595	99.93806159	97.46712563	95.06969951
190524A00026	5/28/2019	2.45	6/15/2023	5/28/2019	111.72113	109.6579806	107.6434933	105.6762264	103.7547876	101.877835	100.0440745	98.25225845	96.50118302
190524A00031	5/24/2019	2.43	5/24/2022	5/24/2019	105.16801	104.2860686	103.4188801	102.5660809	101.727315	100.9022381	100.090517	99.29182948	98.50586333
190403A00006	4/3/2019	2.48	4/3/2024	4/3/2019	117.14169	114.087362	111.1292219	108.2635898	105.4869566	102.7959736	100.1874434	97.65831218	95.20566172
190409A00033	4/9/2019	2.62	6/9/2023	4/9/2019	111.9509	109.9037139	107.904419	105.9516062	104.0439163	102.1800386	100.358709	98.57870796	96.8388587
190424A00021	4/24/2019	2.6	4/22/2022	4/24/2019	104.7387	103.9562438	103.1854617	102.4260932	101.677886	100.9405952	100.2139832	99.49781896	98.7918783
190430A00001	4/30/2019	2.47	5/2/2024	4/30/2019	117.59722	114.4447201	111.3938901	108.440751	105.5815097	102.8125507	100.1304263	97.53184738	95.01367452

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190501A00017	5/1/2019	2.61	5/1/2024	5/1/2019	117.53687	114.3987271	111.3615211	108.4212991	105.5742993	102.8169364	100.1457913	97.55760233	95.04925627
190510A00018	5/10/2019	2.54	5/10/2023	5/10/2019	111.2689	109.3200637	107.4155227	105.5539009	103.7338755	101.9541771	100.2135875	98.51093695	96.84510142
190318A00008	3/18/2019	2.76	3/18/2024	3/18/2019	117.22216	114.2276497	111.3259643	108.5136144	105.7872693	103.1437471	100.5800069	98.09314145	95.68037022
190321A00003	3/21/2019	2.67	3/21/2024	3/21/2019	117.02112	114.0197699	111.1117144	108.2934351	105.5615747	102.9129269	100.3444276	97.85314797	95.43628735
190326A00024	3/26/2019	2.59	3/26/2024	3/26/2019	116.88053	113.8650924	110.9437919	108.1130673	105.3695151	102.7098856	100.1310742	97.63011435	95.20416964
190328A00027	3/28/2019	2.51	9/21/2021	3/28/2019	100.91661	100.767838	100.6195116	100.4716333	100.3242011	100.1772127	100.0306664	99.88455998	99.73889153
190328A00031	4/25/2019	2.56	4/25/2024	4/25/2019	117.29082	114.1751492	111.1592282	108.2391683	105.4112646	102.6719855	100.0179627	97.44598244	94.95297682
190328A00083	3/28/2019	2.37	3/28/2024	3/28/2019	116.72808	113.6986577	110.7641942	107.921075	105.1658545	102.4952428	99.9060985	97.3954197	94.96033721
190215A00005	2/15/2019	2.89	2/15/2024	2/15/2019	117.01628	114.1271299	111.3252197	108.6073731	105.9705499	103.4118406	100.9284599	98.51774058	96.1771273
190222A00028	2/22/2019	2.62	2/22/2022	2/22/2019	103.74472	103.142688	102.5476393	101.9594502	101.3780024	100.8031804	100.2348714	99.67296501	99.11735348
190226A00006	2/26/2019	2.64	2/26/2024	2/26/2019	116.95058	114.0180402	111.1750251	108.4182284	105.7444936	103.1508022	100.6342662	98.19212212	95.82172391
190301A00012	3/1/2019	3.41	3/1/2029	3/1/2019	151.54036	141.2648982	131.7724571	122.998956	114.8858897	107.379814	100.4318824	93.99742735	88.03558267
190305A00010	3/5/2019	2.84	3/7/2022	3/5/2019	104.05501	103.4138932	102.7806668	102.1551887	101.5373174	100.9269144	100.323845	99.72797733	99.13918299
190315A00014	3/15/2019	2.74	3/15/2024	3/15/2019	117.11391	114.1305592	111.2394589	108.4371552	105.7203468	103.0858795	100.5307382	98.05204015	95.6470275
190110A00016	1/10/2019	2.88	1/25/2022	1/10/2019	103.31559	102.7985847	102.2867507	101.7800096	101.2782857	100.7815047	100.2895939	99.8024817	99.32009826
190111A00010	1/11/2019	2.87	1/7/2022	1/11/2019	102.97333	102.5101832	102.0512081	101.5963451	101.145539	100.6987356	100.2558817	99.81692488	99.38181389
190114A00042	1/14/2019	2.92	1/13/2023	1/14/2019	109.80756	108.2285378	106.6806099	105.1629376	103.6747077	102.2151361	100.7834656	99.37896543	98.00092965
190114A00061	1/14/2019	2.98	1/31/2024	1/14/2019	116.98849	114.1475457	111.3913692	108.7169212	106.1212879	103.6016786	101.1554196	98.77994818	96.47280773
190131A00018	1/31/2019	2.83	3/25/2022	1/31/2019	104.38553	103.6891946	103.0021359	102.3241705	101.6551188	100.9948058	100.3430609	99.69971829	99.06461609
190131A00036	1/31/2019	2.69	7/31/2023	1/31/2019	113.34384	111.113454	108.9391253	106.8190761	104.751597	102.7350455	100.767842	98.84846743	96.97546032
181219A00006	12/19/2018	3.06	12/19/2023	12/19/2018	116.41267	113.7161235	111.0964278	108.5509518	106.0771722	103.6726662	101.335108	99.06226355	96.85198647
181231A00007	12/31/2018	2.86	12/31/2021	12/31/2018	102.83796	102.3957198	101.957275	101.5225755	101.0915734	100.6642219	100.2404748	99.82028669	99.40361289
190107A00035	1/7/2019	2.82	10/15/2021	1/7/2019	101.40216	101.184765	100.9683173	100.7528075	100.5382295	100.3245773	100.1118448	99.90002594	99.6891149
190109A00010	1/9/2019	2.98	1/9/2023	1/9/2019	109.82431	108.2571708	106.7206759	105.2139965	103.7363372	102.2869304	100.8650349	99.46993485	98.10093892
190110A00003	1/10/2019	2.97	1/10/2024	1/10/2019	116.58437	113.815204	111.1268715	108.5165365	105.9814811	103.5190993	101.1268917	98.80246026	96.5435037
190110A00015	1/10/2019	2.88	1/18/2022	1/10/2019	103.1842	102.6881578	102.1968891	101.7103255	101.2283995	100.7510448	100.2781966	99.80979095	99.3457655
181123A00016	11/23/2018	3.19	11/23/2022	11/23/2018	109.26625	107.8331044	106.4284046	105.0513298	103.7010899	102.376925	101.078104	99.80392335	98.55370566
181127A00027	11/27/2018	3.25	11/28/2022	11/27/2018	109.41833	107.9787967	106.5661063	105.1795516	103.818454	102.4821583	101.1700315	99.88146153	98.61585718
181130A00025	11/30/2018	3	6/1/2022	11/30/2018	105.90289	104.9914641	104.0957075	103.2152144	102.3495973	101.4984814	100.6615045	99.83831651	99.02857863
181204A00023	12/4/2018	3.16	12/3/2021	12/4/2018	102.42278	102.0629675	101.7056791	101.3508897	100.9985732	100.6487037	100.3012559	99.9562046	99.61352519
181212A00027	12/12/2018	2.99	12/12/2023	12/12/2018	116.49387	113.8109357	111.2040292	108.6705615	106.20805	103.8141111	101.4864553	99.22288355	97.02128225
181212A00033	12/12/2018	2.99	12/12/2023	12/12/2018	116.49387	113.8109357	111.2040292	108.6705615	106.20805	103.8141111	101.4864553	99.22288355	97.02128225
181106A00003	11/6/2018	3.31	11/5/2021	11/6/2018	101.92119	101.6430169	101.3663655	101.091225	100.8175831	100.5454274	100.2747459	100.0055264	99.73775731

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181108A00025	11/8/2018	3.44	7/31/2023	11/8/2018	114.60426	112.3664987	110.1848047	108.0574031	105.9825883	103.9587208	101.9842239	100.0575811	98.17733332
181114A00012	11/14/2018	3.13	11/14/2022	11/14/2018	109.24841	107.8218473	106.4267824	105.0621698	103.727014	102.4203633	101.1413074	99.88897488	98.66253124
181114A00024	11/14/2018	3.27	12/14/2021	11/14/2018	102.67888	102.2865153	101.8971545	101.5107662	101.1273163	100.7467713	100.3690982	99.99426442	99.62223795
181115A00055	11/15/2018	3.01	11/15/2021	11/15/2018	102.05634	101.7488445	101.4432192	101.1394429	100.8374987	100.5373701	100.2390406	99.94249383	99.64771384
181120A00024	11/20/2018	3.25	11/20/2023	11/20/2018	116.34103	113.7375104	111.2061357	108.7444529	106.3501073	104.0208405	101.7544854	99.54896219	97.40227384
180928A00011	9/28/2018	3.12	7/15/2022	9/28/2018	106.77318	105.7218281	104.6911671	103.6805923	102.6895202	101.7173898	100.7636615	99.82781594	98.90935322
181005A00005	10/5/2018	3.31	10/5/2023	10/5/2018	115.60192	113.151185	110.7657053	108.4432442	106.1816627	103.9789138	101.8330368	99.74215333	97.70446319
181005A00016	10/5/2018	3.26	1/10/2023	10/5/2018	110.26627	108.692613	107.1497728	105.6369204	104.1532543	102.698001	101.2704136	99.86977103	98.49537681
181016A00087	10/16/2018	3.31	10/16/2023	10/16/2018	115.81639	113.328062	110.906746	108.5501145	106.2559429	104.0221038	101.8465611	99.7273654	97.66264972
181018A00014	10/18/2018	3.21	10/18/2021	10/18/2018	101.54418	101.3180349	101.0929094	100.8687954	100.6456862	100.4235749	100.2024548	99.98231926	99.76316162
181023A00020	10/23/2018	3.15	10/22/2021	10/23/2018	101.60761	101.3699892	101.1334833	100.8980887	100.6637976	100.4306022	100.1984947	99.96746764	99.73751338
180911A00042	9/11/2018	2.99	9/11/2023	9/11/2018	114.76664	112.3928382	110.0809409	107.8288838	105.6346876	103.4964551	101.4123669	99.3806774	97.3997115
180917A00032	9/17/2018	3.17	9/15/2023	9/17/2018	114.90159	112.5207505	110.2021069	107.9435787	105.7431718	103.5989754	101.5091573	99.47195984	97.48569653
180918A00023	9/18/2018	3.17	9/18/2023	9/18/2018	114.95798	112.5673227	110.2392997	107.9718042	105.7628219	103.6104222	101.5127548	99.46804477	97.47458943
180918A00037	9/18/2018	3.06	9/17/2021	9/18/2018	100.92247	100.7849375	100.6477921	100.5110344	100.3746628	100.2386756	100.1030712	99.96784786	99.83300404
180919A00018	9/19/2018	3.12	6/20/2022	9/19/2018	106.28061	105.3098517	104.3568178	103.4210255	102.5020096	101.5993218	100.7125292	99.84121453	98.98497475
180924A00052	9/24/2018	3.22	9/22/2023	9/24/2018	115.14657	112.7415218	110.3997155	108.1190155	105.8973789	103.7328485	101.6235485	99.56768039	97.56351893
180828A00032	8/28/2018	3.49	8/29/2033	8/28/2018	183.29634	164.550791	147.951695	133.2394453	120.1871807	108.5964968	98.29374196	89.1268119	80.96237384
180830A00039	8/30/2018	3.03	8/30/2023	8/30/2018	114.29313	111.9679943	109.7026939	107.4952662	105.3438279	103.2465718	101.2017637	99.20773814	97.26289558
180831A00019	8/31/2018	3.21	9/2/2025	8/31/2018	128.21883	123.272904	118.5479738	114.032917	109.7172373	105.5910245	101.6449181	97.87007332	94.25812983
180910A00007	9/10/2018	2.96	9/8/2023	9/10/2018	114.64357	112.2803644	109.9786137	107.7362769	105.5513956	103.4220924	101.3465665	99.32308995	97.35000404
180910A00013	9/10/2018	3.08	9/11/2023	9/10/2018	114.62527	112.2597882	109.9558758	107.7114851	105.5246509	103.3934893	101.3161936	99.29103027	97.31633547
180910A00028	9/10/2018	3.56	9/9/2033	9/10/2018	184.50562	165.6370817	148.9316954	134.1274254	120.9953415	109.3352798	98.97209146	89.75239681	81.54177641
180810A00028	8/10/2018	2.91	8/10/2023	8/10/2018	113.99423	111.726519	109.5162801	107.3616652	105.2609017	103.2122871	101.2141854	99.26502417	97.3632916
180813A00037	8/13/2018	2.95	2/14/2022	8/13/2018	103.73029	103.1527682	102.5816768	102.01691	101.458363	100.9059333	100.3595207	99.819027	99.2843564
180814A00010	8/14/2018	3.1	8/14/2025	8/14/2018	128.11058	123.2100402	118.5267623	114.0499068	109.7692358	105.6750775	101.7582911	98.01023494	94.42273619
180820A00002	8/20/2018	2.91	8/20/2021	8/20/2018	100.38665	100.3280417	100.2695133	100.2110679	100.1527053	100.0944254	100.0362279	99.97811276	99.92007974
180821A00016	8/21/2018	2.76	8/20/2021	8/21/2018	100.38319	100.3245246	100.2659467	100.2074525	100.1490417	100.0907142	100.0324698	99.97430834	99.91622964
180827A00031	8/27/2018	2.9	8/27/2021	8/27/2018	100.51486	100.4366649	100.3585942	100.2806494	100.2028302	100.1251362	100.0475672	99.97012287	99.89280299
180620A00015	6/20/2018	3.04	6/20/2023	6/20/2018	112.97898	110.8878153	108.8462523	106.8528118	104.9060655	103.004637	101.1471998	99.33247475	97.55922842
180627A00027	6/27/2018	2.87	6/27/2023	6/27/2018	113.07522	110.9559253	108.887465	106.8683022	104.8969571	102.9720045	101.0920716	99.25583521	97.46202004
180629A00008	6/29/2018	3.02	6/29/2023	6/29/2018	113.10833	110.9882746	108.9191042	106.8992774	104.9273122	103.0017812	101.1213093	99.28457151	97.49029032
180719A00065	7/19/2018	3.36	7/20/2026	7/19/2018	134.7209	128.504243	122.6157814	117.0364172	111.7482648	106.7345673	101.9796191	97.46869479	93.18798242

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180730A00033	7/30/2018	3.11	7/29/2022	7/30/2018	107.02781	105.9313221	104.8572662	103.8049632	102.7737573	101.7630187	100.7721424	99.80054711	98.84767406
180731A00022	7/31/2018	3.47	7/31/2028	7/31/2018	148.32259	138.9768879	130.2952292	122.226745	114.7247207	107.7462382	101.2518484	95.20527355	89.57313699
180530A00069	5/30/2018	2.87	5/31/2022	5/30/2018	105.67102	104.7652256	103.8749242	102.9997255	102.1392476	101.2931216	100.4609907	99.64250972	98.83734501
180531A00014	5/31/2018	2.8	5/31/2023	5/31/2018	112.43249	110.4026035	108.4197009	106.4824151	104.5894261	102.7394606	100.9312899	99.16372835	97.43563151
180614A00038	6/14/2018	3.08	6/14/2023	6/14/2018	112.94471	110.8722632	108.8485838	106.8722304	104.9418097	103.0559785	101.2134417	99.41295038	97.65329953
180615A00061	6/15/2018	3.28	6/15/2028	6/15/2018	147.46329	138.2674189	129.7160207	121.7604437	114.3559545	107.4613993	101.0389006	95.05358082	89.47330998
180615A00063	6/15/2018	3.2	6/15/2026	6/15/2018	134.10886	128.0050097	122.2183106	116.7306151	111.5249061	106.5852215	101.8965836	97.44493362	93.2170702
180620A00014	6/20/2018	3.4	6/20/2028	6/20/2018	147.05331	137.9100631	129.4070126	121.4958535	114.1321673	107.2750893	100.8870073	94.93328658	89.38202054
180514A00034	5/14/2018	3.07	5/14/2024	5/14/2018	119.5923	116.3716865	113.255539	110.2398112	107.3206464	104.494363	101.7574449	99.10653334	96.53841821
180518A00012	5/18/2018	3.1	5/18/2022	5/18/2018	105.6233	104.7575268	103.9059393	103.0681922	102.2439498	101.4328872	100.6346899	99.84905312	99.07568194
180522A00038	5/22/2018	3.23	5/22/2025	5/22/2018	127.13039	122.5378195	118.13832	113.9227215	109.882337	106.0089387	102.2947308	98.73232468	95.31471506
180530A00007	5/30/2018	2.66	11/30/2021	5/30/2018	102.22407	101.8730357	101.5243999	101.1781429	100.8342406	100.492669	100.1534046	99.81642402	99.48170443
180530A00025	5/30/2018	3.49	5/30/2030	5/30/2018	160.23686	147.8182681	136.4792071	126.1196572	116.6493606	107.9868224	100.0584196	92.79760366	86.14418818
180530A00044	5/30/2018	2.87	5/31/2022	5/30/2018	105.67102	104.7652256	103.8749242	102.9997255	102.1392476	101.2931216	100.4609907	99.64250972	98.83734501
180223A00026	2/23/2018	2.92	12/15/2022	2/23/2018	109.26799	107.7813663	106.3225158	104.8907254	103.4853048	102.1055866	100.7509255	99.42069712	98.11429747
180308A00014	3/8/2018	2.79	9/15/2021	3/8/2018	100.84934	100.7175118	100.5860451	100.4549367	100.3241851	100.1937888	100.0637464	99.93405644	99.80471736
180328A00008	3/28/2018	2.85	3/25/2022	3/28/2018	104.39894	103.7025507	103.0154417	102.3374265	101.6683254	101.0079634	100.3561701	99.71277937	99.07762955
180329A00003	3/29/2018	3.08	3/29/2028	3/29/2018	144.5957	135.7929805	127.5917455	119.9475645	112.8195264	106.1699407	99.96406681	94.16986752	88.75778461
180403A00009	4/3/2018	2.91	4/3/2025	4/3/2018	124.94449	120.5593438	116.3536646	112.3190333	108.447483	104.7314696	101.1638461	97.73783881	94.44702572
180412A00036	4/12/2018	3.54	4/15/2038	4/12/2018	212.45224	183.8331263	159.5463379	138.9031742	121.3281952	106.3400618	93.5356979	82.57718888	73.18093044
180116A00045	1/16/2018	2.49	1/11/2022	1/16/2018	102.87229	102.3976815	101.9274562	101.461553	100.9999123	100.5424757	100.0891859	99.63998644	99.19482214
180118A00039	1/18/2018	3.09	1/19/2027	1/18/2018	136.24786	129.345868	122.8402892	116.7062309	110.9204952	105.4614522	100.3089252	95.44408637	90.84935934
180125A00023	1/25/2018	2.57	1/25/2022	1/25/2018	103.15977	102.6432221	102.131845	101.6255575	101.1242839	100.62795	100.136483	99.64981162	99.16786585
180206A00013	2/6/2018	2.72	2/6/2024	2/6/2018	116.81384	113.9472028	111.1667098	108.4692442	105.8518226	103.3115888	100.8458076	98.45185846	96.12723031
180207A00012	2/7/2018	2.53	2/7/2022	2/7/2018	103.42117	102.8647829	102.3143793	101.7698634	101.2311409	100.6981197	100.1707094	99.64882178	99.13237018
180222A00026	2/22/2018	2.98	2/21/2025	2/22/2018	124.48364	120.246649	116.1785918	112.2717638	108.5188602	104.9129513	101.4474605	98.11614417	94.91307289
171006A00034	10/6/2017	2.27	10/6/2022	10/6/2017	107.34104	106.0235131	104.738209	103.4839527	102.2596295	101.0641779	99.89658566	98.75588763	97.64116267
171016A00045	10/16/2017	2.2	10/17/2022	10/16/2017	107.4408	106.0872792	104.767727	103.4808749	102.225519	101.0005136	99.80476809	98.63724363	97.49694998
171018A00003	10/18/2017	2.23	10/18/2023	10/18/2017	113.67917	111.202558	108.7930529	106.4483161	104.1661089	101.9442903	99.78081193	97.67371346	95.62111744
171122A00009	11/22/2017	2.2	11/22/2022	11/22/2017	108.08634	106.659812	105.2620152	103.8920999	102.5492537	101.2326957	99.94167553	98.67547152	97.43338935
171206A00010	12/6/2017	2.45	12/6/2022	12/6/2017	108.43681	106.9840672	105.5580152	104.1579823	102.783316	101.4333852	100.107579	98.80530641	97.52599491
171208A00007	12/8/2017	2.47	12/9/2024	12/8/2017	121.28473	117.3563541	113.576792	109.9396221	106.4387333	103.0683097	99.82281458	96.69697567	93.68577089
170913A00003	9/13/2017	2.08	9/13/2022	9/13/2017	106.72693	105.4867038	104.2751913	103.0914001	101.934387	100.8032512	99.69713186	98.61520591	97.55668611

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170918A00007	9/18/2017	2.8	9/20/2027	9/18/2017	138.23134	130.3933446	123.0540856	116.1791116	109.7365369	103.696834	98.03264662	92.71861871	87.73123733
170919A00076	9/19/2017	1.97	9/19/2022	9/19/2017	106.84592	105.5834917	104.3507609	103.1466884	101.9702838	100.8206019	99.69674034	98.59783667	97.52306666
170920A00028	9/21/2017	2.16	9/21/2022	9/21/2017	106.95407	105.6869715	104.4497787	103.2414418	102.0609603	100.9073796	99.77978789	98.67731457	97.59912732
170929A00057	9/29/2017	2.16	9/29/2023	9/29/2017	113.20094	110.7900547	108.443243	106.1583149	103.9331795	101.7658345	99.65436218	97.59692466	95.59175994
171002A00013	10/2/2017	2.23	11/30/2022	10/2/2017	108.0264	106.5950584	105.1897212	103.8097373	102.4544785	101.1233366	99.81572299	98.53106768	97.26881848
170803A00019	8/3/2017	2.14	8/3/2022	8/3/2017	106.11076	105.0037037	103.9196626	102.8579217	101.8177985	100.7986378	99.79981112	98.82071445	97.86076768
170803A00021	8/3/2017	2.5	8/5/2024	8/3/2017	118.79554	115.3280138	111.9809905	108.7495881	105.6291514	102.6152413	99.70362317	96.89025629	94.17128356
170808A00037	8/8/2017	2.19	12/15/2022	8/8/2017	108.21982	106.7411723	105.2901508	103.8660502	102.4681842	101.0958893	99.74852391	98.42546715	97.12611842
170818A00025	8/18/2017	1.77	8/18/2021	8/18/2017	100.29425	100.2412302	100.188283	100.1354084	100.0826064	100.0298767	99.97721923	99.92463384	99.87212036
170831A00053	8/31/2017	1.81	3/1/2022	8/31/2017	103.38535	102.7637243	102.149544	101.54268	100.9430023	100.3503838	99.76470069	99.1858317	98.61365856
170831A00054	8/31/2017	1.85	6/30/2022	8/31/2017	105.38315	104.3844169	103.404522	102.4429396	101.4991603	100.5726937	99.66306705	98.76982477	97.89252754
170619A00067	6/19/2017	1.84	9/20/2021	6/19/2017	100.81673	100.6707285	100.5251675	100.3800412	100.2353475	100.0910845	99.94725022	99.80384274	99.66086012
170619A00084	6/19/2017	1.95	6/20/2022	6/19/2017	105.31111	104.3437078	103.3940215	102.4615656	101.5458744	100.6464987	99.76300532	98.89497628	98.04200819
170622A00039	6/22/2017	3.36	6/22/2035	6/22/2017	188.91377	167.093272	148.0926201	131.5284089	117.0713431	104.4383529	93.38589191	83.70423563	75.21262734
170622A00040	6/22/2017	3.41	6/23/2036	6/22/2017	195.47417	171.5564428	150.918726	133.08818	117.6626118	104.2995941	92.7073073	82.63682459	73.87560599
170629A00067	6/29/2017	2.19	6/29/2022	6/29/2017	105.57887	104.583822	103.6074556	102.6492531	101.7087115	100.7853462	99.87869011	98.988293	98.1137207
170728A00040	7/28/2017	2.44	1/27/2025	7/28/2017	121.97901	117.8745597	113.9315466	110.1427259	106.5012215	103.0005037	99.63436913	96.39692269	93.28256046
170518A00034	5/18/2017	2.15	5/18/2023	5/18/2017	110.95788	108.9824288	107.0522584	105.1659984	103.3223288	101.5199808	99.7577338	98.03441366	96.34889016
170601A00018	6/1/2017	1.96	6/1/2022	6/1/2017	105.00293	104.095806	103.2042938	102.3279943	101.4665209	100.6194999	99.78657	98.96738201	98.16159808
170609A00026	6/9/2017	2.3	6/9/2023	6/9/2017	111.32548	109.2845576	107.2914051	105.3446151	103.4428319	101.584748	99.7691026	97.99467926	96.26030417
170612A00039	6/12/2017	2.29	6/12/2024	6/12/2017	117.73533	114.448984	111.2718415	108.1996798	105.2284656	102.3543432	99.57362582	96.88278707	94.27845322
170615A00015	6/15/2017	2.25	6/14/2024	6/15/2017	117.64436	114.3529975	111.1712109	108.0947564	105.1195795	102.2418049	99.45772731	96.76380303	94.15664197
170616A00018	6/16/2017	2.4	6/16/2025	6/16/2017	124.08268	119.4673654	115.0498442	110.820606	106.7706478	102.8914448	99.17492178	95.61342741	92.19970963
170412A00045	4/12/2017	2.01	4/12/2022	4/12/2017	104.20703	103.4560398	102.7158531	101.9862382	101.2669695	100.557828	99.85860069	99.16908063	98.48906649
170417A00014	4/17/2017	1.95	4/18/2022	4/17/2017	104.26318	103.4937826	102.7357117	101.9887224	101.2525729	100.5270285	99.81186087	99.10684859	98.41177631
170417A00094	4/17/2017	1.95	4/19/2022	4/17/2017	104.27977	103.5072663	102.7461843	101.9962699	101.2572784	100.5289723	99.81112106	99.10350053	98.40589305
170419A00025	4/19/2017	2.72	4/19/2027	4/19/2017	136.51157	129.2371773	122.3988761	115.9680996	109.918317	104.2248717	98.86483859	93.81689233	89.06118657
170502A00028	5/2/2017	2.84	5/3/2027	5/2/2017	137.5044	130.150324	123.2392525	116.7420351	110.6316035	104.8828098	99.47227936	94.37827556	89.58057577
170515A00010	5/15/2017	2.58	5/15/2024	5/15/2017	117.68346	114.4983221	111.416549	108.4341532	105.5473251	102.7524273	100.0459855	97.42467983	94.88533702
170203A00013	2/3/2017	3.67	2/1/2036	2/3/2017	197.83976	174.3800794	154.05346	136.4190528	121.1004044	107.7757466	96.16979318	86.04680495	77.20471903
170215A00043	2/15/2017	2.7	8/28/2024	2/15/2017	119.82693	116.2704717	112.8393917	109.5285269	106.3329563	103.2479921	100.2691671	97.39222251	94.61309716
170216A00044	2/16/2017	3.52	2/17/2032	2/16/2017	171.57636	156.0359388	142.0737408	129.5197883	118.2232791	108.0503331	98.88201299	90.61258559	83.14799321
170228A00015	2/28/2017	2.87	5/28/2025	2/28/2017	125.07818	120.5244162	116.1627062	111.9839434	107.9794997	104.1411997	100.461294	96.9324348	93.54765336

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7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170322A00011	3/22/2017	2.48	3/22/2024	3/22/2017	116.93813	113.9251245	111.006059	108.1773843	105.4357102	102.7777992	100.2005583	97.70103122	95.2763915
170404A00007	4/4/2017	2.22	4/4/2022	4/4/2017	104.1467	103.421157	102.7056954	102.0001093	101.3041951	100.6177551	99.94059677	99.2725327	98.6133806
161006A00012	10/6/2016	1.98	10/7/2024	10/6/2016	118.55884	114.8826568	111.3403667	107.9262531	104.6348875	101.4611095	98.40001118	95.44692298	92.59740026
161013A00037	10/13/2016	1.52	10/13/2021	10/13/2016	101.11242	100.9009468	100.6903689	100.480683	100.2718834	100.0639644	99.85692025	99.6507455	99.44543457
161031A00006	10/31/2016	1.76	11/1/2021	10/31/2016	101.43472	101.168896	100.904459	100.6414013	100.3797124	100.1193814	99.8603979	99.60275147	99.3464318
170117A00037	1/17/2017	2	1/18/2022	1/17/2017	102.80414	102.3086404	101.817916	101.3319014	100.8505288	100.3737318	99.90144526	99.43360522	98.97014897
170119A00006	1/19/2017	2.85	1/21/2025	1/19/2017	122.83207	118.7471151	114.8215658	111.0483211	107.4206381	103.9321107	100.5766507	97.34847029	94.24206559
170130A00010	1/30/2017	2.92	1/30/2025	1/30/2017	123.2499	119.127587	115.1671778	111.3614107	107.7033926	104.1865773	100.8047459	97.55198857	94.42268735
160727A00002	7/27/2016	1.87	7/27/2023	7/27/2016	111.23062	109.0415333	106.9071916	104.8258659	102.7958981	100.8156941	98.88372039	96.99850191	95.1586189
160830A00035	8/30/2016	2.06	8/30/2024	8/30/2016	117.74093	114.2120462	110.80803	107.5237259	104.3542211	101.2948359	98.34111141	95.48879733	92.73384084
160916A00014	9/16/2016	1.66	9/16/2021	9/16/2016	100.71613	100.5816505	100.4475425	100.313807	100.1804424	100.0474471	99.91481961	99.7825583	99.65066166
160923A00033	9/23/2016	2.04	9/23/2026	9/23/2016	129.2711	122.9440102	116.9644295	111.3113888	105.9653051	100.9078779	96.12199751	91.591661	87.30189422
160926A00022	9/26/2016	1.6	9/24/2021	9/26/2016	100.82641	100.6693122	100.5127072	100.3565969	100.2009788	100.0458507	99.89121019	99.73705505	99.58338298
160928A00014	9/28/2016	1.37	9/28/2021	9/28/2016	100.864	100.6954187	100.5274018	100.3599469	100.1930513	100.0267121	99.8609266	99.69569205	99.53100571
160119A00025	1/19/2016	3.05	1/19/2028	1/19/2016	141.88009	133.4825953	125.6436717	118.3231578	111.4839847	105.0919205	99.11533922	93.5250095	88.29390171
160122A00029	1/22/2016	2.48	1/22/2025	1/22/2016	122.04879	117.9595908	114.0305993	110.2546523	106.6249521	103.1350414	99.77878454	96.55034963	93.44419154
160329A00006	3/29/2016	2.12	3/29/2023	3/29/2016	109.82517	108.0155928	106.2452856	104.5130356	102.8176827	101.1581142	99.53326244	97.9421023	96.38364909
160616A00028	6/16/2016	1.81	6/16/2023	6/16/2016	110.47405	108.4204716	106.4154424	104.4575225	102.545321	100.6774972	98.85275848	97.06985831	95.32759429
160628A00031	6/28/2016	1.77	6/28/2023	6/28/2016	110.57587	108.484907	106.4441695	104.4521388	102.5073537	100.6084064	98.75394079	96.94264991	95.17327376
160707A00032	7/7/2016	1.52	7/7/2023	7/7/2016	110.51046	108.386284	106.3138921	104.2916929	102.3181577	100.3918149	98.51124762	96.6750913	94.88203124
150821A00017	8/21/2015	2.22	8/23/2022	8/21/2015	106.67447	105.4989593	104.3492662	103.2245438	102.1239853	101.0468186	99.99230368	98.95973187	97.94842359
150824A00095	8/24/2015	2.34	8/24/2023	8/24/2015	113.00908	110.7098488	108.4696612	106.2865916	104.1587895	102.0844787	100.0619542	98.08957857	96.1657785
150826A00039	8/26/2015	3.22	8/27/2029	8/26/2015	154.6191	143.4535172	133.1898183	123.7500705	115.0634762	107.0656807	99.69815409	92.90763552	86.64563298
150827A00029	8/27/2015	2.74	8/27/2024	8/27/2015	120.45925	116.8833099	113.4335411	110.1047416	106.8919551	103.79046	100.7957574	97.90355835	95.10977315
150909A00018	9/9/2015	2.28	9/9/2021	9/9/2015	100.68353	100.5687381	100.4542184	100.3399729	100.2260005	100.1123003	99.9988712	99.88571225	99.77282244
151223A00074	12/23/2015	3.01	12/23/2027	12/23/2015	142.46229	134.0955852	126.2805511	118.9778782	112.1512583	105.7671361	99.79448725	94.20461528	88.97096549
150601A00650	6/1/2015	2.75	3/31/2023	6/1/2015	110.89266	109.0673912	107.2817995	105.5346596	103.8247962	102.1510821	100.5124359	98.90781947	97.33623567
150601A00689	6/1/2015	2.81	2/28/2025	6/1/2015	123.17918	118.9586003	114.9069161	111.0163966	107.2797157	103.6899247	100.2404302	96.92497425	93.73761448
150601A01024	6/1/2015	5.33	2/27/2026	6/1/2015	141.65624	135.7789615	130.1877341	124.8669838	119.8020737	114.9792423	110.3855458	106.0088049	101.8375554
150610A00008	6/10/2015	3.58	6/10/2030	6/10/2015	163.32794	150.6317251	139.0435432	128.4602868	118.788961	109.9456408	101.8545434	94.44720042	87.66171765
150610A00037	6/10/2015	2.48	6/10/2022	6/10/2015	105.61666	104.6787128	103.7573916	102.8522588	101.9628902	101.0888765	100.2298223	99.38534577	98.55507796
150819A00013	8/19/2015	3.51	8/19/2030	8/19/2015	161.85962	149.0432353	137.3657903	126.7193913	117.0069134	108.1408752	100.0424354	92.64049721	85.87091062
150601A00495	6/1/2015	2.99	6/27/2024	6/1/2015	120.03048	116.6608822	113.4044692	110.2568105	107.2136758	104.2710243	101.4249942	98.67189437	96.00819539

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00523	6/1/2015	4.55	7/25/2031	6/1/2015	179.3191	164.2327889	150.5920255	138.2489952	127.0717774	116.9425588	107.7560568	99.41812575	91.84452495
150601A00548	6/1/2015	2.55	8/13/2021	6/1/2015	100.24231	100.2032725	100.1642835	100.1253423	100.0864486	100.0476026	100.0088039	99.97005267	99.9313487
150601A00594	6/1/2015	3.2	10/20/2026	6/1/2015	135.10327	128.5562741	122.3701476	116.5229525	110.9942152	105.7648162	100.8168924	96.13374706	91.69976689
150601A00609	6/1/2015	2.52	9/30/2021	6/1/2015	101.06842	100.8941314	100.7204347	100.5473313	100.3748183	100.2028927	100.0315516	99.8607921	99.69061121
150601A00642	6/1/2015	2.6	3/31/2022	6/1/2015	104.3153	103.6011986	102.8968437	102.2020416	101.5165991	100.8403281	100.1730456	99.51457333	98.86473773
150213A00025	2/13/2015	2.37	2/14/2022	2/13/2015	103.40583	102.8293615	102.2593149	101.6955846	101.1380658	100.5866562	100.0412556	99.50176617	98.96809198
150316A00043	3/16/2015	2.37	3/16/2023	3/16/2015	110.2752	108.4972132	106.7572635	105.0542039	103.3869305	101.7543835	100.1555449	98.58943668	97.05511843
150413A00034	4/13/2015	2.25	4/13/2022	4/13/2015	104.32183	103.5683644	102.8257617	102.0937911	101.3722254	100.6608435	99.959431	99.26777909	98.58568496
150506A00014	5/6/2015	2.21	5/6/2022	5/6/2015	104.76751	103.9411826	103.127862	102.3272382	101.5390156	100.7629077	99.99863683	99.24593354	98.50453667
150601A00485	6/1/2015	3.09	6/21/2024	6/1/2015	120.22744	116.8742162	113.6330117	110.499462	107.4694023	104.5388529	101.7040096	98.96123524	96.30705133
150601A00490	6/1/2015	3.19	7/2/2024	6/1/2015	120.24961	116.8716162	113.6073246	110.4522786	107.4022183	104.4530751	101.6009612	98.84216091	96.17312192
131024A00019	10/24/2013	3.23	10/30/2023	10/24/2013	116.26641	113.7206018	111.2444658	108.8355401	106.4914716	104.2100119	101.9890115	99.82641441	97.7202532
131217A00023	12/17/2013	3.74	1/2/2024	12/17/2013	118.42364	115.65607	112.9684336	110.3579499	107.8219563	105.3578991	102.9633277	100.6358902	98.37332836
140131A00025	1/31/2014	3.28	1/30/2023	1/31/2014	110.68678	109.0494236	107.4452818	105.8734317	104.3329801	102.8230662	101.3428602	99.89156166	98.46839835
140908A00063	9/8/2014	2.5	8/31/2021	9/8/2014	100.55283	100.4634409	100.3742084	100.2851344	100.1962186	100.1074605	100.0188598	99.93041601	99.84212876
141028A00012	10/28/2014	2.73	10/28/2022	10/28/2014	108.31376	106.9188313	105.5597373	104.2351106	102.9436527	101.6841295	100.4553673	99.25624944	98.0857128
150105A00027	1/5/2015	2.23	1/5/2022	1/5/2015	102.69186	102.2348393	101.7818886	101.3329509	100.8879727	100.446902	100.0096872	99.57627789	99.14662447
120202A00020	2/2/2012	2.7	2/15/2022	2/2/2012	103.60871	103.0286158	102.4550129	101.8877955	101.3268574	100.7720944	100.2234051	99.68068973	99.14385115
120320A00005	3/20/2012	3.18	3/30/2022	3/20/2012	104.71873	104.0060967	103.3031434	102.6096759	101.9255031	101.2504393	100.5843035	99.92691957	99.2781159
120517A00007	5/17/2012	2.42	5/31/2023	5/17/2012	111.69894	109.676319	107.7005427	105.7702449	103.8841096	102.0408674	100.2392933	98.47820532	96.75646235
121031A00004	10/31/2012	2.07	10/31/2022	10/31/2012	107.66832	106.2676687	104.9028867	103.5726091	102.2755386	101.0104422	99.77614742	98.57153848	97.39555295
121227A00024	12/27/2012	2.2	12/30/2021	12/27/2012	102.5361	102.0975726	101.6627814	101.2316793	100.8042195	100.3803562	99.96004411	99.54323898	99.1298971
130712A00005	7/12/2013	3.25	7/17/2023	7/12/2013	114.24367	112.0484326	109.9072973	107.8185801	105.7806623	103.7919869	101.8510555	99.95642591	98.10670956
100809A00029	8/9/2010	4.23	8/15/2025	8/9/2010	132.39649	127.4219738	122.6665341	118.1192864	113.7699458	109.6087944	105.6266464	101.814816	98.16508732
111024A00027	10/24/2011	3.11	10/30/2023	10/24/2011	115.98007	113.4376982	110.9649288	108.5592972	106.2184524	103.9401483	101.7222375	99.56266583	97.45946777
111216A00001	12/16/2011	3.95	12/30/2031	12/16/2011	175.8433	160.2848071	146.2808077	133.6662308	122.2943839	112.0348184	102.7714541	94.40092868	86.83114426
111223A00006	12/23/2011	2.98	12/30/2021	12/23/2011	102.87076	102.4313667	101.99572	101.5637677	101.135463	100.71076	100.2896134	99.87197884	99.45781259
120113A00012	1/13/2012	3.62	1/15/2027	1/13/2012	139.39881	132.4215389	125.8428249	119.6377399	113.7830428	108.2570578	103.0395615	98.11167798	93.45578202
120127A00018	1/27/2012	3.64	2/1/2027	1/27/2012	139.83174	132.780606	126.1353853	119.8704843	113.9620571	108.3878778	103.1272217	98.16075635	93.47044092
210507A00008	5/7/2021	1.94	5/7/2031	5/7/2021	148.49593	135.3103409	123.3995488	112.6335786	102.8963367	94.08406181	86.10395656	78.87297786	72.31676599
210514A00033	5/18/2021	2.8	5/18/2028	5/18/2021	141.87585	133.0383882	124.8156776	117.1616604	110.0339664	103.3935958	97.20463436	91.43399384	86.05117561
210528A00003	5/28/2021	0.63	5/28/2024	5/28/2021	112.00731	108.8652529	105.8266887	102.887655	100.0443651	97.29319788	94.63068915	92.05352428	89.55853072
210623A00011	6/23/2021	0.56	6/23/2023	6/23/2021	108.08526	106.0348811	104.0335263	102.0797282	100.1720691	98.30918281	96.48975298	94.71251038	92.97623119

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210720A00035	7/22/2021	2.27	7/21/2031	7/22/2021	153.37132	139.6395574	127.2552214	116.0788023	105.9859031	96.86553273	88.61860076	81.15658686	74.4003654
051003A00009	10/3/2005	5.15	10/15/2025	10/3/2005	137.8999	132.5956505	127.5317736	122.6959235	118.0764673	113.6624387	109.443495	105.4098778	101.5523757
201015A00017	10/15/2020	0.29	10/17/2022	10/15/2020	105.18573	103.8449359	102.5379512	101.2635136	100.0204212	98.80753062	97.62375344	96.46805292	95.33944102
201028A00005	10/30/2020	1.85	10/31/2025	10/30/2020	122.94145	117.9121463	113.1167904	108.5431543	104.1797236	100.0156535	96.04072533	92.24530631	88.62031199
210128A00010	1/28/2021	0.57	7/9/2024	1/28/2021	112.26576	108.9881844	105.8226821	102.7648053	99.8103124	96.95515352	94.19546068	91.52753854	88.94785568
210209A00029	2/12/2021	0.8	12/15/2025	2/12/2021	118.50594	113.4292965	108.5957473	103.9924504	99.60730419	95.42890377	91.44649728	87.64994523	84.02968249
210212A00014	2/17/2021	1.38	2/17/2026	2/17/2021	121.99528	116.6239287	111.5184177	106.6641887	102.0475611	97.655673	93.47642786	89.49844431	85.71101015
210428A00008	4/28/2021	1.93	4/26/2030	4/28/2021	143.89113	132.3463537	121.8128436	112.1966899	103.4131714	95.38581052	88.04553077	81.32990395	75.18247812
200818A00007	8/18/2020	1.31	8/20/2029	8/18/2020	135.12075	124.8718378	115.4637788	106.8234431	98.88440808	91.58631252	84.87427507	78.69837094	73.01316115
200818A00008	8/18/2020	1.5	8/18/2031	8/18/2020	144.66187	131.2743194	119.2221189	108.365371	98.57948736	89.75344044	81.78822609	74.59550756	68.09641842
200911A00019	9/15/2020	1.84	9/14/2027	9/15/2020	131.55186	123.9475171	116.8295804	110.1644035	103.9208385	98.0700414	92.58528925	87.44181332	82.61664591
200922A00040	9/24/2020	2	9/23/2024	9/24/2020	117.89041	114.2834681	110.8063549	107.4535992	104.2200014	101.1006142	98.09072942	95.18586364	92.38174652
200928A00003	9/28/2020	0.55	9/26/2025	9/28/2020	117.26405	112.4557078	107.868519	103.4910978	99.31271438	95.32325114	91.51316411	87.87344665	84.39559584
201006A00007	10/8/2020	1.47	10/10/2023	10/8/2020	111.42692	109.0091784	106.65642	104.3663961	102.1369606	99.96605991	97.85172847	95.79208371	93.78532187
200709A00008	7/10/2020	1.88	7/10/2026	7/10/2020	126.39862	120.4346435	114.7867144	109.4364616	104.3666753	99.56122826	95.0050021	90.68381904	86.5843786
200720A00014	7/20/2020	0.35	7/20/2022	7/20/2020	104.20084	103.1462043	102.1127381	101.0998122	100.1068195	99.13317669	98.17832318	97.24171971	96.32284748
200720A00034	7/20/2020	0.77	7/21/2025	7/20/2020	116.90307	112.3366748	107.9720024	103.7990938	99.80853495	95.99142455	92.33934321	88.84432467	85.49882897
200720A00042	7/22/2020	2.04	7/21/2026	7/22/2020	127.48883	121.4559264	115.7443513	110.3353142	105.2112244	100.3556048	95.75301507	91.38898173	87.24993209
200730A00002	7/30/2020	0.67	11/6/2024	7/30/2020	113.85278	110.1730619	106.6307199	103.2197992	99.93464074	96.76986755	93.72036878	90.78128438	87.94799098
200814A00011	8/18/2020	1.58	8/16/2030	8/18/2020	141.57517	129.719255	118.9386755	109.1304835	100.2020687	92.07007668	84.6594408	77.90252026	71.73833149
200515A00001	5/15/2020	0.59	5/15/2023	5/15/2020	107.71039	105.7803241	103.8944309	102.0513533	100.2497926	98.48850141	96.76628082	95.08197804	93.43448421
200527A00021	5/27/2020	0.53	11/26/2021	5/27/2020	101.41079	101.0733432	100.7381375	100.4051512	100.0743624	99.74574936	99.41929077	99.09496548	98.77275265
200601A00009	6/1/2020	0.84	6/2/2025	6/1/2020	116.69351	112.2915822	108.0777262	104.0429675	100.1788048	96.47718376	92.93047099	89.53142978	86.27319759
200604A00014	6/4/2020	2.42	6/4/2040	6/4/2020	192.97536	162.9758993	138.1000237	117.4379406	100.2458954	85.9151569	73.94692184	63.93198302	55.53424025
200605A00007	6/5/2020	0.52	6/5/2023	6/5/2020	108.09009	106.0882034	104.1331341	102.2235038	100.3579884	98.5353108	96.7542393	95.01358531	93.31220174
200709A00003	7/10/2020	1.63	7/10/2026	7/10/2020	125.03468	119.1058301	113.4916736	108.1739062	103.1353785	98.36002019	93.83276683	89.53949168	85.46694258
200403A00016	4/3/2020	0.63	4/17/2023	4/3/2020	107.70134	105.8504005	104.0407337	102.2710267	100.5400237	98.84652208	97.18936955	95.56746151	93.97973849
200415A00035	4/17/2020	2.16	4/16/2025	4/17/2020	121.51108	117.1667734	113.002056	109.0084305	105.1778576	101.5027285	97.97583858	94.59036344	91.33983578
200420A00011	4/20/2020	0.7	4/19/2024	4/20/2020	112.22997	109.1960379	106.2594936	103.4165489	100.6635897	97.99717001	95.41400317	92.91095269	90.48502421
200430A00017	4/30/2020	0.94	4/30/2025	4/30/2020	116.75135	112.4551127	108.3391064	104.3946972	100.6137224	96.9884618	93.51161083	90.17625489	86.97584576
200504A00013	5/4/2020	1.26	5/4/2027	5/4/2020	126.22417	119.2445707	112.6898498	106.5319213	100.7447115	95.30400013	90.18727804	85.37361674	80.8435487
200505A00005	5/5/2020	0.77	5/5/2025	5/5/2020	116.73834	112.4089924	108.2621848	104.2891668	100.4816611	96.83183761	93.3322862	89.97599135	86.75630832
200316A00013	3/16/2020	1	4/15/2022	3/16/2020	103.44321	102.6872937	101.9423775	101.2082255	100.4846056	99.77129243	99.06806684	98.37471597	97.69103288

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200318A00043	3/18/2020	1.06	3/20/2023	3/18/2020	108.09658	106.3257371	104.5930183	102.8972623	101.2373558	99.61222988	98.02085853	96.46225599	94.93547491
200323A00010	3/23/2020	1.19	3/23/2022	3/23/2020	103.25807	102.571983	101.8949786	101.2268774	100.5675047	99.91669014	99.27426811	98.64007704	98.01395953
200326A00026	3/26/2020	1.32	3/26/2024	3/26/2020	113.28604	110.3211159	107.4491165	104.6665197	101.9699599	99.35622387	96.822242	94.3650811	91.98193705
200327A00036	3/27/2020	0.77	9/27/2023	3/27/2020	109.9899	107.6222344	105.3175657	103.0737463	100.888722	98.76052579	96.68727323	94.66715839	92.69844972
200327A00074	3/31/2020	1.76	3/29/2024	3/31/2020	114.57458	111.5820029	108.6833251	105.8749758	103.1535473	100.5157864	97.95858586	95.47897694	93.07412192
200306A00099	3/10/2020	1.92	3/10/2031	3/10/2020	147.72691	134.7925683	123.0913004	112.499094	102.9050009	94.20970295	86.32423833	79.16887395	72.67210531
200309A00004	3/9/2020	0.71	3/8/2024	3/9/2020	111.7765	108.880087	106.0734197	103.3531388	100.71604	98.15906074	95.67927325	93.27387732	90.94019379
200309A00019	3/9/2020	0.89	3/11/2024	3/9/2020	111.89283	108.9946261	106.186249	103.4643364	100.8256779	98.2672058	95.78598719	93.3792173	91.04421273
200309A00020	3/9/2020	0.96	3/10/2025	3/9/2020	116.27621	112.1526674	108.1965748	104.4001853	100.7561594	97.25753987	93.89772912	90.67046832	87.56981782
200309A00033	3/9/2020	1.06	3/9/2026	3/9/2020	120.61737	115.2106784	110.0748584	105.1949075	100.5567354	96.14710591	91.95357969	87.96446195	84.16875353
200309A00041	3/9/2020	0.73	3/9/2022	3/9/2020	102.77419	102.1316396	101.4970944	100.8704032	100.2514208	99.64000573	99.03601975	98.43932808	97.84979917
200304A00021	3/4/2020	0.94	3/4/2024	3/4/2020	112.36663	109.4747205	106.6720426	103.9552794	101.3212576	98.7669436	96.28943659	93.88596154	91.55386281
200304A00034	3/4/2020	1.12	3/4/2024	3/4/2020	112.44624	109.5624203	106.7673941	104.0578602	101.4306671	98.88280188	96.41138328	94.01365452	91.68697726
200305A00008	3/10/2020	1.01	6/19/2023	3/10/2020	108.93226	106.8852584	104.8869065	102.9357554	101.0304053	99.16950772	97.35176247	95.57591595	93.84075911
200305A00029	3/5/2020	1.14	3/5/2025	3/5/2020	116.92109	112.8016609	108.8488338	105.0549352	101.4126892	97.91519732	94.55591604	91.32863646	88.22746502
200306A00039	3/6/2020	0.88	3/6/2023	3/6/2020	107.37224	105.6542687	103.972606	102.3261754	100.713941	99.13490703	97.58811659	96.07264915	94.58761907
200306A00063	3/6/2020	0.64	3/16/2022	3/6/2020	102.87223	102.2075992	101.5515217	100.9038362	100.2643826	99.63300449	99.00954963	98.39386948	97.78581924
200302A00045	3/4/2020	1.31	3/4/2025	3/4/2020	117.57058	113.4421698	109.4804922	105.6778691	102.0270269	98.5210684	95.15345131	91.91796745	88.80872359
200303A00001	3/3/2020	1.15	3/3/2025	3/3/2020	117.53565	113.3952662	109.4223799	105.6092702	101.9486205	98.43349313	95.05730811	91.81382177	88.69710767
200303A00012	3/3/2020	1.71	3/1/2030	3/3/2020	141.03463	129.8253729	119.5850885	110.2250778	101.6651836	93.83293191	86.66275845	80.09531775	74.07686419
200303A00018	3/3/2020	1.27	3/3/2025	3/3/2020	117.40288	113.2809004	109.3253162	105.5284713	101.8831105	98.38235442	95.01967696	91.7888852	88.68410018
200304A00008	3/4/2020	1.03	11/15/2021	3/4/2020	101.4301	101.1241585	100.8200694	100.5178181	100.2173879	99.91876214	99.62192467	99.32685933	99.0335502
200304A00010	3/4/2020	1.2	3/4/2027	3/4/2020	126.27811	119.4678304	113.0624223	107.0357414	101.3634684	96.02297219	90.99318308	86.25447708	81.78856897
200227A00012	2/27/2020	1.41	2/27/2023	2/27/2020	108.15871	106.455166	104.7873068	103.1540854	101.5544953	99.98756885	98.45237513	96.94801836	95.47363617
200228A00012	3/3/2020	1.4	3/3/2025	3/3/2020	117.90809	113.7766048	109.8117926	106.005992	102.3519377	98.84274042	95.47186468	92.23310857	89.12058455
200228A00014	2/28/2020	1.4	2/28/2025	2/28/2020	117.87051	113.749557	109.7945353	105.9978305	102.3522241	98.85087001	95.48727309	92.25526887	89.14900461
200228A00059	2/28/2020	1.79	2/28/2030	2/28/2020	141.81496	130.5747774	120.3051151	110.9171902	102.3307734	94.47332049	87.27920001	80.68900183	74.64891844
200228A00063	2/28/2020	1.32	2/28/2023	2/28/2020	108.02428	106.318795	104.6490759	103.0140731	101.4127761	99.84421356	98.30745101	96.80158938	95.32576318
200228A00067	2/28/2020	1.4	2/28/2025	2/28/2020	117.87051	113.749557	109.7945353	105.9978305	102.3522241	98.85087001	95.48727309	92.25526887	89.14900461
200225A00015	2/25/2020	1.54	2/26/2024	2/25/2020	113.51076	110.6343882	107.8459593	105.1422333	102.5201104	99.97662591	97.50894352	95.11434852	92.7902418
200225A00017	2/25/2020	1.94	2/25/2030	2/25/2020	143.26145	131.968625	121.6484311	112.2120441	103.5791846	95.67725224	88.44055519	81.80962003	75.73057397
200225A00046	2/25/2020	1.54	2/23/2024	2/25/2020	113.46953	110.6031351	107.8241798	105.1294465	102.5158614	99.98048434	97.52050202	95.1332213	92.81606336
200226A00002	2/26/2020	1.53	2/27/2023	2/26/2020	108.35706	106.6518059	104.98227	103.3474026	101.7461965	100.177683	98.64093052	97.13504246	95.65915569

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200226A00008	2/26/2020	1.38	2/26/2025	2/26/2020	118.36611	114.2267497	110.2541311	106.4406043	102.7789121	99.26217225	95.88385529	92.63776428	89.51801582
200226A00012	2/26/2020	1.54	2/28/2022	2/26/2020	103.14509	102.5280705	101.9184024	101.3159523	100.7205927	100.1321993	99.55065053	98.97582758	98.40761449
200220A00002	2/20/2020	1.76	2/20/2025	2/20/2020	119.15348	115.0354688	111.08217	107.2860748	103.6400591	100.1373638	96.77157373	93.53659856	90.42665376
200220A00029	2/20/2020	1.72	2/21/2023	2/20/2020	108.57795	106.8894767	105.2361306	103.6168933	102.0307835	100.4768574	98.95420672	97.46195683	95.99926547
200221A00006	2/21/2020	1.5	2/21/2025	2/21/2020	118.76278	114.632939	110.6688541	106.8629406	103.2080091	99.69724011	96.32416215	93.08263218	89.96681668
200221A00016	2/21/2020	1.69	2/21/2025	2/21/2020	118.89772	114.7811045	110.8293041	107.0347961	103.3904462	99.88948637	96.52549336	93.29236909	90.18432214
200221A00031	2/21/2020	1.69	2/21/2025	2/21/2020	118.89772	114.7811045	110.8293041	107.0347961	103.3904462	99.88948637	96.52549336	93.29236909	90.18432214
200225A00005	2/25/2020	1.57	2/25/2025	2/25/2020	118.4891	114.3666384	110.4097259	106.6107869	102.9626356	99.45845586	96.09178017	92.85646938	89.74669404
200127A00030	1/27/2020	1.8	1/27/2025	1/27/2020	118.96812	114.9342319	111.0591941	107.3358842	103.7575389	100.3177346	97.01036874	93.82964157	90.77003943
200130A00016	1/30/2020	1.58	1/30/2025	1/30/2020	118.76278	114.7076566	110.8129937	107.0715658	103.4765114	100.0213156	96.69979032	93.5060562	90.43452511
200131A00007	1/31/2020	1.68	1/31/2023	1/31/2020	108.18926	106.5693389	104.9823606	103.4274034	101.9035801	100.4100361	98.94594698	97.51051807	96.10298256
200203A00051	2/3/2020	1.58	11/3/2021	2/3/2020	101.44197	101.1701246	100.8997373	100.6307977	100.3632942	100.0972152	99.83254945	99.56928562	99.30741256
200207A00004	2/7/2020	1.53	2/7/2023	2/7/2020	108.2779	106.6317766	105.0194454	103.4399464	101.8923565	100.3757867	98.88938061	97.432313	96.00378816
200207A00009	2/7/2020	1.58	2/7/2025	2/7/2020	118.87519	114.7908132	110.868876	107.102018	103.4832573	100.0059672	96.66385534	93.45094535	90.36155872
191219A00047	12/19/2019	1.76	12/17/2021	12/19/2019	102.18201	101.7816904	101.3845135	100.9904424	100.5994407	100.2114725	99.82650261	99.44449614	99.06541887
191223A00008	12/23/2019	1.93	12/23/2021	12/23/2019	102.30832	101.8906997	101.4764922	101.0656511	100.6581354	100.2539047	99.85291953	99.45514079	99.06053013
191223A00056	12/23/2019	2.46	12/14/2029	12/23/2019	147.36589	136.1716845	125.9157605	116.5145107	107.892178	99.9800823	92.71592727	86.0431773	79.91049858
200108A00021	1/13/2020	1.97	1/13/2025	1/13/2020	119.41097	115.414474	111.5735745	107.8813761	104.3313246	100.9171915	97.63305551	94.47328588	91.43252647
200109A00012	1/14/2020	1.94	12/15/2022	1/14/2020	107.86086	106.3849415	104.9366011	103.515134	102.1198552	100.7501026	99.4052357	98.08463497	96.78770094
200121A00008	1/24/2020	1.84	1/20/2022	1/24/2020	102.7137	102.2131348	101.7174493	101.2265687	100.7404231	100.2589442	99.78206505	99.30971978	98.84184391
191104A00018	11/5/2019	1.96	11/5/2024	11/5/2019	118.38192	114.6274749	111.012371	107.5305817	104.176379	100.9443206	97.82923358	94.82619863	91.93053611
191104A00025	11/4/2019	2.33	8/2/2030	11/4/2019	149.25361	137.0906775	126.0176614	115.9310378	106.7376214	98.35348105	90.70297788	83.71790708	77.33673301
191108A00014	11/8/2019	2.25	11/8/2029	11/8/2019	146.59428	135.4890129	125.3087542	115.9715173	107.4029941	99.53579633	92.30877707	85.66642194	79.55830295
191212A00026	12/13/2019	1.92	6/16/2022	12/13/2019	105.11214	104.1596258	103.2243206	102.3057583	101.4034925	100.5170921	99.64614146	98.79023913	97.94899754
191212A00027	12/13/2019	1.93	10/17/2022	12/13/2019	107.09955	105.7483456	104.4310716	103.1464586	101.8933036	100.6704622	99.47684485	98.31141354	97.17317905
191218A00013	12/18/2019	1.94	12/19/2022	12/18/2019	107.92441	106.4357813	104.9751788	103.5418754	102.1351703	100.7543861	99.39886765	98.06798167	96.76111534
191003A00013	10/3/2019	1.66	10/3/2022	10/3/2019	106.5436	105.2409629	103.969982	102.729519	101.5184856	100.3358449	99.18060786	98.05183127	96.94861452
191007A00024	10/7/2019	1.7	7/14/2022	10/7/2019	105.3392	104.2988797	103.2790171	102.2790147	101.2982968	100.3363096	99.3925204	98.46641661	97.55750466
191015A00001	10/15/2019	1.87	10/15/2021	10/15/2019	101.1978	100.9807246	100.7645911	100.5493944	100.3351285	100.1217873	99.90936466	99.69785471	99.48725149
191018A00005	10/18/2019	1.89	5/2/2022	10/18/2019	104.36718	103.5559664	102.75731	101.9709258	101.1965328	100.4338583	99.68263817	98.94261586	98.21354256
191021A00021	10/21/2019	2.22	12/21/2027	10/21/2019	135.45096	127.3736259	119.8309167	112.7847109	106.1997951	100.043624	94.28610618	88.89940647	83.85776671
191101A00002	11/1/2019	1.85	11/1/2022	11/1/2019	107.22497	105.8291258	104.4686531	103.1422149	101.848543	100.5864316	99.35473332	98.15235615	96.97825972
190923A00081	9/23/2019	1.96	9/20/2024	9/23/2019	117.7118	114.1172722	110.6518688	107.3101684	104.0870101	100.9774829	97.97691231	95.08084663	92.28504503

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190924A00035	9/24/2019	1.88	9/13/2024	9/24/2019	117.34271	113.7762788	110.3373871	107.0206994	103.8211438	100.7338927	97.75434915	94.87813406	92.10107457
190926A00007	9/26/2019	1.88	9/26/2022	9/26/2019	106.70103	105.4196674	104.1689203	102.9477034	101.7549809	100.5897649	99.4511127	98.33812417	97.24993951
190926A00034	9/26/2019	1.88	9/26/2022	9/26/2019	106.70103	105.4196674	104.1689203	102.9477034	101.7549809	100.5897649	99.4511127	98.33812417	97.24993951
190930A00077	9/30/2019	2.23	9/28/2029	9/30/2019	144.12894	133.3619387	123.4797172	114.4048551	106.0670952	98.40264388	91.35354494	84.86711644	78.89544519
191001A00023	10/1/2019	1.85	9/27/2024	10/1/2019	117.43876	113.8267277	110.3451445	106.9884949	103.7515377	100.6292877	97.61700058	94.71016003	91.90446493
190827A00002	8/27/2019	1.74	8/27/2024	8/27/2019	116.63992	113.1382381	109.7603765	106.5012228	103.3559132	100.3198143	97.38851051	94.55779256	91.82364627
190829A00021	8/30/2019	2.18	8/30/2021	8/30/2019	100.50788	100.4213322	100.3349344	100.2486831	100.1625778	100.0766183	99.99080426	99.90513526	99.81961097
190904A00001	9/4/2019	1.5	9/4/2024	9/4/2019	116.46251	112.9263378	109.5162125	106.2268881	103.053374	99.99091816	97.03499432	94.18128957	91.42569281
190905A00002	9/5/2019	1.78	9/6/2022	9/5/2019	106.26799	105.0528428	103.8653496	102.7045704	101.569612	100.4596202	99.37377859	98.31130568	97.27145351
190910A00004	9/11/2019	1.86	9/11/2024	9/11/2019	117.24746	113.6888804	110.2573894	106.9476803	103.7547065	100.6736638	97.6999772	94.82928807	92.05744275
190917A00029	9/17/2019	2.02	12/6/2022	9/17/2019	107.83071	106.3825008	104.9609022	103.5652436	102.194875	100.8491673	99.52751194	98.22931964	96.95402
190815A00015	8/15/2019	1.82	8/15/2022	8/15/2019	105.96591	104.8219573	103.7025979	102.6070424	101.5345378	100.4843623	99.45582423	98.44826008	97.46103327
190815A00025	8/15/2019	1.97	8/15/2029	8/15/2019	142.81116	132.1849445	122.4247438	113.4554872	105.2089776	97.62322913	90.64187175	84.21361587	78.29177033
190816A00015	8/16/2019	2.2	8/16/2029	8/16/2019	143.29153	132.7162738	122.9996567	114.0674413	105.8521749	98.29253462	91.33274098	84.92203045	79.01418053
190816A00020	8/16/2019	1.79	8/16/2024	8/16/2019	116.65196	113.1842975	109.8383396	106.6091086	103.4918607	100.4820743	97.57543871	94.76784241	92.05536274
190816A00033	8/16/2019	1.77	8/16/2024	8/16/2019	116.58659	113.1199767	109.7750402	106.546804	103.4305249	100.4216826	97.51596698	94.70926739	91.99766197
190820A00038	8/20/2019	1.76	8/20/2024	8/20/2019	116.60919	113.1297759	109.772816	106.5332855	103.4063976	100.387591	97.47251726	94.65703008	91.9371741
190808A00012	8/8/2019	1.89	8/8/2024	8/8/2019	116.86507	113.4188902	110.092978	106.8824459	103.7826332	100.7890965	97.89759736	95.10409228	92.404722
190808A00024	8/8/2019	1.69	2/8/2024	8/8/2019	114.07613	111.2398493	108.489187	105.8210351	103.2324193	100.720493	98.28253012	95.9159194	93.61815884
190809A00010	8/9/2019	1.88	8/8/2024	8/9/2019	116.83263	113.3869687	110.0615598	106.851518	103.7521831	100.7591117	97.86806626	95.07500339	92.37606431
190813A00008	8/13/2019	1.88	8/13/2024	8/13/2019	116.90356	113.4411994	110.1000763	106.875244	103.7619875	100.7558124	97.85243293	95.04776102	92.33789584
190814A00006	8/14/2019	1.84	8/14/2023	8/14/2019	111.43783	109.192284	107.0038657	104.8707356	102.7911254	100.7633373	98.78573985	96.85676526	94.97490627
190815A00008	8/15/2019	1.82	8/15/2022	8/15/2019	105.96591	104.8219573	103.7025979	102.6070424	101.5345378	100.4843623	99.45582423	98.44826008	97.46103327
190805A00037	8/5/2019	2.17	8/6/2029	8/5/2019	144.54606	133.8805325	124.0802551	115.0704856	106.7833072	99.15696906	92.13529723	85.66716437	79.7060126
190806A00007	8/6/2019	1.88	8/5/2022	8/6/2019	105.87071	104.7587403	103.6700245	102.6038404	101.5594942	100.5363204	99.53368022	98.55096044	97.58757197
190807A00005	8/7/2019	1.77	8/7/2024	8/7/2019	116.46197	113.0253151	109.7085758	106.5068754	103.4155699	100.4302308	97.54663439	94.76075084	92.06873377
190807A00017	8/7/2019	1.76	3/12/2024	8/7/2019	114.32986	111.3947369	108.5504187	105.7935066	103.120756	100.5290666	98.0154744	95.57714486	93.21136627
190807A00022	8/7/2019	1.76	1/17/2023	8/7/2019	108.11998	106.5422532	104.9958506	103.4799174	101.9936292	100.5361912	99.10683616	97.70482366	96.32943871
190807A00027	8/7/2019	1.77	8/7/2024	8/7/2019	116.46197	113.0253151	109.7085758	106.5068754	103.4155699	100.4302308	97.54663439	94.76075084	92.06873377
190712A00018	7/12/2019	2.25	7/12/2024	7/12/2019	117.60817	114.2377722	110.9822438	107.8370239	104.7977638	101.8603119	99.02070359	96.27515137	93.62003611
190724A00023	7/24/2019	2.13	7/24/2025	7/24/2019	123.5161	118.7826725	114.2576254	109.930668	105.7920727	101.8326426	98.04367985	94.4169558	90.94468288
190729A00007	7/29/2019	2.17	7/28/2023	7/29/2019	111.8764	109.6772545	107.5331411	105.4423274	103.4031442	101.4139869	99.47331241	97.57963599	95.73152892
190802A00015	8/2/2019	2	2/15/2023	8/2/2019	108.93776	107.2649239	105.6266525	104.0219564	102.4498796	100.9095022	99.39993823	97.92033459	96.46986909

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190802A00032	8/2/2019	2.01	8/2/2024	8/2/2019	117.16684	113.7345518	110.4215199	107.2229199	104.134151	101.1508257	98.26875792	95.48395285	92.79259686
190805A00021	8/5/2019	1.89	1/16/2024	8/5/2019	113.86509	111.1125272	108.441069	105.8478506	103.3301243	100.8852564	98.51072181	96.20409855	93.96306314
190820A00019	8/20/2019	1.76	8/21/2023	8/20/2019	111.36837	109.1026975	106.895028	104.7434762	102.6462327	100.6015605	98.60779162	96.66332365	94.76661666
190826A00028	8/26/2019	1.56	8/26/2022	8/26/2019	105.99158	104.8107009	103.6559853	102.5265676	101.421624	100.3403662	99.28203926	98.24592027	97.23131623
190826A00030	8/26/2019	1.72	8/26/2026	8/26/2019	127.07901	120.9054963	115.0675333	109.545119	104.3195472	99.37332035	94.69006459	90.25445174	86.05212671
190626A00004	6/26/2019	2.15	6/26/2024	6/26/2019	117.04378	113.734449	110.5363	107.4449917	104.456375	101.5664854	98.77153413	96.06789897	93.45211626
190702A00002	7/2/2019	2.16	7/2/2024	7/2/2019	117.16723	113.8367057	110.6186678	107.5087016	104.5025869	101.5962931	98.78596879	96.06793323	93.43866751
190711A00019	7/11/2019	2.19	7/11/2023	7/11/2019	111.63581	109.4930548	107.4026737	105.3630573	103.3726538	101.4299696	99.53356684	97.68206079	95.87411762
190808A00050	8/8/2019	1.7	8/8/2024	8/8/2019	116.74831	113.2920502	109.956697	106.7373215	103.6292291	100.6279444	97.72919938	94.92892222	92.22322735
190809A00020	8/9/2019	2.44	8/9/2034	8/9/2019	172.60509	153.0683922	135.9558331	120.9523482	107.7853507	96.21881287	86.0481982	77.09611876	69.20860956
190809A00021	8/9/2019	2.12	8/9/2029	8/9/2019	144.12349	133.4645244	123.6714458	114.6693782	106.3902872	98.77232087	91.75921922	85.29978153	79.34738763
190814A00003	8/14/2019	2.01	8/14/2029	8/14/2019	143.16949	132.5319677	122.7607832	113.7808737	105.5240472	97.92832006	90.93732198	84.49976089	78.5689415
190815A00007	8/15/2019	1.81	7/6/2023	8/15/2019	110.77954	108.6615022	106.5949093	104.5781871	102.6098217	100.688356	98.81238658	96.9805617	95.19157877
190819A00022	8/19/2019	1.8	8/19/2024	8/19/2019	116.72648	113.2482855	109.8924056	106.6538231	103.5277603	100.5096645	97.59519526	94.78021373	92.06077143
190729A00009	7/29/2019	2.19	7/29/2024	7/29/2019	117.68625	114.2584068	110.9492466	107.7539812	104.6680476	101.687093	98.80696418	96.02369655	93.33350478
190731A00029	7/31/2019	1.93	7/29/2022	7/31/2019	105.94086	104.848497	103.7785566	102.7303535	101.7032307	100.6965577	99.70972862	98.74216158	97.79329709
190802A00004	8/2/2019	2	8/2/2022	8/2/2019	105.94793	104.8449426	103.7648256	102.7068705	101.6704009	100.6547675	99.6593472	98.68354121	97.72677436
190805A00048	8/5/2019	1.88	8/5/2022	8/5/2019	105.87071	104.7587403	103.6700245	102.6038404	101.5594942	100.5363204	99.53368022	98.55096044	97.58757197
190806A00027	8/6/2019	1.71	8/7/2023	8/6/2019	111.37827	109.1480589	106.9743488	104.8553342	102.7892772	100.774508	98.80942205	96.89247681	95.02218873
190807A00053	8/7/2019	1.66	8/6/2021	8/7/2019	100.10622	100.0867049	100.0672148	100.0477449	100.0282953	100.0088658	99.98945655	99.97006739	99.95069832
190620A00055	6/25/2019	2.08	4/17/2023	6/25/2019	110.05993	108.1915058	106.3646017	104.5778974	102.8301325	101.1200999	99.44664289	97.80865244	96.20506474
190701A00008	7/3/2019	2.1	7/3/2023	7/3/2019	111.3206	109.2064253	107.1433536	105.1298313	103.1643613	101.2455021	99.37186503	97.54211244	95.75495503
190712A00001	7/12/2019	2.05	7/12/2024	7/12/2019	117.4645	114.084861	110.8206739	107.6673482	104.6205043	101.6759617	98.82972807	96.0779904	93.4171053
190717A00007	7/17/2019	2.18	10/14/2022	7/17/2019	107.36496	106.0215866	104.7116987	103.4340527	102.1874693	100.9708261	99.78305423	98.62313526	97.49009806
190724A00025	7/24/2019	1.96	7/24/2023	7/24/2019	111.68742	109.4969254	107.3610709	105.2781348	103.2464658	101.2644762	99.33063884	97.44348444	95.60159873
190726A00017	7/26/2019	2.44	7/24/2026	7/26/2019	129.66868	123.570656	117.7970859	112.3289909	107.1486057	102.2392903	97.58545327	93.17247952	88.98666456
190606A00026	6/6/2019	2.23	6/6/2023	6/6/2019	111.1394	109.1094511	107.126829	105.1901456	103.2980629	101.4492909	99.6425847	97.87674354	96.15060834
190607A00009	6/7/2019	2.14	6/7/2022	6/7/2019	105.15991	104.2349373	103.3261891	102.4332411	101.5556839	100.6931221	99.8451737	99.0114696	98.19165308
190607A00023	6/7/2019	1.92	6/7/2022	6/7/2019	105.0678	104.1418244	103.2321115	102.3382397	101.4597977	100.5963886	99.747629	98.91314833	98.0925885
190614A00005	6/14/2019	1.99	6/14/2022	6/14/2019	105.24712	104.2986099	103.3671449	102.4522682	101.5535395	100.6705339	99.80284133	98.95006597	98.11182545
190617A00027	6/17/2019	2.21	6/16/2023	6/17/2019	111.26416	109.2025817	107.1897181	105.2241171	103.3043833	101.4291717	99.59718562	97.80717454	96.05793224
190619A00007	6/19/2019	2.21	6/20/2022	6/19/2019	105.44385	104.4773166	103.528455	102.596782	101.6818337	100.7831626	99.90033716	99.03294094	98.18057197
190531A00013	5/31/2019	2.31	12/6/2022	5/31/2019	108.23948	106.7882084	105.3636063	103.9649976	102.5917305	101.2431747	99.91871997	98.61777583	97.33977052

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190531A00038	5/31/2019	2.82	5/31/2034	5/31/2019	177.60049	158.0289867	140.8406855	125.7308762	112.4353022	100.7246101	90.39958242	81.2870428	73.23633448
190603A00040	6/3/2019	2.11	6/3/2022	6/3/2019	105.06627	104.1540901	103.2576971	102.3766831	101.5106548	100.6592325	99.82204905	98.99874954	98.18899082
190604A00030	6/4/2019	2.2	6/3/2022	6/4/2019	105.14463	104.2320711	103.3353067	102.4539256	101.5875348	100.7357541	99.89821653	99.07456703	98.26446237
190605A00012	6/5/2019	1.92	6/6/2022	6/5/2019	105.05122	104.1284117	103.2217604	102.3308447	101.4552575	100.5946057	99.74850964	98.91660241	98.09852929
190605A00020	6/5/2019	2.19	2/5/2024	6/5/2019	114.96315	112.1333121	109.3884342	106.7254484	104.1414185	101.633533	99.19909894	96.83553621	94.54037188
190529A00031	5/29/2019	2.36	5/30/2023	5/29/2019	111.27468	109.2646522	107.3010333	105.3824778	103.5076861	101.6754045	99.88442316	98.13357404	96.42172959
190529A00089	5/29/2019	2.38	5/29/2024	5/29/2019	117.31326	114.088786	110.9699611	107.9527541	105.0333109	102.2079454	99.47313054	96.82549122	94.26179646
190530A00008	5/30/2019	2.38	5/30/2025	5/30/2019	123.73155	119.1800543	114.8214779	110.6466476	106.6468752	102.8139282	99.14000344	95.6177026	92.24000896
190530A00029	5/30/2019	2.25	5/30/2024	5/30/2019	117.40408	114.1643066	111.0309697	108.000006	105.0675282	102.2298176	99.48331682	96.82462109	94.25047128
190530A00031	5/30/2019	2.21	5/31/2022	5/30/2019	105.20185	104.2968727	103.4074073	102.5330623	101.6734549	100.8282149	99.99698465	99.17941806	98.37518048
190531A00003	5/31/2019	2.31	10/29/2021	5/31/2019	101.52847	101.2710566	101.0149469	100.7601279	100.5065899	100.2543234	100.0033188	99.75356677	99.50505798
190506A00027	5/6/2019	2.38	5/6/2022	5/6/2019	104.90193	104.0750145	103.2611086	102.4599061	101.6711112	100.8944371	100.1296061	99.37634871	98.63440361
190507A00006	5/7/2019	2.57	5/8/2023	5/7/2019	111.28949	109.346563	107.4477343	105.5916178	103.7768879	102.0022735	100.2665552	98.56856255	96.90717178
190522A00021	5/23/2019	2.47	10/15/2021	5/23/2019	101.32687	101.1095922	100.8932602	100.6778658	100.4634028	100.2498652	100.0372468	99.8255418	99.61474417
190523A00022	5/23/2019	2.47	10/12/2022	5/23/2019	107.69356	106.3544058	105.0484537	103.7744814	102.5313249	101.3178762	100.1330795	98.97592902	97.84546516
190528A00007	5/28/2019	2.44	11/15/2023	5/28/2019	114.27852	111.7154946	109.2233917	106.7997744	104.442309	102.1487589	99.91698024	97.74491678	95.63059589
190528A00028	5/28/2019	2.42	5/30/2023	5/28/2019	111.39016	109.3789945	107.4142573	105.4946052	103.618738	101.7854013	99.99338463	98.24151949	96.52867775
190319A00008	3/19/2019	2.72	3/21/2022	3/19/2019	104.23819	103.554415	102.8796024	102.2135768	101.5561674	100.9072076	100.2665351	99.63399185	99.00942368
190320A00005	3/20/2019	2.75	3/20/2024	3/20/2019	117.22892	114.2278784	111.3200244	108.5018451	105.7699908	103.1212616	100.5525999	98.06108294	95.64391538
190329A00016	3/29/2019	2.56	3/29/2022	3/29/2019	104.27633	103.5684046	102.8700634	102.1811153	101.501372	100.83065	100.1687706	99.51556007	98.87084889
190329A00018	3/29/2019	2.6	3/29/2024	3/29/2019	116.95971	113.9335162	111.0020315	108.1616578	105.408962	102.7406664	100.1536406	97.64489352	95.21156587
190424A00023	4/24/2019	2.43	4/24/2023	4/24/2019	111.06316	109.1598972	107.2993382	105.4801146	103.700916	101.960488	100.2576294	98.59118917	96.96006369
190426A00011	5/1/2019	2.56	3/15/2022	5/1/2019	104.02512	103.3601284	102.7036305	102.0554661	101.4154769	100.783509	100.159412	99.54303932	98.93424812
190130A00019	1/30/2019	3.01	1/30/2024	1/30/2019	117.05019	114.2116173	111.4576682	108.7853121	106.1916428	103.673877	101.2293475	98.85549837	96.54987874
190204A00036	2/4/2019	2.86	11/4/2021	2/4/2019	101.77935	101.5043047	101.230749	100.9586709	100.6880584	100.4188997	100.151183	99.88489682	99.62002963
190215A00004	2/15/2019	2.84	2/15/2023	2/15/2019	110.29656	108.6122363	106.962692	105.3469286	103.7639844	102.2129336	100.6928851	99.2029804	97.74239236
190227A00002	2/27/2019	2.61	2/28/2022	2/27/2019	103.84874	103.2285167	102.6156793	102.0101001	101.4116507	100.8202058	100.2356433	99.65784337	99.08668943
190227A00005	2/27/2019	2.87	2/27/2024	2/27/2019	117.17549	114.2458991	111.4056023	108.6513063	105.9798665	103.3882752	100.8736549	98.43325156	96.06442852
190313A00017	3/13/2019	2.73	7/15/2022	3/13/2019	106.38648	105.3372215	104.3086258	103.3000881	102.3110255	101.3408778	100.3891058	99.45519094	98.53863373
190110A00009	1/10/2019	2.97	1/16/2024	1/10/2019	116.69216	113.9026171	111.1950242	108.5664904	106.0142426	103.5356223	101.1280808	98.78917338	96.51655468
190110A00012	1/10/2019	2.97	1/18/2024	1/10/2019	116.7281	113.9317576	111.2177424	108.5831418	106.0251637	103.5411324	101.1284823	98.78475329	96.50758511
190111A00037	1/11/2019	2.68	1/11/2022	1/11/2019	103.00334	102.5278435	102.0567483	101.589989	101.1275057	100.6692397	100.2151333	99.76512986	99.31917387
190115A00063	1/15/2019	2.96	1/16/2024	1/15/2019	116.66599	113.8767829	111.1695246	108.5413179	105.9893897	103.5110819	101.103846	98.76523751	96.49291124

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190122A00008	1/22/2019	2.98	1/20/2023	1/22/2019	110.04572	108.4434543	106.8731403	105.3339052	103.8249036	102.3453203	100.8943688	99.47128991	98.07535105
190122A00043	1/22/2019	2.96	1/22/2025	1/22/2019	123.85901	119.7366746	115.7755067	111.968313	108.3082612	104.7888608	101.4039447	98.14765081	95.01440518
181217A00052	12/17/2018	3.04	12/17/2021	12/17/2018	102.64792	102.2469081	101.8490323	101.4542602	101.0625555	100.6738826	100.288206	99.90549133	99.52570431
181219A00005	12/19/2018	3.06	12/19/2023	12/19/2018	116.41267	113.7161235	111.0964278	108.5509518	106.0771722	103.6726662	101.335108	99.06226355	96.85198647
181221A00018	12/21/2018	2.98	12/21/2021	12/21/2018	102.70017	102.2873954	101.8779433	101.4717734	101.0688463	100.6691233	100.2725662	99.87913736	99.48879984
181226A00024	12/26/2018	2.9	12/27/2021	12/26/2018	102.78024	102.3498101	101.922983	101.4997109	101.0799495	100.6636553	100.2507856	99.84129814	99.43515161
190104A00003	1/4/2019	2.81	1/4/2022	1/4/2019	102.89056	102.4364486	101.9863398	101.5401844	101.0979305	100.659527	100.2249238	99.79407154	99.36692182
190108A00039	1/8/2019	3.04	4/30/2024	1/8/2019	118.78295	115.6299002	112.5780565	109.6234614	106.7623422	103.9911033	101.3063164	98.70471138	96.18316699
181023A00025	10/23/2018	3.27	10/23/2023	10/23/2018	115.85849	113.3473276	110.9042874	108.5269799	106.2131259	103.9605465	101.7671578	99.63096503	97.55005871
181114A00014	11/14/2018	3.17	11/14/2023	11/14/2018	116.40861	113.814976	111.2930616	108.8403934	106.454605	104.1334298	101.8746953	99.67631832	97.53630098
181123A00013	11/23/2018	3.14	11/23/2021	11/23/2018	102.22228	101.8917597	101.563379	101.2371199	100.9129617	100.5908843	100.2708676	99.95289184	99.63693748
181210A00015	12/10/2018	3.12	12/11/2023	12/10/2018	116.41409	113.7434427	111.1482369	108.6259151	106.1740212	103.7901964	101.4721752	99.21778057	97.02492027
181211A00009	12/11/2018	3.14	12/11/2023	12/11/2018	116.46427	113.7929867	111.1971637	108.6742384	106.2217543	103.8373521	101.5187659	99.26381827	97.07041671
181214A00012	12/14/2018	3.07	12/14/2021	12/14/2018	102.6021	102.2099188	101.8207389	101.4345304	101.0512594	100.6708923	100.293396	99.9187381	99.54688652
181002A00055	10/2/2018	3.14	10/3/2022	10/2/2018	108.35386	107.0392977	105.7566003	104.5046159	103.2822509	102.0884631	100.9222586	99.78268919	98.66884968
181004A00028	10/4/2018	3.31	10/4/2023	10/4/2018	115.58243	113.1351078	110.7528841	108.4335287	106.1749103	103.974989	101.831811	99.74350437	97.70827477
181010A00019	10/10/2018	3.21	9/15/2021	10/10/2018	100.90441	100.7725158	100.6409856	100.5098139	100.3789991	100.2485398	100.1184346	99.98868185	99.85928019
181010A00023	10/10/2018	3.41	4/1/2024	10/10/2018	119.31717	116.2481646	113.2752172	110.3946681	107.6030297	104.8969731	102.2733189	99.72902991	97.26120303
181015A00024	10/15/2018	3.29	10/16/2023	10/15/2018	115.76959	113.2818139	110.8610384	108.504936	106.2112824	103.9779503	101.8029042	99.68419496	97.61995582
181023A00021	10/23/2018	3.28	10/23/2023	10/23/2018	115.8821	113.3706573	110.9273422	108.5497656	106.2356483	103.9828112	101.78917	99.65273001	97.5715815
180827A00010	8/27/2018	2.99	8/25/2023	8/27/2018	114.11344	111.8054045	109.5565193	107.3648496	105.2285437	103.1458245	101.1149859	99.13438905	97.20245966
180906A00004	9/6/2018	2.92	9/7/2021	9/6/2018	100.71972	100.6105067	100.5015405	100.3928219	100.2843499	100.1761237	100.0681424	99.96040516	99.85291115
180906A00047	9/6/2018	2.81	9/7/2021	9/6/2018	100.71765	100.6083312	100.4992663	100.3904504	100.2818825	100.1735616	100.065487	99.9576578	99.85007305
180910A00032	9/10/2018	3.22	9/10/2024	9/10/2018	121.7834	118.1535891	114.6526521	111.2752299	108.0162204	104.8707663	101.8342411	98.90223703	96.0705529
180914A00046	9/14/2018	2.93	9/14/2021	9/14/2018	100.86216	100.7329989	100.6041806	100.4757082	100.3475802	100.2197952	100.0923518	99.9652485	99.83848398
180921A00024	9/21/2018	2.99	9/21/2021	9/21/2018	101.00256	100.853522	100.7049354	100.5567995	100.409112	100.261871	100.1150744	99.96872005	99.82280606
180723A00024	10/23/2018	3.1	10/22/2021	10/23/2018	101.59588	101.3582713	101.1217845	100.8864088	100.6521366	100.41896	100.1868713	99.95586295	99.72592732
180724A00075	7/24/2018	2.98	7/24/2023	7/24/2018	113.82086	111.6076308	109.4494961	107.3447281	105.2916622	103.2886981	101.3342965	99.42697639	97.56531224
180727A00038	7/27/2018	3.36	7/25/2025	7/27/2018	128.18262	123.3677288	118.7633099	114.3590115	110.1450455	106.112157	102.2515914	98.55506515	95.01473741
180730A00078	7/30/2018	3.14	7/28/2023	7/30/2018	113.91376	111.6928255	109.5273685	107.4156408	105.355961	103.3467123	101.3863398	99.4733476	97.60629618
180731A00009	7/31/2018	2.97	7/31/2023	7/31/2018	113.93536	111.6986082	109.5180476	107.3918924	105.3184299	103.2960135	101.3230605	99.39804844	97.51951269
180820A00054	8/20/2018	3	8/18/2023	8/20/2018	114.00667	111.7209568	109.4934654	107.3223089	105.2056786	103.141838	101.1291191	99.16591933	97.25069838
180620A00044	6/20/2018	2.89	6/20/2023	6/20/2018	112.98335	110.8865165	108.8395235	106.840876	104.8891361	102.9829185	101.1208881	99.30175787	97.52428664

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180622A00006	6/22/2018	3.53	12/21/2029	6/22/2018	157.80258	146.1279663	135.4235875	125.6032893	116.5890005	108.3099328	100.7018668	93.70651157	87.27092969
180625A00009	6/25/2018	3	6/27/2022	6/25/2018	106.30589	105.3132814	104.3391833	103.3830809	102.444479	101.5229001	100.6178842	99.72898766	98.85578259
180716A00037	7/16/2018	3.01	7/18/2022	7/16/2018	106.72226	105.6617858	104.6223649	103.6033777	102.6042257	101.6243335	100.6631477	99.72013612	98.79478648
180719A00004	7/19/2018	3.07	7/19/2023	7/19/2018	113.59347	111.4046953	109.2699325	107.1875033	105.1557897	103.1732358	101.2383443	99.3496738	97.50583669
180719A00061	7/19/2018	3.07	7/19/2023	7/19/2018	113.59347	111.4046953	109.2699325	107.1875033	105.1557897	103.1732358	101.2383443	99.3496738	97.50583669
180529A00043	5/29/2018	2.99	5/30/2023	5/29/2018	112.48725	110.4652455	108.4898854	106.5598159	104.673731	102.8303706	101.0285186	99.26700122	97.54468524
180531A00015	5/31/2018	2.95	5/31/2023	5/31/2018	112.42882	110.4043378	108.426622	106.4943148	104.6061047	102.7607267	100.9569598	99.19362597	97.46958751
180611A00030	6/11/2018	2.91	6/12/2023	6/11/2018	112.87177	110.8006596	108.7782552	106.8031172	104.8738549	102.9891278	101.1476433	99.3481549	97.5894601
180612A00005	6/12/2018	3.09	6/12/2023	6/12/2018	112.92644	110.8602931	108.8426429	106.8720532	104.9471423	103.0665779	101.2290755	99.43339603	97.67834402
180612A00018	6/12/2018	2.88	6/10/2022	6/12/2018	105.97316	105.0334603	104.1104096	103.2035687	102.3125129	101.4368325	100.5761315	99.73002793	98.89815229
180618A00011	6/18/2018	3.02	6/20/2022	6/18/2018	106.18866	105.2183643	104.2657889	103.3304493	102.4118804	101.5096339	100.6232773	99.75239325	98.89657884
180503A00040	5/3/2018	3.3	5/5/2025	5/3/2018	126.44355	121.9400836	117.6239184	113.4861401	109.5183182	105.7124752	102.0610591	98.55691785	95.19327532
180514A00032	5/14/2018	3.27	5/14/2026	5/14/2018	133.89927	127.9138313	122.2345628	116.8441108	111.7262003	106.8655643	102.2478753	97.85968207	93.68835102
180514A00035	5/14/2018	3.07	5/14/2024	5/14/2018	119.5923	116.3716865	113.255539	110.2398112	107.3206464	104.494363	101.7574449	99.10653334	96.53841821
180518A00020	5/21/2018	3.08	3/15/2022	5/21/2018	104.35889	103.692679	103.0349726	102.3856106	101.7444346	101.1112904	100.4860276	99.86849942	99.25856283
180521A00072	5/21/2018	2.96	5/23/2022	5/21/2018	105.69239	104.8097074	103.9417536	103.0881625	102.2485795	101.4226618	100.6100774	99.81050526	99.02363446
180522A00037	5/22/2018	3.01	5/22/2023	5/22/2018	112.66273	110.6583332	108.6999683	106.78626	104.9158839	103.0875652	101.3000766	99.55223618	97.84290504
180308A00016	3/8/2018	2.88	6/1/2022	3/8/2018	105.69865	104.789623	103.8962051	103.0179948	102.1546063	101.3056668	100.4708157	99.64970463	98.84199633
180323A00013	3/23/2018	3.18	3/23/2028	3/23/2018	145.24834	136.4457245	128.2428034	120.5953932	113.4628012	106.8075299	100.5950092	94.79335274	89.37313508
180410A00017	4/10/2018	3.02	10/10/2023	4/10/2018	115.02601	112.5660906	110.1720499	107.8416186	105.5726241	103.3629874	101.2107186	99.11391158	97.07074003
180411A00001	4/11/2018	2.84	1/25/2022	4/11/2018	103.29548	102.7785379	102.2667628	101.7600803	101.2584145	100.7616912	100.2698376	99.78278234	99.30045536
180427A00011	4/27/2018	3.03	4/27/2022	4/27/2018	105.15822	104.3588106	103.5715412	102.7961348	102.0323246	101.2798519	100.5384655	99.80792195	99.08798446
180430A00078	10/30/2018	3.24	10/30/2023	10/30/2018	115.92276	113.3885001	110.9234799	108.5252546	106.1914896	103.9199539	101.7085145	99.55513118	97.45785107
180129A00004	1/29/2018	2.63	1/31/2022	1/29/2018	103.29833	102.7637064	102.2346033	101.7109344	101.1926164	100.6795677	100.1717083	99.66895975	99.17124539
180130A00091	1/30/2018	2.74	1/25/2023	1/30/2018	109.74899	108.1343692	106.5522374	105.0016943	103.4818737	101.9919402	100.5310883	99.09854079	97.69354771
180207A00002	2/7/2018	3.13	2/6/2026	2/7/2018	130.54208	125.0072114	119.74198	114.7317791	109.962874	105.4223443	101.0980308	96.97848696	93.0529328
180207A00022	2/7/2018	2.79	2/7/2023	2/7/2018	110.06641	108.4090913	106.7857022	105.1952812	103.6369028	102.1096758	100.6127415	99.14527225	97.70647013
180226A00034	2/26/2018	2.82	6/27/2022	2/26/2018	106.13675	105.1450155	104.1717766	103.2165223	102.2787576	101.3580053	100.4538055	99.56571494	98.69330582
180226A00043	2/26/2018	2.73	9/27/2021	2/26/2018	101.05687	100.8910328	100.7257462	100.5610034	100.3968016	100.2331381	100.0700104	99.90741581	99.74535179
171208A00008	12/8/2017	2.25	12/8/2022	12/8/2017	108.38395	106.9223358	105.4877311	104.0794451	102.6968142	101.3391965	100.0059712	98.6965373	97.41031332
171211A00033	12/11/2017	2.26	12/12/2022	12/11/2017	108.46707	106.992551	105.545477	104.1251477	102.7308837	101.3620282	100.0179457	98.69802168	97.40166125
171212A00027	12/12/2017	2.21	12/13/2021	12/12/2017	102.29045	101.9014955	101.5155036	101.1324437	100.7522823	100.3749865	100.0005239	99.62886253	99.25997089
171213A00019	12/13/2017	2.17	12/13/2021	12/13/2017	102.27521	101.8862853	101.5003292	101.1173048	100.7371788	100.3599182	99.9854905	99.61386387	99.24500678

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171227A00018	12/27/2017	2.83	12/27/2024	12/27/2017	122.33301	118.3397133	114.4993206	110.8051552	107.2508685	103.8304225	100.5380727	97.36835231	94.31605707
180104A00018	1/4/2018	2.97	1/4/2027	1/4/2018	135.27689	128.4556623	122.0237491	115.9568708	110.2323895	104.8291859	99.72754964	94.90907862	90.35658524
171018A00001	10/18/2017	1.96	10/18/2021	10/18/2017	101.28529	101.0593341	100.8343967	100.6104731	100.3875563	100.1656395	99.94471583	99.72477865	99.50582127
171026A00006	10/26/2017	2.32	10/26/2022	10/26/2017	107.74788	106.3633238	105.0142063	103.6991842	102.4169774	101.1663697	99.94620396	98.75537906	97.59284641
171026A00011	10/26/2017	2.94	10/26/2027	10/26/2017	139.7586	131.7406258	124.2395247	117.2190983	110.6458834	104.4889292	98.71959414	93.31136121	88.23966837
171030A00023	10/30/2017	2.9	11/1/2027	10/30/2017	139.57128	131.5375985	124.023136	116.9914531	110.4088694	104.2442372	98.46873691	93.05568997	87.98038819
171103A00017	11/3/2017	2.09	11/3/2022	11/3/2017	107.72732	106.3231345	104.9538455	103.6181568	102.3148366	101.0427124	99.80066827	98.58764111	97.40261753
171130A00005	11/30/2017	2.45	11/30/2022	11/30/2017	108.33264	106.8990333	105.4914716	104.1093026	102.7518968	101.4186453	100.1089582	98.82226443	97.55801097
170822A00020	8/22/2017	2.59	8/22/2025	8/22/2017	125.28086	120.4338538	115.8028497	111.3770259	107.1461661	103.100621	99.23127329	95.52950533	91.98716865
170830A00030	8/30/2017	2	3/30/2022	8/30/2017	103.91091	103.2013925	102.5015233	101.8111103	101.1299629	100.4578959	99.79472872	99.14028565	98.49439556
170830A00044	8/30/2017	1.94	8/30/2021	8/30/2017	100.48714	100.4006174	100.3142374	100.2280038	100.1419163	100.0559746	99.97017822	99.88452688	99.79902024
170831A00022	8/31/2017	2.27	2/29/2024	8/31/2017	115.56034	112.6464917	109.8217458	107.0828129	104.4265469	101.8499394	99.35011248	96.92431203	94.56990154
170906A00006	9/6/2017	1.81	9/6/2022	9/6/2017	106.44735	105.2288253	104.0380566	102.8741052	101.7360732	100.6231027	99.53437284	98.46909867	97.4265286
171012A00027	10/12/2017	2.21	10/12/2022	10/12/2017	107.36873	106.03176	104.7279532	103.4560899	102.2150069	101.0035971	99.82080602	98.66562844	97.53710583
170530A00064	5/30/2017	2.32	3/27/2023	5/30/2017	110.13939	108.3330933	106.5658942	104.8365884	103.1440245	101.4870977	99.86474807	98.27595739	96.71974771
170602A00026	6/2/2017	2.25	6/3/2024	6/2/2017	117.46814	114.2146182	111.0683665	108.0252731	105.0814066	102.233007	99.47647758	96.808377	94.22541143
170608A00020	6/8/2017	2.27	6/10/2024	6/8/2017	117.64165	114.363128	111.1933608	108.1281554	105.1635016	102.2955655	99.5206809	96.83534078	94.23618959
170622A00036	6/22/2017	3.23	6/22/2032	6/22/2017	169.8206	153.8668849	139.5845206	126.788361	115.3146918	105.0186512	95.77197181	87.46100326	79.98497931
170801A00020	8/1/2017	2.02	8/2/2021	8/1/2017	100.04777	100.0394139	100.0310683	100.0227303	100.0144001	100.0060774	99.99776244	99.98945508	99.98115532
170822A00019	8/22/2017	2.44	8/22/2024	8/22/2017	118.87199	115.3498488	111.9515179	108.6719103	105.506185	102.4497293	99.49814627	96.6472434	93.89302148
170130A00008	1/30/2017	2.58	1/30/2023	1/30/2017	109.58739	107.9590703	106.3638072	104.8006751	103.2687852	101.7672812	100.2953374	98.85215757	97.43697333
170203A00031	2/3/2017	2.09	2/3/2022	2/3/2017	103.11645	102.5728836	102.0350358	101.5028179	100.9761421	100.4549219	99.93907295	99.4285125	98.92315949
170216A00041	2/16/2017	2.37	2/16/2022	2/16/2017	103.44051	102.8579929	102.2820334	101.7125194	101.1493429	100.5923984	100.0415828	99.49679535	98.95793724
170313A00033	3/13/2017	3.31	3/15/2027	3/13/2017	138.54806	131.3784214	124.629854	118.2752963	112.2895741	106.6492574	101.3325304	96.31907125	91.58994175
170405A00013	4/5/2017	2.07	4/5/2022	4/5/2017	104.13195	103.4024606	102.6831689	101.9738615	101.2743316	100.5843778	99.90380452	99.23242135	98.57004298
170524A00047	5/24/2017	2.22	5/24/2023	5/24/2017	111.19314	109.1969884	107.2468042	105.341221	103.4789246	101.6586491	99.87917551	98.13932887	96.43797666
161115A00010	11/15/2016	2.09	11/15/2021	11/15/2016	101.75042	101.443845	101.1391283	100.8362523	100.5352002	100.2359554	99.93850173	99.64282296	99.34890318
161123A00008	11/23/2016	2.2	11/23/2021	11/23/2016	101.91707	101.5871814	101.2594297	100.9337964	100.6102611	100.2888034	99.96940352	99.65204159	99.33669814
161208A00007	12/8/2016	2.6	12/8/2023	12/8/2016	115.0578	112.4138809	109.844496	107.3471299	104.9193627	102.5588705	100.2634204	98.03086655	95.85914665
161213A00017	12/13/2016	2.24	12/13/2022	12/13/2016	108.45569	106.97818	105.5282272	104.105122	102.7081809	101.3367434	99.99017065	98.66784455	97.36916713
170111A00020	1/11/2017	2.27	1/11/2022	1/11/2017	102.77043	102.296099	101.8261532	101.3605276	100.8991628	100.4420002	99.98898251	99.54005348	99.09515778
170120A00008	1/20/2017	3.63	1/20/2034	1/20/2017	184.80964	165.5200006	148.4929476	133.4481242	120.141374	108.3598933	97.91805756	88.65382264	80.42561777
160830A00031	8/30/2016	1.65	8/31/2021	8/30/2016	100.47703	100.3877037	100.2985384	100.2095315	100.1206826	100.0319914	99.94345741	99.85508024	99.76685948

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160830A00037	8/30/2016	2.16	8/29/2025	8/30/2016	123.47662	118.6452015	114.0303586	109.6211887	105.4074007	101.3792779	97.52764175	93.84381921	90.31961169
160830A00038	8/30/2016	2.24	8/28/2026	8/30/2016	129.06483	122.8636976	116.9981943	111.4483606	106.1955326	101.2222502	96.51217221	92.04999903	87.82140029
160830A00061	8/30/2018	1.89	8/30/2023	8/30/2018	111.78626	109.489071	107.2511401	105.0705181	102.9453381	100.8738092	98.85421257	96.88489769	94.96427932
160922A00049	9/22/2016	1.79	9/22/2022	9/22/2016	106.53008	105.2625207	104.0249734	102.8163784	101.6357291	100.4820652	99.35446974	98.25206721	97.17402068
160926A00074	9/26/2016	1.38	9/27/2021	9/26/2016	100.85121	100.6854603	100.5202598	100.3556049	100.1914928	100.0279209	99.8648865	99.702387	99.54041976
160401A00016	4/1/2016	2.42	4/1/2025	4/1/2016	122.32745	118.0160997	113.8810788	109.9141361	106.1074582	102.4536448	98.94568433	95.57693057	92.34108115
160615A00031	6/15/2016	2.51	6/17/2030	6/15/2016	152.38321	140.163313	129.0238612	118.8635253	109.5909633	101.1237931	93.38767259	86.31547765	79.84656868
160701A00019	7/1/2016	1.73	7/3/2023	7/1/2016	110.57105	108.4646253	106.4091547	104.4030831	102.4449178	100.5332214	98.66660937	96.84374795	95.06335161
160706A00010	7/6/2016	1.99	7/7/2025	7/6/2016	121.9811	117.3569366	112.9338094	108.7019209	104.6520039	100.7752898	97.06347883	93.50871272	90.10354864
160815A00005	8/15/2016	2.23	8/17/2026	8/15/2016	128.85419	122.6955624	116.8687011	111.3539708	106.1330034	101.1886095	96.50469551	92.06618858	87.85896603
160825A00055	8/29/2016	2.32	8/30/2021	8/29/2016	100.51997	100.4334159	100.3470077	100.260746	100.1746304	100.0886605	100.0028361	99.91715681	99.83162223
150923A00045	9/23/2015	1.97	9/23/2021	9/23/2015	100.88392	100.7293926	100.5753509	100.4217907	100.2687095	100.1161052	99.96397558	99.8123183	99.6611312
151002A00081	10/2/2015	2.29	10/2/2023	10/2/2015	113.54946	111.1251399	108.7654274	106.4681072	104.2310637	102.0522716	99.92979142	97.86176487	95.84641062
151005A00053	10/5/2015	1.99	10/5/2021	10/5/2015	101.06224	100.8737652	100.6860009	100.4989401	100.3125791	100.1269137	99.94194011	99.75765448	99.57405293
160307A00026	3/7/2016	2.2	3/7/2023	3/7/2016	109.59793	107.8575264	106.1538991	104.4859584	102.8526536	101.252975	99.68595198	98.15065113	96.64617443
160330A00056	3/30/2016	2.26	3/31/2025	3/30/2016	122.30209	117.9777811	113.8306386	109.8523563	106.0350735	102.371346	98.85412072	95.47671283	92.23278372
160331A00024	3/31/2016	1.91	3/31/2022	3/31/2016	103.86545	103.1530843	102.450454	101.75736	101.0736093	100.399014	99.73339131	99.07656329	98.42835663
150710A00040	7/10/2015	2.63	7/11/2022	7/10/2015	106.20385	105.1682317	104.1527743	103.1568912	102.1800201	101.2216203	100.2811714	99.35817218	98.45214016
150817A00016	8/17/2015	2.24	8/17/2021	8/17/2015	100.29778	100.2475853	100.1974561	100.1473939	100.0973985	100.0474697	99.99760748	99.94781161	99.898082
150819A00011	8/19/2015	2.53	8/19/2022	8/19/2015	106.80502	105.6435239	104.5072274	103.3953185	102.3070184	101.2415807	100.1982906	99.17646241	98.17543885
150821A00018	8/21/2015	2.6	8/21/2024	8/21/2015	119.89433	116.3465859	112.9235995	109.6202416	106.4316309	103.3531161	100.380264	97.50884753	94.73483482
150824A00040	8/24/2015	2.36	8/24/2022	8/24/2015	106.70631	105.5296262	104.3788072	103.2530109	102.1514279	101.0732834	100.0178352	98.98437244	97.97221341
150904A00021	9/4/2015	2.52	9/5/2023	9/4/2015	113.61062	111.2682424	108.9866583	106.7638556	104.5979031	102.4869489	100.4292164	98.42300069	96.4666648
150601A00615	6/1/2015	2.67	6/30/2022	6/1/2015	106.01642	105.0159999	104.0344125	103.0711265	102.1256338	101.1974451	100.2860887	99.39111003	98.51207069
150601A00646	6/1/2015	2.68	9/30/2022	6/1/2015	107.69174	106.39119	105.1219575	103.8829237	102.6730208	101.4912307	100.3365823	99.20814878	98.10504506
150601A00666	6/1/2015	3.88	1/16/2035	6/1/2015	194.01034	172.5248917	153.7243851	137.2545527	122.8097529	110.1260696	98.97541873	89.16051301	80.51055688
150601A00688	6/1/2015	2.61	2/21/2025	6/1/2015	122.90728	118.6999052	114.6605804	110.7816385	107.0558068	103.4761861	100.0362288	96.72971934	93.55075469
150601A00694	6/1/2015	3.56	3/6/2030	6/1/2015	158.93589	146.9116911	135.9089766	125.8350411	116.6060657	108.1462252	100.3868864	93.26589078	86.72691202
150601A00717	6/1/2015	2.13	4/1/2022	6/1/2015	104.01332	103.2973652	102.5912316	101.8947216	101.2076396	100.5297953	99.86100327	99.20108329	98.54985976
140307A00011	3/7/2014	3.19	3/15/2023	3/7/2014	111.65327	109.866158	108.1171997	106.4052471	104.7291946	103.087981	101.4805869	99.90603274	98.36337654
140702A00034	7/2/2014	2.7	7/1/2022	7/2/2014	106.20847	105.2023145	104.2151768	103.2465214	102.295833	101.3626152	100.4463899	99.54669615	98.66308958
140911A00027	9/11/2014	3.18	9/16/2024	9/11/2014	121.75849	118.1098585	114.5913286	111.1974651	107.9230941	104.7632913	101.7133683	98.76885887	95.92550762
141202A00012	12/2/2014	2.32	12/2/2021	12/2/2014	102.14163	101.7849594	101.4307776	101.0790568	100.7297717	100.3828969	100.0384075	99.69627912	99.35648743

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150220A00022	2/20/2015	2.8	2/20/2025	2/20/2015	123.15947	118.9666424	114.940749	111.074189	107.3597578	103.7906198	100.3602869	97.06259877	93.8917042
150317A00013	3/17/2015	2.58	3/17/2025	3/17/2015	123.34286	119.0456611	114.9227126	110.9659317	107.1676608	103.5206433	100.0179995	96.65320497	93.42006956
130405A00006	4/5/2013	2.41	4/7/2025	4/5/2013	123.01052	118.6495734	114.467958	110.4572353	106.6094147	102.9169316	99.37262087	95.96969342	92.70171356
130424A00005	4/24/2013	3.07	4/24/2030	4/24/2013	157.27283	145.0417132	133.870313	123.6607401	114.3246588	105.782303	97.96160132	90.79739602	84.23074558
130528A00028	5/28/2013	2.63	5/30/2023	5/28/2013	111.79435	109.7791922	107.8105413	105.8870513	104.0074196	102.17039	100.3747498	98.61932855	96.9029963
130702A00018	7/2/2013	3.17	7/17/2023	7/2/2013	114.07801	111.884528	109.7451073	107.6580704	105.6217996	103.6347387	101.6953905	99.80231361	97.95412027
130821A00019	8/21/2013	3.81	8/29/2025	8/21/2013	131.54564	126.5216216	121.7212937	117.133423	112.7474061	108.5532307	104.5414389	100.7030932	97.02974473
140113A00012	1/13/2014	3.48	1/17/2023	1/13/2014	110.75602	109.1570573	107.5898053	106.0533978	104.5469999	103.0698064	101.6210402	100.1999515	98.80581605
110805A00014	8/5/2011	4.06	8/17/2026	8/5/2011	139.06304	132.6360627	126.5513569	120.7887813	115.3294926	110.1558518	105.2513408	100.600485	96.18878177
111006A00023	10/6/2011	3.81	10/15/2026	10/6/2011	138.79924	132.1699745	125.903736	119.9785578	114.3739326	109.0707036	104.0509684	99.29798858	94.79610748
111024A00010	10/24/2011	3.11	10/30/2023	10/24/2011	115.98007	113.4376982	110.9649288	108.5592972	106.2184524	103.9401483	101.7222375	99.56266583	97.45946777
120312A00009	3/12/2012	2.72	3/15/2024	3/12/2012	117.49108	114.4929688	111.5877314	108.7718773	106.0420773	103.395151	100.8280587	98.33789415	95.9218775
120907A00022	9/7/2012	1.88	9/15/2021	9/7/2012	100.74326	100.6114226	100.4799418	100.3488209	100.2180585	100.087653	99.95760291	99.82790677	99.69856307
130212A00017	2/12/2013	2.29	2/15/2023	2/12/2013	109.40687	107.7300675	106.0879042	104.4793873	102.9035586	101.3594963	99.84631274	98.36315279	96.9091926
051107A00075	11/7/2005	5.29	11/17/2025	11/7/2005	140.13979	134.6463233	129.4062323	124.4063791	119.6343816	115.0785673	110.7279273	106.5720756	102.6012095
060808A00022	8/8/2006	5.57	6/15/2026	8/8/2006	145.90042	139.5269802	133.4796543	127.7399385	122.2904796	117.1149936	112.1981949	107.5257298	103.0841147
081217A00076	12/17/2008	3.86	12/22/2023	12/17/2008	118.89875	116.1525844	113.4849064	110.893021	108.3743394	105.9263774	103.5467502	101.2331678	98.98343074
090226A00006	2/26/2009	4.55	3/1/2024	2/26/2009	122.2918	119.2730841	116.3463096	113.5080764	110.7551388	108.0843935	105.4928719	102.9777334	100.536259
091112A00011	11/12/2009	4.77	11/15/2024	11/12/2009	129.07517	125.0899647	121.2521031	117.5552599	113.9934205	110.560865	107.2521519	104.0621026	100.9857868
110802A00008	8/2/2011	3.34	8/16/2021	8/2/2011	100.33764	100.2901447	100.2427129	100.1953437	100.1480367	100.100792	100.0536094	100.0064887	99.95942991
210226A00012	2/26/2021	2.31	2/26/2036	2/26/2021	174.11608	152.3201048	133.5083233	117.2542297	103.1943332	91.01856631	80.46219745	71.29900137	63.33548758
210304A00004	3/4/2021	0.58	3/4/2024	3/4/2021	110.95403	108.0907309	105.3157324	102.6257567	100.0176672	97.4884655	95.03528413	92.65537963	90.3461264
210604A00005	6/4/2021	0.3	12/2/2022	6/4/2021	105.55227	104.1301437	102.7340008	101.3631919	100.0170869	98.69507598	97.39656901	96.12099451	94.86779907
010824A00019	8/24/2001	6.24	8/24/2021	8/24/2001	100.69234	100.6223433	100.5524502	100.482664	100.4129843	100.3434111	100.273944	100.2045829	100.1353274
011107A00022	11/7/2001	5.56	11/5/2021	11/7/2001	102.53781	102.2585171	101.9807499	101.7044982	101.4297497	101.1564921	100.8847133	100.6144011	100.3455438
011107A00031	11/7/2001	5.56	11/5/2021	11/7/2001	102.53781	102.2585171	101.9807499	101.7044982	101.4297497	101.1564921	100.8847133	100.6144011	100.3455438
201030A00001	11/2/2020	2.54	10/29/2040	11/2/2020	197.4461	166.3791815	140.7021676	119.4418569	101.805726	87.14758731	74.9399177	64.75153362	56.2295588
201030A00003	11/2/2020	2.58	10/29/2040	11/2/2020	198.41192	167.2501803	141.490533	120.1580165	102.4586174	87.74488813	75.48823782	65.25657659	56.69625727
201116A00010	11/16/2020	0.57	11/15/2023	11/16/2020	109.73381	107.2263225	104.7885402	102.4180634	100.1125945	97.86993188	95.6879649	93.56466948	91.49810377
201130A00005	11/30/2020	0.28	11/30/2022	11/30/2020	105.50142	104.0857321	102.6958073	101.331007	99.99070862	98.67430992	97.38122769	96.1108972	94.8627715
210106A00006	1/8/2021	0.48	7/17/2023	1/8/2021	108.19998	106.0744545	104.0014914	101.979455	100.0067737	98.08193584	96.2034863	94.37002449	92.58020163
210201A00012	2/3/2021	0.75	11/17/2025	2/3/2021	117.99025	113.0170041	108.2783925	103.7621228	99.45661386	95.35095151	91.43484573	87.69859161	84.1330327
200720A00035	7/20/2020	1.81	7/20/2035	7/20/2020	163.1018	143.0112828	125.5935006	110.4783374	97.34862096	85.93232544	75.99595178	67.33890644	59.78872339

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200818A00004	8/18/2020	0.92	8/18/2026	8/18/2020	121.55602	115.5859749	109.9405102	104.6003233	99.54736058	94.76473042	90.23662182	85.94822956	81.88568491
200922A00025	9/24/2020	2.61	9/26/2022	9/24/2020	107.57908	106.2920216	105.0356783	103.808957	102.6108192	101.4402748	100.2963787	99.17822856	98.08496238
200922A00038	9/24/2020	2.33	9/25/2023	9/24/2020	113.17693	110.7853827	108.4570165	106.1896938	103.9813651	101.8300675	99.73391977	97.69111886	95.69993543
200925A00003	9/25/2020	0.59	9/25/2024	9/25/2020	113.13682	109.6025172	106.1963154	102.912797	99.74681061	96.6934561	93.74807035	90.90621413	88.16365965
201006A00003	10/6/2020	0.29	10/6/2022	10/6/2020	105.05672	103.7518376	102.4790208	101.2371022	100.0249693	98.84156242	97.68587175	96.55693411	95.45383051
200513A00003	5/13/2020	0.68	5/13/2025	5/13/2020	116.4546	112.1047973	107.9392588	103.9491613	100.1261572	96.46234638	92.95024871	89.58277935	86.35322528
200604A00005	6/4/2020	0.89	6/4/2025	6/4/2020	116.92302	112.5100435	108.2858173	104.2413198	100.3680095	96.65779433	93.10300567	89.69637411	86.43100651
200604A00013	6/4/2020	2.21	6/4/2035	6/4/2020	169.35616	149.0058097	131.3230255	115.9427486	102.5515963	90.88032277	80.6974109	71.80362222	64.02735604
200615A00004	6/15/2020	0.56	6/15/2022	6/15/2020	103.86489	102.9216718	101.9954748	101.0858384	100.1923217	99.3144995	98.45196123	97.60431065	96.77116506
200710A00006	7/10/2020	0.4	7/10/2023	7/10/2020	108.26001	106.1498999	104.0915565	102.0833799	100.1238347	98.21144339	96.34478347	94.5224852	92.74322917
200716A00015	7/20/2020	1.54	7/19/2024	7/20/2020	115.46023	112.1003256	108.8559618	105.7225233	102.6956028	99.77099449	96.9446832	94.21283469	91.57178637
200427A00010	4/27/2020	0.68	4/27/2022	4/27/2020	103.3614	102.5696509	101.789961	101.0220533	100.2656625	99.52053134	98.78641011	98.06305643	97.35023497
200429A00046	5/1/2020	2.07	4/30/2025	5/1/2020	121.34823	116.9617171	112.7582154	108.7289817	104.8657493	101.160699	97.60643171	94.19594264	90.92259758
200429A00051	5/1/2020	2.54	4/30/2025	5/1/2020	123.26021	118.8361455	114.5962519	110.5317372	106.6342915	102.8960543	99.30958729	95.86784817	92.56416693
200430A00006	4/30/2020	0.61	4/29/2022	4/30/2020	103.3328	102.5351509	101.7497313	100.976265	100.2144813	99.46411741	98.72491834	97.99663671	97.27903236
200511A00021	5/11/2020	1.53	2/1/2029	5/11/2020	134.95118	125.4319826	116.6445556	108.5289823	101.0305403	94.09922635	87.68932682	81.75902956	76.2700725
200511A00023	5/11/2020	1.7	2/3/2031	5/11/2020	144.72672	132.0838053	120.6384829	110.2712009	100.8749019	92.35366173	84.62148077	77.60121219	71.22361062
200312A00017	3/16/2020	1.09	2/15/2023	3/16/2020	107.46573	105.8053355	104.1792764	102.5865698	101.0262661	99.4974514	97.99924579	96.53080164	95.09130222
200317A00026	3/17/2020	1.22	3/15/2024	3/17/2020	112.86274	109.938489	107.1050781	104.3591012	101.6973009	99.11656493	96.61391873	94.1865181	91.83164252
200325A00030	3/25/2020	1.5	3/25/2025	3/25/2020	119.19367	114.9490528	110.8782888	106.9732501	103.2262392	99.62996504	96.17751836	92.86234916	89.67824567
200330A00041	4/1/2020	1.09	4/1/2025	4/1/2020	117.03795	112.8283331	108.7919615	104.920706	101.206867	97.64315257	94.22265465	90.93882573	87.78545779
200331A00030	4/2/2020	1.17	4/1/2022	4/2/2020	103.37077	102.6573098	101.9536498	101.2595895	100.5749336	99.89949222	99.23308041	98.5755182	97.92663036
200417A00009	4/17/2020	1.35	4/16/2027	4/17/2020	126.61386	119.6836648	113.171928	107.0511826	101.2959139	95.88240973	90.78862359	85.99404775	81.47959751
200227A00006	2/27/2020	1.47	2/27/2025	2/27/2020	118.12872	114.0062802	110.049671	106.2512925	102.6039359	99.10076422	95.73529048	92.50135774	89.39312015
200227A00016	2/27/2020	1.47	2/27/2025	2/27/2020	118.12872	114.0062802	110.049671	106.2512925	102.6039359	99.10076422	95.73529048	92.50135774	89.39312015
200228A00016	2/28/2020	1.35	2/22/2024	2/28/2020	112.9371	110.0810866	107.3121747	104.6271646	102.0229962	99.49674255	97.04560255	94.66689479	92.35805152
200228A00039	2/28/2020	1.33	4/28/2023	2/28/2020	108.86361	106.9736762	105.1263494	103.3202561	101.554083	99.82657303	98.13652288	96.48277958	94.86423802
200304A00052	3/6/2020	2.11	3/8/2027	3/6/2020	130.93978	124.0172655	117.5035627	111.3723585	105.5991772	100.1612388	95.03733159	90.20769616	85.65391812
200310A00065	3/13/2020	1.1	3/13/2025	3/13/2020	116.85814	112.713799	108.7379631	104.9228243	101.2609845	97.74543206	94.36951843	91.12693725	88.01170443
200210A00005	2/10/2020	1.77	2/10/2027	2/10/2020	129.55212	122.7260165	116.3002323	110.2492104	104.5491611	99.17792727	94.11486374	89.34072608	84.83756845
200210A00021	2/10/2020	1.76	2/10/2025	2/10/2020	119.01264	114.9310363	111.0116769	107.2472095	103.6306614	100.1554143	96.81518426	93.60400285	90.51619914
200214A00015	2/18/2020	1.76	8/6/2024	2/18/2020	116.41575	112.9829368	109.6698309	106.4715673	103.383513	100.4012503	97.52056552	94.73743796	92.04803004
200224A00018	2/24/2020	1.58	8/19/2024	2/24/2020	116.00538	112.5387857	109.194202	105.9666197	102.8512715	99.84361417	96.93931697	94.13424984	91.42447296

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200224A00029	2/24/2020	1.56	2/24/2023	2/24/2020	108.36147	106.6655145	105.0049612	103.3787795	101.7859757	100.2255941	98.69671499	97.19845341	95.72995705
200225A00006	2/25/2020	1.57	2/25/2022	2/25/2020	103.11794	102.5099021	101.9090047	101.3151269	100.7281463	100.1479434	99.57440142	99.00740619	98.44684617
200123A00048	1/23/2020	1.7	1/23/2025	1/23/2020	119.12106	115.082204	111.2022368	107.4740451	103.8908713	100.4462968	97.13422354	93.94885554	90.88468246
200129A00017	2/3/2020	1.75	8/15/2022	2/3/2020	105.89023	104.7467285	103.6278065	102.532682	101.460602	100.4108449	99.3827193	98.37556172	97.38873575
200130A00025	1/30/2020	1.54	1/30/2023	1/30/2020	108.17053	106.5502317	104.9629039	103.4076261	101.8835107	100.3897021	98.9253756	97.48973583	96.08201552
200131A00016	1/31/2020	1.73	1/31/2025	1/31/2020	118.75818	114.7150388	110.8316259	107.1007539	103.5156017	100.0696922	96.75687303	93.57129802	90.5074104
200203A00050	2/3/2020	1.54	2/3/2022	2/3/2020	102.82588	102.2832042	101.7462454	101.2149098	100.6891096	100.1687585	99.65377213	99.14406787	98.63956476
200207A00016	2/7/2020	1.74	2/7/2024	2/7/2020	113.7866	110.966189	108.2307004	105.5770572	103.0023178	100.5036656	98.0784034	95.72394715	93.43782041
191126A00026	11/26/2019	1.91	11/25/2026	11/26/2019	129.38024	122.8317342	116.6532703	110.8220576	105.3168206	100.1176942	95.20612264	90.56476693	86.1774188
191220A00001	12/20/2019	2.62	12/19/2031	12/20/2019	159.4065	144.7765645	131.6271718	119.8001998	109.1551733	99.56721691	90.92525144	83.13040751	76.09462826
191230A00012	12/30/2019	1.77	12/1/2023	12/30/2019	113.25651	110.6497439	108.1161736	105.6533408	103.2588819	100.9305259	98.66609056	96.46347822	94.32067216
200109A00014	1/14/2020	1.93	8/15/2022	1/14/2020	106.08482	104.9401739	103.8201272	102.7238945	101.6507227	100.5998896	99.57070341	98.56250036	97.57464366
200110A00013	1/10/2020	1.76	1/10/2024	1/10/2020	113.83495	111.0931119	108.4317073	105.8479054	103.3389935	100.9023715	98.53554528	96.23612275	94.00180824
200122A00034	1/22/2020	1.87	1/22/2024	1/22/2020	113.90057	111.1287938	108.4392211	105.8289263	103.2951068	100.8350771	98.44626294	96.12619629	93.87250993
191106A00022	11/6/2019	2.34	1/2/2030	11/6/2019	146.47178	135.2434171	124.9628619	115.5451084	106.9131827	98.99734701	91.7343861	85.06696678	78.94306376
191108A00011	11/8/2019	2.08	10/18/2024	11/8/2019	118.53592	114.837072	111.2737696	107.8401921	104.5308069	101.3403567	98.26384367	95.29651494	92.43384829
191113A00016	11/15/2019	2.02	8/15/2024	11/15/2019	117.3891	113.9127213	110.5581736	107.3204741	104.1948791	101.1768675	98.26212835	95.44654994	92.72620915
191119A00027	11/19/2019	1.8	11/19/2024	11/19/2019	118.56243	114.7470463	111.0747068	107.5392436	104.1347949	100.8557848	97.69690826	94.6531155	91.7195986
191122A00005	11/22/2019	2.03	11/22/2027	11/22/2019	134.96193	126.9579178	119.4794077	112.4892067	105.9529394	99.8388206	94.11744702	88.76160718	83.74610724
191125A00036	11/25/2019	2.29	11/23/2029	11/25/2019	145.44377	134.4121595	124.3011309	115.0290365	106.5218602	98.71247121	91.53995222	84.94899477	78.88935708
191009A00018	10/9/2019	1.74	10/12/2021	10/9/2019	101.12198	100.9135616	100.7060107	100.4993245	100.2934977	100.0885249	99.8844006	99.68111961	99.47867661
191009A00028	10/9/2019	1.76	10/9/2024	10/9/2019	117.30097	113.6524135	110.1368401	106.7485728	103.4822179	100.3326483	97.2949879	94.36459728	91.53706072
191011A00013	10/11/2019	1.88	10/11/2022	10/11/2019	106.94047	105.6095831	104.311652	103.0454672	101.8098751	100.6037776	99.4261284	98.27593022	97.15223196
191031A00033	10/31/2019	2.2	5/31/2028	10/31/2019	137.43648	128.7086084	120.5936125	113.0453443	106.0213512	99.48256341	93.39300787	87.71954899	82.43165145
191104A00023	11/4/2019	2.24	8/4/2028	11/4/2019	138.61612	129.6087222	121.2489921	113.4869768	106.2768206	99.57641248	93.34706165	87.55320339	82.16213127
191106A00004	11/6/2019	2.01	11/6/2024	11/6/2019	118.5722	114.811336	111.1901098	107.7024767	104.3426994	101.1053265	97.98517587	94.97731918	92.07706777
190925A00004	9/25/2019	1.7	9/24/2024	9/25/2019	117.41103	113.7961173	110.3117721	106.9524777	103.7129895	100.5883187	97.57371753	94.66466634	91.85686057
190930A00008	9/30/2019	1.9	10/10/2023	9/30/2019	112.42537	109.9959347	107.6317238	105.3304901	103.0900801	100.9084334	98.78357735	96.71362305	94.69676045
190930A00035	9/30/2019	1.93	9/30/2024	9/30/2019	117.75351	114.126801	110.6312975	107.2614451	104.0119613	100.8778223	97.85424786	94.93668796	92.1208099
190930A00070	9/30/2019	1.93	9/27/2024	9/30/2019	117.71061	114.0940544	110.6080719	107.2471413	104.0060171	100.87971	97.86347201	94.95278315	92.14333879
190930A00075	9/30/2019	2.19	9/29/2027	9/30/2019	134.14783	126.4087937	119.1662278	112.3856363	106.0351041	100.0850886	94.50823116	89.27918332	84.37444886
191002A00016	10/2/2019	1.79	10/2/2023	10/2/2019	112.05056	109.6506092	107.3145788	105.0402799	102.8256221	100.6686039	98.56730843	96.51989884	94.52461431
190904A00020	9/4/2019	1.69	9/1/2023	9/4/2019	111.37515	109.0765285	106.8373426	104.655631	102.5295167	100.4571992	98.43695054	96.46711192	94.54609017

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190910A00017	9/16/2019	1.86	9/16/2024	9/16/2019	117.31784	113.7423927	110.295082	106.9705381	103.7636538	100.6695686	97.68365477	94.80150468	92.01891873
190910A00027	9/10/2019	1.86	9/9/2022	9/10/2019	106.40715	105.1816297	103.9842062	102.8139214	101.6698609	100.551151	99.45695621	98.38647764	97.33895065
190918A00003	9/18/2019	1.95	9/19/2022	9/18/2019	106.67226	105.4133191	104.183963	102.9831552	101.8099103	100.6632876	99.54238893	98.44635613	97.37436878
190923A00012	9/23/2019	2.43	9/25/2034	9/23/2019	173.05067	153.2894363	136.0010587	120.8614812	107.5906983	95.94656446	85.71950263	76.72797652	68.81461157
190923A00020	9/23/2019	2.05	9/24/2029	9/23/2019	144.07732	133.2505157	123.3155365	114.1942255	105.8156668	98.11547661	91.03516917	84.52158782	78.52639343
190927A00012	10/1/2019	1.96	10/1/2024	10/1/2019	117.87043	114.2384941	110.73804	107.3634935	104.1095574	100.9711938	97.9436097	95.0222428	92.20274907
190930A00041	9/30/2019	1.94	10/25/2021	9/30/2019	101.37105	101.1252768	100.8807031	100.6373153	100.395105	100.1540636	99.91418254	99.67545359	99.43786842
190930A00069	9/30/2019	1.9	9/29/2023	9/30/2019	112.25783	109.8647771	107.5352491	105.2670813	103.0582035	100.9066332	98.81047133	96.76789779	94.77716746
190826A00065	8/26/2019	2.09	8/28/2029	8/26/2019	142.42744	131.8448368	122.125355	113.1940772	104.9829598	97.43016593	90.47946927	84.07971802	78.18435282
190828A00019	8/28/2019	2	3/28/2028	8/28/2019	135.09506	126.6775942	118.8393053	111.5373012	104.7320865	98.38727727	92.46934018	86.94735388	81.79279231
190830A00023	8/30/2019	1.78	9/15/2022	8/30/2019	106.40868	105.1641127	103.9485173	102.7608885	101.6002697	100.4657477	99.35645002	98.27154266	97.21022806
190918A00007	9/20/2019	1.95	12/15/2022	9/20/2019	107.87522	106.3991908	104.9507431	103.5291706	102.1337884	100.7639341	99.41896722	98.09826826	96.80123764
190919A00025	9/19/2019	1.8	9/19/2024	9/19/2019	117.67876	114.0752248	110.6013427	107.2516587	104.0209848	100.9043845	97.89715913	94.99483452	92.19314852
190920A00018	9/20/2019	1.98	9/20/2022	9/20/2019	106.72395	105.4615086	104.2287973	103.0247789	101.8484607	100.6988952	99.57517774	98.47644416	97.4018683
190924A00010	9/24/2019	1.95	9/24/2021	9/24/2019	100.88111	100.7239395	100.5672665	100.4110883	100.2554025	100.1002069	99.94549907	99.79127677	99.63753772
190925A00011	9/25/2019	1.89	9/25/2024	9/25/2019	117.54633	113.9387999	110.461356	107.1085065	103.8750326	100.75597	97.74659389	94.84240617	92.03912258
190926A00012	9/26/2019	1.93	9/27/2021	9/26/2019	100.92514	100.7594726	100.5943532	100.429777	100.2657413	100.1022436	99.93928118	99.77685144	99.6149518
190829A00029	8/29/2019	1.75	7/14/2023	8/29/2019	110.77987	108.6366031	106.5459906	104.506402	102.5162706	100.5740885	98.67840468	96.82782171	95.02099391
190829A00050	8/29/2019	1.73	8/29/2024	8/29/2019	116.63436	113.1265538	109.7429476	106.4784101	103.3280555	100.2872298	97.35149846	94.51663422	91.77860618
190917A00022	9/17/2019	2.02	9/16/2022	9/17/2019	106.70602	105.4563998	104.2359237	103.0435823	101.8784114	100.7394903	99.62593944	98.53691836	97.47162324
190917A00028	9/17/2019	2.02	3/1/2023	9/17/2019	109.19947	107.4808083	105.7982067	104.150607	102.5369889	100.9563716	99.40781163	97.89040121	96.40326666
190917A00044	9/17/2019	1.86	9/17/2021	9/17/2019	100.77223	100.6347309	100.4976195	100.3608974	100.224563	100.0886146	99.9530505	99.81786899	99.68306845
190917A00045	9/17/2019	1.86	9/17/2021	9/17/2019	100.77223	100.6347309	100.4976195	100.3608974	100.224563	100.0886146	99.9530505	99.81786899	99.68306845
190820A00030	8/20/2019	1.76	4/16/2024	8/20/2019	114.82718	111.7750923	108.820241	105.958859	103.1873591	100.5023204	97.900479	95.3787191	92.93406534
190826A00029	8/26/2019	1.53	8/26/2024	8/26/2019	116.44041	112.9328419	109.5495132	106.2852956	103.1353019	100.0948768	97.15958419	94.32519554	91.58767846
190826A00063	8/26/2019	2.05	8/28/2028	8/26/2019	137.40571	128.3577877	119.9666061	112.1810767	104.9543436	98.24340894	92.00879609	86.21424393	80.82642914
190828A00031	8/28/2019	1.71	8/28/2024	8/28/2019	116.55452	113.0511147	109.6716844	106.4111079	103.2645118	100.2272533	97.29490856	94.46326035	91.72828713
190829A00012	8/29/2019	1.54	8/29/2024	8/29/2019	116.5144	112.9962551	109.6029659	106.3293666	103.1705356	100.1217856	97.17865039	94.33687338	91.59239592
190829A00015	8/30/2019	2.06	8/30/2022	8/30/2019	106.47346	105.2792571	104.1117179	102.9699578	101.8531308	100.7604276	99.69107338	98.64432632	97.61947565
190814A00009	8/14/2019	1.84	8/14/2024	8/14/2019	116.78726	113.3236436	109.9814125	106.7556043	103.6414949	100.6345813	97.7305697	94.92536474	92.21505868
190816A00022	8/16/2019	1.77	8/16/2024	8/16/2019	116.58659	113.1199767	109.7750402	106.546804	103.4305249	100.4216826	97.51596698	94.70926739	91.99766197
190816A00036	8/16/2019	1.77	8/16/2024	8/16/2019	116.58659	113.1199767	109.7750402	106.546804	103.4305249	100.4216826	97.51596698	94.70926739	91.99766197
190819A00001	8/19/2019	1.82	8/19/2021	8/19/2019	100.30748	100.2517183	100.1960326	100.1404243	100.0848932	100.0294393	99.97406225	99.91876203	99.86353844

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190819A00004	8/20/2019	1.81	5/24/2024	8/20/2019	115.51641	112.3346622	109.257029	106.2795179	103.3983141	100.6097711	97.91040223	95.29687265	92.76599173
190820A00029	8/20/2019	1.76	8/20/2024	8/20/2019	116.60919	113.1297759	109.772816	106.5332855	103.4063976	100.387591	97.47251726	94.65703008	91.9371741
190730A00016	7/30/2019	2	7/30/2024	7/30/2019	117.58828	114.1468707	110.8249952	107.6178211	104.520739	101.5293529	98.63946884	95.84708399	93.1483771
190802A00017	8/2/2019	2.01	11/15/2023	8/2/2019	113.23348	110.6832251	108.203613	105.7922152	103.4467062	101.1648575	98.94453286	96.78368345	94.68034369
190805A00009	8/5/2019	1.91	8/5/2024	8/5/2019	116.88712	113.4499294	110.1324446	106.9298134	103.8374073	100.8508122	97.96581779	95.17840641	92.48474315
190805A00029	8/5/2019	1.93	8/5/2022	8/5/2019	105.92332	104.8110449	103.7220327	102.6555564	101.6109223	100.5874646	99.58454449	98.60154867	97.63788796
190808A00011	8/8/2019	1.86	8/8/2023	8/8/2019	111.39112	109.1639885	106.9932156	104.8770024	102.8136165	100.8013937	98.83873416	96.92410024	95.05601293
190808A00023	8/8/2019	1.68	11/8/2023	8/8/2019	112.69844	110.1683184	107.7081198	105.3154083	102.9878522	100.72322	98.51937546	96.37427209	94.28594902
190625A00021	6/25/2019	1.88	6/26/2023	6/25/2019	111.06856	108.9729535	106.9276272	104.9310657	102.9818071	101.078443	99.21961656	97.40402022	95.63039339
190627A00010	6/27/2019	1.97	6/27/2024	6/27/2019	116.9787	113.6559887	110.4452652	107.342138	104.342416	101.4420958	98.63735146	95.92452632	93.30012395
190701A00009	7/3/2019	2.14	7/2/2024	7/3/2019	117.10463	113.7750699	110.5579725	107.4489228	104.4437017	101.538279	98.7288044	96.01159764	93.38314054
190711A00020	7/11/2019	1.98	7/11/2022	7/11/2019	105.69072	104.6560218	103.6415084	102.6465952	101.670718	100.7133346	99.77392283	98.85198027	97.94702298
190729A00006	7/29/2019	2.14	7/29/2022	7/29/2019	106.02691	104.9360291	103.8675087	102.820663	101.7948378	100.7894051	99.80376188	98.83732838	97.88954742
190730A00007	7/30/2019	2.19	7/30/2024	7/30/2019	117.702	114.2706049	110.9581187	107.7597444	104.6709058	101.6872383	98.80457697	96.01894672	93.32655217
190610A00017	6/10/2019	2.29	6/10/2024	6/10/2019	117.22894	113.967582	110.814231	107.7647235	104.8150843	101.9615124	99.20037272	96.52818768	93.94162958
190617A00026	6/17/2019	2.17	6/17/2022	6/17/2019	105.35612	104.3993017	103.4598142	102.5371909	101.6309805	100.7407478	99.86607298	99.00655064	98.16178944
190620A00025	6/20/2019	2.04	6/20/2022	6/20/2019	105.28753	104.321788	103.3737059	102.4428024	101.528614	100.6306933	99.74860898	98.88194478	98.03029892
190620A00027	6/20/2019	2.14	6/20/2024	6/20/2019	116.92148	113.633049	110.4545348	107.3816614	104.4103475	101.5366929	98.75696897	96.06761031	93.4652066
190621A00015	6/21/2019	2.2	6/21/2024	6/21/2019	117.12245	113.8277839	110.6433112	107.5647466	104.5879953	101.7091442	98.92445249	96.23034345	93.62339595
190621A00023	6/21/2019	1.93	6/21/2022	6/21/2019	105.30934	104.3388502	103.3861885	102.4508641	101.532407	100.6303638	99.7442976	98.87378666	98.01842402
190530A00045	5/30/2019	2.44	5/30/2024	5/30/2019	117.51117	114.2805329	111.1557967	108.1329208	105.2080452	102.3774773	99.6376841	96.9852838	94.41703899
190531A00009	6/5/2019	2.1	6/3/2022	6/5/2019	105.15827	104.2442215	103.3460084	102.4632245	101.5954748	100.7423777	99.90356446	99.07867873	98.26737578
190531A00037	5/31/2019	2.61	5/31/2029	5/31/2019	147.58869	137.0540793	127.3523646	118.4132959	110.1728877	102.5728301	95.55995947	89.0857798	83.10603193
190603A00031	6/3/2019	1.98	6/3/2022	6/3/2019	105.05374	104.1401921	103.2424752	102.3601815	101.4929161	100.6402976	99.80195742	98.97753914	98.16669822
190603A00048	6/3/2019	2.24	6/3/2024	6/3/2019	116.96736	113.7321644	110.6034672	107.5771887	104.6494328	101.8164728	99.07474355	96.42083345	93.8514769
190606A00028	6/6/2019	2.74	6/6/2029	6/6/2019	147.20421	136.7345017	127.0916776	118.2060276	110.0140555	102.4578958	95.48478882	89.04660598	83.09942218
190523A00015	5/23/2019	2.51	4/1/2024	5/23/2019	116.75344	113.7206775	110.7830976	107.9370708	105.1791369	102.5059933	99.91448587	97.40160158	94.96446065
190523A00016	5/23/2019	2.48	2/15/2023	5/23/2019	109.71422	108.0348167	106.3901037	104.7790834	103.2007966	101.6543201	100.138765	98.65327506	97.19702525
190523A00024	5/23/2019	2.47	10/31/2022	5/23/2019	108.02396	106.6235557	105.258952	103.928783	102.6317558	101.3666417	100.132272	98.92753451	97.75137023
190524A00015	5/24/2019	2.24	5/24/2022	5/24/2019	105.10542	104.2223931	103.3541682	102.5003713	101.6606449	100.8346433	100.022032	99.22248747	98.43569627
190524A00040	5/24/2019	2.47	5/24/2024	5/24/2019	117.50334	114.2920312	111.1855794	108.1799631	105.2713436	102.4560519	99.73057943	97.09157049	94.5358144
190529A00020	5/29/2019	2.38	5/29/2024	5/29/2019	117.31326	114.088786	110.9699611	107.9527541	105.0333109	102.2079454	99.47313054	96.82549122	94.26179646
190430A00002	4/30/2019	2.4	11/2/2022	4/30/2019	108.12295	106.7170237	105.3463691	104.0096669	102.7056619	101.4331601	100.1910252	98.97817515	97.79357896

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190507A00004	5/7/2019	2.88	5/7/2029	5/7/2019	149.63138	139.1061498	129.40519	120.4593801	112.2057564	104.5869291	97.55055966	91.04889146	85.03832505
190507A00014	5/7/2019	2.6	5/7/2024	5/7/2019	117.60844	114.4500375	111.3936082	108.4351874	105.5709932	102.797418	100.1110196	97.50851139	94.98675479
190508A00008	5/8/2019	2.36	5/9/2022	5/8/2019	104.93948	104.1032115	103.2802408	102.4702572	101.6729548	100.8880374	100.115218	99.35421819	98.60476834
190514A00056	5/14/2019	2.32	5/15/2023	5/14/2019	111.22719	109.2583148	107.3344615	105.4542465	103.6163449	101.819484	100.0624406	98.3440389	96.6631479
190515A00055	5/15/2019	2.26	5/15/2023	5/15/2019	111.11422	109.1464399	107.2236602	105.3444982	103.5076296	101.7117822	99.95573342	98.23830798	96.55837541
190314A00018	3/14/2019	2.53	3/14/2022	3/14/2019	104.05488	103.3919059	102.7373779	102.0911331	101.4530145	100.8228695	100.2005491	99.58590806	98.9788046
190326A00002	3/26/2019	2.56	9/26/2022	3/26/2019	107.51894	106.2322713	104.9763113	103.749967	102.5522002	101.3820207	100.2384838	99.12068716	98.02776903
190326A00003	3/26/2019	2.57	3/27/2023	3/26/2019	110.57325	108.7630488	106.9920197	105.2589553	103.5627021	101.9021535	100.2762474	98.68396392	97.12432332
190326A00032	3/26/2019	2.4	3/26/2024	3/26/2019	116.77963	113.7559406	110.8268592	107.9887977	105.2383291	102.5721815	99.98722951	97.48048688	95.04909882
190401A00010	4/1/2019	2.62	4/1/2024	4/1/2019	117.06678	114.0295926	111.08769	108.2374438	105.4753905	102.7982241	100.2027877	97.68606504	95.24517361
190409A00031	4/9/2019	2.64	4/9/2024	4/9/2019	117.25731	114.1923232	111.2241395	108.3490419	105.5634862	102.8640908	100.2476279	97.71101519	95.25130787
190208A00005	2/8/2019	2.63	2/8/2023	2/8/2019	110.05195	108.3878672	106.7579461	105.1612191	103.5967511	102.0636419	100.561024	99.08806169	97.6439494
190208A00009	2/8/2019	2.67	2/8/2024	2/8/2019	116.71485	113.8431373	111.0578694	108.3559108	105.7342622	103.1900523	100.7205319	98.32306723	95.99513486
190215A00006	2/15/2019	2.89	2/15/2024	2/15/2019	117.01628	114.1271299	111.3252197	108.6073731	105.9705499	103.4118406	100.9284599	98.51774058	96.1771273
190219A00020	2/19/2019	2.88	2/16/2024	2/19/2019	117.007	114.1147875	111.3099768	108.5893831	105.949958	103.3887841	100.9030687	98.49013742	96.14742854
190222A00021	2/22/2019	2.95	8/21/2024	2/22/2019	120.53086	116.9851229	113.5637085	110.2615183	107.0736988	103.9956249	101.0228876	98.15128261	95.37679923
190226A00020	2/26/2019	2.64	2/26/2024	2/26/2019	116.95058	114.0180402	111.1750251	108.4182284	105.7444936	103.1508022	100.6342662	98.19212212	95.82172391
181220A00027	12/20/2018	2.97	2/28/2022	12/20/2018	104.00186	103.3819071	102.7693291	102.1639937	101.5657731	100.9745426	100.3901803	99.81256709	99.24158668
190102A00026	1/2/2019	2.62	1/4/2022	1/2/2019	102.84757	102.3930767	101.9425968	101.4960802	101.0534747	100.6147289	100.1797924	99.74861574	99.32115025
190115A00025	1/15/2019	2.96	1/12/2024	1/15/2019	116.59424	113.8186242	111.1242043	108.5081275	105.9676579	103.5001722	101.1031549	98.7741927	96.51096979
190117A00004	1/17/2019	2.9	1/18/2022	1/17/2019	103.19386	102.6977868	102.2064908	101.7198999	101.2379468	100.7605653	100.2876903	99.81925819	99.35520641
190123A00034	1/23/2019	2.98	1/23/2025	1/23/2019	123.95234	119.8249633	115.8590578	112.0474122	108.3831764	104.8598435	101.471231	98.21146227	95.07494991
190129A00061	1/30/2019	2.92	2/1/2022	1/30/2019	103.46791	102.9298081	102.3972911	101.8702739	101.3486716	100.8324011	100.3213811	99.8155318	99.31477503
181009A00060	10/9/2018	3.07	10/12/2021	10/9/2018	101.41795	101.208858	101.00064	100.793292	100.5868082	100.3811832	100.1764117	99.97248827	99.76940754
181107A00008	11/7/2018	3.42	11/7/2023	11/7/2018	116.50587	113.9401126	111.4448096	109.0175047	106.6558529	104.3576103	102.1206285	99.94284964	97.82230204
181116A00015	11/19/2018	3.29	2/15/2024	11/19/2018	118.09974	115.1959658	112.3797723	109.6479731	106.9975175	104.425486	101.9290837	99.50563396	97.15257254
181119A00018	11/19/2018	3.28	11/17/2023	11/19/2018	116.35775	113.7631998	111.2403959	108.7868854	106.4003161	104.0784332	101.8190745	99.6201653	97.47971485
181120A00023	11/20/2018	3.15	11/19/2021	11/20/2018	102.14812	101.8292611	101.512398	101.1975163	100.8845972	100.5736223	100.2645735	99.95743288	99.65218274
181211A00031	12/11/2018	2.95	12/11/2023	12/11/2018	116.37441	113.6962401	111.093885	108.5647686	106.1064177	103.7164577	101.3926077	99.13267648	96.93455821
180913A00040	9/13/2018	2.89	9/13/2021	9/13/2018	100.83836	100.7120342	100.5860426	100.4603826	100.3350527	100.2100517	100.0853781	99.96103075	99.83700818
180914A00026	9/14/2018	3.15	9/14/2023	9/14/2018	114.83792	112.4608576	110.1458391	107.8907885	105.6937189	103.5527263	101.4659847	99.43174257	97.44831902
180914A00029	9/14/2018	3.48	9/14/2028	9/14/2018	149.1804	139.6372948	130.7820398	122.5611893	114.9257266	107.8306774	101.2347556	95.10004202	89.39169274
180917A00054	9/17/2018	3.17	9/15/2023	9/17/2018	114.90159	112.5207505	110.2021069	107.9435787	105.7431718	103.5989754	101.5091573	99.47195984	97.48569653

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181002A00018	10/2/2018	3.1	10/4/2021	10/2/2018	101.25086	101.0649624	100.8797547	100.6952291	100.5113817	100.3282088	100.1457067	99.96387179	99.78270031
181005A00037	10/9/2018	3.4	10/3/2025	10/9/2018	130.37105	125.2531384	120.3679594	115.703578	111.2487414	106.9928393	102.9258625	99.03836525	95.32143005
180820A00036	8/20/2018	3	8/21/2023	8/20/2018	114.06178	111.7664027	109.5296427	107.349596	105.2244356	103.1524076	101.1318276	99.16107747	97.23860235
180823A00013	8/23/2018	2.97	8/23/2023	8/23/2018	114.03318	111.732082	109.4898489	107.3045678	105.1743997	103.0975795	101.0724123	99.09726995	97.17058815
180829A00008	8/29/2018	3.23	8/30/2027	8/29/2018	142.08047	134.1501061	126.7195983	119.7546904	113.2236591	107.0971091	101.3477902	95.95042936	90.88157718
180829A00044	8/29/2018	2.98	8/26/2022	8/29/2018	107.43111	106.243749	105.082592	103.9467818	102.8354949	101.7479433	100.6833724	99.64105914	98.62031076
180831A00016	8/31/2018	2.99	8/31/2023	8/31/2018	114.22342	111.8960066	109.6285551	107.419091	105.2657246	103.1666433	101.1201073	99.12444612	97.17805553
180913A00030	9/13/2018	3.33	9/12/2025	9/13/2018	128.93343	123.9387404	119.1683055	114.610781	110.2554611	106.0922417	102.1115825	98.30447239	94.66239657
180618A00026	6/18/2018	3.05	4/13/2023	6/18/2018	111.72799	109.8560885	108.0255306	106.2350089	104.4832762	102.7691373	101.0914468	99.44910611	97.84106102
180625A00040	6/25/2018	3	6/24/2022	6/25/2018	106.24776	105.2647574	104.2999248	103.3527607	102.4227827	101.5095262	100.6125428	99.73140035	98.86568169
180703A00015	7/3/2018	3.06	7/3/2023	7/3/2018	113.2654	111.1310955	109.048302	107.0154482	105.0310256	103.0935818	101.2017176	99.35408517	97.54938552
180713A00027	7/13/2018	3.23	7/13/2028	7/13/2018	147.55949	138.2529843	129.6057617	121.5675225	114.0920564	107.1368917	100.6629737	94.63437415	89.01802495
180719A00011	7/19/2018	3	11/12/2021	7/19/2018	101.96864	101.6702633	101.3736389	101.078756	100.7855993	100.4941535	100.2044036	99.91633478	99.6299323
180801A00013	8/1/2018	3.04	10/15/2021	8/1/2018	101.44948	101.2320165	101.015496	100.7999137	100.5852634	100.3715392	100.1587349	99.94684454	99.73586221
180425A00007	4/25/2018	2.98	4/25/2023	4/25/2018	112.08353	110.1676493	108.2947831	106.4635456	104.6726155	102.9207285	101.2066737	99.52929091	97.88746781
180514A00033	5/14/2018	3.36	5/15/2028	5/14/2018	147.5396	138.4582806	130.0062282	122.1363535	114.80534	107.9733183	101.6035742	95.66228235	90.11826489
180521A00025	5/21/2018	3.24	5/21/2025	5/21/2018	127.15318	122.5635564	118.1667756	113.9536723	109.915569	106.0442477	102.3319222	98.77121345	95.35512527
180529A00066	5/29/2018	2.99	5/26/2023	5/29/2018	112.41144	110.402471	108.4397028	106.5217756	104.6473793	102.8152515	101.0241751	99.27297685	97.56052492
180530A00014	5/30/2018	2.93	5/30/2023	5/30/2018	112.37177	110.3509033	108.3766614	106.4476885	104.5626791	102.7203738	100.9195571	99.15905577	97.43773709
180530A00026	5/30/2018	3.55	5/30/2031	5/30/2018	167.26147	153.0348505	140.1656182	128.5162001	117.9636538	108.3980427	99.72099929	91.84445419	84.6895106
180118A00037	1/18/2018	2.88	1/21/2025	1/18/2018	122.94482	118.8578047	114.9302571	111.1550718	107.5255036	104.0351443	100.6779039	97.44799279	94.33990514
180126A00028	1/26/2018	2.69	1/26/2023	1/26/2018	109.68898	108.0718485	106.4873106	104.9344656	103.4124428	101.9204029	100.4575364	99.02306249	97.61622752
180130A00085	1/30/2018	2.79	1/30/2025	1/30/2018	123.35638	119.2166492	115.2398562	111.4186825	107.7461778	104.2157421	100.821106	97.55631249	94.41569928
180223A00022	2/23/2018	2.93	2/23/2023	2/23/2018	110.59478	108.8828141	107.2065037	105.5648097	103.9567332	102.3813133	100.8376254	99.32477937	97.84191833
180226A00015	2/26/2018	2.85	9/28/2022	2/26/2018	107.90526	106.6097019	105.345188	104.1106126	102.9049217	101.7271105	100.5762202	99.45133553	98.35158236
180406A00014	4/6/2018	2.95	4/6/2023	4/6/2018	111.41937	109.5713227	107.7637449	105.9953697	104.2649882	102.5714413	100.9136177	99.29045094	97.70091714
171214A00005	12/14/2017	2.29	12/14/2022	12/14/2017	108.54459	107.0633346	105.6097546	104.1831384	102.7827983	101.4080696	100.0583097	98.73289667	97.43122909
171218A00020	12/18/2017	2.99	12/20/2027	12/18/2017	140.9708	132.7140447	125.0001994	117.7906955	111.0498947	104.744853	98.84510378	93.32245972	88.15083121
171219A00025	12/19/2017	2.33	12/19/2022	12/19/2017	108.68922	107.1914933	105.7220031	104.2800204	102.8648376	101.4757705	100.1121579	98.77336031	97.45875934
171219A00063	12/19/2017	2.8	12/20/2027	12/19/2017	140.89527	132.5920894	124.8366233	117.5898661	110.8157802	104.4810587	98.55490515	93.00883214	87.81647731
180102A00020	1/2/2018	2.5	1/3/2023	1/2/2018	109.0126	107.4696219	105.9564935	104.4724185	103.0166304	101.5883891	100.1869795	98.81171114	97.46191644
180116A00010	1/16/2018	2.58	1/17/2023	1/16/2018	109.3767	107.7888458	106.2325035	104.7068092	103.2109339	101.7440775	100.3054683	98.89436135	97.51003721
171016A00033	10/16/2017	2.2	10/17/2022	10/16/2017	107.4408	106.0872792	104.767727	103.4808749	102.225519	101.0005136	99.80476809	98.63724363	97.49694998

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171026A00009	10/26/2017	2.75	10/27/2025	10/26/2017	127.06063	121.9534449	117.0821567	112.4344881	107.9988756	103.7644264	99.72087494	95.85854222	92.16829866
171026A00010	10/26/2017	2.84	10/26/2026	10/26/2017	133.38097	126.8593655	120.6989736	114.8777552	109.375141	104.1719273	99.25017721	94.5931296	90.18511472
171030A00020	10/30/2017	2.16	1/14/2022	10/30/2017	102.76966	102.2865341	101.8079554	101.3338573	100.864177	100.3988529	99.93782434	99.48103198	99.02841749
171031A00029	10/31/2017	2.43	10/31/2023	10/31/2017	114.00956	111.495217	109.0497505	106.6707267	104.3558249	102.1028276	99.90961397	97.77415506	95.69450886
171101A00023	11/1/2017	2.78	11/3/2025	11/1/2017	127.31363	122.177262	117.278955	112.6062936	108.1475904	103.8918353	99.82865136	95.94825487	92.24141699
170906A00034	9/6/2017	1.87	9/7/2021	9/6/2017	100.60553	100.4964372	100.3875893	100.2789888	100.1706346	100.062526	99.95466201	99.84704189	99.73966474
170907A00059	9/7/2017	1.99	9/7/2022	9/7/2017	106.52462	105.3047169	104.1126312	102.947421	101.8081855	100.6940635	99.60423173	98.53790251	97.49432186
170908A00017	9/9/2019	2.32	9/9/2024	9/9/2019	118.75687	115.1798435	111.7301631	108.4025229	105.1918776	102.0934236	99.10258617	96.21500629	93.42652943
170921A00063	9/21/2017	2.23	9/21/2022	9/21/2017	107.03725	105.7696185	104.5319012	103.3230484	102.1420592	100.9879788	99.85989532	98.75693782	97.67827383
171005A00006	10/5/2017	2.32	10/7/2024	10/5/2017	119.72753	116.0317063	112.4703074	109.0376023	105.7281443	102.5367554	99.45851082	96.48872499	93.62293788
171011A00013	10/11/2017	2.77	10/13/2026	10/11/2017	132.76655	126.3079782	120.2051177	114.4363927	108.9816603	103.8221063	98.94014911	94.31935215	89.94434238
170724A00015	7/24/2017	2.32	7/24/2023	7/24/2017	112.12339	109.9342896	107.7996609	105.7177942	103.6870466	101.7058382	99.77264918	97.88601702	96.04453401
170725A00047	7/25/2017	2.19	7/25/2022	7/25/2017	106.01051	104.9322133	103.8757788	102.8405434	101.8258739	100.8311623	99.855824	98.89929741	97.96104226
170728A00032	7/28/2017	2.36	7/27/2023	7/28/2017	112.25834	110.0582767	107.9131818	105.8213192	103.7810247	101.7906979	99.8487995	97.95384876	96.1044205
170731A00006	7/31/2017	2.16	8/1/2022	7/31/2017	106.09807	104.9973782	103.9194358	102.8635423	101.8290267	100.815245	99.82157882	98.84743419	97.89224026
170731A00029	7/31/2017	2.34	7/31/2023	7/31/2017	112.28401	110.071152	107.9138577	105.8103633	103.7589777	101.7580752	99.80609257	97.90152619	96.04292932
170814A00084	8/14/2017	1.91	8/15/2022	8/14/2017	106.20013	105.0527111	103.9299793	102.8311477	101.7554596	100.7021895	99.67064227	98.66015105	97.67007612
170519A00002	5/19/2017	2.15	5/19/2022	5/19/2017	104.85665	103.9913274	103.1402464	102.3030616	101.4794347	100.6690383	99.87155516	99.08667856	98.31411115
170530A00006	5/30/2017	2.15	5/31/2022	5/30/2017	105.05038	104.1475288	103.2601413	102.3878217	101.5301889	100.6868746	99.85752255	99.04178846	98.23933912
170531A00003	5/31/2017	1.94	5/31/2022	5/31/2017	104.96899	104.0651158	103.1767451	102.3034817	101.444943	100.6007593	99.77057288	98.9540381	98.15082049
170609A00007	6/9/2017	1.96	6/9/2022	6/9/2017	105.13651	104.2040124	103.2880033	102.3880488	101.5037296	100.6346406	99.78039095	98.94060285	98.11491133
170614A00012	6/14/2017	1.9	6/14/2022	6/14/2017	105.16587	104.2177653	103.2866992	102.3722163	101.4738766	100.5912552	99.72394215	98.87154173	98.03367166
170630A00027	6/30/2017	2.35	6/28/2024	6/30/2017	118.18125	114.8368352	111.6050892	108.4815915	105.4621246	102.5426593	99.71934577	96.98850429	94.34661661
170317A00059	3/17/2017	2.47	3/17/2023	3/17/2017	110.46359	108.6808614	106.936312	105.2287898	103.557185	101.9204322	100.3175084	98.74743048	97.2092535
170320A00014	3/20/2017	2.22	3/21/2022	3/20/2017	103.97765	103.2939494	102.6192244	101.9533014	101.2960087	100.6471793	100.0066504	99.37426337	98.74986352
170327A00072	3/29/2017	3.09	3/29/2027	3/29/2017	138.52948	131.2701817	124.4411322	118.0144444	111.9641918	106.2662605	100.8982122	95.83915809	91.06964389
170410A00007	4/10/2017	2.1	4/11/2022	4/10/2017	104.25501	103.5068542	102.769418	102.0424715	101.3257918	100.6191625	99.9223729	99.23521849	98.55750024
170427A00047	4/27/2017	3.18	4/27/2029	4/27/2017	150.49262	140.0416905	130.4031157	121.5091417	113.298026	105.7134701	98.70411129	92.22306425	86.22750759
170518A00011	5/18/2017	1.94	5/18/2022	5/18/2017	104.7531	103.8900932	103.0412694	102.2062776	101.3847817	100.5764564	99.78098665	98.99806755	98.2274037
170111A00013	1/11/2017	3.4	1/10/2031	1/11/2017	163.15438	149.702113	137.4917104	126.4012659	116.3214467	107.1541414	98.8112556	91.21364184	84.29014923
170117A00046	1/17/2017	2.55	1/17/2024	1/17/2017	115.60944	112.8309119	110.1341913	107.5163879	104.9747291	102.5065573	100.1093248	97.78058789	95.51800238
170215A00038	2/15/2017	2.71	8/22/2022	2/15/2017	107.05695	105.8844783	104.7376374	103.6155923	102.5175451	101.4427318	100.3904206	99.35990997	98.35052755
170215A00041	2/15/2017	2.6	10/16/2023	2/15/2017	114.15497	111.6862515	109.2841264	106.9462773	104.6704923	102.4546555	100.2967425	98.19481483	96.14701602

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170216A00010	2/16/2017	2.37	2/16/2022	2/16/2017	103.44051	102.8579929	102.2820334	101.7125194	101.1493429	100.5923984	100.0415828	99.49679535	98.95793724
170216A00045	2/16/2017	3.73	2/17/2037	2/16/2017	205.22906	179.4735253	157.3658212	138.3619892	122.002161	107.8971602	95.71729882	85.18299813	76.05693002
160922A00051	9/22/2016	2.5	9/22/2028	9/22/2016	141.36898	132.0856874	123.4790134	115.4960038	108.0881233	101.2108617	94.82337931	88.88818596	83.37084907
160926A00046	9/26/2016	1.66	9/26/2023	9/26/2016	112.01034	109.6223447	107.2977025	105.0342566	102.8299453	100.6827939	98.59091083	96.55248297	94.56577177
161004A00034	10/4/2016	1.67	10/4/2021	10/4/2016	100.98736	100.8018282	100.6169808	100.4328143	100.2493251	100.0665092	99.88436316	99.70288314	99.52206554
161006A00011	10/6/2016	1.64	10/6/2022	10/6/2016	106.72108	105.4051452	104.1214661	102.8688676	101.6462323	100.4524954	99.28664243	98.14770567	97.03476177
161013A00038	10/13/2016	1.52	10/13/2021	10/13/2016	101.11242	100.9009468	100.6903689	100.480683	100.2718834	100.0639644	99.85692025	99.6507455	99.44543457
161212A00040	12/12/2016	2.45	12/12/2023	12/12/2016	115.13505	112.4692688	109.8791259	107.3620501	104.9155704	102.5373142	100.2250027	97.9764469	95.7895431
160714A00029	8/10/2016	2.27	8/10/2026	8/10/2016	128.97814	122.839777	117.0309974	111.5323597	106.3256707	101.3939003	96.72110084	92.29233249	88.09359425
160714A00054	7/14/2016	2.03	7/15/2024	7/14/2016	116.95855	113.5883687	110.3334575	107.1892257	104.151296	101.2154902	98.3778187	95.63447082	92.98180578
160804A00014	8/4/2016	1.99	8/5/2024	8/4/2016	117.14589	113.7045849	110.3830949	107.1765625	104.0803556	101.0900568	98.20145242	95.41052165	92.7134266
160909A00024	9/9/2016	1.7	9/9/2021	9/9/2016	100.61721	100.502491	100.3880422	100.2738675	100.1599658	100.046336	99.93297727	99.81988849	99.70706871
160921A00020	9/21/2016	1.97	9/21/2023	9/21/2016	112.29642	109.9270859	107.620165	105.3735479	103.1852185	101.0532452	98.97577683	96.95103828	94.97732681
160922A00009	9/22/2016	1.55	9/22/2022	9/22/2016	106.39494	105.1258488	103.8868519	102.6768871	101.4949437	100.3400575	99.211308	98.10781625	97.02874213
160624A00063	6/24/2016	1.52	6/24/2022	6/24/2016	104.9773	103.9992225	103.0392844	102.0969839	101.1718385	100.2633832	99.37116956	98.49476519	97.63375287
160628A00039	6/28/2016	2.01	6/29/2026	6/28/2016	127.88513	121.8917261	116.2142998	110.8345715	105.735412	100.9007645	96.315572	91.96570976	87.8379231
160701A00039	7/1/2016	1.92	7/1/2026	7/1/2016	127.42348	121.4349362	115.7626333	110.3882492	105.2946186	100.4656521	95.88626369	91.54230237	87.42049004
160705A00006	7/5/2016	1.38	7/5/2022	7/5/2016	105.01226	103.9998878	103.0069245	102.0328208	101.0770435	100.1390796	99.21843491	98.31463332	97.42721613
160706A00006	7/6/2016	1.47	7/6/2023	7/6/2016	110.39348	108.273687	106.205499	104.1873359	102.2176761	100.295055	98.41806245	96.58534011	94.79557925
160714A00023	8/10/2016	2.49	8/10/2028	8/10/2016	140.68676	131.5826353	123.1329426	115.287168	107.9989483	101.2257111	94.92834577	89.07090522	83.62033447
150819A00012	8/19/2015	3.04	8/19/2025	8/19/2015	127.22219	122.3438596	117.6820854	113.2260537	108.9655484	104.890919	100.9930459	97.26330774	93.69355158
150923A00049	9/23/2015	1.97	9/23/2021	9/23/2015	100.88392	100.7293926	100.5753509	100.4217907	100.2687095	100.1161052	99.96397558	99.8123183	99.6611312
151211A00007	12/11/2015	2.73	12/15/2025	12/11/2015	128.52768	123.199191	118.1234739	113.2872224	108.6778975	104.2836811	100.0934312	96.09663936	92.28339172
160119A00026	1/19/2016	3.14	1/19/2029	1/19/2016	148.51616	138.5184581	129.2743892	120.7230105	112.8086099	105.480234	98.69125866	92.3990003	86.56436403
160329A00044	3/29/2016	1.79	3/29/2022	3/29/2016	103.82268	103.1155534	102.4180232	101.729895	101.0509798	100.3810937	99.72005767	99.06769723	98.42384258
160624A00010	6/24/2016	1.66	6/24/2022	6/24/2016	105.00019	104.0235605	103.0650161	102.1240594	101.20021	100.2930046	99.40199669	98.52675559	97.66686572
150601A00668	6/1/2015	3.89	1/16/2037	6/1/2015	206.67318	180.9520229	158.850303	139.8314239	123.4412843	109.2952064	97.06699208	86.47975133	77.29821004
150601A00830	6/1/2015	6.743	7/31/2025	6/1/2015	143.36191	138.1883199	133.2386711	128.5019664	123.9678118	119.6263802	115.4683771	111.4850084	107.6679509
150603A00017	6/3/2015	2.84	6/3/2025	6/3/2015	125.72032	121.1153912	116.7057294	112.4820367	108.4355054	104.5577912	100.8409856	97.27759144	93.86049922
150603A00018	6/3/2015	2.84	6/3/2025	6/3/2015	125.72032	121.1153912	116.7057294	112.4820367	108.4355054	104.5577912	100.8409856	97.27759144	93.86049922
150610A00009	6/10/2015	3.03	6/10/2025	6/10/2015	126.64004	121.9929394	117.5436207	113.2826237	109.2009921	105.2902426	101.5423374	97.94965837	94.5049832
150817A00077	8/17/2015	2.49	8/17/2023	8/17/2015	113.21554	110.935164	108.7129812	106.5471042	104.4357234	102.3771014	100.3695697	98.41152506	96.50142669
150408A00004	4/8/2015	2.17	4/10/2023	4/8/2015	110.35599	108.5013197	106.6875697	104.9134506	103.1777306	101.4792295	99.81681559	98.18940372	96.59595239

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150518A00026	5/18/2015	2.08	11/18/2021	5/18/2015	101.82504	101.5093778	101.1956835	100.8839388	100.5741254	100.2662254	99.96022099	99.65609458	99.35382882
150601A00470	6/1/2015	2.98	5/31/2024	6/1/2015	119.51043	116.2358979	113.068801	110.0050336	107.0406718	104.1719625	101.395315	98.7072932	96.10460778
150601A00638	6/1/2015	2.51	9/30/2021	6/1/2015	101.06672	100.8924269	100.7187323	100.5456311	100.3731203	100.2011969	100.029858	99.85910068	99.68892196
150601A00640	6/1/2015	2.57	12/31/2021	6/1/2015	102.69751	102.2556351	101.8175517	101.3832113	100.9525661	100.5255693	100.1021747	99.68233681	99.26601116
150601A00664	6/1/2015	3.78	1/16/2032	6/1/2015	173.56701	158.0517437	144.097015	131.5361803	120.2212456	110.0206897	100.817553	92.50775626	84.99862134
140423A00036	4/23/2014	4.03	4/23/2029	4/23/2014	157.9352	147.2012377	137.2942555	128.1456469	119.6928697	111.8788746	104.6515939	97.9634805	91.7710917
140815A00030	8/15/2014	2.96	10/16/2023	8/15/2014	114.99738	112.5187188	110.1068631	107.7594905	105.4743828	103.249418	101.082566	98.97188272	96.91550635
140922A00026	9/22/2014	3.02	9/30/2024	9/22/2014	122.0041	118.2934658	114.7167304	111.2682258	107.9425628	104.7346164	101.6395102	98.6526028	95.76947477
141024A00010	10/24/2014	2.81	10/24/2024	10/24/2014	121.71556	117.9294228	114.282478	110.768711	107.3824128	104.118161	100.9708025	97.93543821	95.00740849
150319A00013	3/19/2015	3.25	3/19/2030	3/19/2015	156.58637	144.6152085	133.6673509	123.6494547	114.4771737	106.0742426	98.37166263	91.3069737	84.82360281
150331A00004	3/31/2015	2.08	3/31/2022	3/31/2015	104.05429	103.3402404	102.6359603	101.9412492	101.2559131	100.5797633	99.91261617	99.25429292	98.60461943
120228A00010	2/28/2012	2.34	3/2/2022	2/28/2012	103.72212	103.0963321	102.4780777	101.8672212	101.2636305	100.6671764	100.0777332	99.49517756	98.91938947
120411A00012	4/11/2012	2.87	4/15/2022	4/11/2012	104.8089	104.0473807	103.2969237	102.5572876	101.8282391	101.109552	100.4010062	99.70238793	99.01348941
121101A00011	11/1/2012	2.03	11/1/2022	11/1/2012	107.62688	106.225476	104.8596132	103.527946	102.229199	100.9621596	99.72567434	98.51864517	97.34002613
121116A00007	11/16/2012	1.99	11/16/2021	11/16/2012	101.73628	101.4268653	101.1193398	100.8136889	100.5098952	100.2079418	99.90781196	99.60948911	99.31295687
131011A00006	10/11/2013	3.28	10/15/2021	10/11/2013	101.50111	101.2835635	101.0669636	100.8513022	100.6365732	100.4227704	100.2098878	99.99791938	99.78685928
140411A00009	4/11/2014	3.1	4/11/2024	4/11/2014	119.06399	115.9569478	112.948222	110.0340287	107.2107583	104.4749672	101.8233691	99.25282635	96.76034187
081215A00091	12/15/2008	4.19	12/15/2023	12/15/2008	119.58115	116.849364	114.1950087	111.6154446	109.1081375	106.6706542	104.3006585	101.9959062	99.75424112
110818A00006	8/18/2011	3.09	8/30/2021	8/18/2011	100.58649	100.499876	100.4134107	100.3270919	100.2409193	100.1548926	100.0690114	99.98327534	99.89768417
110818A00012	8/18/2011	2.86	8/31/2022	8/18/2011	107.53543	106.3293443	105.1502544	103.9972614	102.8695062	101.7661669	100.6864571	99.62962368	98.59494537
110825A00016	8/25/2011	3.06	8/31/2022	8/25/2011	107.76106	106.553601	105.3731553	104.2188274	103.0897577	101.9851238	100.9041387	99.84604885	98.81013255
110919A00026	9/19/2011	2.66	9/30/2021	9/19/2011	101.11614	100.9415964	100.7676529	100.5943057	100.4215518	100.2493883	100.077812	99.90682005	99.73640949
111024A00022	10/24/2011	3.11	10/30/2023	10/24/2011	115.98007	113.4376982	110.9649288	108.5592972	106.2184524	103.9401483	101.7222375	99.56266583	97.45946777
210607A00001	6/7/2021	0.46	6/7/2023	6/7/2021	107.70698	105.7082867	103.7563805	101.8498882	99.9874854	98.16789474	96.38988408	94.65226455	92.95388874
210609A00013	6/11/2021	1.64	6/11/2025	6/11/2021	120.14635	115.6456571	111.3376305	107.2130345	103.2631266	99.47962611	95.85468739	92.38087476	89.05113893
210722A00001	7/22/2021	1.1	7/22/2026	7/22/2021	122.33669	116.4338322	110.8474953	105.5591104	100.5512891	95.80774634	91.31322453	87.05342354	83.01493565
010824A00028	8/24/2001	6.24	8/24/2021	8/24/2001	100.69234	100.6223433	100.5524502	100.482664	100.4129843	100.3434111	100.273944	100.2045829	100.1353274
011029A00020	10/29/2001	5.73	10/29/2021	10/29/2001	102.422	102.1628113	101.9049309	101.6483514	101.3930632	101.1390564	100.8863215	100.634849	100.3846294
080909A00042	9/9/2008	4.74	9/11/2023	9/9/2008	118.6842	116.2659651	113.9105701	111.6159206	109.3800101	107.2009154	105.076792	103.0058705	100.9864526
200825A00007	8/27/2020	4.79	8/27/2026	8/27/2020	143.35872	136.7832322	130.5578875	124.6620449	119.0763919	113.7828546	108.7645111	104.0055122	99.49100657
200928A00002	9/28/2020	0.35	9/28/2023	9/28/2020	109.04028	106.6806041	104.3838306	102.1478132	99.97049768	97.84991711	95.78418738	93.7715029	91.81013259
201030A00002	11/2/2020	2.8	10/29/2040	11/2/2020	203.72396	172.0406736	145.8265426	124.0968943	106.0495203	91.03004264	78.50399847	68.03431292	59.26309882
210106A00007	1/8/2021	0.49	7/25/2023	1/8/2021	108.3131	106.1614204	104.0635419	102.0177734	100.0224884	98.07612316	96.17717331	94.32419135	92.51578407

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210312A00005	3/12/2021	0.53	3/12/2024	3/12/2021	111.32041	108.4177098	105.6053007	102.8797929	100.2379493	97.67667708	95.19302011	92.7841517	90.44736794
210527A00008	5/27/2021	0.32	5/30/2023	5/27/2021	107.63391	105.6545663	103.7211448	101.832308	99.98676767	98.18328101	96.42064884	94.69771366	93.01335797
200731A00004	7/31/2020	0.38	7/31/2023	7/31/2020	108.46383	106.2859322	104.1630167	102.0933409	100.0752263	98.10705948	96.18728937	94.31442408	92.48702828
200803A00011	8/3/2020	0.72	8/4/2025	8/3/2020	116.82761	112.2169266	107.8117848	103.6019434	99.57772597	95.72998858	92.05008715	88.52984743	85.16153679
200812A00004	8/12/2020	0.59	8/12/2025	8/12/2020	117.0079	112.3488248	107.8988127	103.6473742	99.58460734	95.70115878	91.98819031	88.43734742	85.04073007
200814A00009	8/18/2020	1.36	8/16/2028	8/18/2020	131.74426	122.9454588	114.7869343	107.2189018	100.1956936	93.67539544	87.61951966	81.99270866	76.76246516
200818A00006	8/18/2020	1.18	8/18/2028	8/18/2020	130.32557	121.5717572	113.4564489	105.9299219	98.94657098	92.46454402	86.44541441	80.85388438	75.65751513
200818A00010	8/18/2020	1.88	8/20/2035	8/18/2020	164.59607	144.2743522	126.6672753	111.3971961	98.14075439	86.62083455	76.59975201	67.87347227	60.26670148
200626A00014	6/26/2020	0.62	6/26/2025	6/26/2020	116.65747	112.1608833	107.8600068	103.7453293	99.80785054	96.03905261	92.43087106	88.97566858	85.66621
200709A00002	7/10/2020	1.66	7/10/2025	7/10/2020	120.60774	116.0016731	111.5966075	107.3827187	103.3507153	99.49180678	95.79767443	92.26044289	88.87265436
200709A00014	7/13/2020	0.57	1/20/2023	7/13/2020	106.331	104.7588099	103.2180234	101.7077837	100.2272605	98.77565323	97.35218928	95.95612309	94.58673489
200720A00037	7/22/2020	2.1	7/21/2025	7/22/2020	122.65703	117.9710107	113.4905712	109.2055934	105.1065141	101.1842899	97.43036623	93.83664805	90.39547256
200720A00041	7/22/2020	2.34	7/21/2027	7/22/2020	134.24241	126.7446773	119.7146217	113.1206357	106.9334039	101.1257287	95.67236674	90.54987862	85.73649111
200722A00012	7/22/2020	0.41	7/21/2023	7/22/2020	108.41006	106.2639086	104.1712262	102.1303353	100.1396254	98.19754779	96.30261243	94.45338548	92.64848663
200511A00019	5/11/2020	1.18	2/1/2027	5/11/2020	124.76429	118.1447373	111.9129194	106.0441726	100.5155255	95.30557573	90.39437472	85.76332142	81.39506459
200529A00008	5/29/2020	0.33	5/31/2022	5/29/2020	103.58043	102.6831582	101.8013149	100.9345009	100.0823353	99.24444961	98.42048789	97.61010578	96.81297022
200604A00001	6/4/2020	0.65	6/5/2023	6/4/2020	108.05375	106.0575743	104.1079895	102.2036286	100.3431766	98.52536474	96.74896934	95.01280941	93.31574507
200604A00004	6/4/2020	0.76	6/4/2024	6/4/2020	112.47746	109.3065753	106.2406862	103.2757651	100.4079596	97.63358547	94.94911838	92.35118595	89.83656041
200604A00009	6/4/2020	0.7	6/4/2025	6/4/2020	116.77029	112.3425756	108.104723	104.0476399	100.1627164	96.44179714	92.87715422	89.4614629	86.1877784
200615A00005	6/15/2020	0.61	6/15/2023	6/15/2020	108.09213	106.0656395	104.0870878	102.1550537	100.2681656	98.42510111	96.62458516	94.86538811	93.14632372
200429A00035	5/1/2020	1.41	4/30/2024	5/1/2020	113.99551	110.912065	107.9281169	105.0397629	102.2432847	99.53513909	96.91194786	94.37048872	91.90768669
200430A00007	4/30/2020	0.72	4/28/2023	4/30/2020	107.74729	105.867892	104.0308983	102.2349419	100.4787151	98.76096647	97.08049785	95.43616136	93.82685674
200501A00003	5/1/2020	0.66	4/14/2023	5/1/2020	107.47203	105.6364889	103.8416556	102.0862439	100.3690223	98.68881087	97.0444788	95.43494173	93.85915926
200506A00002	5/8/2020	0.97	5/5/2025	5/8/2020	116.92841	112.612483	108.4780659	104.5164724	100.7194888	97.07934458	93.58868495	90.24054598	87.028331
200506A00010	5/6/2020	0.94	5/6/2026	5/6/2020	121.48039	115.8326349	110.4769198	105.3965773	100.5759848	96.00049519	91.65637013	87.53071775	83.61143566
200511A00014	5/11/2020	0.52	2/1/2022	5/11/2020	102.21393	101.6796522	101.150928	100.6276752	100.1098094	99.59724785	99.08990941	98.5877147	98.09058588
200313A00032	3/18/2020	1.46	3/18/2025	3/18/2020	118.33209	114.1433763	110.1252264	106.2697161	102.5693386	99.0169808	95.60589905	92.32969806	89.18231045
200319A00024	3/19/2020	1.12	3/15/2022	3/19/2020	103.10084	102.439219	101.7860678	101.1412198	100.5045173	99.87580659	99.25493793	98.64176518	98.03614583
200326A00028	3/26/2020	1.54	3/26/2025	3/26/2020	118.75058	114.5275877	110.4773635	106.5918393	102.8633736	99.28472816	95.84904309	92.54981497	89.38087576
200413A00023	4/13/2020	0.74	2/7/2022	4/13/2020	102.3995	101.8470231	101.3004876	100.7597988	100.2248631	99.69558913	99.17188731	98.65366996	98.14085125
200428A00011	4/30/2020	1.95	4/29/2025	4/30/2020	120.8462	116.4727802	112.2818163	108.2645946	104.4128764	100.7188686	97.17519669	93.77487889	90.51130258
200429A00009	4/29/2020	0.78	4/29/2025	4/29/2020	116.71402	112.404651	108.2763782	104.320516	100.5288514	96.89361751	93.40746579	90.06344072	86.85495575
200305A00035	3/5/2020	1.25	3/5/2026	3/5/2020	121.58935	116.1710337	111.0233239	106.131273	101.4808389	97.058828	92.8528394	88.85121232	85.0429779

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200306A00030	3/6/2020	0.88	3/6/2023	3/6/2020	107.37224	105.6542687	103.972606	102.3261754	100.713941	99.13490703	97.58811659	96.07264915	94.58761907
200309A00003	3/9/2020	0.72	3/9/2022	3/9/2020	102.76794	102.1254141	101.490891	100.8642217	100.245261	99.63386743	99.02990277	98.43323224	97.84372429
200309A00005	3/9/2020	0.77	3/7/2025	3/9/2020	116.09911	111.9727436	108.0140383	104.2152352	100.5689853	97.06832199	93.7066387	90.47766808	87.37546228
200309A00021	3/9/2020	1.05	3/9/2026	3/9/2020	120.56677	115.1612934	110.0266449	105.1478233	100.5107404	96.10216161	91.90964928	87.92151024	84.12674687
200310A00037	3/10/2020	0.84	3/7/2022	3/10/2020	102.81686	102.1801133	101.5512264	100.93005	100.3164429	99.71026748	99.11138927	98.51967712	97.93500303
200228A00026	2/28/2020	2.14	2/28/2035	2/28/2020	167.11985	147.3179442	130.0717394	115.0367623	101.9166079	90.45601582	80.43497728	71.66371136	63.97837834
200228A00040	2/28/2020	1.14	2/28/2023	2/28/2020	107.95483	106.2460005	104.573078	102.9350012	101.3307542	99.75936048	98.21988071	96.71141122	95.23308219
200302A00028	3/2/2020	1.25	2/26/2024	3/2/2020	112.71557	109.8500454	107.0722154	104.3788408	101.7668299	99.23322557	96.77519874	94.3900417	92.07516203
200302A00034	3/2/2020	1.25	3/1/2024	3/2/2020	112.76698	109.8882197	107.0978309	104.392545	101.7692347	99.22490999	96.75671047	94.36189923	92.03785638
200302A00036	3/2/2020	1.45	3/2/2026	3/2/2020	122.56273	117.1312212	111.9702351	107.0648547	102.4010716	97.96572246	93.74643279	89.73156518	85.91017133
200304A00038	3/4/2020	1.01	3/1/2022	3/4/2020	102.84105	102.2220934	101.6105526	101.0062922	100.4091831	99.81909895	99.23591661	98.65951564	98.08977846
200227A00009	2/27/2020	1.47	2/27/2025	2/27/2020	118.12872	114.0062802	110.049671	106.2512925	102.6039359	99.10076422	95.73529048	92.50135774	89.39312015
200227A00022	2/27/2020	1.41	2/27/2023	2/27/2020	108.15871	106.455166	104.7873068	103.1540854	101.5544953	99.98756885	98.45237513	96.94801836	95.47363617
200227A00030	2/27/2020	1.59	2/27/2026	2/27/2020	123.23011	117.7928981	112.6258403	107.7140771	103.0436452	98.60142176	94.37506889	90.35298215	86.52424287
200228A00019	2/28/2020	1.21	2/20/2025	2/28/2020	117.6289	113.5236756	109.5833374	105.800339	102.1675291	98.67812389	95.32568592	92.10410407	89.00757512
200228A00020	2/28/2020	1.32	2/24/2023	2/28/2020	107.96689	106.2743181	104.6170851	102.9941628	101.4045594	99.8473206	98.32152858	96.82629975	95.36078331
200228A00025	2/28/2020	1.57	3/2/2027	2/28/2020	127.50103	120.6995945	114.3003764	108.2775049	102.6069105	97.26618828	92.23447382	87.49232899	83.02163707
200221A00004	2/21/2020	1.69	2/21/2025	2/21/2020	118.89772	114.7811045	110.8293041	107.0347961	103.3904462	99.88948637	96.52549336	93.29236909	90.18432214
200221A00014	2/21/2020	1.49	2/21/2023	2/21/2020	108.428	106.7369326	105.0811161	103.4595224	101.8711654	100.3150965	98.79040298	97.29620617	95.8316599
200224A00002	2/24/2020	1.56	2/24/2023	2/24/2020	108.36147	106.6655145	105.0049612	103.3787795	101.7859757	100.2255941	98.69671499	97.19845341	95.72995705
200224A00020	2/24/2020	1.59	2/24/2025	2/24/2020	118.55289	114.4326054	110.4776639	106.6805051	103.0339568	99.53121576	96.16582615	92.93165978	89.8228974
200224A00046	2/24/2020	1.59	2/24/2025	2/24/2020	118.55289	114.4326054	110.4776639	106.6805051	103.0339568	99.53121576	96.16582615	92.93165978	89.8228974
200226A00017	2/26/2020	1.53	2/27/2023	2/26/2020	108.35706	106.6518059	104.98227	103.3474026	101.7461965	100.177683	98.64093052	97.13504246	95.65915569
200131A00047	1/31/2020	1.68	1/31/2023	1/31/2020	108.18926	106.5693389	104.9823606	103.4274034	101.9035801	100.4100361	98.94594698	97.51051807	96.10298256
200203A00011	2/3/2020	1.7	2/15/2023	2/3/2020	108.45248	106.7837409	105.1494956	103.548752	101.9805564	100.4439909	98.93817149	97.46224681	96.0153965
200204A00016	2/4/2020	1.72	2/6/2023	2/4/2020	108.34522	106.70537	105.0990814	103.5254086	101.9834381	100.4722898	98.99111547	97.53909783	96.11544861
200214A00013	2/18/2020	1.78	11/10/2021	2/18/2020	101.5793	101.287407	100.9971986	100.7086618	100.4217823	100.1365457	99.85293789	99.57094481	99.29055264
200218A00004	2/18/2020	1.73	2/21/2023	2/18/2020	108.5943	106.9056897	105.2522067	103.6328349	102.0465931	100.4925374	98.96975931	97.47738429	96.01456999
200218A00028	2/18/2020	1.73	2/21/2023	2/18/2020	108.5943	106.9056897	105.2522067	103.6328349	102.0465931	100.4925374	98.96975931	97.47738429	96.01456999
200124A00008	1/24/2020	1.92	1/22/2027	1/24/2020	130.22156	123.4442896	117.0606726	111.0458098	105.3765047	100.0311372	94.98954909	90.23293745	85.74375664
200127A00013	1/27/2020	1.56	1/27/2023	1/27/2020	108.1573	106.5460935	104.9675012	103.4206171	101.9045673	100.4185094	98.96163129	97.53314958	96.13230838
200128A00015	1/28/2020	1.81	1/28/2025	1/28/2020	119.01963	114.9815485	111.1025987	107.3756367	103.7938825	100.350897	97.04056307	93.85706743	90.79488374
200129A00010	1/29/2020	1.76	1/31/2022	1/29/2020	102.84623	102.3129809	101.7852379	101.2629191	100.7459411	100.2342225	99.72768352	99.22624583	98.72983278

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200130A00021	1/30/2020	1.54	1/30/2023	1/30/2020	108.17053	106.5502317	104.9629039	103.4076261	101.8835107	100.3897021	98.9253756	97.48973583	96.08201552
200131A00015	2/5/2020	1.73	2/5/2025	2/5/2020	118.82809	114.7667864	110.866434	107.1197656	103.5198856	100.0602476	96.73463482	93.53714096	90.46215335
200115A00014	1/17/2020	1.88	9/15/2022	1/17/2020	106.52576	105.2804598	104.064136	102.8757904	101.7144662	100.5792498	99.46926841	98.38368785	97.32171024
200115A00017	1/15/2020	1.88	1/17/2023	1/15/2020	108.30389	106.7246813	105.1768242	103.6594625	102.1717714	100.712955	99.28224574	97.87890234	96.50220923
200115A00022	1/15/2020	1.88	10/14/2022	1/15/2020	106.98841	105.6475793	104.3401892	103.0649983	101.8208286	100.6065588	99.42112121	98.26349842	97.13272035
200115A00024	1/15/2020	1.88	1/17/2023	1/15/2020	108.30389	106.7246813	105.1768242	103.6594625	102.1717714	100.712955	99.28224574	97.87890234	96.50220923
200122A00028	1/22/2020	1.84	1/21/2022	1/22/2020	102.72952	102.2259803	101.7273724	101.2336244	100.7446653	100.2604258	99.78083756	99.30583384	98.83534902
200122A00035	1/22/2020	1.94	1/22/2025	1/22/2020	119.42619	115.4001602	111.5319727	107.8145829	104.2412969	100.8057558	97.50191672	94.32403577	91.26665101
191120A00024	11/20/2019	2.23	11/16/2029	11/20/2019	144.77907	133.8015427	123.7389615	114.5102433	106.0418913	98.26724517	91.12581176	84.56266565	78.52791019
191121A00004	11/21/2019	1.77	11/21/2024	11/21/2019	118.48348	114.6631544	110.986236	107.4465459	104.0382109	100.7556436	97.59352699	94.54679927	91.61064039
191206A00020	12/9/2019	1.91	12/15/2021	12/9/2019	102.17271	101.7786428	101.3876183	100.9996032	100.6145627	100.2324628	99.85326953	99.47694989	99.10347118
191218A00014	12/18/2019	2.04	12/18/2024	12/18/2019	119.29168	115.382829	111.6231158	108.0060606	104.5255035	101.1755839	97.95072409	94.8456143	91.85519824
191226A00020	12/26/2019	2.44	12/21/2029	12/26/2019	147.27261	136.055398	125.7806133	116.364087	107.7295729	99.80796387	92.5365899	85.85858928	79.72234348
200103A00009	1/3/2020	1.9	1/3/2024	1/3/2020	113.69988	110.990059	108.3589617	105.8038497	103.3220934	100.9111706	98.56866115	96.29224257	94.07968515
191008A00031	10/8/2019	1.52	10/8/2024	10/8/2019	116.99151	113.3383957	109.8186742	106.4266429	103.1568848	100.0042505	96.96384312	94.03100403	91.20129918
191018A00015	10/18/2019	1.89	10/18/2021	10/18/2019	101.24913	101.02345	100.7987894	100.5751388	100.3524912	100.13084	99.91017836	99.69049963	99.47179721
191025A00010	10/25/2019	2.24	7/25/2028	10/25/2019	138.48228	129.5160927	121.1923519	113.4616798	106.2787356	99.60186748	93.39279467	87.6163184	82.24005896
191104A00019	11/5/2019	1.9	2/1/2022	11/5/2019	102.93497	102.3984919	101.8675868	101.3421694	100.8221552	100.307461	99.79800564	99.29370953	98.79449464
191120A00005	11/20/2019	2.63	11/20/2034	11/20/2019	173.85213	154.0011475	136.6470378	121.4606041	108.1576607	96.49267947	86.25335793	77.25597332	69.3414066
191120A00010	11/20/2019	1.88	1/20/2022	11/20/2019	102.73324	102.2326183	101.7368768	101.2459404	100.7597396	100.2782059	99.8012722	99.32887281	98.86094319
191001A00006	10/1/2019	1.83	6/18/2024	10/1/2019	115.93408	112.667032	109.5091065	106.4560697	103.503875	100.6486545	97.88671053	95.214507	92.62866126
191003A00002	10/3/2019	1.58	10/4/2021	10/3/2019	100.98944	100.8037058	100.618658	100.4342941	100.2506104	100.0676031	99.88526847	99.70360273	99.52260219
191003A00019	10/3/2019	1.71	9/27/2024	10/3/2019	116.96302	113.358906	109.8850214	106.5358636	103.3061989	100.1910487	97.18567557	94.28556958	91.48643568
191004A00004	10/4/2019	1.54	10/4/2024	10/4/2019	117.00468	113.364467	109.8567639	106.4759274	103.2165932	100.0736611	97.04227993	94.11783365	91.29592795
191004A00032	10/4/2019	2.01	1/3/2028	10/4/2019	134.10507	126.0254686	118.4844029	111.4432336	104.8662868	98.72060758	92.97574034	87.60352681	82.57792198
191007A00027	10/7/2019	1.69	10/7/2022	10/7/2019	106.64197	105.3258783	104.0420867	102.7894144	101.566741	100.3729994	99.20717233	98.06829001	96.95542693
210609A00011	6/11/2021	1.32	6/11/2024	6/11/2021	114.27091	111.0511298	107.9384215	104.9286548	102.0178801	99.20232122	96.47836712	93.84256334	91.29160455
210621A00008	6/21/2021	1.04	6/23/2025	6/21/2021	117.75753	113.2664214	108.9696742	104.857884	100.9221527	97.15405664	93.54561876	90.08928249	86.77788746
210624A00020	6/24/2021	0.78	6/24/2024	6/24/2021	112.75878	109.5213868	106.3930987	103.3696512	100.4469717	97.62116883	94.88852326	92.24547928	89.68863653
210624A00022	6/24/2021	0.87	6/24/2025	6/24/2021	117.70065	113.1891881	108.8735775	104.7443145	100.7924091	97.00935193	93.38708631	89.91798129	86.59480714
210715A00009	7/15/2021	0.54	7/17/2023	7/15/2021	108.32403	106.1972006	104.1229559	102.0996634	100.125751	98.19970603	96.3200729	94.48545027	92.69448873
210709A00002	7/9/2021	1.36	7/9/2029	7/9/2021	136.74131	126.5052381	117.0990221	108.4513173	100.4972468	93.17778638	86.43920878	80.23258449	74.51333116
210527A00026	6/1/2021	2.78	6/1/2028	6/1/2021	141.93462	133.0436148	124.7740665	117.0792857	109.9163161	103.2456193	97.03078772	91.2382812	85.8371882

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210601A00002	6/1/2021	0.9	6/2/2025	6/1/2021	116.94382	112.536858	108.3181283	104.2786474	100.409908	96.70385024	93.15283511	89.74962079	86.48733979
210603A00015	6/7/2021	2.71	6/7/2028	6/7/2021	141.48183	132.5850339	124.3118319	116.6152585	109.4521101	102.7826293	96.57021426	90.78115292	85.38438151
210608A00005	6/8/2021	0.51	6/7/2024	6/8/2021	112.2078	109.0209344	105.9401467	102.9613435	100.0806145	97.29422098	94.59858741	91.9902932	89.4660652
210608A00017	6/10/2021	2.67	6/8/2029	6/10/2021	146.60476	136.1519565	126.5257847	117.6564829	109.4805171	101.9399924	94.98212655	88.55877436	82.62599927
210609A00007	6/11/2021	2.6	6/11/2029	6/11/2021	146.01878	135.5786508	125.9654907	117.109422	108.9468088	101.4196696	94.47514958	88.06504274	82.14536198
210428A00007	4/28/2021	1.74	10/27/2028	4/28/2021	135.61644	126.4197462	117.9061581	110.0213695	102.7156739	95.94354884	89.66328168	83.83663088	78.42851938
210428A00015	4/28/2021	2.02	4/28/2031	4/28/2021	149.29984	136.1080513	124.1876875	113.4094038	103.6576534	94.82914471	86.83148321	79.5819695	73.00653609
210429A00005	4/29/2021	2.08	4/29/2031	4/29/2021	149.99432	136.7638066	124.8078373	113.9967705	104.214792	95.35837152	87.33490054	80.06148805	73.46389465
210507A00009	5/7/2021	2.02	5/7/2032	5/7/2021	153.72313	138.8529802	125.5487574	113.6371325	102.9647949	93.39604672	84.81069812	77.1022234	70.17614511
210527A00009	5/27/2021	0.5	5/28/2024	5/27/2021	112.07036	108.916817	105.867362	102.9180021	100.0649217	97.30447212	94.63316332	92.04765625	89.54475533
210527A00019	5/27/2021	1	5/27/2026	5/27/2021	122.02999	116.2975365	110.8641572	105.7127646	100.8273374	96.19284395	91.79517694	87.62109131	83.65814745
210312A00004	3/12/2021	0.34	3/10/2023	3/12/2021	106.74452	105.0159482	103.3241743	101.6680923	100.0466437	98.45881198	96.90362026	95.38012939	93.88743615
210312A00010	3/12/2021	0.63	3/12/2024	3/12/2021	111.17977	108.2883076	105.4866101	102.7713141	100.1392074	97.58722035	95.11241884	92.71199686	90.38327008
210323A00007	3/23/2021	0.51	3/25/2024	3/23/2021	111.40846	108.4635584	105.6112689	102.8480718	100.1706066	97.57566508	95.06018268	92.62123128	90.25601178
210326A00002	3/26/2021	0.57	6/26/2024	3/26/2021	112.5976	109.3454111	106.203276	103.1668803	100.2321005	97.39499718	94.65180626	91.99892963	89.43292708
210414A00001	4/14/2021	0.7	5/16/2024	4/14/2021	112.08652	108.9808148	105.9765952	103.0699372	100.2570936	97.53448637	94.89869754	92.34646112	89.87465508
210428A00006	4/28/2021	1.23	4/28/2026	4/28/2021	122.09381	116.4835966	111.1614395	106.1109577	101.3168005	96.76457504	92.44078076	88.33274804	84.42858212
210216A00006	2/16/2021	1.44	2/15/2030	2/16/2021	139.95008	128.759419	118.5367706	109.1935793	100.6498095	92.83308701	85.67793039	79.12506209	73.12079215
210216A00007	2/16/2021	1.3	2/16/2029	2/16/2021	134.64099	125.0126328	116.1309852	107.9344363	100.3667597	93.37661365	86.91709276	80.94532377	75.42209967
210216A00008	2/16/2021	0.71	2/17/2026	2/16/2021	119.47602	114.138836	109.0673252	104.2468878	99.66380201	95.30517007	91.1588638	87.2134745	83.45826629
210216A00009	2/16/2021	0.92	2/16/2027	2/16/2021	124.36049	117.6627907	111.3613794	105.430811	99.84740783	94.58912483	89.63542806	84.96718347	80.56655417
210224A00011	2/26/2021	1.17	2/27/2023	2/26/2021	107.76201	106.0618861	104.3973804	102.767451	101.171093	99.60734057	98.07526436	96.57397017	95.10259711
210305A00013	3/5/2021	2.41	3/5/2036	3/5/2021	175.98731	154.017583	135.0548443	118.6691665	104.4941867	92.2174234	81.57211252	72.33031478	64.29709168
210129A00008	1/29/2021	0.62	10/8/2024	1/29/2021	113.37426	109.7948877	106.3464814	103.0234407	99.82044668	96.73244321	93.75462175	90.88240742	88.11144587
210129A00013	1/29/2021	0.65	1/9/2025	1/29/2021	114.44254	110.5489059	106.8072861	103.2109462	99.75348565	96.42882129	93.23116949	90.15502988	87.1951698
210201A00004	2/3/2021	1.15	2/3/2025	2/3/2021	116.59682	112.5833998	108.7292517	105.0271846	101.4703755	98.05234673	94.76694619	91.6083291	88.57094079
210210A00005	2/10/2021	0.52	2/13/2024	2/10/2021	110.5755	107.7794834	105.0683569	102.4390221	99.88851786	97.41401039	95.01278664	92.68224833	90.41990624
210212A00008	2/12/2021	0.95	10/13/2026	2/12/2021	122.27717	116.1027087	110.2725556	104.7656903	99.56249731	94.64466028	89.99506779	85.59772725	81.43768528
210212A00016	2/17/2021	1.32	2/18/2025	2/17/2021	117.43322	113.354042	109.4381515	105.6781036	102.0668383	98.59765708	95.26420202	92.06043654	88.98062708
201208A00029	12/10/2020	1.52	12/9/2025	12/10/2020	121.88152	116.7482142	111.85881	107.2004928	102.7611858	98.52950414	94.49471149	90.64668016	86.97585332
201208A00031	12/10/2020	1.43	12/9/2024	12/10/2020	116.94701	113.1095515	109.4178595	105.8656419	102.4469119	99.15597119	95.98739498	92.9360171	89.99691638
210114A00009	1/19/2021	2.66	1/17/2030	1/19/2021	149.79511	138.3647778	127.9004569	118.3152631	109.5305511	101.475095	94.08435383	87.2998123	81.06839049
210125A00006	1/27/2021	2.16	1/26/2027	1/27/2021	130.68513	123.9171288	117.5416588	111.5339082	105.8707615	100.5306739	95.49355661	90.74067089	86.25453057

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210125A00007	1/27/2021	2.98	1/27/2031	1/27/2021	158.79815	145.4916099	133.4246838	122.474817	112.5321828	103.4982968	95.28479274	87.81233517	81.00965451
210128A00008	1/28/2021	0.54	4/9/2024	1/28/2021	111.22402	108.2450007	105.360705	102.56748	99.86184714	97.24048794	94.70023493	92.23806371	89.85108514
201028A00006	10/30/2020	1.56	2/15/2024	10/30/2020	113.41377	110.5732504	107.8188324	105.1473782	102.5558825	100.0414694	97.60138575	95.2329951	92.93377188
201030A00004	11/2/2020	2.56	10/29/2040	11/2/2020	197.92901	166.8146809	141.0963503	119.7999367	102.1321717	87.44623772	75.21407776	65.00405511	56.46290803
201030A00005	11/2/2020	2.49	10/29/2040	11/2/2020	196.23882	165.290433	139.7167109	118.5466574	100.9896117	86.40096129	74.25451756	64.12022991	55.64618572
201116A00011	11/16/2020	0.71	11/15/2024	11/16/2020	114.08635	110.3749085	106.8027102	103.3637398	100.052281	96.86289825	93.79042105	90.82992933	87.97673957
201119A00008	11/19/2020	0.28	5/19/2022	11/19/2020	103.39518	102.5353464	101.6897238	100.8579581	100.039711	99.2346553	98.44247409	97.66286063	96.89551786
201204A00016	12/8/2020	1.58	12/8/2023	12/8/2020	112.50811	109.8961575	107.3580295	104.8912304	102.4933618	100.16212	97.89529191	95.69075063	93.54645185
200925A00002	9/25/2020	0.74	9/25/2025	9/25/2020	117.42033	112.6321304	108.0634553	103.7030371	99.54025271	95.56508334	91.76807667	88.1403111	84.67336268
200925A00004	9/25/2020	0.53	9/25/2023	9/25/2020	109.07842	106.7340484	104.4518656	102.2297575	100.0657039	97.95776949	95.90410027	93.90291884	91.95252071
200925A00008	9/25/2020	0.74	9/25/2025	9/25/2020	117.42033	112.6321304	108.0634553	103.7030371	99.54025271	95.56508334	91.76807667	88.1403111	84.67336268
201022A00012	10/26/2020	2.25	10/24/2030	10/26/2020	149.4956	137.0080344	125.6648187	115.354875	105.9784628	97.44596484	89.67681051	82.59851857	76.14584596
201028A00003	10/30/2020	1.42	2/27/2026	10/30/2020	122.37514	116.9583454	111.8109734	106.9181913	102.2660672	97.84150792	93.63220359	89.62657647	85.81373322
201028A00004	10/30/2020	1.55	12/29/2023	10/30/2020	112.72877	110.0470947	107.4429729	104.913722	102.4567647	100.0696284	97.74994003	95.49542165	93.30388572
200922A00036	9/24/2020	1.55	9/23/2025	9/24/2020	121.06925	116.2082879	111.5689536	107.1399072	102.9104581	98.87052245	95.01058493	91.32166311	87.79527425
200922A00037	9/24/2020	2.76	9/23/2025	9/24/2020	126.54912	121.5693204	116.8151096	112.2749841	107.9380956	103.7942104	99.83367064	96.04735829	92.42666142
200922A00039	9/24/2020	3	9/23/2025	9/24/2020	127.63604	122.6326657	117.8556695	113.2935117	108.9353129	104.7708096	100.7903157	96.98468625	93.34528367
200922A00041	9/24/2020	2.68	9/23/2024	9/24/2020	120.19272	116.5476102	113.03336	109.6444623	106.3756822	103.2220393	100.1787931	97.24142967	94.40564928
200922A00043	9/24/2020	2.4	9/25/2023	9/24/2020	113.33632	110.9429346	108.6127723	106.3436913	104.1336409	101.9806568	99.88285719	97.83843775	95.84566823
200922A00044	9/24/2020	2.61	9/25/2023	9/24/2020	113.81448	111.4155902	109.0800399	106.8056839	104.590468	102.4324249	100.3296695	98.28039442	96.28286661
200922A00027	9/24/2020	1.65	9/23/2025	9/24/2020	121.52213	116.6513484	112.0025202	107.5642937	103.3259653	99.2774388	95.40918706	91.71221643	88.17803352
200922A00029	9/24/2020	2.73	9/25/2023	9/24/2020	114.08771	111.6856792	109.34705	107.0696796	104.8515121	102.6905781	100.5849908	98.53294109	96.53269426
200922A00030	9/24/2020	2.45	9/25/2023	9/24/2020	113.45017	111.0554716	108.7240265	106.4536896	104.2424092	102.0882207	99.98924107	97.94366553	95.94976308
200922A00033	9/24/2020	2.37	9/23/2024	9/24/2020	119.14313	115.5154278	112.0181077	108.6456865	105.3929453	102.2549191	99.22688171	96.30433339	93.48298773
200922A00034	9/24/2020	2.24	9/23/2026	9/24/2020	129.42848	123.1297133	117.1758517	111.5461408	106.2211884	101.1828689	96.41423389	91.89942848	87.62361497
200922A00035	9/24/2020	2.94	9/23/2024	9/24/2020	121.07301	117.4133116	113.884862	110.4821452	107.1999131	104.0331724	100.9771704	98.02738139	95.17949445
200911A00023	9/15/2020	2.04	9/14/2027	9/15/2020	132.92479	125.2767743	118.1171836	111.412255	105.1307359	99.24368432	93.7242855	88.54768441	83.69083239
200911A00024	9/15/2020	2.09	9/14/2027	9/15/2020	133.26802	125.6090887	118.4390845	111.7242178	105.4332102	99.53709505	94.00903456	88.82415218	83.95937901
200911A00025	9/15/2020	2.28	9/13/2030	9/15/2020	149.2765	136.9558833	125.7517798	115.5569997	106.2751681	97.8195837	90.11220237	83.08273122	76.66782237
200911A00026	9/15/2020	1.45	9/15/2025	9/15/2020	120.52068	115.6974456	111.0932782	106.6970143	102.4981297	98.4866944	94.65333556	90.98920263	87.48593508
200917A00002	9/17/2020	0.53	9/17/2025	9/17/2020	117.0871	112.311447	107.7543814	103.4047072	99.25187	95.285914	91.49744453	87.8775929	84.41798367
200922A00023	9/24/2020	2.5	9/26/2022	9/24/2020	107.44677	106.160571	104.9050709	103.679179	102.4818573	101.3121158	100.1690099	99.05163748	97.95913701
200828A00002	8/28/2020	0.73	8/28/2026	8/28/2020	121.52402	115.4910563	109.7885058	104.3965878	99.29680805	94.47187065	89.90559399	85.58283292	81.48940673

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200902A00018	9/4/2020	1.08	9/3/2025	9/4/2020	118.72499	113.9789515	109.4474746	105.1196971	100.9853683	97.03481215	93.25889138	89.64897431	86.19690382
200911A00006	9/11/2020	0.37	9/11/2023	9/11/2020	108.9015	106.5942138	104.3474387	102.1591487	100.0274048	97.95034893	95.92619896	93.95324543	92.02984775
200911A00020	9/15/2020	1.14	9/15/2025	9/15/2020	119.1246	114.3314925	109.7564453	105.3883429	101.216701	97.23162718	93.42378453	89.78435659	86.30501535
200911A00021	9/15/2020	1.1	9/15/2025	9/15/2020	118.94446	114.1552405	109.5839507	105.2194821	101.0513553	97.06968303	93.26513278	89.62889259	86.15263861
200911A00022	9/15/2020	1.42	9/15/2025	9/15/2020	120.38557	115.5652566	110.9639073	106.5703687	102.3741205	98.36523628	94.53434675	90.87260463	87.37165252
200817A00011	8/17/2020	0.53	2/18/2025	8/17/2020	114.981	110.9320217	107.0459806	103.3154193	99.73326972	96.29282667	92.98772703	89.81193014	86.75969947
200817A00014	8/17/2020	0.51	8/17/2022	8/17/2020	104.57384	103.4318132	102.3145194	101.2211642	100.1509853	99.10325274	98.07726669	97.07235625	96.08787784
200818A00005	8/18/2020	1.05	8/18/2027	8/18/2020	125.88243	118.5488815	111.6826439	105.251613	99.22604865	93.57839144	88.28309139	83.31645147	78.65648384
200818A00009	8/18/2020	1.7	8/18/2033	8/18/2020	154.45037	137.7126971	122.9317177	109.8684632	98.31425041	88.08670925	79.02634948	70.99359003	63.86618675
200819A00007	8/19/2020	0.38	8/21/2023	8/19/2020	108.69444	106.4519317	104.2671	102.1380602	100.0630083	98.0402128	96.06801104	94.14480604	92.26906324
200827A00007	8/27/2020	0.77	8/27/2025	8/27/2020	117.27204	112.5793156	108.0983007	103.8183063	99.72924805	95.82160432	92.08638167	88.51508234	85.09967401
200731A00005	7/31/2020	0.45	7/31/2024	7/31/2020	112.60218	109.2366918	105.9888602	102.8539121	99.82729609	96.90467174	94.08189843	91.3550249	88.72027938
200803A00005	8/3/2020	0.54	6/30/2023	8/3/2020	108.12525	106.053484	104.031714	102.0584271	100.1321644	98.25152077	96.41514262	94.62172543	92.87001177
200806A00002	8/6/2020	0.43	8/6/2024	8/6/2020	112.59877	109.2149242	105.9498599	102.7987369	99.75694015	96.82006952	93.98392874	91.24451449	88.59800627
200807A00004	8/7/2020	0.29	8/8/2022	8/7/2020	104.36521	103.2504618	102.1593132	101.0910224	100.0448779	99.02019744	98.01632658	97.03263717	96.06852611
200810A00004	8/10/2020	0.43	8/9/2024	8/10/2020	112.62934	109.2357984	105.9616163	102.8019197	99.75206072	96.80760908	93.96434002	91.21822363	88.56541455
200811A00003	8/11/2020	0.57	8/11/2025	8/11/2020	116.91003	112.2562041	107.8111157	103.5642988	99.50587152	95.626499	91.91736024	88.37011668	84.97688314
200720A00039	7/22/2020	2.48	7/21/2025	7/22/2020	124.30102	119.5808209	115.0673052	110.7503076	106.6202224	102.6679657	98.88494424	95.26302616	91.79451359
200720A00044	7/22/2020	2.22	7/21/2026	7/22/2020	128.47752	122.4190043	116.6828018	111.2500807	106.1032062	101.2256588	96.60195898	92.21759539	88.05895984
200722A00010	7/22/2020	0.66	7/22/2024	7/22/2020	112.69294	109.3666464	106.1554315	103.0546765	100.0599739	97.1671182	94.37209542	91.67107302	89.06039071
200722A00011	7/22/2020	0.59	7/24/2023	7/22/2020	108.51039	106.3597274	104.2627607	102.2177997	100.2232236	98.2774739	96.37905123	94.52651285	92.71847002
200727A00016	7/27/2020	0.43	7/27/2023	7/27/2020	108.52279	106.3566201	104.2448644	102.1858021	100.1777808	98.21921206	96.30856816	94.4443795	92.62523185
200730A00001	7/30/2020	0.46	7/30/2024	7/30/2020	112.62417	109.2613995	106.01611	102.8835368	99.85913876	96.938585	94.1177439	91.39267259	88.75960716
200701A00004	7/1/2020	0.54	7/1/2022	7/1/2020	104.04352	103.0502427	102.0757819	101.1196039	100.1811988	99.26007539	98.35576042	97.46779777	96.59574765
200709A00004	7/10/2020	1.4	7/10/2025	7/10/2020	119.49193	114.9088928	110.5261146	106.3338056	102.3227027	98.48404261	94.80953224	91.29132082	87.92197394
200709A00005	7/10/2020	2.23	7/10/2030	7/10/2020	147.90441	135.8934293	124.9528424	114.9816037	105.8886864	97.59204672	90.01769519	83.09886954	76.77529556
200709A00006	7/10/2020	2.58	7/10/2030	7/10/2020	151.52859	139.3499731	128.252535	118.1344187	108.9038547	100.4781178	92.78259333	85.74994473	79.31936996
200709A00007	7/10/2020	1.67	7/9/2027	7/10/2020	129.62343	122.3120488	115.4566242	109.0264247	102.992943	97.32972284	92.01220116	87.0175636	82.32461143
200720A00012	7/20/2020	0.77	7/15/2025	7/20/2020	116.84043	112.2953956	107.9503069	103.7953377	99.8211945	96.0190872	92.38069966	88.89816134	85.56402102
200611A00013	6/11/2020	0.59	6/12/2023	6/11/2020	108.01803	106.0012648	104.0320211	102.1088933	100.2305271	98.39561674	96.60290295	94.85117111	93.13924929
200615A00019	6/17/2020	1.34	6/16/2025	6/17/2020	118.94571	114.4530877	110.1537017	106.0382586	102.0979559	98.32445826	94.70986991	91.24670916	87.9278846
200615A00023	6/17/2020	1.68	6/17/2024	6/17/2020	115.45723	112.2005939	109.0526936	106.0093134	103.0664235	100.2201722	97.46687699	94.80301613	92.22522061
200626A00015	6/26/2020	0.43	6/26/2023	6/26/2020	108.15708	106.0913688	104.075349	102.1075159	100.1864241	98.31068168	96.47894735	94.68992849	92.94237898

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200629A00005	6/29/2020	0.55	6/29/2022	6/29/2020	104.02842	103.0413909	102.0729413	101.1225525	100.1897237	99.27397247	98.37483396	97.49185992	96.62461814
200630A00004	6/30/2020	0.66	7/1/2024	6/30/2020	112.46113	109.2063899	106.0620709	103.0238252	100.0875053	97.24915003	94.50497434	91.85136082	89.28485114
200529A00009	5/29/2020	0.42	5/30/2023	5/29/2020	107.82665	105.8454013	103.9101102	102.0194399	100.1721013	98.3668506	96.60248761	94.87785388	93.19183101
200601A00006	6/1/2020	0.6	6/1/2023	6/1/2020	107.91033	105.9275459	103.9907895	102.0987199	100.2500448	98.44351774	96.67793559	94.95213727	93.26500176
200604A00010	6/4/2020	0.89	6/4/2025	6/4/2020	116.92302	112.5100435	108.2858173	104.2413198	100.3680095	96.65779433	93.10300567	89.69637411	86.43100651
200604A00012	6/4/2020	1.59	6/4/2030	6/4/2020	140.88651	129.3334902	118.8069191	109.2105262	100.4575117	92.46957349	85.17603734	78.51307983	72.42303397
200611A00010	6/11/2020	1.08	6/11/2027	6/11/2020	125.43533	118.3494553	111.7021054	105.4640202	99.60803251	94.10890802	88.94319836	84.08910626	79.52636149
200611A00011	6/11/2020	1.2	6/9/2028	6/11/2020	129.79416	121.3059574	113.42118	106.0940261	99.2823882	92.94753484	87.05382394	81.56844229	76.46116808
200511A00020	5/11/2020	1.4	2/1/2028	5/11/2020	129.99342	121.9497965	114.4513729	107.458467	100.9344807	94.84564388	89.16078265	83.85110672	78.89001573
200511A00022	5/11/2020	1.6	2/1/2030	5/11/2020	139.62184	128.5820491	118.4901255	109.2599135	100.8135	93.08038414	85.99673786	79.50474341	73.55199987
200511A00028	5/13/2020	1.02	5/13/2024	5/13/2020	113.00603	109.8961691	106.8876227	103.9764666	101.1589527	98.43150314	95.79070178	93.23328516	90.75613469
200513A00002	5/13/2020	0.56	5/13/2024	5/13/2020	112.08578	108.9791717	105.974097	103.0666126	100.2529535	97.5295263	94.89290006	92.33979779	89.86708828
200527A00022	5/27/2020	0.53	5/27/2022	5/27/2020	103.605	102.7212109	101.8523893	100.9981618	100.1581636	99.33204185	98.51945539	97.72007405	96.93357836
200529A00004	5/29/2020	0.56	5/29/2024	5/29/2020	112.26321	109.1036325	106.0483891	103.0934796	100.2350824	97.46954277	94.79336459	92.20320244	89.69585434
200507A00005	5/7/2020	0.67	5/5/2023	5/7/2020	107.73991	105.8396481	103.982529	102.167188	100.3923132	98.65664812	96.95898801	95.29817763	93.67310844
200508A00004	5/8/2020	0.43	5/8/2023	5/8/2020	107.58599	105.6735223	103.8046688	101.9780537	100.1923626	98.44633503	96.7387621	95.06848362	93.43438563
200511A00015	5/11/2020	0.6	2/1/2023	5/11/2020	106.50208	104.8929804	103.3166694	101.7722265	100.2587674	98.77543976	97.32142223	95.89592257	94.49817656
200511A00016	5/11/2020	0.71	2/1/2024	5/11/2020	110.95446	108.190578	105.5097772	102.9090605	100.3855625	97.93653907	95.55936144	93.25151035	91.01057084
200511A00017	5/11/2020	0.83	2/3/2025	5/11/2020	115.3812	111.3901933	107.5577985	103.8768529	100.340557	96.94245575	93.6764186	90.53662133	87.51752893
200511A00018	5/11/2020	0.98	2/2/2026	5/11/2020	119.83248	114.5639694	109.5548411	104.7909873	100.2591417	95.94682573	91.84229732	87.93450332	84.21303551
200430A00016	4/30/2020	0.82	4/30/2024	4/30/2020	112.26263	109.2043823	106.2450099	103.3806327	100.6075522	97.92224408	95.32134819	92.80165966	90.36012019
200504A00004	5/4/2020	0.75	5/5/2025	5/4/2020	116.65644	112.3287025	108.1834629	104.2119648	100.4059328	96.75753856	93.25937371	89.90442434	86.68604726
200504A00015	5/4/2020	0.68	5/4/2023	5/4/2020	107.74631	105.8489874	103.9947142	102.1821167	100.4098819	98.67675209	96.981522	95.32303602	93.70018559
200505A00004	5/5/2020	0.77	5/5/2025	5/5/2020	116.73834	112.4089924	108.2621848	104.2891668	100.4816611	96.83183761	93.3322862	89.97599135	86.75630832
200505A00006	5/5/2020	0.39	11/4/2021	5/5/2020	101.13432	100.8601548	100.587483	100.3162887	100.0465599	99.77828475	99.51145141	99.24604826	98.98206379
200506A00005	5/6/2020	0.97	5/6/2025	5/6/2020	116.93941	112.6200288	108.4823936	104.5178136	100.7180655	97.07536904	93.58235997	90.23206488	87.01787781
200429A00052	5/1/2020	1.43	4/30/2024	5/1/2020	114.05425	110.9699525	107.9851714	105.0960046	102.2987333	99.58981349	96.96586649	94.42366937	91.96014657
200429A00053	5/1/2020	2.18	4/30/2025	5/1/2020	121.79571	117.4004131	113.1883942	109.1509032	105.2796635	101.566846	98.00504259	94.58723968	91.30679466
200429A00056	5/1/2020	1.54	4/30/2025	5/1/2020	119.19217	114.848	110.6855359	106.6960872	102.8714358	99.203809	95.68585201	92.31060237	89.0714662
200429A00058	5/1/2020	1.83	4/30/2025	5/1/2020	120.3719	116.0045622	111.8196436	107.8084257	103.962664	100.2745601	96.73673524	93.34220365	90.08434941
200430A00008	4/30/2020	0.94	4/30/2025	4/30/2020	116.75135	112.4551127	108.3391064	104.3946972	100.6137224	96.9884618	93.51161083	90.17625489	86.97584576
200430A00009	4/30/2020	1.16	4/30/2026	4/30/2020	121.74992	116.1416433	110.8217412	105.7737948	100.982418	96.43318631	92.11257034	88.00787463	84.10718109
200429A00018	5/4/2020	0.73	4/17/2023	5/4/2020	107.6333	105.7874173	103.9826258	102.217617	100.4911426	98.80200719	97.14906511	95.53121808	93.94741258

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200429A00043	5/1/2020	1.56	4/30/2025	5/1/2020	119.27353	114.9277629	110.7637503	106.7728002	102.9466929	99.27765391	95.75832671	92.38174729	89.14132021
200429A00044	5/1/2020	1.86	4/30/2025	5/1/2020	120.49394	116.1242066	111.9369651	107.9234952	104.0755496	100.3853275	96.8454473	93.44892103	90.18913043
200429A00045	5/1/2020	1.54	4/30/2025	5/1/2020	119.19217	114.848	110.6855359	106.6960872	102.8714358	99.203809	95.68585201	92.31060237	89.0714662
200429A00047	5/1/2020	2.7	4/30/2025	5/1/2020	123.91109	119.4742488	115.2219665	111.1454412	107.2363484	103.4868136	99.88938494	96.4370075	93.12299904
200429A00050	5/1/2020	2.61	4/30/2025	5/1/2020	123.54497	119.1153157	114.870002	110.8002327	106.8976914	103.1545115	99.56324876	96.11685538	92.80865598
200424A00006	4/24/2020	0.6	4/24/2023	4/24/2020	107.73173	105.8597781	104.0299348	102.2408442	100.4912127	98.7798023	97.10542737	95.46695186	93.86328668
200428A00013	4/30/2020	1.49	4/29/2024	4/30/2020	114.21727	111.1336991	108.1495183	105.2608352	102.4639393	99.75529433	97.13152856	94.58942579	92.12591662
200429A00003	4/29/2020	0.74	4/28/2023	4/29/2020	107.78389	105.9041472	104.0668147	102.270526	100.513973	98.79590439	97.11512163	95.47047671	93.86086924
200429A00010	4/29/2020	0.78	4/29/2025	4/29/2020	116.71402	112.404651	108.2763782	104.320516	100.5288514	96.89361751	93.40746579	90.06344072	86.85495575
200429A00015	4/29/2020	0.66	4/29/2024	4/29/2020	112.22496	109.1602544	106.1947688	103.3246028	100.5460412	97.85554433	95.24973734	92.72540155	90.2794656
200429A00017	5/4/2020	0.66	8/15/2022	5/4/2020	104.7119	103.5753091	102.4631982	101.3747838	100.3093156	99.26607447	98.24437107	97.24354435	96.26296004
200414A00016	4/16/2020	1.64	4/15/2024	4/16/2020	114.4662	111.4223963	108.4755151	105.6218101	102.8577083	100.1798019	97.58483908	95.06971591	92.63146795
200415A00019	4/15/2020	0.68	4/15/2022	4/15/2020	103.20951	102.4545515	101.7105835	100.9773699	100.254679	99.54228545	98.83997027	98.14752077	97.46473016
200415A00030	4/15/2020	0.76	3/15/2023	4/15/2020	107.28309	105.5387303	103.8316497	102.1607236	100.5248731	98.92306208	97.35429531	95.81761623	94.31210512
200416A00005	4/16/2020	0.49	4/15/2022	4/16/2020	103.14674	102.3910152	101.6463077	100.912381	100.1890021	99.47594501	98.77298989	98.07992323	97.39653748
200417A00016	4/21/2020	2.18	4/21/2025	4/21/2020	121.66446	117.3009447	113.1183625	109.1081251	105.2621074	101.5726216	98.03238951	94.6345186	91.37247828
200420A00047	4/20/2020	0.77	4/20/2023	4/20/2020	107.74162	105.8858842	104.0716064	102.2974649	100.562195	98.86458563	97.20347663	95.57775594	93.98635706
200407A00001	4/8/2020	2.41	4/7/2025	4/8/2020	122.37944	118.0475468	113.8935118	109.908972	106.0860159	102.4171523	98.89528527	95.51369035	92.26599268
200407A00002	4/8/2020	1.82	4/8/2024	4/8/2020	114.88726	111.8591471	108.9268408	106.0866588	103.3350925	100.6687943	98.0845687	95.57936418	93.15026536
200408A00019	4/10/2020	1.7	4/11/2022	4/10/2020	103.89218	103.1465007	102.4114954	101.686937	100.972604	100.2682809	99.57375839	98.88883273	98.21330598
200408A00021	4/8/2020	0.99	4/4/2025	4/8/2020	117.2865	113.0459894	108.9806964	105.0823633	101.3431735	97.75572639	94.3130122	91.00838892	87.83556028
200413A00031	4/13/2020	0.73	4/13/2022	4/13/2020	103.22044	102.4714588	101.7332934	101.0057152	100.2884975	99.58142041	98.88426983	98.19683787	97.51892235
200413A00032	4/13/2020	0.82	4/13/2023	4/13/2020	107.74593	105.9108023	104.1163174	102.36119	100.6441925	98.96414859	97.31993089	95.71045821	94.13469316
200403A00006	4/3/2020	1.05	4/3/2025	4/3/2020	116.90092	112.6875805	108.6478964	104.7737059	101.0572803	97.49130109	94.06883554	90.78331337	87.6285055
200403A00014	4/3/2020	0.63	4/17/2023	4/3/2020	107.70134	105.8504005	104.0407337	102.2710267	100.5400237	98.84652208	97.18936955	95.56746151	93.97973849
200403A00021	4/3/2020	0.74	4/29/2022	4/3/2020	103.43294	102.6348629	101.8490183	101.0751316	100.312932	99.56215656	98.82255027	98.09386567	97.37586252
200406A00006	4/6/2020	1.13	4/7/2025	4/6/2020	117.2647	113.0316193	108.9733867	105.0817631	101.348948	97.76755604	94.33059253	91.03142948	87.86378413
200406A00013	4/6/2020	0.83	4/1/2022	4/6/2020	103.13607	102.4235177	101.7207612	101.0275957	100.343826	99.66926232	99.00371992	98.34701893	97.69898425
200406A00020	4/6/2020	0.65	4/6/2022	4/6/2020	103.14794	102.4193256	101.7009595	100.9926225	100.2941057	99.605206	98.92572586	98.25547311	97.59426081
200330A00045	3/30/2020	1.47	3/30/2027	3/30/2020	127.19401	120.3041577	113.8269664	107.7355617	102.0049631	96.61194084	91.53488335	86.75367557	82.24958727
200331A00060	3/31/2020	1.09	3/31/2025	3/31/2020	117.0268	112.8205774	108.7873497	104.919005	101.2078596	97.64663683	94.22844233	90.94674149	87.79533821
200401A00020	4/1/2020	0.72	3/29/2022	4/1/2020	103.02193	102.3188168	101.625249	100.9410289	100.2659686	99.59988545	98.94260157	98.29394369	97.65374311
200401A00025	4/1/2020	0.54	4/1/2022	4/1/2020	103.00773	102.2947304	101.5915418	100.8979652	100.2138049	99.53887016	98.87297562	98.21594076	97.56758984

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200402A00011	4/2/2020	0.8	3/31/2023	4/2/2020	107.55137	105.7563397	104.0004193	102.2823963	100.6011114	98.95545287	97.3443539	95.7667905	94.22177921
200402A00021	4/2/2020	0.77	10/2/2024	4/2/2020	114.34209	110.7530039	107.2947731	103.9618248	100.7488627	97.6508506	94.66299822	91.78074701	88.99975728
200324A00020	3/24/2020	1.23	3/24/2022	3/24/2020	103.29881	102.6095845	101.9295173	101.2584298	100.596145	99.94249075	99.29729914	98.66040669	98.03165408
200325A00029	3/25/2020	1.15	3/24/2023	3/25/2020	108.30708	106.5221855	104.7758963	103.0670315	101.3944565	99.75708296	98.15386626	96.58380309	95.04592955
200326A00029	3/26/2020	1.82	3/26/2027	3/26/2020	129.35345	122.4140418	115.8884678	109.749863	103.9732472	98.53538594	93.41465925	88.59094018	84.04548379
200326A00030	3/26/2020	1.13	3/24/2023	3/26/2020	108.03368	106.2554205	104.5155649	102.812936	101.1464073	99.51489777	97.91736956	96.35282601	94.82030942
200327A00075	3/31/2020	1.75	3/29/2024	3/31/2020	114.54619	111.5540087	108.6557214	105.8477534	103.1266972	100.4892997	97.93245426	95.45319222	93.04867616
200330A00027	3/30/2020	0.62	3/30/2022	3/30/2020	103.03746	102.330365	101.6329136	100.9449118	100.2661689	99.59649922	98.93572204	98.28366139	97.64014593
200312A00016	3/16/2020	1.09	2/15/2023	3/16/2020	107.46573	105.8053355	104.1792764	102.5865698	101.0262661	99.4974514	97.99924579	96.53080164	95.09130222
200312A00042	3/16/2020	1.38	3/16/2023	3/16/2020	108.35136	106.5945322	104.8752668	103.1924326	101.5449407	99.9317459	98.35184396	96.80426992	95.28809597
200313A00022	3/13/2020	1.11	3/8/2022	3/13/2020	102.9978	102.3574404	101.725012	101.100372	100.4833772	99.87388787	99.27176761	98.67688337	98.08910528
200316A00064	3/16/2020	0.99	3/16/2022	3/16/2020	103.03086	102.3665133	101.710708	101.0632773	100.4240615	99.792905	99.16965595	98.5541664	97.94629209
200317A00065	3/19/2020	2.05	3/19/2025	3/19/2020	120.66727	116.4307813	112.3664412	108.4662544	104.7226496	101.1284521	97.67686043	94.361424	91.1760231
200323A00007	3/23/2020	1.05	9/23/2021	3/23/2020	100.72721	100.5730413	100.4193551	100.2661474	100.113416	99.96115871	99.80937325	99.65805745	99.50720912
200311A00006	3/13/2020	1.12	3/10/2025	3/13/2020	116.90152	112.7661428	108.7985697	104.99104	101.3362014	97.82708423	94.45707912	91.219916	88.10964449
200311A00036	3/16/2020	1.03	4/15/2022	3/16/2020	103.46512	102.7091133	101.9641082	101.2298682	100.5061612	99.79276184	99.0894509	98.39601552	97.71224876
200311A00040	3/12/2020	1.3	3/11/2025	3/12/2020	117.61721	113.465019	109.481276	105.6581921	101.9883846	98.46485544	95.0809684	91.83042819	88.70726064
200311A00056	3/13/2020	1.27	4/10/2024	3/13/2020	113.33382	110.3216598	107.4051263	104.5805377	101.8443827	99.19331144	96.62412693	94.13377639	91.71934375
200311A00058	3/16/2020	1.1	10/14/2022	3/16/2020	106.00938	104.6751602	103.3742644	102.1054569	100.8675628	99.65946388	98.48009537	97.32844262	96.20353829
200312A00004	3/13/2020	1.23	1/24/2025	3/13/2020	116.77947	112.7953593	108.968182	105.290911	101.7568717	98.35972416	95.09344464	91.9523078	88.93087025
200309A00056	3/9/2020	0.97	3/7/2025	3/9/2020	116.28173	112.1678472	108.2206903	104.4325651	100.796178	97.30461467	93.951317	90.73006301	87.63494723
200309A00064	3/9/2020	0.55	3/9/2022	3/9/2020	102.72661	102.0833904	101.4481976	100.8208787	100.2012881	99.58928342	98.98472607	98.38748066	97.7974151
200310A00019	3/10/2020	0.95	3/10/2023	3/10/2020	107.54125	105.8097195	104.1149623	102.4558787	100.8314128	99.24055023	97.68231614	96.15577324	94.66002
200310A00025	3/10/2020	0.87	3/11/2024	3/10/2020	112.25795	109.3453914	106.5232599	103.7881641	101.1368666	98.56627417	96.0734299	93.65550627	91.30979838
200310A00042	3/10/2020	1.41	3/11/2030	3/10/2020	138.16912	127.0502201	116.8984632	107.6249106	99.14922459	91.39879844	84.30797549	77.81735139	71.87314956
200310A00073	3/12/2020	2.12	3/11/2027	3/12/2020	131.0423	124.1062064	117.5802207	111.4379135	105.6547033	100.2077133	95.07564433	90.23865724	85.6782651
200306A00098	3/10/2020	1.59	3/8/2030	3/10/2020	139.92426	128.7383049	118.5225255	109.1878757	100.6539059	92.84789598	85.7040765	79.16293118	73.17057329
200306A00100	3/10/2020	1.82	3/10/2031	3/10/2020	146.60612	133.727447	122.0780278	111.5341555	101.9851599	93.33197612	85.48587401	78.36733199	71.90503898
200306A00101	3/10/2020	1.93	3/8/2030	3/10/2020	143.29902	131.9628266	121.6061505	112.1392609	103.4810838	95.55832492	88.30468632	81.66016509	75.57042611
200309A00016	3/9/2020	0.77	9/12/2022	3/9/2020	105.18798	103.9605981	102.7616253	101.5900847	100.4450442	99.32561333	98.2309412	97.16021421	96.11265405
200309A00027	3/9/2020	0.97	3/10/2025	3/9/2020	116.31529	112.1910096	108.2341995	104.4371137	100.792412	97.29313639	93.9326885	90.7048088	87.60355698
200309A00046	3/9/2020	0.78	3/11/2025	3/9/2020	116.1826	112.0415655	108.0692084	104.2577055	100.5996437	97.0879971	93.71610422	90.47764648	87.36662845
200306A00009	3/6/2020	0.82	3/7/2022	3/6/2020	102.80447	102.1677755	101.538932	100.9177986	100.3042342	99.69810102	99.09926471	98.50759412	97.92296123

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200306A00012	3/6/2020	0.95	3/6/2024	3/6/2020	112.0003	109.1163321	106.321351	103.6120486	100.9852597	98.43795859	95.96725183	93.57037161	91.24466923
200306A00014	3/6/2020	1.38	3/6/2030	3/6/2020	137.81907	126.7342017	116.6124772	107.3654325	98.91314881	91.18338802	84.11081784	77.6363195	71.70636789
200306A00037	3/6/2020	1.11	3/6/2026	3/6/2020	120.89358	115.4885835	110.3539002	105.4745845	100.8365966	96.42674614	92.23263563	88.24260822	84.44569936
200306A00046	3/6/2020	1.01	3/3/2025	3/6/2020	116.39245	112.2894915	108.3523636	104.5734299	100.9454561	97.46158242	94.11530153	90.90043847	87.81113144
200306A00065	3/6/2020	1.38	3/6/2030	3/6/2020	137.81907	126.7342017	116.6124772	107.3654325	98.91314881	91.18338802	84.11081784	77.6363195	71.70636789
200305A00020	3/5/2020	0.95	3/5/2025	3/5/2020	116.77954	112.6468625	108.6817407	104.8764386	101.2236238	97.71634528	94.34801023	91.11236385	88.00346964
200305A00036	3/5/2020	1.36	3/5/2027	3/5/2020	126.22752	119.4526901	113.0796515	107.0825049	101.4371591	96.12119214	91.11372675	86.39531545	81.94783531
200305A00040	3/10/2020	0.99	3/10/2023	3/10/2020	107.60866	105.876541	104.1812039	102.5215511	100.8965264	99.30511517	97.7463422	96.21926998	94.7229967
200305A00043	3/5/2020	0.95	3/7/2022	3/5/2020	102.88495	102.2479712	101.6188456	100.9974326	100.383591	99.77718306	99.17807433	98.58613364	98.00123292
200306A00001	3/6/2020	1.11	3/6/2026	3/6/2020	120.89358	115.4885835	110.3539002	105.4745845	100.8365966	96.42674614	92.23263563	88.24260822	84.44569936
200306A00002	3/6/2020	0.64	3/7/2022	3/6/2020	102.75733	102.119971	101.490486	100.8687307	100.2545634	99.64784579	99.04844297	98.45622323	97.87105803
200304A00054	3/6/2020	2.35	3/8/2027	3/6/2020	132.43725	125.4711091	118.9156412	112.74444	106.9329392	101.458273	96.29914944	91.43573327	86.84953867
200305A00002	3/5/2020	1.14	3/5/2025	3/5/2020	116.92109	112.8016609	108.8488338	105.0549352	101.4126892	97.91519732	94.55591604	91.32863646	88.22746502
200305A00007	3/5/2020	1.14	3/5/2025	3/5/2020	116.92109	112.8016609	108.8488338	105.0549352	101.4126892	97.91519732	94.55591604	91.32863646	88.22746502
200305A00009	3/10/2020	1.04	10/18/2023	3/10/2020	110.52988	108.09772	105.7315408	103.4290373	101.1880094	99.00635287	96.88205471	94.81318792	92.79790713
200305A00011	3/5/2020	0.95	3/7/2022	3/5/2020	102.88495	102.2479712	101.6188456	100.9974326	100.383591	99.77718306	99.17807433	98.58613364	98.00123292
200305A00012	3/5/2020	1.14	3/5/2025	3/5/2020	116.92109	112.8016609	108.8488338	105.0549352	101.4126892	97.91519732	94.55591604	91.32863646	88.22746502
200303A00010	3/3/2020	1.34	3/3/2025	3/3/2020	117.67492	113.5478181	109.587265	105.7855978	102.1355559	98.63025457	95.26316265	92.0280824	88.91913023
200303A00034	3/3/2020	1.21	3/3/2025	3/3/2020	117.1697	113.0521137	109.1007887	105.3080771	101.6667287	98.16986857	94.81097494	91.58385903	88.48264586
200304A00007	3/4/2020	1.01	3/15/2022	3/4/2020	103.03023	102.3688718	101.7159762	101.0713815	100.4349301	99.80646821	99.18584617	98.57291785	97.9675408
200304A00017	3/4/2020	0.83	3/16/2022	3/4/2020	102.99477	102.3296902	101.6731668	101.0250395	100.385148	99.75333598	99.12945107	98.51334469	97.90487198
200304A00040	3/4/2020	1.12	3/1/2024	3/4/2020	112.40894	109.5350795	106.7494815	104.0488744	101.4301344	98.89027476	96.42643859	94.03589208	91.7160184
200304A00053	3/6/2020	2.33	3/6/2025	3/6/2020	121.56865	117.3582617	113.3173348	109.4380775	105.7131032	102.1354079	98.69834826	95.39561994	92.22123872
200302A00051	3/2/2020	1.22	8/8/2023	3/2/2020	110.02585	107.8135273	105.6572621	103.5552622	101.5058039	99.50723125	97.55795263	95.65643794	93.80121562
200302A00053	3/2/2020	1.31	3/3/2025	3/2/2020	117.55833	113.4334248	109.4750013	105.6754007	102.027365	98.52401165	95.15881164	91.92556931	88.81840306
200302A00054	3/2/2020	1.31	3/3/2025	3/2/2020	117.55833	113.4334248	109.4750013	105.6754007	102.027365	98.52401165	95.15881164	91.92556931	88.81840306
200303A00002	3/3/2020	1.06	3/3/2023	3/3/2020	107.86334	106.1461967	104.4652692	102.819483	101.2078084	99.62925555	98.08287296	96.56774525	95.08299157
200303A00004	3/3/2020	1.06	3/3/2022	3/3/2020	102.96161	102.3354708	101.7169148	101.1058061	100.5020109	99.90539866	99.31584174	98.73321564	98.15739875
200303A00007	3/3/2020	1.11	3/4/2024	3/3/2020	112.83733	109.9389328	107.1299249	104.4069804	101.7669212	99.20670919	96.7234391	94.31433171	91.97672733
200228A00073	2/28/2020	1.32	2/28/2023	2/28/2020	108.02428	106.318795	104.6490759	103.0140731	101.4127761	99.84421356	98.30745101	96.80158938	95.32576318
200302A00008	3/2/2020	1.2	3/9/2023	3/2/2020	107.94887	106.2167973	104.5214516	102.8617401	101.23661	99.64504944	98.0860863	96.55878567	95.06224825
200302A00011	3/2/2020	1.31	2/27/2025	3/2/2020	117.50892	113.3981106	109.4527901	105.6653677	102.0286473	98.53580371	95.18036159	91.95617488	88.85740817
200302A00031	3/2/2020	1.02	11/18/2022	3/2/2020	106.43839	105.0279776	103.6473906	102.2956896	100.9719788	99.67539936	98.40512818	97.16037563	95.94038395

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200302A00033	3/2/2020	1.31	3/3/2025	3/2/2020	117.55833	113.4334248	109.4750013	105.6754007	102.027365	98.52401165	95.15881164	91.92556931	88.81840307
200302A00035	3/2/2020	1.22	7/3/2023	3/2/2020	109.53787	107.4421442	105.3971509	103.4013492	101.4532524	99.55142902	97.6945002	95.88113744	94.11006041
200228A00060	2/28/2020	1.31	2/28/2022	2/28/2020	103.00728	102.3907401	101.78154	101.179554	100.5846546	99.99671756	99.41562127	98.8412471	98.2734791
200228A00061	2/28/2020	1.13	7/20/2022	2/28/2020	104.98597	103.9270176	102.8892981	101.8721777	100.875048	99.89732453	98.93844521	97.99786961	97.07507774
200228A00062	2/28/2020	1.32	2/28/2023	2/28/2020	108.02428	106.318795	104.6490759	103.0140731	101.4127761	99.84421356	98.30745101	96.80158938	95.32576318
200228A00064	2/28/2020	1.35	2/28/2024	2/28/2020	113.01611	110.1402214	107.3524486	104.6495371	102.0283751	99.48598635	97.01952405	94.62626363	92.30359682
200228A00065	2/28/2020	1.4	2/28/2025	2/28/2020	117.87051	113.749557	109.7945353	105.9978305	102.3522241	98.85087001	95.48727309	92.25526887	89.14900461
200228A00066	2/28/2020	1.35	2/28/2024	2/28/2020	113.01611	110.1402214	107.3524486	104.6495371	102.0283751	99.48598635	97.01952405	94.62626363	92.30359682
200228A00030	2/28/2020	1.32	2/28/2023	2/28/2020	108.02428	106.318795	104.6490759	103.0140731	101.4127761	99.84421356	98.30745101	96.80158938	95.32576318
200228A00031	2/28/2020	1.35	2/28/2024	2/28/2020	113.01611	110.1402214	107.3524486	104.6495371	102.0283751	99.48598635	97.01952405	94.62626363	92.30359682
200228A00041	2/28/2020	1.14	2/28/2023	2/28/2020	107.95483	106.2460005	104.573078	102.9350012	101.3307542	99.75936048	98.21988071	96.71141122	95.23308219
200228A00042	2/28/2020	1.17	2/28/2024	2/28/2020	112.93806	110.0541101	107.2587172	104.5486043	101.9206376	99.37182083	96.89928781	94.50029592	92.17221983
200228A00043	2/28/2020	1.21	2/28/2025	2/28/2020	117.73212	113.5979107	109.6305822	105.8224573	102.1662616	98.65509676	95.28241895	92.0420181	88.92799885
200228A00058	2/28/2020	1.31	2/28/2022	2/28/2020	103.00728	102.3907401	101.78154	101.179554	100.5846546	99.99671756	99.41562127	98.8412471	98.2734791
200227A00052	2/27/2020	1.41	2/27/2023	2/27/2020	108.15871	106.455166	104.7873068	103.1540854	101.5544953	99.98756885	98.45237513	96.94801836	95.47363617
200228A00005	2/28/2020	1.35	2/28/2024	2/28/2020	113.01611	110.1402214	107.3524486	104.6495371	102.0283751	99.48598635	97.01952405	94.62626363	92.30359682
200228A00013	3/3/2020	1.33	1/14/2022	3/3/2020	102.3783	101.896278	101.41879	100.9457752	100.4771708	100.0129154	99.55294832	99.09721036	98.64564324
200228A00015	3/3/2020	1.34	10/16/2023	3/3/2020	111.20653	108.7726159	106.4045479	104.1000312	101.8568757	99.6729868	97.54636025	95.47507721	93.45729987
200228A00027	2/28/2020	1.31	2/28/2022	2/28/2020	103.00728	102.3907401	101.78154	101.179554	100.5846546	99.99671756	99.41562127	98.8412471	98.2734791
200228A00029	2/28/2020	1.31	2/28/2022	2/28/2020	103.00728	102.3907401	101.78154	101.179554	100.5846546	99.99671756	99.41562127	98.8412471	98.2734791
200227A00011	2/27/2020	1.42	2/28/2022	2/27/2020	103.07319	102.4564198	101.8469959	101.244788	100.6496685	100.0615132	99.48020048	98.90561168	98.33763081
200227A00013	2/27/2020	1.43	2/27/2024	2/27/2020	113.22255	110.3469718	107.5594132	104.856624	102.2354988	99.69306759	97.2264891	94.83304409	92.51012922
200227A00023	2/27/2020	1.47	2/27/2025	2/27/2020	118.12872	114.0062802	110.049671	106.2512925	102.6039359	99.10076422	95.73529048	92.50135774	89.39312015
200227A00026	2/27/2020	1.41	2/27/2023	2/27/2020	108.15871	106.455166	104.7873068	103.1540854	101.5544953	99.98756885	98.45237513	96.94801836	95.47363617
200227A00027	2/27/2020	1.47	2/27/2025	2/27/2020	118.12872	114.0062802	110.049671	106.2512925	102.6039359	99.10076422	95.73529048	92.50135774	89.39312015
200227A00031	2/27/2020	1.43	2/27/2024	2/27/2020	113.22255	110.3469718	107.5594132	104.856624	102.2354988	99.69306759	97.2264891	94.83304409	92.51012922
200226A00015	2/26/2020	1.53	2/26/2024	2/26/2020	113.48334	110.6073419	107.8192785	105.1159094	102.4941352	99.95099141	97.48364197	95.08937242	92.76558388
200226A00016	2/26/2020	1.57	2/26/2025	2/26/2020	118.5026	114.3765122	110.4162237	106.6141412	102.9630634	99.45615998	96.08695017	92.84928248	89.73731604
200226A00019	2/26/2020	1.38	2/26/2025	2/26/2020	118.36611	114.2267497	110.2541311	106.4406043	102.7789121	99.26217225	95.88385529	92.63776428	89.51801582
200226A00025	2/26/2020	1.38	2/26/2025	2/26/2020	118.36611	114.2267497	110.2541311	106.4406043	102.7789121	99.26217225	95.88385529	92.63776428	89.51801582
200227A00004	2/27/2020	1.65	2/27/2030	2/27/2020	142.18312	130.8465118	120.4916242	111.0284545	102.3756848	94.45980185	87.21431085	80.57903257	74.49947394
200227A00005	2/27/2020	1.43	2/27/2024	2/27/2020	113.22255	110.3469718	107.5594132	104.856624	102.2354988	99.69306759	97.2264891	94.83304409	92.51012922
200225A00050	2/25/2020	1.57	2/25/2025	2/25/2020	118.4891	114.3666384	110.4097259	106.6107869	102.9626356	99.45845586	96.09178017	92.85646938	89.74669404

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200226A00005	2/26/2020	1.53	2/27/2023	2/26/2020	108.35706	106.6518059	104.98227	103.3474026	101.7461965	100.177683	98.64093052	97.13504246	95.65915569
200226A00006	2/26/2020	1.57	2/26/2025	2/26/2020	118.5026	114.3765122	110.4162237	106.6141412	102.9630634	99.45615998	96.08695017	92.84928248	89.73731604
200226A00009	2/26/2020	1.75	2/26/2030	2/26/2020	143.16667	131.7901636	121.3974668	111.8984631	103.2117256	95.26363734	87.98760543	81.32335745	75.21631217
200226A00013	2/26/2020	1.35	2/26/2024	2/26/2020	113.40638	110.5223185	107.7266355	105.0160643	102.3874838	99.83790947	97.36448599	94.96448092	92.63527839
200226A00014	2/26/2020	1.53	2/27/2023	2/26/2020	108.35706	106.6518059	104.98227	103.3474026	101.7461965	100.177683	98.64093052	97.13504246	95.65915569
200225A00012	2/25/2020	1.57	2/25/2025	2/25/2020	118.4891	114.3666384	110.4097259	106.6107869	102.9626356	99.45845586	96.09178017	92.85646938	89.74669404
200225A00014	2/25/2020	1.57	2/25/2022	2/25/2020	103.11794	102.5099021	101.9090047	101.3151269	100.7281463	100.1479434	99.57440142	99.00740619	98.44684617
200225A00018	2/25/2020	1.94	2/25/2030	2/25/2020	143.26145	131.968625	121.6484311	112.2120441	103.5791846	95.67725224	88.44055519	81.80962003	75.73057397
200225A00042	2/25/2020	1.39	2/25/2022	2/25/2020	103.07301	102.4643401	101.8628318	101.2683612	100.6808054	100.1000443	99.52596066	98.95843981	98.39736978
200225A00044	2/25/2020	1.57	2/25/2022	2/25/2020	103.11794	102.5099021	101.9090047	101.3151269	100.7281463	100.1479434	99.57440142	99.00740619	98.44684617
200225A00045	2/25/2020	1.54	2/24/2023	2/25/2020	108.32859	106.6329148	104.9726382	103.3467281	101.754191	100.1940713	98.66544945	97.16744061	95.69919257
200224A00021	2/24/2020	1.58	9/24/2024	2/24/2020	116.48161	112.8948952	109.4375798	106.1042051	102.8895809	99.78876931	96.79707106	93.91001194	91.12333044
200224A00024	2/24/2020	1.59	2/24/2025	2/24/2020	118.55289	114.4326054	110.4776639	106.6805051	103.0339568	99.53121576	96.16582615	92.93165978	89.8228974
200224A00025	2/24/2020	1.59	1/23/2025	2/24/2020	118.12276	114.1173058	110.2692522	106.5715617	103.0175496	99.600866	96.31547734	93.15564854	90.11592662
200224A00035	2/24/2020	1.59	2/24/2025	2/24/2020	118.55289	114.4326054	110.4776639	106.6805051	103.0339568	99.53121576	96.16582615	92.93165978	89.8228974
200225A00003	2/25/2020	1.54	2/27/2023	2/25/2020	108.37359	106.6681926	104.9985169	103.3635124	101.7621716	100.1935258	98.65664347	97.1506278	95.67461566
200225A00004	2/25/2020	1.54	2/26/2024	2/25/2020	113.51076	110.6343882	107.8459593	105.1422333	102.5201104	99.97662591	97.50894352	95.11434852	92.7902418
200224A00001	2/24/2020	1.59	2/24/2025	2/24/2020	118.55289	114.4326054	110.4776639	106.6805051	103.0339568	99.53121576	96.16582615	92.93165978	89.8228974
200224A00007	2/24/2020	1.59	2/24/2025	2/24/2020	118.55289	114.4326054	110.4776639	106.6805051	103.0339568	99.53121576	96.16582615	92.93165978	89.8228974
200224A00015	2/24/2020	1.57	1/10/2024	2/24/2020	112.94509	110.2232266	107.5811172	105.0159614	102.5250741	100.1058804	97.75591107	95.472797	93.25426466
200224A00016	2/24/2020	1.56	2/24/2023	2/24/2020	108.36147	106.6655145	105.0049612	103.3787795	101.7859757	100.2255941	98.69671499	97.19845341	95.72995705
200224A00017	2/24/2020	1.59	2/24/2025	2/24/2020	118.55289	114.4326054	110.4776639	106.6805051	103.0339568	99.53121576	96.16582615	92.93165978	89.8228974
200224A00019	2/24/2020	1.59	2/18/2025	2/24/2020	118.47155	114.3730086	110.4383294	106.6600433	103.0310697	99.54469016	96.19452797	92.97452847	89.87894088
200220A00008	2/20/2020	1.74	2/20/2024	2/20/2020	113.97307	111.1092612	108.3325593	105.6397676	103.0278332	100.4938352	98.03497803	95.64858548	93.33209437
200220A00015	2/20/2020	1.57	2/20/2025	2/20/2020	119.01933	114.8880827	110.9224928	107.1149849	103.4583798	99.94586682	96.57098303	93.32759294	90.20987004
200220A00025	2/20/2020	1.72	2/21/2023	2/20/2020	108.57795	106.8894767	105.2361306	103.6168933	102.0307835	100.4768574	98.95420672	97.46195683	95.99926547
200221A00003	2/25/2020	1.69	2/25/2025	2/25/2020	118.95321	114.8220427	110.8566894	107.0495581	103.3934534	99.88155028	96.50737272	93.26477337	90.147915
200221A00009	2/21/2020	1.69	2/22/2022	2/21/2020	103.14267	102.5434272	101.951133	101.3656628	100.7868991	100.2147273	99.64903526	99.08971331	98.53665433
200221A00013	2/21/2020	1.69	2/21/2025	2/21/2020	118.89772	114.7811045	110.8293041	107.0347961	103.3904462	99.88948637	96.52549336	93.29236909	90.18432214
200219A00006	2/19/2020	1.76	2/18/2022	2/19/2020	103.12702	102.5396038	101.9588703	101.3847029	100.8169904	100.2556245	99.70049911	99.15151049	98.60855725
200219A00007	2/19/2020	1.81	8/19/2021	2/19/2020	100.30692	100.2511615	100.1954762	100.1398684	100.0843378	100.0288843	99.97350778	99.91820804	99.86298493
200219A00015	2/19/2020	1.77	2/19/2027	2/19/2020	129.67199	122.8096667	116.3513386	110.2711161	104.5449061	99.15027573	94.06632877	89.27359263	84.7539138
200219A00016	2/19/2020	1.57	10/19/2022	2/19/2020	106.83578	105.4773274	104.1532051	102.862121	101.6028513	100.3742318	99.17515465	98.00456472	96.8614566

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200220A00001	2/20/2020	1.74	2/22/2022	2/20/2020	103.17177	102.5724354	101.9800443	101.394478	100.8156191	100.2433528	99.677567	99.11815208	98.56500088
200220A00007	2/20/2020	1.72	2/21/2023	2/20/2020	108.57795	106.8894767	105.2361306	103.6168933	102.0307835	100.4768574	98.95420672	97.46195683	95.99926547
200214A00014	2/18/2020	1.8	2/18/2025	2/18/2020	119.27913	115.1655382	111.2162455	107.4237742	103.7810275	100.2812715	96.91811481	93.68548887	90.5776294
200214A00016	2/14/2020	1.57	2/14/2024	2/14/2020	113.83892	110.9868681	108.2213434	105.5391874	102.9373777	100.4130219	97.96335147	95.58571517	93.27757342
200214A00017	2/14/2020	1.59	2/14/2025	2/14/2020	119.01202	114.9013088	110.9547989	107.1650125	103.5248607	100.0276168	96.66689608	93.43663562	90.33107657
200214A00020	2/18/2020	1.78	1/15/2025	2/18/2020	118.72891	114.7383039	110.9034335	107.2173817	103.6735763	100.2657722	96.98803288	93.83471387	90.80044632
200218A00023	2/18/2020	1.55	2/21/2023	2/18/2020	108.52622	106.8343187	105.1776781	103.5552754	101.9661242	100.4092753	98.88381558	97.38886609	95.92358024
200218A00024	2/20/2020	1.73	7/17/2023	2/20/2020	110.78444	108.631665	106.5320009	104.4837969	102.4854661	100.5354815	98.63237368	96.77472818	94.96118284
200210A00009	2/10/2020	1.57	2/10/2025	2/10/2020	118.87904	114.784404	110.8529257	107.0772011	103.4502039	99.96526544	96.61605503	93.3965602	90.30106898
200211A00022	2/11/2020	1.73	2/10/2023	2/11/2020	108.42329	106.7703483	105.1513867	103.5654375	102.0115692	100.4888847	98.99652009	97.53364274	96.0994501
200212A00003	2/12/2020	1.63	2/12/2025	2/12/2020	119.13732	115.0310851	111.0886297	107.3025138	103.6656759	100.1714149	96.81336954	93.58549887	90.48206435
200214A00002	2/14/2020	1.58	11/15/2024	2/14/2020	117.72277	113.9345938	110.2882561	106.7776255	103.3968791	100.1404805	97.00316337	93.9799169	91.06597128
200214A00005	2/14/2020	1.59	2/14/2025	2/14/2020	119.01202	114.9013088	110.9547989	107.1650125	103.5248607	100.0276168	96.66689608	93.43663562	90.33107657
200214A00007	2/14/2020	1.59	2/14/2025	2/14/2020	119.01202	114.9013088	110.9547989	107.1650125	103.5248607	100.0276168	96.66689608	93.43663562	90.33107657
200204A00020	2/4/2020	1.6	2/4/2025	2/4/2020	118.90927	114.8344593	110.9213833	107.1627333	103.5515712	100.081311	96.74569816	93.53879152	90.45494531
200205A00011	2/7/2020	2.31	2/7/2024	2/7/2020	115.31668	112.4757913	109.7202964	107.0471077	104.4532689	101.9359496	99.49243901	97.12014026	94.8165645
200205A00013	2/5/2020	1.77	2/6/2023	2/5/2020	108.42478	106.7842651	105.1773262	103.6030149	102.0604174	100.5486532	99.06687392	97.6142618	96.19002837
200207A00015	2/7/2020	1.73	2/7/2022	2/7/2020	102.93362	102.3794645	101.8312638	101.2889225	100.7523471	100.2214459	99.69612921	99.17630917	98.66189982
200207A00017	2/7/2020	1.96	2/8/2027	2/7/2020	129.6349	122.8505917	116.4626007	110.4457091	104.7764373	99.43291159	94.39474622	89.64293425	85.15974733
200207A00018	2/7/2020	2.14	2/7/2030	2/7/2020	144.99716	133.6973687	123.3637354	113.9085685	105.2525617	97.32395144	90.057764	83.39514126	77.28273654
200203A00009	2/3/2020	1.52	2/3/2023	2/3/2020	108.2005	106.5674942	104.9678602	103.4006623	101.8649953	100.3599872	98.88479753	97.43861616	96.02066172
200203A00012	2/3/2020	1.57	2/3/2025	2/3/2020	118.78089	114.7118478	110.8042324	107.0507528	103.4444881	99.97886826	96.64765404	93.44491823	90.36502826
200203A00022	2/3/2020	1.75	2/3/2025	2/3/2020	118.8761	114.8206619	110.9257265	107.1840566	103.5887852	100.1333923	96.81168542	93.61778117	90.54608804
200204A00001	2/4/2020	1.79	2/4/2025	2/4/2020	119.04222	114.9803432	111.079294	107.3318185	103.7310316	100.2703967	96.94370561	93.74506042	90.66885592
200204A00012	2/4/2020	1.98	2/4/2027	2/4/2020	129.70438	122.9325024	116.5554805	110.5482351	104.8874118	99.55125037	94.51946801	89.77315137	85.29465711
200204A00015	2/4/2020	1.72	2/6/2023	2/4/2020	108.34522	106.70537	105.0990814	103.5254086	101.9834381	100.4722898	98.99111547	97.53909783	96.11544861
200131A00038	1/31/2020	1.73	1/30/2025	1/31/2020	118.7442	114.7046882	110.8246634	107.0969513	103.5147458	100.0715835	96.76132479	93.57813566	90.51647044
200131A00048	1/31/2020	1.69	1/31/2024	1/31/2020	113.55309	110.7577882	108.0462015	105.4153212	102.8622656	100.3842751	97.97870558	95.64302298	93.37479799
200203A00001	2/3/2020	1.7	2/3/2023	2/3/2020	108.26706	106.6371785	105.0405493	103.4762378	101.9433435	100.4409991	98.96836849	97.52464555	96.10905282
200203A00004	2/3/2020	1.7	2/3/2023	2/3/2020	108.26706	106.6371785	105.0405493	103.4762378	101.9433435	100.4409991	98.96836849	97.52464555	96.10905282
200203A00005	2/3/2020	1.7	5/3/2023	2/3/2020	109.61593	107.7038446	105.835045	104.0081499	102.2218351	100.4748328	98.76592828	97.09395695	95.457802
200203A00006	2/3/2020	1.76	2/3/2025	2/3/2020	118.91409	114.8579496	110.9623344	107.2200045	103.6240921	100.1680764	96.8457644	93.65127204	90.57900716
200130A00048	1/30/2020	1.74	1/31/2022	1/30/2020	102.83584	102.3026194	101.7749077	101.2526198	100.7356727	100.2239847	99.71747606	99.2160685	98.71968536

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200131A00006	1/31/2020	1.52	1/31/2022	1/31/2020	102.76974	102.2361185	101.7080199	101.1853576	100.6680479	100.1560091	99.64916106	99.14742511	98.65072432
200131A00010	2/3/2020	1.68	2/3/2023	2/3/2020	108.23541	106.6057941	105.0094222	103.4453634	101.9127173	100.4106166	98.93822547	97.49473782	96.07937633
200131A00014	2/5/2020	1.7	2/22/2022	2/5/2020	103.14849	102.5492289	101.9569153	101.3714258	100.7926431	100.2204524	99.65474161	99.09540107	98.54232364
200131A00017	1/31/2020	1.51	1/31/2024	1/31/2020	113.47845	110.6754231	107.9565308	105.3187381	102.7591435	100.2749685	97.86355125	95.52234111	93.24889296
200131A00032	1/31/2020	2.1	1/31/2030	1/31/2020	144.51108	133.2599216	122.9692541	113.5520486	104.9295845	97.03061501	89.79062183	83.15114886	77.0592042
200130A00005	1/30/2020	1.73	1/30/2024	1/30/2020	113.64531	110.8519243	108.1421215	105.5129003	102.9613866	100.4848275	98.08058545	95.74613243	93.47904486
200130A00006	1/30/2020	1.77	1/30/2025	1/30/2020	118.89565	114.8533571	110.9706303	107.2402945	103.6555406	100.2099026	96.8972381	93.71171054	90.64777185
200130A00010	1/30/2020	1.56	1/31/2022	1/30/2020	102.79053	102.2568472	101.728686	101.2059615	100.6885901	100.1764901	99.66958124	99.16778495	98.67102427
200130A00011	1/30/2020	1.54	1/30/2023	1/30/2020	108.17053	106.5502317	104.9629039	103.4076261	101.8835107	100.3897021	98.9253756	97.48973583	96.08201552
200130A00012	1/30/2020	1.72	1/30/2023	1/30/2020	108.2367	106.6194933	105.0351385	103.4827169	101.9613457	100.4701739	99.00838086	97.57517541	96.16979401
200130A00028	1/30/2020	1.54	2/7/2023	1/30/2020	108.29386	106.6476016	105.0351396	103.4555121	101.907796	100.3911023	98.90457445	97.44738722	96.01874484
200127A00016	1/27/2020	1.81	1/27/2025	1/27/2020	119.00589	114.9713088	111.0955987	107.371636	103.7926564	100.352236	97.04427131	93.86296209	90.80279404
200127A00019	1/27/2020	1.8	1/27/2025	1/27/2020	118.96812	114.9342319	111.0591941	107.3358842	103.7575389	100.3177346	97.01036874	93.82964157	90.77003943
200127A00023	1/27/2020	1.8	1/27/2025	1/27/2020	118.96812	114.9342319	111.0591941	107.3358842	103.7575389	100.3177346	97.01036874	93.82964157	90.77003943
200128A00028	1/28/2020	1.81	1/28/2025	1/28/2020	119.01963	114.9815485	111.1025987	107.3756367	103.7938825	100.350897	97.04056307	93.85706743	90.79488374
200129A00008	1/29/2020	1.76	1/31/2022	1/29/2020	102.84623	102.3129809	101.7852379	101.2629191	100.7459411	100.2342225	99.72768352	99.22624583	98.72983278
200129A00018	2/3/2020	1.74	12/15/2022	2/3/2020	107.5737	106.0999569	104.6537614	103.234401	101.841192	100.4734732	99.13060513	97.81196923	96.51696695
200117A00026	1/17/2020	1.69	1/18/2022	1/17/2020	102.65443	102.1593513	101.6690528	101.1834611	100.7025085	100.2261286	99.75425625	99.28682758	98.82377991
200121A00009	1/24/2020	1.94	1/24/2025	1/24/2020	119.45447	115.4214193	111.5467271	107.823313	104.2444514	100.8037537	97.49514955	94.31286917	91.25142662
200122A00010	1/22/2020	1.84	1/24/2022	1/22/2020	102.777	102.2645204	101.757143	101.2547917	100.7573921	100.2648712	99.77715753	99.29418089	98.81587252
200123A00005	1/23/2020	1.81	1/24/2022	1/23/2020	102.76201	102.2495698	101.7422361	101.2399283	100.7425719	100.2500938	99.76242271	99.27948832	98.80122189
200123A00013	1/27/2020	1.89	1/27/2025	1/27/2020	119.30805	115.2679248	111.3868358	107.6576497	104.0735966	100.6282469	97.31549188	94.12952626	91.0648309
200123A00049	1/23/2020	1.63	1/23/2023	1/23/2020	108.20637	106.6067347	105.0392557	103.5030409	101.9972345	100.5210112	99.07357525	97.65415886	96.26202098
200110A00014	1/10/2020	1.73	1/10/2023	1/10/2020	108.16161	106.6012526	105.0715341	103.5716248	102.100727	100.6580709	99.24291353	97.85453744	96.49224962
200110A00022	1/13/2020	2	1/6/2025	1/13/2020	119.42275	115.4487945	111.628713	107.9557227	104.4233766	101.0255459	97.75640253	94.61040271	91.58227144
200113A00003	1/13/2020	1.72	1/13/2022	1/13/2020	102.5902	102.1099853	101.634266	101.1629818	100.6960709	100.2334723	99.7751265	99.32097479	98.87095967
200114A00006	1/15/2020	1.99	1/15/2025	1/15/2020	119.51422	115.5093413	111.6606148	107.9611049	104.4042245	100.9837144	97.6936248	94.52829825	91.48235365
200115A00015	1/17/2020	1.88	1/17/2023	1/17/2020	108.30389	106.7246813	105.1768242	103.6594625	102.1717714	100.712955	99.28224574	97.87890234	96.50220923
200115A00018	1/15/2020	1.9	1/16/2024	1/15/2020	113.89127	111.1383613	108.4665686	105.8730232	103.3549773	100.9097969	98.53495661	96.22803443	93.98670658
191230A00031	12/30/2019	1.85	12/30/2024	12/30/2019	119.34266	115.3782063	111.5667781	107.9016533	104.3764422	100.9850691	97.72175547	94.58100344	91.55758075
191231A00006	12/31/2019	1.88	12/31/2021	12/31/2019	102.41472	101.9735774	101.5362216	101.1026043	100.6726777	100.246395	99.82371009	99.40457758	98.98895292
200106A00015	1/6/2020	1.87	2/15/2024	1/6/2020	114.25346	111.4015983	108.6361107	105.9538432	103.3517824	100.8270446	98.3768692	95.99861247	93.68974194
200106A00019	1/6/2020	1.89	7/16/2024	1/6/2020	116.52957	113.1627914	109.9113294	106.7705875	103.7361816	100.8039273	97.96982931	95.2300716	92.58100858

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200108A00017	1/8/2020	2.55	1/8/2035	1/8/2020	176.39118	155.9537412	138.1181016	122.5373975	108.9126922	96.98614269	86.53516759	77.36746701	69.31676743
200108A00018	1/8/2020	1.68	1/18/2022	1/8/2020	102.6496	102.1545355	101.6642508	101.1786727	100.6977337	100.2213672	99.74950821	99.28209282	98.81905833
191220A00002	12/20/2019	3.02	12/20/2038	12/20/2019	200.37275	172.0108035	148.1196874	127.962318	110.9269798	96.50544034	84.27497394	73.8835835	65.03783827
191223A00009	12/23/2019	1.95	12/23/2022	12/23/2019	108.01804	106.5162137	105.0428731	103.5972725	102.1786947	100.7864463	99.41985738	98.07827999	96.76108762
191223A00022	12/23/2019	1.93	12/30/2021	12/23/2019	102.42026	101.9820285	101.5475334	101.1167256	100.6895583	100.2659856	99.84596243	99.42944441	99.0163879
191223A00055	12/23/2019	2.46	12/7/2029	12/23/2019	147.26598	136.1031574	125.8739737	116.4954159	107.8922469	99.9962432	92.74550859	86.08385865	79.9602675
191226A00019	12/26/2019	2.4	12/22/2028	12/26/2019	141.82616	132.191173	123.2803819	115.0355895	107.4035534	100.335544	93.78694111	87.7168678	82.08785907
191230A00013	12/30/2019	1.84	12/2/2024	12/30/2019	118.89224	115.0296221	111.3129092	107.7358331	104.2924273	100.9770116	97.78417742	94.70877273	91.74588898
191212A00019	12/13/2019	1.93	12/19/2022	12/13/2019	107.90993	106.4214168	104.9609232	103.5277268	102.1211267	100.7404457	99.38502874	98.05424249	96.74747421
191212A00028	12/13/2019	1.93	1/17/2023	12/13/2019	108.38052	106.8006931	105.2522299	103.734273	102.2459972	100.7866066	99.35533307	97.95143513	96.57419694
191212A00029	12/13/2019	1.94	5/16/2023	12/13/2019	110.26482	108.3070009	106.3939331	104.5242516	102.6966458	100.9098559	99.16267098	97.45392651	95.78250194
191216A00042	12/16/2019	1.95	12/16/2022	12/16/2019	107.89114	106.4119288	104.9604157	103.535884	102.1376447	100.7650319	99.41740132	98.09413001	96.7946151
191217A00012	12/20/2019	2.03	12/20/2024	12/20/2019	119.28483	115.3694367	111.6036655	107.9810072	104.4952725	101.1405734	97.91130658	94.80213818	91.80798951
191219A00036	12/20/2019	2.1	12/20/2024	12/20/2019	119.54093	115.6209782	111.8507767	108.2238133	104.7338943	101.3751271	98.14190426	95.02888796	92.03099564
191206A00013	12/6/2019	3.05	12/6/2044	12/6/2019	230.92088	189.4533736	156.3501941	129.8495278	108.57082	91.4305126	77.57674734	66.33869489	57.18717846
191206A00019	12/6/2019	1.96	11/15/2023	12/6/2019	113.11196	110.5631938	108.0850341	105.6750572	103.3309384	101.0504504	98.83145759	96.67191213	94.56984925
191206A00021	12/6/2019	2.02	12/6/2024	12/6/2019	119.04101	115.1765703	111.4582212	107.8796742	104.434949	101.118353	97.92446601	94.84812525	91.8844122
191206A00044	12/10/2019	2.01	10/31/2024	12/10/2019	118.48624	114.7456933	111.1435665	107.67385	104.330844	101.109135	98.00357957	95.00928857	92.12161242
191209A00009	12/9/2019	1.91	12/9/2021	12/9/2019	102.0772	101.7007485	101.3270812	100.9561626	100.5879624	100.2224507	99.85959805	99.49937548	99.14175439
191210A00011	12/10/2019	1.92	12/12/2022	12/10/2019	107.79979	106.3332477	104.893965	103.4812441	102.0944117	100.7328167	99.39582916	98.08283976	96.79325867
191129A00012	11/29/2019	1.99	11/29/2024	11/29/2019	118.83006	114.9924407	111.2991553	107.744019	104.3211482	101.0249412	97.85006335	94.79143264	91.84420652
191202A00005	12/2/2019	2.03	12/2/2024	12/2/2019	119.01785	115.1671364	111.461533	107.8948146	104.4610594	101.154629	97.97015406	94.90251953	91.9468514
191203A00004	12/4/2019	1.87	12/4/2024	12/4/2019	118.47008	114.6223467	110.9199272	107.3565832	103.9263735	100.6236421	97.44300294	94.37932571	91.4277223
191204A00013	12/4/2019	1.72	12/4/2024	12/4/2019	118.48759	114.625407	110.9094151	107.3333215	103.8911375	100.5771626	97.38596907	94.31238745	91.35149275
191206A00008	12/6/2019	2.44	12/6/2030	12/6/2019	152.11604	139.3397974	127.7443523	117.2142322	107.6458062	98.94601737	91.03125545	83.82635532	77.26370594
191206A00009	12/6/2019	2.87	12/4/2037	12/6/2019	192.48341	166.4807754	144.3737523	125.5520825	109.5042053	95.80085815	84.08146767	74.04284828	65.42980736
191122A00020	11/26/2019	3.2	11/23/2037	11/26/2019	198.98686	172.4879967	149.9313167	130.7020736	114.284616	100.2459624	88.22216748	77.90699433	69.04249421
191122A00021	11/26/2019	3.4	11/22/2038	11/26/2019	208.18027	179.2517294	154.8367731	134.1967809	116.7180107	101.8899086	89.28727781	78.55560435	69.39896923
191126A00015	11/27/2019	1.88	10/14/2022	11/27/2019	106.98841	105.6475793	104.3401892	103.0649983	101.8208286	100.6065588	99.42112121	98.26349842	97.13272035
191126A00022	11/26/2019	1.72	5/26/2023	11/26/2019	110.26966	108.2764619	106.3292664	104.4267166	102.5675056	100.7503738	98.97410742	97.23753614	95.53953118
191126A00023	11/26/2019	1.81	5/27/2025	11/26/2019	121.30956	116.8167367	112.5145704	108.3939812	104.4463692	100.6635873	97.03791497	93.56203369	90.22900357
191129A00010	11/29/2019	1.94	8/27/2021	11/29/2019	100.43996	100.3618242	100.2838179	100.2059373	100.1281822	100.0505523	99.97304727	99.89566684	99.81841071
191120A00031	11/20/2019	1.69	11/21/2022	11/20/2019	107.37785	105.9575281	104.5661729	103.2029124	101.8669143	100.5573793	99.27353986	98.01465812	96.78002481

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191121A00009	11/21/2019	2.55	11/21/2036	11/21/2019	185.43709	161.3754032	140.7448542	123.0345275	107.8120963	94.71138477	83.42195207	73.6803614	65.26285279
191121A00010	11/21/2019	2.59	11/20/2037	11/21/2019	190.77612	164.6739845	142.5014017	123.641193	107.576172	93.87250565	82.16591103	72.15019524	63.56773146
191121A00034	11/21/2019	2.28	11/2/2029	11/21/2019	145.07202	134.1329521	124.1017604	114.8982139	106.4495762	98.68987019	91.55921535	85.00323426	78.97251968
191122A00007	11/22/2019	1.87	11/21/2025	11/22/2019	124.05602	118.911504	114.0089911	109.335826	104.8800805	100.6305112	96.57651603	92.70809442	89.01580966
191122A00018	11/26/2019	3.11	11/22/2039	11/26/2019	206.68662	176.2439671	150.8091815	129.5206391	111.6695625	96.67221497	84.04726638	73.39735146	64.39402662
191115A00015	11/18/2019	2.61	11/18/2024	11/18/2019	120.87969	117.0410818	113.3455987	109.7870915	106.359711	103.0578933	99.87634409	96.81002391	93.85413401
191115A00016	11/18/2019	2.48	11/18/2024	11/18/2019	120.417	116.5864213	112.898746	109.3478301	105.9278321	102.6331958	99.45863392	96.3991138	93.44984324
191115A00028	11/15/2019	2.34	9/28/2029	11/15/2019	145.15988	134.3493157	124.4261101	115.3126679	106.9385656	99.23985654	92.15844286	85.64151191	79.64102963
191115A00030	11/15/2019	2.35	11/9/2029	11/15/2019	145.83018	134.8331025	124.7497606	115.4993343	107.0085568	99.21097026	92.04625997	85.45965618	79.40139759
191120A00006	11/20/2019	2.67	11/20/2035	11/20/2019	179.24179	157.4773516	138.6274155	122.2834244	108.0961121	95.76663192	85.03905234	75.69400144	67.54327959
191120A00011	11/20/2019	1.88	1/20/2023	11/20/2019	108.35021	106.7616664	105.2048296	103.678829	102.1828259	100.7160117	99.27760634	97.86685692	96.48303662
191113A00017	11/15/2019	1.93	12/6/2021	11/15/2019	102.03668	101.6690192	101.3040096	100.9416206	100.5818241	100.2245923	99.86989786	99.51771371	99.16801325
191114A00008	11/18/2019	1.93	4/17/2023	11/18/2019	109.7903	107.9243848	106.0999377	104.315644	102.5702448	100.8625341	99.19135647	97.55560418	95.9542145
191114A00009	11/18/2019	1.94	8/16/2023	11/18/2019	111.68335	109.4291377	107.2323687	105.0911823	103.0037968	100.9685016	98.98365319	97.04767249	95.15904145
191114A00020	11/18/2019	1.91	2/15/2022	11/18/2019	103.16453	102.5858834	102.013717	101.4479246	100.8884001	100.3350396	99.78774154	99.24640667	98.71093779
191114A00021	11/18/2019	1.91	6/15/2022	11/18/2019	105.08683	104.1375266	103.2053216	102.2897523	101.3903764	100.5067669	99.63851193	98.78521374	97.94648826
191115A00014	11/18/2019	2.45	11/18/2024	11/18/2019	120.31022	116.4814996	112.7956261	109.246462	105.8281678	102.5351887	99.36223926	96.30428838	93.35654537
191105A00008	11/5/2019	1.83	11/5/2024	11/5/2019	118.46972	114.7001643	111.0708138	107.5755901	104.208719	100.964715	97.83836447	94.82471005	91.91903635
191105A00014	11/5/2019	1.96	11/6/2023	11/5/2019	112.97789	110.4578699	108.0072353	105.623565	103.3045423	101.0479509	98.85166918	96.71366567	94.63199394
191105A00018	11/5/2019	1.78	11/6/2023	11/5/2019	112.91014	110.3834942	107.9265654	105.5369148	103.2122103	100.9502212	98.74881226	96.60593917	94.5196434
191106A00012	11/6/2019	2.02	10/11/2024	11/6/2019	118.2239	114.5532834	111.0165122	107.6078697	104.3219216	101.153502	98.09769867	95.14983826	92.30547289
191107A00011	11/8/2019	2.02	2/24/2023	11/8/2019	109.11775	107.4153078	105.7483905	104.1159615	102.5170237	100.9506182	99.41582226	97.91174793	96.43754005
191108A00013	11/8/2019	2.25	11/8/2029	11/8/2019	146.59428	135.4890129	125.3087542	115.9715173	107.4029941	99.53579633	92.30877707	85.66642194	79.55830295
191031A00019	10/31/2019	1.88	10/31/2022	10/31/2019	107.25421	105.8591917	104.499875	103.1748995	101.8829751	100.6228757	99.39343523	98.19354385	97.02214488
191031A00041	10/31/2019	1.72	10/31/2023	10/31/2019	112.67787	110.1721706	107.7353342	105.36493	103.0586323	100.8142181	98.62956243	96.50263225	94.43148188
191104A00009	11/4/2019	1.91	11/6/2023	11/4/2019	112.85773	110.3391629	107.8899499	105.5076705	103.190009	100.9347498	98.73977249	96.60304613	94.5226252
191104A00022	11/4/2019	2.17	8/4/2027	11/4/2019	133.2913	125.7731368	118.7273111	112.1216869	105.9264756	100.1140548	94.65879968	89.53692869	84.72636153
191104A00024	11/4/2019	2.26	8/3/2029	11/4/2019	143.67431	133.1303072	123.4387427	114.5262047	106.3259627	98.77732725	91.82507444	85.41892749	79.51309043
191105A00007	11/5/2019	1.98	11/5/2026	11/5/2019	129.526	123.0413676	116.9201269	111.1399419	105.6799753	100.520779	95.64419306	91.03325323	86.67210505
191021A00033	10/22/2019	1.9	7/18/2022	10/22/2019	105.61205	104.5576312	103.5241863	102.5110929	101.5177545	100.5435974	99.58807014	98.65064208	97.73080267
191021A00034	10/22/2019	1.9	10/17/2022	10/22/2019	107.06163	105.7106864	104.3936655	103.1093012	101.8563908	100.6337899	99.44040893	98.2752102	97.1372045
191023A00006	10/23/2019	1.95	10/23/2024	10/23/2019	118.15912	114.4502526	110.8778813	107.4361112	104.1193484	100.9222789	97.83985244	94.86726701	91.99995503
191025A00005	10/28/2019	1.98	10/28/2024	10/28/2019	118.33735	114.6090532	111.018456	107.5595902	104.2267914	101.0146798	97.91814398	94.93232499	92.05260202

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191025A00009	10/25/2019	2.26	5/25/2029	10/25/2019	142.73191	132.4883716	123.0546564	114.362536	106.3498629	98.95999581	92.14128634	85.84661524	80.03297438
191025A00013	10/25/2019	1.98	10/25/2024	10/25/2019	118.29302	114.5753219	110.994626	107.545011	104.220854	101.0168138	97.92781454	94.94903079	92.07587284
191015A00029	10/15/2019	1.91	10/15/2024	10/15/2019	117.90354	114.2252194	110.6814831	107.266564	103.9749794	100.801519	97.74122895	94.78939751	91.94154101
191017A00003	10/17/2019	1.9	12/10/2021	10/17/2019	102.08939	101.710012	101.3334613	100.9597023	100.5887039	100.2204356	99.85486721	99.49196909	99.13171196
191017A00022	10/17/2019	2.25	7/17/2028	10/17/2019	138.45196	129.5167066	121.2196808	113.5119796	106.3486888	99.68853719	93.49358315	87.72893016	82.36246787
191017A00026	10/17/2019	2.3	7/17/2029	10/17/2019	143.80868	133.3233716	123.680822	114.808868	106.6418733	99.12010954	92.18919702	85.79960053	79.90617513
191018A00006	10/18/2019	1.89	6/1/2022	10/18/2019	104.84241	103.9374704	103.0480856	102.1738602	101.3144094	100.4693611	99.63835587	98.82104603	98.01709529
191018A00007	10/18/2019	1.89	7/1/2022	10/18/2019	105.32758	104.3276258	103.3465718	102.3838871	101.4390597	100.5115966	99.60102282	98.70688046	97.82872809
191009A00017	10/9/2019	1.76	10/4/2024	10/9/2019	117.23057	113.5995179	110.100317	106.7273604	103.4753214	100.3391352	97.31398357	94.39528133	91.57866312
191009A00021	10/9/2019	1.71	10/7/2022	10/9/2019	106.66666	105.3504099	104.066457	102.8136261	101.5907968	100.3969017	99.23092381	98.09189301	96.9788838
191009A00026	10/9/2019	1.74	10/7/2022	10/9/2019	106.70371	105.3872074	104.1030125	102.8499437	101.6268804	100.4327553	99.26655102	98.1272975	97.01406911
191009A00027	10/9/2019	1.74	10/6/2023	10/9/2019	111.99475	109.5829042	107.2355692	104.9505282	102.7256612	100.558939	98.44841862	96.39223879	94.3886157
191015A00013	10/15/2019	1.72	10/15/2024	10/15/2019	117.78091	114.0914781	110.5373613	107.1127464	103.81211	100.6302039	97.56203881	94.60286949	91.74818116
191015A00026	10/15/2019	1.69	10/15/2021	10/15/2019	101.1788	100.9615339	100.7452191	100.5298444	100.3154038	100.101891	99.88929995	99.67762463	99.46685907
191004A00012	10/4/2019	1.78	10/4/2024	10/4/2019	117.29896	113.6667686	110.1664545	106.7924147	103.5393216	100.4021091	97.37595824	94.45628279	91.63871653
191004A00013	10/4/2019	1.53	10/22/2021	10/4/2019	101.2489	101.0116227	100.7754668	100.5404239	100.3064861	100.0736456	99.8418946	99.61122549	99.38163064
191007A00020	10/7/2019	1.69	10/7/2022	10/7/2019	106.64197	105.3258783	104.0420867	102.7894144	101.566741	100.3729994	99.20717233	98.06829001	96.95542693
191007A00029	10/7/2019	1.88	10/9/2029	10/7/2019	142.66728	131.8438038	121.9174469	112.8091643	104.4472717	96.76672214	89.70845798	83.21883021	77.24907655
191008A00018	10/8/2019	1.74	10/11/2022	10/8/2019	106.76597	105.4362529	104.1394718	102.8744175	101.639937	100.4349325	99.25835851	98.10921809	96.98656062
191008A00033	10/8/2019	1.71	10/8/2024	10/8/2019	117.11528	113.4731081	109.963612	106.5811334	103.3202949	100.1759843	97.1433397	94.21773485	91.39476636
191003A00033	10/3/2019	1.54	10/3/2022	10/3/2019	106.5517	105.2465101	103.9730865	102.7302806	101.5169994	100.3322015	99.1748936	98.04412834	96.93900132
191004A00001	10/4/2019	2.47	10/4/2034	10/4/2019	170.70289	151.2602095	134.2484908	119.3492979	106.2874717	94.8250479	84.75605973	75.90209022	68.10846186
191004A00002	10/4/2019	2.08	10/4/2029	10/4/2019	142.79988	132.0667128	122.2184866	113.1775681	104.8735206	97.24240302	90.22613883	83.77194913	77.83184375
191004A00003	10/4/2019	1.89	10/5/2026	10/4/2019	127.58965	121.2992031	115.3559267	109.7387815	104.428123	99.40559942	94.65405853	90.15746263	85.9008096
191004A00005	10/4/2019	1.54	10/4/2024	10/4/2019	117.00468	113.364467	109.8567639	106.4759274	103.2165932	100.0736611	97.04227993	94.11783365	91.29592795
191004A00009	10/4/2019	1.71	10/4/2021	10/4/2019	100.99473	100.8091886	100.6243311	100.4401546	100.2566553	100.0738295	99.89167347	99.71018353	99.52935602
191002A00006	10/2/2019	1.84	10/2/2024	10/2/2019	117.4755	113.8468853	110.3497945	106.978644	103.7281299	100.5932077	97.56907868	94.6511754	91.83514906
191002A00013	10/2/2019	1.78	10/3/2022	10/2/2019	106.69038	105.3867738	104.114843	102.8734458	101.6614936	100.477949	99.32182279	98.1921711	97.08809305
191002A00017	10/2/2019	1.84	10/2/2024	10/2/2019	117.4755	113.8468853	110.3497945	106.978644	103.7281299	100.5932077	97.56907868	94.6511754	91.83514906
191003A00014	10/3/2019	1.71	9/20/2024	10/3/2019	116.86768	113.2871101	109.8352893	106.5068084	103.296519	100.1995227	97.21115637	94.32697957	91.54276219
191003A00020	10/3/2019	1.72	10/3/2022	10/3/2019	106.61699	105.3138684	104.0424125	102.8014824	101.5899896	100.4068969	99.25121533	98.12200119	97.01835378
191003A00022	10/3/2019	1.72	2/3/2023	10/3/2019	108.29871	106.6685629	105.0716764	103.5071122	101.9739698	100.4713816	98.99851151	97.55455328	96.13872931
190930A00011	9/30/2019	1.89	10/24/2022	9/30/2019	107.1611	105.7870215	104.447992	103.142685	101.8698395	100.6282565	99.41679562	98.2343712	97.07994922

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190930A00012	9/30/2019	1.93	9/30/2024	9/30/2019	117.75351	114.126801	110.6312975	107.2614451	104.0119613	100.8778223	97.85424786	94.93668796	92.1208099
190930A00014	9/30/2019	1.89	9/30/2022	9/30/2019	106.77694	105.4823688	104.2190157	102.9857641	101.7815487	100.6053542	99.45621187	98.33319732	97.23542775
190930A00040	9/30/2019	1.92	2/25/2022	9/30/2019	103.32467	102.7159231	102.1143298	101.5197619	100.932097	100.3512155	99.77700041	99.20933761	98.64811547
190930A00071	9/30/2019	2.05	9/29/2025	9/30/2019	123.41686	118.4853687	113.778853	109.2857754	104.9952631	100.8970626	96.98149988	93.23944441	89.66227503
191001A00005	10/1/2019	1.8	4/18/2023	10/1/2019	109.57181	107.7049499	105.8796363	104.0945508	102.3484301	100.6400643	98.96829438	97.33200895	95.73014211
190926A00006	9/26/2019	1.7	9/26/2022	9/26/2019	106.63691	105.3535195	104.1008443	102.8777883	101.6833113	100.5164211	99.37617123	98.26165786	97.17201771
190926A00015	9/26/2019	2.32	11/26/2030	9/26/2019	150.67828	138.0100386	126.5111679	116.0675	106.5765547	97.94629186	90.09400056	82.94531069	76.43331421
190926A00016	9/26/2019	2.28	5/24/2030	9/26/2019	147.79899	135.9713615	125.1834067	115.3382507	106.3485089	98.13531365	90.6274446	83.76055221	77.47646336
190926A00017	9/26/2019	2.23	9/26/2029	9/26/2019	144.10285	133.344255	123.4692409	114.4005358	106.0680134	98.4079956	91.36262726	84.87931567	78.91022604
190927A00019	9/30/2019	1.91	9/30/2022	9/30/2019	106.80123	105.5064982	104.2429891	103.0095839	101.8052175	100.6288745	99.47958596	98.35642753	97.25851633
190927A00036	9/27/2019	1.94	9/6/2024	9/27/2019	117.44375	113.8976774	110.4777595	107.1787555	103.9956747	100.9237653	97.95850088	95.0955683	92.33085615
190924A00026	9/24/2019	1.9	7/22/2022	9/24/2019	105.67679	104.6095475	103.5637717	102.5388213	101.5340792	100.5489522	99.5828703	98.63528529	97.70566986
190924A00033	9/24/2019	1.84	9/30/2022	9/24/2019	106.71622	105.4220451	104.1590823	102.9262145	101.7223766	100.5465535	99.39777667	98.2751218	97.17770628
190925A00018	9/25/2019	1.7	9/25/2024	9/25/2019	117.42511	113.8068057	110.3192775	106.9570004	103.7147174	100.587428	97.5703739	94.65902524	91.84906814
190925A00019	9/27/2019	1.93	9/27/2023	9/27/2019	112.29632	109.9088689	107.5846647	105.3215627	103.1175059	100.9705245	98.87873109	96.84031684	94.85354704
190925A00024	9/25/2019	1.88	4/14/2022	9/25/2019	104.06981	103.3143443	102.5698213	101.8360044	101.1126635	100.3995754	99.69652307	99.0032957	98.31968824
190926A00004	9/26/2019	1.93	9/21/2021	9/26/2019	100.83084	100.6821684	100.5339465	100.3861723	100.2388439	100.0919592	99.94551619	99.79951286	99.65394723
190919A00007	9/19/2019	2.04	9/19/2024	9/19/2019	117.96729	114.3716817	110.9051141	107.562167	104.3376878	101.226773	98.22475486	95.32718812	92.52983779
190919A00017	9/19/2019	1.8	9/19/2022	9/19/2019	106.64474	105.3836007	104.1521346	102.9493064	101.7741261	100.6256493	99.50297386	98.40523801	97.33161795
190920A00021	9/20/2019	1.96	9/18/2026	9/20/2019	128.74498	122.4490728	116.4983631	110.8720716	105.5507812	100.5163434	95.75178789	91.24123972	86.96984224
190923A00017	9/23/2019	1.74	9/23/2024	9/23/2019	117.5327	113.9189278	110.4355709	107.0771238	103.8383519	100.7142761	97.7001574	94.79148442	91.98396021
190923A00032	9/23/2019	1.72	9/22/2023	9/23/2019	112.08767	109.7109141	107.3969592	105.143684	102.9490536	100.8111185	98.72801072	96.69793946	94.71918709
190923A00078	9/23/2019	1.96	6/28/2024	9/23/2019	116.48187	113.1748217	109.9791469	106.890486	103.9046743	101.0177335	98.22586149	95.52542396	92.91294582
190912A00034	9/12/2019	1.76	9/12/2022	9/12/2019	106.48574	105.2478883	104.0386693	102.8570989	101.7022371	100.5731864	99.46908916	98.3891252	97.33251001
190913A00014	9/13/2019	2.08	9/13/2024	9/13/2019	118.01368	114.4362217	110.9865957	107.6594595	104.4497311	101.3525734	98.36338025	95.47776386	92.69154294
190913A00025	9/13/2019	2.04	3/15/2022	9/13/2019	103.69135	103.0275778	102.3722884	101.7253216	101.0865193	100.4557276	99.83279635	99.21757921	98.60993341
190916A00008	9/16/2019	2.05	9/16/2021	9/16/2019	100.76836	100.6338141	100.4996453	100.3658491	100.2324239	100.0993683	99.9666805	99.8343591	99.70240251
190916A00009	9/16/2019	2.04	9/16/2022	9/16/2019	106.7295	105.4797265	104.2591041	103.0666187	101.901306	100.7622453	99.64855714	98.55940081	97.49397249
190917A00035	9/19/2019	2.02	10/16/2023	9/19/2019	112.79775	110.3450542	107.9586062	105.6361005	103.3753354	101.1742049	99.03069352	96.94287212	94.90889271
190906A00018	9/6/2019	1.76	9/6/2024	9/6/2019	116.84377	113.3074969	109.8971213	106.6074066	103.4333712	100.3702714	97.41358903	94.55901867	91.80245631
190909A00025	9/9/2019	1.88	9/9/2024	9/9/2019	117.28616	113.7332325	110.3070018	107.0021888	103.8137697	100.7369618	97.76721018	94.90017498	92.13171993
190910A00013	9/10/2019	1.9	9/9/2022	9/10/2019	106.45329	105.2274806	104.029774	102.8592106	101.7148759	100.5958959	99.50143525	98.4306948	97.38290984
190910A00030	9/10/2019	1.86	9/10/2024	9/10/2019	117.23338	113.6781788	110.249851	106.9431088	103.7529174	100.674484	97.70324387	94.83484839	92.06515295

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190912A00031	9/12/2019	1.75	9/12/2024	9/12/2019	117.41006	113.8331018	110.3842421	107.0581158	103.8496227	100.753909	97.76635262	94.88255128	92.09830996
190912A00033	9/12/2019	1.77	9/12/2023	9/12/2019	112.0506	109.7045748	107.4199431	105.1946559	103.0267459	100.9143276	98.85559302	96.84880776	94.89230738
190905A00015	9/5/2019	1.78	9/6/2022	9/5/2019	106.26799	105.0528428	103.8653496	102.7045704	101.569612	100.4596202	99.37377859	98.31130568	97.27145351
190905A00035	9/5/2019	1.82	9/7/2021	9/5/2019	100.6001	100.4910053	100.3821631	100.2735681	100.1652196	100.0571165	99.94925818	99.84164364	99.73427205
190906A00004	9/6/2019	1.78	9/6/2022	9/6/2019	106.26799	105.0528428	103.8653496	102.7045704	101.569612	100.4596202	99.37377859	98.31130568	97.27145351
190906A00005	9/6/2019	1.77	9/6/2023	9/6/2019	111.62448	109.3080244	107.0517371	104.8536286	102.7117874	100.6243806	98.5896498	96.60590726	94.67153269
190906A00012	9/6/2019	1.76	9/6/2024	9/6/2019	116.84377	113.3074969	109.8971213	106.6074066	103.4333712	100.3702714	97.41358903	94.55901867	91.80245631
190906A00014	9/6/2019	1.57	9/6/2024	9/6/2019	116.72329	113.1765483	109.756377	106.457498	103.2748931	100.2037846	97.23962212	94.37807016	91.61499645
190830A00021	8/30/2019	1.76	8/30/2024	8/30/2019	116.74744	113.234692	109.8463821	106.5773698	103.4227567	100.3778769	97.43828472	94.59974248	91.85820949
190903A00004	9/3/2019	1.77	9/6/2022	9/3/2019	106.25654	105.0414661	103.8540426	102.6933321	101.5584412	100.448516	99.36273986	98.3003315	97.26054292
190904A00007	9/4/2019	1.69	9/1/2023	9/4/2019	111.37515	109.0765285	106.8373426	104.655631	102.5295167	100.4571992	98.43695054	96.46711192	94.54609017
190904A00008	9/4/2019	1.69	9/3/2024	9/4/2019	116.5698	113.0474073	109.6501805	106.3729318	103.2107185	100.1588338	97.21279373	94.36832493	91.62135347
190904A00019	9/4/2019	1.69	9/4/2024	9/4/2019	116.58335	113.0575987	109.6572261	106.3770263	103.2120447	100.1575634	97.20908805	94.36233557	91.61322301
190905A00003	9/5/2019	1.76	9/5/2024	9/5/2019	116.83001	113.2970956	109.8898728	106.6031157	103.4318544	100.3713567	97.41711459	94.56483244	91.81041532
190829A00005	8/30/2019	2.06	8/30/2023	8/30/2019	112.16009	109.858735	107.6167227	105.4321033	103.3030076	101.2276422	99.20428598	97.23128618	95.30705543
190829A00031	8/29/2019	1.54	8/29/2024	8/29/2019	116.5144	112.9962551	109.6029659	106.3293666	103.1705356	100.1217856	97.17865039	94.33687338	91.59239592
190829A00045	8/29/2019	1.9	8/28/2026	8/29/2019	127.156	121.0053351	115.1883146	109.685074	104.4770398	99.54683706	94.87820526	90.45592089	86.26572568
190830A00002	8/30/2019	1.93	8/28/2026	8/30/2019	127.32442	121.1693083	115.3480098	109.8406581	104.6286715	99.69466763	95.02237881	90.59657484	86.40299109
190830A00010	9/3/2019	1.75	9/1/2023	9/3/2019	111.50745	109.2073501	106.9667161	104.7835862	102.6560827	100.582404	98.56082161	96.58967572	94.66737248
190830A00012	8/30/2019	1.76	8/30/2024	8/30/2019	116.74744	113.234692	109.8463821	106.5773698	103.4227567	100.3778769	97.43828472	94.59974248	91.85820949
190827A00022	8/27/2019	1.83	8/27/2021	8/27/2019	100.43137	100.3532487	100.2752497	100.1973766	100.1196288	100.0420062	99.96450853	99.88713541	99.8098866
190827A00039	8/27/2019	1.78	8/26/2022	8/27/2019	106.09567	104.9163542	103.763119	102.6351099	101.5315067	100.4515242	99.39441073	98.35944602	97.34593989
190828A00008	8/28/2019	1.75	8/29/2022	8/28/2019	106.10923	104.9203912	103.7580427	102.6213101	101.5093543	100.4213728	99.35659709	98.31429137	97.29375057
190828A00009	8/28/2019	1.71	8/28/2024	8/28/2019	116.55452	113.0511147	109.6716844	106.4111079	103.2645118	100.2272533	97.29490856	94.46326035	91.72828713
190828A00015	8/28/2019	2.04	8/28/2029	8/28/2019	141.96413	131.4009092	121.6996668	112.7855684	104.590643	97.05312074	90.1168373	83.73069814	77.8481969
190828A00020	8/28/2019	1.95	5/28/2027	8/28/2019	130.96171	123.7561403	116.9908636	110.6367665	104.6667995	99.05582391	93.78046791	88.8189935	84.15117465
190826A00038	8/26/2019	1.74	8/26/2022	8/26/2019	106.05116	104.8721078	103.7191366	102.5913875	101.4880404	100.4083103	99.35144534	98.31672558	97.30346086
190826A00056	8/26/2019	1.72	8/26/2024	8/26/2019	116.56016	113.0628875	109.6891992	106.4340045	103.2924517	100.2599186	97.33200049	94.50449792	91.77340608
190826A00057	8/26/2019	1.87	8/26/2025	8/26/2019	122.14632	117.3529699	112.774479	108.4000403	104.219453	100.2230839	96.40183328	92.74710153	89.25075904
190826A00058	8/26/2019	1.91	8/26/2026	8/26/2019	127.18612	121.0413261	115.2295485	109.7309771	104.5270888	99.60055478	94.93515665	90.51570938	86.32798984
190826A00060	8/26/2019	2.02	8/26/2027	8/26/2019	132.5533	124.9826358	117.8920623	111.2486289	105.0218166	99.18334539	93.70699846	88.56846089	83.74517217
190827A00001	8/27/2019	1.74	8/27/2024	8/27/2019	116.63992	113.1382381	109.7603765	106.5012228	103.3559132	100.3198143	97.38851051	94.55779256	91.82364627
190823A00005	8/23/2019	1.62	8/23/2024	8/23/2019	116.69639	113.1940469	109.8154774	106.5555787	103.409493	100.3725924	97.44046643	94.60891026	91.87391372

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190826A00004	8/26/2019	1.74	8/26/2022	8/26/2019	106.05116	104.8721078	103.7191366	102.5913875	101.4880404	100.4083103	99.35144534	98.31672558	97.30346086
190826A00006	8/26/2019	1.72	8/26/2024	8/26/2019	116.56016	113.0628875	109.6891992	106.4340045	103.2924517	100.2599186	97.33200049	94.50449792	91.77340608
190826A00018	8/26/2019	1.9	8/27/2029	8/26/2019	142.31223	131.6629975	121.8852372	112.9031249	104.6478054	97.05671768	90.07298859	83.64488883	77.72534315
190826A00025	8/26/2019	1.76	11/26/2024	8/26/2019	117.9629	114.1498645	110.4801339	106.9475588	103.5462893	100.2707576	97.11566243	94.07595472	91.1468244
190826A00034	8/26/2019	1.9	8/24/2029	8/26/2019	142.27452	131.6378385	121.8708584	112.897977	104.6505297	97.06612295	90.08803146	83.66465618	77.74903663
190821A00016	8/21/2019	1.79	8/22/2022	8/21/2019	106.04376	104.8773357	103.7364501	102.6202705	101.5280013	100.4588807	99.41217896	98.38719671	97.3832634
190821A00017	8/21/2019	1.8	8/21/2024	8/21/2019	116.75437	113.2695053	109.9073501	106.6628645	103.5312487	100.507929	97.58854593	94.76894224	92.04515255
190821A00021	8/21/2019	1.79	8/18/2022	8/21/2019	105.98073	104.8272643	103.6987886	102.5945008	101.5136296	100.4554364	99.41921313	98.40428117	97.40998945
190821A00028	8/21/2019	1.8	8/21/2023	8/21/2019	111.45525	109.1886235	106.9800155	104.8275445	102.7294005	100.6838459	98.68921214	96.74389635	94.84635813
190821A00030	8/21/2019	1.8	8/21/2024	8/21/2019	116.75437	113.2695053	109.9073501	106.6628645	103.5312487	100.507929	97.58854593	94.76894224	92.04515255
190822A00016	8/22/2019	1.84	8/22/2022	8/22/2019	106.09882	104.9320717	103.7908624	102.674364	101.5817808	100.5123509	99.46534427	98.44006156	97.4358321
190820A00012	8/20/2019	1.76	8/19/2022	8/20/2019	105.96371	104.8071972	103.6758108	102.5687387	101.4852037	100.4244614	99.38579837	98.36853091	97.37200315
190820A00013	8/20/2019	1.76	8/21/2023	8/20/2019	111.36837	109.1026975	106.895028	104.7434762	102.6462327	100.6015605	98.60779162	96.66332365	94.76661666
190820A00020	8/20/2019	1.76	8/20/2024	8/20/2019	116.60919	113.1297759	109.772816	106.5332855	103.4063976	100.387591	97.47251726	94.65703008	91.9371741
190820A00021	8/20/2019	2.13	8/20/2029	8/20/2019	142.69654	132.1316044	122.4260533	113.5054733	105.302263	97.75497227	90.80771368	84.40963201	78.51442741
190820A00054	8/20/2019	1.76	8/18/2022	8/20/2019	105.94804	104.7947659	103.6664806	102.5623803	101.4816938	100.4236826	99.38763881	98.37288368	97.37876627
190821A00009	8/21/2019	1.79	8/22/2022	8/21/2019	106.04376	104.8773357	103.7364501	102.6202705	101.5280013	100.4588807	99.41217896	98.38719671	97.3832634
190819A00005	8/19/2019	1.62	8/21/2023	8/19/2019	111.39209	109.1197808	106.9057584	104.7481267	102.6450639	100.5948213	98.59571996	96.64614713	94.74455306
190819A00020	8/19/2019	1.79	8/19/2022	8/19/2019	105.99649	104.8397813	103.7082037	102.6009431	101.5172225	100.4562972	99.41745391	98.40000876	97.40330584
190819A00026	8/19/2019	1.62	8/19/2024	8/19/2019	116.64086	113.1519206	109.7859595	106.5379191	103.4029865	100.3765758	97.45431549	94.63203742	91.90576569
190819A00030	8/19/2019	2.01	8/20/2029	8/19/2019	143.24716	132.5843842	122.7914763	113.7929464	105.5202226	97.91098644	90.90857238	84.46142812	78.5226289
190820A00005	8/21/2019	1.76	2/27/2023	8/21/2019	108.73723	107.0286991	105.3559494	103.7179272	102.1136237	100.5420684	99.00232834	97.49350532	96.01473479
190820A00008	8/20/2019	1.76	8/20/2024	8/20/2019	116.60919	113.1297759	109.772816	106.5332855	103.4063976	100.387591	97.47251726	94.65703008	91.9371741
190816A00013	8/16/2019	2.2	8/16/2029	8/16/2019	143.29153	132.7162738	122.9996567	114.0674413	105.8521749	98.29253462	91.33274098	84.92203045	79.01418053
190816A00014	8/16/2019	1.77	8/16/2024	8/16/2019	116.58659	113.1199767	109.7750402	106.546804	103.4305249	100.4216826	97.51596698	94.70926739	91.99766197
190816A00016	8/16/2019	2.2	8/16/2029	8/16/2019	143.29153	132.7162738	122.9996567	114.0674413	105.8521749	98.29253462	91.33274098	84.92203045	79.01418053
190816A00021	8/16/2019	1.77	8/16/2023	8/16/2019	111.31663	109.0664405	106.8736079	104.7362775	102.6526703	100.6210775	98.63985818	96.70743517	94.82229249
190816A00031	8/16/2019	1.77	8/16/2024	8/16/2019	116.58659	113.1199767	109.7750402	106.546804	103.4305249	100.4216826	97.51596698	94.70926739	91.99766197
190816A00035	8/16/2019	1.77	8/16/2023	8/16/2019	111.31663	109.0664405	106.8736079	104.7362775	102.6526703	100.6210775	98.63985818	96.70743517	94.82229249
190814A00015	8/14/2019	1.84	8/14/2024	8/14/2019	116.78726	113.3236436	109.9814125	106.7556043	103.6414949	100.6345813	97.7305697	94.92536474	92.21505868
190815A00012	8/15/2019	1.81	8/15/2024	8/15/2019	116.70336	113.2379798	109.894138	106.6668645	103.5514254	100.5433089	97.6382127	94.83203371	92.12085689
190815A00032	8/15/2019	1.83	8/13/2021	8/15/2019	100.21558	100.1765689	100.1376028	100.0986845	100.0598138	100.0209906	99.98221477	99.94348632	99.90480514
190816A00006	8/16/2019	1.77	8/16/2024	8/16/2019	116.58659	113.1199767	109.7750402	106.546804	103.4305249	100.4216826	97.51596698	94.70926739	91.99766197

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190816A00007	8/16/2019	1.77	8/16/2023	8/16/2019	111.31663	109.0664405	106.8736079	104.7362775	102.6526703	100.6210775	98.63985818	96.70743517	94.82229249
190816A00011	8/16/2019	1.77	8/16/2024	8/16/2019	116.58659	113.1199767	109.7750402	106.546804	103.4305249	100.4216826	97.51596698	94.70926739	91.99766197
190812A00006	8/12/2019	1.86	8/12/2024	8/12/2019	116.82425	113.3662708	110.029305	106.8084186	103.6989084	100.696291	97.7962912	94.99483071	92.28801789
190813A00007	8/13/2019	1.89	8/15/2022	8/13/2019	106.04158	104.8971861	103.7773893	102.6814029	101.6084736	100.5578797	99.52892917	98.52095844	97.53333079
190813A00016	8/13/2019	1.88	8/13/2024	8/13/2019	116.90356	113.4411994	110.1000763	106.875244	103.7619875	100.7558124	97.85243293	95.04776102	92.33789584
190814A00005	8/14/2019	1.65	8/14/2024	8/14/2019	116.66955	113.1957912	109.8440517	106.6093393	103.4868954	100.4721849	97.56088357	94.74886761	92.03220251
190814A00008	8/14/2019	1.84	8/14/2024	8/14/2019	116.78726	113.3236436	109.9814125	106.7556043	103.6414949	100.6345813	97.7305697	94.92536474	92.21505868
190814A00010	8/14/2019	1.84	4/5/2023	8/14/2019	109.44495	107.6179159	105.8308929	104.0826306	102.3719348	100.6976606	99.05870999	97.45402934	95.88260711
190809A00008	8/9/2019	1.87	8/3/2023	8/9/2019	111.33756	109.1259136	106.9699978	104.8680358	102.8183248	100.8192286	98.86917367	96.96664717	95.11019356
190809A00011	8/9/2019	1.69	8/9/2024	8/9/2019	116.72988	113.2707939	109.9327908	106.7109379	103.6005299	100.5970816	97.69631573	94.89415185	92.18669636
190809A00012	8/9/2019	1.69	8/9/2024	8/9/2019	116.72988	113.2707939	109.9327908	106.7109379	103.6005299	100.5970816	97.69631573	94.89415185	92.18669636
190809A00015	8/9/2019	1.88	8/9/2022	8/9/2019	105.93472	104.8098133	103.7086943	102.630616	101.5748608	100.5407411	99.5275969	98.53479501	97.56172745
190809A00022	8/9/2019	1.88	8/9/2024	8/9/2019	116.84682	113.3978143	110.069263	106.8562632	103.7541437	100.7584512	97.86493816	95.06955252	92.36842704
190812A00003	8/12/2019	1.67	8/12/2024	8/12/2019	116.70689	113.2387808	109.8923284	106.6625574	103.5447303	100.5343317	97.62705623	94.81879715	92.10563622
190808A00009	8/8/2019	1.89	8/8/2024	8/8/2019	116.86507	113.4188902	110.092978	106.8824459	103.7826332	100.7890965	97.89759736	95.10409228	92.404722
190808A00015	8/8/2019	1.92	8/9/2021	8/8/2019	100.15647	100.1286151	100.1007869	100.0729897	100.0452234	100.0174879	99.98978328	99.96210941	99.93446625
190808A00025	8/8/2019	1.7	8/8/2024	8/8/2019	116.74831	113.2920502	109.956697	106.7373215	103.6292291	100.6279444	97.72919938	94.92892222	92.22322735
190808A00052	8/8/2019	1.7	8/8/2024	8/8/2019	116.74831	113.2920502	109.956697	106.7373215	103.6292291	100.6279444	97.72919938	94.92892222	92.22322735
190809A00001	8/9/2019	1.88	8/9/2022	8/9/2019	105.93472	104.8098133	103.7086943	102.630616	101.5748608	100.5407411	99.5275969	98.53479501	97.56172745
190809A00005	8/9/2019	1.88	7/11/2022	8/9/2019	105.46889	104.4372057	103.425631	102.4335782	101.4604863	100.5058157	99.56904697	98.64968015	97.74723372
190807A00020	8/7/2019	1.57	2/7/2024	8/7/2019	113.73871	110.9101159	108.1668734	105.5058846	102.924187	100.418945	97.98744278	95.62707904	93.33536105
190807A00021	8/7/2019	2	8/7/2026	8/7/2019	127.43815	121.3501319	115.5891412	110.1358964	104.9723521	100.0816154	95.44786624	91.05628353	86.89297677
190807A00023	8/7/2019	1.77	8/7/2024	8/7/2019	116.46197	113.0253151	109.7085758	106.5068754	103.4155699	100.4302308	97.54663439	94.76075084	92.06873377
190807A00036	8/7/2019	1.75	8/7/2023	8/7/2019	111.14185	108.9203932	106.7551239	104.6442414	102.5860208	100.5788049	98.62100075	96.71107687	94.84756026
190807A00045	8/7/2019	1.77	8/7/2024	8/7/2019	116.46197	113.0253151	109.7085758	106.5068754	103.4155699	100.4302308	97.54663439	94.76075084	92.06873377
190807A00054	8/7/2019	1.66	8/6/2021	8/7/2019	100.10622	100.0867049	100.0672148	100.0477449	100.0282953	100.0088658	99.98945655	99.97006739	99.95069832
190805A00049	8/5/2019	1.88	8/4/2023	8/5/2019	111.37375	109.1587318	106.9995756	104.8944994	102.8417946	100.839819	98.88699384	96.98180114	95.12278053
190805A00050	8/5/2019	1.91	8/5/2024	8/5/2019	116.88712	113.4499294	110.1324446	106.9298134	103.8374073	100.8508122	97.96581779	95.17840641	92.48474315
190806A00012	8/6/2019	1.93	8/6/2021	8/6/2019	100.10972	100.0902196	100.0707432	100.0512869	100.0318507	100.0124344	99.99303812	99.97366176	99.95430529
190806A00026	8/6/2019	1.71	8/7/2023	8/6/2019	111.37827	109.1480589	106.9743488	104.8553342	102.7892772	100.774508	98.80942205	96.89247681	95.02218873
190807A00012	8/7/2019	1.76	2/7/2023	8/7/2019	108.4245	106.780872	105.1709264	103.5937046	102.0482881	100.5337922	99.04936484	97.59418445	96.16745906
190807A00014	8/7/2019	1.75	8/7/2023	8/7/2019	111.14185	108.9203932	106.7551239	104.6442414	102.5860208	100.5788049	98.62100075	96.71107687	94.84756026
190802A00016	8/2/2019	2.01	7/12/2023	8/2/2019	111.28295	109.1407222	107.0509494	105.012014	103.0223596	101.0804883	99.18495809	97.33438047	95.52741799

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190802A00029	8/2/2019	2	8/2/2022	8/2/2019	105.94793	104.8449426	103.7648256	102.7068705	101.6704009	100.6547675	99.6593472	98.68354121	97.72677436
190805A00004	8/5/2019	1.7	8/5/2022	8/5/2019	105.81441	104.7007409	103.6103983	102.5426549	101.4968141	100.4722073	99.46819311	98.48415577	97.51950375
190805A00007	8/5/2019	1.88	8/5/2022	8/5/2019	105.87071	104.7587403	103.6700245	102.6038404	101.5594942	100.5363204	99.53368022	98.55096044	97.58757197
190805A00008	8/5/2019	1.88	8/4/2023	8/5/2019	111.37375	109.1587318	106.9995756	104.8944994	102.8417946	100.839819	98.88699384	96.98180114	95.12278053
190805A00011	8/5/2019	1.91	8/5/2024	8/5/2019	116.88712	113.4499294	110.1324446	106.9298134	103.8374073	100.8508122	97.96581779	95.17840641	92.48474315
190729A00008	7/29/2019	2.18	1/29/2024	7/29/2019	114.82675	112.0208251	109.2986582	106.6572503	104.0937256	101.6053293	99.18942192	96.84347351	94.56505839
190731A00004	7/31/2019	2.18	7/31/2024	7/31/2019	117.68495	114.2506933	110.9355334	107.7346565	104.6434761	101.6576178	98.77290759	95.98536188	93.29117735
190731A00028	7/31/2019	1.93	7/29/2022	7/31/2019	105.94086	104.848497	103.7785566	102.7303535	101.7032307	100.6965577	99.70972862	98.74216158	97.79329709
190801A00007	8/1/2019	2.17	8/2/2021	8/1/2019	100.04902	100.0406668	100.0323201	100.0239811	100.0156498	100.0073261	99.99900998	99.99070155	99.98240072
190801A00010	8/1/2019	1.97	8/1/2023	8/1/2019	111.83854	109.6213402	107.4599938	105.3527252	103.2978287	101.2936651	99.33865856	97.4312934	95.5701116
190802A00003	8/2/2019	2.01	8/2/2024	8/2/2019	117.16684	113.7345518	110.4215199	107.2229199	104.134151	101.1508257	98.26875792	95.48395285	92.79259686
190717A00008	7/17/2019	2.22	7/17/2024	7/17/2019	117.59252	114.2058417	110.9351252	107.7757517	104.7233106	101.7735921	98.92257711	96.1664269	93.50147432
190719A00002	7/19/2019	2.12	4/21/2022	7/19/2019	104.36178	103.5839286	102.8176506	102.0626844	101.3187806	100.5856975	99.86320001	99.15106011	98.44905614
190719A00006	7/19/2019	2.17	7/19/2024	7/19/2019	117.46509	114.0737872	110.7988455	107.6356143	104.5796597	101.6267501	98.77284592	96.0140893	93.34679515
190724A00021	7/24/2019	2.33	7/23/2027	7/24/2019	135.38121	127.7977852	120.6886483	114.0216521	107.7669938	101.8970294	96.38610663	91.21041157	86.34782761
190724A00024	7/24/2019	2.49	7/24/2029	7/24/2019	147.31294	136.581777	126.7149821	117.6383141	109.284271	101.5914484	94.50395942	87.97091276	81.94594264
190726A00005	7/26/2019	1.97	7/26/2022	7/26/2019	105.93193	104.8490044	103.7881283	102.7486316	101.7298733	100.7312378	99.75213339	98.79199166	97.85026592
190712A00009	7/12/2019	2.19	7/12/2023	7/12/2019	111.65243	109.5063309	107.4127657	105.3701135	103.3768156	101.4313719	99.5323384	97.67832471	95.86799146
190715A00010	7/15/2019	2.23	7/15/2024	7/15/2019	117.59255	114.2124791	110.9479319	107.7943108	104.7472303	101.802504	98.95613474	96.20430437	93.54336505
190715A00014	7/15/2019	2.16	3/30/2022	7/15/2019	104.02045	103.3105049	102.6102175	101.9193903	101.2378328	100.5653594	99.90178971	99.24694788	98.60066273
190715A00028	7/17/2019	2.17	1/18/2022	7/17/2019	102.84139	102.3463253	101.8560309	101.3704348	100.8894695	100.4130689	99.9411682	99.47370369	99.01061292
190715A00029	7/17/2019	2.16	4/18/2022	7/17/2019	104.34102	103.5723403	102.8149644	102.068644	101.3331379	100.6082124	99.89364017	99.18920045	98.49467872
190716A00046	7/16/2019	2.19	7/18/2022	7/16/2019	105.9021	104.846104	103.8110978	102.7964646	101.8016073	100.8259519	99.86894625	98.93005944	98.00878042
190708A00011	7/8/2019	2.2	7/8/2024	7/8/2019	117.38704	114.0333021	110.793458	107.6630078	104.637655	101.7132973	98.88601599	96.15206707	93.50787214
190708A00021	7/8/2019	1.99	7/8/2022	7/8/2019	105.65018	104.625073	103.6197822	102.6337411	101.6664007	100.7172328	99.78572904	98.87139974	97.97377322
190709A00018	7/9/2019	2.24	7/9/2024	7/9/2019	117.52887	114.1696306	110.9245588	107.7891426	104.7590714	101.8302295	98.99868558	96.26068389	93.6126349
190710A00012	7/10/2019	2.18	7/10/2023	7/10/2019	111.59873	109.4595261	107.3725381	105.3361628	103.3488551	101.409128	99.51554979	97.66674168	95.86137543
190710A00022	7/10/2019	2.22	7/10/2024	7/10/2019	117.48167	114.1198592	110.8724166	107.7348185	104.7027427	101.7720625	98.93883627	96.19929864	93.54985101
190711A00022	7/11/2019	2	7/11/2023	7/11/2019	111.55613	109.4083512	107.3131786	105.2689916	103.2742283	101.3273859	99.42701767	97.57173056	95.76018287
190701A00023	7/1/2019	1.95	7/1/2024	7/1/2019	116.9771	113.6415364	110.4187918	107.3044331	104.2942233	101.3841155	98.57024332	95.84891169	93.21658831
190703A00004	7/3/2019	2.08	7/5/2022	7/3/2019	105.57504	104.5613386	103.5670291	102.591563	101.6344086	100.6950539	99.77300596	98.86778995	97.97894817
190703A00017	7/3/2019	2.33	5/4/2026	7/3/2019	127.92647	122.151522	116.6718833	111.4707975	106.5325604	101.842445	97.3866344	93.15216002	89.12684436
190703A00019	7/3/2019	2.08	7/5/2022	7/3/2019	105.57504	104.5613386	103.5670291	102.591563	101.6344086	100.6950539	99.77300596	98.86778995	97.97894817

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190703A00022	7/3/2019	2.08	7/5/2022	7/3/2019	105.57504	104.5613386	103.5670291	102.591563	101.6344086	100.6950539	99.77300596	98.86778995	97.97894817
190708A00001	7/8/2019	1.99	7/8/2022	7/8/2019	105.65018	104.625073	103.6197822	102.6337411	101.6664007	100.7172328	99.78572904	98.87139974	97.97377322
190627A00037	6/27/2019	1.93	6/27/2023	6/27/2019	111.18497	109.0851147	107.0357061	105.0352186	103.0821836	101.1751865	99.31286452	97.49390437	95.71704005
190627A00052	6/27/2019	2.1	6/27/2022	6/27/2019	105.46021	104.4719517	103.5021498	102.5502879	101.6158721	100.698426	99.79749089	98.91262409	98.04339877
190628A00004	6/28/2019	2.12	6/28/2023	6/28/2019	111.2797	109.1815009	107.1336735	105.1346927	103.1830932	101.2774635	99.41644359	97.59872282	95.82303775
190628A00024	6/28/2019	2.09	6/28/2022	6/28/2019	105.46757	104.4761876	103.5033687	102.5485982	101.6113778	100.691227	99.78768289	98.90029927	98.02864563
190701A00007	7/2/2019	2.09	7/1/2022	7/2/2019	105.51781	104.5168677	103.534837	102.5711883	101.6254095	100.6970072	99.78550614	98.89044826	98.01139186
190701A00017	7/1/2019	1.9	7/1/2022	7/1/2019	105.4471	104.444916	103.4616926	102.4969001	101.5500244	100.6205702	99.70806034	98.81203505	97.93205091
190625A00023	6/25/2019	2.47	6/25/2027	6/25/2019	134.73828	127.3195676	120.3578307	113.8225557	107.6854216	101.920128	96.502241	91.40905175	86.61944613
190625A00024	6/25/2019	2.26	6/25/2025	6/25/2019	122.95739	118.3536213	113.948126	109.7313259	105.6941582	101.8280428	98.12485459	94.57689664	91.17687539
190626A00010	6/26/2019	2.1	6/26/2023	6/26/2019	111.20737	109.115992	107.0746916	105.0819585	103.1363395	101.2364347	99.38089502	97.56842044	95.79775743
190626A00015	6/26/2019	2.15	6/26/2024	6/26/2019	117.04378	113.734449	110.5363	107.4449917	104.456375	101.5664854	98.77153413	96.06789897	93.45211626
190626A00019	6/26/2019	2.1	6/24/2022	6/26/2019	105.40984	104.4311177	103.4705085	102.5275136	101.6016518	100.6924594	99.79948944	98.92231059	98.06050678
190627A00009	6/27/2019	1.93	6/27/2023	6/27/2019	111.18497	109.0851147	107.0357061	105.0352186	103.0821836	101.1751865	99.31286452	97.49390437	95.71704005
190624A00026	6/24/2019	2.08	6/24/2022	6/24/2019	105.39122	104.4125924	103.452077	102.5091747	101.5834044	100.6743024	99.78142159	98.90433081	98.04261401
190624A00052	6/24/2019	1.89	6/24/2022	6/24/2019	105.32197	104.3421325	103.3804549	102.4364373	101.5095967	100.5994676	99.70560109	98.82756441	97.96493988
190625A00003	6/25/2019	2.03	6/27/2022	6/25/2019	105.39443	104.4065149	103.4370472	102.4855151	101.5514249	100.6343003	99.73368253	98.84912914	97.98021336
190625A00012	6/25/2019	2.12	6/25/2024	6/25/2019	116.93529	113.6307967	110.4372365	107.3502834	104.3658006	101.4798356	98.6886105	95.98851377	93.37609154
190625A00013	6/25/2019	2.01	6/24/2022	6/25/2019	105.32605	104.3477537	103.3875669	102.4449889	101.5195387	100.6107528	99.71818411	98.84140161	97.97998929
190625A00017	6/25/2019	2.02	12/15/2022	6/25/2019	107.97573	106.4989354	105.049737	103.6274272	102.2313205	100.8607544	99.51508792	98.19370127	96.89599453
190620A00026	6/20/2019	2.09	6/20/2023	6/20/2019	111.09119	109.0192229	106.9964789	105.0214883	103.0928335	101.2091484	99.36911633	97.57146787	95.8149787
190620A00045	6/20/2019	2.14	6/20/2024	6/20/2019	116.92148	113.633049	110.4545348	107.3816614	104.4103475	101.5366929	98.75696897	96.06761031	93.4652066
190620A00057	6/25/2019	2.09	5/15/2023	6/25/2019	110.53102	108.5736708	106.6610165	104.7916909	102.9643806	101.1778238	99.43080776	97.72216648	96.05077837
190621A00021	6/21/2019	2.12	6/21/2022	6/21/2019	105.37793	104.4086433	103.4571314	102.5229106	101.6055128	100.7044866	99.81939655	98.94982269	98.09535959
190621A00041	6/21/2019	2.12	6/21/2022	6/21/2019	105.37793	104.4086433	103.4571314	102.5229106	101.6055128	100.7044866	99.81939655	98.94982269	98.09535959
190624A00008	6/24/2019	2.08	6/24/2022	6/24/2019	105.39122	104.4125924	103.452077	102.5091747	101.5834044	100.6743024	99.78142159	98.90433081	98.04261401
190611A00015	6/11/2019	2.32	6/11/2024	6/11/2019	117.33655	114.0703962	110.9124841	107.8586458	104.9048939	102.0474158	99.28256551	96.60685535	94.01694789
190612A00011	6/12/2019	2.2	6/30/2022	6/12/2019	105.60541	104.6071264	103.627643	102.6664336	101.7229906	100.7968252	99.88746649	98.99446029	98.11736877
190618A00002	6/18/2019	2.11	6/18/2025	6/18/2019	122.88614	118.2885278	113.8884863	109.6764975	105.6435517	101.7811183	98.08111748	94.53589434	91.13819399
190619A00009	6/19/2019	2.26	6/19/2024	6/19/2019	117.2771	113.9864264	110.805599	107.7303535	104.7566154	101.8804905	99.09825574	96.40635107	93.801371
190619A00024	6/19/2019	2.21	7/19/2022	6/19/2019	105.93919	104.8798618	103.8416566	102.8239443	101.8261226	100.8476125	99.88785747	98.94632195	98.02249078
190620A00010	6/20/2019	2.04	6/20/2022	6/20/2019	105.28753	104.321788	103.3737059	102.4428024	101.528614	100.6306933	99.74860898	98.88194478	98.03029892
190606A00023	6/6/2019	2.23	6/6/2024	6/6/2019	116.98333	113.7383773	110.60053	107.5656758	104.6298857	101.7894025	99.04063229	96.38013622	93.80462319

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190606A00029	6/6/2019	2.96	6/6/2034	6/6/2019	176.78128	157.4278821	140.4246738	125.4716684	112.3086558	100.709751	90.47871163	81.44491349	73.45989033
190607A00005	6/7/2019	1.92	6/7/2022	6/7/2019	105.0678	104.1418244	103.2321115	102.3382397	101.4597977	100.5963886	99.747629	98.91314833	98.0925885
190607A00012	6/7/2019	2.13	6/7/2022	6/7/2019	105.15109	104.2261588	103.317453	102.4245468	101.547031	100.68451	99.83660191	99.00293768	98.18316056
190607A00018	6/7/2019	2.19	6/7/2024	6/7/2019	116.87665	113.6301393	110.4908876	107.4547795	104.5178766	101.6764128	98.92678571	96.26554877	93.68940343
190610A00018	6/10/2019	2.52	6/10/2026	6/10/2019	129.49223	123.5507497	117.9179787	112.5762862	107.5091414	102.7010353	98.1374123	93.80460668	89.68978395
190603A00046	6/3/2019	2.17	6/3/2022	6/3/2019	105.11851	104.2060774	103.3094368	102.4281781	101.5619081	100.7102469	99.87282737	99.04929454	98.23930518
190604A00031	6/4/2019	2.25	6/5/2023	6/4/2019	111.16183	109.134694	107.1547541	105.220628	103.3309834	101.4845351	99.68004361	97.91631268	96.19218777
190605A00004	6/5/2019	2.11	1/12/2022	6/5/2019	102.71292	102.2358215	101.7631559	101.2948627	100.8308814	100.3711525	99.91561751	99.46421922	99.01690131
190605A00005	6/5/2019	2.01	6/5/2024	6/5/2019	116.76725	113.5178996	110.375959	107.3373013	104.3979815	101.5542277	98.80243187	96.13914198	93.56105447
190605A00034	6/5/2019	2.11	6/6/2022	6/5/2019	105.11665	104.1949731	103.2894095	102.3995394	101.5249575	100.6652722	99.82010537	98.98909152	98.17187731
190605A00035	6/5/2019	2.18	6/5/2023	6/5/2019	111.02585	109.00007	107.0214581	105.0886343	103.2002668	101.3550714	99.55180911	97.78928441	96.0663434
190531A00035	5/31/2019	2.29	5/31/2022	5/31/2019	105.17106	104.2676365	103.3796824	102.506803	101.648617	100.8047559	99.97486357	99.15859537	98.35561805
190603A00002	6/3/2019	2.03	6/2/2023	6/3/2019	110.97865	108.9570732	106.9824728	105.0534732	103.1687511	101.3270303	99.52707936	97.76771008	96.04777555
190603A00003	6/3/2019	2.05	6/3/2024	6/3/2019	116.8586	113.6142512	110.4769394	107.4425629	104.5071975	101.6670904	98.91865179	96.25844689	93.68318814
190603A00005	6/3/2019	2.25	6/3/2024	6/3/2019	116.99777	113.762119	110.6329765	107.6062641	104.6780848	101.8447119	99.1025797	96.44827638	93.878536
190603A00032	6/3/2019	1.98	6/3/2022	6/3/2019	105.05374	104.1401921	103.2424752	102.3601815	101.4929161	100.6402976	99.80195742	98.97753914	98.16669822
190603A00033	6/3/2019	2.05	6/3/2024	6/3/2019	116.8586	113.6142512	110.4769394	107.4425629	104.5071975	101.6670904	98.91865179	96.25844689	93.68318814
190530A00006	5/30/2019	2.25	5/30/2024	5/30/2019	117.40408	114.1643066	111.0309697	108.000006	105.0675282	102.2298176	99.48331682	96.82462109	94.25047128
190530A00007	5/30/2019	2.35	11/30/2021	5/30/2019	102.08552	101.7351497	101.3871703	101.0415613	100.6982987	100.3573587	100.0187179	99.68235309	99.34824158
190530A00009	5/30/2019	2.25	5/30/2024	5/30/2019	117.40408	114.1643066	111.0309697	108.000006	105.0675282	102.2298176	99.48331682	96.82462109	94.25047128
190530A00021	5/30/2019	2.21	5/27/2022	5/30/2019	105.13229	104.2399358	103.362684	102.5001527	101.6519739	100.8177915	99.99726146	99.19005066	98.39583686
190530A00024	5/30/2019	2.25	5/30/2024	5/30/2019	117.40408	114.1643066	111.0309697	108.000006	105.0675282	102.2298176	99.48331682	96.82462109	94.25047128
190530A00034	5/30/2019	2.44	5/30/2024	5/30/2019	117.51117	114.2805329	111.1557967	108.1329208	105.2080452	102.3774773	99.6376841	96.9852838	94.41703899
190529A00028	5/29/2019	2.38	5/29/2024	5/29/2019	117.31326	114.088786	110.9699611	107.9527541	105.0333109	102.2079454	99.47313054	96.82549122	94.26179646
190529A00032	5/29/2019	2.38	5/29/2024	5/29/2019	117.31326	114.088786	110.9699611	107.9527541	105.0333109	102.2079454	99.47313054	96.82549122	94.26179646
190529A00050	5/29/2019	2.31	11/29/2021	5/29/2019	102.05475	101.7073193	101.3622453	101.0195052	100.6790755	100.3409328	100.0050543	99.67141738	99.33999967
190529A00069	5/29/2019	2.34	11/29/2021	5/29/2019	102.065	101.7175445	101.3724487	101.029687	100.6892356	100.3510715	100.0151716	99.68151342	99.35007455
190530A00003	5/30/2019	2.21	5/27/2022	5/30/2019	105.13229	104.2399358	103.362684	102.5001527	101.6519739	100.8177915	99.99726146	99.19005066	98.39583686
190530A00004	5/30/2019	2.24	5/30/2023	5/30/2019	111.33456	109.3185985	107.3492788	105.42524	103.5451736	101.7078173	99.91195317	98.15640582	96.44004038
190528A00039	5/28/2019	2.38	11/29/2021	5/28/2019	102.07866	101.7311782	101.3860533	101.0432626	100.7027825	100.3645897	100.0286614	99.6949748	99.36350772
190528A00042	5/28/2019	2.38	11/29/2021	5/28/2019	102.07866	101.7311782	101.3860533	101.0432626	100.7027825	100.3645897	100.0286614	99.6949748	99.36350772
190529A00005	5/29/2019	2.31	11/29/2021	5/29/2019	102.05475	101.7073193	101.3622453	101.0195052	100.6790755	100.3409328	100.0050543	99.67141738	99.33999967
190529A00009	5/29/2019	2.35	5/31/2022	5/29/2019	105.22278	104.3191112	103.4309143	102.557795	101.6993719	100.8552765	100.0251526	99.20865547	98.40545187

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190529A00011	5/29/2019	2.36	5/30/2023	5/29/2019	111.27468	109.2646522	107.3010333	105.3824778	103.5076861	101.6754045	99.88442316	98.13357404	96.42172959
190529A00023	5/29/2019	2.38	5/29/2024	5/29/2019	117.31326	114.088786	110.9699611	107.9527541	105.0333109	102.2079454	99.47313054	96.82549122	94.26179646
190524A00032	5/24/2019	2.45	5/24/2023	5/24/2019	111.3438	109.3514339	107.4048515	105.5026956	103.6436596	101.8264851	100.0499598	98.31291537	96.61422537
190528A00003	5/28/2019	2.42	5/31/2022	5/28/2019	105.28312	104.3791651	103.4906849	102.6172856	101.7585859	100.9142172	100.0838231	99.26705893	98.46359133
190528A00005	5/28/2019	2.42	6/15/2023	5/28/2019	111.66196	109.5994099	107.5855085	105.618816	103.6979405	101.8215404	99.98832197	98.19703773	96.44648423
190528A00006	5/28/2019	2.43	9/15/2023	5/28/2019	113.23883	110.8769034	108.5767767	106.3363796	104.1537298	102.0269274	99.95415072	97.93365258	95.96375624
190528A00009	5/28/2019	2.45	5/15/2024	5/28/2019	117.29568	114.1162573	111.0400625	108.0631077	105.1815879	102.3918701	99.69048409	97.07411406	94.53959054
190528A00015	5/28/2019	2.42	5/27/2022	5/28/2019	105.21251	104.3211702	103.4448886	102.583289	101.7360048	100.9026816	100.0829763	99.27655739	98.48310377
190523A00007	5/23/2019	2.28	5/23/2022	5/23/2019	105.12153	104.2415009	103.3761695	102.5251703	101.6881492	100.8647639	100.0546833	99.25758661	98.47316354
190523A00008	5/23/2019	2.29	5/23/2023	5/23/2019	111.30946	109.3152374	107.3668966	105.46307	103.6024416	101.7837445	100.0057584	98.26730795	96.56726023
190523A00017	5/23/2019	2.51	3/15/2024	5/23/2019	116.47064	113.4962328	110.6138618	107.8200812	105.1115964	102.4852595	99.93806159	97.46712563	95.06969951
190523A00020	5/23/2019	2.5	2/9/2024	5/23/2019	115.86	113.0054956	110.2368785	107.5510404	104.9450031	102.4159153	99.96104693	97.57778241	95.26361547
190523A00023	5/23/2019	2.48	3/22/2023	5/23/2019	110.32959	108.5368902	106.7827534	105.0660045	103.385516	101.7402059	100.1290355	98.55100663	97.00516042
190524A00014	5/24/2019	2.24	5/24/2022	5/24/2019	105.10542	104.2223931	103.3541682	102.5003713	101.6606449	100.8346433	100.022032	99.22248747	98.43569627
190520A00007	5/20/2019	2.52	5/20/2024	5/20/2019	117.58746	114.3877213	111.2921718	108.2968096	105.3978093	102.5915159	99.87443609	97.2432303	94.69470449
190521A00005	5/21/2019	2.56	5/21/2024	5/21/2019	117.72411	114.5191414	111.4185844	108.4184329	105.5148562	102.7041942	99.98294808	97.34777249	94.79546773
190521A00028	5/21/2019	2.47	11/22/2021	5/21/2019	101.9873	101.6601375	101.3350802	101.0121069	100.6911977	100.3723328	100.0554925	99.74065776	99.4278094
190521A00043	5/21/2019	2.54	5/22/2023	5/21/2019	111.50072	109.5125637	107.5700226	105.6717361	103.8163936	102.0027341	100.229543	98.49565067	96.79992986
190522A00017	5/23/2019	2.53	3/1/2023	5/23/2019	110.04545	108.3194765	106.6297029	104.9750631	103.3545329	101.7671279	100.2119011	98.68794152	97.1943722
190522A00019	5/23/2019	2.55	5/15/2024	5/23/2019	117.59398	114.4101533	111.3296675	108.3485273	105.4629242	102.6692218	99.9639467	97.34378004	94.80554937
190514A00073	5/14/2019	2.53	5/14/2024	5/14/2019	117.51769	114.3381981	111.2618407	108.2846337	105.4027727	102.612626	99.91072492	97.29375544	94.75855018
190515A00002	5/15/2019	2.44	5/16/2022	5/15/2019	105.04351	104.1865126	103.3434703	102.5140476	101.6979165	100.8947589	100.1042674	99.3261437	98.56009916
190515A00008	5/15/2019	2.41	11/15/2021	5/15/2019	101.84712	101.5403541	101.235448	100.9323834	100.6311435	100.3317119	100.0340722	99.73820821	99.44410408
190515A00023	5/15/2019	2.25	5/16/2022	5/15/2019	104.97392	104.116039	103.2721485	102.4419104	101.6249952	100.8210839	100.0298676	99.25104726	98.48433307
190516A00012	5/16/2019	2.43	11/16/2021	5/16/2019	101.87048	101.5607989	101.2530087	100.9470942	100.6430382	100.3408237	100.040434	99.74185242	99.44506265
190517A00005	5/17/2019	2.31	5/17/2024	5/17/2019	117.37214	114.1746687	111.0813592	108.0881904	105.1913214	102.3870841	99.67197486	97.04264515	94.49589396
190510A00009	5/10/2019	2.47	11/10/2021	5/10/2019	101.7781	101.4858326	101.1952488	100.9063383	100.6190868	100.3334798	100.0495031	99.76714279	99.48638499
190513A00013	5/13/2019	2.52	5/13/2024	5/13/2019	117.4713	114.2956921	111.2230322	108.2493382	105.3708096	102.5838188	99.88490172	97.27074883	94.73819752
190513A00076	5/13/2019	2.42	11/12/2021	5/13/2019	101.79827	101.5002186	101.2039209	100.9093632	100.6165303	100.3254068	100.0359778	99.74822845	99.46214403
190514A00020	5/14/2019	2.66	5/14/2025	5/14/2019	123.97683	119.4919021	115.1949423	111.0770063	107.129632	103.344808	99.71494658	96.23285869	92.89173053
190514A00021	5/14/2019	2.72	11/14/2025	5/14/2019	127.20865	122.0382825	117.1088491	112.4077889	107.9232719	103.6441487	99.55990659	95.66062974	91.93696171
190514A00024	5/14/2019	2.34	5/14/2024	5/14/2019	117.41235	114.2239338	111.139179	108.1540705	105.2647773	102.4676422	99.75917296	97.13603326	94.5950347
190501A00028	5/1/2019	2.42	5/1/2024	5/1/2019	117.43297	114.2860818	111.2406384	108.2926615	105.438363	102.6741329	99.99652901	97.40226784	94.88821574

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190502A00027	5/2/2019	2.42	5/2/2022	5/2/2019	104.86173	104.0472412	103.2453764	102.4558396	101.6783481	100.912628	100.1584135	99.41544671	98.68347754
190507A00027	5/7/2019	2.59	5/7/2024	5/7/2019	117.57886	114.4208857	111.3648787	108.40687	105.5430778	102.7698951	100.0838797	97.48174548	94.96035408
190509A00019	5/9/2019	2.5	10/12/2021	5/9/2019	101.27907	101.0704144	100.8626285	100.6557081	100.4496479	100.2444424	100.0400862	99.83657403	99.63390066
190509A00029	5/9/2019	2.34	6/9/2022	5/9/2019	105.47409	104.5399391	103.6222973	102.7207302	101.8348179	100.9641552	100.1083507	99.26702623	98.43981646
190509A00030	5/9/2019	2.48	11/9/2021	5/9/2019	101.76353	101.4741587	101.18644	100.9003616	100.6159093	100.3330693	100.0518278	99.77217121	99.49408607
190426A00033	6/27/2019	2.55	6/27/2022	6/27/2019	105.88305	104.8926166	103.9206665	102.9666844	102.0301755	101.1106631	100.2076875	99.32080587	98.44959068
190429A00003	4/29/2019	2.62	10/13/2023	4/29/2019	114.14949	111.6903369	109.2973118	106.9681214	104.7005768	102.4925838	100.3421381	98.24732053	96.20629239
190429A00004	4/29/2019	2.65	4/15/2024	4/29/2019	117.38642	114.3007583	111.3130386	108.4194804	105.6164781	102.9005931	100.2685443	97.717199	95.24356564
190430A00003	4/30/2019	2.43	8/2/2023	4/30/2019	112.82881	110.5979346	108.4232511	106.3029763	104.2353924	102.2188488	100.2517586	98.33259572	96.45989208
190430A00021	4/30/2019	2.52	10/29/2021	4/30/2019	101.58188	101.3243835	101.0681832	100.813274	100.5596462	100.3072902	100.0561965	99.80635568	99.55775844
190501A00003	5/1/2019	2.61	5/1/2024	5/1/2019	117.53687	114.3987271	111.3615211	108.4212991	105.5742993	102.8169364	100.1457913	97.55760233	95.04925627
190424A00007	4/24/2019	2.66	4/24/2024	4/24/2019	117.56623	114.4497171	111.4328646	108.5117937	105.6828064	102.9423775	100.2871448	97.7139001	95.21958063
190426A00008	4/26/2019	2.57	4/26/2022	4/26/2019	104.78844	103.9936383	103.2108727	102.439867	101.6803576	100.9320888	100.1948124	99.46828749	98.75228021
190426A00009	4/26/2019	2.63	4/26/2024	4/26/2019	117.51203	114.3900143	111.3680149	108.4421266	105.608632	102.8639874	100.2048135	97.62788592	95.13012701
190426A00012	5/1/2019	2.57	7/15/2022	5/1/2019	106.22784	105.1794342	104.1516858	103.1439837	102.1557456	101.1864113	100.235442	99.30231915	98.38654369
190426A00016	5/1/2019	2.58	4/14/2023	5/1/2019	110.90621	109.0389046	107.2129153	105.4269342	103.6797127	101.9700547	100.2968137	98.65889029	97.05522961
190426A00032	6/27/2019	2.55	6/27/2022	6/27/2019	105.88305	104.8926166	103.9206665	102.9666844	102.0301755	101.1106631	100.2076875	99.32080587	98.44959068
190409A00019	4/9/2019	2.91	4/9/2029	4/9/2019	149.4455	139.0341869	129.4310738	120.5689312	112.3864695	104.8277861	97.84186404	91.3821199	85.40599629
190411A00017	4/15/2019	2.65	4/15/2024	4/15/2019	117.38642	114.3007583	111.3130386	108.4194804	105.6164781	102.9005932	100.2685443	97.717199	95.24356564
190411A00019	5/1/2019	2.63	5/2/2022	5/1/2019	104.94358	104.1298619	103.3287342	102.5399056	101.7630944	100.9980276	100.2444404	99.50207602	98.7706851
190411A00020	5/1/2019	2.63	5/2/2022	5/1/2019	104.94358	104.1298619	103.3287342	102.5399056	101.7630944	100.9980276	100.2444404	99.50207602	98.7706851
190411A00029	4/11/2019	2.46	4/11/2024	4/11/2019	117.21758	114.1369544	111.1540026	108.2649621	105.4662436	102.754423	100.1262327	97.57855279	95.10840354
190423A00002	4/23/2019	2.52	4/23/2024	4/23/2019	117.59264	114.4687532	111.444888	108.5171488	105.6818209	102.9353629	100.2743975	97.69570195	95.19620019
190402A00010	4/2/2019	2.4	4/6/2022	4/2/2019	104.38147	103.6479625	102.9247477	102.2116099	101.5083395	100.8147325	100.1305906	99.455721	98.78993595
190403A00024	4/3/2019	2.61	7/29/2022	4/3/2019	106.51188	105.4182845	104.3470819	103.297592	102.2691596	101.261156	100.2729772	99.30404261	98.35379435
190404A00003	4/4/2019	2.47	4/4/2024	4/4/2019	117.12975	114.0724403	111.1114959	108.2432273	105.4641157	102.7708029	100.1600833	97.6288949	95.1743121
190404A00023	4/5/2019	2.62	5/16/2022	4/5/2019	105.19094	104.33327	103.4895653	102.6594878	101.8427092	101.0389115	100.2477868	99.46903703	98.70237323
190404A00024	4/5/2019	2.61	2/15/2022	4/5/2019	103.55811	102.9781779	102.4047386	101.8376836	101.2769065	100.7223034	100.1737725	99.63121444	99.09453191
190408A00004	4/8/2019	2.6	10/8/2021	4/8/2019	101.22922	101.0320007	100.8355542	100.63988	100.4449737	100.2508306	100.0574462	99.86481606	99.67293577
190328A00065	3/28/2019	2.56	3/28/2024	3/28/2019	116.8293	113.8081531	110.8814924	108.04573	105.297444	102.6333669	100.0503781	97.54549543	95.11586837
190328A00079	3/28/2019	2.37	3/28/2024	3/28/2019	116.72808	113.6986577	110.7641942	107.921075	105.1658545	102.4952428	99.9060985	97.3954197	94.96033721
190329A00017	3/29/2019	2.59	3/29/2023	3/29/2019	110.64359	108.8266338	107.049081	105.3097205	103.6073884	101.9409684	100.3093891	98.71162186	97.14667882
190329A00034	3/29/2019	2.56	3/29/2022	3/29/2019	104.27633	103.5684046	102.8700634	102.1811153	101.501372	100.83065	100.1687706	99.51556007	98.87084889

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190401A00035	4/1/2019	2.53	10/1/2021	4/1/2019	101.09355	100.9163875	100.739842	100.5639117	100.3885934	100.213884	100.0397803	99.86627933	99.69337787
190402A00004	4/2/2019	2.9	4/2/2029	4/2/2019	149.24447	138.8676575	129.2946926	120.4588516	112.2992923	104.7605081	97.79183242	91.34699269	85.38370663
190327A00032	3/27/2019	2.53	1/26/2024	3/27/2019	115.70679	112.8986365	110.1739675	107.5297977	104.9632709	102.4716507	100.0523148	97.70274933	95.42054377
190328A00003	3/28/2019	2.64	9/30/2024	3/28/2019	120.17274	116.5056953	112.9709482	109.5629081	106.2762555	103.1059307	100.0471195	97.09523914	94.24592576
190328A00019	3/28/2019	2.56	3/28/2024	3/28/2019	116.8293	113.8081531	110.8814924	108.04573	105.297444	102.6333669	100.0503781	97.54549543	95.11586837
190328A00033	4/25/2019	2.56	4/25/2024	4/25/2019	117.29082	114.1751492	111.1592282	108.2391683	105.4112646	102.6719855	100.0179627	97.44598244	94.95297682
190328A00046	3/28/2019	2.7	3/4/2025	3/28/2019	122.97685	118.7465859	114.6860862	110.7875605	107.0436244	103.4472754	99.99187041	96.67110502	93.4789941
190328A00053	3/28/2019	2.33	3/28/2022	3/28/2019	104.17336	103.4678907	102.7719509	102.0853496	101.4078997	100.7394194	100.0797313	99.42866296	98.78604626
190326A00001	3/26/2019	2.55	3/28/2022	3/26/2019	104.25159	103.546762	102.8514373	102.1654287	101.48855	100.82062	100.161462	99.51090421	98.86877918
190326A00004	3/26/2019	2.58	9/26/2023	3/26/2019	113.76321	111.3618654	109.0239933	106.7474371	104.5301366	102.370118	100.2654907	98.21444195	96.21523362
190327A00006	3/27/2019	2.53	3/27/2024	3/27/2019	116.72746	113.7109597	110.7887285	107.9571927	105.2129408	102.5527157	99.97340591	97.47203835	95.04577066
190327A00013	3/27/2019	2.53	3/27/2024	3/27/2019	116.72746	113.7109597	110.7887285	107.9571927	105.2129408	102.5527157	99.97340591	97.47203835	95.04577066
190327A00024	3/27/2019	2.48	3/25/2022	3/27/2019	104.15091	103.4554615	102.7692838	102.0921912	101.424004	100.7645475	100.1136513	99.47114949	98.83688048
190327A00031	3/27/2019	2.53	3/27/2024	3/27/2019	116.72746	113.7109597	110.7887285	107.9571927	105.2129408	102.5527157	99.97340591	97.47203835	95.04577066
190318A00021	3/18/2019	2.76	3/18/2024	3/18/2019	117.22216	114.2276497	111.3259643	108.5136144	105.7872693	103.1437471	100.5800069	98.09314145	95.68037022
190318A00024	3/18/2019	2.57	3/18/2024	3/18/2019	117.12281	114.1201342	111.2107472	108.3911324	105.6579358	103.0079539	100.4381256	97.94552432	95.52735153
190319A00013	3/19/2019	2.72	3/18/2022	3/19/2019	104.183	103.5084307	102.8425911	102.1853128	101.536431	100.8957856	100.2632202	99.63858265	99.0217243
190321A00018	3/21/2019	2.45	3/21/2022	3/21/2019	104.12927	103.4449992	102.7697122	102.1032323	101.445388	100.796012	100.1549415	99.52201769	98.89708593
190321A00021	3/21/2019	2.67	3/21/2024	3/21/2019	117.02112	114.0197699	111.1117144	108.2934351	105.5615748	102.9129269	100.3444276	97.85314797	95.43628735
190321A00044	3/21/2019	2.45	3/21/2022	3/21/2019	104.12927	103.4449992	102.7697122	102.1032323	101.445388	100.796012	100.1549415	99.52201769	98.89708593
190301A00009	3/1/2019	2.83	3/1/2022	3/1/2019	103.93667	103.3139429	102.6986635	102.0906963	101.4899117	100.896183	100.3093865	99.72940138	99.15610965
190308A00007	3/8/2019	2.8	3/8/2024	3/8/2019	117.15884	114.1973777	111.3269403	108.5441433	105.8457508	103.2286693	100.6899412	98.22673719	95.83634978
190311A00003	3/11/2019	2.68	9/10/2021	3/11/2019	100.7471	100.6294226	100.5120387	100.3949428	100.2781337	100.1616103	100.0453715	99.92941639	99.81374374
190311A00009	3/11/2019	2.54	3/11/2022	3/11/2019	104.00672	103.3529286	102.707353	102.0698379	101.4402328	100.8183909	100.2041693	99.59742809	98.99803122
190313A00019	3/13/2019	2.73	7/15/2022	3/13/2019	106.38648	105.3372215	104.3086258	103.3000881	102.3110255	101.3408778	100.3891058	99.45519094	98.53863373
190314A00027	3/22/2019	2.92	3/21/2025	3/22/2019	124.12649	119.817376	115.6828837	111.7149141	107.9057915	104.2482425	100.7353718	97.36064046	94.11784475
190215A00046	2/15/2019	2.7	2/15/2024	2/15/2019	116.91996	114.0230704	111.2138531	108.4891043	105.845763	103.2809001	100.7917119	98.37551351	96.0297333
190219A00026	2/19/2019	2.8	2/22/2022	2/19/2019	103.78881	103.1874079	102.5929634	102.0053606	101.424482	100.8502125	100.2824398	99.721054	99.16594777
190219A00045	2/19/2019	2.8	2/28/2022	2/19/2019	103.9	103.280402	102.66817	102.0631776	101.4652971	100.8744039	100.2903761	99.71309456	99.14244313
190220A00007	2/20/2019	2.87	2/20/2024	2/20/2019	117.051	114.1454364	111.3279531	108.5953278	105.9444771	103.3724514	100.8764274	98.45370214	96.10168677
190221A00002	2/21/2019	2.81	2/22/2022	2/21/2019	103.79464	103.1932096	102.5987456	102.0111237	101.430226	100.8559376	100.2881461	99.72674175	99.17161708
190225A00026	2/25/2019	3.43	2/27/2034	2/25/2019	185.52719	165.8386141	148.4870998	133.1800192	119.6629008	107.7142734	97.14123177	87.77561713	79.47072556
190214A00006	2/14/2019	2.67	2/14/2024	2/14/2019	116.82087	113.9285221	111.1236489	108.4030566	105.7636938	103.2026404	100.717101	98.30439877	95.96196956

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190214A00008	2/14/2019	2.64	2/14/2023	2/14/2019	110.17994	108.4959137	106.8466884	105.2312629	103.6486751	102.0979987	100.5783421	99.08884641	97.62868422
190214A00012	2/14/2019	2.6	2/14/2022	2/14/2019	103.58684	103.0091227	102.4378504	101.872915	101.314211	100.7616358	100.2150887	99.67447121	99.13968717
190214A00013	2/14/2019	2.64	2/14/2023	2/14/2019	110.17994	108.4959137	106.8466884	105.2312629	103.6486751	102.0979987	100.5783421	99.08884641	97.62868422
190215A00003	2/15/2019	2.82	2/15/2022	2/15/2019	103.67618	103.0958663	102.5220451	101.9546113	101.3934585	100.8384825	100.2895818	99.74665677	99.20961014
190215A00017	2/15/2019	2.89	2/15/2024	2/15/2019	117.01628	114.1271299	111.3252197	108.6073731	105.9705499	103.4118406	100.9284599	98.51774058	96.1771273
190211A00011	2/11/2019	2.8	2/11/2022	2/11/2019	103.58499	103.0169124	102.455068	101.8993515	101.3496628	100.8059041	100.2679798	99.73579611	99.20926142
190211A00016	2/11/2019	3.01	2/11/2025	2/11/2019	123.80646	119.6325607	115.6237624	111.7725974	108.0719836	104.515199	101.0958605	97.80790573	94.64557392
190211A00017	2/11/2019	3.12	2/11/2026	2/11/2019	130.63921	125.0823847	119.7969981	114.7683053	109.9824442	105.4263774	101.0878377	96.9552791	93.01782995
190212A00017	2/12/2019	2.86	6/30/2023	2/12/2019	112.80442	110.684436	108.6154108	106.5958021	104.6241238	102.6989447	100.8188858	98.98261857	97.18886224
190213A00023	2/13/2019	2.93	2/13/2024	2/13/2019	117.08871	114.2049616	111.4081454	108.6951023	106.0628086	103.5083701	101.0290158	98.62209179	96.28505556
190214A00004	2/14/2019	2.6	2/14/2022	2/14/2019	103.58684	103.0091227	102.4378504	101.872915	101.314211	100.7616358	100.2150887	99.67447121	99.13968717
190131A00053	1/31/2019	2.67	1/31/2023	1/31/2019	109.96593	108.3276975	106.7228049	105.1503217	103.6093482	102.0990176	100.6184942	99.16697249	97.74367518
190201A00009	2/1/2019	2.8	2/4/2022	2/1/2019	103.46085	102.9138673	102.3726622	101.8371429	101.3072204	100.7828071	100.2638175	99.75016756	99.24177529
190201A00011	2/1/2019	2.8	2/4/2022	2/1/2019	103.46085	102.9138673	102.3726622	101.8371429	101.3072204	100.7828071	100.2638175	99.75016756	99.24177529
190206A00013	2/6/2019	2.68	2/6/2023	2/6/2019	110.09433	108.4361794	106.8119933	105.2208135	103.6617136	102.1338015	100.6362175	99.16813329	97.72875003
190208A00008	2/8/2019	2.86	2/8/2024	2/8/2019	116.81082	113.9467415	111.1686883	108.4735462	105.8583364	103.3202067	100.8564261	98.46437796	96.14155481
190211A00002	2/11/2019	2.88	2/12/2024	2/11/2019	116.93578	114.0572755	111.2654939	108.5572831	105.9296292	103.3796473	100.9045755	98.50176798	96.16869012
190130A00018	1/30/2019	2.95	10/17/2022	1/30/2019	108.38872	107.0287613	105.7028807	104.4098091	103.1483393	101.9173228	100.715666	99.54232722	98.39631367
190130A00020	1/30/2019	2.97	4/17/2023	1/30/2019	111.65971	109.7764234	107.9349414	106.1339342	104.3721333	102.648324	100.9613423	99.31007213	97.69344283
190131A00011	1/31/2019	3.13	1/30/2026	1/31/2019	130.41723	124.9103877	119.6708649	114.6842356	109.9369293	105.4161767	101.1099581	97.00695513	93.09650611
190131A00017	1/31/2019	2.83	3/25/2022	1/31/2019	104.38553	103.6891946	103.0021359	102.3241705	101.6551188	100.9948058	100.3430609	99.69971829	99.06461609
190131A00019	1/31/2019	3.44	1/30/2034	1/31/2019	185.18672	165.6478135	148.4154257	133.2022944	119.7584148	107.8660341	97.33533959	88.00074282	79.71767404
190131A00027	1/31/2019	2.86	1/31/2023	1/31/2019	110.046	108.4107778	106.808778	105.2390715	103.7007634	102.1929914	100.7149244	99.2657604	97.84472621
190123A00005	1/23/2019	2.94	1/24/2022	1/23/2019	103.32681	102.8127088	102.3037263	101.7997813	101.3007995	100.8067077	100.3174341	99.83290857	99.35306215
190123A00035	1/23/2019	3.18	1/22/2027	1/23/2019	137.93199	130.9343218	124.3395679	118.1223598	112.2590559	106.7276171	101.5074903	96.57950016	91.92575013
190123A00036	1/23/2019	3.32	1/23/2029	1/23/2019	151.70255	141.4997328	132.0671655	123.3424158	115.268429	107.7930369	100.868515	94.45118287	88.50104165
190128A00035	1/28/2019	3.04	1/26/2024	1/28/2019	117.05724	114.2312401	111.4891318	108.827921	106.2447389	103.7368372	101.301582	98.93644842	96.63901514
190129A00028	1/30/2019	2.92	2/1/2022	1/30/2019	103.46791	102.9298081	102.3972911	101.8702739	101.3486716	100.8324011	100.3213811	99.8155318	99.31477503
190130A00012	1/30/2019	2.92	1/31/2022	1/30/2019	103.44903	102.9139482	102.3843918	101.8602729	101.3415082	100.8280161	100.3197165	99.81653106	99.31838292
190115A00029	1/15/2019	2.86	11/8/2021	1/15/2019	101.85343	101.5667567	101.2817089	100.9982692	100.7164239	100.4361596	100.1574628	99.8803205	99.60471955
190115A00034	1/15/2019	2.91	1/17/2023	1/15/2019	109.88245	108.2905234	106.7301808	105.2005584	103.7008247	102.2301781	100.7878447	99.37307773	97.98515612
190122A00007	1/22/2019	3.03	1/22/2024	1/22/2019	116.95814	114.146111	111.4172141	108.7684909	106.1971105	103.7003602	101.2756401	98.92045711	96.63242009
190122A00042	1/22/2019	2.79	1/23/2023	1/22/2019	110.00634	108.3920411	106.8101629	105.2598091	103.7401165	102.2502528	100.7894153	99.35682964	97.95174838

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190122A00045	1/22/2019	3.17	1/22/2027	1/22/2019	137.8708	130.8748771	124.2817989	118.0661967	112.2044325	106.6744704	101.4557606	96.52913062	91.87668669
190122A00046	1/22/2019	3.29	1/22/2029	1/22/2019	151.42764	141.2393743	131.8202	123.1077948	115.0451998	107.580333	100.6655478	94.257234	88.31545597
190110A00028	1/10/2019	2.78	1/10/2024	1/10/2019	116.49137	113.7149399	111.01973	108.4028875	105.861676	103.3934722	100.9957601	98.66612619	96.40225458
190111A00013	1/11/2019	2.87	1/7/2022	1/11/2019	102.97333	102.5101832	102.0512081	101.5963451	101.145539	100.6987356	100.2558817	99.81692488	99.38181389
190111A00026	1/11/2019	3.48	1/11/2034	1/11/2019	185.46834	165.9945073	148.8097444	133.6301198	120.2083833	108.3290538	97.80418919	88.46973824	80.18239156
190114A00040	1/14/2019	2.89	1/14/2025	1/14/2019	123.45406	119.3657547	115.4363706	111.6588593	108.0265222	104.5329943	101.1722253	97.93846214	94.82623286
190114A00043	1/14/2019	2.88	1/14/2022	1/14/2019	103.10915	102.6250696	102.1455447	101.6705069	101.1998933	100.7336421	100.2716927	99.81398568	99.36046263
190115A00028	1/15/2019	2.86	11/8/2021	1/15/2019	101.85343	101.5667567	101.2817089	100.9982692	100.7164239	100.4361596	100.1574628	99.8803205	99.60471955
190110A00002	1/10/2019	2.93	1/10/2023	1/10/2019	109.76733	108.1976452	106.6587041	105.1496809	103.669776	102.2182178	100.7942614	99.39718743	98.02630104
190110A00004	1/10/2019	3.09	1/10/2025	1/10/2019	123.53915	119.4776798	115.5732261	111.8188575	108.2079894	104.7343627	101.3920262	98.17531969	95.0788579
190110A00005	1/10/2019	3.2	1/9/2026	1/10/2019	130.39573	124.9616638	119.7880885	114.8611218	110.167697	105.6955088	101.4329646	97.36913948	93.49373454
190110A00010	1/10/2019	2.97	1/16/2024	1/10/2019	116.69216	113.9026171	111.1950242	108.5664904	106.0142426	103.5356223	101.1280808	98.78917338	96.51655468
190110A00013	1/10/2019	2.97	1/17/2024	1/10/2019	116.71013	113.9171872	111.2063833	108.5748161	106.0197031	103.5383772	101.1282812	98.78696278	96.51206905
190110A00014	1/10/2019	2.97	1/17/2024	1/10/2019	116.71013	113.9171872	111.2063833	108.5748161	106.0197031	103.5383772	101.1282812	98.78696278	96.51206905
190107A00022	1/7/2019	2.83	1/7/2022	1/7/2019	102.95526	102.4921643	102.0332377	101.5784229	101.1276647	100.6809088	100.2381021	99.79919231	99.36412798
190107A00023	1/7/2019	2.87	1/6/2023	1/7/2019	109.61945	108.0626922	106.5362082	105.0391901	103.5708559	102.1304508	100.717246	99.33053754	97.96964508
190107A00024	1/7/2019	2.91	1/5/2024	1/7/2019	116.3395	113.5893134	110.9189829	108.325726	105.8068717	103.3598588	100.9822296	98.67162607	96.42578437
190107A00028	1/7/2019	2.62	1/7/2022	1/7/2019	102.90241	102.4389539	101.9796739	101.5245155	101.0734235	100.6263433	100.1832214	99.74400536	99.30864357
190107A00036	1/7/2019	2.84	4/15/2022	1/7/2019	104.78699	104.0255611	103.275193	102.5356448	101.8066835	101.0880826	100.3796221	99.68108838	98.99227353
190110A00001	1/10/2019	2.88	1/10/2022	1/10/2019	103.03411	102.5619908	102.0942039	101.6306888	101.1713871	100.7162414	100.2651953	99.81819353	99.37518168
190102A00041	1/2/2019	2.91	1/2/2024	1/2/2019	116.28617	113.5461484	110.8854274	108.3012545	105.7909861	103.3520864	100.9821224	98.67875876	96.43975336
190102A00050	1/2/2019	3.38	1/3/2034	1/2/2019	183.82929	164.4959563	147.4345461	132.3635065	119.0376117	107.2431093	96.79353513	87.5261028	79.29858695
190102A00058	1/2/2019	2.91	1/2/2024	1/2/2019	116.28617	113.5461484	110.8854274	108.3012545	105.7909861	103.3520864	100.9821224	98.67875876	96.43975336
190103A00010	1/3/2019	2.7	1/3/2024	1/3/2019	116.15962	113.4097086	110.739649	108.1466604	105.6280728	103.1813252	100.8039609	98.49362227	96.24804601
190104A00033	1/4/2019	3.37	1/31/2029	1/4/2019	150.68017	140.5529502	131.1906523	122.5312326	114.5179921	107.0990917	100.2271119	93.85865497	87.95398365
190107A00010	1/7/2019	2.66	1/9/2023	1/7/2019	109.55107	107.9826516	106.4449538	104.9371498	103.4584408	102.0080559	100.5852509	99.18930708	97.81953044
181227A00019	12/28/2020	3.1	12/29/2025	12/28/2020	129.77537	124.3919121	119.2650219	114.3811179	109.7274053	105.2918295	101.0630297	97.03029534	93.18352519
181227A00022	12/27/2019	2.91	12/27/2022	12/27/2019	109.49406	107.9685382	106.4721493	105.0041244	103.5637243	102.1502348	100.7629661	99.40125107	98.06444506
181227A00026	12/27/2018	3.03	12/27/2023	12/27/2018	116.48512	113.7617304	111.1166346	108.5471259	106.0506116	103.6246038	101.2667148	98.97465198	96.7462138
181227A00027	12/27/2018	3.24	12/26/2025	12/27/2018	130.39853	125.0112979	119.8801677	114.9916093	110.3328771	105.8919615	101.6575425	97.61894665	93.76610681
181227A00028	12/27/2018	3.46	12/27/2028	12/27/2018	150.83943	140.8394691	131.5852908	123.017159	115.0804169	107.725034	100.9051924	94.57891187	88.70771014
181228A00008	12/28/2018	2.9	12/28/2021	12/28/2018	102.79897	102.3655833	101.9358459	101.5097097	101.0871294	100.6680609	100.2524604	99.84028524	99.43149311
181211A00018	12/11/2018	3.14	12/11/2023	12/11/2018	116.46427	113.7929867	111.1971637	108.6742384	106.2217543	103.8373521	101.5187659	99.26381827	97.07041671

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181211A00043	12/11/2018	3.14	12/11/2023	12/11/2018	116.46427	113.7929867	111.1971637	108.6742384	106.2217543	103.8373521	101.5187659	99.26381827	97.07041671
181213A00031	12/13/2018	2.97	12/13/2023	12/13/2018	116.46241	113.7766168	111.1670198	108.6310206	106.1661285	103.769952	101.4401946	99.17464991	96.97119804
181217A00010	12/17/2018	3.11	12/15/2023	12/17/2018	116.46415	113.7799136	111.1718338	108.6373184	106.1738774	103.7791198	101.4507496	99.1865608	96.98443404
181218A00072	12/18/2018	3.04	12/19/2022	12/18/2018	109.5167	108.0158747	106.5432952	105.0982279	103.6799659	102.2878259	100.9211473	99.5792912	98.26163964
181218A00077	12/18/2018	3.09	12/18/2023	12/18/2018	116.46993	113.7758932	111.1585505	108.6152757	106.1435534	103.7409686	101.4052023	99.13402732	96.92530376
181127A00026	11/27/2018	3.2	11/26/2021	11/27/2018	102.30025	101.9609317	101.6238624	101.2890218	100.956388	100.625939	100.2976536	99.97151035	99.64748849
181128A00031	11/28/2018	3.29	11/28/2023	11/28/2018	116.59017	113.9590982	111.4013236	108.9143884	106.495928	104.1436714	101.8554365	99.62912638	97.46272508
181129A00023	11/29/2018	3.16	11/29/2021	11/29/2018	102.34509	101.997034	101.6513422	101.3079874	100.9669461	100.628195	100.291711	99.9574717	99.62545459
181129A00027	11/29/2018	3.16	11/29/2021	11/29/2018	102.34509	101.997034	101.6513422	101.3079874	100.9669461	100.628195	100.291711	99.9574717	99.62545459
181130A00037	11/30/2018	3.05	11/30/2023	11/30/2018	116.41562	113.7727353	111.2037466	108.7061771	106.2776452	103.9158626	101.6186305	99.38383493	97.20944364
181203A00053	12/4/2018	3.23	12/1/2023	12/4/2018	116.49862	113.8593172	111.2937386	108.7994114	106.3739619	104.0151089	101.7206606	99.48850955	97.31662956
181114A00010	11/14/2018	3.08	11/15/2021	11/14/2018	102.07749	101.7699596	101.4642928	101.1604752	100.8584899	100.5583204	100.2599501	99.96336282	99.66854246
181114A00021	11/14/2018	3.17	11/14/2023	11/14/2018	116.40861	113.814976	111.2930616	108.8403934	106.454605	104.1334298	101.8746953	99.67631832	97.53630098
181114A00026	11/14/2018	3.32	12/14/2022	11/14/2018	109.83774	108.3496197	106.8892478	105.4559152	104.0489329	102.6676351	101.3113777	99.97953745	98.67151162
181115A00036	11/15/2018	3.2	11/15/2021	11/15/2018	102.08585	101.778611	101.4732371	101.1697069	100.8680036	100.5681106	100.2700117	99.97369054	99.67913131
181115A00076	11/15/2018	3.22	12/31/2021	11/15/2018	102.99343	102.5507926	102.1119477	101.6768506	101.2454535	100.8177094	100.3935721	99.97299616	99.55593695
181123A00015	11/23/2018	3.14	11/23/2021	11/23/2018	102.22228	101.8917597	101.563379	101.2371199	100.9129617	100.5908843	100.2708676	99.95289184	99.63693748
181101A00020	11/1/2018	3.26	11/1/2021	11/1/2018	101.82892	101.5624084	101.297285	101.0335439	100.7711741	100.5101651	100.2505063	99.99218728	99.73519766
181102A00006	11/2/2018	3.07	11/2/2021	11/2/2018	101.82263	101.5529768	101.2847562	101.017954	100.7525592	100.4885604	100.2259468	99.96470744	99.70483149
181109A00023	11/9/2018	3.39	11/9/2022	11/9/2018	109.33951	107.9206086	106.5347241	105.1807027	103.8574439	102.5638974	101.2990612	100.0619781	98.85173365
181109A00027	11/13/2018	3.48	4/15/2024	11/13/2018	119.7862	116.6661449	113.644865	110.7185559	107.8835859	105.1364909	102.4739654	99.89285341	97.39014098
181109A00028	11/9/2018	3.72	11/9/2026	11/9/2018	138.75154	132.0339402	125.6884416	119.6923373	114.0244354	108.6649471	103.5953862	98.79847517	94.25806004
181109A00029	11/9/2018	3.72	11/9/2026	11/9/2018	138.75154	132.0339402	125.6884416	119.6923373	114.0244354	108.6649471	103.5953862	98.79847517	94.25806004
181022A00029	10/22/2018	3.22	10/24/2022	10/22/2018	108.86919	107.4833291	106.1327302	104.8160559	103.532039	102.2794752	101.0572185	99.86417802	98.69931485
181023A00052	10/23/2018	3.15	10/23/2023	10/23/2018	115.93881	113.4193783	110.9684215	108.5835395	106.2624372	104.0029206	101.8028912	99.66034106	97.57334791
181025A00010	10/25/2018	3.07	10/25/2022	10/25/2018	108.86099	107.4692507	106.1130473	104.7910309	103.5019206	102.2444986	101.0176069	99.82014314	98.65105743
181026A00002	10/26/2018	3.28	10/26/2023	10/26/2018	115.94036	113.4186497	110.9655544	108.5786595	106.2556619	103.9943599	101.7926483	99.6485125	97.56002419
181029A00081	10/29/2018	3.27	4/28/2023	10/29/2018	112.41387	110.4904327	108.6102432	106.7719112	104.9741054	103.2155513	101.4950287	99.81136867	98.16345059
181030A00012	10/30/2018	3.32	10/30/2023	10/30/2018	116.11333	113.5767832	111.1095268	108.7091133	106.3732067	104.0995746	101.8860827	99.7306893	97.63144044
181010A00020	10/10/2018	3.27	12/1/2022	10/10/2018	109.49384	108.0485645	106.6295969	105.2362734	103.8679567	102.5240298	101.2038957	99.90697603	98.632711
181010A00021	10/10/2018	3.29	3/15/2023	10/10/2018	111.58422	109.8018636	108.0574931	106.3499671	104.6781871	103.0410979	101.437686	99.8669774	98.32803541
181015A00008	10/15/2018	3.15	9/15/2021	10/15/2018	100.89654	100.7646581	100.633137	100.5019743	100.3711685	100.2407183	100.110622	99.98087822	99.8514855
181016A00084	10/16/2018	3.21	10/17/2022	10/16/2018	108.71733	107.3551418	106.0270674	104.7318397	103.4682504	102.23515	101.0314439	99.85608954	98.70809308

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181018A00011	10/18/2018	3.35	10/18/2023	10/18/2018	115.94924	113.4529583	111.0240363	108.6601271	106.3589899	104.1184817	101.9365519	99.81123745	97.74065849
181022A00026	10/22/2018	3.18	10/15/2021	10/22/2018	101.4796	101.2620856	101.0455188	100.8298903	100.6151941	100.401424	100.1885741	99.97663819	99.7656105
181005A00011	10/5/2018	3.2	10/5/2023	10/5/2018	115.70304	113.2440703	110.8506992	108.5206771	106.2518501	104.0421566	101.8896225	99.79235681	97.74854704
181005A00012	10/5/2018	3.33	10/4/2024	10/5/2018	123.14082	119.3977172	115.7899338	112.3117218	108.957621	105.7224395	102.6012388	99.58931875	96.68220473
181005A00017	10/5/2018	3.27	4/11/2023	10/5/2018	112.08178	110.2126346	108.3846556	106.5965487	104.8470756	103.1350493	101.4593323	99.81883312	98.21250459
181009A00008	10/9/2018	3.24	10/7/2022	10/9/2018	108.55589	107.2270802	105.9307872	104.6658237	103.4310635	102.2254336	101.0479115	99.89752201	98.77333468
181009A00035	10/9/2018	3.12	10/11/2022	10/9/2018	108.64559	107.3006811	105.9890401	104.7094399	103.4607164	102.2417614	101.0515192	99.8889834	98.75319436
181009A00036	10/9/2018	3.07	10/8/2021	10/9/2018	101.34098	101.1433832	100.9465653	100.7505235	100.5552533	100.3607501	100.1670092	99.97402621	99.78179654
180927A00008	9/27/2018	3.14	9/27/2022	9/27/2018	108.23616	106.9416452	105.6780637	104.444314	103.2393487	102.0621688	100.9118211	99.78739552	98.68802286
180927A00015	9/27/2018	3.02	9/27/2022	9/27/2018	108.24547	106.9484337	105.6824333	104.4463625	103.2391689	102.0598493	100.9074463	99.78104593	98.67977528
180927A00042	9/27/2018	3.02	9/27/2022	9/27/2018	108.24547	106.9484337	105.6824333	104.4463625	103.2391689	102.0598493	100.9074463	99.78104593	98.67977528
181001A00074	10/1/2018	3.03	10/3/2022	10/1/2018	108.37563	107.0584111	105.7731654	104.5187347	103.2940205	102.097976	100.9296029	99.7879489	98.672105
181002A00019	10/2/2018	2.98	10/4/2021	10/2/2018	101.24744	101.0613549	100.8759539	100.691238	100.5072033	100.3238461	100.1411625	99.95914887	99.77780151
181004A00029	10/4/2018	3.7	10/4/2028	10/4/2018	151.32222	141.6247484	132.6295416	124.2817276	116.5310109	109.33127	102.6401885	96.4189219	90.63179429
180921A00021	9/21/2018	2.99	9/21/2021	9/21/2018	101.00256	100.853522	100.7049354	100.5567995	100.409112	100.261871	100.1150744	99.96872005	99.82280606
180924A00044	9/24/2018	3.1	9/24/2021	9/24/2018	101.06082	100.9034294	100.7465328	100.5901315	100.4342234	100.2788059	100.1238768	99.96943385	99.81547472
180924A00047	9/24/2018	3.14	9/23/2022	9/24/2018	108.15778	106.8765662	105.6256835	104.4040606	103.2106793	102.0445681	100.9047997	99.79048827	98.70078746
180925A00060	9/25/2018	3.23	8/25/2023	9/25/2018	114.63761	112.3237706	110.0691964	107.8719546	105.7301899	103.6421219	101.6060413	99.6203063	97.68333947
180926A00004	9/26/2018	3.04	9/26/2022	9/26/2018	108.24991	106.95606	105.6930896	104.4599074	103.2554685	102.0787765	100.9288804	99.80487236	98.70588513
180926A00031	9/26/2018	3.24	9/26/2023	9/26/2018	115.26797	112.8492902	110.4944422	108.2012667	105.9676922	103.7917352	101.6714948	99.60514899	97.59095038
180920A00014	9/20/2018	3.59	9/20/2028	9/20/2018	150.17597	140.5737597	131.6643682	123.3938823	115.7128674	108.5759726	101.9415725	95.77144171	90.03045996
180920A00027	9/20/2018	3.04	9/20/2022	9/20/2018	108.13183	106.8579747	105.6141021	104.3991588	103.2121439	102.0521021	100.918121	99.80932945	98.72489438
180920A00028	9/20/2018	3.12	9/20/2023	9/20/2018	115.22977	112.8230486	110.4796089	108.1973209	105.9741408	103.808111	101.6973549	99.64007333	97.63454042
180920A00035	9/20/2018	3.16	9/20/2022	9/20/2018	108.12271	106.8513186	105.6098072	104.3971309	103.2122934	102.0543433	100.9223725	99.81551341	98.73293649
180920A00062	9/20/2018	3.12	9/20/2023	9/20/2018	115.22977	112.8230486	110.4796089	108.1973209	105.9741408	103.808111	101.6973549	99.64007333	97.63454042
180920A00063	9/20/2018	3	9/20/2021	9/20/2018	100.98505	100.8388506	100.6930862	100.5477569	100.4028608	100.2583959	100.1143602	99.97075185	99.82756885
180917A00078	9/17/2018	3.05	9/15/2023	9/17/2018	114.9766	112.5881328	110.2621824	107.9966539	105.7895398	103.6389158	101.5429373	99.49983492	97.50791114
180918A00011	9/18/2018	3.17	9/18/2023	9/18/2018	114.95798	112.5673227	110.2392997	107.9718042	105.7628219	103.6104222	101.5127548	99.46804477	97.47458943
180918A00012	9/18/2018	3.06	9/17/2021	9/18/2018	100.92247	100.7849375	100.6477921	100.5110344	100.3746628	100.2386756	100.1030712	99.96784786	99.83300404
180918A00013	9/18/2018	3.11	9/16/2022	9/18/2018	107.98544	106.7277083	105.4992545	104.2990633	103.126167	101.9796415	100.8586043	99.7622117	98.68965701
180918A00038	9/18/2018	3.11	9/16/2022	9/18/2018	107.98544	106.7277083	105.4992545	104.2990633	103.126167	101.9796415	100.8586043	99.7622117	98.68965701
180918A00041	9/18/2018	3.18	9/18/2024	9/18/2018	122.32647	118.6492105	115.1034685	111.6837331	108.3847578	105.2015503	102.1293581	99.16365489	96.30012879
180911A00080	9/11/2018	2.94	9/9/2022	9/11/2018	107.80001	106.5634941	105.3553085	104.1744842	103.0200991	101.8912722	100.7871613	99.70696064	98.64989941

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180912A00011	9/12/2018	3.41	9/11/2026	9/12/2018	135.88241	129.4523682	123.3699103	117.6143113	112.166199	107.0074565	102.1211334	97.49136395	93.10329207
180913A00029	9/13/2018	3.11	9/13/2023	9/13/2018	114.72955	112.3567714	110.0458731	107.7947851	105.601528	103.4642047	101.380996	99.35015653	97.37001134
180914A00008	9/14/2018	3.15	9/14/2023	9/14/2018	114.83792	112.4608576	110.1458391	107.8907885	105.6937189	103.5527263	101.4659847	99.43174257	97.44831902
180914A00013	9/14/2018	3.48	9/14/2028	9/14/2018	149.1804	139.6372948	130.7820398	122.5611893	114.9257266	107.8306774	101.2347556	95.10004202	89.39169274
180914A00028	9/14/2018	3.37	9/12/2025	9/14/2018	129.11319	124.1146278	119.3404505	114.7793067	110.4204853	106.2538775	102.2699384	98.45965243	94.81450074
180904A00014	9/4/2018	3.37	9/1/2028	9/4/2018	148.07064	138.6165302	129.8416143	121.6933121	114.1233871	107.0875646	100.5451861	94.45889591	88.79435601
180905A00015	9/5/2018	2.85	9/1/2022	9/5/2018	107.54325	106.3339204	105.1517303	103.9957748	102.8651879	101.7591413	100.6768424	99.61753247	98.58048474
180906A00013	9/6/2018	2.81	9/7/2021	9/6/2018	100.71765	100.6083312	100.4992663	100.3904504	100.2818825	100.1735616	100.065487	99.9576578	99.85007305
180906A00020	9/6/2018	2.81	9/7/2021	9/6/2018	100.71765	100.6083312	100.4992663	100.3904504	100.2818825	100.1735616	100.065487	99.9576578	99.85007305
180910A00033	9/10/2018	3.43	9/8/2028	9/10/2018	148.6732	139.1710346	130.3527222	122.16522	114.5598719	107.4920269	100.9206888	94.80819891	89.11994692
180911A00012	9/11/2018	3.06	9/9/2022	9/11/2018	107.7913	106.5571551	105.35124	104.1725975	103.0203096	101.8934992	100.7913275	99.71299245	98.65772642
180827A00032	8/27/2018	2.96	8/29/2022	8/27/2018	107.4663	106.2692309	105.0987784	103.9540659	102.8342514	101.738529	100.6661276	99.61630822	98.58836324
180827A00034	8/27/2018	2.99	8/28/2023	8/27/2018	114.16848	111.8507713	109.5926133	107.3920527	105.2472192	103.1563181	101.1176267	99.12949058	97.19032064
180827A00060	8/27/2018	2.9	8/27/2021	8/27/2018	100.51486	100.4366649	100.3585942	100.2806494	100.2028302	100.1251362	100.0475672	99.97012287	99.89280299
180831A00018	8/31/2018	2.95	8/31/2022	8/31/2018	107.49323	106.2896377	105.1129493	103.9622702	102.8367452	101.7355561	100.65792	99.60308713	98.57033929
180904A00004	9/4/2018	2.89	9/5/2023	9/4/2018	114.43223	112.0806017	109.7899623	107.5582919	105.3836539	103.2641909	101.1981211	99.18373461	97.21938978
180904A00012	9/4/2018	3.35	9/4/2030	9/4/2018	162.47412	149.4693521	137.6289354	126.8418366	117.0081812	108.0380738	99.85055227	92.37265711	85.53860144
180823A00033	8/23/2018	2.85	8/23/2023	8/23/2018	114.10479	111.7964389	109.5472552	107.3553107	105.2187536	103.1358067	101.1047635	99.12398528	97.19189738
180823A00035	8/23/2018	3.05	8/22/2025	8/23/2018	128.03043	123.1049105	118.3987342	113.9009024	109.6010358	105.4893321	101.5565299	97.79387603	94.1930942
180823A00053	8/23/2018	3.2	8/23/2028	8/23/2018	148.02934	138.5503303	129.752505	121.5831518	113.9939061	106.9403729	100.3817809	94.28066878	88.60259987
180823A00055	8/23/2018	3.44	8/23/2033	8/23/2018	182.46719	163.7990557	147.2674571	132.6141792	119.6135493	108.0681786	97.80528363	88.67350308	80.54014073
180824A00023	8/24/2018	2.79	8/24/2021	8/24/2018	100.45832	100.3884574	100.3187022	100.2490544	100.1795137	100.1100798	100.0407526	99.97153174	99.90241701
180827A00020	8/27/2018	3.21	8/27/2025	8/27/2018	128.1136	123.1898745	118.485447	113.9893206	109.6911123	105.5810166	101.6497697	97.88861634	94.28927919
180816A00043	8/16/2018	2.83	8/16/2022	8/16/2018	107.21453	106.0579755	104.9263369	103.818814	102.7346418	101.673087	100.6334471	99.61504811	98.6172437
180817A00013	8/17/2018	2.94	2/15/2022	8/17/2018	103.74365	103.1631167	102.5890774	102.0214272	101.4600596	100.9048706	100.3557585	99.81262382	99.27536914
180817A00022	8/17/2018	2.87	8/17/2023	8/17/2018	114.03768	111.7482678	109.5172326	107.3426842	105.2228076	103.1558605	101.1401692	99.17412579	97.25618493
180820A00055	8/20/2018	3.37	8/21/2028	8/20/2018	147.88444	138.4775675	129.7441288	121.6321708	114.0940157	107.0858873	100.5675727	94.50211407	88.85552919
180821A00002	8/22/2018	2.89	8/23/2021	8/22/2018	100.44059	100.3735888	100.306688	100.2398877	100.1731876	100.1065875	100.0400871	99.97368636	99.90738492
180821A00011	8/21/2018	2.98	8/21/2023	8/21/2018	114.01834	111.7234398	109.4871489	107.3075619	105.1828517	103.1112649	101.0911173	99.12079111	97.19873162
180814A00033	8/14/2018	3.25	8/13/2027	8/14/2018	141.92767	134.0633312	126.6915341	119.7787357	113.293855	107.2080771	101.4946764	96.12885417	91.08758974
180815A00009	8/15/2018	2.93	8/16/2021	8/15/2018	100.31392	100.266485	100.2191156	100.1718082	100.1245626	100.0773786	100.0302562	99.98319527	99.93619563
180815A00011	8/15/2018	2.97	8/15/2022	8/15/2018	107.2091	106.0578585	104.9313131	103.8286781	102.7491977	101.6921477	100.6568338	99.64259033	98.64877829
180815A00021	8/15/2018	3.01	8/15/2023	8/15/2018	113.9731	111.6968205	109.4783642	107.3158705	105.2075489	103.1516801	101.1466124	99.19075829	97.28259199

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180816A00024	8/16/2018	3.01	8/16/2023	8/16/2018	113.9915	111.7119968	109.4904515	107.3249943	105.2138286	103.1552294	101.1475394	99.18916619	97.27857901
180816A00038	8/16/2018	3.38	8/16/2028	8/16/2018	147.87972	138.4913618	129.7739924	121.6759276	114.1497316	107.1518448	100.6422472	94.5841532	88.94373419
180809A00029	8/9/2018	2.99	9/9/2021	8/9/2018	100.76472	100.6498336	100.5352271	100.420895	100.3068361	100.1930496	100.0795345	99.9662896	99.85331407
180813A00013	8/13/2018	2.99	12/5/2022	8/13/2018	109.17902	107.7237933	106.2952533	104.8927263	103.5155609	102.1631269	100.8348144	99.53003318	98.24821153
180813A00016	8/13/2018	2.92	8/13/2021	8/13/2018	100.25811	100.2190565	100.180054	100.1410992	100.102192	100.0633324	100.0245203	99.98575556	99.94703812
180813A00026	8/13/2018	2.87	8/11/2023	8/13/2018	113.92697	111.6569665	109.4445417	107.2878476	105.1851062	103.1346097	101.1347172	99.18385179	97.28049708
180813A00059	8/13/2018	3.01	8/11/2023	8/13/2018	113.89952	111.6361197	109.4300165	107.2793755	105.1824306	103.1374854	101.1429097	99.19713668	97.29865961
180814A00032	8/14/2018	3.1	8/14/2025	8/14/2018	128.11058	123.2100402	118.5267623	114.0499068	109.7692358	105.6750775	101.7582911	98.01023494	94.42273619
180731A00004	7/31/2018	2.97	7/31/2023	7/31/2018	113.93536	111.6986082	109.5180476	107.3918924	105.3184299	103.2960135	101.3230605	99.39804844	97.51951269
180801A00012	8/1/2018	3.03	8/16/2021	8/1/2018	100.31865	100.2712182	100.2238448	100.1765333	100.1292836	100.0820956	100.0349692	99.98790417	99.94090049
180801A00014	8/1/2018	3.03	8/2/2021	8/1/2018	100.05621	100.0478502	100.0394973	100.0311521	100.0228146	100.0144848	100.0061626	99.99784797	99.98954101
180801A00015	8/1/2018	3.16	8/1/2023	8/1/2018	114.03248	111.7978377	109.6192607	107.494974	105.4232698	103.4025063	101.4311049	99.50754763	97.63037364
180802A00006	8/2/2018	2.99	8/2/2023	8/2/2018	114.01521	111.7715311	109.5843153	107.4517621	105.3721461	103.3438094	101.3651583	99.43466003	97.55084018
180808A00009	8/8/2018	3.12	8/7/2023	8/8/2018	114.06029	111.8072141	109.6109726	107.469746	105.3817909	103.3454322	101.35906	99.42112625	97.53014219
180727A00037	7/27/2018	3.13	7/27/2023	7/27/2018	113.87332	111.6560162	109.4940234	107.385603	105.3290808	103.3228467	101.3653524	99.45510811	97.59068017
180727A00039	7/27/2018	3.48	7/27/2028	7/27/2018	148.33122	139.0004791	130.3317091	122.2742722	114.7816641	107.8111535	101.3234581	95.2824488	89.65488152
180730A00004	7/30/2018	3.14	7/28/2023	7/30/2018	113.91376	111.6928255	109.5273685	107.4156408	105.355961	103.3467123	101.3863398	99.4733476	97.60629618
180730A00023	7/30/2018	3.13	7/30/2024	7/30/2018	121.23078	117.7316644	114.3535928	111.091679	107.9412638	104.8979034	101.9573579	99.11558066	96.36870829
180730A00041	7/30/2018	3.14	7/31/2023	7/30/2018	113.97146	111.7404951	109.5654555	107.4445741	105.3761491	103.3585447	101.3901881	99.46956612	97.59522313
180730A00081	7/30/2018	3.5	7/28/2028	7/30/2018	148.50751	139.1665116	130.4883468	122.4223005	114.9217951	107.9440333	101.4496733	95.40253233	89.76931759
180719A00064	7/19/2018	3.3	7/21/2025	7/19/2018	127.84857	123.054622	118.4697311	114.0836382	109.8866456	105.8695819	102.0237705	98.34099998	94.81349685
180720A00006	7/20/2018	3.03	7/17/2023	7/20/2018	113.47228	111.2911639	109.1637307	107.0883125	105.0633061	103.0871689	101.1584166	99.27562002	97.4374033
180720A00008	7/20/2018	3	7/20/2022	7/20/2018	106.75098	105.6840752	104.6384786	103.6135529	102.6086893	101.6233026	100.6568303	99.70873125	98.77848486
180720A00068	7/20/2018	2.89	7/20/2023	7/20/2018	113.55581	111.3582287	109.2150616	107.1246127	105.0852471	103.095392	101.1535345	99.25821864	97.40804268
180724A00025	7/24/2018	2.93	7/25/2022	7/24/2018	106.89536	105.8102022	104.7470464	103.7052256	102.6841022	101.6830636	100.7015216	99.73891031	98.79468595
180727A00028	7/27/2018	3.25	7/27/2026	7/27/2018	135.15334	128.8708286	122.9219966	117.2873101	111.9484851	106.8883985	102.0910081	97.54127831	93.22511217
180716A00056	7/16/2018	3.1	7/16/2025	7/16/2018	127.58763	122.7973121	118.2157284	113.8326461	109.6383944	105.6238268	101.7802891	98.09959091	94.57397755
180717A00047	7/17/2018	3.3	9/17/2025	7/17/2018	128.88773	123.8772865	119.0924566	114.5217883	110.1544817	105.9803454	101.989759	98.1736373	94.52339711
180717A00076	7/17/2018	3.03	7/17/2023	7/17/2018	113.47228	111.2911639	109.1637307	107.0883125	105.0633061	103.0871689	101.1584166	99.27562002	97.4374033
180718A00026	7/18/2018	3.03	7/18/2023	7/18/2018	113.49141	111.3068971	109.1762289	107.0977262	105.0697788	103.0908377	101.1594122	99.27406745	97.43342182
180719A00060	7/19/2018	3.05	7/19/2022	7/19/2018	106.78177	105.717836	104.6750837	103.6528869	102.650642	101.6677686	100.7037087	99.75792545	98.82990248
180719A00063	7/19/2018	3.21	7/19/2024	7/19/2018	120.77468	117.331565	114.0061456	110.7937329	107.6898489	104.6902198	101.7907653	98.98758899	96.27696837
180705A00062	7/5/2018	3.04	7/6/2023	7/5/2018	113.28231	111.1382667	109.04619	107.0044892	105.0116359	103.0661587	101.1666407	99.31171677	97.50007186

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180706A00013	7/6/2018	3.01	7/6/2023	7/6/2018	113.22126	111.0778578	108.9864027	106.9453111	104.9530551	103.0081636	101.1092198	99.25485933	97.44376715
180713A00013	7/13/2018	2.88	7/13/2023	7/13/2018	113.40086	111.2273429	109.1071269	107.0385669	105.0200764	103.0501292	101.1272561	99.25004269	97.4171269
180713A00035	7/13/2018	3.02	7/13/2022	7/13/2018	106.62478	105.5806462	104.5569461	103.5530827	102.5684832	101.6025967	100.6548929	99.72486174	98.81201174
180716A00016	7/16/2018	3.03	7/14/2023	7/16/2018	113.41491	111.2439672	109.1262371	107.0600717	105.0438883	103.076164	101.1554329	99.28028372	97.44935719
180716A00054	7/16/2018	3.59	7/16/2040	7/16/2018	226.52265	192.6742986	164.5274084	141.0747302	121.4926583	105.106885	91.36462312	79.81211622	70.0764085
180629A00071	6/29/2018	3.02	6/29/2023	6/29/2018	113.10833	110.9882746	108.9191042	106.8992774	104.9273122	103.0017812	101.1213093	99.28457151	97.49029032
180702A00012	7/2/2018	3.01	7/3/2023	7/2/2018	113.1641	111.0308523	108.9490859	106.917239	104.9338035	102.9973276	101.1064128	99.25971159	97.4559256
180702A00034	7/2/2018	2.86	7/3/2023	7/2/2018	113.16873	111.0296475	108.9422924	106.9050894	104.9165207	102.9751247	101.079494	99.22827276	97.42015432
180705A00003	7/5/2018	3.04	7/5/2023	7/5/2018	113.26316	111.1225101	109.033665	106.9950476	105.0051362	103.0624656	101.1656251	99.31325542	97.50404684
180705A00060	7/5/2018	3	7/6/2022	7/5/2018	106.48007	105.458466	104.4564455	103.4734458	102.5089289	101.562377	100.6332912	99.72119129	98.82561432
180705A00061	7/5/2018	3	7/6/2022	7/5/2018	106.48007	105.458466	104.4564455	103.4734458	102.5089289	101.562377	100.6332912	99.72119129	98.82561432
180622A00005	6/22/2018	3.5	7/2/2029	6/22/2018	154.48697	143.6209675	133.6140624	124.3935022	115.8930615	108.0524227	100.8166208	94.13554292	87.96347689
180622A00018	6/22/2018	2.92	6/22/2023	6/22/2018	113.08096	110.9769858	108.9231456	106.917936	104.9599069	103.0476614	101.1798531	99.35518442	97.5724041
180625A00041	6/25/2018	3.06	6/20/2023	6/25/2018	113.01873	110.9271541	108.8851949	106.891366	104.9442388	103.0424368	101.1846331	99.36954858	97.59594947
180627A00026	6/27/2018	2.87	6/27/2023	6/27/2018	113.07522	110.9559253	108.887465	106.8683022	104.8969571	102.9720045	101.0920716	99.25583521	97.46202004
180627A00030	6/27/2018	3.02	6/27/2023	6/27/2018	113.07075	110.9572074	108.8942613	106.8803845	104.9141071	102.9940131	101.1187385	99.28696838	97.49743529
180627A00057	6/27/2018	2.98	6/27/2022	6/27/2018	106.2871	105.2945852	104.3205826	103.3645744	102.4260655	101.5045784	100.5996532	99.71084624	98.83772961
180619A00023	6/19/2018	3.04	6/19/2023	6/19/2018	112.96014	110.8722259	108.8337741	106.8433091	104.8994085	103.0007016	101.1458671	99.3336311	97.56276499
180620A00017	6/20/2018	3.24	6/20/2028	6/20/2018	147.23642	138.0298618	129.4699061	121.5076443	114.0981132	107.1999551	100.7751109	94.78854149	89.20797349
180620A00038	6/20/2018	3.4	6/20/2028	6/20/2018	147.05331	137.9100631	129.4070126	121.4958535	114.1321673	107.2750893	100.8870073	94.93328658	89.38202054
180621A00017	6/21/2018	3.42	6/21/2028	6/21/2018	147.22638	138.0732271	129.5610903	121.641589	114.2702368	107.4061077	101.0115339	95.05183071	89.49504601
180622A00003	6/22/2018	2.87	6/22/2022	6/22/2018	106.19621	105.2181175	104.2580198	103.3154233	102.3898527	101.4808493	100.5879711	99.7107915	98.84889903
180622A00004	6/22/2018	3.47	12/22/2028	6/22/2018	150.83478	140.8544577	131.6171107	123.0633262	115.1387415	107.7935874	100.9822777	94.6630378	88.79756811
180604A00048	6/4/2018	3.01	6/5/2023	6/4/2018	112.63817	110.5963258	108.6019673	106.6537027	104.7501916	102.890141	101.0723039	99.29547673	97.55849805
180604A00050	6/4/2018	3.15	6/4/2024	6/4/2018	119.75305	116.4728197	113.300338	110.231482	107.2623106	104.3890546	101.6081081	98.91602057	96.30948919
180615A00066	6/15/2018	3	6/14/2024	6/15/2018	119.95553	116.6290358	113.413008	110.3031731	107.2954478	104.3859292	101.5708853	98.846747	96.21009979
180618A00025	6/18/2018	3.01	4/13/2022	6/18/2018	104.87253	104.1168172	103.3719958	102.6378291	101.9140893	101.2005551	100.4970116	99.8032497	99.11906626
180619A00020	6/19/2018	3.1	6/19/2025	6/19/2018	127.09638	122.409606	117.9234024	113.6281204	109.514628	105.5742783	101.7988815	98.18067798	94.71231338
180619A00021	6/19/2018	3.24	6/19/2028	6/19/2018	147.2192	138.0170267	129.4609075	121.5019999	114.0953931	107.1997762	100.7771322	94.79245953	89.2135185
180530A00030	5/30/2018	3.68	5/30/2034	5/30/2018	187.77916	167.728458	150.0857956	134.5458653	120.8436542	108.7489366	98.06154521	88.60730758	80.23454806
180530A00039	5/30/2018	2.93	5/30/2023	5/30/2018	112.37177	110.3509033	108.3766614	106.4476885	104.5626791	102.7203738	100.9195571	99.15905577	97.43773709
180530A00072	5/30/2018	3.06	5/30/2024	5/30/2018	119.38905	116.1303301	112.97821	109.9286308	106.9777098	104.1217327	101.3571456	98.68054683	96.0886797
180601A00018	6/1/2018	2.87	6/1/2023	6/1/2018	112.58641	110.5519243	108.5645931	106.6230374	104.7259306	102.8719931	101.0599907	99.28873205	97.55706725

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7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180601A00023	6/1/2018	3.3	6/1/2028	6/1/2018	147.376	138.2359636	129.7331287	121.819649	114.4515039	107.5881775	101.1923627	95.22969166	89.66849075
180604A00047	6/4/2018	2.97	6/3/2022	6/4/2018	105.81501	104.8992425	103.9992998	103.1147787	102.2452853	101.3904389	100.5498716	99.72322776	98.91016335
180529A00056	5/29/2018	3	5/26/2023	5/29/2018	112.43057	110.4214117	108.4584592	106.5403513	104.6657778	102.8334761	101.0422291	99.29086342	97.57824711
180529A00063	5/29/2018	2.95	5/31/2022	5/29/2018	105.73999	104.8338585	103.9432334	103.0677148	102.2069208	101.3604824	100.5280427	99.70925652	98.90379011
180530A00006	5/30/2018	2.87	5/31/2022	5/30/2018	105.67102	104.7652256	103.8749242	102.9997255	102.1392476	101.2931216	100.4609907	99.64250972	98.83734501
180530A00024	5/30/2018	3.44	5/30/2029	5/30/2018	153.37107	142.6774147	132.8209544	123.7315105	115.3451323	107.6035156	100.4534773	93.84648181	87.73821309
180530A00027	5/30/2018	3.61	6/1/2032	5/30/2018	174.3499	158.2286225	143.7807467	130.8222264	119.1901896	108.7404013	99.34504383	90.89077285	83.27701091
180530A00028	5/30/2018	3.67	5/31/2033	5/30/2018	181.42433	163.3496528	147.2989442	133.0325266	120.3403342	109.0381148	98.96413743	89.97633526	81.94982302
180522A00039	5/22/2018	3.43	5/22/2028	5/22/2018	148.20647	139.0749091	130.5771768	122.6658024	115.2971133	108.430911	102.0301771	96.06080638	90.4913629
180524A00024	5/24/2018	3	3/21/2022	5/24/2018	104.4227	103.7382331	103.0627374	102.396035	101.7379549	101.0883306	100.4469997	99.81380396	99.18858914
180525A00001	5/25/2018	3.04	5/25/2023	5/25/2018	112.48798	110.4813354	108.5207962	106.6050038	104.7326464	102.9024606	101.1132287	99.36377686	97.65297323
180525A00005	5/25/2018	3.32	5/25/2028	5/25/2018	147.40799	138.2933384	129.8125203	121.9180232	114.566131	107.7166058	101.3323939	95.37935862	89.82603621
180529A00042	5/29/2018	3.42	5/30/2028	5/29/2018	146.84943	137.7915324	129.3629449	121.5165495	114.2089899	107.400352	101.0538736	95.13568103	89.61454825
180529A00044	5/29/2018	3.11	5/29/2024	5/29/2018	119.52208	116.2646034	113.1135973	110.0650084	107.1149561	104.2597284	101.4957742	98.81969466	96.22823641
180511A00035	5/11/2018	2.93	5/11/2023	5/11/2018	112.29875	110.3318229	108.4096954	106.5309738	104.6943227	102.8984606	101.1421572	99.42423098	97.74354673
180516A00019	5/16/2018	3.19	5/16/2023	5/16/2018	112.61906	110.6384282	108.7029928	106.811373	104.9622454	103.1543386	101.3864301	99.6573441	97.96594954
180518A00014	5/18/2018	3.17	5/18/2023	5/18/2018	112.62041	110.6336169	108.6922278	106.794869	104.9402196	103.1270095	101.354017	99.62006684	97.92402743
180521A00005	5/21/2018	3.02	5/22/2023	5/21/2018	112.68177	110.6771832	108.7186357	106.8047482	104.9341964	103.1057053	101.3180475	99.57004102	97.86054688
180522A00018	5/22/2018	3.1	5/23/2022	5/22/2018	105.71252	104.8311133	103.964389	103.1119866	102.2735531	101.4487469	100.6372377	99.83870553	99.0528408
180522A00019	5/22/2018	3.16	5/22/2023	5/22/2018	112.67945	110.6797798	108.7259459	106.816584	104.9503774	103.1260588	101.3424079	99.59824942	97.89245075
180425A00019	4/25/2018	3.02	10/25/2021	4/25/2018	101.63365	101.3874462	101.1424378	100.8986171	100.6559754	100.4145042	100.1741951	99.93503962	99.69702952
180425A00020	4/25/2018	3.11	10/25/2022	4/25/2018	108.74749	107.3592382	106.0063932	104.6876104	103.4016149	102.1471946	100.9231968	99.72852419	98.56213158
180426A00011	4/26/2018	2.94	4/26/2023	4/26/2018	112.02958	110.1111962	108.2359295	106.4023968	104.6092717	102.8552851	101.1392213	99.45991595	97.81625265
180426A00053	4/26/2018	2.94	4/26/2023	4/26/2018	112.02958	110.1111962	108.2359295	106.4023968	104.6092717	102.8552851	101.1392213	99.45991595	97.81625265
180427A00010	4/27/2018	2.95	4/27/2023	4/27/2018	112.06687	110.1451147	108.2666042	106.4299494	104.6338181	102.8769357	101.1580818	99.47608705	97.82983069
180507A00005	5/7/2018	3.06	5/5/2023	5/7/2018	112.16326	110.2208144	108.3223302	106.4664127	104.6517272	102.8769951	101.1409907	99.44253811	97.78050942
180403A00006	4/3/2018	3.07	4/3/2028	4/3/2018	144.60292	135.7814083	127.5637893	119.9053753	112.7650218	106.1048295	99.88987092	94.08794177	88.66933419
180403A00041	4/3/2018	2.91	4/3/2025	4/3/2018	124.94449	120.5593438	116.3536646	112.3190333	108.447483	104.7314696	101.1638461	97.73783881	94.44702572
180410A00016	4/10/2018	2.89	4/11/2022	4/10/2018	104.74765	103.9985141	103.2600867	102.5321408	101.8144541	101.1068106	100.4090003	99.72081911	99.04206845
180411A00014	4/11/2018	2.88	6/27/2022	4/11/2018	106.19313	105.2011041	104.2275789	103.2720419	102.333998	101.4129702	100.5084984	99.62013918	98.74746474
180412A00034	4/12/2018	3.23	4/15/2030	4/12/2018	158.74404	146.4816212	135.2773044	125.0336768	115.6628022	107.0852486	99.22922295	92.02979824	85.42822271
180425A00008	4/25/2018	2.89	4/25/2022	4/25/2018	105.09295	104.2988148	103.5166633	102.7462301	101.9872531	101.2394782	100.5026586	99.77655469	99.0609339
180313A00026	3/13/2018	3.34	3/13/2028	3/13/2018	144.91004	136.2095815	128.0979487	120.5320209	113.4720625	106.8814391	100.7263598	94.97564098	89.6004924

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180320A00007	3/20/2018	2.92	3/21/2022	3/20/2018	104.36998	103.6857137	103.0104131	102.3439041	101.6860156	101.0365812	100.3954384	99.76242907	99.13739901
180327A00024	3/27/2018	2.79	5/26/2023	3/27/2018	112.31928	110.3059086	108.3389364	106.4169924	104.5387585	102.7029646	100.9083865	99.153844	97.43819883
180328A00010	3/28/2018	3.1	3/28/2025	3/28/2018	124.96122	120.612546	116.4407373	112.4375476	108.5951715	104.9062146	101.3636694	97.96089187	94.69158063
180402A00005	4/2/2018	2.94	4/3/2023	4/2/2018	111.34608	109.5077082	107.7094378	105.9500253	104.2282777	102.5430512	100.8932486	99.2778168	97.69574457
180403A00005	4/3/2018	2.72	4/3/2023	4/3/2018	111.20615	109.3647128	107.5635189	105.8013192	104.0769147	102.3891557	100.7369394	99.11920768	97.5349445
180222A00027	2/22/2018	3.24	2/22/2028	2/22/2018	145.17849	136.4918572	128.3903941	120.8314615	113.7757491	107.1869978	101.0317478	95.27910775	89.90054507
180226A00040	2/26/2018	2.79	2/28/2022	2/26/2018	103.89401	103.2744311	102.6622194	102.0572472	101.4593868	100.8685134	100.2845052	99.70724324	99.13661116
180306A00005	3/6/2018	2.65	3/4/2022	3/6/2018	103.94666	103.3140896	102.6892109	102.0718808	101.4619632	100.8593251	100.2638367	99.67537124	99.09380501
180306A00010	3/6/2018	2.8	2/15/2022	3/6/2018	103.66494	103.0846578	102.5108731	101.9434754	101.3823583	100.8274178	100.2785523	99.73566226	99.19865031
180308A00011	3/8/2018	2.9	9/15/2022	3/8/2018	107.72006	106.4672006	105.2434469	104.04779	102.8792702	101.7369708	100.620016	99.52756871	98.45882846
180308A00015	3/8/2018	2.82	12/15/2021	3/8/2018	102.52462	102.129714	101.7378555	101.3490111	100.9631462	100.5802263	100.2002178	99.82308744	99.44880256
180205A00050	2/5/2018	2.81	2/6/2023	2/5/2018	110.07958	108.4252832	106.804818	105.2172263	103.661587	102.137013	100.6426495	99.17767243	97.74128739
180207A00003	2/7/2018	3.28	2/7/2028	2/7/2018	143.87285	135.3382168	127.3743168	119.9398612	112.9967569	106.5098465	100.4466672	94.77723048	89.47382146
180214A00004	2/14/2018	2.71	2/14/2023	2/14/2018	110.29309	108.60811	106.9579459	105.3415988	103.758106	102.2065408	100.6860112	99.19565778	97.73465273
180216A00004	2/16/2018	2.75	2/16/2023	2/16/2018	110.39574	108.7035956	107.0464909	105.4234159	103.8333984	102.2755028	100.7488286	99.25250852	97.78570713
180222A00023	2/22/2018	2.84	2/22/2022	2/22/2018	103.8121	103.2106145	102.6160924	102.0284128	101.447458	100.8731129	100.3052652	99.74380502	99.18862501
180222A00025	2/22/2018	3.48	2/22/2033	2/22/2018	179.89312	162.1730345	146.4068868	132.3668564	119.8528624	108.6890509	98.72074669	89.81180242	81.84229138
180130A00070	1/30/2018	3.14	1/29/2027	1/30/2018	136.71829	129.7673135	123.2173041	117.0429728	111.2207539	105.7286821	100.5462755	95.6544276	91.03530794
180130A00084	1/30/2018	2.59	1/30/2023	1/30/2018	109.82141	108.1875059	106.5868239	105.0184342	103.4814423	101.9749859	100.4982339	99.05038485	97.63066561
180201A00033	2/1/2018	2.53	2/1/2022	2/1/2018	103.31279	102.774553	102.241914	101.7147853	101.1930817	100.6767198	100.165618	99.6596961	99.15887574
180202A00012	2/2/2018	2.57	2/2/2022	2/2/2018	103.35187	102.8105444	102.2748815	101.744792	101.220189	100.7009878	100.1871051	99.67845963	99.17497154
180205A00018	2/5/2018	2.66	2/3/2023	2/5/2018	110.00632	108.3583287	106.7439853	105.1623453	103.612496	102.0935578	100.6046835	99.1450559	97.71388733
180205A00019	2/5/2018	2.88	2/5/2025	2/5/2018	123.80685	119.6380101	115.6338118	111.7868258	108.0900034	104.5366528	101.1204194	97.83526635	94.67545682
180123A00026	1/23/2018	2.57	1/14/2022	1/23/2018	102.96298	102.4793113	102.0001937	101.5255605	101.0553488	100.5894967	100.1279438	99.67063062	99.21749875
180124A00019	1/24/2018	2.41	1/24/2022	1/24/2018	103.10838	102.5943495	102.0854451	101.5815867	101.0826995	100.5887102	100.0995467	99.61513858	99.13541664
180124A00020	1/24/2018	2.53	1/24/2023	1/24/2018	109.62063	108.006465	106.4247768	104.8746703	103.3552793	101.8657685	100.4053328	98.97319507	97.56860567
180124A00038	1/24/2018	2.51	9/1/2021	1/24/2018	100.57107	100.4788493	100.3868046	100.2949307	100.2032272	100.1116935	100.0203291	99.9291337	99.83810674
180125A00022	1/25/2018	2.69	1/25/2023	1/25/2018	109.67119	108.0572087	106.4757002	104.9257692	103.4065497	101.9172067	100.4569349	99.02495757	97.62052485
180126A00029	1/26/2018	2.88	1/27/2025	1/26/2018	123.04723	118.9385473	114.9908942	111.1970694	107.5502313	104.0438816	100.6718465	97.42825787	94.30753702
180116A00014	1/16/2018	3.01	1/19/2027	1/16/2018	135.76125	128.8731154	122.3808059	116.2594664	110.4859267	105.038583	99.89728334	95.04322314	90.45884793
180116A00015	1/16/2018	3.06	1/18/2028	1/16/2018	141.93709	133.5413345	125.7037698	118.3842786	111.5458324	105.1542354	99.17789395	93.58760552	88.35636608
180116A00031	1/16/2018	2.58	1/17/2023	1/16/2018	109.3767	107.7888458	106.2325035	104.7068092	103.2109339	101.7440775	100.3054683	98.89436135	97.51003721
180116A00046	1/16/2018	2.58	1/11/2023	1/16/2018	109.25561	107.6869943	106.1491688	104.6412997	103.1625852	101.7122514	100.2895513	98.89376367	97.52419172

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180118A00004	1/18/2018	2.88	1/17/2025	1/18/2018	122.87655	118.8039814	114.8898332	111.1270736	107.5090213	104.0293277	100.6819584	97.46117562	94.36152199
180118A00010	1/18/2018	2.51	8/18/2021	1/18/2018	100.32863	100.2756286	100.222699	100.1698415	100.117056	100.0643424	100.0117004	99.95912993	99.90663089
180110A00027	1/10/2018	2.6	1/10/2023	1/10/2018	109.26839	107.7026773	106.1676353	104.6624413	103.1862977	101.7384347	100.3181092	98.92460382	97.55722528
180110A00028	1/10/2018	2.85	1/10/2025	1/10/2018	122.64539	118.6001033	114.7113597	110.9722514	107.3762104	103.9169936	100.5886648	97.38557841	94.30236298
180110A00029	1/10/2018	3.13	1/10/2028	1/10/2018	142.31814	133.9388808	126.1146389	118.805667	111.9752665	105.5895362	99.61714561	94.02912729	88.79868721
180111A00007	1/11/2018	2.66	1/14/2025	1/11/2018	122.59243	118.5197975	114.6056375	110.8429126	107.2249405	103.7453715	100.3981702	97.1775977	94.07819559
180111A00016	1/11/2018	2.57	1/11/2023	1/11/2018	109.24046	107.6719664	106.1342595	104.6265069	103.1479067	101.6976853	100.2750957	98.87941656	97.5099513
180116A00009	1/16/2018	2.49	1/14/2022	1/16/2018	102.92526	102.4416962	101.9626838	101.488155	101.018047	100.5522979	100.0908473	99.63363576	99.18060484
180103A00011	1/3/2018	2.35	1/3/2023	1/3/2018	108.97966	107.4338071	105.91791	104.4311665	102.9728062	101.542085	100.1382847	98.76071124	97.40869413
180103A00019	1/3/2018	2.51	1/3/2023	1/3/2018	109.02751	107.4844199	105.9711764	104.4869884	103.0310892	101.6027387	100.2012219	98.82584812	97.47594981
180103A00027	1/3/2018	2.51	1/3/2023	1/3/2018	109.02751	107.4844199	105.9711764	104.4869884	103.0310892	101.6027387	100.2012219	98.82584812	97.47594981
180104A00013	1/4/2018	2.39	1/4/2023	1/4/2018	109.05668	107.5072181	105.9878348	104.4977255	103.0361149	101.6022548	100.1954226	98.81492032	97.46007361
180104A00017	1/4/2018	2.77	1/3/2025	1/4/2018	122.23047	118.2157251	114.3555681	110.6432118	107.0722031	103.6364069	100.3299877	97.14739381	94.08334191
180109A00028	1/9/2018	2.6	1/9/2025	1/9/2018	122.28412	118.2336545	114.340238	110.5969256	106.997119	103.534547	100.2032471	96.99754899	93.91205816
171208A00006	12/8/2017	2.67	12/8/2026	12/8/2017	134.09401	127.3681231	121.0225663	115.033867	109.3801193	104.0408709	98.99701948	94.23071665	89.72527989
171212A00024	12/12/2017	2.29	12/12/2022	12/12/2017	108.50993	107.0350809	105.5876879	104.1670455	102.7724738	101.4033159	100.0589363	98.73872019	97.44207258
171213A00032	12/13/2017	2.17	12/13/2021	12/13/2017	102.27521	101.8862853	101.5003292	101.1173048	100.7371788	100.3599182	99.9854905	99.61386387	99.24500678
171220A00004	12/20/2017	2.52	12/20/2021	12/20/2017	102.49684	102.0874742	101.68138	101.2785204	100.8788569	100.4823515	100.0889667	99.69866575	99.31141242
180102A00021	1/2/2018	2.82	1/2/2026	1/2/2018	128.4865	123.1189778	118.0082685	113.1407294	108.5035152	104.0845259	99.87236024	95.85627108	92.02612476
180103A00007	1/3/2018	2.44	1/7/2022	1/3/2018	102.7791	102.3164799	101.8580262	101.4036813	100.9533898	100.5070977	100.0647518	99.62629976	99.19169028
171206A00038	12/6/2017	2.69	12/6/2027	12/6/2017	139.88189	131.6650383	123.9876017	116.811364	110.101004	103.8238625	97.94972832	92.45064354	87.30072444
171206A00040	12/6/2017	2.23	12/6/2022	12/6/2017	108.32131	106.866313	105.4380953	104.0359817	102.6593164	101.307465	99.97981397	98.67576931	97.39475605
171206A00041	12/6/2017	2.44	12/6/2024	12/6/2017	121.12582	117.2103927	113.4429613	109.817155	106.3269094	102.9664526	99.7302891	96.61318509	93.61015463
171206A00048	12/6/2017	3.04	12/6/2032	12/6/2017	172.54058	155.5951607	140.4971784	127.0341858	115.0192158	104.2876075	94.69424357	86.11114147	78.42535201
171207A00019	12/7/2017	2.41	6/16/2022	12/7/2017	105.55707	104.6023317	103.6648325	102.7441039	101.8396987	100.9511853	100.0781475	99.22018324	98.37690455
171207A00036	12/7/2017	2.23	12/7/2022	12/7/2017	108.33846	106.8802629	105.4489566	104.0438597	102.6643125	101.3096772	99.97933639	98.67269278	97.38916813
171129A00010	11/29/2017	2.32	11/29/2021	11/29/2017	102.05817	101.7107277	101.3656465	101.0228991	100.6824622	100.3443124	100.0084268	99.67478273	99.34335796
171129A00020	11/29/2017	2.89	11/30/2026	11/29/2017	134.22756	127.562152	121.270998	115.3311528	109.721189	104.4210917	99.41215905	94.67690924	90.1989952
171204A00020	12/4/2017	2.48	12/5/2022	12/4/2017	108.46165	107.011777	105.588498	104.1911388	102.8190506	101.4716058	100.1481969	98.84823611	97.57115406
171205A00013	12/5/2017	2.4	12/6/2021	12/5/2017	102.2065	101.8384559	101.4730663	101.1102994	100.750127	100.3925213	100.0374549	99.68490072	99.33483223
171205A00014	12/5/2017	2.49	12/5/2022	12/5/2017	108.47571	107.0257381	105.602356	104.2048954	102.8327077	101.485165	100.16166	98.86160468	97.5844297
171206A00008	12/6/2017	2.36	12/6/2021	12/6/2017	102.19204	101.8240358	101.4586785	101.0959438	100.7358033	100.3782295	100.0231947	99.67067204	99.32063487
171101A00021	11/1/2017	2.51	11/1/2023	11/1/2017	114.21691	111.6970534	109.2462517	106.8620757	104.5422026	102.2844119	100.0865803	97.94667566	95.86275282

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171101A00022	11/1/2017	2.65	11/1/2024	11/1/2017	120.74468	116.9623312	113.319663	109.8106274	106.4294813	103.17077	100.0293101	97.00017366	94.07867392
171115A00028	11/15/2017	2.25	8/18/2021	11/15/2017	100.31486	100.2618744	100.2089566	100.1561109	100.1033372	100.0506354	99.99800513	99.94544644	99.89295912
171116A00021	11/16/2017	2.16	11/16/2022	11/16/2017	107.96452	106.545119	105.1563962	103.7973583	102.4670592	101.1645933	99.88909315	98.63972787	97.41570085
171120A00017	11/20/2017	2.41	11/21/2022	11/20/2017	108.18789	106.7644711	105.3700147	104.0036589	102.6645724	101.3519569	100.0650456	98.80310145	97.56541592
171127A00016	11/27/2017	2.28	11/27/2023	11/27/2017	114.45701	111.8476452	109.3112283	106.8452989	104.4474946	102.115547	99.8472769	97.64059092	95.49347699
171030A00021	10/30/2017	2.29	11/30/2022	10/30/2017	108.10992	106.6779606	105.2720168	103.8914369	102.5355926	101.2038753	99.89569622	98.61048497	97.34768916
171030A00022	10/30/2017	2.28	10/31/2022	10/30/2017	107.77607	106.3774046	105.0145035	103.6860069	102.390623	101.1271238	99.8943415	98.69116464	97.51653495
171030A00094	10/30/2017	2.13	11/1/2021	10/30/2017	101.53196	101.2659624	101.0013561	100.7381298	100.4762729	100.2157747	99.95662464	99.69881231	99.44232738
171031A00007	10/31/2017	2.15	12/27/2021	10/31/2017	102.4648	102.0351766	101.609145	101.1866635	100.767688	100.3521749	99.94008148	99.53136573	99.12598626
171031A00012	10/31/2017	2.28	10/31/2022	10/31/2017	107.77607	106.3774046	105.0145035	103.6860069	102.390623	101.1271238	99.8943415	98.69116464	97.51653495
171031A00061	10/31/2017	2.28	10/31/2022	10/31/2017	107.77607	106.3774046	105.0145035	103.6860069	102.390623	101.1271238	99.8943415	98.69116464	97.51653495
171018A00011	10/18/2017	2.68	10/18/2027	10/18/2017	139.06297	131.0504803	123.5547913	116.5397286	109.9718456	103.8202042	98.05617282	92.65324151	87.58685331
171025A00026	10/25/2017	2.64	10/25/2024	10/25/2017	120.59296	116.8361054	113.2173339	109.7306839	106.3704952	103.131391	100.0082617	96.99624927	94.09073276
171025A00027	10/25/2017	2.36	10/25/2022	10/25/2017	107.7821	106.4005192	105.0542262	103.7418808	102.4622114	101.2140092	99.99612454	98.80746296	97.64698222
171026A00005	10/26/2017	2.16	10/26/2021	10/26/2017	101.44098	101.1922519	100.9447444	100.6984491	100.4533571	100.2094595	99.96674769	99.72521302	99.48484697
171026A00007	10/26/2017	2.47	10/26/2023	10/26/2017	114.02058	111.5218009	109.0911341	106.726187	104.4246711	102.184399	100.0032787	97.87930876	95.81057334
171026A00008	10/26/2017	2.6	10/25/2024	10/26/2017	120.45357	116.6990882	113.0826243	109.5982188	106.2402139	103.0032348	99.88217403	96.87217542	93.96862004
171010A00037	10/10/2017	2.09	10/12/2021	10/10/2017	101.19433	100.9857964	100.7781373	100.5713433	100.365409	100.160329	99.95609791	99.75271046	99.55016137
171010A00038	10/10/2017	2.23	10/11/2022	10/10/2017	107.37672	106.0429086	104.7421025	103.4730914	102.2347206	101.0258903	99.84555311	98.69271055	97.56641028
171012A00026	10/12/2017	2.09	10/12/2021	10/12/2017	101.19433	100.9857964	100.7781373	100.5713433	100.365409	100.160329	99.95609791	99.75271046	99.55016137
171013A00021	10/13/2017	2	10/17/2022	10/13/2017	107.34876	105.9932455	104.6717995	103.3831496	102.1260868	100.8994608	99.7021766	98.53319111	97.39151021
171016A00005	10/16/2017	2.2	10/17/2022	10/16/2017	107.4408	106.0872792	104.767727	103.4808749	102.225519	101.0005136	99.80476809	98.63724363	97.49694998
171016A00021	10/16/2017	2.2	10/17/2022	10/16/2017	107.4408	106.0872792	104.767727	103.4808749	102.225519	101.0005136	99.80476809	98.63724363	97.49694998
171003A00007	10/3/2017	2.22	10/3/2022	10/3/2017	107.22856	105.9214139	104.6459998	103.4011773	102.1858563	100.9989977	99.83961085	98.70675048	97.59951431
171003A00008	10/3/2017	2.88	10/4/2027	10/3/2017	138.99604	131.0835456	123.6769267	116.7410592	110.2434502	104.1540231	98.44492532	93.09035143	88.06638183
171005A00003	10/5/2017	2.02	10/5/2022	10/5/2017	107.1728	105.8570831	104.573515	103.3209285	102.0982127	100.9043092	99.73820908	98.59895012	97.48561395
171010A00004	10/10/2017	1.92	10/12/2021	10/10/2017	101.18022	100.9714794	100.7636175	100.5566242	100.3504941	100.1452216	99.94080141	99.73722811	99.53449636
171010A00005	10/10/2017	2.06	10/11/2022	10/10/2017	107.32331	105.9872795	104.6843652	103.4133434	102.1730543	100.9623937	99.7803097	98.62579972	97.4979076
171010A00024	10/10/2017	2.38	10/10/2023	10/10/2017	113.53993	111.0974301	108.720435	106.406688	104.1540275	101.9603851	99.82378074	97.74231814	95.71418027
170915A00005	9/15/2017	1.81	9/15/2021	9/15/2017	100.73409	100.6022542	100.4707839	100.3396737	100.2089218	100.0785268	99.94848722	99.81880155	99.68946829
170915A00031	9/15/2017	2.1	9/15/2023	9/15/2017	112.8385	110.4743997	108.1723043	105.9301332	103.7458935	101.6176753	99.5436479	97.52205512	95.55121208
170918A00108	9/18/2017	1.97	9/20/2022	9/18/2017	106.86249	105.5967654	104.3608902	103.1538148	101.9745417	100.8221189	99.69563764	98.5942295	97.5170646
170919A00073	9/19/2017	2.28	9/19/2024	9/19/2017	119.30185	115.6714399	112.1714077	108.7962737	105.5408252	102.4001023	99.36938368	96.44417366	93.62018942

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170928A00020	9/29/2017	2.29	9/29/2022	9/29/2017	107.24557	105.9511217	104.6877937	103.4544757	102.2501085	101.0736821	99.9242331	98.80084195	97.70263037
171002A00012	10/2/2017	2.08	10/1/2021	10/2/2017	101.01442	100.8373589	100.660917	100.4850901	100.309875	100.1352684	99.96126732	99.78786856	99.61506904
170912A00009	9/12/2017	2.11	12/15/2022	9/12/2017	108.10496	106.6271785	105.1770149	103.753757	102.3567189	100.9852376	99.63867168	98.31640085	97.01782483
170912A00031	9/12/2017	1.89	9/12/2022	9/12/2017	106.63694	105.3981336	104.1879792	103.0054881	101.8497202	100.7197775	99.61480196	98.53397306	97.47650599
170913A00025	9/13/2017	1.94	8/16/2021	9/13/2017	100.26702	100.219626	100.172297	100.1250298	100.0778243	100.0306805	99.98359816	99.93657722	99.88961755
170913A00027	9/13/2017	2.08	9/13/2022	9/13/2017	106.72693	105.4867038	104.2751913	103.0914001	101.934387	100.8032512	99.69713186	98.61520591	97.55668611
170914A00039	9/14/2017	2.23	9/16/2024	9/14/2017	119.08561	115.4683321	111.9807182	108.6173271	105.3729855	102.2427706	99.22199561	96.30619712	93.49112257
170915A00001	9/15/2017	2.43	9/16/2024	9/15/2017	119.23539	115.6283438	112.1502794	108.795802	105.5597757	102.4373125	99.42375832	96.51468036	93.70585484
170907A00002	9/7/2017	1.69	9/7/2021	9/7/2017	100.59583	100.4866457	100.3777072	100.2690173	100.1605752	100.0523799	99.9444306	99.83672639	99.72926642
170907A00050	9/7/2017	1.69	9/7/2021	9/7/2017	100.59583	100.4866457	100.3777072	100.2690173	100.1605752	100.0523799	99.9444306	99.83672639	99.72926642
170908A00016	9/10/2018	1.94	9/10/2021	9/10/2018	100.66041	100.5428353	100.4255455	100.3085434	100.1918279	100.075398	99.95925251	99.84339039	99.72781059
170911A00032	9/11/2017	1.85	9/12/2022	9/11/2017	106.59041	105.3519043	104.1420377	102.9598299	101.8043408	100.6746726	99.56996725	98.48940449	97.43219953
170911A00044	9/11/2017	1.73	9/13/2021	9/11/2017	100.69274	100.5665763	100.4407491	100.315253	100.1900868	100.0652489	99.94073822	99.81655329	99.69269282
170912A00008	9/12/2017	1.98	12/15/2021	9/12/2017	102.19978	101.8056483	101.4145596	101.0264807	100.6413769	100.2592138	99.87995785	99.50357586	99.13003513
170831A00051	8/31/2017	1.75	8/31/2021	8/31/2017	100.49404	100.4046191	100.3153565	100.2262534	100.1373095	100.0485243	99.9598973	99.87142819	99.78311651
170831A00052	8/31/2017	1.78	11/30/2021	8/31/2017	101.92096	101.5705703	101.2225833	100.8769718	100.5337117	100.1927791	99.85415043	99.51780242	99.18371218
170906A00005	9/6/2017	1.69	9/7/2021	9/6/2017	100.59583	100.4866457	100.3777072	100.2690173	100.1605752	100.0523799	99.9444306	99.83672639	99.72926642
170906A00020	9/6/2017	2.14	9/6/2023	9/6/2017	112.44588	110.1201826	107.854848	105.6478794	103.49736	101.4014513	99.35838976	97.36648276	95.42410522
170906A00036	9/6/2017	1.81	9/6/2022	9/6/2017	106.44735	105.2288253	104.0380566	102.8741052	101.7360732	100.6231027	99.53437284	98.46909867	97.4265286
170906A00037	9/6/2017	1.99	9/6/2022	9/6/2017	106.50838	105.2917537	104.1027963	102.9405759	101.8041985	100.6928095	99.60559175	98.5417634	97.5005759
170829A00023	8/29/2017	1.83	8/29/2022	8/29/2017	106.34102	105.1485643	103.9827083	102.8425719	101.7273118	100.6361213	99.56822808	98.52289273	97.4994067
170829A00025	8/29/2017	1.9	8/30/2021	8/29/2017	100.48369	100.3971649	100.3107879	100.2245573	100.1384728	100.052534	99.96674054	99.88109215	99.79558845
170831A00004	8/31/2017	2	8/31/2023	8/31/2017	112.37721	110.0638884	107.8103827	105.6147239	103.475022	101.3894643	99.35631133	97.37389297	95.44060542
170831A00006	8/31/2017	1.87	8/31/2022	8/31/2017	106.41854	105.2192733	104.0468947	102.9005095	101.7792611	100.6823304	99.60893321	98.55831905	97.52976883
170831A00021	8/31/2017	1.99	2/25/2022	8/31/2017	103.36601	102.7571273	102.1553948	101.5606889	100.9728872	100.3918699	99.81752021	99.2497239	98.68836933
170831A00029	8/31/2017	1.87	8/31/2022	8/31/2017	106.41854	105.2192733	104.0468947	102.9005095	101.7792611	100.6823304	99.60893321	98.55831905	97.52976883
170824A00038	8/24/2017	2.23	8/24/2023	8/24/2017	112.43747	110.1510153	107.9231891	105.7520828	103.6358617	101.5727651	99.56110251	97.59925007	95.68564761
170825A00025	8/25/2017	2.12	8/25/2022	8/25/2017	106.45733	105.2789846	104.1266199	102.9993847	101.8964641	100.8170779	99.7604792	98.72595218	97.71281084
170828A00030	8/28/2017	1.96	9/1/2021	8/28/2017	100.52048	100.4283079	100.3363094	100.2444816	100.152824	100.0613361	99.97001757	99.87886787	99.78788654
170828A00031	8/28/2017	2.07	8/1/2022	8/28/2017	106.00442	104.9042597	103.8268393	102.7714604	101.7374521	100.7241706	99.73099768	98.75733956	97.80262552
170829A00018	8/29/2017	1.9	8/30/2021	8/29/2017	100.48369	100.3971649	100.3107879	100.2245573	100.1384728	100.052534	99.96674054	99.88109215	99.79558845
170829A00022	8/29/2017	1.72	8/30/2021	8/29/2017	100.47598	100.3893826	100.3029326	100.2166301	100.1304746	100.0444659	99.95860344	99.87288702	99.78731623
170821A00038	8/23/2017	2.39	8/23/2024	8/23/2017	119.23564	115.6922112	112.2736471	108.9748063	105.7907946	102.7169492	99.74882609	96.88218839	94.11299522

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170822A00012	8/22/2017	2.11	8/22/2022	8/22/2017	106.39617	105.2276462	104.0846891	102.9664694	101.8721904	100.8010898	99.75243691	98.72553176	97.7197031
170822A00017	8/22/2017	2.11	8/22/2022	8/22/2017	106.39617	105.2276462	104.0846891	102.9664694	101.8721904	100.8010898	99.75243691	98.72553176	97.7197031
170822A00018	8/22/2017	2.25	8/22/2023	8/22/2017	112.44883	110.1682447	107.9460353	105.7803044	103.6692293	101.6110606	99.60411842	97.64678902	95.73752169
170824A00031	8/24/2017	1.98	8/24/2021	8/24/2017	100.39557	100.3258203	100.2561822	100.1866506	100.1172253	100.0479059	99.97869227	99.9095842	99.84058143
170824A00037	8/24/2017	1.98	8/24/2021	8/24/2017	100.39557	100.3258203	100.2561822	100.1866506	100.1172253	100.0479059	99.97869227	99.9095842	99.84058143
170809A00005	8/9/2017	2.61	8/11/2025	8/9/2017	125.19734	120.3881026	115.7919317	111.3982186	107.1969429	103.1786364	99.33434942	95.65561954	92.13444196
170815A00006	8/15/2017	2.5	8/15/2024	8/15/2017	118.95649	115.4549875	112.0759694	108.8144388	105.6656303	102.6250015	99.68822125	96.85115846	94.10987145
170818A00003	8/18/2017	2.23	8/20/2024	8/18/2017	118.66069	115.1360278	111.7353996	108.4537072	105.2860978	102.2279475	99.27484896	96.42259963	93.66719091
170818A00004	8/18/2017	1.95	8/18/2021	8/18/2017	100.29898	100.2460041	100.1931	100.140268	100.0875079	100.0348196	99.98220293	99.92965779	99.87718401
170818A00035	8/18/2017	1.77	8/18/2021	8/18/2017	100.29425	100.2412302	100.188283	100.1354084	100.0826064	100.0298767	99.97721923	99.92463384	99.87212036
170818A00037	8/18/2017	2.08	8/18/2022	8/18/2017	106.29675	105.1414149	104.0110992	102.9049989	101.8223419	100.762389	99.72443162	98.70779032	97.71181352
170802A00027	8/2/2017	2.16	8/2/2022	8/2/2017	106.11488	105.0109444	103.9298942	102.8710193	101.8336428	100.8171154	99.82081345	98.84413796	97.88651347
170803A00013	8/3/2017	2.14	8/3/2022	8/3/2017	106.11076	105.0037037	103.9196626	102.8579217	101.8177985	100.7986378	99.79981112	98.82071445	97.86076768
170803A00020	8/3/2017	2.84	8/3/2027	8/3/2017	137.78484	130.1298486	122.9531653	116.2223408	109.9072959	103.9801343	98.41497334	93.18778783	88.27626789
170803A00032	8/3/2017	2.12	8/3/2023	8/3/2017	112.18825	109.9612747	107.7904764	105.6740691	103.6103335	101.597617	99.63433143	97.71894923	95.85000121
170804A00020	8/4/2017	2.13	8/1/2022	8/4/2017	106.06685	104.9663387	103.8885703	102.8328483	101.7985018	100.7848869	99.79138511	98.81740264	97.86236868
170808A00036	8/8/2017	2.04	11/15/2021	8/8/2017	101.73531	101.4287654	101.1240784	100.8212318	100.520209	100.2209935	99.92356885	99.62791902	99.33402804
170728A00030	7/28/2017	2.18	7/27/2022	7/28/2017	106.03424	104.9495687	103.8870056	102.8458803	101.825549	100.8253938	99.84482087	98.88325948	97.94016094
170728A00031	7/28/2017	2.27	1/27/2023	7/28/2017	109.05083	107.4359147	105.8536196	104.3030376	102.7832962	101.2935541	99.8330002	98.40085203	96.99635452
170728A00033	7/28/2017	2.46	1/29/2024	7/28/2017	115.57072	112.7549311	110.0231278	107.3723041	104.7995773	102.3021858	99.87748377	97.52293512	95.23610826
170731A00004	7/31/2017	2.16	7/29/2022	7/31/2017	106.04754	104.9565506	103.8879161	102.8409578	101.8150217	100.8094796	99.82372849	98.85718856	97.90930261
170731A00012	7/31/2017	1.82	8/2/2021	7/31/2017	100.04685	100.0384922	100.0301402	100.0217961	100.0134596	100.0051309	99.99680995	99.98849667	99.98019109
170731A00028	7/31/2017	2.16	8/1/2022	7/31/2017	106.09807	104.9973782	103.9194358	102.8635423	101.8290267	100.815245	99.82157882	98.84743419	97.89224026
170706A00090	7/6/2017	2.48	7/6/2023	7/6/2017	112.14284	110.0106341	107.9301598	105.8998313	103.918127	101.9835819	100.0947851	98.25037787	96.44905061
170717A00033	7/17/2017	2.19	7/18/2022	7/17/2017	105.9021	104.846104	103.8110978	102.7964646	101.8016073	100.8259519	99.86894625	98.93005944	98.00878042
170720A00009	7/20/2017	2.14	7/20/2022	7/20/2017	105.88585	104.8236945	103.7827786	102.7624689	101.7621581	100.7812625	99.81922083	98.87549347	97.94956109
170724A00014	7/24/2017	2.14	7/25/2022	7/24/2017	105.95949	104.8814804	103.8253253	102.7903654	101.7759677	100.781524	99.80645007	98.85018425	97.91218638
170724A00016	7/24/2017	2.5	7/24/2024	7/24/2017	118.59876	115.1731088	111.865391	108.6708772	105.5850553	102.6036204	99.72246342	96.93766135	94.2454675
170728A00029	7/28/2017	2.1	1/27/2022	7/28/2017	102.95665	102.4348344	101.9182936	101.4069494	100.9007239	100.3995406	99.9033243	99.41200164	98.92550047
170630A00008	6/30/2017	2.35	7/1/2024	6/30/2017	118.23067	114.875754	111.6341552	108.5014217	105.4733003	102.5457286	99.71482521	96.97688088	94.3283496
170630A00009	6/30/2017	2.53	6/30/2025	6/30/2017	124.85867	120.1806838	115.7048704	111.4214235	107.3210639	103.3950093	99.63494554	96.03299863	92.58170921
170630A00010	6/30/2017	2.63	6/30/2026	6/30/2017	131.27522	125.1913216	119.4270951	113.9640687	108.784937	103.8734775	99.21447713	94.79366417	90.59764535
170630A00036	6/30/2017	2.01	6/30/2022	6/30/2017	105.53496	104.5354394	103.5547664	102.592416	101.6478787	100.7206638	99.81029841	98.91632672	98.0383092

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170706A00013	7/6/2017	2.27	7/6/2022	7/6/2017	105.77519	104.7573147	103.7589666	102.7795905	101.8186495	100.8756268	99.95002457	99.04136355	98.14918176
170706A00028	7/6/2017	2.09	7/6/2022	7/6/2017	105.71324	104.6940451	103.6944313	102.7138407	101.7517342	100.8075929	99.88091719	98.9712258	98.07805506
170622A00037	6/22/2017	3.27	6/22/2033	6/22/2017	176.12901	158.2856262	142.4594694	128.4099139	115.9262448	104.8238049	94.94065312	86.13466475	78.28101568
170622A00038	6/22/2017	3.32	6/22/2034	6/22/2017	182.58608	162.7806179	145.3755175	130.0643077	116.5812064	104.6955329	94.20691054	84.94114604	76.74668696
170623A00028	6/23/2017	2.79	6/23/2027	6/23/2017	136.81923	129.3438139	122.3273757	115.7393365	109.5513064	103.7369174	98.27167007	93.1327916	88.29910594
170628A00008	6/28/2017	2.04	9/15/2021	6/28/2017	100.751	100.6192903	100.4879369	100.3569416	100.2263028	100.0960191	99.96608904	99.83651106	99.70728375
170628A00056	6/28/2017	1.97	6/28/2022	6/28/2017	105.4635	104.4705451	103.4962097	102.5399753	101.6013412	100.6798252	99.7749624	98.88630475	98.01342004
170629A00073	6/29/2017	2.2	6/29/2023	6/29/2017	111.76155	109.649646	107.5885911	105.5768394	103.6129069	101.6953645	99.82283559	97.99399368	96.2075602
170612A00003	6/12/2017	1.97	6/13/2022	6/12/2017	105.21233	104.2670848	103.3387741	102.4269438	101.5311578	100.6509953	99.78605007	98.93592994	98.10025606
170613A00032	6/13/2017	2.45	6/13/2025	6/13/2017	124.24637	119.6377517	115.2262023	111.0022704	106.9570035	103.0819234	99.36899853	95.81061764	92.39956598
170613A00033	6/13/2017	2.3	6/13/2024	6/13/2017	117.78226	114.4920022	111.311169	108.2355266	105.2610299	102.3838123	99.60017673	96.90658716	94.29966069
170615A00034	6/15/2017	2.13	6/15/2022	6/15/2017	105.28596	104.3356659	103.4024818	102.4859457	101.5856149	100.7010623	99.83187575	98.97765721	98.13802241
170616A00019	6/16/2017	2.64	6/16/2027	6/16/2017	136.89246	129.3978471	122.3633092	115.7582133	109.554119	103.7246099	98.24514005	93.09289182	88.24664622
170622A00016	6/22/2017	2.11	6/22/2022	6/22/2017	105.38552	104.4131036	103.4585747	102.5214443	101.6012399	100.6975061	99.80980348	98.93770841	98.0808119
170606A00014	6/6/2017	1.9	6/6/2022	6/6/2017	105.03363	104.1109024	103.2043355	102.313503	101.4379981	100.5774276	99.73141187	98.89958402	98.08158936
170606A00017	6/6/2017	1.9	6/6/2022	6/6/2017	105.03363	104.1109024	103.2043355	102.313503	101.4379981	100.5774276	99.73141187	98.89958402	98.08158936
170608A00017	6/8/2017	1.95	6/8/2022	6/8/2017	105.11095	104.1816727	103.2687698	102.3718151	101.4903933	100.6241036	99.77255867	98.93538439	98.11221923
170609A00006	6/9/2017	1.89	12/9/2021	6/9/2017	102.10396	101.7270538	101.3529353	100.9815737	100.6129384	100.2469993	99.88372695	99.52309209	99.16506599
170609A00025	6/9/2017	2.13	6/9/2022	6/9/2017	105.1848	104.2535321	103.3387089	102.4398964	101.5566769	100.6886472	99.83541782	98.99661257	98.17186786
170609A00043	6/9/2017	3.07	6/9/2032	6/9/2017	170.07191	154.0206692	139.6524536	126.7808505	115.2410152	104.8870751	95.58985962	87.23491126	79.72074239
170530A00027	5/30/2017	1.97	5/31/2022	5/30/2017	104.99486	104.0908666	103.2023742	102.3289907	101.4703332	100.6260321	99.79572974	98.97908032	98.17574938
170530A00060	5/30/2017	2.12	3/25/2022	5/30/2017	103.90958	103.2150503	102.5297788	101.8535838	101.186286	100.5277104	99.87768708	99.23605016	98.60263813
170531A00005	5/31/2017	1.94	5/31/2022	5/31/2017	104.96899	104.0651158	103.1767451	102.3034817	101.444943	100.6007593	99.77057288	98.9540381	98.15082049
170531A00080	5/31/2017	2.3	5/31/2024	5/31/2017	117.57202	114.3265292	111.1877412	108.1515779	105.214139	102.3716939	99.62067364	96.95766265	94.3793916
170602A00023	6/2/2017	2.09	6/2/2023	6/2/2017	111.09483	109.0721006	107.0963682	105.1662587	103.2804481	101.4376594	99.63666076	97.87626336	96.15531974
170602A00033	6/2/2017	2.09	6/2/2022	6/2/2017	105.03212	104.1231914	103.2299366	102.3519553	101.4888583	100.6402697	99.80582605	98.98517609	98.17797998
170515A00054	5/15/2017	3.2	5/17/2032	5/15/2017	171.37096	155.3430734	140.9847452	128.1120321	116.5621861	106.1911102	96.87113316	88.48906005	80.94446276
170515A00056	5/15/2017	3.2	5/17/2032	5/15/2017	171.37096	155.3430734	140.9847452	128.1120321	116.5621861	106.1911102	96.87113316	88.48906005	80.94446276
170517A00027	5/17/2017	1.99	5/17/2022	5/17/2017	104.77761	103.9175608	103.0715896	102.2393561	101.4205277	100.6147822	99.82180776	99.04130252	98.27297391
170519A00034	5/19/2017	1.97	5/19/2022	5/19/2017	104.79454	103.9282794	103.0763043	102.2382592	101.4138043	100.6026111	99.80436131	99.01874693	98.24546962
170524A00011	5/24/2017	2.54	5/24/2024	5/24/2017	117.71407	114.499631	111.3901226	108.3815254	105.4699983	102.6518696	99.92362853	97.28191724	94.72352287
170530A00002	5/30/2017	2.15	5/31/2022	5/30/2017	105.05038	104.1475288	103.2601413	102.3878217	101.5301889	100.6868746	99.85752255	99.04178846	98.23933913
170428A00030	4/28/2017	2.25	4/28/2022	4/28/2017	104.57898	103.7790089	102.9912418	102.2153981	101.4512087	100.6984128	99.95675687	99.22599526	98.50588932

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170501A00008	5/1/2017	2.23	5/2/2022	5/1/2017	104.63201	103.8196481	103.0198563	102.232349	101.4568449	100.6930712	99.94076353	99.19966512	98.46952697
170504A00038	5/4/2017	2.09	5/4/2022	5/4/2017	104.63859	103.8189575	103.0121239	102.2177941	101.4356792	100.6654991	99.90698209	99.15986484	98.4238918
170508A00010	5/8/2017	2.43	5/8/2024	5/8/2017	117.58016	114.4085895	111.3397068	108.3695167	105.4942062	102.7101386	100.0138432	97.40200682	94.87146506
170509A00006	5/9/2017	2.3	5/9/2022	5/9/2017	104.79929	103.9649108	103.1437923	102.3356161	101.5400779	100.7568828	99.985745	99.22638767	98.47854223
170515A00005	5/15/2017	2.04	5/16/2022	5/15/2017	104.80184	103.9447446	103.1016281	102.2721551	101.4559964	100.6528332	99.86235662	99.08426786	98.31827723
170417A00057	4/17/2017	2.32	4/17/2023	4/17/2017	110.49133	108.6188993	106.7880641	104.9975028	103.2459529	101.5322053	99.85510117	98.21352966	96.60642512
170417A00068	4/17/2019	2.59	4/17/2024	4/17/2019	117.24604	114.1561177	111.1644531	108.2672476	105.4608774	102.7418867	100.1069781	97.55300407	95.07695901
170419A00024	4/19/2017	2.45	4/21/2025	4/19/2017	123.39405	118.9796096	114.7482737	110.6913436	106.800589	103.0682223	99.48687227	96.04955824	92.74966683
170424A00009	4/24/2017	2.04	4/25/2022	4/24/2017	104.44762	103.656221	102.8767779	102.1090245	101.3526992	100.6075483	99.87332542	99.14979155	98.43671453
170427A00044	4/27/2017	3.02	4/27/2027	4/27/2017	137.42226	130.1324112	123.2793464	116.834444	110.7711183	105.0646642	99.69211331	94.63210144	89.86474776
170427A00046	4/27/2017	3.1	4/27/2028	4/27/2017	143.84091	135.0118333	126.7911467	119.1335213	111.9972495	105.3439376	99.13822394	93.3475235	87.94179455
170323A00009	3/23/2017	2.1	3/23/2022	3/23/2017	103.93243	103.2428927	102.5624872	101.8910324	101.2283526	100.5742765	99.92863728	99.2912724	98.66202349
170323A00013	3/23/2017	2.1	3/23/2022	3/23/2017	103.93243	103.2428927	102.5624872	101.8910324	101.2283526	100.5742765	99.92863728	99.2912724	98.66202349
170327A00070	3/29/2017	3.05	3/29/2027	3/29/2017	138.27599	131.024175	124.2022839	117.7824481	111.7387571	106.0471118	100.685088	95.63181017	90.86783646
170327A00075	3/27/2019	2.47	3/28/2022	3/27/2019	104.19728	103.4926583	102.7975397	102.1117351	101.4350586	100.7673287	100.1083691	99.45800785	98.81607753
170328A00015	3/28/2017	2.75	11/29/2024	3/28/2017	121.56097	117.6755301	113.9357686	110.3354536	106.8686545	103.5297247	100.3132865	97.21421677	94.22763361
170417A00043	4/17/2017	2.14	4/18/2022	4/17/2017	104.32624	103.5576238	102.8003085	102.054048	101.3186013	100.5937345	99.87922037	99.1748382	98.48037345
170322A00015	3/22/2017	2.31	3/22/2022	3/22/2017	103.98525	103.2994222	102.6226261	101.9546833	101.295421	100.6446705	100.0022679	99.36805302	98.74187015
170322A00022	3/22/2017	3.89	9/23/2041	3/22/2017	235.5472	199.145423	169.1456476	144.3642499	123.8435399	106.8075344	92.62657719	80.78900427	70.8784216
170322A00023	3/22/2017	3.82	9/22/2039	3/22/2017	221.96035	190.3741079	163.8824165	141.6212862	122.87822	107.0649203	93.69503407	82.36598393	72.74411801
170322A00024	3/22/2017	3.72	9/22/2036	3/22/2017	202.61769	177.7427857	156.3122137	137.8236629	121.8508144	108.0314846	96.05767022	85.66718239	76.63660961
170322A00025	3/22/2017	3.58	3/22/2033	3/22/2017	178.97806	161.3481628	145.6673671	131.7076749	119.2689433	108.1753503	98.2723224	89.42386525	81.51024154
170322A00026	3/22/2017	3.22	3/22/2028	3/22/2017	144.16415	135.4556886	127.3390768	119.7708121	112.7108169	106.1221532	99.97076039	94.22521589	88.85651727
170313A00035	3/13/2017	3.31	3/15/2027	3/13/2017	138.54806	131.3784214	124.629854	118.2752963	112.2895741	106.6492574	101.3325304	96.31907125	91.58994175
170314A00005	3/14/2017	2.29	3/14/2022	3/14/2017	103.90146	103.2390444	102.5850704	101.9393745	101.3018	100.6721943	100.0504083	99.43629694	98.82971857
170314A00006	3/14/2017	2.67	3/14/2024	3/14/2017	117.33329	114.3406128	111.4405765	108.6297037	105.9046765	103.2623249	100.6996191	98.21366209	95.80168272
170316A00018	3/16/2017	2.8	3/18/2024	3/16/2017	117.3344	114.3383229	111.4351099	108.6212686	105.893467	103.2485222	100.6833923	98.19516882	95.78107037
170321A00013	3/21/2017	2.18	3/21/2022	3/21/2017	103.95128	103.2676799	102.5930527	101.9272264	101.2700297	100.6212954	99.98086068	99.34856697	98.72425962
170322A00010	3/22/2017	2.11	3/22/2022	3/22/2017	103.92211	103.2356122	102.5581691	101.8896011	101.2297346	100.5784005	99.93543384	99.30067418	98.67396499
170303A00021	3/3/2017	2.2	3/3/2022	3/3/2017	103.65462	103.0260653	102.4051201	101.7916428	101.1854993	100.5865586	99.99469292	99.40977743	98.83169026
170307A00033	3/7/2017	2.2	3/7/2022	3/7/2017	103.72344	103.0826588	102.4497839	101.8246685	101.2071703	100.5971506	99.99447399	99.39900848	98.81062507
170310A00032	3/10/2017	2.27	3/10/2022	3/10/2017	103.81902	103.1689024	102.5269202	101.8929192	101.2667512	100.6482713	100.0373386	99.4338153	98.83756711
170313A00027	3/13/2017	2.27	3/14/2022	3/13/2017	103.88867	103.226306	102.5723782	101.926728	101.2891988	100.659638	100.0378966	99.42382934	98.81729474

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170313A00032	3/13/2017	3.69	6/14/2032	3/13/2017	175.59888	159.3535927	144.7979105	131.7455584	120.0317465	109.5105901	100.0528522	91.54396651	83.88230328
170313A00034	3/13/2017	3.31	3/15/2027	3/13/2017	138.54806	131.3784214	124.629854	118.2752963	112.2895741	106.6492574	101.3325304	96.31907125	91.58994175
170224A00020	2/24/2017	3.08	2/24/2027	2/24/2017	136.79206	129.7427426	123.1047709	116.8518985	110.9596971	105.4054175	100.1678647	95.22728384	90.56525473
170224A00021	2/24/2017	3.4	2/24/2032	2/24/2017	170.20324	154.7086013	140.7921803	128.283607	117.0317748	106.9025675	97.77686802	89.54881005	82.12424106
170224A00039	5/24/2017	3.17	5/24/2027	5/24/2017	138.83149	131.4021345	124.4220188	117.8615885	111.6933821	105.8918737	100.4333275	95.29566281	90.45833061
170224A00044	5/24/2017	3.29	5/24/2029	5/24/2017	151.92496	141.3130132	131.5315784	122.5110639	114.1880544	106.5047346	99.40836809	92.85082693	86.78816684
170228A00014	2/28/2017	2.89	3/1/2027	2/28/2017	136.79878	129.6926246	123.003269	116.7039962	110.7699498	105.177989	99.90656163	94.9355863	90.2463441
170228A00018	2/28/2017	2.25	2/28/2022	2/28/2017	103.57048	102.9520033	102.3408905	101.7370078	101.1402278	100.5504257	99.96748	99.39127168	98.8216846
170215A00039	2/15/2017	2.72	11/7/2022	2/15/2017	108.42307	107.0127775	105.6360433	104.2916641	102.9784987	101.6954594	100.4415088	99.21565728	98.01695988
170215A00040	2/15/2017	2.59	5/15/2023	2/15/2017	111.47123	109.5047864	107.5832117	105.7051368	103.8692433	102.0742646	100.3189834	98.60222929	96.92287643
170216A00043	2/16/2017	3.17	2/16/2027	2/16/2017	137.21193	130.1801441	123.5570381	117.3166353	111.4347483	105.8888456	100.6579299	95.72242477	91.06407179
170217A00014	2/17/2017	2.27	2/14/2022	2/17/2017	103.34989	102.7736018	102.2037353	101.6401836	101.0828421	100.5316084	99.98638234	99.44706603	98.91356363
170223A00003	2/23/2017	2.05	2/23/2022	2/23/2017	103.42952	102.8255785	102.2286762	101.6386902	101.0555007	100.4789908	99.90904629	99.34555535	98.78840883
170224A00019	2/24/2017	2.21	2/24/2022	2/24/2017	103.47909	102.8727876	102.2735741	101.6813248	101.0959187	100.5172378	99.94516679	99.37959282	98.82040575
170130A00031	1/30/2017	2.96	7/30/2025	1/30/2017	126.53385	121.735936	117.1488836	112.7622688	108.5662449	104.5515031	100.7092404	97.0311292	93.50928895
170130A00054	3/30/2017	2.33	4/29/2022	3/30/2017	104.65775	103.8544169	103.0633747	102.2843463	101.5170595	100.7612507	100.0166639	99.28305063	98.56016979
170203A00012	2/3/2017	3.63	2/2/2035	2/3/2017	191.13057	169.7695816	151.0932024	134.7455804	120.4199125	107.8514513	96.81154197	87.10253112	78.5534165
170207A00013	2/7/2017	2.05	2/7/2022	2/7/2017	103.16212	102.6065486	102.0569536	101.5132399	100.9753136	100.4430824	99.91645616	99.3953466	98.87966725
170207A00023	2/7/2017	2.26	2/7/2022	2/7/2017	103.21956	102.6645088	102.1154166	101.5721908	101.0347375	100.5029652	99.97678397	99.45610593	98.94084501
170215A00037	2/15/2017	2.71	5/23/2022	2/15/2017	105.38529	104.5053958	103.6401729	102.7892544	101.9522877	101.1289315	100.3188558	99.521741	98.7372778
170111A00016	1/11/2017	3.51	1/11/2033	1/11/2017	176.8257	159.6246622	144.2992439	130.6331085	118.4359752	107.5403593	97.79873473	89.0810626	81.27263631
170117A00045	1/17/2017	2.21	1/18/2022	1/17/2017	102.8607	102.3655835	101.8752342	101.3895836	100.9085641	100.4321098	99.96015571	99.49263818	99.02949476
170120A00009	1/20/2017	3.67	1/22/2035	1/20/2017	191.59851	170.2537517	151.5848034	135.2377965	120.9075265	108.3305342	97.2791988	87.55669389	78.9926749
170120A00010	1/20/2017	3.71	1/22/2036	1/20/2017	198.37977	174.9245825	154.5948983	136.9518075	121.6203912	108.2800895	96.65656323	86.51481009	77.65333597
170120A00011	1/20/2017	3.75	1/20/2037	1/20/2017	205.14661	179.5278446	157.5208232	138.5893682	122.2798263	108.2079772	96.04807666	85.52367716	76.39992935
170123A00039	1/23/2017	2.79	1/23/2026	1/23/2017	129.47586	123.9895476	118.7694442	113.8012032	109.071328	104.5671174	100.2766144	96.18855837	92.2923411
170110A00022	1/10/2017	2.27	1/10/2023	1/10/2017	108.9789	107.4120344	105.8759186	104.3697269	102.8926583	101.4439401	100.022826	98.62859575	97.26055354
170110A00023	1/10/2017	2.08	1/10/2022	1/10/2017	102.7087	102.2369576	101.7695532	101.3064259	100.8475171	100.3927691	99.94212551	99.49553069	99.05293013
170111A00009	1/11/2017	3.16	1/11/2028	1/11/2017	142.552	134.1612533	126.3263714	119.007538	112.167989	105.7737633	99.79347635	94.19811121	88.96082886
170111A00011	1/11/2017	3.24	1/11/2029	1/11/2017	149.23434	139.2390468	129.9944858	121.4401427	113.5206841	106.185488	99.38822038	93.08645098	87.24130598
170111A00012	1/11/2017	3.31	1/11/2030	1/11/2017	156.03389	144.3535432	133.65214	123.8421028	114.8441223	106.5863407	99.00361657	92.03686502	85.63246606
170111A00014	1/11/2017	3.47	1/12/2032	1/11/2017	170.18511	154.8775181	141.1124121	128.7249927	117.5688997	107.5140633	98.44481462	90.25822384	82.86263747
161215A00001	12/15/2016	2.5	12/15/2021	12/15/2016	102.40087	102.0062604	101.6146951	101.2261424	100.8405674	100.4579358	100.078214	99.70136874	99.32736735

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
161215A00014	12/15/2016	2.66	12/15/2022	12/15/2016	108.89467	107.4108863	105.9548241	104.5257726	103.1230426	101.7459684	100.3939057	99.06623165	97.76234329
161222A00030	12/22/2016	3.09	12/22/2026	12/22/2016	136.8477	129.9932276	123.5278866	117.4275347	111.669648	106.233206	101.0985844	96.2474545	91.6626921
161223A00028	12/23/2016	2.23	12/23/2021	12/23/2016	102.46907	102.0506029	101.6355577	101.2238903	100.8155597	100.4105253	100.0087472	99.61018627	99.21480384
170109A00031	1/9/2017	2.29	1/10/2022	1/9/2017	102.7626	102.2912267	101.8241809	101.361402	100.9028316	100.4484124	99.99808797	99.55180315	99.1095036
170110A00020	1/10/2017	2.4	1/10/2024	1/10/2017	115.50172	112.7381804	110.0555647	107.4510314	104.9218531	102.465415	100.0792095	97.76083079	95.50797065
161031A00007	10/31/2016	1.91	10/31/2022	10/31/2016	107.29335	105.8980576	104.5384721	103.2132325	101.9210487	100.6606944	99.4310032	98.23086541	97.05922413
161109A00018	11/9/2016	2.63	11/9/2026	11/9/2016	132.37379	125.8313568	119.6539053	113.8190842	108.3060338	103.095279	98.16862907	93.50908617	89.10076
161115A00011	11/15/2016	2.46	11/15/2023	11/15/2016	114.32713	111.7635071	109.2708233	106.8466377	104.4886161	102.1945218	99.96221035	97.78962531	95.67479367
161117A00015	11/17/2016	2.08	11/17/2021	11/17/2016	101.78007	101.4676931	101.1572443	100.8487045	100.542056	100.2372815	99.93436363	99.63328549	99.33403025
161213A00014	12/13/2016	2.07	12/13/2021	12/13/2016	102.23709	101.84826	101.4623932	101.0794577	100.69942	100.3222473	99.94790696	99.5763672	99.20759652
161214A00023	12/14/2016	3.3	12/15/2031	12/14/2016	170.02752	154.7194524	140.9494002	128.5537012	117.386921	107.3197413	98.23709884	90.03654854	82.6268213
160930A00010	9/30/2016	1.47	9/30/2022	9/30/2016	106.42054	105.1258288	103.8624002	102.6291326	101.4249574	100.2488555	99.09985518	97.97702894	96.87949119
161003A00004	10/3/2016	1.91	10/3/2023	10/3/2016	112.34159	109.9351264	107.5927999	105.3124185	103.0918823	100.9291806	98.82238796	96.76965963	94.76922709
161004A00040	10/4/2016	1.45	10/4/2021	10/4/2016	100.96548	100.7797812	100.5947662	100.410435	100.2267839	100.0438092	99.86150689	99.67987344	99.49890511
161006A00013	10/6/2016	2.07	10/6/2025	10/6/2016	124.33085	119.3347882	114.5679035	110.0183803	105.6750809	101.5275062	97.56575472	93.78048466	90.16287869
161014A00006	10/14/2016	1.74	10/14/2021	10/14/2016	101.15242	100.9382804	100.7250545	100.5127411	100.301334	100.0908275	99.88121584	99.67249319	99.4646539
161020A00002	10/20/2016	1.96	8/15/2023	10/20/2016	111.71123	109.4597053	107.2654982	105.1267593	103.0417127	101.0086532	99.02594236	97.09200599	95.20533058
160923A00030	9/23/2016	1.41	9/23/2021	9/23/2016	100.79796	100.6435411	100.4896057	100.3361515	100.1831761	100.0306773	99.87865279	99.72710045	99.576018
160923A00032	9/23/2016	1.67	9/25/2023	9/23/2016	112.0184	109.6333468	107.3115027	105.050723	102.8489525	100.7042232	98.61464928	96.57842341	94.59381233
160926A00004	9/26/2016	1.66	9/26/2023	9/26/2016	112.01034	109.6223447	107.2977025	105.0342566	102.8299453	100.6827939	98.59091083	96.55248297	94.56577177
160926A00023	9/26/2016	1.74	9/26/2022	9/26/2016	106.53264	105.2523666	104.0026927	102.7825315	101.5908476	100.4266534	99.28900689	98.17700826	97.08979814
160929A00004	9/29/2016	1.74	9/29/2022	9/29/2016	106.57924	105.2891386	104.0300841	102.8009691	101.6007363	100.4283776	99.28293137	98.16347977	97.06914622
160930A00005	9/30/2016	2.03	9/30/2024	9/30/2016	118.09425	114.4618566	110.9608258	107.5855948	104.330876	101.1916404	98.16310301	95.24070926	92.420122
160830A00034	8/30/2016	1.9	8/30/2023	8/30/2016	111.80825	109.5108159	107.272645	105.0917878	102.9663775	100.8946229	98.87480512	96.90527348	94.98444262
160906A00017	9/6/2016	1.65	9/7/2021	9/6/2016	100.58161	100.4725369	100.3637138	100.255138	100.1468085	100.0387245	99.93088516	99.82328958	99.71593692
160916A00016	9/16/2016	1.66	9/16/2021	9/16/2016	100.71613	100.5816505	100.4475425	100.313807	100.1804424	100.0474471	99.91481961	99.7825583	99.65066166
160920A00004	9/20/2016	1.68	9/20/2021	9/20/2016	100.77885	100.6330575	100.4876944	100.3427637	100.1982633	100.0541913	99.91054583	99.76732498	99.62452683
160922A00014	9/22/2016	2.06	9/22/2026	9/22/2016	129.37155	123.0451771	117.0660705	111.4132882	106.0672706	101.009738	96.22359961	91.69286965	87.40258944
160922A00050	9/22/2016	2.24	9/22/2025	9/22/2016	124.17967	119.2545321	114.5529985	110.0636543	105.7757383	101.6790993	97.76415738	94.02186795	90.44368885
160815A00006	8/15/2016	2.23	8/17/2026	8/15/2016	128.85419	122.6955624	116.8687011	111.3539708	106.1330034	101.1886095	96.50469551	92.06618858	87.85896603
160815A00007	8/15/2016	2.23	8/17/2026	8/15/2016	128.85419	122.6955624	116.8687011	111.3539708	106.1330034	101.1886095	96.50469551	92.06618858	87.85896603
160816A00003	8/16/2016	1.63	8/16/2023	8/16/2016	111.34016	109.0834041	106.8842826	104.7409326	102.6515627	100.6144531	98.62795176	96.69047145	94.8004865
160825A00054	8/29/2016	2.49	8/30/2021	8/29/2016	100.53466	100.4480889	100.3616681	100.2753937	100.1892656	100.1032832	100.0174462	99.93175441	99.84620733

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160830A00007	8/30/2016	1.65	8/30/2021	8/30/2016	100.46209	100.3755869	100.2892285	100.2030164	100.1169504	100.0310301	99.94525508	99.8596251	99.77413977
160830A00032	8/30/2016	1.82	8/30/2022	8/30/2016	106.20359	105.0110322	103.845108	102.7049382	101.5896774	100.4985167	99.43068208	98.38543219	97.36205684
160801A00001	8/1/2016	1.97	8/1/2024	8/1/2016	117.02337	113.59647	110.2885788	107.0948844	104.0107985	101.0319455	98.15415047	95.37342898	92.6859772
160802A00003	8/2/2016	2.53	8/1/2031	8/2/2016	158.62259	144.4685821	131.7052721	120.1882742	109.7889	100.3923764	91.89627619	84.20913304	77.24921808
160808A00011	8/8/2016	1.6	8/9/2021	8/8/2016	100.14756	100.1197055	100.091885	100.0640954	100.0363367	100.0086089	99.98091187	99.95324562	99.92561007
160810A00032	8/10/2016	1.32	8/10/2021	8/10/2016	100.15651	100.1258499	100.0952237	100.0646328	100.034077	100.0035564	99.97307073	99.94262008	99.91220435
160811A00011	8/11/2016	2.25	8/11/2026	8/11/2016	128.88113	122.7419437	116.9325757	111.4335562	106.2266708	101.29487	96.62218867	92.19367115	87.99530201
160812A00005	8/12/2016	1.69	8/12/2022	8/12/2016	105.77899	104.6455619	103.5363058	102.4504567	101.3872799	100.346071	99.32615458	98.32688262	97.34763324
160706A00029	7/6/2016	2.49	7/8/2030	7/6/2016	150.56813	138.441811	127.392454	117.3186035	108.1288522	99.74079905	92.08011957	85.07973741	78.67908406
160706A00030	7/6/2016	2.59	7/7/2031	7/6/2016	156.90786	143.0504103	130.5425782	119.2454262	109.0349953	99.80061798	91.44343257	83.87506936	77.01648954
160712A00023	7/12/2016	1.79	7/12/2023	7/12/2016	110.83136	108.693867	106.6087294	104.5743369	102.5891357	100.6516306	98.76038216	96.91400417	95.11116152
160714A00020	9/6/2016	2.28	9/4/2026	9/6/2016	129.38833	123.1549843	117.2599715	111.6831149	106.4055469	101.4096207	96.67882451	92.19770236	87.95178054
160718A00010	7/18/2016	1.65	7/18/2023	7/18/2016	110.94607	108.7824956	106.6724761	104.6143379	102.6064753	100.6473442	98.73545861	96.86938837	95.04775648
160726A00005	7/26/2016	2.28	7/27/2026	7/26/2016	128.83302	122.7460415	116.9837821	111.5272099	106.3585087	101.4609932	96.81903131	92.41797203	88.24407897
160701A00028	7/1/2016	2.16	7/1/2026	7/1/2016	127.8584	121.8866467	116.2292728	110.8681063	105.7861217	100.9673587	96.39684937	92.0605521	87.94528917
160705A00005	7/5/2016	1.49	7/5/2023	7/5/2016	110.41924	108.3023386	106.2368975	104.2213423	102.2541581	100.3338864	98.45912281	96.62851459	94.84075824
160705A00104	7/5/2016	2.1	7/6/2026	7/5/2016	127.60411	121.6212115	115.9542614	110.5849441	105.4961011	100.6716503	96.09651302	91.75654614	87.63847956
160706A00026	7/6/2016	2.19	7/6/2027	7/6/2016	133.03757	125.6317166	118.6852277	112.1672527	106.0491635	100.3043861	94.90824327	89.83780974	85.07177924
160706A00027	7/6/2016	2.29	7/6/2028	7/6/2016	138.6155	129.7154018	121.4481275	113.7654028	106.6228752	99.97977308	93.79859977	88.04485451	82.68677913
160706A00028	7/6/2016	2.39	7/6/2029	7/6/2016	144.47426	134.0036928	124.3708905	115.5044107	107.3392525	99.81624205	92.88148307	86.48586147	80.58459874
160628A00050	6/28/2016	1.56	6/28/2023	6/28/2016	110.45584	108.3604467	106.3154857	104.3194339	102.3708207	100.4682301	98.61029791	96.79570939	95.02319739
160630A00011	6/30/2016	1.8	6/30/2023	6/30/2016	110.66653	108.56857	106.5211355	104.5226911	102.571763	100.666932	98.80683073	96.99014153	95.21559435
160630A00012	6/30/2016	2.11	6/30/2025	6/30/2016	122.39233	117.7836377	113.3742227	109.1544221	105.1150958	101.2475928	97.54372216	93.99572628	90.59625549
160630A00021	6/30/2016	1.59	6/30/2023	6/30/2016	110.54626	108.4438469	106.3921696	104.389686	102.4349133	100.5264235	98.66284119	96.84284109	95.06514583
160701A00020	7/1/2016	2.13	7/1/2026	7/1/2016	127.69555	121.7279767	116.0746163	110.717311	105.6390424	100.8238568	96.2567928	91.92381467	87.81175047
160701A00027	7/1/2016	1.93	7/1/2024	7/1/2016	116.43239	113.116479	109.9125526	106.8162122	103.8232594	100.929684	98.131654	95.42550707	92.80774174
160624A00011	6/24/2016	1.83	6/26/2023	6/24/2016	110.66602	108.5801943	106.5443331	104.556932	102.616541	100.7217631	98.87125233	97.06371125	95.29788906
160627A00025	6/27/2016	1.65	6/27/2022	6/27/2016	105.03737	104.0512868	103.083633	102.1338914	101.2015686	100.286189	99.38729425	98.5044423	97.63720686
160627A00070	6/27/2016	1.52	9/27/2021	6/27/2016	100.85763	100.692048	100.5270142	100.3625234	100.198573	100.0351602	99.87228247	99.7099372	99.54812181
160628A00038	6/28/2016	1.88	6/27/2025	6/28/2016	122.03913	117.4289886	113.018343	108.7975216	104.7573713	100.8892289	97.18489195	93.63659202	90.23696931
160628A00040	6/28/2016	1.56	6/28/2023	6/28/2016	110.45584	108.3604467	106.3154857	104.3194339	102.3708207	100.4682301	98.61029791	96.79570939	95.02319739
160628A00049	6/28/2016	1.88	6/27/2025	6/28/2016	122.03913	117.4289886	113.018343	108.7975216	104.7573713	100.8892289	97.18489195	93.63659202	90.23696931
160606A00043	6/8/2016	2.23	12/15/2021	6/8/2016	102.29646	101.9020964	101.5107786	101.1224719	100.7371415	100.3547532	99.97527331	99.59866859	99.22490639

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160610A00009	6/10/2016	1.89	6/12/2023	6/10/2016	110.5704	108.5279595	106.5335444	104.5857365	102.683167	100.8245165	99.00851268	97.23392807	95.49957855
160613A00047	6/15/2016	2.18	6/16/2025	6/15/2016	122.48706	117.9225487	113.5535489	109.3706731	105.3650323	101.5282086	97.85222762	94.32953271	90.95296095
160616A00027	6/16/2016	2.27	6/16/2026	6/16/2016	128.17703	122.2503677	116.6330461	111.3073335	106.2566065	101.4652725	96.9187009	92.6031589	88.50575179
160616A00034	6/16/2016	1.97	6/17/2024	6/16/2016	116.3516	113.081361	109.9202013	106.863895	103.9084013	101.0498578	98.28457152	95.60901094	93.01979762
160620A00015	6/20/2016	1.71	6/20/2023	6/20/2016	110.63511	108.5622057	106.5386646	104.5630082	102.6338119	100.7497035	98.9093601	97.1115067	95.35491363
160422A00026	4/22/2016	2.62	4/22/2026	4/22/2016	129.25914	123.4920598	118.0176811	112.8194803	107.8819696	103.190622	98.73180484	94.49271995	90.46134681
160504A00004	5/4/2016	2.3	5/4/2026	5/4/2016	128.61223	122.7937989	117.2734269	112.0341714	107.0601562	102.3364948	97.84922229	93.58523277	89.53222109
160510A00012	5/10/2016	1.49	10/12/2021	5/10/2016	101.09132	100.8827204	100.6749916	100.468131	100.2621331	100.0569925	99.85270364	99.64926126	99.44666001
160524A00027	5/24/2016	3.06	5/27/2031	5/24/2016	161.58581	147.6594574	135.0681631	123.676287	113.3626387	104.0188687	95.54804832	87.86341342	80.8872516
160606A00004	6/6/2016	2.43	6/8/2026	6/6/2016	128.97992	123.0582678	117.4441438	112.1200007	107.0693829	102.2768503	97.72791167	93.4089606	89.30721771
160606A00005	6/6/2016	2.92	6/6/2031	6/6/2016	160.12993	146.2378785	133.6829821	122.3289644	112.0541	102.7495946	94.3181521	86.67270716	79.7353026
160328A00013	3/28/2016	2.17	3/28/2024	3/28/2016	116.15965	113.1382494	110.2116127	107.3761335	104.6283721	101.9650446	99.38301498	96.87928681	94.45099605
160328A00014	3/28/2016	2.49	3/27/2026	3/28/2016	129.01488	123.3166305	117.9044914	112.7625069	107.8756997	103.2300094	98.81223015	94.60995412	90.61151814
160328A00045	3/28/2016	2.49	3/27/2026	3/28/2016	129.01488	123.3166305	117.9044914	112.7625069	107.8756997	103.2300094	98.81223015	94.60995412	90.61151814
160329A00045	3/29/2016	2.12	3/29/2024	3/29/2016	116.03354	113.010702	110.0827666	107.2461177	104.4973073	101.8330438	99.25018397	96.74572453	94.31679513
160330A00054	3/30/2016	2.9	3/31/2031	3/30/2016	161.04026	147.2590258	134.785708	123.4886728	113.2502008	103.9649477	95.53858397	87.88658953	80.9331868
160420A00002	4/20/2016	1.96	11/16/2022	4/20/2016	107.52213	106.1087121	104.7258037	103.3724241	102.0476332	100.7505311	99.48025593	98.23598181	97.01691706
160212A00043	2/12/2016	1.8	2/14/2022	2/12/2016	103.08697	102.5115308	101.942511	101.3797992	100.8232909	100.2728838	99.72847792	99.18997536	98.65728039
160212A00044	2/12/2016	1.93	2/13/2023	2/12/2016	108.79226	107.1268846	105.4958465	103.898167	102.3328996	100.7991333	99.29599078	97.82262682	96.37822695
160216A00002	2/16/2016	1.88	2/16/2022	2/16/2016	103.16361	102.5820035	102.0069433	101.4383213	100.8760297	100.3199632	99.77001858	99.22609517	98.68809438
160216A00028	2/16/2016	1.69	2/16/2022	2/16/2016	103.109	102.526906	101.9513739	101.3822947	100.8195601	100.2630644	99.71270407	99.16837797	98.62998716
160307A00027	3/7/2016	2.71	3/6/2026	3/7/2016	128.97631	123.3774364	118.0559077	112.9964567	108.1847452	103.6072997	99.25145413	95.10529711	91.15762233
160307A00028	3/7/2016	2.91	3/7/2028	3/7/2016	141.60605	133.0412882	125.0569184	117.6104563	110.6627452	104.1776812	98.12195954	92.4648427	87.1779499
160129A00066	1/29/2016	3.04	1/29/2031	1/29/2016	161.60627	148.0491168	135.7570043	124.6046365	114.4797479	105.2816911	96.92017896	89.31417003	82.39087794
160129A00067	1/29/2016	2.53	1/29/2026	1/29/2016	128.28864	122.8095446	117.5976264	112.638427	107.9183454	103.4245858	99.14510508	95.06856453	91.18428497
160129A00068	1/29/2016	1.97	1/30/2023	1/29/2016	108.8466	107.2207345	105.6279378	104.0672904	102.5379017	101.0389136	99.56949851	98.12885876	96.7162246
160211A00033	2/11/2016	1.67	2/11/2022	2/11/2016	102.9625	102.396417	101.8365502	101.2827956	100.7350536	100.1932265	99.6572187	99.12693686	98.60228946
160211A00035	2/11/2016	2.25	2/11/2025	2/11/2016	120.90038	116.7803826	112.8239003	109.0235246	105.3722307	101.8633512	98.49055542	95.24783063	92.12946389
160212A00029	2/12/2016	1.8	2/11/2022	2/12/2016	103.03411	102.4678014	101.9077071	101.3537268	100.8057608	100.2637115	99.72748325	99.19698262	98.67211809
160119A00019	1/19/2016	2.95	1/19/2027	1/19/2016	135.3963	128.5185509	122.0361935	115.924393	110.1600003	104.7214311	99.58855194	94.74257571	90.16596438
160119A00027	1/19/2016	3.25	1/18/2030	1/19/2016	155.56625	143.8791593	133.1742126	123.3633232	114.3667483	106.1122553	98.53437849	91.57375333	85.17651871
160119A00028	1/19/2016	3.34	1/21/2031	1/19/2016	162.67795	149.2050035	136.9802577	125.8807775	115.7963493	106.6281079	98.28731414	90.6942701	83.77735555
160119A00029	1/19/2016	3.39	1/20/2032	1/19/2016	169.49451	154.1829677	140.4188644	128.0364484	116.8885589	106.844454	97.78790138	89.61550059	82.23520594

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160119A00030	1/19/2016	3.44	1/18/2033	1/19/2016	175.98862	158.8077135	143.5046783	129.862481	117.6902782	106.8201324	97.10415602	88.41202381	80.62880526
160120A00010	1/20/2016	1.99	10/20/2021	1/20/2016	101.3034	101.0719491	100.8415699	100.6122502	100.3839828	100.1567603	99.93057551	99.70542137	99.48129079
151223A00077	12/23/2015	3.57	12/24/2035	12/23/2015	199.14535	175.5212868	155.0427319	137.2688555	121.8229344	108.3827306	96.67235713	86.45539314	77.52905211
151229A00079	12/29/2015	3	12/30/2025	12/29/2015	129.3089	123.9326694	118.8129611	113.9361768	109.2895138	104.8609107	100.6390011	96.61306925	92.77300971
151229A00080	12/29/2015	3.49	12/30/2030	12/29/2015	163.95495	150.5077523	138.2971595	127.2021966	117.1143322	107.9361367	99.58009492	91.96755042	85.02776753
151229A00081	12/29/2015	3.76	12/31/2035	12/29/2015	198.89204	175.4972099	155.2062099	137.5849771	122.2624728	108.921239	97.28940905	87.13394368	78.25490067
160104A00014	1/4/2016	2.49	1/4/2023	1/4/2016	109.0149	107.4689065	105.9528782	104.466013	103.0075398	101.5767144	100.172818	98.79515616	97.44305792
160113A00030	1/13/2016	2.52	1/13/2025	1/13/2016	122.0515	117.9920165	114.0904699	110.3398485	106.7334959	103.2650867	99.92860852	96.71834394	93.6288549
151211A00004	12/11/2015	2.48	12/15/2023	12/11/2015	115.26269	112.5855758	109.9846714	107.4573707	105.0011763	102.6136905	100.292611	98.03572604	95.84091095
151211A00055	12/11/2015	2.62	12/11/2024	12/11/2015	121.86417	117.9187655	114.1229581	110.4702853	106.9545961	103.5700373	100.311037	97.17228962	94.14874211
151223A00065	12/23/2015	2.15	12/23/2021	12/23/2015	102.43632	102.0179339	101.6029697	101.191383	100.7831325	100.3781778	99.9764789	99.57799666	99.1826925
151223A00066	12/23/2015	2.34	12/23/2022	12/23/2015	108.77366	107.2629747	105.7809817	104.3269306	102.9000972	101.4997818	100.1253084	98.77602331	97.45129448
151223A00070	12/23/2015	2.57	12/26/2023	12/23/2015	115.68424	112.9661048	110.3262486	107.761967	105.2706644	102.8498508	100.497136	98.21022566	95.98691639
151223A00072	12/23/2015	2.81	12/23/2025	12/23/2015	129.05013	123.6813661	118.5683884	113.6976647	109.0564521	104.6327442	100.4152246	96.39322361	92.55667788
150930A00011	9/30/2015	2.06	9/30/2021	9/30/2015	100.9948	100.8205991	100.6469973	100.4739887	100.3015702	100.1297389	99.95849174	99.7878259	99.61773845
151002A00041	10/2/2015	1.76	10/4/2021	10/2/2015	101.02261	100.8368321	100.6517389	100.4673298	100.2836009	100.1005487	99.91816913	99.73645866	99.55541353
151002A00075	10/2/2015	2.04	10/3/2022	10/2/2015	107.16375	105.8545306	104.5771398	103.330433	102.1133152	100.9247433	99.76372222	98.62930302	97.52057974
151106A00011	11/6/2015	3.1	1/15/2026	11/6/2015	130.06814	124.6193629	119.432867	114.4946247	109.7914296	105.310848	101.0411691	96.97135964	93.09102082
151109A00020	11/9/2015	2.79	11/9/2023	11/9/2015	115.02474	112.470839	109.9872625	107.5715691	105.2214241	102.9345923	100.7089332	98.5423958	96.43301436
151116A00025	11/16/2015	3.04	11/14/2025	11/16/2015	128.71073	123.5066965	118.5447463	113.8122735	109.2974012	104.9889355	100.8763213	96.94960259	93.19938468
150824A00072	8/24/2015	2.14	8/24/2022	8/24/2015	106.60321	105.4249713	104.272673	103.1454686	102.0425453	100.963125	99.90646263	98.87184435	97.85858585
150824A00097	8/24/2015	2.67	8/25/2025	8/24/2015	126.39194	121.49137	116.8097945	112.3362043	108.0602114	103.9720064	100.0623227	96.32240331	92.74396955
150825A00007	8/25/2015	2.46	8/25/2022	8/25/2015	106.83472	105.6541072	104.4995089	103.3700741	102.2649868	101.1834663	100.1247646	99.08816521	98.07298144
150826A00038	8/26/2015	2.94	8/26/2026	8/26/2015	133.94859	127.5931351	121.5804025	115.890039	110.5030122	105.4015164	100.5688868	95.98951975	91.64879996
150902A00002	9/2/2015	2.25	9/2/2021	9/2/2015	100.56377	100.4687493	100.373916	100.2792659	100.1847983	100.0905127	99.99640873	99.90248574	99.80874324
150923A00041	9/23/2015	2.23	9/23/2022	9/23/2015	107.2229	105.9452912	104.69801	103.4799867	102.290201	101.1276798	99.99149411	98.88075682	97.79462019
150727A00013	7/27/2015	3.04	7/28/2025	7/27/2015	126.847	122.0495065	117.4624796	113.0755401	108.8788736	104.8632017	101.0197489	97.34021299	93.81673682
150803A00053	8/3/2015	2.49	8/3/2022	8/3/2015	106.47697	105.3678337	104.2817401	103.2179761	102.1758585	101.1547316	100.153966	99.17295724	98.21112451
150814A00004	8/14/2015	2.32	8/15/2022	8/14/2015	106.64367	105.4936447	104.3683454	103.2669846	102.1888042	101.1330782	100.0991104	99.08623302	98.09380565
150817A00073	8/17/2015	2.06	8/17/2021	8/17/2015	100.2933	100.2430634	100.1928935	100.1427911	100.0927561	100.0427882	99.99288741	99.94305351	99.89328639
150817A00097	8/17/2015	3.1	8/17/2026	8/17/2015	133.70758	127.421374	121.4719309	115.8393725	110.5051048	105.4517247	100.6629367	96.12347704	91.81904237
150817A00099	8/17/2015	3.19	8/17/2027	8/17/2015	140.36565	132.580473	125.2829765	118.4399494	112.0206193	105.9964568	100.3410007	95.02969775	90.0397546
150623A00025	6/23/2015	2.65	6/30/2022	6/23/2015	106.03213	105.0316364	104.0499685	103.0866031	102.141032	101.2127659	100.3013331	99.406279	98.52716517

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150630A00008	6/30/2015	2.41	6/30/2022	6/30/2015	105.91449	104.9129956	103.9303773	102.9661069	102.0196746	101.0905891	100.1783768	99.28258158	98.40276333
150715A00009	7/15/2015	2.67	7/15/2022	7/15/2015	106.32699	105.2780513	104.2497733	103.2415489	102.2527956	101.2829529	100.3314819	99.39786402	98.48159997
150720A00011	7/20/2015	2.69	7/20/2023	7/20/2015	113.13988	110.9467091	108.8078637	106.7216498	104.686435	102.7006491	100.7627814	98.87137823	97.02504007
150720A00012	7/20/2015	2.99	7/21/2025	7/20/2015	127.20208	122.4022154	117.8123253	113.4220774	109.2217089	105.2019882	101.3541825	97.67002878	94.1417053
150721A00027	7/21/2015	3.74	7/22/2030	7/21/2015	163.76344	150.9694355	139.3014872	128.6538186	118.9311307	110.0475105	101.9254619	94.49504076	87.69308307
150601A00734	6/1/2015	2.92	5/1/2025	6/1/2015	124.6515	120.1968542	115.9274512	111.834462	107.9095356	104.1447722	100.5326955	97.06622656	93.73866032
150601A00737	6/1/2015	2.68	12/31/2024	6/1/2015	122.28595	118.2653449	114.399534	110.6817208	107.1054461	103.6645688	100.3532477	97.16592556	94.09731354
150601A00768	6/1/2015	2.34	5/13/2022	6/1/2015	104.87484	104.0278988	103.1946086	102.3746415	101.5676795	100.7734149	99.99154962	99.22179487	98.4638707
150601A00916	6/1/2015	7.27	4/5/2030	6/1/2015	196.11657	182.303811	169.6363723	158.0113177	147.3355523	137.5248291	128.5028612	120.2005272	112.5551604
150601A00930	6/1/2015	7.1	8/30/2030	6/1/2015	198.78959	184.1959343	170.8615172	158.6688534	147.5120795	137.2957487	127.9337518	119.3483552	111.4693431
150610A00017	6/10/2015	2.9	6/15/2023	6/10/2015	112.60866	110.5365423	108.5132664	106.5373828	104.6074941	102.7222536	100.8803627	99.08056913	97.32166492
150601A00648	6/1/2015	2.71	12/30/2022	6/1/2015	109.19946	107.6670068	106.1639767	104.6895905	103.2430979	101.8237743	100.4309197	99.06385765	97.7219341
150601A00665	6/1/2015	3.82	1/14/2033	6/1/2015	180.34224	162.9212227	147.395146	133.5456782	121.1807717	110.1313758	100.2485744	91.40109289	83.47312523
150601A00667	6/1/2015	3.88	1/16/2036	6/1/2015	200.29794	176.7269037	156.288607	138.5439795	123.1178557	109.6893756	97.98386678	87.76597483	78.83384666
150601A00696	6/1/2015	2.83	3/13/2025	6/1/2015	123.4751	119.2053448	115.1078469	111.1746577	107.3982418	103.7714565	100.2875281	96.94003088	93.72286653
150601A00731	6/1/2015	2.4	4/29/2022	6/1/2015	104.68635	103.882891	103.0917275	102.312579	101.5451735	100.7892472	100.0445441	99.3108157	98.58782097
150601A00733	6/1/2015	2.72	5/1/2025	6/1/2015	124.49578	120.02675	115.7440354	111.6387329	107.7024264	103.9271553	100.3053865	96.82998856	93.49420697
150601A00515	6/1/2015	2.95	1/16/2024	6/1/2015	116.93813	114.136797	111.4179119	108.7785606	106.2159477	103.7273941	101.3103314	98.96229643	96.6809261
150601A00522	6/1/2015	4.52	7/25/2030	6/1/2015	171.26361	158.1088591	146.1047879	135.1436317	125.1282786	115.9711662	107.5932963	99.92335516	92.89692914
150601A00530	6/1/2015	3.08	7/24/2024	6/1/2015	120.81508	117.3428261	113.9900764	110.7520342	107.6241231	104.6019774	101.6814303	98.85850408	96.12939993
150601A00531	6/1/2015	3.28	7/24/2024	6/1/2015	120.94374	117.4812778	114.137702	110.9082531	107.7883877	104.7737705	101.8602637	99.04391645	96.32095563
150601A00616	6/1/2015	2.72	9/30/2022	6/1/2015	107.73965	106.4387878	105.1692474	103.9299108	102.71971	101.5376269	100.3826901	99.25397275	98.15058967
150601A00644	6/1/2015	2.64	6/30/2022	6/1/2015	105.98836	104.9880869	104.0066432	103.0434989	102.0981462	101.1700956	100.2588756	99.36403154	98.48512518
150601A00182	6/1/2015	3.85	7/18/2022	6/1/2015	107.50968	106.4449003	105.4012409	104.3780736	103.3747983	102.3908385	101.4256395	100.4786678	99.54941007
150601A00222	6/1/2015	2.2	9/27/2022	6/1/2015	107.06646	105.7795447	104.523434	103.2970324	102.0992957	100.9292283	99.78588005	98.66834393	97.57575352
150601A00404	6/1/2015	4.29	1/17/2029	6/1/2015	157.73972	147.3929245	137.8181995	128.9534645	120.7419508	113.1317202	106.0752297	99.52893814	93.45295001
150601A00405	6/1/2015	4.63	1/17/2034	6/1/2015	198.69579	178.5276537	160.69649	144.9147892	130.9319836	118.5295212	107.51662	97.72660441	89.01374132
150601A00512	6/1/2015	3.79	7/16/2029	6/1/2015	156.88497	145.8646476	135.7177383	126.3700164	117.753942	109.8080246	102.476252	95.70757601	89.45544861
150601A00514	6/1/2015	3.07	11/15/2024	6/1/2015	122.86752	118.9901455	115.2571027	111.6621701	108.1994381	104.8632872	101.648372	98.54960571	95.56214593
150407A00010	4/7/2015	2.21	4/10/2023	4/7/2015	110.42715	108.5718229	106.7574301	104.9826803	103.2463414	101.5472327	99.88422232	98.25622475	96.66219821
150422A00017	4/22/2015	2.16	4/22/2022	4/22/2015	104.40856	103.6274902	102.8580791	102.1000673	101.3532026	100.6172406	99.89194364	99.17708113	98.47242902
150422A00019	4/22/2015	2.62	4/22/2025	4/22/2015	123.45794	119.0561509	114.8366252	110.7907094	106.910222	103.1874216	99.61497974	96.18595599	92.89377452
150512A00029	5/12/2015	3.03	5/12/2025	5/12/2015	125.46331	120.9556255	116.6363343	112.4964806	108.5275875	104.7216305	101.0710102	97.56852695	94.20735744

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7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150519A00012	5/19/2015	2.44	5/19/2022	5/19/2015	105.09667	104.2302423	103.3780729	102.5398123	101.7151219	100.9036738	100.105151	99.31924617	98.54566194
150519A00013	5/19/2015	2.98	5/19/2025	5/19/2015	125.37933	120.8497805	116.5102729	112.3517845	108.3657709	104.5441401	100.8792259	97.36376261	93.99086208
150220A00020	2/20/2015	2.42	2/18/2022	2/20/2015	103.50373	102.9150711	102.3331039	101.7577127	101.1887863	100.6262163	100.0698963	99.5197227	98.97559379
150220A00021	2/20/2015	2.72	2/20/2024	2/20/2015	116.64243	113.7424043	110.9303345	108.2029968	105.557312	102.9903342	100.4992439	98.08134152	95.73404176
150317A00012	3/17/2015	2.46	3/18/2024	3/17/2015	116.81353	113.8151814	110.910012	108.0945148	105.3653391	102.7192844	100.1532926	97.66443991	95.2499306
150319A00012	3/19/2015	3.13	3/19/2029	3/19/2015	149.41522	139.1542932	129.6817121	120.932512	112.8474134	105.3722992	98.45773868	92.05855833	86.13345399
150401A00008	4/1/2015	2.62	4/1/2025	4/1/2015	123.12287	118.796215	114.6463597	110.6650279	106.8443892	103.1770271	99.65591436	96.27438994	93.0261373
150407A00009	4/7/2015	2.03	4/7/2022	4/7/2015	104.13746	103.4018967	102.6766988	101.9616517	101.256543	100.5611666	99.87532192	99.19881383	98.53145252
150116A00040	1/16/2015	2.07	1/18/2022	1/16/2015	102.7931	102.2981799	101.8080227	101.3225628	100.8417329	100.3654667	99.89369942	99.42636745	98.96340834
150121A00004	1/21/2015	1.97	1/24/2022	1/21/2015	102.8884	102.3750163	101.8667547	101.3635346	100.8652811	100.3719209	99.88338208	99.39959424	98.92048825
150123A00010	1/23/2015	2.02	1/31/2022	1/23/2015	103.02964	102.4952266	101.9663454	101.4429062	100.9248254	100.4120213	99.90441338	99.40192319	98.90447364
150130A00050	1/30/2015	1.87	1/31/2022	1/30/2015	102.95167	102.4174942	101.8888477	101.3656416	100.8477922	100.3352176	99.82783768	99.32557376	98.82834885
150203A00005	2/3/2015	2.11	2/3/2022	2/3/2015	103.07786	102.5350289	101.9978972	101.4663803	100.9403907	100.4198423	99.90465115	99.3947348	98.89001258
150206A00017	2/6/2015	2.05	2/7/2022	2/6/2015	103.16212	102.6065486	102.0569536	101.5132399	100.9753136	100.4430824	99.91645616	99.3953466	98.87966725
140929A00098	9/29/2014	2.62	9/29/2021	9/29/2014	101.07405	100.9025669	100.7316615	100.5613328	100.391578	100.222394	100.0537783	99.88572778	99.7182398
141015A00020	10/15/2014	2.13	10/15/2021	10/15/2014	101.27346	101.0560499	100.8395894	100.6240696	100.4094843	100.1958273	99.98309253	99.77127402	99.56036574
141015A00025	10/15/2014	2.48	10/17/2022	10/15/2014	107.79469	106.4387659	105.116851	103.827677	102.5700386	101.342789	100.1448366	98.97514151	97.83271242
141017A00020	10/17/2014	2.28	10/18/2021	10/17/2014	101.35683	101.1307587	100.9057086	100.6816725	100.4586437	100.2366152	100.0155803	99.79553224	99.57646439
141208A00008	12/8/2014	3.02	12/16/2024	12/8/2014	122.83518	118.8700946	115.0554471	111.3847235	107.8517302	104.4505741	101.1756456	98.02160397	94.98336284
150105A00026	1/5/2015	2.54	1/5/2024	1/5/2015	115.78062	113.0292669	110.3580241	107.7640865	105.2447693	102.7974981	100.4198029	98.10931414	95.86375708
140815A00032	8/15/2014	3.59	10/15/2029	8/15/2014	157.18219	145.7963467	135.3384054	125.7273358	116.8896118	108.7584768	101.273285	94.37891173	88.02522229
140820A00026	8/20/2014	2.94	8/19/2024	8/20/2014	120.97751	117.4186506	113.9846139	110.6702849	107.4707888	104.3814805	101.3979319	98.51592041	95.73141807
140827A00037	8/27/2014	2.55	8/30/2021	8/27/2014	100.53984	100.4532676	100.3668423	100.2805636	100.1944309	100.1084441	100.0226028	99.9369065	99.85135502
140827A00038	8/27/2014	3.07	8/30/2024	8/27/2014	121.08568	117.5024717	114.0455777	110.7097914	107.4901511	104.3819311	101.3806279	98.48194864	95.68179973
140908A00064	9/8/2014	2.57	11/30/2021	9/8/2014	102.16129	101.8107514	101.46261	101.1168398	100.7734168	100.4323173	100.0935177	99.75699498	99.4227263
140908A00065	9/8/2014	2.63	2/28/2022	9/8/2014	103.79815	103.178897	102.5670108	101.9623615	101.3648212	100.7742652	100.1905718	99.61362204	99.04329958
131217A00024	12/17/2013	4.34	1/2/2029	12/17/2013	158.3866	148.0730773	138.5245368	129.6798153	121.4829556	113.8827345	106.8322398	100.2884863	94.21206789
140313A00030	3/13/2014	3.27	3/15/2024	3/13/2014	119.0324	116.0128255	113.0866304	110.2503145	107.5005327	104.8340892	102.2479296	99.73913346	97.30490748
140521A00019	5/21/2014	3.43	5/22/2028	5/21/2014	148.20647	139.0749091	130.5771768	122.6658024	115.2971133	108.430911	102.0301771	96.06080639	90.4913629
140626A00036	6/26/2014	3.55	6/26/2029	6/26/2014	156.54511	145.5439823	135.4121103	126.0759168	117.4684205	109.5286133	102.200899	95.43458743	89.18343835
140710A00027	7/10/2014	2.8	7/17/2023	7/10/2014	113.31186	111.1264692	108.9949785	106.9157129	104.8870592	102.907466	100.97544	99.08954421	97.24839478
140815A00029	8/15/2014	2.56	10/15/2021	8/15/2014	101.34623	101.1289223	100.9125606	100.6971365	100.482644	100.2690769	100.0564292	99.84469487	99.63386807
130904A00036	9/4/2013	3.57	9/15/2023	9/4/2013	116.14693	113.7451236	111.4061156	109.1278021	106.9081672	104.745279	102.6372851	100.5824091	98.57894641

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
130904A00039	9/4/2013	4.19	9/15/2028	9/4/2013	156.47574	146.5978623	137.4292707	128.9149104	121.0042922	113.6510914	106.8127825	100.4503075	94.52777602
130926A00008	9/26/2013	2.91	9/30/2021	9/26/2013	101.15941	100.9848076	100.8108081	100.6374052	100.4645958	100.2923768	100.1207452	99.94969817	99.77923265
130926A00009	9/26/2013	4	10/2/2028	9/26/2013	155.26737	145.3688851	136.1862135	127.6634351	119.7493005	112.3968142	105.5628584	99.20785354	93.29544882
131106A00003	11/6/2013	3.57	11/15/2023	11/6/2013	117.02479	114.4282029	111.9032753	109.4475464	107.0586605	104.7343603	102.4724815	100.2709486	98.12777028
131113A00036	11/13/2013	3.14	11/15/2021	11/13/2013	102.06771	101.7605155	101.4551772	101.1516824	100.8500142	100.5501563	100.2520922	99.95580581	99.66128114
130508A00013	5/8/2013	2.23	5/15/2023	5/8/2013	111.05773	109.0905024	107.1682595	105.2896241	103.4532719	101.6579313	99.90237983	98.18544252	96.50598916
130513A00007	5/13/2013	2.54	5/15/2023	5/13/2013	111.37721	109.4116748	107.4909922	105.6137922	103.778757	101.9846205	100.2301659	98.51422301	96.83566662
130517A00013	5/17/2013	2.07	5/17/2022	5/17/2013	104.8434	103.9830433	103.1367753	102.3042485	101.4851299	100.6790976	99.88583957	99.10505384	98.33644784
130531A00021	5/31/2013	3.22	5/30/2028	5/31/2013	146.71966	137.610488	129.1363259	121.2495043	113.9061695	107.0659574	100.6916989	94.74915219	89.20675807
130606A00013	6/6/2013	2.94	6/15/2023	6/6/2013	112.68755	110.6146367	108.5905796	106.61393	104.6832902	102.797313	100.9546994	99.15419674	97.39459664
130821A00018	8/21/2013	3.37	8/30/2022	8/21/2013	108.09018	106.8839162	105.7045552	104.5512056	103.4230135	102.3191624	101.2388706	100.1813897	99.14600241
130117A00011	1/17/2013	2.18	1/30/2023	1/17/2013	109.17678	107.5481893	105.9527218	104.389452	102.857488	101.3559703	99.88407016	98.44098856	97.02595462
130211A00017	2/11/2013	3.27	2/15/2028	2/11/2013	143.93365	135.367241	127.3753572	119.9163131	112.9516639	106.4459364	100.366384	94.68276293	89.36712911
130212A00016	2/12/2013	2.13	2/15/2022	2/12/2013	103.28823	102.709176	102.1366095	101.5704203	101.0105021	100.4567511	99.90906556	99.36734626	98.83149594
130314A00027	3/14/2013	2.38	3/15/2023	3/14/2013	110.27463	108.4997134	106.7627274	105.062525	103.3980072	101.768119	100.1718467	98.60821632	97.07629149
130405A00007	4/5/2013	2.91	4/17/2028	4/5/2013	143.61405	134.7754464	126.5457267	118.8795735	111.7352836	105.0744622	98.86174249	93.06453068	87.65277363
130424A00004	4/24/2013	2.46	4/24/2025	4/24/2013	123.48252	119.056468	114.8143455	110.7473903	106.8473199	103.1062985	99.51691003	96.0721322	92.76531311
121116A00006	11/16/2012	2.64	11/13/2025	11/16/2012	126.81751	121.6592091	116.7412714	112.0511639	107.5770825	103.3079021	99.23313374	95.34288447	91.6278197
121116A00021	11/16/2012	2.35	11/17/2025	11/16/2012	126.2663	121.0851448	116.1466323	111.4380805	106.9475453	102.6637697	98.57613986	94.67464521	90.94984017
121116A00022	11/16/2012	2.78	11/16/2029	11/16/2012	151.79448	140.4353944	130.0193953	120.4630138	111.6905873	103.6334896	96.22944247	89.42189765	83.15948236
121121A00003	11/21/2012	2.3	11/30/2022	11/21/2012	108.12384	106.6917777	105.2857327	103.9050535	102.5491116	101.2172984	99.90902509	98.62372119	97.36083427
130107A00002	1/7/2013	3.22	1/18/2028	1/7/2013	143.10228	134.6674028	126.7926078	119.4376685	112.5654542	106.1416737	100.1346438	94.51507832	89.25589494
130117A00010	1/17/2013	1.98	1/31/2022	1/17/2013	103.00884	102.474498	101.9456793	101.4223023	100.9042832	100.3915403	99.88399319	99.38156334	98.8841737
120709A00015	7/9/2012	2.5	7/15/2022	7/9/2012	106.15843	105.1104023	104.0830245	103.0756881	102.0878107	101.1188322	100.1682141	99.23543774	98.32000429
120709A00016	7/9/2012	3.2	7/15/2027	7/9/2012	139.88889	132.2382952	125.0605868	118.3239945	111.9990443	106.0583813	100.4766066	95.23012718	90.29701928
120726A00001	7/26/2012	2.36	8/1/2022	7/26/2012	106.30618	105.2043084	104.1252059	103.0681688	102.0325259	101.0176326	100.0228702	99.04764447	98.09138413
120824A00023	8/24/2012	2.4	8/30/2022	8/24/2012	106.85577	105.6592425	104.4894152	103.3454022	102.2263565	101.131468	100.0599611	99.01109301	97.9841523
120907A00023	9/7/2012	2.05	9/15/2022	9/7/2012	106.8734	105.6235505	104.4028098	103.2101722	102.0446758	100.9054023	99.79147408	98.70205261	97.63633585
120907A00024	9/7/2012	2.31	9/16/2024	9/7/2012	119.35538	115.7336469	112.2416974	108.8740865	105.625637	102.491422	99.46675108	96.54715729	93.72838463
120306A00004	3/6/2012	2.95	3/15/2023	3/6/2012	111.00621	109.2289524	107.4895932	105.7869858	104.1200342	102.487686	100.88893	99.32279448	97.78834517
120315A00021	3/15/2012	3.12	3/15/2022	3/15/2012	104.38457	103.7182598	103.0604604	102.4110063	101.769739	101.1365044	100.5111519	99.89353482	99.28351012
120330A00009	3/30/2012	2.98	3/30/2022	3/30/2012	104.58181	103.8697061	103.1672756	102.4743258	101.7906658	101.1161099	100.4504773	99.79359179	99.14528195
120411A00013	4/11/2012	3.59	4/15/2027	4/11/2012	140.85884	133.5093711	126.5963238	120.0913055	113.9679294	108.2016626	102.7696849	97.65075962	92.82511475

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
120503A00014	5/3/2012	2.4	5/16/2022	5/3/2012	105.09683	104.2383923	103.3939489	102.5631642	101.7457086	100.9412629	100.1495183	99.3701754	98.60294439
120515A00020	5/15/2012	2.28	5/16/2022	5/15/2012	104.9985	104.1405097	103.2965086	102.4661612	101.6491379	100.8451197	100.0537977	99.27487289	98.50805534
120112A00014	1/12/2012	3.43	1/15/2032	1/12/2012	172.17122	156.6162934	142.6335257	130.0544929	118.7296652	108.526199	99.32599679	91.02400099	83.52669298
120113A00013	1/13/2012	3.87	1/15/2032	1/13/2012	175.31844	159.7127926	145.6738552	133.0345179	121.6463545	111.3774458	102.110466	93.74099851	86.17605501
120119A00010	1/18/2012	2.43	1/31/2022	1/18/2012	103.24275	102.7076952	102.1781722	101.654096	101.135383	100.6219512	100.1137203	99.61061161	99.11254808
120126A00006	1/26/2012	2.93	1/31/2022	1/26/2012	103.45422	102.919129	102.3895569	101.8654225	101.3466424	100.833135	100.3248202	99.82161972	99.32345663
120127A00019	1/27/2012	3.87	1/30/2032	1/27/2012	175.59191	159.9087559	145.8056769	133.1135302	121.6821525	111.378142	102.0829071	93.69095174	86.10836688
120130A00009	1/30/2012	2.79	1/31/2022	1/30/2012	103.38147	102.8465984	102.3172452	101.7933281	101.2747636	100.7614703	100.253368	99.7503784	99.25242472
110810A00020	8/10/2011	2.86	8/16/2021	8/10/2011	100.3149	100.2674234	100.2200112	100.1726615	100.1253741	100.0781488	100.0309856	99.9838844	99.93684496
110824A00004	8/24/2011	3.11	8/30/2023	8/24/2011	114.80626	112.4688417	110.1916644	107.9727524	105.8102059	103.7022028	101.6469941	99.64290091	97.68831057
111006A00022	10/6/2011	3.08	10/15/2021	10/6/2011	101.45809	101.2406076	101.0240739	100.8084784	100.5938151	100.3800777	100.1672604	99.95535701	99.74436172
111031A00013	10/31/2011	2.82	11/1/2021	10/31/2011	101.73755	101.4709265	101.2056978	100.9418552	100.6793878	100.4182849	100.1585358	99.90013016	99.64305743
111201A00005	12/1/2011	3.16	12/15/2021	12/1/2011	102.6561	102.2608834	101.8687133	101.4795592	101.0933861	100.7101599	100.3298468	99.95241356	99.57782747
120112A00013	1/12/2012	2.76	1/16/2024	1/12/2012	116.54619	113.7499835	111.0361139	108.4016641	105.8438424	103.3599733	100.9474914	98.60393672	96.32694935
100923A00051	9/23/2010	3.4	9/30/2021	9/23/2010	101.22668	101.052181	100.87828	100.7049729	100.5322568	100.3601287	100.1885857	100.0176248	99.84724309
100930A00008	9/30/2010	3.82	9/30/2025	9/30/2010	131.48601	126.3754808	121.4960814	116.8360113	112.3841439	108.1299847	104.0636313	100.1757362	96.45747209
110103A00009	1/3/2011	3.99	1/3/2022	1/3/2011	103.43275	102.9796417	102.5305106	102.0853004	101.6439599	101.2064386	100.7726872	100.3426569	99.91629997
110302A00007	3/2/2011	4.86	3/16/2026	3/2/2011	140.06797	134.166753	128.5558238	123.2192147	118.1419334	113.309894	108.7098565	104.3293708	100.1567253
110505A00022	5/5/2011	4.59	5/15/2026	5/5/2011	140.01506	133.9004505	128.0958893	122.5838959	117.3480747	112.3730411	107.6443527	103.1484463	98.87257972
110805A00013	8/5/2011	3.43	8/16/2021	8/5/2011	100.3376	100.2901511	100.2427614	100.1954337	100.1481678	100.1009635	100.0538209	100.0067397	99.95971992
081205A00033	12/5/2008	4.77	12/7/2023	12/5/2008	120.45835	117.7500117	115.1175413	112.558383	110.0700804	107.650274	105.2966967	103.0071702	100.7796002
081209A00008	12/9/2008	4.87	12/15/2023	12/9/2008	120.90084	118.1605408	115.4976526	112.9095443	110.3936882	107.9476571	105.5691203	103.2558386	101.0056605
081211A00029	12/11/2008	4.57	12/15/2023	12/11/2008	120.14459	117.413843	114.7602971	112.181324	109.6744022	107.237111	104.8671253	102.5622117	100.3202242
081219A00069	12/19/2008	4.26	12/22/2023	12/19/2008	119.51899	116.7731781	114.1056332	111.5136736	108.9947233	106.5463101	104.1660605	101.851695	99.60102414
091210A00005	12/10/2009	5.08	12/16/2024	12/10/2009	130.34626	126.2478517	122.3036673	118.5070599	114.8517027	111.3315747	107.9409447	104.6743552	101.5266084
100824A00009	8/24/2010	3.91	9/2/2025	8/24/2010	131.34241	126.3296687	121.5401238	116.9625646	112.5864082	108.4016617	104.3988859	100.5691612	96.904056
060308A00014	3/8/2006	5.44	3/16/2026	3/8/2006	143.01655	137.0442023	131.3647233	125.9620381	120.821044	115.9275503	111.2682175	106.8305015	102.6026011
060908A00017	9/8/2006	5.27	9/15/2021	9/8/2006	101.18779	101.0554347	100.923441	100.7918084	100.6605355	100.5296207	100.3990626	100.2688596	100.1390102
061220A00034	12/20/2006	5.07	12/30/2021	12/20/2006	103.8076	103.3653252	102.9268145	102.4920231	102.0609038	101.6334103	101.209497	100.7891191	100.3722326
061221A00005	12/21/2006	5.28	12/30/2021	12/21/2006	103.85756	103.4156314	102.9774621	102.5430028	102.1122067	101.6850276	101.2614203	100.84134	100.4247429
071231A00068	12/31/2007	4.93	12/30/2022	12/31/2007	112.73242	111.1692539	109.6361149	108.1322081	106.6567652	105.2090446	103.7883301	102.3939293	101.0251735
080910A00065	9/10/2008	5.03	9/15/2023	9/10/2008	119.08096	116.6525823	114.2873963	111.9832951	109.7382558	107.5503395	105.4176873	103.3385159	101.311114
090429A00044	4/29/2009	4.1	4/29/2024	4/29/2014	100.64856	100.561772	100.4751322	100.3886483	100.302301	100.2161103	100.1300686	100.0291744	99.44804892

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
100707A00014	7/7/2010	3.19	7/7/2025	7/7/2015	100.59797	100.5102417	100.4226668	100.3352524	100.2479789	100.1608664	100.0557459	99.29312928	97.66702685
111215A00019	12/15/2011	2.53	12/15/2026	12/15/2021	102.592	102.1710592	101.7536858	101.3398417	100.9289597	100.4515172	99.3078952	97.21669499	94.84344612
130416A00025	4/16/2013	2.27	4/18/2028	4/16/2018	100.52134	100.4330003	100.34482	100.2568014	100.1689246	99.92661151	98.11640862	95.31488721	92.41095053
140416A00025	4/14/2014	3.56	4/16/2029	4/14/2021	100.63887	100.5499043	100.461092	100.3724425	100.2839357	100.1955924	99.7579417	96.92749978	92.80128411
140508A00011	5/8/2014	2.32	5/8/2024	5/8/2019	100.51755	100.4306265	100.3438527	100.257238	100.1707629	100.0828712	99.71979623	98.61692178	97.31869936
201229A00003	12/29/2020	1.28	12/30/2030	12/30/2025	118.78254	114.0577023	109.1756162	103.736301	97.8332369	91.84445157	86.05113299	80.61436883	75.58472474
201230A00018	12/30/2020	1.52	12/28/2035	12/28/2027	128.91149	121.2263305	113.3020066	104.7781407	95.97980411	87.44076754	79.49317009	72.3014066	65.89031784
210108A00007	1/8/2021	1.65	1/8/2036	1/8/2026	122.09691	116.9824119	111.4827444	104.9046435	97.36139023	89.54899917	82.03127347	75.12395716	68.91896292
210225A00010	2/25/2021	2.02	2/25/2041	2/25/2026	123.35964	118.2038461	112.7739519	106.4238045	99.15477312	91.57912693	84.25536962	77.51644269	71.46325193
210405A00013	4/5/2021	1.82	4/7/2036	4/5/2026	121.52582	116.6324268	111.6683424	106.2532546	100.3714554	94.34359004	88.47800645	82.97747279	77.91817868
201116A00019	11/16/2020	1.32	11/15/2030	11/16/2025	118.66657	114.0481684	109.2881735	103.9803613	98.18635966	92.27470325	86.53357175	81.13254958	76.12744579
201118A00015	11/18/2020	1.66	11/18/2036	11/18/2027	129.58747	121.971052	114.0743253	105.4852888	96.51832805	87.76109384	79.59673803	72.22212017	65.67314497
201118A00017	11/18/2020	1.66	11/18/2036	11/18/2027	129.58747	121.971052	114.0743253	105.4852888	96.51832805	87.76109384	79.59673803	72.22212017	65.67314497
201118A00018	11/18/2020	1.85	11/18/2036	11/18/2027	129.77601	122.2024917	114.3719605	105.8710588	96.98148876	88.27722558	80.14254617	72.78184192	66.23750203
201202A00016	12/2/2020	1.32	12/3/2035	12/2/2025	118.12395	113.5850493	108.806476	103.3797087	97.46976122	91.5250933	85.84409556	80.57246846	75.74163789
201202A00017	12/2/2020	1.32	12/3/2035	12/2/2025	118.12395	113.5850493	108.8064759	103.3797085	97.46976087	91.52509278	85.84409489	80.57246767	75.741637
200512A00023	5/12/2020	1.78	5/11/2035	5/12/2025	119.55633	115.37552	111.0280163	105.8181326	99.52078436	92.66847079	85.86393258	79.4919714	73.68835947
200609A00003	6/9/2020	1.66	6/8/2035	6/9/2025	119.67799	115.3094329	110.6037748	104.764982	97.74131614	90.24351708	82.9135592	76.12500019	69.99645249
200612A00001	6/12/2020	0.75	6/12/2030	6/12/2025	113.56727	110.0365682	106.4729632	102.6603401	98.65518784	94.65443354	90.78677065	87.11493326	83.65313268
201022A00008	10/22/2020	1.02	10/22/2035	10/22/2025	117.0071	112.6212287	107.9309056	102.5146768	96.60387162	90.68968714	85.06522391	79.85919713	75.09152627
201029A00008	10/29/2020	0.92	10/29/2030	10/29/2025	114.45796	110.6447038	106.8122196	102.7734835	98.59670268	94.46078846	90.47959017	86.70871606	83.16003787
201030A00025	10/30/2020	2.02	10/28/2050	10/30/2025	123.08011	118.043895	112.2261573	104.4569012	95.00388987	85.24562021	76.17873889	68.22674087	61.41572873
200326A00035	3/26/2020	1.68	3/26/2030	3/26/2025	115.40185	112.0551888	108.776728	105.3893306	101.7735039	98.00025627	94.21397758	90.54321396	87.05218582
200423A00008	4/23/2020	1.59	4/23/2030	4/23/2025	119.03483	114.8572019	110.6639265	105.9719886	100.5182593	94.57607375	88.56348205	82.8008315	77.42532278
200423A00009	4/23/2020	1.59	4/23/2030	4/23/2025	119.03483	114.8572019	110.6639265	105.9719886	100.5182593	94.57607375	88.56348205	82.8008315	77.42532278
200423A00010	4/23/2020	1.59	4/23/2030	4/23/2025	119.03481	114.85719	110.6639181	105.9719843	100.5182599	94.57607964	88.56349339	82.80084804	77.42534414
200430A00021	4/30/2020	1.2	4/30/2030	4/30/2025	114.29541	110.8456897	107.4131706	103.7868743	99.94593314	96.04652523	92.23009698	88.58295669	85.13420976
200505A00010	5/5/2020	0.89	5/6/2030	5/5/2025	113.82126	110.3586575	106.8852939	103.1795439	99.25654128	95.30099745	91.4533906	87.78940788	84.33053143
200115A00025	1/15/2020	2.1	1/15/2025	1/15/2023	108.2755	106.7454768	105.2459462	103.7734995	102.2646054	100.4894432	98.26082391	95.74523188	93.20169486
200306A00021	3/6/2020	1.16	3/6/2030	3/6/2025	113.71144	110.3968368	107.0912721	103.5698848	99.80108005	95.95156638	92.17390964	88.56046963	85.14188762
200309A00013	3/9/2020	1.1	3/8/2030	3/9/2025	113.51723	110.2054955	106.8943207	103.3543257	99.56885351	95.71364526	91.93916687	88.33324082	84.92323518
200316A00030	3/16/2020	1.35	3/15/2030	3/16/2025	114.85189	111.5071896	108.2129077	104.7703446	101.0853387	97.26610457	93.46510881	89.80086941	86.32434726
200316A00032	3/16/2020	1.35	3/15/2030	3/16/2025	114.8519	111.5071905	108.2129081	104.7703444	101.0853376	97.26610216	93.4651051	89.80086446	86.32434116

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200318A00015	3/18/2020	1.69	3/18/2030	3/18/2023	108.49718	106.845002	105.2270964	103.5527274	101.336223	98.21976786	94.53268688	90.77673709	87.17695882
191220A00029	12/20/2019	2.57	12/19/2031	12/20/2024	118.16039	114.8015104	111.543661	108.2501003	104.6786499	100.713564	96.46102098	92.1613824	88.01298339
200102A00020	1/2/2020	2.78	1/3/2040	1/2/2025	121.53387	117.720092	113.9730445	109.897058	104.8946593	98.83708999	92.17010424	85.53458476	79.3478587
200108A00009	1/8/2020	2.4	1/8/2035	1/8/2025	119.72369	116.0161809	112.3877058	108.5367787	104.0418071	98.84493616	93.27000877	87.74851925	82.54714332
200108A00040	1/8/2020	2.52	1/8/2030	1/8/2025	119.98713	116.2262782	112.5688085	108.797965	104.5767603	99.78591312	94.60050668	89.35698308	84.31746402
200110A00012	1/10/2020	2.57	1/10/2035	1/10/2025	119.37695	115.7664236	112.2373135	108.5229676	104.2492575	99.34319547	94.06694821	88.80306607	83.81175811
200115A00023	1/15/2020	2.16	1/15/2030	1/15/2025	116.35427	113.1190685	109.9793324	106.8149496	103.4667427	99.90386996	96.22497152	92.58398002	89.08623817
190930A00083	9/30/2019	2.04	10/1/2029	9/30/2024	115.47227	112.4595333	109.5354404	106.5948548	103.4659501	100.0901642	96.55846991	93.03445805	89.63517996
191007A00012	10/7/2019	2	10/5/2029	10/7/2024	114.91927	111.9194261	109.0005063	106.0316468	102.8365686	99.39225322	95.81941041	92.28241339	88.88618502
191007A00013	10/7/2019	2	10/5/2029	10/7/2024	114.91927	111.9194223	109.0005036	106.0316456	102.8365698	99.39225771	95.81941852	92.2824251	88.88620009
191028A00015	10/28/2019	2.49	10/27/2034	10/28/2024	118.43995	115.0801268	111.80335	108.3773443	104.399144	99.72187767	94.5757882	89.37384598	84.41293293
191031A00036	10/31/2019	2.9	10/31/2039	10/31/2024	120.43732	116.8402092	113.3078391	109.4605079	104.6787822	98.79909391	92.2659863	85.73568021	79.63437651
191031A00037	10/31/2019	2.59	10/30/2034	10/31/2024	118.61744	115.1925229	111.8483993	108.337879	104.2698899	99.53280508	94.37412016	89.18997172	84.25757302
190520A00018	5/20/2019	3.7	5/20/2044	5/20/2024	120.56095	117.3774771	114.2863315	111.120678	107.2058704	101.7079435	94.65271093	87.0176981	79.7309361
190530A00044	5/30/2019	2.85	5/30/2034	5/30/2024	117.35512	114.4159358	111.5624878	108.6859111	105.4355639	101.4551854	96.75943246	91.75244378	86.84567352
190807A00041	8/7/2019	2.27	8/7/2034	7/7/2024	116.54129	113.4561078	110.4336213	107.2002069	103.2990479	98.62398975	93.49503659	88.35758731	83.48741489
190807A00044	8/7/2019	2.27	8/7/2034	8/7/2024	116.93048	113.7635011	110.6603043	107.3424885	103.3665087	98.6458548	93.49967991	88.35889218	83.48859651
190827A00044	8/27/2019	1.9	8/27/2029	8/27/2024	114.45956	111.59837	108.8160926	105.9935297	102.9393423	99.60536765	96.10624814	92.62070439	89.26486788
190930A00079	9/30/2019	2.04	10/1/2029	9/30/2024	115.47227	112.4595333	109.5354404	106.5948549	103.4659505	100.090165	96.55847108	93.03445963	89.63518189
190204A00054	2/4/2019	3.98	2/6/2034	2/2/2024	119.45908	116.5999004	113.8261265	111.1065539	108.2186732	104.5930011	99.69044826	93.68880525	87.32668244
190222A00023	2/22/2019	3.66	2/22/2034	2/22/2026	135.94478	130.2722184	124.7755325	119.1251335	112.9065174	105.9852219	98.56650221	91.07847527	83.91838972
190301A00015	3/1/2019	3.86	3/1/2034	3/2/2026	133.40672	127.8873966	122.6046404	117.3835075	111.8849872	105.8129851	99.13039338	92.13643114	85.26521696
190409A00016	4/9/2019	2.91	4/9/2029	4/9/2024	117.06348	114.2112334	111.4460153	108.7186252	105.8231374	102.451107	98.49882684	94.18116712	89.82396471
190409A00017	4/9/2019	3.01	4/9/2029	4/9/2024	117.94968	114.9872865	112.1160642	109.2820897	106.2535592	102.6798085	98.40453811	93.64856954	88.84660103
190430A00020	4/30/2019	3.41	4/28/2034	4/28/2026	133.48632	127.6474547	122.0390663	116.4022808	110.3332569	103.609075	96.35201302	88.97674088	81.9108457
180627A00005	6/27/2018	3.63	6/30/2033	6/30/2023	114.19557	112.1123095	110.0806299	108.0948593	106.0853735	103.7396843	100.5466038	96.41296366	91.83790587
180703A00033	7/3/2018	3.4	7/3/2028	7/3/2023	112.49055	110.5673788	108.6910983	106.8588174	105.0437824	103.1203184	100.8553992	98.15073852	95.20692612
180712A00016	7/12/2018	3.66	7/12/2033	7/12/2028	143.01469	135.1920102	127.8499458	120.8561244	114.06907	107.4141172	100.8991184	94.61132036	88.6649809
181212A00026	12/12/2018	3.22	12/12/2028	12/12/2023	114.71549	112.4027535	110.1541289	107.9627358	105.7794081	103.4553772	100.8017971	97.8053159	94.65938487
190111A00040	1/11/2019	3.74	1/11/2034	1/11/2024	118.64542	115.8582293	113.1523934	110.5003595	107.6939184	104.1765354	99.42826104	93.65674529	87.60247142
190116A00015	1/16/2019	3.61	1/17/2034	1/16/2024	117.02105	114.4118965	111.8783017	109.3972284	106.8132452	103.7468922	99.85715262	95.27453538	90.47870223
180105A00005	1/5/2018	3.07	1/5/2028	1/5/2023	109.3804	107.9255324	106.4999851	105.102662	103.7187881	102.229821	100.3351117	97.8785175	95.12273436
180105A00006	1/5/2018	3.07	1/5/2028	1/5/2023	109.3804	107.9255304	106.4999835	105.1026608	103.7187872	102.2298208	100.3351129	97.87852096	95.12274064

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180130A00087	1/30/2018	2.92	1/31/2028	1/30/2023	109.16635	107.7139591	106.2908386	104.8956968	103.5070834	101.9759456	99.98883271	97.45678336	94.67825993
180302A00003	3/2/2018	3.89	3/2/2033	3/2/2023	112.82853	111.0290061	109.2684835	107.5437621	105.788837	103.5634092	99.95275592	94.70261671	88.68457345
180315A00030	3/15/2018	3.76	3/15/2033	3/17/2025	127.08799	122.8111011	118.6972044	114.6557402	110.3916318	105.4861006	99.7254113	93.36586631	86.92762495
180504A00024	5/4/2018	3.62	5/4/2028	5/4/2023	113.89634	111.8501553	109.851154	107.8968586	105.9524608	103.7860786	100.8433199	96.81498178	92.14571853
170721A00021	7/21/2017	2.95	7/21/2032	7/21/2022	106.68354	105.6348069	104.6072787	103.5998761	102.5628023	101.004103	98.03725207	93.92609123	89.57493305
170802A00074	8/2/2017	2.92	8/2/2027	8/2/2022	107.04299	105.8962891	104.7749075	103.6776973	102.5737762	101.154202	98.73625611	95.33656419	91.65379833
170809A00042	8/9/2017	2.35	8/9/2027	8/9/2022	106.29495	105.2076032	104.1439025	103.1025407	102.0469613	100.7169293	98.71998647	96.1896605	93.54266487
171004A00022	10/4/2017	2.74	10/4/2027	10/4/2022	108.074	106.7444461	105.4484119	104.1832218	102.8922784	101.2138295	98.57894068	95.08835751	91.35223259
171005A00047	10/5/2017	3.29	10/5/2032	10/5/2022	108.94336	107.5794628	106.2501408	104.9518333	103.5902316	101.5331514	97.80515928	92.67482228	87.2105106
171016A00037	10/16/2017	3.39	10/18/2032	10/16/2022	109.16492	107.785444	106.4410357	105.1279398	103.7430442	101.5840766	97.55306397	91.93868731	85.93621135
161118A00013	11/18/2016	2.96	11/18/2026	11/18/2021	102.31222	101.9632732	101.6167088	101.2725047	100.9305671	100.5285444	99.07580542	95.85631674	91.9938361
170113A00025	1/13/2017	3.59	1/13/2032	1/13/2022	103.73691	103.2136977	102.6958574	102.1833077	101.6758603	101.1428389	99.99247946	97.04587557	93.0202396
170411A00031	4/11/2017	3.39	4/12/2032	4/11/2022	105.2523	104.4744077	103.7082819	102.953649	102.2048833	101.265075	99.16998244	95.5210427	91.30417166
170515A00052	5/15/2017	3.78	5/15/2042	5/15/2024	122.61562	119.3278477	116.12708	112.8406908	109.0059673	104.0229095	97.7221971	90.69560738	83.7511679
170519A00006	5/19/2017	3	5/19/2032	5/19/2022	105.64458	104.7719389	103.914076	103.0705183	102.2154526	100.9510466	98.28092263	94.29781126	90.00275638
170705A00037	7/5/2017	2.85	7/6/2032	7/6/2027	129.45127	123.7603761	118.3611269	113.1673744	108.1018795	103.144188	98.32206908	93.6942399	89.31477232
150223A00011	2/23/2015	3.54	2/22/2030	2/23/2022	104.15585	103.5579491	102.9670795	102.3831168	101.8057828	101.2022668	100.0708301	97.5253404	94.11957551
150417A00033	4/17/2015	1.78	4/18/2022	4/17/2020	100.47369	100.3862316	100.2989288	100.211786	100.1247837	100.0327717	99.71492493	99.14403157	98.55758124
151223A00007	12/23/2015	3.76	12/23/2030	12/23/2022	110.54965	109.0362583	107.5518759	106.0948418	104.6165921	102.7080627	99.43360919	94.55166486	88.95349494
161006A00023	10/6/2016	2.49	10/6/2031	10/6/2021	101.57134	101.3177575	101.0654568	100.8144263	100.5602527	99.70062173	96.64263478	92.56431507	88.45795737
161012A00009	10/12/2016	2.56	10/14/2031	10/12/2021	101.58895	101.3353288	101.0829832	100.831908	100.5802666	99.83133025	96.91984412	92.87301829	88.76210673
161012A00020	10/11/2016	2.96	10/14/2031	10/11/2023	115.11987	112.6633874	110.270816	107.8556425	104.9615568	100.9011556	95.53218945	89.4821099	83.45765926
140723A00038	7/23/2014	2.3	7/23/2024	7/23/2019	100.51659	100.4295265	100.3426217	100.2558762	100.1692706	100.0803551	99.66982013	98.48683735	97.11496978
140822A00012	8/22/2014	3.7	8/22/2034	8/23/2021	100.62548	100.5367736	100.4482188	100.3598233	100.2715669	100.1793457	99.1535006	95.21767668	90.34177138
141110A00008	11/10/2014	2.31	11/12/2024	11/12/2019	100.51878	100.4314879	100.3443546	100.257381	100.1705475	100.0803215	99.60440471	98.28543452	96.7689047
141119A00005	11/19/2014	2.53	11/19/2024	11/19/2019	100.51445	100.4274036	100.3405059	100.2537646	100.1671603	100.0789994	99.68106245	98.41796144	96.91058482
150108A00029	1/8/2015	3.16	1/9/2035	1/10/2022	103.65412	103.1060692	102.5636966	102.0269152	101.4880439	100.5010784	97.17869296	92.01219079	86.67219359
150202A00006	2/2/2015	1.92	2/3/2025	2/3/2020	100.48549	100.3980984	100.3108652	100.2237918	100.1368588	99.98896146	99.02856779	97.46323557	95.82906318
110701A00011	7/1/2011	3.87	7/1/2026	7/1/2011	119.78096	116.7009441	113.7404291	110.8937351	108.1554929	105.520627	102.9843374	100.5420825	98.18956389
110719A00017	7/19/2011	3.68	7/20/2026	7/19/2011	119.22828	116.1615245	113.2138373	110.3795525	107.6533162	105.0300673	102.5050198	100.073646	97.73166026
110810A00009	8/10/2011	2.36	8/10/2021	8/10/2011	100.10139	100.0846383	100.067903	100.0511864	100.0344885	100.0178092	100.0011485	99.98450641	99.96788286
110909A00006	9/9/2011	2.26	9/9/2026	9/9/2011	115.55008	112.4823246	109.5369528	106.7079983	103.9898331	101.3771441	98.86491259	96.44839645	94.12311261
111115A00005	11/15/2011	2.26	11/15/2021	11/15/2011	100.98774	100.8202057	100.6534668	100.4875185	100.3223546	100.1579692	99.99435622	99.83150975	99.66942395

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
111220A00025	12/20/2011	2.17	12/20/2021	12/20/2011	101.24605	101.0308191	100.8168924	100.6042533	100.3928891	100.1827873	99.97393535	99.76632104	99.55993228
210714A00014	7/14/2021	1.12	7/14/2026	7/14/2021	120.46393	115.1184154	110.0506459	105.244618	100.6853367	96.35874607	92.25166572	88.35173139	84.64734023
210714A00018	7/14/2021	0.75	7/12/2024	7/14/2021	112.02593	108.9552198	105.9877782	103.1195343	100.3466003	97.665264	95.07197992	92.56336066	90.13616893
210714A00017	7/14/2021	0.73	7/12/2024	7/14/2021	111.06372	108.237677	105.5044206	102.8603319	100.3019537	97.82598433	95.42926962	93.10879535	90.86168014
210714A00013	7/14/2021	1.12	7/14/2026	7/14/2021	120.46393	115.1184154	110.0506459	105.244618	100.6853367	96.35874607	92.25166572	88.35173139	84.64734023
210714A00012	7/14/2021	1.12	7/14/2026	7/14/2021	120.46393	115.1184154	110.0506459	105.244618	100.6853367	96.35874607	92.25166572	88.35173139	84.64734023
210714A00011	7/14/2021	0.75	7/12/2024	7/14/2021	112.20698	109.0876366	106.0736527	103.1608627	100.3452931	97.62314991	94.99080977	92.44481098	89.98184537
210714A00015	7/14/2021	1.11	7/14/2026	7/14/2021	119.8874	114.694822	109.7696684	105.0965966	100.6612325	96.45009976	92.45055905	88.65075141	85.03954605
210714A00016	7/14/2021	0.75	7/12/2024	7/14/2021	112.02593	108.9552198	105.9877782	103.1195343	100.3466003	97.665264	95.07197992	92.56336066	90.13616893
210714A00010	7/14/2021	0.75	7/12/2024	7/14/2021	112.20698	109.0876377	106.0736534	103.160863	100.3452929	97.62314939	94.9908089	92.44480977	89.98184383
210714A00009	7/14/2021	0.75	7/12/2024	7/14/2021	112.20698	109.0876377	106.0736534	103.160863	100.3452929	97.62314939	94.9908089	92.44480977	89.98184383
210611A00007	6/11/2021	0.61	6/11/2024	6/11/2021	111.445	108.4367907	105.5274764	102.7132564	99.99049932	97.35573292	94.80563648	92.33703316	89.94688298
210611A00008	6/11/2021	0.61	6/11/2024	6/11/2021	111.56162	108.5213271	105.5812458	102.737524	99.98647773	97.32458504	94.74847741	92.25493241	89.84086648
210611A00009	6/11/2021	0.61	6/11/2024	6/11/2021	111.445	108.4367907	105.5274764	102.7132564	99.99049932	97.35573292	94.80563648	92.33703316	89.94688298
210611A00010	6/11/2021	1.02	6/11/2026	6/11/2021	119.64837	114.434588	109.4872419	104.7912418	100.3324309	96.09752336	92.07404626	88.25028575	84.615237
210611A00011	6/11/2021	1.02	6/11/2026	6/11/2021	119.64837	114.434588	109.4872419	104.7912418	100.3324309	96.09752336	92.07404626	88.25028575	84.615237
210611A00012	6/11/2021	1.02	6/11/2026	6/11/2021	119.64837	114.434588	109.4872419	104.7912418	100.3324309	96.09752336	92.07404626	88.25028575	84.615237
210423A00001	4/23/2021	1.72	4/23/2036	4/23/2021	137.84454	127.3915649	117.9979921	109.5416825	101.9157913	95.02673217	88.79242465	83.14078603	78.00843086
210423A00003	4/23/2021	1.31	4/23/2031	4/23/2021	123.52464	117.3178056	111.5434976	106.1667	101.1555298	96.48093568	92.11642584	88.03782366	84.22304858
210512A00008	5/12/2021	0.66	5/10/2024	5/12/2021	111.28222	108.3652029	105.5418878	102.8086545	100.1620468	97.59876626	95.11566421	92.70973327	90.37810011
210512A00009	5/12/2021	0.66	5/10/2024	5/12/2021	111.28222	108.3652029	105.5418878	102.8086545	100.1620468	97.59876626	95.11566421	92.70973327	90.37810011
210512A00011	5/12/2021	1.16	5/12/2026	5/12/2021	120.02787	114.8836927	109.998638	105.3581418	100.9485417	96.75701678	92.77153132	88.9807817	85.37414774
210512A00012	5/12/2021	1.16	5/12/2026	5/12/2021	120.02787	114.8836927	109.998638	105.3581418	100.9485417	96.75701678	92.77153132	88.9807817	85.37414774
210331A00007	3/31/2021	1.25	3/31/2031	3/31/2021	122.101	116.0397566	110.3966429	105.1381234	100.233634	95.65530179	91.37768817	87.37755878	83.63367636
210408A00007	4/8/2021	1.05	4/8/2031	4/8/2021	121.97253	115.8448297	110.1441005	104.8357766	99.88838962	95.27326527	90.96425502	86.93749515	83.17119045
210412A00007	4/12/2021	0.66	4/12/2024	4/12/2021	111.01034	108.1751741	105.4291861	102.7689516	100.1912069	97.69283839	95.27087403	92.92247596	90.64493322
210412A00008	4/12/2021	0.66	4/12/2024	4/12/2021	111.01034	108.1751741	105.4291861	102.7689516	100.1912069	97.69283839	95.27087403	92.92247596	90.64493322
210412A00009	4/12/2021	0.37	4/12/2022	4/12/2021	102.89438	102.1631266	101.4423412	100.731801	100.0312883	99.3405913	98.65950438	97.98782747	97.32536608
210420A00035	4/20/2021	1.92	4/20/2034	4/20/2021	139.17196	128.4895079	118.8669443	110.1857302	102.3416384	95.24291947	88.80871759	82.96769789	77.65685524
210212A00006	2/12/2021	0.77	2/12/2026	2/12/2021	117.68038	112.7807772	108.1190207	103.6822275	99.45828509	95.43580015	91.60405177	87.95294806	84.4729857
210212A00007	2/12/2021	0.76	2/12/2026	2/12/2021	117.34489	112.533994	107.9554295	103.5966482	99.44584809	95.491927	91.72443687	88.13354165	84.70997795
210217A00005	2/17/2021	0.83	2/14/2031	2/17/2021	120.36597	114.4225522	108.8869319	103.726572	98.91180733	94.41557107	90.21314871	86.2819564	82.60134184
210319A00008	3/19/2021	0.63	3/19/2024	3/19/2021	110.69264	107.9296905	105.2519409	102.6561986	100.1394116	97.69866435	95.33117038	93.03426567	90.80540223

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210319A00009	3/19/2021	1.1	3/19/2026	3/19/2021	119.28561	114.3127271	109.583992	105.0859813	100.8060889	96.73247108	92.85399569	89.16019533	85.64122353
210319A00012	3/19/2021	0.83	12/19/2024	3/19/2021	113.96004	110.3773723	106.9298318	103.6115826	100.4170688	97.341004	94.37835675	91.52433654	88.77438117
201221A00022	12/21/2020	0.51	12/19/2025	12/21/2020	116.01188	111.4930999	107.1847403	103.0758101	99.15595182	95.41540163	91.84495211	88.4359176	85.18010187
201228A00013	12/28/2020	0.84	12/30/2030	12/28/2020	119.21255	113.4497875	108.0752757	103.0585525	98.37180355	93.98961297	89.88873933	86.04791383	82.44765864
210107A00008	1/7/2021	0.54	1/5/2024	1/7/2021	109.73359	107.1924209	104.7246901	102.3278419	99.99942431	97.7370855	95.53856933	93.4017106	91.32443086
210107A00009	1/7/2021	0.54	1/5/2024	1/7/2021	109.73359	107.1924209	104.7246901	102.3278419	99.99942431	97.7370855	95.53856933	93.4017106	91.32443086
210107A00010	1/7/2021	0.54	1/5/2024	1/7/2021	109.73359	107.1924209	104.7246901	102.3278419	99.99942431	97.7370855	95.53856933	93.4017106	91.32443086
210212A00004	2/12/2021	1.1	2/12/2036	2/12/2021	131.50236	121.6436203	112.7738435	104.7801222	97.56355809	91.03741025	85.1255031	79.76085359	74.88448634
201029A00004	10/29/2020	1.49	10/29/2038	10/29/2020	155.88852	136.7745374	120.4575878	106.4976064	94.52697985	84.23819535	75.3736597	67.71729555	61.08759578
201103A00005	11/3/2020	0.89	11/4/2030	11/3/2020	119.34508	113.6274574	108.2919055	103.3086726	98.65057798	94.29276803	90.21250041	86.38894945	82.80303071
201110A00003	11/10/2020	1.12	11/10/2027	11/10/2020	124.76844	117.8585171	111.3900464	105.3322398	99.6566291	94.33687478	89.34859483	84.66920893	80.27779557
201203A00007	12/3/2020	0.58	12/1/2023	12/3/2020	109.47919	107.0411883	104.6710349	102.3664601	100.1252813	97.94540153	95.8248054	93.76155553	91.75378907
201207A00009	12/7/2020	1.01	12/7/2027	12/7/2020	124.23745	117.2776075	110.7668372	104.6736302	98.96884839	93.62553487	88.61874029	83.92536336	79.52400507
201207A00021	12/7/2020	1.85	12/7/2050	12/7/2020	169.78	144.5519674	124.0862931	107.3855128	93.67456976	82.34899064	72.93555398	65.06235575	58.43596104
200716A00004	7/16/2020	0.97	7/16/2027	7/16/2020	122.87908	116.3743481	110.2673571	104.531534	99.14221593	94.07650767	89.31314557	84.83237316	80.61582665
200724A00011	7/24/2020	1.41	7/26/2038	7/24/2020	153.95996	135.2868559	119.3164284	105.6282997	93.87049746	83.74793024	75.01286557	67.45704951	60.9051776
200806A00004	8/6/2020	0.3	3/6/2024	8/6/2020	105.54477	104.0953072	102.6807412	101.2999332	99.95178948	98.63526127	97.34934234	96.09306701	94.86550809
200814A00003	8/14/2020	0.96	8/14/2035	8/14/2020	129.32296	119.9567992	111.5009025	103.854433	96.92870516	90.64562741	84.93635236	79.74010824	75.00318616
200818A00012	8/18/2020	0.97	8/18/2027	8/18/2020	123.13169	116.5252285	110.3280403	104.5124114	99.0526557	93.92495325	89.10720488	84.5788989	80.32098879
200910A00006	9/10/2020	0.96	9/10/2027	9/10/2020	123.23983	116.5661121	110.309372	104.4411353	98.93502713	93.76660611	88.91321229	84.35382769	80.06894859
200612A00004	6/12/2020	1.42	6/12/2040	6/12/2020	142.68029	128.3627429	115.8951561	105.0086316	95.47633936	87.10657562	79.73701494	73.22994486	67.46830873
200616A00005	6/16/2020	0.74	6/17/2030	6/16/2020	118.65677	113.2051838	108.1042545	103.3276335	98.85117563	94.65273494	90.711985	87.01025635	83.53038955
200618A00004	6/18/2020	0.7	6/18/2030	6/18/2020	118.44426	113.002494	107.9107517	103.1427385	98.67435198	94.48348538	90.5498483	86.85480438	83.38122467
200623A00028	6/23/2020	1.23	6/23/2038	6/23/2020	137.09151	125.2137152	114.6932393	105.3546356	97.04697911	89.6402334	83.02218388	77.09584277	71.7772508
200709A00018	7/9/2020	0.59	7/7/2023	7/9/2020	108.04859	106.0200504	104.0406693	102.1089422	100.2234215	98.38271374	96.58547721	94.83041947	93.11629534
200709A00019	7/9/2020	0.77	7/9/2025	7/9/2020	115.77496	111.5406163	107.4885434	103.6098937	99.89629773	96.33983585	92.9330112	89.66872491	86.54025284
200514A00008	5/14/2020	1.23	5/14/2030	5/14/2020	129.58722	120.8746763	112.8745141	105.5230126	98.76253382	92.54091074	86.810898	81.52968093	76.65843599
200520A00009	5/20/2020	1.63	5/20/2038	5/20/2020	156.26987	137.8439576	122.039431	108.4543418	96.75132193	86.64683442	77.90226559	70.31653697	63.7199702
200522A00009	5/22/2020	0.96	5/22/2030	5/22/2020	119.47876	113.8660176	108.6168743	103.7038769	99.10186535	94.78776911	90.74041895	86.9403772	83.369784
200605A00018	6/5/2020	0.91	6/5/2025	6/5/2020	116.03003	111.8852578	107.9149135	104.1107181	100.4648334	96.96983233	93.61867504	90.40468682	87.32153717
200608A00001	6/8/2020	1.34	6/7/2030	6/8/2020	130.68738	121.8509351	113.7412091	106.2928784	99.4468762	93.14976191	87.35315564	82.01323247	77.09026963
200610A00006	6/10/2020	1.11	6/10/2027	6/10/2020	123.47123	117.0416828	110.9990576	105.3179127	99.97460716	94.94716689	90.21515881	85.75957515	81.56272706
200512A00013	5/12/2020	1.17	5/12/2027	5/12/2020	123.60049	117.2463405	111.2701912	105.6473709	100.3549512	95.37161724	90.67754523	86.2542901	82.08468202

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200512A00014	5/12/2020	1.17	5/12/2027	5/12/2020	123.60049	117.2463405	111.2701912	105.6473709	100.3549512	95.37161724	90.67754523	86.2542901	82.08468202
200512A00017	5/12/2020	0.85	5/12/2025	5/12/2020	114.99091	111.085728	107.3409527	103.7490176	100.3027652	96.99541808	93.82055583	90.77209418	87.84426506
200512A00018	5/12/2020	0.85	5/12/2025	5/12/2020	114.99091	111.085728	107.3409527	103.7490176	100.3027652	96.99541808	93.82055583	90.77209418	87.84426506
200512A00020	5/12/2020	0.86	5/12/2025	5/12/2020	115.59986	111.5345719	107.6381365	103.902553	100.3202462	96.88404392	93.5871536	90.42313926	87.38590064
200512A00021	5/12/2020	0.86	5/12/2025	5/12/2020	115.59986	111.5345719	107.6381365	103.902553	100.3202462	96.88404392	93.5871536	90.42313926	87.38590064
200430A00027	4/30/2020	1.31	4/30/2035	4/30/2020	130.39324	121.2131153	112.9033445	105.3697022	98.52907919	92.30808084	86.64181428	81.472836	76.7502366
200501A00002	5/1/2020	1.3	5/1/2035	5/1/2020	130.45877	121.2198942	112.8616277	105.2881601	98.41503323	92.16770744	86.48031881	81.29459987	76.55894221
200501A00009	5/4/2020	0.67	5/1/2025	5/4/2020	108.28942	106.1585629	104.0943835	102.0942299	100.1555774	98.27602043	96.45326655	94.68512979	92.96952506
200512A00001	5/12/2020	1.17	5/12/2027	5/12/2020	123.60049	117.2463405	111.2701912	105.6473709	100.3549512	95.37161724	90.67754523	86.2542901	82.08468202
200512A00010	5/12/2020	1.48	5/10/2030	5/12/2020	134.76329	124.919653	115.9098272	107.657712	100.0945702	93.15827772	86.79265419	80.9468633	75.5748773
200512A00011	5/12/2020	1.48	5/10/2030	5/12/2020	134.76329	124.919653	115.9098272	107.657712	100.0945702	93.15827772	86.79265419	80.9468633	75.5748773
200414A00009	4/14/2020	0.82	4/14/2025	4/14/2020	108.43214	106.3436118	104.3193697	102.3568919	100.453776	98.60773227	96.81657667	95.07822568	93.3906907
200414A00024	4/14/2020	1.37	4/14/2027	4/14/2020	124.58106	118.2645227	112.3193682	106.7215619	101.4487657	96.48020504	91.79655056	87.37980902	83.21322339
200421A00026	4/21/2020	1.34	4/19/2030	4/21/2020	130.33329	121.6361036	113.6452001	106.2977686	99.53696631	93.31132209	87.57419843	82.28331071	77.4002967
200424A00022	4/24/2020	1.39	4/24/2030	4/24/2020	130.78043	122.0469557	114.0234499	106.646696	99.85949615	93.61006438	87.85148392	82.54122227	77.64069697
200428A00009	4/28/2020	1.08	4/29/2030	4/28/2020	119.29616	113.9358685	108.9137728	104.2049075	99.78635882	95.63707934	91.73772318	88.07049604	84.61901973
200429A00030	4/29/2020	1.41	4/29/2030	4/29/2020	132.81219	123.4455905	114.859648	106.9837996	99.75426724	93.11337203	87.00891779	81.39364035	76.22471512
200406A00033	4/6/2020	1.09	4/4/2025	4/6/2020	116.13716	112.1624468	108.3490881	104.6895538	101.1767124	97.80380939	94.56444464	91.45255139	88.46237657
200406A00035	4/6/2020	1.05	4/4/2025	4/6/2020	114.80801	111.1481414	107.6334446	104.2572199	101.0131244	97.8951478	94.89759297	92.01505726	89.24241523
200406A00036	4/6/2020	1.09	4/4/2025	4/6/2020	116.13716	112.1624468	108.3490881	104.6895538	101.1767124	97.80380939	94.56444464	91.45255139	88.46237657
200406A00037	4/6/2020	0.9	4/6/2023	4/6/2020	107.59364	105.8276804	104.1003344	102.4103987	100.7567202	99.13819368	97.55375909	96.00239928	94.48313779
200413A00009	4/13/2020	0.77	4/13/2027	4/13/2020	112.81572	109.4748817	106.2803163	103.2242828	100.2995106	97.49916631	94.81682441	92.24644	89.78232357
200413A00013	4/13/2020	1.19	4/12/2030	4/13/2020	119.86996	114.4842166	109.4382066	104.7068594	100.2671619	96.09797543	92.17986938	88.49497111	85.02682994
200330A00079	3/30/2020	1.51	3/30/2035	3/30/2020	131.99784	122.7598002	114.3927695	106.802946	99.90753855	93.63338469	87.91575488	82.69731335	77.92721417
200406A00014	4/6/2020	1.33	4/6/2035	4/6/2020	132.02465	122.6860717	114.2354715	106.5764994	99.62418797	93.30352155	87.54819177	82.29951764	77.50550677
200406A00027	4/6/2020	1.31	4/5/2030	4/6/2020	131.36979	122.6014137	114.5442398	107.1351204	100.3168991	94.03781009	88.25094049	82.9137482	77.9876306
200406A00029	4/6/2020	1.61	4/5/2030	4/6/2020	135.6859	125.8810019	116.8985181	108.6640522	101.1103501	94.17657741	87.80767312	81.95377156	76.56968552
200406A00030	4/6/2020	1.61	4/5/2030	4/6/2020	135.6859	125.8810019	116.8985181	108.6640522	101.1103501	94.17657741	87.80767312	81.95377156	76.56968552
200406A00032	4/6/2020	1.09	4/4/2025	4/6/2020	116.13718	112.1624566	108.3490944	104.6895569	101.1767125	97.8038066	94.56443915	91.45254336	88.46236616
200323A00090	3/23/2020	1.55	3/23/2027	3/23/2020	115.57741	111.9891237	108.5637017	105.2922717	102.1665108	99.17860937	96.3212349	93.5875001	90.97093263
200326A00032	3/26/2020	1.49	3/26/2030	3/26/2020	121.26616	115.8682343	110.8079546	106.0606017	101.6034659	97.41567392	93.47802701	89.77285469	86.2838823
200327A00084	3/27/2020	1.1	3/27/2025	3/27/2020	115.51322	111.713976	108.0665352	104.5638861	101.1993887	97.96675065	94.86000654	91.87349883	89.00185973
200327A00094	3/27/2020	1.6	3/27/2030	3/27/2020	132.33456	123.5754902	115.52272	108.113852	101.2923835	95.00711565	89.2116261	83.86379707	78.92539256

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200330A00047	3/30/2020	1.5	3/30/2035	3/30/2020	131.9093	122.6775197	114.3161564	106.7314741	99.84073753	93.57083386	87.85707733	82.64217099	77.87530332
200330A00058	3/30/2020	1.49	3/29/2030	3/30/2020	131.42729	122.7173928	114.7104549	107.3443266	100.5627347	94.31469194	88.55397109	83.23863434	78.33061167
200311A00015	3/11/2020	1.26	3/11/2027	3/11/2020	123.61104	117.429003	111.605494	106.1176456	100.9441721	96.06525504	91.46243362	87.11850446	83.01742894
200311A00026	3/11/2020	1.34	3/11/2030	3/11/2020	131.83231	122.6454215	114.2146338	106.4724753	99.35788027	92.81554548	86.79535586	81.25187085	76.14386397
200317A00009	3/17/2020	1.61	3/16/2035	3/17/2020	132.88312	123.5832256	115.1601015	107.519335	100.5775944	94.261238	88.50511173	83.25150283	78.44923039
200317A00043	3/17/2020	1.29	3/15/2030	3/17/2020	121.06196	115.6544691	110.5860493	105.8318256	101.3689491	97.17642202	93.23493423	89.52671582	86.03540312
200318A00012	3/18/2020	1.68	3/18/2033	3/18/2020	135.72528	126.0684736	117.3039769	109.3386881	102.090009	95.48458667	89.45721402	83.94986822	78.91086825
200319A00035	3/19/2020	1.72	3/18/2033	3/19/2020	136.09173	126.4086348	117.6202354	109.6331886	102.3646771	95.7411531	89.69723641	84.17474973	79.12187438
200306A00058	3/6/2020	1.06	3/6/2030	3/6/2020	119.03036	113.7337298	108.7683501	104.1099735	99.73632628	95.62693512	91.76296863	88.12709397	84.70334703
200309A00034	3/9/2020	0.96	3/9/2035	3/9/2020	128.60025	119.5594596	111.3736546	103.9505417	97.20868092	91.07612351	85.48923108	80.3916496	75.73341709
200309A00081	3/9/2020	1.18	3/8/2030	3/9/2020	131.49073	122.0157369	113.3310902	105.3657583	98.05547786	91.34207686	85.17286584	79.50009347	74.28045867
200309A00082	3/9/2020	1.18	3/8/2030	3/9/2020	131.49071	122.0157235	113.331084	105.3657583	98.05548335	91.34208709	85.17288018	79.50011135	74.28047961
200309A00083	3/9/2020	0.82	3/9/2023	3/9/2020	107.12118	105.4398505	103.7940677	102.1827755	100.6049555	99.05962927	97.54585645	96.06273277	94.60938842
200309A00084	3/9/2020	1.06	3/9/2027	3/9/2020	122.4002	116.2725547	110.5002444	105.0606128	99.9325731	95.09649074	90.53407551	86.22828208	82.16321852
200221A00012	2/21/2020	2.14	2/21/2040	2/21/2020	151.15327	136.3674282	123.4621332	112.1679196	102.2569096	93.53603989	85.84143742	79.03374496	72.99422966
200227A00046	2/27/2020	1.52	3/1/2027	2/27/2020	114.36724	111.0861348	107.9448625	104.9362033	102.0533625	99.28994479	96.63992854	94.09764099	91.65773577
200303A00028	3/3/2020	1.54	3/4/2030	3/3/2020	131.68818	123.0139393	115.0353186	107.6912218	100.9262856	94.69031221	88.9377596	83.62728395	78.72133008
200306A00048	3/6/2020	1.04	3/6/2035	3/6/2020	129.29969	120.2095828	111.9791017	104.5154565	97.73676669	91.57069431	85.95325632	80.82779334	76.14407254
200306A00050	3/6/2020	0.87	3/6/2030	3/6/2020	118.87603	113.567536	108.5918849	103.9246605	99.54343602	95.42760111	91.55820185	87.91779581	84.49032077
200306A00057	3/6/2020	0.92	3/8/2027	3/6/2020	121.26724	115.4950389	110.0516514	104.916297	100.069628	95.49362272	91.17148704	87.08756362	83.2272488
200206A00033	2/6/2020	2.15	2/6/2030	2/6/2020	140.13925	130.2362298	121.1486261	112.8039383	105.1365069	98.08683381	91.60097362	85.62998682	80.12945032
200206A00034	2/6/2020	1.84	2/6/2025	2/6/2020	118.33916	114.4720738	110.7562395	107.1848684	103.7515174	100.4500688	97.27471153	94.21992452	91.28045998
200206A00035	2/6/2020	1.78	2/6/2023	2/6/2020	108.26047	106.6552413	105.0827933	103.5421966	102.0325584	100.5530192	99.10275054	97.68095415	96.28686017
200206A00038	2/6/2020	1.78	2/6/2023	2/6/2020	108.26047	106.6552413	105.0827933	103.5421966	102.0325584	100.5530192	99.10275054	97.68095415	96.28686017
200212A00013	2/12/2020	1.98	2/12/2027	2/12/2020	127.64018	121.3773891	115.4728019	109.9038589	104.6495434	99.69026826	95.00777115	90.5850178	86.40611296
200220A00026	2/20/2020	2.22	2/21/2040	2/20/2020	152.24988	137.3544391	124.3534625	112.9754926	102.9909666	94.20539342	86.45368803	79.59546229	73.51110496
200116A00012	1/16/2020	2.16	1/19/2027	1/16/2020	128.42987	122.2077966	116.337627	110.7974463	105.5668169	100.6266759	95.95923483	91.54788842	87.3771293
200130A00046	1/30/2020	1.81	1/29/2027	1/30/2020	115.08366	111.8308207	108.7148471	105.7287491	102.8659473	100.1202454	97.48580546	94.95712421	92.52901194
200206A00008	2/6/2020	1.64	2/6/2025	2/6/2020	117.51433	113.7850836	110.2005151	106.7541522	103.4398498	100.2517729	97.18437873	94.23240101	91.39083383
200206A00027	2/6/2020	2.15	2/6/2030	2/6/2020	140.13925	130.2362298	121.1486261	112.8039383	105.1365069	98.08683381	91.60097362	85.62998682	80.12945032
200206A00031	2/6/2020	2.15	2/6/2030	2/6/2020	140.13925	130.2362298	121.1486261	112.8039383	105.1365069	98.08683381	91.60097362	85.62998682	80.12945032
200206A00032	2/6/2020	2.15	2/6/2030	2/6/2020	140.13926	130.2362378	121.148631	112.8039404	105.1365065	98.08683133	91.60096934	85.629981	80.12944318
200110A00037	1/10/2020	2.32	1/10/2030	1/10/2020	141.41964	131.5208284	122.4301185	114.0762529	106.3946452	99.32672005	92.81932339	86.82419394	81.29748838

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200110A00038	1/10/2020	2.32	1/10/2030	1/10/2020	141.41964	131.5208284	122.4301185	114.0762529	106.3946452	99.32672005	92.81932339	86.82419394	81.29748838
200110A00039	1/10/2020	2.32	1/10/2030	1/10/2020	141.41964	131.5208284	122.4301185	114.0762529	106.3946452	99.32672005	92.81932339	86.82419394	81.29748838
200110A00043	1/10/2020	2.32	1/10/2030	1/10/2020	141.41964	131.5208284	122.4301185	114.0762529	106.3946452	99.32672005	92.81932339	86.82419394	81.29748838
200110A00053	1/10/2020	1.99	1/10/2025	1/10/2020	118.54626	114.7524937	111.1042392	107.5950942	104.2189781	100.9701108	97.84299599	94.83240529	91.93336393
200115A00013	1/15/2020	2.18	1/15/2030	1/15/2020	132.76989	125.005561	117.8243164	111.177216	105.0197514	99.3114219	94.01535055	89.09793853	84.52855492
191206A00005	12/6/2019	2.18	12/7/2026	12/6/2019	128.03604	121.9548594	116.2107328	110.783094	105.6527385	100.8017262	96.21329165	91.87176123	87.76247679
191209A00005	12/9/2019	2.22	12/10/2029	12/9/2019	136.59133	127.8442768	119.7807063	112.3420757	105.4752038	99.13174874	93.26774263	87.84317251	82.82160398
191224A00002	12/24/2019	2.17	12/24/2029	12/24/2019	124.18446	118.8142053	113.7711926	109.0320391	104.5752204	100.3809135	96.43085034	92.70818454	89.19737094
200103A00002	1/3/2020	2.07	1/3/2030	1/3/2020	136.96283	128.0947648	119.9263275	112.3970399	105.4520082	99.04138029	93.11985548	87.64624505	82.58307708
200109A00006	1/9/2020	1.95	1/9/2030	1/9/2020	124.10749	118.6691504	113.565921	108.7736103	104.2699705	100.0345286	96.04843275	92.29431196	88.75614959
200109A00008	1/9/2020	1.95	1/9/2030	1/9/2020	124.10748	118.6691401	113.5659143	108.7736069	104.26997	100.0345307	96.0484371	92.29431838	88.75615784
191113A00013	11/13/2019	2.17	11/13/2026	11/13/2019	127.6905	121.6915017	116.0217431	110.6612373	105.5913246	100.7945754	96.25470156	91.95647589	87.88565673
191122A00003	11/22/2019	2.32	11/22/2039	11/22/2019	164.73666	145.9905865	129.9232926	116.1137268	104.2109452	93.92193761	85.00164268	77.24474389	70.47891961
191203A00009	12/3/2019	2.21	12/3/2029	12/3/2019	139.99784	130.2907946	121.367803	113.1604909	105.6068111	98.65042616	92.24015506	86.32947598	80.87607935
191203A00010	12/3/2019	2.21	12/3/2029	12/3/2019	139.99784	130.2907946	121.367803	113.1604909	105.6068111	98.65042616	92.24015506	86.32947598	80.87607935
191203A00011	12/3/2019	2.21	12/3/2029	12/3/2019	139.99784	130.2907946	121.367803	113.1604909	105.6068111	98.65042616	92.24015506	86.32947598	80.87607935
191203A00013	12/3/2019	1.93	12/3/2024	12/3/2019	117.82641	114.1614871	110.6331682	107.2356177	103.9632848	100.810884	97.77338154	94.84598173	92.02411448
191101A00004	11/1/2019	1.91	11/1/2029	11/1/2019	135.06317	126.4575936	118.5197725	111.1928303	104.4250844	98.16954246	92.38344984	87.0278837	82.06738813
191101A00005	11/1/2019	1.83	11/2/2026	11/1/2019	126.55859	120.6111932	114.9897928	109.6745704	104.6470334	99.88991488	95.38708444	91.12346683	87.08496649
191105A00012	11/5/2019	2.07	11/3/2034	11/5/2019	137.65713	128.2105675	119.6374198	111.8453944	104.7528366	98.28741674	92.38499258	86.98861763	82.04767666
191112A00022	11/12/2019	2.36	11/13/2029	11/12/2019	141.13686	131.4228548	122.4887281	114.2667623	106.6954958	99.71910992	93.28688162	87.35269191	81.87458448
191112A00023	11/12/2019	2.36	11/13/2029	11/12/2019	141.13686	131.4228588	122.4887306	114.2667634	106.6954958	99.71910893	93.28687979	87.35268937	81.87458134
191112A00024	11/12/2019	2.09	11/12/2024	11/12/2019	118.11272	114.5003969	111.0210369	107.6689328	104.4386636	101.3250747	98.32326285	95.42856235	92.63653156
191008A00007	10/8/2019	1.67	10/9/2029	10/8/2019	122.04086	116.8510276	111.9726185	107.3836928	103.0640359	98.99501008	95.15942058	91.54139322	88.12626385
191008A00014	10/8/2019	1.85	10/8/2026	10/8/2019	125.4653	119.6521795	114.1535241	108.9504596	104.0253567	99.36173975	94.94420419	90.75834068	86.79066494
191009A00009	10/9/2019	1.8	10/9/2026	10/9/2019	114.4017	111.3162752	108.3556057	105.5135344	102.7842593	100.1623061	97.64250771	95.2199845	92.89012649
191011A00027	10/11/2019	1.84	10/11/2029	10/11/2019	122.89301	117.6664704	112.753559	108.1321813	103.7819791	99.68418247	95.82147426	92.17786771	88.73859459
191015A00025	10/15/2019	2.01	10/15/2029	10/15/2019	122.93261	117.7222529	112.8237855	108.2152783	103.8765263	99.7888976	95.93519958	92.29955766	88.86730494
191031A00025	10/31/2019	1.91	10/31/2024	10/31/2019	109.3062	107.4782127	105.7007703	103.9720478	102.2903007	100.6538609	99.06113337	97.51059162	96.00077468
191004A00017	10/4/2019	2.02	10/4/2029	10/4/2019	137.66512	128.2608962	119.604498	111.6315955	104.2837468	97.5078313	91.25553752	85.48290228	80.14989674
191004A00019	10/4/2019	2.02	10/4/2029	10/4/2019	137.66511	128.2608881	119.6044933	111.6315938	104.2837476	97.50783427	91.25554234	85.48290866	80.14990445
191004A00022	10/4/2019	2.02	10/4/2029	10/4/2019	137.66512	128.2608927	119.6044959	111.6315948	104.2837471	97.50783259	91.25553961	85.48290504	80.14990006
191004A00023	10/4/2019	2.02	10/4/2029	10/4/2019	137.6651	128.2608766	119.6044862	111.6315906	104.2837478	97.50783759	91.25554836	85.48291704	80.14991489

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191004A00025	10/4/2019	1.74	10/4/2024	10/4/2019	116.39638	112.936102	109.5999958	106.3828129	103.2795647	100.2855069	97.39612544	94.60712387	91.91441091
191004A00026	10/4/2019	1.74	10/4/2024	10/4/2019	116.39638	112.936102	109.5999958	106.3828129	103.2795647	100.2855069	97.39612544	94.60712387	91.91441091
190911A00016	9/11/2019	1.9	9/11/2029	9/11/2019	122.97699	117.7995196	112.9299502	108.3467674	104.0301382	99.96176465	96.12475444	92.50350266	89.08358476
190913A00018	9/13/2019	2.11	9/11/2026	9/13/2019	115.10442	112.0486301	109.114753	106.2968463	103.5893034	100.9868308	98.48442898	96.07737367	93.76119876
190925A00009	9/25/2019	2	9/25/2026	9/25/2019	124.74268	119.2829347	114.1114232	109.2111207	104.5661101	100.1615024	95.9833641	92.01865028	88.25514277
190926A00002	9/30/2019	2.01	9/29/2034	9/30/2019	136.69915	127.434004	119.0158885	111.3562509	104.3766389	98.00746938	92.18695698	86.8601785	81.97825648
190930A00026	9/30/2019	1.95	9/30/2024	9/30/2019	116.49296	113.1481895	109.9219538	106.8092836	103.805453	100.905966	98.10654337	95.40311064	92.79178675
190930A00028	9/30/2019	1.95	9/30/2024	9/30/2019	116.49295	113.1481817	109.921948	106.8092797	103.805451	100.9059657	98.10654478	95.40311368	92.79179134
190905A00019	9/5/2019	2.08	9/5/2029	9/5/2019	137.89931	128.5632123	119.9632747	112.0366914	104.726362	97.98034143	91.75134766	85.99631934	80.67601732
190905A00021	9/5/2019	2.08	9/5/2029	9/5/2019	137.89931	128.5632123	119.9632747	112.0366914	104.726362	97.98034144	91.75134768	85.99631937	80.67601735
190905A00023	9/5/2019	2.08	9/5/2029	9/5/2019	137.89931	128.5632123	119.9632747	112.0366914	104.726362	97.98034144	91.75134768	85.99631937	80.67601735
190905A00024	9/5/2019	2.08	9/5/2029	9/5/2019	137.89931	128.5632123	119.9632747	112.0366914	104.726362	97.98034144	91.75134768	85.99631937	80.67601735
190905A00025	9/5/2019	2.08	9/5/2029	9/5/2019	137.89931	128.5632123	119.9632747	112.0366914	104.726362	97.98034143	91.75134766	85.99631934	80.67601732
190910A00044	9/10/2019	2.02	9/10/2026	9/10/2019	126.08751	120.3315609	114.8829373	109.7234363	104.8360379	100.2048198	95.81488049	91.65226803	87.70391399
190813A00064	8/13/2019	1.9	8/13/2024	8/13/2019	116.25403	112.9429778	109.7465792	106.660182	103.679349	100.7998502	98.01765135	95.32890382	92.72993475
190813A00067	8/13/2019	1.9	8/13/2024	8/13/2019	116.25403	112.9429778	109.7465792	106.660182	103.679349	100.7998502	98.01765135	95.32890382	92.72993475
190826A00032	8/26/2019	1.72	8/24/2029	8/26/2019	121.87816	116.799228	112.0196475	107.5186761	103.2771768	99.27748231	95.50327239	91.93946125	88.57209562
190829A00032	8/29/2019	1.69	8/28/2026	8/29/2019	114.11585	111.1265625	108.2552371	105.4961816	102.8440181	100.2936673	97.8403293	95.47946672	93.20678809
190829A00039	8/29/2019	1.85	8/29/2034	8/29/2019	135.10299	126.0039189	117.7319325	110.2010325	103.3349796	97.06610905	91.33429947	86.08607285	81.27380774
190905A00018	9/5/2019	1.85	9/5/2029	9/5/2019	134.06189	125.6531417	117.8866666	110.7086171	104.0699853	97.92613963	92.23640995	86.9637142	82.07422237
190718A00012	7/18/2019	2.55	7/18/2029	7/18/2019	137.82586	129.3710452	121.550269	114.3112759	107.6064284	101.3922722	95.6291458	90.28083002	85.31423039
190731A00013	7/31/2019	2.23	7/22/2022	7/31/2019	103.0716	102.5336559	102.0033742	101.4805769	100.965088	100.4567374	99.95536052	99.46079822	98.97289636
190802A00011	8/2/2019	2.01	8/2/2029	8/2/2019	123.29903	118.1611184	113.3259427	108.7725361	104.4815513	100.4351268	96.61676175	93.01120334	89.60434313
190813A00051	8/13/2019	2.19	8/13/2029	8/13/2019	138.62	129.3089796	120.7270824	112.8125169	105.509062	98.7655393	92.53533483	86.77596896	81.44870873
190813A00052	8/13/2019	2.24	8/13/2029	8/13/2019	139.05742	129.7221881	121.1178041	113.1823384	105.8594439	99.09782668	92.85076762	87.07569065	81.73377459
190813A00057	8/13/2019	1.9	8/13/2024	8/13/2019	116.25403	112.9429778	109.7465792	106.660182	103.679349	100.7998502	98.01765135	95.32890382	92.72993475
190708A00026	7/8/2019	2.21	7/1/2024	7/8/2019	116.6336	113.4392807	110.3516692	107.3665946	104.4800741	101.688303	98.98764549	96.37462639	93.84592282
190708A00028	7/8/2019	2.57	7/2/2029	7/8/2019	141.45864	132.1134155	123.4894429	115.5264429	108.1694956	101.3685394	95.07791682	89.25596506	83.86464688
190708A00029	7/8/2019	2.57	7/2/2029	7/8/2019	141.45868	132.1134424	123.4894622	115.5264552	108.1695016	101.3685396	95.07791169	89.25595506	83.86463242
190708A00030	7/8/2019	2.57	7/2/2029	7/8/2019	141.45868	132.1134424	123.4894622	115.5264552	108.1695016	101.3685396	95.07791169	89.25595506	83.86463242
190708A00032	7/8/2019	2.58	7/2/2029	7/8/2019	141.54556	132.1956243	123.5672762	115.6002041	108.2394644	101.4349738	95.14105469	89.31602628	83.92183456
190712A00016	7/12/2019	2.39	7/12/2029	7/12/2019	124.13603	119.0331251	114.2274189	109.6985454	105.4276962	101.397493	97.59186861	93.99595885	90.59600416
190605A00027	6/5/2019	2.64	6/5/2029	6/5/2019	141.73764	132.4565816	123.8856592	115.9660287	108.6440341	101.8707251	95.6014213	89.79531862	84.41513409

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190619A00010	6/19/2019	2.04	6/17/2022	6/19/2019	102.76831	102.2782319	101.7945424	101.3171059	100.8457881	100.3804585	99.92099079	99.4672621	99.01915338
190620A00033	6/20/2019	2.1	6/20/2029	6/20/2019	123.28616	118.2538114	113.5126104	109.0427246	104.825834	100.8450038	97.08456967	93.5300337	90.16796923
190702A00068	7/2/2019	2.69	7/1/2039	7/2/2019	177.72961	156.071734	137.6270396	121.8799825	108.4017934	96.83534403	86.88272957	78.29506977	70.8641208
190702A00071	7/2/2019	2.69	7/1/2039	7/2/2019	177.72945	156.0716212	137.6269704	121.8799489	108.4017891	96.8353637	86.88276876	78.29512482	70.86418871
190708A00025	7/8/2019	2.21	7/1/2024	7/8/2019	116.6336	113.4392807	110.3516692	107.3665946	104.4800741	101.688303	98.98764549	96.37462639	93.84592282
190515A00035	5/15/2019	2.82	2/15/2029	5/15/2019	141.92288	132.9479904	124.6372978	116.9374061	109.7995053	103.1789524	97.03489412	91.32992611	86.0297838
190529A00061	5/29/2019	2.46	5/29/2026	5/29/2019	115.14285	112.2817139	109.5286036	106.8784949	104.3266392	101.8685432	99.49995251	97.21683793	95.01538148
190605A00007	6/5/2019	2.47	6/5/2026	6/5/2019	127.28419	121.7672774	116.5311061	111.5598316	106.8385895	102.3534266	98.09124026	94.03972258	90.18730788
190605A00023	6/5/2019	2.64	6/5/2029	6/5/2019	141.73766	132.4565976	123.8856701	115.9660351	108.6440365	101.8707239	95.60141694	89.79531141	84.41512436
190605A00024	6/5/2019	2.64	6/5/2029	6/5/2019	141.73764	132.4565816	123.8856592	115.9660287	108.6440341	101.8707251	95.6014213	89.79531862	84.41513409
190605A00025	6/5/2019	2.64	6/5/2029	6/5/2019	141.73764	132.4565816	123.8856592	115.9660287	108.6440341	101.8707251	95.6014213	89.79531862	84.41513409
190411A00022	4/11/2019	2.68	4/11/2022	4/11/2019	103.47971	102.915139	102.3578756	101.8077732	101.2646878	100.7284798	100.1990131	99.6761552	99.15977731
190501A00015	5/1/2019	2.78	5/1/2029	5/1/2019	125.52928	120.4760408	115.7116321	111.2165948	106.9729392	102.964022	99.1744362	95.5899105	92.19721763
190502A00016	5/2/2019	2.87	5/1/2026	5/2/2019	128.92923	123.4591545	118.2628209	113.3248624	108.6308709	104.1673301	99.92155481	95.88163392	92.03637862
190506A00025	5/6/2019	3.03	5/4/2029	5/6/2019	144.68142	135.3388704	126.7033547	118.7167327	111.3259714	104.4826715	98.14263759	92.26549045	86.81431694
190506A00026	5/6/2019	3.03	5/4/2029	5/6/2019	144.68142	135.3388704	126.7033547	118.7167327	111.3259714	104.4826715	98.14263759	92.26549045	86.81431694
190510A00049	5/10/2019	2.58	5/8/2026	5/10/2019	115.2177	112.4037205	109.6944793	107.0851678	104.5712338	102.1483672	99.812485	97.5597182	95.38639869
190402A00005	4/2/2019	2.77	4/2/2032	4/2/2019	143.03141	133.5269795	124.8404669	116.8921666	109.6107995	102.9325611	96.80028608	91.16271239	85.97383011
190403A00010	4/3/2019	3.08	4/3/2029	4/3/2019	144.69196	135.4406256	126.8828226	118.9620319	111.6266616	104.8295881	98.52774493	92.68175195	87.2555802
190403A00013	4/3/2019	3.05	4/3/2029	4/3/2019	142.95225	134.0627189	125.8319977	118.2067482	111.1382563	104.5820089	98.49730896	92.84692712	87.59678796
190403A00014	4/3/2019	3.05	4/3/2029	4/3/2019	142.95226	134.0627277	125.8320042	118.2067526	111.1382588	104.5820097	98.49730806	92.84692475	87.59678424
190403A00015	4/3/2019	3.05	4/3/2029	4/3/2019	142.95228	134.0627357	125.8320097	118.2067559	111.1382601	104.5820093	98.49730622	92.84692162	87.59677998
190404A00015	4/4/2019	2.88	4/3/2026	4/4/2019	128.51408	123.1409108	118.0329316	113.1754656	108.554737	104.1578096	99.97253075	95.98747868	92.19191426
190315A00023	3/15/2019	2.88	3/15/2034	3/15/2019	142.78694	133.4719077	124.9789381	117.2249153	110.1359042	103.6460674	97.69671556	92.23547599	87.21556316
190315A00029	3/15/2019	2.88	3/15/2034	3/15/2019	142.78696	133.4719244	124.9789504	117.2249235	110.1359087	103.6460685	97.69671351	92.23547106	87.21555561
190322A00008	3/22/2019	2.64	3/20/2026	3/22/2019	115.14436	112.3815405	109.7200487	107.1552878	104.6829091	102.2987919	99.99903041	97.77992097	95.63794993
190327A00035	3/27/2019	2.68	3/27/2034	3/27/2019	141.07088	131.8679194	123.4772039	115.816601	108.8130522	102.4015014	96.5239568	91.12866879	86.16940902
190329A00067	3/29/2019	2.61	3/29/2024	3/29/2019	115.42237	112.6846594	110.0305985	107.4570411	104.9609885	102.5395767	100.1900695	97.90985161	95.69642228
190401A00017	4/1/2019	2.55	4/1/2022	4/1/2019	104.25103	103.5459995	102.8505906	102.1646075	101.4878592	100.8201597	100.161328	99.51118797	98.86956808
190308A00016	3/8/2019	3.18	3/8/2034	3/8/2019	165.92415	150.7451662	137.2403847	125.2088779	114.4752088	104.8860517	96.30727857	88.62144355	81.72561102
190308A00026	3/8/2019	3.18	3/8/2034	3/8/2019	165.92415	150.7451662	137.2403847	125.2088779	114.4752088	104.8860517	96.30727857	88.62144355	81.72561102
190313A00039	3/13/2019	2.7	6/13/2022	3/13/2019	105.67624	104.7445395	103.8294161	102.9304266	102.047146	101.1791639	100.3260843	99.48752454	98.66311526
190313A00044	3/13/2019	2.7	6/13/2022	3/13/2019	105.67624	104.7445395	103.8294161	102.9304266	102.047146	101.1791639	100.3260843	99.48752454	98.66311526

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190315A00017	3/15/2019	2.88	3/15/2034	3/15/2019	142.787	133.4719536	124.9789713	117.2249369	110.1359154	103.6460692	97.69670883	92.2354616	87.21554189
190315A00019	3/15/2019	2.88	3/15/2034	3/15/2019	142.78693	133.4719015	124.9789331	117.2249115	110.1359016	103.6460658	97.69671508	92.23547655	87.21556473
190205A00023	2/5/2019	3.32	2/5/2029	2/5/2019	144.38006	135.5826672	127.4252921	119.8570428	112.8313597	106.3056252	100.2408101	94.60115177	89.35386469
190205A00025	2/5/2019	2.88	2/7/2022	2/5/2019	103.52011	102.9693804	102.4245426	101.8855066	101.3521797	100.8244715	100.3022933	99.78555822	99.27418137
190207A00003	2/7/2019	2.68	2/7/2024	2/7/2019	115.25433	112.6459404	110.1142822	107.6566001	105.2702577	102.9527309	100.701602	98.51455482	96.38936918
190227A00033	2/27/2019	2.65	2/27/2026	2/27/2019	115.30308	112.5783467	109.952305	107.4205314	104.9788317	102.6232298	100.3499553	98.15543115	96.03626223
190305A00015	3/5/2019	3.32	3/5/2029	3/5/2019	144.77648	135.8757717	127.6281978	119.9813798	112.8874356	106.3025734	100.1867197	94.50318438	89.21835686
190305A00017	3/5/2019	3.12	3/5/2026	3/5/2019	127.87672	122.8479071	118.0598017	113.4993881	109.1544355	105.0134424	101.0655888	97.30069162	93.70916365
190131A00023	1/31/2019	3.02	1/30/2034	1/31/2019	143.43151	134.1957389	125.7653686	118.0598773	111.007545	104.5444233	98.61343364	93.163576	88.14923414
190205A00017	2/5/2019	3.36	2/5/2029	2/5/2019	144.70382	135.8899416	127.7171789	120.1345548	113.0954339	106.5571293	100.4805478	94.82986828	89.57225095
190205A00019	2/5/2019	2.94	2/5/2024	2/5/2019	116.27354	113.5382102	110.8840259	108.3080723	105.8075583	103.3798108	101.0222696	98.7324811	96.50809382
190205A00020	2/5/2019	3.32	2/5/2029	2/5/2019	144.38006	135.5826672	127.4252921	119.8570428	112.8313597	106.3056252	100.2408101	94.60115177	89.35386469
190205A00021	2/5/2019	3.32	2/5/2029	2/5/2019	144.38006	135.5826672	127.4252921	119.8570428	112.8313597	106.3056252	100.2408101	94.60115177	89.35386469
190205A00022	2/5/2019	3.32	2/5/2029	2/5/2019	144.38006	135.5826672	127.4252921	119.8570428	112.8313597	106.3056252	100.2408101	94.60115177	89.35386469
190104A00035	1/4/2019	3.1	1/5/2026	1/4/2019	127.77263	122.7737039	118.0090471	113.4663335	109.1339518	105.0009615	101.0570505	97.29249566	93.69812608
190104A00038	1/4/2019	3.25	1/4/2029	1/4/2019	143.3829	134.7276003	126.6956774	119.238072	112.3098604	105.8698826	99.88040704	94.30682776	89.11738946
190111A00038	1/11/2019	2.63	1/11/2022	1/11/2019	102.88509	102.424954	101.9690295	101.5172624	101.0695958	100.6259736	100.1863407	99.75064316	99.31882787
190118A00006	1/18/2019	3.14	1/18/2034	1/18/2019	144.45513	135.153578	126.6630947	118.9025993	111.7998737	105.2905247	99.31707548	93.82816965	88.77787157
190129A00073	1/29/2019	3.11	1/29/2029	1/29/2019	126.01182	121.1527229	116.5610064	112.2192732	108.1113993	104.2224292	100.538483	97.04667149	93.73501861
190131A00013	1/31/2019	3.48	1/31/2034	1/31/2019	170.94592	154.7972193	140.4544806	127.6997905	116.3429076	106.2176002	97.17848792	89.09831242	81.86557993
181218A00086	12/18/2018	3.06	10/18/2023	12/18/2018	114.09343	111.8015079	109.5704031	107.3980186	105.2823463	103.2214657	101.2135382	99.25680397	97.34957674
181218A00089	12/18/2018	3.05	6/19/2023	12/18/2018	112.12726	110.1787449	108.2758454	106.4172024	104.6015055	102.8274922	101.0939457	99.39969297	97.74360284
181226A00030	12/26/2018	2.91	12/26/2028	12/26/2018	125.56663	120.7630282	116.2217799	111.9259383	107.8597838	104.0087289	100.3592287	96.89869894	93.61544133
190103A00020	1/3/2019	3.12	1/5/2026	1/3/2019	128.39921	123.2945811	118.4305038	113.7942829	109.3739636	105.158283	101.1366262	97.2989855	93.63592264
190104A00006	1/4/2019	2.83	1/5/2026	1/4/2019	115.10199	112.4394626	109.8716499	107.3943739	105.0036703	102.6957785	100.467129	98.31433318	96.23417203
190104A00034	1/4/2019	3.18	1/4/2029	1/4/2019	136.26014	129.1281562	122.4769506	116.2701432	110.4743396	105.0588701	99.99555211	95.25847399	90.82379933
181119A00008	11/19/2018	3.23	11/17/2023	11/19/2018	114.94286	112.5618452	110.2454927	107.9916036	105.7980718	103.6628779	101.5840855	99.55983643	97.58834741
181128A00004	11/28/2018	3.08	11/28/2023	11/28/2018	115.82524	113.2913156	110.8275587	108.431612	106.1012129	103.8341889	101.6284525	99.48199803	97.39289756
181128A00011	11/28/2018	3.27	11/28/2023	11/28/2018	115.92429	113.3945394	110.9347031	108.5424368	106.2154904	103.951703	101.7489984	99.60538114	97.51893316
181129A00005	11/29/2018	3.21	11/29/2023	11/29/2018	115.79475	113.264403	110.8040357	108.4113089	106.0839735	103.8198689	101.6169191	99.47312828	97.38657802
181214A00030	12/14/2018	3.47	12/14/2033	12/14/2018	172.62482	156.4121959	142.0002376	129.1732968	117.7428981	107.5441696	98.43276182	90.28218304	82.9814942
181218A00040	12/18/2018	3.23	6/18/2030	12/18/2018	131.44179	125.4186206	119.7817959	114.5023596	109.553766	104.9116627	100.5536937	96.45932151	92.60966616
181003A00019	10/3/2018	3.44	10/3/2025	10/3/2018	128.36415	123.5429639	118.9376438	114.5372122	110.3313197	106.3102041	102.4646528	98.78596869	95.26593777

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181003A00032	10/3/2018	3.23	10/3/2025	10/3/2018	115.24857	112.7303492	110.2976526	107.9468467	105.6744809	103.4772761	101.3521153	99.29603406	97.30621233
181010A00025	10/10/2018	3.48	10/10/2030	10/10/2018	135.07452	128.6299766	122.6136681	116.9924306	111.7359466	106.8164817	102.2086455	97.88917705	93.83675049
181105A00015	11/5/2018	3.57	11/5/2025	11/5/2018	129.52536	124.5703458	119.8411173	115.3260122	111.014043	106.8948542	102.958682	99.19631633	95.59906623
181115A00044	11/15/2018	3.26	11/15/2023	11/15/2018	115.58174	113.1001196	110.6860855	108.3373325	106.0516559	103.8269422	101.661165	99.55237999	97.49872163
181116A00006	11/16/2018	3.18	11/17/2025	11/16/2018	115.42547	112.8529924	110.3693156	107.970611	105.6532481	103.4137792	101.2489288	99.15558413	97.13078527
180913A00033	9/13/2018	3.31	9/13/2033	9/13/2018	144.69813	135.6274246	127.3284873	119.7259347	112.7524435	106.3478264	100.4582211	95.03537702	90.036027
180913A00062	9/13/2018	3.05	9/13/2023	9/13/2018	113.87329	111.6219569	109.4287406	107.2917052	105.2089993	103.178848	101.1995494	99.26947029	97.38704347
180914A00049	9/14/2018	3.37	9/14/2033	9/14/2018	145.19887	136.0965765	127.7687366	120.1397067	113.1419291	106.7150065	100.8048889	95.36315751	90.3463945
180924A00033	9/24/2018	3.08	9/22/2023	9/24/2018	114.01834	111.7945076	109.6283065	107.5177991	105.4611331	103.4565339	101.5023004	99.59680176	97.73847332
180925A00013	9/25/2018	3.41	9/25/2028	9/25/2018	126.21031	121.5591283	117.1538392	112.9790248	109.0203525	105.2644939	101.6990476	98.3124684	95.09400211
180925A00116	9/25/2018	3.28	9/25/2028	9/25/2018	126.36208	121.6902566	117.2660144	113.0737958	109.0991405	105.3286037	101.7496778	98.35072035	95.12088822
180809A00034	8/9/2018	3.08	8/9/2023	8/9/2018	113.539	111.3583036	109.2323423	107.1593684	105.1377023	103.1657304	101.2419017	99.36472554	97.53276811
180813A00045	8/13/2018	2.89	8/13/2025	8/13/2018	114.21541	111.8114992	109.4868574	107.2381962	105.062392	102.9564738	100.9176141	98.94312099	97.03043084
180905A00017	9/5/2018	3.43	9/6/2033	9/5/2018	170.10407	154.6140676	140.810191	128.4942919	117.4927561	107.6533355	98.84240267	90.94257195	83.85063625
180906A00032	9/6/2018	3.24	9/5/2025	9/6/2018	127.00651	122.3067045	117.8143027	113.5189247	109.410771	105.4805876	101.7196327	98.11964517	94.67281486
180907A00013	9/7/2018	3.27	9/8/2025	9/7/2018	126.70496	122.0807357	117.6598411	113.4321038	109.3879264	105.5182464	101.8145029	98.26860579	94.87290667
180913A00012	9/13/2018	3.31	9/13/2033	9/13/2018	144.69812	135.6274212	127.3284851	119.7259334	112.752443	106.3478265	100.4582218	95.03537815	90.03602847
180716A00062	7/16/2018	2.91	7/16/2025	7/16/2018	113.97467	111.6246267	109.3508067	107.1500975	105.0195345	102.9562958	100.9576944	99.0211711	97.14428683
180717A00021	7/17/2018	3.34	7/17/2028	7/17/2018	139.4567	131.8650347	124.780663	118.1661027	111.9868624	106.2111839	100.8098101	95.7557753	91.02421342
180717A00026	7/17/2018	3.24	7/16/2025	7/17/2018	124.97243	120.6685766	116.5467949	112.5982994	108.8147798	105.1883717	101.7116302	98.377505	95.17931745
180718A00008	7/18/2018	3.37	7/18/2028	7/18/2018	143.28114	134.8289419	126.960692	119.632448	112.8038074	106.4376079	100.4996512	94.9584512	89.78500547
180809A00031	8/9/2018	2.98	8/9/2021	8/9/2018	100.18557	100.1577502	100.1299632	100.102207	100.0744818	100.0467874	100.0191237	99.99149074	99.96388846
180809A00032	8/9/2018	3.08	8/9/2023	8/9/2018	113.539	111.3583036	109.2323423	107.1593684	105.1377023	103.1657304	101.2419017	99.36472554	97.53276811
180615A00021	6/15/2018	3.02	6/15/2023	6/15/2018	111.96277	110.0332786	108.1487044	106.3077152	104.5090272	102.7514031	101.0336501	99.35461837	97.71319863
180628A00068	6/28/2018	3.12	6/28/2028	6/28/2018	134.79413	128.1427651	121.9145733	116.0792562	110.6088778	105.4776655	100.6618302	96.13940215	91.8900821
180628A00078	6/28/2018	2.73	6/28/2023	6/28/2018	106.51818	105.4582971	104.4195797	103.4014034	102.4031681	101.4242973	100.4642369	99.52245383	98.59843557
180702A00022	7/2/2018	2.84	6/30/2023	7/2/2018	112.14437	110.1695027	108.2415637	106.3591317	104.5208381	102.7253651	100.9714438	99.25785144	97.58340989
180712A00044	7/12/2018	3.44	7/12/2033	7/12/2018	143.75943	134.9086028	126.799321	119.3601764	112.5272947	106.243482	100.4574749	95.12328024	90.1995929
180713A00031	7/13/2018	3.06	7/14/2025	7/13/2018	113.97602	111.6314944	109.362854	107.167007	105.0410075	102.9820514	100.9874682	99.0547141	97.18136451
180403A00014	4/3/2018	3.11	4/3/2025	4/3/2018	123.95077	119.7920675	115.8009984	111.9697687	108.2909974	104.7576926	101.3632283	98.10132261	94.96601749
180410A00002	4/10/2018	3.14	4/11/2033	4/10/2018	141.82409	133.2366269	125.3571181	118.1184436	111.4604594	105.3292195	99.67628981	94.458143	89.63562401
180420A00011	4/20/2018	2.74	4/20/2023	4/20/2018	105.95509	104.991342	104.0461128	103.1188543	102.209044	101.3161801	100.4397805	99.57938212	98.73453942
180517A00018	5/17/2018	3.46	5/17/2033	5/17/2018	144.69322	135.8692791	127.7774603	120.3479276	113.5181486	107.2320716	101.4394049	96.09498118	91.15819569

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180517A00024	5/17/2018	3.46	5/17/2033	5/17/2018	144.69321	135.869273	127.7774561	120.347925	113.5181474	107.2320715	101.4394058	96.0949829	91.15819808
180605A00031	6/5/2018	3.37	6/5/2030	6/5/2018	132.23437	126.1751062	120.504442	115.1932569	110.2148553	105.5447466	101.1604474	97.04130304	93.16832517
180220A00107	2/20/2018	3.13	2/20/2025	2/20/2018	122.34272	118.5061472	114.8184011	111.272794	107.8629813	104.5829411	101.4269551	98.38959192	95.4656906
180305A00030	3/5/2018	3.12	3/5/2025	3/5/2018	123.51207	119.4512976	115.551286	111.804703	108.2045985	104.7443806	101.4177946	98.21890361	95.1420704
180309A00011	3/9/2018	3.19	3/10/2025	3/9/2018	123.86822	119.7832147	115.8604046	112.0923719	108.4720828	104.9928669	101.6483967	98.4326673	95.33997805
180322A00040	3/22/2018	3.16	3/21/2031	3/22/2018	140.39658	132.2695084	124.7735372	117.8528062	111.4568479	105.5400303	100.0610604	94.98254255	90.27058391
180322A00044	3/22/2018	3.18	3/22/2033	3/22/2018	141.84784	133.3190685	125.4889372	118.2916105	111.6680515	105.5652725	99.93566937	94.73643384	89.9290334
180402A00013	4/2/2018	2.99	4/3/2028	4/2/2018	133.13705	126.7377974	120.7349982	115.1009321	109.8100023	104.8385559	100.1647245	95.76827916	91.63049733
180126A00011	1/26/2018	2.72	1/26/2028	1/26/2018	121.75878	117.6771927	113.7942452	110.0983828	106.5788131	103.2254496	100.0288613	96.98022496	94.07128204
180202A00027	2/2/2018	3.02	2/3/2025	2/2/2018	122.63522	118.6870724	114.8924194	111.2443959	107.7364885	104.3625115	101.1165886	97.99313534	94.98684285
180206A00045	2/6/2018	2.71	2/6/2023	2/6/2018	109.54145	107.9522906	106.3954915	104.870141	103.3753574	101.9102918	100.474126	99.06607168	97.68536858
180206A00046	2/6/2018	2.72	2/6/2023	2/6/2018	109.66533	108.0577893	106.4830314	104.9401252	103.4281778	101.9463294	100.4937516	99.06964578	97.67324221
180206A00048	2/6/2018	2.72	2/6/2023	2/6/2018	109.66533	108.0577902	106.4830322	104.9401258	103.4281782	101.9463296	100.4937516	99.06964565	97.67324192
180215A00034	2/15/2018	2.9	2/15/2023	2/15/2018	110.11102	108.4722215	106.8671525	105.2948483	103.7543762	102.2448384	100.7653705	99.31514022	97.89334529
171219A00009	12/19/2017	2.3	12/19/2024	12/19/2017	110.78667	108.8355404	106.940445	105.0993061	103.310138	101.571044	99.88021146	98.23590737	96.63647435
171219A00067	12/19/2017	2.72	12/20/2027	12/19/2017	133.88765	127.0598144	120.6581034	114.6530617	109.0174364	103.726001	98.75539436	94.08397252	89.69167377
180104A00023	1/4/2018	2.91	1/4/2028	1/4/2018	131.59536	125.3303291	119.4453841	113.9146342	108.714108	103.8216018	99.21653975	94.87984558	90.79382486
180104A00024	1/4/2018	2.98	1/4/2028	1/4/2018	136.54736	129.2527845	122.4234259	116.026674	110.0323839	104.4126757	99.14175292	94.19573564	89.55250864
180104A00041	1/4/2018	3.08	1/4/2033	1/4/2018	163.06631	148.6577897	135.7498555	124.173891	113.7812516	104.4407903	96.03670638	88.46666916	81.64017953
180125A00027	1/25/2018	2.69	1/24/2025	1/25/2018	112.48195	110.2883258	108.1623918	106.1014994	104.1031275	102.1648716	100.2844379	98.45963692	96.68837823
171204A00009	12/4/2017	2.23	12/4/2024	12/4/2017	110.40203	108.5040622	106.6596498	104.8668329	103.1237366	101.4285691	99.77961753	98.17524357	96.61387987
171204A00024	12/4/2017	2.71	12/4/2024	12/4/2017	120.53307	116.8164498	113.2380466	109.7919618	106.472582	103.2745623	100.1928124	97.22248285	94.35895224
171207A00022	12/7/2017	2.45	12/7/2022	12/7/2017	108.25487	106.8356182	105.4424821	104.0747936	102.7319112	101.413214	100.1181015	98.84599281	97.59632542
171207A00024	12/7/2017	2.93	12/7/2027	12/7/2017	136.99692	129.5561227	122.5897197	116.064635	109.9502731	104.2183201	98.842562	93.79871841	89.06429049
171207A00025	12/7/2017	2.91	12/7/2027	12/7/2017	135.73596	128.5529293	121.8232441	115.5154709	109.6005236	104.0514773	98.84339688	93.95318023	89.35941383
171207A00026	12/7/2017	2.93	12/7/2027	12/7/2017	136.99692	129.5561227	122.5897197	116.064635	109.9502731	104.2183201	98.842562	93.79871841	89.06429049
170921A00052	9/21/2017	2.21	9/21/2022	9/21/2017	106.79051	105.5641682	104.3664782	103.1964417	102.0531049	100.9355574	99.84292976	98.7743914	97.72914837
170921A00053	9/21/2017	2.22	9/21/2022	9/21/2017	106.8645	105.6265762	104.417662	103.2367404	102.0828445	100.9550512	99.85247955	98.77428746	97.71967026
170921A00055	9/21/2017	2.82	9/21/2027	9/21/2017	134.17199	127.2716856	120.7950662	114.7134181	109.0001359	103.6305589	98.58181789	93.83269478	89.36349455
170921A00057	9/21/2017	2.79	9/21/2027	9/21/2017	132.25326	125.7502968	119.63942	113.8943233	108.4906222	103.4057025	98.61858194	94.10978277	89.8612155
171013A00024	10/13/2017	2.47	10/15/2024	10/13/2017	118.19125	114.8027658	111.5351586	108.3833116	105.3423606	102.4076809	99.57487398	96.83975431	94.19833744
171109A00016	11/9/2017	2.94	11/9/2032	11/9/2017	160.33627	146.3503336	133.8050107	122.5401506	112.4143822	103.3028119	95.09501486	87.6932815	81.01108487
170713A00021	7/13/2017	3.25	7/13/2037	7/13/2017	180.8286	160.8874211	143.6274634	128.6581182	115.6486061	104.318461	94.42957312	85.77953239	78.19605263

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170727A00003	7/27/2017	1.97	7/29/2024	7/27/2017	108.94418	107.2580708	105.6160402	104.0165664	102.4581898	100.9395126	99.45919613	98.0159575	96.60856697
170802A00013	8/2/2017	2.5	8/2/2024	8/2/2017	117.95132	114.647131	111.4562787	108.3742056	105.3965639	102.5192064	99.73817598	97.04969571	94.45015945
170804A00005	8/4/2017	1.94	8/5/2024	8/4/2017	109.12839	107.3948143	105.7073889	104.0644956	102.4645874	100.9061839	99.38786756	97.90828036	96.46612109
170829A00066	8/29/2017	2.11	8/29/2024	8/29/2017	117.56264	114.183363	110.9223273	107.7746717	104.735765	101.8011958	98.96676013	96.22845037	93.58244472
170901A00030	9/1/2017	1.82	9/1/2022	9/1/2017	106.07571	104.9315765	103.8127826	102.7184879	101.6478891	100.6002178	99.57473851	98.57074707	97.58756886
170619A00096	6/16/2017	2.79	6/16/2027	6/16/2017	132.78525	126.2100618	120.023683	114.2007525	108.7176989	103.5526061	98.68508825	94.09617569	89.76820888
170619A00097	6/16/2017	2.74	6/16/2027	6/16/2017	130.85885	124.6580174	118.8174818	113.3139611	108.1258113	103.2328996	98.61649007	94.25914021	90.14460445
170619A00101	6/16/2017	2.74	6/16/2027	6/16/2017	130.85885	124.6580174	118.8174818	113.3139611	108.1258113	103.2328996	98.61649007	94.25914021	90.14460445
170707A00007	7/7/2017	2.65	7/8/2024	7/7/2017	118.03521	114.8032637	111.6797657	108.6604501	105.7412465	102.9182679	100.187801	97.54629764	94.99036622
170710A00079	7/10/2017	2.76	7/12/2032	7/10/2017	136.42509	128.6902195	121.5560999	114.9688927	108.8800602	103.2458075	98.02658368	93.18663879	88.69362999
170711A00010	7/11/2017	2.38	7/12/2027	7/11/2017	118.92884	115.2505212	111.7392	108.3857529	105.1816243	102.1187877	99.18970932	96.38731436	93.70495594
170602A00019	6/2/2017	2.42	6/3/2024	6/2/2017	116.79752	113.6921876	110.6879708	107.7810207	104.9676529	102.2443436	99.60772101	97.05455872	94.58176799
170602A00030	6/2/2017	1.88	6/2/2022	6/2/2017	104.82688	103.9398738	103.0680724	102.2110867	101.3685401	100.5400688	99.72532128	98.92395738	98.1356483
170615A00006	6/15/2017	2.15	6/17/2024	6/15/2017	108.50647	106.9228243	105.3788945	103.8733423	102.4048884	100.9723072	99.57442349	98.21011058	96.87828743
170619A00089	6/16/2017	2.79	6/16/2027	6/16/2017	132.78525	126.2100618	120.023683	114.2007525	108.7176989	103.5526061	98.68508825	94.09617569	89.76820888
170619A00092	6/16/2017	2.79	6/16/2027	6/16/2017	132.78522	126.210036	120.0236633	114.2007386	108.7176904	103.5526026	98.68508961	94.09618156	89.768219
170619A00095	6/16/2017	2.79	6/16/2027	6/16/2017	132.78525	126.2100618	120.023683	114.2007525	108.7176989	103.5526061	98.68508825	94.09617569	89.76820888
170504A00049	5/4/2017	2.63	5/6/2024	5/4/2017	116.99121	113.9626395	111.0308443	108.1920706	105.4427423	102.7794485	100.1989343	97.69809215	95.27395424
170511A00011	5/11/2017	2.41	5/11/2027	5/11/2017	118.52706	114.9631334	111.5571508	108.3006626	105.1857373	102.2049252	99.35122544	96.61805609	93.999226
170518A00027	5/18/2017	2.11	5/18/2022	5/18/2017	104.72534	103.8780977	103.0446858	102.2247665	101.4180131	100.6241095	99.84274967	99.07363722	98.31648503
170524A00027	5/24/2017	2.32	5/24/2027	5/24/2017	118.22102	114.6657651	111.268117	108.0196417	104.912423	101.9390253	99.09246131	96.36616174	93.75394734
170524A00037	5/24/2017	2.46	5/24/2024	5/24/2017	116.15542	113.1961593	110.3316539	107.5583001	104.8726564	102.2714324	99.75148139	97.30979336	94.94348786
170526A00017	5/26/2017	2.16	5/28/2024	5/26/2017	108.27446	106.74027	105.2437968	103.7837841	102.3590306	100.9683853	99.61074469	98.28505009	96.99028581
170406A00033	4/6/2017	3.01	4/6/2027	4/6/2017	133.22351	126.8262244	120.7966768	115.1113976	109.7485534	104.6878234	99.91028572	95.39831284	91.13547571
170406A00034	4/6/2017	3.01	4/6/2027	4/6/2017	133.22351	126.8262244	120.7966768	115.1113976	109.7485534	104.6878234	99.91028572	95.39831284	91.13547571
170406A00036	4/6/2017	3.07	4/6/2032	4/6/2017	136.70495	129.1578713	122.18341	115.7313494	109.756319	104.2172918	99.077137	94.30222034	89.86204913
170406A00037	4/6/2017	3.07	4/6/2032	4/6/2017	136.70494	129.1578653	122.183406	115.7313471	109.7563181	104.2172922	99.07713846	94.30222271	89.86205226
170407A00001	4/6/2017	2.97	4/6/2027	4/6/2017	131.36716	125.3243099	119.6229553	114.2415103	109.1598805	104.3593553	99.82250402	95.53308066	91.47593674
170504A00012	5/4/2017	2.28	5/4/2026	5/4/2017	115.08022	112.2146131	109.457355	106.8033991	104.2479753	101.7865701	99.41491125	97.12895282	94.92486162
170406A00023	4/6/2017	2.24	4/6/2022	4/6/2017	104.13391	103.4128795	102.7019155	102.0008042	101.3093413	100.6273283	99.95457187	99.29088406	98.63608195
170406A00024	4/6/2017	2.61	4/8/2024	4/6/2017	116.28157	113.382582	110.5739309	107.852176	105.214032	102.6563635	100.176177	97.77061328	95.43694005
170406A00026	4/6/2017	2.61	4/8/2024	4/6/2017	116.28157	113.382582	110.5739309	107.852176	105.214032	102.6563635	100.176177	97.77061328	95.43694005
170406A00027	4/6/2017	2.61	4/8/2024	4/6/2017	116.28157	113.382582	110.5739309	107.852176	105.214032	102.6563635	100.176177	97.77061328	95.43694005

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170406A00029	4/6/2017	3.01	4/6/2027	4/6/2017	133.22352	126.8262288	120.79668	115.1113997	109.7485544	104.6878235	99.91028499	95.39831137	91.13547356
170406A00032	4/6/2017	3.01	4/6/2027	4/6/2017	133.22352	126.8262288	120.79668	115.1113997	109.7485544	104.6878235	99.91028499	95.39831137	91.13547356
170317A00039	3/17/2017	2.73	3/18/2024	3/17/2017	116.28974	113.4497571	110.6967523	108.0274757	105.4388231	102.9278283	100.4916565	98.12759672	95.83305607
170317A00040	3/17/2017	2.74	3/18/2024	3/17/2017	116.53189	113.6526478	110.8618646	108.1562333	105.5325922	102.9879204	100.5193308	98.12406257	95.79947523
170317A00041	3/17/2017	2.73	3/18/2024	3/17/2017	116.28974	113.4497571	110.6967523	108.0274757	105.4388231	102.9278283	100.4916565	98.12759672	95.83305607
170317A00044	3/17/2017	3.11	3/17/2027	3/17/2017	131.90205	125.8920213	120.2187378	114.8610954	109.7994345	105.0154372	100.4920275	96.21328001	92.16433569
170322A00033	3/22/2017	3.61	3/24/2042	3/22/2017	180.74914	161.1883832	144.333311	129.7639426	117.1303433	106.1403169	96.5493514	88.15239208	80.77709675
170330A00060	3/30/2017	2.06	3/30/2022	3/30/2017	103.94244	103.246029	102.5590446	101.881298	101.2126032	100.5527795	99.90165088	99.25904592	98.62479771
170303A00004	3/3/2017	2.8	3/4/2024	3/3/2017	116.47139	113.6338541	110.8824969	108.2141359	105.6257301	103.1143719	100.6772801	98.31179375	96.01536539
170307A00013	3/7/2017	2.33	3/7/2024	3/7/2017	108.26229	106.7765013	105.3264172	103.9108758	102.5287598	101.1789979	99.86056205	98.57246561	97.31376112
170309A00014	3/9/2017	2.58	3/9/2027	3/9/2017	118.5829	115.1191247	111.8050895	108.6329635	105.5953835	102.6854243	99.8965697	97.22268551	94.65799445
170309A00016	3/9/2017	2.39	3/8/2024	3/9/2017	108.56403	107.0708255	105.6135781	104.1911114	102.8022983	101.446058	100.1213536	98.82719015	97.56261211
170309A00042	3/9/2017	2.18	3/11/2024	3/9/2017	108.2596	106.7704843	105.3172379	103.8986858	102.5137032	101.1612118	99.84017696	98.54960575	97.28854489
170313A00045	3/13/2017	3.22	3/15/2032	3/13/2017	137.47902	129.9470368	122.9825579	116.5361404	110.563082	105.0229341	99.87906523	95.09827293	90.65043688
170207A00055	2/7/2017	2.36	2/8/2027	2/7/2017	117.59818	114.2140902	110.9744671	107.8718418	104.8991847	102.0498805	99.31770072	96.69677816	94.1815837
170221A00028	2/21/2017	2.31	2/18/2022	2/21/2017	103.3993	102.818045	102.2433738	101.6751739	101.1133361	100.5577537	100.0083225	99.46494032	98.92750754
170221A00033	2/21/2017	2.31	2/18/2022	2/21/2017	103.3993	102.818045	102.2433738	101.6751739	101.1133361	100.5577537	100.0083225	99.46494032	98.92750754
170224A00008	2/24/2017	2.18	2/24/2022	2/24/2017	103.41799	102.8194313	102.2278474	101.6431142	101.0651127	100.4937273	99.92884446	99.3703536	98.81814649
170224A00009	2/24/2017	2.39	2/24/2023	2/24/2017	109.42436	107.7703049	106.1506294	104.5643271	103.0104338	101.4880219	99.99619915	98.53410658	97.10091725
170301A00031	3/1/2017	2.11	3/1/2024	3/1/2017	107.91458	106.4743043	105.0680717	103.6947789	102.3533717	101.0428386	99.76220886	98.51055068	97.28696901
170112A00015	1/12/2017	2.32	1/12/2027	1/12/2017	117.21699	113.8942392	110.7115412	107.6617314	104.7380681	101.9342025	99.24415367	96.66228402	94.18327754
170120A00028	1/20/2017	2.34	1/20/2022	1/20/2017	102.91383	102.4201066	101.9311668	101.4469443	100.9673707	100.4923793	100.0219042	99.55588104	99.09424666
170124A00017	1/24/2017	2.82	1/23/2032	1/24/2017	135.2319	127.9113257	121.1359994	114.8589386	109.0376202	103.6335252	98.61173206	93.94055402	89.59121551
170126A00003	1/26/2017	2.86	1/26/2027	1/26/2017	130.77308	124.920397	119.3897907	114.1614477	109.216884	104.5388522	100.1112512	95.91904418	91.94818221
170126A00004	1/26/2017	2.13	1/26/2022	1/26/2017	102.95552	102.4440695	101.937745	101.4364726	100.9401768	100.4487836	99.96222046	99.48041618	99.00330107
170201A00016	2/1/2017	2.49	2/1/2024	2/1/2017	115.52127	112.7872083	110.1343388	107.5597426	105.0606295	102.6343276	100.2782771	97.99002493	95.76721961
161227A00073	12/27/2016	2.83	12/28/2026	12/27/2016	127.20694	122.0865701	117.2333845	112.6315284	108.2661826	104.1234912	100.1904935	96.45506132	92.9058405
161229A00018	12/29/2016	2.46	12/29/2026	12/29/2016	117.41174	114.1328109	110.9903683	107.9775045	105.0877167	102.3148773	99.65321044	97.09726893	94.64191328
161229A00019	12/29/2016	2.46	12/29/2026	12/29/2016	117.41173	114.1328047	110.9903635	107.9775012	105.0877147	102.3148766	99.65321096	97.09727058	94.641916
170105A00010	1/5/2017	2.61	1/5/2027	1/5/2017	117.63022	114.305312	111.1202044	108.067761	105.1412671	102.3343989	99.64119752	97.05604571	94.57364574
170105A00012	1/5/2017	2.68	1/5/2024	1/5/2017	115.19741	112.5531607	109.9851321	107.4906705	105.0672335	102.7123827	100.4237785	98.19917586	96.03641955
170106A00030	1/6/2017	2.39	1/6/2027	1/6/2017	117.44039	114.1115325	110.9229543	107.8674874	104.9383803	102.129275	99.4341816	96.84745396	94.36376801
161116A00006	11/16/2016	2.39	11/16/2026	11/16/2016	116.43428	113.2426907	110.1818955	107.245362	104.4269385	101.7208246	99.12154854	96.62394645	94.22314274

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
161128A00006	11/28/2016	1.93	11/29/2021	11/28/2016	101.9215	101.580152	101.2411124	100.90436	100.5698715	100.2376243	99.9075958	99.57976385	99.25410657
161202A00001	12/2/2016	2.65	12/1/2023	12/2/2016	114.55332	112.0226553	109.562259	107.1697807	104.8429613	102.5796304	100.3777022	98.23517163	96.15011061
161207A00014	12/7/2016	2.75	12/8/2031	12/7/2016	134.48324	127.2615621	120.5738395	114.3743842	108.6218127	103.2786125	98.31075201	93.68733127	89.38027099
161214A00034	12/14/2016	2.65	12/14/2026	12/14/2016	117.50017	114.2287811	111.0931926	108.0865559	105.2024165	102.4346918	99.77764728	97.22587355	94.77426623
161222A00013	12/22/2016	2.93	12/22/2026	12/22/2016	130.71817	124.9576484	119.509135	114.3537393	109.4738246	104.852914	100.4756079	96.32750759	92.39514535
161005A00031	10/5/2016	1.43	10/5/2021	10/5/2016	100.59041	100.4765702	100.3630949	100.2499858	100.1372412	100.0248592	99.91283795	99.80117561	99.68987037
161012A00011	10/12/2016	1.53	10/12/2023	10/12/2016	106.84676	105.4719346	104.1291719	102.8173877	101.5355497	100.2826709	99.05780759	97.86005685	96.68855417
161014A00019	10/14/2016	2.39	10/15/2031	10/14/2016	130.49046	123.6229032	117.2545016	111.3432065	105.8508793	100.742897	95.98780243	91.55699107	87.42443172
161014A00026	10/14/2016	2.16	10/14/2031	10/14/2016	130.06567	123.1938311	116.8228169	110.9103425	105.4180616	100.3111703	95.55805364	91.12996984	87.00076813
161014A00029	10/14/2016	2.51	10/15/2031	10/14/2016	132.36092	125.3669094	118.8826161	112.8650036	107.2750453	102.0773197	97.2396509	92.73278706	88.53011337
161102A00014	11/2/2016	1.99	11/2/2023	11/2/2016	112.52685	110.1104249	107.75983	105.4727621	103.2470169	101.080487	98.97115581	96.91709375	94.9164529
160908A00036	9/8/2016	2.3	9/8/2031	9/8/2016	129.74683	122.9722906	116.6866123	110.8488922	105.4220072	100.3722341	95.66891364	91.284149	87.19253708
160908A00037	9/8/2016	1.4	9/8/2023	9/8/2016	106.79492	105.4003618	104.037486	102.7053017	101.4028543	100.1292278	98.88354256	97.66495369	96.47264913
160923A00009	9/23/2016	2.24	9/23/2031	9/23/2016	129.36269	122.6078291	116.3404667	110.5198131	105.1088428	100.0739218	95.38447231	91.01267266	86.93318831
160930A00025	9/30/2016	1.66	9/30/2027	9/30/2016	116.82301	113.1097039	109.5690923	106.1915347	102.9679999	99.89002664	96.94968321	94.13953108	91.45259059
161004A00070	10/4/2016	1.92	10/4/2023	10/4/2016	111.94795	109.6239343	107.3614686	105.1584505	103.0128686	100.9227976	98.88639334	96.90188896	94.9675907
161005A00016	10/5/2016	2.32	10/6/2031	10/5/2016	130.10532	123.2567036	116.9059217	111.0110338	105.5340003	100.4402881	95.69852162	91.28017098	87.15927271
160908A00030	9/8/2016	2.21	9/8/2026	9/8/2016	126.074	120.5280986	115.2742158	110.2951871	105.5749601	101.0985124	96.85177954	92.82158818	88.99559478
160908A00031	9/8/2016	2.21	9/8/2026	9/8/2016	126.074	120.5280986	115.2742158	110.2951871	105.5749601	101.0985124	96.85177954	92.82158818	88.99559478
160908A00032	9/8/2016	2.17	9/8/2026	9/8/2016	124.65716	119.4010313	114.4172421	109.6899284	105.2042434	100.9462875	96.90304245	93.06231039	89.41265717
160908A00033	9/8/2016	2.17	9/8/2026	9/8/2016	124.65716	119.4010313	114.4172421	109.6899284	105.2042434	100.9462875	96.90304245	93.06231039	89.41265717
160908A00034	9/8/2016	2.17	9/8/2026	9/8/2016	124.65716	119.4010313	114.4172421	109.6899284	105.2042434	100.9462875	96.90304245	93.06231039	89.41265717
160908A00035	9/8/2016	2.3	9/8/2031	9/8/2016	129.74681	122.9722773	116.6866031	110.8488868	105.4220052	100.3722353	95.66891759	91.2841555	87.1925459
160908A00023	9/8/2016	2.21	9/8/2026	9/8/2016	126.074	120.5280986	115.2742158	110.2951871	105.5749601	101.0985124	96.85177954	92.82158818	88.99559478
160908A00024	9/8/2016	2.21	9/8/2026	9/8/2016	126.074	120.5280986	115.2742158	110.2951871	105.5749601	101.0985124	96.85177954	92.82158818	88.99559478
160908A00025	9/8/2016	2.21	9/8/2026	9/8/2016	126.074	120.5280986	115.2742158	110.2951871	105.5749601	101.0985124	96.85177954	92.82158818	88.99559478
160908A00026	9/8/2016	2.21	9/8/2026	9/8/2016	126.074	120.5280986	115.2742158	110.2951871	105.5749601	101.0985124	96.85177954	92.82158818	88.99559478
160908A00027	9/8/2016	2.21	9/8/2026	9/8/2016	126.074	120.5281038	115.2742194	110.2951892	105.5749608	101.0985119	96.85177787	92.82158546	88.99559111
160908A00028	9/8/2016	2.21	9/8/2026	9/8/2016	126.074	120.5281038	115.2742194	110.2951892	105.5749608	101.0985119	96.85177787	92.82158546	88.99559111
160907A00041	9/7/2016	1.83	9/7/2023	9/7/2016	111.36884	109.1290033	106.9469859	104.8208778	102.7488451	100.729129	98.76004259	96.83996658	94.96734645
160907A00049	9/7/2016	1.41	9/9/2024	9/7/2016	108.45086	106.6818835	104.960922	103.2862714	101.6562983	100.0694404	98.52420249	97.01915297	95.55292085
160908A00016	9/8/2016	1.87	9/8/2023	9/8/2016	111.34454	109.1255822	106.963826	104.8573798	102.8044289	100.8032332	98.85212339	96.94949749	95.09381749
160908A00017	9/8/2016	1.87	9/8/2023	9/8/2016	111.34454	109.1255822	106.963826	104.8573798	102.8044289	100.8032332	98.85212339	96.94949749	95.09381749

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160908A00019	9/8/2016	1.87	9/8/2023	9/8/2016	111.34454	109.1255822	106.963826	104.8573798	102.8044289	100.8032332	98.85212339	96.94949749	95.09381749
160908A00022	9/8/2016	2.21	9/8/2026	9/8/2016	126.074	120.5281038	115.2742194	110.2951892	105.5749608	101.0985119	96.85177787	92.82158546	88.99559111
160810A00029	8/10/2016	2.17	8/10/2026	8/10/2016	125.53129	120.0816045	114.9153848	110.0161775	105.3685797	100.9581634	96.77140823	92.79563939	89.01897014
160810A00030	8/10/2016	2.24	8/11/2031	8/10/2016	129.13604	122.4484511	116.2399025	110.4705909	105.1043653	100.1083644	95.45269284	91.11013177	87.05587983
160810A00035	8/10/2016	2.1	8/10/2026	8/10/2016	124.00222	118.8402572	113.9425668	109.2939385	104.8801292	100.6877921	96.70441564	92.91826657	89.31833691
160812A00006	8/12/2016	2.16	8/12/2026	8/12/2016	125.12993	119.9066243	114.9513993	110.2487887	105.7843088	101.5443905	97.51631583	93.68816027	90.04873834
160824A00019	8/24/2016	1.98	8/25/2031	8/24/2016	128.45855	121.781732	115.5844517	109.8267723	104.4724295	99.48846642	94.84490697	90.5144648	86.47228205
160906A00027	9/6/2016	2.03	9/8/2031	9/6/2016	128.99716	122.2375321	115.9669261	110.144342	104.7325713	99.69782023	95.00937107	90.6392797	86.5621047
160801A00002	8/1/2016	1.58	8/3/2026	8/1/2016	113.79075	110.8115743	107.949881	105.2000041	102.5565925	100.0145915	97.56922431	95.21597497	92.95057212
160802A00026	8/2/2016	1.84	8/2/2023	8/2/2016	110.88943	108.7555507	106.6750413	104.6462133	102.6674408	100.7371609	98.8538712	97.01612654	95.22253666
160810A00022	8/10/2016	1.53	8/10/2021	8/10/2016	100.15966	100.1291198	100.0986153	100.0681456	100.0377106	100.0073103	99.97694462	99.94661349	99.91631684
160810A00025	8/10/2016	2.17	8/10/2026	8/10/2016	125.53129	120.0816045	114.9153848	110.0161775	105.3685797	100.9581634	96.77140823	92.79563939	89.01897014
160810A00027	8/10/2016	2.13	8/10/2026	8/10/2016	124.15124	118.9840061	114.0812863	109.427865	105.009486	100.8127905	96.8252556	93.03513727	89.43141749
160810A00028	8/10/2016	2.19	8/10/2026	8/10/2016	126.345	120.7268071	115.4033922	110.3575655	105.5732393	101.0353471	96.72977275	92.64328573	88.76348048
160629A00066	6/29/2016	2.61	6/30/2036	6/29/2016	166.2393	148.8244536	133.6294395	120.3477432	108.7173775	98.51415765	89.54602526	81.64825323	74.6793916
160705A00008	7/5/2016	1.7	7/6/2026	7/5/2016	120.12098	115.6482388	111.3936058	107.3449587	103.490924	99.82082413	96.32462997	92.9929184	89.81683213
160705A00010	7/5/2016	1.68	7/5/2023	7/5/2016	110.16012	108.1177233	106.1245806	104.1791881	102.2801	100.4259246	98.61532154	96.84699954	95.11971446
160711A00004	7/11/2016	1.51	7/13/2026	7/11/2016	113.37872	110.458724	107.6523141	104.9540783	102.3589005	99.86194552	97.45864124	95.14466252	92.91591616
160713A00015	7/13/2016	1.57	7/13/2026	7/13/2016	113.54973	110.6252232	107.8144791	105.1120758	102.5128894	100.0120773	97.60506023	95.2875065	93.05531657
160719A00026	7/19/2016	1.87	7/20/2026	7/19/2016	113.98341	111.0544406	108.2391984	105.5322727	102.928549	100.4231934	98.01163405	95.68954612	93.45283611
160608A00028	6/8/2016	2.36	6/8/2026	6/8/2016	125.80821	120.5196618	115.4976112	110.7270848	106.1940295	101.8852521	97.78836231	93.89171986	90.18438499
160608A00029	6/8/2016	2.36	6/8/2026	6/8/2016	125.80821	120.5196618	115.4976112	110.7270848	106.1940295	101.8852521	97.78836231	93.89171986	90.18438499
160608A00030	6/8/2016	2.36	6/8/2026	6/8/2016	125.80821	120.5196618	115.4976112	110.7270848	106.1940295	101.8852521	97.78836231	93.89171986	90.18438499
160608A00033	6/8/2016	2.44	6/9/2031	6/8/2016	129.86792	123.2544262	117.1075126	111.3889579	106.0640036	101.1010115	96.47116146	92.14817927	88.1080935
160608A00034	6/8/2016	2.44	6/9/2031	6/8/2016	129.86789	123.2544038	117.1074966	111.3889478	106.0639988	101.1010117	96.47116611	92.14818803	88.10810604
160616A00029	6/16/2016	1.58	6/16/2026	6/16/2016	113.36441	110.4931618	107.7320659	105.0759294	102.5198474	100.0591815	97.6895431	95.40677836	93.20695383
160608A00021	6/8/2016	1.91	6/8/2023	6/8/2016	110.12605	108.1784714	106.276131	104.4177033	102.6019061	100.8275031	99.09330198	97.39815259	95.7409451
160608A00022	6/8/2016	1.91	6/8/2023	6/8/2016	110.12605	108.1784714	106.276131	104.4177033	102.6019061	100.8275031	99.09330198	97.39815259	95.7409451
160608A00023	6/8/2016	2.36	6/8/2026	6/8/2016	125.80822	120.5196716	115.4976182	110.7270893	106.1940317	101.8852521	97.78836032	93.891716	90.1843794
160608A00024	6/8/2016	2.36	6/8/2026	6/8/2016	125.80821	120.5196618	115.4976112	110.7270848	106.1940295	101.8852521	97.78836231	93.89171986	90.18438499
160608A00025	6/8/2016	2.36	6/8/2026	6/8/2016	125.80821	120.5196618	115.4976112	110.7270848	106.1940295	101.8852521	97.78836231	93.89171986	90.18438499
160608A00027	6/8/2016	2.36	6/8/2026	6/8/2016	125.80821	120.5196618	115.4976112	110.7270848	106.1940295	101.8852521	97.78836231	93.89171986	90.18438499
160524A00101	5/24/2016	2.98	5/23/2031	5/24/2016	151.989	140.3588512	129.789377	120.1758123	111.4243516	103.4509456	96.180236	89.54461133	83.48337064

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160603A00014	6/3/2016	1.74	6/3/2026	6/3/2016	113.80997	110.9279464	108.1564349	105.4902332	102.9244229	100.4543524	98.07562054	95.78406154	93.5757304
160603A00029	6/3/2016	2.18	6/3/2031	6/3/2016	129.26875	122.6609112	116.520484	110.8090971	105.4918589	100.5370171	95.91565269	91.60140715	87.57023645
160606A00018	6/6/2016	1.74	6/5/2026	6/6/2016	113.81043	110.9282727	108.1566446	105.4903376	102.9244323	100.4542762	98.07546752	95.78383956	93.57544673
160608A00019	6/8/2016	2.36	6/8/2026	6/8/2016	125.80821	120.5196618	115.4976112	110.7270848	106.1940295	101.8852521	97.78836231	93.89171986	90.18438499
160608A00020	6/8/2016	2.36	6/8/2026	6/8/2016	125.80821	120.5196618	115.4976112	110.7270848	106.1940295	101.8852521	97.78836231	93.89171986	90.18438499
160428A00028	4/28/2016	2	4/28/2026	4/28/2016	114.07315	111.280551	108.592119	106.0030602	103.5088388	101.1051605	98.78795799	96.5533775	94.39776574
160504A00022	5/4/2016	2	5/4/2023	5/4/2016	109.89382	108.0290924	106.2064068	104.4244259	102.6818705	100.9775157	99.3101871	97.67875893	96.08215097
160511A00015	5/11/2016	2.42	5/11/2026	5/11/2016	125.70577	120.4984076	115.5500809	110.8463259	106.3735684	102.1190675	98.07086	94.21770735	90.54904809
160511A00016	5/11/2016	2.48	5/12/2031	5/11/2016	129.87958	123.3206502	117.2209666	111.5431759	106.2532822	101.3203223	96.71607262	92.4147871	88.39296152
160523A00086	5/23/2016	2.2	5/26/2026	5/23/2016	124.4303	119.4311555	114.6790189	110.1601679	105.8617154	101.7715581	97.87832517	94.17132908	90.64052147
160524A00028	5/24/2016	2.06	5/24/2023	5/24/2016	110.28953	108.3635437	106.4816282	104.6424819	102.8448473	101.0875133	99.36931301	97.68912221	96.04585699
160413A00020	4/13/2016	2.48	4/13/2026	4/13/2016	125.70365	120.5713059	115.6909703	111.048695	106.6313922	102.426774	98.42329811	94.6101183	90.97703772
160413A00021	4/13/2016	2.48	4/13/2026	4/13/2016	125.70365	120.5713059	115.6909703	111.048695	106.6313922	102.426774	98.42329811	94.6101183	90.97703772
160413A00033	4/13/2016	2.32	4/13/2026	4/13/2016	121.53174	117.1790627	113.0293277	109.0716271	105.2957075	101.6919303	98.25123074	94.96508022	91.82545082
160414A00042	4/13/2016	2.48	4/13/2026	4/13/2016	125.70365	120.5713059	115.6909703	111.048695	106.6313922	102.426774	98.42329811	94.6101183	90.97703772
160421A00016	4/21/2016	2.26	4/21/2026	4/21/2016	124.31471	119.4070716	114.7382226	110.2949786	106.064966	102.036568	98.19887384	94.54163082	91.05520074
160427A00004	4/27/2016	2.09	4/27/2026	4/27/2016	113.91357	111.1318925	108.4537582	105.8744127	103.3893555	100.9943256	98.68528681	96.45841407	94.31008113
160401A00005	4/1/2016	2.02	4/3/2023	4/1/2016	109.46467	107.6915002	105.9569068	104.2596899	102.5987036	100.9728486	99.38107078	97.82235824	96.29573936
160404A00019	4/4/2016	2.48	4/4/2031	4/4/2016	129.70646	123.2101131	117.1652264	111.5353341	106.2872313	101.390655	96.81800237	92.54407762	88.5458643
160412A00029	4/12/2016	2.48	4/14/2031	4/12/2016	129.70775	123.2109738	117.1657267	111.535535	106.2871849	101.390406	96.8175889	92.54353206	88.54521424
160413A00014	4/13/2016	2.55	4/14/2031	4/13/2016	130.13968	123.6211044	117.5555664	111.9064746	106.6405037	101.7272822	97.13910817	92.85069578	88.83894671
160413A00016	4/13/2016	2.55	4/14/2031	4/13/2016	130.13968	123.6211045	117.5555666	111.9064746	106.6405037	101.7272821	97.13910809	92.85069567	88.83894658
160413A00018	4/13/2016	1.78	4/13/2026	4/13/2016	113.47334	110.6966827	108.023549	105.4491745	102.9690543	100.5789235	98.27474219	96.05268234	93.90911503
160212A00047	2/12/2016	1.94	2/12/2026	2/12/2016	113.05077	110.3880464	107.8215261	105.3469054	102.9601062	100.6572619	98.43470518	96.28895613	94.21671154
160301A00012	3/1/2016	2.02	3/1/2023	3/1/2016	108.96073	107.2872179	105.6487114	104.0441805	102.4726353	100.9331243	99.424732	97.94657798	96.49781459
160303A00035	3/3/2016	2.14	3/3/2026	3/3/2016	114.27584	111.4456202	108.7203699	106.0952904	103.5658382	101.1277103	98.77682931	96.50933003	94.3215472
160307A00024	3/7/2016	2.17	3/6/2026	3/7/2016	113.88616	111.1551467	108.5242425	105.9889135	103.5448656	101.1880297	98.91454881	96.72076522	94.60320887
160328A00038	3/28/2016	2.54	3/30/2026	3/28/2016	124.60061	119.7549739	115.1420254	110.7490842	106.5642423	102.5763096	98.77476605	95.14971764	91.69185494
160329A00017	3/29/2016	2.48	3/30/2026	3/29/2016	124.32222	119.485732	114.8815217	110.4969346	106.3200822	102.3397932	98.54556531	94.92752096	91.4763664
160209A00008	2/9/2016	2.45	2/10/2031	2/9/2016	128.97825	122.6298306	116.7157706	111.2014944	106.055474	101.2489369	96.7556057	92.55146307	88.61454147
160210A00049	2/10/2016	1.78	2/10/2026	2/10/2016	113.02002	110.3517012	107.7799768	105.3005181	102.9092229	100.6022026	98.37576922	96.2264238	94.15084523
160210A00051	2/10/2016	2.28	2/10/2031	2/10/2016	128.94513	122.5744237	116.6407625	111.1092756	105.9481742	101.1284539	96.62363081	92.40950362	88.46394085
160210A00054	2/10/2016	1.78	2/10/2026	2/10/2016	113.02003	110.3517079	107.7799817	105.3005211	102.9092243	100.6022024	98.37576752	96.2264207	94.15084081

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160211A00038	2/11/2016	1.83	2/11/2026	2/11/2016	112.76499	110.1092301	107.5494179	105.0812625	102.7006967	100.4038642	98.18710754	96.04695618	93.98011569
160212A00006	2/12/2016	1.57	2/13/2023	2/12/2016	104.2879	103.430229	102.5884429	101.762083	100.9507107	100.1539044	99.37125906	98.6023848	97.84690663
160115A00011	1/15/2016	2.18	1/15/2026	1/15/2016	113.43591	110.8122389	108.2819456	105.840904	103.4852041	101.2111367	99.01518136	96.89399601	94.8444061
160119A00072	1/19/2016	2.77	1/21/2031	1/19/2016	132.37758	125.5274463	119.1610734	113.2387981	107.7245487	102.585491	97.79171469	93.31595195	89.13332515
160126A00004	1/26/2016	2.52	1/26/2026	1/26/2016	126.33289	121.25275	116.4151574	111.8071319	107.4164626	103.2316559	99.24188911	95.43696771	91.80728538
160201A00016	2/1/2016	2.1	2/2/2026	2/1/2016	113.43664	110.7657112	108.1912328	105.7088929	103.3146052	101.0044951	98.77488781	96.62229598	94.5434093
160203A00017	2/3/2016	2.07	2/3/2023	2/3/2016	108.6336	107.0397195	105.4782607	103.9483118	102.4489947	100.9794632	99.53890164	98.12652399	96.74157197
160209A00006	2/9/2016	1.91	2/9/2026	2/9/2016	112.97207	110.3114388	107.7469283	105.274236	102.8892878	100.5882212	98.36737226	96.2232648	94.15259879
151223A00036	12/23/2015	2.64	12/23/2025	12/23/2015	117.86484	114.5242533	111.3181232	108.2399737	105.2836809	102.4434541	99.71381569	97.08958248	94.56584787
151223A00078	12/23/2015	2.28	12/23/2025	12/23/2015	113.8218	111.230921	108.7310637	106.3182477	103.9887001	101.7388401	99.56526776	97.46475381	95.43422966
151228A00013	12/28/2015	2.27	12/29/2025	12/28/2015	113.79844	111.2076984	108.7079978	106.2953549	103.9659949	101.7163352	99.54297421	97.44268131	95.41238654
151229A00026	12/29/2015	2.28	12/29/2025	12/29/2015	113.82361	111.2322832	108.7320139	106.3188222	103.9889322	101.7387605	99.56490501	97.46413414	95.4333773
160104A00020	1/4/2016	2.47	1/4/2023	1/4/2016	108.78406	107.2731454	105.7914702	104.3382497	102.9127303	101.5141848	100.1419108	98.79522979	97.47348625
160106A00042	1/6/2016	2.43	1/6/2026	1/6/2016	114.0734	111.4351931	108.8908467	106.4362147	104.0673687	101.7805819	99.57231712	97.43921621	95.37808933
151201A00004	12/1/2015	2.44	12/1/2022	12/1/2015	108.16032	106.7540439	105.3733517	104.017603	102.6861762	101.3784698	100.0939017	98.83190831	97.59194389
151204A00011	12/4/2015	2.28	12/4/2025	12/4/2015	113.81606	111.226611	108.7280556	106.316428	103.9879639	101.7390905	99.56641535	97.46671604	95.4369303
151209A00024	12/9/2015	2.22	12/9/2025	12/9/2015	113.66671	111.0804094	108.5849087	106.1762475	103.8506644	101.6045893	99.43463246	97.33757399	95.31035417
151210A00011	12/10/2015	2.16	12/12/2022	12/10/2015	104.38298	103.6110764	102.8530724	102.1085622	101.3771612	100.6585	99.95222375	99.25799129	98.57547453
151215A00039	12/15/2015	2.46	12/15/2025	12/15/2015	113.89778	111.3118645	108.8165753	106.4079655	104.0822868	101.8359811	99.66566961	97.56814277	95.54035026
151216A00006	12/16/2015	2.3	12/16/2021	12/16/2015	102.31837	101.924797	101.5342813	101.1467838	100.7622696	100.3807042	100.0020536	99.62628433	99.25336349
151113A00035	11/13/2015	1.8	11/14/2022	11/13/2015	103.88357	103.1566395	102.4430665	101.7424499	101.0544022	100.3785522	99.71454391	99.06203592	98.42070048
151118A00025	11/18/2015	2.4	11/18/2022	11/18/2015	107.81176	106.4496549	105.1160986	103.8102005	102.5311053	101.2779936	100.0500797	98.84660974	97.66686033
151118A00037	11/18/2015	2.75	11/18/2025	11/18/2015	121.70936	117.6747604	113.8149514	110.1211682	106.5851449	103.1990783	99.95559976	96.84774762	93.86894275
151120A00019	11/20/2015	2.72	11/20/2030	11/20/2015	130.82732	124.5305776	118.6556931	113.1697471	108.0426642	103.2469498	98.75745018	94.55113573	90.60690673
151124A00007	11/24/2015	1.98	11/23/2022	11/24/2015	103.92101	103.1943781	102.4808953	101.7801716	101.0918332	100.4155213	99.75089196	99.0976147	98.45537224
151125A00037	11/25/2015	2.41	11/25/2025	11/25/2015	113.52282	110.9933322	108.5511883	106.1926225	103.9140633	101.7121192	99.5835679	97.52534705	95.53454486
151006A00050	10/6/2015	2.21	10/6/2022	10/6/2015	103.81969	103.1409522	102.4742084	101.8191051	101.1753049	100.5424841	99.92033206	99.30855032	98.70685215
151013A00033	10/13/2015	2.23	10/14/2025	10/13/2015	112.83326	110.3684776	107.9874459	105.6866059	103.4625762	101.312144	99.23225523	97.22000552	95.27263197
151029A00008	10/29/2015	2.28	10/29/2025	10/29/2015	112.95796	110.4893399	108.1046598	105.800345	103.5730039	101.4194141	99.33651268	97.32138713	95.37126675
151030A00004	10/30/2015	2.48	10/30/2025	10/30/2015	121.02253	117.0417308	113.232281	109.5855762	106.0935074	102.7484251	99.54311068	96.47074857	93.52490116
151030A00026	10/30/2015	3.29	10/30/2030	10/30/2015	149.50627	139.1785874	129.7255774	121.0660005	113.1266777	105.8416458	99.15140537	93.00224986	87.34566935
151102A00024	11/2/2015	2.37	11/2/2022	11/2/2015	107.75385	106.3815141	105.0433673	103.7381381	102.4646142	101.2216424	100.0081253	98.82301749	97.66532276
150925A00034	9/25/2015	2.36	9/25/2025	9/25/2015	112.89874	110.4798264	108.1418504	105.8814163	103.6952969	101.5804238	99.53387873	97.55288476	95.63479862

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150929A00076	9/29/2015	2.28	9/29/2025	9/29/2015	112.71152	110.2964697	107.9622415	105.7054438	103.5228534	101.4114056	99.36818575	97.39042048	95.47546987
150929A00083	9/29/2015	2.09	9/29/2025	9/29/2015	112.61353	110.1949911	107.8575564	105.5978126	103.4125194	101.2985964	99.25311407	97.2732853	95.35645735
150929A00087	9/29/2015	2.09	9/29/2025	9/29/2015	112.61353	110.1949911	107.8575564	105.5978126	103.4125194	101.2985964	99.25311407	97.2732853	95.35645735
151001A00023	10/1/2015	2.02	10/1/2025	10/1/2015	112.68136	110.2150853	107.8327325	105.5307326	103.3056931	101.1543913	99.07376343	97.06089657	95.11301954
151005A00084	10/5/2015	2.25	10/5/2022	10/5/2015	107.15491	105.8674443	104.6111995	103.385044	102.1879036	101.0187548	99.87662161	98.76057325	97.66972115
150814A00029	8/14/2015	2.39	8/14/2025	8/14/2015	112.71308	110.3471101	108.0590007	105.8455351	103.7036505	101.6304331	99.62310965	97.67903976	95.79570846
150824A00033	8/24/2015	2.22	8/25/2025	8/24/2015	112.32502	109.9666906	107.6860053	105.4797551	103.3448842	101.2784851	99.27779116	97.34016797	95.46310654
150824A00050	8/24/2015	2.03	8/25/2025	8/24/2015	112.22889	109.8671667	107.583363	105.3742438	103.236737	101.1679204	99.165013	97.22536764	95.34646308
150825A00008	8/25/2015	2.82	8/25/2025	8/25/2015	123.13896	118.8920716	114.8274442	110.9361133	107.2096096	103.639929	100.2195042	96.94117844	93.79818022
150828A00018	8/28/2015	1.7	8/29/2022	8/28/2015	102.86477	102.3251956	101.793375	101.2691253	100.7522664	100.2426244	99.74003134	99.24432443	98.75534636
150911A00007	9/10/2015	2.51	9/9/2022	9/10/2015	107.02699	105.8195917	104.6396866	103.4863423	102.3586667	101.2558076	100.1769501	99.12131466	98.08815524
150803A00040	8/3/2015	3.01	8/2/2030	8/3/2015	130.74301	124.6413738	118.9375931	113.6013937	108.6050551	103.9231797	99.53248206	95.41159738	91.54090983
150803A00041	8/3/2015	3.01	8/2/2030	8/3/2015	130.74295	124.6413281	118.9375593	113.6013707	108.605042	103.9231758	99.53248644	95.41160936	91.54092876
150803A00042	8/3/2015	3.01	8/2/2030	8/3/2015	130.74298	124.6413488	118.9375742	113.6013805	108.6050471	103.9231767	99.53248347	95.41160295	91.54091924
150804A00022	8/4/2015	2.37	8/4/2022	8/4/2015	106.26051	105.1680774	104.0982909	103.0504498	102.0238823	101.0179439	100.0320159	99.0655041	98.11783772
150805A00015	8/5/2015	2.29	8/5/2022	8/5/2015	106.32466	105.227034	104.1522509	103.0996052	102.0684166	101.0580324	100.0678262	99.09719641	98.14556538
150812A00052	8/14/2015	2.13	8/14/2025	8/14/2015	112.45585	110.0899594	107.8020865	105.5889976	103.4476183	101.375024	99.36843154	97.42519138	95.54278004
150729A00041	7/29/2015	2.44	7/29/2025	7/29/2015	112.57725	110.2612246	108.0202301	105.8511991	103.7512162	101.7175067	99.74742818	97.83846365	95.98821436
150803A00033	8/3/2015	3.41	8/2/2030	8/3/2015	149.5941	139.4837446	130.2111949	121.7003149	113.8823563	106.6952017	100.0826885	93.99400583	88.38315532
150803A00036	8/3/2015	3.41	8/2/2030	8/3/2015	149.5941	139.4837446	130.2111949	121.7003149	113.8823563	106.6952017	100.0826885	93.99400583	88.38315532
150803A00037	8/3/2015	3.41	8/2/2030	8/3/2015	149.59406	139.483718	130.2111762	121.700303	113.8823505	106.6952011	100.0826925	93.99401375	88.38316664
150803A00038	8/3/2015	3.41	8/2/2030	8/3/2015	149.5941	139.4837446	130.2111949	121.7003149	113.8823563	106.6952017	100.0826885	93.99400583	88.38315532
150803A00039	8/3/2015	3.01	8/2/2030	8/3/2015	130.74297	124.6413411	118.9375689	113.6013773	108.6050457	103.9231769	99.5324851	95.41160583	91.54092323
150624A00077	6/24/2015	2.54	6/24/2022	6/24/2015	105.64733	104.6959722	103.7620525	102.8450902	101.9446246	101.0602112	100.1914219	99.33784328	98.49907669
150701A00056	7/1/2015	2.34	7/1/2025	7/1/2015	112.67707	110.3556654	108.1095039	105.9355105	103.8307616	101.7924742	99.81799842	97.90480976	96.05050258
150714A00003	7/14/2015	3.76	7/12/2030	7/14/2015	135.85475	129.5334596	123.6224498	118.0906449	112.9095829	108.0531761	103.4974963	99.22058017	95.20225416
150722A00033	7/22/2015	2.47	7/22/2025	7/22/2015	112.64258	110.325686	108.083823	105.9139252	103.8130787	101.7785099	99.80757743	97.89776516	96.04667519
150722A00035	7/22/2015	2.92	7/22/2025	7/22/2015	123.09418	118.9344529	114.9499893	111.1323296	107.4734751	103.9658572	100.6023115	97.37605434	94.28066009
150729A00028	7/29/2015	2.25	7/29/2025	7/29/2015	112.48332	110.1639603	107.919889	105.748022	103.6454288	101.6093202	99.6370406	97.72606046	95.87396943
150604A00039	6/4/2015	2.82	6/4/2030	6/4/2015	130.05757	124.0773927	118.4817448	113.2417452	108.3309234	103.7249999	99.40168953	95.34052318	91.52268683
150615A00024	6/15/2015	2.26	6/16/2025	6/15/2015	112.24706	109.9816431	107.7884973	105.6647052	103.6074924	101.6142164	99.68236002	97.80952417	95.99342145
150617A00017	6/17/2015	2.27	6/17/2025	6/17/2015	112.26944	110.0034885	107.8098267	105.6855384	103.6278481	101.6341126	99.70181371	97.82855154	96.01203796
150617A00018	6/17/2015	2.45	6/17/2025	6/17/2015	112.33938	110.0771284	107.8869076	105.7658156	103.711092	101.7201075	99.79035723	97.91945348	96.1051196

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150617A00030	6/17/2015	2.91	6/16/2025	6/17/2015	122.56722	118.5156788	114.6309895	110.9052855	107.3311196	103.9014352	100.6095435	97.44910268	94.41409743
150617A00036	6/17/2015	2.44	6/15/2022	6/17/2015	105.40476	104.4811476	103.5740029	102.682889	101.8073817	100.9470718	100.101564	99.27047705	98.45344238
150414A00037	4/14/2015	2.34	4/14/2025	4/14/2015	111.59282	109.4413633	107.3561226	105.3345039	103.374033	101.472351	99.62720842	97.83645909	96.09805466
150420A00012	4/20/2015	2.07	4/20/2022	4/20/2015	104.251	103.4867412	102.7337583	101.9918066	101.2606445	100.5400371	99.82975684	99.12958221	98.43929821
150427A00014	4/27/2015	2.98	4/27/2035	4/27/2015	145.67057	135.4102171	126.1224274	117.7019288	110.0558638	103.1022274	96.76851265	90.99053535	85.71141118
150529A00055	5/29/2015	1.78	5/31/2022	5/29/2015	102.36891	101.9232128	101.4828716	101.04778	100.6178335	100.1929305	99.77297224	99.35786272	98.94750853
150603A00012	6/3/2015	2.77	6/3/2030	6/3/2015	129.77533	123.8083009	118.2249509	112.9964649	108.0964312	103.500624	99.18680756	95.13455798	91.32510288
150603A00032	6/3/2015	2.21	6/3/2025	6/3/2015	112.13255	109.8704499	107.6804702	105.5596999	103.5053722	101.5148524	99.58563025	97.71531319	95.90162008
150224A00010	2/24/2015	2.34	2/24/2025	2/24/2015	112.88829	110.4686243	108.1262409	105.858005	103.6609343	101.5321895	99.46906626	97.46898797	95.52949856
150227A00011	2/27/2015	2.33	2/27/2025	2/27/2015	117.80442	114.450839	111.2233728	108.1164309	105.1247035	102.2431497	99.46698198	96.79165148	94.2128349
150311A00003	3/11/2015	2.72	3/31/2025	3/11/2015	120.81011	117.0039581	113.3478813	109.8349867	106.4587449	103.2129674	100.0917869	97.08963793	94.20123962
150318A00003	3/18/2015	2.04	3/18/2022	3/18/2015	102.42454	101.9967052	101.5735866	101.1550963	100.7411493	100.3316629	99.92655641	99.52575108	99.1291702
150320A00019	3/20/2015	2.25	3/20/2025	3/20/2015	117.7891	114.3865781	111.1136569	107.964509	104.9336086	102.0157135	99.2058496	96.49929436	93.89156286
150410A00021	4/10/2015	2.27	4/10/2025	4/10/2015	111.44455	109.2963369	107.2142334	105.1956436	103.2380981	101.3392426	99.49683206	97.70872435	95.97287503
150115A00031	1/15/2015	1.42	1/18/2022	1/15/2015	101.33238	101.0726222	100.8147351	100.5586994	100.3044932	100.0520948	99.80148307	99.55263697	99.30553594
150203A00012	2/3/2015	1.61	2/3/2022	2/3/2015	101.56524	101.265319	100.9678379	100.6727678	100.3800765	100.0897324	99.80170471	99.51596295	99.23247732
150203A00027	2/3/2015	2.26	2/4/2030	2/3/2015	125.96831	120.3937341	115.1656503	110.2588412	105.6501328	101.3182142	97.24347455	93.40785492	89.79471491
150213A00014	2/13/2015	2.41	2/13/2025	2/13/2015	111.52416	109.4645465	107.4662608	105.5269667	103.6444313	101.8165236	100.0412089	98.31654405	96.64067246
150219A00016	2/19/2015	2.68	2/19/2025	2/19/2015	120.55863	116.7732694	113.1337856	109.6336389	106.2666235	103.0268489	99.90872164	96.90692832	94.01641991
150223A00017	2/23/2015	1.77	2/23/2022	2/23/2015	103.29264	102.6819757	102.0784454	101.4819215	100.8922827	100.3094104	99.73318857	99.16350405	98.60024613
141015A00027	10/15/2014	2.01	10/15/2021	10/15/2014	101.23547	101.0202373	100.8059447	100.5925812	100.3801406	100.1686168	99.95800399	99.74829605	99.53948714
141015A00029	10/15/2014	2.32	10/15/2024	10/15/2014	116.25533	113.238286	110.3254202	107.5123954	104.7950843	102.169561	99.63208955	97.17911331	94.80724475
141017A00022	10/17/2014	2.78	10/17/2024	10/17/2014	118.76181	115.4329717	112.2221316	109.1243027	106.1347482	103.2489644	100.4626675	97.77178104	95.17242436
141107A00027	11/7/2014	1.98	11/8/2021	11/7/2014	100.91861	100.755254	100.5926492	100.4307876	100.2696636	100.1092717	99.94960665	99.79066305	99.63243564
141203A00039	12/3/2014	3.6	12/4/2034	12/3/2014	150.95867	140.4640841	130.9472518	122.3040747	114.4425355	107.2812015	100.7479243	94.77870781	89.31672185
150114A00029	1/14/2015	1.99	1/14/2022	1/14/2015	101.44589	101.1876838	100.9313157	100.6767656	100.4240124	100.173035	99.92381283	99.67632578	99.43055386
140821A00030	8/21/2014	2.27	8/21/2024	8/21/2014	109.69585	107.9515199	106.2536699	104.6006716	102.9909653	101.4230579	99.89552006	98.4069826	96.95613363
140821A00040	8/21/2014	3.41	8/21/2031	8/21/2014	158.47179	146.3074295	135.2677096	125.2396128	116.1221736	107.8251245	100.2677049	93.37760863	87.09005313
140908A00080	9/8/2014	2.51	3/8/2024	9/8/2014	113.68317	111.2839329	108.9547425	106.6930512	104.4964233	102.3625291	100.28914	98.27412325	96.31543665
140917A00030	9/17/2014	3.23	9/17/2029	9/17/2014	143.84918	135.1506409	127.1062008	119.6614588	112.766881	106.3773372	100.451685	94.95239462	89.84521104
140924A00057	9/24/2014	3.25	9/25/2028	9/24/2014	143.29536	134.9027895	127.0966279	119.8319687	113.0676044	106.7657006	100.8915015	95.41306223	90.30100686
140925A00039	9/25/2014	2.02	9/27/2021	9/25/2014	100.48883	100.4028031	100.3170151	100.2314621	100.1461429	100.0610567	99.97620245	99.89157907	99.80718559
140428A00015	4/28/2014	2.35	4/29/2024	4/28/2014	108.78121	107.2364917	105.7298098	104.2599024	102.8255559	101.4256074	100.0589422	98.72449082	97.42122761

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
140618A00019	6/18/2014	3.08	6/18/2024	6/18/2014	110.24123	108.5855123	106.9721028	105.3995645	103.8665189	102.3716456	100.9136791	99.4914062	98.10366315
140703A00026	7/3/2014	3.11	7/3/2024	7/3/2014	118.23802	115.1935226	112.2489887	109.4005396	106.644467	103.9772281	101.3954375	98.89585869	96.47539695
140717A00027	7/17/2014	3.14	7/17/2026	7/17/2014	128.07239	122.9718399	118.1261052	113.5207976	109.1424224	104.9783203	101.016611	97.24614136	93.6564363
140730A00035	7/30/2014	2.67	1/30/2023	7/30/2014	105.06246	104.2380028	103.4286461	102.6339553	101.8535129	101.0869176	100.3337838	99.59374054	98.86643128
140730A00037	7/30/2014	2.83	1/30/2024	7/30/2014	108.64355	107.2391973	105.8673479	104.5269639	103.2170518	101.9366584	100.6848685	99.46080305	98.26361773
130422A00020	4/22/2013	1.98	4/22/2025	4/22/2013	110.84121	108.7041372	106.6328662	104.6248173	102.6775304	100.7886603	98.9559705	97.17732746	95.45069484
130614A00018	6/14/2013	2.83	6/14/2023	6/14/2013	106.45966	105.4041563	104.3696478	103.3555159	102.3611676	101.3860331	100.4295644	99.49123462	98.57053681
131018A00006	10/18/2013	3.28	10/20/2025	10/18/2013	125.72876	121.3638531	117.190273	113.1983417	109.3789378	105.7234581	102.2237851	98.87225587	95.66163371
140219A00005	2/19/2014	3.13	2/20/2029	2/19/2014	127.15505	122.1809894	117.4839601	113.0457407	108.8494538	104.8794577	101.1212471	97.5613625	94.18730784
140313A00028	3/13/2014	2.86	3/13/2024	3/13/2014	115.01284	112.5086569	110.0784948	107.7196423	105.4295041	103.2055988	101.0455535	98.94709809	96.90805966
140318A00003	3/17/2014	3.08	3/18/2024	3/17/2014	117.77454	114.8837551	112.0817347	109.3651522	106.7308328	104.1757439	101.6969868	99.29179028	96.95750382
120808A00006	8/8/2012	2.06	8/9/2027	8/8/2012	118.03231	114.331619	110.8009527	107.4309231	104.2127316	101.1381286	98.19937604	95.38921186	92.70081742
120820A00009	8/20/2012	2.4	8/22/2022	8/20/2012	106.41132	105.2949012	104.2025527	103.1334951	102.0869843	101.0623075	100.058782	99.07575316	98.11259335
120820A00011	8/20/2012	2.4	8/22/2022	8/20/2012	106.41132	105.2949009	104.2025525	103.1334949	102.0869842	101.0623074	100.058782	99.07575321	98.11259346
121016A00013	10/16/2012	1.64	10/14/2022	10/16/2012	103.45394	102.7762444	102.1105766	101.456579	100.8139113	100.1822475	99.56127435	98.95069129	98.35020956
121114A00020	11/14/2012	1.74	11/14/2022	11/14/2012	106.97505	105.6399398	104.3340534	103.056427	101.8061404	100.5823133	99.38410361	98.21070544	97.06134681
130206A00009	2/6/2013	2.83	2/7/2028	2/6/2013	130.61283	124.4729582	118.7056888	113.2855078	108.1888064	103.393731	98.88004255	94.62898784	90.62318219
120330A00013	3/30/2012	2.98	4/2/2024	3/30/2012	116.1	113.3962141	110.7747609	108.2325445	105.766612	103.3741437	101.052446	98.79894469	96.61117841
120517A00021	5/17/2012	1.85	5/17/2024	5/17/2012	108.26272	106.6808963	105.1387775	103.6350238	102.1683533	100.7375381	99.34140112	97.97881412	96.64869481
120806A00014	8/6/2012	1.77	8/8/2022	8/6/2012	103.05041	102.4697505	101.897975	101.3348531	100.7801674	100.2337081	99.69527256	99.16466545	98.64169789
120806A00015	8/6/2012	2.38	8/6/2027	8/6/2012	118.60074	114.893047	111.3552916	107.9781145	104.7527394	101.6709368	98.72498613	95.90764078	93.2120956
120807A00025	8/7/2012	1.82	8/8/2022	8/7/2012	103.07864	102.4978038	101.9258517	101.3625559	100.8076987	100.2610705	99.72246861	99.1916975	98.66856828
120807A00026	8/7/2012	2.42	8/9/2027	8/7/2012	118.74456	115.0321491	111.4899061	108.1084542	104.8790049	101.793317	98.84365946	96.02277547	93.32385056
011115A00014	11/15/2001	5.19	11/16/2021	11/15/2001	102.74057	102.4288378	102.1190173	101.8110861	101.505027	101.2008228	100.8984565	100.5979113	100.2991708
020918A00047	9/18/2002	4.72	9/19/2022	9/18/2002	105.7866	105.0574457	104.3436105	103.6445688	102.9598195	102.2888841	101.6313058	100.986648	100.3544931
030605A00010	6/5/2003	3.97	6/5/2023	6/5/2003	111.0981	109.5590558	108.0535655	106.5806579	105.1393964	103.7288777	102.3482311	100.9966166	99.6732237
050812A00050	8/12/2005	4.97	8/12/2025	8/12/2005	118.41759	115.9368451	113.5436959	111.2343133	109.0050649	106.8525029	104.7733533	102.7645058	100.8230046
050823A00085	8/23/2005	4.78	8/25/2025	8/23/2005	129.99266	125.7592875	121.7059082	117.8237032	114.1043379	110.5399353	107.1230477	103.8466308	100.7040192
050823A00088	8/23/2005	4.78	8/25/2025	8/23/2005	129.99276	125.7593691	121.705976	117.823758	114.1043805	110.5399662	107.1230676	103.8466403	100.7040188
210514A00007	5/14/2021	0.95	5/15/2028	5/14/2021	115.4892	111.4646112	107.6436681	104.0140854	100.564412	97.2839724	94.16280835	91.19162603	88.36174687
210514A00010	5/14/2021	1.34	5/14/2031	5/14/2021	123.39976	117.2694414	111.5656283	106.25374	101.3022988	96.68263064	92.36859425	88.33633901	84.56408718
970806A00017	8/1/1997	7.02	7/23/2026	8/1/1997	127.72158	124.5949719	121.587083	118.6923394	115.9054685	113.221484	110.6356683	108.1435561	105.7409191
970806A00018	8/1/1997	6.7	10/23/2026	8/1/1997	128.24275	124.9429557	121.773788	118.7288786	115.8022216	112.9881482	110.2813049	107.6766342	105.1693559

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
970806A00059	8/1/1997	8.25	9/22/2025	8/1/1997	147.59941	142.4722833	137.5677097	132.8745847	128.3824321	124.081361	119.9620294	116.0156098	112.2337576
200331A00056	3/31/2020	0.96	3/29/2030	3/31/2020	119.09465	113.8433229	108.9194311	104.2990223	99.96010022	95.88244657	92.04746484	88.43803841	85.03840219
200401A00011	4/1/2020	0.68	4/3/2023	4/1/2020	103.89329	102.955567	102.0357737	101.1333857	100.2478994	99.37883084	98.52571536	97.6881061	96.86557334
200402A00050	4/6/2020	0.73	4/5/2024	4/6/2020	106.11071	104.6159794	103.1578813	101.735198	100.3467663	98.99147179	97.6682454	96.37606175	95.11393676
200428A00018	4/28/2020	1.33	4/27/2035	4/28/2020	129.74331	120.848809	112.7869105	105.468177	98.81366358	92.7536027	87.2262638	82.17696203	77.55719629
200521A00005	5/21/2020	0.75	5/21/2030	5/21/2020	118.37015	113.0376227	108.0436535	103.3630738	98.97279518	94.85162426	90.98009317	87.34030677	83.91580428
210409A00010	4/9/2021	1.05	4/9/2031	4/9/2021	121.62694	115.6112103	110.0116551	104.7947271	99.92987665	95.38925888	91.14747406	87.18133512	83.46965855
200316A00008	3/16/2020	1.31	3/15/2030	3/16/2020	119.96923	114.7218964	109.8001689	105.1803253	100.8405663	96.76084916	92.92273348	89.3092417	85.90473249
200317A00022	3/17/2020	0.97	3/17/2022	3/17/2020	101.59286	101.2447308	100.8999074	100.5583359	100.2199652	99.88474567	99.55262872	99.22356673	98.89751315
200317A00024	3/17/2020	1.09	3/17/2025	3/17/2020	108.74026	106.7051596	104.7314831	102.8168548	100.959014	99.15580417	97.40516733	95.70513881	94.05384228
200326A00037	3/26/2020	1.78	3/26/2035	3/26/2020	133.15251	124.1500319	115.9822993	108.5603368	101.805533	95.64835388	90.02722179	84.88753976	80.18084292
200327A00004	3/27/2020	0.63	3/28/2022	3/27/2020	101.49214	101.1406474	100.7925524	100.4477985	100.1063324	99.76810181	99.43305565	99.10114401	98.77231804
200330A00010	3/30/2020	0.61	3/30/2022	3/30/2020	101.488	101.135855	100.7871256	100.4417542	100.0996868	99.76087074	99.42525452	99.09278774	98.76342114
200203A00046	2/3/2020	1.98	2/3/2040	2/3/2020	147.09479	133.7680099	122.0666313	111.7652255	102.6722158	94.62449615	87.48294109	81.12865851	75.45985626
200210A00007	2/10/2020	1.78	2/10/2025	2/10/2023	115.65152	112.4292684	109.3266575	106.3384397	103.4596345	100.6855103	98.01157027	95.43353914	92.94735086
200225A00049	2/25/2020	1.79	2/24/2040	2/25/2020	144.97054	131.7816581	120.2049155	110.0163983	101.0258572	93.07134583	86.01475401	79.73807978	74.14031274
200310A00067	3/10/2020	0.94	3/10/2025	3/10/2020	108.44611	106.4154181	104.4460064	102.5355142	100.6816862	98.88237115	97.1355162	95.43916134	93.79143474
200311A00027	3/11/2020	1.52	3/9/2035	3/11/2020	131.09574	122.1920267	114.1157637	106.7786279	100.1026009	94.01868111	88.46576949	83.38970005	78.74239648
200311A00028	3/11/2020	1.04	3/12/2024	3/11/2020	106.75007	105.2075937	103.7027194	102.2342083	100.800873	99.40157546	98.03522364	96.70076981	95.39720814
191114A00014	11/14/2019	1.9	11/14/2023	11/14/2019	106.64346	105.3704144	104.1254543	102.9077094	101.7163405	100.5505422	99.40954111	98.29259428	97.19898784
191115A00029	11/15/2019	2.07	11/15/2029	11/15/2019	122.81871	117.6947333	112.8765998	108.3427817	104.0734467	100.0503112	96.25650769	92.67646538	89.29580099
191216A00013	12/16/2019	1.95	12/16/2024	12/16/2019	109.73084	107.8241763	105.9719436	104.1721313	102.4228181	100.7221684	99.06842782	97.45991869	95.89503628
191231A00021	12/31/2019	1.9	2/28/2023	12/31/2019	104.08424	103.3164579	102.56251	101.8219967	101.0945348	100.3797563	99.67730777	98.98684928	98.30805406
191231A00027	12/31/2019	1.9	4/28/2023	12/31/2019	104.08427	103.3164773	102.5625218	101.822001	101.0945317	100.3797459	99.67729006	98.98682443	98.30802213
200130A00027	1/31/2020	1.79	1/31/2025	1/31/2020	109.66777	107.713607	105.8163306	103.9738069	102.1839982	100.4449584	98.75482859	97.11183212	95.51427052
190520A00020	5/20/2019	2.39	5/20/2026	5/20/2019	115.0967	112.281091	109.5712002	106.9621288	104.4492396	102.0281447	99.69468941	97.44493878	95.2751641
190628A00007	6/28/2019	2.28	6/28/2034	6/28/2019	136.66216	127.9391759	119.9845425	112.7202025	106.0767862	99.99257927	94.41261753	89.28789389	84.57466463
190813A00019	8/13/2019	2.13	8/13/2021	8/13/2019	100.12182	100.1009023	100.0800052	100.0591332	100.0382862	100.0174642	99.99666712	99.97589495	99.95514762
190823A00009	8/23/2019	1.8	8/23/2029	8/23/2019	121.75973	116.7961409	112.122199	107.7179539	103.564993	99.64631252	95.9461994	92.45012422	89.14464365
191114A00012	11/14/2019	1.89	11/15/2021	11/14/2019	100.92494	100.7577608	100.5913777	100.4257831	100.2609711	100.0969354	99.93367032	99.77116979	99.609428
191114A00013	11/14/2019	1.9	11/14/2022	11/14/2019	103.84132	103.1191583	102.4102249	101.7141185	101.0304564	100.358872	99.69901365	99.05054413	98.41313967
181220A00006	12/20/2018	2.93	12/20/2022	12/20/2018	104.83105	104.0610187	103.3048144	102.5620399	101.832313	101.1152665	100.4105478	99.71781779	99.03675035
190102A00015	1/2/2019	2.97	1/3/2034	1/2/2019	140.58056	131.9748017	124.1013198	116.888008	110.2705573	104.1915533	98.59968221	93.44903373	88.69848877

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190102A00020	1/2/2019	2.97	1/3/2034	1/2/2019	140.58025	131.9745755	124.1011658	116.887916	110.2705187	104.1915603	98.59972823	93.44911305	88.69859645
190102A00022	1/2/2019	2.97	1/3/2034	1/2/2019	140.58004	131.9744243	124.1010655	116.8878588	110.2704977	104.19157	98.59976355	93.44916984	88.69867111
190102A00024	1/2/2019	2.97	1/3/2034	1/2/2019	140.58016	131.9745076	124.1011218	116.8878922	110.2705115	104.191567	98.59974634	93.44914054	88.69863156
190327A00030	3/27/2019	2.9	3/27/2036	3/27/2019	144.77127	134.5012553	125.2351371	116.8599932	109.2767772	102.3985019	96.1486699	90.45991946	85.27285524
180716A00046	7/16/2018	2.9	7/16/2025	7/16/2018	113.40875	111.1589656	108.9805111	106.8705164	104.8262504	102.8451122	100.9246235	99.06242258	97.25625727
180725A00034	7/25/2018	2.79	7/25/2022	7/25/2018	103.41104	102.8724662	102.3415771	101.8181919	101.3021337	100.7932314	100.2913196	99.79623812	99.30783213
180725A00035	7/25/2018	2.85	7/25/2023	7/25/2018	106.85881	105.7613058	104.6861129	103.6325715	102.6000449	101.5879217	100.5956139	99.62255609	98.66820436
180928A00077	9/28/2018	2.85	9/28/2021	9/28/2018	100.5742	100.4871251	100.4002936	100.3137039	100.2273547	100.1412452	100.0553741	99.96974054	99.88434332
181029A00097	10/29/2018	3.53	10/27/2028	10/29/2018	140.02538	132.4867313	125.459716	118.9056243	112.7889257	107.0769855	101.7398112	96.74982306	92.08164606
181211A00042	12/11/2018	3.7	12/11/2028	12/11/2023	142.2265	134.3416379	126.9999835	120.1599644	113.783434	107.8353744	102.2836233	97.09862621	92.25321054
170616A00003	6/16/2017	1.91	6/17/2024	6/16/2017	108.51598	106.8989368	105.3231721	103.7872769	102.2899059	100.8297707	99.40563632	98.01631914	96.66068381
170705A00029	7/5/2017	1.98	7/5/2022	7/5/2017	102.90817	102.3772508	101.8537826	101.3375938	100.8285164	100.326388	99.83105114	99.34235363	98.8601479
170929A00046	9/29/2017	2.49	9/30/2027	9/29/2017	118.7709	115.0931945	111.5843919	108.2351391	105.0366713	101.9807734	99.05974179	96.26634837	93.59380835
171206A00020	12/6/2017	2.62	12/6/2027	12/6/2017	119.92721	116.0720019	112.3997506	108.90002	105.56305	102.3797086	99.34144756	96.44026049	93.66864513
180126A00018	1/26/2018	2.34	1/26/2023	1/26/2018	104.76426	103.9480813	103.1468121	102.3600215	101.5872977	100.8282451	100.0824836	99.34964773	98.6293857
180529A00057	5/29/2018	3.09	5/30/2028	5/29/2018	128.60396	123.284443	118.2705912	113.5419674	109.0796524	104.866119	100.8851217	97.12159403	93.56155625
170130A00039	1/30/2017	2.74	1/31/2028	1/30/2017	120.62637	116.6623539	112.8940538	109.3099182	105.8991699	102.6517463	99.55824675	96.60988454	93.79844275
170130A00043	1/30/2017	2.64	1/29/2027	1/30/2017	117.33592	114.0587192	110.9226192	107.9202746	105.0447746	102.2896171	99.64868194	97.11620585	94.68675934
170130A00046	1/30/2017	2.52	1/30/2026	1/30/2017	114.03554	111.4175574	108.8957325	106.4657202	104.1234008	101.8648701	99.68642581	97.5845565	95.55592994
170313A00041	3/13/2017	3.21	3/15/2032	3/13/2017	135.4463	128.3704362	121.815775	115.7375302	110.0951706	104.8519847	99.974692	95.433096	91.1997749
170315A00005	3/15/2017	2.1	3/15/2022	3/15/2017	101.97438	101.6258311	101.2805766	100.9385654	100.5997471	100.2640722	99.93149262	99.60196094	99.27543095
170612A00024	6/12/2017	1.72	6/13/2022	6/12/2017	102.60225	102.1155472	101.6351647	101.1609622	100.6928074	100.2305721	99.77413218	99.32336679	98.87815882
160928A00041	9/28/2016	3.26	9/29/2036	9/30/2019	150.05245	138.8438473	128.7901706	119.7546845	111.6183186	104.2772358	97.64075127	91.62955167	86.17416802
160928A00042	9/28/2016	3.05	9/29/2036	9/28/2021	148.1458	137.0495589	127.0987296	118.1575482	110.1078034	102.84642	96.28338941	90.33999962	84.94731712
160928A00044	9/28/2016	2.89	9/29/2036	9/28/2023	146.69312	135.682482	125.8100127	116.9406824	108.9569347	101.7562746	95.24920895	89.35748377	84.01257357
160930A00032	9/30/2016	2.15	9/30/2031	9/30/2016	127.8149	121.3509201	115.3465301	109.7636161	104.5675657	99.72691762	95.21305102	90.99990809	87.06374518
160930A00033	9/30/2016	1.8	9/30/2026	9/30/2016	113.97454	110.9922636	108.1283141	105.3769419	102.7327194	100.190522	97.74550907	95.3931061	93.12898831
170130A00036	1/30/2017	3.11	1/31/2033	1/30/2017	137.34142	129.552127	122.3865485	115.786721	109.7006134	104.0814738	98.88725349	94.08009657	89.62588942
150601A01048	6/1/2015	5.27	1/3/2025	6/1/2015	129.47949	125.6021233	121.8698835	118.276473	114.815906	111.4824897	108.2708082	105.1757074	102.1922808
150601A01051	6/1/2015	4.91	2/7/2025	6/1/2015	128.99162	125.0167207	121.1944772	117.5180885	113.9811	110.5773818	107.301111	104.1467539	101.1090499
160928A00029	9/28/2016	2.52	9/29/2036	9/28/2016	143.33378	132.5211168	122.8298548	114.1266803	106.2955509	99.23531349	92.85766663	87.08541587	81.85097913
160928A00030	9/28/2016	2.52	9/29/2036	9/28/2016	143.33378	132.5211168	122.8298548	114.1266803	106.2955509	99.23531349	92.85766663	87.08541587	81.85097913
160928A00032	9/28/2016	2.52	9/29/2036	9/28/2016	143.33378	132.5211168	122.8298548	114.1266803	106.2955509	99.23531349	92.85766663	87.08541587	81.85097913

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160928A00033	9/28/2016	2.46	9/29/2036	9/28/2016	142.78903	132.008463	122.346586	113.6703556	105.8639751	98.82650898	92.46984896	86.71697243	81.5004503
150601A01013	6/1/2015	5.21	9/29/2023	6/1/2015	118.98642	116.629597	114.3343321	112.0985375	109.920219	107.7974666	105.7284509	103.711418	101.7446862
150601A01015	6/1/2015	5.61	10/28/2025	6/1/2015	136.54382	131.7095821	127.089265	122.6719661	118.4474152	114.4059299	110.5383781	106.8361428	103.2910893
150601A01016	6/1/2015	5.73	10/28/2025	6/1/2015	137.03575	132.1909989	127.5605194	123.1333952	118.8993416	114.8486632	110.9722149	107.2613677	103.7079754
150601A01040	6/1/2015	5.4	10/2/2026	6/1/2015	142.6696	136.6645923	130.9724088	125.574664	120.4541691	115.594844	110.9816394	106.6004641	102.4381184
150601A01041	6/1/2015	5.99	10/2/2036	6/1/2015	185.86193	171.3336771	158.3168447	146.6328066	136.1258447	126.6600252	118.116523	110.3913283	103.3932755
150601A01047	6/1/2015	5.35	12/30/2024	6/1/2015	129.66341	125.7947248	122.0703869	118.4841512	115.0300818	111.7025321	108.4961296	105.4057605	102.4265562
150601A00994	6/1/2015	5.86	6/24/2022	6/1/2015	108.71799	107.7455086	106.7908157	105.8534198	104.9328512	104.028657	103.1404003	102.26766	101.4100295
150601A00997	6/1/2015	5.46	9/30/2022	6/1/2015	110.82493	109.5421817	108.2898977	107.0669986	105.872452	104.7052737	103.5645244	102.4493079	101.3587679
150601A01005	6/1/2015	5.82	3/10/2025	6/1/2015	132.26921	128.2095094	124.3072567	120.5553247	116.9469581	113.4757492	110.1356176	106.920791	103.8257877
150601A01008	6/1/2015	5.08	4/15/2025	6/1/2015	116.59213	114.4251567	112.3236671	110.2851217	108.3071016	106.3872994	104.5235142	102.7136449	100.9556856
150601A01011	6/1/2015	5.05	9/8/2025	6/1/2015	118.27524	115.8485613	113.501194	111.229863	109.0314549	106.9030073	104.8417012	102.8448524	100.9099042
150601A01012	6/1/2015	5.43	9/15/2023	6/1/2015	119.1288	116.8103447	114.5516477	112.3507171	110.2056454	108.1146046	106.0758417	104.0876752	102.1484916
150601A00966	6/1/2015	4.84	2/3/2023	6/1/2015	106.75507	105.9161186	105.0925148	104.2838187	103.4896063	102.7094704	101.9430198	101.189878	100.4496829
150601A00971	6/1/2015	6.42	6/20/2033	6/1/2015	169.7234	159.1378021	149.4410545	140.5476658	132.3811368	124.8729477	117.9616663	111.5921615	105.7149091
150601A00976	6/1/2015	6.8	9/22/2033	6/1/2015	173.61603	162.8389859	152.973207	143.9300717	135.6303986	128.0033711	120.9855894	114.5202364	108.5563429
150601A00978	6/1/2015	6.32	11/24/2033	6/1/2015	163.23177	153.7697467	145.0855046	137.1044195	129.7597688	122.9918324	116.7471005	110.9775771	105.6401665
150601A00988	6/1/2015	4.57	3/22/2024	6/1/2015	111.16981	109.6783431	108.2223964	106.8008188	105.4125028	104.0563865	102.7314508	101.4367177	100.1712477
150601A00993	6/1/2015	5.37	6/9/2034	6/1/2015	166.47959	155.329594	145.1825457	135.9353476	127.4964654	119.7845411	112.7271834	106.2599096	100.32522
150601A00950	6/1/2015	6.76	12/18/2031	6/1/2015	162.92363	154.1418407	146.0081256	138.4672017	131.4689779	124.9680325	118.9231437	113.2968707	108.0551787
150601A00952	6/1/2015	6.34	2/13/2032	6/1/2015	162.2456	153.2005657	144.8386568	137.1004851	129.9323356	123.2855836	117.1161753	111.384165	106.0533017
150601A00953	6/1/2015	6.6	6/10/2032	6/1/2015	166.49286	156.922248	148.0949563	139.9446358	132.4114394	125.4413337	118.9854925	112.999756	107.4441508
150601A00955	6/1/2015	5.84	7/15/2032	6/1/2015	153.37796	145.3636339	137.9461194	131.073358	124.6983188	118.7784769	113.2753472	108.1540685	103.3830339
150601A00960	6/1/2015	6.49	12/16/2032	6/1/2015	159.56092	150.9842905	143.0651063	135.7443423	128.9688424	122.6906877	116.8666385	111.4576407	106.4283866
150601A00964	6/1/2015	5.25	1/6/2033	6/1/2015	151.83866	143.5293938	135.8644474	128.7854711	122.2399547	116.1805986	110.5647561	105.3539387	100.5133774
150601A00935	6/1/2015	6.46	11/21/2030	6/1/2015	154.36915	146.857646	139.8499392	133.3067703	127.1922682	121.4736318	116.1208456	111.1064231	106.4051754
150601A00939	6/1/2015	5.79	1/17/2031	6/1/2015	150.42833	143.0408871	136.154917	129.7308541	123.732587	118.1271328	112.8843436	107.9766424	103.3787853
150601A00943	6/1/2015	6.44	5/9/2031	6/1/2015	157.80421	149.6694382	142.108048	135.0732781	128.5225769	122.4171916	116.7218018	111.4041906	106.4349496
150601A00946	6/1/2015	6.28	8/22/2031	6/1/2015	158.48313	150.0781491	142.2802549	135.0388219	128.3078728	122.0456208	116.2140574	110.7785834	105.7076789
150601A00947	6/1/2015	6.19	8/20/2021	6/1/2015	100.57622	100.517664	100.4591962	100.4008118	100.3425108	100.2842928	100.2261578	100.1681055	100.1101359
150601A00948	6/1/2015	6.04	10/22/2031	6/1/2015	149.93699	142.6369008	135.8469016	129.5250756	123.633338	118.1370532	113.004696	108.2075481	103.7194272
150601A00918	6/1/2015	5.62	4/28/2025	6/1/2015	118.67135	116.3886891	114.1757634	112.0298568	109.9483804	107.9288658	105.968958	104.0664097	102.2190755
150601A00919	6/1/2015	7.41	6/7/2030	6/1/2015	157.61933	150.300853	143.4530476	137.0406374	131.0312816	125.3953085	120.1054765	115.1367576	110.4661418

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00927	6/1/2015	6.08	8/7/2030	6/1/2015	145.29467	138.9863775	133.074475	127.5295066	122.3244615	117.4345542	112.8370244	108.5109568	104.4371177
150601A00928	6/1/2015	5.94	8/21/2030	6/1/2015	144.77733	138.458622	132.5386593	126.9876938	121.7784596	116.8859451	112.2871893	107.961099	103.8882828
150601A00929	6/1/2015	5.91	8/30/2030	6/1/2015	149.9791	142.7936461	136.082829	129.8102085	123.9424401	118.4489933	113.3018939	108.4754922	103.9462529
150601A00931	6/1/2015	7.13	9/20/2030	6/1/2015	157.57329	150.0509162	143.0246171	136.4563385	130.3112575	124.557489	119.165816	114.1094481	109.3638022
150601A00897	6/1/2015	6.15	5/28/2029	6/1/2015	143.4378	137.5797673	132.0575933	126.8486437	121.9319942	117.2882853	112.8995941	108.749318	104.8220676
150601A00899	6/1/2015	7.07	6/14/2029	6/1/2015	143.06273	137.6641762	132.5653803	127.7464736	123.1890687	118.8761404	114.7919153	110.9217706	107.2521416
150601A00900	6/1/2015	6.06	6/28/2024	6/1/2015	115.05742	113.3427619	111.6714727	110.0420864	108.4531985	106.9034636	105.3915919	103.916347	102.4765429
150601A00905	6/1/2015	6.14	10/29/2029	6/1/2015	145.90021	139.616824	133.71095	128.1560367	122.9276117	118.0031064	113.3616948	108.9841464	104.8526932
150601A00906	6/1/2015	6.2	11/1/2029	6/1/2015	146.66702	140.294737	134.3083996	128.6806567	123.3863152	118.4021559	113.7067651	109.2803814	105.1047563
150601A00912	6/1/2015	5.96	11/30/2029	6/1/2015	145.49357	139.1510494	133.1934333	127.5934036	122.3258016	117.3674417	112.6969435	108.2945781	104.1421291
150601A00872	6/1/2015	7.42	7/31/2028	6/1/2015	144.17825	138.9432036	133.9791292	129.2693913	124.7985047	120.5520475	116.5165808	112.679575	109.0293418
150601A00875	6/1/2015	7.14	9/29/2028	6/1/2015	144.3569	138.9523732	133.8344041	128.985023	124.387531	120.0263978	115.8871715	111.9563964	108.2215376
150601A00883	6/1/2015	6.21	11/30/2028	6/1/2015	140.72109	135.3509491	130.2709504	125.4625753	120.9086335	116.5931576	112.5013079	108.619285	104.9342491
150601A00888	6/1/2015	5.92	3/1/2029	6/1/2015	141.11164	135.4927791	130.1892915	125.1803341	120.4466048	115.9702193	111.7345974	107.7243588	103.9252278
150601A00889	6/1/2015	6.55	3/2/2029	6/1/2015	145.23465	139.3530915	133.8042298	128.5659688	123.6178546	118.9409411	114.517668	110.3317503	106.3680765
150601A00893	6/1/2015	6.49	4/6/2029	6/1/2015	144.9936	139.1053976	133.5522457	128.3117483	123.3631797	118.6873524	114.2664922	110.084124	106.1249678
150601A00848	6/1/2015	6.36	2/18/2022	6/1/2015	102.92405	102.6243927	102.3271824	102.0323857	101.7399699	101.449903	101.1621535	100.8766905	100.5934837
150601A00851	6/1/2015	7.12	4/30/2027	6/1/2015	135.13589	131.0611919	127.1661099	123.4410958	119.8771828	116.4659457	113.1994637	110.0702871	107.0714057
150601A00864	6/1/2015	7.37	3/31/2028	6/1/2015	142.43188	137.4302852	132.6796969	128.1651347	123.8726324	119.789158	115.9025448	112.2014281	108.6751866
150601A00865	6/1/2015	6	4/3/2028	6/1/2015	133.42602	129.0692023	124.9241234	120.9783832	117.2204108	113.6394	110.2252527	106.968528	103.8603944
150601A00868	6/1/2015	7.08	6/5/2028	6/1/2015	142.38895	137.2489633	132.3729143	127.7447327	123.3494493	119.173115	115.2027241	111.426144	107.8320503
150601A00871	6/1/2015	6.74	7/31/2028	6/1/2015	141.75704	136.5367427	131.5884084	126.8952781	122.4417527	118.2133073	114.1964094	110.3784447	106.7476481
150601A00732	6/1/2015	1.91	4/29/2022	6/1/2015	102.21574	101.8081872	101.405116	101.0064439	100.6120909	100.2219791	99.83603251	99.45417703	99.07634047
150601A00736	6/1/2015	2.87	5/1/2030	6/1/2015	127.60818	122.061722	116.8599369	111.9776028	107.3915563	103.0805105	99.02488945	95.20667834	91.60928737
150601A00739	6/1/2015	2.35	5/6/2025	6/1/2015	111.44331	109.3118347	107.2459227	105.242995	103.3005989	101.4163965	99.58815841	97.81375795	96.09116554
150601A00772	6/1/2015	1.84	5/13/2022	6/1/2015	102.26365	101.8414525	101.4240552	101.0113675	100.6033008	100.1997689	99.80068777	99.40597565	99.01555287
150601A00832	6/1/2015	7.17	8/28/2025	6/1/2015	122.69851	120.2254409	117.8323513	115.5159673	113.2731712	111.1009963	108.996618	106.9573464	104.9806186
150601A00847	6/1/2015	6.59	1/31/2022	6/1/2015	105.13974	104.6205739	104.1066959	103.5980241	103.094479	102.5959829	102.1024596	101.6138345	101.1300345
150601A00558	6/1/2015	2.51	8/30/2024	6/1/2015	109.70324	107.9775044	106.2975823	104.6618685	103.0688283	101.5169929	100.0049559	98.53137001	97.09494422
150601A00624	6/1/2015	2.48	12/8/2021	6/1/2015	102.2807	101.9081107	101.5382487	101.1710861	100.8065934	100.4447413	100.0855012	99.72884463	99.37474382
150601A00660	6/1/2015	2.26	1/5/2022	6/1/2015	102.67603	102.2216409	101.771293	101.3249285	100.8824947	100.4439396	100.0092123	99.57826267	99.15104158
150601A00678	6/1/2015	2.12	1/30/2025	6/1/2015	110.28176	108.3088618	106.3935657	104.5337007	102.7271992	100.9720868	99.26647731	97.60856851	95.99663746
150601A00690	6/1/2015	2.34	2/28/2025	6/1/2015	110.84676	108.8357089	106.8840373	104.9894908	103.1499186	101.3632677	99.62757757	97.94097562	96.30167224

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00714	6/1/2015	1.67	4/1/2022	6/1/2015	101.90255	101.5383232	101.1777069	100.8206421	100.4670706	100.1169353	99.77018064	99.42675226	99.08659701
150601A00496	6/1/2015	2.27	6/27/2024	6/1/2015	109.01834	107.3967014	105.8164117	104.2760671	102.7743201	101.3098799	99.88150931	98.48802263	97.12828254
150601A00509	6/1/2015	2.52	7/8/2024	6/1/2015	109.25599	107.619702	106.0253402	104.4714706	102.9567239	101.4797878	100.0394051	98.63437057	97.26352828
150601A00527	6/1/2015	2.5	7/26/2024	6/1/2015	109.38987	107.7220921	106.0975947	104.5148878	102.9725451	101.4692006	100.0035454	98.57432541	97.18033793
150601A00543	6/1/2015	2.23	8/8/2024	6/1/2015	109.29764	107.60946	105.9655015	104.3642339	102.8041895	101.283963	99.80220834	98.35763603	96.94900987
150601A00555	6/1/2015	2.13	9/2/2021	6/1/2015	100.33617	100.2780665	100.2200698	100.16218	100.1043969	100.04672	99.98914912	99.93168397	99.87432423
150601A00557	6/1/2015	2.03	9/2/2021	6/1/2015	100.28648	100.236113	100.1858418	100.1356616	100.0855721	100.0355729	99.98566394	99.93584489	99.88611552
150601A00426	6/1/2015	3.37	2/21/2029	6/1/2015	126.15093	121.4194613	116.946002	112.7138148	108.7073874	104.912331	101.3152915	97.90386696	94.66653372
150601A00448	6/1/2015	2.61	4/26/2024	6/1/2015	108.78724	107.2637838	105.7775971	104.3274487	102.9121546	101.5305799	100.1816363	98.86428014	97.57750968
150601A00459	6/1/2015	2.42	5/16/2024	6/1/2015	108.66302	107.1138924	105.6031172	104.1294145	102.6915566	101.2883668	99.91871719	98.58152618	97.27575596
150601A00473	6/1/2015	2.22	5/31/2024	6/1/2015	108.73395	107.154097	105.6138739	104.1119489	102.6470435	101.217933	99.8234434	98.46244891	97.13386967
150601A00475	6/1/2015	3.04	6/1/2029	6/1/2015	125.63219	120.7381663	116.1198748	111.7588906	107.6381728	103.7419487	100.0556111	96.5656234	93.25943379
150601A00477	6/1/2015	3.21	6/1/2029	6/1/2015	131.26914	125.455822	119.9889966	114.8447246	110.0008998	105.4371004	101.1344492	97.07548597	93.24405201
150601A00390	6/1/2015	2.39	5/20/2022	6/1/2015	103.71774	103.0911511	102.4733168	101.8640346	101.2631116	100.6703608	100.085601	99.50865668	98.93935764
150601A00395	6/1/2015	2.86	1/3/2024	6/1/2015	108.09637	106.7560417	105.4460019	104.1652952	102.9130085	101.6882656	100.4902247	99.31807736	98.17104639
150601A00396	6/1/2015	3.61	1/3/2029	6/1/2015	126.67422	122.0171224	117.6097042	113.4360175	109.4812626	105.731697	102.1745524	98.79795887	95.59087498
150601A00410	6/1/2015	2.68	1/24/2024	6/1/2015	108.04953	106.6787039	105.3392969	104.0303177	102.7508116	101.4998619	100.2765887	99.08014649	97.90972303
150601A00411	6/1/2015	3.38	1/24/2029	6/1/2015	125.92805	121.2544932	116.8334006	112.6485405	108.6848553	104.9283692	101.3661034	97.98599746	94.77683785
150601A00425	6/1/2015	2.64	2/21/2024	6/1/2015	108.25539	106.837861	105.453498	104.1012362	102.7800551	101.4889753	100.2270567	98.99339649	97.78712752
150601A00033	6/1/2015	5.96	12/24/2025	6/1/2015	140.08102	134.900049	129.956068	125.2367903	120.7306378	116.4266939	112.3146621	108.3848274	104.6280204
150601A00035	6/1/2015	5.73	4/1/2038	6/1/2015	179.37883	165.5500602	153.2047686	142.159234	132.2546061	123.353313	115.3360171	108.0990291	101.5521091
150601A00038	6/1/2015	5.77	6/2/2023	6/1/2015	117.45428	115.4347163	113.4615745	111.5335022	109.6491912	107.8073802	106.0068526	104.2464344	102.5249928
150601A00165	6/1/2015	2.66	6/4/2032	6/1/2015	133.45197	126.2794214	119.6468969	113.507094	107.8172828	102.5388318	97.63678347	93.07947699	88.83821183
150601A00261	6/1/2015	3.19	2/11/2033	6/1/2015	156.28988	143.9244079	132.7777017	122.7173041	113.6261155	105.4005204	97.94875217	91.18946595	85.05049089
150601A00270	6/1/2015	3.12	3/21/2031	6/1/2015	152.78086	141.457582	131.1441817	121.7426492	113.1650869	105.3326081	98.17436399	91.62668123	85.63229605
150601A00018	6/1/2015	4.91	9/5/2025	6/1/2015	133.30488	128.6089358	124.116846	119.8184797	115.7042765	111.7652065	107.9927376	104.3788047	100.9157814
150601A00019	6/1/2015	5.64	10/3/2022	6/1/2015	111.20696	109.9015153	108.6273795	107.3834284	106.1685924	104.9818522	103.8222355	102.6888147	101.5807039
150601A00022	6/1/2015	5.43	10/26/2037	6/1/2015	174.52949	161.3413283	149.5391862	138.9549061	129.4426348	120.8756676	113.1437622	106.15085	99.81308253
150601A00023	6/1/2015	5.46	10/30/2037	6/1/2015	186.73011	170.9783869	156.9787558	144.5108275	133.3841975	123.4341188	114.5178324	106.5114484	99.30729177
150601A00024	6/1/2015	5.58	11/8/2022	6/1/2015	112.01101	110.6057747	109.2333286	107.8925129	106.5822274	105.3014231	104.0490991	102.8242999	101.6261129
150601A00030	6/1/2015	5.28	11/26/2027	6/1/2015	150.25793	142.7368696	135.6786931	129.0517674	122.8268007	116.9766579	111.4761911	106.3020833	101.4327049
140911A00033	9/11/2014	3.02	9/13/2027	9/11/2014	125.314	120.5116457	115.9689759	111.6696768	107.5985741	103.7415477	100.0854516	96.61803998	93.32790026
141124A00024	11/24/2014	2.27	11/30/2021	11/24/2014	102.11352	101.7564148	101.4017614	101.0495314	100.6997	100.352243	100.0071362	99.66435588	99.32387875

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
141126A00006	11/26/2014	2.41	11/30/2021	11/26/2014	102.13082	101.7736673	101.4189581	101.0666682	100.7167731	100.3692484	100.0240702	99.68121501	99.34065942
150601A00001	6/1/2015	5.43	6/15/2037	6/1/2015	184.20183	169.0129721	155.4781761	143.3935612	132.5824466	122.8915021	114.1874706	106.3543735	99.29112507
150601A00005	6/1/2015	4.84	6/9/2025	6/1/2015	131.2467	126.859676	122.6535962	118.6199358	114.750623	111.0380085	107.4748413	104.0542456	100.7696995
150601A00011	6/1/2015	5.17	8/3/2022	6/1/2015	109.1496	108.045834	106.9647889	105.9057629	104.868085	103.8511111	102.8542232	101.8768275	100.9183535
130624A00019	6/24/2013	3.4	6/26/2023	6/24/2013	113.33398	111.2758294	109.2665371	107.3046304	105.3886955	103.5173703	101.6893424	99.90334685	98.15816384
130913A00018	9/13/2013	3.72	9/13/2028	9/13/2013	127.12491	122.4232778	117.9788826	113.7750187	109.7961985	106.0280578	102.457267	99.07144854	95.85910236
130925A00035	9/25/2013	1.53	6/25/2025	9/25/2013	112.9847	110.218895	107.5487434	104.9701932	102.4793946	100.0726866	97.7465856	95.49777652	93.32310296
140311A00039	3/11/2014	3.06	3/11/2024	3/11/2014	115.59334	112.9998078	110.4824457	108.0384667	105.6652057	103.3601147	101.1207569	98.94480096	96.83001526
140314A00026	3/14/2014	2.99	3/14/2024	3/14/2019	116.81652	114.0368699	111.3408813	108.7254542	106.187624	103.7245574	101.333546	99.01199956	96.75743993
140414A00009	4/14/2014	2.32	4/30/2024	4/14/2014	111.02519	109.0464107	107.120592	105.2458253	103.4202884	101.6422413	99.9100223	98.22204312	96.57678536
121214A00014	12/14/2012	2.16	12/14/2027	12/14/2017	120.00621	115.8817193	111.9637658	108.2400087	104.6989369	101.3298087	98.1225955	95.06792953	92.15705621
121217A00009	12/17/2012	2.02	12/17/2027	12/17/2012	119.60596	115.4526317	111.5075136	107.7581442	104.1929061	100.8009596	97.57218541	94.49713166	91.56696587
121220A00023	12/20/2012	1.82	12/20/2022	12/20/2012	107.22315	105.8651534	104.5320965	103.2233448	101.9382808	100.6763074	99.43684721	98.21934196	97.02325139
130206A00004	2/6/2013	2.14	2/7/2028	2/6/2013	119.52491	115.4841729	111.6453559	107.9963972	104.5260536	101.2238365	98.07995537	95.08526657	92.23122626
130207A00012	2/7/2013	2.9	2/7/2033	2/7/2013	138.04259	129.7788437	122.192008	115.2177768	108.7985612	102.8827354	97.42397336	92.38066298	87.71538974
130624A00017	6/24/2013	3.4	6/26/2023	6/24/2013	113.33398	111.2758294	109.2665371	107.3046304	105.3886955	103.5173703	101.6893424	99.90334685	98.15816384
120827A00052	8/27/2012	2.01	8/27/2027	8/27/2012	117.65777	113.9574163	110.4366095	107.0849484	103.892714	100.850821	97.95077222	95.18461611	92.54490826
120907A00005	9/7/2012	1.76	9/7/2022	9/7/2012	103.60006	102.9038743	102.2218796	101.5536062	100.8986026	100.256437	99.62669674	99.0089867	98.40292874
120907A00026	9/7/2012	1.71	9/7/2022	9/7/2012	105.57766	104.5060909	103.4585185	102.4341273	101.4321416	100.4518202	99.49245411	98.55336518	97.63390433
120907A00032	9/7/2012	1.86	9/9/2024	9/7/2012	113.04923	110.4535659	107.9445387	105.518633	103.1725001	100.90295	98.70694327	96.58158266	94.52410514
121120A00010	11/20/2012	1.93	11/22/2027	11/20/2012	118.80867	114.7735471	110.9385941	107.2919559	103.8225659	100.5200919	97.37488174	94.37791452	91.52075499
121120A00011	11/20/2012	2.22	11/22/2027	11/20/2012	126.82305	121.0643578	115.6452535	110.5430756	105.7368123	101.2069759	96.93548352	92.9055479	89.1015771
120410A00005	4/10/2012	2.35	4/12/2027	4/10/2012	119.96632	116.0402028	112.294365	108.7187634	105.304	102.041272	98.92233004	95.93943916	93.08534267
120614A00013	6/14/2012	1.89	6/14/2022	6/14/2012	105.1915	104.2339145	103.293588	102.3700554	101.4628703	100.571602	99.69583483	98.83516744	97.98921224
120614A00015	6/14/2012	1.89	6/14/2022	6/14/2012	105.1915	104.2339145	103.293588	102.3700554	101.4628703	100.571602	99.69583483	98.83516744	97.98921224
120621A00009	6/21/2012	3.18	6/21/2032	6/21/2012	148.31457	137.8893174	128.4096177	119.7793871	111.9130457	104.7343007	98.1750804	92.17459585	86.6785155
120716A00025	7/16/2012	1.83	7/18/2022	7/17/2017	102.77874	102.2503173	101.7323778	101.2246127	100.7267237	100.2384242	99.7594383	99.28950089	98.82835672
120827A00048	8/27/2012	2.01	8/27/2027	8/27/2012	117.65777	113.9574129	110.4366072	107.0849472	103.8927138	100.8508217	97.95077363	95.18461821	92.54491098
111128A00006	11/28/2011	3.03	11/28/2031	11/28/2011	135.09754	127.9897787	121.4092697	115.3104214	109.6520027	104.3966936	99.51068306	94.96331265	90.72675752
120119A00015	1/19/2012	2.27	1/19/2024	1/19/2012	112.37823	110.1315627	107.9470285	105.8224846	103.7558744	101.7452262	99.78864884	97.88432787	96.03052183
120210A00004	2/10/2012	1.98	2/10/2022	2/10/2012	103.20283	102.6305197	102.06448	101.5046058	100.9507969	100.402955	99.86098393	99.32478974	98.79428034
120210A00005	2/10/2012	1.64	2/10/2022	2/10/2012	103.01146	102.4410879	101.876961	101.3189789	100.7670415	100.2210509	99.68091143	99.14652925	98.61781265
120217A00007	2/17/2012	2.25	2/20/2024	2/17/2012	112.84994	110.5010518	108.2189145	106.0011433	103.84546	101.7496838	99.71172666	97.72958844	95.80135258

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
120315A00002	3/14/2012	2.56	3/15/2027	3/14/2022	120.22282	116.3818778	112.7149024	109.2123416	105.8652389	102.6651971	99.60433898	96.67527111	93.87105109
070518A00023	5/18/2007	5.46	5/18/2027	5/18/2007	131.02054	126.8067993	122.7861451	118.9479479	115.2822436	111.7796876	108.4315121	105.2294864	102.1658805
080220A00035	2/20/2008	4.65	2/22/2022	2/20/2008	104.92681	104.3208126	103.7218258	103.1297311	102.5444098	101.9657462	101.3936267	100.8279408	100.2685802
080423A00066	4/23/2008	4.41	4/24/2023	4/23/2008	110.51679	109.1407308	107.7925998	106.4715592	105.1768058	103.9075691	102.6631094	101.4427165	100.2457078
110414A00007	4/14/2011	3.95	1/21/2025	4/14/2011	117.16801	114.5896159	112.0928459	109.6744164	107.3312026	105.0602289	102.8586606	100.723796	98.65305965
110824A00006	8/24/2011	2.69	8/24/2026	8/24/2011	116.99943	113.8865536	110.9047212	108.0472546	105.307869	102.6806449	100.160004	97.74068684	95.41773307
111007A00007	10/7/2011	3.92	10/7/2031	10/7/2011	156.14746	145.0423998	134.9337906	125.7227808	117.3210098	109.6494318	102.6372791	96.22114552	90.34417674
061013A00024	10/13/2006	5.53	10/15/2021	10/13/2006	101.98511	101.7668171	101.5494731	101.33307	101.1176019	100.9030625	100.6894459	100.476746	100.2649568
081219A00006	12/19/2008	3.88	12/22/2023	12/19/2008	118.94969	116.2028675	113.5345543	110.9420479	108.4227591	105.9742032	103.5939949	101.279844	99.02955065
110805A00021	8/5/2011	3.36	8/5/2021	8/5/2011	100.11795	100.1012182	100.0845047	100.0678079	100.0511279	100.0344646	100.0178179	100.0011879	99.9845745
110927A00009	9/27/2011	3.07	9/27/2021	9/27/2011	101.11285	100.9469458	100.7815883	100.6167746	100.4525022	100.2887683	100.1255703	99.96290567	99.80077178
111024A00013	10/24/2011	3.24	10/25/2021	10/24/2011	101.68714	101.4408511	101.1957542	100.9518453	100.7091157	100.467557	100.2271606	99.98791826	99.7498216
111213A00004	12/13/2011	2.96	12/13/2021	12/13/2011	102.54099	102.1518571	101.7656826	101.3824353	101.0020818	100.6245893	100.2499256	99.87805869	99.50895741
191002A00045	2/14/2020	1.75	2/14/2023	2/14/2020	108.51776	106.851577	105.2197995	103.6214363	102.0555378	100.52119	99.01751249	97.54365756	96.09880813
191002A00046	2/14/2020	1.75	2/14/2023	2/14/2020	108.51776	106.851577	105.2197995	103.6214363	102.0555378	100.52119	99.01751249	97.54365756	96.09880813
200131A00029	1/31/2020	1.78	10/31/2024	1/31/2020	117.68047	113.9537104	110.3649864	106.9083053	103.57798	100.3686099	97.27506351	94.29246318	91.41617042
200131A00031	1/31/2020	1.74	1/31/2024	1/31/2020	113.68625	110.8891742	108.1758592	105.5432901	102.9885843	100.5089807	98.10183403	95.76460923	93.49487589
190917A00030	1/10/2020	2.03	1/10/2023	1/10/2020	108.40659	106.8477328	105.3194257	103.8208457	102.3511987	100.9097183	99.49566458	98.10832305	96.7470035
190917A00033	1/10/2020	2.03	1/10/2023	1/10/2020	108.40659	106.8477328	105.3194257	103.8208457	102.3511987	100.9097183	99.49566458	98.10832305	96.7470035
191002A00038	1/13/2020	1.76	1/13/2023	1/13/2020	108.04352	106.4786033	104.9445325	103.4404682	101.9656046	100.5191643	99.10039666	97.70857722	96.34300609
191002A00042	1/13/2020	1.76	1/13/2023	1/13/2020	108.04352	106.4786033	104.9445325	103.4404682	101.9656046	100.5191643	99.10039666	97.70857722	96.34300609
191002A00043	2/3/2020	1.75	2/3/2023	2/3/2020	108.34618	106.7156396	105.118367	103.5534237	102.0199091	100.5169553	99.04372605	97.59941487	96.18324404
191002A00044	2/3/2020	1.75	2/3/2023	2/3/2020	108.34618	106.7156396	105.118367	103.5534237	102.0199091	100.5169553	99.04372605	97.59941487	96.18324404
190904A00034	9/4/2019	1.74	6/1/2022	9/4/2019	104.71268	103.8083563	102.9195827	102.0459611	101.1871068	100.3426481	99.51222559	98.69549169	97.89211028
190904A00036	9/4/2019	1.74	6/8/2022	9/4/2019	104.82279	103.8963735	102.9862714	102.092054	101.2133082	100.3496352	99.50064967	98.66597926	97.84526424
190904A00037	9/4/2019	1.73	6/15/2022	9/4/2019	104.9239	103.9754127	103.0440087	102.1292305	101.2306358	100.3477979	99.48030517	98.62775999	97.7897785
190904A00040	9/4/2019	1.73	6/22/2022	9/4/2019	105.03392	104.063287	103.1105209	102.1751307	101.2566445	100.3546073	99.46858033	98.59814016	97.74287831
190904A00043	9/4/2019	1.72	12/15/2022	9/4/2019	107.54498	106.0714584	104.6254774	103.2063277	101.8133257	100.4458103	99.10314207	97.78470265	96.48989355
190904A00044	9/4/2019	1.72	12/30/2022	9/4/2019	107.78938	106.2679386	104.7757148	103.3119419	101.8758749	100.4667947	99.08400624	97.72683802	96.39464075
190829A00073	8/29/2019	1.81	3/15/2023	8/29/2019	109.06815	107.3080149	105.5854582	103.8993425	102.2485805	100.6321283	99.04898316	97.49818114	95.97879556
190829A00075	8/29/2019	1.8	6/15/2023	8/29/2019	110.43915	108.3889471	106.3871544	104.4323339	102.5231005	100.6581192	98.83610273	97.05580969	95.31604251
190829A00076	8/29/2019	1.81	6/30/2023	8/29/2019	110.68669	108.588531	106.5408928	104.5422488	102.5911249	100.686102	98.82581238	97.00893848	95.23421009
190829A00078	8/29/2019	1.8	12/15/2023	8/29/2019	113.16184	110.5193331	107.9520482	105.457423	103.0329956	100.6764018	98.38537136	96.15772334	93.99136203

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190829A00080	8/29/2019	1.8	12/29/2023	8/29/2019	113.36956	110.6796613	108.0675055	105.5304005	103.0657634	100.6711163	98.34408094	96.08237439	93.88380437
190830A00020	8/31/2020	1.67	8/31/2023	8/31/2020	111.31676	109.0218023	106.7861261	104.6077819	102.4848997	100.4156855	98.39841744	96.43144252	94.51317301
190826A00046	8/26/2019	1.77	8/26/2024	8/26/2019	116.72513	113.2251827	109.848895	106.5911693	103.4471515	100.4122173	97.4819596	94.65217698	91.91886261
190829A00013	8/29/2019	1.78	8/29/2024	8/29/2019	116.79979	113.2892968	109.9030775	106.6359958	103.4831635	100.4399243	97.50184157	94.66468583	91.92442422
190829A00016	8/29/2019	1.82	8/29/2022	8/29/2019	106.18774	104.9984233	103.8356059	102.6984117	101.5860013	100.4975719	99.43235505	98.38961466	97.36864552
190829A00017	8/29/2019	1.8	8/29/2023	8/29/2019	111.57355	109.2817268	107.0489759	104.8733633	102.7530298	100.6861916	98.67113645	96.70622036	94.78986406
190829A00028	8/29/2019	1.78	8/29/2024	8/29/2019	116.79979	113.2892968	109.9030775	106.6359958	103.4831635	100.4399243	97.50184157	94.66468583	91.92442422
190829A00072	8/29/2019	1.81	12/15/2022	8/29/2019	107.6742	106.1997015	104.7527553	103.3326576	101.9387241	100.5702935	99.22672583	97.90740224	96.61172385
190722A00054	12/19/2019	2.02	12/20/2021	12/19/2019	102.29643	101.8875532	101.4819473	101.0795731	100.6803922	100.2843665	99.89145865	99.50163192	99.11485007
190722A00056	12/19/2019	2.02	12/20/2021	12/19/2019	102.29643	101.8875532	101.4819473	101.0795731	100.6803922	100.2843665	99.89145865	99.50163192	99.11485007
190726A00014	7/26/2019	2.23	7/24/2024	7/26/2019	117.73539	114.3233142	111.0288214	107.8471919	104.7739253	101.8047275	98.93550045	96.1623312	93.4814829
190805A00031	8/5/2020	1.77	8/4/2023	8/5/2020	111.14041	108.9279092	106.7712197	104.6685604	102.6182239	100.6185696	98.66802012	96.76505868	94.90822622
190815A00040	8/15/2019	1.86	8/15/2023	8/15/2019	111.49581	109.2466467	107.0547491	104.9182725	102.8354426	100.8045553	98.82397379	96.89212482	95.00749616
190815A00041	8/15/2019	1.86	8/15/2024	8/15/2019	116.86663	113.3986325	110.0522417	106.8224858	103.7046287	100.6941562	97.78676405	94.9783471	92.26498838
190621A00034	6/21/2019	2.17	6/15/2023	6/21/2019	111.16889	109.11132	107.1023012	105.1403958	103.2242147	101.3524189	99.52371744	97.73686513	95.99066096
190621A00035	6/21/2019	2.19	12/15/2023	6/21/2019	114.14497	111.4900403	108.9106103	106.4041094	103.9680673	101.6001117	99.29796487	97.05943831	94.88242927
190621A00037	6/21/2019	2.21	5/15/2024	6/21/2019	116.57977	113.410907	110.3450105	107.3781007	104.5063809	101.7262261	99.03417384	96.42691571	93.90128934
190621A00039	6/21/2019	2.21	6/17/2024	6/21/2019	117.09177	113.8102717	110.6381386	107.571135	104.6052106	101.7364941	98.96128423	96.27604113	93.67737859
190722A00047	11/22/2019	2.03	11/22/2021	11/22/2019	101.84567	101.5188025	101.1940353	100.8713508	100.550729	100.23215	99.91559437	99.60104284	99.28847638
190722A00051	11/22/2019	2.03	11/22/2021	11/22/2019	101.84567	101.5188025	101.1940353	100.8713508	100.550729	100.23215	99.91559437	99.60104284	99.28847638
190523A00035	5/23/2019	2.34	11/23/2021	5/23/2019	101.96253	101.6325442	101.3046987	100.9789722	100.6553441	100.3337942	100.0143024	99.69684907	99.38141463
190530A00048	5/30/2019	2.41	5/31/2022	5/30/2019	105.2745	104.3705859	103.4821462	102.608787	101.7501268	100.9057971	100.0754416	99.25871558	98.4552857
190530A00049	5/30/2019	2.44	5/30/2023	5/30/2019	111.42866	109.4171085	107.4519986	105.531981	103.6557553	101.8220669	100.0297051	98.2775013	96.56432714
190604A00019	6/4/2019	2.27	6/4/2024	6/4/2019	117.07417	113.8342025	110.7009683	107.6703812	104.7385328	101.9016852	99.15626253	96.49884297	93.9261514
190607A00040	6/7/2019	2.12	6/7/2022	6/7/2019	105.14227	104.2173804	103.3087168	102.4158525	101.538378	100.6758978	99.82803012	98.99440576	98.17466805
190607A00041	6/7/2019	2.12	6/7/2022	6/7/2019	105.14227	104.2173804	103.3087168	102.4158525	101.538378	100.6758978	99.82803012	98.99440576	98.17466805
190422A00030	4/22/2019	2.93	12/22/2025	4/22/2019	128.83375	123.49655	118.4129034	113.5694369	108.9535496	104.5533668	100.3576947	96.35597727	92.53825691
190426A00023	4/26/2019	2.91	6/24/2026	4/26/2019	131.81362	125.7648656	120.0319042	114.5965983	109.4419418	104.5519869	99.91177281	95.50725944	91.3252663
190501A00014	5/1/2019	2.62	5/1/2024	5/1/2019	117.56627	114.4277006	111.3900772	108.449448	105.6020509	102.8443001	100.1727764	97.58421774	95.07551061
190515A00030	5/15/2019	2.49	5/15/2024	5/15/2019	117.415	114.2338157	111.1559045	108.1772756	105.2941224	102.5028108	99.79986914	97.18198045	94.64597407
190515A00032	5/15/2019	2.49	5/15/2024	5/15/2019	117.415	114.2338157	111.1559045	108.1772756	105.2941224	102.5028108	99.79986914	97.18198045	94.64597407
190520A00048	5/20/2019	2.53	5/20/2024	5/20/2019	117.61745	114.4172595	111.3212767	108.3254919	105.4260794	102.6193837	99.90191134	97.27032233	94.72142238
190318A00017	3/19/2019	2.7	3/18/2022	3/19/2019	104.16999	103.4954706	102.8296786	102.1724475	101.5236125	100.8830134	100.250494	99.62590194	99.00908871

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190325A00022	3/25/2019	2.55	11/25/2022	3/25/2019	108.41226	106.9832688	105.5819622	104.2075681	102.8593444	101.5365761	100.2385744	98.96467519	97.71423834
190327A00027	3/27/2019	2.66	1/15/2025	3/27/2019	122.01972	117.9693178	114.0763839	110.333936	106.7353401	103.274292	99.944799	96.7411627	93.65796274
190328A00077	3/28/2019	2.46	9/28/2021	3/28/2019	101.02961	100.8609962	100.6929461	100.525456	100.3585231	100.1921447	100.026318	99.86104027	99.69630891
190329A00012	3/29/2019	2.61	3/29/2024	3/29/2019	116.9881	113.9615104	111.0296352	108.1888802	105.4358121	102.767153	100.1797722	97.67067824	95.23701163
190405A00040	4/3/2020	3.12	4/5/2030	4/3/2020	155.56766	143.5756875	132.6149772	122.5909569	113.4182123	105.0195549	97.32518947	90.27196893	83.80272843
190311A00068	3/25/2019	2.76	9/26/2022	3/25/2019	107.7595	106.4712725	105.2137792	103.9859269	102.7866764	101.6150372	100.4700635	99.35085274	98.25654242
190311A00072	3/25/2019	2.79	9/25/2023	3/25/2019	114.22433	111.8207237	109.480555	107.2016775	104.9820341	102.8196547	100.7126514	98.65921442	96.65760809
190311A00073	3/14/2019	2.81	3/14/2024	3/14/2019	117.2921	114.3094904	111.419012	108.6172197	105.9008196	103.2666644	100.711746	98.23318736	95.82823658
190311A00076	3/14/2019	2.88	9/16/2024	3/14/2019	120.74925	117.1172526	113.614909	110.2367999	106.9777667	103.8328998	100.7975243	97.86718747	95.03764651
190315A00039	3/15/2019	2.64	9/15/2021	3/15/2019	100.82967	100.6978675	100.5664234	100.4353376	100.3046086	100.1742349	100.044215	99.91454736	99.78523064
190318A00016	3/19/2019	2.7	3/18/2022	3/19/2019	104.16999	103.4954706	102.8296786	102.1724475	101.5236125	100.8830134	100.250494	99.62590194	99.00908871
190122A00018	1/22/2019	2.98	12/1/2022	1/22/2019	109.08931	107.6470347	106.2310113	104.8405799	103.4751045	102.1339698	100.8165799	99.52235812	98.2507457
190123A00059	1/23/2019	2.95	1/24/2022	1/23/2019	103.3318	102.8176924	102.3086952	101.8047358	101.3057396	100.8116334	100.3223457	99.83780609	99.35794569
190206A00009	2/12/2019	2.84	2/11/2022	2/12/2019	103.60702	103.0388769	102.4769625	101.9211765	101.3714189	100.8275918	100.2895997	99.75734865	99.23074715
190206A00010	2/12/2019	2.84	2/11/2022	2/12/2019	103.60702	103.0388769	102.4769625	101.9211765	101.3714189	100.8275918	100.2895997	99.75734865	99.23074715
190221A00011	2/21/2019	2.81	8/23/2021	2/21/2019	100.43524	100.368243	100.3013469	100.2345511	100.1678556	100.1012601	100.0347643	99.96836808	99.9020712
190221A00012	2/21/2019	2.83	8/23/2022	2/21/2019	107.20787	106.0313389	104.8805845	103.7547683	102.6530861	101.5747676	100.5190753	99.48530227	98.47277081
181031A00070	3/1/2019	3.77	3/1/2029	3/1/2019	154.65541	144.2575271	134.6494681	125.7667066	117.5503238	109.9464916	102.9060079	96.38387517	90.33892045
181203A00039	12/3/2018	3.27	12/1/2023	12/3/2018	116.59776	113.9572261	111.3904415	108.894935	106.4683317	104.1083499	101.8127969	99.57956451	97.40662594
181206A00018	12/6/2018	3.13	12/6/2023	12/6/2018	116.34496	113.691375	111.1123395	108.6053397	106.1679617	103.7978867	101.492887	99.25082138	97.0696315
181220A00041	12/20/2018	3.36	12/18/2026	12/20/2018	137.3298	130.5123581	124.0798576	118.0085212	112.2761634	106.8620734	101.7469093	96.91260145	92.3422619
181227A00001	12/27/2018	2.92	12/27/2021	12/27/2018	102.78865	102.3582004	101.931352	101.5080588	101.0882765	100.6719615	100.259071	99.849563	99.44339602
190122A00017	1/22/2019	2.94	5/2/2022	1/22/2019	105.18504	104.3702775	103.5681147	102.778262	102.0004377	101.2343687	100.47979	99.73644446	99.00408265
180919A00013	9/19/2018	3.14	9/19/2022	9/19/2018	108.07941	106.8114957	105.5733062	104.3638075	103.1820103	102.0269705	100.897786	99.79359548	98.71357507
180925A00033	9/25/2018	3.26	9/25/2023	9/25/2018	115.2945	112.8785721	110.5263444	108.2356609	106.0044568	103.8307548	101.7126598	99.64835554	97.63609971
181001A00031	10/1/2018	3.23	9/29/2023	10/1/2018	115.30212	112.8738637	110.5098739	108.2079693	105.9660579	103.7821361	101.6542848	99.58066458	97.55951162
181003A00023	10/3/2018	3.17	4/4/2022	10/3/2018	104.81064	104.0824805	103.3644321	102.6562846	101.957834	101.2688821	100.5892358	99.91870757	99.25711465
181016A00019	10/18/2018	3.32	10/16/2023	10/18/2018	115.83979	113.3511861	110.9295998	108.5727037	106.2782732	104.0441805	101.8683895	99.74895061	97.68399668
181029A00051	2/5/2019	3.69	2/5/2029	2/5/2019	153.51175	143.2544409	133.7709246	124.9984332	116.8796105	109.3620197	102.3976975	95.94275013	89.95698857
180727A00017	7/27/2018	3.16	7/27/2023	7/27/2018	113.93625	111.7182658	109.5556146	107.4465492	105.3893946	103.3825408	101.4244389	99.51359873	97.64858639
180821A00029	8/21/2018	3.01	8/21/2023	8/21/2018	114.0835	111.7878842	109.5508896	107.3706131	105.2452276	103.1729789	101.1521827	99.18122064	97.25853772
180910A00037	9/10/2018	3.03	9/9/2022	9/10/2018	107.7567	106.5227669	105.3170642	104.1386306	102.9865484	101.8599405	100.7579682	99.67982958	98.62475703
180910A00039	9/10/2018	3.03	9/9/2022	9/10/2018	107.7567	106.5227669	105.3170642	104.1386306	102.9865484	101.8599405	100.7579682	99.67982958	98.62475703

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180911A00007	9/11/2018	3.12	9/8/2023	9/11/2018	114.65875	112.3020517	110.0065126	107.7701072	105.5908901	103.4669962	101.3966362	99.37809288	97.40971806
180912A00017	9/12/2018	3.13	9/12/2023	9/12/2018	114.75569	112.3856772	110.0774039	107.8288144	105.6379361	103.5028779	101.4218263	99.39304154	97.41485364
180618A00036	6/18/2018	3.89	6/18/2048	6/18/2018	280.23714	226.0160146	183.8432311	150.9031218	125.05763	104.6797052	88.52839182	75.65501432	65.33259306
180621A00031	6/21/2018	3.07	6/21/2023	6/21/2018	113.05753	110.9625009	108.9172304	106.92023	104.9700651	103.0653534	101.2047625	99.38700808	97.61085146
180621A00068	6/21/2018	3.32	6/23/2025	6/21/2018	127.42003	122.7318457	118.2442699	113.9476534	109.8328592	105.8912359	102.1145892	98.49515597	95.0255784
180625A00012	6/25/2018	3.07	6/23/2023	6/25/2018	113.0954	110.9938571	108.9423593	106.939404	104.9835445	103.0733874	101.2075894	99.38485603	97.60393879
180709A00081	7/9/2018	3.05	7/7/2023	7/9/2018	113.32183	111.1741894	109.0786729	107.0336849	105.0376902	103.0892108	101.1868235	99.32915752	97.5148921
180726A00046	7/26/2018	3.2	12/26/2023	7/26/2018	116.90075	114.175292	111.5280632	108.9563686	106.4576204	104.0293355	101.6691306	99.37471715	97.14389739
180518A00071	5/25/2018	3.56	5/18/2026	5/25/2018	134.63665	128.6457486	122.9608159	117.5645517	112.4407252	107.5741064	102.950399	98.55617755	94.37883005
180529A00072	5/29/2018	3	5/30/2023	5/29/2018	112.5065	110.4843026	108.508756	106.5785038	104.6922397	102.8487034	101.0466788	99.28499212	97.56250994
180612A00031	6/12/2018	3.04	6/13/2022	6/12/2018	106.07068	105.1226784	104.1916151	103.2770365	102.3785071	101.4956069	100.6279302	99.77508557	98.93669462
180613A00046	6/13/2018	3	1/13/2022	6/13/2018	103.14663	102.6653836	102.1886378	101.716326	101.2483866	100.7847588	100.325383	99.8702009	99.41915503
180613A00047	6/13/2018	3.17	1/12/2024	6/13/2018	117.14141	114.3586611	111.6572768	109.0343932	106.4872692	104.0132771	101.6098966	99.27471016	97.00539774
180615A00039	6/15/2018	3.49	6/15/2028	6/15/2018	147.66814	138.5215618	130.0137802	122.0967071	114.7261102	107.8612887	101.4647746	95.50205984	89.94134905
180403A00024	4/3/2018	2.96	4/3/2023	4/3/2018	111.3812	109.542511	107.7439272	105.9842072	104.2621578	102.5766351	100.9265416	99.31082407	97.72847124
180404A00018	4/4/2018	2.89	4/4/2022	4/4/2018	104.61495	103.8875641	103.1702782	102.4628856	101.7651826	101.076971	100.398058	99.72825603	99.06738251
180515A00022	5/15/2018	3.19	5/15/2023	5/15/2018	112.59949	110.622125	108.6898459	106.8012719	104.9550785	103.1499936	101.3847942	99.65830467	97.96939409
180518A00042	5/25/2018	3.42	5/19/2025	5/25/2018	127.19555	122.6298403	118.2553035	114.0628665	110.0439426	106.1903993	102.4945319	98.94903798	95.54699434
180518A00046	5/25/2018	3.62	5/18/2027	5/25/2018	141.64416	134.15174	127.1099296	120.4891533	114.2619346	108.4027344	102.8878038	97.69504939	92.80390915
180518A00048	5/25/2018	3.65	5/18/2028	5/25/2018	148.40902	139.341106	130.8995789	123.0376829	115.7123952	108.8841077	102.5163384	96.57546911	91.03050621
180131A00022	1/31/2018	2.96	1/30/2025	1/31/2018	123.40135	119.2762559	115.3131447	111.5047539	107.8441875	104.3248964	100.9406592	97.68556346	94.55398876
180201A00022	2/1/2018	2.99	2/3/2025	2/1/2018	123.58661	119.444337	115.4651076	111.6415921	107.966832	104.4342199	101.0374798	97.77064879	94.62805902
180312A00014	3/12/2018	3	3/13/2023	3/12/2018	111.05318	109.2816498	107.5478023	105.8505025	104.1886638	102.5612428	100.967237	99.40568249	97.87565267
180316A00031	3/16/2018	2.96	12/16/2022	3/16/2018	109.34429	107.8540114	106.3916251	104.9564136	103.5476823	102.1647598	100.806997	99.47376573	98.16445857
180328A00015	3/28/2018	2.93	3/28/2023	3/28/2018	111.21683	109.3977657	107.618096	105.876605	104.1721312	102.5035602	100.8698228	99.269892	97.70278166
180328A00042	3/28/2018	2.95	3/28/2023	3/28/2018	111.25159	109.4322201	107.6522431	105.9104505	104.2056806	102.5368189	100.902796	99.30258501	97.73519934
171219A00032	12/19/2017	2.42	12/20/2021	12/19/2017	102.45676	102.04749	101.6414934	101.238731	100.839164	100.4427545	100.0494651	99.65925898	99.27209995
171222A00037	12/22/2017	2.71	12/29/2023	12/22/2017	115.70202	112.9822037	110.3408041	107.7751101	105.2825187	102.8605323	100.5067539	98.21888238	95.99470825
171228A00023	12/28/2017	2.69	3/29/2024	12/28/2017	117.21526	114.1854641	111.2504644	108.4066594	105.6506135	102.9790464	100.3888251	97.87695601	95.44057772
171228A00024	12/28/2017	2.71	6/28/2024	12/28/2017	118.8202	115.477228	112.2465483	109.1237691	106.1046959	103.1853217	100.3618169	97.63052087	94.98793331
180104A00016	1/4/2018	2.56	1/4/2023	1/4/2018	109.11951	107.5726951	106.0558579	104.5681981	103.1089444	101.6773522	100.2727022	98.89429984	97.54147356
180123A00067	1/23/2018	2.67	1/23/2023	1/23/2018	109.60462	107.9971817	106.4219787	104.8781184	103.3647442	101.8810301	100.4261792	98.99942271	97.60001865
170918A00051	12/18/2017	2.24	12/19/2022	12/18/2017	108.35867	106.8667159	105.4028469	103.9663352	102.5564782	101.1725969	99.81403483	98.48015699	97.17034924

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171016A00016	10/16/2017	2.23	10/17/2022	10/16/2017	107.47871	106.1249385	104.8051331	103.5180323	102.2624318	101.0371859	99.841204	98.67344698	97.53292452
171110A00007	11/10/2017	2.38	11/10/2022	11/10/2017	108.00682	106.5963707	105.2184385	103.8719024	102.5556882	101.2687712	100.0101726	98.77895747	97.5742321
171110A00008	11/10/2017	2.65	11/12/2024	11/10/2017	120.92414	117.1037995	113.4254095	109.8828528	106.4703165	103.1822745	100.0134705	96.95890374	94.01381407
171110A00019	5/4/2018	2.46	5/4/2023	5/4/2018	111.0354	109.1067671	107.2217812	105.3790563	103.5772623	101.8151253	100.0914241	98.40498814	96.7546943
171219A00031	12/19/2017	2.42	12/20/2021	12/19/2017	102.45676	102.04749	101.6414934	101.238731	100.839164	100.4427545	100.0494651	99.65925898	99.27209995
170703A00024	7/3/2017	2.95	7/6/2027	7/3/2017	138.07911	130.5178621	123.422955	116.7631574	110.5094875	104.6350393	99.11482355	93.92562198	89.04585281
170726A00025	7/26/2017	2.14	7/26/2022	7/26/2017	105.97634	104.8951169	103.835871	102.7979398	101.7806851	100.7834939	99.80577716	98.84696873	97.90652421
170814A00034	8/14/2017	2.1	8/15/2022	8/14/2017	106.2686	105.1228724	104.0017634	102.9044842	101.8302811	100.7784318	99.74824396	98.73905353	97.75022336
170816A00030	8/16/2017	1.95	8/16/2021	8/16/2017	100.26749	100.2200994	100.1727699	100.1255023	100.0782964	100.0311522	99.98406945	99.93704811	99.89008803
170822A00023	8/23/2017	3.95	8/23/2028	8/23/2017	152.56488	142.9791986	134.0768818	125.8053129	118.1162003	110.9652011	104.3115774	98.1178858	92.34969377
170908A00021	9/8/2017	1.96	9/8/2022	9/8/2017	106.50634	105.2833786	104.0883754	102.9203832	101.7784942	100.6618409	99.56959393	98.50095976	97.45517904
170519A00019	5/19/2017	2	11/19/2021	5/19/2017	101.78767	101.4695351	101.1533972	100.8392371	100.5270363	100.2167764	99.90843916	99.6020068	99.29746162
170609A00052	6/11/2018	2.9	6/9/2027	6/11/2018	137.32777	129.8866469	122.8993064	116.3357097	110.1679542	104.3701119	98.91808041	93.78944563	88.9633552
170614A00019	6/14/2017	2.48	6/13/2025	6/14/2017	123.70541	119.1260984	114.7422661	110.5445487	106.5240814	102.6724679	98.98175346	95.44439878	92.05325659
170622A00045	6/22/2017	2.76	6/22/2027	6/22/2017	136.60651	129.1411572	122.1340762	115.5547393	109.3748084	103.5679636	98.10974887	92.97743141	88.14987177
170628A00044	10/9/2018	2.12	10/8/2021	10/9/2018	101.13539	100.9383058	100.741994	100.5464541	100.3516816	100.1576719	99.96442046	99.77192291	99.58017476
170703A00022	7/3/2017	2.86	7/3/2026	7/3/2017	131.69155	125.6143777	119.8560826	114.3982537	109.2236401	104.3160697	99.66037627	95.2423317	91.04858315
170327A00080	3/27/2019	3.43	3/27/2029	3/27/2019	152.16993	141.7690837	132.1671668	123.298267	115.1022563	107.5242514	100.5141295	94.02609129	88.01826589
170404A00002	4/4/2017	2.42	4/4/2023	4/4/2017	110.44991	108.6167008	106.8235547	105.0692273	103.3525247	101.6723023	100.0274622	98.4169508	96.83975652
170404A00003	4/4/2017	2.74	4/4/2025	4/4/2017	123.64909	119.3024989	115.1337547	111.1345248	107.2969188	103.6134644	100.0770824	96.68106319	93.41904505
170405A00031	4/5/2017	2.22	4/4/2022	4/5/2017	104.1467	103.421157	102.7056954	102.0001093	101.3041951	100.6177551	99.94059677	99.2725327	98.6133806
170412A00019	4/12/2017	2.56	4/12/2024	4/12/2017	117.07683	114.0050131	111.03048	108.1494875	105.3584636	102.6540009	100.0328474	97.491898	95.0281869
170518A00008	5/18/2018	3.06	5/18/2028	5/18/2018	143.87423	134.9662784	126.6766356	118.959032	111.7708976	105.0730465	98.8293909	93.00668039	87.57426497
161123A00037	11/23/2016	2.16	11/23/2021	11/23/2016	101.90408	101.5742207	101.2464957	100.920889	100.5973802	100.2759489	99.95657527	99.63923945	99.32392199
161125A00002	11/25/2016	2.62	11/27/2023	11/25/2016	114.91871	112.311393	109.7767858	107.3124387	104.9160019	102.5852188	100.3179216	98.11202742	95.96553411
161221A00053	12/23/2016	3.05	12/23/2021	12/23/2016	102.76672	102.347964	101.9326224	101.520654	101.1120176	100.706673	100.3045804	99.90570081	99.50999572
170327A00077	3/27/2019	2.74	3/27/2024	3/27/2019	117.32246	114.2975938	111.3671939	108.5276839	105.7756461	103.1078173	100.5210802	98.01245622	95.5790976
170327A00078	3/27/2019	3.04	3/27/2026	3/27/2019	130.94547	125.2276734	119.7955657	114.6332603	109.725851	105.059341	100.6205822	96.39721829	92.37763262
170327A00079	3/27/2019	3.19	3/29/2027	3/27/2019	138.03296	130.8275958	124.0482543	117.6673825	111.6593588	106.000349	100.6681718	95.64217465	90.90312033
160830A00068	11/30/2016	1.95	11/30/2023	11/30/2016	113.3108	110.7143489	108.1905685	105.7370247	103.3513782	101.0313808	98.77487193	96.57977457	94.44409135
161017A00007	10/17/2016	1.99	10/18/2023	10/17/2016	112.75862	110.3000908	107.9081082	105.5803513	103.3146031	101.1087435	98.96074401	96.86866283	94.83064037
161017A00015	10/17/2016	1.68	10/18/2021	10/17/2016	101.20219	100.9765842	100.7519976	100.5284207	100.3058466	100.0842686	99.86367983	99.64407378	99.42544379
161115A00021	11/15/2016	2.02	11/15/2021	11/15/2016	101.72927	101.4227336	101.1180584	100.8152236	100.5142126	100.2150087	99.9175957	99.62195744	99.32807799

Classification | Public

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
161118A00026	12/20/2016	3.03	12/21/2026	12/20/2016	135.40715	128.6326702	122.2420931	116.2116496	110.5191605	105.1439238	100.0666091	95.26915983	90.73470316
161123A00035	11/23/2016	2.16	11/23/2021	11/23/2016	101.90408	101.5742207	101.2464957	100.920889	100.5973802	100.2759489	99.95657527	99.63923945	99.32392199
160712A00019	7/12/2017	2.32	7/12/2027	7/12/2017	133.98345	126.5265657	119.5330045	112.9715803	106.8133585	101.0314863	95.60103177	90.49883778	85.7033865
160714A00018	9/6/2016	2.28	9/4/2026	9/6/2016	129.38833	123.1549843	117.2599715	111.6831149	106.4055469	101.4096207	96.67882451	92.19770236	87.95178054
160714A00024	9/20/2016	2.5	9/20/2028	9/20/2016	141.34092	132.0658594	123.4663752	115.4896295	108.0871905	101.2146398	94.83121999	88.89951382	83.38515388
160729A00017	7/31/2017	2.47	7/31/2029	7/31/2017	145.5607	134.9494354	125.1935192	116.2194337	107.9603397	100.3554397	93.34940252	86.8918463	80.93687224
160801A00007	8/1/2016	1.47	8/2/2021	8/1/2016	100.04317	100.0348199	100.0264782	100.0181442	100.0098179	100.0014992	99.99318813	99.98488469	99.97658886
160819A00015	10/12/2016	2.3	10/13/2026	10/12/2016	130.05775	123.6725515	117.6401154	111.9390135	106.5492391	101.4521065	96.63015558	92.0670644	87.74756829
160307A00029	3/7/2016	3.21	3/7/2031	3/7/2016	162.13571	148.4978329	136.1399724	124.9345099	114.7671953	105.5356841	97.1482396	89.52258228	82.58486989
160520A00017	9/20/2017	2.34	9/20/2024	9/20/2017	118.99487	115.3791187	111.8930697	108.5312757	105.2885564	102.1599824	99.14086136	96.22672456	93.41331495
160520A00018	9/20/2017	2.34	9/20/2024	9/20/2017	118.99487	115.3791187	111.8930697	108.5312757	105.2885564	102.1599824	99.14086136	96.22672456	93.41331495
160524A00015	11/25/2016	2.71	11/25/2026	11/25/2016	133.08581	126.4691672	120.2237628	114.3268342	108.7571277	103.4947937	98.52128624	93.81927123	89.37254093
160711A00020	8/24/2017	1.59	8/24/2022	8/24/2017	105.85386	104.6822865	103.5365012	102.4156623	101.3189625	100.2456286	99.19492053	98.16612889	97.15857376
160711A00022	1/10/2018	1.91	1/10/2025	1/10/2018	119.14486	115.1629289	111.3357163	107.6563776	104.1184095	100.7156312	97.44216602	94.29242508	91.26109124
160222A00005	2/22/2016	2.79	2/22/2028	2/22/2016	140.49967	132.0242609	124.1208792	116.7478397	109.8667061	103.442024	97.44107478	91.83365004	86.59184678
160222A00018	2/22/2016	2.59	2/23/2026	2/22/2016	128.19473	122.6531325	117.3846974	112.3744758	107.6084161	103.073309	98.75673182	94.6469977	90.73310745
160222A00019	2/22/2016	3.09	2/21/2031	2/22/2016	160.56439	147.0615178	134.8232105	123.7237317	113.6504803	104.5025542	96.18947798	88.63007677	81.7514758
160223A00012	2/23/2016	1.89	2/23/2023	2/23/2016	109.11577	107.4125673	105.7449272	104.1118144	102.5122306	100.9452158	99.40984629	97.90523315	96.43052033
160225A00024	2/25/2016	2.22	2/26/2024	2/25/2016	115.37536	112.4735367	109.6602555	106.9322572	104.2864233	101.7197715	99.2294485	96.81272313	94.46698059
160303A00020	3/3/2016	2.97	3/3/2031	3/3/2016	161.37845	147.6945788	135.2993129	124.063917	113.8731604	104.623838	96.22345831	88.58907991	81.64628009
160210A00053	2/10/2016	1.99	2/10/2023	2/10/2016	108.84005	107.183612	105.561221	103.9719049	102.4147302	100.8887983	99.3932435	97.92723169	96.48995879
160211A00034	2/11/2016	1.82	2/10/2023	2/11/2016	108.56755	106.9134012	105.2932524	103.7061377	102.1511249	100.6273163	99.13384743	97.66988507	96.23462619
160211A00036	2/11/2016	2.41	2/11/2026	2/11/2016	127.1048	121.6316124	116.4268666	111.475951	106.7651297	102.2814849	98.0128631	93.94782602	90.07560431
160211A00086	2/16/2016	2.8	2/16/2022	2/16/2016	103.6835	103.1001877	102.5234391	101.9531422	101.3891891	100.8314742	100.2798943	99.73434857	99.19473812
160211A00089	2/16/2016	3.91	2/16/2024	2/16/2016	119.80004	116.8700869	114.028418	111.2718203	108.5972181	106.001668	103.4823524	101.036573	98.6617448
160212A00037	2/12/2016	3.03	2/12/2031	2/12/2016	159.60843	146.1968316	134.0390666	123.0107156	113.0003262	103.9080009	95.6441442	88.12835163	81.28842361
160209A00019	2/9/2016	2.52	2/9/2026	2/9/2016	127.62053	122.1422238	116.9321698	111.9757839	107.2593576	102.7699976	98.49557263	94.42466421	90.54652089
160209A00049	2/9/2016	1.92	2/9/2023	2/9/2016	108.71174	107.0594984	105.4411756	103.855812	102.3024789	100.7802825	99.28836153	97.82588599	96.39205584
160210A00021	2/10/2016	1.97	2/10/2023	2/10/2016	108.80799	107.1518225	105.5296953	103.9406381	102.3837178	100.8580357	99.36272631	97.89695562	96.45991966
160210A00036	2/10/2016	1.77	2/10/2023	2/10/2016	108.7092	107.0501018	105.4251664	103.8334183	102.2739191	100.7457657	99.2480882	97.78004839	96.34083845
160210A00041	2/10/2016	1.97	2/10/2023	2/10/2016	108.80799	107.1518225	105.5296953	103.9406381	102.3837178	100.8580357	99.36272631	97.89695562	96.45991966
160210A00042	2/10/2016	2.57	2/10/2026	2/10/2016	127.8852	122.3970907	117.1777721	112.2126256	107.4879106	102.9907037	98.70884572	94.63089248	90.74606844
151008A00025	10/8/2015	2.91	10/8/2025	10/8/2015	127.48023	122.4293296	117.6090003	113.0073792	108.6132903	104.416197	100.4061614	96.57380631	92.91027997

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
151027A00021	10/27/2015	2.02	10/27/2021	10/27/2015	101.4226	101.1710546	100.92076	100.6717032	100.4238752	100.1772668	99.93186915	99.68767333	99.44467054
151211A00037	12/11/2017	2.69	1/11/2023	12/11/2017	109.42224	107.8523012	106.3131712	104.804021	103.3240482	101.8724782	100.4485634	99.05158187	97.68083641
151211A00040	12/11/2017	2.7	2/13/2023	12/11/2017	110.0333	108.3574649	106.7161643	105.1084092	103.533248	101.9897644	100.4770762	98.99433352	97.5407173
151211A00041	12/11/2017	2.71	3/13/2023	12/11/2017	110.56187	108.7946717	107.0650705	105.3719385	103.7141913	102.0907878	100.5007274	98.94304833	97.41682583
151214A00051	12/14/2015	2.92	12/15/2025	12/14/2015	128.66659	123.3577677	118.3001278	113.4804703	108.8863611	104.5060796	100.3285744	96.34342092	92.54078342
150601A00998	6/1/2015	5.37	10/25/2034	6/1/2015	216.00264	193.3870065	173.5060256	156.0076071	140.5870395	126.9803767	114.9587761	104.3236497	94.90250855
150731A00016	7/31/2015	3.04	7/31/2025	7/31/2015	126.89922	122.0903693	117.4928831	113.0963133	108.8907861	104.8669675	101.016031	97.32962687	93.79985388
150731A00020	7/31/2015	2.47	7/29/2022	7/31/2015	106.36742	105.2746339	104.2042303	103.155528	102.1278723	101.1206345	100.1332109	99.16502135	98.21550803
150812A00040	8/12/2015	2.94	8/12/2025	8/12/2015	126.6636	121.8201529	117.1910432	112.7656004	108.5337471	104.4859615	100.6132433	96.90708205	93.35942787
150909A00003	9/9/2015	3.11	9/9/2025	9/9/2015	127.89311	122.9308165	118.1912122	113.6630413	109.3356844	105.1991176	101.2438761	97.46101881	93.84209649
151002A00038	10/2/2015	2.81	10/2/2025	10/2/2015	126.92276	121.9047435	117.1151155	112.5421715	108.1748764	104.0028238	100.0161961	96.20572785	92.56267054
150601A00406	6/1/2015	3.71	1/17/2024	6/1/2015	118.51577	115.6991844	112.9652827	110.311142	107.733963	105.231063	102.7998698	100.4379162	98.14283564
150601A00625	6/1/2015	3.96	12/9/2044	6/1/2015	256.46825	211.9661759	176.2960818	147.6153734	124.4776937	105.7457366	90.52362091	78.10435975	67.92899594
150601A00656	6/1/2015	2.59	12/17/2021	6/1/2015	102.45744	102.0568854	101.6594662	101.2651481	100.8738948	100.4856706	100.1004403	99.71816927	99.33882343
150601A00677	6/1/2015	2.39	1/30/2025	6/1/2015	121.70628	117.5970178	113.6498059	109.8573533	106.2127418	102.7094022	99.34109435	96.10188935	92.98615161
150601A00682	6/1/2015	2.3	2/9/2022	6/1/2015	103.25817	102.6970653	102.1420556	101.5930391	101.049919	100.5126005	99.98099096	99.45499967	98.9345378
150601A00775	6/1/2015	2.28	11/12/2021	6/1/2015	101.74797	101.4500165	101.1538152	100.8593536	100.5666162	100.2755879	99.98625363	99.69859858	99.41260805
141117A00011	11/17/2014	3.81	11/17/2034	11/17/2014	192.73705	171.6058964	153.0876241	136.8410535	122.5713689	110.0235975	98.97703625	89.24048204	80.64814783
141215A00062	12/15/2014	2.65	12/16/2024	12/15/2014	122.05984	118.0940077	114.2791099	110.6086006	107.0762509	103.6761347	100.4026121	97.25031389	94.21412711
150115A00022	1/17/2017	2.56	1/16/2024	1/17/2017	115.61892	112.8434163	110.1495412	107.5344142	104.9952718	102.5294649	100.1344538	97.80780238	95.54717363
150211A00005	2/11/2015	2.35	2/15/2022	2/11/2015	103.41192	102.8324685	102.259502	101.692916	101.1326041	100.5784625	100.0303896	99.48828584	98.95205409
150601A00188	6/1/2015	2.06	8/24/2021	6/1/2015	100.39917	100.3294246	100.2597834	100.1902487	100.1208202	100.0514978	99.98228109	99.91316994	99.8441641
150601A00356	6/1/2015	3.66	9/22/2023	6/1/2015	116.03076	113.6155726	111.2638376	108.9734168	106.742261	104.568407	102.4499732	100.3851556	98.37222365
130501A00021	5/1/2013	2.27	5/1/2023	5/1/2013	110.63384	108.7181698	106.8457713	105.0152499	103.2252736	101.4745675	99.76191087	98.0861339	96.44611525
140314A00003	3/14/2014	3.32	3/14/2024	3/14/2014	118.71693	115.7145292	112.8047347	109.9840821	107.249263	104.5971161	102.0246195	99.52888356	97.10714373
140811A00047	8/11/2016	3.13	8/11/2021	8/11/2016	100.22824	100.1947723	100.1613396	100.1279459	100.0945913	100.0612756	100.0279988	99.99476074	99.96156141
140923A00069	9/23/2014	2.63	9/23/2021	9/23/2014	100.9697	100.8152354	100.6612497	100.5077432	100.3547137	100.2021592	100.0500772	99.89846569	99.74732242
140923A00070	9/23/2014	2.88	9/23/2022	9/23/2014	107.84731	106.5681008	105.3191842	104.0994954	102.908017	101.7437784	100.6058531	99.49335608	98.40544168
140930A00104	9/30/2016	3.23	9/30/2021	9/30/2016	101.19726	101.0228012	100.8489381	100.6756689	100.5029906	100.3309002	100.1593947	99.98847121	99.81812683
120419A00009	4/19/2012	2.76	4/19/2022	4/19/2012	104.80295	104.0293235	103.2671091	102.5160548	101.7759165	101.0464574	100.3274472	99.61866253	98.91988614
120531A00008	5/31/2012	2.27	5/31/2022	5/31/2012	105.15382	104.2504782	103.3626051	102.4898057	101.6316987	100.7879157	99.95810056	99.14190867	98.33900677
120614A00005	6/14/2012	2.22	6/15/2022	6/14/2012	105.47221	104.5194857	103.5839287	102.6650799	101.7624943	100.8757428	100.0044114	99.14810014	98.30642306
130211A00016	2/11/2013	2.27	2/15/2023	2/11/2013	109.37452	107.6979886	106.0560938	104.4478403	102.8722704	101.3284623	99.81552829	98.3326136	96.87889443

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	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
130211A00026	2/11/2013	2.27	2/15/2023	2/11/2013	109.37452	107.6979886	106.0560938	104.4478403	102.8722704	101.3284623	99.81552829	98.3326136	96.87889443
130211A00035	2/11/2013	2.27	2/15/2023	2/11/2013	109.37452	107.6979886	106.0560938	104.4478403	102.8722704	101.3284623	99.81552829	98.3326136	96.87889443
081028A00036	10/30/2008	4.22	10/30/2023		118.25722	115.6949632	113.2025478	110.7775008	108.4174785	106.1202551	103.8836722	101.7056675	99.58427184
180404A00037	4/6/2018	2.51	4/6/2028	4/6/2022	140.40465	131.7283448	123.703088	116.4365183	110.1495548	105.108402	101.604159	99.73852062	98.86499197
180406A00015	4/10/2018	2.61	4/10/2028	4/10/2023	141.22291	132.5020641	124.4292596	117.0984553	110.7160797	105.5328439	101.7401398	99.19057264	97.35241458
180925A00059	9/25/2018	3.01	9/25/2028	9/25/2023	147.04044	137.4817292	128.6550388	120.6181045	113.535381	107.6310787	103.1000105	99.86187172	97.46804609
181031A00046	11/2/2018	3.05	10/29/2021	8/2/2021	101.7167	101.4589703	101.2025416	100.9474047	100.6935499	100.4409681	100.1896494	99.93958448	99.69076401
181203A00046	12/4/2018	2.8	12/4/2023	9/3/2021	115.48636	112.8499684	110.2875396	107.7967113	105.3803299	103.0825539	101.1059759	100.0017667	99.83110229
181210A00035	12/12/2018	2.65	1/16/2024	10/15/2021	115.8545	113.0759139	110.3790261	107.7613579	105.2305926	102.8548258	100.8917027	99.89421827	99.63118889
190104A00032	1/4/2019	2.33	1/4/2024	9/7/2021	114.82456	112.0970878	109.4488558	106.8780474	104.4021126	102.1329993	100.431945	99.81187261	99.62909868
190426A00017	4/26/2019	2.31	4/26/2022	10/26/2021	104.59038	103.7964257	103.014493	102.2443102	101.4856151	100.7403358	100.0883075	99.75726462	99.51623509
190426A00018	4/26/2019	2.14	4/26/2024	10/26/2021	116.07883	112.9775733	109.9758829	107.0744674	104.3195405	101.8933142	100.2412085	99.70892207	99.46545994
190426A00024	4/26/2019	2.24	4/26/2022	10/26/2021	104.53706	103.74333	102.9616216	102.1916606	101.4331854	100.6889279	100.0540283	99.73994073	99.49924554
190509A00033	5/9/2019	2.41	5/9/2022	8/9/2021	104.88717	104.0524034	103.230899	102.4223393	101.6264241	100.8446857	100.1471263	99.96041531	99.93292092
190509A00063	5/9/2019	2.11	5/9/2024	8/9/2021	116.18944	113.0454354	110.0033126	107.0645419	104.2810111	101.8473275	100.227507	99.94968751	99.92222563
190510A00019	5/10/2019	2.39	5/10/2022	8/10/2021	104.88873	104.050895	103.2264233	102.4149905	101.6162932	100.832049	100.1373714	99.95803008	99.92776749
190513A00033	5/13/2019	2.35	5/15/2023	5/13/2022	111.01993	109.0578473	107.1405539	105.2667032	103.4387611	101.7037805	100.2570942	99.25433014	98.47011406
190513A00065	5/13/2019	2.01	5/13/2022	8/13/2021	104.72688	103.8793049	103.045415	102.2248781	101.4174207	100.6300544	100.0271542	99.94667341	99.90802657
190516A00018	5/16/2019	2.03	5/16/2024	8/16/2021	116.05792	112.8935698	109.8322775	106.8769609	104.0891017	101.6833695	100.1500982	99.92768833	99.88086543
190516A00028	5/16/2019	2.03	5/16/2024	8/16/2021	116.05792	112.8935698	109.8322775	106.8769609	104.0891017	101.6833695	100.1500982	99.92768833	99.88086543
190522A00029	5/22/2019	2.41	5/22/2024	5/22/2023	117.29017	114.0884293	110.9911188	107.9950626	105.1190796	102.4666118	100.1905666	98.27840497	96.55162857
190523A00048	5/23/2019	2.32	5/23/2024	5/23/2023	117.03576	113.8346051	110.7379552	107.7429502	104.8734416	102.2433867	100.0006005	98.10907164	96.38737564
190523A00050	5/23/2019	2.3	5/23/2023	5/23/2022	111.04085	109.0545098	107.1137845	105.2173119	103.3647915	101.5951432	100.1489856	99.1737889	98.37749309
190529A00115	5/29/2019	1.92	5/29/2024	8/30/2021	115.92138	112.7177106	109.619348	106.6319493	103.8327879	101.4661933	100.0519587	99.88816539	99.81098452
190530A00057	5/30/2019	1.71	5/30/2024	8/30/2021	115.76497	112.5497671	109.4406176	106.4449962	103.6508001	101.3223293	100.024199	99.87202827	99.78645821
190530A00092	5/30/2019	1.69	5/30/2024	8/30/2021	115.70427	112.4899696	109.381722	106.3875108	103.5980956	101.2831017	100.0149765	99.87031078	99.7847422
190530A00108	5/30/2019	1.88	5/30/2024	8/30/2021	115.815	112.6097364	109.5099449	106.522233	103.7294124	101.3859857	100.0204381	99.87534735	99.78988969
190603A00067	6/3/2019	1.72	6/3/2024	9/3/2021	115.38596	112.174517	109.0693157	106.0816809	103.3210832	101.0896946	99.97662132	99.82267886	99.72653337
190605A00032	6/5/2019	1.92	6/3/2022	9/3/2021	104.90085	103.989463	103.0938543	102.2136135	101.3485421	100.5166375	99.97028661	99.84688827	99.75067052
190606A00030	6/6/2019	1.48	6/6/2024	9/7/2021	115.16235	111.9340297	108.8132357	105.8159786	103.0725657	100.9150961	99.94701671	99.80886515	99.7042738
190606A00032	6/6/2019	1.75	6/6/2024	9/7/2021	115.51916	112.2962603	109.1802333	106.1816409	103.4055887	101.1465233	99.98547475	99.81474328	99.71037616
190606A00054	6/6/2019	1.8	6/6/2024	9/7/2021	115.67168	112.4464791	109.3281678	106.3258179	103.5366188	101.2413127	100.0081415	99.82000318	99.71563073
190607A00016	6/7/2019	1.75	6/7/2024	9/7/2021	115.53315	112.3068876	109.1877066	106.1862334	103.4077988	101.1468323	99.98437826	99.81113042	99.70402475

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190607A00022	6/7/2019	1.5	6/7/2024	9/7/2021	115.2372	112.0045826	108.8796993	105.8778073	103.125669	100.9493852	99.9514035	99.80666509	99.69933364
190607A00025	6/7/2019	1.48	6/7/2024	9/7/2021	115.176	111.944307	108.8203535	105.8202102	103.0743712	100.9148583	99.94525756	99.8045056	99.69717638
190610A00069	6/10/2019	2.04	6/10/2022	9/10/2021	105.12149	104.1874439	103.2699498	102.3685652	101.4829865	100.6253615	100.0005859	99.83883366	99.72342455
190613A00024	6/13/2019	2.18	6/13/2024	6/13/2023	116.93798	113.6715008	110.5135274	107.4622613	104.5544554	101.9206196	99.68433119	97.7725496	96.01001997
190702A00051	7/2/2019	1.46	7/2/2024	10/4/2021	115.45547	112.1401001	108.9378835	105.8681664	103.0727524	100.8978917	99.90333844	99.68375506	99.51104457
190703A00023	7/3/2019	1.9	6/30/2022	9/30/2021	105.34459	104.3472995	103.3688078	102.4085811	101.4663213	100.5609943	99.95476597	99.75881255	99.58877894
190712A00044	7/12/2019	1.73	7/12/2022	10/12/2021	105.46161	104.4250159	103.4087148	102.4121115	101.4353374	100.5120036	99.92081302	99.6906547	99.48807161
190712A00047	7/12/2019	1.54	7/12/2024	10/12/2021	115.84887	112.4944286	109.2553978	106.1484228	103.3031239	101.0410211	99.92034398	99.65178563	99.4492602
190725A00018	7/25/2019	1.78	7/25/2024	10/25/2021	116.31091	112.9179507	109.6427014	106.4982553	103.5978418	101.2368739	99.9561789	99.6217377	99.38428741
190725A00022	7/25/2019	1.7	7/25/2022	10/25/2021	105.63951	104.5613446	103.5050776	102.4700474	101.4565683	100.503382	99.89758082	99.63610362	99.39838422
190731A00008	7/31/2019	1.53	7/31/2024	8/2/2021	116.08711	112.6663641	109.3654632	106.20352	103.3177749	101.0341083	99.89091977	99.57851794	99.33007752
190801A00025	8/1/2019	1.68	8/1/2024	8/2/2021	116.08889	112.6767961	109.3840106	106.2284461	103.3443453	101.0576388	99.88916203	99.54756882	99.29139826
190805A00014	8/5/2019	1.49	8/5/2024	8/5/2022	116.02511	112.5897665	109.2753256	106.1034713	103.2205473	100.9138803	99.35874215	98.26892301	97.29830687
190807A00035	8/7/2019	1.45	8/7/2024	8/9/2021	115.4249	112.0047759	108.7054552	105.5582792	102.7484948	100.6662064	99.96387842	99.94471788	99.9255749
190807A00056	8/7/2019	1.49	8/7/2024	8/9/2021	115.55453	112.1323409	108.8308769	105.6788887	102.8522193	100.7301977	99.96465468	99.9454935	99.92634987
190809A00026	8/9/2019	1.52	8/9/2024	8/9/2021	115.67791	112.2475554	108.9382919	105.7772389	102.9338928	100.7793714	99.96405846	99.93334555	99.90589769
190812A00020	8/12/2019	1.47	8/12/2024	8/12/2021	115.55433	112.116666	108.8007984	105.6373682	102.8081519	100.6977161	99.95460977	99.91882446	99.8830801
190812A00026	8/12/2019	1.48	8/12/2024	8/12/2021	115.58689	112.1487065	108.8322976	105.6676538	102.8342079	100.7138649	99.95497015	99.91918454	99.88343987
190812A00027	8/12/2019	1.71	8/12/2024	8/12/2022	116.33581	112.8856419	109.5569808	106.3673024	103.4471399	101.0733984	99.44929336	98.32406135	97.33586205
190814A00019	8/14/2019	1.46	8/14/2024	8/16/2021	115.54755	112.103811	108.7822996	105.6145655	102.7852633	100.6819462	99.95261683	99.91406419	99.87555693
190820A00068	8/20/2019	1.39	8/20/2024	8/20/2021	115.39527	111.9354199	108.5992352	105.4241582	102.6135142	100.573562	99.93709711	99.87917287	99.82132932
190821A00024	8/21/2019	1.65	8/21/2024	8/22/2022	116.26177	112.7848473	109.4313061	106.222285	103.3016323	100.954658	99.3585105	98.23267951	97.22976998
190821A00046	8/21/2019	1.44	8/21/2024	8/23/2021	115.57215	112.1063516	108.7642908	105.5798145	102.7441606	100.6502556	99.94001269	99.88208829	99.82424457
190823A00023	8/23/2019	1.37	8/23/2024	8/23/2021	115.36752	111.8988415	108.5545266	105.3740483	102.5664074	100.5430768	99.93028571	99.86406606	99.7979445
190828A00011	8/28/2019	1.1	8/28/2024	8/30/2021	115.04295	111.5518657	108.1875304	105.0026096	102.2446998	100.3623458	99.91320708	99.83582593	99.75856969
190828A00021	8/28/2019	1.36	8/28/2024	8/30/2021	115.39759	111.9129629	108.553799	105.3611678	102.547923	100.5284599	99.92199063	99.84471815	99.76756913
190830A00028	8/30/2019	1.39	8/30/2024	8/30/2021	115.52212	112.0292924	108.6622435	105.4599145	102.6280308	100.5727096	99.91883935	99.83327361	99.74785196
190909A00021	9/9/2019	1.2	9/9/2024	9/9/2021	115.52463	111.9881447	108.5807438	105.3490567	102.519905	100.5169129	99.88199463	99.7640088	99.6512393
190911A00012	9/11/2019	1.27	9/11/2024	9/13/2021	115.78464	112.2376009	108.8198048	105.5720292	102.7037216	100.6210235	99.89145614	99.76701952	99.65150737
190917A00040	9/17/2019	1.63	9/17/2024	9/17/2021	116.55744	112.9914002	109.5545323	106.2720599	103.3018679	100.9914007	99.93286548	99.75877212	99.62432978
190924A00014	9/24/2019	1.54	9/24/2024	9/24/2021	116.34604	112.7615879	109.3080403	106.0171045	103.06778	100.8317184	99.89389122	99.71729087	99.56375287
191008A00020	10/8/2019	1.58	10/8/2024	10/11/2022	116.66908	113.0344184	109.5338182	106.1984585	103.2001321	100.8155507	99.14762922	97.90686057	96.78734771
191008A00028	10/11/2019	1.08	10/8/2024	10/8/2021	115.4777	111.8501228	108.3592881	105.0704749	102.2546871	100.3706768	99.77804091	99.57943559	99.38786462

	Parallel-Shift Sensitivity Analysis												
7/30/2021					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191011A00020	10/11/2019	1.53	10/11/2024	10/12/2021	116.53759	112.8953701	109.3880774	106.0508071	103.0716414	100.8291432	99.856505	99.6202154	99.4208051
191017A00012	10/17/2019	1.43	10/17/2022	10/18/2021	106.62775	105.2771415	103.9605157	102.6766377	101.4331179	100.3539879	99.83568991	99.61587753	99.40527584
191029A00020	10/29/2019	1.51	10/31/2022	8/2/2021	106.9372	105.5416693	104.1819153	102.8566075	101.5722217	100.4379953	99.83600119	99.57348936	99.32505733
191121A00031	11/21/2019	1.54	11/21/2024	11/21/2022	117.66065	113.8547034	110.1936274	106.7087307	103.5650716	101.0275431	99.20554073	97.82760317	96.58309607
191209A00045	12/9/2019	1.56	12/9/2024	12/9/2022	117.97811	114.1082655	110.3876842	106.8494698	103.6602773	101.0776622	99.20158054	97.76817683	96.47283971
191211A00013	12/11/2019	1.57	12/11/2024	12/12/2022	118.04228	114.1646286	110.4367337	106.8911795	103.6933103	101.1011021	99.21801944	97.78205784	96.48625958
200128A00045	1/28/2020	1.45	1/28/2025	10/28/2021	117.65878	113.645795	109.7963574	106.1729864	103.0171104	100.7323426	99.79994828	99.52909094	99.2837987
200130A00029	1/30/2020	1.3	1/30/2023	11/1/2021	107.79319	106.1759967	104.5917214	103.0400158	101.5460823	100.3153874	99.77622242	99.52067584	99.27233211
200131A00023	1/31/2020	1.56	1/31/2025	1/31/2023	118.11453	114.083318	110.2155738	106.5631973	103.3299358	100.7523174	98.84107942	97.30719472	95.89127038
200207A00008	2/7/2020	1.35	2/7/2025	2/7/2023	117.99623	113.9282829	110.0276049	106.3565376	103.1363649	100.5930912	98.7020318	97.1610477	95.72625472
200221A00040	2/21/2020	1.28	2/21/2025	8/23/2021	117.31713	113.2303176	109.3161305	105.6650282	102.5720334	100.4744298	99.93069756	99.87278088	99.81494487
200221A00041	2/21/2020	1.53	2/21/2025	2/21/2023	118.28089	114.1759294	110.2405572	106.5340385	103.27047	100.6766714	98.73829699	97.1583916	95.68929835
200221A00045	2/21/2020	1.03	2/21/2025	8/23/2021	116.946	112.8505662	108.9309871	105.2963262	102.2751622	100.3292616	99.92754355	99.8695157	99.81156995
200227A00018	2/27/2020	0.99	2/27/2025	2/28/2022	116.86467	112.7505967	108.8150602	105.1753336	102.1727271	100.2215631	99.311411	98.72641055	98.16599483
200227A00024	2/27/2020	0.85	2/27/2025	8/27/2021	116.32087	112.2172176	108.2956787	104.6998791	101.8142016	100.131167	99.89379457	99.81642769	99.73918571
200227A00025	2/27/2020	1.09	2/27/2025	2/27/2023	117.2531	113.131615	109.1866363	105.5182196	102.4010944	100.0076572	98.19585853	96.64311575	95.16429216
200228A00090	2/28/2020	1	2/28/2025	8/30/2021	116.34807	112.2554803	108.3426562	104.7466312	101.8482531	100.1431207	99.89405358	99.81680833	99.7396865
200228A00095	2/28/2020	1.15	2/28/2023	8/30/2021	107.7686	106.0648753	104.396894	102.7649858	101.2251242	100.1098392	99.90651273	99.82924949	99.75210978
200228A00096	2/28/2020	1.28	2/28/2022	8/30/2021	103.0116	102.3947577	101.7852725	101.1830046	100.588256	100.0560929	99.91904772	99.84174979	99.76457572
200303A00035	3/3/2020	0.81	3/3/2025	3/3/2023	116.21071	112.0960836	108.1666981	104.5761527	101.6412636	99.43084033	97.70486028	96.16596403	94.6828084
200306A00069	3/6/2020	0.58	3/6/2025	3/7/2022	115.34584	111.2383557	107.3263731	103.822579	101.1974221	99.74143782	99.01859155	98.4302776	97.8530209