

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												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160608A00026	6/8/2016	2.36	6/8/2026	6/8/2016	104.50003	101.5149804	98.63492547	95.85553385	93.17267739	90.58242414	88.08102755	85.66491649	83.33068578
160608A00031	6/8/2016	2.36	6/8/2026	6/8/2016	104.50003	101.5149804	98.63492546	95.85553381	93.17267732	90.58242404	88.08102743	85.66491634	83.3306856
160608A00032	6/8/2016	2.36	6/8/2026	6/8/2016	104.50003	101.5149804	98.63492547	95.85553383	93.17267737	90.58242411	88.08102751	85.66491645	83.33068573
170406A00031	4/6/2017	3.01	4/6/2027	4/6/2017	108.61749	104.8518052	101.24564	97.79128657	94.48145713	91.3092563	88.26815733	85.35198033	82.55487172
180508A00038	5/8/2018	3.57	5/9/2033	5/8/2018	115.34825	109.7114383	104.4646408	99.57623071	95.01742966	90.76202668	86.78613014	83.06794524	79.58757445
220322A00009	3/22/2022	1.87	3/22/2023	3/22/2022	100.06196	100.0010138	99.94015618	99.87938636	99.81870413	99.75810931	99.69760172	99.63718116	99.57684746
220324A00006	3/24/2022	1.9	3/20/2023	3/24/2022	100.05799	100.0025806	99.94724699	99.89199014	99.83680989	99.78170608	99.72667856	99.67172716	99.61685174
220425A00007	4/25/2022	2.34	4/25/2023	4/25/2022	100.20952	100.054622	99.90020727	99.74627446	99.59282133	99.43984564	99.28734517	99.13531772	98.98376109
220511A00001	5/11/2022	2.38	5/8/2023	5/11/2022	100.25738	100.066647	99.87664659	99.68737624	99.49883171	99.3110088	99.12390332	98.93751114	98.75182816
220518A00017	5/18/2022	2.47	5/18/2023	5/18/2022	100.30721	100.088932	99.87161908	99.6552613	99.43985232	99.22538587	99.01185572	98.79925569	98.58757968
220601A00021	6/1/2022	2.48	6/1/2023	6/1/2022	100.35472	100.0979502	99.8424922	99.58833316	99.3354633	99.08387286	98.83355221	98.58449178	98.33668213
220601A00027	6/1/2022	2.16	3/1/2023	6/1/2022	100.00349	100.0007155	99.99794616	99.99517922	99.99241465	99.98965245	99.98689261	99.98413513	99.98138001
220602A00050	6/2/2022	2.41	6/2/2023	6/2/2022	100.38976	100.1296414	99.87087078	99.61343834	99.35733374	99.1025467	98.84906706	98.59688477	98.34598985
220608A00010	6/8/2022	2.33	3/8/2023	6/8/2022	100.03274	100.0105613	99.98840314	99.96626835	99.94415692	99.9220688	99.90000396	99.87796236	99.85594395
220614A00010	6/14/2022	3.46	6/14/2023	6/14/2022	100.67622	100.383296	100.0920857	99.8025742	99.51474663	99.22858823	98.94408444	98.66122089	98.37998334
220616A00037	6/16/2022	3.24	4/14/2023	6/16/2022	100.28689	100.1621956	100.0378277	99.91378236	99.79005843	99.66665457	99.5435695	99.42080197	99.29835072
220617A00045	6/17/2022	3.13	3/17/2023	6/17/2022	100.10734	100.0601865	100.0130988	99.96607246	99.91910746	99.87220364	99.82536088	99.77857905	99.73185804
220621A00021	6/21/2022	3.31	6/21/2023	6/21/2022	100.66935	100.3572661	100.0471219	99.73890113	99.43258576	99.12815815	98.82560084	98.5248966	98.22602839
220624A00028	6/24/2022	3.05	3/15/2023	6/24/2022	100.09138	100.0497732	100.0082224	99.96672344	99.92527632	99.8838809	99.84253709	99.80124478	99.76000389
220624A00029	6/24/2022	3.13	4/17/2023	6/24/2022	100.2901	100.1571288	100.0245229	99.89228145	99.76040298	99.62888596	99.49772888	99.36693022	99.23648851
220701A00032	7/1/2022	2.95	3/1/2023	7/1/2022	100.00568	100.0029067	100.0001357	99.99736703	99.99460076	99.99183686	99.98907533	99.98631617	99.98355936
220701A00034	7/1/2022	3.04	3/31/2023	7/1/2022	100.18715	100.1012108	100.0154167	99.9297677	99.84426329	99.75890316	99.67368697	99.58861438	99.50368504
220715A00023	7/15/2022	3.36	3/31/2023	7/15/2022	100.21469	100.1287222	100.0429046	99.95723201	99.8717041	99.78632051	99.7010809	99.61598493	99.53103225
220720A00031	7/20/2022	3.4	3/20/2023	7/20/2022	100.14127	100.085794	100.0303959	99.97507468	99.91983015	99.86466215	99.80957052	99.75455511	99.69961576
220721A00010	7/21/2022	3.42	4/21/2023	7/21/2022	100.35314	100.209074	100.0654368	99.92222185	99.77942743	99.63705162	99.49509257	99.35354845	99.21241743
220725A00012	7/25/2022	3.34	3/24/2023	7/25/2022	100.16553	100.0989712	100.032514	99.9661563	99.89989791	99.83373861	99.76767818	99.70171642	99.63585311
220726A00056	7/26/2022	3.37	4/26/2023	7/26/2022	100.37736	100.2194916	100.0621199	99.90524619	99.74886828	99.5929838	99.43759043	99.28268585	99.12826778
220726A00058	7/26/2022	3.38	7/26/2023	7/26/2022	100.86163	100.4537076	100.0490833	99.64771932	99.24957652	98.85461617	98.4628002	98.07409115	97.68845216
220728A00069	7/28/2022	3.25	7/24/2023	7/28/2022	100.79973	100.3973941	99.99827016	99.60232276	99.20951407	98.81980682	98.43316434	98.04955053	97.66892987
220811A00002	8/11/2022	3.5	8/11/2023	8/11/2022	100.98997	100.5382765	100.0906314	99.64697938	99.20726703	98.77144191	98.33945253	97.91124828	97.48677946
220815A00005	8/15/2022	3.52	8/15/2023	8/15/2022	101.01446	100.5519134	100.0936151	99.63950257	99.18951842	98.74360641	98.30171131	97.86377889	97.42975588
220826A00030	8/26/2022	3.49	3/27/2023	8/26/2022	100.19674	100.1218734	100.0471228	99.97249019	99.89797543	99.82357819	99.74929822	99.67513523	99.60108898
220831A00035	8/31/2022	3.65	3/31/2023	8/31/2022	100.23964	100.1536544	100.0678155	99.98212154	99.89657233	99.81116748	99.72590665	99.64078948	99.55581565

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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220831A00084	8/31/2022	3.84	8/30/2023	8/31/2022	101.24598	100.7422298	100.2434894	99.74968215	99.26073509	98.77657681	98.29713725	97.82234772	97.35214085
220901A00003	9/1/2022	3.74	6/1/2023	9/1/2022	100.67964	100.4223147	100.1663033	99.9115931	99.65817424	99.40603695	99.15517159	98.90556859	98.65721848
220908A00027	9/8/2022	3.87	7/10/2023	9/8/2022	100.96627	100.6016444	100.2396576	99.88028376	99.52349468	99.16926242	98.81755946	98.4683587	98.12163341
220912A00017	9/12/2022	3.89	6/12/2023	9/12/2022	100.78961	100.5019422	100.2159292	99.93155321	99.64880014	99.36765606	99.0881072	98.81013993	98.53374081
220914A00019	9/14/2022	4.25	8/14/2023	9/14/2022	101.35154	100.8907278	100.4341221	99.98166075	99.53328738	99.0889466	98.64858404	98.21214628	97.7795809
220914A00052	9/14/2022	4.29	9/11/2023	9/14/2022	101.55931	101.0221638	100.4907105	99.96485987	99.44452342	98.92961461	98.42004868	97.9157426	97.41661508
220921A00020	9/21/2022	4.38	6/21/2023	9/21/2022	101.00449	100.6917329	100.3809245	100.0720426	99.76506916	99.45998662	99.15677744	98.85542435	98.55591032
220921A00021	9/21/2022	4.47	9/21/2023	9/21/2022	101.73265	101.1679458	100.6095193	100.05727	99.51109577	98.97089646	98.4365743	97.90803361	97.38518077
220921A00025	9/21/2022	4.47	9/21/2023	9/21/2022	101.73265	101.1679458	100.6095193	100.05727	99.51109577	98.97089646	98.4365743	97.90803361	97.38518077
220921A00045	9/21/2022	4.47	9/21/2023	9/21/2022	101.73265	101.1679458	100.6095193	100.05727	99.51109577	98.97089646	98.4365743	97.90803361	97.38518077
220921A00093	9/21/2022	4.44	9/21/2023	9/21/2022	101.82669	101.2603102	100.7002454	100.1463929	99.59864941	99.05691405	98.52108814	97.99107515	97.46678065
220923A00017	9/23/2022	4.41	5/23/2023	9/23/2022	100.77544	100.5426966	100.3110395	100.0804581	99.85094493	99.62249254	99.39509357	99.16874071	98.94342674
220923A00019	9/23/2022	4.46	6/23/2023	9/23/2022	101.0426	100.724329	100.4080715	100.0938057	99.78151254	99.47117362	99.16277057	98.85628528	98.55169988
220923A00020	9/23/2022	4.54	8/23/2023	9/23/2022	101.5463	101.0606543	100.5796613	100.1032562	99.6313735	99.1639489	98.70091934	98.24222293	97.78779895
220926A00030	9/26/2022	4.4	4/26/2023	9/26/2022	100.54026	100.3821888	100.2246205	100.0675509	99.91097749	99.75489808	99.5993103	99.44421184	99.2896004
220926A00031	9/26/2022	4.44	5/26/2023	9/26/2022	100.80858	100.5675447	100.3276646	100.0889331	99.8513418	99.61488263	99.3795475	99.14532842	98.91221745
220926A00032	9/26/2022	4.49	6/26/2023	9/26/2022	101.0798	100.7532095	100.4287352	100.1063526	99.78604153	99.467782	99.15155437	98.83733924	98.52511744
220926A00033	9/26/2022	4.53	7/26/2023	9/26/2022	101.33307	100.9239878	100.5182128	100.115705	99.71642523	99.32033459	98.92739498	98.53756887	98.15081935
220926A00034	9/26/2022	4.58	8/28/2023	9/26/2022	101.60508	101.1057125	100.6112604	100.1216477	99.63680366	99.15665886	98.68114518	98.21019585	97.74374535
220926A00036	9/26/2022	4.68	9/26/2023	9/26/2022	101.89276	101.3140269	100.7418821	100.1762089	99.61689787	99.063842	98.51693671	97.97607972	97.44117102
220927A00037	9/27/2022	4.32	3/31/2023	9/27/2022	100.29729	100.2112565	100.1253681	100.0396249	99.95402652	99.86857255	99.78326268	99.69809656	99.61307386
220927A00066	9/27/2022	4.57	7/27/2023	9/27/2022	101.35742	100.9455538	100.5370394	100.1318345	99.72989885	99.33119306	98.93567828	98.5433163	98.15406951
220928A00054	9/28/2022	4.66	9/28/2023	9/28/2022	101.89744	101.3132945	100.7358575	100.1650091	99.60063712	99.04263172	98.49088558	97.94529377	97.40575369
220929A00026	9/29/2022	4.43	6/29/2023	9/29/2022	101.08418	100.7493733	100.4167778	100.0863743	99.75814139	99.4320577	99.10810223	98.78625426	98.46649331
221003A00030	10/3/2022	4.33	4/12/2023	10/3/2022	100.40504	100.2857441	100.1667419	100.0480354	99.9296236	99.81150527	99.69367933	99.57614464	99.45890012
221004A00029	10/4/2022	4.54	9/28/2023	10/4/2022	101.82707	101.2431651	100.6659599	100.0953415	99.5311976	98.97341845	98.42189672	97.87652752	97.33720827
221004A00030	10/4/2022	4.51	8/28/2023	10/4/2022	101.57001	101.0707464	100.5763953	100.0868829	99.60213844	99.12209251	98.64667701	98.17582516	97.70947147
221004A00031	10/4/2022	4.48	7/28/2023	10/4/2022	101.32798	100.913463	100.5023419	100.0945716	99.69011142	99.28892111	98.89096114	98.49619262	98.10457726
221004A00032	10/4/2022	4.44	6/28/2023	10/4/2022	101.07951	100.7474554	100.4175795	100.0898621	99.764282	99.44081841	99.11945077	98.80015879	98.48292243
221004A00033	10/4/2022	4.4	5/30/2023	10/4/2022	100.83335	100.5812624	100.3304355	100.0808561	99.832515	99.58540297	99.33951099	99.09483009	98.85135138
221004A00034	10/4/2022	4.35	4/28/2023	10/4/2022	100.54876	100.385185	100.2221415	100.0596278	99.89764129	99.73617945	99.57523976	99.41481973	99.25491685
221011A00017	10/11/2022	4.44	5/11/2023	10/11/2022	100.67781	100.4782278	100.2794453	100.0814607	99.8842692	99.68786601	99.49224632	99.2974054	99.10333857
221012A00047	10/12/2022	4.71	10/12/2023	10/12/2022	102.04839	101.425883	100.810994	100.2035817	99.60351012	99.01064641	98.424861	97.84602741	97.27402214

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221014A00006	10/14/2022	4.71	7/14/2023	10/14/2022	101.30683	100.9305165	100.5570095	100.1862788	99.81829342	99.45302282	99.09043691	98.73050606	98.37320107
221018A00023	10/18/2022	4.89	10/18/2023	10/18/2022	102.2072	101.5680506	100.9369175	100.3136533	99.6981111	99.09014783	98.4896238	97.89640276	97.3103518
221019A00032	10/19/2022	4.66	5/15/2023	10/19/2022	100.75906	100.548341	100.3385206	100.1295885	99.92153927	99.71436711	99.50806647	99.30263179	99.09805757
221020A00038	10/20/2022	4.95	8/21/2023	10/20/2022	101.733	101.2521892	100.7759392	100.3041827	99.83685621	99.37389737	98.91524501	98.46083911	98.01062077
221021A00012	10/21/2022	4.92	7/21/2023	10/21/2022	101.44449	101.0488	100.6562114	100.2666839	99.88018167	99.49666955	99.11611281	98.73847729	98.36372935
221021A00013	10/21/2022	5.01	9/21/2023	10/21/2022	102.03888	101.473177	100.9137666	100.3605412	99.8133986	99.2722386	98.73696329	98.2074769	97.68368571
221021A00020	10/21/2022	4.92	7/21/2023	10/21/2022	101.44449	101.0488	100.6562114	100.2666839	99.88018167	99.49666955	99.11611281	98.73847729	98.36372935
221024A00016	10/24/2022	4.8	5/24/2023	10/24/2022	100.876	100.6403546	100.4058135	100.1723727	99.94002452	99.70876129	99.47857539	99.2494593	99.02140555
221026A00018	10/26/2022	4.78	5/5/2023	10/26/2022	100.68776	100.5046921	100.3222912	100.1405576	99.95948744	99.77907717	99.59932315	99.42022179	99.24176951
221027A00045	10/27/2022	4.83	6/27/2023	10/27/2022	101.2001	100.8705338	100.5431119	100.2178161	99.89462592	99.57352087	99.25448087	98.93748606	98.62251684
221028A00038	10/28/2022	4.8	5/3/2023	10/28/2022	100.672	100.494462	100.3175531	100.1412688	99.96560597	99.79056121	99.61613129	99.442313	99.26910311
221028A00039	10/28/2022	4.88	8/2/2023	10/28/2022	101.53802	101.1093342	100.6842698	100.2627798	99.84481938	99.43034425	99.01931096	98.61167678	98.20739967
221028A00041	10/28/2022	4.94	10/25/2023	10/28/2022	102.30792	101.6494834	100.9995415	100.3579339	99.72450071	99.09908624	98.48153869	97.87171007	97.2694561
221031A00014	10/31/2022	4.9	6/30/2023	10/31/2022	101.25109	100.91319	100.5775352	100.2441081	99.91288637	99.5838484	99.25697266	98.93223797	98.60962339
221102A00034	11/2/2022	4.99	8/2/2023	11/2/2022	101.58524	101.1564331	100.7312487	100.3096395	99.89156049	99.47696753	99.06581715	98.65806658	98.25367378
221103A00038	11/3/2022	4.92	6/2/2023	11/3/2022	100.99326	100.7326507	100.4733879	100.2154583	99.95885154	99.70355749	99.44956613	99.19686754	98.94545188
221103A00039	11/3/2022	4.99	7/3/2023	11/3/2022	101.30876	100.9625271	100.618662	100.2771401	99.93793751	99.60103062	99.26639619	98.93401129	98.60385327
221116A00024	11/16/2022	4.99	11/16/2023	11/16/2022	102.538	101.8195322	101.1111682	100.4126962	99.72390963	99.04460757	98.37459469	97.71368099	97.06168161
221118A00006	11/18/2022	4.92	5/30/2023	11/18/2022	100.96456	100.7122591	100.4612133	100.2114159	99.96285766	99.71552933	99.46942188	99.22452633	98.9808338
221118A00009	11/18/2022	5.05	8/30/2023	11/18/2022	101.85882	101.3532754	100.8527509	100.3571722	99.8664664	99.38056189	98.89938846	98.42287726	97.95096079
221118A00051	11/18/2022	5.01	7/31/2023	11/18/2022	101.57564	101.1523083	100.7325009	100.3161747	99.90328681	99.49379472	99.08765675	98.68483185	98.28527966
221122A00010	11/22/2022	5.16	11/22/2023	11/22/2022	102.71695	101.9816689	101.2569526	100.5425751	99.83831577	99.1439604	98.45930073	97.78413432	97.11826435
221123A00027	11/23/2022	5.15	8/23/2023	11/23/2022	101.84348	101.356987	100.8751551	100.3979169	99.92520688	99.45696064	98.99311507	98.53360822	98.07837931
221128A00048	11/28/2022	5.08	6/28/2023	11/28/2022	101.29236	100.9598638	100.6295501	100.3013969	99.97538323	99.6514882	99.32969123	99.00997202	98.69231052
221129A00022	11/29/2022	5.16	11/29/2023	11/29/2022	102.78271	102.0283874	101.2851695	100.5528116	99.83107672	99.11973477	98.41856216	97.72734172	97.04586243
221129A00030	11/29/2022	5.1	7/27/2023	11/29/2022	101.57615	101.1637499	100.7546992	100.3489612	99.94649572	99.54726321	99.15122482	98.75834231	98.36857805
221129A00031	11/29/2022	5.13	8/23/2023	11/29/2022	101.83374	101.3472712	100.8654668	100.3882559	99.915573	99.4473537	98.98353488	98.5240546	98.06885209
221130A00011	11/30/2022	5.19	11/27/2023	11/30/2022	102.78647	102.0374979	101.2994797	100.572173	99.85534538	99.14877133	98.45223167	97.76551346	97.08840974
221205A00055	12/5/2022	5.1	9/5/2023	12/5/2022	101.9402	101.4181242	100.9014092	100.3899695	99.8837245	99.38259515	98.88650414	98.39537566	97.90913542
221208A00095	12/8/2022	5.12	10/13/2023	12/8/2022	102.314	101.6878579	101.0694096	100.4585107	99.85502326	99.25881271	98.66974766	98.08769991	97.5125443
221219A00004	12/19/2022	4.99	7/19/2023	12/19/2022	101.45405	101.0637937	100.6765524	100.2922905	99.91097371	99.53256809	99.15704028	98.78435745	98.41448724
221220A00001	12/20/2022	5.03	8/21/2023	12/20/2022	101.77153	101.2906144	100.8142565	100.3423929	99.87496	99.41189548	98.95313817	98.49862803	98.04830615
221223A00012	12/23/2022	4.99	7/24/2023	12/23/2022	101.50342	101.0993734	100.6985477	100.3009086	99.90641805	99.5150388	99.12673404	98.74146758	98.3592038

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221228A00038	12/28/2022	5.11	12/28/2023	12/28/2022	103.00153	102.1688591	101.3497	100.5437266	99.75062179	98.9700788	98.20180042	97.44549879	96.700895
221228A00041	12/28/2022	5.08	7/28/2023	12/28/2022	101.57726	101.1621283	100.7503933	100.3420129	99.9369462	99.53515302	99.13659377	98.74122952	98.34902194
221230A00030	12/30/2022	5.15	12/26/2023	12/30/2022	103.02472	102.1971678	101.3829594	100.5817776	99.79331126	99.01725876	98.25332812	97.50123642	96.76070953
221230A00033	12/30/2022	5.11	8/30/2023	12/30/2022	101.88921	101.3835752	100.8829622	100.3872957	99.89650266	99.41051156	98.92925215	98.45265558	97.98065434
221230A00103	12/30/2022	5.15	12/26/2023	12/30/2022	103.02472	102.1971678	101.3829594	100.5817776	99.79331126	99.01725876	98.25332812	97.50123642	96.76070953
221230A00107	12/30/2022	5.12	10/2/2023	12/30/2022	102.20472	101.6087306	101.0197006	100.4375114	99.86204426	99.29318324	98.73081494	98.17482857	97.62511588
230103A00096	1/3/2023	5.09	8/3/2023	1/3/2023	101.63748	101.2058149	100.7778217	100.3534514	99.93265842	99.51539746	99.10162421	98.69129505	98.28436707
230104A00009	1/4/2023	5.11	10/5/2023	1/4/2023	102.23273	101.6284644	101.0313601	100.4412895	99.85812879	99.28175687	98.71205553	98.14890928	97.59220527
230112A00053	1/12/2023	5.13	8/3/2023	1/12/2023	101.65476	101.2230516	100.7950142	100.3706	99.94976337	99.53245904	99.11864269	98.70827069	98.30130013
230117A00010	1/17/2023	5.14	12/15/2023	1/17/2023	102.90719	102.1096211	101.32447	100.5514464	99.79027029	99.04067026	98.30238303	97.57515333	96.85873349
230117A00086	1/17/2023	5.11	8/18/2023	1/17/2023	101.78203	101.309231	100.8408394	100.3767943	99.91703515	99.46150264	99.0101385	98.56288556	98.11968767
230119A00015	1/19/2023	5.08	8/17/2023	1/19/2023	101.75396	101.2840142	100.8184199	100.3571214	99.90005904	99.44717467	98.99841097	98.55371173	98.11302174
230119A00016	1/19/2023	5.08	9/14/2023	1/19/2023	102.01345	101.4667677	100.9259636	100.3909428	99.86161274	99.33788265	98.81966383	98.30686941	97.79941433
230119A00017	1/19/2023	5.09	10/12/2023	1/19/2023	102.28585	101.6625054	101.0467864	100.4385514	99.83766417	99.24399183	98.65740473	98.07777627	97.50498286
230119A00021	1/19/2023	5.1	10/26/2023	1/19/2023	102.41647	101.7550231	101.1021419	100.4576627	99.82142379	99.19326769	98.57304085	97.96059362	97.35578007
230120A00048	1/20/2023	5.1	1/16/2024	1/20/2023	103.16403	102.2799916	101.4111734	100.5571865	99.71765238	98.89220571	98.08049319	97.28217333	96.49691589
230124A00027	1/24/2023	5.1	7/25/2023	1/24/2023	101.55732	101.150417	100.7467775	100.3463668	99.94914631	99.55507795	99.16412425	98.77624833	98.3914139
230124A00043	1/24/2023	5.15	1/24/2024	1/24/2023	103.2814	102.3755423	101.4856486	100.6112996	99.75208978	98.90762753	98.07753478	97.26144628	96.45900905
230125A00044	1/25/2023	5.1	1/22/2024	1/25/2023	103.21792	102.3176852	101.4332233	100.5641249	99.7099914	98.87043789	98.04509257	97.23359621	96.43560159
230130A00022	1/30/2023	5.15	1/30/2024	1/30/2023	103.3361	102.414034	101.5084885	100.6190259	99.74521994	98.88665921	98.04294665	97.21369889	96.39854564
230130A00048	1/30/2023	5.11	10/30/2023	1/30/2023	102.4671	101.794599	101.13094	100.4759532	99.82946936	99.1913235	98.56135497	97.9394072	97.3253276
230130A00097	1/30/2023	5.15	1/25/2024	1/30/2023	103.29052	102.3819635	101.489464	100.6125985	99.75095816	98.90414807	98.07178703	97.25350677	96.44895145
230131A00022	1/31/2023	5.09	1/31/2024	1/31/2023	103.28945	102.3649457	101.4570603	100.5653446	99.68936888	98.82871847	97.98299319	97.15180668	96.33478583
230131A00037	1/31/2023	5.14	11/30/2023	1/31/2023	102.77691	102.0199218	101.2741144	100.5392413	99.81506299	99.10134716	98.39786802	97.70440629	97.02074889
230131A00038	1/31/2023	5.14	12/29/2023	1/31/2023	103.0358	102.2002942	101.3783895	100.5697542	99.77406816	98.99102188	98.22031543	97.46165838	96.71476934
230131A00040	1/31/2023	5.09	1/31/2024	1/31/2023	103.28945	102.3649457	101.4570603	100.5653446	99.68936888	98.82871847	97.98299319	97.15180668	96.33478583
230207A00030	2/7/2023	5.23	12/7/2023	2/7/2023	102.91146	102.1351627	101.3706214	100.6175726	99.87575797	99.14492702	98.42483663	97.71525079	97.01594042
230203A00008	2/3/2023	5.13	10/3/2023	2/3/2023	102.2201	101.6213512	101.029633	100.4448194	99.86678993	99.29542691	98.73061539	98.17224305	97.6202001
230221A00014	2/21/2023	5.37	12/21/2023	2/21/2023	103.15024	102.3355704	101.5338319	100.7447166	99.96792732	99.20317632	98.45018466	97.70868201	96.97840627
230207A00032	2/7/2023	5.25	2/7/2024	2/7/2023	103.5131	102.5687635	101.6417469	100.7315741	99.83778821	98.95994853	98.09763018	97.25042324	96.41793213
230227A00023	2/27/2023	5.48	2/22/2024	2/27/2023	103.87196	102.8861317	101.9191285	100.9704141	100.039472	99.12580496	98.22893431	97.34839883	96.48375408
230221A00009	2/21/2023	5.31	9/21/2023	2/21/2023	102.209	101.6427499	101.0827928	100.5290252	99.98134461	99.4396509	98.90384607	98.37383429	97.84952178
230221A00011	2/21/2023	5.32	10/23/2023	2/21/2023	102.53906	101.8851552	101.2396188	100.6022921	99.97301908	99.35164737	98.73802858	98.13201796	97.53347438

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230221A00013	2/21/2023	5.34	11/21/2023	2/21/2023	102.83983	102.1067258	101.3841212	100.6717866	99.96950398	99.27706107	98.59425173	97.92087551	97.2567375
230207A00031	2/7/2023	5.2	10/6/2023	2/7/2023	102.29089	101.6837953	101.0839303	100.4911626	99.90536658	99.3264196	98.75420182	98.18859621	97.62948844
230221A00016	2/21/2023	5.39	1/22/2024	2/21/2023	103.4803	102.5787799	101.6930506	100.8227004	99.96733026	99.12655505	98.30000264	97.48731351	96.68814016
230228A00029	2/28/2023	5.51	2/28/2024	2/28/2023	103.97214	102.9697532	101.986806	101.0227369	100.0770047	99.14908896	98.23848855	97.3447211	96.46732201
150601A00342	6/1/2015	3.97	8/26/2033	6/1/2015	116.43388	110.9777208	105.8961295	101.1586723	96.73767039	92.6079302	88.74650103	85.13245817	81.74670832
150601A00439	6/1/2015	2.57	3/18/2024	6/1/2015	100.58257	100.0566294	99.53820152	99.02710609	98.52317026	98.02622696	97.53611458	97.05267678	96.57576222
150601A00440	6/1/2015	3.27	3/16/2029	6/1/2015	107.26464	104.2264838	101.3194854	98.53675218	95.87180591	93.31855565	90.87127197	88.52456296	86.2733521
150601A00450	6/1/2015	3.28	4/27/2029	6/1/2015	107.44735	104.3505189	101.3894596	98.55693678	95.84615439	93.25072811	90.76465742	88.38229989	86.09834739
150601A00460	6/1/2015	3.05	5/16/2029	6/1/2015	106.81205	103.7046457	100.7344968	97.89424133	95.17696673	92.57618148	90.08578665	87.70004943	85.41357865
150601A00506	6/1/2015	3.14	7/6/2029	6/1/2015	107.27091	104.083527	101.0396415	98.13141846	95.35151154	92.69302913	90.14950299	87.71485934	85.38339213
150601A00528	6/1/2015	3.08	7/27/2029	6/1/2015	107.15032	103.9393983	100.8741046	97.94643132	95.14887671	92.47440595	89.91641904	87.46872091	85.12549374
150601A00559	6/1/2015	3.06	8/31/2029	6/1/2015	107.20557	103.9464819	100.8371012	97.86910561	95.03469763	92.32657031	89.7378732	87.26218059	84.89346232
150601A00684	6/1/2015	2.25	2/7/2025	6/1/2015	100.75169	99.7935655	98.85375452	97.93174292	97.02703595	96.1391572	95.26764773	94.41206527	93.57198347
160603A00015	6/3/2016	1.95	6/5/2023	6/3/2016	100.22193	99.95528895	99.69006652	99.42625534	99.16384414	98.90282178	98.64317724	98.38489962	98.12797811
160628A00006	6/28/2016	1.44	6/28/2023	6/28/2016	100.07371	99.86410533	99.65554035	99.44800671	99.24149602	99.03599996	98.83151031	98.62801894	98.42551784
161222A00035	12/22/2016	2.29	12/22/2023	12/22/2016	100.41951	99.96193055	99.50958437	99.06237616	98.62020878	98.18298768	97.7506208	97.3230185	96.90009344
161222A00037	12/22/2016	3.08	12/22/2031	12/22/2016	110.30645	105.8091455	101.5796919	97.59911379	93.84994073	90.31607926	86.98269422	83.8361012	80.86366888
170921A00056	9/21/2017	2.82	9/21/2027	9/21/2017	108.88795	104.7454294	100.7947131	97.02578056	93.42919022	89.99604379	86.71795192	83.58700226	80.59572968
180321A00015	3/21/2018	3.02	3/21/2025	3/21/2018	102.1352	100.8659837	99.62388966	98.40811944	97.21790287	96.05249877	94.91119356	93.79330006	92.69815627
180322A00030	3/22/2018	2.79	3/24/2025	3/22/2018	101.71464	100.6375215	99.58176968	98.54677513	97.53195007	96.53672867	95.56056601	94.60293712	93.66333606
180329A00011	3/29/2018	2.77	3/29/2023	3/29/2018	100.15335	100.0729812	99.99274266	99.91263531	99.83265882	99.75281287	99.67309717	99.59351141	99.51405529
201119A00023	11/23/2020	2.23	11/21/2030	11/23/2020	111.69202	104.0835284	97.05288023	90.5530467	84.54106868	78.97768015	73.82697221	69.05608946	64.63495531
220315A00037	3/17/2022	2.63	3/16/2027	3/17/2022	107.80296	103.7932231	99.95628718	96.28377533	92.7677671	89.40076663	86.17567754	83.08577933	80.12470545
221212A00063	12/12/2022	4.45	12/12/2025	12/12/2022	109.64758	106.8389958	104.1179058	101.4810479	98.92530782	96.44770729	94.04539731	91.7156515	89.4558599
230112A00014	1/12/2023	4.09	1/12/2027	1/12/2023	112.95674	109.0193948	105.2439355	101.6228547	98.14903184	94.81571137	91.61648238	88.54525911	85.59626288
200318A00054	3/18/2020	1.56	3/18/2025	3/18/2020	100.6504	98.66481178	96.72818003	94.83898445	92.99576043	91.19709924	89.44164542	87.72809438	86.05519009
200327A00054	3/27/2020	0.9	3/27/2023	3/27/2020	100.00262	99.92790437	99.85330393	99.77882131	99.70445625	99.63020848	99.55607773	99.48206374	99.40816624
220915A00041	9/15/2022	4.28	5/15/2024	9/15/2022	103.26006	102.0596607	100.8872802	99.7419447	98.62272459	97.5287324	96.45912051	95.41307896	94.38983335
221108A00036	11/8/2022	4.95	11/7/2025	11/8/2022	110.57885	107.8528818	105.2092868	102.6450439	100.157266	97.74319191	95.40017996	93.12570194	90.91733724
221110A00064	1/17/2023	4.25	1/14/2028	1/17/2023	117.60621	112.5651889	107.7762549	103.225446	98.899646	94.78652755	90.87450069	87.15266506	83.61076552
230120A00022	1/20/2023	3.9	1/20/2028	1/20/2023	115.96909	110.951357	106.1858433	101.6585267	97.3562332	93.26658419	89.37794413	85.67937238	82.16057825
210706A00014	7/6/2021	1.15	6/26/2026	7/6/2021	101.04486	97.84651448	94.76534086	91.79644979	88.93517974	86.1770875	83.51793676	80.95368733	78.48048499
230131A00006	1/31/2023	4.23	2/2/2026	1/31/2023	109.60056	106.6544029	103.804229	101.0463871	98.3773865	95.79388809	93.29269699	90.87075542	88.52513598

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221208A00052	2/15/2023	4.01	2/15/2028	2/15/2023	116.75691	111.6481582	106.7994934	102.1962629	97.82471301	93.6719317	89.7257928	85.9749041	82.40855921
200325A00044	3/25/2020	1.7	12/23/2024	3/25/2020	100.64309	98.88255262	97.16109794	95.47760195	93.83098413	92.22020263	90.64425256	89.10216445	87.59300264
200327A00068	6/25/2020	0.93	6/26/2023	6/25/2020	99.915524	99.59132082	99.26921792	98.94919508	98.63123223	98.31530954	98.00140746	97.68950665	97.37958805
200421A00020	4/24/2020	0.83	3/15/2024	4/24/2020	99.220673	98.20258376	97.20524442	96.22802604	95.2703249	94.33156121	93.41117793	92.5086397	91.62343174
220512A00007	5/12/2022	2.91	5/13/2024	5/12/2022	101.58708	100.4025782	99.24567611	98.11541986	97.01089615	95.93123302	94.87559752	93.84319356	92.8332599
220727A00001	7/27/2022	3.39	7/27/2023	7/27/2022	100.87042	100.4597588	100.0524384	99.6484202	99.24766429	98.85013122	98.45578222	98.06457914	97.67648445
200611A00021	6/11/2020	0.72	6/11/2024	6/11/2020	98.898911	97.65736758	96.44280149	95.25433412	94.09112544	92.95237155	91.83730266	90.74518137	89.6753009
210201A00001	2/1/2021	0.77	12/16/2025	2/1/2021	99.437761	96.76187143	94.17069899	91.66107665	89.22997632	86.87450162	84.59188129	82.37946286	80.23470675
211227A00005	12/27/2021	1.61	12/18/2026	12/27/2021	103.31552	99.62672544	96.0891121	92.69568371	89.43981053	86.31520424	83.31589836	80.43622994	77.67082232
221219A00043	12/19/2022	4.07	12/17/2027	12/19/2022	116.46162	111.5230817	106.8283478	102.3640475	98.11761197	94.07722509	90.23177432	86.57080497	83.08447777
230214A00031	2/14/2023	4.31	2/14/2028	2/14/2023	118.22264	113.0810161	108.2005165	103.5664504	99.16502926	94.98330731	91.00912569	87.23106067	83.63837546
200327A00045	3/27/2020	2.24	3/27/2034	3/27/2020	118.27885	107.1789256	97.23866426	88.33000361	80.33966025	73.16735548	66.72426218	60.93164424	55.71966358
210121A00018	1/25/2021	0.5	8/25/2023	1/25/2021	99.571314	99.08590818	98.60521872	98.12917742	97.65771714	97.19077201	96.72827743	96.27017	95.81638754
220525A00020	5/25/2022	2.79	5/24/2024	5/25/2022	101.47753	100.2652811	99.08196191	97.92654227	96.79804369	95.69553304	94.61811985	93.56495398	92.53522328
221129A00044	11/29/2022	4.56	11/28/2025	11/29/2022	109.78765	107.0146449	104.326969	101.7214294	99.19498075	96.74471385	94.36784819	92.0617252	89.82380193
220909A00017	9/9/2022	3.85	9/9/2024	9/9/2022	103.65437	102.1450023	100.6653305	99.21455098	97.79188698	96.3965893	95.02793487	93.68522565	92.36778754
221027A00060	12/1/2022	4.46	12/1/2027	12/1/2022	118.14251	113.2077909	108.514168	104.0484762	99.79834478	95.75214626	91.89894673	88.22846053	84.73100788
210929A00012	3/16/2022	1.03	3/14/2025	3/16/2022	99.557755	97.59382805	95.67822667	93.80945333	91.98606785	90.20668467	88.46997037	86.77464128	85.11946127
220601A00023	6/1/2022	2.9	6/3/2024	6/1/2022	101.65816	100.4188031	99.20856293	98.0264164	96.87138873	95.74254997	94.63901239	93.55992809	92.5044868
200331A00018	3/31/2020	0.82	3/31/2023	3/31/2020	99.996126	99.91035024	99.82471981	99.73923407	99.65389269	99.56869531	99.4836416	99.39873122	99.31396381
201216A00004	12/16/2020	0.74	9/8/2025	12/16/2020	99.189628	96.77243952	94.4260107	92.14786366	89.93562279	87.78701012	85.69984065	83.67201789	81.70152971
221027A00046	10/27/2022	4.92	10/27/2023	10/27/2022	102.30589	101.642164	100.987068	100.3404366	99.70210625	99.07191779	98.44971592	97.83534934	97.22867056
230124A00004	1/24/2023	3.99	1/24/2028	1/24/2023	116.44357	111.4037787	106.6176736	102.0711267	97.75086674	93.64442472	89.74008173	86.02681999	82.49427741
230208A00036	2/8/2023	4.43	2/6/2026	2/8/2023	110.23281	107.2656916	104.3955321	101.6186309	98.93145005	96.33060572	93.81286074	91.37511741	89.01441064
230217A00036	2/17/2023	4.44	2/17/2028	2/17/2023	118.8955	113.72886	108.8248141	104.1685731	99.74625547	95.54482913	91.55205541	87.75643658	84.14716724
230202A00096	2/2/2023	3.81	2/2/2028	2/2/2023	115.64995	110.6050345	105.8155106	101.2670796	96.94631653	92.84061248	88.93812059	85.2277063	81.69890095
200826A00036	8/28/2020	0.88	7/28/2023	8/28/2020	99.832279	99.4214713	99.01403325	98.60992393	98.20910271	97.81152963	97.41716538	97.02597126	96.6379092
210407A00013	4/7/2021	1.23	4/7/2026	4/7/2021	101.05679	98.06562106	95.17793069	92.38955669	89.69652784	87.09505623	84.58152762	82.15249224	79.8046563
210914A00011	9/16/2021	0.52	9/18/2023	9/16/2021	99.502458	98.95299084	98.40957202	97.87210212	97.34048382	96.81462193	96.2944233	95.77979678	95.27065317
210928A00008	9/28/2021	1.35	9/28/2026	9/28/2021	102.03591	98.57989735	95.25883343	92.06672401	88.99787342	86.04687008	83.20857063	80.47808499	77.8507624
220325A00019	3/28/2022	2.86	3/23/2027	3/28/2022	108.78023	104.7325384	100.8596781	97.15315387	93.60492963	90.20740178	86.95337332	83.83602987	80.84891714
221215A00115	12/15/2022	4	12/15/2027	12/15/2022	116.10897	111.1841283	106.5022801	102.0500977	97.81505722	93.7853853	89.95000996	86.29851494	82.82109731
230109A00042	1/9/2023	4.07	12/20/2027	1/9/2023	116.49138	111.5440525	106.8413383	102.369806	98.11683682	94.07056721	90.21983981	86.5541575	83.06364088

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230209A00028	2/9/2023	4.9	12/9/2024	2/9/2023	106.31821	104.541507	102.8033321	101.102542	99.43803698	97.80875979	96.21369376	94.6518607	93.12231911
200415A00003	4/15/2020	0.77	4/14/2023	4/15/2020	99.978453	99.85409988	99.73006986	99.6063617	99.48297412	99.35990584	99.23715559	99.11472211	98.99260415
200427A00018	4/27/2020	1.51	4/27/2028	4/27/2020	104.65452	99.65394503	94.92097266	90.43989111	86.19599529	82.17551615	78.365556	74.75402861	71.32960377
200916A00023	9/16/2020	0.42	9/16/2024	9/16/2020	98.688467	97.19492436	95.73112896	94.29626313	92.88953889	91.51019647	90.15750306	88.8307516	87.52925965
220518A00009	5/18/2022	3.38	5/18/2028	5/18/2022	114.37452	109.072031	104.0521623	99.29827668	94.79480977	90.52719369	86.48178767	82.64581374	79.00729732
230131A00032	2/3/2023	4.17	7/30/2026	2/3/2023	111.39997	107.9395807	104.607418	101.3980443	98.30628213	95.32720021	92.45610047	89.68850564	87.02014766
200310A00040	3/10/2020	1.36	3/10/2028	3/10/2020	103.77673	98.9216708	94.32126074	89.96085345	85.82671558	81.9059692	78.186534	74.65707391	71.30694735
200320A00013	3/20/2020	1.25	3/20/2024	3/20/2020	99.849367	98.81198895	97.79604144	96.80086636	95.82583199	94.87033197	93.93378407	93.01562899	92.11532925
200708A00011	7/10/2020	2.87	7/10/2031	7/10/2020	117.86954	109.4281053	101.6690664	94.53338703	87.96743277	81.92244771	76.35408808	71.22200255	66.48945436
230216A00045	2/16/2023	4.43	5/16/2028	2/16/2023	119.7851	114.3495949	109.2015117	104.3240044	99.70131218	95.3186803	91.16228978	87.21919293	83.47725344
210611A00006	6/11/2021	1.85	6/11/2031	6/11/2021	109.40399	101.3752667	93.99759293	87.21472565	80.97555347	75.23360562	69.94660848	65.07608665	60.58700375
211206A00008	12/6/2021	1.24	12/6/2024	12/6/2021	99.795842	98.08645802	96.41418871	94.77792007	93.17658284	91.60914983	90.07463384	88.57208569	87.10059236
220722A00049	9/15/2022	3.25	9/15/2025	9/15/2022	105.57344	103.055926	100.6119148	98.23882138	95.93417157	93.69559348	91.52081261	89.4076472	87.35400373
221215A00082	12/15/2022	4.27	12/15/2025	12/15/2022	109.18081	106.370784	103.648571	101.0109041	98.45465981	95.97685038	93.57461706	91.24522346	88.98604955
200305A00039	3/5/2020	1.58	3/5/2030	3/5/2020	106.20221	99.44367813	93.16010722	87.31569911	81.87752646	76.81528936	72.10109317	67.70924621	63.61607544
210729A00006	7/29/2021	1.87	11/30/2032	7/29/2021	110.99481	101.5781513	93.04326255	85.30269663	78.27811271	71.89928113	66.10320514	60.83334188	56.03891093
211213A00011	12/13/2021	1.32	12/13/2024	12/13/2021	99.933445	98.20516012	96.51475042	94.86110108	93.24313979	91.65983491	90.11019347	88.59325942	87.10811184
220331A00010	3/31/2022	2.83	2/18/2026	3/31/2022	105.64397	102.7101148	99.87378216	97.13119887	94.47875813	91.91301252	89.43066603	87.02856648	84.70369843
220727A00009	7/27/2022	3.31	7/28/2025	7/27/2022	105.316	102.9307496	100.6120332	98.35762735	96.16539316	94.03327564	91.95929981	89.94156709	87.97825189
221129A00048	11/29/2022	4.56	12/1/2025	11/29/2022	109.8236	107.0419264	104.3460537	101.7327737	99.19902029	96.7418642	94.35850589	92.04626862	89.80259205
221221A00043	12/21/2022	4.26	12/19/2025	12/21/2022	109.19676	106.3758808	103.6434601	100.9962108	98.43099067	95.9447928	93.53473921	91.1980743	88.93215886
200324A00029	3/24/2020	1.86	3/24/2025	3/24/2020	101.28879	99.28101965	97.32296613	95.41306906	93.54983251	91.73181805	89.9576421	88.22597342	86.53553067
210309A00004	3/11/2021	0.87	11/25/2024	3/11/2021	99.131611	97.45680668	95.81787302	94.21372248	92.6433119	91.10564015	89.59974596	88.12470595	86.67963267
200220A00013	2/20/2020	2.09	12/14/2029	2/20/2020	109.47292	102.811537	96.60222343	90.81192803	85.41018314	80.3688877	75.66211165	71.26591757	67.15819779
201201A00002	12/1/2020	0.54	12/1/2023	12/1/2020	99.2796	98.53459382	97.80069526	97.07765799	96.36524262	95.66321675	94.97135469	94.28943725	93.6172515
201210A00021	12/10/2020	0.89	12/10/2027	12/10/2020	102.35946	97.7383802	93.34995401	89.18127484	85.22021932	81.45539778	77.8761057	74.47227863	71.23445038
210211A00005	2/11/2021	0.45	6/15/2023	2/11/2021	99.791613	99.49761776	99.20536142	98.91482843	98.62600351	98.33887157	98.0534177	97.76962716	97.48748538
220317A00026	5/3/2022	2.59	5/3/2027	5/3/2022	107.98031	103.8390699	99.88091846	96.09675113	92.47796993	89.0164513	85.70451699	82.53490691	79.50075392
200818A00018	3/31/2021	0.57	4/1/2024	3/31/2021	98.889547	97.82962767	96.7922339	95.77665433	94.78220757	93.80824038	92.85412612	91.9192635	91.00307526
210208A00004	2/11/2021	0.76	10/15/2025	2/11/2021	99.305425	96.79081987	94.35188024	91.98586897	89.69016731	87.46226857	85.2997724	83.20037951	81.16188668
210225A00006	2/25/2021	0.98	2/25/2026	2/25/2021	100.18875	97.31657732	94.54120315	91.85884214	89.26588047	86.75886541	84.33449714	81.98962109	79.72122065
210907A00010	9/7/2021	2.58	9/7/2040	9/7/2021	124.12357	107.4007105	93.25038355	81.25595721	71.07060699	62.40529428	55.01886376	48.70988038	43.30989333
220408A00014	4/8/2022	3.12	6/29/2026	4/8/2022	107.58203	104.2673015	101.0732293	97.99480051	95.02723343	92.16596889	89.40665893	86.7451559	84.1775021

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220712A00006	7/12/2022	3.36	7/12/2024	7/12/2022	102.51203	101.1654554	99.84303157	98.54416419	97.26827744	96.01481382	94.78323344	93.57301332	92.38364674
230118A00019	1/18/2023	3.59	1/18/2028	1/18/2023	115.58625	110.547626	105.7631383	101.2186223	96.90077262	92.79708883	88.89582263	85.18592888	81.65702003
230120A00079	1/20/2023	3.68	1/20/2028	1/20/2023	116.04337	110.9883365	106.1883806	101.6292693	97.29763932	93.18093684	89.26736385	85.54582907	82.00590212
230127A00096	1/27/2023	4.21	1/27/2026	1/27/2023	109.47612	106.548165	103.7151143	100.9733744	98.31951122	95.75023895	93.26241285	90.85302238	88.51918477
210420A00010	4/20/2021	1.08	12/12/2025	4/20/2021	100.29228	97.61455554	95.02121872	92.50910773	90.07520351	87.71661936	85.43059416	83.21448595	81.06576598
230118A00029	1/18/2023	3.81	1/18/2028	1/18/2023	115.5145	110.5129978	105.7627953	101.2499288	96.96128116	92.88452638	89.00807781	85.32104023	81.81316514
230203A00051	2/14/2023	4.64	2/14/2025	2/14/2023	106.58454	104.6253345	102.7125368	100.8447645	99.02068271	97.2390055	95.49849332	93.7979511	92.13622636
200415A00020	4/15/2020	0.86	4/15/2024	4/15/2020	99.159894	98.0626866	96.98958156	95.9397921	94.9125654	93.90718071	92.92294769	91.95920481	91.01531788
220601A00024	6/1/2022	3.09	6/2/2025	6/1/2022	104.35727	102.131522	99.96434621	97.85378064	95.79794249	93.79502756	91.84330629	89.94111997	88.08687713
221121A00052	11/21/2022	4.35	11/22/2027	11/21/2022	117.52381	112.628581	107.9716233	103.5399718	99.32144515	95.30459071	91.47863648	87.83344661	84.3594801
221129A00073	11/29/2022	4.39	12/2/2026	11/29/2022	113.63166	109.7914372	106.1048605	102.5648744	99.164796	95.89828903	92.7593435	89.74225673	86.8416156
221129A00075	11/29/2022	4.38	12/1/2026	11/29/2022	113.58263	109.7460168	106.062815	102.52598	99.12883947	95.86506745	92.72866408	89.71393646	86.81548084
220727A00049	7/27/2022	3.31	7/25/2025	7/27/2022	105.29164	102.9144648	100.6034014	98.35624458	96.1708754	94.0452576	91.97743397	89.96552279	88.00771443
200316A00019	3/16/2020	1.11	3/16/2023	3/16/2020	100.0113	99.96699544	99.92274416	99.87854938	99.83441099	99.79032887	99.74630293	99.70233304	99.65841911
221130A00085	11/30/2022	4.19	11/30/2027	11/30/2022	116.85873	111.9567459	107.294529	102.8589775	98.63778192	94.61937255	90.79287048	87.14804217	83.67525733
230214A00042	2/14/2023	4.96	2/14/2025	2/14/2023	107.21238	105.2468808	103.3279113	101.4540845	99.62406253	97.83655621	96.09032294	94.38416475	92.71692633
200310A00033	3/10/2020	0.91	3/10/2025	3/10/2020	99.722955	97.75964744	95.844625	93.97639391	92.15351775	90.37461446	88.63835386	86.94345527	85.28868534
200417A00008	4/17/2020	0.96	4/17/2025	4/17/2020	99.473901	97.42244661	95.42297501	93.47381419	91.57335896	89.72006798	87.91246062	86.14911408	84.42866062
230126A00033	1/26/2023	4.84	7/26/2024	1/26/2023	104.68973	103.2908802	101.9177065	100.569561	99.24581751	97.94586994	96.66913203	95.41503632	94.18303345
230214A00050	2/14/2023	4.31	2/14/2028	2/14/2023	118.22264	113.0810161	108.2005165	103.5664504	99.16502926	94.98330731	91.00912569	87.23106067	83.63837546
200415A00037	4/15/2020	0.97	4/15/2025	4/15/2020	99.491286	97.44491845	95.45030932	93.50579768	91.60978859	89.76075037	87.95721154	86.19775793	84.48102996
200521A00016	5/21/2020	2.18	5/21/2037	5/21/2020	116.62241	103.0725583	91.28145575	81.00921718	72.04990304	64.22655694	57.38699355	51.40021692	46.15337238
220314A00009	3/14/2022	2.38	7/28/2025	3/14/2022	103.07867	100.7206752	98.42862617	96.20031697	94.03362572	91.92651374	89.87702174	87.88326624	85.94343617
220812A00014	8/12/2022	3.54	8/12/2024	8/12/2022	102.97352	101.5431794	100.1398851	98.76293848	97.41166215	96.08540134	94.7835231	93.5054154	92.25048624
200311A00031	3/11/2020	1.41	12/24/2027	3/11/2020	103.81931	99.16144357	94.73837804	90.53709924	86.54538262	82.7517385	79.14536411	75.71609909	72.45438405
201015A00003	10/15/2020	0.75	10/15/2025	10/15/2020	99.279232	96.76497332	94.3263722	91.96069176	89.66531352	87.437731	85.27554407	83.17645366	81.13825673
210324A00002	3/24/2021	2.06	3/24/2031	3/24/2021	110.83351	102.9458162	95.68174369	88.98863822	82.81855236	77.12779919	71.87655344	67.02849197	62.5504693
220526A00011	5/26/2022	3.29	5/24/2029	5/26/2022	116.29092	109.9424758	103.9893903	98.40482691	93.16391685	88.24360218	83.62249393	79.28074248	75.19991853
221110A00110	11/10/2022	4.47	1/13/2026	11/10/2022	110.07031	107.1706919	104.3638799	101.6464051	99.01494783	96.46633022	93.99750911	91.60556962	89.28771904
230126A00015	1/26/2023	4.08	1/26/2027	1/26/2023	113.06913	109.0924372	105.2806847	101.6261602	98.12154778	94.75991044	91.53466802	88.43957718	85.46871233
200324A00031	3/24/2020	1.64	3/22/2024	3/24/2020	100.06737	99.02643278	98.00705595	97.00857142	96.0303421	95.07175658	94.13222783	93.21119199	92.30810729
221216A00048	12/16/2022	4.32	7/16/2025	12/16/2022	107.61556	105.2337977	102.9174938	100.66449	98.47270827	96.34015118	94.26489792	92.24510111	90.27898342
221129A00032	11/29/2022	5.04	5/22/2024	11/29/2022	104.23753	103.0127068	101.816857	100.6489573	99.50803376	98.39315717	97.30344075	96.23803755	95.19613833

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230117A00087	1/17/2023	3.93	1/18/2028	1/17/2023	116.09605	111.080579	106.3169198	101.7910841	97.48993284	93.40111935	89.51303739	85.8147731	82.29606032
220426A00004	4/26/2022	3.41	4/26/2032	4/26/2022	124.30142	114.8318652	106.1854883	98.28565882	91.0632811	84.45601435	78.40757921	72.86713884	67.78874624
220825A00006	8/25/2022	3.56	8/25/2027	8/25/2022	113.05448	108.5029967	104.1647677	100.0286544	96.08415922	92.32138516	88.73099765	85.30418991	82.03265024
230106A00017	1/6/2023	4.23	1/6/2028	1/6/2023	117.42866	112.4133372	107.647851	103.118419	98.81208984	94.71668788	90.82076289	87.11354326	83.58489243
230120A00103	1/20/2023	3.92	1/20/2026	1/20/2023	109.18727	106.2678428	103.4428094	100.7086098	98.06183775	95.49923357	93.01767713	90.61418108	88.2858844
230208A00041	2/8/2023	4.32	2/8/2030	2/8/2023	124.92968	117.6062691	110.7797416	104.4134863	98.47377957	92.92954146	87.75211519	82.91506659	78.39400098
201223A00013	12/23/2020	0.9	12/11/2026	12/23/2020	100.61702	96.99675638	93.52475038	90.19413304	86.99839621	83.93136896	80.98719797	78.1603292	75.44549075
220224A00018	2/24/2022	2.15	3/16/2026	2/24/2022	103.77821	100.8023427	97.92759061	95.14995746	92.46562529	89.87094902	87.3624475	84.93679509	82.59081371
220420A00037	6/15/2022	3.3	6/15/2027	6/15/2022	111.29808	106.9732907	102.8435083	98.89888583	95.1301248	91.52844448	88.08555034	84.7936043	81.64519707
210304A00006	3/4/2021	1.02	3/4/2026	3/4/2021	100.32628	97.43350481	94.63872748	91.93809517	89.32792974	86.8047181	84.3651037	82.00587865	79.72397622
220114A00010	1/14/2022	1.86	1/13/2027	1/14/2022	104.38552	100.6100465	96.99168611	93.5231095	90.19736539	87.00786033	83.94833837	81.01286209	78.19579472
221129A00067	11/29/2022	4.28	11/29/2027	11/29/2022	117.27209	112.3632232	107.6942162	103.2519678	99.02417303	94.99926592	91.16637054	87.51525571	84.03629292
221130A00044	11/30/2022	5.09	5/30/2024	11/30/2022	104.38756	103.1406045	101.9236336	100.7355713	99.57539417	98.44212675	97.33483851	96.25264149	95.19468781
230105A00020	1/5/2023	4.32	1/5/2028	1/5/2023	117.85156	112.8288363	108.0560521	103.5194321	99.20602911	95.10367084	91.20090968	87.48697604	83.95173485
230203A00059	2/3/2023	4.67	2/3/2025	2/3/2023	106.50987	104.5832873	102.7016414	100.8636085	99.0679157	97.31333579	95.5986852	93.92282214	92.28464485
200402A00044	4/2/2020	1.65	4/2/2030	4/2/2020	106.74573	99.89935265	93.53809257	87.62508445	82.12644464	77.01101605	72.25013553	67.81742227	63.68858506
200415A00027	4/15/2020	0.86	4/15/2024	4/15/2020	99.159894	98.0626866	96.98958156	95.9397921	94.9125654	93.90718071	92.92294769	91.95920481	91.01531788
200528A00021	5/28/2020	0.63	5/26/2023	5/28/2020	99.889372	99.64982382	99.41142671	99.17417252	98.93805305	98.70306019	98.46918589	98.23642218	98.00476118
210917A00003	9/17/2021	0.8	9/17/2024	9/17/2021	98.979471	97.4859657	96.02215131	94.58721275	93.180364	91.8008471	90.447931	89.12091027	87.81910402
220907A00023	9/7/2022	3.76	9/8/2026	9/7/2022	110.40568	106.8557069	103.441203	100.1562534	96.9952352	93.95280094	91.02386387	88.20358356	85.48735259
221207A00009	12/7/2022	4.38	12/8/2025	12/7/2022	109.40817	106.6135847	103.9057791	101.2815112	98.73768745	96.2713506	93.87967259	91.55994795	89.30958755
230112A00044	1/12/2023	4	1/12/2028	1/12/2023	116.37837	111.3721118	106.6163383	102.0971851	97.80162161	93.7174002	89.83300554	86.13760716	82.62101528
230118A00023	1/18/2023	3.8	1/18/2028	1/18/2023	115.46604	110.4656993	105.7166182	101.2048325	96.91722686	92.84147696	88.96599784	85.27989583	81.77292388
200406A00053	4/6/2020	1.13	4/7/2025	4/6/2020	99.812075	97.78337937	95.80560448	93.8771308	91.99640263	90.16192527	88.37226213	86.62603198	84.92190634
220929A00043	9/29/2022	4.44	9/28/2029	9/29/2022	124.52951	117.5821822	111.0843479	105.0043053	99.31275441	93.98260362	88.98879191	84.30812639	79.91913369
221121A00047	11/21/2022	4.89	11/21/2033	11/21/2022	143.1775	131.2618147	120.5118983	110.8051074	102.0323953	94.09673859	86.91175009	80.40045891	74.49423593
221207A00012	12/7/2022	4.21	12/7/2026	12/7/2022	113.01546	109.1732966	105.4854729	101.9449021	98.54486469	95.27898856	92.14122893	89.12584923	86.22740344
200302A00056	3/2/2020	1.2	3/2/2023	3/2/2020	100.0017	99.99615862	99.99062394	99.98509416	99.97956929	99.9740493	99.96853419	99.96302397	99.95751861
200330A00037	3/30/2020	1.09	3/28/2025	3/30/2020	99.706363	97.7049921	95.75342023	93.85008081	91.99346833	90.1821355	88.41469053	86.68979454	85.00615913
201015A00024	10/19/2020	1.53	10/18/2027	10/19/2020	104.16824	99.67455427	95.39972684	91.3319503	87.46011932	83.77378413	80.26310802	76.91882805	73.73221832
210208A00006	2/9/2021	0.46	8/15/2023	2/9/2021	99.591185	99.1325464	98.67812584	98.2278651	97.78170718	97.33959611	96.90147692	96.46729568	96.03699937
220217A00011	2/17/2022	2.08	2/14/2025	2/17/2022	101.56183	99.65296371	97.78954139	95.97020434	94.19364409	92.45859983	90.76385631	89.10824189	87.49062667
220527A00014	5/27/2022	2.99	5/27/2026	5/27/2022	106.88702	103.6725799	100.5723596	97.58161102	94.69581279	91.910661	89.22205705	86.62609632	84.11905758

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220727A00035	10/24/2022	3.33	10/24/2029	10/24/2022	117.47006	110.680361	104.3380368	98.41110635	92.87003878	87.68755568	82.83844767	78.29940697	74.0488743
221213A00004	12/13/2022	3.99	12/13/2027	12/13/2022	116.04202	111.124136	106.4486721	102.0023387	97.77264665	93.74785553	89.91692462	86.26946724	82.79570843
210305A00006	3/8/2021	1.02	8/11/2025	3/8/2021	99.834491	97.48066294	95.1938915	92.97189347	90.81247752	88.71353966	86.67305911	84.68909457	82.75978053
210624A00025	6/24/2021	1.43	6/24/2027	6/24/2021	103.36262	99.18239259	95.19374134	91.3869224	87.75273734	84.28249985	80.96800448	77.8014976	74.77565015
220510A00015	5/13/2022	3.13	11/3/2025	5/13/2022	105.66557	103.016861	100.4483921	97.95722122	95.5405385	93.19565621	90.92000266	88.71111627	86.56663998
220916A00045	9/16/2022	4.1	9/16/2032	9/16/2022	134.04098	123.6390994	114.1697975	105.5433459	97.67912496	90.50465786	83.95474814	77.97071286	72.49970004
221129A00059	11/29/2022	4.39	11/27/2026	11/29/2022	113.57211	109.7467148	106.0738911	102.5466545	99.15838146	95.90279187	92.77392872	89.76613932	86.87405773
230224A00014	2/24/2023	4.98	2/24/2025	2/24/2023	107.80597	105.7974892	103.8373387	101.9240478	100.056205	98.23245142	96.45147788	94.71202315	93.01287165
211214A00014	12/14/2021	1.31	12/13/2024	12/14/2021	99.915531	98.18741107	96.49716304	94.84367241	93.22586698	91.64271516	90.09322409	88.57643775	87.09143532
210224A00002	2/25/2021	0.88	11/3/2025	2/25/2021	99.656612	97.08886837	94.59948971	92.18559603	89.84443371	87.57336924	85.36988301	83.23156352	81.15610185
220603A00024	6/3/2022	2.94	6/3/2024	6/3/2022	101.70886	100.4691715	99.2585996	98.07612684	96.92077832	95.79162394	94.68777582	93.60838593	92.55264386
221027A00061	12/15/2022	4.45	12/15/2027	12/15/2022	118.24853	113.2732455	108.5427702	104.0436946	99.76341805	95.69009468	91.81258349	88.12040279	84.60368749
221027A00063	12/15/2022	4.45	12/15/2027	12/15/2022	118.24853	113.2732455	108.5427702	104.0436946	99.76341805	95.69009468	91.81258349	88.12040279	84.60368749
230201A00012	2/1/2023	4.08	2/1/2027	2/1/2023	113.13466	109.1404676	105.3125731	101.6431687	98.12485174	94.75060444	91.51377148	88.40803949	85.42741765
200309A00007	3/9/2020	1.11	3/9/2027	3/9/2020	101.67826	97.80882775	94.10697299	90.5645705	87.17393462	83.92779103	80.81925244	77.84179586	74.98924136
200327A00042	3/27/2020	0.83	3/27/2024	3/27/2020	99.386717	98.3338635	97.30314867	96.2938806	95.30539612	94.33705909	93.38825913	92.45841025	91.5469497
201118A00021	11/20/2020	0.97	11/20/2023	11/20/2020	99.630741	98.91331884	98.20618338	97.50911485	96.8218995	96.14432956	95.47620307	94.8173237	94.1675005
220315A00018	3/15/2022	2.43	3/15/2027	3/15/2022	106.99328	103.0023503	99.18351126	95.52842123	92.02919204	88.67835823	85.4688521	82.39398024	79.44740164
221108A00033	11/8/2022	4.7	11/8/2027	11/8/2022	118.99679	114.106637	109.4523757	105.0212796	100.8013798	96.7814173	92.95079675	89.29954357	85.81826386
221128A00034	11/28/2022	4.27	11/26/2027	11/28/2022	117.19216	112.2935228	107.6338994	103.2002628	98.98036759	94.96270263	91.13644248	87.49140246	84.01799692
230111A00039	1/11/2023	4.6	1/13/2025	1/11/2023	106.14359	104.276491	102.451784	100.6682589	98.92474546	97.22011419	95.55327469	93.92317398	92.32879499
200330A00006	3/30/2020	0.9	3/28/2025	3/30/2020	99.737279	97.72736471	95.76760501	93.85641847	91.99228507	90.17374377	88.39938971	86.66787158	84.97788917
211028A00019	10/28/2021	1.1	10/28/2024	10/28/2021	99.491835	97.8876529	96.31670223	94.77801488	93.27065991	91.79374214	90.34640046	88.92780615	87.53716135
220425A00027	4/29/2022	3.15	8/20/2026	4/29/2022	108.1069	104.647696	101.3192196	98.11583	95.03215971	92.06310098	89.20379174	86.44960232	83.79612313
200427A00017	4/27/2020	1.02	4/25/2025	4/27/2020	99.618425	97.54429672	95.52310055	93.55311914	91.63270463	89.76027536	87.93431269	86.15335786	84.41600915
220304A00004	3/4/2022	2.12	12/29/2028	3/4/2022	108.63069	102.8933269	97.4962751	92.41761606	87.63695203	83.13529051	78.89494073	74.89941818	71.13335676
220915A00025	9/15/2022	4.34	9/15/2023	9/15/2022	101.61534	101.067213	100.5250096	99.98863672	99.45800045	98.93300897	98.41357234	97.89960256	97.39101348
230215A00008	2/15/2023	4.49	2/16/2027	2/15/2023	114.9258	110.8524124	106.9500446	103.2105836	99.62634768	96.19005861	92.89481796	89.73408543	86.70165829
210616A00008	5/2/2022	0.95	5/2/2025	5/2/2022	99.480666	97.38977096	95.35258878	93.36736335	91.43241039	89.54611393	87.70692295	85.91334816	84.163959
221031A00036	10/31/2022	4.59	10/29/2027	10/31/2022	118.36703	113.5193401	108.9045047	104.510019	100.324119	96.33573503	92.53444656	88.91044043	85.45447197
221123A00039	11/23/2022	4.29	11/23/2027	11/23/2022	117.25325	112.3615347	107.7081213	103.2800356	99.06508668	95.05181352	91.22943661	87.58781349	84.11739728
221129A00037	11/29/2022	4.56	11/26/2025	11/29/2022	109.7634	106.9962248	104.3140583	101.71373	99.1922109	96.74660699	94.37415204	92.0722009	89.83822324
230124A00015	1/24/2023	4.09	1/25/2027	1/24/2023	113.09717	109.1225824	105.3127437	101.6599492	98.15689624	94.79666008	91.57267203	88.4786994	85.50882651

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200310A00015	3/10/2020	1.37	3/11/2030	3/10/2020	104.75654	98.03249519	91.78292609	85.97196193	80.56661985	75.53655552	70.8538395	66.49275363	62.42960558
201117A00016	11/17/2020	0.52	11/18/2024	11/17/2020	98.855467	97.19570873	95.5713063	93.98119605	92.42435685	90.89980841	89.40660913	87.94385421	86.51067376
210104A00007	11/23/2021	0.88	11/23/2026	11/23/2021	100.4993	96.92719063	93.49970312	90.21017278	87.05228394	84.02004908	81.10778961	78.31011784	75.62192008
220419A00016	4/19/2022	3.21	4/19/2027	4/19/2022	110.42852	106.2746543	102.3024377	98.50292086	94.8676481	91.38862586	88.05829466	84.86950296	81.81548275
221110A00026	11/10/2022	4.29	11/10/2027	11/10/2022	117.11032	112.258154	107.6408497	103.2457063	99.06078148	95.0748429	91.27732155	87.6582687	84.20831591
200305A00030	3/5/2020	1.58	3/5/2030	3/5/2020	106.20221	99.44367813	93.16010722	87.31569911	81.87752646	76.81528936	72.10109317	67.70924621	63.61607544
200414A00014	4/14/2020	0.76	4/12/2024	4/14/2020	99.272637	98.17920956	97.1096812	96.06327588	95.03925077	94.03689456	93.05552577	92.09449125	91.15316468
201029A00002	10/29/2020	0.59	10/29/2025	10/29/2020	99.421029	96.857352	94.37186514	91.96169948	89.62411161	87.35647746	85.15628618	83.02113441	80.94872079
210629A00012	6/29/2021	1.14	12/29/2025	6/29/2021	100.50159	97.77771148	95.14092414	92.5879965	90.11583013	87.72145795	85.40203791	83.15484704	80.97727576
220412A00017	4/12/2022	3.09	3/19/2027	4/12/2022	109.67511	105.6200017	101.7394705	98.02505942	94.46876399	91.06300938	87.80062481	84.67481967	81.6791613
220418A00015	4/22/2022	3.03	7/28/2025	4/22/2022	104.6424	102.2653508	99.95466335	97.70811455	95.5235707	93.39898173	91.33237738	89.32186361	87.3656192
220425A00026	4/25/2022	3.13	2/25/2026	4/25/2022	106.59297	103.6249129	100.75605	97.98251383	95.30061459	92.70682679	90.19778071	87.77025471	85.42116774
210224A00004	2/26/2021	0.91	12/18/2025	2/26/2021	99.831709	97.14521848	94.54388599	92.02453151	89.58411392	87.21972387	84.92857718	82.70800859	80.55546589
221110A00108	11/10/2022	4.48	12/10/2025	11/10/2022	109.70777	106.9036838	104.1867858	101.55383	99.0017106	96.52745823	94.12823267	91.80131639	89.54410834
230110A00043	1/10/2023	3.84	1/10/2028	1/10/2023	116.72654	111.6820289	106.8905456	102.338048	98.01134842	93.89805352	89.98651229	86.26576792	82.72551303
220311A00008	3/11/2022	2.07	3/11/2024	3/11/2022	100.51959	99.5046056	98.51005206	97.53531892	96.57981806	95.64298443	94.72427492	93.82316734	92.93915936
200305A00032	3/5/2020	1.58	3/5/2030	3/5/2020	106.20221	99.44367813	93.16010722	87.31569911	81.87752646	76.81528936	72.10109317	67.70924621	63.61607544
200403A00018	4/3/2020	0.91	4/3/2024	4/3/2020	99.257254	98.19006356	97.14565148	96.12329533	95.12230295	94.14201086	93.1817828	92.24100831	91.31910148
230208A00039	2/8/2023	4.17	2/8/2028	2/8/2023	117.47156	112.3653853	107.5179359	102.9146993	98.54204886	94.38718818	90.43809653	86.68347772	83.11271284
200225A00034	10/5/2020	1.5	10/5/2023	10/5/2020	100.04637	99.44960127	98.85992854	98.27722675	97.70137283	97.13224664	96.56973078	96.01371062	95.46407413
200317A00027	3/17/2020	1.29	3/17/2025	3/17/2020	100.09485	98.11763178	96.18915518	94.30790601	92.47242737	90.68131785	88.93322901	87.2268629	85.56096987
220412A00016	4/12/2022	3.09	3/19/2027	4/12/2022	109.67511	105.6200017	101.7394705	98.02505942	94.46876399	91.06300938	87.80062481	84.67481967	81.6791613
221129A00076	11/29/2022	4.38	12/1/2026	11/29/2022	113.58263	109.7460168	106.062815	102.52598	99.12883947	95.86506745	92.72866408	89.71393646	86.81548084
200429A00054	4/29/2020	1.04	4/29/2025	4/29/2020	99.670036	97.58478872	95.55294721	93.57277136	91.64259188	89.76080691	87.9258787	86.13633047	84.39074346
211213A00010	12/13/2021	1.02	12/13/2023	12/13/2021	99.61275	98.83488557	98.06911472	97.31515671	96.57273983	95.84160063	95.12148366	94.41214111	93.71333257
220421A00016	4/21/2022	3.31	4/21/2026	4/21/2022	107.607	104.4761972	101.4538235	98.53548418	95.71699411	92.99436336	90.36378663	87.82163347	85.36443898
221107A00053	11/7/2022	4.95	10/7/2025	11/7/2022	110.17707	107.540129	104.9810237	102.496975	100.0853214	97.74351404	95.4691111	93.25977231	91.11325413
221117A00013	11/17/2022	4.54	11/14/2025	11/17/2022	109.56393	106.8324429	104.1840724	101.6157469	99.12453444	96.70763177	94.36235804	92.08614834	89.87654774
230112A00041	1/12/2023	4.2	1/12/2026	1/12/2023	109.28674	106.4010454	103.6077218	100.9033161	98.28452583	95.74818921	93.29127858	90.91089376	88.60425605
230208A00038	2/8/2023	4.27	2/8/2027	2/8/2023	113.96116	109.9302746	106.0678712	102.3660054	98.81714531	95.4141524	92.15025879	89.01904597	86.01442493
200406A00060	4/6/2020	1.03	4/5/2024	4/6/2020	99.385136	98.31206435	97.2620039	96.23422162	95.22801501	94.2427108	93.27766349	92.33225387	91.40588777
210907A00015	9/9/2021	2.21	9/9/2026	9/9/2021	104.9785	101.521006	98.19647823	94.99909076	91.92330281	88.96384599	86.11570931	83.37412511	80.73455587
211209A00007	12/9/2021	1.61	12/8/2026	12/9/2021	103.27354	99.61109891	96.0977941	92.72672865	89.49136923	86.38552139	83.40330978	80.53915965	77.78777964

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220112A00008	1/12/2022	1.47	11/20/2024	1/12/2022	100.16476	98.49396182	96.85871192	95.25793638	93.69060852	92.15574268	90.65239215	89.17964723	87.73663333
220706A00032	7/6/2022	3.15	7/6/2027	7/6/2022	111.78357	107.3640609	103.1468901	99.12174399	95.27888892	91.6091337	88.10379652	84.75467424	81.55401351
220711A00021	7/11/2022	3.27	7/11/2025	7/11/2022	105.58291	103.2283824	100.9385807	98.71136678	96.54468944	94.43657662	92.38513188	90.38853105	88.44501903
220812A00002	8/12/2022	3.17	8/12/2027	8/12/2022	112.18896	107.6622053	103.3469906	99.23231117	95.30779068	91.56364338	87.99063751	84.580061	81.32368952
210330A00021	3/30/2021	2.16	3/28/2031	3/30/2021	111.64198	103.7128802	96.41065767	89.68236438	83.47978215	77.75898026	72.47991385	67.60606176	63.10409987
220420A00061	6/15/2022	3.3	6/15/2027	6/15/2022	111.29808	106.9732907	102.8435083	98.89888583	95.1301248	91.52844448	88.08555034	84.7936043	81.64519707
230111A00072	1/11/2023	4.21	1/12/2026	1/11/2023	109.31534	106.4292319	103.6355067	100.9307089	98.31153592	95.77482565	93.31755012	90.93680889	88.62982298
220308A00011	3/8/2022	2.07	1/10/2025	3/8/2022	101.38699	99.57323759	97.80068931	96.06816702	94.37453717	92.71870543	91.09961512	89.51624564	87.967611
220314A00006	3/14/2022	2.36	3/14/2025	3/14/2022	102.26803	100.2759368	98.33272391	96.43687546	94.58693615	92.7815059	91.01923728	89.29883315	87.6190444
200310A00038	3/10/2020	1.41	3/11/2030	3/10/2020	105.03408	98.3005711	92.04200923	86.2224951	80.80901969	75.77121427	71.0811266	66.71301727	62.643174
200413A00003	4/13/2020	0.64	4/13/2023	4/13/2020	99.9848	99.86297671	99.74146606	99.62026663	99.49937716	99.37879642	99.25852317	99.1385562	99.01889428
210706A00006	7/6/2021	1.15	7/6/2026	7/6/2021	101.07368	97.84926732	94.74386689	91.75249182	88.87038751	86.09302204	83.41607457	80.8354244	78.34714065
211014A00018	10/14/2021	0.8	10/11/2024	10/14/2021	99.301544	97.73721791	96.20481718	94.70343058	93.23218163	91.79022668	90.37675341	88.9909793	87.63215031
220614A00011	6/14/2022	3.71	6/14/2024	6/14/2022	102.78024	101.5045951	100.2556848	99.03267421	97.83475957	96.66117053	95.5111684	94.38404457	93.27911893
220711A00009	7/11/2022	3.36	7/11/2023	7/11/2022	100.78435	100.4174074	100.0531455	99.6915339	99.33254374	98.97614645	98.62231392	98.27101844	97.9222327
221028A00027	10/28/2022	4.73	10/28/2024	10/28/2022	105.54245	103.8863308	102.2643706	100.6755778	99.11899664	97.59370842	96.09882918	94.63350825	93.1969266
201028A00013	10/28/2020	0.68	10/28/2024	10/28/2020	98.791764	97.193591	95.62854225	94.09565223	92.59399285	91.12267167	89.6808302	88.26764227	86.88231248
221021A00026	10/21/2022	4.94	10/23/2023	10/21/2022	102.2901	101.6371108	100.9924793	100.3560493	99.72766475	99.1071736	98.49442748	97.88928179	97.2915955
230124A00022	1/24/2023	4.39	1/24/2025	1/24/2023	106.26488	104.3604268	102.4999446	100.6821567	98.90582987	97.16977464	95.47284335	93.81392851	92.19196101
200318A00037	3/18/2020	1.35	3/18/2024	3/18/2020	99.762607	98.73373513	97.72597165	96.73867262	95.77121976	94.82301948	93.89350165	92.98211846	92.08834332
220209A00013	2/9/2022	1.98	7/29/2025	2/9/2022	102.1209	99.77201296	97.48896155	95.26953694	93.11161805	91.01316698	88.97222534	86.98691059	85.05541262
220317A00010	3/17/2022	2.04	9/15/2023	3/17/2022	100.34907	99.80494506	99.26671488	98.73428434	98.20755998	97.68645031	97.17086581	96.66071886	96.15592366
220317A00023	5/3/2022	2.52	5/2/2025	5/3/2022	102.8882	100.7596977	98.68567247	96.66434514	94.69401019	92.77303116	90.89983731	89.07292036	87.29083147
221207A00074	12/7/2022	4.66	12/6/2024	12/7/2022	105.85802	104.0934624	102.3670271	100.6775753	99.02401076	97.40528015	95.8203712	94.26831053	92.74816182
221213A00047	12/13/2022	3.8	12/13/2027	12/13/2022	116.25877	111.3014748	106.5894268	102.1091413	97.8479467	93.79393335	89.93590334	86.26332412	82.76628523
230130A00045	1/30/2023	4.02	1/28/2028	1/30/2023	116.6276	111.5727212	106.7727431	102.2134435	97.88146383	93.7642551	89.85002454	86.12768625	82.58681536
200304A00019	3/4/2020	1.04	3/6/2023	3/4/2020	100.00291	99.98629186	99.96968935	99.95310343	99.93653409	99.91998128	99.90344499	99.88692518	99.87042184
200327A00035	3/27/2020	0.83	3/27/2024	3/27/2020	99.386717	98.3338635	97.30314867	96.2938806	95.30539612	94.33705909	93.38825913	92.45841025	91.5469497
200415A00023	4/15/2020	1.71	4/15/2030	4/15/2020	107.19822	100.3031799	93.89852527	87.94684296	82.41376035	77.26768202	72.47955178	68.02263619	63.87232768
220412A00010	4/12/2022	3.09	3/15/2027	4/12/2022	109.64199	105.5981089	101.7279735	98.02318062	94.4757795	91.07824502	87.82345256	84.70465442	81.7154578
201021A00012	10/21/2020	1.85	10/19/2035	10/21/2020	111.93647	99.98961013	89.44966697	80.14261743	71.91681198	64.63999658	58.19674456	52.48623976	47.42036126
200304A00022	3/4/2020	0.86	3/6/2023	3/4/2020	100.00264	99.98599138	99.96936313	99.9527518	99.93615734	99.91957973	99.90301893	99.88647492	99.86994767
210729A00003	7/29/2021	1.11	7/29/2026	7/29/2021	101.00127	97.72024381	94.56240012	91.52248199	88.59548867	85.77665778	83.06145267	80.44555049	77.92483096

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220325A00010	3/28/2022	2.78	3/21/2025	3/28/2022	103.1691	101.1493724	99.17943782	97.25773988	95.38278591	93.55314039	91.76742232	90.02430268	88.32250213
221114A00002	11/14/2022	4.37	11/15/2027	11/14/2022	117.53919	112.6631371	108.0235776	103.6076883	99.40341894	95.39943729	91.58508212	87.95031947	84.48570206
221129A00064	11/29/2022	4.28	11/30/2027	11/29/2022	117.283	112.3710975	107.6993159	103.2545383	99.02444041	94.9974384	91.16263997	87.50979887	84.02927272
200220A00014	2/20/2020	2.09	12/21/2029	2/20/2020	109.49291	102.8133436	96.58822368	90.78426842	85.37079771	80.31951595	75.60431522	71.20109564	67.08760139
200302A00002	3/2/2020	1.12	3/3/2025	3/2/2020	100.13189	98.18245943	96.28068299	94.42509653	92.61429325	90.84691904	89.12167011	87.43729075	85.79257117
200306A00055	3/6/2020	0.82	3/6/2025	3/6/2020	99.533303	97.58228176	95.6790979	93.82227838	92.01040605	90.24211712	88.51609867	86.83108639	85.18586243
200521A00013	5/21/2020	2.09	5/21/2035	5/21/2020	114.71046	102.9469196	92.52329287	83.27881768	75.07282279	67.78212254	61.29876259	55.52806647	50.38694132
210518A00023	5/18/2021	1.17	5/18/2026	5/18/2021	100.99301	97.89668336	94.91055332	92.03005232	89.25082917	86.56874081	83.9798408	81.48036859	79.06673939
220420A00034	6/15/2022	3.3	6/15/2027	6/15/2022	111.29808	106.9732907	102.8435083	98.89888583	95.1301248	91.52844448	88.08555034	84.7936043	81.64519707
221129A00053	11/29/2022	4.56	12/2/2025	11/29/2022	109.83536	107.0508497	104.3523041	101.7365086	99.20039233	96.74102149	94.35559183	92.04142188	89.79594663
221206A00011	12/6/2022	4.29	12/7/2026	12/6/2022	113.31534	109.4675661	105.7742978	102.2284426	98.82327496	95.55241709	92.40981867	89.38973789	86.48672373
221213A00042	12/13/2022	4.49	3/13/2025	12/13/2022	106.59745	104.5630305	102.5782622	100.6416152	98.75161468	96.9068418	95.10593091	93.34756728	91.63048474
200415A00036	4/15/2020	0.91	10/15/2024	4/15/2020	99.168127	97.60003662	96.06400047	94.55910094	93.084455	91.63921289	90.22255647	88.83369777	87.47187758
221214A00022	12/14/2022	4.17	2/13/2026	12/14/2022	109.55243	106.5749486	103.6954979	100.9103051	98.21576875	95.60844583	93.0850435	90.64241179	88.27753654
221216A00007	12/16/2022	4.27	12/16/2025	12/16/2022	109.19178	106.378947	103.6540857	101.0139289	98.45534831	95.97535145	93.57107468	91.23977676	88.97883281
200402A00041	4/2/2020	1.03	4/2/2025	4/2/2020	99.591206	97.57807918	95.61526399	93.70116888	91.83426492	90.01308265	88.23620937	86.50228645	84.81000679
200327A00055	3/27/2020	1.01	3/27/2024	3/27/2020	99.382918	98.33300018	97.3051128	96.29856884	95.31270953	94.34690294	93.40054265	92.47304644	91.56385514
221216A00045	12/16/2022	4.38	5/16/2025	12/16/2022	107.07846	104.8666604	102.7119712	100.6124996	98.5664352	96.57204247	94.62765663	92.73168024	90.88257983
200306A00013	3/6/2020	1.01	3/6/2025	3/6/2020	99.503681	97.56082462	95.66546981	93.816158	92.0114855	90.25010126	88.5307045	86.85204244	85.21290822
201223A00012	12/23/2020	0.91	12/18/2026	12/23/2020	100.67076	97.0318374	93.54260293	90.19612091	86.98581568	83.90545058	80.94910845	78.11117348	75.38631405
220106A00010	1/6/2022	2.64	1/6/2037	1/6/2022	122.58657	108.9558488	97.03963756	86.61038973	77.47194511	69.4550572	62.41357644	56.22119104	50.76864179
220714A00034	7/14/2022	3.62	1/16/2024	7/14/2022	101.84931	100.9716015	100.1090354	99.26122502	98.42779372	97.60837744	96.80262439	96.01019444	95.23075872
221025A00027	10/25/2022	4.57	10/25/2027	10/25/2022	118.22797	113.3943659	108.7925336	104.4100513	100.2352291	96.25706584	92.46520403	88.84988888	85.40192961
210201A00003	2/2/2021	0.74	10/15/2025	2/2/2021	99.253039	96.73912678	94.30086416	91.93551455	89.64045973	87.41319343	85.25131575	83.15252781	81.11462678
221118A00080	11/18/2022	4.61	11/18/2025	11/18/2022	109.80198	107.0562559	104.3943269	101.8130914	99.30958363	96.8809687	94.5245359	92.23769226	90.01795641
230131A00004	1/31/2023	3.76	1/31/2028	1/31/2023	116.53818	111.4415432	106.6033563	102.0091228	97.6452372	93.49892225	89.55817424	85.81171235	82.24893141
201117A00017	11/17/2020	0.39	11/17/2023	11/17/2020	99.349993	98.63989313	97.93989391	97.24978084	96.56934562	95.89838576	95.23670441	94.58411013	93.94041672
220823A00034	8/23/2022	3.61	8/23/2024	8/23/2022	103.15557	101.6953512	100.2632576	98.85855	97.48051176	96.12845085	94.80169867	93.49960906	92.22155741
230118A00058	1/23/2023	4	2/17/2026	1/23/2023	109.09585	106.1135291	103.2298181	100.4409125	97.74317533	95.13313023	92.60745306	90.16296453	87.79662294
200429A00066	4/29/2020	0.8	4/28/2023	4/29/2020	99.967646	99.80478159	99.64244725	99.48064071	99.31935943	99.15860089	98.99836258	98.83864199	98.67943666
210224A00003	2/26/2021	0.9	12/3/2025	2/26/2021	99.775789	97.12811306	94.56326896	92.07814217	89.6697581	87.33527496	85.07197671	82.87726649	80.7486604
210624A00026	6/24/2021	1.6	6/23/2028	6/24/2021	105.25839	100.0963379	95.21767548	90.60542126	86.24369625	82.11764624	78.21337052	74.51785597	71.01891599
210916A00008	9/16/2021	1.48	9/15/2028	9/16/2021	104.77218	99.41101933	94.35588995	89.58777015	85.08891327	80.84275874	76.83384678	73.0477397	69.4709492

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220707A00041	7/7/2022	3.41	7/7/2025	7/7/2022	105.38036	103.0488799	100.7810452	98.57477438	96.42806352	94.33898534	92.30568596	90.32638161	88.39935558
220920A00026	9/20/2022	4.1	9/20/2027	9/20/2022	115.69077	111.0104941	106.5516004	102.302396	98.25187025	94.38965007	90.70595952	87.19158214	83.8378259
221027A00047	10/27/2022	4.88	4/26/2024	10/27/2022	103.81073	102.6567748	101.5286104	100.4253789	99.34625851	98.29046368	97.25724245	96.24587497	95.25567173
230210A00040	2/10/2023	4.29	8/10/2027	2/10/2023	116.14109	111.5616538	107.194105	103.0274961	99.05150002	95.25637452	91.63292559	88.17247393	84.86682346
200305A00006	3/5/2020	0.99	3/6/2023	3/5/2020	100.00208	99.98545974	99.96885787	99.9522726	99.93570389	99.91915173	99.90261608	99.88609692	99.86959422
220217A00016	2/17/2022	2.24	9/15/2026	2/17/2022	105.12167	101.6455713	98.3036083	95.08987684	91.99876867	89.02495248	86.16335852	83.4091642	80.75778065
221129A00040	11/29/2022	4.56	11/26/2025	11/29/2022	109.7634	106.9962248	104.3140583	101.71373	99.1922109	96.74660699	94.37415204	92.0722009	89.83822324
221205A00048	12/5/2022	4.4	12/5/2025	12/5/2022	109.42949	106.6426085	103.9420306	101.3245353	98.78704239	96.32660826	93.94041855	91.62578157	89.38012191
220425A00028	4/29/2022	3.16	4/23/2027	4/29/2022	110.25781	106.0965509	102.1176982	98.31225035	94.67169779	91.18799709	87.85354275	84.66114065	81.60398339
221003A00067	10/3/2022	4.48	11/13/2024	10/3/2022	105.295	103.5976324	101.9359396	100.3088582	98.71536886	97.15449249	95.62528818	94.12685132	92.65831187
221129A00051	11/29/2022	4.56	12/2/2025	11/29/2022	109.83536	107.0508497	104.3523041	101.7365086	99.20039233	96.74102149	94.35559183	92.04142188	89.79594663
230215A00045	2/15/2023	4.37	2/15/2028	2/15/2023	118.52872	113.3767699	108.4865059	103.8432026	99.43303723	95.24303224	91.26099937	87.47548753	83.87573451
200402A00030	4/2/2020	0.8	4/3/2023	4/2/2020	99.992047	99.89799868	99.80413065	99.71044285	99.61693478	99.5236059	99.43045571	99.33748369	99.24468932
201105A00016	11/9/2020	2.18	11/8/2027	11/9/2020	107.26674	102.647487	98.25454696	94.07561564	90.09912254	86.31418691	82.71057264	79.27864624	76.00933797
201119A00021	11/23/2020	2.22	11/21/2030	11/23/2020	111.6159	104.0102601	96.98230053	90.48501188	84.47544426	78.91434011	73.76579845	68.9969712	64.57778859
220609A00034	10/3/2022	3.32	9/30/2024	10/3/2022	102.99406	101.43301	99.90329269	98.40403299	96.93438583	95.49353708	94.08070216	92.69512467	91.33607514
220915A00033	9/15/2022	4.3	3/15/2024	9/15/2022	102.86302	101.8245351	100.8070914	99.81005144	98.83280499	97.8747658	96.93537062	96.01407807	95.11036758
221031A00035	10/31/2022	4.67	10/30/2026	10/31/2022	114.25554	110.4952988	106.8823005	103.4099216	100.0718809	96.86221619	93.77526583	90.8056516	87.94826275
200302A00016	3/2/2020	1.36	3/3/2025	3/2/2020	100.2015	98.25918323	96.36420974	94.51512603	92.71053808	90.94910392	89.22953128	87.55057542	85.91103697
210211A00007	2/11/2021	0.47	9/15/2023	2/11/2021	99.484702	98.94330996	98.40779195	97.87805251	97.35399843	96.83553853	96.32258353	95.81504607	95.31284061
210624A00002	6/24/2021	0.57	6/23/2023	6/24/2021	99.802712	99.48694115	99.17316884	98.86137619	98.55154452	98.24365534	97.93769043	97.63363177	97.33146158
220214A00010	2/14/2022	2.46	12/21/2029	2/14/2022	111.98179	105.2199032	98.91644388	93.0379031	87.55338455	82.4343905	77.65462399	73.18980831	69.0175221
220325A00015	3/28/2022	2.86	3/23/2027	3/28/2022	108.78023	104.7325384	100.8596781	97.15315387	93.60492963	90.20740178	86.95337332	83.83602987	80.84891714
220823A00015	8/23/2022	3.78	8/30/2032	8/23/2022	128.54899	118.5597249	109.4632783	101.1741223	93.61537456	86.71787867	80.41939057	74.66385441	69.40075753
200318A00047	3/18/2020	1.29	3/18/2025	3/18/2020	100.51876	98.52646293	96.58344259	94.68815884	92.83913393	91.03494666	89.27422976	87.55566741	85.87799289
200421A00024	4/24/2020	0.8	10/16/2023	4/24/2020	99.588989	98.96459275	98.34799894	97.73906152	97.13763849	96.54359137	95.95678504	95.37708768	94.80437065
200327A00027	3/27/2020	0.9	3/27/2023	3/27/2020	100.00262	99.92790437	99.85330393	99.77882131	99.70445625	99.63020848	99.55607773	99.48206374	99.40816624
220722A00051	9/15/2022	3.23	9/15/2027	9/15/2022	111.76098	107.1812269	102.8187328	98.66202031	94.70027932	90.92332517	87.32155897	83.88593077	80.60790525
221027A00009	10/27/2022	4.68	10/27/2025	10/27/2022	109.7191	107.0347374	104.4308602	101.9045442	99.45299271	97.07352999	94.76359467	92.52073415	90.34259915
221129A00046	11/29/2022	4.56	12/1/2025	11/29/2022	109.8236	107.0419264	104.3460537	101.7327737	99.19902029	96.7418642	94.35850589	92.04626862	89.80259205
200417A00013	4/17/2020	0.74	4/17/2023	4/17/2020	99.971772	99.83915991	99.70691323	99.57503019	99.44350924	99.31234889	99.18154762	99.05110394	98.92101634
210104A00006	11/22/2021	0.88	11/20/2026	11/22/2021	100.49156	96.92740172	93.50727196	90.22454761	87.07295032	84.04652727	81.13963208	78.34690699	75.66326621
210112A00003	1/12/2021	0.53	9/15/2023	1/12/2021	99.517735	98.97623869	98.44061703	97.91077474	97.38661862	96.86805745	96.35500196	95.84736477	95.34506035

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
211028A00012	10/28/2021	1.64	10/15/2027	10/28/2021	104.66287	100.1655418	95.88678265	91.81481811	87.93857629	84.24763766	80.73219299	77.38300418	74.19136785
220428A00016	5/2/2022	3.09	10/15/2024	5/2/2022	102.72495	101.1269155	99.56146856	98.02767566	96.52463972	95.05149745	93.6074177	92.19159996	90.80327291
220628A00034	6/28/2022	3.61	6/28/2027	6/28/2022	112.74477	108.3536018	104.1615845	100.1586407	96.3352578	92.68245034	89.19172769	85.85506449	82.66487276
200402A00038	4/2/2020	0.84	4/2/2025	4/2/2020	99.622102	97.6003517	95.62927381	93.70726107	91.83276977	90.00431647	88.22047519	86.47987467	84.78119581
200415A00031	4/15/2020	0.97	4/15/2025	4/15/2020	99.491286	97.44491845	95.45030932	93.50579768	91.60978859	89.76075037	87.95721154	86.19775793	84.48102996
220315A00021	3/15/2022	2.15	3/15/2024	3/15/2022	100.60623	99.58038657	98.57539945	97.59064089	96.62550465	95.67940849	94.75179302	93.84212058	92.94987419
200326A00011	3/30/2020	1.54	3/31/2025	3/30/2020	100.64971	98.63063289	96.6618658	94.74182218	92.86897706	91.04186464	89.25907555	87.5192542	85.82109628
200421A00031	4/21/2020	0.84	4/19/2024	4/21/2020	99.137493	98.03001766	96.94709856	95.88792701	94.85172922	93.83776469	92.84532444	91.87372933	90.92232852
210225A00007	2/25/2021	1.79	8/23/2030	2/25/2021	108.0898	100.8410647	94.13030874	87.91481997	82.15548055	76.81645004	71.8648754	67.27062811	63.00606551
210319A00003	3/19/2021	0.95	3/19/2025	3/19/2021	99.402243	97.4271266	95.50081596	93.62179033	91.78858753	89.99980125	88.25407844	86.55011691	84.88666299
211117A00009	11/17/2021	0.84	11/17/2023	11/17/2021	99.542985	98.8338452	98.13476496	97.44553097	96.76593635	96.09577997	95.43486626	94.78300501	94.14001124
220921A00069	9/21/2022	3.98	9/21/2027	9/21/2022	116.22462	111.4979227	106.9956167	102.7058087	98.61730332	94.71955598	91.0026309	87.45716286	84.07432127
230216A00046	2/16/2023	4.42	4/17/2028	2/16/2023	119.43533	114.0885933	109.0210277	104.216485	99.65983561	95.33690259	91.23439627	87.33985391	83.64158376
200527A00013	5/27/2020	1.13	11/25/2026	5/27/2020	101.43349	97.83883997	94.38971964	91.07941392	87.90156387	84.85014137	81.91942959	79.10400488	76.3987197
201119A00003	11/19/2020	0.56	11/17/2023	11/19/2020	99.340309	98.63198237	97.93370678	97.24526941	96.56646351	95.89708808	95.23694769	94.58585225	93.94361689
210914A00015	9/14/2021	0.81	9/15/2025	9/14/2021	99.902154	97.44619859	95.06266451	92.74899379	90.50273519	88.32153928	86.20315351	84.14541752	82.14625876
220629A00003	6/29/2022	3.59	6/29/2027	6/29/2022	112.66842	108.2761396	104.0831927	100.0794944	96.25552104	92.60227601	89.11125827	85.77443242	82.58420091
220912A00051	11/15/2022	3.76	11/15/2027	11/15/2022	114.68825	109.8783017	105.3024987	100.9481244	96.80322655	92.85656569	89.09756874	85.51628546	82.1033481
220502A00025	5/2/2022	3.21	5/2/2025	5/2/2022	104.38578	102.2407483	100.1505309	98.11333714	96.12745214	94.19123045	92.30309266	90.46152216	88.66506205
221117A00008	11/17/2022	4.82	11/15/2024	11/17/2022	105.89964	104.1914963	102.5193188	100.8820365	99.27861926	97.70807749	96.16946047	94.66185425	93.18437987
221130A00039	11/30/2022	5.16	11/30/2023	11/30/2022	102.7921	102.0350493	101.2891791	100.5542438	99.83000399	99.1162273	98.41268792	97.71916656	97.03545012
230119A00075	1/19/2023	4.44	1/21/2025	1/19/2023	105.92683	104.0408612	102.1981656	100.3974907	98.63763033	96.91742069	95.23573871	93.59150032	91.98365874
210623A00026	6/23/2021	0.78	6/24/2024	6/23/2021	98.98526	97.70974731	96.45827247	95.23018258	94.02484871	92.84166451	91.68004521	90.53942667	89.41926442
221018A00031	10/18/2022	4.71	10/17/2025	10/18/2022	109.67614	107.0190396	104.4410122	101.9392089	99.51090379	97.15348725	94.8644603	92.64142906	90.48209951
200304A00035	3/4/2020	1.17	3/4/2025	3/4/2020	99.822069	97.88107479	95.98744453	94.13972669	92.33652482	90.5764947	88.85834196	87.1808199	85.54272734
220201A00011	2/1/2022	1.86	4/20/2026	2/1/2022	103.06748	100.0105807	97.06010401	94.21172664	91.46133268	88.8049983	86.2389814	83.75971194	81.36378288
220217A00018	2/17/2022	2.28	2/17/2027	2/17/2022	106.22464	102.3193063	98.57995153	94.99865473	91.56791509	88.28062719	85.13005802	82.10982548	79.21387821
220412A00018	4/12/2022	3.09	3/15/2027	4/12/2022	109.64199	105.5981089	101.7279735	98.02318062	94.4757795	91.07824502	87.82345256	84.70465442	81.7154578
230109A00083	1/9/2023	4.79	1/11/2038	1/9/2023	153.91998	137.2690492	122.7639063	110.1082986	99.04873416	89.36808734	80.88019193	73.42526377	66.86602137
200429A00004	5/1/2020	0.74	5/1/2023	5/1/2020	99.954224	99.78312389	99.61260726	99.44267086	99.27331178	99.10452709	98.93631391	98.76866938	98.60159064
220224A00010	2/24/2022	2.04	3/10/2025	2/24/2022	101.59812	99.62335435	97.69691927	95.81732464	93.98313719	92.19297767	90.44551847	88.73948122	87.07363463
221123A00034	11/23/2022	4.43	11/23/2026	11/23/2022	113.6723	109.8561194	106.1917516	102.6722573	99.29106249	96.04193305	92.9189547	89.91651445	87.02928322
230118A00034	1/18/2023	3.89	1/18/2028	1/18/2023	115.9022	110.8913853	106.1322117	101.610699	97.31371561	93.22892169	89.34471753	85.65019548	82.13509526

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210208A00002	2/10/2021	0.45	6/15/2023	2/10/2021	99.791613	99.49761776	99.20536142	98.91482843	98.62600351	98.33887157	98.0534177	97.76962716	97.48748538
220419A00015	4/19/2022	3.14	4/17/2026	4/19/2022	107.04173	103.930633	100.9270601	98.02666956	95.22532105	92.51906659	89.90414037	87.37694902	84.93406262
221019A00009	10/19/2022	4.8	10/17/2025	10/19/2022	109.91236	107.2521325	104.6710463	102.1662537	99.73502632	97.37475265	95.08293171	92.8571677	90.69516481
200114A00021	1/11/2021	1.93	1/11/2024	1/11/2021	100.34654	99.48917074	98.64640737	97.81788034	97.00323114	96.20211321	95.41419144	94.63914171	93.87665046
200402A00014	4/2/2020	0.84	4/2/2025	4/2/2020	99.622102	97.6003517	95.62927381	93.70726107	91.83276977	90.00431647	88.22047519	86.47987467	84.78119581
200413A00012	4/13/2020	0.64	4/13/2023	4/13/2020	99.9848	99.86297671	99.74146606	99.62026663	99.49937716	99.37879642	99.25852317	99.1385562	99.01889428
220915A00039	9/15/2022	4.29	4/15/2024	9/15/2022	103.05005	101.9294664	100.8333395	99.76087636	98.71131532	97.68392718	96.67801344	95.69290467	94.72795907
221118A00023	11/18/2022	4.12	11/18/2027	11/18/2022	117.51211	112.5947038	107.9170969	103.4662244	99.22981265	95.19632304	91.35490328	87.69534253	84.20802972
221205A00024	12/5/2022	4.13	12/3/2027	12/5/2022	116.60612	111.7019362	107.0380795	102.6014057	98.37956634	94.3609546	90.53465641	86.89040497	83.41853853
230124A00035	1/24/2023	4.23	1/26/2026	1/24/2023	109.52335	106.5973434	103.7660884	101.0260046	98.37366592	95.8057943	93.31925227	90.91103614	88.57826955
200916A00017	9/16/2020	0.54	9/15/2023	9/16/2020	99.523241	98.98172681	98.44608787	97.91622845	97.39205532	96.87347727	96.36040503	95.85275122	95.3504303
220314A00005	3/14/2022	2.36	3/14/2025	3/14/2022	102.26803	100.2759368	98.33272391	96.43687546	94.58693615	92.7815059	91.01923728	89.29883315	87.6190444
230124A00025	1/24/2023	4.09	1/25/2027	1/24/2023	113.09717	109.1225824	105.3127437	101.6599492	98.15689624	94.79666008	91.57267203	88.4786994	85.50882651
200417A00006	4/17/2020	0.74	4/17/2023	4/17/2020	99.971772	99.83915991	99.70691323	99.57503019	99.44350924	99.31234889	99.18154762	99.05110394	98.92101634
211015A00029	10/15/2021	0.98	10/15/2024	10/15/2021	99.282337	97.71328502	96.17630449	94.67047719	93.19491965	91.74878166	90.33124467	88.94152031	87.57884899
220131A00011	1/31/2022	1.52	1/31/2024	1/31/2022	99.971537	99.06365494	98.17217727	97.29666333	96.43668767	95.59183982	94.76172367	93.94595679	93.14416991
221220A00025	12/20/2022	4.38	12/22/2025	12/20/2022	109.56597	106.7319138	103.9869187	101.327682	98.75104319	96.25397754	93.83358906	91.48710431	89.21186642
200218A00026	2/21/2020	1.73	3/25/2024	2/21/2020	100.16278	99.11354748	98.08619709	97.08005081	96.09445757	95.1287927	94.18245662	93.25487361	92.34549058
200330A00064	3/30/2020	0.83	3/30/2023	3/30/2020	99.997084	99.91407373	99.83120134	99.74846669	99.66586947	99.58340935	99.50108601	99.41889913	99.33684838
210225A00013	3/1/2021	0.93	10/6/2025	3/1/2021	99.732412	97.23504087	94.81226286	92.46140175	90.17989536	87.96529004	85.81523529	83.72747865	81.6998609
220308A00016	3/8/2022	2.37	3/8/2029	3/8/2022	110.33881	104.3701003	98.7653435	93.50043103	88.55297009	83.90215538	79.52864861	75.41446783	71.54288564
221122A00029	11/22/2022	4.31	11/22/2027	11/22/2022	117.3361	112.445248	107.7925037	103.3649171	99.15031328	95.13724568	91.31494819	87.67329056	84.20273706
200316A00072	3/16/2020	1.18	3/16/2023	3/16/2020	100.01441	99.97010207	99.92584839	99.8816512	99.83751041	99.7934259	99.74939756	99.70542528	99.66150896
220317A00028	5/3/2022	2.59	5/3/2027	5/3/2022	107.98031	103.8390699	99.88091846	96.09675113	92.47796993	89.0164513	85.70451699	82.53490691	79.50075392
200228A00091	2/28/2020	1.72	12/7/2029	2/28/2020	106.97778	100.4160202	94.30003422	88.59722801	83.27755739	78.3133131	73.67892757	69.35079861	65.30712862
200916A00019	9/16/2020	0.42	9/16/2024	9/16/2020	98.688467	97.19492436	95.73112896	94.29626313	92.88953889	91.51019647	90.15750306	88.8307516	87.52925965
210129A00002	2/3/2021	0.59	7/25/2024	2/3/2021	98.691297	97.33907167	96.01168072	94.70850065	93.42892791	92.17237857	90.93828751	89.72610763	88.53530921
230202A00050	2/2/2023	3.82	2/2/2028	2/2/2023	115.69882	110.652718	105.8620545	101.3125255	96.99070413	92.88397969	88.98050364	85.26913985	81.73941812
200221A00023	2/21/2020	2.05	12/7/2029	2/21/2020	109.18535	102.5509641	96.36585213	90.59721638	85.2148236	80.19078776	75.49937594	71.11683123	67.02121113
200331A00022	4/1/2020	1.07	4/1/2025	4/1/2020	99.672548	97.66119794	95.70006481	93.78756179	91.92216449	90.1024078	88.3268831	86.59423558	84.90316178
200909A00001	9/9/2020	0.98	9/8/2028	9/9/2020	103.22997	97.88657105	92.84926177	88.09898401	83.61795919	79.38959796	75.39841468	71.62994846	68.07069029
200922A00015	9/24/2020	1.09	9/24/2025	9/24/2020	100.11607	97.64480475	95.24665918	92.91903475	90.65944506	88.46550768	86.33493907	84.26554975	82.2552398
201019A00007	10/19/2020	0.64	10/21/2024	10/19/2020	98.726443	97.14672545	95.59951339	94.08386801	92.59888668	91.14370109	89.71747557	88.31940558	86.94871621

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220526A00010	5/26/2022	3	5/26/2026	5/26/2022	106.91151	103.6992809	100.6011156	97.61227152	94.7282369	91.94471663	89.25762037	86.66305121	84.15729512
220912A00044	11/15/2022	3.85	11/14/2025	11/15/2022	107.70066	104.9945573	102.3709729	99.82686128	97.35930814	94.96552755	92.64285515	90.38874191	88.2007482
221129A00054	11/29/2022	4.56	12/3/2025	11/29/2022	109.84712	107.0597731	104.3585549	101.7402442	99.20176565	96.74018067	94.35268033	92.03657847	89.78930535
230125A00023	1/25/2023	3.69	1/25/2028	1/25/2023	116.13875	111.0679676	106.2536694	101.6815161	97.3380396	93.21058952	89.28727908	85.55693532	82.00905262
200317A00045	3/19/2020	1.43	3/19/2025	3/19/2020	100.38688	98.40147067	96.46506644	94.57614399	92.7332356	90.93492961	89.17986784	87.46674314	85.79429706
210729A00004	7/29/2021	1.74	7/29/2031	7/29/2021	108.6288	100.5139424	93.06739173	86.23062239	79.95050922	74.17880661	68.87167803	63.98927307	59.49534696
221107A00048	11/7/2022	4.96	9/8/2025	11/7/2022	109.82096	107.2683478	104.7895078	102.3818699	100.0429701	97.77044536	95.56202899	93.4155458	91.32890792
200302A00005	3/2/2020	1.31	3/3/2025	3/2/2020	100.10109	98.15981068	96.26584572	94.4177511	92.61413334	90.85365099	89.1350123	87.456973	85.8183342
200327A00043	3/27/2020	1.48	3/27/2028	3/27/2020	105.54501	100.5661465	95.85073272	91.38346817	87.15002466	83.13697528	79.33173289	75.72249323	72.2981821
200330A00028	3/30/2020	1.09	3/28/2025	3/30/2020	99.706363	97.7049921	95.75342023	93.85008081	91.99346833	90.1821355	88.41469053	86.68979454	85.00615913
201123A00010	11/25/2020	1.48	11/24/2025	11/25/2020	101.33873	98.69287798	96.1290166	93.64407362	91.23511865	88.89935202	86.6340978	84.43679735	82.30500318
210311A00007	3/11/2021	1.06	3/11/2026	3/11/2021	100.46327	97.55059676	94.73701626	92.01861556	89.39165826	86.85257661	84.39796279	82.02456078	79.72925862
221129A00034	11/29/2022	4.38	12/1/2025	11/29/2022	109.92417	107.1279761	104.4182938	101.7918741	99.24561792	96.77656482	94.38188576	92.05887611	89.8049492
230111A00069	1/11/2023	4.54	1/10/2025	1/11/2023	105.99903	104.1411774	102.3253562	100.5503645	98.81504661	97.11828681	95.45900781	93.83616917	92.24876576
230131A00072	1/31/2023	4.99	4/30/2024	1/31/2023	103.97326	102.8078177	101.6686452	100.5548608	99.46562096	98.40011932	97.35758449	96.33727822	95.33849364
211221A00023	12/21/2021	1.53	6/19/2026	12/21/2021	102.27227	99.07205418	95.98826321	93.01603408	90.15073768	87.3879635	84.7235079	82.15336321	79.67370736
211222A00035	12/22/2021	2.15	12/22/2033	12/22/2021	114.58355	104.0529958	94.59814157	86.10284501	78.46407253	71.5903585	65.40045376	59.82213804	54.79117556
220106A00007	1/6/2022	2.42	1/6/2034	1/6/2022	117.46513	106.7504391	97.12953546	88.48421019	80.70961205	73.71267787	67.41075369	61.73038317	56.60624226
220302A00010	3/2/2022	2.14	1/13/2027	3/2/2022	105.46308	101.6669253	98.0285073	94.5404756	91.19585597	87.98803299	84.91072973	81.95798872	79.12415409
220324A00015	3/24/2022	2.79	3/3/2026	3/24/2022	105.62493	102.6549611	99.78483466	97.0106447	94.32865755	91.7353067	89.22718418	86.80103257	84.45373744
220630A00044	6/30/2022	3.34	6/30/2025	6/30/2022	105.15853	102.8478832	100.5998765	98.41246994	96.28370524	94.21169844	92.19463674	90.23077538	88.31843469
220802A00009	8/2/2022	3	8/2/2027	8/2/2022	110.38861	105.9562399	101.7295715	97.6979847	93.8514613	90.18054866	86.67632492	83.33036649	80.13471766
221206A00036	12/6/2022	4.13	12/6/2027	12/6/2022	116.63635	111.7233625	107.0514921	102.607549	98.37913545	94.35459818	90.52297882	86.87396866	83.39786636
230106A00019	1/6/2023	4.23	1/6/2028	1/6/2023	117.42866	112.4133372	107.647851	103.118419	98.81208984	94.71668788	90.82076289	87.11354326	83.58489243
200306A00031	3/6/2020	1.01	3/6/2025	3/6/2020	99.503681	97.56082462	95.66546981	93.816158	92.0114855	90.25010126	88.5307045	86.85204244	85.21290822
200316A00041	3/16/2020	1.16	3/16/2023	3/16/2020	100.01352	99.96921446	99.92496147	99.88076497	99.83662486	99.79254103	99.74851338	99.70454178	99.66062615
200423A00027	4/28/2020	0.88	4/15/2024	4/28/2020	99.182577	98.08523342	97.01199414	95.96207247	94.93471554	93.92920255	92.94484311	91.98097566	91.03696593
200428A00003	4/29/2020	1.01	4/29/2025	4/29/2020	99.605167	97.52063322	95.48949053	93.50999947	91.58049117	89.69936413	87.86508099	86.07616533	84.33119873
210609A00003	6/9/2021	0.47	6/9/2023	6/9/2021	99.812544	99.53489135	99.25878768	98.98422033	98.71117644	98.43964332	98.16960841	97.9010593	97.63398369
211123A00012	11/23/2021	2.27	11/23/2033	11/23/2021	115.78347	105.2611707	95.80488125	87.30028254	79.6458915	72.75155623	66.53713737	60.93134894	55.87073881
221207A00010	12/7/2022	4.08	12/7/2027	12/7/2022	116.40978	111.4994096	106.8302239	102.3890236	98.16340308	94.14170121	90.31295247	86.66684131	83.19365996
200309A00038	3/9/2020	1.26	3/11/2030	3/9/2020	103.9933	97.29528644	91.07044746	85.28299572	79.90002029	74.89124395	70.22879994	65.88702865	61.8422924
200326A00009	3/27/2020	1.54	3/27/2025	3/27/2020	100.63733	98.62868876	96.66994019	94.759514	92.895904	91.07766216	89.30339589	87.57176546	85.8814816

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201021A00011	10/21/2020	1.11	10/21/2027	10/21/2020	102.2439	97.78657784	93.54725853	89.51414936	85.67615892	82.0228521	78.54440746	75.23157777	72.07565319
230221A00004	2/21/2023	4.47	2/18/2028	2/21/2023	119.05453	113.8811278	108.970758	104.308595	99.88072846	95.67409999	91.67644653	87.8762478	84.2626775
230202A00038	2/2/2023	3.84	2/2/2028	2/2/2023	115.79655	110.7480849	105.9551423	101.4034173	97.07947931	92.9707141	89.06526976	85.35200695	81.82045246
200228A00070	5/18/2020	1.35	5/18/2023	5/18/2020	100.06181	99.84391597	99.62697846	99.41099478	99.1959586	98.98186364	98.7687037	98.5564726	98.34516425
210217A00009	2/18/2021	0.68	11/15/2024	2/18/2021	98.796893	97.15143965	95.54082138	93.96399598	92.41996337	90.90776314	89.42647253	87.97520454	86.55310621
210219A00004	2/19/2021	0.91	2/19/2026	2/19/2021	99.9639	97.11178538	94.35527943	91.69066556	89.11439327	86.62306938	84.21345011	81.88243362	79.62705295
221129A00061	11/29/2022	4.39	11/27/2026	11/29/2022	113.57211	109.7467148	106.0738911	102.5466545	99.15838146	95.90279187	92.77392872	89.76613932	86.87405773
221216A00044	12/16/2022	4.43	4/16/2025	12/16/2022	106.85305	104.724333	102.6490921	100.6256104	98.65224346	96.72741208	94.84959915	93.01734661	91.22925266
200306A00077	3/6/2020	1.06	3/6/2025	3/6/2020	99.604488	97.66059497	95.76422358	93.91391483	92.10826447	90.34592094	88.62558292	86.94599717	85.30595633
220106A00011	1/6/2022	2.7	1/6/2038	1/6/2022	124.24107	109.6571166	97.01835649	86.05111387	76.52168002	68.23029178	61.00604296	54.70258032	49.19446019
221206A00039	12/6/2022	4.29	12/7/2026	12/6/2022	113.31534	109.4675661	105.7742978	102.2284426	98.82327496	95.55241709	92.40981867	89.38973789	86.48672373
200224A00006	2/24/2020	1.58	11/15/2024	2/24/2020	100.34097	98.68188675	97.05788603	95.46791783	93.91097552	92.38609235	90.89233947	89.42882404	87.99468744
211207A00011	12/7/2021	1.62	12/1/2026	12/7/2021	103.28147	99.63679327	96.13984221	92.78379496	89.56218401	86.46887901	83.49806685	80.64423317	77.90214492
220217A00013	2/17/2022	2.08	2/14/2025	2/17/2022	101.56183	99.65296371	97.78954139	95.97020434	94.19364409	92.45859983	90.76385631	89.10824189	87.49062667
221110A00076	11/10/2022	4.45	11/10/2026	11/10/2022	113.5876	109.8090501	106.1796039	102.6925092	99.3413598	96.12007728	93.02289228	90.04432664	87.17917684
230120A00021	1/20/2023	4.13	1/20/2026	1/20/2023	109.17057	106.2654864	103.4540411	100.7327123	98.09812994	95.54706884	93.07644137	90.68329088	88.36478544
200305A00015	3/5/2020	0.99	3/6/2023	3/5/2020	100.00208	99.98545974	99.96885787	99.9522726	99.93570389	99.91915173	99.90261608	99.88609692	99.86959422
200326A00016	3/26/2020	1.54	3/25/2025	3/26/2020	100.63113	98.62770514	96.6739628	94.76834321	92.90934953	91.09554256	89.32553805	87.59800417	85.91165911
200605A00005	6/5/2020	0.99	6/5/2025	6/5/2020	99.629708	97.45016516	95.32847789	93.26270744	91.2509959	89.29156234	87.38269888	85.52276704	83.71019428
210224A00006	2/26/2021	0.88	10/21/2025	2/26/2021	99.631124	97.09697312	94.63939131	92.25559552	89.94292343	87.6988273	85.52086813	83.40671021	81.35411595
230203A00048	2/10/2023	4.65	2/10/2025	2/10/2023	106.55582	104.6084891	102.7070286	100.8500775	99.03632367	97.26450272	95.5333956	93.84182676	92.18866229
200325A00016	3/30/2020	1.67	3/31/2025	3/30/2020	100.92061	98.89865298	96.92706799	95.0042619	93.12870817	91.29893949	89.51354504	87.77116783	86.0705022
201116A00024	11/18/2020	2.36	11/15/2034	11/18/2020	117.5405	106.0613448	95.83582406	86.71928003	78.58447555	71.31941795	64.82546128	59.01565334	53.8132949
201123A00009	11/25/2020	1.02	11/25/2024	11/25/2020	99.393024	97.71587905	96.07464699	94.46823946	92.89561216	91.35576285	89.84772923	88.37058688	86.9234474
210104A00009	12/20/2021	0.89	12/18/2026	12/20/2021	100.5952	96.95769774	93.46984553	90.12470483	86.91570154	83.83660047	80.88148588	78.04474329	75.32104238
211028A00013	10/28/2021	1.65	10/22/2027	10/28/2021	104.73501	100.2181957	95.92160608	91.83334747	87.9422294	84.23772313	80.70991875	77.34948536	74.14763399
220727A00010	7/27/2022	3.38	7/24/2024	7/27/2022	102.61594	101.2375054	99.88431141	98.55571901	97.25111493	95.96990582	94.71151748	93.47539407	92.26099739
200330A00008	3/30/2020	1.09	3/28/2025	3/30/2020	99.706363	97.7049921	95.75342023	93.85008081	91.99346833	90.1821355	88.41469053	86.68979454	85.00615913
210616A00006	2/11/2022	0.86	2/11/2025	2/11/2022	99.162724	97.28630206	95.4544693	93.6658981	91.91930912	90.21346942	88.54719038	86.91932588	85.32877039
230131A00057	1/31/2023	4.1	1/29/2027	1/31/2023	113.17928	109.1924793	105.3713322	101.7080753	98.19534885	94.82617464	91.59393429	88.49234874	85.51545913
200529A00022	6/1/2020	0.98	6/1/2026	6/1/2020	100.41751	97.29492336	94.2846468	91.38197479	88.58243196	85.88175917	83.27590141	80.7609965	78.33336454
201030A00016	10/30/2020	1.14	10/8/2027	10/30/2020	102.35123	97.92421547	93.71233669	89.70402873	85.88841025	82.25523934	78.79487245	75.49822609	72.35674131
201203A00005	12/3/2020	0.78	12/3/2026	12/3/2020	100.92807	97.30114413	93.82240944	90.48498405	87.2823511	84.20833427	81.25707769	78.42302713	75.70091251

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210616A00012	3/18/2022	0.9	3/18/2025	3/18/2022	99.298309	97.32683907	95.40405067	93.52842875	91.69851632	89.91291195	88.17026723	86.46928436	84.80871384
210709A00006	7/13/2021	2.4	7/11/2031	7/13/2021	114.01152	105.72296	98.10819929	91.10877354	84.67157146	78.74832261	73.29513383	68.27207228	63.64279001
211123A00010	11/23/2021	0.94	11/24/2023	11/23/2021	99.599996	98.87212817	98.15484738	97.4479236	96.75113385	96.06426153	95.38709619	94.71943326	94.0610739
221129A00043	11/29/2022	4.59	12/1/2025	11/29/2022	109.90599	107.1231758	104.4261896	101.8118221	99.27700639	96.81881241	94.43443986	92.12121127	89.87656561
200302A00013	3/2/2020	1.25	3/4/2024	3/2/2020	99.678829	98.68659642	97.71400239	96.76046863	95.82543948	94.90838068	94.00877838	93.12613811	92.25998395
200423A00006	4/23/2020	0.82	4/23/2025	4/23/2020	99.624915	97.54734036	95.52284465	93.54970455	91.62626696	89.75094521	87.92221584	86.13861551	84.39873809
210914A00018	9/14/2021	1.43	9/14/2029	9/14/2021	106.38048	99.99326729	94.02940709	88.45869956	83.25324382	78.38725516	73.83689417	69.58011058	65.59650037
220325A00012	3/28/2022	2.85	3/23/2026	3/28/2022	105.95018	102.922926	99.99870264	97.17342132	94.44317897	91.80425013	89.25307773	86.78626435	84.40056408
221011A00122	10/11/2022	4.64	12/11/2024	10/11/2022	105.877	104.0990421	102.359756	100.6580008	98.99267778	97.36273029	95.76714175	94.20493373	92.6751641
221024A00067	10/24/2022	4.92	10/24/2023	10/24/2022	102.28586	101.6301872	100.9829482	100.3439767	99.71311458	99.09020804	98.475107	97.86766518	97.26773993
230210A00045	2/10/2023	4.43	8/10/2026	2/10/2023	112.41153	108.9045739	105.5284616	102.2775992	99.14666571	96.13059511	93.22456284	90.42397297	87.72444606
201030A00018	10/30/2020	1.15	10/22/2027	10/30/2020	102.43055	97.96644098	93.72071257	89.68154744	85.83783149	82.17910851	78.69553749	75.37785298	72.21732823
210330A00015	3/30/2021	0.47	3/30/2023	3/30/2021	99.967106	99.88412023	99.80127268	99.71856284	99.63599038	99.55355498	99.47125632	99.38909407	99.30706793
221130A00032	11/30/2022	4.37	11/30/2027	11/30/2022	117.70727	112.7854492	108.1041028	103.6500991	99.4110989	95.37550425	91.53240946	87.87155557	84.38328811
200401A00001	4/1/2020	1.01	4/1/2025	4/1/2020	99.547357	97.53733741	95.57750821	93.66628343	91.80213945	89.98361183	88.20929264	86.47782771	84.78791422
200527A00012	5/27/2020	1.2	5/27/2027	5/27/2020	102.28941	98.20488585	94.30477583	90.57975197	87.02101173	83.62024672	80.36961181	77.26169637	74.28949752
220311A00013	3/15/2022	2.35	3/15/2027	3/15/2022	106.67222	102.6877129	98.8750916	95.22602615	91.73263598	88.38746287	85.18344599	82.11389852	79.17248574
230111A00004	1/11/2023	3.83	1/11/2028	1/11/2023	116.68773	111.6414539	106.8484307	102.2946038	97.96676703	93.85250992	89.94016583	86.21876357	82.6779826
200304A00032	3/4/2020	1.6	12/15/2028	3/4/2020	105.60532	99.9891964	94.70564433	89.73327709	85.05218928	80.6438487	76.49099457	72.57754392	68.88850522
200330A00043	3/30/2020	0.86	3/30/2023	3/30/2020	99.999582	99.91656986	99.83369539	99.75095868	99.6683594	99.58589722	99.50357182	99.42138288	99.33933009
210907A00006	9/7/2021	2.1	9/7/2034	9/7/2021	114.48124	103.3358844	93.39578726	84.52344707	76.59772453	69.51182203	63.17152042	57.49364027	52.4046981
220126A00003	1/26/2022	1.9	12/18/2026	1/26/2022	104.4112	100.7017505	97.14409447	93.73121688	90.45646554	87.31353075	84.29642561	81.39946762	78.61726146
220217A00015	2/17/2022	2.28	2/16/2027	2/17/2022	106.21779	102.3154364	98.57881488	95.00002621	91.57158558	88.28640241	85.13775747	82.11928147	79.22493494
220721A00017	7/21/2022	3.51	1/22/2024	7/21/2022	101.77937	100.8861659	100.0086528	99.14641793	98.29906452	97.46620933	96.6474822	95.84252549	95.05099356
221006A00095	10/6/2022	4.65	4/8/2024	10/6/2022	103.40451	102.3001178	101.2194225	100.1616661	99.12612245	98.11209592	97.11891954	96.14595374	95.1925849
200413A00026	4/13/2020	0.82	4/13/2023	4/13/2020	99.984269	99.86267765	99.74139545	99.62042133	99.49975409	99.37939252	99.25933544	99.13958166	99.02013002
210127A00009	1/27/2021	1.3	7/27/2029	1/27/2021	104.06095	97.92508004	92.18797162	86.82174057	81.80058894	77.10063524	72.6997631	68.57748256	64.71480295
210420A00009	4/20/2021	1.08	12/5/2025	4/20/2021	100.27581	97.61611019	95.03971628	92.54349615	90.12446155	87.77975711	85.50665331	83.30253992	81.16491989
220325A00018	3/28/2022	2.85	9/10/2026	3/28/2022	107.23167	103.7319328	100.3664581	97.12936956	94.01507669	91.01826397	88.13387555	85.35710104	82.68336219
220628A00044	8/15/2022	3.6	8/13/2027	8/15/2022	113.12346	108.6022349	104.2913882	100.1800094	96.25780928	92.51508268	88.94267238	85.53193527	82.27471084
220722A00044	9/1/2022	3.23	9/1/2027	9/1/2022	111.64188	107.103135	102.778271	98.65606596	94.72594376	90.97793557	87.40264191	83.99119707	80.73523598
221129A00039	11/29/2022	4.56	11/26/2025	11/29/2022	109.7634	106.9962248	104.3140583	101.71373	99.1922109	96.74660699	94.37415204	92.0722009	89.83822324
230110A00055	1/10/2023	4.06	1/10/2028	1/10/2023	116.64888	111.6414856	106.8842892	102.363459	98.06599365	93.97967246	90.09300441	86.39518113	82.87603297

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210208A00015	2/10/2021	0.46	8/25/2023	2/10/2021	99.551607	99.06625694	98.58562357	98.10963797	97.63823301	97.1713428	96.70890276	96.2508495	95.79712085
210929A00011	3/16/2022	1.03	3/14/2025	3/16/2022	99.557755	97.59382805	95.67822667	93.80945333	91.98606785	90.20668467	88.46997037	86.77464128	85.11946127
220609A00035	8/30/2022	3.11	9/29/2023	8/30/2022	100.99245	100.4086216	99.83153277	99.26106665	98.69710978	98.13955128	97.58828278	97.04319834	96.50419439
220701A00050	7/1/2022	3.26	7/1/2027	7/1/2022	111.2665	106.8988397	102.7299901	98.74987999	94.94899507	91.31834806	87.849447	84.53426552	81.36521496
220823A00002	8/23/2022	3.38	8/23/2027	8/23/2022	113.22168	108.6427048	104.2787581	100.1185903	96.15159861	92.36778739	88.75773024	85.31253458	82.02380856
221212A00011	12/12/2022	3.89	12/10/2027	12/12/2022	116.65814	111.6995861	106.9858426	102.5034544	98.2397847	94.18295698	90.32180472	86.64582502	83.14513539
230120A00114	1/20/2023	4.13	1/20/2026	1/20/2023	109.17057	106.2654864	103.4540411	100.7327123	98.09812994	95.54706884	93.07644137	90.68329088	88.36478544
230209A00049	2/9/2023	4.17	2/9/2028	2/9/2023	117.48197	112.3726769	107.5224118	102.9166304	98.54168378	94.38475485	90.43380393	86.67751742	83.10526039
200310A00041	3/10/2020	1.39	3/12/2029	3/10/2020	104.50147	98.69431594	93.24478654	88.12905519	83.32500023	78.81207464	74.57118617	70.5845872	66.83577354
200327A00022	3/27/2020	0.9	3/27/2023	3/27/2020	100.00262	99.92790437	99.85330393	99.77882131	99.70445625	99.63020848	99.55607773	99.48206374	99.40816624
200331A00008	3/31/2020	0.64	3/31/2023	3/31/2020	99.9947	99.90878128	99.82300984	99.73738491	99.65190612	99.56657312	99.48138552	99.39634298	99.31144512
210928A00007	9/28/2021	0.88	9/27/2024	9/28/2021	99.110387	97.58922804	96.09859431	94.63763391	93.20552677	91.80148267	90.42473993	89.07456406	87.75024662
221129A00047	11/29/2022	4.56	12/1/2025	11/29/2022	109.8236	107.0419264	104.3460537	101.7327737	99.19902029	96.7418642	94.35850589	92.04626862	89.80259205
221129A00049	11/29/2022	4.56	12/1/2025	11/29/2022	109.8236	107.0419264	104.3460537	101.7327737	99.19902029	96.7418642	94.35850589	92.04626862	89.80259205
221208A00020	12/8/2022	4.11	12/8/2027	12/8/2022	116.5618	111.645158	106.9700911	102.5233721	98.29257383	94.26601492	90.43271051	86.78232674	83.30513853
200826A00019	8/26/2020	0.98	8/26/2026	8/26/2020	100.62554	97.28057872	94.06388315	90.96986357	87.99320734	85.12886072	82.37201474	79.71809203	77.16273432
201015A00032	10/19/2020	2.33	10/19/2026	10/19/2020	105.65566	102.0805587	98.64610641	95.34598659	92.17420482	89.12506965	86.19317543	83.37338611	80.66082015
201215A00001	12/15/2020	0.76	12/15/2025	12/15/2020	99.408404	96.73545647	94.14706179	91.64005785	89.21142131	86.85826062	84.57780934	82.36741985	80.2245574
211206A00009	12/6/2021	1.43	12/5/2025	12/6/2021	101.2408	98.56769886	95.97821327	93.4692081	91.03768543	88.68078058	86.39575507	84.1799901	82.03098034
221102A00012	11/2/2022	4.82	11/3/2025	11/2/2022	110.17896	107.4694422	104.8415676	102.292353	99.8189461	97.41861842	95.08875919	92.82686922	90.63055529
230124A00045	1/24/2023	3.99	1/24/2028	1/24/2023	116.44357	111.4037787	106.6176736	102.0711267	97.75086674	93.64442472	89.74008173	86.02681999	82.49427741
230130A00127	1/30/2023	4.02	2/1/2028	1/30/2023	116.66615	111.5994818	106.7888264	102.2198676	97.87916354	93.75408832	89.83277857	86.10408349	82.5575185
200310A00021	3/10/2020	1.1	3/10/2025	3/10/2020	99.692767	97.7377003	95.83057858	93.96992318	92.15431134	90.38237393	88.65279308	86.96429981	85.31567189
220715A00001	7/15/2022	3.44	7/15/2027	7/15/2022	112.16372	107.7399717	103.5189671	99.49035188	95.64435651	91.97175705	88.46384184	85.11238051	81.90959495
220915A00036	9/15/2022	4.23	9/16/2024	9/15/2022	104.30542	102.7717719	101.2684789	99.79471306	98.34967191	96.93258178	95.54269636	94.17929548	92.84168403
220930A00049	9/30/2022	4.55	6/28/2024	9/30/2022	104.02349	102.7025424	101.405325	100.1312401	98.87970946	97.65017403	96.44209292	95.2549428	94.08821716
200310A00062	3/10/2020	1.05	3/8/2024	3/10/2020	99.466424	98.46502202	97.48365741	96.52173423	95.57867954	94.65394274	93.74699443	92.85732547	91.98444596
200311A00050	3/2/2021	1.46	3/2/2026	3/2/2021	101.63818	98.73077685	95.92156338	93.20669226	90.58248576	88.04543076	85.59217042	83.21949622	80.92434057
200331A00024	3/31/2020	0.64	3/31/2023	3/31/2020	99.9947	99.90878128	99.82300984	99.73738491	99.65190612	99.56657312	99.48138552	99.39634298	99.31144512
200824A00020	8/26/2020	1.57	8/26/2025	8/26/2020	101.23055	98.82133781	96.48170533	94.20924652	92.00165496	89.85671759	87.77231037	85.74639408	83.77701038
220121A00013	1/21/2022	1.78	11/3/2025	1/21/2022	102.06019	99.46006544	96.93905065	94.49424611	92.12287563	89.82228402	87.58993087	85.42338462	83.3203171
220728A00070	7/28/2022	3.19	1/29/2024	7/28/2022	101.51612	100.6057755	99.71174928	98.8336047	97.97092126	97.12329317	96.29032873	95.47164972	94.66689083
220816A00009	8/16/2022	3.33	8/16/2027	8/16/2022	111.95489	107.4514223	103.1581965	99.06427601	95.15935429	91.43371131	87.87817695	84.48409708	81.24330185

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220831A00078	8/31/2022	3.81	8/30/2024	8/31/2022	103.50782	102.0267209	100.574477	99.1503189	97.75350375	96.38331445	95.03905843	93.72006667	92.42569265
220913A00018	9/13/2022	3.91	9/13/2027	9/13/2022	114.80718	110.1647582	105.7414721	101.5257769	97.50680004	93.67429675	90.01861013	86.53063428	83.20177994
220919A00033	9/19/2022	4	9/17/2027	9/19/2022	115.20685	110.5457784	106.1049997	101.8728895	97.83850261	93.99152694	90.32224314	86.82148743	83.48061678
211026A00012	10/26/2021	1.52	10/26/2026	10/26/2021	102.75486	99.21429944	95.81415576	92.54808678	89.41007284	86.39440038	83.4956444	80.70865209	78.0285274
221110A00041	11/10/2022	4.85	5/10/2024	11/10/2022	103.90889	102.7174283	101.5534497	100.4160054	99.30419342	98.21715242	97.15405932	96.11412718	95.09660326
221118A00046	11/18/2022	4.4	11/18/2026	11/18/2022	113.50053	109.7013911	106.0529415	102.5483202	99.18102082	95.94487191	92.83401766	89.84289952	86.96623914
200331A00016	3/31/2020	1.11	3/31/2026	3/31/2020	101.30412	98.31227368	95.42372295	92.63432514	89.94012538	87.33735077	84.82240076	82.39183816	80.04238068
200826A00028	8/28/2020	1.08	8/28/2024	8/28/2020	99.393624	97.94973742	96.53395632	95.14553386	93.78374894	92.44790529	91.13733037	89.8513744	88.58940935
221214A00020	12/14/2022	4.2	12/12/2025	12/14/2022	108.95356	106.1546902	103.4430774	100.8154737	98.26877189	95.80000047	93.40631696	91.08500124	88.83344937
221216A00009	12/16/2022	4.27	12/16/2025	12/16/2022	109.19178	106.378947	103.6540857	101.0139289	98.45534831	95.97535145	93.57107468	91.23977676	88.97883281
221221A00053	12/21/2022	4.15	12/21/2027	12/21/2022	116.88295	111.9236762	107.2096007	102.7272678	98.46402831	94.40798991	90.54796777	86.87343882	83.3744991
200327A00040	3/27/2020	0.72	3/27/2023	3/27/2020	100.00138	99.92653827	99.8518152	99.77721151	99.7027269	99.6283611	99.55411382	99.47998478	99.40597369
200417A00019	4/17/2020	0.77	4/17/2025	4/17/2020	99.505412	97.44507127	95.43708977	93.47977841	91.57151645	89.71074776	87.89597774	86.1257703	84.39874506
201218A00014	12/18/2020	0.57	12/18/2025	12/18/2020	99.456025	96.76179625	94.15327786	91.62725984	89.18067257	86.81057981	84.51417204	82.28876009	80.13176917
220317A00027	5/3/2022	2.59	5/3/2027	5/3/2022	107.98031	103.8390699	99.88091846	96.09675113	92.47796993	89.0164513	85.70451699	82.53490691	79.50075392
220930A00046	9/30/2022	4.55	8/30/2024	9/30/2022	104.62281	103.1330004	101.6722006	100.2396334	98.83455215	97.45623583	96.10398826	94.77713687	93.47503173
221207A00035	12/7/2022	4.31	1/7/2026	12/7/2022	109.54637	106.670147	103.8855634	101.1892142	98.57783681	96.04830699	93.5976323	91.22294579	88.92150005
221213A00061	12/13/2022	4.15	12/11/2026	12/13/2022	112.83479	108.985272	105.2908305	101.7443382	98.33904001	95.06852916	91.92672704	88.90786436	86.00646346
230112A00065	1/12/2023	4.09	1/12/2027	1/12/2023	112.95674	109.0193948	105.2439355	101.6228547	98.14903184	94.81571137	91.61648238	88.54525911	85.59626288
200312A00009	3/12/2020	1.46	3/12/2027	3/12/2020	103.08884	99.18364381	95.44749652	91.87219625	88.44998575	85.17352342	82.03585875	79.03040925	76.15093904
201221A00014	12/21/2020	0.76	12/19/2025	12/21/2020	99.414357	96.73120751	94.13323102	91.61724733	89.18021513	86.81922466	84.53149111	82.3143484	80.1652434
210225A00003	3/1/2021	0.93	9/24/2025	3/1/2021	99.706062	97.24010805	94.84715156	92.52460049	90.26997196	88.08088694	85.95506513	83.89032021	81.88455528
210302A00005	3/5/2021	0.92	9/10/2025	3/5/2021	99.647765	97.21946633	94.86231707	92.57382133	90.35158695	88.19332031	86.09682157	84.05998022	82.08077081
210826A00013	8/26/2021	1.97	2/28/2033	8/26/2021	112.1543	102.4621105	93.69717376	85.76558134	78.58339413	72.07553483	66.17481177	60.82105476	55.96034932
220804A00037	8/4/2022	3.35	8/4/2025	8/4/2022	105.47003	103.0646844	100.726913	98.45443416	96.24506087	94.09669236	92.00731034	89.97497515	87.9978223
230224A00018	2/24/2023	5.19	2/24/2025	2/24/2023	107.79912	105.7986358	103.8461471	101.940202	100.0794021	98.26240092	96.48790125	94.75465312	93.06145168
200312A00037	3/12/2020	1.3	3/12/2025	3/12/2020	100.10306	98.1386095	96.22239014	94.35291196	92.52874085	90.74849693	89.01085211	87.31452771	85.65829227
200730A00013	7/30/2020	0.74	1/30/2025	7/30/2020	98.911394	97.07077482	95.27315739	93.51728367	91.80194037	90.12595734	88.48820579	86.8875965	85.32307819
201028A00011	10/28/2020	0.91	4/28/2026	10/28/2020	100.11816	97.08658979	94.16155335	91.33869572	88.61386647	85.9831103	83.44265654	80.98890923	78.6184378
220203A00009	2/3/2022	1.99	2/2/2027	2/3/2022	104.99025	101.1515735	97.47458247	93.95163931	90.57550561	87.33932039	84.2365785	81.26111022	78.40706229
220420A00032	4/20/2022	3.26	10/16/2026	4/20/2022	108.99247	105.3649793	101.8793187	98.52914225	95.30842803	92.21145759	89.23279866	86.367289	83.61002136
220516A00034	5/16/2022	2.72	11/16/2023	5/16/2022	100.90111	100.1891897	99.4873035	98.79524486	98.11280826	97.43979388	96.77600741	96.12125984	95.4753673
220722A00050	9/15/2022	3.25	9/15/2025	9/15/2022	105.57344	103.055926	100.6119148	98.23882138	95.93417157	93.69559348	91.52081261	89.4076472	87.35400373

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230203A00050	2/14/2023	4.64	2/14/2025	2/14/2023	106.58454	104.6253345	102.7125368	100.8447645	99.02068271	97.2390055	95.49849332	93.7979511	92.13622636
230215A00035	2/15/2023	4.47	2/17/2026	2/15/2023	111.13095	108.1035497	105.1763174	102.3453797	99.60703613	96.95775016	94.39414046	91.91297336	89.51115549
200306A00028	3/6/2020	1.01	3/6/2025	3/6/2020	99.503681	97.56082462	95.66546981	93.816158	92.0114855	90.25010126	88.5307045	86.85204244	85.21290822
200916A00016	9/16/2020	0.6	9/16/2024	9/16/2020	98.668466	97.18011892	95.72133896	94.29131513	92.88926585	91.51443744	90.16610289	88.84356064	87.54613347
220817A00036	10/14/2022	3.41	10/15/2027	10/14/2022	112.78723	108.1048203	103.6474381	99.40303784	95.36028104	91.508495	87.83763	84.3382194	81.00134255
221129A00070	11/29/2022	4.28	11/26/2027	11/29/2022	117.2392	112.3394591	107.6787776	103.2441203	99.02324021	95.00462453	91.17744639	87.53151969	84.05725745
221205A00065	12/5/2022	4.13	12/6/2027	12/5/2022	116.63635	111.7233625	107.0514921	102.607549	98.37913545	94.35459818	90.52297882	86.87396866	83.39786636
230124A00024	1/24/2023	4.23	1/23/2026	1/24/2023	109.49103	106.5733971	103.7500078	101.0173109	98.37190705	95.81054301	93.33010483	90.92761101	88.60020607
200504A00007	5/4/2020	1.47	5/4/2028	5/4/2020	104.46618	99.45247236	94.70799307	90.21688293	85.96430243	81.93635995	78.12004594	74.50317207	71.07431491
220408A00013	4/8/2022	3.15	1/14/2027	4/8/2022	109.35827	105.4847322	101.7714095	98.21084726	94.79597449	91.52008374	88.37681053	85.36011404	82.46425901
200316A00048	3/16/2020	1.11	3/16/2023	3/16/2020	100.0113	99.96699544	99.92274416	99.87854938	99.83441099	99.79032887	99.74630293	99.70233304	99.65841911
200430A00030	4/30/2020	0.96	4/30/2025	4/30/2020	99.498976	97.41297212	95.38045208	93.39967112	91.46895571	89.5867	87.75136251	85.96146292	84.21557919
220502A00030	5/4/2022	3.24	6/20/2025	5/4/2022	104.84336	102.5634209	100.3446448	98.18502339	96.08262669	94.03560068	92.04216369	90.10060302	88.20927182
220726A00032	7/26/2022	3.36	7/26/2023	7/26/2022	100.85343	100.4455289	100.0409245	99.63958044	99.24145741	98.84651672	98.45472029	98.06603067	97.68041099
221117A00025	11/17/2022	4.28	11/17/2027	11/17/2022	117.14049	112.2681129	107.6324068	103.2205273	99.02040016	95.02067175	91.21066148	87.58031793	84.12017814
221129A00042	11/29/2022	4.56	11/28/2025	11/29/2022	109.78765	107.0146449	104.326969	101.7214294	99.19498075	96.74471385	94.36784819	92.0617252	89.82380193
221207A00017	12/7/2022	3.86	12/7/2027	12/7/2022	116.48506	111.5387825	106.8363802	102.3644616	98.11044525	94.062507	90.20953015	86.54105891	83.04725534
210826A00008	8/26/2021	0.89	2/26/2025	8/26/2021	99.249903	97.33061965	95.45791802	93.63038089	91.84664423	90.10539456	88.40536673	86.74534174	85.12414478
220209A00011	2/9/2022	2.14	1/11/2027	2/9/2022	105.45201	101.6611877	98.02768041	94.54416705	91.20370032	87.99968995	84.92588243	81.97634214	79.14543349
221212A00052	12/12/2022	4.97	6/12/2024	12/12/2022	104.39101	103.1096804	101.8557302	100.6282779	99.42648249	98.24953898	97.09667603	95.9671544	94.86026517
230111A00046	1/11/2023	4.28	1/13/2026	1/11/2023	109.52643	106.6346492	103.8354834	101.1254709	98.50129806	95.95979261	93.49791683	91.1127611	88.80153773
230123A00051	1/23/2023	3.75	1/21/2028	1/23/2023	116.39431	111.3281127	106.5175681	101.9484088	97.60723804	93.48147067	89.55927962	85.82954654	82.28181581
230217A00052	2/17/2023	4.55	2/17/2027	2/17/2023	115.17519	111.0939509	107.1841232	103.437575	99.84660271	96.40390774	93.10257262	89.93603921	86.89808803
220314A00008	3/14/2022	2.38	7/28/2025	3/14/2022	103.07867	100.7206752	98.42862617	96.20031697	94.03362572	91.92651374	89.87702174	87.88326624	85.94343617
221129A00066	11/29/2022	4.28	11/29/2027	11/29/2022	117.27209	112.3632232	107.6942162	103.2519678	99.02417303	94.99926592	91.16637054	87.51525571	84.03629292
221129A00069	11/29/2022	4.28	11/26/2027	11/29/2022	117.2392	112.3394591	107.6787776	103.2441203	99.02324021	95.00462453	91.17744639	87.53151969	84.05725745
221130A00041	11/30/2022	4.95	12/2/2024	11/30/2022	106.32516	104.5669652	102.8465354	101.162731	99.51445525	97.90065538	96.3203203	94.77247864	93.25619667
221216A00047	12/16/2022	4.34	6/16/2025	12/16/2022	107.33184	105.0337481	102.7968746	100.6192001	98.49878772	96.43377745	94.42238296	92.4628879	90.55364263
230203A00058	2/3/2023	4.34	2/3/2026	2/3/2023	109.93337	106.979415	104.1217473	101.3567038	98.6807799	96.09062357	93.58302752	91.15492225	88.8033693
210624A00003	6/24/2021	0.78	6/24/2024	6/24/2021	98.98526	97.70974731	96.45827247	95.23018258	94.02484871	92.84166451	91.68004521	90.53942667	89.41926442
210916A00003	9/16/2021	0.75	9/16/2024	9/16/2021	98.901398	97.41117896	95.95055962	94.51872827	93.11490246	91.73832771	90.38827618	89.06404555	87.76495788
220301A00014	3/1/2022	1.85	1/10/2025	3/1/2022	100.9762	99.16637655	97.39768254	95.66894295	93.9790262	92.32683988	90.71132914	89.13147512	87.58629357
221104A00044	11/4/2022	5.11	11/15/2023	11/4/2022	102.61528	101.8991825	101.1931213	100.4968823	99.8102611	99.133059	98.4650827	97.80614419	97.15606053

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221220A00017	12/20/2022	4.99	12/20/2023	12/20/2022	102.83097	102.0203886	101.2226421	100.4374221	99.66443476	98.90339518	98.15402733	97.41606363	96.68924465
230119A00137	1/19/2023	3.9	1/19/2027	1/19/2023	112.29807	108.3548243	104.5745699	100.9497133	97.473052	94.13775475	90.93734041	87.86565811	84.91686877
200319A00025	3/19/2020	1.39	3/21/2024	3/19/2020	99.801359	98.76452082	97.74911148	96.75447206	95.77997057	94.82500041	93.88897912	92.97134722	92.07156704
210225A00016	3/1/2021	0.88	7/15/2025	3/1/2021	99.449943	97.16891021	94.95110253	92.79442736	90.6968734	88.65650713	86.67146928	84.73997156	82.8602935
211220A00006	12/20/2021	1.21	12/20/2024	12/20/2021	99.747343	98.00284055	96.29693726	94.62851754	92.99650658	91.39986874	89.83760576	88.30875509	86.81238834
221014A00027	10/14/2022	4.63	10/14/2027	10/14/2022	118.37529	113.5682972	108.9905434	104.6298053	100.4745783	96.51403122	92.7379637	89.13676533	85.70137844
221021A00022	10/21/2022	4.84	10/21/2024	10/21/2022	105.6474	104.008882	102.4039189	100.8315417	99.29082019	97.78085935	96.30079785	94.8498064	93.42708626
200521A00015	5/21/2020	2.14	5/21/2036	5/21/2020	115.71351	103.0467477	91.9242633	82.14802232	73.54638218	65.97045407	59.29098191	53.39566326	48.18684752
220331A00004	3/31/2022	2.66	5/20/2024	3/31/2022	101.2927	100.0921737	98.92005551	97.77534924	96.65710127	95.56440176	94.4963822	93.45221303	92.43110155
230111A00013	1/11/2023	4.25	1/9/2026	1/11/2023	109.39725	106.5178801	103.7304291	101.0314706	98.41772636	95.88605783	93.43345888	91.05704973	88.75407088
200310A00051	3/10/2020	1.41	3/8/2030	3/10/2020	105.02972	98.30371997	92.05167709	86.23780419	80.8291883	75.79554661	71.10900379	66.74388921	62.6765522
200327A00031	3/27/2020	1.18	3/27/2025	3/27/2020	99.891051	97.89029258	95.9392683	94.03641494	92.18023059	90.36927135	88.60214858	86.87752639	85.19411919
200417A00002	4/17/2020	0.96	4/17/2025	4/17/2020	99.473901	97.42244661	95.42297501	93.47381419	91.57335896	89.72006798	87.91246062	86.14911408	84.42866062
200511A00006	5/11/2020	1.65	5/13/2030	5/11/2020	106.83882	99.8862128	93.43297981	87.44066442	81.87396489	76.70045868	71.89035324	67.41625959	63.25298663
220617A00027	6/17/2022	3.45	6/17/2024	6/17/2022	102.46674	101.1853839	99.93004986	98.69995325	97.49433972	96.31248518	95.15369427	94.01729897	92.90265722
220701A00049	7/1/2022	3.19	7/1/2025	7/1/2022	104.81682	102.5076191	100.2611038	98.07523508	95.94805095	93.87766381	91.86225752	89.90008413	87.98946101
200413A00011	4/13/2020	0.94	4/12/2024	4/13/2020	99.257884	98.16777418	97.10143899	96.05810821	95.03704422	94.03754063	93.05892064	92.1005355	91.1617631
200415A00026	4/15/2020	0.77	4/14/2023	4/15/2020	99.978453	99.85409988	99.73006986	99.6063617	99.48297412	99.35990584	99.23715559	99.11472211	98.99260415
220315A00014	3/15/2022	2.78	3/15/2032	3/15/2022	118.42935	109.3258291	101.0111394	93.41232193	86.46352857	80.10529907	74.28391098	68.95079888	64.06203509
230202A00008	2/2/2023	3.81	2/2/2028	2/2/2023	115.64995	110.6050345	105.8155106	101.2670796	96.94631653	92.84061248	88.93812059	85.2277063	81.69890095
200327A00061	3/31/2020	1.18	3/31/2025	3/31/2020	99.89954	97.8884234	95.92745973	94.01506604	92.14972167	90.32996504	88.55439079	86.82164721	85.13043375
200415A00038	4/15/2020	1.37	4/15/2027	4/15/2020	102.85493	98.86645687	95.05384011	91.40838871	87.92189307	84.58659257	81.39514834	78.34061786	75.41643124
200428A00002	4/28/2020	1.47	4/26/2030	4/28/2020	107.11588	100.1295058	93.64425212	87.6216127	82.02623009	76.82562313	71.9899388	67.49172662	63.30573367
210526A00014	5/26/2021	1.01	12/19/2025	5/26/2021	100.1131	97.42011274	94.81253309	92.28717329	89.84098481	87.47105096	85.17458026	82.94890025	80.79145164
200310A00020	3/10/2020	1.1	3/10/2025	3/10/2020	99.692767	97.7377003	95.83057858	93.96992318	92.15431134	90.38237393	88.65279308	86.96429981	85.31567189
220329A00007	3/29/2022	2.94	3/29/2029	3/29/2022	113.84389	107.7174252	101.965622	96.56353807	91.48801863	86.71756036	82.23218523	78.01332457	74.04371254
220729A00045	7/29/2022	3.03	7/29/2027	7/29/2022	110.49002	106.0658912	101.8465928	97.82156897	93.9808661	90.31509122	86.81537756	83.47335237	80.28110691
230224A00015	2/24/2023	4.86	3/17/2026	2/24/2023	112.00231	108.898556	105.8992364	103.000241	100.1976421	97.48768972	94.86680212	92.33155725	89.87868467
200527A00015	5/27/2020	0.99	11/26/2025	5/27/2020	100.00724	97.37445584	94.82352789	92.35138283	89.95508779	87.63184108	85.37896519	83.19390022	81.07419779
210714A00020	7/14/2021	0.9	3/14/2025	7/14/2021	99.292841	97.33166705	95.41876453	93.55263763	91.73184764	89.95501042	88.22079391	86.52791576	84.87514112
220121A00014	1/21/2022	1.78	11/3/2025	1/21/2022	102.06019	99.46006544	96.93905065	94.49424611	92.12287563	89.82228402	87.58993087	85.42338462	83.3203171
221027A00004	10/27/2022	4.76	10/28/2024	10/27/2022	105.59246	103.9359066	102.3135249	100.724318	99.16733	97.64164202	96.14636992	94.68066282	93.24370152
200327A00066	6/25/2020	0.93	6/26/2023	6/25/2020	99.915524	99.59132082	99.26921792	98.94919508	98.63123223	98.31530954	98.00140746	97.68950665	97.37958805

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
211123A00011	11/23/2021	1.69	11/23/2026	11/23/2021	103.50497	99.87717157	96.39563531	93.05363432	89.84479397	86.76307049	83.80273151	80.95833791	78.22472688
220915A00035	9/15/2022	4.2	3/17/2025	9/15/2022	106.04848	104.0091575	102.0198002	100.0788555	98.18483301	96.33629933	94.53187502	92.77023234	91.05009286
221129A00085	11/29/2022	4.38	11/30/2026	11/29/2022	113.57095	109.7372501	106.0567478	102.5224083	99.12756917	95.86591419	92.73145286	89.71850135	86.82166471
230112A00004	1/12/2023	4	1/12/2028	1/12/2023	116.37837	111.3721118	106.6163383	102.0971851	97.80162161	93.7174002	89.83300554	86.13760716	82.62101528
200302A00003	3/2/2020	1.2	3/2/2023	3/2/2020	100.0017	99.99615862	99.99062394	99.98509416	99.97956929	99.9740493	99.96853419	99.96302397	99.95751861
210104A00012	12/20/2021	0.89	12/18/2026	12/20/2021	100.5952	96.95769774	93.46984553	90.12470483	86.91570154	83.83660047	80.88148588	78.04474329	75.32104238
210305A00005	3/9/2021	0.54	8/11/2023	3/9/2021	99.645837	99.19775892	98.75370486	98.31362041	97.87745245	97.44514881	97.01665822	96.59193033	96.17091567
220217A00020	2/17/2022	2.08	2/13/2025	2/17/2022	101.5567	99.65071928	97.79004614	95.97333136	94.19927208	92.46661282	90.77414341	89.12069704	87.50514839
220331A00003	3/31/2022	2.66	5/17/2024	3/31/2022	101.28411	100.09138	98.92669988	97.78908627	96.67760334	95.59135802	94.52949756	93.49120723	92.47570829
221031A00033	10/31/2022	4.74	10/31/2025	10/31/2022	109.92748	107.2296279	104.6128869	102.0743039	99.61105178	97.22042623	94.89983899	92.64681212	90.45897245
221212A00071	12/12/2022	4.15	12/13/2027	12/12/2022	116.80189	111.8661103	107.1733948	102.7104244	98.46468267	94.4244036	90.57852199	86.91662798	83.42892461
230123A00078	1/23/2023	4.41	6/23/2025	1/23/2023	107.57198	105.2519583	102.9941905	100.7966401	98.65735019	96.57444023	94.54610221	92.57059746	90.64625355
201030A00017	10/30/2020	1.14	10/15/2027	10/30/2020	102.36785	97.92280778	93.6945071	89.67125321	85.84204952	82.19654801	78.7250074	75.41825412	72.26764618
221228A00044	12/28/2022	4.31	12/28/2027	12/28/2022	117.72023	112.7222021	107.971915	103.4557537	99.1609237	95.07539476	91.18785141	87.4876469	83.96476033
230120A00065	1/20/2023	4.52	1/21/2025	1/20/2023	106.07859	104.1911495	102.3470088	100.5449159	98.78366382	97.06208803	95.37906478	93.73350931	92.12437422
200304A00012	3/4/2020	0.98	3/4/2025	3/4/2020	99.852301	97.90315904	96.0017153	94.14650408	92.33611556	90.56919283	88.84442947	87.16056729	85.5163942
200402A00036	4/2/2020	0.71	4/2/2024	4/2/2020	99.241433	98.17393109	97.12920595	96.10653603	95.10522962	94.12462367	93.16408231	92.22299543	91.30077746
210616A00009	2/11/2022	0.86	2/11/2025	2/11/2022	99.162724	97.28630206	95.4544693	93.6658981	91.91930912	90.21346942	88.54719038	86.91932588	85.32877039
210624A00004	6/24/2021	1.01	6/24/2025	6/24/2021	99.716504	97.4859411	95.31583082	93.20419121	91.1491181	89.14878125	87.20142092	85.30534469	83.45892446
220301A00013	3/1/2022	2.01	2/16/2027	3/1/2022	105.15392	101.2724575	97.55608546	93.99692644	90.58751962	87.32079735	84.1900623	81.18896605	78.31148911
220325A00017	3/28/2022	2.86	3/23/2027	3/28/2022	108.78023	104.7325384	100.8596781	97.15315387	93.60492963	90.20740178	86.95337332	83.83602987	80.84891714
220613A00030	6/13/2022	3.08	6/13/2023	6/13/2022	100.56316	100.273154	99.98483014	99.69817332	99.41316898	99.12980279	98.8480606	98.56792839	98.28939234
221208A00054	2/1/2023	4.02	2/1/2028	2/1/2023	116.66615	111.5994818	106.7888264	102.2198676	97.87916354	93.75408832	89.83277857	86.10408349	82.5575185
200302A00060	3/2/2021	1.44	3/3/2025	3/2/2021	100.36214	98.4181793	96.52159217	94.67092592	92.86478567	91.1018286	89.38076166	87.7003393	86.05936141
201015A00025	10/19/2020	1.54	10/18/2027	10/19/2020	104.21422	99.71948627	95.44364622	91.37489218	87.50211732	83.81487041	80.3033134	76.95818203	73.77074917
210330A00024	3/30/2021	0.68	3/29/2024	3/30/2021	99.019468	97.96649883	96.93574185	95.92650139	94.93811014	93.9699281	93.0213412	92.09176003	91.18061856
210917A00012	9/17/2021	1.2	9/11/2026	9/17/2021	101.44231	98.04159662	94.7724597	91.629113	88.60605512	85.69805584	82.90014119	80.20757935	77.61586754
220422A00014	4/22/2022	3.36	9/29/2026	4/22/2022	109.19975	105.6135352	102.1660892	98.85127406	95.66325576	92.59649057	89.64570898	86.80590047	84.07229918
200330A00007	3/30/2020	0.93	4/1/2024	3/30/2020	99.28413	98.22191434	97.18225777	96.16444851	95.16780439	94.19167135	93.23542203	92.2984544	91.38019051
211214A00015	12/14/2021	1.49	12/12/2025	12/14/2021	101.43046	98.73681682	96.12793732	93.60064942	91.15192244	88.77885855	86.47868594	84.24875238	82.08651924
220324A00007	3/24/2022	2.72	3/24/2025	3/24/2022	103.06457	101.0381235	99.06175553	97.13390232	95.25305782	93.41777389	91.62665756	89.87836856	88.17161683
210121A00014	1/22/2021	0.64	10/25/2024	1/22/2021	98.72567	97.13573242	95.57864735	94.05346086	92.55925594	91.09515068	89.66029657	88.25387685	86.87510508
211206A00017	12/6/2021	1.56	12/4/2026	12/6/2021	103.06972	99.42132252	95.92113555	92.56231325	89.33836415	86.24313448	83.27078836	80.41578923	77.67288259

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220808A00025	8/8/2022	3.25	8/6/2027	8/8/2022	111.51905	107.0514763	102.7914039	98.72809758	94.85143707	91.15187458	87.62039948	84.24850532	81.028159
221206A00025	12/6/2022	4.27	12/4/2026	12/6/2022	113.20622	109.3685553	105.6847113	102.1476278	98.75061066	95.48731288	92.35171379	89.33810028	86.44104907
200316A00071	3/16/2020	1.18	3/16/2023	3/16/2020	100.01441	99.97010207	99.92584839	99.8816512	99.83751041	99.7934259	99.74939756	99.70542528	99.66150896
210907A00007	9/7/2021	2.35	9/4/2037	9/7/2021	119.08665	105.1366567	93.02331563	82.49221486	73.3254978	65.33644621	58.3648866	52.27329391	46.94348395
230130A00095	2/3/2023	4.25	5/26/2026	2/3/2023	110.93881	107.661524	104.5000212	101.4494995	98.5053903	95.66334389	92.91921769	90.26906471	87.70912286
230201A00011	2/1/2023	3.93	2/1/2028	2/1/2023	116.22659	111.1705615	106.3701511	101.8110639	97.47987461	93.36397342	89.45151205	85.73135404	82.1930284
200414A00015	4/14/2020	0.64	4/14/2023	4/14/2020	99.984039	99.85945525	99.73519801	99.61126569	99.48765698	99.36437056	99.24140511	99.11875934	98.99643195
210122A00005	1/26/2021	0.6	7/15/2024	1/26/2021	98.717256	97.39025945	96.08721535	94.80753214	93.55063706	92.31597562	91.10301087	89.91122271	88.74010725
220124A00007	1/24/2022	1.88	1/22/2027	1/24/2022	104.50598	100.7052805	97.06362857	93.57356517	90.22801559	87.02027142	83.94396962	80.993073	78.16185187
220125A00008	1/25/2022	1.31	1/26/2024	1/25/2022	99.78334	98.88945615	98.01150646	97.14906765	96.30173171	95.4691048	94.65080668	93.8464701	93.05574028
220506A00016	5/6/2022	3.35	5/6/2027	5/6/2022	111.15728	106.9425487	102.9136648	99.06139438	95.37701397	91.85228159	88.47940733	85.25102573	82.16017012
220920A00024	9/20/2022	4.25	9/19/2025	9/20/2022	108.15698	105.5953376	103.1084717	100.6937538	98.34866137	96.07077682	93.85778204	91.70745376	89.61765899
221110A00023	11/10/2022	4.71	11/8/2024	11/10/2022	105.63191	103.9452218	102.2937605	100.6764895	99.0924087	97.54055731	96.02001167	94.52988349	93.06931812
221212A00040	12/12/2022	4.45	12/12/2025	12/12/2022	109.64758	106.8389958	104.1179058	101.4810479	98.92530782	96.44770729	94.04539731	91.7156515	89.4558599
200331A00014	3/31/2020	0.72	3/29/2024	3/31/2020	99.262468	98.20516288	97.17019972	96.15687723	95.16452312	94.1924927	93.24016743	92.30695363	91.39228126
200225A00023	2/25/2020	1.62	2/25/2025	2/25/2020	100.702	98.77075443	96.88624283	95.04704678	93.2518002	91.49918755	89.78794161	88.11684136	86.48470994
200305A00045	3/5/2020	0.99	3/6/2023	3/5/2020	100.00208	99.98545974	99.96885787	99.9522726	99.93570389	99.91915173	99.90261608	99.88609692	99.86959422
200310A00028	3/10/2020	1.1	3/10/2025	3/10/2020	99.692767	97.7377003	95.83057858	93.96992318	92.15431134	90.38237393	88.65279308	86.96429981	85.31567189
210218A00010	2/18/2021	1.72	2/18/2031	2/18/2021	108.0408	100.3472806	93.25823297	86.72302113	80.69549597	75.13357385	69.99885962	65.2563063	60.87390775
211015A00031	10/15/2021	1.22	10/15/2025	10/15/2021	100.5103	97.97976082	95.52525028	93.1440204	90.8334416	88.59099674	86.41427544	84.30096878	82.24886423
220817A00038	10/14/2022	3.41	10/15/2027	10/14/2022	112.78723	108.1048203	103.6474381	99.40303784	95.36028104	91.508495	87.83763	84.3382194	81.00134255
200304A00033	3/4/2020	1.17	3/4/2025	3/4/2020	99.822069	97.88107479	95.98744453	94.13972669	92.33652482	90.5764947	88.85834196	87.1808199	85.54272734
220126A00002	1/26/2022	1.9	12/18/2026	1/26/2022	104.4112	100.7017505	97.14409447	93.73121688	90.45646554	87.31353075	84.29642561	81.39946762	78.61726146
220331A00012	3/31/2022	2.81	3/17/2025	3/31/2022	103.20465	101.1949923	99.23471547	97.3222851	95.45622688	93.63512261	91.85760768	90.12236859	88.42814064
220511A00015	5/11/2022	3.29	5/11/2027	5/11/2022	110.95117	106.7274778	102.6905878	98.83119223	95.14049855	91.61020127	88.23245181	84.99983059	81.90532093
221107A00010	11/7/2022	5.12	11/7/2024	11/7/2022	106.31515	104.6252246	102.9705429	101.3500614	99.76278153	98.20774358	96.68402493	95.19073826	93.72702976
221129A00038	11/29/2022	4.56	11/26/2025	11/29/2022	109.7634	106.9962248	104.3140583	101.71373	99.1922109	96.74660699	94.37415204	92.0722009	89.83822324
230110A00023	1/10/2023	4.3	1/12/2026	1/10/2023	109.57272	106.6829106	103.8855701	101.177244	98.55462672	96.01455357	93.55399398	91.17004504	88.8599254
200403A00017	4/3/2020	0.81	4/3/2023	4/3/2020	99.992991	99.89894147	99.80507257	99.71138391	99.61787496	99.52454522	99.43139416	99.33842127	99.24562605
210226A00004	3/1/2021	1.04	12/5/2025	3/1/2021	100.16552	97.5073572	94.93245948	92.43770049	90.02009311	87.676783	85.40504168	83.2022599	81.06594155
221118A00018	11/18/2022	4.55	11/18/2025	11/18/2022	109.63931	106.8958084	104.2360514	101.6569378	99.15550313	96.7289141	94.37446146	92.08955361	89.87171057
200316A00049	3/16/2020	1.25	3/14/2025	3/16/2020	100.00607	98.03748513	96.11731643	94.24406451	92.41628667	90.63259495	88.89165362	87.19217678	85.53292615
210121A00012	1/22/2021	0.64	10/15/2024	1/22/2021	98.727604	97.16322135	95.63082782	94.12950682	92.65837708	91.21659049	89.80333053	88.4178108	87.05927357

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220222A00018	2/22/2022	2.5	12/19/2031	2/22/2022	115.5637	106.80477	98.78947282	91.45047972	84.72689327	78.56360009	72.91069429	67.72296098	62.95941346
220224A00023	2/24/2022	2.15	3/16/2026	2/24/2022	103.77821	100.8023427	97.92759061	95.14995746	92.46562529	89.87094902	87.3624475	84.93679509	82.59081371
220225A00015	2/25/2022	2.26	2/25/2027	2/25/2022	106.20011	102.2725422	98.51284757	94.91296965	91.46528107	88.16255892	84.99796106	81.96500401	79.0575422
220428A00019	4/28/2022	3.27	4/28/2027	4/28/2022	110.7557	106.5705861	102.5693125	98.74277666	95.0823832	91.58000909	88.22797468	85.01901685	81.94626396
220812A00001	8/12/2022	3.17	8/12/2027	8/12/2022	112.18896	107.6622053	103.3469906	99.23231117	95.30779068	91.56364338	87.99063751	84.580061	81.32368952
200225A00029	2/25/2020	1.89	12/28/2029	2/25/2020	108.16385	101.5108529	95.31251382	89.53544512	84.14887132	79.12441167	74.43588275	70.05911806	65.97180338
200407A00019	4/7/2020	1.06	4/8/2024	4/7/2020	99.401375	98.32066727	97.26330096	96.22852641	95.21562613	94.22391269	93.2527272	92.30143785	91.3694385
200629A00020	6/29/2020	1.4	6/28/2030	6/29/2020	105.13534	98.12829665	91.63380857	85.61184195	80.02567599	74.84161463	70.02872361	65.55859152	61.40511268
221202A00025	12/2/2022	4.06	12/2/2026	12/2/2022	113.22516	109.3707495	105.6711503	102.1192378	98.70825764	95.43180683	92.2838132	89.25851595	86.3504476
230203A00053	2/10/2023	4.32	2/10/2026	2/10/2023	109.95855	106.9838049	104.1066675	101.3233998	98.63042642	96.02432844	93.50183574	91.05981963	88.6952859
200108A00016	12/18/2020	1.98	12/18/2023	12/18/2020	100.38655	99.5920211	98.81003596	98.04030087	97.28252956	96.53644461	95.80177713	95.07826642	94.36565969
200312A00015	3/12/2020	1.23	3/10/2025	3/12/2020	99.956274	97.99848225	96.08868953	94.22541487	92.40723406	90.63277658	88.90072318	87.20980362	85.5587944
200916A00015	9/16/2020	0.72	9/16/2025	9/16/2020	99.153586	96.71581699	94.34983634	92.05311232	89.82321851	87.65782913	85.55471412	83.51173454	81.52683825
220617A00026	6/17/2022	3.36	12/18/2023	6/17/2022	101.50285	100.7033757	99.91650579	99.14193997	98.37939092	97.62858025	96.88923812	96.16110293	95.44392097
220826A00015	8/26/2022	3.64	8/25/2023	8/26/2022	101.11837	100.6285307	100.1434378	99.66302401	99.18722181	98.71596497	98.24918852	97.78682875	97.32882313
221118A00045	11/18/2022	4.57	11/18/2025	11/18/2022	109.69354	106.9492909	104.2888099	101.708989	99.2068633	96.77959897	94.42448627	92.13893316	89.92045918
230124A00041	1/24/2023	4.6	1/24/2025	1/24/2023	106.26288	104.3657962	102.5123861	100.7013877	98.93157895	97.20178126	95.51085722	93.85770908	92.24127708
210721A00009	7/21/2021	1.7	7/21/2031	7/21/2021	108.28013	100.1984956	92.78121403	85.97022403	79.71281221	73.96109645	68.67156122	63.80463955	59.32433702
220106A00009	1/6/2022	2.57	1/4/2036	1/6/2022	120.8957	108.2332158	97.06481006	87.20435035	78.48984528	70.78020106	63.95242991	57.89924344	52.52697626
220630A00057	6/30/2022	3.34	6/30/2025	6/30/2022	105.15853	102.8478832	100.5998765	98.41246994	96.28370524	94.21169844	92.19463674	90.23077538	88.31843469
200316A00050	3/16/2020	1.54	3/16/2027	3/16/2020	103.42562	99.50345976	95.75135135	92.16103048	88.72468028	85.43490367	82.28469841	79.2674339	76.37682931
200324A00012	3/25/2020	1.78	3/25/2025	3/25/2020	101.12735	99.11869623	97.15983003	95.24918691	93.38526718	91.56662893	89.79188527	88.05970185	86.36879441
200417A00014	4/17/2020	0.96	4/17/2025	4/17/2020	99.473901	97.42244661	95.42297501	93.47381419	91.57335896	89.72006798	87.91246062	86.14911408	84.42866062
200504A00006	5/4/2020	0.94	5/5/2025	5/4/2020	99.463891	97.36554367	95.32125626	93.32925527	91.38784016	89.49537968	87.65030836	85.85112331	84.09638116
210907A00014	9/9/2021	2.45	9/9/2026	9/9/2021	105.82045	102.3481841	99.00929962	95.79795684	92.70860052	89.73594843	86.87497637	84.120904	81.46918166
220527A00011	5/27/2022	2.75	5/24/2024	5/27/2022	101.42791	100.2159872	99.03298624	97.87787956	96.74968886	95.64748114	94.57036607	93.51749362	92.48805178
210826A00009	8/26/2021	1.18	8/26/2026	8/26/2021	101.3196	97.96259421	94.73418565	91.62877787	88.64104659	85.76592695	82.99859936	80.33447623	77.76918956
210920A00015	9/9/2022	1.28	9/9/2026	9/9/2022	101.71594	98.31569071	95.04679531	91.90348472	88.88027422	85.97194902	83.17354944	80.48035692	77.88788093
200225A00035	10/5/2020	1.5	10/5/2023	10/5/2020	100.04637	99.44960127	98.85992854	98.27722675	97.70137283	97.13224664	96.56973078	96.01371062	95.46407413
200324A00066	3/26/2020	1.81	3/26/2025	3/26/2020	101.1932	99.18127793	97.21925356	95.30556493	93.43870731	91.61723403	89.83975369	88.10492767	86.41146767
200330A00017	3/30/2020	0.86	3/30/2023	3/30/2020	99.999582	99.91656986	99.83369539	99.75095868	99.6683594	99.58589722	99.50357182	99.42138288	99.33933009
200826A00029	8/28/2020	1.16	11/27/2024	8/28/2020	99.640333	97.9556825	96.30718448	94.69373969	93.11429432	91.56783714	90.05339731	88.57004235	87.1168762
210104A00010	11/22/2021	0.88	11/20/2026	11/22/2021	100.49156	96.92740172	93.50727196	90.22454761	87.07295032	84.04652727	81.13963208	78.34690699	75.66326621

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
211026A00013	10/26/2021	1.52	10/26/2026	10/26/2021	102.75486	99.21429944	95.81415576	92.54808678	89.41007284	86.39440038	83.4956444	80.70865209	78.0285274
221129A00077	11/29/2022	4.38	12/1/2026	11/29/2022	113.58263	109.7460168	106.062815	102.52598	99.12883947	95.86506745	92.72866408	89.71393646	86.81548084
221202A00013	12/2/2022	4.78	12/3/2024	12/2/2022	106.03694	104.2786943	102.5582826	100.8745582	99.2264252	97.61283141	96.03276617	94.48525832	92.96937413
230104A00044	1/4/2023	4.2	1/4/2028	1/4/2023	117.26419	112.2581575	107.5012914	102.9798639	98.68096894	94.59247295	90.70296444	87.00170759	83.47859899
230203A00043	2/14/2023	4.31	2/13/2026	2/14/2023	109.9649	106.9813165	104.095906	101.3048997	98.60469142	95.99183352	93.46302876	91.01512296	88.6450979
200318A00038	3/18/2020	1.48	3/18/2025	3/18/2020	100.48651	98.50263327	96.5676795	94.68012921	92.83851872	91.04144017	89.28753897	87.57551135	85.90410206
211129A00011	11/29/2021	1.53	11/20/2026	11/29/2021	102.89825	99.28959349	95.82627435	92.50161948	89.30930358	86.24332901	83.29800654	80.46793747	77.74799683
220106A00013	1/6/2022	2.75	1/6/2039	1/6/2022	125.78664	110.2652821	96.92997874	85.45597253	75.56853257	67.03501437	59.65821433	53.27080212	47.73065189
220323A00017	6/2/2022	2.78	6/2/2025	6/2/2022	103.65845	101.4406972	99.2813538	97.17845963	95.13013653	93.13458483	91.19007931	89.29496542	87.44765575
221129A00065	11/29/2022	4.28	11/30/2027	11/29/2022	117.283	112.3710975	107.6993159	103.2545383	99.02444041	94.9974384	91.16263997	87.50979887	84.02927272
200226A00004	2/26/2020	1.58	2/26/2025	2/26/2020	100.6261	98.69281151	96.80637406	94.96536493	93.16841272	91.41419685	89.70144531	88.02893253	86.39547732
200304A00018	3/4/2020	0.98	3/4/2025	3/4/2020	99.852301	97.90315904	96.0017153	94.14650408	92.33611556	90.56919283	88.84442947	87.16056729	85.5163942
200327A00041	3/27/2020	0.9	3/27/2023	3/27/2020	100.00262	99.92790437	99.85330393	99.77882131	99.70445625	99.63020848	99.55607773	99.48206374	99.40816624
200928A00009	9/28/2020	1.51	9/28/2032	9/28/2020	107.47613	98.37447659	90.11621073	82.6187394	75.80794682	69.61728896	63.98698539	58.86330103	54.19790738
220315A00015	3/15/2022	3.18	3/13/2037	3/15/2022	130.00953	115.7352819	103.2601372	92.34378662	82.77934734	74.3885518	67.01765205	60.53392862	54.82271202
220819A00034	8/19/2022	3.73	8/19/2032	8/19/2022	128.00631	118.0704749	109.0207328	100.7724153	93.24938699	86.38314317	80.11200866	74.38042416	69.13831051
221129A00078	11/29/2022	4.38	12/1/2026	11/29/2022	113.58263	109.7460168	106.062815	102.52598	99.12883947	95.86506745	92.72866408	89.71393646	86.81548084
200320A00049	3/25/2020	1.47	3/25/2025	3/25/2020	100.4864	98.48449941	96.53225152	94.62809713	92.77054021	90.95814237	89.18952011	87.46334235	85.77832799
200424A00014	4/28/2020	1.01	4/23/2025	4/28/2020	99.592781	97.52420816	95.50833184	93.54344568	91.62791247	89.76016062	87.93868098	86.16202377	84.42879575
200826A00021	8/26/2020	0.83	8/26/2025	8/26/2020	99.392289	97.00617561	94.68913133	92.43876713	90.25279142	88.12900546	86.06529891	84.05964579	82.11010048
201019A00005	10/19/2020	0.79	10/20/2025	10/19/2020	99.392274	96.86383655	94.41176123	92.03327417	89.725722	87.48656546	85.31337357	83.20381821	81.15566899
210304A00002	3/5/2021	0.93	7/10/2025	3/5/2021	99.560052	97.29031048	95.08314671	92.93650081	90.84839218	88.81691635	86.84024159	84.91660569	83.04431296
210610A00012	6/11/2021	1.9	6/10/2026	6/11/2021	103.44242	100.2468215	97.16649489	94.19662501	91.33262996	88.57014651	85.90501811	83.33328375	80.85116739
211210A00016	12/10/2021	1.76	12/10/2027	12/10/2021	105.44029	100.7797248	96.35186672	92.14386994	88.14367066	84.339932	80.72199606	77.27983948	74.00403208
220314A00007	3/14/2022	2.44	3/12/2027	3/14/2022	107.01383	103.0303221	99.21830662	95.56949119	92.07602624	88.73048218	85.52582459	82.45539093	79.51286889
221129A00068	11/29/2022	4.28	11/29/2027	11/29/2022	117.27209	112.3632232	107.6942162	103.2519678	99.02417303	94.99926592	91.16637054	87.51525571	84.03629292
200316A00009	3/16/2020	1.25	3/14/2025	3/16/2020	100.00607	98.03748513	96.11731643	94.24406451	92.41628667	90.63259495	88.89165362	87.19217678	85.53292615
210218A00009	2/19/2021	0.62	7/15/2024	2/19/2021	98.744892	97.41769586	96.11445592	94.83458015	93.57749573	92.34264806	91.12950011	89.93753171	88.76623888
210225A00015	3/1/2021	0.7	8/26/2024	3/1/2021	98.824386	97.3899955	95.98344191	94.60398791	93.25092152	91.92355516	90.62122462	89.34328807	88.08912513
220715A00047	7/15/2022	3.44	7/15/2027	7/15/2022	112.16372	107.7399717	103.5189671	99.49035188	95.64435651	91.97175705	88.46384184	85.11238051	81.90959495
221129A00052	11/29/2022	4.56	12/2/2025	11/29/2022	109.83536	107.0508497	104.3523041	101.7365086	99.20039233	96.74102149	94.35559183	92.04142188	89.79594663
230203A00045	2/14/2023	4.31	2/13/2026	2/14/2023	109.9649	106.9813165	104.095906	101.3048997	98.60469142	95.99183352	93.46302876	91.01512296	88.6450979
200402A00048	4/2/2020	0.71	4/2/2024	4/2/2020	99.241433	98.17393109	97.12920595	96.10653603	95.10522962	94.12462367	93.16408231	92.22299543	91.30077746

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201216A00013	12/16/2020	0.59	12/16/2025	12/16/2020	99.508863	96.81898941	94.21453223	91.69228959	89.24920039	86.88233709	84.58889897	82.36620569	80.2116913
220427A00011	4/29/2022	3.15	4/29/2027	4/29/2022	110.26848	106.0906671	102.0965875	98.27714078	94.6237293	91.12822822	87.78295655	84.58065025	81.51443707
220519A00010	5/19/2022	3.15	11/19/2026	5/19/2022	108.88775	105.1710628	101.6027685	98.1760836	94.88457857	91.72215592	88.68303076	85.76171261	82.9529885
220714A00035	7/14/2022	3.62	7/15/2024	7/14/2022	102.89024	101.5331572	100.2005407	98.89178214	97.60629544	96.34351311	95.1028857	93.88388109	92.6859838
220908A00029	9/8/2022	3.88	3/8/2024	9/8/2022	102.3829	101.3654432	100.3682457	99.39070844	98.4322536	97.49232562	96.5703904	95.66593419	94.77846268
221207A00032	12/7/2022	4.52	12/7/2032	12/7/2022	136.34312	125.7253578	116.0710789	107.2862783	99.28663516	91.9964694	85.34781267	79.27958411	73.73685797
230113A00055	1/13/2023	3.88	1/13/2028	1/13/2023	115.80793	110.8126639	106.0676514	101.5590231	97.27374987	93.19958616	89.32501904	85.63922078	82.1320047
200327A00056	3/27/2020	1.18	3/27/2025	3/27/2020	99.891051	97.89029258	95.9392683	94.03641494	92.18023059	90.36927135	88.60214858	86.87752639	85.19411919
221214A00003	12/14/2022	4.26	12/12/2025	12/14/2022	109.12013	106.3189235	103.6050362	100.9752115	98.42634052	95.95545011	93.55969625	91.2363573	88.9828279
200330A00036	3/30/2020	0.86	3/30/2023	3/30/2020	99.999582	99.91656986	99.83369539	99.75095868	99.6683594	99.58589722	99.50357182	99.42138288	99.33933009
210526A00017	5/26/2021	2.13	5/26/2033	5/26/2021	113.9325	103.9427827	94.9259864	86.7817587	79.42059727	72.76262553	66.73651193	61.27851558	56.33164289
210610A00014	6/11/2021	2.03	6/10/2026	6/11/2021	103.86652	100.6639918	97.5769148	94.6004731	91.73007863	88.96136224	86.29016174	83.71251067	81.22462782
211210A00014	12/10/2021	1.54	12/10/2025	12/10/2021	101.56207	98.87170357	96.26583455	93.74129847	91.29507221	88.92426565	86.62611484	84.3979755	82.23731697
220411A00002	4/11/2022	3.18	4/9/2027	4/11/2022	110.21804	106.0957212	102.1527369	98.38029874	94.7701007	91.31428801	88.0054299	84.83649428	81.80082403
230112A00042	1/12/2023	4.09	1/12/2027	1/12/2023	112.95674	109.0193948	105.2439355	101.6228547	98.14903184	94.81571137	91.61648238	88.54525911	85.59626288
200306A00040	3/6/2020	1.01	3/6/2025	3/6/2020	99.503681	97.56082462	95.66546981	93.816158	92.0114855	90.25010126	88.5307045	86.85204244	85.21290822
200325A00042	3/25/2020	1.58	3/25/2024	3/25/2020	100.00124	98.95292757	97.92648886	96.92124111	95.93653358	94.97174189	94.02626679	93.09953281	92.19098715
220921A00014	9/21/2022	4.08	9/21/2027	9/21/2022	115.61109	110.9298179	106.470107	102.2202473	98.16921408	94.30662105	90.62268025	87.10816416	83.75437062
221213A00017	12/13/2022	4.1	12/14/2026	12/13/2022	112.67959	108.8249524	105.1259239	101.5753568	98.16646953	94.89282948	91.748333	88.72718648	85.82388875
200305A00038	3/5/2020	1.51	3/5/2029	3/5/2020	105.20889	99.39840668	93.94445828	88.82335903	84.01311634	79.49329855	75.24491648	71.25031457	67.49307074
201015A00030	10/19/2020	2.39	10/18/2027	10/19/2020	108.12263	103.5387063	99.17679333	95.02495217	91.07194717	87.30720479	83.7207708	80.30327054	77.04587192
210119A00007	1/20/2021	0.51	8/25/2023	1/20/2021	99.576241	99.09082099	98.6101175	98.13406228	97.66258818	97.19562932	96.73312109	96.27500012	95.82120422
210629A00005	6/29/2021	1.25	6/29/2026	6/29/2021	101.38545	98.17358709	95.07960445	92.09858641	89.22584442	86.45690868	83.78751684	81.21360322	78.73128876
210803A00005	8/5/2021	2.06	8/4/2026	8/5/2021	104.2577	100.9059739	97.68007982	94.57463569	91.58452151	88.70486224	85.93101473	83.25855543	80.68326877
230117A00048	1/17/2023	3.97	1/14/2028	1/17/2023	116.25228	111.2437094	106.4860392	101.9653637	97.66861721	93.58352034	89.69852856	86.00278465	82.48607436
200518A00019	5/19/2020	0.9	5/19/2025	5/19/2020	99.398238	97.26500853	95.18747557	93.16378368	91.19215543	89.27088712	87.39834507	85.57296205	83.79323397
220204A00005	2/4/2022	1.83	1/10/2025	2/4/2022	100.93885	99.12938919	97.36104556	95.63264986	93.94307066	92.29121574	90.67603041	89.09649599	87.55162835
220920A00025	9/20/2022	4.23	9/18/2026	9/20/2022	112.17019	108.5615439	105.0911102	101.7528216	98.54091425	95.44990868	92.47459415	89.61001383	86.85145096
221110A00065	1/17/2023	4.25	1/14/2028	1/17/2023	117.60621	112.5651889	107.7762549	103.225446	98.899646	94.78652755	90.87450069	87.15266506	83.61076552
221216A00010	12/16/2022	4.27	12/16/2025	12/16/2022	109.19178	106.378947	103.6540857	101.0139289	98.45534831	95.97535145	93.57107468	91.23977676	88.97883281
220622A00006	6/22/2022	3.58	6/22/2027	6/22/2022	112.5584	108.1876752	104.0145207	100.0289519	96.22154212	92.58338836	89.10607893	85.78166391	82.60262727
220920A00015	9/20/2022	4.33	10/21/2024	9/20/2022	104.807	103.1756201	101.5776696	100.0121813	98.47822827	96.9749187	95.50139443	94.05682916	92.64042704
200327A00051	3/27/2020	0.99	3/27/2025	3/27/2020	99.922339	97.91304464	95.95383928	94.04314495	92.17944528	90.36128262	88.58725532	86.8560151	85.16626457

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200330A00011	3/30/2020	0.93	4/1/2024	3/30/2020	99.28413	98.22191434	97.18225777	96.16444851	95.16780439	94.19167135	93.23542203	92.2984544	91.38019051
210407A00012	4/7/2021	0.94	4/7/2025	4/7/2021	99.412552	97.38813432	95.41455214	93.49018831	91.61348947	89.7829632	87.99717509	86.25474601	84.55434951
220404A00014	4/4/2022	2.94	4/5/2027	4/4/2022	109.20636	105.1154506	101.2023589	97.45838415	93.87530241	90.44533559	87.16112464	84.01570456	81.00248101
221223A00035	12/23/2022	4.44	12/23/2025	12/23/2022	109.74559	106.906335	104.1563635	101.4923649	98.91117219	96.40975401	93.98520781	91.63475362	89.35572816
230125A00030	1/25/2023	3.91	1/25/2028	1/25/2023	116.06382	111.0305216	106.2508366	101.7106303	97.39662574	93.29634928	89.39807807	85.69079109	82.16412361
220824A00011	8/24/2022	3.7	8/22/2025	8/24/2022	106.48483	104.0200257	101.6256731	99.29935005	97.03873616	94.8416044	92.70581685	90.62932051	88.61014343
220929A00063	9/29/2022	4.38	9/29/2027	9/29/2022	117.0613	112.3250301	107.813374	103.5144283	99.41698674	95.5104943	91.78500618	88.23114888	84.84008436
200318A00044	3/18/2020	1.17	3/18/2024	3/18/2020	99.766806	98.73507947	97.72456539	96.73461466	95.76460486	94.81393844	93.88204153	92.96836277	92.0723722
200331A00011	3/31/2020	1.09	3/31/2025	3/31/2020	99.711997	97.70287102	95.74385822	93.833377	91.96990783	90.15199014	88.3782196	86.64724547	84.95776812
200408A00013	4/13/2020	0.87	4/14/2023	4/13/2020	99.99094	99.86657339	99.74252969	99.61880788	99.49540668	99.37232481	99.24956101	99.12711401	99.00498256
200421A00028	4/21/2020	0.56	4/21/2023	4/21/2020	99.967168	99.82328124	99.67982163	99.5367871	99.39417573	99.2519856	99.11021481	98.96886148	98.82792372
201216A00003	12/16/2020	0.59	7/1/2024	12/16/2020	98.733404	97.44170738	96.1727534	94.92599385	93.70089767	92.49695024	91.31365283	90.15052194	89.00708876
220912A00046	11/15/2022	3.85	11/14/2025	11/15/2022	107.70066	104.9945573	102.3709729	99.82686128	97.35930814	94.96552755	92.64285515	90.38874191	88.2007482
230130A00087	1/30/2023	4.04	1/28/2028	1/30/2023	116.72507	111.6678318	106.8655868	102.3041028	97.9700175	93.85077843	89.93458946	86.21036154	82.66766681
221208A00051	2/15/2023	4.27	2/13/2026	2/15/2023	109.84705	106.8652114	103.9815037	101.1921584	98.49357066	95.88229418	93.35503297	90.90863405	88.54008037
210310A00015	3/11/2021	0.51	5/15/2023	3/11/2021	99.884277	99.6748736	99.46635999	99.2587304	99.05197916	98.84610066	98.64108932	98.43693963	98.23364611
210315A00003	3/15/2021	1.13	3/13/2026	3/15/2021	100.67969	97.75863338	94.93705494	92.21101876	89.57676956	87.03072179	84.56945091	82.18968513	79.88829769
210907A00008	9/7/2021	2.42	9/7/2038	9/7/2021	120.65808	105.7788305	92.97181223	81.93342093	72.40614479	64.17135236	57.04324204	50.86375913	45.49832168
221108A00041	11/8/2022	5.15	4/8/2024	11/8/2022	103.96205	102.8543588	101.7704143	100.7094571	99.67075983	98.65362562	97.65738644	96.68140163	95.72505654
221129A00086	11/29/2022	4.38	11/30/2026	11/29/2022	113.57095	109.7372501	106.0567478	102.5224083	99.12756917	95.86591419	92.73145286	89.71850135	86.82166471
221214A00031	12/14/2022	3.97	12/14/2027	12/14/2022	115.95668	111.0381215	106.3621644	101.9155092	97.68565364	93.66084488	89.83003038	86.18281231	82.70940519
230104A00004	1/4/2023	4.19	1/4/2028	1/4/2023	117.21611	112.2112187	107.4554571	102.9350942	98.63722606	94.54972052	90.66116774	86.96083344	83.4386156
230113A00080	1/13/2023	4.18	1/13/2026	1/13/2023	109.24018	106.3525215	103.55738	100.851295	98.23095608	95.69319386	93.23497353	90.8533882	88.54565283
200327A00048	3/27/2020	1.18	3/24/2025	3/27/2020	99.884675	97.8916817	95.94810939	94.05241021	92.20309622	90.39873668	88.63795546	86.91942842	85.24188115
200402A00035	4/2/2020	0.62	4/3/2023	4/2/2020	99.990526	99.8963209	99.80229817	99.70845772	99.614799	99.52132145	99.42802455	99.33490774	99.2419705
221031A00042	10/31/2022	4.73	10/30/2026	10/31/2022	114.47429	110.7100674	107.0932007	103.6170649	100.2753746	97.06216369	93.97176671	90.99880186	88.13815499
200403A00025	4/3/2020	0.91	4/3/2024	4/3/2020	99.257254	98.19006356	97.14565148	96.12329533	95.12230295	94.14201086	93.1817828	92.24100831	91.31910148
210707A00008	7/9/2021	2.44	7/7/2031	7/9/2021	114.32357	106.0323116	98.41398898	91.41028999	84.96823881	79.03968171	73.58082604	68.55182525	63.9164053
220131A00003	1/31/2022	1.98	2/1/2027	1/31/2022	104.94519	101.1102185	97.43666985	93.91692494	90.54376184	87.31033495	84.21015336	81.23706067	78.385216
221114A00019	11/14/2022	4.94	11/14/2023	11/14/2022	102.48437	101.7714788	101.0685415	100.3753486	99.6916981	99.01739351	98.35224373	97.69606283	97.04866992
221129A00041	11/29/2022	4.56	11/28/2025	11/29/2022	109.78765	107.0146449	104.326969	101.7214294	99.19498075	96.74471385	94.36784819	92.0617252	89.82380193
221129A00055	11/29/2022	4.56	12/3/2025	11/29/2022	109.84712	107.0597731	104.3585549	101.7402442	99.20176565	96.74018067	94.35268033	92.03657847	89.78930535
210629A00014	6/29/2021	1.78	12/28/2029	6/29/2021	107.42187	100.7934813	94.61855615	88.86377676	83.49843248	78.49420328	73.82496246	69.4665966	65.39684117

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
211028A00021	10/28/2021	2.28	10/28/2033	10/28/2021	115.82313	105.3629239	95.95611014	87.490383	79.86596984	72.99417412	66.79609395	61.20149486	56.1478173
220512A00013	5/12/2022	3.18	5/12/2027	5/12/2022	110.50111	106.2841104	102.2538335	98.40096432	94.7167072	91.19275395	87.82125386	84.59478564	81.50633133
221110A00074	11/10/2022	4.75	11/12/2024	11/10/2022	105.74536	104.0467605	102.3838048	100.7554351	99.16063444	97.59842577	96.06787016	94.56806483	93.09814144
230203A00021	2/8/2023	4.21	6/17/2026	2/8/2023	111.05785	107.7184323	104.4989401	101.3943893	98.40003594	95.51135966	92.72405218	90.03400581	87.4373029
201030A00012	10/30/2020	0.63	10/30/2025	10/30/2020	99.529396	96.96170434	94.47237365	92.05852636	89.71741107	87.44639619	85.24296381	83.10470387	81.02930868
220315A00036	3/17/2022	2.63	3/16/2027	3/17/2022	107.80296	103.7932231	99.95628718	96.28377533	92.7677671	89.40076663	86.17567754	83.08577933	80.12470545
220715A00027	7/15/2022	3.44	7/15/2027	7/15/2022	112.16372	107.7399717	103.5189671	99.49035188	95.64435651	91.97175705	88.46384184	85.11238051	81.90959495
221014A00031	10/14/2022	4.89	4/12/2024	10/14/2022	103.70551	102.5888456	101.4963598	100.4272712	99.38083225	98.35632717	97.35306995	96.37040303	95.40769572
230130A00086	1/30/2023	4.16	2/1/2027	1/30/2023	113.44664	109.4463819	105.6126075	101.9375018	98.41365516	95.03404328	91.79200456	88.68121963	85.695692
200306A00066	3/6/2020	1.2	3/8/2027	3/6/2020	102.03481	98.16082589	94.45443962	90.90753553	87.51243244	84.26185992	81.14893413	78.16713506	75.31028537
200527A00014	5/27/2020	1.06	5/27/2026	5/27/2020	100.66366	97.54982632	94.54755719	91.65219107	88.85929477	86.16464879	83.56423543	81.05422763	78.63097853
210719A00009	7/19/2021	1.04	7/17/2026	7/19/2021	100.73414	97.48777075	94.36226013	91.35249838	88.4536188	85.66098458	82.97017672	80.37698265	77.87738546
210914A00012	9/14/2021	1.18	9/14/2027	9/14/2021	103.46469	99.04440306	94.83690794	90.83086879	87.01561383	83.38109221	79.91783462	76.61691642	73.46992351
200228A00047	5/18/2020	1.35	5/18/2023	5/18/2020	100.06181	99.84391597	99.62697846	99.41099478	99.1959586	98.98186364	98.7687037	98.5564726	98.34516425
210121A00017	1/25/2021	0.48	5/25/2023	1/25/2021	99.855434	99.61867892	99.38305033	99.14854019	98.91514057	98.68284357	98.4516414	98.22152633	97.9924907
220217A00017	2/17/2022	2.27	1/29/2027	2/17/2022	106.05755	102.2089302	98.52173813	94.98837618	91.60164071	88.35470258	85.24108564	82.2546467	79.38955661
221006A00097	10/6/2022	4.58	10/7/2024	10/6/2022	105.07203	103.4753778	101.9109665	100.3778833	98.87525033	97.40222255	95.95798585	94.54175574	93.15277599
201216A00001	12/16/2020	0.49	7/14/2023	12/16/2020	99.716768	99.34412525	98.97426952	98.60716993	98.24279565	97.88111634	97.5221021	97.16572346	96.81195141
220216A00003	2/16/2022	2.49	12/14/2029	2/16/2022	112.15618	105.4062853	99.11273134	93.24222249	87.7640596	82.64992521	77.87368692	73.41121791	69.24023326
221018A00030	10/18/2022	4.71	10/17/2025	10/18/2022	109.67614	107.0190396	104.4410122	101.9392089	99.51090379	97.15348725	94.8644603	92.64142906	90.48209951
221102A00026	11/2/2022	4.66	11/2/2027	11/2/2022	118.73865	113.8713263	109.2381584	104.8265447	100.6246369	96.62128705	92.80600232	89.16890268	85.70068149
200312A00014	3/12/2020	1.04	3/12/2025	3/12/2020	99.991644	98.02038029	96.09766134	94.22198265	92.39189716	90.60601269	88.86298948	87.16153778	85.50041559
220727A00027	7/27/2022	3.23	7/27/2027	7/27/2022	111.34979	106.9121898	102.6795697	98.64139043	94.78770663	91.10913231	87.59680654	84.24236133	81.03789177
220811A00021	8/11/2022	3.47	8/11/2025	8/11/2022	105.82125	103.393369	101.0341557	98.74128185	96.51250918	94.34568866	92.23875624	90.1897289	88.196701
220825A00022	8/25/2022	3.68	8/25/2025	8/25/2022	106.46289	103.9905466	101.5890799	99.25605289	96.98912406	94.78604641	92.64466317	90.56290348	88.53877851
220929A00041	9/29/2022	4.38	9/29/2027	9/29/2022	117.0613	112.3250301	107.813374	103.5144283	99.41698674	95.5104943	91.78500618	88.23114888	84.84008436
221026A00022	10/26/2022	4.84	10/26/2023	10/26/2022	102.24399	101.5831833	100.9309351	100.2870831	99.6514656	99.02392529	98.40430868	97.79246619	97.18825198
221031A00061	10/31/2022	4.94	4/30/2024	10/31/2022	103.91451	102.7494303	101.6106166	100.4971852	99.40829299	98.34313365	97.30093594	96.28096175	95.28250433
210218A00011	2/22/2021	0.85	10/24/2025	2/22/2021	99.557507	97.01672125	94.55288617	92.16319806	89.84497481	87.59565009	85.41276745	83.29397476	81.23701902
220912A00050	11/15/2022	3.76	11/15/2027	11/15/2022	114.68825	109.8783017	105.3024987	100.9481244	96.80322655	92.85656569	89.09756874	85.51628546	82.1033481
221129A00045	11/29/2022	4.56	11/28/2025	11/29/2022	109.78765	107.0146449	104.326969	101.7214294	99.19498075	96.74471385	94.36784819	92.0617252	89.82380193
230208A00029	2/8/2023	4.27	2/8/2027	2/8/2023	113.96116	109.9302746	106.0678712	102.3660054	98.81714531	95.4141524	92.15025879	89.01904597	86.01442493
200114A00017	1/11/2021	1.93	1/11/2024	1/11/2021	100.34654	99.48917074	98.64640737	97.81788034	97.00323114	96.20211321	95.41419144	94.63914171	93.87665046

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210629A00009	6/29/2021	1.14	12/31/2025	6/29/2021	100.50662	97.77757309	95.13594185	92.57847632	90.10206868	87.7037423	85.38064557	83.13004591	80.94932416
220114A00009	1/14/2022	1.74	4/21/2026	1/14/2022	102.69715	99.64341077	96.69610666	93.85091215	91.10370707	88.45056364	85.88773619	83.41165143	81.01889938
220419A00012	4/19/2022	2.21	4/19/2023	4/19/2022	100.17241	100.0340716	99.89612745	99.75857596	99.62141537	99.48464402	99.34826022	99.2122623	99.07664862
230126A00034	1/26/2023	4.56	1/24/2025	1/26/2023	106.18668	104.2903332	102.4376515	100.6273678	98.85826063	97.12915153	95.43890352	93.78641918	92.17063908
230207A00046	2/7/2023	4.83	2/7/2025	2/7/2023	106.86931	104.9275639	103.0313475	101.1793169	99.37017521	97.60267233	95.87560291	94.1878044	92.53815527
200306A00087	3/8/2021	1.26	3/7/2025	3/8/2021	100.01006	98.05942272	96.15649176	94.29979902	92.48793353	90.71953731	88.99330298	87.30797149	85.66232997
200402A00013	4/2/2020	0.89	4/2/2024	4/2/2020	99.237755	98.17324422	97.13139885	96.11150227	95.11286739	94.13483552	93.17677491	92.23807938	91.31816705
221011A00114	10/11/2022	4.66	8/12/2024	10/11/2022	104.60632	103.1636049	101.7481509	100.3592517	98.99622396	97.65840773	96.34516486	95.05587832	93.78995131
221107A00030	11/7/2022	4.7	11/5/2027	11/7/2022	118.96049	114.0796176	109.4338418	105.0104972	100.7976719	96.78415964	92.95941366	89.313504	85.83707788
221019A00008	10/19/2022	4.8	10/17/2025	10/19/2022	109.91236	107.2521325	104.6710463	102.1662537	99.73502632	97.37475265	95.08293171	92.8571677	90.69516481
230124A00046	1/24/2023	3.99	1/24/2028	1/24/2023	116.44357	111.4037787	106.6176736	102.0711267	97.75086674	93.64442472	89.74008173	86.02681999	82.49427741
200225A00041	10/30/2020	1.48	10/30/2023	10/30/2020	100.01902	99.35571965	98.70117598	98.05521948	97.41768219	96.78840049	96.16721497	95.5539703	94.9485151
200826A00035	8/28/2020	0.78	8/28/2023	8/28/2020	99.701395	99.20755372	98.71858463	98.23441593	97.75497729	97.28019971	96.81001555	96.34435847	95.88316338
210217A00008	2/18/2021	0.63	8/15/2024	2/18/2021	98.728701	97.3229186	95.94391483	94.5909927	93.26347891	91.96072287	90.68209567	89.42698927	88.19481555
220421A00014	4/21/2022	3.24	5/30/2025	4/21/2022	104.67113	102.4498012	100.2867316	98.17995954	96.12761054	94.12788879	92.17907315	90.27951329	88.42762616
230127A00095	1/27/2023	4.59	1/27/2025	1/27/2023	106.27629	104.3712111	102.510163	100.691861	98.91506909	97.17859503	95.48128856	93.82203963	92.19977678
200316A00042	3/16/2020	1.23	3/15/2024	3/16/2020	99.64054	98.62009976	97.62044291	96.64093963	95.68098543	94.73999978	93.81742493	92.91272481	92.025384
220913A00005	9/13/2022	4.09	9/13/2024	9/13/2022	104.05994	102.53644	101.0430178	99.57885395	98.14315713	96.735164	95.35413815	93.99936881	92.6701698
230203A00046	2/10/2023	4.65	2/10/2025	2/10/2023	106.55582	104.6084891	102.7070286	100.8500775	99.03632367	97.26450272	95.5333956	93.84182676	92.18866229
200108A00015	12/18/2020	1.98	12/18/2023	12/18/2020	100.38655	99.5920211	98.81003596	98.04030087	97.28252956	96.53644461	95.80177713	95.07826642	94.36565969
200429A00061	4/29/2020	1.66	10/29/2029	4/29/2020	106.50178	100.0543616	94.03907268	88.42472355	83.18253159	78.28592414	73.71035767	69.43315265	65.43334276
220901A00033	9/1/2022	3.72	9/1/2027	9/1/2022	113.83332	109.245896	104.8740216	100.7064003	96.73238853	92.9419534	89.32563449	85.87450813	82.58015415
211207A00017	12/7/2021	1.3	11/15/2024	12/7/2021	99.860589	98.20574765	96.58591036	95.00003103	93.44710507	91.92616771	90.43629198	88.97658686	87.5461955
220421A00012	4/21/2022	3.31	4/21/2026	4/21/2022	107.607	104.4761972	101.4538235	98.53548418	95.71699411	92.99436336	90.36378663	87.82163347	85.36443898
230110A00070	1/10/2023	4.27	1/9/2026	1/10/2023	109.45428	106.5740956	103.7858457	101.0861073	98.4716019	95.93919008	93.48586523	91.10874702	88.80507544
230210A00043	2/10/2023	4.34	2/10/2027	2/10/2023	114.26029	110.217661	106.3441821	102.6318648	99.07313872	95.66082926	92.38813487	89.2486056	86.23612304
221130A00076	11/30/2022	4.15	11/30/2027	11/30/2022	117.78916	112.8313868	108.1167679	103.6319785	99.36450474	95.30258697	91.43516941	87.75185386	84.24285666
230120A00029	1/20/2023	3.9	1/20/2028	1/20/2023	115.96909	110.951357	106.1858433	101.6585267	97.3562332	93.26658419	89.37794413	85.67937238	82.16057825
200325A00046	3/25/2020	1.76	3/25/2025	3/25/2020	101.08599	99.0777803	97.11934109	95.2091166	93.34560738	91.52737173	89.753023	88.02122704	86.3306998
200325A00009	3/27/2020	1.67	3/27/2025	3/27/2020	100.90682	98.89533182	96.93379393	95.0206331	93.15434162	91.33346995	89.55662408	87.82246291	86.12969581
210318A00007	3/22/2021	1.41	3/21/2024	3/22/2021	99.82268	98.78572073	97.7701921	96.77543511	95.8008177	94.84573324	93.90959924	92.99185617	92.09196634
210624A00005	6/24/2021	1.22	6/24/2026	6/24/2021	101.26972	98.07289996	94.9929801	92.02508333	89.16455927	86.40697589	83.74810796	81.18392626	78.71058735
220623A00005	6/23/2022	3.45	6/23/2027	6/23/2022	112.01115	107.6493336	103.4849471	99.50800393	95.70907925	92.0792715	88.61017042	85.29382736	82.12272749

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201123A00011	11/25/2020	1.41	11/24/2025	11/25/2020	101.14781	98.50458418	95.94328632	93.46084725	91.05433848	88.72096212	86.45804397	84.26302705	82.13346548
221129A00060	11/29/2022	4.39	11/27/2026	11/29/2022	113.57211	109.7467148	106.0738911	102.5466545	99.15838146	95.90279187	92.77392872	89.76613932	86.87405773
221216A00049	12/16/2022	4.29	8/15/2025	12/16/2022	107.86829	105.4045708	103.0106525	100.6841615	98.4228157	96.22442409	94.08688277	92.00817075	89.98634619
230207A00025	2/7/2023	4.62	2/7/2025	2/7/2023	106.87304	104.9236634	103.0201267	101.1610726	99.34519211	97.57122365	95.83795093	94.14420099	92.48884236
230131A00034	2/3/2023	3.99	12/23/2027	2/3/2023	116.13904	111.1919803	106.4900094	102.0196575	97.76826951	93.7239477	89.87550204	86.21240466	82.72474716
200306A00080	11/6/2020	1.12	11/6/2023	11/6/2020	99.764403	99.08349715	98.41184679	97.74926417	97.09556666	96.45057649	95.81412064	95.18603061	94.56614233
230117A00015	1/17/2023	4.52	1/17/2025	1/17/2023	106.03608	104.1595249	102.3258053	100.5336865	98.78198008	97.06953968	95.39525855	93.75806822	92.15693682
230214A00049	2/14/2023	4.38	2/14/2029	2/14/2023	122.11184	115.8602747	109.9804078	104.4480457	99.24069055	94.33741617	89.71875077	85.36656849	81.26398975
200406A00059	4/6/2020	0.92	4/6/2023	4/6/2020	100.00102	99.89869901	99.79659433	99.69470666	99.59303529	99.49157952	99.39033866	99.28931199	99.18849884
220509A00013	7/15/2022	3.37	7/15/2027	7/15/2022	111.85973	107.4425434	103.227882	99.20540005	95.36533665	91.69847617	88.19611482	84.85002973	81.65244992
220624A00003	6/24/2022	3.5	6/24/2027	6/24/2022	112.23467	107.8653597	103.6938705	99.71020169	95.90490903	92.26907215	88.79426283	85.47251529	82.29629838
230120A00071	1/20/2023	4.31	1/21/2025	1/20/2023	106.08021	104.185458	102.3342969	100.5254634	98.75773923	97.02994942	95.34096003	93.68967664	92.07504267
200327A00073	3/27/2020	0.99	3/27/2025	3/27/2020	99.922339	97.91304464	95.95383928	94.04314495	92.17944528	90.36128262	88.58725532	86.8560151	85.16626457
220624A00049	6/24/2022	3.29	6/24/2024	6/24/2022	102.55812	101.2539664	99.97439654	98.71874385	97.48636365	96.27663457	95.08895741	93.92275419	92.77746719
220705A00011	7/5/2022	3.14	7/7/2025	7/5/2022	104.74615	102.4222196	100.1617768	97.96274218	95.82311622	93.74097614	91.7144723	89.74182504	87.82132159
220823A00006	8/23/2022	3.66	2/23/2024	8/23/2022	102.08578	101.1066594	100.1463448	99.20429425	98.27998996	97.37293344	96.48264474	95.60866159	94.75053859
221005A00041	10/5/2022	4.3	10/5/2027	10/5/2022	116.76336	112.0174582	107.4973632	103.191076	99.0872981	95.17538997	91.44532895	87.88767006	84.49350946
200305A00016	3/5/2020	0.99	3/6/2023	3/5/2020	100.00208	99.98545974	99.96885787	99.9522726	99.93570389	99.91915173	99.90261608	99.88609692	99.86959422
200417A00004	4/17/2020	0.86	4/17/2024	4/17/2020	99.165615	98.0630893	96.98489739	95.93024134	94.89835768	93.88851566	92.90001548	91.93218667	90.98438659
220831A00079	8/31/2022	3.79	8/29/2025	8/31/2022	106.77374	104.2870487	101.871907	99.52584501	97.24649015	95.03156601	92.87888795	90.78635878	88.75196462
200305A00037	3/5/2020	1.43	3/6/2028	3/5/2020	104.11594	99.26263521	94.66333	90.30343549	86.16927851	82.24803589	78.5276772	74.99691172	71.64513922
200407A00004	4/7/2020	0.99	4/7/2025	4/7/2020	99.949139	97.91058748	95.92334587	93.98577761	92.09631136	90.25343756	88.45570551	86.70172056	84.99014149
210127A00010	1/27/2021	1.41	7/26/2030	1/27/2021	105.24667	98.16837558	91.61266866	85.5383592	79.90769609	74.68606542	69.84171542	65.34550668	61.1706854
221027A00062	12/15/2022	4.45	12/15/2027	12/15/2022	118.24853	113.2732455	108.5427702	104.0436946	99.76341805	95.69009468	91.81258349	88.12040279	84.60368749
200429A00049	4/29/2020	1.25	4/29/2026	4/29/2020	101.19117	98.14002625	95.19602569	92.35478418	89.61212764	86.96407835	84.40684434	81.93680938	79.55052365
210709A00005	7/9/2021	1.69	7/9/2031	7/9/2021	108.17099	100.1224318	92.73328208	85.94610749	79.70874745	73.97380561	68.69819315	63.84271792	59.37171456
211207A00012	12/7/2021	1.62	12/4/2026	12/7/2021	103.29415	99.64155646	96.13730328	92.77453424	89.54675337	86.44780264	83.47184206	80.61333117	77.86701174
220404A00013	4/4/2022	2.1	4/4/2023	4/4/2022	100.11661	100.0196907	99.92296814	99.82643811	99.73009999	99.63395318	99.53799713	99.44223125	99.34665498
221027A00050	10/27/2022	4.52	10/27/2027	10/27/2022	118.02011	113.1858284	108.5836371	104.2010816	100.0264444	96.04869874	92.25746408	88.64296435	85.1959894
200318A00013	3/18/2020	1.5	3/18/2025	3/18/2020	100.52749	98.54317789	96.60780463	94.71984302	92.87782915	91.08035494	89.32606558	87.61365711	85.94187407
200331A00007	3/31/2020	0.72	3/29/2024	3/31/2020	99.262468	98.20516288	97.17019972	96.15687723	95.16452312	94.1924927	93.24016743	92.30695363	91.39228126
211227A00009	12/27/2021	1.6	12/23/2026	12/27/2021	103.29859	99.59734216	96.04827841	92.64435588	89.37889681	86.24556611	83.23835197	80.35154747	77.57973354
220615A00010	6/15/2022	3.86	6/15/2027	6/15/2022	113.68464	109.3092593	105.1305555	101.1386065	97.32404849	93.67803862	90.19222327	86.85870804	83.67003

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220630A00036	6/30/2022	3.42	6/30/2027	6/30/2022	111.94661	107.5670192	103.3864957	99.39495833	95.58288973	91.94129963	88.46169278	85.13603931	81.9567469
220829A00057	8/29/2022	3.67	8/31/2026	8/29/2022	110.00873	106.4877008	103.1004713	99.84122647	96.70443696	93.68484315	90.77744025	87.97746459	85.28038057
221129A00083	11/29/2022	4.38	11/30/2026	11/29/2022	113.57095	109.7372501	106.0567478	102.5224083	99.12756917	95.86591419	92.73145286	89.71850135	86.82166471
230119A00034	1/19/2023	3.82	1/19/2028	1/19/2023	115.57196	110.5664272	105.8125036	101.2962036	97.00438842	92.92471159	89.04556784	85.3560447	81.84587776
200304A00002	3/4/2020	0.98	3/4/2025	3/4/2020	99.852301	97.90315904	96.0017153	94.14650408	92.33611556	90.56919283	88.84442947	87.16056729	85.5163942
200327A00047	3/27/2020	0.99	3/27/2025	3/27/2020	99.922339	97.91304464	95.95383928	94.04314495	92.17944528	90.36128262	88.58725532	86.8560151	85.16626457
200310A00003	3/10/2020	1.1	3/10/2025	3/10/2020	99.692767	97.7377003	95.83057858	93.96992318	92.15431134	90.38237393	88.65279308	86.96429981	85.31567189
200330A00044	3/30/2020	1.09	3/28/2025	3/30/2020	99.706363	97.7049921	95.75342023	93.85008081	91.99346833	90.1821355	88.41469053	86.68979454	85.00615913
210616A00011	5/2/2022	0.95	5/2/2025	5/2/2022	99.480666	97.38977096	95.35258878	93.36736335	91.43241039	89.54611393	87.70692295	85.91334816	84.163959
220217A00012	2/17/2022	2.28	2/16/2027	2/17/2022	106.21779	102.3154364	98.57881488	95.00002621	91.57158558	88.28640241	85.13775747	82.11928147	79.22493494
220325A00011	3/28/2022	2.79	4/25/2025	3/28/2022	103.42652	101.3107216	99.24869218	97.23869479	95.27905812	93.36817802	91.50451417	89.68658696	87.91297454
220701A00024	7/1/2022	3.08	7/1/2025	7/1/2022	104.56022	102.254056	100.0105114	97.82755103	95.70321469	93.6356166	91.62294228	89.66344545	87.75544502
220729A00047	7/29/2022	3.06	1/29/2027	7/29/2022	109.13196	105.2236864	101.4786667	97.8892299	94.44810488	91.14839817	87.98357222	84.94742517	82.0340719
220907A00010	9/7/2022	3.9	9/9/2032	9/7/2022	132.09164	121.799068	112.4298281	103.8951171	96.11513852	89.01814875	82.53960558	76.62141022	71.2112328
221214A00030	12/14/2022	4.02	12/14/2027	12/14/2022	116.19428	111.270117	106.5887629	102.136903	97.90202654	93.8723727	90.03688127	86.38514717	82.907378
200306A00022	3/6/2020	1.2	3/8/2027	3/6/2020	102.03481	98.16082589	94.45443962	90.90753553	87.51243244	84.26185992	81.14893413	78.16713506	75.31028537
200327A00030	3/27/2020	1.01	3/27/2024	3/27/2020	99.382918	98.33300018	97.3051128	96.29856884	95.31270953	94.34690294	93.40054265	92.47304644	91.56385514
200330A00038	3/30/2020	1.79	3/29/2030	3/30/2020	107.71493	100.8453087	94.46112219	88.52555444	83.00476171	77.867619	73.08548839	68.63200837	64.48290192
210201A00007	2/3/2021	0.57	8/15/2024	2/3/2021	98.640741	97.23562838	95.85728303	94.5050081	93.17813061	91.87600022	90.59798835	89.34348719	88.11190889
210616A00007	3/18/2022	0.9	3/18/2025	3/18/2022	99.298309	97.32683907	95.40405067	93.52842875	91.69851632	89.91291195	88.17026723	86.46928436	84.80871384
221110A00075	11/10/2022	4.56	11/10/2025	11/10/2022	109.56945	106.8488822	104.2108274	101.6522464	99.17023833	96.7620294	94.4249662	92.15650965	89.95422912
200302A00018	3/2/2020	1.25	3/2/2023	3/2/2020	100.00198	99.99643599	99.99090109	99.9853711	99.97984601	99.97432581	99.96881049	99.96330005	99.95779447
200316A00037	3/16/2020	1.06	3/14/2025	3/16/2020	100.0371	98.06019106	96.13204323	94.2511411	92.41602814	90.62530323	88.87761815	87.17167515	85.50622464
200611A00023	6/11/2020	0.64	6/12/2023	6/11/2020	99.852616	99.56671162	99.28245066	98.99981904	98.7188027	98.43938778	98.16156056	97.88530747	97.61061512
201001A00011	10/1/2020	0.71	6/17/2025	10/1/2020	99.012743	96.80879791	94.66417921	92.57692589	90.54515602	88.56706253	86.6409096	84.76502935	82.93781865
201030A00019	10/30/2020	1.15	10/29/2027	10/30/2020	102.44735	97.96521974	93.70308268	89.6489955	85.79172737	82.12071462	78.62601732	75.29827891	72.12868865
220214A00012	2/14/2022	2.47	12/28/2029	2/14/2022	112.07611	105.2933581	98.97156331	93.07696922	87.5784579	82.44732864	77.65709881	73.18332207	69.00342226
210127A00008	1/27/2021	0.93	1/27/2027	1/27/2021	100.83821	97.09584629	93.51141058	90.07744618	86.78689088	83.63304979	80.60957432	77.71044247	74.92994036
211028A00020	10/28/2021	2.05	1/28/2031	10/28/2021	110.54599	102.8122228	95.67953131	89.09802274	83.02218475	77.41048078	72.22498446	67.4310492	62.99700957
200826A00038	8/28/2020	1.11	8/28/2024	8/28/2020	99.438663	97.99442627	96.57830078	95.18953982	93.82742216	92.49125137	91.18035477	89.89408241	88.63180613
210312A00008	3/12/2021	1.13	3/12/2026	3/12/2021	100.67706	97.75859315	94.93945366	92.21571409	89.58362732	87.03961548	84.58026121	82.20229946	79.90260979
210330A00022	3/30/2021	1.27	3/30/2026	3/30/2021	101.1539	98.1822057	95.31274805	92.5414334	89.86436045	87.27780671	84.77821915	82.36220541	80.02652541
210907A00009	9/7/2021	2.5	9/7/2039	9/7/2021	122.35496	106.5528681	93.06792702	81.54260887	71.67649502	63.21689024	55.95101789	49.69952499	44.31107209

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210914A00017	9/14/2021	1.32	9/14/2028	9/14/2021	105.11602	99.70554004	94.60491026	89.79481284	85.25723514	80.97537139	76.93353573	73.11708191	69.51232921
220131A00006	1/31/2022	1.83	2/1/2027	1/31/2022	105.18932	101.326786	97.6273466	94.08327579	90.68725771	87.43235882	84.31200585	81.31996523	78.45032375
220628A00052	8/15/2022	3.6	8/13/2027	8/15/2022	113.12346	108.6022349	104.2913882	100.1800094	96.25780928	92.51508268	88.94267238	85.53193527	82.27471084
221229A00075	12/29/2022	5.2	12/29/2037	12/29/2022	159.63566	142.6229749	127.7852792	114.8239227	103.4831809	93.54385765	84.81787386	77.14368323	70.38238516
220829A00048	8/29/2022	3.75	2/25/2025	8/29/2022	104.9445	102.9701264	101.0433229	99.16264654	97.32670868	95.53417191	93.78374797	92.07419554	90.4043182
221117A00014	11/17/2022	4.54	11/14/2025	11/17/2022	109.56393	106.8324429	104.1840724	101.6157469	99.12453444	96.70763177	94.36235804	92.08614834	89.87654774
200316A00055	3/16/2020	1.06	3/14/2025	3/16/2020	100.0371	98.06019106	96.13204323	94.2511411	92.41602814	90.62530323	88.87761815	87.17167515	85.50622464
220609A00038	10/3/2022	3.28	3/29/2024	10/3/2022	101.84797	100.7786563	99.73179627	98.70668689	97.70265518	96.71905567	95.75526901	94.81070065	93.88477964
220630A00019	6/30/2022	3.25	12/29/2023	6/30/2022	101.45002	100.6217519	99.80700134	99.00543833	98.21674455	97.44061182	96.67674176	95.92484535	95.1846426
220719A00004	7/19/2022	3.46	7/19/2027	7/19/2022	112.28574	107.8488293	103.6156928	99.57590223	95.71961849	92.03755296	88.52093407	85.16147592	81.95134894
220906A00046	9/6/2022	3.79	9/7/2027	9/6/2022	114.2065	109.5941421	105.1990373	101.0097669	97.01557684	93.2063319	89.572477	86.10500071	82.79540147
220908A00030	9/8/2022	3.85	9/9/2024	9/8/2022	103.65437	102.1450023	100.6653305	99.21455098	97.79188698	96.3965893	95.02793487	93.68522565	92.36778754
221130A00019	11/30/2022	4.63	11/26/2025	11/30/2022	109.9547	107.184887	104.5001471	101.8973054	99.37333096	96.92532789	94.55052825	92.24628523	90.01006687
200423A00017	4/23/2020	1.82	4/23/2035	4/23/2020	114.21011	102.3728688	91.88627672	82.58836783	74.33738962	67.00918532	60.49492987	54.6991672	49.53810735
200429A00057	4/29/2020	1.4	4/29/2027	4/29/2020	103.03265	99.00374864	95.15380211	91.47390259	87.95563623	84.59105326	81.37263949	78.2932899	75.34628388
201118A00009	11/18/2020	0.61	11/18/2025	11/18/2020	99.514213	96.8967103	94.36035428	91.90211298	89.51909011	87.2085182	84.96775177	82.79426094	80.68562547
210216A00011	2/17/2021	0.83	12/15/2025	2/17/2021	99.603295	96.927614	94.33655058	91.82694082	89.3957594	87.04011283	84.75723285	82.54447006	80.39928801
211119A00009	11/19/2021	1.68	11/19/2027	11/19/2021	104.98283	100.3873995	96.01910769	91.86551524	87.91493016	84.15636245	80.57947779	77.17455456	73.93244393
220325A00020	3/28/2022	2.86	3/23/2027	3/28/2022	108.78023	104.7325384	100.8596781	97.15315387	93.60492963	90.20740178	86.95337332	83.83602987	80.84891714
220624A00033	6/24/2022	3.5	6/24/2027	6/24/2022	112.23467	107.8653597	103.6938705	99.71020169	95.90490903	92.26907215	88.79426283	85.47251529	82.29629838
200401A00023	4/1/2020	0.82	4/1/2025	4/1/2020	99.578096	97.5594728	95.59139982	93.6722753	91.80056091	89.97477829	88.19350625	86.45537807	84.75907895
200413A00027	4/13/2020	0.94	4/12/2024	4/13/2020	99.257884	98.16777418	97.10143899	96.05810821	95.03704422	94.03754063	93.05892064	92.1005355	91.1617631
210224A00007	2/26/2021	0.68	10/21/2024	2/26/2021	98.792357	97.21207932	95.66431725	94.14813157	92.66261938	91.20691212	89.78017388	88.38159987	87.01041497
211214A00013	12/14/2021	1.02	12/14/2023	12/14/2021	99.610636	98.83015359	98.06184576	97.30542978	96.56063118	95.82718392	95.10483002	94.39331925	93.69240888
220329A00009	3/29/2022	2.94	3/29/2029	3/29/2022	113.84389	107.7174252	101.965622	96.56353807	91.48801863	86.71756036	82.23218523	78.01332457	74.04371254
220419A00014	4/19/2022	3.06	4/18/2025	4/19/2022	103.95413	101.851413	99.80177001	97.80349536	95.85495157	93.95456633	92.10082931	90.29228916	88.52755075
220617A00040	6/17/2022	3.23	6/16/2023	6/17/2022	100.62087	100.3225515	100.0260089	99.73122848	99.43819449	99.14689139	98.8573038	98.56941653	98.28321457
210226A00002	2/26/2021	0.86	2/26/2025	2/26/2021	99.190068	97.27139392	95.3992895	93.57233811	91.78917604	90.04849012	88.34901549	86.68953345	85.06886945
210629A00015	6/29/2021	1.89	6/27/2031	6/29/2021	109.77983	101.6957773	94.27013227	87.44580857	81.17094243	75.39838915	70.08527216	65.19257724	60.68478709
210719A00004	7/19/2021	1	4/20/2026	7/19/2021	100.38033	97.36557418	94.45614963	91.64777248	88.93636231	86.31802926	83.78906378	81.34592709	78.98524212
210907A00004	9/7/2021	2.01	9/7/2033	9/7/2021	112.92158	102.7318292	93.56078448	85.30078545	77.85607572	71.1414303	65.08094929	59.60699499	54.65925492
220216A00002	2/16/2022	2.09	2/14/2025	2/16/2022	101.58145	99.67238704	97.80877184	95.98924559	94.21249971	92.47727329	90.78235098	89.12656107	87.50877354
220418A00016	4/22/2022	3.11	9/15/2026	4/22/2022	108.18784	104.6577036	101.2632276	97.99845644	94.85772883	91.83566248	88.92713892	86.12728895	83.43147905

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200311A00055	3/11/2020	1.66	12/17/2027	3/11/2020	104.9901	100.322303	95.88856698	91.67594982	87.67229452	83.86617566	80.24685137	76.80421884	73.52877287
210623A00028	6/23/2021	1.22	6/23/2026	6/23/2021	101.26646	98.0723137	94.99488552	92.02930104	89.17091721	86.4153092	83.7582589	81.19574407	78.72392811
221129A00056	11/29/2022	4.31	11/29/2027	11/29/2022	117.41343	112.5012635	107.8290718	103.3837514	99.15299235	95.12522405	91.28956607	87.63578302	84.15424238
221213A00052	12/13/2022	4.02	12/14/2027	12/13/2022	116.19428	111.270117	106.5887629	102.136903	97.90202654	93.8723727	90.03688127	86.38514717	82.907378
221220A00024	12/20/2022	4.7	12/20/2024	12/20/2022	106.06544	104.2622721	102.4987912	100.7738478	99.08633792	97.43519805	95.81940298	94.23796423	92.68992838
230110A00040	1/13/2023	4.07	12/13/2027	1/13/2023	116.42196	111.4951232	106.8110335	102.3563815	98.11866466	94.08612956	90.2477233	86.59304761	83.11231652
200818A00016	3/31/2021	0.57	4/1/2024	3/31/2021	98.889547	97.82962767	96.7922339	95.77665433	94.78220757	93.80824038	92.85412612	91.9192635	91.00307526
221110A00032	11/10/2022	4.75	11/12/2024	11/10/2022	105.74536	104.0467605	102.3838048	100.7554351	99.16063444	97.59842577	96.06787016	94.56806483	93.09814144
230112A00066	1/12/2023	4	1/12/2028	1/12/2023	116.37837	111.3721118	106.6163383	102.0971851	97.80162161	93.7174002	89.83300554	86.13760716	82.62101528
220511A00002	5/11/2022	3.18	5/12/2025	5/11/2022	104.3977	102.226428	100.1111628	98.05005911	96.04134654	94.08332723	92.17437236	90.31291872	88.49746547
220817A00047	8/17/2022	3.29	8/17/2027	8/17/2022	112.76611	108.2132726	103.8736353	99.73608153	95.79012913	92.0258942	88.43405385	85.00581143	81.73286405
200305A00001	3/5/2020	1.14	3/5/2025	3/5/2020	99.763763	97.82079954	95.92528868	94.07577515	92.27085833	90.50919005	88.78947224	87.11045465	85.47093279
200323A00011	3/23/2020	1.37	3/23/2023	3/23/2020	100.03285	99.96916445	99.90556945	99.84206793	99.7786597	99.71534455	99.65212229	99.58899271	99.52595561
210309A00002	3/11/2021	0.77	7/25/2024	3/11/2021	98.944911	97.59082438	96.26160448	94.95662631	93.67528551	92.41699733	91.18119588	89.96733333	88.77487923
220209A00010	2/9/2022	2.14	1/11/2027	2/9/2022	105.45201	101.6611877	98.02768041	94.54416705	91.20370032	87.99968995	84.92588243	81.97634214	79.14543349
220419A00013	4/19/2022	2.84	4/19/2024	4/19/2022	101.42775	100.3063879	99.2097988	98.13716583	97.08770992	96.06068545	95.0553785	94.07110518	93.10721005
221130A00061	11/30/2022	5.05	11/30/2023	11/30/2022	102.70855	101.9518484	101.2063236	100.47173	99.74782846	99.03438652	98.33117848	97.63798511	96.95459337
201221A00015	12/21/2020	0.88	12/4/2026	12/21/2020	100.52625	96.92533791	93.47123462	90.15714208	86.97661964	83.92356204	80.99217976	78.17698055	75.47275226
211209A00006	12/9/2021	1.61	12/8/2026	12/9/2021	103.27354	99.61109891	96.0977941	92.72672865	89.49136923	86.38552139	83.40330978	80.53915965	77.78777964
220705A00005	7/5/2022	3.15	1/5/2024	7/5/2022	101.39176	100.5452485	99.71287011	98.89426815	98.08910251	97.29704419	96.51777486	95.75098643	94.99638065
221110A00025	11/10/2022	4.39	11/10/2026	11/10/2022	113.36707	109.5925638	105.9670478	102.4837696	99.13632692	95.9186455	92.82495981	89.84979539	86.98795224
230118A00087	1/18/2023	4.02	1/16/2026	1/18/2023	108.81279	105.923405	103.1268756	100.4197213	97.79861061	95.26035449	92.80189954	90.42032145	88.11281883
200402A00009	4/2/2020	1.03	4/2/2025	4/2/2020	99.591206	97.57807918	95.61526399	93.70116888	91.83426492	90.01308265	88.23620937	86.50228645	84.81000679
201001A00012	10/1/2020	0.74	9/16/2025	10/1/2020	99.204405	96.76598235	94.3993636	92.10201564	89.87151161	87.70552532	85.6018263	83.55827524	81.57281964
220218A00003	2/18/2022	2.16	9/4/2026	2/18/2022	104.77258	101.3320824	98.02354928	94.84121029	91.77958185	88.83344908	85.99785102	83.26806677	80.63960254
220408A00012	4/8/2022	3.12	6/29/2026	4/8/2022	107.58203	104.2673015	101.0732293	97.99480051	95.02723343	92.16596889	89.40665893	86.7451559	84.1775021
221117A00012	11/17/2022	4.54	11/14/2025	11/17/2022	109.56393	106.8324429	104.1840724	101.6157469	99.12453444	96.70763177	94.36235804	92.08614834	89.87654774
221129A00071	11/29/2022	4.28	11/26/2027	11/29/2022	117.2392	112.3394591	107.6787776	103.2441203	99.02324021	95.00462453	91.17744639	87.53151969	84.05725745
230119A00108	1/19/2023	3.81	1/19/2028	1/19/2023	115.52347	110.5191031	105.766302	101.251084	96.96031186	92.88164095	89.00346763	85.31488098	81.80561806
200316A00043	3/16/2020	1.3	3/14/2025	3/16/2020	100.10796	98.13831629	96.21710956	94.34283978	92.51406367	90.72939274	88.98749072	87.28707121	85.62689544
200402A00010	4/2/2020	0.89	4/2/2024	4/2/2020	99.237755	98.17324422	97.13139885	96.11150227	95.11286739	94.13483552	93.17677491	92.23807938	91.31816705
211115A00032	11/15/2021	1.75	11/12/2027	11/15/2021	105.28176	100.6978035	96.33952644	92.19460746	88.25147131	84.49923491	80.9276619	77.52712043	74.288544
220209A00012	2/9/2022	1.98	7/29/2025	2/9/2022	102.1209	99.77201296	97.48896155	95.26953694	93.11161805	91.01316698	88.97222534	86.98691059	85.05541262

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220317A00011	3/17/2022	2.48	3/17/2025	3/17/2022	102.5295	100.5268811	98.5735083	96.66784754	94.8084283	92.99383605	91.22270968	89.49373906	87.80566277
200327A00058	3/27/2020	0.9	3/27/2023	3/27/2020	100.00262	99.92790437	99.85330393	99.77882131	99.70445625	99.63020848	99.55607773	99.48206374	99.40816624
220301A00015	3/1/2022	2	1/4/2027	3/1/2022	104.87789	101.1159441	97.50953703	94.05145762	90.73486399	87.55326421	84.50049665	81.57071148	78.75835335
221006A00012	10/6/2022	4.37	10/6/2027	10/6/2022	117.09387	112.3377594	107.8079613	103.49244	99.37986945	95.45958428	91.72153777	88.15626244	84.75483346
221110A00038	11/10/2022	4.34	11/10/2027	11/10/2022	117.34333	112.4857755	107.8632746	103.4631168	99.27335188	95.28274001	91.480705	87.85729132	84.40312408
200310A00054	3/10/2020	1.1	3/10/2025	3/10/2020	99.692767	97.7377003	95.83057858	93.96992318	92.15431134	90.38237393	88.65279308	86.96429981	85.31567189
200611A00020	6/11/2020	0.81	6/11/2025	6/11/2020	99.232353	97.04160983	94.90943442	92.8338779	90.81307115	88.84522096	86.92860623	85.06157451	83.24253867
211221A00025	12/21/2021	1.59	12/21/2026	12/21/2021	103.25238	99.5571194	96.01360564	92.61482148	89.35410951	86.22515445	83.22196363	80.33884872	77.57040855
220309A00010	3/9/2022	2.27	3/8/2027	3/9/2022	106.3087	102.3496632	98.56087694	94.93412293	91.46162017	88.13600306	84.95029696	81.89789523	78.97253785
220913A00017	9/13/2022	3.98	9/14/2026	9/13/2022	111.243	107.6617705	104.2175442	100.9043163	97.7163834	94.64832282	91.69497717	88.85143975	86.11304098
230120A00063	1/20/2023	4.83	7/22/2024	1/20/2023	104.6483	103.2599925	101.8970033	100.5586952	99.24445424	97.95368648	96.68581705	95.44028946	94.21656486
200330A00066	3/30/2020	1.08	3/31/2025	3/30/2020	99.691159	97.68225409	95.72345805	93.81318933	91.94992851	90.13221515	88.35864502	86.6278675	84.93858305
220823A00009	8/23/2022	3.52	8/23/2027	8/23/2022	112.85858	108.3167188	103.9874738	99.85975268	95.92309935	92.16765474	88.58411972	85.16372027	81.89817515
230203A00057	2/3/2023	4.34	2/3/2026	2/3/2023	109.93337	106.979415	104.1217473	101.3567038	98.6807799	96.09062357	93.58302752	91.15492225	88.8033693
200312A00006	3/12/2020	1.23	3/12/2025	3/12/2020	99.960794	97.99781717	96.08304354	94.21498305	92.39220238	90.61332239	88.87701573	87.18200444	85.52705773
201116A00021	11/16/2020	0.53	11/15/2024	11/16/2020	98.871251	97.21930513	95.60242269	94.01955291	92.46968713	90.95185679	89.46513143	88.00861674	86.58145278
211220A00005	12/20/2021	0.97	12/20/2023	12/20/2021	99.557245	98.76123716	97.97789631	97.20692182	96.44802269	95.700917	94.96533154	94.24100147	93.52767005
220420A00033	4/20/2022	3.29	4/20/2027	4/20/2022	110.76616	106.6026614	102.6212495	98.81295206	95.16929052	91.68224976	88.34425018	85.14812135	82.08707756
200225A00040	10/30/2020	1.48	10/30/2023	10/30/2020	100.01902	99.35571965	98.70117598	98.05521948	97.41768219	96.78840049	96.16721497	95.5539703	94.9485151
210219A00008	2/22/2021	0.86	12/1/2025	2/22/2021	99.662204	97.02117233	94.46263075	91.98347348	89.58073564	87.25158524	84.99331609	82.80334119	80.67918647
220509A00014	7/15/2022	3.37	7/15/2027	7/15/2022	111.85973	107.4425434	103.227882	99.20540005	95.36533665	91.69847617	88.19611482	84.85002973	81.65244992
220509A00016	7/15/2022	3.37	7/15/2027	7/15/2022	111.85973	107.4425434	103.227882	99.20540005	95.36533665	91.69847617	88.19611482	84.85002973	81.65244992
200327A00060	3/27/2020	1.18	3/27/2025	3/27/2020	99.891051	97.89029258	95.9392683	94.03641494	92.18023059	90.36927135	88.60214858	86.87752639	85.19411919
221216A00008	12/16/2022	4.27	12/16/2025	12/16/2022	109.19178	106.378947	103.6540857	101.0139289	98.45534831	95.97535145	93.57107468	91.23977676	88.97883281
200320A00052	3/25/2020	1.47	3/25/2025	3/25/2020	100.4864	98.48449941	96.53225152	94.62809713	92.77054021	90.95814237	89.18952011	87.46334235	85.77832799
220929A00034	9/29/2022	4.67	5/31/2024	9/29/2022	103.86807	102.6219221	101.4058239	100.2186956	99.05950936	97.92728523	96.82108878	95.74002834	94.68325257
221129A00050	11/29/2022	4.56	12/2/2025	11/29/2022	109.83536	107.0508497	104.3523041	101.7365086	99.20039233	96.74102149	94.35559183	92.04142188	89.79594663
221130A00110	11/30/2022	4.15	11/30/2027	11/30/2022	116.67017	111.7725896	107.1146237	102.6831727	98.46593371	94.45134329	90.62852848	86.98726142	83.51791715
200304A00005	3/4/2020	0.98	3/4/2025	3/4/2020	99.852301	97.90315904	96.0017153	94.14650408	92.33611556	90.56919283	88.84442947	87.16056729	85.5163942
200327A00046	3/27/2020	1.23	3/27/2025	3/27/2020	99.9947	97.99284761	96.04075051	94.13684537	92.27962968	90.46765896	88.69954404	86.97394849	85.28958619
210707A00002	7/7/2021	1.12	6/26/2026	7/7/2021	100.9457	97.74898952	94.66941402	91.70207837	88.84232252	86.0857047	83.42798995	80.86513939	78.39330004
210712A00010	6/27/2022	1.05	6/27/2025	6/27/2022	99.81594	97.5763137	95.39757557	93.27773616	91.21488298	89.207177	87.25284932	85.35019807	83.49758547
221020A00052	10/20/2022	4.95	10/21/2024	10/20/2022	105.82866	104.1886051	102.5821295	101.0082665	99.46608512	97.95468968	96.47321819	95.02084071	93.59675785

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210701A00007	7/1/2021	1.22	7/1/2026	7/1/2021	101.29224	98.07677591	94.97951995	91.99553648	89.12012043	86.34878623	83.6772564	81.10145079	78.61747651
211210A00015	12/10/2021	1.63	12/10/2026	12/10/2021	103.35706	99.68794696	96.16841183	92.79154459	89.55079124	86.43993723	83.4530877	80.58464906	77.8293117
220111A00002	1/11/2022	1.75	1/16/2026	1/11/2022	102.29647	99.50122516	96.79655097	94.17903906	91.64542906	89.19260032	86.81756509	84.51746213	82.28955063
200402A00003	4/2/2020	0.8	4/3/2023	4/2/2020	99.992047	99.89799868	99.80413065	99.71044285	99.61693478	99.5236059	99.43045571	99.33748369	99.24468932
200527A00016	5/27/2020	0.92	5/27/2025	5/27/2020	99.455278	97.30106664	95.20351933	93.16073297	91.17088477	89.23222836	87.34308986	85.50186411	83.70701127
220624A00044	6/24/2022	3.43	6/24/2025	6/24/2022	105.31586	103.0195814	100.7851416	98.61051575	96.49376034	94.43300718	92.42646005	90.47239144	88.56913941
221020A00046	10/20/2022	4.95	1/21/2025	10/20/2022	106.8943	104.9989487	103.147041	101.3373264	99.56859382	97.83967498	96.14944238	94.49680763	92.88071989
221223A00016	12/23/2022	4.73	12/23/2024	12/23/2022	106.15305	104.3411498	102.5692764	100.8362865	99.14107389	97.48257228	95.85975313	94.27162419	92.71722787
200401A00013	4/1/2020	1.01	4/1/2025	4/1/2020	99.547357	97.53733741	95.57750821	93.66628343	91.80213945	89.98361183	88.20929264	86.47782771	84.78791422
200826A00039	8/28/2020	1.03	7/29/2024	8/28/2020	99.311169	97.94420123	96.60250404	95.2854383	93.99238589	92.72274887	91.47594873	90.25142555	89.04863729
210208A00008	2/11/2021	0.78	11/17/2025	2/11/2021	99.416207	96.81508962	94.29430679	91.85086765	89.4819146	87.18471666	84.95666275	82.79525551	80.69810539
210706A00015	7/6/2021	1.06	12/31/2025	7/6/2021	100.28042	97.55460149	94.9161127	92.3617147	89.88830206	87.49290048	85.17266053	82.92485174	80.74685702
200305A00019	3/5/2020	0.81	3/6/2023	3/5/2020	100.0018	99.98515915	99.96853155	99.95192086	99.93532704	99.91875008	99.90218992	99.88564656	99.86911995
200403A00010	4/6/2020	0.8	4/6/2023	4/6/2020	99.988699	99.88638881	99.78429621	99.68242061	99.58076128	99.47931754	99.37808866	99.27707397	99.17627276
220302A00011	3/2/2022	2.14	1/13/2027	3/2/2022	105.46308	101.6669253	98.0285073	94.5404756	91.19585597	87.98803299	84.91072973	81.95798872	79.12415409
200220A00034	2/25/2020	1.71	3/27/2023	2/25/2020	100.06333	99.98856649	99.91391908	99.83938957	99.76497769	99.69068318	99.61650576	99.54244517	99.46850115
200302A00017	3/2/2020	1.3	3/4/2024	3/2/2020	99.729811	98.73730044	97.76443237	96.81062832	95.87533255	94.95801071	94.05814886	93.17525247	92.30884555
200330A00054	3/30/2021	1.19	3/30/2026	3/30/2021	100.90847	97.94055783	95.07478444	92.3070609	89.63348902	87.05034929	84.55409156	82.14132616	79.80881569
200331A00017	3/31/2020	0.9	3/31/2025	3/31/2020	99.743045	97.72532451	95.75807612	93.83970266	91.96866992	90.14350346	88.36278573	86.62515347	84.92929511
221129A00084	11/29/2022	4.38	11/30/2026	11/29/2022	113.57095	109.7372501	106.0567478	102.5224083	99.12756917	95.86591419	92.73145286	89.71850135	86.82166471
200325A00047	3/25/2020	1.68	9/25/2024	3/25/2020	100.37094	98.84482514	97.34924977	95.88336644	94.44635709	93.03743335	91.6558352	90.30082969	88.97170975
200415A00024	4/15/2020	2.2	4/16/2035	4/15/2020	115.96172	104.2080659	93.7817081	84.52460604	76.29833006	68.98153408	62.46776868	56.6635839	51.48688201
220404A00010	4/4/2022	2.93	4/2/2027	4/4/2022	109.14151	105.0600577	101.1557318	97.4198824	93.84432974	90.42133688	87.14358289	84.00413815	80.99644123
220627A00055	6/27/2022	3.55	6/26/2026	6/27/2022	108.97825	105.6485113	102.4394885	99.34616393	96.36375729	93.48771161	90.71368158	88.03752258	85.45528026
210308A00009	3/8/2021	0.62	3/8/2024	3/8/2021	99.023285	98.02432198	97.04536309	96.08581236	95.14509762	94.22266901	93.31799787	92.43057573	91.55991338
220628A00053	8/15/2022	3.6	8/13/2027	8/15/2022	113.12346	108.6022349	104.2913882	100.1800094	96.25780928	92.51508268	88.94267238	85.53193527	82.27471084
230131A00067	1/31/2023	4.02	2/2/2026	1/31/2023	109.6189	106.6580786	103.7940205	101.0230337	98.34158962	95.7463135	93.23397667	90.80148938	88.44589406
210104A00011	11/23/2021	0.88	11/23/2026	11/23/2021	100.4993	96.92719063	93.49970312	90.21017278	87.05228394	84.02004908	81.10778961	78.31011784	75.62192008
210122A00006	1/25/2021	0.61	8/15/2024	1/25/2021	98.699381	97.29382186	95.91503757	94.56233117	93.23502948	91.93248199	90.6540599	89.39915524	88.16717999
210303A00006	3/4/2021	0.97	10/10/2025	3/4/2021	99.844773	97.3357528	94.90189165	92.54048384	90.24893946	88.02477874	85.86562661	83.76920747	81.73334027
210916A00009	9/16/2021	2.25	9/16/2036	9/16/2021	117.25779	104.2266783	92.81489428	82.81067953	74.03104138	66.31771306	59.53369975	53.56032211	48.29468341
220124A00008	1/24/2022	1.88	1/22/2027	1/24/2022	104.50598	100.7052805	97.06362857	93.57356517	90.22801559	87.02027142	83.94396962	80.993073	78.16185187
221110A00024	11/10/2022	4.51	11/10/2025	11/10/2022	109.43497	106.7162283	104.0799555	101.5231156	99.04280881	96.63626264	94.30082484	92.03395749	89.83323104

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200311A00052	3/2/2021	1.43	2/28/2025	3/2/2021	100.33365	98.39771538	96.50884098	94.66559373	92.86659232	91.11050679	89.39605623	87.72200661	86.08716872
230130A00096	1/30/2023	4.67	1/30/2025	1/30/2023	106.46243	104.5476555	102.6772882	100.8500342	99.06464204	97.31990517	95.61465949	93.94778187	92.31818829
200306A00064	3/6/2020	1.2	3/8/2027	3/6/2020	102.03481	98.16082589	94.45443962	90.90753553	87.51243244	84.26185992	81.14893413	78.16713506	75.31028537
200421A00032	4/21/2020	1.31	4/21/2027	4/21/2020	102.63115	98.63149443	94.80882578	91.154366	87.65982586	84.31737118	81.11959507	78.05949216	75.13043442
200629A00023	6/29/2020	0.95	6/29/2026	6/29/2020	100.39135	97.19598585	94.11806036	91.15266971	88.2951403	85.54101667	82.88605019	80.32618835	77.85756469
210928A00009	9/28/2021	2.18	9/28/2033	9/28/2021	114.71894	104.386907	95.09008834	86.71872645	79.17524549	72.37283953	66.2342341	60.69059569	55.68057088
220629A00002	6/29/2022	3.48	6/28/2024	6/29/2022	102.59433	101.2833545	99.99594453	98.73150304	97.48945631	96.2692495	95.07034591	93.89222618	92.73438764
220727A00004	7/27/2022	3.23	7/27/2027	7/27/2022	111.34979	106.9121898	102.6795697	98.64139043	94.78770663	91.10913231	87.59680654	84.24236133	81.03789177
220817A00037	10/14/2022	3.41	10/15/2027	10/14/2022	112.78723	108.1048203	103.6474381	99.40303784	95.36028104	91.508495	87.83763	84.3382194	81.00134255
201204A00015	12/8/2020	1.07	12/8/2025	12/8/2020	100.25521	97.58817616	95.00489584	92.50223068	90.07717957	87.72687406	85.44857142	83.23964815	81.09759391
221212A00041	12/12/2022	4.15	12/10/2027	12/12/2022	116.77149	111.8445259	107.1598253	102.7041225	98.46495073	94.43059104	90.59002281	86.93287841	83.44940074
230117A00040	1/17/2023	4.07	1/19/2027	1/17/2023	112.95506	108.9991517	105.2066197	101.5698556	98.08164266	94.73513618	91.52384205	88.44159711	85.48255048
200327A00088	3/27/2020	1.22	3/27/2025	3/27/2020	99.97397	97.9723366	96.02045407	94.11675928	92.25974986	90.44798144	88.68006495	86.95466407	85.27049279
210525A00004	5/25/2021	1.02	12/19/2025	5/25/2021	100.14105	97.44766895	94.83970517	92.31397033	89.8674156	87.49712401	85.20030382	82.97428233	80.81649997
210907A00011	9/7/2021	2.65	9/6/2041	9/7/2021	125.90351	108.2681997	93.4695791	81.02691962	70.54374115	61.69264656	54.20295086	47.85057919	42.44980819
211019A00009	10/19/2021	1.48	10/9/2026	10/19/2021	102.54257	99.04925263	95.69313934	92.46809276	89.36828716	86.38818961	83.52254344	80.76635275	78.11486787
220729A00043	7/29/2022	3.04	7/29/2027	7/29/2022	110.53382	106.1087429	101.8885231	97.86260847	94.02104426	90.35443627	86.85391656	83.51111128	80.31811064
220915A00040	9/15/2022	4.16	9/15/2025	9/15/2022	107.8832	105.3360513	102.8630668	100.4616422	98.12928373	95.86360088	93.66230107	91.52318518	89.444143
200331A00015	3/31/2020	0.64	3/31/2023	3/31/2020	99.9947	99.90878128	99.82300984	99.73738491	99.65190612	99.56657312	99.48138552	99.39634298	99.31144512
210119A00005	1/20/2021	0.52	9/25/2023	1/20/2021	99.479666	98.91157066	98.34993429	97.7946473	97.24560254	96.70269529	96.16582313	95.63488595	95.10978579
230119A00105	1/19/2023	3.9	1/19/2027	1/19/2023	112.29807	108.3548243	104.5745699	100.9497133	97.473052	94.13775475	90.93734041	87.86565811	84.91686877
200304A00030	3/4/2020	1.6	12/22/2028	3/4/2020	105.61624	99.98228705	94.68295435	89.69668738	85.00342299	80.58448203	76.42246706	72.50116812	68.80547592
200629A00021	6/29/2020	1.21	6/29/2028	6/29/2020	103.2124	98.08818002	93.24692746	88.67163535	84.34640172	80.25635119	76.38756376	72.72700899	69.2624849
221118A00019	11/18/2022	4.55	11/18/2025	11/18/2022	109.63931	106.8958084	104.2360514	101.6569378	99.15550313	96.7289141	94.37446146	92.08955361	89.87171057
230208A00060	2/8/2023	4.06	2/8/2027	2/8/2023	114.0085	109.9530873	106.0677632	102.3444791	98.77561034	95.35393152	92.07259347	88.92510163	85.90529576
200324A00051	3/24/2020	1.73	11/1/2024	3/24/2020	100.55343	98.92972164	97.33977293	95.78259149	94.25722703	92.76276604	91.29832996	89.86307348	88.45618301
210914A00014	9/14/2021	0.97	9/14/2026	9/14/2021	101.37663	97.95008841	94.65681175	91.4909109	88.44678852	85.51912459	82.70286102	79.99318725	77.38552663
220331A00011	3/31/2022	2.73	10/15/2024	3/31/2022	102.13758	100.5444951	98.98390502	97.4548835	95.95653582	94.48800092	93.04844979	91.637084	90.25313423
220712A00016	7/15/2022	3.35	1/15/2026	7/15/2022	106.88108	104.0222015	101.2553427	98.57704953	95.98402019	93.47309392	91.04124436	88.68557305	86.4033033
221129A00035	11/29/2022	4.09	11/29/2027	11/29/2022	117.49371	112.5456915	107.840319	103.3642983	99.10514536	95.05112814	91.19121661	87.51503649	84.0128264
200225A00028	2/25/2020	1.89	12/21/2029	2/25/2020	108.14757	101.5125005	95.32972627	89.56608751	84.19102104	79.17634053	74.49604022	70.12611582	66.04440101
200310A00034	3/10/2020	1.41	3/11/2030	3/10/2020	105.03408	98.3005711	92.04200923	86.2224951	80.80901969	75.77121427	71.0811266	66.71301727	62.643174
211019A00011	10/19/2021	1.48	10/16/2026	10/19/2021	102.57011	99.0584256	95.68523066	92.44430667	89.32974959	86.33595359	83.45759408	80.68961184	78.02719816

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200316A00046	3/16/2020	1.18	3/18/2024	3/16/2020	99.582772	98.55491336	97.54814932	96.56183556	95.59535414	94.64811179	93.7195387	92.80908736	91.91623148
200611A00019	6/11/2020	0.88	12/11/2025	6/11/2020	99.735254	97.06785844	94.48450874	91.98205629	89.55749209	87.20793939	84.93064679	82.72298193	80.58242541
210310A00003	3/15/2021	0.79	8/26/2024	3/15/2021	98.959015	97.52358032	96.11600054	94.73553794	93.38148006	92.05313887	90.74984971	89.47097034	88.21587995
220225A00014	2/25/2022	2.42	2/23/2029	2/25/2022	110.58468	104.6433156	99.06219802	93.81759254	88.88744355	84.25125058	79.88995101	75.78581218	71.92233214
220901A00035	9/1/2022	3.82	9/1/2028	9/1/2022	117.51416	111.8459048	106.4937363	101.4382827	96.66146424	92.14639594	87.87730251	83.83943989	80.01902261
200324A00013	3/25/2020	1.78	3/25/2025	3/25/2020	101.12735	99.11869623	97.15983003	95.24918691	93.38526718	91.56662893	89.79188527	88.05970185	86.36879441
201014A00002	10/14/2020	0.61	10/15/2024	10/14/2020	98.678656	97.11468632	95.58269752	94.08177414	92.61103509	91.16963244	89.75674988	88.37160113	87.01342868
220314A00004	3/14/2022	2.44	3/12/2027	3/14/2022	107.01383	103.0303221	99.21830662	95.56949119	92.07602624	88.73048218	85.52582459	82.45539093	79.51286889
230203A00054	2/10/2023	4.32	2/10/2026	2/10/2023	109.95855	106.9838049	104.1066675	101.3233998	98.63042642	96.02432844	93.50183574	91.05981963	88.6952859
200415A00033	4/15/2020	0.82	10/13/2023	4/15/2020	99.615124	98.99853823	98.38955913	97.7880466	97.1938639	96.60687761	96.02695753	95.4539766	94.88781078
220830A00093	11/16/2022	3.69	11/16/2029	11/16/2022	120.00361	113.0698801	106.5952686	100.5467468	94.89383405	89.60839146	84.66442957	80.03793298	75.7067002
220912A00033	9/12/2022	3.9	10/7/2024	9/12/2022	103.97732	102.3897681	100.8342957	99.30999466	97.81599154	96.3514453	94.91554577	93.50751225	92.12659219
221207A00058	12/7/2022	4.01	12/7/2027	12/7/2022	116.07847	111.175876	106.5141879	102.0802189	97.86157498	93.8466063	90.02435783	86.38452405	82.91740671
201105A00003	11/6/2020	2.24	11/4/2030	11/6/2020	111.69842	104.133405	97.13982273	90.67141288	84.68589668	79.14461036	74.01217822	69.25621691	64.84706773
210907A00013	9/9/2021	2.14	9/9/2025	9/9/2021	102.72224	100.257377	97.86440333	95.54080621	93.28417416	91.09219495	88.96265067	86.89341335	84.88244062
230131A00009	1/31/2023	3.98	1/31/2028	1/31/2023	116.4609	111.4020477	106.5987405	102.0366952	97.70249943	93.58355492	89.66802377	85.94477879	82.40335729
200317A00023	3/17/2020	1.1	3/17/2025	3/17/2020	100.12619	98.14059718	96.20408949	94.31514088	92.47228045	90.67409353	88.91921904	87.20634706	85.5342165
201015A00002	10/15/2020	0.61	10/15/2024	10/15/2020	98.678656	97.11468632	95.58269752	94.08177414	92.61103509	91.16963244	89.75674988	88.37160113	87.01342868
210920A00014	9/9/2022	1.28	9/9/2026	9/9/2022	101.71594	98.31569071	95.04679531	91.90348472	88.88027422	85.97194902	83.17354944	80.48035692	77.88788093
220114A00007	1/14/2022	1.7	1/27/2026	1/14/2022	102.19624	99.37449286	96.64504884	94.00440119	91.44919706	88.97622869	86.58242631	84.26485137	82.02069022
220119A00009	1/19/2022	1.35	1/19/2024	1/19/2022	99.828961	98.95313462	98.0926074	97.24698105	96.41587114	95.59890635	94.79572798	94.00598934	93.22935527
220804A00023	8/4/2022	3.19	8/4/2027	8/4/2022	111.23894	106.7827554	102.5333792	98.48012714	94.61292153	90.92225425	87.39915152	84.03514115	80.82222191
221107A00029	11/7/2022	4.83	11/9/2026	11/7/2022	114.97107	111.1699183	107.5184063	104.0097697	100.6375886	97.39577097	94.27853428	91.28038743	88.39611426
200730A00011	7/30/2020	1.15	7/28/2028	7/30/2020	102.91893	97.73077667	92.83312972	88.20829831	83.83975194	79.71204133	75.81072249	72.12228648	68.63409439
210928A00010	9/28/2021	1.12	9/26/2025	9/28/2021	100.19869	97.72107659	95.31686632	92.98345099	90.71833041	88.51910919	86.38349155	84.30927649	82.29435319
221213A00049	12/13/2022	4.01	12/13/2027	12/13/2022	116.137	111.2168828	106.5392625	102.0908494	97.85915115	93.83242403	89.99962429	86.35036233	82.87486045
221214A00102	12/14/2022	4.33	12/15/2025	12/14/2022	109.34786	106.5354905	103.81099	101.1710895	98.61266388	96.13272371	93.72840864	91.39698079	89.13581864
230118A00033	1/18/2023	3.81	1/18/2028	1/18/2023	115.5145	110.5129978	105.7627953	101.2499288	96.96128116	92.88452638	89.00807781	85.32104023	81.81316514
221130A00033	11/30/2022	4.37	11/30/2027	11/30/2022	117.70727	112.7854492	108.1041028	103.6500991	99.4110989	95.37550425	91.53240946	87.87155557	84.38328811
230126A00036	1/26/2023	4.19	1/26/2026	1/26/2023	109.40745	106.4831269	103.6535201	100.9150445	98.26427531	95.69793574	93.21288952	90.80613409	88.47479419
230223A00033	2/23/2023	4.5	2/23/2028	2/23/2023	119.25888	114.0661113	109.1380011	104.4595988	100.0168744	95.79665909	91.78658825	87.97504824	84.35112687
200228A00071	2/28/2020	1.74	12/14/2029	2/28/2020	107.12506	100.5411322	94.40552901	88.68542038	83.35054124	78.37297987	73.72698329	69.38877976	65.33641675
200304A00020	3/4/2020	0.98	3/4/2025	3/4/2020	99.852301	97.90315904	96.0017153	94.14650408	92.33611556	90.56919283	88.84442947	87.16056729	85.5163942

	Parallel-Shift Sensitivity Analysis												
2/28/2023					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	100.10105	98.81522836	97.55334464	96.31476515	95.09887404	93.90507715	92.73280106	91.58149217	90.45061585
200409A00011	4/9/2020	0.7	4/7/2023	4/9/2020	99.995696	99.89043369	99.78540401	99.68060639	99.57604004	99.47170414	99.36759791	99.26372053	99.16007124
210108A00008	1/11/2021	0.51	8/15/2023	1/11/2021	99.614441	99.15573867	98.70125475	98.25093107	97.80471063	97.36253745	96.92435657	96.49011403	96.05975683
210917A00004	9/17/2021	1.03	9/17/2025	9/17/2021	99.943897	97.49333767	95.1149247	92.80611247	90.56446144	88.38763332	86.27338615	84.21956967	82.22412094
220921A00050	9/21/2022	4.51	4/29/2024	9/21/2022	103.40193	102.2426538	101.1094729	100.0015157	98.91794557	97.85796262	96.82080153	95.80572981	94.81204608
221202A00018	12/2/2022	4.16	12/2/2027	12/2/2022	116.73763	111.8330659	107.1686857	102.7313537	98.50873279	94.48922706	90.66193262	87.01659234	83.54355361
230131A00071	1/31/2023	4.22	1/30/2026	1/31/2023	109.53734	106.6005769	103.7592361	101.0096961	98.34849571	95.77232374	93.27801153	90.862526	88.52296307
200323A00018	3/23/2020	1.37	3/23/2023	3/23/2020	100.03285	99.96916445	99.90556945	99.84206793	99.7786597	99.71534455	99.65212229	99.58899271	99.52595561
200401A00012	4/2/2020	1	4/2/2025	4/2/2020	99.528529	97.51606944	95.55390788	93.64045354	91.77417782	89.95361165	88.17734264	86.44401249	84.75231443
200423A00026	4/28/2020	0.85	12/15/2023	4/28/2020	99.472414	98.68990913	97.91965511	97.16136559	96.4147635	95.67958027	94.9555555	94.24243666	93.53997879
210324A00003	3/24/2021	1.18	3/24/2026	3/24/2021	100.8612	97.90932655	95.05865535	92.30515738	89.64498482	87.07446538	84.59009313	82.18851993	79.86654731
210526A00018	5/26/2021	1.11	5/26/2026	5/26/2021	100.82223	97.70836925	94.70597028	91.81038277	89.01718095	86.32215221	83.72128521	81.2107588	78.78693158
220824A00008	8/24/2022	3.62	8/24/2023	8/24/2022	101.10808	100.6209141	100.1384482	99.66061253	99.18734067	98.71856737	98.25422864	97.79426171	97.33860496
221121A00064	11/21/2022	4.34	11/22/2027	11/21/2022	117.47688	112.5827478	107.9268434	103.4962081	99.27866219	95.26275445	91.43771441	87.7934076	84.32029434
230110A00047	1/10/2023	3.84	1/10/2028	1/10/2023	116.72654	111.6820289	106.8905456	102.338048	98.01134842	93.89805352	89.98651229	86.26576792	82.72551303
200221A00011	2/21/2020	1.69	8/21/2024	2/21/2020	100.29501	98.8619777	97.45649736	96.07784774	94.72532929	93.39826629	92.0960058	90.81791674	89.56338894
200221A00024	2/21/2020	2.05	12/28/2029	2/21/2020	109.24309	102.5543026	96.32190678	90.51241729	85.09496417	80.04107842	75.32449408	70.92096744	66.80811203
200306A00003	3/6/2020	0.7	3/6/2023	3/6/2020	99.999971	99.98332824	99.96670206	99.95009279	99.93350039	99.91692484	99.90036611	99.88382416	99.86729896
200309A00030	3/9/2020	1.11	3/9/2027	3/9/2020	101.67826	97.80882775	94.10697299	90.5645705	87.17393462	83.92779103	80.81925244	77.84179586	74.98924136
200415A00021	4/15/2020	1.37	4/15/2027	4/15/2020	102.85493	98.86645687	95.05384011	91.40838871	87.92189307	84.58659257	81.39514834	78.34061786	75.41643124
200521A00017	5/21/2020	2.22	5/21/2038	5/21/2020	117.60502	103.1806694	90.73999465	79.99650037	70.70655119	62.66276567	55.68845463	49.6329368	44.36758959
210218A00006	2/18/2021	0.5	2/20/2024	2/18/2021	98.960811	98.00607252	97.06961768	96.15092534	95.24949436	94.36484229	93.49650451	92.6440334	91.80699759
221129A00072	11/29/2022	4.39	12/2/2026	11/29/2022	113.63166	109.7914372	106.1048605	102.5648744	99.164796	95.89828903	92.7593435	89.74225673	86.8416156
230111A00019	1/11/2023	3.83	1/11/2028	1/11/2023	116.68773	111.6414539	106.8484307	102.2946038	97.96676703	93.85250992	89.94016583	86.21876357	82.6779826
230118A00039	1/18/2023	3.81	1/18/2028	1/18/2023	115.5145	110.5129978	105.7627953	101.2499288	96.96128116	92.88452638	89.00807781	85.32104023	81.81316514
230208A00040	2/8/2023	4.26	2/8/2029	2/8/2023	121.34735	115.1357079	109.2927175	103.7944383	98.61860379	93.74449926	89.15284601	84.82569462	80.74632684
201117A00006	11/17/2020	0.57	11/17/2023	11/17/2020	99.347547	98.63919176	97.94088742	97.25242161	96.57358754	95.90418422	95.24401621	94.59289342	93.95063097
210712A00008	6/27/2022	1.05	6/27/2025	6/27/2022	99.81594	97.5763137	95.39757557	93.27773616	91.21488298	89.207177	87.25284932	85.35019807	83.49758547
211129A00012	11/29/2021	1.53	11/25/2026	11/29/2021	102.91993	99.29770352	95.82181738	92.48552823	89.2824479	86.20652033	83.25200203	80.41344382	77.68567378
220106A00008	1/6/2022	2.5	1/5/2035	1/6/2022	119.24734	107.5514452	97.14332716	87.8731167	79.60913405	72.23560179	65.65065193	59.76459134	54.49839107
220323A00016	6/2/2022	2.78	6/2/2025	6/2/2022	103.65845	101.4406972	99.2813538	97.17845963	95.13013653	93.13458483	91.19007931	89.29496542	87.44765575
221122A00040	11/22/2022	4.31	11/22/2027	11/22/2022	117.3361	112.445248	107.7925037	103.3649171	99.15031328	95.13724568	91.31494819	87.67329056	84.20273706
230120A00027	1/20/2023	4.13	1/20/2026	1/20/2023	109.17057	106.2654864	103.4540411	100.7327123	98.09812994	95.54706884	93.07644137	90.68329088	88.36478544

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200327A00059	3/27/2020	1.01	3/27/2024	3/27/2020	99.382918	98.33300018	97.3051128	96.29856884	95.31270953	94.34690294	93.40054265	92.47304644	91.56385514
201116A00025	11/18/2020	1.96	11/15/2032	11/18/2020	111.81554	102.3977689	93.85749161	86.10806483	79.0718268	72.67912375	66.86744637	61.58066347	56.76834131
211221A00010	12/21/2021	1.31	12/20/2024	12/21/2021	99.928377	98.18219389	96.47464082	94.8046015	93.17100031	91.57280081	90.00900396	88.47864647	86.98079923
220510A00016	5/13/2022	3.23	5/5/2027	5/13/2022	110.65038	106.4487699	102.4324509	98.59221957	94.91938021	91.40571695	88.04346433	84.82527987	81.74421846
220527A00015	5/27/2022	3.03	5/27/2027	5/27/2022	109.99443	105.7485141	101.6922719	97.81615644	94.11116049	90.56878095	87.18098723	83.94019201	80.83922401
221024A00018	10/24/2022	4.91	10/24/2024	10/24/2022	105.79692	104.1491932	102.5353096	100.9542893	99.40519028	97.8871067	96.39916686	94.94053162	93.51039288
230120A00117	1/20/2023	3.9	1/20/2028	1/20/2023	115.96909	110.951357	106.1858433	101.6585267	97.3562332	93.26658419	89.37794413	85.67937238	82.16057825
200310A00005	3/10/2020	1.41	3/8/2030	3/10/2020	105.02972	98.30371997	92.05167709	86.23780419	80.8291883	75.79554661	71.10900379	66.74388921	62.6765522
200327A00037	3/27/2020	1.18	3/27/2026	3/27/2020	101.50644	98.52178226	95.6398898	92.85664645	90.16812852	87.57059225	85.06046436	82.63433316	80.28894023
200406A00049	4/6/2020	0.92	4/6/2023	4/6/2020	100.00102	99.89869901	99.79659433	99.69470666	99.59303529	99.49157952	99.39033866	99.28931199	99.18849884
200429A00021	5/4/2020	0.97	4/29/2025	5/4/2020	99.518676	97.43509255	95.40488162	93.42630363	91.49769021	89.61744043	87.78401739	85.99594515	84.25180576
201019A00006	10/19/2020	0.57	10/19/2023	10/19/2020	99.433322	98.80151328	98.17770024	97.56173228	96.9534621	96.35274607	95.75944412	95.17341962	94.59453928
210225A00012	3/1/2021	0.91	8/25/2025	3/1/2021	99.589332	97.20326087	94.8861708	92.63567804	90.4494964	88.32543221	86.26137994	84.25531807	82.30530525
220204A00004	2/4/2022	2.08	1/8/2027	2/4/2022	105.20531	101.4268875	97.80501682	94.33242426	91.00220788	87.80781968	84.74304566	81.80198704	78.97904274
220823A00032	8/23/2022	3.6	8/23/2023	8/23/2022	101.08836	100.6040103	100.1243101	99.64918885	99.17858107	98.71242261	98.2506505	97.79320297	97.34001938
220921A00074	9/21/2022	3.98	9/21/2027	9/21/2022	116.22462	111.4979227	106.9956167	102.7058087	98.61730332	94.71955598	91.0026309	87.45716286	84.07432127
221208A00110	12/8/2022	4.07	12/8/2027	12/8/2022	116.37237	111.4601788	106.789401	102.3468186	98.12001133	94.09730404	90.26771794	86.62092494	83.14720538
221229A00043	12/29/2022	4.96	7/1/2024	12/29/2022	104.60591	103.2729715	101.9634779	100.676858	99.41256209	98.17005783	96.94882932	95.74837657	94.56821487
230201A00022	2/1/2023	5.04	2/1/2024	2/1/2023	103.25177	102.3248092	101.4145545	100.5205605	99.64239372	98.77963587	97.93188339	97.09874668	96.27984955
211117A00010	11/17/2021	1.18	11/18/2024	11/17/2021	99.659858	97.99884658	96.37310129	94.78156345	93.22321689	91.6970859	90.20223322	88.7377581	87.30279449
221129A00062	11/29/2022	4.39	11/27/2026	11/29/2022	113.57211	109.7467148	106.0738911	102.5466545	99.15838146	95.90279187	92.77392872	89.76613932	86.87405773
230131A00095	1/31/2023	4.22	1/30/2026	1/31/2023	109.53734	106.6005769	103.7592361	101.0096961	98.34849571	95.77232374	93.27801153	90.862526	88.52296307
230208A00055	2/8/2023	4.22	2/6/2026	2/8/2023	110.25344	107.2715034	104.387312	101.5971276	98.89737357	96.2846299	93.75562513	91.30722915	88.93644623
170614A00019	6/14/2017	2.48	6/13/2025	6/14/2017	103.04997	100.8097133	98.62922278	96.50651457	94.43968855	92.42692121	90.46646184	88.55662904	86.69580744
180821A00029	8/21/2018	3.01	8/21/2023	8/21/2018	100.79855	100.3203782	99.84674416	99.37758564	98.9128393	98.45244301	97.9963358	97.54445786	97.09675046
141117A00011	11/17/2014	3.81	11/17/2034	11/17/2014	134.03633	121.6372466	110.564123	100.6656536	91.8086297	83.87568908	76.76335274	70.38031389	64.6459458
150731A00016	7/31/2015	3.04	7/31/2025	7/31/2015	104.6886	102.3032119	99.98461937	97.73057581	95.53892744	93.40760516	91.33462067	89.31806287	87.3560943
160212A00037	2/12/2016	3.03	2/12/2031	2/12/2016	118.27747	110.207016	102.760278	95.88551137	89.53551923	83.66723447	78.24133876	73.22191852	68.57615404
160222A00005	2/22/2016	2.79	2/22/2028	2/22/2016	110.79923	105.8163539	101.0901603	96.60607157	92.3504134	88.31035338	84.47384506	80.82957577	77.36691824
160222A00019	2/22/2016	3.09	2/21/2031	2/22/2016	118.80886	110.6926726	103.2052534	96.29428682	89.91207722	84.01511424	78.56368577	73.52152829	68.8555111
160225A00024	2/25/2016	2.22	2/26/2024	2/25/2016	100.66021	99.68085349	98.72049354	97.77858311	96.85459449	95.94801997	95.05837082	94.18517647	93.32798362
160303A00020	3/3/2016	2.97	3/3/2031	3/3/2016	119.80832	111.5433171	103.9230725	96.89360989	90.40574097	84.41462028	78.87934072	73.76256894	69.03021606
160307A00029	3/7/2016	3.21	3/7/2031	3/7/2016	119.84692	111.6527917	104.0953953	97.12156321	90.68284009	84.73503906	79.23784519	74.15445763	69.45126655

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160524A00015	11/25/2016	2.71	11/25/2026	11/25/2016	107.30493	103.601351	100.0465057	96.63356544	93.35605578	90.20783828	87.18309072	84.27628868	81.48218831
160712A00019	7/12/2017	2.32	7/12/2027	7/12/2017	107.28273	102.9720563	98.85991118	94.93614204	91.19116804	87.61594336	84.20192466	80.94104065	77.82566371
160714A00018	9/6/2016	2.28	9/4/2026	9/6/2016	105.19193	101.7441069	98.42844951	95.23918482	92.17082215	89.21813981	86.37617027	83.64018641	81.00568844
160714A00024	9/20/2016	2.5	9/20/2028	9/20/2016	110.40016	104.8728952	99.65927192	94.73983241	90.09642581	85.71211385	81.57108362	77.65856707	73.96076665
160729A00017	7/31/2017	2.47	7/31/2029	7/31/2017	111.48873	105.1110794	99.14411621	93.5592359	88.32996838	83.43180648	78.842051	74.53966876	70.50516241
161017A00007	10/17/2016	1.99	10/18/2023	10/17/2016	100.34721	99.71476669	99.09027871	98.4736003	97.86458553	97.26309208	96.66898115	96.08211733	95.50236851
161118A00026	12/20/2016	3.03	12/21/2026	12/20/2016	108.70469	104.9064125	101.2629626	97.76720653	94.41237465	91.19204473	88.10012192	85.13082022	82.27864516
170327A00080	3/27/2019	3.43	3/27/2029	3/27/2019	116.77916	110.5709445	104.7406125	99.2630765	94.11504307	89.27487669	84.7224735	80.43914498	76.40751123
170609A00052	6/11/2018	2.9	6/9/2027	6/11/2018	109.54696	105.2755357	101.1964772	97.3000691	93.57713923	90.01902796	86.61755647	83.36499721	80.25404633
170822A00023	8/23/2017	3.95	8/23/2028	8/23/2017	118.14932	112.4880521	107.1409295	102.0887871	97.31373141	92.79904594	88.52910818	84.48931241	80.66599844
180615A00039	6/15/2018	3.49	6/15/2028	6/15/2018	115.15579	109.7577499	104.6509002	99.81794855	95.24271913	90.91007632	86.80585237	82.9167804	79.23043233
180912A00017	9/12/2018	3.13	9/12/2023	9/12/2018	100.93738	100.3994729	99.86730189	99.34077523	98.81980329	98.30429838	97.79417464	97.289348	96.78973614
180925A00033	9/25/2018	3.26	9/25/2023	9/25/2018	101.06365	100.4903501	99.92354847	99.36313811	98.80901138	98.26106298	97.71918995	97.18329163	96.65326955
181029A00051	2/5/2019	3.69	2/5/2029	2/5/2019	117.96896	111.8640782	106.1225949	100.7208881	95.63698995	90.85046351	86.34228854	82.09475638	78.09137312
181031A00070	3/1/2019	3.77	3/1/2029	3/1/2019	118.63211	112.4384378	106.6172438	101.1440511	95.99612125	91.15231773	86.59298527	82.29983864	78.25586033
190329A00012	3/29/2019	2.61	3/29/2024	3/29/2019	101.11909	100.053985	99.01127455	97.99025447	96.99025319	96.01062665	95.05075685	94.11005057	93.18793813
190621A00037	6/21/2019	2.21	5/15/2024	6/21/2019	100.74307	99.55879462	98.40227593	97.27254637	96.16868316	95.08980545	94.03507202	93.00367904	91.994858
190815A00041	8/15/2019	1.86	8/15/2024	8/15/2019	100.53188	99.11236818	97.71986672	96.35367688	95.01311918	93.69753705	92.40629584	91.13878195	89.89440195
200605A00014	6/5/2020	1.02	6/5/2025	6/5/2020	99.687937	97.58284514	95.53315053	93.53700337	91.59263133	89.69833533	87.85248582	86.05351934	84.29993522
200605A00016	6/5/2020	1.02	6/5/2025	6/5/2020	99.687937	97.58284516	95.53315056	93.53700342	91.59263139	89.6983354	87.85248591	86.05351944	84.29993533
200605A00017	6/5/2020	1.02	6/5/2025	6/5/2020	99.687937	97.58284517	95.53315058	93.53700344	91.59263142	89.69833544	87.85248595	86.0535195	84.29993539
200709A00021	7/9/2020	0.83	7/9/2025	7/9/2020	99.324205	97.14313546	95.0215798	92.95758711	90.94928137	88.99485858	87.09258353	85.24078678	83.43786179
200709A00025	7/9/2020	1.37	7/9/2030	7/9/2020	104.31658	98.07677643	92.27686788	86.88309668	81.86447374	77.19253717	72.8411338	68.7862207	65.00568467
200813A00019	8/13/2020	1.44	8/13/2030	8/13/2020	104.81586	98.48490784	92.60513786	87.141536	82.06199511	77.33705609	72.9396764	68.84501982	65.0302656
200813A00020	8/13/2020	1.44	8/13/2030	8/13/2020	104.81586	98.48490783	92.60513794	87.14153617	82.06199536	77.33705642	72.9396768	68.84502029	65.03026612
200813A00023	8/13/2020	0.86	10/14/2025	8/13/2020	99.550413	97.13761508	94.7965261	92.52456772	90.31927267	88.17827879	86.09932377	84.08024019	82.1189508
200911A00011	9/11/2020	1.18	9/11/2030	9/11/2020	103.13086	96.8252293	90.97363764	85.54051144	80.49325183	75.80197441	71.43926959	67.37998525	63.60102952
200911A00012	9/11/2020	1.18	9/11/2030	9/11/2020	103.13027	96.82563013	90.9749362	85.54262001	80.49609046	75.80547023	71.44335619	67.38460208	63.60612139
200911A00013	9/11/2020	0.69	9/11/2025	9/11/2020	99.076379	96.749986	94.49110526	92.29737704	90.16653903	88.09642206	86.08494556	84.13011335	82.23000966
201007A00008	10/7/2020	1.22	10/7/2030	10/7/2020	103.28847	97.13636363	91.42456308	86.118571	81.18678451	76.60023928	72.3323754	68.35882536	64.65722171
201007A00010	10/7/2020	1.22	10/7/2030	10/7/2020	103.28847	97.13636363	91.42456308	86.118571	81.18678451	76.60023928	72.3323754	68.35882536	64.65722171
201007A00014	10/7/2020	0.8	10/7/2025	10/7/2020	99.387186	97.01779348	94.71826187	92.48609762	90.31891323	88.21442215	86.17043371	84.18484843	82.25565355
201015A00020	10/15/2020	0.94	10/15/2027	10/15/2020	101.23117	97.12790174	93.22023959	89.49775478	85.95063026	82.56962405	79.34603222	76.27165453	73.33876244

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201109A00012	11/9/2020	1.39	11/8/2030	11/9/2020	104.60659	98.11524691	92.09888066	86.51966088	81.34298268	76.53717077	72.07321622	67.92453814	64.06676796
201211A00001	12/11/2020	0.95	12/11/2030	12/11/2020	102.8113	96.87146745	91.35627509	86.23218698	81.46851594	77.03716636	72.91240121	69.07063119	65.49022395
210107A00007	1/7/2021	0.84	1/7/2026	1/7/2021	99.643381	97.02893906	94.49778093	92.04680989	89.67306113	87.37369564	85.14599419	82.98735154	80.8952711
210201A00002	2/1/2021	1.19	2/1/2036	2/1/2021	102.7803	96.49527715	90.74677039	85.48163512	80.6525156	76.21716609	72.13785876	68.38086415	64.91599499
210809A00010	8/9/2021	1.06	8/7/2026	8/9/2021	100.72462	97.63205659	94.65411518	91.78592155	89.02283324	86.36042959	83.79449993	81.32103241	78.93620353
210915A00027	9/15/2021	1.1	9/15/2026	9/15/2021	100.95184	97.7668868	94.70303383	91.75498613	88.91771535	86.18644037	83.55661371	81.02390867	78.58420734
210921A00006	9/21/2021	1.43	9/21/2028	9/21/2021	104.0453	99.10210419	94.4343922	90.0252304	85.85881426	81.92038937	78.19617617	74.67330036	71.33972884
210921A00009	9/21/2021	1.28	9/21/2028	9/21/2021	104.40295	99.42017612	94.71595329	90.27310525	86.07561026	82.10851406	78.35785314	74.81058389	71.45451719
211007A00006	10/7/2021	1.28	10/7/2026	10/7/2021	101.61896	98.367418	95.24101328	92.23421121	89.34175186	86.55863786	83.88011964	81.30168161	78.81902919
211014A00012	10/14/2021	1.46	10/14/2031	10/14/2021	104.15791	99.793942	95.69151718	91.83211802	88.19869501	84.77553716	81.54815742	78.50318862	75.6282889
211110A00012	11/10/2021	1.44	11/10/2026	11/10/2021	102.27598	98.93194972	95.71914389	92.63163298	89.66379432	86.81029265	84.06606339	81.42629719	78.88642536
211110A00013	11/10/2021	1.44	11/10/2026	11/10/2021	102.27598	98.93194973	95.71914371	92.6316326	89.66379377	86.81029193	84.06606252	81.42629617	78.88642419
211110A00014	11/10/2021	1.44	11/10/2026	11/10/2021	102.27598	98.93194969	95.71914421	92.63163362	89.66379528	86.8102939	84.06606492	81.42629899	78.8864274
211208A00012	12/8/2021	1.62	12/8/2026	12/8/2021	103.01083	99.58437564	96.2946436	93.1353801	90.1006529	87.18483565	84.38259003	81.68884924	79.09880237
220111A00005	1/11/2022	1.54	1/10/2025	1/11/2022	100.37611	98.62721042	96.91782385	95.24682591	93.61313011	92.01568763	90.45348577	88.92554648	87.43092494
220411A00008	4/11/2022	3.02	4/12/2027	4/11/2022	109.77867	105.8664815	102.1221872	98.53760069	95.10498237	91.81701253	88.66676624	85.64768962	82.75357776
220520A00006	5/20/2022	3.02	5/20/2027	5/20/2022	109.79808	105.8848669	102.1416512	98.56000932	95.13198386	91.85005822	88.70712915	85.69648146	82.8117643
220617A00030	6/17/2022	3.43	6/17/2025	6/17/2022	102.52898	101.3169435	100.1305326	98.96898673	97.83157407	96.71759055	95.62635887	94.55722712	93.5095676
220617A00061	6/17/2022	3.26	6/17/2024	6/17/2022	101.26848	100.5596823	99.86311928	99.17844029	98.50531231	97.84341534	97.19244175	96.55209565	95.92209237
220916A00018	9/16/2022	4.07	9/16/2027	9/16/2022	113.48369	109.3849541	105.4720506	101.7353871	98.16592222	94.75513025	91.49496893	88.37784932	85.39660765
220919A00036	9/19/2022	4.11	9/19/2029	9/19/2022	120.89651	114.475141	108.4608167	102.8251773	97.54199435	92.58699894	87.93772474	83.57336503	79.47464151
221017A00055	10/17/2022	4.88	11/18/2024	10/17/2022	103.18433	102.2546611	101.3419435	100.4457039	99.56548904	98.70086271	97.85140492	97.0167111	96.1963914
221123A00016	11/23/2022	4.58	11/23/2029	11/23/2022	124.43153	117.7105989	111.4241482	105.5412813	100.0334742	94.87438022	90.03965131	85.50677609	81.25493122
221201A00068	12/1/2022	4.21	12/1/2027	12/1/2022	114.72356	110.423443	106.325202	102.4180417	98.69181292	95.13696739	91.74451893	88.50600668	85.4134612
221222A00053	12/22/2022	4.18	12/22/2027	12/22/2022	115.51776	110.9670952	106.6355829	102.5113598	98.58326677	94.84080638	91.27410057	87.87385058	84.63129989
230110A00035	1/10/2023	4.08	1/10/2028	1/10/2023	115.66695	110.9592056	106.4822993	102.2235879	98.17118637	94.31391915	90.64127422	87.14336034	83.81086725
230113A00057	1/13/2023	3.99	1/13/2028	1/13/2023	114.10369	109.7352824	105.5762934	101.6153834	97.84188544	94.24576537	90.8175811	87.54844454	84.42998623
230125A00031	1/25/2023	3.74	1/25/2028	1/25/2023	114.08467	109.6726735	105.4740741	101.4772084	97.67111898	94.04550445	90.59067634	87.29751957	84.15745543
161222A00036	12/22/2016	2.69	12/22/2026	12/22/2016	103.18001	101.2484784	99.37463471	97.55628181	95.79132066	94.07774737	92.4136482	90.79719483	89.2266399
210603A00008	6/3/2021	1.74	6/3/2036	6/3/2021	107.84183	101.2751092	95.27440532	89.78283199	84.74979929	80.13026701	75.88409007	71.97544578	68.37233223
220722A00036	7/22/2022	3.34	7/22/2025	7/22/2022	102.49129	101.2535938	100.0425506	98.85735961	97.69725345	96.56149419	95.44937174	94.36020261	93.29332865
220916A00021	9/16/2022	4.17	9/16/2027	9/16/2022	107.48337	105.1244487	102.846322	100.6455319	98.5187925	96.46298192	94.47513278	92.55242364	90.69217075
200303A00035	3/3/2020	0.81	3/3/2025	3/3/2023	100.73402	100.0100367	99.97840511	99.97015807	99.96191815	99.9536852	99.94545931	99.93724053	99.92902882

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
050902A00032	9/2/2005	4.69	8/22/2025	9/2/2005	109.46696	106.9537351	104.5123114	102.1402199	99.83509249	97.59465669	95.41673118	93.29922148	91.24011599
050923A00096	9/23/2005	4.86	9/22/2025	9/23/2005	110.30516	107.6957859	105.162792	102.7034825	100.3152704	97.99567684	95.74232568	93.55293842	91.42532958
051003A00009	10/3/2005	5.15	10/15/2025	10/3/2005	110.80413	108.137452	105.5499117	103.038662	100.6009807	98.23426132	95.93600796	93.70382925	91.53543338
051107A00075	11/7/2005	5.29	11/17/2025	11/7/2005	112.22462	109.4356246	106.7317043	104.1097039	101.5666109	99.09954623	96.70575677	94.38260924	92.12758377
060308A00014	3/8/2006	5.44	3/16/2026	3/8/2006	113.74703	110.6194058	107.596739	104.6748967	101.8499384	99.11810142	96.47579164	93.91957506	91.44616959
060808A00022	8/8/2006	5.57	6/15/2026	8/8/2006	115.49033	112.0836477	108.7984534	105.6297142	102.5726355	99.62264962	96.77540281	94.02674436	91.37271563
080909A00042	9/9/2008	4.74	9/11/2023	9/9/2008	101.90773	101.3682069	100.8344197	100.3062731	99.78367798	99.26654678	98.75479391	98.24833555	97.74708959
080910A00065	9/10/2008	5.03	9/15/2023	9/10/2008	101.99522	101.4458934	100.902498	100.3649424	99.8331326	99.30697656	98.78638429	98.27126767	97.76154042
081205A00033	12/5/2008	4.77	12/7/2023	12/5/2008	102.55324	101.7784739	101.0154485	100.2638993	99.52356844	98.79420569	98.07556816	97.36742015	96.6695328
081209A00008	12/9/2008	4.87	12/15/2023	12/9/2008	102.69101	101.8943945	101.1101809	100.3380846	99.57782581	98.82913313	98.09174354	97.36540193	96.64986082
081211A00029	12/11/2008	4.57	12/15/2023	12/11/2008	102.45082	101.6552538	100.872082	100.1010161	99.34177638	98.59409187	97.85769965	97.13234482	96.41778007
081215A00091	12/15/2008	4.19	12/15/2023	12/15/2008	102.30365	101.5066297	100.7220585	99.94964726	99.18911445	98.44018703	97.70260034	96.97609772	96.26043022
081217A00076	12/17/2008	3.86	12/22/2023	12/17/2008	102.08267	101.2679475	100.4662497	99.67726719	98.90069868	98.13625251	97.38364605	96.6426054	95.91286506
081219A00069	12/19/2008	4.26	12/22/2023	12/19/2008	102.25003	101.4367211	100.6363798	99.84869812	99.07337703	98.31012681	97.55866672	96.81872469	96.09003698
090226A00006	2/26/2009	4.55	3/1/2024	2/26/2009	103.21105	102.2047608	101.2181579	100.2506657	99.30173222	98.37082656	97.45743785	96.56107437	95.68126269
091112A00011	11/12/2009	4.77	11/15/2024	11/12/2009	106.15839	104.4419614	102.7617676	101.1167229	99.50578756	97.92796295	96.38228969	94.86784561	93.38374395
091210A00005	12/10/2009	5.08	12/16/2024	12/10/2009	106.72329	104.9242982	103.1646752	101.4432703	99.75897851	98.11073582	96.49751763	94.91833678	93.37224186
100809A00029	8/9/2010	4.23	8/15/2025	8/9/2010	107.72103	105.2591367	102.8670078	100.5422674	98.28263458	96.08591944	93.95001915	91.87291375	89.85266242
100824A00009	8/24/2010	3.91	9/2/2025	8/24/2010	107.11322	104.6115226	102.1820361	99.82225215	97.52976812	95.30227924	93.13757401	91.03352977	88.98810862
100930A00008	9/30/2010	3.82	9/30/2025	9/30/2010	107.17279	104.5937665	102.0907302	99.66098042	97.30192985	95.01109993	92.78611539	90.62469924	88.52466796
110505A00022	5/5/2011	4.59	5/15/2026	5/5/2011	111.90162	108.6382422	105.4891479	102.4496414	99.51524904	96.68170997	93.9449641	91.3011413	88.74655111
110805A00014	8/5/2011	4.06	8/17/2026	8/5/2011	111.21815	107.7131194	104.3397241	101.0923104	97.96549469	94.9541529	92.05340663	89.25860992	86.5653369
110824A00004	8/24/2011	3.11	8/30/2023	8/24/2011	100.97477	100.4706235	99.97150855	99.47734769	98.98806745	98.50359579	98.02386208	97.54879708	97.07833287
111006A00023	10/6/2011	3.81	10/15/2026	10/6/2011	110.96667	107.306252	103.7884946	100.4070332	97.15582111	94.02911596	91.02146225	88.12767533	85.34282625
111024A00010	10/24/2011	3.11	10/30/2023	10/24/2011	101.24315	100.5736453	99.91298348	99.26099343	98.61750522	97.98235333	97.35537654	96.73641774	96.12532384
111024A00022	10/24/2011	3.11	10/30/2023	10/24/2011	101.24315	100.5736453	99.91298348	99.26099343	98.61750522	97.98235333	97.35537654	96.73641774	96.12532384
111024A00027	10/24/2011	3.11	10/30/2023	10/24/2011	101.24315	100.5736453	99.91298348	99.26099343	98.61750522	97.98235333	97.35537654	96.73641775	96.12532384
111216A00001	12/16/2011	3.95	12/30/2031	12/16/2011	128.18175	118.8599189	110.318857	102.4883192	95.30474214	88.71057604	82.65368727	77.08682291	71.96713079
120113A00012	1/13/2012	3.62	1/15/2027	1/13/2012	111.17784	107.2667159	103.5170794	99.92141944	96.47261242	93.16390105	89.98887356	86.94144425	84.01583524
120113A00013	1/13/2012	3.87	1/15/2032	1/13/2012	127.61195	118.2724647	109.719261	101.8812634	94.6941868	88.0998556	82.04559356	76.48367811	71.37085101
120127A00018	1/27/2012	3.64	2/1/2027	1/27/2012	111.41877	107.4579392	103.6623839	100.0243367	96.5364329	93.19169083	89.98348959	86.90554869	83.95190873
120127A00019	1/27/2012	3.87	1/30/2032	1/27/2012	127.72784	118.3442915	109.7538866	101.8846448	94.67148668	88.05554237	81.98352945	76.40719599	71.28282166
120306A00004	3/6/2012	2.95	3/15/2023	3/6/2012	100.08721	100.0456125	100.0040649	99.96256922	99.92112531	99.87973311	99.8383925	99.7971034	99.7558657

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
120312A00009	3/12/2012	2.72	3/15/2024	3/12/2012	101.39939	100.3662822	99.35419806	98.36250173	97.39058142	96.43784963	95.50374194	94.58771586	93.68924985
120411A00013	4/11/2012	3.59	4/15/2027	4/11/2012	111.95013	107.7761334	103.783898	99.96450064	96.30950593	92.81093796	89.46125268	86.25331193	83.18035924
120517A00007	5/17/2012	2.42	5/31/2023	5/17/2012	100.38644	100.1318178	99.87847983	99.62642049	99.37563014	99.12609924	98.87781834	98.63077808	98.3849692
120709A00016	7/9/2012	3.2	7/15/2027	7/9/2012	111.12146	106.7202176	102.5209612	98.51337418	94.687717	91.03479402	87.54592062	84.21289211	81.02795485
121116A00006	11/16/2012	2.64	11/13/2025	11/16/2012	104.42627	101.7674413	99.18994624	96.69077724	94.26705919	91.91604364	89.63510207	87.42171978	85.27348996
121116A00021	11/16/2012	2.35	11/17/2025	11/16/2012	104.2386	101.5590156	98.96193949	96.44430431	94.00317549	91.6357486	89.3393425	87.11139288	84.94944626
121116A00022	11/16/2012	2.78	11/16/2029	11/16/2012	115.51774	108.669813	102.2801265	96.31548886	90.74528865	85.54127821	80.67737879	76.12950285	71.87539173
130107A00002	1/7/2013	3.22	1/18/2028	1/7/2013	112.65522	107.7223898	103.0383495	98.58924855	94.3620771	90.34461092	86.52535988	82.89352029	79.43893052
130211A00017	2/11/2013	3.27	2/15/2028	2/11/2013	113.11486	108.0949009	103.3317456	98.81088689	94.51871322	90.44244725	86.5700904	82.89037148	79.39269886
130314A00027	3/14/2013	2.38	3/15/2023	3/14/2013	100.06989	100.0282431	99.98664628	99.94510208	99.90361042	99.86217119	99.82078429	99.77944961	99.73816705
130405A00006	4/5/2013	2.41	4/7/2025	4/5/2013	102.94178	100.8711	98.85236816	96.88393371	94.96420747	93.09166279	91.26483252	89.48230615	87.74272717
130405A00007	4/5/2013	2.91	4/17/2028	4/5/2013	112.9317	107.7105359	102.7654273	98.08028067	93.64002643	89.4305494	85.43862296	81.65184831	78.05859817
130424A00004	4/24/2013	2.46	4/24/2025	4/24/2013	103.15913	101.0401639	98.97517372	96.96241072	95.0001946	93.08691274	91.22101671	89.40101926	87.62549128
130424A00005	4/24/2013	3.07	4/24/2030	4/24/2013	118.48778	111.1105799	104.2538599	97.8779748	91.94650585	86.42597978	81.28561582	76.49709555	72.03435369
130508A00013	5/8/2013	2.23	5/15/2023	5/8/2013	100.28792	100.0774739	99.86792551	99.65927001	99.4515016	99.24461456	99.03860319	98.83346184	98.62918493
130513A00007	5/13/2013	2.54	5/15/2023	5/13/2013	100.31218	100.102136	99.89298311	99.68471643	99.47733025	99.27081895	99.06517694	98.86039869	98.65647871
130528A00028	5/28/2013	2.63	5/30/2023	5/28/2013	100.38671	100.1353701	99.88528809	99.63645066	99.38884862	99.14247285	98.8973143	98.65336402	98.41061313
130531A00021	5/31/2013	3.22	5/30/2028	5/31/2013	114.84662	109.4603757	104.3637458	99.53954231	94.97169169	90.64515844	86.54587199	82.6606592	78.97718199
130606A00013	6/6/2013	2.94	6/15/2023	6/6/2013	100.53017	100.2347596	99.94109298	99.64915604	99.35893348	99.07041014	98.78357108	98.4984015	98.21488679
130702A00018	7/2/2013	3.17	7/17/2023	7/2/2013	100.80649	100.4223929	100.0412319	99.66297664	99.28759388	98.91505082	98.54531516	98.1783551	97.81413931
130712A00005	7/12/2013	3.25	7/17/2023	7/12/2013	100.83731	100.4531396	100.0719065	99.69357956	99.31812553	98.94551159	98.57570545	98.2086753	97.84438982
130821A00019	8/21/2013	3.81	8/29/2025	8/21/2013	107.35559	104.8503986	102.4174644	100.05428	97.75844395	95.5276524	93.35969467	91.25244878	89.20387732
130904A00036	9/4/2013	3.57	9/15/2023	9/4/2013	101.29886	100.7504102	100.207914	99.67127141	99.14038793	98.61517093	98.09552982	97.58137594	97.07262249
130904A00039	9/4/2013	4.19	9/15/2028	9/4/2013	120.98456	115.1389916	109.6211719	104.4108901	99.48928436	94.83874887	90.44284339	86.28621018	82.35449708
130926A00009	9/26/2013	4	10/2/2028	9/26/2013	120.09341	114.2241495	108.6866585	103.4603231	98.5259209	93.8655185	89.46237858	85.30087368	81.3664069
131106A00003	11/6/2013	3.57	11/15/2023	11/6/2013	101.50902	100.7973335	100.0956359	99.40371729	98.72137396	98.04840789	97.38462649	96.72984242	96.08387337
131217A00023	12/17/2013	3.74	1/2/2024	12/17/2013	101.88233	101.041479	100.214511	99.40108773	98.60087835	97.81356257	97.03883043	96.27638181	95.52592607
131217A00024	12/17/2013	4.34	1/2/2029	12/17/2013	121.48859	115.3740811	109.6166486	104.193467	99.08328514	94.26630932	89.72409627	85.43945458	81.39635366
140307A00011	3/7/2014	3.19	3/15/2023	3/7/2014	100.10362	100.0619485	100.0203255	99.9787552	99.93723744	99.89577216	99.85435923	99.81299856	99.77169004
140313A00030	3/13/2014	3.27	3/15/2024	3/13/2014	101.97731	100.9409628	99.92568198	98.93083404	97.95580615	97.00000977	96.06287949	95.14387189	94.24246446
140423A00036	4/23/2014	4.03	4/23/2029	4/23/2014	120.60718	114.211161	108.2065531	102.5671732	97.26873067	92.28867883	87.60608083	83.20148617	79.05681746
140521A00019	5/21/2014	3.43	5/22/2028	5/21/2014	115.88154	110.4901099	105.3871511	100.5556093	95.9795381	91.64401677	87.53507801	83.63964172	79.94545364
140626A00036	6/26/2014	3.55	6/26/2029	6/26/2014	119.6098	113.0154393	106.8372222	101.0466029	95.61713648	90.52431476	85.74541491	81.2593608	77.04659569

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
140710A00027	7/10/2014	2.8	7/17/2023	7/10/2014	100.66395	100.2801894	99.89936182	99.52143811	99.14638501	98.77416975	98.40476006	98.03812415	97.67423071
140815A00030	8/15/2014	2.96	10/16/2023	8/15/2014	100.96248	100.333166	99.71170008	99.09793372	98.49172426	97.89293258	97.30142296	96.71706298	96.13972341
140815A00032	8/15/2014	3.59	10/15/2029	8/15/2014	119.11764	112.2984055	105.9261107	99.96893707	94.39749584	89.18463137	84.30524002	79.73610468	75.45574346
140827A00038	8/27/2014	3.07	8/30/2024	8/27/2014	102.39283	100.9204413	99.47675342	98.06100437	96.67245535	95.31039306	93.9741286	92.66299648	91.37635357
140911A00027	9/11/2014	3.18	9/16/2024	9/11/2014	102.6749	101.1543516	99.66393431	98.2028211	96.77021561	95.36534995	93.98748337	92.63590111	91.30991321
140922A00026	9/22/2014	3.02	9/30/2024	9/22/2014	102.83066	101.2656446	99.73212942	98.22923058	96.75609669	95.31190772	93.8958735	92.50723231	91.14524963
141208A00008	12/8/2014	3.02	12/16/2024	12/8/2014	103.01597	101.2512139	99.52519367	97.83677809	96.18487891	94.56844852	92.98647797	91.43799519	89.92206334
150105A00026	1/5/2015	2.54	1/5/2024	1/5/2015	101.03525	100.1881236	99.35517941	98.53606179	97.73042851	96.93794854	96.15830162	95.3911778	94.63627705
150220A00021	2/20/2015	2.72	2/20/2024	2/20/2015	101.14554	100.1792642	99.23142844	98.30150616	97.38899281	96.4934027	95.61426809	94.75113831	93.90357903
150220A00022	2/20/2015	2.8	2/20/2025	2/20/2015	103.01692	101.0763814	99.18235974	97.33345768	95.5283253	93.76566227	92.04421569	90.36277801	88.72018504
150316A00043	3/16/2015	2.37	3/16/2023	3/16/2015	100.07411	100.0296839	99.98531702	99.94100748	99.8967552	99.85256007	99.80842197	99.76434077	99.72031636
150317A00012	3/17/2015	2.46	3/18/2024	3/17/2015	101.13289	100.0934401	99.07531794	98.0778672	97.1004629	96.14250503	95.20341733	94.28264612	93.37965918
150317A00013	3/17/2015	2.58	3/17/2025	3/17/2015	103.1608	101.1434689	99.1758469	97.25639124	95.3836139	93.55608369	91.77242364	90.03130854	88.33146254
150319A00012	3/19/2015	3.13	3/19/2029	3/19/2015	114.93073	108.7982338	103.0388374	97.62780646	92.54217411	87.76060502	83.26327108	79.03173739	75.04885739
150319A00013	3/19/2015	3.25	3/19/2030	3/19/2015	117.85145	110.6599825	103.9679379	97.73782987	91.93517583	86.5282421	81.48781129	76.78697045	72.40091802
150401A00008	4/1/2015	2.62	4/1/2025	4/1/2015	102.90665	100.8609283	98.86611053	96.92058594	95.02281135	93.17130358	91.36463658	89.60143878	87.88039055
150407A00010	4/7/2015	2.21	4/10/2023	4/7/2015	100.16575	100.0520214	99.93856587	99.82538174	99.71246795	99.59982349	99.48744736	99.37533854	99.26349604
150408A00004	4/8/2015	2.17	4/10/2023	4/8/2015	100.1612	100.0474741	99.93402341	99.82084402	99.70793497	99.59529525	99.48292383	99.37081972	99.25898192
150422A00019	4/22/2015	2.62	4/22/2025	4/22/2015	103.04151	100.9379645	98.88775988	96.88917195	94.94054775	93.0403004	91.18690591	89.37890013	87.61487591
150512A00029	5/12/2015	3.03	5/12/2025	5/12/2015	104.06808	101.900491	99.78883244	97.73126244	95.72601258	93.77138707	91.86575905	90.00756718	88.19531242
150519A00013	5/19/2015	2.98	5/19/2025	5/19/2015	104.00835	101.8232004	99.69481439	97.62130436	95.60086294	93.63175763	91.71232699	89.8409771	88.01617815
150601A00404	6/1/2015	4.29	1/17/2029	6/1/2015	120.96276	114.8232619	109.0448144	103.6041898	98.4797678	93.65142048	89.10040221	84.80924793	80.76167943
150601A00405	6/1/2015	4.63	1/17/2034	6/1/2015	140.21461	128.2965673	117.5635821	107.8892493	99.16134372	91.28016128	84.15706046	77.71318081	71.87831558
150601A00470	6/1/2015	2.98	5/31/2024	6/1/2015	101.91907	100.6822128	99.4753402	98.29736728	97.14726518	96.02405333	94.92679669	93.85460315	92.80662103
150601A00485	6/1/2015	3.09	6/21/2024	6/1/2015	102.21057	100.9167007	99.64805564	98.40391256	97.18357828	95.98638592	94.81169372	93.6588838	92.52736104
150601A00490	6/1/2015	3.19	7/2/2024	6/1/2015	102.17009	100.8516802	99.55651253	98.28402039	97.03365885	95.80490008	94.59723258	93.41016062	92.24320359
150601A00495	6/1/2015	2.99	6/27/2024	6/1/2015	102.12329	100.8143202	99.52920709	98.26733787	97.02811929	95.81097822	94.61536077	93.44073144	92.28657239
150601A00512	6/1/2015	3.79	7/16/2029	6/1/2015	119.41321	112.8272847	106.6585032	100.8781355	95.45957702	90.37817839	85.61109195	81.13713154	76.93664379
150601A00515	6/1/2015	2.95	1/16/2024	6/1/2015	101.39101	100.5131205	99.65042463	98.80253247	97.969065	97.1496561	96.34395194	95.55161052	94.7723011
150601A00522	6/1/2015	4.52	7/25/2030	6/1/2015	127.46506	119.5929781	112.2845658	105.4960979	99.18746803	93.32186927	87.86550666	82.78733623	78.05882788
150601A00523	6/1/2015	4.55	7/25/2031	6/1/2015	131.28128	122.2594867	113.9576981	106.3139261	99.27184313	92.78023776	86.79252505	81.26630641	76.16297327
150601A00530	6/1/2015	3.08	7/24/2024	6/1/2015	102.40658	101.0252689	99.66931148	98.33807078	97.0309294	95.74729004	94.48657476	93.24822417	92.03169667
150601A00531	6/1/2015	3.28	7/24/2024	6/1/2015	102.40718	101.0303043	99.67863294	98.35153729	97.0484048	95.76864279	94.51167772	93.27695437	92.06393514

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00650	6/1/2015	2.75	3/31/2023	6/1/2015	100.15895	100.0730398	99.98726994	99.90164501	99.81616466	99.73082855	99.64563634	99.56058769	99.47568225
150601A00664	6/1/2015	3.78	1/16/2032	6/1/2015	126.36369	117.0746452	108.5690912	100.776124	93.63162075	87.07755728	81.06139917	75.53555644	70.45689487
150601A00665	6/1/2015	3.82	1/14/2033	6/1/2015	129.37658	118.9854636	109.5543087	100.9882111	93.20214598	86.11989019	79.67306953	73.8003131	68.44650282
150601A00666	6/1/2015	3.88	1/16/2035	6/1/2015	134.52978	121.94913	110.7297146	100.7144427	91.76520618	83.76049717	76.59333263	70.16944798	64.40572344
150601A00667	6/1/2015	3.88	1/16/2036	6/1/2015	136.51381	122.8767241	110.8205154	100.1499303	90.69492162	82.30727162	74.85768371	68.23327461	62.33541013
150601A00668	6/1/2015	3.89	1/16/2037	6/1/2015	138.51678	123.8281176	110.9533863	99.65407471	89.72439999	80.98665621	73.28724539	66.4932877	60.48972348
150601A00688	6/1/2015	2.61	2/21/2025	6/1/2015	102.98218	101.0314316	99.12764811	97.26941135	95.45535312	93.6841558	91.95455006	90.26531267	88.61526458
150601A00689	6/1/2015	2.81	2/28/2025	6/1/2015	103.00899	101.0457845	99.13016716	97.26069141	95.43596156	93.65463377	91.9154138	90.21705473	88.55835497
150601A00696	6/1/2015	2.83	3/13/2025	6/1/2015	103.13271	101.1342724	99.18478117	97.28272629	95.42665228	93.61515879	91.84689805	90.12057255	88.43493269
150601A00733	6/1/2015	2.72	5/1/2025	6/1/2015	103.6816	101.5380546	99.44943051	97.41393494	95.42984654	93.4955138	91.60935159	89.7698379	87.97551076
150601A00734	6/1/2015	2.92	5/1/2025	6/1/2015	103.65482	101.5204789	99.44066881	97.41361043	95.43759888	93.51099829	91.63223838	89.79981123	88.01226822
150601A00737	6/1/2015	2.68	12/31/2024	6/1/2015	102.77632	100.9682327	99.20074447	97.47271127	95.78302769	94.13062617	92.51447544	90.93357911	89.38697423
150601A00830	6/1/2015	6.743	7/31/2025	6/1/2015	113.91818	111.4091512	108.9698604	106.5979721	104.29124	102.0475059	99.86469645	97.74081862	95.67395652
150601A00916	6/1/2015	7.27	4/5/2030	6/1/2015	145.38224	137.1984132	129.5674608	122.4483953	115.8034972	109.5980359	103.8000174	98.37995429	93.31065666
150601A01024	6/1/2015	5.33	2/27/2026	6/1/2015	112.94327	109.8742283	106.9071331	104.0380218	101.2631084	98.57877558	95.98156566	93.46817301	91.03543627
150603A00017	6/3/2015	2.84	6/3/2025	6/3/2015	104.27483	102.037832	99.85995457	97.73920734	95.67368743	93.66157139	91.70111118	89.79063028	87.92852017
150610A00008	6/10/2015	3.58	6/10/2030	6/10/2015	122.4884	114.8438714	107.7443841	101.1479324	95.01596685	89.3130923	84.00679373	79.0671875	74.46679526
150610A00009	6/10/2015	3.03	6/10/2025	6/10/2015	104.7625	102.5008661	100.2994289	98.15618496	96.06921129	94.03666314	92.0567704	90.12783384	88.24822171
150610A00017	6/10/2015	2.9	6/15/2023	6/10/2015	100.51831	100.222918	99.929274	99.63735962	99.3471595	99.05865852	98.7718417	98.48669428	98.20320163
150720A00011	7/20/2015	2.69	7/20/2023	7/20/2015	100.63127	100.2394108	99.8506116	99.46483816	99.08205507	98.70222752	98.32532125	97.95130251	97.58013808
150720A00012	7/20/2015	2.99	7/21/2025	7/20/2015	104.99894	102.6253105	100.3176462	98.07374826	95.89150493	93.76888676	91.70394296	89.69479792	87.73964779
150721A00027	7/21/2015	3.74	7/22/2030	7/21/2015	122.22629	114.549818	107.426126	100.8122235	94.66868386	88.95932798	83.65094109	78.71301588	74.11751895
150727A00013	7/27/2015	3.04	7/28/2025	7/27/2015	104.66646	102.2891151	99.97814084	97.73131143	95.54649293	93.42163509	91.35476747	89.34399588	87.38749894
150817A00077	8/17/2015	2.49	8/17/2023	8/17/2015	100.62652	100.1585979	99.6950385	99.23577745	98.78075496	98.32991237	97.88319209	97.44053762	97.00189346
150817A00099	8/17/2015	3.19	8/17/2027	8/17/2015	111.3428	106.8501757	102.5675774	98.48406987	94.58934756	90.87369186	87.32793446	83.94342336	80.71199109
150819A00012	8/19/2015	3.04	8/19/2025	8/19/2015	104.83009	102.3937605	100.0269853	97.72738574	95.49267576	93.32066102	91.20923472	89.15637353	87.16013373
150819A00013	8/19/2015	3.51	8/19/2030	8/19/2015	120.74516	113.0487458	105.9128579	99.2934537	93.15017337	87.44601498	82.14703879	77.22209913	72.64260105
150821A00018	8/21/2015	2.6	8/21/2024	8/21/2015	101.93453	100.4841195	99.06164222	97.66636495	96.29757679	94.95459115	93.6367447	92.34339638	91.07392647
150826A00038	8/26/2015	2.94	8/26/2026	8/26/2015	108.17528	104.6802372	101.3182846	98.08363529	94.97078711	91.9745061	89.08981189	86.31196395	83.63644874
150826A00039	8/26/2015	3.22	8/27/2029	8/26/2015	117.91933	111.2125438	104.9403496	99.07218975	93.57981013	88.4370752	83.61979856	79.10558809	74.87370403
150827A00029	8/27/2015	2.74	8/27/2024	8/27/2015	102.17506	100.7072625	99.26801501	97.85655915	96.47216173	95.11411488	93.78173493	92.47436138	91.19135593
150904A00021	9/4/2015	2.52	9/5/2023	9/4/2015	100.69245	100.1729124	99.65873568	99.1498346	98.64612823	98.14753724	97.6539839	97.16539207	96.68168712
151002A00081	10/2/2015	2.29	10/2/2023	10/2/2015	100.63041	100.0382985	99.45313695	98.87480768	98.30319154	97.73817217	97.17963584	96.62747146	96.08157042

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
151106A00011	11/6/2015	3.1	1/15/2026	11/6/2015	106.1641	103.3155694	100.5588083	97.89036977	95.30695978	92.80542508	90.38274652	88.03603256	85.76251318
151109A00020	11/9/2015	2.79	11/9/2023	11/9/2015	100.93141	100.2380034	99.55411682	98.87955496	98.2141279	97.55765085	96.90994401	96.27083235	95.64014548
151116A00025	11/16/2015	3.04	11/14/2025	11/16/2015	105.51336	102.8370393	100.2425518	97.72686509	95.28708597	92.92044868	90.62430828	88.39613437	86.23350525
151211A00055	12/11/2015	2.62	12/11/2024	12/11/2015	102.62148	100.8670826	99.15105134	97.47224803	95.82957945	94.22199442	92.64848172	91.10806819	89.59981688
151223A00070	12/23/2015	2.57	12/26/2023	12/23/2015	101.03481	100.2141769	99.40685461	98.61252004	97.83086162	97.06157764	96.30437587	95.55897325	94.82509549
151223A00072	12/23/2015	2.81	12/23/2025	12/23/2015	105.76748	102.9710513	100.2632592	97.64080248	95.10052226	92.63939543	90.25452791	87.94314835	85.7026021
151223A00074	12/23/2015	3.01	12/23/2027	12/23/2015	112.56412	107.6674251	103.0154166	98.59457696	94.39220423	90.39635996	86.59581915	82.98002396	79.53904059
151223A00077	12/23/2015	3.57	12/24/2035	12/23/2015	136.39851	122.6336607	110.4686906	99.70588731	90.17305966	81.72011878	74.21613423	67.54679555	61.61222165
151229A00079	12/29/2015	3	12/30/2025	12/29/2015	105.75804	102.9568596	100.2447247	97.61833907	95.0745442	92.61031501	90.22275352	87.90908282	85.66664136
151229A00080	12/29/2015	3.49	12/30/2030	12/29/2015	121.56083	113.4811441	106.0144164	99.11061672	92.72404598	86.81294277	81.33912568	76.26766954	71.56661257
151229A00081	12/29/2015	3.76	12/31/2035	12/29/2015	135.63703	122.0928703	110.1158031	99.51274237	90.11545952	81.77726714	74.37015649	67.78232839	61.9160615
160113A00030	1/13/2016	2.52	1/13/2025	1/13/2016	102.63137	100.7909024	98.99247855	97.23489041	95.51697408	93.83760633	92.19570286	90.59021668	89.02013661
160119A00019	1/19/2016	2.95	1/19/2027	1/19/2016	108.62666	104.7541712	101.042527	97.48421234	94.07210418	90.79944679	87.6598312	84.64717545	81.75570631
160119A00025	1/19/2016	3.05	1/19/2028	1/19/2016	111.83828	106.9224696	102.2549861	97.82199365	93.61049361	89.6082727	85.80385179	82.1864381	78.74588079
160119A00026	1/19/2016	3.14	1/19/2029	1/19/2016	114.63824	108.6752426	103.066146	97.78806478	92.81970372	88.14124284	83.73422794	79.58146997	75.66695222
160119A00027	1/19/2016	3.25	1/18/2030	1/19/2016	117.46135	110.4458248	103.9071776	97.81036736	92.12310354	86.81561509	81.86044169	77.23224353	72.90762753
160119A00028	1/19/2016	3.34	1/21/2031	1/19/2016	120.54869	112.4507519	104.9722308	98.06219072	91.67413634	85.76560727	80.29780877	75.23527798	70.54558221
160119A00029	1/19/2016	3.39	1/20/2032	1/19/2016	123.46302	114.2876597	105.8899433	98.19928393	91.15185612	84.68991915	78.76120828	73.31838972	68.31857234
160119A00030	1/19/2016	3.44	1/18/2033	1/19/2016	126.26493	116.0104069	106.7079084	98.26302207	90.5911867	83.61661543	77.27134388	71.49438588	66.2309842
160122A00029	1/22/2016	2.48	1/22/2025	1/22/2016	102.60727	100.7437217	98.92324152	97.14457677	95.40652192	93.70791405	92.047631	90.42458972	88.83774464
160129A00066	1/29/2016	3.04	1/29/2031	1/29/2016	120.12269	111.9394295	104.3871674	97.41367382	90.97130286	85.01656778	79.50975833	74.41459497	69.69791638
160129A00067	1/29/2016	2.53	1/29/2026	1/29/2016	105.23067	102.3453766	99.55455568	96.85460482	94.24208317	91.71369939	89.26630428	86.8968838	84.60255525
160211A00035	2/11/2016	2.25	2/11/2025	2/11/2016	101.87861	99.97507331	98.11664692	96.30198729	94.529801	92.79884157	91.10790735	89.45583962	87.84152075
160307A00026	3/7/2016	2.2	3/7/2023	3/7/2016	100.02612	100.0067161	99.98732837	99.96796059	99.94861271	99.92928469	99.90997651	99.89068813	99.87141953
160307A00027	3/7/2016	2.71	3/6/2026	3/7/2016	105.40604	102.4315167	99.5572134	96.77919594	94.0937088	91.49716495	88.98613727	86.55735044	84.20767324
160307A00028	3/7/2016	2.91	3/7/2028	3/7/2016	111.48624	106.4487032	101.6721972	97.14180426	92.84353679	88.76427436	84.89170546	81.21427346	77.72112644
160328A00045	3/28/2016	2.49	3/27/2026	3/28/2016	105.52781	102.4811769	99.53888788	96.69677621	93.95086721	91.29736823	88.73265908	86.25328307	83.85593859
160329A00006	3/29/2016	2.12	3/29/2023	3/29/2016	100.10103	100.0206985	99.94050191	99.86043642	99.78050171	99.70069748	99.62102343	99.54147925	99.46206464
160329A00045	3/29/2016	2.12	3/29/2024	3/29/2016	100.78716	99.72102504	98.67736307	97.65546853	96.65466608	95.67430804	94.713773	93.77246452	92.84980986
160330A00054	3/30/2016	2.9	3/31/2031	3/30/2016	119.43035	111.1060967	103.4367759	96.36712841	89.84683348	83.83004733	78.27498299	73.14353171	68.40092151
160330A00056	3/30/2016	2.26	3/31/2025	3/30/2016	102.58336	100.5354123	98.53853904	96.59112498	94.69161936	92.83853175	91.03042926	89.26593379	87.54371954
160401A00016	4/1/2016	2.42	4/1/2025	4/1/2016	102.48934	100.4480599	98.45758851	96.51632476	94.62272788	92.77531702	90.97266839	89.21341256	87.496232
160422A00026	4/22/2016	2.62	4/22/2026	4/22/2016	105.45617	102.3564393	99.36443216	96.47577316	93.68629639	90.99203045	88.38918803	85.87415608	83.44348662

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160504A00004	5/4/2016	2.3	5/4/2026	5/4/2016	105.19835	102.0545946	99.02138356	96.09417972	93.2686601	90.54070628	87.90639327	85.36197894	82.90389432
160524A00027	5/24/2016	3.06	5/27/2031	5/24/2016	119.16273	110.7840005	103.0724828	95.97115886	89.42817945	83.39636912	77.83278142	72.69829878	67.95727215
160606A00004	6/6/2016	2.43	6/8/2026	6/6/2016	105.1584	101.940096	98.83744182	95.84560958	92.96000674	90.1762603	87.49020474	84.89787077	82.39547473
160606A00005	6/6/2016	2.92	6/6/2031	6/6/2016	118.08598	109.7240174	102.0309028	94.94928451	88.4270249	82.41669784	76.87513968	71.76304522	67.04460399
160610A00009	6/10/2016	1.89	6/12/2023	6/10/2016	100.213	99.92641569	99.64148087	99.35817833	99.07649403	98.79641404	98.51792465	98.24101227	97.96566346
160613A00047	6/15/2016	2.18	6/16/2025	6/15/2016	102.38081	100.140315	97.95982654	95.8373665	93.77103209	91.75899641	89.79950477	87.89087137	86.03147597
160615A00031	6/15/2016	2.51	6/17/2030	6/15/2016	114.7821	107.3918451	100.5352469	94.17087801	88.26073771	82.76994766	77.66648023	72.92091168	68.506198
160616A00027	6/16/2016	2.27	6/16/2026	6/16/2016	104.6861	101.4541348	98.33910225	95.33612282	92.44055345	89.64797094	86.95416014	84.35510282	81.84696722
160616A00028	6/16/2016	1.81	6/16/2023	6/16/2016	100.19576	99.89825784	99.60253236	99.30856537	99.01634114	98.72584414	98.43705904	98.14997066	97.86456403
160616A00034	6/16/2016	1.97	6/17/2024	6/16/2016	100.53425	99.26611304	98.02377721	96.80646202	95.61341903	94.44392989	93.29730473	92.17288083	91.07002122
160620A00015	6/20/2016	1.71	6/20/2023	6/20/2016	100.22521	99.91609942	99.60890225	99.30360332	99.00018499	98.69862982	98.3989206	98.10104033	97.8049722
160624A00011	6/24/2016	1.83	6/26/2023	6/24/2016	100.20986	99.88505671	99.56235431	99.24173491	98.9231784	98.60666494	98.29217494	97.97968905	97.66918818
160628A00031	6/28/2016	1.77	6/28/2023	6/28/2016	100.19153	99.86131389	99.5332649	99.20736529	98.88359403	98.56193038	98.24235384	97.92484421	97.60938151
160628A00038	6/28/2016	1.88	6/27/2025	6/28/2016	102.22609	99.948227	97.73230446	95.57629273	93.47824299	91.43628151	89.44860624	87.51348361	85.62924551
160628A00039	6/28/2016	2.01	6/29/2026	6/28/2016	104.60555	101.3227463	98.16029763	95.11317922	92.17659988	89.34599245	86.61700214	83.98547551	81.44745008
160628A00040	6/28/2016	1.56	6/28/2023	6/28/2016	100.1833	99.85240836	99.52369577	99.19714517	98.87273528	98.55044509	98.23025389	97.9121412	97.59608685
160628A00049	6/28/2016	1.88	6/27/2025	6/28/2016	102.22609	99.948227	97.73230446	95.57629273	93.47824299	91.43628151	89.44860624	87.51348361	85.62924551
160628A00050	6/28/2016	1.56	6/28/2023	6/28/2016	100.1833	99.85240836	99.52369577	99.19714517	98.87273528	98.55044509	98.23025389	97.9121412	97.59608685
160630A00011	6/30/2016	1.8	6/30/2023	6/30/2016	100.20297	99.86726377	99.53380063	99.20255411	98.87350224	98.54662334	98.22189604	97.89929921	97.57881201
160630A00012	6/30/2016	2.11	6/30/2025	6/30/2016	102.29262	100.0158352	97.80097003	95.6460098	93.54901663	91.50812626	89.5215448	87.58754571	85.70446686
160701A00019	7/1/2016	1.73	7/3/2023	7/1/2016	100.17951	99.83571	99.49426021	99.15514126	98.81832938	98.48380108	98.15153323	97.82150298	97.4936878
160701A00020	7/1/2016	2.13	7/1/2026	7/1/2016	104.3126	101.0469126	97.90079416	94.86925775	91.94755262	89.13114949	86.41572899	83.79717086	81.27154375
160701A00039	7/1/2016	1.92	7/1/2026	7/1/2016	104.31744	101.0341556	97.87147785	94.82436077	91.88799922	89.05781268	86.32943359	83.69869628	81.16162662
160705A00005	7/5/2016	1.49	7/5/2023	7/5/2016	100.16035	99.81041274	99.46292578	99.11786035	98.77519111	98.43489311	98.09694172	97.76131266	97.427982
160705A00104	7/5/2016	2.1	7/6/2026	7/5/2016	104.23963	100.9623659	97.80554628	94.76413422	91.83332682	89.0085459	86.28542634	83.65980499	81.1277103
160706A00006	7/6/2016	1.47	7/6/2023	7/6/2016	100.15316	99.80052078	99.45036688	99.10267329	98.75741407	98.41456363	98.07409674	97.73598853	97.40021447
160706A00010	7/6/2016	1.99	7/7/2025	7/6/2016	102.04487	99.75311112	97.52415252	95.35593837	93.24648883	91.1938999	89.19634006	87.25204707	85.35932494
160706A00026	7/6/2016	2.19	7/6/2027	7/6/2016	106.68706	102.4045927	98.31884208	94.4197789	90.69793647	87.14437505	83.75064986	80.50878129	77.41122693
160706A00027	7/6/2016	2.29	7/6/2028	7/6/2016	108.94784	103.655816	98.65458603	93.92668854	89.45579926	85.2266481	81.22494601	77.43731726	73.85123672
160706A00028	7/6/2016	2.39	7/6/2029	7/6/2016	110.89747	104.6011224	98.70663826	93.18628407	88.01437646	83.16711878	78.62245369	74.35992785	70.36056784
160706A00029	7/6/2016	2.49	7/8/2030	7/6/2016	113.055	105.7417252	98.95911632	92.66583626	86.82396537	81.39870526	76.35810749	71.67282693	67.31589766
160706A00030	7/6/2016	2.59	7/7/2031	7/6/2016	115.55497	107.2141847	99.54919356	92.50149344	86.01792748	80.05017474	74.55428796	69.49027757	64.82173716
160707A00032	7/7/2016	1.52	7/7/2023	7/7/2016	100.1709	99.81549516	99.46262005	99.11224448	98.76434187	98.41888599	98.07585102	97.73521146	97.39694221

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160712A00023	7/12/2016	1.79	7/12/2023	7/12/2016	100.20606	99.83771999	99.47208824	99.10913931	98.74884368	98.39117222	98.03609626	97.68358754	97.33361819
160714A00020	9/6/2016	2.28	9/4/2026	9/6/2016	105.19193	101.7441069	98.42844951	95.23918482	92.17082215	89.21813981	86.37617027	83.64018641	81.00568844
160714A00023	8/10/2016	2.49	8/10/2028	8/10/2016	110.1615	104.74801	99.63633337	94.80807502	90.24604954	85.93419908	81.85751375	78.00195806	74.35440294
160714A00029	8/10/2016	2.27	8/10/2026	8/10/2016	105.00897	101.6289956	98.37634623	95.24555644	92.2314256	89.32900294	86.53357427	83.84064929	81.24594977
160714A00054	7/14/2016	2.03	7/15/2024	7/14/2016	100.6932	99.35196271	98.03491574	96.74146508	95.47103159	94.22305463	92.99699133	91.79231591	90.608519
160718A00010	7/18/2016	1.65	7/18/2023	7/18/2016	100.22128	99.83584102	99.45337078	99.07383912	98.69721212	98.32345641	97.95253908	97.58442778	97.2190906
160726A00005	7/26/2016	2.28	7/27/2026	7/26/2016	104.96146	101.6182714	98.39973492	95.30055945	92.31570319	89.44036406	86.66996693	84.0001517	81.42676201
160727A00002	7/27/2016	1.87	7/27/2023	7/27/2016	100.24311	99.83398891	99.42820646	99.02571707	98.6264808	98.23045834	97.83761102	97.44790077	97.06129015
160801A00001	8/1/2016	1.97	8/1/2024	8/1/2016	100.65369	99.26910732	97.91023501	96.57642306	95.26703917	93.98147187	92.7191296	91.47943997	90.26184897
160802A00003	8/2/2016	2.53	8/1/2031	8/2/2016	117.12028	108.5643466	100.7088484	93.49254047	86.85983213	80.76023996	75.14789482	69.98109866	65.22192588
160804A00014	8/4/2016	1.99	8/5/2024	8/4/2016	100.69374	99.29860413	97.92956026	96.58594136	95.26710157	93.9724164	92.70128192	91.45311386	90.22734685
160811A00011	8/11/2016	2.25	8/11/2026	8/11/2016	104.9462	101.5647376	98.31075681	95.17878525	92.16361181	89.260276	86.4640545	83.77044854	81.17517196
160815A00005	8/15/2016	2.23	8/17/2026	8/15/2016	104.91194	101.5156589	98.24799059	95.10338832	92.0765723	89.16251794	86.35644198	83.65378959	81.0502222
160815A00006	8/15/2016	2.23	8/17/2026	8/15/2016	104.91194	101.5156589	98.24799059	95.10338832	92.0765723	89.16251794	86.35644198	83.65378959	81.0502222
160815A00007	8/15/2016	2.23	8/17/2026	8/15/2016	104.91194	101.5156589	98.24799059	95.10338832	92.0765723	89.16251794	86.35644198	83.65378959	81.0502222
160816A00003	8/16/2016	1.63	8/16/2023	8/16/2016	100.22131	99.75722467	99.29743627	98.84188976	98.39052647	97.94328882	97.50012027	97.06096531	96.62576946
160830A00034	8/30/2016	1.9	8/30/2023	8/30/2016	100.2634	99.76253688	99.26665709	98.77568987	98.28956259	97.80820404	97.33154441	96.85951524	96.39204938
160830A00035	8/30/2016	2.06	8/30/2024	8/30/2016	100.87103	99.41051929	97.97850906	96.57423724	95.19697038	93.84600036	92.5206433	91.22023851	89.94414752
160830A00037	8/30/2016	2.16	8/29/2025	8/30/2016	102.71139	100.275892	97.91081993	95.61373118	93.38228612	91.21424015	89.1074392	87.05981544	85.06938334
160830A00038	8/30/2016	2.24	8/28/2026	8/30/2016	105.00965	101.5834445	98.288017	95.11767735	92.06701606	89.13088725	86.30439429	83.58287631	80.96189555
160830A00061	8/30/2018	1.89	8/30/2023	8/30/2018	100.25834	99.75748691	99.26162187	98.77066929	98.28455655	97.80321243	97.32656713	96.85455218	96.38710046
160921A00020	9/21/2016	1.97	9/21/2023	9/21/2016	100.31495	99.75483835	99.20096717	98.65323685	98.11154563	97.57579397	97.04588453	96.52172208	96.00321345
160922A00014	9/22/2016	2.06	9/22/2026	9/22/2016	105.28125	101.764056	98.38357014	95.13373148	92.00878597	89.00326587	86.11197372	83.32996742	80.6525461
160926A00004	9/26/2016	1.66	9/26/2023	9/26/2016	100.25135	99.67663646	99.10849832	98.54682169	97.99149679	97.44241631	96.89947537	96.36257138	95.83160409
160930A00005	9/30/2016	2.03	9/30/2024	9/30/2016	100.94183	99.39764243	97.88449176	96.40150938	94.94785799	93.52273102	92.12535113	90.75496893	89.41086169
161003A00004	10/3/2016	1.91	10/3/2023	10/3/2016	100.28772	99.69553838	99.11033239	98.53197641	97.96035077	97.39533853	96.83682546	96.28469996	95.73885295
161020A00002	10/20/2016	1.96	8/15/2023	10/20/2016	100.28887	99.82831452	99.37199313	98.91984425	98.47181073	98.02783645	97.58786633	97.15184627	96.71972315
161109A00018	11/9/2016	2.63	11/9/2026	11/9/2016	106.89073	103.2378114	99.73020499	96.36130569	93.12484799	90.01488773	87.02578348	84.15217916	81.38898773
161208A00007	12/8/2016	2.6	12/8/2023	12/8/2016	100.86562	100.0954205	99.33697029	98.58999897	97.85424727	97.12946369	96.41540417	95.71183188	95.01851689
161212A00040	12/12/2016	2.45	12/12/2023	12/12/2016	100.90232	100.1194193	99.34865348	98.58974124	97.84241041	97.10639717	96.38144565	95.66730765	94.96374237
161214A00023	12/14/2016	3.3	12/15/2031	12/14/2016	124.55217	115.325257	106.875593	99.13304822	92.03417739	85.52155374	79.54316873	74.05189469	69.00500321
161222A00030	12/22/2016	3.09	12/22/2026	12/22/2016	109.76409	105.9210895	102.2351618	98.69904747	95.30586341	92.04908023	88.92250206	85.92024763	83.03673254
170110A00020	1/10/2017	2.4	1/10/2024	1/10/2017	100.92555	100.0657349	99.22054388	98.38960646	97.5725641	96.76907024	95.97878979	95.20139861	94.43658311

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170111A00009	1/11/2017	3.16	1/11/2028	1/11/2017	112.3139	107.407554	102.7478911	98.32122558	94.11469746	90.11622065	86.31443242	82.69864652	79.25880969
170111A00011	1/11/2017	3.24	1/11/2029	1/11/2017	115.17523	109.2175463	103.6120055	98.3359151	93.36815897	88.68907852	84.28036503	80.12496049	76.2069662
170111A00012	1/11/2017	3.31	1/11/2030	1/11/2017	117.82698	110.8172799	104.2826265	98.1882132	92.50195418	87.19426056	82.23783395	77.60747849	73.27992893
170111A00013	1/11/2017	3.4	1/10/2031	1/11/2017	120.94082	112.8562227	105.3875847	98.48443462	92.1006914	86.19425859	80.72666112	75.66271674	70.97023883
170111A00014	1/11/2017	3.47	1/12/2032	1/11/2017	124.10747	114.9251105	106.5186248	98.81776833	91.7590123	85.28486941	79.34329098	73.88712691	68.87364172
170111A00016	1/11/2017	3.51	1/11/2033	1/11/2017	126.9002	116.6335031	107.3175367	98.85822561	91.17128515	84.18115875	77.82007311	72.02719983	66.74791103
170117A00046	1/17/2017	2.55	1/17/2024	1/17/2017	100.90081	100.025033	99.1644404	98.31863647	97.48724215	96.66989131	95.86623013	95.0759166	94.29862003
170119A00006	1/19/2017	2.85	1/21/2025	1/19/2017	102.91058	101.0538827	99.23990708	97.46741489	95.73521477	94.04215729	92.38713318	90.76907162	89.1869387
170120A00008	1/20/2017	3.63	1/20/2034	1/20/2017	130.3368	118.9223591	108.6572009	99.41785773	91.09477611	83.5906855	76.81916257	70.70336993	65.17494722
170120A00009	1/20/2017	3.67	1/22/2035	1/20/2017	132.78249	120.2852459	109.1447444	99.20403746	90.32518248	82.38684961	75.28224142	68.91728238	63.20904203
170120A00010	1/20/2017	3.71	1/22/2036	1/20/2017	135.12	121.5529588	109.5630601	98.95511832	89.55918454	81.22716422	73.82990088	67.25466223	61.40297125
170120A00011	1/20/2017	3.75	1/20/2037	1/20/2017	137.41938	122.7922578	109.9750688	98.72949513	88.84995415	80.15894526	72.50307642	65.74967077	59.78386604
170123A00039	1/23/2017	2.79	1/23/2026	1/23/2017	105.94366	103.0635708	100.2772209	97.58105571	94.97167875	92.44584041	90.00043062	87.63247209	85.33911388
170130A00010	1/30/2017	2.92	1/30/2025	1/30/2017	103.10001	101.2182557	99.38028339	97.58481448	95.83061458	94.11649328	92.44130225	90.80393342	89.20331738
170130A00031	1/30/2017	2.96	7/30/2025	1/30/2017	104.48833	102.1079832	99.79423354	97.54484809	95.35768117	93.2306714	91.16183786	89.14927641	87.19115627
170203A00012	2/3/2017	3.63	2/2/2035	2/3/2017	132.37573	119.8734877	108.7322968	98.79430726	89.92083418	81.9899353	74.89430944	68.53946809	62.84214367
170203A00013	2/3/2017	3.67	2/1/2036	2/3/2017	134.66823	121.1039457	109.1202881	98.52121844	89.13609569	80.81626687	73.43212731	66.87058712	61.03288599
170215A00040	2/15/2017	2.59	5/15/2023	2/15/2017	100.32272	100.1126597	99.90349107	99.69520869	99.48780688	99.28127999	99.07562245	98.87082871	98.6668933
170215A00041	2/15/2017	2.6	10/16/2023	2/15/2017	100.73356	100.1050704	99.48441656	98.87145502	98.2660433	97.66804238	97.07731664	96.49373377	95.91716462
170215A00043	2/15/2017	2.7	8/28/2024	2/15/2017	101.82575	100.3629352	98.92855685	97.52185612	96.14210334	94.788594	93.46064758	92.15760662	90.8788357
170216A00043	2/16/2017	3.17	2/16/2027	2/16/2017	109.72464	105.7534041	101.9500341	98.30654025	94.81535855	91.46932278	88.26164156	85.18587673	82.23592308
170216A00044	2/16/2017	3.52	2/17/2032	2/16/2017	124.79764	115.4901109	106.9764494	99.18407728	92.04742446	85.50721857	79.50985002	74.00680403	68.95415226
170216A00045	2/16/2017	3.73	2/17/2037	2/16/2017	137.29337	122.60238	109.7387728	98.46068031	88.55962926	79.8557699	72.19380503	65.4395164	59.47679829
170224A00020	2/24/2017	3.08	2/24/2027	2/24/2017	109.44207	105.4533274	101.6342084	97.97659123	94.47279015	91.11552627	87.89790364	84.81338708	81.85578132
170224A00021	2/24/2017	3.4	2/24/2032	2/24/2017	123.79152	114.5081214	106.0192022	98.25193049	91.14052176	84.62552557	78.65318554	73.1748669	68.14654415
170224A00039	5/24/2017	3.17	5/24/2027	5/24/2017	110.55899	106.3091512	102.2487097	98.36815203	94.65850139	91.11128215	87.71848877	84.4725567	81.36633538
170224A00044	5/24/2017	3.29	5/24/2029	5/24/2017	116.29092	109.9424758	103.9893903	98.40482691	93.16391685	88.24360218	83.62249393	79.28074248	75.19991853
170228A00014	2/28/2017	2.89	3/1/2027	2/28/2017	109.59642	105.5665368	101.7091531	98.01596414	94.47910755	91.0911398	87.84501142	84.73404404	81.75190882
170228A00015	2/28/2017	2.87	5/28/2025	2/28/2017	103.82633	101.6198465	99.47117332	97.37837262	95.33958691	93.35303661	91.41701596	89.52988924	87.69008727
170313A00032	3/13/2017	3.69	6/14/2032	3/13/2017	127.17189	117.446432	108.5742211	100.4750287	93.07658833	86.31376786	80.12783035	74.46577524	69.27975028
170313A00033	3/13/2017	3.31	3/15/2027	3/13/2017	110.52489	106.4633617	102.5761276	98.85476709	95.29130866	91.87820728	88.60831937	85.47487915	82.47147653
170313A00034	3/13/2017	3.31	3/15/2027	3/13/2017	110.52489	106.4633617	102.5761276	98.85476709	95.29130866	91.87820728	88.60831937	85.47487915	82.47147653
170313A00035	3/13/2017	3.31	3/15/2027	3/13/2017	110.52489	106.4633617	102.5761276	98.85476709	95.29130866	91.87820728	88.60831937	85.47487915	82.47147653

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170316A00018	3/16/2017	2.8	3/18/2024	3/16/2017	101.2965	100.2589796	99.24269155	98.24698874	97.27125006	96.31487917	95.37730325	94.45797193	93.55635612
170317A00059	3/17/2017	2.47	3/17/2023	3/17/2017	100.08346	100.0362571	99.98911643	99.94203806	99.89502185	99.84806764	99.80117532	99.75434474	99.70757579
170322A00011	3/22/2017	2.48	3/22/2024	3/22/2017	101.16321	100.1131573	99.08485534	98.07763475	97.09085201	96.12388963	95.17615475	94.24707798	93.3361122
170322A00022	3/22/2017	3.89	9/23/2041	3/22/2017	147.40112	127.9057628	111.47189	97.58721536	85.82856642	75.84591582	67.34934801	60.09840854	53.89339053
170322A00023	3/22/2017	3.82	9/22/2039	3/22/2017	143.03455	125.6174784	110.6945091	97.88551914	86.87067328	77.38055772	69.18797223	62.10109612	55.95779196
170322A00024	3/22/2017	3.72	9/22/2036	3/22/2017	136.44611	122.1801357	109.6451541	98.61763092	88.9041645	80.3372793	72.77182265	66.08187881	60.15812368
170322A00025	3/22/2017	3.58	3/22/2033	3/22/2017	128.02864	117.5210288	108.0023869	99.37321504	91.54454511	84.43677747	77.97864944	72.10632187	66.7625701
170322A00026	3/22/2017	3.22	3/22/2028	3/22/2017	113.13876	108.0207248	103.1690254	98.56835821	94.20438329	90.06365512	86.13356201	82.40227002	78.85867092
170327A00070	3/29/2017	3.05	3/29/2027	3/29/2017	110.4815	106.358976	102.4152869	98.64169746	95.02994945	91.57223164	88.26115285	85.08971698	82.05129959
170327A00072	3/29/2017	3.09	3/29/2027	3/29/2017	110.64424	106.5184227	102.5715435	98.79486398	95.18012213	91.71950287	88.40561142	85.23144822	82.19038557
170328A00015	3/28/2017	2.75	11/29/2024	3/28/2017	102.43188	100.7167925	99.03851782	97.39593212	95.7879609	94.21357313	92.67177907	91.16162814	89.68220699
170417A00057	4/17/2017	2.32	4/17/2023	4/17/2017	100.18222	100.0493653	99.91688111	99.78476115	99.65300385	99.52160771	99.39057121	99.25989286	99.12957116
170417A00068	4/17/2019	2.59	4/17/2024	4/17/2019	101.13725	100.0228266	98.93291563	97.86671852	96.82346733	95.80242695	94.80289339	93.82419215	92.86567666
170427A00044	4/27/2017	3.02	4/27/2027	4/27/2017	109.71439	105.5534079	101.5753581	97.77118339	94.13232957	90.65071222	87.3186882	84.12902887	81.07489514
170427A00046	4/27/2017	3.1	4/27/2028	4/27/2017	112.78836	107.5818828	102.6508848	97.97928283	93.55202186	89.35500195	85.37501217	81.59966975	78.01736359
170427A00047	4/27/2017	3.18	4/27/2029	4/27/2017	115.46021	109.207691	103.3410035	97.83420543	92.66323901	87.80578041	83.24110561	78.94996743	74.91448267
170502A00028	5/2/2017	2.84	5/3/2027	5/2/2017	109.921	105.7140442	101.6932473	97.84934097	94.17356908	90.65765966	87.29379507	84.07458433	80.99303724
170508A00010	5/8/2017	2.43	5/8/2024	5/8/2017	101.21668	100.0441052	98.89862731	97.77931481	96.68527876	95.61567012	94.5696775	93.54652511	92.54547081
170515A00010	5/15/2017	2.58	5/15/2024	5/15/2017	101.19297	100.0058093	98.84645543	97.71393641	96.60732824	95.52574891	94.46835605	93.43434472	92.42294538
170518A00034	5/18/2017	2.15	5/18/2023	5/18/2017	100.27977	100.06108	99.84335856	99.62659936	99.41079591	99.19594182	98.98203073	98.76905638	98.55701252
170524A00011	5/24/2017	2.54	5/24/2024	5/24/2017	101.16742	99.95719434	98.77586393	97.62240034	96.49582601	95.39520867	94.31965871	93.26832674	92.24040141
170530A00064	5/30/2017	2.32	3/27/2023	5/30/2017	100.10905	100.0342503	99.95956753	99.88500271	99.81055557	99.73622585	99.66201329	99.58791761	99.51393855
170531A00080	5/31/2017	2.3	5/31/2024	5/31/2017	101.11634	99.88479917	98.68314381	97.51030119	96.36524484	95.24699653	94.15462345	93.0872356	92.04398341
170602A00023	6/2/2017	2.09	6/2/2023	6/2/2017	100.30633	100.046353	99.78772614	99.5304369	99.27447493	99.01982995	98.76649181	98.51445045	98.26369591
170602A00026	6/2/2017	2.25	6/3/2024	6/2/2017	101.06895	99.82988623	98.62001922	97.43832044	96.28381047	95.15555493	94.05266198	92.97427985	91.91959464
170608A00020	6/8/2017	2.27	6/10/2024	6/8/2017	101.13125	99.87350081	98.64335373	97.43989751	96.26226349	95.10962078	93.98117414	92.87616211	91.79385521
170609A00026	6/9/2017	2.3	6/9/2023	6/9/2017	100.32495	100.0463601	99.76931973	99.49381967	99.21984706	98.94738916	98.67643338	98.4069673	98.13897858
170609A00043	6/9/2017	3.07	6/9/2032	6/9/2017	123.70312	114.0378644	105.2278664	97.19228234	89.85833021	83.16044289	77.03951797	71.44224901	66.32052926
170612A00039	6/12/2017	2.29	6/12/2024	6/12/2017	101.16767	99.9044589	98.668395	97.4586039	96.27424893	95.11452911	93.97867716	92.86595777	91.77566592
170613A00032	6/13/2017	2.45	6/13/2025	6/13/2017	103.4593	101.204663	99.01031967	96.8742706	94.79459423	92.7694466	90.79705763	88.87572749	87.00382325
170613A00033	6/13/2017	2.3	6/13/2024	6/13/2017	101.18596	99.92001891	98.680996	97.46803719	96.28032191	95.11706416	93.97751072	92.86093942	91.76665755
170615A00015	6/15/2017	2.25	6/14/2024	6/15/2017	101.12636	99.85821003	98.61675019	97.40113727	96.21056702	95.04426877	93.9015036	92.78156273	91.683766
170622A00036	6/22/2017	3.23	6/22/2032	6/22/2017	123.03323	113.470943	104.7539115	96.80228359	89.54415916	82.91475832	76.85568256	71.31425596	66.24293747

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170622A00037	6/22/2017	3.27	6/22/2033	6/22/2017	125.47362	114.8500264	105.2517581	96.57332257	88.7206259	81.60968698	75.16550291	69.32104671	64.01638143
170622A00038	6/22/2017	3.32	6/22/2034	6/22/2017	127.79629	116.1167182	105.6575017	96.28294779	87.8731689	80.32216333	73.53614097	67.43205849	61.93633687
170622A00039	6/22/2017	3.36	6/22/2035	6/22/2017	129.882	117.161938	105.870715	95.8377526	86.91375389	78.96794559	71.88569158	65.56642441	59.92185116
170622A00040	6/22/2017	3.41	6/23/2036	6/22/2017	132.03503	118.272007	106.1609363	95.49125026	86.08037675	77.76988524	70.42217852	63.91765252	58.15225597
170623A00028	6/23/2017	2.79	6/23/2027	6/23/2017	109.18416	104.8825599	100.7763986	96.85577467	93.11134153	89.53427208	86.11622691	82.84932488	79.72611546
170629A00073	6/29/2017	2.2	6/29/2023	6/29/2017	100.39859	100.064507	99.73264582	99.40298249	99.07549527	98.75016268	98.42696352	98.10587687	97.78688207
170630A00027	6/30/2017	2.35	6/28/2024	6/30/2017	101.33317	100.0270895	98.74455302	97.48496243	96.24774379	95.03234208	93.83822045	92.66485944	91.51175635
170706A00090	7/6/2017	2.48	7/6/2023	7/6/2017	100.44574	100.0932064	99.74314363	99.39553048	99.05034124	98.7075506	98.36713357	98.02906552	97.69332218
170728A00032	7/28/2017	2.36	7/27/2023	7/28/2017	100.44533	100.0357174	99.62943911	99.22645689	98.82673074	98.43022131	98.03688989	97.6466984	97.25960937
170728A00033	7/28/2017	2.46	1/29/2024	7/28/2017	100.84166	99.93467557	99.04396544	98.16909553	97.30964619	96.46521247	95.63540348	94.81984179	94.01816286
170728A00040	7/28/2017	2.44	1/27/2025	7/28/2017	102.55895	100.6829362	98.85055506	97.0605314	95.31163636	93.60268481	91.93253346	90.30007912	88.704257
170731A00029	7/31/2017	2.34	7/31/2023	7/31/2017	100.44422	100.0237467	99.60677999	99.19327727	98.78319562	98.37649281	97.97312729	97.5730582	97.17624534
170803A00020	8/3/2017	2.84	8/3/2027	8/3/2017	109.69304	105.2732408	101.0588689	97.0393091	93.20454666	89.54513258	86.05214893	82.71717625	79.53226315
170803A00021	8/3/2017	2.5	8/5/2024	8/3/2017	101.42755	100.0269226	98.65248102	97.30355601	95.9794992	94.67968376	93.40350343	92.15037176	90.91972124
170803A00032	8/3/2017	2.12	8/3/2023	8/3/2017	100.42995	100.0005049	99.57473108	99.1525795	98.73400401	98.31895926	97.90740069	97.49928447	97.09456751
170809A00005	8/9/2017	2.61	8/11/2025	8/9/2017	103.71978	101.3178885	98.9841038	96.71610879	94.51168174	92.36868942	90.28508296	88.25889399	86.28823096
170815A00006	8/15/2017	2.5	8/15/2024	8/15/2017	101.47013	100.0434639	98.64393925	97.27084589	95.92350111	94.60124524	93.30344064	92.02947083	90.77873959
170818A00003	8/18/2017	2.23	8/20/2024	8/18/2017	101.38118	99.93761728	98.52181655	97.13305125	95.77061594	94.43382929	93.12203296	91.83459074	90.57088751
170821A00038	8/23/2017	2.39	8/23/2024	8/23/2017	101.63176	100.1785201	98.75336665	97.35555996	95.98438305	94.63914356	93.31917267	92.02382406	90.75247303
170822A00018	8/22/2017	2.25	8/22/2023	8/22/2017	100.42924	99.94946364	99.47427089	99.00359464	98.53737065	98.07553591	97.61802857	97.16478797	96.71575456
170822A00019	8/22/2017	2.44	8/22/2024	8/22/2017	101.41083	99.96664527	98.55025726	97.16093639	95.79797574	94.46069249	93.14842689	91.86054132	90.59641935
170822A00020	8/22/2017	2.59	8/22/2025	8/22/2017	103.73944	101.3089961	98.94824283	96.65478713	94.4263305	92.26066705	90.15567922	88.10933359	86.11967705
170824A00038	8/24/2017	2.23	8/24/2023	8/24/2017	100.42705	99.94182998	99.46129478	98.98537637	98.51400842	98.04712584	97.5846648	97.12656267	96.672758
170831A00004	8/31/2017	2	8/31/2023	8/31/2017	100.41351	99.90831118	99.4081784	98.91303875	98.4228178	97.93744257	97.45684154	96.98094459	96.50968295
170831A00022	8/31/2017	2.27	2/29/2024	8/31/2017	100.71402	99.72654606	98.75837463	97.80894273	96.87771048	95.96415858	95.06778728	94.18811553	93.32468006
170906A00020	9/6/2017	2.14	9/6/2023	9/6/2017	100.39329	99.87320849	99.35850403	98.84909585	98.34490248	97.84584412	97.35184258	96.86282126	96.37870511
170908A00017	9/9/2019	2.32	9/9/2024	9/9/2019	101.30753	99.81681145	98.35546036	96.92268517	95.5177178	94.13981723	92.78826831	91.46238061	90.16148739
170914A00039	9/14/2017	2.23	9/16/2024	9/14/2017	101.50368	99.98745918	98.50137996	97.04461718	95.61637241	94.2158758	92.84238486	91.49518317	90.17357927
170915A00001	9/15/2017	2.43	9/16/2024	9/15/2017	101.51024	99.9990514	98.51783101	97.06575541	95.64203254	94.24589864	92.87661695	91.53347655	90.21579119
170915A00031	9/15/2017	2.1	9/15/2023	9/15/2017	100.48904	99.94316148	99.40321155	98.86909543	98.34071879	97.81798928	97.30081659	96.78911227	96.28278977
170918A00007	9/18/2017	2.8	9/20/2027	9/18/2017	109.8114	105.2631594	100.9317378	96.80564312	92.87405067	89.12676411	85.55417544	82.14722787	78.89738123
170919A00073	9/19/2017	2.28	9/19/2024	9/19/2017	101.59646	100.0713702	98.57668435	97.11156369	95.67519927	94.2668113	92.88564784	91.53098353	90.20211841
170929A00057	9/29/2017	2.16	9/29/2023	9/29/2017	100.54738	99.9636128	99.38660673	98.81624582	98.25241583	97.69500509	97.1439045	96.59900738	96.06020947

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171005A00006	10/5/2017	2.32	10/7/2024	10/5/2017	101.74954	100.1751302	98.6326674	97.1212424	95.63998335	94.18805083	92.76463634	91.36896089	90.00027359
171011A00013	10/11/2017	2.77	10/13/2026	10/11/2017	107.20226	103.6148905	100.1678647	96.85490761	93.67006396	90.60767825	87.66237759	84.82905585	82.10285876
171018A00003	10/18/2017	2.23	10/18/2023	10/18/2017	100.6258	99.9907683	99.36374548	98.74458146	98.13312897	97.52924441	96.93278773	96.34362232	95.76161493
171018A00011	10/18/2017	2.68	10/18/2027	10/18/2017	110.51007	105.8396639	101.3955905	97.1656567	93.1383917	89.30300203	85.64932772	82.1678015	78.84941089
171025A00026	10/25/2017	2.64	10/25/2024	10/25/2017	102.04307	100.4247763	98.83984553	97.28730595	95.76622715	94.27571432	92.81490652	91.38297505	89.97912192
171026A00007	10/26/2017	2.47	10/26/2023	10/26/2017	100.67178	100.0167974	99.37031928	98.73218417	98.10223136	97.48030419	96.86625	96.25991999	95.66116906
171026A00008	10/26/2017	2.6	10/25/2024	10/26/2017	101.97672	100.3589954	98.77462156	97.22262905	95.70208773	94.21210305	92.75181432	91.32039309	89.91704158
171026A00009	10/26/2017	2.75	10/27/2025	10/26/2017	104.60125	101.9853668	99.44839118	96.9874504	94.59979523	92.28279524	90.03393279	87.85079729	85.73107984
171026A00010	10/26/2017	2.84	10/26/2026	10/26/2017	107.55316	103.9254629	100.4407054	97.09245417	93.87459986	90.78134332	87.80717774	84.94687201	82.1954552
171026A00011	10/26/2017	2.94	10/26/2027	10/26/2017	110.70946	106.0454818	101.6074699	97.38323965	93.36133474	89.53097582	85.88201683	82.40490412	79.0906385
171030A00023	10/30/2017	2.9	11/1/2027	10/30/2017	110.56748	105.890926	101.4416493	97.20735933	93.17650121	89.33820498	85.68224129	82.19897987	78.87935108
171127A00016	11/27/2017	2.28	11/27/2023	11/27/2017	100.73909	99.99675947	99.26534219	98.54460101	97.83430346	97.13422378	96.44414268	95.76384711	95.09313001
171129A00020	11/29/2017	2.89	11/30/2026	11/29/2017	108.01384	104.2836102	100.7035132	97.26663566	93.96642537	90.79667147	87.75148406	84.82527545	82.01274263
171206A00038	12/6/2017	2.69	12/6/2027	12/6/2017	110.91131	106.0990108	101.525615	97.17795248	93.04365722	89.11110936	85.36938594	81.80821509	78.41793341
171206A00041	12/6/2017	2.44	12/6/2024	12/6/2017	102.27206	100.5339293	98.83356255	97.1698241	95.54162456	93.94791751	92.38769736	90.85999731	89.36388749
171206A00048	12/6/2017	3.04	12/6/2032	12/6/2017	124.51316	114.332995	105.0953069	96.70704821	89.08483942	82.15391756	75.84720388	70.10447685	64.87163804
171219A00063	12/19/2017	2.8	12/20/2027	12/19/2017	111.53435	106.6701137	102.0489016	97.65728829	93.48265869	89.51315659	85.73763498	82.14560989	78.72721744
171227A00018	12/27/2017	2.83	12/27/2024	12/27/2017	102.73983	100.9490288	99.19812666	97.48598599	95.81151369	94.17365491	92.57139142	91.00374007	89.46975133
180102A00021	1/2/2018	2.82	1/2/2026	1/2/2018	105.27056	102.4685304	99.75586065	97.12923653	94.58548309	92.12155961	89.73455316	87.42167253	85.18024247
180104A00017	1/4/2018	2.77	1/3/2025	1/4/2018	102.65282	100.8450268	99.07787252	97.35021424	95.66094377	94.00899093	92.393322	90.81293823	89.26687441
180104A00018	1/4/2018	2.97	1/4/2027	1/4/2018	108.5873	104.7545861	101.0795478	97.55488895	94.17368947	90.92938294	87.8157366	84.82683265	81.9570508
180109A00028	1/9/2018	2.6	1/9/2025	1/9/2018	102.7577	100.9263928	99.1366982	97.38742698	95.67743304	94.00561003	92.37088976	90.77224057	89.20866588
180110A00028	1/10/2018	2.85	1/10/2025	1/10/2018	102.84342	101.0157449	99.22953148	97.4835978	95.77680331	94.10804692	92.47626545	90.88043202	89.31955461
180110A00029	1/10/2018	3.13	1/10/2028	1/10/2018	112.16194	107.2618408	102.6080356	98.18686512	93.98549469	89.99186148	86.19462431	82.58311695	79.14730463
180111A00007	1/11/2018	2.66	1/14/2025	1/11/2018	102.90061	101.0549567	99.25150833	97.48905204	95.76641805	94.08247748	92.4361406	90.82635529	89.25210538
180116A00014	1/16/2018	3.01	1/19/2027	1/16/2018	108.85854	104.9815809	101.2656034	97.70308609	94.28690088	91.0102873	87.86683178	84.85044804	81.95535867
180116A00015	1/16/2018	3.06	1/18/2028	1/16/2018	111.87982	106.9656148	102.2995168	97.86770815	93.6572082	89.65582028	85.85208044	82.2352098	78.79507029
180118A00004	1/18/2018	2.88	1/17/2025	1/18/2018	102.94274	101.0960508	99.29163044	97.52826414	95.80477884	94.12004258	92.47296267	90.86248415	89.28758819
180118A00037	1/18/2018	2.88	1/21/2025	1/18/2018	102.96749	101.1102408	99.29572328	97.52269934	95.78997733	94.09640754	92.44088045	90.82232499	89.239707
180118A00039	1/18/2018	3.09	1/19/2027	1/18/2018	109.16771	105.2847937	101.5630386	97.99491775	94.57329649	91.29140797	88.14283255	85.12147816	82.22156183
180126A00029	1/26/2018	2.88	1/27/2025	1/26/2018	103.00461	101.1315317	99.30187734	97.51437936	95.76781799	94.0610167	92.39284042	90.76219372	89.16801921
180130A00070	1/30/2018	3.14	1/29/2027	1/30/2018	109.44329	105.5289781	101.7781025	98.18298724	94.73635442	91.43130405	88.26129238	85.2201116	82.30187092
180130A00085	1/30/2018	2.79	1/30/2025	1/30/2018	103.24951	101.3589263	99.51245054	97.70879001	95.9466981	94.22497274	92.54245448	90.89802471	89.29060388

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180205A00019	2/5/2018	2.88	2/5/2025	2/5/2018	103.46922	101.5594809	99.6946713	97.8734597	96.09456589	94.35675581	92.65883959	90.99966959	89.37813865
180206A00013	2/6/2018	2.72	2/6/2024	2/6/2018	101.28576	100.3529684	99.43733063	98.53837911	97.65566065	96.78873835	95.93719086	95.1006117	94.27860863
180207A00002	2/7/2018	3.13	2/6/2026	2/7/2018	106.42724	103.5161495	100.7006369	97.97704754	95.34188661	92.79181198	90.32362648	87.93427081	85.62081675
180207A00003	2/7/2018	3.28	2/7/2028	2/7/2018	113.10004	108.1028488	103.3601838	98.85773278	94.58205975	90.52054855	86.66134853	82.99332428	79.50600886
180222A00025	2/22/2018	3.48	2/22/2033	2/22/2018	129.29898	118.68157	109.0608893	100.3369763	92.42041723	85.23118177	78.69759322	72.7554167	67.34705086
180222A00026	2/22/2018	2.98	2/21/2025	2/22/2018	103.79469	101.8356788	99.92379116	98.05760583	96.23575028	94.4569027	92.71978969	91.02318417	89.36590331
180222A00027	2/22/2018	3.24	2/22/2028	2/22/2018	114.17533	109.0733639	104.2340604	99.64248633	95.28463657	91.14736998	87.21835162	83.48599907	79.93943275
180313A00026	3/13/2018	3.34	3/13/2028	3/13/2018	113.67254	108.5651476	103.7223152	99.12890435	94.77072562	90.63447073	86.70765332	82.9785539	79.43616877
180323A00013	3/23/2018	3.18	3/23/2028	3/23/2018	114.11647	108.9340059	104.0220679	99.3650683	94.94840003	90.75837004	86.7821371	83.00765424	79.42361553
180327A00024	3/27/2018	2.79	5/26/2023	3/27/2018	100.45748	100.2164979	99.97668214	99.738021	99.50050615	99.26412931	99.02888228	98.79475694	98.56174523
180328A00010	3/28/2018	3.1	3/28/2025	3/28/2018	103.87851	101.8330349	99.8382283	97.89250251	95.99432804	94.14223454	92.33480798	90.57068803	88.84856567
180329A00003	3/29/2018	3.08	3/29/2028	3/29/2018	113.65687	108.4697576	103.5542797	98.89474362	94.47644387	90.28559758	86.30928167	82.53537466	78.95250269
180402A00005	4/2/2018	2.94	4/3/2023	4/2/2018	100.19399	100.099757	100.0057023	99.91182822	99.81813418	99.72461968	99.6312842	99.53812723	99.44514826
180403A00005	4/3/2018	2.72	4/3/2023	4/3/2018	100.18873	100.0943379	100.0001317	99.90610806	99.81226652	99.7186065	99.62512746	99.53182885	99.43871015
180403A00006	4/3/2018	3.07	4/3/2028	4/3/2018	113.64405	108.4435791	103.5160555	98.84567686	94.41763657	90.21805903	86.23393623	82.45306882	78.86401153
180403A00041	4/3/2018	2.91	4/3/2025	4/3/2018	103.96429	101.8934962	99.87441072	97.90539653	95.98487929	94.11134618	92.28334295	90.49947125	88.75838593
180406A00014	4/6/2018	2.95	4/6/2023	4/6/2018	100.20947	100.1069466	100.0046374	99.90254565	99.80067058	99.69901151	99.59756774	99.49633858	99.39532332
180410A00017	4/10/2018	3.02	10/10/2023	4/10/2018	100.97903	100.365735	99.75988564	99.16135041	98.56999724	97.98569728	97.40832473	96.83775678	96.27387352
180412A00034	4/12/2018	3.23	4/15/2030	4/12/2018	119.56045	112.1706146	105.2998352	98.90871998	92.96107146	87.42360981	82.2657231	77.45924005	72.97822329
180412A00036	4/12/2018	3.54	4/15/2038	4/12/2018	140.30549	124.1059702	110.0747334	97.90370781	87.33038601	78.13085976	70.11395256	63.11627073	56.99802529
180426A00011	4/26/2018	2.94	4/26/2023	4/26/2018	100.33874	100.1806046	100.0229772	99.86585208	99.70922693	99.55309932	99.39746687	99.24232721	99.08767798
180426A00053	4/26/2018	2.94	4/26/2023	4/26/2018	100.33874	100.1806046	100.0229772	99.86585208	99.70922693	99.55309932	99.39746687	99.24232721	99.08767798
180503A00040	5/3/2018	3.3	5/5/2025	5/3/2018	104.6052	102.4499019	100.3498233	98.30315572	96.30816627	94.36319258	92.46663925	90.61697453	88.81272726
180511A00035	5/11/2018	2.93	5/11/2023	5/11/2018	100.41525	100.2156287	100.0168171	99.81880852	99.62159804	99.42518076	99.22955181	99.03470638	98.84063967
180514A00035	5/14/2018	3.07	5/14/2024	5/14/2018	102.01066	100.8174267	99.65209945	98.51370632	97.40132087	96.31405873	95.25107526	94.21156332	93.19475123
180518A00014	5/18/2018	3.17	5/18/2023	5/18/2018	100.46058	100.242067	100.0245195	99.80792788	99.5922859	99.37758726	99.16382573	98.95099512	98.73908932
180521A00025	5/21/2018	3.24	5/21/2025	5/21/2018	105.06879	102.8571782	100.7032267	98.6050125	96.56069233	94.56849971	92.62674099	90.73379164	88.88809279
180522A00019	5/22/2018	3.16	5/22/2023	5/22/2018	100.47907	100.249551	100.0210846	99.79366829	99.56729488	99.34195714	99.11764794	98.89436024	98.67208703
180529A00042	5/29/2018	3.42	5/30/2028	5/29/2018	114.66971	109.3279105	104.2722423	99.48577694	94.95268149	90.65814237	86.5882939	82.73015213	79.0715538
180529A00043	5/29/2018	2.99	5/30/2023	5/29/2018	100.47755	100.2260601	99.97582655	99.72683821	99.47908585	99.23256033	98.98725261	98.74315373	98.50025481
180529A00044	5/29/2018	3.11	5/29/2024	5/29/2018	101.89505	100.6671391	99.4688104	98.2990051	97.15671335	96.04097245	94.95086416	93.88551216	92.8440797
180529A00056	5/29/2018	3	5/26/2023	5/29/2018	100.46116	100.2206896	99.98136999	99.74319681	99.5061618	99.27025682	99.03547382	98.8018048	98.56924185
180529A00066	5/29/2018	2.99	5/26/2023	5/29/2018	100.45875	100.2182809	99.97896517	99.74079586	99.50376472	99.26786359	99.03308442	98.79941922	98.56686008

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180530A00014	5/30/2018	2.93	5/30/2023	5/30/2018	100.46241	100.2109451	99.96073681	99.71177362	99.46404631	99.21754575	98.97226289	98.72818878	98.48531453
180530A00024	5/30/2018	3.44	5/30/2029	5/30/2018	117.25361	110.8601665	104.8652731	99.24183773	93.96475513	89.01075147	84.35824068	79.98719302	75.87901452
180530A00025	5/30/2018	3.49	5/30/2030	5/30/2018	120.03014	112.5726283	105.6439641	99.20358732	93.21426191	87.64178768	82.45473687	77.6242151	73.12364422
180530A00026	5/30/2018	3.55	5/30/2031	5/30/2018	123.15457	114.609495	106.7418967	99.49398879	92.81322189	86.65177923	80.96612629	75.71660581	70.86707301
180530A00027	5/30/2018	3.61	6/1/2032	5/30/2018	126.35073	116.6967446	107.8876211	99.84410529	92.49479946	85.77534248	79.62768122	73.99942098	68.84324607
180530A00028	5/30/2018	3.67	5/31/2033	5/30/2018	129.36161	118.605484	108.8768023	100.0706242	92.0932915	84.86115891	78.29947422	72.34138872	66.92708264
180530A00030	5/30/2018	3.68	5/30/2034	5/30/2018	131.62641	119.8017462	109.2004188	99.68737511	91.14320898	83.46226956	76.5510089	70.32653569	64.71534875
180530A00072	5/30/2018	3.06	5/30/2024	5/30/2018	101.83633	100.6062077	99.40578942	98.23400454	97.08983726	95.97231936	94.88052739	93.81358015	92.77063628
180531A00015	5/31/2018	2.95	5/31/2023	5/31/2018	100.47204	100.2178098	99.964861	99.71318241	99.46276456	99.21359807	98.96567363	98.71898204	98.47351418
180604A00048	6/4/2018	3.01	6/5/2023	6/4/2018	100.50757	100.2395901	99.9730391	99.7079079	99.44418513	99.18185956	98.92092011	98.66135579	98.40315574
180604A00050	6/4/2018	3.15	6/4/2024	6/4/2018	101.98221	100.7380857	99.52288526	98.33560192	97.17527559	96.04098997	94.93187003	93.84707973	92.78581983
180611A00030	6/11/2018	2.91	6/12/2023	6/11/2018	100.56332	100.2754567	99.98925664	99.70470257	99.42178015	99.14047527	98.86077398	98.58266248	98.30612713
180614A00038	6/14/2018	3.08	6/14/2023	6/14/2018	100.56456	100.2718503	99.98085179	99.69155111	99.4039334	99.11798394	98.83368818	98.55103172	98.27000036
180618A00026	6/18/2018	3.05	4/13/2023	6/18/2018	100.25655	100.1346597	100.0130826	99.89181411	99.7708532	99.65019863	99.52984921	99.40980375	99.29006107
180619A00020	6/19/2018	3.1	6/19/2025	6/19/2018	104.99825	102.7093991	100.4820565	98.31419409	96.20386422	94.14919653	92.14839402	90.19972971	88.3015434
180619A00021	6/19/2018	3.24	6/19/2028	6/19/2018	115.10365	109.6553901	104.5028218	99.62830533	95.01534649	90.64851479	86.51336931	82.59639011	78.88491474
180619A00023	6/19/2018	3.04	6/19/2023	6/19/2018	100.57647	100.2700312	99.96547062	99.6627678	99.36190574	99.06286762	98.76563685	98.47019701	98.1765319
180620A00014	6/20/2018	3.4	6/20/2028	6/20/2018	114.7204	109.3200124	104.2118145	99.37842609	94.80359049	90.47209624	86.36970451	82.48308195	78.79973847
180620A00038	6/20/2018	3.4	6/20/2028	6/20/2018	114.7204	109.3200124	104.2118145	99.37842609	94.80359049	90.47209624	86.36970451	82.48308195	78.79973847
180620A00044	6/20/2018	2.89	6/20/2023	6/20/2018	100.59167	100.2818299	99.97390927	99.66789026	99.36375522	99.06148668	98.76106742	98.4624804	98.1657088
180621A00017	6/21/2018	3.42	6/21/2028	6/21/2018	114.83305	109.4270002	104.3135457	99.47527663	94.89591095	90.56021326	86.45392228	82.56368352	78.8769871
180622A00004	6/22/2018	3.47	12/22/2028	6/22/2018	116.38233	110.44257	104.8503648	99.58349123	94.62126103	89.94440648	85.53497575	81.37623644	77.45258669
180622A00005	6/22/2018	3.5	7/2/2029	6/22/2018	117.84366	111.3429276	105.2525497	99.54438873	94.19237635	89.1723507	84.46190784	80.04026547	75.88813799
180622A00006	6/22/2018	3.53	12/21/2029	6/22/2018	119.17938	112.1794137	105.649405	99.55517097	93.86518974	88.55037904	83.58389528	78.94095034	74.59864414
180622A00018	6/22/2018	2.92	6/22/2023	6/22/2018	100.60968	100.2943306	99.98096242	99.66956135	99.36010881	99.05258648	98.74697625	98.44326026	98.14142084
180625A00041	6/25/2018	3.06	6/20/2023	6/25/2018	100.5838	100.2746549	99.96741291	99.66206049	99.35858014	99.05695464	98.75716697	98.45920033	98.16303811
180627A00026	6/27/2018	2.87	6/27/2023	6/27/2018	100.61493	100.2858813	99.95898165	99.63421484	99.31156003	98.99099666	98.6725044	98.3560632	98.04165329
180627A00027	6/27/2018	2.87	6/27/2023	6/27/2018	100.61493	100.2858813	99.95898165	99.63421484	99.31156003	98.99099666	98.6725044	98.3560632	98.04165329
180629A00008	6/29/2018	3.02	6/29/2023	6/29/2018	100.61135	100.2775288	99.94591393	99.61648624	99.28922425	98.96410668	98.64111259	98.32022126	98.00141227
180629A00071	6/29/2018	3.02	6/29/2023	6/29/2018	100.61135	100.2775288	99.94591393	99.61648624	99.28922425	98.96410668	98.64111259	98.32022126	98.00141227
180702A00012	7/2/2018	3.01	7/3/2023	7/2/2018	100.6229	100.2781412	99.93574312	99.59568069	99.25793012	98.9224679	98.58927083	98.25831606	97.92958099
180702A00034	7/2/2018	2.86	7/3/2023	7/2/2018	100.63528	100.2897633	99.94662525	99.60583663	99.26737329	98.93121144	98.59732763	98.26569872	97.93630188
180703A00015	7/3/2018	3.06	7/3/2023	7/3/2018	100.64022	100.2954237	99.95298855	99.61288926	99.27510202	98.93960332	98.60636996	98.27537907	97.94660807

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180705A00003	7/5/2018	3.04	7/5/2023	7/5/2018	100.64067	100.2904312	99.94262615	99.59723418	99.25423017	98.9135894	98.57528747	98.23930034	97.90560427
180705A00062	7/5/2018	3.04	7/6/2023	7/5/2018	100.64437	100.2913922	99.94089558	99.59285082	99.24723222	98.90401443	98.56317247	98.22468168	97.88851776
180706A00013	7/6/2018	3.01	7/6/2023	7/6/2018	100.63373	100.2807751	99.93030173	99.58228009	99.23668449	98.89348959	98.55267039	98.21420225	97.87806086
180713A00013	7/13/2018	2.88	7/13/2023	7/13/2018	100.67975	100.3068529	99.93672905	99.56934815	99.20467967	98.8426935	98.48335997	98.12664985	97.77253434
180716A00016	7/16/2018	3.03	7/14/2023	7/16/2018	100.67382	100.2989674	99.92691397	99.55762883	99.19108104	98.82724014	98.46607613	98.10755943	97.75166092
180716A00054	7/16/2018	3.59	7/16/2040	7/16/2018	144.80791	126.2178407	110.4193517	96.9674369	85.49077085	75.67914009	67.27307469	60.05528568	53.84358625
180717A00047	7/17/2018	3.3	9/17/2025	7/17/2018	105.71788	103.1930891	100.7421028	98.36232778	96.05127564	93.80656097	91.62589656	89.50708857	87.44803216
180717A00076	7/17/2018	3.03	7/17/2023	7/17/2018	100.68114	100.2981589	99.91809494	99.54091898	99.16659813	98.79509996	98.42639252	98.06044437	97.69722451
180718A00026	7/18/2018	3.03	7/18/2023	7/18/2018	100.68481	100.2990992	99.91634938	99.53652811	99.15960176	98.78553721	98.41430186	98.04586363	97.68019087
180719A00004	7/19/2018	3.07	7/19/2023	7/19/2018	100.7041	100.3156268	99.9301548	99.54765219	99.16808463	98.79141834	98.41762006	98.04665703	97.67849699
180719A00061	7/19/2018	3.07	7/19/2023	7/19/2018	100.7041	100.3156268	99.9301548	99.54765219	99.16808463	98.79141834	98.41762006	98.04665703	97.67849699
180719A00063	7/19/2018	3.21	7/19/2024	7/19/2018	102.36102	100.9971779	99.65809875	98.34316509	97.05177976	95.78336493	94.53736123	93.31322703	92.11043777
180719A00064	7/19/2018	3.3	7/21/2025	7/19/2018	105.23529	102.8691744	100.568601	98.33139131	96.15545288	94.0387745	91.97942268	89.97553822	88.02533283
180719A00065	7/19/2018	3.36	7/20/2026	7/19/2018	108.56084	105.1748423	101.913864	98.77263067	95.74612082	92.82955016	90.01835908	87.30820092	84.69493087
180720A00068	7/20/2018	2.89	7/20/2023	7/20/2018	100.70998	100.3179295	99.92894337	99.542984	99.16001605	98.7800047	98.40291568	98.02871522	97.6573701
180724A00075	7/24/2018	2.98	7/24/2023	7/24/2018	100.76153	100.3584611	99.95862308	99.56197756	99.16848632	98.77811176	98.39081685	98.00656516	97.62532083
180727A00028	7/27/2018	3.25	7/27/2026	7/27/2018	108.98252	105.552742	102.2505933	99.07065005	96.00774803	93.05696899	90.21362754	87.47325882	84.83160694
180727A00037	7/27/2018	3.13	7/27/2023	7/27/2018	100.76312	100.3527192	99.94566184	99.54190519	99.14140922	98.74413454	98.35004241	97.95909468	97.57125385
180727A00038	7/27/2018	3.36	7/25/2025	7/27/2018	105.41152	103.0328898	100.720402	98.47185109	96.28511737	94.15816366	92.08903194	90.07583968	88.11677647
180727A00039	7/27/2018	3.48	7/27/2028	7/27/2018	115.40776	109.8912007	104.678044	99.74997898	95.08989309	90.68178681	86.51069567	82.56261815	78.82444911
180730A00004	7/30/2018	3.14	7/28/2023	7/30/2018	100.77124	100.3581105	99.94836031	99.54195275	99.13884707	98.73900317	98.34238161	97.94894356	97.55865082
180730A00023	7/30/2018	3.13	7/30/2024	7/30/2018	102.57843	101.1802197	99.80793172	98.46090822	97.13851204	95.84012703	94.56515719	93.31302583	92.08317479
180730A00041	7/30/2018	3.14	7/31/2023	7/30/2018	100.78322	100.3618925	99.94407463	99.52972595	99.11880347	98.71126492	98.3070687	97.9061739	97.50854026
180730A00078	7/30/2018	3.14	7/28/2023	7/30/2018	100.77124	100.3581105	99.94836031	99.54195275	99.13884707	98.73900317	98.34238161	97.94894356	97.55865082
180730A00081	7/30/2018	3.5	7/28/2028	7/30/2018	115.52208	109.999871	104.7814668	99.84852719	95.183911	90.77159222	86.59658204	82.64485661	78.90329019
180731A00004	7/31/2018	2.97	7/31/2023	7/31/2018	100.78551	100.363309	99.9446343	99.52944657	99.11770247	98.7093593	98.30437509	97.90270853	97.50431903
180801A00015	8/1/2018	3.16	8/1/2023	8/1/2018	100.79569	100.3716117	99.95109805	99.5341004	99.12057487	98.71047827	98.30376815	97.90040272	97.5003409
180802A00006	8/2/2018	2.99	8/2/2023	8/2/2018	100.80199	100.3743024	99.95024522	99.5297691	99.11282879	98.6993798	98.28937839	97.88278153	97.47954694
180808A00009	8/8/2018	3.12	8/7/2023	8/8/2018	100.79758	100.35729	99.92084654	99.48820068	99.05930293	98.63410465	98.21255806	97.7946162	97.3802329
180810A00028	8/10/2018	2.91	8/10/2023	8/10/2018	100.79784	100.3484387	99.90305125	99.46162534	99.02410809	98.59044758	98.16059283	97.73449373	97.31210107
180813A00026	8/13/2018	2.87	8/11/2023	8/13/2018	100.78345	100.331368	99.88335398	99.43934944	98.9993005	98.56315429	98.13085891	97.70236335	97.27761749
180813A00059	8/13/2018	3.01	8/11/2023	8/13/2018	100.76746	100.3163665	99.86931587	99.42625442	98.98712881	98.55188664	98.12047645	97.69284768	97.26895066
180814A00010	8/14/2018	3.1	8/14/2025	8/14/2018	105.45837	103.0163622	100.6438785	98.3385418	96.09807296	93.92028433	91.80307525	89.74442809	87.74240442

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180814A00032	8/14/2018	3.1	8/14/2025	8/14/2018	105.45837	103.0163622	100.6438785	98.3385418	96.09807296	93.92028433	91.80307525	89.74442809	87.74240442
180814A00033	8/14/2018	3.25	8/13/2027	8/14/2018	112.55288	108.0154303	103.6900445	99.56568126	95.6319357	91.87899537	88.29760353	84.87902477	81.61501297
180815A00021	8/15/2018	3.01	8/15/2023	8/15/2018	100.77724	100.3153522	99.85770024	99.40422966	98.95488321	98.50960469	98.06833891	97.63103169	97.1976298
180816A00024	8/16/2018	3.01	8/16/2023	8/16/2018	100.78079	100.3161885	99.85587163	99.39978487	98.94786993	98.50006963	98.05632783	97.61658942	97.18080028
180816A00038	8/16/2018	3.38	8/16/2028	8/16/2018	115.00579	109.4472924	104.1975195	99.23765756	94.55013883	90.11854913	85.92754628	81.96278476	78.21084605
180817A00022	8/17/2018	2.87	8/17/2023	8/17/2018	100.80545	100.3370362	99.87298376	99.413233	98.9577241	98.50639835	98.05919815	97.61606694	97.1769492
180820A00036	8/20/2018	3	8/21/2023	8/20/2018	100.79374	100.315575	99.8419545	99.37280937	98.90807633	98.44769324	97.99159916	97.53973425	97.09203979
180820A00054	8/20/2018	3	8/18/2023	8/20/2018	100.78316	100.3131419	99.8475098	99.3862055	98.92916869	98.47634022	98.02766206	97.5830772	97.14252972
180820A00055	8/20/2018	3.37	8/21/2028	8/20/2018	114.98494	109.4138661	104.1529378	99.18321334	94.48700576	90.04779217	85.85013136	81.87958757	78.12265996
180823A00013	8/23/2018	2.97	8/23/2023	8/23/2018	100.78143	100.2979617	99.81912796	99.34486712	98.87511381	98.40980393	97.94887459	97.49226406	97.0399118
180823A00033	8/23/2018	2.85	8/23/2023	8/23/2018	100.81771	100.3330009	99.85295382	99.37750528	98.90658932	98.44014123	97.97809751	97.52039587	97.06697518
180823A00035	8/23/2018	3.05	8/22/2025	8/23/2018	105.39998	102.9377967	100.5462869	98.22301893	95.96565743	93.77196153	91.63978025	89.56704835	87.55178235
180823A00053	8/23/2018	3.2	8/23/2028	8/23/2018	115.34793	109.7189386	104.4047475	99.38605882	94.6448525	90.16429908	85.92867509	81.92328481	78.13438793
180823A00055	8/23/2018	3.44	8/23/2033	8/23/2018	130.06518	118.9211723	108.8686791	99.79365523	91.59457173	84.18098054	77.47225205	71.39646238	65.88941179
180827A00010	8/27/2018	2.99	8/25/2023	8/27/2018	100.79812	100.309198	99.82501664	99.34550799	98.8706046	98.40024031	97.93435024	97.47287073	97.01573933
180827A00020	8/27/2018	3.21	8/27/2025	8/27/2018	105.31244	102.8493463	100.457111	98.1332839	95.87551846	93.68156319	91.54925719	89.47652586	87.46137693
180828A00032	8/28/2018	3.49	8/29/2033	8/28/2018	130.61948	119.4317277	109.3405736	100.2313215	92.00187842	84.56130704	77.82855277	71.73132255	66.20509564
180829A00008	8/29/2018	3.23	8/30/2027	8/29/2018	112.61238	108.028226	103.6603734	99.49745368	95.5287576	91.7441918	88.13424016	84.68992774	81.40278711
180830A00039	8/30/2018	3.03	8/30/2023	8/30/2018	100.83573	100.3331828	99.83563676	99.34301527	98.85524554	98.37225622	97.89397735	97.42034034	96.95127792
180831A00016	8/31/2018	2.99	8/31/2023	8/31/2018	100.81893	100.3137301	99.81357863	99.31840202	98.82812638	98.34267933	97.86198987	97.38598842	96.91460674
180831A00019	8/31/2018	3.21	9/2/2025	8/31/2018	105.36108	102.881565	100.4737651	98.13519147	95.86345577	93.65626706	91.51142716	89.42682622	87.40043865
180904A00004	9/4/2018	2.89	9/5/2023	9/4/2018	100.88608	100.3659538	99.85119471	99.34171567	98.8374356	98.33827512	97.84415647	97.35500344	96.87074136
180904A00012	9/4/2018	3.35	9/4/2030	9/4/2018	121.45304	113.6142993	106.3517251	99.61965979	93.37629979	87.58334797	82.20570232	77.21117394	72.57023119
180904A00014	9/4/2018	3.37	9/1/2028	9/4/2018	115.0585	109.4564484	104.1678057	99.17333573	94.45508296	89.99627975	85.78126164	81.79538921	78.02497587
180910A00007	9/10/2018	2.96	9/8/2023	9/10/2018	100.93474	100.4063564	99.88351142	99.36611527	98.85408293	98.34733114	97.84577837	97.34934476	96.85795209
180910A00013	9/10/2018	3.08	9/11/2023	9/10/2018	100.90647	100.3713552	99.84191581	99.31806367	98.79971058	98.28677017	97.77915785	97.2767908	96.7795879
180910A00028	9/10/2018	3.56	9/9/2033	9/10/2018	131.41795	120.1598832	110.0070012	100.8434951	92.56630353	85.08364926	78.31374902	72.18367724	66.62836396
180910A00032	9/10/2018	3.22	9/10/2024	9/10/2018	102.69503	101.190568	99.7157562	98.26978463	96.8518768	95.4612837	94.09728252	92.75917549	91.44628884
180910A00033	9/10/2018	3.43	9/8/2028	9/10/2018	115.43628	109.8048556	104.4892369	99.46999052	94.72898165	90.2492782	86.01506519	82.01156528	78.22496543
180912A00011	9/12/2018	3.41	9/11/2026	9/12/2018	109.20722	105.6700541	102.2683175	98.99608302	95.8477153	92.81785608	89.90140888	87.09352464	84.3895883
180913A00029	9/13/2018	3.11	9/13/2023	9/13/2018	100.93041	100.3898314	99.8550465	99.32596216	98.80248746	98.28453339	97.77201281	97.26484042	96.76293269
180913A00030	9/13/2018	3.33	9/12/2025	9/13/2018	105.74994	103.2383178	100.7998422	98.43195412	96.13219761	93.89821777	91.72775607	89.61864577	87.56880753
180914A00008	9/14/2018	3.15	9/14/2023	9/14/2018	100.9562	100.4128454	99.87534496	99.34360225	98.817525	98.29702286	97.78200741	97.2723921	96.76809217

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180914A00013	9/14/2018	3.48	9/14/2028	9/14/2018	115.75404	110.0975661	104.758952	99.71859748	94.95821299	90.46072505	86.21018916	82.19170931	78.39136376
180914A00026	9/14/2018	3.15	9/14/2023	9/14/2018	100.9562	100.4128454	99.87534496	99.34360225	98.817525	98.29702286	97.78200741	97.2723921	96.76809217
180914A00028	9/14/2018	3.37	9/12/2025	9/14/2018	105.85115	103.3382268	100.8984855	98.52935983	96.22839282	93.99322879	91.82160845	89.7113643	87.66041626
180914A00029	9/14/2018	3.48	9/14/2028	9/14/2018	115.75404	110.0975661	104.758952	99.71859748	94.95821299	90.46072505	86.21018916	82.19170931	78.39136376
180917A00032	9/17/2018	3.17	9/15/2023	9/17/2018	100.9712	100.4251028	99.88492055	99.35055312	98.82190682	98.29889	97.78141293	97.26938781	96.76272866
180917A00054	9/17/2018	3.17	9/15/2023	9/17/2018	100.9712	100.4251028	99.88492055	99.35055312	98.82190682	98.29889	97.78141293	97.26938781	96.76272866
180917A00078	9/17/2018	3.05	9/15/2023	9/17/2018	101.01239	100.4648528	99.92325733	99.38750848	98.85751177	98.3331747	97.81440677	97.3011194	96.79322588
180918A00011	9/18/2018	3.17	9/18/2023	9/18/2018	100.98332	100.4291139	99.88099177	99.33885565	98.80260769	98.27215222	97.74739562	97.22824628	96.71461454
180918A00023	9/18/2018	3.17	9/18/2023	9/18/2018	100.98332	100.4291139	99.88099177	99.33885565	98.80260769	98.27215222	97.74739562	97.22824628	96.71461454
180918A00041	9/18/2018	3.18	9/18/2024	9/18/2018	102.99619	101.4624921	99.95931488	98.48581718	97.04118824	95.62464648	94.23543816	92.87283613	91.53613865
180920A00014	9/20/2018	3.59	9/20/2028	9/20/2018	116.40389	110.7133003	105.3429975	100.2731983	95.48544043	90.96249191	86.68826268	82.64772298	78.82682812
180920A00028	9/20/2018	3.12	9/20/2023	9/20/2018	101.07322	100.5119815	99.95698349	99.40812045	98.86529092	98.32839562	97.79733746	97.27202145	96.75235466
180920A00062	9/20/2018	3.12	9/20/2023	9/20/2018	101.07322	100.5119815	99.95698349	99.40812045	98.86529092	98.32839562	97.79733746	97.27202145	96.75235466
180924A00052	9/24/2018	3.22	9/22/2023	9/24/2018	101.02799	100.4628688	99.90407489	99.35149776	98.80503398	98.2645824	97.73004411	97.20132237	96.67832252
180925A00060	9/25/2018	3.23	8/25/2023	9/25/2018	100.91637	100.4271054	99.94258752	99.46274468	98.98750942	98.51681557	98.05059822	97.58879369	97.13133951
180926A00031	9/26/2018	3.24	9/26/2023	9/26/2018	101.05633	100.4803599	99.91095244	99.34799422	98.79137614	98.2409915	97.696736	97.15850766	96.62620675
181004A00028	10/4/2018	3.31	10/4/2023	10/4/2018	101.13816	100.5403292	99.94956545	99.36574068	98.78873314	98.21842387	97.65469668	97.09743805	96.54653706
181004A00029	10/4/2018	3.7	10/4/2028	10/4/2018	117.11878	111.3705049	105.9473226	100.8290458	95.99684834	91.43316528	87.12160195	83.04684976	79.19460867
181005A00005	10/5/2018	3.31	10/5/2023	10/5/2018	101.14258	100.5420506	99.94865182	99.36225544	98.78273801	98.20997892	97.64386037	97.08426729	96.53108725
181005A00011	10/5/2018	3.2	10/5/2023	10/5/2018	101.18825	100.5861613	99.99123811	99.4033533	98.8223824	98.24820383	97.68069885	97.11975146	96.56524838
181005A00012	10/5/2018	3.33	10/4/2024	10/5/2018	103.35524	101.7753624	100.2274019	98.71046146	97.22367375	95.76620338	94.33724561	92.93602491	91.56179361
181005A00017	10/5/2018	3.27	4/11/2023	10/5/2018	100.27252	100.1561237	100.0400102	99.92417872	99.80862832	99.6933579	99.57836641	99.46365281	99.34921607
181010A00021	10/10/2018	3.29	3/15/2023	10/10/2018	100.10137	100.0597588	100.0182002	99.97669358	99.93523874	99.89383561	99.8524841	99.8111841	99.76993553
181010A00023	10/10/2018	3.41	4/1/2024	10/10/2018	102.00237	100.9243336	99.86908885	98.83591955	97.82413799	96.83308473	95.86212723	94.91065844	93.97809554
181015A00024	10/15/2018	3.29	10/16/2023	10/15/2018	101.17232	100.5422536	99.92004331	99.30553919	98.69859847	98.09908193	97.50685376	96.92178143	96.34373564
181016A00087	10/16/2018	3.31	10/16/2023	10/16/2018	101.18503	100.5549255	99.93267017	99.31812134	98.71113631	98.11157583	97.51930411	96.93418861	96.35610001
181018A00011	10/18/2018	3.35	10/18/2023	10/18/2018	101.21948	100.5838929	99.95628862	99.33652169	98.7244458	98.11991823	97.52279977	96.93295463	96.35025033
181023A00021	10/23/2018	3.28	10/23/2023	10/23/2018	101.20255	100.5535484	99.91286981	99.28035676	98.65585375	98.03920921	97.43027532	96.82890801	96.23496673
181023A00025	10/23/2018	3.27	10/23/2023	10/23/2018	101.196	100.547021	99.90636614	99.27387668	98.64939706	98.03277569	97.42386477	96.82252021	96.22860149
181026A00002	10/26/2018	3.28	10/26/2023	10/26/2018	101.20912	100.5521445	99.90369431	99.26360531	98.63171648	98.00787089	97.39191563	96.7837016	96.18308348
181029A00081	10/29/2018	3.27	4/28/2023	10/29/2018	100.37197	100.2086116	100.0457838	99.88348525	99.72171329	99.56046541	99.3997391	99.23953185	99.07984119
181107A00008	11/7/2018	3.42	11/7/2023	11/7/2018	101.36436	100.6746077	99.99424147	99.32307302	98.66091658	98.00759136	97.36292138	96.72673532	96.09886636
181108A00025	11/8/2018	3.44	7/31/2023	11/8/2018	100.91035	100.4886972	100.0705601	99.6558942	99.24465641	98.83680446	98.43229673	98.03109229	97.63315086

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181109A00027	11/13/2018	3.48	4/15/2024	11/13/2018	102.13139	101.0163201	99.92562991	98.85852119	97.81423444	96.79204245	95.79124864	94.81118546	93.8512129
181109A00028	11/9/2018	3.72	11/9/2026	11/9/2018	110.89417	107.1678099	103.5889047	100.150772	96.84706947	93.67177988	90.61919183	87.68388235	84.86070042
181109A00029	11/9/2018	3.72	11/9/2026	11/9/2018	110.89417	107.1678099	103.5889047	100.150772	96.84706947	93.67177988	90.61919183	87.68388235	84.86070042
181114A00014	11/14/2018	3.17	11/14/2023	11/14/2018	101.35043	100.6403221	99.94016557	99.24975637	98.56889167	97.89737429	97.23501242	96.58161949	95.93701397
181114A00021	11/14/2018	3.17	11/14/2023	11/14/2018	101.35043	100.6403221	99.94016557	99.24975637	98.56889167	97.89737429	97.23501242	96.58161949	95.93701397
181116A00015	11/19/2018	3.29	2/15/2024	11/19/2018	101.68625	100.7302406	99.79220982	98.87165652	97.96809507	97.08105776	96.21009391	95.35476911	94.5146645
181119A00018	11/19/2018	3.28	11/17/2023	11/19/2018	101.30916	100.5929356	99.8868434	99.19066747	98.50419971	97.82723785	97.15958522	96.50105052	95.85144769
181120A00024	11/20/2018	3.25	11/20/2023	11/20/2018	101.29989	100.575706	99.86188088	99.1581902	98.46441902	97.78035846	97.10580549	96.4405627	95.78443812
181128A00031	11/28/2018	3.29	11/28/2023	11/28/2018	101.36324	100.6174975	99.88271812	99.15866401	98.44510155	97.74180388	97.04855064	96.36512776	95.69132718
181130A00037	11/30/2018	3.05	11/30/2023	11/30/2018	101.3304	100.5775938	99.83595858	99.10524783	98.38522145	97.67564639	96.97629634	96.28695147	95.6073982
181203A00053	12/4/2018	3.23	12/1/2023	12/4/2018	101.33015	100.5765492	99.83414548	99.10269185	98.38194739	97.67167818	96.97165708	96.28166345	95.60148295
181210A00015	12/10/2018	3.12	12/11/2023	12/10/2018	101.283	100.5030567	99.7351229	98.97892443	98.23419347	97.50067035	96.7781032	96.06624766	95.36486659
181211A00009	12/11/2018	3.14	12/11/2023	12/11/2018	101.2988	100.5187825	99.75078102	98.99451559	98.2497184	97.51612975	96.79349777	96.08157807	95.38013351
181211A00018	12/11/2018	3.14	12/11/2023	12/11/2018	101.2988	100.5187825	99.75078102	98.99451559	98.2497184	97.51612975	96.79349777	96.08157807	95.38013351
181211A00031	12/11/2018	2.95	12/11/2023	12/11/2018	101.29516	100.5132096	99.74332947	98.98524148	98.23867597	97.50337142	96.77907418	96.06553819	95.36252465
181213A00031	12/13/2018	2.97	12/13/2023	12/13/2018	101.31849	100.5311202	99.75598436	98.99280139	98.24129609	97.50120162	96.77225926	96.05421804	95.34683449
181217A00010	12/17/2018	3.11	12/15/2023	12/17/2018	101.28188	100.4914357	99.71333379	98.94728227	98.19300251	97.45022441	96.71868609	95.99813355	95.28832043
181218A00077	12/18/2018	3.09	12/18/2023	12/18/2018	101.28444	100.4859367	99.70002256	98.92640188	98.16478761	97.41490153	96.67647402	95.94924362	95.23295681
181219A00006	12/19/2018	3.06	12/19/2023	12/19/2018	101.26368	100.4626217	99.67423312	98.89821723	98.13428417	97.38215308	96.64155176	95.91221631	95.19389087
181227A00019	12/28/2020	3.1	12/29/2025	12/28/2020	106.03271	103.2302367	100.5167483	97.88894521	95.34367079	92.877902	90.48874306	88.17341934	85.92927166
181227A00026	12/27/2018	3.03	12/27/2023	12/27/2018	101.26675	100.4445072	99.63560282	98.83971723	98.05653787	97.28576215	96.52709702	95.78025861	95.04497185
181227A00027	12/27/2018	3.24	12/26/2025	12/27/2018	106.40322	103.6033447	100.8920975	98.26619361	95.7224868	93.25796467	90.86974238	88.55505637	86.31125863
181227A00028	12/27/2018	3.46	12/27/2028	12/27/2018	116.35746	110.4052194	104.8020117	99.52549561	94.55486772	89.8707532	85.4551006	81.29108506	77.36301903
190102A00050	1/2/2019	3.38	1/3/2034	1/2/2019	130.23321	118.7245162	108.3773601	99.06688397	90.6823014	83.12524546	76.30831802	70.15381488	64.59260483
190102A00058	1/2/2019	2.91	1/2/2024	1/2/2019	101.17684	100.3392466	99.51550161	98.70526415	97.90820402	97.12400167	96.3523478	95.59294295	94.84549716
190103A00010	1/3/2019	2.7	1/3/2024	1/3/2019	101.16682	100.3243697	99.49592925	98.68114999	97.87969604	97.09124243	96.31547468	95.5520884	94.80078884
190104A00033	1/4/2019	3.37	1/31/2029	1/4/2019	116.05311	110.018164	104.3425195	99.00284727	93.97744735	89.24612956	84.79010118	80.5918634	76.63511598
190107A00024	1/7/2019	2.91	1/5/2024	1/7/2019	101.18579	100.3402399	99.50881102	98.69114751	97.88690945	97.09576807	96.31740522	95.55151304	94.79779344
190108A00039	1/8/2019	3.04	4/30/2024	1/8/2019	101.68194	100.5307119	99.40552763	98.30551296	97.22983015	96.1776783	95.1482913	94.14093597	93.15491035
190110A00003	1/10/2019	2.97	1/10/2024	1/10/2019	101.25301	100.3939734	99.54950279	98.71923246	97.90280613	97.09987943	96.31011928	95.53320352	94.76882041
190110A00004	1/10/2019	3.09	1/10/2025	1/10/2019	103.29155	101.4595933	99.66917523	97.91911497	96.20826981	94.53553661	92.89985016	91.30018167	89.73553726
190110A00005	1/10/2019	3.2	1/9/2026	1/10/2019	106.40295	103.5665665	100.8210599	98.16303996	95.58926082	93.09661477	90.68212548	88.34294175	86.07633155
190110A00009	1/10/2019	2.97	1/16/2024	1/10/2019	101.2719	100.3969707	99.5371504	98.69205276	97.86130174	97.04453395	96.24139823	95.45155507	94.67467618

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190110A00010	1/10/2019	2.97	1/16/2024	1/10/2019	101.2719	100.3969707	99.5371504	98.69205276	97.86130174	97.04453395	96.24139823	95.45155507	94.67467618
190110A00012	1/10/2019	2.97	1/18/2024	1/10/2019	101.2782	100.3979746	99.53304146	98.68300608	97.84748571	97.02611058	96.21852342	95.42437888	94.64334309
190110A00013	1/10/2019	2.97	1/17/2024	1/10/2019	101.27505	100.3974724	99.5350954	98.6875286	97.85439255	97.0353207	96.22995881	95.43796448	94.65900661
190110A00014	1/10/2019	2.97	1/17/2024	1/10/2019	101.27505	100.3974724	99.5350954	98.6875286	97.85439255	97.0353207	96.22995881	95.43796448	94.65900661
190111A00026	1/11/2019	3.48	1/11/2034	1/11/2019	131.34818	119.7607937	109.3433688	99.9700101	91.52903133	83.92128274	77.05868441	70.86293791	65.2643936
190114A00040	1/14/2019	2.89	1/14/2025	1/14/2019	103.33344	101.4836097	99.67606746	97.90959374	96.18301661	94.49520516	92.84506771	91.23155022	89.65363473
190114A00061	1/14/2019	2.98	1/31/2024	1/14/2019	101.32844	100.4137627	99.51557481	98.63343494	97.76691584	96.91560532	96.0791056	95.25703266	94.44901564
190115A00025	1/15/2019	2.96	1/12/2024	1/15/2019	101.25053	100.3862382	99.53669038	98.70151605	97.88035234	97.07284859	96.27866573	95.49747586	94.72896177
190115A00063	1/15/2019	2.96	1/16/2024	1/15/2019	101.26302	100.3881303	99.52835217	98.68329627	97.85258647	97.03585943	96.23276398	95.44296062	94.66612106
190122A00007	1/22/2019	3.03	1/22/2024	1/22/2019	101.34509	100.4540092	99.57859376	98.71843092	97.87312433	97.04229127	96.22556208	95.42257962	94.63299869
190122A00043	1/22/2019	2.96	1/22/2025	1/22/2019	103.521	101.6485476	99.81933288	98.03209757	96.28563157	94.57876754	92.91037914	91.27937925	89.68471835
190122A00045	1/22/2019	3.17	1/22/2027	1/22/2019	110.34636	106.4099777	102.6375943	99.02152081	95.55446829	92.22952555	89.04013753	85.98008508	83.04346602
190122A00046	1/22/2019	3.29	1/22/2029	1/22/2019	116.90764	110.8227864	105.0999745	99.71571689	94.64816644	89.87699476	85.38327906	81.14939818	77.15893673
190128A00035	1/28/2019	3.04	1/26/2024	1/28/2019	101.36751	100.4657967	99.58011819	98.71004641	97.85517135	97.01509724	96.18944196	95.37783647	94.57992422
190130A00019	1/30/2019	3.01	1/30/2024	1/30/2019	101.35307	100.4409032	99.54513591	98.66532914	97.80105907	96.95191683	96.11750776	95.29745081	94.491378
190130A00020	1/30/2019	2.97	4/17/2023	1/30/2019	100.26879	100.1358422	100.0032603	99.87104287	99.73918834	99.6076952	99.47656193	99.34578704	99.21536903
190131A00019	1/31/2019	3.44	1/30/2034	1/31/2019	131.02602	119.4060699	108.9648261	99.57489291	91.12331243	83.50986073	76.64555167	70.45132347	64.85688458
190131A00036	1/31/2019	2.69	7/31/2023	1/31/2019	100.66681	100.2449059	99.82652972	99.41163876	99.0001896	98.59213959	98.18744676	97.78606984	97.38796822
190208A00008	2/8/2019	2.86	2/8/2024	2/8/2019	101.23962	100.3044079	99.38645502	98.48528834	97.60045033	96.73149993	95.87801185	95.03957585	94.21579613
190208A00009	2/8/2019	2.67	2/8/2024	2/8/2019	101.24419	100.3063483	99.38585353	98.48222992	97.5950166	96.72376936	95.86805991	95.02747515	94.20161655
190211A00002	2/11/2019	2.88	2/12/2024	2/11/2019	101.27023	100.324373	99.39617466	98.48513918	97.59079348	96.71268174	95.85036461	95.00341848	94.17143478
190211A00016	2/11/2019	3.01	2/11/2025	2/11/2019	103.36355	101.4451929	99.57222606	97.74330224	95.9571203	94.21242634	92.50801159	90.84271044	89.21539865
190211A00017	2/11/2019	3.12	2/11/2026	2/11/2019	106.44144	103.5157944	100.6866578	97.95032471	95.30324987	92.74204373	90.26346449	87.86441083	85.54191502
190212A00017	2/12/2019	2.86	6/30/2023	2/12/2019	100.56136	100.2249031	99.89069053	99.55869836	99.22890455	98.9012874	98.57582547	98.25249762	97.931283
190213A00023	2/13/2019	2.93	2/13/2024	2/13/2019	101.32137	100.3726297	99.44164821	98.5279269	97.63098876	96.75037417	95.88564022	95.03635985	94.20212125
190214A00006	2/14/2019	2.67	2/14/2024	2/14/2019	101.2615	100.307786	99.37201524	98.45368227	97.55230275	96.66741019	95.79855505	94.94530405	94.10723937
190215A00005	2/15/2019	2.89	2/15/2024	2/15/2019	101.29808	100.3440884	99.40805541	98.48947366	97.58785819	96.70274183	95.83367445	94.98022216	94.1419666
190215A00006	2/15/2019	2.89	2/15/2024	2/15/2019	101.29808	100.3440884	99.40805541	98.48947366	97.58785819	96.70274183	95.83367445	94.98022216	94.1419666
190215A00017	2/15/2019	2.89	2/15/2024	2/15/2019	101.29808	100.3440884	99.40805541	98.48947366	97.58785819	96.70274183	95.83367445	94.98022216	94.1419666
190215A00046	2/15/2019	2.7	2/15/2024	2/15/2019	101.29352	100.3370168	99.39855128	98.47762036	97.57373573	96.68642709	95.8152413	94.95974164	94.11950703
190220A00007	2/20/2019	2.87	2/20/2024	2/20/2019	101.29315	100.3261014	99.37749674	98.44681567	97.53355351	96.63722435	95.75736022	94.89351026	94.04523993
190222A00021	2/22/2019	2.95	8/21/2024	2/22/2019	102.16271	100.7153046	99.29570292	97.90317326	96.53700958	95.19652992	93.88107532	92.59000887	91.32271482
190225A00026	2/25/2019	3.43	2/27/2034	2/25/2019	131.09901	119.3950817	108.8865081	99.44320714	90.94993844	83.30454226	76.41639188	70.20503635	64.59900905

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190227A00005	2/27/2019	2.87	2/27/2024	2/27/2019	101.31345	100.3279751	99.3616497	98.41391581	97.48424069	96.57211175	95.67703565	94.7985374	93.93615948
190301A00012	3/1/2019	3.41	3/1/2029	3/1/2019	116.49306	110.3620524	104.6007926	99.18495514	94.0919362	89.30072588	84.79178802	80.5469495	76.54929835
190308A00007	3/8/2019	2.8	3/8/2024	3/8/2019	101.2699	100.2585687	99.26741339	98.29583489	97.34325714	96.4091265	95.49291066	94.59409765	93.71219482
190314A00027	3/22/2019	2.92	3/21/2025	3/22/2019	103.45704	101.4342987	99.46140514	97.53680602	95.659007	93.826571	92.03811551	90.29231006	88.58787388
190315A00014	3/15/2019	2.74	3/15/2024	3/15/2019	101.22554	100.1962227	99.18781722	98.19968843	97.23122893	96.28185538	95.35100734	94.43814612	93.54275377
190318A00008	3/18/2019	2.76	3/18/2024	3/18/2019	101.25419	100.2169039	99.200851	98.20538002	97.22986992	96.27372442	95.3363708	94.41725873	93.51585921
190318A00021	3/18/2019	2.76	3/18/2024	3/18/2019	101.25419	100.2169039	99.200851	98.20538002	97.22986992	96.27372442	95.3363708	94.41725873	93.51585921
190321A00003	3/21/2019	2.67	3/21/2024	3/21/2019	101.1659	100.1213151	99.09827154	98.09610688	97.11418652	96.15190137	95.20866656	94.28392023	93.37712248
190326A00003	3/26/2019	2.57	3/27/2023	3/26/2019	100.12779	100.0529732	99.97827591	99.90369661	99.82923503	99.75489088	99.68066391	99.60655385	99.53256044
190326A00004	3/26/2019	2.58	9/26/2023	3/26/2019	100.67297	100.0982626	99.53010968	98.96839583	98.41301201	97.86385168	97.32081068	96.78378714	96.25268146
190326A00024	3/26/2019	2.59	3/26/2024	3/26/2019	101.09106	100.0339163	98.99883741	97.9851401	96.99216681	96.01928673	95.06589446	94.13140867	93.21527099
190326A00032	3/26/2019	2.4	3/26/2024	3/26/2019	101.08589	100.0258514	98.98798474	97.97160231	96.97604221	96.0006695	95.0448748	94.10807304	93.18970228
190327A00006	3/27/2019	2.53	3/27/2024	3/27/2019	101.02821	99.96882613	98.93161425	97.91588079	96.92096372	95.94622798	94.99106408	94.05488689	93.13713438
190327A00013	3/27/2019	2.53	3/27/2024	3/27/2019	101.02821	99.96882613	98.93161425	97.91588079	96.92096372	95.94622798	94.99106408	94.05488689	93.13713438
190327A00031	3/27/2019	2.53	3/27/2024	3/27/2019	101.02821	99.96882613	98.93161425	97.91588079	96.92096372	95.94622798	94.99106408	94.05488689	93.13713438
190327A00032	3/27/2019	2.53	1/26/2024	3/27/2019	100.9005	100.0010951	99.11769508	98.24987348	97.39722094	96.55934224	95.73585584	94.92639321	94.13059832
190328A00003	3/28/2019	2.64	9/30/2024	3/28/2019	101.91227	100.3601031	98.83911856	97.34843915	95.88722387	94.45466257	93.04997449	91.67240692	90.32123394
190328A00019	3/28/2019	2.56	3/28/2024	3/28/2019	101.06269	100.0005137	98.96061796	97.94230565	96.94490998	95.96779142	95.01033625	94.07195532	93.1520828
190328A00031	4/25/2019	2.56	4/25/2024	4/25/2019	101.10794	99.97318272	98.86384694	97.77908178	96.71807757	95.68005987	94.66428758	93.67005115	92.69667093
190328A00033	4/25/2019	2.56	4/25/2024	4/25/2019	101.10794	99.97318272	98.86384694	97.77908178	96.71807757	95.68005987	94.66428758	93.67005115	92.69667093
190328A00046	3/28/2019	2.7	3/4/2025	3/28/2019	102.89848	100.9259323	99.00135887	97.12329481	95.29032696	93.501095	91.75428904	90.04864741	88.38295453
190328A00065	3/28/2019	2.56	3/28/2024	3/28/2019	101.06269	100.0005137	98.96061796	97.94230565	96.94490998	95.96779142	95.01033625	94.07195532	93.1520828
190328A00079	3/28/2019	2.37	3/28/2024	3/28/2019	101.05744	99.99235267	98.94965123	97.92863691	96.92863853	95.9490123	94.98914053	94.04843027	93.12631207
190328A00083	3/28/2019	2.37	3/28/2024	3/28/2019	101.05744	99.99235267	98.94965123	97.92863691	96.92863853	95.9490123	94.98914053	94.04843027	93.12631207
190329A00017	3/29/2019	2.59	3/29/2023	3/29/2019	100.13886	100.0585029	99.97827599	99.89818023	99.81821531	99.73838092	99.65867675	99.5791025	99.49965788
190329A00018	3/29/2019	2.6	3/29/2024	3/29/2019	101.10821	100.043169	99.00052049	97.97956145	96.97962033	96.00005308	95.04024174	94.09959311	93.17753751
190401A00010	4/1/2019	2.62	4/1/2024	4/1/2019	101.13648	100.0634823	99.01320314	97.98492676	96.9779672	95.99166676	95.02539453	94.07854506	93.15053708
190402A00004	4/2/2019	2.9	4/2/2029	4/2/2019	115.03236	108.8087197	102.9673023	97.48255725	92.3307741	87.48994038	82.93961138	78.6607905	74.63581932
190403A00006	4/3/2019	2.48	4/3/2024	4/3/2019	101.19074	100.1092387	99.05079452	98.01467749	97.00018679	96.00665064	95.03342486	94.07989142	93.14545714
190404A00003	4/4/2019	2.47	4/4/2024	4/4/2019	101.182	100.0979517	99.03706863	97.99861886	96.98189649	95.98622497	95.01095558	94.055466	93.11915901
190409A00019	4/9/2019	2.91	4/9/2029	4/9/2019	115.13433	108.888487	103.0272215	97.52476112	92.35719268	87.5023203	82.93953305	78.64968365	74.61497712
190409A00031	4/9/2019	2.64	4/9/2024	4/9/2019	101.16541	100.0716792	99.0015558	97.954284	96.9291374	95.92542008	94.94246505	93.97963277	93.03630973
190409A00033	4/9/2019	2.62	6/9/2023	4/9/2019	100.41456	100.1357973	99.85859309	99.58292994	99.30879492	99.03617531	98.76505852	98.49543208	98.2272837

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190411A00017	4/15/2019	2.65	4/15/2024	4/15/2019	101.19004	100.0806271	98.99550772	97.93388564	96.89500341	95.87813587	94.88258841	93.90769541	92.95281868
190424A00007	4/24/2019	2.66	4/24/2024	4/24/2019	101.22181	100.0889373	98.98138289	97.89830117	96.83888746	95.80237205	94.7880183	93.79512086	92.82300404
190424A00023	4/24/2019	2.43	4/24/2023	4/24/2019	100.24965	100.0971494	99.94512033	99.79356243	99.64247348	99.49185127	99.34169363	99.19199837	99.04276334
190426A00009	4/26/2019	2.63	4/26/2024	4/26/2019	101.19142	100.053576	98.94126741	97.8536459	96.78989632	95.74923903	94.73092802	93.73424912	92.75851828
190426A00016	5/1/2019	2.58	4/14/2023	5/1/2019	100.20447	100.0798704	99.95559277	99.83163757	99.70800351	99.58468932	99.46169372	99.33901545	99.21665326
190429A00003	4/29/2019	2.62	10/13/2023	4/29/2019	100.74488	100.1242999	99.51135698	98.90591528	98.30783759	97.71698998	97.13324177	96.55646543	95.98653644
190429A00004	4/29/2019	2.65	4/15/2024	4/29/2019	101.19004	100.0806271	98.99550772	97.93388564	96.89500341	95.87813587	94.88258841	93.90769541	92.95281868
190430A00001	4/30/2019	2.47	5/2/2024	4/30/2019	101.24738	100.0901925	98.95938803	97.85406774	96.77337755	95.7165012	94.68265811	93.67110153	92.68111664
190430A00003	4/30/2019	2.43	8/2/2023	4/30/2019	100.56149	100.134419	99.71097422	99.29110672	98.87477127	98.46192342	98.05251946	97.64651642	97.24387203
190501A00017	5/1/2019	2.61	5/1/2024	5/1/2019	101.1794	100.0287019	98.90411681	97.80476633	96.72980826	95.67843748	94.64988399	93.64341095	92.65831295
190501A00028	5/1/2019	2.42	5/1/2024	5/1/2019	101.18554	100.0313441	98.90339796	97.80081633	96.72275112	95.66839164	94.6369626	93.6277222	92.6399603
190507A00006	5/7/2019	2.57	5/8/2023	5/7/2019	100.29375	100.1029618	99.9129105	99.72358948	99.53499443	99.34712115	99.15996547	98.97352325	98.78779036
190507A00027	5/7/2019	2.59	5/7/2024	5/7/2019	101.17188	100.0057075	98.86636692	97.75293999	96.66454988	95.60035893	94.55956652	93.54140697	92.54514772
190510A00018	5/10/2019	2.54	5/10/2023	5/10/2019	100.29491	100.0986282	99.90312292	99.70839173	99.51442993	99.32123292	99.12879615	98.93711508	98.74618523
190513A00013	5/13/2019	2.52	5/13/2024	5/13/2019	101.11499	99.93349778	98.77955877	97.65221803	96.5505635	95.47372444	94.4208691	93.39120251	92.38396453
190514A00020	5/14/2019	2.66	5/14/2025	5/14/2019	103.26762	101.1037772	98.99592798	96.94221754	94.94087136	92.99018802	91.0885355	89.23434767	87.42612104
190514A00021	5/14/2019	2.72	11/14/2025	5/14/2019	104.64923	101.9846866	99.40169408	96.89723697	94.4684303	92.11251629	89.82685766	87.60893139	85.45632286
190514A00024	5/14/2019	2.34	5/14/2024	5/14/2019	101.12395	99.93639536	98.77665696	97.6437625	96.53678797	95.45485133	94.39711019	93.36275958	92.35102987
190514A00073	5/14/2019	2.53	5/14/2024	5/14/2019	101.12963	99.94546346	98.78897037	97.65919132	96.55520835	95.47614514	94.42116469	93.38946712	92.38028766
190517A00005	5/17/2019	2.31	5/17/2024	5/17/2019	101.09482	99.89967953	98.73271315	97.59293305	96.47939746	95.39120766	94.32750558	93.28747149	92.27032191
190520A00007	5/20/2019	2.52	5/20/2024	5/20/2019	101.12058	99.92116169	98.75013881	97.60651001	96.48932214	95.39766583	94.330673	93.28751455	92.26739818
190521A00043	5/21/2019	2.54	5/22/2023	5/21/2019	100.33636	100.1070638	99.87882201	99.65162949	99.42547902	99.20036342	98.97627557	98.75320841	98.53115496
190522A00003	5/22/2019	2.55	5/22/2024	5/22/2019	101.1626	99.95774737	98.78154029	97.63296178	96.51104665	95.4148742	94.3435657	93.29628204	92.27222147
190522A00017	5/23/2019	2.53	3/1/2023	5/23/2019	100.00451	100.0017417	99.99897163	99.99620389	99.99343852	99.99067553	99.9879149	99.98515663	99.98240072
190522A00019	5/23/2019	2.55	5/15/2024	5/23/2019	101.15649	99.9695649	98.81044088	97.67814803	96.57176243	95.49040215	94.43322491	93.39942588	92.3882356
190523A00014	5/23/2019	2.5	11/15/2023	5/23/2019	100.74039	100.0317631	99.33309737	98.64418056	97.96480951	97.29478667	96.63391991	95.98202235	95.33891217
190523A00015	5/23/2019	2.51	4/1/2024	5/23/2019	101.01591	99.94361695	98.89402918	97.86643409	96.86014595	95.8745073	94.90888744	93.96268117	93.03530742
190523A00017	5/23/2019	2.51	3/15/2024	5/23/2019	100.98411	99.95615098	98.94907809	97.96226312	96.99509912	96.0470032	95.11741531	94.20579718	93.31163122
190523A00018	5/23/2019	2.51	3/15/2024	5/23/2019	100.98411	99.95615098	98.94907809	97.96226312	96.99509912	96.0470032	95.11741531	94.20579718	93.31163122
190523A00020	5/23/2019	2.5	2/9/2024	5/23/2019	100.89903	99.96293944	99.04418949	98.14229703	97.25680112	96.3872575	95.53323783	94.694329	93.87013244
190523A00023	5/23/2019	2.48	3/22/2023	5/23/2019	100.09921	100.0382379	99.97735147	99.91655285	99.85584188	99.79521835	99.73468209	99.67423291	99.61387063
190524A00026	5/28/2019	2.45	6/15/2023	5/28/2019	100.38483	100.0896996	99.79631047	99.50464981	99.21470228	98.92645275	98.63988628	98.35498807	98.07174354
190524A00032	5/24/2019	2.45	5/24/2023	5/24/2019	100.32206	100.0872944	99.85363618	99.62107507	99.38960333	99.15921331	98.92989741	98.70164814	98.47445804

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190524A00040	5/24/2019	2.47	5/24/2024	5/24/2019	101.08059	99.87093006	98.69015649	97.53724059	96.41120506	95.31111785	94.23608958	93.18527111	92.15785128
190528A00005	5/28/2019	2.42	6/15/2023	5/28/2019	100.37593	100.0808184	99.78744623	99.49580249	99.2058718	98.91763903	98.63108925	98.34620766	98.06297967
190528A00006	5/28/2019	2.43	9/15/2023	5/28/2019	100.56379	100.0189818	99.4800779	98.94697888	98.41959119	97.8978233	97.38158561	96.87079044	96.36535193
190528A00007	5/28/2019	2.44	11/15/2023	5/28/2019	100.69729	99.98883393	99.2903382	98.60158972	97.92238533	97.25252753	96.59182421	95.94008852	95.29713864
190528A00009	5/28/2019	2.45	5/15/2024	5/28/2019	101.03489	99.84875011	98.69039236	97.55885342	96.4532097	95.37257959	94.31612112	93.28302975	92.2725363
190528A00028	5/28/2019	2.42	5/30/2023	5/28/2019	100.33371	100.0824677	99.83247398	99.58372458	99.33621024	99.08992182	98.84485029	98.60098669	98.35832215
190529A00011	5/29/2019	2.36	5/30/2023	5/29/2019	100.31857	100.0673527	99.81738424	99.56865999	99.3211707	99.07490724	98.82986057	98.58602174	98.34338187
190529A00013	5/29/2019	2.38	5/29/2024	5/29/2019	100.9796	99.75771475	98.56531314	97.40133656	96.26477786	95.15467696	94.07011813	93.01022748	91.97417056
190529A00023	5/29/2019	2.38	5/29/2024	5/29/2019	100.9796	99.75771475	98.56531314	97.40133656	96.26477786	95.15467696	94.07011813	93.01022748	91.97417056
190529A00028	5/29/2019	2.38	5/29/2024	5/29/2019	100.9796	99.75771475	98.56531314	97.40133656	96.26477786	95.15467696	94.07011813	93.01022748	91.97417056
190529A00031	5/29/2019	2.36	5/30/2023	5/29/2019	100.31857	100.0673527	99.81738424	99.56865999	99.3211707	99.07490724	98.82986057	98.58602174	98.34338187
190529A00032	5/29/2019	2.38	5/29/2024	5/29/2019	100.9796	99.75771475	98.56531314	97.40133656	96.26477786	95.15467696	94.07011813	93.01022748	91.97417056
190529A00089	5/29/2019	2.38	5/29/2024	5/29/2019	100.9796	99.75771475	98.56531314	97.40133656	96.26477786	95.15467696	94.07011813	93.01022748	91.97417056
190530A00004	5/30/2019	2.24	5/30/2023	5/30/2019	100.33736	100.0855688	99.83504195	99.58576818	99.33773817	99.09094262	98.84537234	98.60101824	98.3578713
190530A00006	5/30/2019	2.25	5/30/2024	5/30/2019	101.05102	99.82250061	98.6237397	97.45366766	96.31126436	95.19555749	94.10561982	93.04056663	91.99955326
190530A00008	5/30/2019	2.38	5/30/2025	5/30/2019	103.20853	100.9944961	98.83879466	96.73945522	94.69459491	92.70241025	90.76117294	88.86922604	87.02498031
190530A00024	5/30/2019	2.25	5/30/2024	5/30/2019	101.05102	99.82250061	98.6237397	97.45366766	96.31126436	95.19555749	94.10561982	93.04056663	91.99955326
190530A00029	5/30/2019	2.25	5/30/2024	5/30/2019	101.05102	99.82250061	98.6237397	97.45366766	96.31126436	95.19555749	94.10561983	93.04056663	91.99955326
190530A00034	5/30/2019	2.44	5/30/2024	5/30/2019	101.05713	99.83215548	98.63679269	97.46997924	96.33070166	95.21799395	94.13093483	93.06864516	92.03028557
190530A00045	5/30/2019	2.44	5/30/2024	5/30/2019	101.05713	99.83215548	98.63679269	97.46997924	96.33070166	95.21799395	94.13093483	93.06864516	92.03028557
190531A00037	5/31/2019	2.61	5/31/2029	5/31/2019	113.56125	107.2242402	101.2861298	95.71963019	90.49946308	85.60220346	81.00613389	76.69111084	72.63844222
190531A00038	5/31/2019	2.82	5/31/2034	5/31/2019	124.87658	113.2595152	102.862426	93.54938756	85.20033051	77.70911215	70.98183397	64.93537042	59.49608129
190603A00002	6/3/2019	2.03	6/2/2023	6/3/2019	100.29068	100.0307364	99.77213652	99.51487413	99.2589389	99.00432056	98.75100895	98.49899401	98.24826579
190603A00003	6/3/2019	2.05	6/3/2024	6/3/2019	100.8151	99.57773222	98.36952968	97.18946759	96.03656727	94.90989512	93.80855999	92.73171079	91.67853431
190603A00005	6/3/2019	2.25	6/3/2024	6/3/2019	100.83419	99.60031622	98.39546707	97.21862171	96.06880789	94.94509805	93.84660674	92.77248829	91.72193455
190603A00033	6/3/2019	2.05	6/3/2024	6/3/2019	100.8151	99.57773222	98.36952968	97.18946759	96.03656727	94.90989512	93.80855999	92.73171079	91.67853431
190603A00047	6/3/2019	2.22	6/2/2023	6/3/2019	100.28953	100.030139	99.77208662	99.51536248	99.25995639	99.00585826	98.75305809	98.50154597	98.25131211
190604A00031	6/4/2019	2.25	6/5/2023	6/4/2019	100.30318	100.0355592	99.76936968	99.50459839	99.24123405	98.97926546	98.71868152	98.45947126	98.20162384
190605A00020	6/5/2019	2.19	2/5/2024	6/5/2019	100.6084	99.68413268	98.77679332	97.88592427	97.01108015	96.15183154	95.30776421	94.4784785	93.66358869
190606A00023	6/6/2019	2.23	6/6/2024	6/6/2019	100.82274	99.58116127	98.36791488	97.18203542	96.02259773	94.88871817	93.77955233	92.69429286	91.63216742
190606A00026	6/6/2019	2.23	6/6/2023	6/6/2019	100.29969	100.0293407	99.76045383	99.49301548	99.22701393	98.96243759	98.69927501	98.43751486	98.17714592
190606A00027	6/6/2019	2.51	6/5/2026	6/6/2019	105.3987	102.1845263	99.08554308	96.09694739	93.21416444	90.43283895	87.74882302	85.15816473	82.65709754
190606A00028	6/6/2019	2.74	6/6/2029	6/6/2019	112.95852	106.6773414	100.7911133	95.27285049	90.09755646	85.24206278	80.68488575	76.40609511	72.38719372

	Parallel-Shift Sensitivity Analysis												
2/28/2023					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	123.77522	112.3519645	102.1242572	92.95920919	84.7393992	77.36099635	70.73212206	64.77141707	59.40678684
190607A00018	6/7/2019	2.19	6/7/2024	6/7/2019	100.77624	99.53237331	98.31661055	97.12799817	95.96562692	94.82862802	93.71617094	92.62746132	91.56173896
190613A00011	6/13/2019	2.26	6/13/2024	6/13/2019	100.89404	99.63381766	98.40034283	97.19276733	96.01027709	94.85209226	93.71746545	92.60568001	91.51604848
190617A00027	6/17/2019	2.21	6/16/2023	6/17/2019	100.31551	100.0177772	99.72182153	99.4276254	99.13517307	98.8444449	98.55543784	98.26812443	97.98249376
190618A00002	6/18/2019	2.11	6/18/2025	6/18/2019	102.70963	100.4502514	98.25168227	96.11190985	94.02900527	92.00111626	90.02646354	88.10333737	86.23009434
190619A00009	6/19/2019	2.26	6/19/2024	6/19/2019	100.92235	99.64637182	98.39578703	97.16984855	95.96783932	94.78907026	93.63287895	92.49862833	91.38570542
190620A00026	6/20/2019	2.09	6/20/2023	6/20/2019	100.28268	99.97412715	99.66747852	99.36271663	99.05982406	98.75878361	98.45957828	98.16219129	97.86660604
190620A00027	6/20/2019	2.14	6/20/2024	6/20/2019	100.7694	99.49188152	98.23951268	97.01156427	95.80733604	94.62615467	93.46737251	92.33036633	91.21453616
190620A00045	6/20/2019	2.14	6/20/2024	6/20/2019	100.7694	99.49188152	98.23951268	97.01156427	95.80733604	94.62615467	93.46737251	92.33036633	91.21453616
190620A00055	6/25/2019	2.08	4/17/2023	6/25/2019	100.15025	100.0174354	99.88498726	99.75290328	99.62118189	99.48982156	99.3588208	99.22817809	99.09789195
190620A00057	6/25/2019	2.09	5/15/2023	6/25/2019	100.21733	100.0074226	99.79841148	99.59028603	99.3830406	99.17666957	98.97116737	98.76652845	98.56274734
190621A00015	6/21/2019	2.2	6/21/2024	6/21/2019	100.85279	99.57210521	98.31635503	97.0848263	95.87683487	94.69172253	93.52885575	92.38762456	91.267444136
190625A00012	6/25/2019	2.12	6/25/2024	6/25/2019	100.76481	99.47437215	98.20795774	96.96492328	95.74465082	94.54654424	93.3700282	92.21454726	91.07956501
190625A00021	6/25/2019	1.88	6/26/2023	6/25/2019	100.28683	99.96118457	99.63765762	99.31622682	98.9968718	98.67957248	98.36430901	98.05106182	97.73981158
190625A00023	6/25/2019	2.47	6/25/2027	6/25/2019	107.82665	103.5486053	99.46551262	95.56748853	91.84519764	88.28982317	84.89303541	81.64696231	78.54416202
190625A00024	6/25/2019	2.26	6/25/2025	6/25/2019	102.6143	100.347061	98.14112866	95.99449796	93.90524182	91.87150764	89.89151394	87.96354717	86.08595867
190626A00004	6/26/2019	2.15	6/26/2024	6/26/2019	100.80905	99.51571943	98.24618846	96.99983513	95.77605798	94.5742763	93.3939292	92.23447484	91.0953895
190626A00010	6/26/2019	2.1	6/26/2023	6/26/2019	100.29816	99.97317748	99.65029523	99.32949686	99.01076225	98.69407156	98.37940518	98.06674377	97.75606822
190626A00015	6/26/2019	2.15	6/26/2024	6/26/2019	100.80905	99.51571943	98.24618846	96.99983513	95.77605798	94.5742763	93.3939292	92.23447484	91.0953895
190627A00009	6/27/2019	1.93	6/27/2023	6/27/2019	100.3048	99.97638133	99.65011779	99.32598395	99.003959	98.68402238	98.36615382	98.05033327	97.73654099
190627A00010	6/27/2019	1.97	6/27/2024	6/27/2019	100.82049	99.52059956	98.24441496	96.99132479	95.7607399	94.55209108	93.36482821	92.19841944	91.05235043
190628A00004	6/28/2019	2.12	6/28/2023	6/28/2019	100.30794	99.97747475	99.64918629	99.32304839	98.99904002	98.67714042	98.3573291	98.03958582	97.72389062
190701A00008	7/3/2019	2.1	7/3/2023	7/3/2019	100.30768	99.96360028	99.62187636	99.28248469	98.94540147	98.61060321	98.27806676	97.94776926	97.61968818
190701A00009	7/3/2019	2.14	7/2/2024	7/3/2019	100.81935	99.51043253	98.22459051	96.96126787	95.719924	94.50003512	93.3010937	92.12260778	90.9641004
190701A00023	7/1/2019	1.95	7/1/2024	7/1/2019	100.81	99.49978839	98.21269213	96.94815148	95.7056248	94.48458738	93.28453079	92.10496225	90.94540402
190702A00002	7/2/2019	2.16	7/2/2024	7/2/2019	100.84628	99.53717386	98.25114556	96.98763977	95.74611577	94.52604973	93.32693403	92.14827662	90.98960048
190703A00017	7/3/2019	2.33	5/4/2026	7/3/2019	104.62198	101.5036061	98.49461603	95.59052924	92.78707826	90.08019703	87.46600994	84.9408215	82.50110678
190708A00011	7/8/2019	2.2	7/8/2024	7/8/2019	100.90598	99.58120926	98.28004526	97.00190887	95.7462415	94.51250216	93.30016683	92.10872776	90.93769284
190709A00018	7/9/2019	2.24	7/9/2024	7/9/2019	100.96376	99.63600396	98.33194927	97.0510135	95.79263485	94.55626929	93.34138986	92.14748599	90.97406288
190710A00012	7/10/2019	2.18	7/10/2023	7/10/2019	100.34817	99.98493561	99.6243347	99.26633936	98.91092137	98.55805286	98.20770641	97.85985495	97.51447185
190710A00022	7/10/2019	2.22	7/10/2024	7/10/2019	100.93966	99.60950833	98.30313682	97.01996602	95.7594312	94.52098551	93.3040993	92.10825941	90.93296859
190711A00019	7/11/2019	2.19	7/11/2023	7/11/2019	100.3532	99.98723596	99.62394676	99.26330263	98.90527469	98.54983443	98.19695381	97.84660516	97.4987612
190711A00022	7/11/2019	2	7/11/2023	7/11/2019	100.34783	99.98113859	99.61713853	99.25579766	98.89708676	98.54097707	98.18744023	97.8364483	97.48797373

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190712A00001	7/12/2019	2.05	7/12/2024	7/12/2019	100.98069	99.64082393	98.32506303	97.0328108	95.7634918	94.51654899	93.29144296	92.08765122	90.90466759
190712A00009	7/12/2019	2.19	7/12/2023	7/12/2019	100.35457	99.9858877	99.61991888	99.25663473	98.89600569	98.53800264	98.18259687	97.82976011	97.47946448
190712A00018	7/12/2019	2.25	7/12/2024	7/12/2019	100.9873	99.65166087	98.33998348	97.05168206	95.78618567	94.54294153	93.32141427	92.12108528	90.94145207
190715A00010	7/15/2019	2.23	7/15/2024	7/15/2019	100.96956	99.6263268	98.30732139	97.01194522	95.73961824	94.48977897	93.26188371	92.05540587	90.86983532
190717A00008	7/17/2019	2.22	7/17/2024	7/17/2019	100.97571	99.62706854	98.30284402	97.00242708	95.72523131	94.4706891	93.23825091	92.02738456	90.83757452
190719A00006	7/19/2019	2.17	7/19/2024	7/19/2019	100.91255	99.55923113	98.23049131	96.92572285	95.64433335	94.38574952	93.14941636	91.93479643	90.74136923
190724A00021	7/24/2019	2.33	7/23/2027	7/24/2019	108.33405	103.9444981	99.75881126	95.76647432	91.95756968	88.32273854	84.85314653	81.54045172	78.37677464
190724A00023	7/24/2019	2.13	7/24/2025	7/24/2019	102.95757	100.6009435	98.31017103	96.08304455	93.91744801	91.81134819	89.76279093	87.76989765	85.83086185
190724A00024	7/24/2019	2.49	7/24/2029	7/24/2019	113.05421	106.5899129	100.5416972	94.8805933	89.57979129	84.61446911	79.96163544	75.59998606	71.50977198
190724A00025	7/24/2019	1.96	7/24/2023	7/24/2019	100.34885	99.94678142	99.54794323	99.15229164	98.7597885	98.37039623	97.98407789	97.60079709	97.22051802
190726A00017	7/26/2019	2.44	7/24/2026	7/26/2019	105.48503	102.1406659	98.92064063	95.819688	92.83279092	89.9551702	87.18227202	84.50975605	81.93348431
190729A00007	7/29/2019	2.17	7/28/2023	7/29/2019	100.36824	99.95610165	99.54734383	99.14192268	98.7397975	98.34092825	97.94527553	97.55280058	97.16346526
190729A00008	7/29/2019	2.18	1/29/2024	7/29/2019	100.58296	99.67726737	98.78782917	97.9142153	97.05600644	96.21279796	95.38419927	94.56983327	93.76933569
190730A00007	7/30/2019	2.19	7/30/2024	7/30/2019	100.96131	99.57957618	98.22341382	96.89217243	95.58522526	94.30196608	93.04180841	91.80418469	90.5885455
190730A00016	7/30/2019	2	7/30/2024	7/30/2019	100.96858	99.58231627	98.22176792	96.88628513	95.57523612	94.28800991	93.02401548	91.78268095	90.56345279
190731A00004	7/31/2019	2.18	7/31/2024	7/31/2019	100.95018	99.56596011	98.20739701	96.87384128	95.56466295	94.27925278	93.01702136	91.77739834	90.55983165
190801A00010	8/1/2019	1.97	8/1/2023	8/1/2019	100.36275	99.93890598	99.51863073	99.10188273	98.68861772	98.27879218	97.87236333	97.46928908	97.06952803
190802A00003	8/2/2019	2.01	8/2/2024	8/2/2019	100.71374	99.32614261	97.96436116	96.62773725	95.31563503	94.02743961	92.76255622	91.52040934	90.30044199
190802A00032	8/2/2019	2.01	8/2/2024	8/2/2019	100.71374	99.32614261	97.96436116	96.62773725	95.31563503	94.02743961	92.76255622	91.52040934	90.30044199
190805A00008	8/5/2019	1.88	8/4/2023	8/5/2019	100.2469	99.8161645	99.38912084	98.96572403	98.5459275	98.12968548	97.71695297	97.30768573	96.90184025
190805A00009	8/5/2019	1.91	8/5/2024	8/5/2019	100.57863	99.18435809	97.81616093	96.47337436	95.15535292	93.8614725	92.59112952	91.34374007	90.1187391
190805A00011	8/5/2019	1.91	8/5/2024	8/5/2019	100.57863	99.18435809	97.81616093	96.47337436	95.15535292	93.8614725	92.59112952	91.34374007	90.1187391
190805A00049	8/5/2019	1.88	8/4/2023	8/5/2019	100.2469	99.8161645	99.38912084	98.96572403	98.5459275	98.12968548	97.71695297	97.30768573	96.90184024
190805A00050	8/5/2019	1.91	8/5/2024	8/5/2019	100.57863	99.18435809	97.81616093	96.47337436	95.15535292	93.8614725	92.59112952	91.34374007	90.1187391
190806A00026	8/6/2019	1.71	8/7/2023	8/6/2019	100.25459	99.81476262	99.37879742	98.94664093	98.51824327	98.09355545	97.67252934	97.25511762	96.84127379
190806A00027	8/6/2019	1.71	8/7/2023	8/6/2019	100.25459	99.81476262	99.37879742	98.94664093	98.51824327	98.09355545	97.67252934	97.25511762	96.84127379
190807A00005	8/7/2019	1.77	8/7/2024	8/7/2019	100.38174	98.98382639	97.61214862	96.26603723	94.94484064	93.64792894	92.37469297	91.12454349	89.89691039
190807A00014	8/7/2019	1.75	8/7/2023	8/7/2019	100.1906	99.75190594	99.31705006	98.88598164	98.4586513	98.03501054	97.61501166	97.19860781	96.78575294
190807A00020	8/7/2019	1.57	2/7/2024	8/7/2019	100.19688	99.2670318	98.35436123	97.45840003	96.57869266	95.7148	94.86629865	94.03278018	93.21385051
190807A00021	8/7/2019	2	8/7/2026	8/7/2019	104.06835	100.7121807	97.48232331	94.37336183	91.38014514	88.49776919	85.72156376	83.04708001	80.47007881
190807A00036	8/7/2019	1.75	8/7/2023	8/7/2019	100.1906	99.75190594	99.31705006	98.88598164	98.4586513	98.03501054	97.61501166	97.19860781	96.78575294
190808A00009	8/8/2019	1.89	8/8/2024	8/8/2019	100.55766	99.15585869	97.78041616	96.43065246	95.10591202	93.80556111	92.52898692	91.27559672	90.04481704
190808A00023	8/8/2019	1.68	11/8/2023	8/8/2019	100.2813	99.5914209	98.91100716	98.23986717	97.5778122	96.92465865	96.28022781	95.64434574	95.0168431

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190808A00024	8/8/2019	1.69	2/8/2024	8/8/2019	100.31102	99.37796594	98.46219828	97.5632409	96.68063425	95.8139354	94.96271728	94.12656801	93.30509018
190808A00025	8/8/2019	1.7	8/8/2024	8/8/2019	100.56443	99.15799808	97.77807847	96.42398729	95.09506369	93.79066894	92.51018548	91.25301605	90.01858285
190808A00050	8/8/2019	1.7	8/8/2024	8/8/2019	100.56443	99.15799808	97.77807847	96.42398729	95.09506369	93.79066894	92.51018548	91.25301605	90.01858285
190808A00052	8/8/2019	1.7	8/8/2024	8/8/2019	100.56443	99.15799807	97.77807847	96.42398729	95.09506369	93.79066894	92.51018548	91.25301605	90.01858285
190809A00008	8/9/2019	1.87	8/3/2023	8/9/2019	100.24634	99.81826117	99.39382496	98.97298969	98.5557097	98.1419401	97.73163676	97.32475627	96.92125594
190809A00010	8/9/2019	1.88	8/8/2024	8/9/2019	100.54319	99.14149766	97.76616213	96.41650362	95.0918666	93.79161739	92.51514323	91.26185142	90.03116854
190809A00011	8/9/2019	1.69	8/9/2024	8/9/2019	100.55253	99.14361177	97.7613034	96.40491306	95.07377652	93.76725182	92.48471829	91.2255757	89.98924343
190809A00012	8/9/2019	1.69	8/9/2024	8/9/2019	100.55253	99.14361177	97.7613034	96.40491306	95.07377652	93.76725182	92.48471829	91.2255757	89.98924343
190809A00020	8/9/2019	2.44	8/9/2034	8/9/2019	120.86905	109.2923935	98.95670625	89.72132538	81.46223449	74.07001955	67.44808233	61.51108033	56.18356346
190809A00021	8/9/2019	2.12	8/9/2029	8/9/2019	110.74839	104.3153137	98.30024175	92.673846	87.40899577	82.4805865	77.8653787	73.54185052	69.49006263
190809A00022	8/9/2019	1.88	8/9/2024	8/9/2019	100.54576	99.14149215	97.76367199	96.4116197	95.08467632	93.78220491	92.5035896	91.24823471	90.01556395
190812A00003	8/12/2019	1.67	8/12/2024	8/12/2019	100.53109	99.11462175	97.72504462	96.36165685	95.02378394	93.71077409	92.42199727	91.15684429	89.91472592
190812A00006	8/12/2019	1.86	8/12/2024	8/12/2019	100.52433	99.11254112	97.72748622	96.3684687	95.03481944	93.72589175	92.44106047	91.17972103	89.94128863
190813A00008	8/13/2019	1.88	8/13/2024	8/13/2019	100.55606	99.14147289	97.75371755	96.3920946	95.05593138	93.7445778	92.45740546	91.19380669	89.95319374
190813A00016	8/13/2019	1.88	8/13/2024	8/13/2019	100.55606	99.14147289	97.75371755	96.39209461	95.05593138	93.7445778	92.45740546	91.19380669	89.95319374
190814A00003	8/14/2019	2.01	8/14/2029	8/14/2019	110.05762	103.6335178	97.62806675	92.01181844	86.75753855	81.84003129	77.23597705	72.92378364	68.88345015
190814A00005	8/14/2019	1.65	8/14/2024	8/14/2019	100.50684	99.08542171	97.69107607	96.32309997	94.98081205	93.66355398	92.37068944	91.10160328	89.85570056
190814A00006	8/14/2019	1.84	8/14/2023	8/14/2019	100.23721	99.77944625	99.32586227	98.87640261	98.43101109	97.98963255	97.55221284	97.11869875	96.68903805
190814A00008	8/14/2019	1.84	8/14/2024	8/14/2019	100.5001	99.08338233	97.69358142	96.32999688	94.99195278	93.67879595	92.38989501	91.12463947	89.88243885
190814A00009	8/14/2019	1.84	8/14/2024	8/14/2019	100.5001	99.08338233	97.69358142	96.32999688	94.99195278	93.67879595	92.38989501	91.12463947	89.88243885
190814A00010	8/14/2019	1.84	4/5/2023	8/14/2019	100.09439	99.99472216	99.89526328	99.79600928	99.6969595	99.59811331	99.49947007	99.40102914	99.30278988
190814A00015	8/14/2019	1.84	8/14/2024	8/14/2019	100.5001	99.08338233	97.69358142	96.32999688	94.99195278	93.67879595	92.38989501	91.12463947	89.88243885
190815A00007	8/15/2019	1.81	7/6/2023	8/15/2019	100.20811	99.85609117	99.50654753	99.15945078	98.81477525	98.47249565	98.13258702	97.79502476	97.4597846
190816A00006	8/16/2019	1.77	8/16/2024	8/16/2019	100.40222	98.98113489	97.58714305	96.21953759	94.877636	93.56077884	92.26832873	90.99966944	89.75420501
190816A00007	8/16/2019	1.77	8/16/2023	8/16/2019	100.20062	99.73761644	99.27888776	98.82437849	98.3740305	97.92778674	97.48559119	97.04738883	96.61312567
190816A00011	8/16/2019	1.77	8/16/2024	8/16/2019	100.40222	98.98113489	97.58714305	96.21953759	94.877636	93.56077884	92.26832873	90.99966944	89.75420501
190816A00020	8/16/2019	1.79	8/16/2024	8/16/2019	100.43159	99.01028515	97.61607306	96.2482511	94.90613667	93.58907022	92.29641428	91.02755253	89.78188894
190816A00021	8/16/2019	1.77	8/16/2023	8/16/2019	100.20062	99.73761644	99.27888776	98.82437849	98.3740305	97.92778674	97.48559119	97.04738883	96.61312567
190816A00022	8/16/2019	1.77	8/16/2024	8/16/2019	100.40222	98.98113489	97.58714305	96.21953759	94.877636	93.56077884	92.26832873	90.99966944	89.75420501
190816A00031	8/16/2019	1.77	8/16/2024	8/16/2019	100.40222	98.98113489	97.58714305	96.21953759	94.877636	93.56077884	92.26832873	90.99966944	89.75420501
190816A00033	8/16/2019	1.77	8/16/2024	8/16/2019	100.40222	98.98113489	97.58714305	96.21953759	94.877636	93.56077884	92.26832873	90.99966944	89.75420501
190816A00035	8/16/2019	1.77	8/16/2023	8/16/2019	100.20062	99.73761644	99.27888776	98.82437849	98.3740305	97.92778674	97.48559119	97.04738883	96.61312567
190816A00036	8/16/2019	1.77	8/16/2024	8/16/2019	100.40222	98.98113489	97.58714305	96.21953759	94.877636	93.56077884	92.26832873	90.99966944	89.75420501

	Parallel-Shift Sensitivity Analysis												
2/28/2023					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	100.2619	99.05758112	97.88205782	96.73430588	95.61335038	94.51826154	93.44815216	92.40217519	91.37952152
190819A00005	8/19/2019	1.62	8/21/2023	8/19/2019	100.21772	99.74011954	99.26707355	98.79851507	98.33438033	97.87460678	97.41913302	96.96789884	96.52084511
190819A00026	8/19/2019	1.62	8/19/2024	8/19/2019	100.47486	99.04084113	97.63436982	96.25472414	94.90120536	93.57313853	92.26987151	90.99077394	89.73523641
190819A00030	8/19/2019	2.01	8/20/2029	8/19/2019	110.07566	103.635657	97.61631639	91.98798014	86.72322435	81.79668273	77.18488226	72.86609275	68.82018917
190820A00008	8/20/2019	1.76	8/20/2024	8/20/2019	100.39653	98.96526364	97.56147475	96.18443782	94.83345646	93.50785794	92.2069922	90.93023088	89.67696644
190820A00013	8/20/2019	1.76	8/21/2023	8/20/2019	100.19646	99.71998449	99.24803603	98.78055145	98.31746758	97.85872242	97.40425513	96.95400602	96.5079165
190820A00019	8/20/2019	1.76	8/21/2023	8/20/2019	100.19646	99.71998449	99.24803603	98.78055145	98.31746758	97.85872242	97.40425513	96.95400602	96.5079165
190820A00020	8/20/2019	1.76	8/20/2024	8/20/2019	100.39653	98.96526364	97.56147475	96.18443782	94.83345646	93.50785794	92.2069922	90.93023088	89.67696644
190820A00021	8/20/2019	2.13	8/20/2029	8/20/2019	109.38516	103.0230543	97.07507858	91.51212297	86.30726344	81.43559031	76.87404786	72.60128743	68.59753293
190820A00029	8/20/2019	1.76	8/20/2024	8/20/2019	100.39653	98.96526364	97.56147475	96.18443782	94.83345646	93.50785794	92.2069922	90.93023088	89.67696644
190820A00038	8/20/2019	1.76	8/20/2024	8/20/2019	100.39653	98.96526364	97.56147475	96.18443782	94.83345646	93.50785794	92.2069922	90.93023088	89.67696644
190821A00017	8/21/2019	1.8	8/21/2024	8/21/2019	100.45807	99.02377608	97.61706293	96.23720155	94.88349186	93.55525756	92.2518452	90.97262319	89.71698089
190821A00028	8/21/2019	1.8	8/21/2023	8/21/2019	100.21573	99.73919709	99.26719469	98.79965654	98.33651947	97.87772148	97.42320171	96.97290048	96.52675918
190821A00030	8/21/2019	1.8	8/21/2024	8/21/2019	100.45807	99.02377608	97.61706293	96.23720155	94.88349186	93.55525756	92.2518452	90.97262319	89.71698089
190823A00005	8/23/2019	1.62	8/23/2024	8/23/2019	100.48445	99.04008463	97.62365484	96.23442219	94.87167377	93.53472112	92.22289914	90.93556513	89.67209784
190826A00018	8/26/2019	1.9	8/27/2029	8/26/2019	109.38557	102.949585	96.93556933	91.31367088	86.05629899	81.1379394	76.53498794	72.22559838	68.18954305
190826A00029	8/26/2019	1.53	8/26/2024	8/26/2019	100.3568	98.90573101	97.48286577	96.08745986	94.71879013	93.37615834	92.05889007	90.76633369	89.49785944
190826A00030	8/26/2019	1.72	8/26/2026	8/26/2019	103.9258	100.5047762	97.2147634	94.05005354	91.00521624	88.07508619	85.25474874	82.53952628	79.92496546
190826A00056	8/26/2019	1.72	8/26/2024	8/26/2019	100.35018	98.90395671	97.48577307	96.09488829	94.73058503	93.39217054	92.07897565	90.79035373	89.52567976
190826A00057	8/26/2019	1.87	8/26/2025	8/26/2019	101.97579	99.55721438	97.20842452	94.92700844	92.71065369	90.55714143	88.46434205	86.43021095	84.45278467
190826A00058	8/26/2019	1.91	8/26/2026	8/26/2019	103.85294	100.4519508	97.1807898	94.03381505	91.00565984	88.09121871	85.28563321	82.58427858	79.98275117
190826A00060	8/26/2019	2.02	8/26/2027	8/26/2019	106.20102	101.7985856	97.60447385	93.60774939	89.79810628	86.16582975	82.70175916	79.39725352	76.2441593
190826A00063	8/26/2019	2.05	8/28/2028	8/26/2019	107.84245	102.445177	97.35233031	92.54516251	88.00617744	83.71903774	79.66848241	75.84025048	72.22101059
190826A00065	8/26/2019	2.09	8/28/2029	8/26/2019	109.15009	102.7753658	96.81703369	91.24572225	86.03427889	81.15758912	76.59241366	72.31723943	68.31214306
190827A00001	8/27/2019	1.74	8/27/2024	8/27/2019	100.38229	98.93326701	97.51238213	96.11889286	94.75207821	93.41124193	92.0957115	90.8048371	89.53799066
190827A00002	8/27/2019	1.74	8/27/2024	8/27/2019	100.38229	98.93326701	97.51238213	96.11889286	94.75207821	93.41124193	92.0957115	90.8048371	89.53799066
190828A00009	8/28/2019	1.71	8/28/2024	8/28/2019	100.33945	98.88820323	97.46518986	96.06965918	94.70088676	93.35817312	92.04084262	90.74824249	89.47974182
190828A00015	8/28/2019	2.04	8/28/2029	8/28/2019	108.82901	102.4644374	96.51578117	90.95370026	85.75106687	80.88278965	76.32565105	72.05815832	68.0604072
190828A00019	8/28/2019	2	3/28/2028	8/28/2019	107.03994	102.0580423	97.33825495	92.86542227	88.62534094	84.60469822	80.79101127	77.17257111	73.73839058
190828A00020	8/28/2019	1.95	5/28/2027	8/28/2019	105.45221	101.2988663	97.33231516	93.54311969	89.92237853	86.46168958	83.15311888	79.98917152	76.96276462
190828A00031	8/28/2019	1.71	8/28/2024	8/28/2019	100.33945	98.88820323	97.46518986	96.06965918	94.70088676	93.35817312	92.04084262	90.74824249	89.47974182
190829A00005	8/30/2019	2.06	8/30/2023	8/30/2019	100.34444	99.84333629	99.34722058	98.85601913	98.36965929	97.88806984	97.41118094	96.9389241	96.47123218
190829A00029	8/29/2019	1.75	7/14/2023	8/29/2019	100.19153	99.8177871	99.44684118	99.07865741	98.71320494	98.35045335	97.99037268	97.63293343	97.27810652

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190829A00031	8/29/2019	1.54	8/29/2024	8/29/2019	100.37832	98.91938334	97.48894668	96.08625209	94.71056557	93.36117854	92.03740668	90.73858892	89.46408647
190829A00045	8/29/2019	1.9	8/28/2026	8/29/2019	103.8279	100.4222435	97.14678782	93.99586549	90.96408691	88.04632521	85.23770195	82.53357368	79.92951928
190829A00050	8/29/2019	1.73	8/29/2024	8/29/2019	100.37164	98.91758706	97.4918681	96.09372884	94.72244119	93.37730214	92.05763271	90.76277691	89.49210076
190830A00002	8/30/2019	1.93	8/28/2026	8/30/2019	103.93217	100.5247025	97.24748451	94.09484889	91.06140419	88.14202186	85.33182187	82.6261592	80.0206113
190830A00010	9/3/2019	1.75	9/1/2023	9/3/2019	100.18761	99.68157754	99.1806427	98.68472406	98.19374667	97.70763705	97.22632317	96.74973442	96.27780157
190830A00012	8/30/2019	1.76	8/30/2024	8/30/2019	100.41901	98.9620276	97.53348599	96.13262324	94.75870751	93.41103223	92.08891499	90.79169654	89.51873979
190830A00021	8/30/2019	1.76	8/30/2024	8/30/2019	100.41901	98.9620276	97.53348599	96.13262324	94.75870751	93.41103223	92.08891499	90.79169654	89.51873979
190904A00001	9/4/2019	1.5	9/4/2024	9/4/2019	100.33372	98.85921782	97.41372905	95.99646876	94.60668277	93.24364325	91.90664763	90.59501747	89.30809741
190904A00019	9/4/2019	1.69	9/4/2024	9/4/2019	100.32697	98.85742915	97.41673054	96.0040946	94.6187732	93.26004428	91.92721076	90.61959938	89.33655978
190904A00020	9/4/2019	1.69	9/1/2023	9/4/2019	100.15689	99.6509491	99.15010464	98.65427573	98.16338742	97.67736624	97.19614016	96.7196386	96.24779231
190906A00005	9/6/2019	1.77	9/6/2023	9/6/2019	100.19876	99.67926702	99.16514915	98.6563232	98.15270775	97.65422305	97.16079097	96.67233497	96.18878002
190906A00012	9/6/2019	1.76	9/6/2024	9/6/2019	100.43946	98.96367205	97.51689947	96.09835664	94.70728851	93.34296642	92.00468702	90.69177112	89.40356268
190909A00025	9/9/2019	1.88	9/9/2024	9/9/2019	100.63263	99.14726639	97.69118397	96.2635865	94.86370836	93.49081088	92.14418119	90.82313106	89.52699584
190910A00004	9/11/2019	1.86	9/11/2024	9/11/2019	100.60856	99.11802881	97.65693062	96.22446768	94.81986785	93.44238631	92.09130431	90.76592807	89.46558768
190910A00017	9/16/2019	1.86	9/16/2024	9/16/2019	100.6251	99.12102325	97.6467925	96.20158548	94.78461341	93.39511564	92.03235847	90.69563389	89.38425846
190910A00030	9/10/2019	1.86	9/10/2024	9/10/2019	100.60526	99.11743056	97.65895984	96.22904708	94.82692347	93.45184731	92.10310285	90.77999913	89.48186893
190913A00014	9/13/2019	2.08	9/13/2024	9/13/2019	100.95502	99.4563502	97.98732745	96.54714111	95.13501116	93.75018527	92.39193757	91.05956748	89.75239863
190917A00028	9/17/2019	2.02	3/1/2023	9/17/2019	100.0031	100.0003272	99.99755815	99.99479151	99.99202724	99.98926534	99.9865058	99.98374862	99.98099938
190917A00035	9/19/2019	2.02	10/16/2023	9/19/2019	100.36476	99.73758318	99.11823755	98.50657267	97.90244619	97.30571928	96.71625646	96.13392558	95.55859767
190919A00007	9/19/2019	2.04	9/19/2024	9/19/2019	100.916	99.40153763	97.9172017	96.46216291	95.03562135	93.63680586	92.2649727	90.91940434	89.59940829
190919A00025	9/19/2019	1.8	9/19/2024	9/19/2019	100.84596	99.32694822	97.83823148	96.37897611	94.94837599	93.54565404	92.17006093	90.82087379	89.49739508
190923A00012	9/23/2019	2.43	9/25/2034	9/23/2019	120.89621	109.1993023	98.76873442	89.45956854	81.14418883	73.71014917	67.05829947	61.1011517	55.7614541
190923A00017	9/23/2019	1.74	9/23/2024	9/23/2019	100.76628	99.23713297	97.73860108	96.26983509	94.83001562	93.41835302	92.03408601	90.67648044	89.34482802
190923A00020	9/23/2019	2.05	9/24/2029	9/23/2019	110.45536	103.9112676	97.79993525	92.09047683	86.75436371	81.76523441	77.0987193	72.73228028	68.64506419
190923A00078	9/23/2019	1.96	6/28/2024	9/23/2019	100.56411	99.26731197	97.99383403	96.74309158	95.51451725	94.30756232	93.12169595	91.95640444	90.81119056
190923A00081	9/23/2019	1.96	9/20/2024	9/23/2019	100.7947	99.27853163	97.79255786	96.33594265	94.90788318	93.50760554	92.13436339	90.78743673	89.46613077
190924A00035	9/24/2019	1.88	9/13/2024	9/24/2019	100.64607	99.14987361	97.68327866	96.24547814	94.83569315	93.45317246	92.09719125	90.76704994	89.46207314
190925A00004	9/25/2019	1.7	9/24/2024	9/25/2019	100.70673	99.17537145	97.67470565	96.20387666	94.76206192	93.34846875	91.96233305	90.60291793	89.26951255
190925A00011	9/25/2019	1.89	9/25/2024	9/25/2019	100.70218	99.17336018	97.67513194	96.20664192	94.76707079	93.35562899	91.97155535	90.61411581	89.2826022
190925A00019	9/27/2019	1.93	9/27/2023	9/27/2019	100.29604	99.7199014	99.1503617	98.58730908	98.03063323	97.48022636	96.93598306	96.3978003	95.86557732
190926A00015	9/26/2019	2.32	11/26/2030	9/26/2019	112.39857	104.75081	97.68421766	91.15144528	85.10924682	79.51809864	74.34186043	69.54746873	65.10465973
190926A00016	9/26/2019	2.28	5/24/2030	9/26/2019	111.35626	104.2183897	97.59172108	91.4368779	85.71771988	80.40105893	75.45640287	70.85572285	66.573242
190926A00017	9/26/2019	2.23	9/26/2029	9/26/2019	110.14893	103.6670355	97.61235441	91.95447528	86.66530266	81.71887045	77.09116996	72.75999275	68.70478679

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190927A00012	10/1/2019	1.96	10/1/2024	10/1/2019	100.83386	99.28796568	97.77318179	96.28863182	94.83347542	93.40690312	92.00813485	90.63641863	89.29102929
190927A00036	9/27/2019	1.94	9/6/2024	9/27/2019	100.71409	99.23613377	97.78722807	96.36658891	94.97346022	93.6071124	92.26684118	90.95196649	89.66183142
190930A00008	9/30/2019	1.9	10/10/2023	9/30/2019	100.28534	99.67446567	99.07102216	98.47487195	97.88588332	97.30392771	96.7288796	96.16061648	95.5990187
190930A00012	9/30/2019	1.93	9/30/2024	9/30/2019	100.78274	99.239862	97.72799557	96.24627499	94.79386359	93.36995536	91.97377353	90.60456926	89.26162034
190930A00035	9/30/2019	1.93	9/30/2024	9/30/2019	100.78274	99.239862	97.72799557	96.24627499	94.79386359	93.36995536	91.97377353	90.60456926	89.26162034
190930A00069	9/30/2019	1.9	9/29/2023	9/30/2019	100.27962	99.69817418	99.12344529	98.55531963	97.99368402	97.43842784	96.88944298	96.34662375	95.80986682
190930A00070	9/30/2019	1.93	9/27/2024	9/30/2019	100.77226	99.23751551	97.73353116	96.25945275	94.81445391	93.39773839	92.00853867	90.64611467	89.30975251
190930A00071	9/30/2019	2.05	9/29/2025	9/30/2019	102.60304	100.0862116	97.6438938	95.27343197	92.97228529	90.73801977	88.56830287	86.46089858	84.41366274
190930A00075	9/30/2019	2.19	9/29/2027	9/30/2019	107.10364	102.5921399	98.2974582	94.20802875	90.31296434	86.60201331	83.06551891	79.69438154	76.48002359
190930A00077	9/30/2019	2.23	9/28/2029	9/30/2019	110.15593	103.6685802	97.60910688	91.94702655	86.65418317	81.70455612	77.07408762	72.740525	68.68327639
191001A00023	10/1/2019	1.85	9/27/2024	10/1/2019	100.64564	99.1119317	97.60896454	96.1358856	94.69186899	93.27611891	91.88786829	90.52637748	89.19093301
191002A00006	10/2/2019	1.84	10/2/2024	10/2/2019	100.64569	99.09875846	97.58299418	96.09751815	94.64148727	93.21408948	91.81454224	90.44209127	89.09600921
191002A00016	10/2/2019	1.79	10/2/2023	10/2/2019	100.21549	99.62622771	99.04387254	98.46830253	97.89939972	97.33704885	96.78113729	96.231555	95.68819443
191002A00017	10/2/2019	1.84	10/2/2024	10/2/2019	100.64569	99.09875846	97.58299418	96.09751815	94.64148727	93.21408948	91.81454224	90.44209127	89.09600921
191003A00014	10/3/2019	1.71	9/20/2024	10/3/2019	100.40376	98.89075911	97.40789212	95.95432976	94.52927069	93.13194237	91.76159984	90.41752438	89.09902246
191003A00019	10/3/2019	1.71	9/27/2024	10/3/2019	100.42406	98.89216004	97.39097296	95.91964309	94.47734537	93.06328481	91.67669512	90.3168374	88.9829989
191004A00001	10/4/2019	2.47	10/4/2034	10/4/2019	118.69262	107.2508198	97.04594431	87.93656709	79.79814515	72.52092725	66.00812842	60.17433777	54.94412898
191004A00002	10/4/2019	2.08	10/4/2029	10/4/2019	109.19774	102.7257839	96.68217301	91.03630678	85.75992724	80.82692492	76.21316477	71.89632712	67.85576224
191004A00003	10/4/2019	1.89	10/5/2026	10/4/2019	103.99395	100.4848953	97.11305729	93.87232404	90.75688792	87.76123215	84.88011453	82.10855202	79.44180639
191004A00004	10/4/2019	1.54	10/4/2024	10/4/2019	100.48342	98.9273534	97.40278518	95.90882686	94.44462207	93.00934618	91.60220478	90.22243227	88.86929057
191004A00005	10/4/2019	1.54	10/4/2024	10/4/2019	100.48342	98.9273534	97.40278518	95.90882686	94.44462207	93.00934618	91.60220478	90.22243227	88.86929057
191004A00012	10/4/2019	1.78	10/4/2024	10/4/2019	100.55571	99.00434947	97.48431369	95.99471559	94.53470546	93.10346493	91.70020557	90.32416747	88.97461794
191004A00032	10/4/2019	2.01	1/3/2028	10/4/2019	106.72947	101.9770713	97.46447212	93.17837158	89.10627077	85.23642137	81.55777695	78.05994757	74.73315766
191007A00029	10/7/2019	1.88	10/9/2029	10/7/2019	109.38854	102.8397807	96.72704862	91.0190372	85.68684761	80.70378877	76.04519766	71.68827513	67.61193581
191008A00031	10/8/2019	1.52	10/8/2024	10/8/2019	100.46223	98.89595821	97.36152269	95.85802216	94.38458621	92.94037691	91.52458724	90.13643968	88.77518482
191008A00033	10/8/2019	1.71	10/8/2024	10/8/2019	100.45442	98.89357038	97.36436705	95.86591269	94.39734398	92.95782968	91.54656915	90.1627909	88.80575129
191009A00017	10/9/2019	1.76	10/4/2024	10/9/2019	100.52367	98.9725799	97.45280443	95.96346208	94.50370327	93.07270976	91.66969322	90.29389384	88.94457905
191009A00027	10/9/2019	1.74	10/6/2023	10/9/2019	100.18593	99.58608223	98.99340115	98.40775638	97.82902316	97.25707966	96.6918069	96.13308867	95.58081144
191009A00028	10/9/2019	1.76	10/9/2024	10/9/2019	100.53789	98.97376564	97.44138183	95.93984072	94.46827514	93.02585021	91.61176184	90.22523526	88.86552371
191015A00013	10/15/2019	1.72	10/15/2024	10/15/2019	100.80817	99.2208141	97.66595499	96.14266045	94.65003374	93.18721195	91.75336444	90.34769121	88.96942158
191015A00029	10/15/2019	1.91	10/15/2024	10/15/2019	100.7997	99.21787095	97.66834363	96.15019026	94.66252139	93.20448104	91.77524511	90.37401987	89.00004057
191017A00022	10/17/2019	2.25	7/17/2028	10/17/2019	108.77698	103.4614743	98.43961779	93.69368549	89.20711316	84.96441182	80.95109274	77.15359801	73.55923628
191017A00026	10/17/2019	2.3	7/17/2029	10/17/2019	110.36634	104.0588287	98.15592429	92.62957613	87.45381464	82.60458664	78.05960485	73.79820998	69.80124412

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191021A00021	10/21/2019	2.22	12/21/2027	10/21/2019	107.67539	102.9339036	98.42976055	94.14985361	90.08186611	86.21422103	82.53603273	79.03706207	75.70767467
191023A00006	10/23/2019	1.95	10/23/2024	10/23/2019	100.89184	99.28856	97.71828495	96.18006255	94.67297431	93.19613674	91.74869969	90.32984475	88.93878376
191025A00005	10/28/2019	1.98	10/28/2024	10/28/2019	100.95865	99.34187784	97.75856124	96.2077271	94.68843851	93.19979457	91.74092864	90.31100666	88.90922566
191025A00009	10/25/2019	2.26	5/25/2029	10/25/2019	109.94312	103.7849476	98.01378731	92.60324299	87.52885812	82.76796257	78.29953253	74.10406223	70.1634464
191025A00010	10/25/2019	2.24	7/25/2028	10/25/2019	108.75346	103.4182716	98.37891256	93.61746817	89.11719365	84.8624352	80.83855361	77.03185364	73.42951852
191025A00013	10/25/2019	1.98	10/25/2024	10/25/2019	100.94833	99.33939179	97.76365013	96.22013707	94.70792665	93.22612832	91.77388524	90.35037265	88.95479636
191031A00033	10/31/2019	2.2	5/31/2028	10/31/2019	108.32438	103.1433482	98.24237986	93.6048189	89.21509629	85.0586487	81.12184769	77.39193441	73.85695914
191031A00041	10/31/2019	1.72	10/31/2023	10/31/2019	100.30562	99.63697084	98.97719894	98.32613281	97.68360113	97.04943705	96.42347804	95.80556576	95.19554591
191104A00009	11/4/2019	1.91	11/6/2023	11/4/2019	100.31237	99.62934859	98.95560286	98.29094495	97.6351919	96.98816565	96.34969285	95.71960471	95.09773687
191104A00018	11/5/2019	1.96	11/5/2024	11/5/2019	100.95461	99.31677075	97.71313409	96.14269403	94.60448242	93.09756881	91.62105863	90.17409139	88.75583908
191104A00022	11/4/2019	2.17	8/4/2027	11/4/2019	106.75428	102.396075	98.24137199	94.27962733	90.5008957	86.89579478	83.45547049	80.17156449	77.03618397
191104A00023	11/4/2019	2.24	8/4/2028	11/4/2019	108.79028	103.428671	98.36572326	93.58326436	89.06431722	84.79301605	80.7545282	76.93498178	73.32139881
191104A00024	11/4/2019	2.26	8/3/2029	11/4/2019	110.16505	103.8211919	97.88708958	92.33414211	87.13588688	82.26782719	77.70727674	73.43321727	69.42616804
191104A00025	11/4/2019	2.33	8/2/2030	11/4/2019	111.98971	104.6523202	97.85263309	91.54837625	85.70080821	80.27440454	75.23657572	70.5574109	66.20944534
191105A00007	11/5/2019	1.98	11/5/2026	11/5/2019	105.25965	101.6267294	98.13876987	94.78916739	91.57166351	88.48032097	85.50950509	82.65386629	79.90832391
191105A00008	11/5/2019	1.83	11/5/2024	11/5/2019	101.06519	99.42064732	97.81053285	96.23383474	94.68957642	93.17681947	91.69466171	90.24223547	88.81870588
191105A00014	11/5/2019	1.96	11/6/2023	11/5/2019	100.34705	99.66389615	98.9900178	98.32522854	97.6693454	97.02219028	96.38358983	95.75337523	95.13138209
191105A00018	11/5/2019	1.78	11/6/2023	11/5/2019	100.35002	99.66519915	98.98970267	98.32333951	97.66592531	97.01728066	96.3772309	95.74560601	95.1222404
191106A00012	11/6/2019	2.02	10/11/2024	11/6/2019	100.96497	99.39210295	97.8512152	96.34139565	94.86176842	93.41149033	91.98974941	90.59576341	89.22877846
191106A00022	11/6/2019	2.34	1/2/2030	11/6/2019	111.21671	104.4498917	98.14433769	92.2661975	86.78427076	81.66978411	76.89619109	72.43898946	68.27555443
191108A00011	11/8/2019	2.08	10/18/2024	11/8/2019	101.0882	99.49618281	97.93676479	96.40901143	94.91202141	93.44492753	92.00689502	90.59712004	89.21482821
191108A00013	11/8/2019	2.25	11/8/2029	11/8/2019	111.94219	105.2327516	98.97318092	93.13090312	87.67587277	82.58036136	77.81876671	73.36743903	69.20452218
191108A00014	11/8/2019	2.25	11/8/2029	11/8/2019	111.94219	105.2327516	98.97318092	93.13090312	87.67587277	82.58036136	77.81876671	73.36743903	69.20452218
191113A00016	11/15/2019	2.02	8/15/2024	11/15/2019	100.76645	99.34514211	97.95088485	96.58296913	95.24071467	93.9234641	92.63058204	91.36145417	90.11548636
191114A00008	11/18/2019	1.93	4/17/2023	11/18/2019	100.13027	99.99747914	99.8650536	99.73299211	99.60129316	99.46995522	99.33897678	99.20835636	99.07809244
191114A00009	11/18/2019	1.94	8/16/2023	11/18/2019	100.28016	99.8169368	99.35799039	98.90326485	98.45270204	98.00624488	97.56383734	97.12542439	96.69095202
191115A00014	11/18/2019	2.45	11/18/2024	11/18/2019	101.84905	100.1686319	98.52382973	96.91357685	95.33684772	93.79265763	92.28006064	90.7981476	89.34604442
191115A00015	11/18/2019	2.61	11/18/2024	11/18/2019	102.12486	100.4419907	98.79478765	97.18217696	95.60313192	94.05666667	92.54183417	91.05772423	89.60346173
191115A00016	11/18/2019	2.48	11/18/2024	11/18/2019	101.90077	100.2198867	98.57463434	96.96393937	95.38677601	93.84215933	92.32914317	90.84681822	89.39431017
191115A00028	11/15/2019	2.34	9/28/2029	11/15/2019	110.87135	104.3611124	98.27982024	92.59693635	87.2842478	82.31568066	77.6671272	73.31628797	69.24252721
191115A00030	11/15/2019	2.35	11/9/2029	11/15/2019	111.08751	104.4629629	98.28126675	92.51044174	87.1209796	82.08564215	77.37927497	72.97863734	68.86224698
191119A00027	11/19/2019	1.8	11/19/2024	11/19/2019	101.06976	99.38763882	97.74133417	96.12976412	94.5518938	93.00672973	91.49331771	90.01074086	88.55811774
191120A00005	11/20/2019	2.63	11/20/2034	11/20/2019	120.62416	108.9616711	98.56879952	89.29921816	81.02421973	73.63051073	67.01829253	61.09959005	55.79679506

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191120A00006	11/20/2019	2.67	11/20/2035	11/20/2019	122.0317	109.4067354	98.25656655	88.39906441	79.67554668	71.94764524	65.09460952	59.01098004	53.60457955
191120A00024	11/20/2019	2.23	11/16/2029	11/20/2019	110.31809	103.700394	97.52670662	91.76486272	86.38519344	81.36031904	76.66496047	72.27576743	68.17116142
191121A00004	11/21/2019	1.77	11/21/2024	11/21/2019	101.02561	99.33852647	97.68745029	96.07129207	94.48900866	92.93959879	91.42210092	89.93559119	88.4791816
191121A00009	11/21/2019	2.55	11/21/2036	11/21/2019	124.47388	110.6170528	98.49723355	87.88484298	78.58184965	70.41728533	63.24341924	56.93249011	51.3739124
191121A00010	11/21/2019	2.59	11/20/2037	11/21/2019	125.98335	111.1484313	98.28743578	87.12362415	77.42052752	68.97590165	61.61661208	55.19430632	49.58174861
191121A00034	11/21/2019	2.28	11/2/2029	11/21/2019	110.59909	104.0086613	97.85797814	92.11535521	86.75154873	81.7395593	77.05444814	72.67316944	68.57441713
191122A00018	11/26/2019	3.11	11/22/2039	11/26/2019	132.0895	115.3709791	101.0989657	88.89465838	78.44012157	69.46820825	61.75419575	55.10883658	49.37257874
191122A00020	11/26/2019	3.2	11/23/2037	11/26/2019	131.18192	116.2205295	103.2229365	91.91605182	82.06629916	73.47370794	65.96691421	59.39892776	53.64354464
191122A00021	11/26/2019	3.4	11/22/2038	11/26/2019	135.41086	119.2870037	105.3915381	93.39775792	83.02877385	74.0496683	66.26092396	59.49291121	53.60125905
191125A00036	11/25/2019	2.29	11/23/2029	11/25/2019	110.74166	104.0919391	97.88924377	92.10112094	86.69764026	81.65118625	76.93626719	72.52934082	68.40865533
191126A00022	11/26/2019	1.72	5/26/2023	11/26/2019	100.19924	99.95868465	99.71928629	99.481041	99.24394044	99.00797632	98.77314046	98.53942475	98.30682114
191126A00023	11/26/2019	1.81	5/27/2025	11/26/2019	101.91144	99.72002193	97.58625737	95.50820802	93.48401703	91.51190558	89.59016876	87.71717184	85.89134668
191126A00026	11/26/2019	1.91	11/25/2026	11/26/2019	105.12184	101.4376734	97.90239811	94.50914904	91.25141782	88.12303504	85.11815034	82.23121366	79.45695786
191129A00012	11/29/2019	1.99	11/29/2024	11/29/2019	101.09914	99.39605993	97.72956976	96.09855581	94.50194938	92.93872509	91.40789862	89.90852462	88.43969477
191202A00005	12/2/2019	2.03	12/2/2024	12/2/2019	101.18092	99.4692654	97.79452829	96.15558946	94.55137488	92.98085369	91.44303596	89.93697066	88.46174367
191203A00004	12/4/2019	1.87	12/4/2024	12/4/2019	100.88853	99.17466747	97.49787549	95.85703669	94.2510781	92.67896941	91.13972082	89.63238102	88.15603528
191204A00013	12/4/2019	1.72	12/4/2024	12/4/2019	100.98647	99.26526383	97.5813859	95.93371167	94.32115832	92.74268619	91.19729662	89.68402988	88.20196321
191206A00008	12/6/2019	2.44	12/6/2030	12/6/2019	113.35786	105.6487772	98.52659487	91.94340333	85.85544936	80.22275183	75.00875771	70.18003126	65.70597301
191206A00009	12/6/2019	2.87	12/4/2037	12/6/2019	126.56657	111.8966545	99.16714499	88.10685811	78.48399455	70.10023215	62.78573079	56.39490478	50.80284163
191206A00013	12/6/2019	3.05	12/6/2044	12/6/2019	137.00684	115.9005348	98.62528863	84.44405426	72.7665292	63.11918223	55.12153335	48.4673598	42.9097848
191206A00019	12/6/2019	1.96	11/15/2023	12/6/2019	100.35248	99.64540047	98.94826483	98.26086296	97.58299194	96.91445446	96.25505864	95.60461784	94.96295044
191206A00021	12/6/2019	2.02	12/6/2024	12/6/2019	101.17844	99.45647657	97.7718536	96.12345548	94.51020675	92.93107429	91.38506517	89.87122469	88.38863452
191206A00044	12/10/2019	2.01	10/31/2024	12/10/2019	101.01921	99.39415144	97.80282391	96.24424198	94.7174575	93.22155891	91.75566951	90.31894568	88.91057539
191212A00029	12/13/2019	1.94	5/16/2023	12/13/2019	100.1875	99.97489625	99.76320813	99.55242839	99.34255115	99.13357057	98.92548086	98.71827628	98.51195114
191217A00012	12/20/2019	2.03	12/20/2024	12/20/2019	101.23182	99.47353794	97.75410639	96.07240602	94.4273552	92.81791173	91.24307101	89.7018644	88.19335764
191218A00014	12/18/2019	2.04	12/18/2024	12/18/2019	101.25997	99.50627043	97.79122066	96.11370148	94.47263171	92.86697002	91.29571312	89.75789398	88.25258027
191219A00036	12/20/2019	2.1	12/20/2024	12/20/2019	101.35855	99.59908528	97.87849888	96.19566479	94.54950082	92.93896418	91.36304975	89.82078837	88.31124526
191220A00001	12/20/2019	2.62	12/19/2031	12/20/2019	116.60057	107.7977875	99.74128586	92.36355379	85.6035192	79.40590789	73.72066578	68.50244136	63.7101219
191220A00002	12/20/2019	3.02	12/20/2038	12/20/2019	129.80709	114.0283178	100.4547545	88.76053001	78.66976762	69.94867538	62.3989232	55.85209134	50.16501241
191223A00055	12/23/2019	2.46	12/7/2029	12/23/2019	111.92808	105.2034702	98.93247437	93.08205041	87.6217301	82.52340779	77.76114513	73.31099297	69.1508288
191223A00056	12/23/2019	2.46	12/14/2029	12/23/2019	111.95494	105.2116791	98.92444325	93.05995041	87.58751886	82.4788474	77.70781877	73.25032039	69.0840806
191226A00019	12/26/2019	2.4	12/22/2028	12/26/2019	110.22206	104.4572744	99.03264866	93.92633608	89.1180061	84.58872778	80.3208665	76.29798879	72.50477465
191226A00020	12/26/2019	2.44	12/21/2029	12/26/2019	111.84726	105.0898189	98.79059414	92.91608501	87.43540688	82.32007295	77.54379649	73.08231033	68.91320206

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191230A00012	12/30/2019	1.77	12/1/2023	12/30/2019	100.35789	99.60650292	98.86632546	98.13710852	97.41861016	96.71059548	96.01283642	95.32511149	94.64720553
191230A00013	12/30/2019	1.84	12/2/2024	12/30/2019	101.19125	99.47337119	97.79264516	96.14794127	94.53817649	92.96231147	91.41934821	89.90832801	88.42832948
191230A00031	12/30/2019	1.85	12/30/2024	12/30/2019	101.31701	99.52528104	97.77378597	96.06138503	94.38698036	92.74951192	91.14795596	89.58132349	88.04865887
200103A00009	1/3/2020	1.9	1/3/2024	1/3/2020	100.31856	99.48231312	98.65995298	97.85114046	97.05554301	96.27283886	95.50271662	94.74487484	93.99902165
200106A00015	1/6/2020	1.87	2/15/2024	1/6/2020	100.30823	99.35940057	98.42846167	97.51490737	96.61825413	95.73803621	94.87380483	94.02512743	93.19158694
200108A00021	1/13/2020	1.97	1/13/2025	1/13/2020	101.21143	99.39168337	97.61344253	95.87551897	94.1767664	92.51607837	90.89238662	89.30465955	87.75190068
200110A00013	1/10/2020	1.76	1/10/2024	1/10/2020	100.36702	99.50985132	98.66727853	97.8389282	97.02444245	96.22347532	95.43569231	94.66076984	93.89839487
200110A00022	1/13/2020	2	1/6/2025	1/13/2020	101.24107	99.43895542	97.67756946	95.95575647	94.27240157	92.62642829	91.01679691	89.44250307	87.90257624
200114A00006	1/15/2020	1.99	1/15/2025	1/15/2020	101.25649	99.43119254	97.6476348	95.90461744	94.20098484	92.53562166	90.90745118	89.31543371	87.75856506
200115A00018	1/15/2020	1.9	1/16/2024	1/15/2020	100.3214	99.45104006	98.59573976	97.75510766	96.92876878	96.11636081	95.31753362	94.53194871	93.75927876
200121A00009	1/24/2020	1.94	1/24/2025	1/24/2020	101.19522	99.34750379	97.54253488	95.77906943	94.05591071	92.37190422	90.72593591	89.11693052	87.54384998
200122A00034	1/22/2020	1.87	1/22/2024	1/22/2020	100.29558	99.40963035	98.53928445	97.68412899	96.84376887	96.01782263	95.20592181	94.40771042	93.6228444
200122A00035	1/22/2020	1.94	1/22/2025	1/22/2020	101.18794	99.34540377	97.54538829	95.78665776	94.06802475	92.3883436	90.74650872	89.14145291	87.57214575
200123A00013	1/27/2020	1.89	1/27/2025	1/27/2020	101.11048	99.2559278	97.44444882	95.67478474	93.94572524	92.25610294	90.6047915	88.99070398	87.41279114
200123A00048	1/23/2020	1.7	1/23/2025	1/23/2020	101.12601	99.27432828	97.46555208	95.69843496	93.97177407	92.28440912	90.63522055	89.02312787	87.44708799
200124A00008	1/24/2020	1.92	1/22/2027	1/24/2020	105.48542	101.6432335	97.96216632	94.43464407	91.05348419	87.81187691	84.70336401	81.72181879	78.86142739
200127A00016	1/27/2020	1.81	1/27/2025	1/27/2020	100.95742	99.10436385	97.29435359	95.52613063	93.79848542	92.11025132	90.4603027	88.8475533	87.27095453
200127A00023	1/27/2020	1.8	1/27/2025	1/27/2020	100.93828	99.08541836	97.27559169	95.50754886	93.78008045	92.09201987	90.4422416	88.82965946	87.25322496
200127A00030	1/27/2020	1.8	1/27/2025	1/27/2020	100.93828	99.08541836	97.27559169	95.50754886	93.78008045	92.09201987	90.4422416	88.82965946	87.25322496
200128A00028	1/28/2020	1.81	1/28/2025	1/28/2020	100.9607	99.10506922	97.29258994	95.52200759	93.79210795	92.10171989	90.44971354	88.83499858	87.25652257
200130A00005	1/30/2020	1.73	1/30/2024	1/30/2020	100.16696	99.26071279	98.37079419	97.49676285	96.6381965	95.79468775	94.96584337	94.15128374	93.35064221
200130A00006	1/30/2020	1.77	1/30/2025	1/30/2020	100.89042	99.0303644	97.21368023	95.43909869	93.70539653	92.01139405	90.3559532	88.73797587	87.15640221
200130A00016	1/30/2020	1.58	1/30/2025	1/30/2020	100.91984	99.0521922	97.22822055	95.44663941	93.70621397	92.00575351	90.34410955	88.72017401	87.13287752
200131A00015	2/5/2020	1.73	2/5/2025	2/5/2020	100.83752	98.96131476	97.12923271	95.33997426	93.5922845	91.88495354	90.21681467	88.58674247	86.99365105
200131A00016	1/31/2020	1.73	1/31/2025	1/31/2020	100.81663	98.95474549	97.13633403	95.36012168	93.62488083	91.92942762	90.27262008	88.65335635	87.07057299
200131A00032	1/31/2020	2.1	1/31/2030	1/31/2020	109.67742	102.8900176	96.5711628	90.68607442	85.20272418	80.09160284	75.32551023	70.87936376	66.73002374
200131A00038	1/31/2020	1.73	1/30/2025	1/31/2020	100.81356	98.95426383	97.13832012	95.36446509	93.6314759	91.93817321	90.28341932	88.66611648	87.08520516
200131A00048	1/31/2020	1.69	1/31/2024	1/31/2020	100.12953	99.22085927	98.32860027	97.45231482	96.59157725	95.7459769	94.91511745	94.09861631	93.296104
200203A00005	2/3/2020	1.7	5/3/2023	2/3/2020	100.1216	99.94479101	99.76860651	99.59304458	99.41810194	99.24377532	99.07006148	98.89695719	98.72445925
200203A00006	2/3/2020	1.76	2/3/2025	2/3/2020	100.88713	99.01608056	97.18890437	95.40431218	93.6610597	91.95794724	90.29381772	88.66755492	87.0780817
200204A00001	2/4/2020	1.79	2/4/2025	2/4/2020	100.94944	99.07494771	97.24447303	95.45671806	93.71043277	92.00441195	90.33749328	88.70855556	87.1165169
200204A00012	2/4/2020	1.98	2/4/2027	2/4/2020	104.9633	101.1194879	97.43782071	93.91062298	90.53062581	87.29094	84.18503412	81.20671409	78.35010395
200204A00020	2/4/2020	1.6	2/4/2025	2/4/2020	100.97944	99.09726362	97.259414	95.464577	93.71149075	91.99893878	90.3257481	88.69078728	87.09296473

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200205A00011	2/7/2020	2.31	2/7/2024	2/7/2020	100.7243	99.79421285	98.88125638	97.9849637	97.10488164	96.24057333	95.39161747	94.55760767	93.73815175
200207A00009	2/7/2020	1.58	2/7/2025	2/7/2020	100.95386	99.06341343	97.21768148	95.41533427	93.65509344	91.93572687	90.25604662	88.6149071	87.01120319
200207A00016	2/7/2020	1.74	2/7/2024	2/7/2020	100.18362	99.25628976	98.34605924	97.4524576	96.57503241	95.71334752	94.86698235	94.03553118	93.2186025
200207A00017	2/7/2020	1.96	2/8/2027	2/7/2020	104.90906	101.0550057	97.36400085	93.8283096	90.44060205	87.19393232	84.08171631	81.09771101	78.235995
200207A00018	2/7/2020	2.14	2/7/2030	2/7/2020	109.97862	103.1618488	96.81677279	90.9082873	85.40407246	80.27435723	75.49170643	71.03082642	66.86838793
200210A00005	2/10/2020	1.77	2/10/2027	2/10/2020	105.00951	101.1247815	97.40517804	93.84283327	90.43029331	87.1604965	84.02675062	81.02271161	78.14236361
200210A00009	2/10/2020	1.57	2/10/2025	2/10/2020	100.9475	99.04860124	97.19480367	95.38476777	93.61719851	91.89084786	90.20451283	88.55703342	86.94729086
200210A00021	2/10/2020	1.76	2/10/2025	2/10/2020	100.91695	99.02583858	97.17952039	95.37666478	93.61598887	91.89625622	90.21627483	88.57489519	86.97100852
200212A00003	2/12/2020	1.63	2/12/2025	2/12/2020	101.07389	99.16804086	97.30758416	95.4911656	93.71747826	91.98526285	90.29330561	88.64043631	87.02552642
200214A00002	2/14/2020	1.58	11/15/2024	2/14/2020	100.67585	99.00793463	97.37537366	95.7771068	94.21211766	92.67943025	91.17810695	89.70724653	88.26598243
200214A00005	2/14/2020	1.59	2/14/2025	2/14/2020	101.00432	99.09348319	97.22829374	95.40738279	93.62943253	91.89317332	90.19738153	88.54087761	86.9225241
200214A00007	2/14/2020	1.59	2/14/2025	2/14/2020	101.00432	99.09348319	97.22829374	95.40738279	93.62943253	91.89317332	90.19738153	88.54087761	86.92252411
200214A00014	2/18/2020	1.8	2/18/2025	2/18/2020	101.02994	99.11511626	97.24615826	95.42169042	93.64038462	91.90096137	90.20218773	88.54287524	86.92187801
200214A00015	2/18/2020	1.76	8/6/2024	2/18/2020	100.36505	98.96981931	97.60072876	96.25711228	94.93832171	93.64373044	92.37273245	91.12474153	89.89919042
200214A00020	2/18/2020	1.78	1/15/2025	2/18/2020	100.86153	99.04003465	97.26020788	95.52085199	93.82081326	92.15897822	90.53427191	88.94565638	87.39212909
200218A00024	2/20/2020	1.73	7/17/2023	2/20/2020	100.18055	99.79874101	99.41984568	99.0438318	98.67066651	98.30031744	97.9327527	97.56794089	97.2058511
200220A00015	2/20/2020	1.57	2/20/2025	2/20/2020	100.99123	99.06349	97.18218891	95.34592744	93.55335379	91.80316599	90.0941097	88.42497613	86.7946
200221A00003	2/25/2020	1.69	2/25/2025	2/25/2020	100.84143	98.90876197	97.02286048	95.18230123	93.38571738	91.63179267	89.91925919	88.24689526	86.61352335
200221A00004	2/21/2020	1.69	2/21/2025	2/21/2020	100.82514	98.90392098	97.02892517	95.19876045	93.41208282	91.66759773	89.96405793	88.30026135	86.67504917
200221A00013	2/21/2020	1.69	2/21/2025	2/21/2020	100.82514	98.90392098	97.02892517	95.19876045	93.41208282	91.66759773	89.96405793	88.30026135	86.67504917
200221A00016	2/21/2020	1.69	2/21/2025	2/21/2020	100.82514	98.90392098	97.02892517	95.19876045	93.41208282	91.66759773	89.96405793	88.30026135	86.67504917
200221A00031	2/21/2020	1.69	2/21/2025	2/21/2020	100.82514	98.90392098	97.02892517	95.19876045	93.41208282	91.66759773	89.96405793	88.30026135	86.67504917
200224A00001	2/24/2020	1.59	2/24/2025	2/24/2020	100.63845	98.71066341	96.82946831	94.99344946	93.20124682	91.4515506	89.74309905	88.07467634	86.44511058
200224A00007	2/24/2020	1.59	2/24/2025	2/24/2020	100.63845	98.71066341	96.82946831	94.99344946	93.20124682	91.4515506	89.74309905	88.07467634	86.44511058
200224A00015	2/24/2020	1.57	1/10/2024	2/24/2020	100.03236	99.17909779	98.3403367	97.51570823	96.7048575	95.90744139	95.12312812	94.35159675	93.59253674
200224A00019	2/24/2020	1.59	2/18/2025	2/24/2020	100.61565	98.70499639	96.84013211	95.01967984	93.24231362	91.50675607	89.81177628	88.15618772	86.5388464
200224A00020	2/24/2020	1.59	2/24/2025	2/24/2020	100.63845	98.71066341	96.82946831	94.99344946	93.20124682	91.4515506	89.74309905	88.07467634	86.44511058
200224A00021	2/24/2020	1.58	9/24/2024	2/24/2020	100.21066	98.68852697	97.19682636	95.73471684	94.30138434	92.89604426	91.51794018	90.16634257	88.84054761
200224A00024	2/24/2020	1.59	2/24/2025	2/24/2020	100.63845	98.71066341	96.82946831	94.99344946	93.20124682	91.4515506	89.74309905	88.07467634	86.44511058
200224A00025	2/24/2020	1.59	1/23/2025	2/24/2020	100.52573	98.68708226	96.89094649	95.13608578	93.42131135	91.74547629	90.10747387	88.50623579	86.94073065
200224A00046	2/24/2020	1.59	2/24/2025	2/24/2020	100.63845	98.71066341	96.82946831	94.99344946	93.20124682	91.4515506	89.74309905	88.07467634	86.44511058
200225A00012	2/25/2020	1.57	2/25/2025	2/25/2020	100.60241	98.67217763	96.78865879	94.95043646	93.15614507	91.40446961	89.69414334	88.02394573	86.39270035
200225A00015	2/25/2020	1.54	2/26/2024	2/25/2020	99.979861	99.00414661	98.04738053	97.10901557	96.18852513	95.28540253	94.39916008	93.52932817	92.67545448

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200225A00017	2/25/2020	1.94	2/25/2030	2/25/2020	108.66979	101.8479856	95.50252059	89.59765918	84.10051787	78.98082687	74.21070994	69.76448381	65.61847528
200225A00018	2/25/2020	1.94	2/25/2030	2/25/2020	108.66979	101.8479856	95.50252059	89.59765918	84.10051787	78.98082687	74.21070994	69.76448381	65.61847528
200225A00050	2/25/2020	1.57	2/25/2025	2/25/2020	100.60241	98.67217763	96.78865879	94.95043646	93.15614507	91.40446961	89.69414334	88.02394573	86.39270035
200226A00006	2/26/2020	1.57	2/26/2025	2/26/2020	100.60616	98.67306959	96.78683122	94.94601734	93.14925665	91.3952287	89.68266156	88.01032977	86.37705222
200226A00008	2/26/2020	1.38	2/26/2025	2/26/2020	100.63771	98.69653817	96.80254705	94.95429612	93.15040098	91.38952871	89.67039558	87.99176486	86.35244472
200226A00009	2/26/2020	1.75	2/26/2030	2/26/2020	108.92504	102.0278945	95.61460544	89.64873368	84.09676105	78.9278428	74.11358164	69.62782191	65.44646205
200226A00015	2/26/2020	1.53	2/26/2024	2/26/2020	99.969856	98.99419504	98.03748181	97.09916899	96.17872999	95.27565816	94.3894658	93.51968334	92.66585847
200226A00016	2/26/2020	1.57	2/26/2025	2/26/2020	100.60616	98.67306959	96.78683122	94.94601734	93.14925665	91.3952287	89.68266156	88.01032977	86.37705222
200226A00025	2/26/2020	1.38	2/26/2025	2/26/2020	100.63771	98.69653817	96.80254705	94.95429612	93.15040098	91.38952871	89.67039558	87.99176486	86.35244472
200227A00004	2/27/2020	1.65	2/27/2030	2/27/2020	108.23264	101.3563266	94.96308586	89.01650247	83.48308432	78.33201262	73.53491575	69.0656633	64.90017848
200227A00005	2/27/2020	1.43	2/27/2024	2/27/2020	99.868767	98.89105065	97.93237383	96.99218528	96.06995457	95.16517138	94.27734455	93.40600118	92.55068582
200227A00006	2/27/2020	1.47	2/27/2025	2/27/2020	100.41018	98.47627708	96.5893153	94.74786778	92.95055855	91.19606271	89.48310417	87.81045344	86.17692568
200227A00009	2/27/2020	1.47	2/27/2025	2/27/2020	100.41018	98.47627708	96.5893153	94.74786778	92.95055855	91.19606271	89.48310417	87.81045344	86.17692568
200227A00013	2/27/2020	1.43	2/27/2024	2/27/2020	99.868767	98.89105065	97.93237383	96.99218528	96.06995457	95.16517138	94.27734455	93.40600118	92.55068582
200227A00016	2/27/2020	1.47	2/27/2025	2/27/2020	100.41018	98.47627708	96.5893153	94.74786778	92.95055855	91.19606271	89.48310417	87.81045344	86.17692568
200227A00027	2/27/2020	1.47	2/27/2025	2/27/2020	100.41018	98.47627708	96.5893153	94.74786778	92.95055855	91.19606271	89.48310417	87.81045344	86.17692568
200227A00030	2/27/2020	1.59	2/27/2026	2/27/2020	102.01488	99.10975426	96.30247894	93.58922638	90.96634072	88.43032923	85.97785413	83.60572474	81.31089011
200227A00031	2/27/2020	1.43	2/27/2024	2/27/2020	99.868767	98.89105065	97.93237383	96.99218528	96.06995457	95.16517138	94.27734455	93.40600118	92.55068582
200228A00005	2/28/2020	1.35	2/28/2024	2/28/2020	99.787252	98.80737687	97.84663543	96.90447158	95.98035101	95.07375968	94.18420291	93.31120448	92.45430575
200228A00012	3/3/2020	1.4	3/3/2025	3/3/2020	100.28182	98.33868126	96.44290095	94.59302597	92.78766187	91.02546626	89.30514647	87.62545736	85.98519919
200228A00014	2/28/2020	1.4	2/28/2025	2/28/2020	100.27365	98.33833053	96.45005641	94.6073979	92.808974	91.05345506	89.33956048	87.66605651	86.03175423
200228A00015	3/3/2020	1.34	10/16/2023	3/3/2020	99.932361	99.30673605	98.68892422	98.07877957	97.47615993	96.88092667	96.29294452	95.71208151	95.13820884
200228A00016	2/28/2020	1.35	2/22/2024	2/28/2020	99.785212	98.8210624	97.87544663	96.9478346	96.03771616	95.1446003	94.26801419	93.40750241	92.56262612
200228A00019	2/28/2020	1.21	2/20/2025	2/28/2020	100.27755	98.35703709	96.48282474	94.65351611	92.86776321	91.12426772	89.42177884	87.75909116	86.1350427
200228A00025	2/28/2020	1.57	3/2/2027	2/28/2020	103.48765	99.60013768	95.87993932	92.31898766	88.90964446	85.64467823	82.51724044	79.52084308	76.64933777
200228A00026	2/28/2020	2.14	2/28/2035	2/28/2020	115.19116	103.5921966	93.29253958	84.13875025	75.99627163	68.74701659	62.287277	56.52590748	51.38274638
200228A00031	2/28/2020	1.35	2/28/2024	2/28/2020	99.787252	98.80737687	97.84663543	96.90447158	95.98035101	95.07375968	94.18420291	93.31120448	92.45430575
200228A00039	2/28/2020	1.33	4/28/2023	2/28/2020	100.0544	99.89143336	99.72899315	99.56708104	99.40569447	99.24483093	99.0844879	98.92466289	98.76535342
200228A00059	2/28/2020	1.79	2/28/2030	2/28/2020	107.64368	100.8485404	94.52915842	88.64976668	83.1774627	78.08196371	73.3353855	68.91204113	64.78825743
200228A00066	2/28/2020	1.35	2/28/2024	2/28/2020	99.787252	98.80737687	97.84663543	96.90447158	95.98035101	95.07375967	94.18420291	93.31120448	92.45430575
200228A00067	2/28/2020	1.4	2/28/2025	2/28/2020	100.27365	98.33833053	96.45005641	94.6073979	92.808974	91.05345506	89.33956048	87.66605651	86.03175423
200302A00008	3/2/2020	1.2	3/9/2023	3/2/2020	100.0086	99.98367336	99.9587689	99.93389142	99.90904088	99.88421722	99.85942041	99.8346504	99.80990714
200302A00011	3/2/2020	1.31	2/27/2025	3/2/2020	100.09063	98.15998172	96.2762133	94.43789777	92.64366087	90.89217935	89.1821787	87.51243099	85.88175283

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200302A00028	3/2/2020	1.25	2/26/2024	3/2/2020	99.689712	98.71555103	97.76031763	96.82346471	95.90446614	95.00281568	94.11802608	93.24962816	92.39717
200302A00033	3/2/2020	1.31	3/3/2025	3/2/2020	100.10109	98.15981068	96.26584572	94.4177511	92.61413334	90.85365099	89.1350123	87.456973	85.8183342
200302A00034	3/2/2020	1.25	3/1/2024	3/2/2020	99.683551	98.69905082	97.7338787	96.78747052	95.85928374	94.94879654	94.05550684	93.17893138	92.31860485
200302A00035	3/2/2020	1.22	7/3/2023	3/2/2020	100.00285	99.6594288	99.31835686	98.97961384	98.64317596	98.30901978	97.97712215	97.64746027	97.32001161
200302A00036	3/2/2020	1.45	3/2/2026	3/2/2020	101.60826	98.70130471	95.8925299	93.17808656	90.55429729	88.01764935	85.56478619	83.19249964	80.89772239
200302A00045	3/4/2020	1.31	3/4/2025	3/4/2020	100.10357	98.1596892	96.26322754	94.41273292	92.60680737	90.84410518	89.12333059	87.44323549	85.80261741
200302A00051	3/2/2020	1.22	8/8/2023	3/2/2020	99.95871	99.51787996	99.08093272	98.64781754	98.21848411	97.792883	97.37096564	96.95268431	96.53799209
200302A00053	3/2/2020	1.31	3/3/2025	3/2/2020	100.10109	98.15981068	96.26584572	94.4177511	92.61413334	90.85365099	89.1350123	87.456973	85.8183342
200302A00054	3/2/2020	1.31	3/3/2025	3/2/2020	100.10109	98.15981068	96.26584572	94.4177511	92.61413334	90.85365099	89.1350123	87.456973	85.8183342
200303A00001	3/3/2020	1.15	3/3/2025	3/3/2020	100.19226	98.24220983	96.33982535	94.48364261	92.67225447	90.9043065	89.17849462	87.49356281	85.848301
200303A00002	3/3/2020	1.06	3/3/2023	3/3/2020	100.00298	99.99465915	99.98634221	99.97803304	99.96973162	99.96143794	99.95315199	99.94487375	99.93660321
200303A00007	3/3/2020	1.11	3/4/2024	3/3/2020	99.723746	98.72857154	97.75313488	96.79685341	95.85916767	94.93953975	94.03745234	93.15240768	92.28392672
200303A00010	3/3/2020	1.34	3/3/2025	3/3/2020	100.16133	98.21943421	96.32486413	94.47617606	92.67197618	90.91092275	89.19172369	87.51313445	85.87395586
200303A00012	3/3/2020	1.71	3/1/2030	3/3/2020	107.09317	100.3142468	94.01047844	88.14612047	82.68828985	77.60672313	72.8735553	68.46311832	64.35175761
200303A00018	3/3/2020	1.27	3/3/2025	3/3/2020	100.02077	98.08031264	96.18715451	94.33985116	92.53700955	90.77728865	89.05939711	87.38209106	85.74417198
200303A00034	3/3/2020	1.21	3/3/2025	3/3/2020	99.900292	97.96106558	96.06911769	94.22300124	92.42132386	90.66274514	88.94597434	87.26976816	85.63292865
200304A00010	3/4/2020	1.2	3/4/2027	3/4/2020	102.86081	98.95705356	95.22222214	91.64813084	88.22703545	84.95160601	81.81490237	78.81035128	75.93172506
200304A00021	3/4/2020	0.94	3/4/2024	3/4/2020	99.55023	98.55600372	97.58150171	96.62614209	95.68936565	94.7706348	93.86943248	92.98526121	92.1176422
200304A00034	3/4/2020	1.12	3/4/2024	3/4/2020	99.546276	98.55476597	97.58288445	96.63005344	95.69571751	94.77934263	93.88041513	92.99844076	92.1329438
200304A00040	3/4/2020	1.12	3/1/2024	3/4/2020	99.552063	98.5682737	97.60380297	96.65808666	95.73058245	94.8207687	93.92814356	93.05222397	92.1925448
200304A00052	3/6/2020	2.11	3/8/2027	3/6/2020	105.66962	101.723295	97.94683024	94.3320164	90.87108742	87.55669194	84.38186887	81.34002455	78.42491131
200304A00053	3/6/2020	2.33	3/6/2025	3/6/2020	102.16499	100.1947618	98.27256922	96.39693815	94.56645031	92.77974066	91.03549492	89.33244734	87.66937849
200304A00054	3/6/2020	2.35	3/8/2027	3/6/2020	106.62825	102.6628473	98.86790029	95.23517619	91.75688654	88.42565862	85.234511	82.17683057	79.24635112
200305A00002	3/5/2020	1.14	3/5/2025	3/5/2020	99.763763	97.82079954	95.92528868	94.07577515	92.27085833	90.50919005	88.78947224	87.11045465	85.47093279
200305A00007	3/5/2020	1.14	3/5/2025	3/5/2020	99.763763	97.82079954	95.92528868	94.07577515	92.27085833	90.50919005	88.78947224	87.11045465	85.47093279
200305A00008	3/10/2020	1.01	6/19/2023	3/10/2020	99.951884	99.64667745	99.34334027	99.04185518	98.74220521	98.44437359	98.14834376	97.85409936	97.56162422
200305A00009	3/10/2020	1.04	10/18/2023	3/10/2020	99.737907	99.10765645	98.48534533	97.87082434	97.26394784	96.66457382	96.07256373	95.48778244	94.91009812
200305A00012	3/5/2020	1.14	3/5/2025	3/5/2020	99.763763	97.82079954	95.92528868	94.07577515	92.27085833	90.50919005	88.78947224	87.11045465	85.47093279
200305A00020	3/5/2020	0.95	3/5/2025	3/5/2020	99.793909	97.84278375	95.93944672	94.08242788	92.2703132	90.50174178	88.77540345	87.09003646	85.44442536
200305A00029	3/5/2020	1.14	3/5/2025	3/5/2020	99.763763	97.82079954	95.92528868	94.07577515	92.27085833	90.50919005	88.78947224	87.11045465	85.47093279
200305A00035	3/5/2020	1.25	3/5/2026	3/5/2020	101.01868	98.11292358	95.30557097	92.59275681	89.97078659	87.43613163	84.98542066	82.61543177	80.32308493
200305A00036	3/5/2020	1.36	3/5/2027	3/5/2020	102.66308	98.7842463	95.07281413	91.52068908	88.1202137	84.86413919	81.7456014	78.75809829	75.89546885
200305A00040	3/10/2020	0.99	3/10/2023	3/10/2020	100.00373	99.97603567	99.94837037	99.92073581	99.89313193	99.86555868	99.838016	99.81050385	99.78302217

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200306A00001	3/6/2020	1.11	3/6/2026	3/6/2020	100.60122	97.69919993	94.89558243	92.18649126	89.56822887	87.03726384	84.59022242	82.2238805	79.93515605
200306A00012	3/6/2020	0.95	3/6/2024	3/6/2020	99.368153	98.3724518	97.39657343	96.43993057	95.50195929	94.58211752	93.67988396	92.79475715	91.9262545
200306A00014	3/6/2020	1.38	3/6/2030	3/6/2020	104.81906	98.1051335	91.86415777	86.06043697	80.66114153	75.63606404	70.95739732	66.59953243	62.53887451
200306A00030	3/6/2020	0.88	3/6/2023	3/6/2020	100.00025	99.98362906	99.96702861	99.95044475	99.93387747	99.91732672	99.90079248	99.88427473	99.86777344
200306A00039	3/6/2020	0.88	3/6/2023	3/6/2020	100.00025	99.98362906	99.96702861	99.95044475	99.93387747	99.91732672	99.90079248	99.88427473	99.86777344
200306A00046	3/6/2020	1.01	3/3/2025	3/6/2020	99.498687	97.56357538	95.67566162	93.83350152	92.03570489	90.28093343	88.5678984	86.89535847	85.26211756
200306A00065	3/6/2020	1.38	3/6/2030	3/6/2020	104.81906	98.1051335	91.86415777	86.06043697	80.66114153	75.63606404	70.95739732	66.59953243	62.53887451
200309A00004	3/9/2020	0.71	3/8/2024	3/9/2020	99.305242	98.3019974	97.31887604	96.35527745	95.41062512	94.48436504	93.57596461	92.68491162	91.81071328
200309A00005	3/9/2020	0.77	3/7/2025	3/9/2020	99.433849	97.48127408	95.57661894	93.71840584	91.90521363	90.13567474	88.4084727	86.72233984	85.07605514
200309A00019	3/9/2020	0.89	3/11/2024	3/9/2020	99.29387	98.28568161	97.29783051	96.32970644	95.38072344	94.45031856	93.53795074	92.64309973	91.76526513
200309A00020	3/9/2020	0.96	3/10/2025	3/9/2020	99.408991	97.45685821	95.55261294	93.69477829	91.88193302	90.11270954	88.38579142	86.69991109	85.05384766
200309A00021	3/9/2020	1.05	3/9/2026	3/9/2020	100.42828	97.52122815	94.71295988	91.9995766	89.37735857	86.84275364	84.39236866	82.02296135	79.73143268
200309A00027	3/9/2020	0.97	3/10/2025	3/9/2020	99.429261	97.47691836	95.57246763	93.71443149	91.90138861	90.13197129	88.40486297	86.718796	85.07254939
200309A00033	3/9/2020	1.06	3/9/2026	3/9/2020	100.45839	97.55088376	94.74217137	92.02835503	89.40571466	86.87069775	84.41991082	82.05011125	79.75819971
200309A00046	3/9/2020	0.78	3/11/2025	3/9/2020	99.460473	97.49730825	95.58247737	93.71448371	91.89188773	90.11330445	88.37740094	86.68289399	85.0285478
200310A00019	3/10/2020	0.95	3/10/2023	3/10/2020	100.00262	99.97492616	99.94726172	99.91962802	99.89202499	99.8644526	99.83691078	99.80939948	99.78191866
200310A00025	3/10/2020	0.87	3/11/2024	3/10/2020	99.463942	98.45205142	97.46060996	96.48900346	95.53664172	94.60295775	93.68740664	92.7894645	91.90862744
200310A00042	3/10/2020	1.41	3/11/2030	3/10/2020	105.03408	98.3005711	92.04200923	86.2224951	80.80901969	75.77121427	71.0811266	66.71301727	62.643174
200310A00065	3/13/2020	1.1	3/13/2025	3/13/2020	99.698492	97.73566861	95.82109682	93.95328364	92.13079264	90.35224182	88.61630108	86.92168993	85.26717519
200310A00073	3/12/2020	2.12	3/11/2027	3/12/2020	105.72654	101.7713085	97.98656785	94.36406946	90.89600707	87.574992	84.39402851	81.34649069	78.42610094
200311A00006	3/13/2020	1.12	3/10/2025	3/13/2020	99.733307	97.7778206	95.87028796	94.0092296	92.19322253	90.42089741	88.69093617	87.00206963	85.35307536
200311A00040	3/12/2020	1.3	3/11/2025	3/12/2020	100.10061	98.13875632	96.22503104	94.35794925	92.53608139	90.7580519	89.02253675	87.32826112	85.67399722
200311A00056	3/13/2020	1.27	4/10/2024	3/13/2020	99.632499	98.54528783	97.48166149	96.44085958	95.42215391	94.42484694	93.44827024	92.49178295	91.55477036
200312A00004	3/13/2020	1.23	1/24/2025	3/13/2020	99.842569	98.00803477	96.21599564	94.46521758	92.75451055	91.08272651	89.44875766	87.85153474	86.29002546
200312A00042	3/16/2020	1.38	3/16/2023	3/16/2020	100.0233	99.97897816	99.9347176	99.89051355	99.84636589	99.80227453	99.75823935	99.71426024	99.67033709
200313A00032	3/18/2020	1.46	3/18/2025	3/18/2020	100.44554	98.46208864	96.52755437	94.64041541	92.79920829	91.00252541	89.24901236	87.53736559	85.86633005
200317A00026	3/17/2020	1.22	3/15/2024	3/17/2020	99.630043	98.60966186	97.61006295	96.63061679	95.67071892	94.72978881	93.80726875	92.90262268	92.01533519
200317A00065	3/19/2020	2.05	3/19/2025	3/19/2020	101.65871	99.65999842	97.71055664	95.8088508	93.95340602	92.14280375	90.37567915	88.65071868	86.96665774
200318A00043	3/18/2020	1.06	3/20/2023	3/18/2020	100.0199	99.96443224	99.90904351	99.85373256	99.7984992	99.74334326	99.68826459	99.63326299	99.57833832
200325A00029	3/25/2020	1.15	3/24/2023	3/25/2020	100.02988	99.96332146	99.89686658	99.83051235	99.76425854	99.69810493	99.63205127	99.56609734	99.50024291
200325A00030	3/25/2020	1.5	3/25/2025	3/25/2020	100.9748	98.95955731	96.99441053	95.07778915	93.20818012	91.38412885	89.60423645	87.86715714	86.17159584
200326A00026	3/26/2020	1.32	3/26/2024	3/26/2020	99.719847	98.67057087	97.64324685	96.63719236	95.65175257	94.68629928	93.74022961	92.81296466	91.9039484
200326A00028	3/26/2020	1.54	3/26/2025	3/26/2020	100.63423	98.62819688	96.67195129	94.7639282	92.90262611	91.0866014	89.31446565	87.58488309	85.89656818

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200326A00029	3/26/2020	1.82	3/26/2027	3/26/2020	104.59857	100.6271935	96.82860508	93.19437316	89.7165225	86.38750841	83.20019107	80.14781148	77.223969
200326A00030	3/26/2020	1.13	3/24/2023	3/26/2020	100.01829	99.95184998	99.88550668	99.81926274	99.75311794	99.68707206	99.6211249	99.55527622	99.48952583
200327A00036	3/27/2020	0.77	9/27/2023	3/27/2020	99.73203	99.15635333	98.58729648	98.02474546	97.46858925	96.91871932	96.3750296	95.83741637	95.30577826
200327A00074	3/31/2020	1.76	3/29/2024	3/31/2020	100.19438	99.13462578	98.09717984	97.08134767	96.08645962	95.1118734	94.15697276	93.22116613	92.30388547
200327A00075	3/31/2020	1.75	3/29/2024	3/31/2020	100.18351	99.12380979	98.08642578	97.07065465	96.07582676	95.10129983	94.14645765	93.21070867	92.29348485
200330A00041	4/1/2020	1.09	4/1/2025	4/1/2020	99.714278	97.70248478	95.74091702	93.82798791	91.96217283	90.14200646	88.36607992	86.6330382	84.94157764
200330A00045	3/30/2020	1.47	3/30/2027	3/30/2020	103.19916	99.24572751	95.46500098	91.84852193	88.38829641	85.07676325	81.90676816	78.87153954	75.9646658
200331A00060	3/31/2020	1.09	3/31/2025	3/31/2020	99.711997	97.70287102	95.74385822	93.833377	91.96990783	90.15199014	88.3782196	86.64724547	84.95776812
200402A00011	4/2/2020	0.8	3/31/2023	4/2/2020	99.994405	99.90863078	99.82300182	99.73751755	99.65217764	99.56698173	99.48192948	99.39702056	99.31225461
200402A00021	4/2/2020	0.77	10/2/2024	4/2/2020	99.246689	97.70603614	96.19653133	94.71729714	93.26748902	91.84629357	90.4529271	89.08663428	87.74668678
200403A00006	4/3/2020	1.05	4/3/2025	4/3/2020	99.635163	97.61892705	95.65312387	93.73615664	91.86649107	90.0426527	88.26322404	86.52684197	84.83219513
200403A00014	4/3/2020	0.63	4/17/2023	4/3/2020	99.980424	99.84756188	99.71506857	99.58294222	99.45118128	99.31978416	99.18874933	99.05807523	98.92776033
200403A00016	4/3/2020	0.63	4/17/2023	4/3/2020	99.980424	99.84756188	99.71506857	99.58294222	99.45118128	99.31978416	99.18874933	99.05807523	98.92776033
200406A00006	4/6/2020	1.13	4/7/2025	4/6/2020	99.812075	97.78337937	95.80560448	93.8771308	91.99640263	90.16192527	88.37226213	86.62603198	84.92190634
200407A00001	4/8/2020	2.41	4/7/2025	4/8/2020	102.5036	100.4460828	98.44006236	96.48390132	94.57602815	92.71493291	90.8991643	89.12732694	87.39807871
200407A00002	4/8/2020	1.82	4/8/2024	4/8/2020	100.24884	99.16311361	98.10080857	97.06116879	96.04347493	95.04703783	94.07119689	93.11531865	92.1787954
200408A00021	4/8/2020	0.99	4/4/2025	4/8/2020	99.941368	97.91088643	95.93137179	94.00120411	92.11882754	90.28274715	88.49152607	86.74378271	85.03818821
200414A00016	4/16/2020	1.64	4/15/2024	4/16/2020	100.04454	98.94201262	97.86367229	96.80872671	95.77642107	94.76603268	93.77686934	92.80826775	91.85959197
200415A00030	4/15/2020	0.76	3/15/2023	4/15/2020	99.996023	99.9544939	99.91301691	99.87159172	99.83021824	99.78889638	99.74762603	99.7064071	99.66523948
200415A00035	4/17/2020	2.16	4/16/2025	4/17/2020	102.0245	99.94807134	97.92406114	95.95079131	94.02664652	92.15007555	90.31958817	88.53375225	86.791191
200417A00009	4/17/2020	1.35	4/16/2027	4/17/2020	102.77677	98.78726632	94.97377867	91.32760463	87.84052239	84.50476004	81.31296834	78.25819517	75.33386185
200417A00016	4/21/2020	2.18	4/21/2025	4/21/2020	102.0932	100.0026712	97.96515404	95.97894102	94.04239018	92.15392517	90.31203206	88.51525628	86.76219985
200420A00047	4/20/2020	0.77	4/20/2023	4/20/2020	99.971706	99.8308448	99.69039161	99.55034498	99.41070313	99.27146429	99.1326267	98.9941886	98.85614827
200424A00006	4/24/2020	0.6	4/24/2023	4/24/2020	99.970326	99.81815793	99.66646225	99.51523685	99.36447951	99.21418805	99.06436026	98.914994	98.7660871
200428A00011	4/30/2020	1.95	4/29/2025	4/30/2020	101.63772	99.5308389	97.47779988	95.47685192	93.52631356	91.62457118	89.77007576	87.96133962	86.19693353
200428A00013	4/30/2020	1.49	4/29/2024	4/30/2020	99.861556	98.72418544	97.61256886	96.52583981	95.46317042	94.42376912	93.40687874	92.41177463	91.43776292
200429A00003	4/29/2020	0.74	4/28/2023	4/29/2020	99.957825	99.79497195	99.6326496	99.47085501	99.30958566	99.148839	98.98861254	98.82890378	98.66971023
200429A00009	4/29/2020	0.78	4/29/2025	4/29/2020	99.55099	97.45829897	95.4193688	93.43244288	91.49583661	89.60793365	87.76718253	85.97209345	84.22123531
200429A00010	4/29/2020	0.78	4/29/2025	4/29/2020	99.55099	97.45829897	95.4193688	93.43244288	91.49583661	89.60793365	87.76718253	85.97209345	84.22123531
200429A00015	4/29/2020	0.66	4/29/2024	4/29/2020	99.114855	97.97869674	96.86835323	95.78295354	94.72166585	93.68369495	92.66828019	91.67469368	90.70223853
200429A00018	5/4/2020	0.73	4/17/2023	5/4/2020	99.97044	99.83782949	99.70558432	99.57370277	99.44218333	99.31102447	99.18022469	99.04978249	98.91969638
200429A00035	5/1/2020	1.41	4/30/2024	5/1/2020	99.766635	98.62728502	97.51379342	96.42528885	95.36093835	94.31994556	93.30154879	92.30501912	91.32965867
200429A00043	5/1/2020	1.56	4/30/2025	5/1/2020	100.79797	98.69766668	96.65113587	94.65662564	92.71245436	90.81700844	88.96873888	87.1661582	85.40783739

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200429A00044	5/1/2020	1.86	4/30/2025	5/1/2020	101.44747	99.34001395	97.28647776	95.28510289	93.33420369	91.43216265	89.57742707	87.76850584	86.00396649
200429A00045	5/1/2020	1.54	4/30/2025	5/1/2020	100.75467	98.65484352	96.60877974	94.61472715	92.67100441	90.77599816	88.92815967	87.12600169	85.36809545
200429A00046	5/1/2020	2.07	4/30/2025	5/1/2020	101.90212	99.78965705	97.73121709	95.72503697	93.76942822	91.86277061	90.0035088	88.19014919	86.42125686
200429A00047	5/1/2020	2.7	4/30/2025	5/1/2020	103.26606	101.1385863	99.06543507	97.04483922	95.0751018	93.15459446	91.281754	89.45507923	87.67312797
200429A00050	5/1/2020	2.61	4/30/2025	5/1/2020	103.07121	100.9458821	98.8748325	96.85629604	94.88857701	92.9700482	91.09914754	89.27437494	87.49428924
200429A00051	5/1/2020	2.54	4/30/2025	5/1/2020	102.91966	100.7960011	98.72658606	96.70965134	94.74350216	92.82651221	90.9571203	89.13382716	87.35519245
200429A00052	5/1/2020	1.43	4/30/2024	5/1/2020	99.790136	98.65063995	97.53700488	96.44835909	95.38386954	94.34273983	93.32420821	92.3275457	91.35205439
200429A00053	5/1/2020	2.18	4/30/2025	5/1/2020	102.14027	100.0251844	97.96417579	95.95547864	93.99740297	92.08832715	90.22669447	88.41100999	86.63983753
200429A00056	5/1/2020	1.54	4/30/2025	5/1/2020	100.75467	98.65484352	96.60877974	94.61472715	92.67100441	90.77599816	88.92815967	87.12600169	85.36809545
200429A00058	5/1/2020	1.83	4/30/2025	5/1/2020	101.38252	99.27577922	97.22294358	95.22225517	93.27202876	91.37064723	89.51655825	87.70827108	85.94435358
200430A00007	4/30/2020	0.72	4/28/2023	4/30/2020	99.954551	99.79170207	99.62938371	99.46759311	99.30632773	99.14558504	98.98536253	98.8256577	98.66646809
200430A00008	4/30/2020	0.94	4/30/2025	4/30/2020	99.455676	97.37014897	95.33809595	93.35777264	91.42750576	89.54568972	87.71078329	85.92130641	84.17583725
200430A00009	4/30/2020	1.16	4/30/2026	4/30/2020	100.91081	97.86147261	94.91932446	92.07997972	89.33925879	86.69317889	84.13794337	81.66993171	79.28569017
200430A00016	4/30/2020	0.82	4/30/2024	4/30/2020	99.073365	97.93831455	96.82905527	95.74471694	94.68446831	93.64751469	92.63309598	91.6404848	90.66898475
200430A00017	4/30/2020	0.94	4/30/2025	4/30/2020	99.455676	97.37014897	95.33809595	93.35777264	91.42750576	89.54568972	87.71078329	85.92130641	84.17583725
200501A00003	5/1/2020	0.66	4/14/2023	5/1/2020	99.964717	99.84037902	99.71636405	99.5926709	99.4692983	99.34624496	99.22350962	99.10109102	98.97898791
200504A00004	5/4/2020	0.75	5/5/2025	5/4/2020	99.496333	97.38877745	95.335676	93.33523809	91.3857466	89.48555458	87.63308166	85.82681083	84.0652853
200504A00015	5/4/2020	0.68	5/4/2023	5/4/2020	99.938803	99.75948954	99.58082267	99.40279874	99.22541428	99.04866585	98.87255004	98.69706343	98.52220267
200505A00004	5/5/2020	0.77	5/5/2025	5/5/2020	99.540006	97.43196453	95.37838787	93.37748437	91.42753661	89.52689738	87.67398606	85.86728539	84.10533833
200505A00005	5/5/2020	0.77	5/5/2025	5/5/2020	99.540006	97.43196453	95.37838787	93.37748437	91.42753661	89.52689738	87.67398606	85.86728538	84.10533832
200506A00002	5/8/2020	0.97	5/5/2025	5/8/2020	99.529247	97.43017534	95.38517872	93.39248282	91.45038668	89.55725865	87.7115329	85.91170617	84.15633471
200506A00005	5/6/2020	0.97	5/6/2025	5/6/2020	99.530971	97.42933406	95.38188957	93.38685753	91.44253153	89.54727474	87.69951646	85.89774885	84.14052383
200506A00010	5/6/2020	0.94	5/6/2026	5/6/2020	100.88849	97.80820687	94.83701024	91.97040176	89.20409831	86.53402009	83.95627951	81.46717078	79.06316008
200508A00004	5/8/2020	0.43	5/8/2023	5/8/2020	99.92142	99.73076254	99.54084368	99.35165936	99.16320526	98.97547708	98.78847057	98.6021815	98.41660568
200511A00016	5/11/2020	0.71	2/1/2024	5/11/2020	99.215695	98.30900287	97.4187638	96.54453339	95.68588341	94.84240081	94.01368696	93.19935712	92.39903979
200511A00017	5/11/2020	0.83	2/3/2025	5/11/2020	99.090175	97.23687015	95.42710181	93.65958861	91.93309542	90.24643131	88.59844771	86.98803653	85.41412853
200511A00018	5/11/2020	0.98	2/2/2026	5/11/2020	100.12176	97.31465158	94.60010373	91.97458263	89.43470479	86.97723407	84.59907437	82.29726274	80.06896296
200511A00019	5/11/2020	1.18	2/1/2027	5/11/2020	101.82539	98.05107604	94.43632574	90.97359399	87.6557276	84.47594657	81.42782264	78.50525921	75.70247252
200511A00020	5/11/2020	1.4	2/1/2028	5/11/2020	103.87017	99.11313523	94.60072472	90.3191367	86.25541907	82.39741018	78.73368669	75.25351511	71.94680678
200511A00021	5/11/2020	1.53	2/1/2029	5/11/2020	105.26495	99.53923701	94.15975562	89.10384007	84.35041769	79.87988955	75.67402032	71.71583692	67.98953519
200511A00022	5/11/2020	1.6	2/1/2030	5/11/2020	106.26231	99.58695784	93.37488599	87.59161042	82.20537494	77.18692591	72.5093033	68.14765029	64.07903939
200511A00023	5/11/2020	1.7	2/3/2031	5/11/2020	107.83595	100.1904576	93.14271072	86.64289027	80.64556912	75.10930144	69.99625545	65.2718817	60.90461341
200511A00028	5/13/2020	1.02	5/13/2024	5/13/2020	99.299251	98.12934223	96.98679979	95.87067253	94.7800533	93.71407608	92.67191363	91.65277539	90.65590543

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200513A00002	5/13/2020	0.56	5/13/2024	5/13/2020	98.964162	97.79301387	96.64933263	95.5321617	94.44058887	93.3737433	92.33079326	91.31094394	90.31343539
200513A00003	5/13/2020	0.68	5/13/2025	5/13/2020	99.355446	97.2289758	95.15787673	93.14031167	91.17451995	89.25881363	87.39157373	85.57124686	83.7963419
200515A00001	5/15/2020	0.59	5/15/2023	5/15/2020	99.90114	99.69171153	99.48317272	99.27551802	99.06874176	98.86283832	98.65780214	98.45362767	98.25030947
200529A00004	5/29/2020	0.56	5/29/2024	5/29/2020	98.926785	97.71487531	96.53236654	95.37820079	94.25137036	93.15091479	92.07591811	91.02550627	89.99884484
200529A00009	5/29/2020	0.42	5/30/2023	5/29/2020	99.877951	99.62693238	99.37717317	99.1286641	98.88139581	98.63535903	98.39054459	98.1469434	97.90454649
200601A00006	6/1/2020	0.6	6/1/2023	6/1/2020	99.869916	99.61397785	99.35934545	99.1060088	98.85395809	98.60318359	98.35367566	98.10542479	97.85842154
200601A00009	6/1/2020	0.84	6/2/2025	6/1/2020	99.28517	97.11747088	95.00714328	92.95225717	90.95096375	89.00149159	87.10214266	85.25128857	83.4473671
200604A00001	6/4/2020	0.65	6/5/2023	6/4/2020	99.872876	99.60602065	99.34059194	99.07657837	98.81396864	98.55275156	98.29291607	98.03445122	97.77734617
200604A00004	6/4/2020	0.76	6/4/2024	6/4/2020	98.946032	97.7221548	96.52686011	95.3591509	94.21807627	93.10272871	92.01224169	90.94578731	89.9025742
200604A00005	6/4/2020	0.89	6/4/2025	6/4/2020	99.401608	97.22731488	95.1106892	93.04979549	91.04277964	89.08786465	87.18334664	85.32759119	83.51902987
200604A00009	6/4/2020	0.7	6/4/2025	6/4/2020	99.43515	97.25112027	95.12518536	93.05539042	91.03986305	89.07680891	87.1645077	85.30130943	83.48563091
200604A00010	6/4/2020	0.89	6/4/2025	6/4/2020	99.401608	97.22731488	95.1106892	93.04979549	91.04277964	89.08786465	87.18334664	85.32759119	83.51902987
200604A00012	6/4/2020	1.59	6/4/2030	6/4/2020	106.45597	99.46259369	92.97550017	86.9554199	81.36632862	76.17515949	71.35154558	66.867586	62.69763353
200604A00013	6/4/2020	2.21	6/4/2035	6/4/2020	116.15042	104.2711173	93.74586893	84.41196732	76.12707279	68.76657032	62.22128024	56.39547499	51.20515941
200604A00014	6/4/2020	2.42	6/4/2040	6/4/2020	121.39884	105.0923725	91.27169047	79.53848878	69.56046463	61.06007327	53.80524732	47.60172897	42.28672825
200605A00007	6/5/2020	0.52	6/5/2023	6/5/2020	99.890093	99.62263479	99.35661274	99.09201564	98.82883201	98.56705047	98.30665981	98.04764889	97.79000673
200611A00010	6/11/2020	1.08	6/11/2027	6/11/2020	101.82581	97.71221744	93.78610874	90.03795981	86.45878216	83.04009074	79.77387282	76.65255892	73.66899578
200611A00011	6/11/2020	1.2	6/9/2028	6/11/2020	103.13039	98.05989716	93.26674391	88.73434581	84.44719463	80.39078525	76.55154533	72.91677028	69.47456319
200611A00013	6/11/2020	0.59	6/12/2023	6/11/2020	99.838201	99.55232345	99.26808945	98.98548466	98.70449505	98.42510673	98.147306	97.87107928	97.59641318
200615A00005	6/15/2020	0.61	6/15/2023	6/15/2020	99.83907	99.5449843	99.25263734	98.96201414	98.67309941	98.38587807	98.10033519	97.81645603	97.53422603
200615A00019	6/17/2020	1.34	6/16/2025	6/17/2020	100.45542	98.23731326	96.0787523	93.97776453	91.93246046	89.941026	88.00171881	86.11286495	84.27285561
200626A00014	6/26/2020	0.62	6/26/2025	6/26/2020	99.291514	97.05094706	94.87144673	92.75100972	90.68771076	88.67969902	86.7251947	84.8224859	82.96992555
200626A00015	6/26/2020	0.43	6/26/2023	6/26/2020	99.812436	99.48776519	99.16520632	98.84473884	98.52634243	98.20999704	97.89568288	97.58338038	97.27307027
200630A00004	6/30/2020	0.66	7/1/2024	6/30/2020	98.827472	97.53511436	96.265511	95.01811296	93.79238886	92.58782382	91.40391882	90.24019009	89.09616858
200709A00002	7/10/2020	1.66	7/10/2025	7/10/2020	101.2807	98.99039766	96.76311285	94.59677094	92.48937878	90.43901984	88.44385077	86.50209819	84.61205564
200709A00003	7/10/2020	1.63	7/10/2026	7/10/2020	102.68953	99.42798869	96.28692421	93.26127443	90.34621742	87.53715767	84.82971426	82.21970971	79.70315948
200709A00004	7/10/2020	1.4	7/10/2025	7/10/2020	100.66787	98.38488716	96.16476874	94.00544185	91.9049178	89.86128435	87.87270229	85.93740223	84.05368153
200709A00005	7/10/2020	2.23	7/10/2030	7/10/2020	111.17634	103.9250272	97.2016332	90.96495099	85.17718575	79.80365845	74.81253453	70.17457751	65.86292497
200709A00006	7/10/2020	2.58	7/10/2030	7/10/2020	113.71667	106.3748202	99.56557639	93.24744265	87.38235464	81.93538247	76.87445792	72.17012678	67.79532368
200709A00007	7/10/2020	1.67	7/9/2027	7/10/2020	104.45335	100.2112462	96.16494544	92.30443816	88.62027251	85.10352409	81.74576396	78.53902862	75.47579208
200709A00008	7/10/2020	1.88	7/10/2026	7/10/2020	103.52537	100.2498371	97.0951552	94.05625495	91.12830157	88.30668723	85.58701925	82.96510886	80.43696069
200710A00006	7/10/2020	0.4	7/10/2023	7/10/2020	99.761088	99.39844717	99.03844816	98.68106161	98.32625904	97.97401238	97.62429397	97.27707654	96.93233322
200716A00015	7/20/2020	1.54	7/19/2024	7/20/2020	100.03512	98.68816725	97.36569065	96.06707995	94.79174563	93.53911712	92.30864206	91.09978559	89.91202964

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200720A00012	7/20/2020	0.77	7/15/2025	7/20/2020	99.18918	96.91128019	94.69653844	92.5428642	90.44824811	88.41075849	86.42853783	84.49979957	82.6228249
200720A00034	7/20/2020	0.77	7/21/2025	7/20/2020	99.196687	96.90359408	94.67447447	92.50719742	90.39971542	88.35006063	86.3563413	84.41673837	82.52950225
200720A00035	7/20/2020	1.81	7/20/2035	7/20/2020	111.41603	99.70642775	89.35300551	80.19079778	72.07569369	64.8817107	58.49863399	52.82997318	47.79119258
200720A00037	7/22/2020	2.1	7/21/2025	7/22/2020	102.37113	100.0396502	97.77296784	95.5689278	93.42545883	91.34057029	89.31234851	87.33895331	85.41861477
200720A00039	7/22/2020	2.48	7/21/2025	7/22/2020	103.27811	100.9356662	98.65825166	96.44370791	94.28995695	92.19500162	90.156922	88.17387186	86.24407549
200720A00042	7/22/2020	2.04	7/21/2026	7/22/2020	104.11707	100.8035236	97.61312639	94.54066956	91.58119028	88.72996065	85.98247529	83.33443969	80.78175918
200720A00044	7/22/2020	2.22	7/21/2026	7/22/2020	104.72423	101.4004262	98.20005426	95.1178933	92.14897098	89.28855025	86.53211704	83.87536845	81.31420182
200722A00010	7/22/2020	0.66	7/22/2024	7/22/2020	98.806501	97.46084054	96.13976917	94.8426723	93.56895515	92.31804212	91.08937606	89.88241754	88.69664414
200722A00011	7/22/2020	0.59	7/24/2023	7/22/2020	99.723975	99.32425335	98.92773092	98.53436974	98.14413211	97.75698092	97.37287963	96.9917923	96.61368353
200722A00012	7/22/2020	0.41	7/21/2023	7/22/2020	99.730941	99.33851922	98.94918838	98.5629118	98.17965355	97.79937825	97.42205105	97.04763769	96.67610439
200727A00016	7/27/2020	0.43	7/27/2023	7/27/2020	99.720768	99.31210193	98.90677885	98.50475812	98.10599949	97.71046336	97.31811074	96.92890331	96.54280334
200730A00001	7/30/2020	0.46	7/30/2024	7/30/2020	98.774632	97.4046426	96.06009336	94.74033861	93.44475388	92.17273524	90.92369847	89.6970782	88.49232722
200730A00002	7/30/2020	0.67	11/6/2024	7/30/2020	98.776747	97.15520208	95.56761709	94.01298939	92.49035582	90.99879081	89.53740455	88.1053412	86.7017773
200731A00004	7/31/2020	0.38	7/31/2023	7/31/2020	99.687507	99.26807971	98.85216693	98.43972425	98.03070844	97.62507699	97.22278808	96.82380059	96.42807406
200731A00005	7/31/2020	0.45	7/31/2024	7/31/2020	98.759309	97.38687909	96.03997847	94.7179577	93.42018916	92.14606594	90.8950009	89.66642593	88.45979118
200803A00005	8/3/2020	0.54	6/30/2023	8/3/2020	99.776952	99.44214538	99.10957301	98.77921282	98.45104288	98.12504155	97.80118748	97.47945959	97.15983707
200803A00011	8/3/2020	0.72	8/4/2025	8/3/2020	99.093197	96.76614233	94.50495916	92.30742117	90.17139036	88.09481326	86.07571698	84.11220565	82.20245684
200806A00002	8/6/2020	0.43	8/6/2024	8/6/2020	98.72569	97.33822178	95.97683906	94.64087182	93.32967231	92.04261434	90.77909241	89.5385208	88.3203328
200810A00004	8/10/2020	0.43	8/9/2024	8/10/2020	98.723155	97.32806359	95.95933958	94.61630221	93.29829351	92.00467751	90.73483937	89.48818445	88.26413748
200811A00003	8/11/2020	0.57	8/11/2025	8/11/2020	99.235348	96.87839024	94.58882917	92.36436381	90.20278527	88.101973	86.05989057	84.07458188	82.14416744
200812A00004	8/12/2020	0.59	8/12/2025	8/12/2020	99.285727	96.92560924	94.63304501	92.40572493	90.24143285	88.13804124	86.09350717	84.10586833	82.17323933
200814A00009	8/18/2020	1.36	8/16/2028	8/18/2020	104.06938	98.80346699	93.83453206	89.14434449	84.7158794	80.53323507	76.58155324	72.8469456	69.31642573
200814A00011	8/18/2020	1.58	8/16/2030	8/18/2020	106.52771	99.35252908	92.70983787	86.55740849	80.85656225	75.57185574	70.67079515	66.12357719	61.90285385
200818A00004	8/18/2020	0.92	8/18/2026	8/18/2020	100.39984	97.07886376	93.88452372	90.81133986	87.85409535	85.00782602	82.26780673	79.62953852	77.08873651
200818A00005	8/18/2020	1.05	8/18/2027	8/18/2020	101.86089	97.57453585	93.49134912	89.60068126	85.89249513	82.35732763	78.98625391	75.77085398	72.70318157
200818A00006	8/18/2020	1.18	8/18/2028	8/18/2020	103.09641	97.85156892	92.90322459	88.2331383	83.82428691	79.66077186	75.72773929	72.01130634	68.49849294
200818A00007	8/18/2020	1.31	8/20/2029	8/18/2020	104.13697	97.94019225	92.14988852	86.73736988	81.67611291	76.94158327	72.51107706	68.36357563	64.47961254
200818A00008	8/18/2020	1.5	8/18/2031	8/18/2020	106.68061	98.59679127	91.18461038	84.38481178	78.14364708	72.41233857	67.14659682	62.30618725	57.85454052
200818A00009	8/18/2020	1.7	8/18/2033	8/18/2020	109.71871	99.7368436	90.75288969	82.66161787	75.36939186	68.79284289	62.8576977	57.49774541	52.65392637
200818A00010	8/18/2020	1.88	8/20/2035	8/18/2020	112.26648	100.4376654	89.98543988	80.74144845	72.55874039	65.30895433	58.87988357	53.1733707	48.10348567
200819A00007	8/19/2020	0.38	8/21/2023	8/19/2020	99.62013	99.14421988	98.67285011	98.20595627	97.74347473	97.28534305	96.83149998	96.38188541	95.93644037
200825A00007	8/27/2020	4.79	8/27/2026	8/27/2020	113.86012	110.2827128	106.8401907	103.5267232	100.3367642	97.26503659	94.30651801	91.45642701	88.71021008
200826A00040	8/28/2020	0.92	10/27/2023	8/28/2020	99.641372	98.98754521	98.34225924	97.70534722	97.07664708	96.45600089	95.84325477	95.23825872	94.64086651

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200827A00007	8/27/2020	0.77	8/27/2025	8/27/2020	99.244551	96.857777956	94.54017972	92.28935593	90.10301079	87.97894007	85.91502831	83.90924465	81.95963891
200828A00002	8/28/2020	0.73	8/28/2026	8/28/2020	100.48193	97.11582539	93.87943599	90.76708706	87.77338291	84.89319197	82.12163237	79.45405835	76.88604751
200911A00006	9/11/2020	0.37	9/11/2023	9/11/2020	99.548519	99.01634911	98.48985467	97.96894515	97.45353194	96.9435283	96.43884928	95.93941175	95.44513426
200922A00027	9/24/2020	1.65	9/23/2025	9/24/2020	101.54678	99.05965075	96.64592447	94.3029975	92.02837764	89.81967679	87.6746058	85.59096973	83.56666323
200922A00029	9/24/2020	2.73	9/25/2023	9/24/2020	100.75726	100.1849658	99.61916324	99.05974391	98.50660018	97.95962689	97.41872119	96.8837825	96.35471247
200922A00030	9/24/2020	2.45	9/25/2023	9/24/2020	100.59539	100.0236307	99.45835596	98.89946017	98.34683578	97.80037764	97.25998297	96.72555126	96.1969842
200922A00033	9/24/2020	2.37	9/23/2024	9/24/2020	101.4499	99.92036922	98.42136555	96.95204649	95.5115967	94.09923032	92.71418965	91.35574389	90.02318795
200922A00034	9/24/2020	2.24	9/23/2026	9/24/2020	105.17223	101.6737997	98.31099454	95.07781612	91.96856803	88.97783667	86.10047552	83.33159034	80.66652533
200922A00035	9/24/2020	2.94	9/23/2024	9/24/2020	102.34588	100.8090605	99.30290308	97.82655461	96.37919641	94.96003938	93.56832272	92.20331264	90.86430112
200922A00036	9/24/2020	1.55	9/23/2025	9/24/2020	101.2908	98.8069789	96.39648921	94.0567267	91.78520137	89.57952723	87.43741716	85.35667817	83.33520682
200922A00037	9/24/2020	2.76	9/23/2025	9/24/2020	104.38819	101.8643084	99.41465586	97.03660335	94.72763424	92.48533693	90.30739973	88.19160598	86.13582945
200922A00038	9/24/2020	2.33	9/25/2023	9/24/2020	100.52602	99.95448703	99.38943855	98.83076714	98.27836531	97.73212796	97.19195231	96.65773787	96.12938637
200922A00039	9/24/2020	3	9/23/2025	9/24/2020	105.00255	102.4707208	100.0133005	97.62765327	95.31125728	93.06169588	90.87665247	88.75390571	86.69132484
200922A00040	9/24/2020	2	9/23/2024	9/24/2020	100.86831	99.34349943	97.84913943	96.38438333	94.94841795	93.54045953	92.15975239	90.80556769	89.4772022
200922A00041	9/24/2020	2.68	9/23/2024	9/24/2020	101.93719	100.4036926	98.90079824	97.42765617	95.98344917	94.56738963	93.17871816	91.81670233	90.48063547
200922A00043	9/24/2020	2.4	9/25/2023	9/24/2020	100.56649	99.99482081	99.42964037	98.87083808	98.31830642	97.77194027	97.23163686	96.69729568	96.16881844
200922A00044	9/24/2020	2.61	9/25/2023	9/24/2020	100.68789	100.1158222	99.55024583	98.99105088	98.43812972	97.89137721	97.35069052	96.81596911	96.28711464
200925A00002	9/25/2020	0.74	9/25/2025	9/25/2020	99.221028	96.75872465	94.36940925	92.05048705	89.79947287	87.61398554	85.49174289	83.43055685	81.42832899
200925A00003	9/25/2020	0.59	9/25/2024	9/25/2020	98.651673	97.13957186	95.65776611	94.20541279	92.78170028	91.38584645	90.01709727	88.67472559	87.35802989
200925A00004	9/25/2020	0.53	9/25/2023	9/25/2020	99.485447	98.91733263	98.35567741	97.80037172	97.25130841	96.70838276	96.17149236	95.64053706	95.11541894
200925A00008	9/25/2020	0.74	9/25/2025	9/25/2020	99.221028	96.75872465	94.36940925	92.05048705	89.79947287	87.61398554	85.49174289	83.43055685	81.42832899
200928A00002	9/28/2020	0.35	9/28/2023	9/28/2020	99.483572	98.90604158	98.33518384	97.77088356	97.21302836	96.66150839	96.11621629	95.57704713	95.0438983
200928A00003	9/28/2020	0.55	9/26/2025	9/28/2020	99.261464	96.78460513	94.38143957	92.04933794	89.78578244	87.58836114	85.45476273	83.3827716	81.37026323
201006A00007	10/8/2020	1.47	10/10/2023	10/8/2020	100.01901	99.40906764	98.80654779	98.21131326	97.62323244	97.04217689	96.4680212	95.90064297	95.33992265
201022A00012	10/26/2020	2.25	10/24/2030	10/26/2020	111.73039	104.1919966	97.22105741	90.77179183	84.80234139	79.27441472	74.15296611	69.40590458	65.0038305
201028A00003	10/30/2020	1.42	2/27/2026	10/30/2020	101.50758	98.61006361	95.81020627	93.10418789	90.48835861	87.95923151	85.51347437	83.14790184	80.85946809
201028A00004	10/30/2020	1.55	12/29/2023	10/30/2020	100.02366	99.20189905	98.39358338	97.59838177	96.81597728	96.04606309	95.28834216	94.54252675	93.80833813
201028A00005	10/30/2020	1.85	10/31/2025	10/30/2020	102.23275	99.63825923	97.12249735	94.68258288	92.31576068	90.01939526	87.79096466	85.62805468	83.52835339
201028A00006	10/30/2020	1.56	2/15/2024	10/30/2020	100.00739	99.06013269	98.130742	97.21871565	96.32357054	95.44484136	94.58207975	93.73485354	92.90274607
201030A00001	11/2/2020	2.54	10/29/2040	11/2/2020	123.54153	106.7551473	92.57071282	80.5638232	70.38167388	61.73064428	54.36608809	48.08392891	42.71373461
201030A00002	11/2/2020	2.8	10/29/2040	11/2/2020	127.84985	110.7140229	96.21920592	83.93597923	73.5072214	64.63559298	57.0732386	50.61330795	45.08296716
201030A00003	11/2/2020	2.58	10/29/2040	11/2/2020	124.20435	107.3642051	93.13201945	81.08261644	70.86252734	62.17755947	54.78257278	48.47306415	43.07823193
201030A00004	11/2/2020	2.56	10/29/2040	11/2/2020	123.87294	107.0596762	92.85136614	80.82321982	70.62210061	61.95410187	54.57433044	48.27849653	42.89598327

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201030A00005	11/2/2020	2.49	10/29/2040	11/2/2020	122.71301	105.9938251	91.86907953	79.91533166	69.78060705	61.1720003	53.84548223	47.59750986	42.25811297
201116A00010	11/16/2020	0.57	11/15/2023	11/16/2020	99.353974	98.65087441	97.95767737	97.27417506	96.60016522	95.93545119	95.27984168	94.63315065	93.99519709
201116A00011	11/16/2020	0.71	11/15/2024	11/16/2020	98.848362	97.20245455	95.5913902	94.01412671	92.46966378	90.95704078	89.47533476	88.02365852	86.60115892
201204A00016	12/8/2020	1.58	12/8/2023	12/8/2020	100.0685	99.30172758	98.54666121	97.80303754	97.07059794	96.34909153	95.63827488	94.93791174	94.24777278
201208A00029	12/10/2020	1.52	12/9/2025	12/10/2020	101.50311	98.81612979	96.21346795	93.69196988	91.24861748	88.88052571	86.58493568	84.3592082	82.20081765
201208A00031	12/10/2020	1.43	12/9/2024	12/10/2020	100.13919	98.41897328	96.73625004	95.08990357	93.47886188	91.90209454	90.35861058	88.84745663	87.36771508
210106A00006	1/8/2021	0.48	7/17/2023	1/8/2021	99.699212	99.31853147	98.94075986	98.56586337	98.19380919	97.82456501	97.45809902	97.09437986	96.73337666
210106A00007	1/8/2021	0.49	7/25/2023	1/8/2021	99.680211	99.27789118	98.87881224	98.48293519	98.0902216	97.70063368	97.3141342	96.93068656	96.5502547
210114A00009	1/19/2021	2.66	1/17/2030	1/19/2021	113.44449	106.5657926	100.1570625	94.18368535	88.6137634	83.41789116	78.56894882	74.04191388	69.81368916
210125A00006	1/27/2021	2.16	1/26/2027	1/27/2021	105.61271	101.7803968	98.10862196	94.58983925	91.21689567	87.98300938	84.8817485	81.90701122	79.05300715
210125A00007	1/27/2021	2.98	1/27/2031	1/27/2021	117.78483	109.7770566	102.3852224	95.55848376	89.25044473	83.41874782	78.02470363	73.03295595	68.41117907
210128A00008	1/28/2021	0.54	4/9/2024	1/28/2021	98.818023	97.73820927	96.68179646	95.64803076	94.63619085	93.64558571	92.6755531	91.72545805	90.79469146
210128A00010	1/28/2021	0.57	7/9/2024	1/28/2021	98.683418	97.37192257	96.083851	94.81863012	93.57570541	92.35453987	91.15461327	89.97542155	88.81647617
210129A00008	1/29/2021	0.62	10/8/2024	1/29/2021	98.696708	97.15049311	95.63566534	94.15133455	92.69664423	91.27076972	89.8729167	88.50231979	87.15824123
210129A00013	1/29/2021	0.65	1/9/2025	1/29/2021	98.735384	96.94951545	95.20426154	93.49846543	91.83101084	90.20082	88.60685214	87.04810195	85.52359817
210201A00004	2/3/2021	1.15	2/3/2025	2/3/2021	99.708483	97.84907158	96.03331345	94.2599236	92.52766377	90.83534002	89.18180083	87.56593533	85.98667155
210201A00012	2/3/2021	0.75	11/17/2025	2/3/2021	99.334953	96.73494477	94.2152459	91.77286563	89.40494717	87.10876027	84.88169459	82.72125346	80.625048
210209A00029	2/12/2021	0.8	12/15/2025	2/12/2021	99.519771	96.84526077	94.2553411	91.74684812	89.31675736	86.96217617	84.68033706	82.4685914	80.32440346
210210A00005	2/10/2021	0.52	2/13/2024	2/10/2021	98.9959	98.05922768	97.14015278	96.2381831	95.35284495	94.48368202	93.63025454	92.79213853	91.96892514
210212A00008	2/12/2021	0.95	10/13/2026	2/12/2021	100.65033	97.18084248	93.84830781	90.64657639	87.56981265	84.61247534	81.76930087	79.03528767	76.40568152
210212A00014	2/17/2021	1.38	2/17/2026	2/17/2021	101.34828	98.48115153	95.70977121	93.03043147	90.43958574	87.93384423	85.50996605	83.16485179	80.8955365
210212A00016	2/17/2021	1.32	2/18/2025	2/17/2021	100.08299	98.17769941	96.31809849	94.50280909	92.73050805	90.9999207	89.3098187	87.65901806	86.04637718
210216A00006	2/16/2021	1.44	2/15/2030	2/16/2021	106.73762	99.94531372	93.62892411	87.75271238	82.28379177	77.19188966	72.44912738	68.02981971	63.91029203
210216A00007	2/16/2021	1.3	2/16/2029	2/16/2021	105.25416	99.43937856	93.98023734	88.85320408	84.03642258	79.50958105	75.25379543	71.25150218	67.4863596
210216A00008	2/16/2021	0.71	2/17/2026	2/16/2021	99.977192	97.11613036	94.35109634	91.67835371	89.0943333	86.59562425	84.17896603	81.8412409	79.57946682
210216A00009	2/16/2021	0.92	2/16/2027	2/16/2021	101.68298	97.84666672	94.17489475	90.65976612	87.2938073	84.06994026	80.98145938	78.02200991	75.18556768
210226A00012	2/26/2021	2.31	2/26/2036	2/26/2021	117.75018	105.1540108	94.06582896	84.29540772	75.67747569	68.06833191	61.34293204	55.39238064	50.12177149
210304A00004	3/4/2021	0.58	3/4/2024	3/4/2021	98.995671	98.00716256	97.03824067	96.08832879	95.15687241	94.24333839	93.34721393	92.46800563	91.60523857
210305A00013	3/5/2021	2.41	3/5/2036	3/5/2021	119.01847	106.3258474	95.15234363	85.30622885	76.62094771	68.95170064	62.17250193	56.1736485	50.85954016
210312A00004	3/12/2021	0.34	3/10/2023	3/12/2021	99.989958	99.9622314	99.93453563	99.90687108	99.8792377	99.85163543	99.8240642	99.79652396	99.76901465
210312A00005	3/12/2021	0.53	3/12/2024	3/12/2021	99.107352	98.09485751	97.10288989	96.1308301	95.1780841	94.24408126	93.32827324	92.43013289	91.54915326
210312A00010	3/12/2021	0.63	3/12/2024	3/12/2021	99.020531	98.01128442	97.02245788	96.05343718	95.1036324	94.17247682	93.25942583	92.36395583	91.48556324
210323A00007	3/23/2021	0.51	3/25/2024	3/23/2021	99.046168	98.0004397	96.97660767	95.97399081	94.99193589	94.02981624	93.08703041	92.16300092	91.25717307

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210414A00001	4/14/2021	0.7	5/16/2024	4/14/2021	98.892821	97.71802555	96.57090563	95.45049346	94.35586575	93.28614131	92.24047871	91.21807401	90.21815873
210428A00006	4/28/2021	1.23	4/28/2026	4/28/2021	101.12495	98.07748291	95.13696654	92.29902767	89.55950237	86.91442243	84.36000479	81.8926416	79.5088909
210428A00007	4/28/2021	1.74	10/27/2028	4/28/2021	106.30031	100.7902266	95.5993943	90.70765782	86.09623774	81.74763085	77.64551657	73.77467083	70.12088671
210428A00008	4/28/2021	1.93	4/26/2030	4/28/2021	108.77911	101.8012587	95.32037505	89.29845226	83.70058218	78.4946852	73.65126708	69.14319781	64.94551063
210428A00015	4/28/2021	2.02	4/28/2031	4/28/2021	110.64073	102.6718794	95.33976163	88.59007513	82.37341908	76.64482616	71.36334331	66.49165403	61.99573818
210429A00005	4/29/2021	2.08	4/29/2031	4/29/2021	111.12604	103.1355457	95.78325973	89.01475659	82.78052527	77.03549838	71.73863189	66.85252656	62.34308692
210507A00008	5/7/2021	1.94	5/7/2031	5/7/2021	110.02693	102.0599785	94.73184158	87.98788014	81.77839563	76.05816258	70.78600434	65.92441103	61.43919555
210507A00009	5/7/2021	2.02	5/7/2032	5/7/2021	111.85681	102.9066848	94.75015821	87.31248085	80.52631562	74.33096443	68.67168206	63.49906422	58.76850139
210514A00033	5/18/2021	2.8	5/18/2028	5/18/2021	111.37468	106.1489541	101.2028804	96.51996727	92.08478304	87.88288525	83.90075176	80.12571691	76.54591246
210527A00008	5/27/2021	0.32	5/30/2023	5/27/2021	99.852709	99.60173258	99.35201555	99.10354849	98.85632205	98.61032696	98.36555405	98.12199424	97.87963853
210527A00009	5/27/2021	0.5	5/28/2024	5/27/2021	98.853948	97.64508046	96.4654834	95.31410594	94.18994666	93.092051	92.01950851	90.9714504	89.94704711
210527A00019	5/27/2021	1	5/27/2026	5/27/2021	101.14064	98.00255839	94.977198	92.05984014	89.24599483	86.53138909	83.91195481	81.38381742	78.94328521
210527A00026	6/1/2021	2.78	6/1/2028	6/1/2021	111.3502	106.0885529	101.1102725	96.39854236	91.93763774	87.71284822	83.71040637	79.91742193	76.32182101
210528A00003	5/28/2021	0.63	5/28/2024	5/28/2021	98.787654	97.58275379	96.40697254	95.25926585	94.13863909	93.04414407	91.97487641	90.92997296	89.90860956
210601A00002	6/1/2021	0.9	6/2/2025	6/1/2021	99.420426	97.25117891	95.13933536	93.08296446	91.08021651	89.12931922	87.22857369	85.37635074	83.57108736
210603A00015	6/7/2021	2.71	6/7/2028	6/7/2021	111.01863	105.7494131	100.7649274	96.0482462	91.58354191	87.3560072	83.35178374	79.55789618	75.96219098
210607A00001	6/7/2021	0.46	6/7/2023	6/7/2021	99.818422	99.54618097	99.27542811	99.006151	98.73833758	98.47197592	98.20705419	97.94356071	97.68148392
210608A00005	6/8/2021	0.51	6/7/2024	6/8/2021	98.862371	97.62770837	96.42107398	95.24151481	94.0881213	92.96002451	91.85639386	90.77643502	89.71938791
210608A00017	6/10/2021	2.67	6/8/2029	6/10/2021	112.53339	106.2599031	100.3814281	94.87096126	89.70348157	84.8557984	80.30640803	76.03536227	72.02414791
210609A00007	6/11/2021	2.6	6/11/2029	6/11/2021	112.1118	105.8432654	99.97014652	94.46537997	89.30389281	84.46244685	79.91949501	75.65504958	71.65056152
210609A00011	6/11/2021	1.32	6/11/2024	6/11/2021	99.672558	98.42578321	97.20607317	96.01254758	94.84436405	93.7007164	92.58083269	91.48397338	90.4094297
210609A00013	6/11/2021	1.64	6/11/2025	6/11/2021	101.1236	98.91098548	96.75739195	94.66086039	92.61950876	90.63153139	88.69519519	86.80883619	84.97085615
210621A00008	6/21/2021	1.04	6/23/2025	6/21/2021	99.783649	97.55493078	95.38654444	93.27651039	91.22292653	89.22396482	87.2778679	85.38294586	83.53757319
210623A00011	6/23/2021	0.56	6/23/2023	6/23/2021	99.799525	99.48376021	99.16999428	98.858208	98.54838265	98.24049977	97.93454113	97.63048871	97.32832472
210624A00020	6/24/2021	0.78	6/24/2024	6/24/2021	98.98526	97.70974731	96.45827247	95.23018258	94.02484871	92.84166451	91.68004521	90.53942667	89.41926442
210624A00022	6/24/2021	0.87	6/24/2025	6/24/2021	99.867977	97.62591323	95.44478334	93.32258455	91.25739266	89.24735836	87.29070383	85.38571945	83.53076078
210709A00002	7/9/2021	1.36	7/9/2029	7/9/2021	105.83476	99.63370073	93.83353553	88.40637179	83.32638813	78.56967249	74.11407206	69.93905568	66.02558764
210715A00009	7/15/2021	0.54	7/17/2023	7/15/2021	99.722316	99.34158152	98.96375597	98.58880585	98.21669834	97.84740113	97.48088239	97.11711078	96.75605543
210720A00035	7/22/2021	2.27	7/21/2031	7/22/2021	112.98037	104.7088396	97.11268781	90.13309194	83.71663944	77.81480245	72.3834686	67.382519	62.77544847
210722A00001	7/22/2021	1.1	7/22/2026	7/22/2021	100.94898	97.68642942	94.54574995	91.52177024	88.60956635	85.80444783	83.10194538	80.49779923	77.98794822
210802A00002	8/2/2021	0.7	8/1/2025	8/2/2021	99.537064	97.20174734	94.93248962	92.72705983	90.5833153	88.49919797	86.4727306	84.50201304	82.58521874
210804A00008	8/6/2021	2.28	8/4/2028	8/6/2021	109.00555	103.6382186	98.56977386	93.78203536	89.2580155	84.98183856	80.93866251	77.11460658	73.49668442
210816A00003	8/16/2021	0.71	8/16/2024	8/16/2021	98.845378	97.43617083	96.05385246	94.69772146	93.3671007	92.06133589	90.77979463	89.52186548	88.28695711

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210817A00013	8/19/2021	2	8/19/2026	8/19/2021	104.12956	100.7416567	97.48237465	94.34615419	91.32770539	88.42199436	85.62422948	82.92984834	80.33450551
210818A00005	8/18/2021	0.6	8/19/2024	8/18/2021	98.966158	97.54373473	96.14865977	94.78021544	93.43770824	92.12046831	90.82784839	89.55922282	88.31398671
210818A00007	8/18/2021	0.81	8/18/2025	8/18/2021	99.837179	97.454966	95.14131527	92.89386915	90.71036533	88.58863263	86.52658672	84.52222606	82.57362811
210830A00011	8/30/2021	0.53	8/30/2023	8/30/2021	99.569524	99.07069186	98.57683219	98.08787058	97.60373459	97.12435317	96.64965669	96.17957683	95.71404664
210901A00012	9/1/2021	0.51	9/1/2023	9/1/2021	99.552736	99.04858978	98.54952281	98.05545851	97.56632208	97.08204021	96.60254102	96.12775406	95.65761025
210903A00002	9/8/2021	1.22	9/8/2023	9/8/2021	99.906928	99.38295922	98.8644728	98.35138272	97.84360503	97.3410575	96.84365962	96.35133249	95.86399883
210916A00007	9/16/2021	0.75	9/16/2024	9/16/2021	98.901398	97.41117896	95.95055962	94.51872827	93.11490246	91.73832771	90.38827618	89.06404555	87.76495788
210917A00008	9/17/2021	1.55	9/15/2028	9/17/2021	105.1568	99.78520207	94.72005808	89.94232677	85.43424168	81.17922351	77.16179486	73.36750134	69.78283894
210924A00003	9/24/2021	2.37	9/24/2036	9/24/2021	118.83604	105.6858126	94.16841944	84.07029955	75.20691785	67.41868728	60.5674811	54.53364796	49.21345515
210924A00004	9/24/2021	2.37	9/24/2036	9/24/2021	118.83604	105.6858126	94.16841944	84.07029955	75.20691785	67.41868728	60.5674811	54.53364796	49.21345515
210924A00005	9/24/2021	2.37	9/24/2036	9/24/2021	118.83604	105.6858126	94.16841944	84.07029955	75.20691785	67.41868728	60.5674811	54.53364796	49.21345515
210924A00011	9/24/2021	2.19	9/25/2034	9/24/2021	115.52323	104.2771175	94.24990571	85.3021476	77.31104044	70.16836341	63.77867921	58.05776539	52.9312451
211001A00001	10/1/2021	0.59	10/2/2023	10/1/2021	99.498648	98.91181225	98.33186244	97.75867773	97.19214043	96.63213555	96.07855075	95.53127624	94.99020472
211005A00019	10/5/2021	0.47	10/5/2023	10/5/2021	99.533798	98.93739253	98.34810415	97.76580638	97.19037539	96.62169028	96.05963294	95.50408804	94.95494289
211015A00028	10/15/2021	0.73	10/16/2023	10/15/2021	99.544477	98.92024084	98.30380492	97.69502399	97.09375608	96.49986272	95.91320881	95.33366256	94.76109533
211022A00008	10/22/2021	1.12	10/22/2024	10/22/2021	99.518518	97.92950435	96.37320275	94.84866754	93.35498933	91.89129336	90.45673782	89.05051227	87.6718362
211206A00010	12/6/2021	1.54	12/4/2026	12/6/2021	102.99492	99.34791121	95.84907964	92.49157292	89.26890108	86.17491176	83.20377046	80.34994191	77.60817288
211217A00021	12/21/2021	2.44	12/18/2026	12/21/2021	106.45144	102.7035213	99.1085444	95.65945104	92.34954728	89.17248358	86.12223497	83.1930826	80.37959641
211222A00003	12/22/2021	1.33	1/15/2025	12/22/2021	100.01518	98.20183915	96.43000735	94.69849745	93.00615989	91.35188512	89.73460206	88.15327639	86.60690916
211222A00004	12/22/2021	1.26	10/15/2024	12/22/2021	99.739177	98.16627863	96.62552058	95.1159822	93.63677824	92.18705674	90.76599749	89.3728105	88.00673463
211222A00005	12/22/2021	1.2	7/15/2024	12/22/2021	99.546325	98.21335173	96.9044323	95.61897254	94.356397	93.11614863	91.89768799	90.70049259	89.52405623
211222A00008	12/22/2021	1.13	4/15/2024	12/22/2021	99.466116	98.36706868	97.29215142	96.24057716	95.21159236	94.20447562	93.21853595	92.25311121	91.3075666
211222A00010	12/22/2021	1.06	1/16/2024	12/22/2021	99.575205	98.70844029	97.85668842	97.01956198	96.19668683	95.38770153	94.59225673	93.81001474	93.04064901
211222A00011	12/22/2021	0.97	10/16/2023	12/22/2021	99.697087	99.07230453	98.45532727	97.84600979	97.24421006	96.64978952	96.06261303	95.4825487	94.90946786
211222A00012	12/22/2021	0.88	7/17/2023	12/22/2021	99.85324	99.47219852	99.09406732	98.71881327	98.34640353	97.97680579	97.60998819	97.24591939	96.88456848
211222A00017	12/22/2021	0.88	7/17/2023	12/22/2021	99.85324	99.47219852	99.09406732	98.71881327	98.34640353	97.97680579	97.60998819	97.24591939	96.88456848
211222A00018	12/22/2021	0.88	7/17/2023	12/22/2021	99.85324	99.47219852	99.09406732	98.71881327	98.34640353	97.97680579	97.60998819	97.24591939	96.88456848
211222A00019	12/22/2021	0.97	10/16/2023	12/22/2021	99.697087	99.07230453	98.45532727	97.84600979	97.24421006	96.64978952	96.06261303	95.4825487	94.90946786
211222A00020	12/22/2021	0.97	10/16/2023	12/22/2021	99.697087	99.07230453	98.45532727	97.84600979	97.24421006	96.64978952	96.06261303	95.4825487	94.90946786
211222A00021	12/22/2021	1.06	1/16/2024	12/22/2021	99.575205	98.70844029	97.85668842	97.01956198	96.19668683	95.38770153	94.59225673	93.81001474	93.04064901
211222A00022	12/22/2021	1.06	1/16/2024	12/22/2021	99.575205	98.70844029	97.85668842	97.01956198	96.19668683	95.38770153	94.59225673	93.81001474	93.04064901
211222A00023	12/22/2021	1.13	4/15/2024	12/22/2021	99.466116	98.36706868	97.29215142	96.24057716	95.21159236	94.20447562	93.21853595	92.25311121	91.3075666
211222A00024	12/22/2021	1.13	4/15/2024	12/22/2021	99.466116	98.36706868	97.29215142	96.24057716	95.21159236	94.20447562	93.21853595	92.25311121	91.3075666

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
211222A00025	12/22/2021	1.2	7/15/2024	12/22/2021	99.546325	98.21335173	96.9044323	95.61897254	94.356397	93.11614863	91.89768799	90.70049259	89.52405623
211222A00026	12/22/2021	1.2	7/15/2024	12/22/2021	99.546325	98.21335173	96.9044323	95.61897254	94.356397	93.11614863	91.89768799	90.70049259	89.52405623
211222A00027	12/22/2021	1.26	10/15/2024	12/22/2021	99.739177	98.16627863	96.62552058	95.1159822	93.63677824	92.18705674	90.76599749	89.3728105	88.00673463
211222A00029	12/22/2021	1.26	10/15/2024	12/22/2021	99.739177	98.16627863	96.62552058	95.1159822	93.63677824	92.18705674	90.76599749	89.3728105	88.00673463
211222A00030	12/22/2021	1.33	1/15/2025	12/22/2021	100.01518	98.20183915	96.43000735	94.69849745	93.00615989	91.35188512	89.73460206	88.15327639	86.60690916
211222A00031	12/22/2021	1.33	1/15/2025	12/22/2021	100.01518	98.20183915	96.43000735	94.69849745	93.00615989	91.35188512	89.73460206	88.15327639	86.60690916
220106A00018	1/10/2022	3.11	1/8/2032	1/10/2022	120.95132	111.9135291	103.6417113	96.06644323	89.12493994	82.76038887	76.92135418	71.56124287	66.63782639
220106A00019	1/10/2022	3.17	1/7/2033	1/10/2022	123.59871	113.497741	104.3352192	96.01816431	88.46327663	81.595887	75.3490223	69.66257641	64.48257414
220112A00004	1/12/2022	1.55	1/12/2026	1/12/2022	102.30442	99.50559284	96.79742646	94.17650788	91.63957558	89.18350769	86.8053152	84.50213561	82.27122682
220112A00005	1/12/2022	1.55	1/12/2026	1/12/2022	102.30442	99.50559284	96.79742646	94.17650788	91.63957558	89.18350769	86.8053152	84.50213561	82.27122682
220118A00008	1/18/2022	1.36	1/18/2024	1/18/2022	99.839185	98.9659219	98.10786826	97.26462899	96.43582301	95.62108219	94.82005084	94.03238518	93.25775284
220118A00009	1/18/2022	1.65	1/17/2025	1/18/2022	100.62274	98.79844517	97.01599926	95.2741974	93.57187792	91.90791975	90.28124075	88.69079609	87.13557671
220125A00010	1/25/2022	1.89	1/25/2027	1/25/2022	104.55929	100.7499207	97.10025826	93.6027956	90.25041629	87.03637304	83.95426664	80.9980262	78.16189061
220217A00021	2/17/2022	1.85	2/13/2024	2/17/2022	100.27925	99.33591843	98.41027266	97.50181764	96.61007784	95.73459512	94.87492796	94.03065071	93.20135287
220225A00013	2/25/2022	1.92	2/23/2024	2/25/2022	100.35915	99.38921654	98.43796002	97.5048466	96.58936106	95.69100756	94.80930869	93.94380464	93.09405236
220302A00006	3/2/2022	1.52	4/25/2023	3/2/2022	100.08211	99.92736792	99.77310595	99.61932548	99.46602427	99.31320011	99.16085076	99.00897404	98.85756775
220310A00005	3/10/2022	2.06	3/8/2024	3/10/2022	100.50729	99.50015466	98.51313943	97.54564376	96.5970929	95.66693451	94.75463751	93.85969112	92.98160387
220317A00012	3/17/2022	1.99	9/15/2023	3/17/2022	100.32154	99.77750445	99.23936064	98.70701581	98.18037649	97.65935121	97.14385045	96.6337866	96.12907388
220322A00010	3/22/2022	2.34	9/22/2023	3/22/2022	100.52653	99.96304511	99.40586855	98.85489579	98.31002358	97.77115095	97.23817916	96.71101162	96.18955384
220323A00008	3/23/2022	2.47	3/25/2024	3/23/2022	100.95974	99.90593899	98.87409104	97.86351201	96.87354927	95.90357665	94.95299313	94.02122156	93.10770751
220401A00009	4/1/2022	2.98	4/1/2027	4/1/2022	109.33642	105.2537383	101.3480958	97.61084941	94.03382893	90.60930603	87.32996771	84.18889156	81.17952273
220406A00006	4/6/2022	2.65	10/6/2023	4/6/2022	100.73954	100.1377929	99.54322238	98.95570425	98.37511348	97.80132802	97.23422869	96.67369903	96.11962533
220406A00007	4/6/2022	2.87	4/8/2024	4/6/2022	101.41967	100.3270198	99.25789146	98.21152997	97.18721341	96.18425019	95.20197738	94.23975923	93.29698585
220421A00013	4/21/2022	3.33	9/15/2026	4/21/2022	108.9632	105.4193923	102.011637	98.73395933	95.58068427	92.54641673	89.62602591	86.81463083	84.10758669
220421A00015	4/21/2022	3.12	9/16/2024	4/21/2022	102.58173	101.0619276	99.57224604	98.11185584	96.67996097	95.27579384	93.89861406	92.54770714	91.22238345
220429A00002	4/29/2022	3.63	4/29/2032	4/29/2022	126.29857	116.733232	107.9979229	100.0154243	92.71610692	86.03714768	79.92183082	74.31892423	69.1821225
220429A00006	4/29/2022	3.06	4/29/2024	4/29/2022	101.70208	100.5533229	99.43049577	98.3327309	97.25919591	96.20909488	95.18166642	94.1761818	93.19194324
220429A00007	4/29/2022	3.14	10/29/2024	4/29/2022	102.89877	101.2627224	99.66052391	98.09118269	96.55375027	95.04731472	93.57099877	92.12395825	90.70538042
220505A00026	5/9/2022	2.69	8/22/2023	5/9/2022	100.64238	100.1620042	99.68621222	99.21494093	98.748126	98.28570436	97.82761414	97.37379461	96.92418618
220510A00014	5/13/2022	2.72	11/6/2023	5/13/2022	100.87421	100.1890191	99.5131249	98.84633916	98.18847854	97.53936466	96.89882385	96.26668702	95.6427895
220518A00008	5/18/2022	3.01	5/20/2024	5/18/2022	101.72302	100.5197038	99.34484725	98.19744731	97.0765491	95.9812416	94.91065519	93.86395923	92.84035997
220531A00020	5/31/2022	2.86	5/31/2024	5/31/2022	101.5884	100.3573319	99.15605565	97.98350243	96.8386511	95.7205284	94.62820621	93.56079894	92.5174611
220601A00022	6/1/2022	2.73	12/1/2023	6/1/2022	100.94901	100.1970036	99.45618076	98.7262915	98.0070952	97.29835821	96.59985366	95.91136118	95.2326667

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220601A00038	6/3/2022	3.69	5/28/2032	6/3/2022	127.04744	117.3730892	108.5437517	100.4802734	93.1113382	86.37265024	80.20620736	74.5596539	69.38570301
220602A00039	6/2/2022	3.11	6/2/2027	6/2/2022	111.30848	106.9923794	102.8700882	98.93180316	95.16828038	91.57079502	88.13110904	84.8414409	81.69443741
220622A00010	6/22/2022	3.43	7/12/2024	6/22/2022	102.60818	101.26092	99.93781839	98.63828468	97.36174269	96.1076346	94.87542024	93.66457634	92.47459595
220624A00016	6/24/2022	3.34	6/24/2026	6/24/2022	108.9802	105.6382867	102.4177357	99.31349309	96.32073939	93.43488144	90.65154056	87.96654124	85.37590061
220630A00045	6/30/2022	3.39	6/30/2026	6/30/2022	108.48582	105.1533666	101.9421666	98.84718433	95.86361669	92.98688404	90.21261859	87.53665349	84.95501253
220701A00014	7/1/2022	3.15	7/14/2023	7/1/2022	100.71904	100.344078	99.9719208	99.6025324	99.23588192	98.87193891	98.51067333	98.15205562	97.79605665
220711A00020	7/11/2022	3.25	1/11/2024	7/11/2022	101.6718	100.8057912	99.95454298	99.11767707	98.2948308	97.48565366	96.68980675	95.90696229	95.13680319
220726A00059	7/26/2022	3.34	1/26/2024	7/26/2022	101.64222	100.7391505	99.85213178	98.98073637	98.12455394	97.28318841	96.45625733	95.64339134	94.84423357
220726A00060	7/26/2022	3.32	7/26/2024	7/26/2022	102.54397	101.1608939	99.80322063	98.47031403	97.16155473	95.87634358	94.61410084	93.37426535	92.15629385
220729A00035	8/3/2022	3.14	8/3/2027	8/3/2022	111.01125	106.5626659	102.3204824	98.27404053	94.4132867	90.728735	87.21143236	83.8529259	80.64523241
220815A00004	8/15/2022	3.54	2/15/2024	8/15/2022	101.92886	100.9715856	100.0323063	99.11052081	98.20574313	97.31750522	96.44535607	95.58886096	94.74760069
220815A00006	8/15/2022	3.52	8/15/2024	8/15/2022	102.96545	101.5273977	100.1166798	98.73258399	97.37442231	96.04153017	94.73326517	93.44900623	92.1881527
220819A00037	8/19/2022	3.61	2/20/2024	8/19/2022	102.0214	101.0504986	100.0981003	99.16367594	98.24671966	97.34674449	96.46328141	95.59587856	94.74410041
220819A00038	8/19/2022	3.59	8/19/2024	8/19/2022	103.09694	101.647529	100.2258493	98.83117722	97.46281052	96.12007078	94.80230245	93.50887186	92.23916631
220823A00056	8/23/2022	3.5	8/23/2024	8/23/2022	103.28568	101.8196413	100.3819123	98.97174557	97.58841849	96.23123305	94.89951502	93.59261292	92.30989699
220823A00060	8/23/2022	3.5	8/23/2024	8/23/2022	103.28568	101.8196413	100.3819123	98.97174557	97.58841849	96.23123305	94.89951502	93.59261292	92.30989699
220826A00033	8/26/2022	3.73	8/26/2025	8/26/2022	106.59628	104.1196491	101.7140835	99.37713232	97.10644581	94.89976923	92.75493842	90.66987558	88.64258522
220830A00055	8/30/2022	3.7	8/30/2029	8/30/2022	119.50249	112.7953171	106.5204102	100.6474835	95.14852421	89.99761395	85.17076229	80.6457537	76.40200755
220902A00042	9/2/2022	3.89	9/5/2023	9/2/2022	101.30736	100.7871967	100.2723809	99.76282636	99.25845257	98.75918077	98.26493376	97.7756359	97.29121307
220902A00043	9/2/2022	3.91	3/4/2024	9/2/2022	102.39107	101.3840502	100.3968773	99.42896411	98.47975052	97.54869785	96.63528796	95.73902227	94.85942085
220909A00052	9/9/2022	3.95	3/8/2024	9/9/2022	102.45504	101.4371851	100.4395959	99.46167247	98.5028367	97.56253297	96.64022705	95.73540508	94.84757264
220916A00042	9/16/2022	4.07	9/16/2030	9/16/2022	126.94602	118.8725945	111.3906526	104.453335	98.01773722	92.04455782	86.49777788	81.34437074	76.55403866
220916A00043	9/16/2022	4.07	9/16/2031	9/16/2022	130.41441	121.1889802	112.7158934	104.9291043	97.76870971	91.18034991	85.11466852	79.52682739	74.37607102
220920A00050	9/20/2022	4.37	9/20/2024	9/20/2022	104.56331	103.0166588	101.5007357	100.0146909	98.55770763	97.12899845	95.72780401	94.35339179	93.00505487
220922A00042	9/22/2022	4.6	3/22/2024	9/22/2022	103.23095	102.1720144	101.1348993	100.1189304	99.12346448	98.14788425	97.19159703	96.25403353	95.33464664
220923A00035	9/23/2022	4.7	3/22/2024	9/23/2022	103.33782	102.278284	101.2405697	100.2240101	99.22796186	98.25180748	97.2949541	96.35683223	95.43689459
220927A00024	9/27/2022	4.7	9/27/2024	9/27/2022	105.15645	103.5858548	102.0466503	100.5379653	99.05895694	97.60881299	96.18675058	94.79201483	93.42387757
220927A00071	9/27/2022	4.7	9/26/2024	9/27/2022	105.14544	103.5776632	102.0411977	100.53517	99.05874039	97.61110015	96.19146948	94.79909645	93.43325572
220927A00073	9/27/2022	4.72	9/26/2025	9/27/2022	109.44328	106.8457305	104.3242917	101.8762661	99.49907345	97.19024167	94.94740105	92.76827951	90.65069785
221006A00033	10/6/2022	4.56	10/7/2024	10/6/2022	105.03983	103.4434481	101.8792997	100.3464748	98.84409566	97.37131734	95.92732585	94.51133681	93.12259411
221007A00003	10/7/2022	4.67	10/7/2025	10/7/2022	109.44972	106.8223242	104.2725448	101.7976119	99.39487072	97.06177859	94.79589957	92.59489914	90.45653926
221011A00036	10/11/2022	4.59	10/6/2026	10/11/2022	113.66784	109.9830468	106.4406182	103.0342427	99.75792695	96.60597732	93.57298249	90.65379794	87.84353112
221011A00037	10/11/2022	4.68	10/7/2024	10/11/2022	105.23302	103.6350263	102.0693005	100.5349257	99.03102368	97.55674862	96.11128586	94.69385037	93.30368537

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221012A00051	10/12/2022	4.7	10/11/2024	10/12/2022	105.30849	103.6992904	102.1227096	100.5778236	99.06373953	97.57959791	96.12457099	94.69786135	93.29870047
221014A00026	10/14/2022	4.63	10/14/2027	10/14/2022	118.37529	113.5682972	108.9905434	104.6298053	100.4745783	96.51403122	92.7379637	89.13676533	85.70137844
221014A00037	10/14/2022	4.86	10/15/2024	10/14/2022	105.61283	103.9904822	102.401156	100.8439038	99.31781723	97.82202208	96.3556766	94.91797009	93.50812142
221014A00043	10/14/2022	4.49	10/14/2027	10/14/2022	118.82704	113.97717	109.3593429	104.9611499	100.7709135	96.77764202	92.97098546	89.34119426	85.87908115
221014A00050	10/14/2022	4.49	10/14/2027	10/14/2022	118.82704	113.97717	109.3593429	104.9611499	100.7709135	96.77764202	92.97098546	89.34119426	85.87908115
221018A00006	10/18/2022	4.55	10/18/2027	10/18/2022	118.05461	113.2440184	108.6633789	104.3003987	100.1435148	96.18184275	92.40513314	88.80373075	85.3685368
221018A00046	10/18/2022	4.9	4/30/2024	10/18/2022	103.86751	102.7027205	101.5641937	100.4510448	99.36243062	98.29754512	97.25561711	96.23590858	95.23771288
221018A00047	10/18/2022	4.78	10/20/2025	10/18/2022	109.89719	107.2291413	104.6406509	102.128846	99.69097736	97.32441395	95.02663637	92.79523153	90.62788727
221018A00048	10/18/2022	4.71	10/19/2026	10/18/2022	114.26214	110.5315205	106.9460367	103.4992079	100.184881	96.99721261	93.9306522	90.97992492	88.14001648
221018A00049	10/18/2022	4.59	10/18/2027	10/18/2022	118.23853	113.4237464	108.8390564	104.4721662	100.3115068	96.3461879	92.56595467	88.96114668	85.52266023
221026A00031	10/26/2022	4.9	4/26/2024	10/26/2022	103.83401	102.6799144	101.551609	100.4482387	99.36898173	98.31305234	97.27969858	96.26820054	95.27786865
221026A00032	10/26/2022	4.81	10/25/2024	10/26/2022	105.64244	103.9933888	102.3782456	100.7960279	99.24579091	97.72662587	96.23765832	94.7780466	93.34698019
221028A00043	10/28/2022	4.88	4/24/2024	10/28/2022	103.79409	102.6454644	101.5224008	100.4240492	99.34959861	98.29827356	97.26933164	96.26206197	95.27578357
221028A00056	10/28/2022	4.77	10/28/2024	10/28/2022	105.60913	103.9524319	102.3299097	100.7405647	99.18344112	97.65761989	96.16221683	94.696381	93.25929316
221031A00003	10/31/2022	4.89	11/12/2024	10/31/2022	105.98441	104.2837107	102.6186923	100.9882968	99.39150626	97.82734257	96.29486589	94.79317257	93.32139336
221031A00004	10/31/2022	4.79	10/28/2025	10/31/2022	110.02326	107.3321553	104.7217721	102.189174	99.73155458	97.34622859	95.03062585	92.78228541	90.59885003
221031A00044	10/31/2022	4.89	10/31/2024	10/31/2022	105.84312	104.1764481	102.5442587	100.9455409	99.37932677	97.84468563	96.34072245	94.86657595	93.42141707
221031A00045	10/31/2022	4.79	10/31/2025	10/31/2022	110.06061	107.3609664	104.7424784	102.2021883	99.73726789	97.34501154	95.02282989	92.76824391	90.57887936
221103A00050	11/3/2022	5.14	11/4/2024	11/3/2022	106.31167	104.6299939	102.9832639	101.370451	99.79056883	98.24266957	96.72584166	95.23920822	93.7819254
221107A00056	11/7/2022	4.73	11/8/2027	11/7/2022	119.13644	114.2430554	109.5856832	105.1515852	100.9287877	96.90602718	93.07270418	89.41883997	85.93503678
221110A00036	11/10/2022	4.56	11/10/2025	11/10/2022	109.56945	106.8488822	104.2108274	101.6522464	99.17023833	96.7620294	94.4249662	92.15650965	89.95422912
221110A00037	11/10/2022	4.45	11/10/2026	11/10/2022	113.5876	109.8090501	106.1796039	102.6925092	99.3413598	96.12007728	93.02289228	90.04432664	87.17917684
221110A00039	11/10/2022	4.34	11/10/2027	11/10/2022	117.34333	112.4857755	107.8632746	103.4631168	99.27335188	95.28274001	91.480705	87.85729132	84.40312408
221110A00084	11/10/2022	4.56	11/6/2025	11/10/2022	109.52096	106.8120515	104.1850348	101.6369065	99.16479696	96.76596212	94.43777637	92.1777268	89.98340737
221110A00086	11/10/2022	4.34	11/8/2027	11/10/2022	117.32107	112.4696156	107.8526859	103.4576133	99.27248593	95.28609867	91.48790759	87.86798681	84.41698873
221116A00026	11/16/2022	4.78	11/15/2024	11/16/2022	105.83102	104.1234765	102.4518937	100.8151956	99.21235205	97.64237397	96.10431083	94.59724894	93.12030959
221116A00027	11/16/2022	4.46	11/14/2025	11/16/2022	109.3479	106.6193547	103.9738579	101.4083399	98.91987052	96.50564867	94.16299539	91.88934759	89.68225214
221116A00028	11/16/2022	4.21	11/16/2027	11/16/2022	116.80218	111.9404347	107.3148297	102.91255	98.72155182	94.73050989	90.92876989	87.30630494	83.85367494
221118A00008	11/18/2022	5.09	11/30/2023	11/18/2022	102.73893	101.9821033	101.2364528	100.501735	99.77771047	99.0641468	98.36081828	97.66750563	96.98399582
221122A00011	11/22/2022	5.14	5/22/2024	11/22/2022	104.36102	103.1353959	101.9387573	100.7700817	99.62839468	98.51276693	97.42231123	96.35618034	95.31356471
221122A00015	11/22/2022	4.97	11/22/2024	11/22/2022	106.24093	104.5106517	102.8170964	101.1591605	99.53578289	97.94594463	96.38866723	94.86301046	93.36807048
221122A00041	11/22/2022	4.97	11/22/2024	11/22/2022	106.24093	104.5106517	102.8170964	101.1591605	99.53578289	97.94594463	96.38866723	94.86301046	93.36807048
221130A00069	11/30/2022	4.15	11/30/2027	11/30/2022	117.78916	112.8313868	108.1167679	103.6319785	99.36450474	95.30258697	91.43516941	87.75185386	84.24285666

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221130A00075	11/30/2022	4.15	11/30/2027	11/30/2022	117.78916	112.8313868	108.1167679	103.6319785	99.36450474	95.30258697	91.43516941	87.75185386	84.24285666
221130A00078	11/30/2022	4.15	11/30/2027	11/30/2022	117.78916	112.8313868	108.1167679	103.6319785	99.36450474	95.30258697	91.43516941	87.75185386	84.24285666
221130A00081	11/30/2022	4.15	11/30/2027	11/30/2022	117.78916	112.8313868	108.1167679	103.6319785	99.36450474	95.30258697	91.43516941	87.75185386	84.24285666
221201A00006	12/1/2022	4.77	12/2/2024	12/1/2022	106.00805	104.2527235	102.5351103	100.8540716	99.20851194	97.59737993	96.01966579	94.47439938	92.9606482
221201A00009	12/1/2022	4.22	12/1/2025	12/1/2022	109.48347	106.6933928	103.9896839	101.3690977	98.82853944	96.36505306	93.97581353	91.65812018	89.40939008
221201A00011	12/1/2022	3.95	12/1/2027	12/1/2022	116.85164	111.9131339	107.2172529	102.750691	98.50095145	94.45629061	90.60566796	86.93869984	83.44561643
221201A00037	12/1/2022	4.26	12/1/2026	12/1/2022	113.13475	109.3064853	105.6313814	102.1024068	98.71289792	95.45653751	92.32733377	89.31960153	86.4279445
221201A00048	12/1/2022	4.22	12/1/2027	12/1/2022	117.01048	112.1022359	107.4341477	102.9930859	98.76671983	94.74345953	90.91240694	87.26331036	83.78652228
221205A00034	12/5/2022	4.89	6/5/2024	12/5/2022	104.20452	102.9429369	101.7102971	100.505606	99.32791245	98.17630838	97.04992619	95.94793659	94.86954654
221205A00088	12/5/2022	4.13	12/3/2027	12/5/2022	116.60612	111.7019362	107.0380795	102.6014057	98.37956634	94.3609546	90.53465641	86.89040497	83.41853853
221207A00101	12/7/2022	4.87	6/7/2024	12/7/2022	104.2027	102.9358435	101.6974788	100.486641	99.30241045	98.14390848	97.01029491	95.90076613	94.81455303
221208A00001	12/8/2022	4.6	12/8/2033	12/8/2022	140.28543	128.4708469	117.8204512	108.2110958	99.53334975	91.68990198	84.59415755	78.16900397	72.34572517
221208A00005	12/8/2022	4.88	12/8/2037	12/8/2022	154.94692	138.3132343	123.8092236	111.1425696	100.0629268	90.35567584	81.83663632	74.34758743	67.75246876
221208A00006	12/8/2022	4.88	12/8/2037	12/8/2022	154.94692	138.3132343	123.8092236	111.1425696	100.0629268	90.35567584	81.83663632	74.34758743	67.75246876
221208A00050	12/8/2022	4.11	12/8/2027	12/8/2022	116.5618	111.645158	106.9700911	102.5233721	98.29257383	94.26601492	90.43271051	86.78232674	83.30513853
221208A00058	12/8/2022	4.41	12/8/2025	12/8/2022	109.49112	106.695386	103.9864517	101.3610817	98.81618148	96.34879298	93.9560874	91.63535852	89.38401649
221208A00059	12/8/2022	4.25	12/8/2026	12/8/2022	113.17673	109.3288607	105.6356294	102.0899355	98.6850463	95.41457723	92.27247124	89.25297996	86.35064603
221208A00061	12/8/2022	4.11	12/8/2027	12/8/2022	116.5618	111.645158	106.9700911	102.5233721	98.29257383	94.26601492	90.43271051	86.78232674	83.30513853
221208A00062	12/8/2022	4.24	12/8/2028	12/8/2022	120.69461	114.6701379	108.994114	103.6444022	98.6003914	93.84288352	89.35398856	85.1170286	81.11644916
221209A00035	12/9/2022	3.91	12/9/2027	12/9/2022	116.74329	111.7854669	107.0722564	102.5902263	98.3267532	94.26997317	90.40873172	86.7325373	83.23151812
221209A00037	12/9/2022	3.91	12/9/2027	12/9/2022	116.74329	111.7854669	107.0722564	102.5902263	98.3267532	94.26997317	90.40873172	86.7325373	83.23151812
221213A00051	12/13/2022	4.02	12/13/2027	12/13/2022	116.1845	111.2632562	106.5845576	102.1351048	97.9024034	93.87470829	90.04097412	86.39080988	82.91443646
221213A00056	12/13/2022	4.02	5/13/2026	12/13/2022	110.75631	107.499883	104.3578738	101.3255666	98.39847393	95.57232187	92.84303826	90.20674175	87.65973146
221213A00070	12/13/2022	4.07	12/13/2027	12/13/2022	116.42196	111.4951232	106.8110335	102.3563815	98.11866466	94.08612956	90.2477233	86.59304761	83.11231652
221214A00002	12/14/2022	4.62	12/13/2024	12/14/2022	105.84498	104.062346	102.318587	100.6125605	98.94316738	97.30935018	95.71009113	94.14441023	92.61136352
221214A00046	12/14/2022	4.02	12/14/2027	12/14/2022	116.19428	111.270117	106.5887629	102.136903	97.90202654	93.8723727	90.03688127	86.38514717	82.907378
221214A00077	12/14/2022	3.84	12/14/2027	12/14/2022	116.45972	111.4949486	106.7758562	102.2889342	98.02148725	93.96158316	90.09800274	86.42019325	82.91822512
221214A00079	12/14/2022	3.84	12/14/2027	12/14/2022	116.45972	111.4949486	106.7758562	102.2889342	98.02148725	93.96158316	90.09800274	86.42019325	82.91822512
221216A00013	12/16/2022	4.04	12/16/2027	12/16/2022	116.30899	111.3767402	106.6879123	102.229153	97.98791538	93.95240372	90.11152506	86.45484322	82.97253642
221216A00023	12/16/2022	4.04	12/13/2027	12/16/2022	116.27948	111.356003	106.675148	102.2236155	97.9889079	93.9592768	90.12367379	86.47170497	82.99358848
221219A00009	12/19/2022	4.83	6/19/2024	12/19/2022	104.29208	102.9929624	101.7196272	100.4713179	99.24730705	98.04689561	96.86941153	95.71420847	94.58066455
221220A00029	12/20/2022	4.7	12/20/2024	12/20/2022	106.06544	104.2622721	102.4987912	100.7738478	99.08633792	97.43519805	95.81940298	94.23796423	92.68992838
221221A00038	12/21/2022	4.43	12/20/2024	12/21/2022	105.95819	104.1492056	102.3801521	100.6498703	98.95724693	97.3012094	95.68072398	94.09479409	92.54245858

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221221A00046	12/21/2022	4.33	12/19/2025	12/21/2022	109.39241	106.5687742	103.8336647	101.1837901	98.61600618	96.12730416	93.71480417	91.37574882	89.10749717
221221A00048	12/21/2022	4.22	12/21/2026	12/21/2022	113.21042	109.3270089	105.600973	102.0250803	98.59246876	95.29662768	92.13137773	89.09085223	86.16947958
221221A00049	12/21/2022	4.15	12/21/2027	12/21/2022	116.88295	111.9236762	107.2096007	102.7272678	98.46402831	94.40798991	90.54796777	86.87343882	83.3744991
221222A00012	12/22/2022	4.35	12/16/2025	12/22/2022	109.41473	106.5987659	103.8708488	101.2277084	98.66621395	96.18337088	93.77631338	91.44229822	89.17869855
221222A00013	12/22/2022	4.34	12/23/2025	12/22/2022	109.46501	106.6297215	103.88362	101.2233997	98.64589649	96.14808175	93.72705565	91.38004083	89.10437649
221222A00014	12/22/2022	4.65	12/23/2024	12/22/2022	106.00758	104.1970284	102.4264862	100.6948031	99.0008735	97.34363182	95.72205015	94.13513681	92.58193479
221222A00024	12/22/2022	4.35	12/15/2025	12/22/2022	109.40354	106.5903926	103.8651296	101.2244847	98.66533191	96.18468149	93.77967251	91.44756656	89.18574167
221222A00026	12/22/2022	4.22	12/15/2026	12/22/2022	113.14293	109.2768939	105.5669371	102.0058905	98.58695319	95.30367388	92.14993099	89.11991365	86.20810411
221222A00027	12/22/2022	4.16	12/15/2027	12/22/2022	116.8697	111.9269255	107.2277877	102.7589322	98.50780774	94.4626153	90.61225832	86.94629728	83.45490715
221222A00035	12/30/2022	4.34	12/30/2025	12/30/2022	109.54314	106.6881224	103.9234499	101.245778	98.65190819	96.138777	93.70344962	91.34311375	89.0550738
221223A00025	12/23/2022	4.25	12/23/2027	12/23/2022	117.38083	112.4043751	107.6740614	103.176381	98.89863406	94.82888003	90.95588851	87.26909318	83.75854921
221228A00075	12/28/2022	4.09	12/28/2027	12/28/2022	117.80319	112.7682658	107.9838564	103.4361576	99.11219219	94.99976067	91.08739048	87.36428914	83.82030048
221228A00094	12/28/2022	4.95	6/28/2024	12/28/2022	104.55776	103.2330799	101.9321961	100.6545062	99.39943026	98.1664075	96.95489554	95.76436958	94.59432166
221230A00055	12/30/2022	4.59	12/30/2024	12/30/2022	106.36153	104.5221933	102.7239728	100.9657094	99.24628152	97.56460612	95.91963734	94.31036488	92.73581258
221230A00059	12/30/2022	4.47	6/30/2025	12/30/2022	108.29124	105.9334717	103.6395874	101.4075055	99.23522553	97.12082342	95.06244786	93.05831725	91.10671666
221230A00072	12/30/2022	4.8	12/31/2024	12/30/2022	106.37064	104.5355402	102.7413981	100.9870668	99.27143377	97.59342489	95.95200228	94.34616312	92.77493821
221230A00086	12/30/2022	4.8	1/2/2025	12/30/2022	106.39342	104.5528331	102.7534417	100.9940807	99.27362869	97.59100273	95.94515672	94.33507996	92.75979571
221230A00087	12/30/2022	4.56	1/2/2026	12/30/2022	110.19963	107.3272995	104.5460237	101.8524312	99.24329465	96.71552305	94.26615518	91.89235343	89.59139796
221230A00088	12/30/2022	4.42	12/30/2026	12/30/2022	114.07376	110.1497869	106.3855807	102.7737942	99.30745633	95.97995101	92.78499687	89.71662879	86.76918029
221230A00108	12/30/2022	4.8	12/30/2024	12/30/2022	106.35937	104.527027	102.7355277	100.9837241	99.27050479	97.59479647	95.95556251	94.35180144	92.78254553
221230A00109	12/30/2022	4.56	12/30/2025	12/30/2022	110.16457	107.3007178	104.5274197	101.8413277	99.23923661	96.71807673	94.27490719	91.90690987	89.61138361
221230A00111	12/30/2022	4.42	12/30/2026	12/30/2022	114.07376	110.1497869	106.3855807	102.7737942	99.30745633	95.97995101	92.78499687	89.71662879	86.76918029
230103A00066	1/3/2023	4.19	7/15/2026	1/3/2023	112.0408	108.5911172	105.2681907	102.0666924	98.98154436	96.00790805	93.14117176	90.37693874	87.71101604
230103A00068	1/3/2023	4.69	3/13/2025	1/3/2023	107.00447	104.9658247	102.976915	101.036207	99.14222365	97.29354386	95.48879993	93.72667509	92.00590123
230103A00070	1/3/2023	4.53	10/15/2025	1/3/2023	109.18016	106.5349664	103.968413	101.4776753	99.06004574	96.71293205	94.43385169	92.22042632	90.07037667
230105A00028	1/5/2023	4.93	10/18/2024	1/5/2023	105.76137	104.1298283	102.5315912	100.9657027	99.43124301	97.92732701	96.45310273	95.00774972	93.59047762
230106A00032	1/6/2023	4.28	1/6/2026	1/6/2023	110.06641	107.1715268	104.3690314	101.6554827	99.02758601	96.48218693	94.01626423	91.62692367	89.31139192
230109A00011	1/9/2023	4.61	1/6/2025	1/9/2023	106.08625	104.2380612	102.431466	100.6652811	98.93836852	97.2496295	95.59800288	93.98246363	92.4020213
230109A00027	1/9/2023	4.64	12/17/2024	1/9/2023	105.94232	104.1478993	102.3928227	100.6759447	98.99616336	97.35241744	95.74368468	94.16898002	92.62735389
230110A00006	1/10/2023	4.06	1/10/2028	1/10/2023	116.64888	111.6414856	106.8842892	102.363459	98.06599365	93.97967246	90.09300441	86.39518113	82.87603297
230110A00037	1/11/2023	4.66	11/15/2024	1/11/2023	105.62514	103.9194168	102.2496184	100.6146726	99.01355043	97.44526341	95.90886191	94.40343301	92.92809876
230110A00074	1/12/2023	4.65	1/10/2025	1/12/2023	106.20442	104.344608	102.5268596	100.7499765	99.01280209	97.31421958	95.65315081	94.02855443	92.43942448
230112A00054	1/12/2023	5.02	2/5/2024	1/12/2023	103.27738	102.3395525	101.418829	100.5147464	99.6268555	98.75472345	97.8979326	97.05607998	96.22877664

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230118A00020	1/18/2023	3.87	1/16/2026	1/18/2023	109.00111	106.0949899	103.2825372	100.5602289	97.92469551	95.37271232	92.90119205	90.50717833	88.18783943
230118A00053	1/18/2023	3.87	1/16/2026	1/18/2023	109.00111	106.0949899	103.2825372	100.5602289	97.92469551	95.37271232	92.90119205	90.50717833	88.18783943
230118A00056	1/18/2023	3.87	1/16/2026	1/18/2023	109.00111	106.0949899	103.2825372	100.5602289	97.92469551	95.37271232	92.90119205	90.50717833	88.18783943
230119A00067	1/19/2023	3.84	1/20/2026	1/19/2023	108.95605	106.0399813	103.2182284	100.4872299	97.84358202	95.2840276	92.80544888	90.40486075	88.07940438
230120A00049	1/20/2023	4.53	1/16/2025	1/20/2023	106.04428	104.1702724	102.3389808	100.5491816	98.79969141	97.08936802	95.41710889	93.7818495	92.18256178
230120A00082	1/20/2023	4.53	1/16/2025	1/20/2023	106.04428	104.1702724	102.3389808	100.5491816	98.79969141	97.08936802	95.41710889	93.7818495	92.18256178
230120A00099	1/20/2023	3.92	1/20/2026	1/20/2023	109.18727	106.2678428	103.4428094	100.7086098	98.06183775	95.49923357	93.01767713	90.61418108	88.2858844
230123A00016	1/23/2023	4.64	12/2/2024	1/23/2023	105.77903	104.0257711	102.3101922	100.6311509	98.98755289	97.37834766	95.80252642	94.25911992	92.74719652
230124A00014	1/24/2023	4.23	1/26/2026	1/24/2023	109.52335	106.5973434	103.7660884	101.0260046	98.37366592	95.8057943	93.31925227	90.91103614	88.57826955
230125A00010	1/25/2023	4.01	1/25/2027	1/25/2023	112.7867	108.818122	105.0141079	101.3669618	97.86938788	94.51446782	91.29563911	88.20667492	85.24166521
230125A00021	1/25/2023	3.95	1/26/2026	1/25/2023	109.33776	106.4002211	103.558133	100.8078731	98.14598089	95.56914527	93.07419782	90.65810561	88.31796461
230125A00022	1/25/2023	3.8	1/25/2027	1/25/2023	112.82824	108.8357285	105.0093377	101.3412736	97.82415095	94.45096763	91.21508273	88.11019599	85.13032856
230125A00062	1/25/2023	4.84	7/25/2024	1/25/2023	104.67939	103.2832329	101.9126583	100.5670233	99.24570459	97.94809936	96.6736242	95.42171449	94.19182353
230125A00065	1/25/2023	4.84	7/25/2024	1/25/2023	104.67939	103.2832329	101.9126583	100.5670233	99.24570459	97.94809936	96.6736242	95.42171449	94.19182353
230126A00009	1/26/2023	4.84	7/26/2024	1/26/2023	104.68973	103.2908802	101.9177065	100.569561	99.24581751	97.94586994	96.66913203	95.41503632	94.18303345
230126A00011	1/26/2023	4.84	7/26/2024	1/26/2023	104.68973	103.2908802	101.9177065	100.569561	99.24581751	97.94586994	96.66913203	95.41503632	94.18303345
230127A00012	1/27/2023	4	1/27/2028	1/27/2023	116.52065	111.4710154	106.6759232	102.1211776	97.79344417	93.68019624	89.76966157	86.05077332	82.51312418
230127A00028	1/27/2023	4.7	7/26/2024	1/27/2023	104.7731	103.3691382	101.9910099	100.6380636	99.30966768	98.00521123	96.7241032	95.46577161	94.22966279
230127A00029	1/27/2023	4.7	7/26/2024	1/27/2023	104.7731	103.3691382	101.9910099	100.6380636	99.30966768	98.00521123	96.7241032	95.46577161	94.22966279
230127A00044	1/27/2023	4.25	1/27/2026	1/27/2023	109.59213	106.6624865	103.8277846	101.0844337	98.4289983	95.85819131	93.36886681	90.95801316	88.62274643
230127A00045	1/27/2023	4.12	1/27/2027	1/27/2023	113.23536	109.2527878	105.4354735	101.7756816	98.26607871	94.89971133	91.66998403	88.5706391	85.59573753
230127A00046	1/27/2023	4	1/27/2028	1/27/2023	116.52065	111.4710154	106.6759232	102.1211776	97.79344417	93.68019624	89.76966157	86.05077332	82.51312418
230127A00048	1/27/2023	4	1/27/2028	1/27/2023	116.52065	111.4710154	106.6759232	102.1211776	97.79344417	93.68019624	89.76966157	86.05077332	82.51312418
230127A00053	1/27/2023	4	1/27/2028	1/27/2023	116.52065	111.4710154	106.6759232	102.1211776	97.79344417	93.68019624	89.76966157	86.05077332	82.51312418
230127A00056	1/27/2023	3.78	1/27/2028	1/27/2023	116.59813	111.5108349	106.6809708	102.0941312	97.73679002	93.59624261	89.66055213	85.91849904	82.35953449
230127A00059	1/27/2023	4.41	1/27/2025	1/27/2023	106.33583	104.4227741	102.5540561	100.7283801	98.94449818	97.20120687	95.49734526	93.83179319	92.20346949
230127A00060	1/30/2023	4.25	2/3/2026	1/30/2023	109.67064	106.7205396	103.8666346	101.105262	98.43292023	95.8462601	93.34207708	90.9173043	88.56900583
230127A00073	1/27/2023	4.24	2/17/2026	1/27/2023	109.80555	106.8126782	103.9186773	101.1197351	98.41220643	95.79260681	93.25760454	90.80401302	88.42878353
230127A00075	1/27/2023	4.23	7/28/2025	1/27/2023	108.04463	105.6155331	103.2541876	100.9583233	98.72575887	96.55439887	94.44222963	92.3873156	90.38779582
230127A00079	1/27/2023	4.23	7/28/2025	1/27/2023	108.04463	105.6155331	103.2541876	100.9583233	98.72575887	96.55439887	94.44222963	92.3873156	90.38779582
230130A00084	1/30/2023	4.29	1/30/2026	1/30/2023	109.74093	106.8011902	103.9569443	101.2045697	98.54060307	95.96173104	93.46478282	91.04672331	88.70464649
230131A00041	1/31/2023	5.06	2/28/2024	1/31/2023	103.51945	102.5194961	101.538951	100.5772514	99.63385708	98.70824805	97.79992399	96.90840319	96.03322169
141215A00062	12/15/2014	2.65	12/16/2024	12/15/2014	102.70535	100.9371029	99.20778566	97.51625592	95.86141766	94.24221581	92.65763437	91.10669456	89.58845319

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160210A00042	2/10/2016	2.57	2/10/2026	2/10/2016	104.81675	101.9179804	99.11493983	96.40395378	93.78150587	91.24423391	88.78892224	86.41249447	84.11200662
160211A00036	2/11/2016	2.41	2/11/2026	2/11/2016	104.35342	101.4586543	98.65963407	95.95267893	93.33426783	90.80103426	88.34975858	85.97736076	83.68089349
160222A00018	2/22/2016	2.59	2/23/2026	2/22/2016	104.96994	102.0318768	99.19202433	96.44655956	93.79183255	91.22435549	88.74079453	86.33796205	84.01280937
160520A00017	9/20/2017	2.34	9/20/2024	9/20/2017	101.38892	99.86794587	98.3772498	96.91599424	95.48337417	94.07861355	92.70096398	91.3497035	90.0241354
160520A00018	9/20/2017	2.34	9/20/2024	9/20/2017	101.38892	99.86794587	98.3772498	96.91599424	95.48337417	94.07861355	92.70096398	91.3497035	90.0241354
230224A00029	2/24/2023	4.87	2/24/2026	2/24/2023	111.76249	108.7199733	105.7783879	102.9338165	100.1825186	97.52091966	94.94560287	92.45330104	90.04088929
230210A00049	2/10/2023	5.07	8/12/2024	2/10/2023	105.20404	103.7567964	102.3368911	100.9436163	99.57628677	98.23424043	96.91683729	95.6234585	94.35350549
230201A00003	2/1/2023	3.93	1/31/2028	2/1/2023	116.21684	111.163887	106.3662653	101.8096983	97.48078301	93.36692995	89.45630959	85.7378027	82.20095413
230202A00045	2/2/2023	3.62	2/2/2028	2/2/2023	115.87035	110.7841752	105.9564288	101.3725923	97.0190417	92.88298337	88.95239939	85.21599651	81.66315885
230202A00071	2/2/2023	4.03	2/2/2027	2/2/2023	112.95125	108.9576849	105.1305537	101.4620315	97.94470391	94.57154234	91.3358815	88.23139886	85.25209516
230210A00035	2/10/2023	4.52	2/10/2026	2/10/2023	110.54619	107.5627563	104.6771506	101.8856222	99.18458877	96.57062496	94.04045442	91.5909425	89.21908924
230224A00020	2/24/2023	5.38	8/26/2024	2/24/2023	105.8251	104.3364058	102.8764908	101.4445897	100.0399659	98.66190811	97.30972936	95.98276579	94.68037581
230221A00007	2/21/2023	4.5	10/18/2027	2/21/2023	117.8247	113.0193584	108.443782	104.0856893	99.93352479	95.97641131	92.20410624	88.60696084	85.17588252
230202A00041	2/2/2023	3.82	2/2/2028	2/2/2023	115.69882	110.652718	105.8620545	101.3125255	96.99070413	92.88397969	88.98050364	85.26913985	81.73941812
230206A00009	2/6/2023	4.58	2/6/2025	2/6/2023	106.7826	104.8370428	102.9371758	101.0816467	99.26915254	97.49843758	95.76829102	94.07754516	92.42507357
230203A00025	2/3/2023	4.63	2/3/2025	2/3/2023	106.43258	104.5067621	102.625865	100.7885666	98.99359465	97.23972221	95.52576606	93.85058479	92.21307697
230201A00048	2/1/2023	4.42	2/3/2025	2/1/2023	106.43513	104.5017791	102.6136501	100.7694121	98.96778063	97.20751769	95.48742931	93.80636387	92.16321022
230213A00020	2/15/2023	4.28	1/25/2028	2/15/2023	117.86391	112.7872167	107.9657276	103.3852366	99.03239832	94.89467448	90.9602809	87.2181384	83.65782708
230210A00062	2/10/2023	4.13	2/10/2027	2/10/2023	114.30907	110.2418061	106.3453053	102.611476	99.03265443	95.60157857	92.31136517	89.15548776	86.12775633
230223A00010	2/23/2023	4.68	10/3/2025	2/23/2023	109.98706	107.3513878	104.7935335	102.3107185	99.90028368	97.55968196	95.28647314	93.07831846	90.93297567
230202A00065	2/2/2023	3.87	5/15/2028	2/2/2023	116.88315	111.524501	106.4501435	101.6433901	97.08862944	92.77124718	88.67755661	84.79473466	81.1107625
230215A00019	2/15/2023	5.01	2/18/2025	2/15/2023	107.36272	105.3840915	103.4525579	101.5667093	99.72518414	97.92667087	96.16990562	94.45367014	92.77678982
230203A00038	2/3/2023	4.1	2/3/2027	2/3/2023	113.23618	109.2341372	105.3989358	101.7227308	98.19808573	94.81795131	91.57564285	88.46481966	85.47946542
230227A00034	2/27/2023	5.42	5/28/2024	2/27/2023	104.7815	103.5372132	102.3227063	101.1369157	99.97882901	98.84748102	97.74195099	96.66136006	95.60486889
230208A00024	2/8/2023	5.08	8/8/2024	2/8/2023	105.17356	103.7370299	102.3274518	100.9441325	99.58640058	98.25360737	96.94512552	95.66034834	94.39868886
230202A00061	2/2/2023	4.16	2/2/2026	2/2/2023	109.3964	106.453239	103.6059863	100.8509944	98.18477489	95.60399092	93.10544973	90.68609557	88.34300302
230210A00055	2/10/2023	4.02	2/10/2028	2/10/2023	117.92152	112.7622821	107.8656364	103.2167857	98.80184752	94.60778835	90.62236795	86.8340868	83.23213754
230207A00045	2/7/2023	5.07	8/7/2024	2/7/2023	105.14785	103.7141377	102.3072761	100.9265783	99.57137657	98.24102552	96.93490103	95.65239947	94.39293684
230209A00037	2/9/2023	4.12	2/9/2028	2/9/2023	117.23669	112.1333616	107.2888373	102.6885868	98.31897029	94.16717996	90.22118456	86.4696786	82.90203482
230223A00012	2/23/2023	4.68	10/3/2025	2/23/2023	109.98706	107.3513878	104.7935335	102.3107185	99.90028368	97.55968196	95.28647314	93.07831846	90.93297567
230131A00087	2/3/2023	4.26	1/5/2026	2/3/2023	109.38235	106.5137543	103.7364185	101.0469547	98.44211906	95.91880498	93.47403671	91.1049631	88.80885164
230202A00063	2/2/2023	4.4	5/15/2025	2/2/2023	107.11162	104.9020932	102.7495618	100.6521397	98.6080221	96.61547845	94.67284886	92.77854043	90.93102401
230202A00011	2/2/2023	3.92	2/2/2027	2/2/2023	112.52198	108.5367671	104.7177317	101.0570594	97.54734518	94.18156959	90.95307595	87.85554996	84.88300025

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230210A00009	2/10/2023	4.93	12/11/2024	2/10/2023	106.39498	104.6122673	102.8683195	101.1619873	99.49216988	97.85780823	96.25788362	94.69141552	93.15745982
230202A00064	2/2/2023	4.11	5/15/2026	2/2/2023	110.3694	107.1305566	104.0053513	100.9891119	98.07738619	95.26593351	92.55071325	89.92787397	87.39374313
230209A00025	2/9/2023	4.25	2/5/2027	2/9/2023	113.84629	109.826476	105.9743539	102.2820277	98.74201576	95.34722648	92.09093547	88.96676478	85.96866321
230228A00009	2/28/2023	4.69	2/27/2026	2/28/2023	111.91989	108.8511178	105.8847339	103.0167447	100.2433352	97.56086121	94.96583977	92.4549416	90.02498317
230228A00010	2/28/2023	4.5	2/26/2027	2/28/2023	115.98411	111.8360034	107.8636491	104.0586351	100.4129967	96.91919174	93.57007565	90.35887818	87.27918189
230209A00023	2/9/2023	4.79	2/10/2025	2/9/2023	106.82898	104.8789289	102.9747972	101.1152255	99.29890044	97.52455619	95.79097239	94.09697223	92.44142061
230209A00015	2/9/2023	4.8	2/5/2025	2/9/2023	106.78604	104.8509225	102.961058	101.1151101	99.31179359	97.54986933	95.82814242	94.14546027	92.50071083
230201A00047	2/1/2023	4.42	2/3/2025	2/1/2023	106.43513	104.5017791	102.6136501	100.7694121	98.96778063	97.20751769	95.48742931	93.80636387	92.16321022
230203A00039	2/3/2023	3.98	2/3/2028	2/3/2023	116.49057	111.4224566	106.6107658	102.0411435	97.70011084	93.57500811	89.6539411	85.92573084	82.37986707
230227A00035	2/27/2023	5.41	6/28/2024	2/27/2023	105.17216	103.843198	102.538098	101.2562623	99.99710918	98.76007599	97.54461856	96.35021037	95.17634183
230227A00029	2/27/2023	5.46	3/28/2024	2/27/2023	104.20964	103.1293302	102.0715621	101.0356367	100.0208811	99.02664954	98.05232259	97.09730541	96.16102668
230209A00027	2/9/2023	4.12	2/7/2028	2/9/2023	117.21615	112.1190352	107.2801304	102.6849581	98.3199235	94.17225982	90.22997374	86.48179453	82.9171269
230210A00065	2/10/2023	4.02	2/10/2028	2/10/2023	117.92152	112.7622821	107.8656364	103.2167857	98.80184752	94.60778835	90.62236795	86.8340868	83.23213754
230202A00006	2/2/2023	3.92	2/2/2027	2/2/2023	112.52198	108.5367671	104.7177317	101.0570594	97.54734518	94.18156959	90.95307595	87.85554996	84.88300025
230227A00031	2/27/2023	5.44	4/29/2024	2/27/2023	104.49218	103.3261556	102.186334	101.0718397	99.98183329	98.91551228	97.87210887	96.8508882	95.85114653
230209A00024	2/9/2023	4.4	2/5/2026	2/9/2023	110.13284	107.1701086	104.3041173	101.5311727	98.8477479	96.25046971	93.73611095	91.30158333	88.94393064
230206A00008	2/6/2023	4.58	2/6/2025	2/6/2023	106.7826	104.8370428	102.9371758	101.0816467	99.26915254	97.49843758	95.76829102	94.07754516	92.42507357
230202A00033	2/2/2023	4.26	2/3/2025	2/2/2023	106.12534	104.195051	102.309931	100.468645	98.66991019	96.91249	95.19519197	93.51686589	91.87640199
230227A00060	2/27/2023	4.86	2/27/2026	2/27/2023	111.77292	108.7214509	105.7714884	102.9190845	100.1604671	97.49203232	94.91033533	92.41208286	89.99412542
230202A00042	2/2/2023	3.82	2/2/2028	2/2/2023	115.69882	110.652718	105.8620545	101.3125255	96.99070413	92.88397969	88.98050364	85.26913985	81.73941812
230222A00024	2/22/2023	4.74	3/2/2026	2/22/2023	111.45262	108.3976371	105.4445425	102.5893626	99.82830214	97.15773542	94.57419742	92.0743758	89.65510329
230203A00026	2/3/2023	3.98	2/3/2028	2/3/2023	116.49057	111.4224566	106.6107658	102.0411435	97.70011084	93.57500811	89.6539411	85.92573084	82.37986707
230203A00065	2/3/2023	3.76	2/3/2028	2/3/2023	116.56824	111.4622181	106.6155395	102.0136331	97.64282547	93.49027712	89.54392704	85.79244176	82.22516777
090429A00044	4/29/2009	4.1	4/29/2024	4/29/2014	100.27587	100.1858387	100.0568892	99.71966909	99.18826561	98.60649094	98.02327098	97.4476711	96.8805779
130416A00025	4/16/2013	2.27	4/18/2028	4/16/2018	99.693514	99.08735137	97.88507307	96.18980161	94.16261562	91.99065932	89.81760609	87.70774693	85.67346994
140508A00011	5/8/2014	2.32	5/8/2024	5/8/2019	100.07576	99.8279903	99.33563442	98.72418296	98.09565203	97.47443725	96.86300296	96.26123972	95.66889603
140723A00038	7/23/2014	2.3	7/23/2024	7/23/2019	100.05828	99.76879269	99.22216565	98.540743	97.83568693	97.13706738	96.44952373	95.77316135	95.10769953
141119A00005	11/19/2014	2.53	11/19/2024	11/19/2019	100.03981	99.70186111	99.07846142	98.28018043	97.43528793	96.59099993	95.75955986	94.94247152	94.13945778
150202A00006	2/2/2015	1.92	2/3/2025	2/3/2020	99.849747	99.38180414	98.59386154	97.66970488	96.71143711	95.7594932	94.82399099	93.90580817	93.00453499
151223A00007	12/23/2015	3.76	12/23/2030	12/23/2022	99.999534	99.59786807	98.48388816	96.35723653	93.18632019	89.16772716	84.70233252	80.2026719	75.9276019
161012A00020	10/11/2016	2.96	10/14/2031	10/11/2023	100.13278	98.9833177	97.01669773	93.98578358	89.89382538	85.14380054	80.24360185	75.53914557	71.15843541
170515A00052	5/15/2017	3.78	5/15/2042	5/15/2024	102.02	100.5584827	98.51291682	95.46250162	91.05999018	85.54051499	79.68694163	74.15259915	69.15725744
170519A00006	5/19/2017	3	5/19/2032	5/19/2022	99.856518	99.35390666	98.12373832	96.0454407	93.2062425	89.86925225	86.38240241	82.9888015	79.77899694

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170705A00037	7/5/2017	2.85	7/6/2032	7/6/2027	107.3688	103.7375019	100.1056168	96.43952215	92.74007744	89.04597209	85.43575599	81.98594037	78.73011667
170802A00074	8/2/2017	2.92	8/2/2027	8/2/2022	99.762756	99.26912356	98.12038645	96.28405654	93.89906243	91.17906692	88.35444529	85.57946122	82.91045383
170809A00042	8/9/2017	2.35	8/9/2027	8/9/2022	99.783697	99.25434298	98.1802513	96.66513389	94.86332129	92.93624271	91.00463171	89.12232403	87.30022999
171004A00022	10/4/2017	2.74	10/4/2027	10/4/2022	99.818902	99.32337165	98.18917176	96.38540302	94.02541474	91.31757306	88.49467354	85.7179755	83.04912425
171005A00047	10/5/2017	3.29	10/5/2032	10/5/2022	99.871312	99.3567363	98.00726917	95.58109147	92.11485261	87.90292771	83.4168058	79.03329715	74.92911992
180105A00005	1/5/2018	3.07	1/5/2028	1/5/2023	100.06173	99.75959227	98.99988483	97.71382373	96.01878347	94.06091237	91.99627113	89.94135727	87.94823351
180105A00006	1/5/2018	3.07	1/5/2028	1/5/2023	100.06173	99.75959226	98.99988483	97.71382374	96.01878348	94.06091239	91.99627115	89.9413573	87.94823355
180130A00087	1/30/2018	2.92	1/31/2028	1/30/2023	99.986535	99.65989363	98.82551045	97.47038161	95.7212262	93.73096668	91.65662571	89.60523638	87.618609
180302A00003	3/2/2018	3.89	3/2/2033	3/2/2023	100.0996	99.79308098	98.82599553	96.80369846	93.59216369	89.35621659	84.51349533	79.55989636	74.85524719
180315A00030	3/15/2018	3.76	3/15/2033	3/17/2025	104.7755	102.4601319	99.82225438	96.67511521	92.80116851	88.2251145	83.2310952	78.23706728	73.53953527
180504A00024	5/4/2018	3.62	5/4/2028	5/4/2023	100.4363	99.96531675	99.05825838	97.5052463	95.20076075	92.24732192	88.87950437	85.3804339	81.9729579
180627A00005	6/27/2018	3.63	6/30/2033	6/30/2023	100.44669	99.95369382	98.978671	97.2605233	94.68557483	91.39083544	87.70212976	83.97238211	80.41633608
180703A00033	7/3/2018	3.4	7/3/2028	7/3/2023	100.58622	99.99675895	99.09297156	97.76886845	96.00952369	93.93535276	91.7151829	89.49092866	87.33456429
190111A00040	1/11/2019	3.74	1/11/2034	1/11/2024	101.61605	100.4015462	98.70137343	96.20954409	92.65705247	88.15884084	83.18784761	78.2448423	73.6131189
190116A00015	1/16/2019	3.61	1/17/2034	1/16/2024	101.35507	100.2354434	98.71965929	96.58847389	93.66244317	90.07461608	86.18491712	82.3409675	78.71246764
190204A00054	2/4/2019	3.98	2/6/2034	2/2/2024	101.61445	100.4564048	98.76727432	96.2428111	92.61603126	87.98389106	82.82719108	77.67610023	72.85202554
190222A00023	2/22/2019	3.66	2/22/2034	2/22/2026	107.40375	104.001867	100.2697344	96.01578135	91.13464039	85.66928156	79.93527709	74.33857187	69.1514369
190301A00015	3/1/2019	3.86	3/1/2034	3/2/2026	107.2378	104.010004	100.4605026	96.40537273	91.7431335	86.50255448	80.98302942	75.57366014	70.54848054
190409A00016	4/9/2019	2.91	4/9/2029	4/9/2024	101.2555	99.91245806	98.23133002	96.03578087	93.23206107	89.97578225	86.55837274	83.20976144	80.02235526
190409A00017	4/9/2019	3.01	4/9/2029	4/9/2024	101.32306	99.97228679	98.23307303	95.92612742	92.93428564	89.40465354	85.65856261	81.970452	78.46370663
190430A00020	4/30/2019	3.41	4/28/2034	4/28/2026	106.60529	103.1362529	99.28087341	94.89663616	89.85736056	84.30812986	78.61464492	73.16217662	68.14860023
190520A00018	5/20/2019	3.7	5/20/2044	5/20/2024	101.74897	99.9571539	97.36632282	93.4544424	88.0588759	81.76742102	75.52240646	69.84150781	64.79259425
190530A00044	5/30/2019	2.85	5/30/2034	5/30/2024	101.16627	99.61318006	97.57061767	94.82377964	91.31213706	87.32501794	83.27345967	79.40697346	75.79622995
190807A00041	8/7/2019	2.27	8/7/2034	7/7/2024	100.39305	98.48087877	95.9298073	92.58393678	88.59615633	84.39742269	80.32913195	76.52000872	72.97756665
190807A00044	8/7/2019	2.27	8/7/2034	8/7/2024	100.51952	98.5438049	95.95061687	92.58744698	88.59633364	84.39742431	80.32913228	76.52000912	72.9775671
190827A00044	8/27/2019	1.9	8/27/2029	8/27/2024	100.40195	98.79109339	96.87551038	94.58535947	92.00298526	89.32870748	86.71114996	84.20090813	81.80062947
190930A00079	9/30/2019	2.04	10/1/2029	9/30/2024	100.62286	99.02924494	97.14679481	94.89057719	92.31861041	89.62367536	86.97122985	84.42477312	81.99078612
190930A00083	9/30/2019	2.04	10/1/2029	9/30/2024	100.62286	99.02924468	97.14679433	94.89057636	92.31860913	89.6236736	86.97122763	84.42477048	81.9907831
191007A00012	10/7/2019	2	10/5/2029	10/7/2024	100.39719	98.64768274	96.60195891	94.20133241	91.54010447	88.81413214	86.16079204	83.62071121	81.19399597
191007A00013	10/7/2019	2	10/5/2029	10/7/2024	100.39719	98.64768254	96.60195846	94.20133164	91.54010334	88.81413063	86.16079018	83.62070901	81.19399344
191028A00015	10/28/2019	2.49	10/27/2034	10/28/2024	101.22637	99.18541827	96.63205646	93.36317275	89.44541746	85.23022127	81.09297251	77.20418054	73.58876923
191031A00036	10/31/2019	2.9	10/31/2039	10/31/2024	101.087	98.83415837	95.74238844	91.55965447	86.43739435	80.98468508	75.77325647	71.00993817	66.69375661
191031A00037	10/31/2019	2.59	10/30/2034	10/31/2024	100.85504	98.8505326	96.27993617	92.96460107	89.00298256	84.79410298	80.69178644	76.8454521	73.26963739

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191220A00029	12/20/2019	2.57	12/19/2031	12/20/2024	101.50153	99.53712043	97.24316668	94.50257571	91.32995135	87.94595978	84.59682763	81.40571723	78.39236095
200108A00009	1/8/2020	2.4	1/8/2035	1/8/2025	101.38602	98.96073398	95.96323747	92.23144209	87.86562244	83.27226748	78.82247739	74.6702951	70.82653762
200108A00040	1/8/2020	2.52	1/8/2030	1/8/2025	101.37074	99.14679707	96.46038639	93.17943759	89.3515109	85.26392224	81.22701403	77.39442953	73.79209215
200110A00012	1/10/2020	2.57	1/10/2035	1/10/2025	101.34482	99.05312019	96.24536405	92.76424408	88.69632098	84.41349163	80.25369626	76.36133447	72.74785649
200115A00023	1/15/2020	2.16	1/15/2030	1/15/2025	100.99097	99.08540687	96.93682374	94.47551239	91.7555346	88.94949967	86.20577804	83.57961761	81.07411194
200115A00025	1/15/2020	2.1	1/15/2025	1/15/2023	99.526669	98.86948768	97.68092009	96.21630731	94.65097853	93.08395831	91.5466287	90.04273503	88.57155485
200306A00021	3/6/2020	1.16	3/6/2030	3/6/2025	99.081075	96.83582605	94.25088417	91.39470819	88.47028966	85.631734	82.92231158	80.34136418	77.88181449
200309A00013	3/9/2020	1.1	3/8/2030	3/9/2025	98.949296	96.68627821	94.07878307	91.20743893	88.28135455	85.44742971	82.74368452	80.16823241	77.71392396
200316A00030	3/16/2020	1.35	3/15/2030	3/16/2025	99.952287	97.80482029	95.35588206	92.60264721	89.69594483	86.82060012	84.06226652	81.43384099	78.92944643
200316A00032	3/16/2020	1.35	3/15/2030	3/16/2025	99.952287	97.80482018	95.35588185	92.60264686	89.69594433	86.82059947	84.06226572	81.43384006	78.92944538
200318A00015	3/18/2020	1.69	3/18/2030	3/18/2023	99.053547	97.94729569	96.06523891	93.5640827	90.73068437	87.84937799	85.06433057	82.41026555	79.88425933
200326A00035	3/26/2020	1.68	3/26/2030	3/26/2025	100.20067	98.08590335	95.68575713	92.98082499	90.10224991	87.23416125	84.47622124	81.84691694	79.34125706
200423A00008	4/23/2020	1.59	4/23/2030	4/23/2025	99.778876	96.9398785	93.46847402	89.33853828	84.84370684	80.36979686	76.12315416	72.14758692	68.4313307
200423A00009	4/23/2020	1.59	4/23/2030	4/23/2025	99.778876	96.93987866	93.46847434	89.33853878	84.84370755	80.36979777	76.12315525	72.1475882	68.43133214
200423A00010	4/23/2020	1.59	4/23/2030	4/23/2025	99.778876	96.93987878	93.46847453	89.33853909	84.843708	80.36979836	76.12315597	72.14758903	68.43133308
200430A00021	4/30/2020	1.2	4/30/2030	4/30/2025	99.14983	96.90031319	94.30669806	91.43188207	88.47957859	85.61081581	82.87304891	80.26635317	77.78349769
200505A00010	5/5/2020	0.89	5/6/2030	5/5/2025	99.042958	96.66202303	93.95916462	91.0081604	88.01075422	85.11143523	82.34847961	79.7196376	77.21729051
200512A00023	5/12/2020	1.78	5/11/2035	5/12/2025	99.675508	96.34754284	92.11059549	87.00668948	81.52303523	76.18679208	71.25429765	66.75913748	62.66617588
200609A00003	6/9/2020	1.66	6/8/2035	6/9/2025	98.983875	95.23599788	90.43349183	84.72255926	78.69455994	72.92363976	67.64287755	62.86767011	58.55167073
200612A00001	6/12/2020	0.75	6/12/2030	6/12/2025	98.751645	96.27639862	93.47997196	90.46413587	87.43722193	84.52398937	81.75139099	79.11480886	76.60631954
201022A00008	10/22/2020	1.02	10/22/2035	10/22/2025	98.351476	94.76552411	90.52055877	85.85323549	81.19343154	76.8096924	72.75882469	69.02195193	65.57085186
201029A00008	10/29/2020	0.92	10/29/2030	10/29/2025	98.784805	96.09417946	93.12382192	89.98085298	86.8525707	83.85290818	81.0038926	78.2995364	75.7310826
201030A00025	10/30/2020	2.02	10/28/2050	10/30/2025	99.386198	94.42869503	87.83474872	80.0333831	72.20029892	65.17497814	59.11194961	53.90297089	49.41059506
201116A00019	11/16/2020	1.32	11/15/2030	11/16/2025	98.947289	95.50743868	91.49111711	87.02218792	82.45063098	78.0580007	73.94161532	70.10235748	66.52111737
201118A00015	11/18/2020	1.66	11/18/2036	11/18/2027	101.1023	95.33147348	88.94533117	82.14944475	75.38241624	69.06844923	63.38336842	58.31228342	53.78804556
201118A00017	11/18/2020	1.66	11/18/2036	11/18/2027	101.1023	95.3314752	88.94533382	82.14944849	75.38242106	69.06845502	63.38337501	58.31229066	53.78805331
201118A00018	11/18/2020	1.85	11/18/2036	11/18/2027	100.98286	95.24120313	88.88927268	82.13659297	75.42186657	69.16235459	63.52607498	58.49576607	54.00491009
201202A00016	12/2/2020	1.32	12/3/2035	12/2/2025	98.753262	95.12214946	90.87897054	86.20830122	81.52616939	77.10932561	73.02703889	69.26295005	65.78845
201202A00017	12/2/2020	1.32	12/3/2035	12/2/2025	98.753262	95.12215016	90.87897177	86.2083031	81.52617195	77.10932883	73.0270427	69.2629544	65.78845484
201229A00003	12/29/2020	1.28	12/30/2030	12/30/2025	98.846589	95.31368577	91.20919662	86.67355042	82.05597717	77.6326796	73.49347036	69.63679185	66.04268259
201230A00018	12/30/2020	1.52	12/28/2035	12/28/2027	100.72123	94.960419	88.66267942	82.02111393	75.44058602	69.29970617	63.74977287	58.77465945	54.31379888
210108A00007	1/8/2021	1.65	1/8/2036	1/8/2026	99.461224	95.19645221	89.99003554	83.99889426	77.79300871	71.90129313	66.53922655	61.71045057	57.36229368
210225A00010	2/25/2021	2.02	2/25/2041	2/25/2026	100.42173	96.2973191	91.32038089	85.5942601	79.65255145	74.03753595	68.95132915	64.38082954	60.26804978

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210405A00013	4/5/2021	1.82	4/7/2036	4/5/2026	100.78114	97.17325239	93.05571518	88.47221411	83.71814356	79.12385984	74.85106765	70.91430442	67.28662629
210622A00004	6/22/2021	2.42	6/20/2036	6/22/2026	102.28922	98.09612062	93.14421783	87.43622677	81.28114716	75.21347764	69.59690863	64.52667917	59.96757826
210910A00009	9/10/2021	1.77	9/10/2036	9/10/2026	101.83045	97.94607646	93.6314726	88.91037297	84.01541376	79.26833059	74.84935014	70.78604325	67.05131665
210924A00016	9/24/2021	1.91	9/24/2036	9/24/2026	102.38101	98.53768114	94.29509656	89.6378671	84.76902289	80.00331021	75.54751529	71.44664084	67.67718579
211019A00005	10/19/2021	2.49	10/20/2036	10/19/2026	104.01645	99.64561672	94.64216389	88.92855987	82.72987155	76.51346513	70.69894351	65.44134076	60.72296617
211110A00017	11/10/2021	2.01	11/10/2036	11/10/2026	102.98464	99.04307228	94.73911537	90.04339818	85.13753598	80.3185612	75.80400118	71.64982993	67.8345005
211116A00012	11/16/2021	2.22	12/18/2034	11/16/2026	103.24007	99.59437737	95.69142089	91.50973906	87.1574737	82.85285543	78.76978234	74.96865843	71.44030948
211124A00008	11/24/2021	2.62	11/22/2041	11/24/2026	104.8839	100.5673222	95.69892148	90.17387453	84.1871718	78.19690627	72.62879658	67.61652093	63.12476099
211215A00020	12/15/2021	1.85	12/15/2031	12/15/2026	102.3849	99.10450647	95.71678583	92.22327679	88.69715372	85.25600732	81.9780441	78.88279074	75.96232951
211227A00012	12/27/2021	2.39	12/29/2036	12/27/2028	106.99538	100.7667611	94.2374359	87.45364836	80.59482379	73.98197318	67.89709151	62.43823782	57.56872895
220217A00024	2/17/2022	2.43	2/17/2027	2/17/2025	101.9404	99.89782058	97.7106247	95.31392783	92.70277363	89.97354097	87.25464271	84.61989089	82.08485906
220617A00069	6/17/2022	4.06	6/17/2027	6/17/2025	106.12198	103.9639854	101.7919263	99.5791784	97.27395001	94.83576522	92.26168457	89.61083879	86.99409209
220831A00108	8/31/2022	4.07	8/31/2027	9/2/2025	106.95331	104.5055269	102.0545835	99.57317128	97.01252649	94.33656343	91.5449335	88.69485596	85.89349695
221212A00004	12/12/2022	4.36	12/10/2032	12/10/2027	114.43625	110.3923489	106.4376217	102.558657	98.73602376	94.95028681	91.2092265	87.53456752	83.9960005
221214A00057	12/14/2022	4.65	12/14/2027	12/12/2025	110.13956	107.2061981	104.2885862	101.3622109	98.37771862	95.28290899	92.04285626	88.66387056	85.26556655
221222A00137	12/22/2022	5.4	12/22/2037	12/22/2027	119.57712	114.7817039	110.0121963	105.2440917	100.423084	95.48381751	90.42881358	85.30726287	80.32306078
210611A00010	6/11/2021	1.02	6/11/2026	6/11/2021	100.46991	97.51072807	94.6568128	91.90379833	89.24752896	86.68404626	84.20957838	81.82052994	79.51347265
160608A00029	6/8/2016	2.36	6/8/2026	6/8/2016	104.50003	101.5149804	98.63492547	95.85553382	93.17267734	90.58242406	88.08102745	85.66491637	83.33068563
210915A00018	9/15/2021	0.74	9/16/2024	9/15/2021	98.915435	97.46706747	96.0473549	94.65551206	93.29078167	91.95243348	90.63976311	89.35209087	88.0887607
160212A00047	2/12/2016	1.94	2/12/2026	2/12/2016	101.11391	99.59452528	98.11312174	96.66844197	95.25928078	93.8844819	92.54293558	91.23357639	89.95538106
170711A00010	7/11/2017	2.38	7/12/2027	7/11/2017	103.7212	101.4520767	99.25951654	97.14029674	95.09135173	93.10976666	91.1927689	89.33772009	87.5421087
200514A00008	5/14/2020	1.23	5/14/2030	5/14/2020	103.01259	97.45474247	92.26828653	87.42571024	82.90170615	78.67298008	74.71807978	71.01723914	67.55223637
170504A00049	5/4/2017	2.63	5/6/2024	5/4/2017	101.19993	100.0548717	98.93593813	97.84224335	96.77293799	95.7272104	94.70428467	93.70341862	92.72390205
171207A00025	12/7/2017	2.91	12/7/2027	12/7/2017	109.7382	105.3996424	101.2693489	97.33604963	93.58915469	90.01870521	86.61533181	83.37021624	80.27505576
200421A00026	4/21/2020	1.34	4/19/2030	4/21/2020	103.62695	98.08489171	92.91015427	88.07574166	83.55680511	79.33045678	75.37560426	71.67280003	68.20410426
120807A00026	8/7/2012	2.42	8/9/2027	8/7/2012	103.42164	101.1262279	98.90921735	96.76727597	94.69723383	92.69607801	90.76094375	88.88910615	87.07797242
190205A00020	2/5/2019	3.32	2/5/2029	2/5/2019	114.06059	108.649444	103.5500792	98.74257778	94.20839831	89.93027791	85.89213738	82.07899394	78.47688097
190305A00017	3/5/2019	3.12	3/5/2026	3/5/2019	106.07908	103.3059043	100.6239526	98.02968717	95.51972723	93.09084251	90.73994584	88.46408591	86.26044041
151120A00019	11/20/2015	2.72	11/20/2030	11/20/2015	108.83701	104.7412044	100.8679787	97.20294987	93.73277987	90.4450927	87.32839822	84.37202256	81.56604445
180402A00013	4/2/2018	2.99	4/3/2028	4/2/2018	109.96803	105.9465082	102.118209	98.47246516	94.99926631	91.68921271	88.53347441	85.52375331	82.65224809
180713A00031	7/13/2018	3.06	7/14/2025	7/13/2018	102.16557	100.9171081	99.69561649	98.50028503	97.33033682	96.18502457	95.06362921	93.96545858	92.88984621
160908A00025	9/8/2016	2.21	9/8/2026	9/8/2016	104.49752	101.3084029	98.23893745	95.28394097	92.43848637	89.69788706	87.05768376	84.51363214	82.06169117
170407A00001	4/6/2017	2.97	4/6/2027	4/6/2017	108.05814	104.4525924	100.9976585	97.68611944	94.51114193	91.466259	88.54534785	85.74260957	83.05255006

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181003A00019	10/3/2018	3.44	10/3/2025	10/3/2018	106.00069	103.507087	101.0865968	98.7366181	96.45466339	94.23834967	92.08539344	89.99360581	87.96088788
220308A00012	3/8/2022	2.51	3/8/2032	3/8/2022	112.81154	105.6062484	98.97791543	92.87551607	87.25286013	82.0681055	77.28332506	72.86411894	68.77926717
150320A00019	3/20/2015	2.25	3/20/2025	3/20/2015	102.12009	100.3633176	98.64852768	96.97442611	95.33976689	93.74335166	92.18402751	90.66068482	89.17225532
150803A00038	8/3/2015	3.41	8/2/2030	8/3/2015	116.50818	110.1780609	104.2783962	98.77670137	93.6431336	88.85026427	84.37287074	80.18774732	76.27353332
160608A00019	6/8/2016	2.36	6/8/2026	6/8/2016	104.50003	101.5149804	98.63492547	95.85553384	93.17267737	90.58242411	88.08102751	85.66491644	83.33068572
190826A00032	8/26/2019	1.72	8/24/2029	8/26/2019	103.86244	100.5614817	97.41458043	94.41308538	91.54889562	88.81442379	86.20255999	83.70663847	81.32040686
191008A00007	10/8/2019	1.67	10/9/2029	10/8/2019	103.80622	100.4260652	97.20709768	94.14008752	91.2164016	88.42796396	85.76721606	83.22708001	80.80092476
200319A00035	3/19/2020	1.72	3/18/2033	3/19/2020	107.21813	101.2198133	95.69116256	90.5900847	85.8786003	81.52241781	77.49055047	73.75497535	70.29032958
200910A00006	9/10/2020	0.96	9/10/2027	9/10/2020	101.2934	97.26435518	93.4242625	89.7632121	86.27186419	82.94141647	79.76357018	76.73049867	73.83481795
190227A00033	2/27/2019	2.65	2/27/2026	2/27/2019	102.55932	101.0123721	99.50424885	98.03366083	96.59937114	95.20019337	93.83498904	92.50266533	91.20217286
190403A00010	4/3/2019	3.08	4/3/2029	4/3/2019	113.46635	107.7972292	102.4659151	97.45020685	92.72948129	88.2845754	84.0976753	80.15221409	76.43277809
160524A00028	5/24/2016	2.06	5/24/2023	5/24/2016	100.22964	99.99564341	99.76274331	99.53093545	99.30021216	99.0705658	98.84198885	98.61447382	98.38801331
160908A00035	9/8/2016	2.3	9/8/2031	9/8/2016	106.90528	102.4913754	98.33877065	94.4291763	90.74573363	87.27289357	83.99630574	80.90271749	77.97988218
161229A00018	12/29/2016	2.46	12/29/2026	12/29/2016	103.20222	101.2320429	99.32127813	97.46765037	95.66898457	93.92320474	92.22832868	90.5824631	88.98379896
181129A00005	11/29/2018	3.21	11/29/2023	11/29/2018	101.29368	100.5539173	99.82502517	99.10676339	98.3989002	97.70121052	97.01347575	96.33548348	95.66702735
191112A00024	11/12/2019	2.09	11/12/2024	11/12/2019	101.17185	99.55065911	97.96347234	96.40928271	94.88712008	93.3960525	91.93518433	90.50365443	89.10063449
180716A00062	7/16/2018	2.91	7/16/2025	7/16/2018	102.23785	100.9847425	99.75878158	98.55915197	97.38506957	96.23578028	95.11055862	94.00870631	92.92955108
160824A00019	8/24/2016	1.98	8/25/2031	8/24/2016	106.39138	102.0161311	97.89868508	94.02107931	90.36675095	86.92041844	83.66797328	80.59638165	77.69359489
170713A00021	7/13/2017	3.25	7/13/2037	7/13/2017	128.21392	116.3125361	105.8121602	96.53154791	88.3142977	81.02529588	74.54768826	68.78029859	63.63542576
181115A00044	11/15/2018	3.26	11/15/2023	11/15/2018	101.26081	100.5555472	99.86012916	99.17435201	98.49801527	97.83092396	97.17288844	96.52372425	95.88325191
200317A00043	3/17/2020	1.29	3/15/2030	3/17/2020	102.68311	99.13812331	95.77130402	92.5719424	89.53005625	86.63633674	83.88209825	81.25923242	78.7601658
190708A00032	7/8/2019	2.58	7/2/2029	7/8/2019	110.94808	105.1808101	99.76969215	94.6905824	89.92110229	85.44049818	81.22951542	77.27028274	73.54620608
210217A00005	2/17/2021	0.83	2/14/2031	2/17/2021	101.1983	97.270846	93.56283976	90.0597354	86.74806501	83.61535535	80.65004741	77.84142303	75.17953782
210212A00006	2/12/2021	0.77	2/12/2026	2/12/2021	99.50934	96.81267245	94.20465015	91.68186969	89.24107822	86.87916562	84.59315739	82.3802079	80.23759411
160705A00010	7/5/2016	1.68	7/5/2023	7/5/2016	100.16165	99.8140772	99.46891813	99.12615071	98.78575011	98.44769182	98.11195171	97.77850594	97.44733101
190708A00026	7/8/2019	2.21	7/1/2024	7/8/2019	100.89554	99.61124669	98.3495368	97.10986481	95.89170112	94.6945327	93.51786243	92.36120852	91.22410391
210423A00003	4/23/2021	1.31	4/23/2031	4/23/2021	103.25593	99.16877618	95.31416418	91.67641488	88.24103188	84.99460654	81.92472869	79.01990524	76.26948595
160307A00024	3/7/2016	2.17	3/6/2026	3/7/2016	101.54169	99.97583512	98.44989373	96.96252744	95.51245171	94.09843468	92.71929459	91.37389731	90.06115413
200501A00009	5/4/2020	0.67	5/1/2025	5/4/2020	99.151716	98.02072634	96.91310429	95.82816564	94.76525232	93.72373121	92.70299294	91.7024508	90.72153967
151223A00036	12/23/2015	2.64	12/23/2025	12/23/2015	103.19501	101.1058777	99.07567556	97.10234528	95.18391615	93.31849861	91.50428032	89.73952256	88.02255669
190605A00023	6/5/2019	2.64	6/5/2029	6/5/2019	111.1988	105.4809647	100.1124695	95.06981072	90.33119495	85.87640744	81.68668927	77.74462455	74.03403704
141015A00029	10/15/2014	2.32	10/15/2024	10/15/2014	101.58182	100.1571626	98.76113168	97.39291474	96.05172593	94.73680901	93.44743593	92.1829055	90.94254216
200406A00029	4/6/2020	1.61	4/5/2030	4/6/2020	105.72035	99.60308176	93.90361384	88.59078742	83.6359377	79.01268011	74.69671713	70.66566259	66.89888151

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210809A00013	8/9/2021	1.05	8/7/2026	8/9/2021	100.65343	97.62536675	94.70879743	91.89899254	89.19145013	86.581883	84.06620726	81.64053152	79.30114674
150414A00037	4/14/2015	2.34	4/14/2025	4/14/2015	101.06041	99.94713663	98.8564139	97.78758919	96.74003541	95.71314905	94.70634899	93.71907552	92.75078932
180717A00021	7/17/2018	3.34	7/17/2028	7/17/2018	112.34982	107.660585	103.2157245	99.00093397	95.00282494	91.20886201	87.60730404	84.18714973	80.93808711
150604A00039	6/4/2015	2.82	6/4/2030	6/4/2015	108.72067	104.8413526	101.1628991	97.67289786	94.35980331	91.21286865	88.22208523	85.37812665	82.67229757
200406A00032	4/6/2020	1.09	4/4/2025	4/6/2020	99.715247	97.75947675	95.85230204	93.99218697	92.17765572	90.40729004	88.67972651	86.99365395	85.34781103
221018A00007	10/18/2022	4.68	10/18/2027	10/18/2022	109.20035	106.6908163	104.2695921	101.9328236	99.67685038	97.49819762	95.39356532	93.35981832	91.39397693
131018A00006	10/18/2013	3.28	10/20/2025	10/18/2013	105.75683	103.3939096	101.0998543	98.87219757	96.70858172	94.60674967	92.56453989	90.57988166	88.65079048
140821A00030	8/21/2014	2.27	8/21/2024	8/21/2014	100.77282	99.98411677	99.20912047	98.44745404	97.69875807	96.96268654	96.23890617	95.5270958	94.82694585
170201A00016	2/1/2017	2.49	2/1/2024	2/1/2017	101.04452	100.1377418	99.24732455	98.37283128	97.51383679	96.6699309	95.84071784	95.02581553	94.22485508
150617A00018	6/17/2015	2.45	6/17/2025	6/17/2015	101.31936	100.1215255	98.9490146	97.80107824	96.67699295	95.57606298	94.4976189	93.44101642	92.40563519
170322A00033	3/22/2017	3.61	3/24/2042	3/22/2017	127.28104	116.1159486	106.2975413	97.63948715	89.98348514	83.19478917	77.15848076	71.77636056	66.9643516
190315A00017	3/15/2019	2.88	3/15/2034	3/15/2019	113.77669	107.7526632	102.1770802	97.01098487	92.21916075	87.76974468	83.63388223	79.7854207	76.20063541
150617A00030	6/17/2015	2.91	6/16/2025	6/17/2015	103.70117	101.6130453	99.57965007	97.59918993	95.66994371	93.79025866	91.95854717	90.17328375	88.43300205
160413A00021	4/13/2016	2.48	4/13/2026	4/13/2016	104.5517	101.6923572	98.92985074	96.26030859	93.68004279	91.18553529	88.77342903	86.44051939	84.18374634
170619A00096	6/16/2017	2.79	6/16/2027	6/16/2017	108.22404	104.3117486	100.5716334	96.99510264	93.57404369	90.30079224	87.16810496	84.16913396	81.29740292
191004A00023	10/4/2019	2.02	10/4/2029	10/4/2019	107.88831	102.0511528	96.58777079	91.47192561	86.67936063	82.18764343	77.97601924	74.02527672	70.31762526
210611A00007	6/11/2021	0.61	6/11/2024	6/11/2021	98.789664	97.57823664	96.39297651	95.23303462	94.09759837	92.98589003	91.89716486	90.83070934	89.78583958
160608A00024	6/8/2016	2.36	6/8/2026	6/8/2016	104.50003	101.5149805	98.63492547	95.85553376	93.17267722	90.58242388	88.08102722	85.66491609	83.3306853
170317A00044	3/17/2017	3.11	3/17/2027	3/17/2017	108.43558	104.8625849	101.4373112	98.15274628	95.0022531	91.97954615	89.07867082	86.293984	83.62013605
191101A00004	11/1/2019	1.91	11/1/2029	11/1/2019	107.85014	102.3894972	97.27142321	92.47201836	87.96919054	83.74250967	79.77307336	76.04338422	72.53723768
160810A00029	8/10/2016	2.17	8/10/2026	8/10/2016	104.2241	101.105468	98.1016226	95.20769242	92.4190382	89.73124233	87.140097	84.64159306	82.23190954
180925A00116	9/25/2018	3.28	9/25/2028	9/25/2018	107.78029	104.8226812	101.9863309	99.26518227	96.65352398	94.14597065	91.73744187	89.42314288	87.19854658
190529A00061	5/29/2019	2.46	5/29/2026	5/29/2019	102.17836	100.5194071	98.90444694	97.33195683	95.8004765	94.30860723	92.85500875	91.43839635	90.05753814
150825A00008	8/25/2015	2.82	8/25/2025	8/25/2015	103.91731	101.6719231	99.4895925	97.36816851	95.30558477	93.29985814	91.34908484	89.45143669	87.60515764
200330A00047	3/30/2020	1.5	3/30/2035	3/30/2020	104.61568	98.64173781	93.14591935	88.08369367	83.41510374	79.10425823	75.11888612	71.42994324	68.01126405
210913A00014	9/13/2021	1.15	9/13/2028	9/13/2021	100.88995	98.13244346	95.48761223	92.94984346	90.51384649	88.17463146	85.92749019	83.76797838	81.69189901
110701A00011	7/1/2011	3.87	7/1/2026	7/1/2011	104.88397	103.0995223	101.3641137	99.67599816	98.03350748	96.43504474	94.87908083	93.36415112	91.88885215
190131A00023	1/31/2019	3.02	1/30/2034	1/31/2019	114.41328	108.4417424	102.9088549	97.77699351	93.01209956	88.58331915	84.46267728	80.62478747	77.04659245
210714A00012	7/14/2021	1.12	7/14/2026	7/14/2021	100.86087	97.81814675	94.88627833	92.06062907	89.33678247	86.71052926	84.17785656	81.73493767	79.37812241
191009A00009	10/9/2019	1.8	10/9/2026	10/9/2019	101.34093	99.49454092	97.70174859	95.96056281	94.26908069	92.62548367	91.02803321	89.47506664	87.96499333
151229A00026	12/29/2015	2.28	12/29/2025	12/29/2015	101.81399	100.3600724	98.94119209	97.55621544	96.20405643	94.88367263	93.59406306	92.33426617	91.10335796
160412A00029	4/12/2016	2.48	4/14/2031	4/12/2016	107.32548	103.0998796	99.11378297	95.35109329	91.79692634	88.43751127	85.26009942	82.25288127	79.40491068
160923A00009	9/23/2016	2.24	9/23/2031	9/23/2016	106.63404	102.2308717	98.08840868	94.1884004	90.51402321	87.04976075	83.78129307	80.69539594	77.77984918

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191112A00022	11/12/2019	2.36	11/13/2029	11/12/2019	110.06175	104.0475357	98.42307568	93.16065718	88.23469593	83.62155746	79.29939792	75.24801892	71.44873476
171204A00024	12/4/2017	2.71	12/4/2024	12/4/2017	102.31053	100.6244319	98.97460953	97.35996811	95.77946008	94.23207949	92.71685986	91.23287225	89.7792234
200309A00081	3/9/2020	1.18	3/8/2030	3/9/2020	102.98398	97.04958312	91.51776677	86.35873354	81.54504711	77.05143656	72.85461454	68.93311164	65.26712534
150803A00033	8/3/2015	3.41	8/2/2030	8/3/2015	116.50818	110.1780609	104.2783962	98.77670137	93.64313363	88.85026432	84.37287081	80.18774741	76.27353343
151125A00037	11/25/2015	2.41	11/25/2025	11/25/2015	101.62496	100.2190548	98.84624043	97.5054683	96.19572823	94.91605022	93.66550244	92.44318944	91.24825039
160328A00038	3/28/2016	2.54	3/30/2026	3/28/2016	104.44928	101.7182806	99.07792225	96.52463495	94.05501645	91.66581895	89.35394114	87.11642053	84.95042638
181010A00025	10/10/2018	3.48	10/10/2030	10/10/2018	111.89044	107.7241099	103.7820237	100.0498242	96.51418469	93.16273155	89.9839694	86.96721277	84.1025233
190905A00021	9/5/2019	2.08	9/5/2029	9/5/2019	108.17398	102.3864898	96.96587231	91.88661853	87.12513103	82.65956973	78.46971203	74.53682489	70.84354752
200612A00004	6/12/2020	1.42	6/12/2040	6/12/2020	104.66938	96.15852561	88.60352294	81.8810036	75.8849348	70.52402947	65.71956294	61.40352923	57.51708175
160126A00004	1/26/2016	2.52	1/26/2026	1/26/2016	104.90688	102.1594114	99.50053614	96.92690773	94.43532409	92.02272157	89.68616821	87.42285719	85.23010088
181119A00008	11/19/2018	3.23	11/17/2023	11/19/2018	101.24476	100.5463562	99.85773251	99.17868728	98.50902048	97.84853768	97.19704983	96.554373	95.92032832
190708A00029	7/8/2019	2.57	7/2/2029	7/8/2019	110.88941	105.1245496	99.71570267	94.6387393	89.87128875	85.39260471	81.18343936	77.22592777	73.5034818
160713A00015	7/13/2016	1.57	7/13/2026	7/13/2016	101.12467	99.39743856	97.71784042	96.08417919	94.49482867	92.94823258	91.44290094	89.9774068	88.55038307
220211A00010	2/11/2022	1.99	2/11/2025	2/11/2022	100.98094	99.50963023	98.07102806	96.6641771	95.28815438	93.94207058	92.62506857	91.33632195	90.07503378
180322A00044	3/22/2018	3.18	3/22/2033	3/22/2018	114.19061	108.6641113	103.5160379	98.71602165	94.23639605	90.05193884	86.13963804	82.47848187	79.04927008
200605A00018	6/5/2020	0.91	6/5/2025	6/5/2020	99.447687	97.34644608	95.30050849	93.30802808	91.36723539	89.47643408	87.63399727	85.83836404	84.08803614
210512A00011	5/12/2021	1.16	5/12/2026	5/12/2021	100.82413	97.92477553	95.12639105	92.4248388	89.81618153	87.29666841	84.86272479	82.51094265	80.23807166
171204A00009	12/4/2017	2.23	12/4/2024	12/4/2017	100.88476	99.97181288	99.07558452	98.19560509	97.33142579	96.48261475	95.64875624	94.82944988	94.02430992
181226A00030	12/26/2018	2.91	12/26/2028	12/26/2018	107.03258	103.9684492	101.0346863	98.2245573	95.53172626	92.95022951	90.4744515	88.09910196	85.81919493
200103A00002	1/3/2020	2.07	1/3/2030	1/3/2020	108.91624	103.2931745	98.03024254	93.10185734	88.4843937	84.15602913	80.09659694	76.28745209	72.71134845
170707A00007	7/7/2017	2.65	7/8/2024	7/7/2017	101.49187	100.187336	98.906017	97.64734469	96.41076816	95.19575395	94.00178537	92.8283619	91.6749985
180925A00013	9/25/2018	3.41	9/25/2028	9/25/2018	107.50482	104.5669942	101.749226	99.04553663	96.45028702	93.95815899	91.56413463	89.26347738	87.05171431
190829A00039	8/29/2019	1.85	8/29/2034	8/29/2019	107.88112	101.9644945	96.50302325	91.45591236	86.78640231	82.4613394	78.45079437	74.72772401	71.26767041
191206A00005	12/6/2019	2.18	12/7/2026	12/6/2019	105.05654	101.5493744	98.18225979	94.94878658	91.84287461	88.85875754	85.99096457	83.23430342	80.58384429
200430A00027	4/30/2020	1.31	4/30/2035	4/30/2020	103.44728	97.50152033	92.03453323	87.00147207	82.36211732	78.0803646	74.12377154	70.46315756	67.07225015
200512A00013	5/12/2020	1.17	5/12/2027	5/12/2020	101.88474	98.10427482	94.48965992	91.03266336	87.72550765	84.56084515	81.53173159	78.63160143	75.85424486
200716A00004	7/16/2020	0.97	7/16/2027	7/16/2020	101.23387	97.32852322	93.60090733	90.04197481	86.64318784	83.39648462	80.29425039	77.32929034	74.49480434
181218A00040	12/18/2018	3.23	6/18/2030	12/18/2018	109.45767	105.5703738	101.8836926	98.38526273	95.06358379	91.90794879	88.9083841	86.05559416	83.34091064
190905A00025	9/5/2019	2.08	9/5/2029	9/5/2019	108.17398	102.3864892	96.96587269	91.88661986	87.12513325	82.65957277	78.46971583	74.53682939	70.84355267
200327A00084	3/27/2020	1.1	3/27/2025	3/27/2020	99.716055	97.82245787	95.97534492	94.17326201	92.41481165	90.69865022	89.02348547	87.38807413	85.79121966
220801A00066	8/1/2022	2.93	7/30/2027	8/1/2022	110.22906	106.0479632	102.0572722	98.24724233	94.60868108	91.13291242	87.8117451	84.63744297	81.60269737
150729A00028	7/29/2015	2.25	7/29/2025	7/29/2015	101.3977	100.1536278	98.9365433	97.74563671	96.5801273	95.43926428	94.32232533	93.22861533	92.15746503
180305A00030	3/5/2018	3.12	3/5/2025	3/5/2018	103.64309	101.7104968	99.82463477	97.98407006	96.18742777	94.43338446	92.72066585	91.0480446	89.41433824

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180612A00012	6/12/2018	2.94	6/12/2023	6/12/2018	100.37271	100.1734824	99.97516674	99.7777552	99.58124108	99.38561779	99.19087878	98.99701758	98.80402776
200413A00009	4/13/2020	0.77	4/13/2027	4/13/2020	99.936234	97.86906852	95.86847079	93.93174461	92.05632336	90.23976249	88.47973287	86.77401453	85.12049073
221012A00053	10/12/2022	4.66	10/11/2024	10/12/2022	102.82604	101.9420033	101.0737874	100.2209535	99.38308371	98.55977581	97.75064225	96.9553096	96.17341784
160523A00086	5/23/2016	2.2	5/26/2026	5/23/2016	104.3754	101.5134498	98.75038513	96.08214385	93.50486183	91.01485934	88.60863085	86.28283543	84.0342878
170921A00055	9/21/2017	2.82	9/21/2027	9/21/2017	108.88793	104.7454444	100.7947619	97.02586152	93.42930197	89.99618502	86.7181214	83.58719887	80.59595236
180104A00041	1/4/2018	3.08	1/4/2033	1/4/2018	121.68069	112.6794378	104.4749559	96.9903616	90.15665415	83.91186241	78.20029221	72.97185779	68.18148771
160210A00054	2/10/2016	1.78	2/10/2026	2/10/2016	101.18521	99.66024561	98.17349861	96.72370238	95.30964146	93.93014985	92.58410859	91.27044351	89.98812305
151013A00033	10/13/2015	2.23	10/14/2025	10/13/2015	101.29685	99.9370296	98.608536	97.31039367	96.04166166	94.80143591	93.58884738	92.40306048	91.24327149
160603A00029	6/3/2016	2.18	6/3/2031	6/3/2016	107.13901	102.8165583	98.74435127	94.90523354	91.28337128	87.86413679	84.63400818	81.58047787	78.69196939
190813A00057	8/13/2019	1.9	8/13/2024	8/13/2019	100.57349	99.1866609	97.82607695	96.49105566	95.18093837	93.8950886	92.63289113	91.39375109	90.17709317
191203A00010	12/3/2019	2.21	12/3/2029	12/3/2019	109.19994	103.1798427	97.55287279	92.29088916	87.36791768	82.75997685	78.44491416	74.40225679	70.61307529
200406A00014	4/6/2020	1.33	4/6/2035	4/6/2020	104.95194	98.88103595	93.30101104	88.16573118	83.43383691	79.06821296	75.03551958	71.30577881	67.85200893
160115A00011	1/15/2016	2.18	1/15/2026	1/15/2016	101.42298	99.93944051	98.49224665	97.08021167	95.70219829	94.35711498	93.04391372	91.76158793	90.50917048
170124A00017	1/24/2017	2.82	1/23/2032	1/24/2017	110.73764	105.9711147	101.4974702	97.29548239	93.34564342	89.63001087	86.13207109	82.83661513	79.72962631
160608A00034	6/8/2016	2.44	6/9/2031	6/8/2016	107.30813	103.000971	98.94226737	95.11504726	91.50363421	88.09354252	84.87137837	81.82474979	78.94218469
190131A00013	1/31/2019	3.48	1/31/2034	1/31/2019	124.88502	114.9585314	105.9842344	97.86250761	90.50478256	83.8322557	77.77475946	72.26976931	67.26152987
200406A00035	4/6/2020	1.05	4/4/2025	4/6/2020	99.62953	97.76645267	95.949131	94.17612518	92.44605177	90.75758117	89.10943507	87.5003841	85.92924549
161116A00006	11/16/2016	2.39	11/16/2026	11/16/2016	102.55557	100.6458403	98.79253728	96.99352838	95.24678146	93.55035569	91.90239677	90.30113241	88.74486811
171219A00009	12/19/2017	2.3	12/19/2024	12/19/2017	101.00298	100.0497146	99.11421532	98.19598428	97.29454237	96.4094286	95.54019912	94.68642646	93.84769873
180717A00026	7/17/2018	3.24	7/16/2025	7/17/2018	104.71612	102.5044404	100.3527767	98.25915909	96.22169072	94.23854804	92.30797753	90.42829258	88.59787055
200110A00037	1/10/2020	2.32	1/10/2030	1/10/2020	109.99003	103.8571882	98.12992287	92.77890344	87.77707378	83.09946572	78.7230276	74.62646771	70.79011138
161014A00026	10/14/2016	2.16	10/14/2031	10/14/2016	107.35247	102.8553217	98.62767794	94.65046159	90.90610459	87.37841805	84.05247421	80.91449924	77.95177574
170804A00005	8/4/2017	1.94	8/5/2024	8/4/2017	100.50445	99.72015315	98.94943909	98.19193708	97.44729181	96.71516115	95.99521556	95.28713745	94.59062067
191004A00019	10/4/2019	2.02	10/4/2029	10/4/2019	107.88831	102.051153	96.58777069	91.47192529	86.6793601	82.18764273	77.97601837	74.0252757	70.31762412
170309A00042	3/9/2017	2.18	3/11/2024	3/9/2017	100.54009	99.95831092	99.38503206	98.82004919	98.26316321	97.71418173	97.17291875	96.63919439	96.11283467
200512A00021	5/12/2020	0.86	5/12/2025	5/12/2020	99.305166	97.2633416	95.27404049	93.3355327	91.44615991	89.60433186	87.80852289	86.05726873	84.34916348
140730A00037	7/30/2014	2.83	1/30/2024	7/30/2014	100.82046	100.3151371	99.81622099	99.32357251	98.83706033	98.35655704	97.88193892	97.41308585	96.94988115
141017A00022	10/17/2014	2.78	10/17/2024	10/17/2014	102.09632	100.5874741	99.10920004	97.66062024	96.24089314	94.84920893	93.48478799	92.14687955	90.83476025
170619A00095	6/16/2017	2.79	6/16/2027	6/16/2017	108.22404	104.3117506	100.5716341	96.99510216	93.57404208	90.30078957	87.1681013	84.16912936	81.29739743
191004A00022	10/4/2019	2.02	10/4/2029	10/4/2019	107.88832	102.051154	96.5877698	91.47192271	86.67935598	82.1876372	77.97601157	74.02526774	70.31761511
210611A00012	6/11/2021	1.02	6/11/2026	6/11/2021	100.46991	97.51072788	94.65681226	91.90379745	89.24752775	86.68404474	84.20957656	81.82052784	79.51347028
170406A00024	4/6/2017	2.61	4/8/2024	4/6/2017	101.11004	100.0414813	98.99575757	97.97214188	96.96993588	95.98847039	95.02710392	94.08522123	93.16223201
200323A00090	3/23/2020	1.55	3/23/2027	3/23/2020	101.34585	99.12009805	96.96918236	94.88997188	92.87949129	90.9349101	89.05353465	87.23280052	85.47026548

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170524A00037	5/24/2017	2.46	5/24/2024	5/24/2017	101.03775	99.86869679	98.727204	97.61230253	96.52306556	95.45860903	94.41808914	93.40070016	92.40567222
200303A00028	3/3/2020	1.54	3/4/2030	3/3/2020	104.72674	99.2113989	94.05635331	89.23549751	84.72476765	80.50197222	76.54663649	72.83986053	69.36418982
160414A00042	4/13/2016	2.48	4/13/2026	4/13/2016	104.5517	101.6923572	98.92985075	96.2603086	93.6800428	91.18553531	88.77342905	86.44051942	84.18374638
190802A00011	8/2/2019	2.01	8/2/2029	8/2/2019	104.85065	101.5192096	98.34318671	95.31385479	92.42304588	89.66310948	87.02687621	84.50762425	82.09904837
160629A00066	6/29/2016	2.61	6/30/2036	6/29/2016	119.97331	109.4001137	100.0019843	91.63557578	84.17607748	77.51470853	71.55656427	66.21876306	61.42885019
200206A00027	2/6/2020	2.15	2/6/2030	2/6/2020	108.9987	102.8534819	97.11885329	91.76482017	86.76374006	82.0901249	77.72046245	73.63305322	69.80786184
140703A00026	7/3/2014	3.11	7/3/2024	7/3/2014	102.0353	100.775227	99.53734945	98.32112893	97.12604038	95.95157545	94.79724179	93.66256238	92.54707501
160608A00023	6/8/2016	2.36	6/8/2026	6/8/2016	104.50003	101.5149804	98.63492546	95.85553383	93.17267736	90.58242409	88.08102749	85.66491642	83.3306857
180913A00033	9/13/2018	3.31	9/13/2033	9/13/2018	115.66814	109.8069107	104.3645358	99.30600976	94.59957005	90.21636961	86.1301873	82.31716914	78.75559685
150729A00041	7/29/2015	2.44	7/29/2025	7/29/2015	101.37802	100.137745	98.92430779	97.73690081	96.57474964	95.43710943	94.3232635	93.23252206	92.16422095
180907A00013	9/7/2018	3.27	9/8/2025	9/7/2018	105.2955	102.9038913	100.5809529	98.32429722	96.13163692	94.00077827	91.92961671	89.91613269	87.95838759
160908A00016	9/8/2016	1.87	9/8/2023	9/8/2016	100.25088	99.73107367	99.21668418	98.70762399	98.20381037	97.70516232	97.21160049	96.72304715	96.23942617
190620A00033	6/20/2019	2.1	6/20/2029	6/20/2019	105.00521	101.7507544	98.64482071	95.67923474	92.84633451	90.13893504	87.55029526	85.07408762	82.70436984
200309A00082	3/9/2020	1.18	3/8/2030	3/9/2020	102.98398	97.04958326	91.51776726	86.35873435	81.54504821	77.05143792	72.85461614	68.93311345	65.26712735
200309A00084	3/9/2020	1.06	3/9/2027	3/9/2020	101.29306	97.67272036	94.20605706	90.88569376	87.70464865	84.65631145	81.73442155	78.93304755	76.24656813
210212A00007	2/12/2021	0.76	2/12/2026	2/12/2021	99.475901	96.81114568	94.23368197	91.74016424	89.32739406	86.99231326	84.73199691	82.54364674	80.42458489
210512A00012	5/12/2021	1.16	5/12/2026	5/12/2021	100.82413	97.92477563	95.12639138	92.42483934	89.81618229	87.29666937	84.86272594	82.51094399	80.23807317
160908A00023	9/8/2016	2.21	9/8/2026	9/8/2016	104.49752	101.3084028	98.23893746	95.28394109	92.43848658	89.69788736	87.05768416	84.51363262	82.06169173
190403A00014	4/3/2019	3.05	4/3/2029	4/3/2019	112.86637	107.3762702	102.2098986	97.34610032	92.76521805	88.44898113	84.38040044	80.54367171	76.92408657
190712A00016	7/12/2019	2.39	7/12/2029	7/12/2019	105.31789	102.0274269	98.88828643	95.89208396	93.03096239	90.29755645	87.68495862	85.18668755	82.79665886
200512A00001	5/12/2020	1.17	5/12/2027	5/12/2020	101.88474	98.10427482	94.4896598	91.03266312	87.7255073	84.5608447	81.53173104	78.63160079	75.85424413
201110A00003	11/10/2020	1.12	11/10/2027	11/10/2020	102.05726	97.87065071	93.88599227	90.09238493	86.47957731	83.03792662	79.75835895	76.63233231	73.65180236
120806A00015	8/6/2012	2.38	8/6/2027	8/6/2012	103.32704	101.0338572	98.81899824	96.6791276	94.61107923	92.61184382	90.67856008	88.80850637	86.99909294
160606A00018	6/6/2016	1.74	6/5/2026	6/6/2016	101.36351	99.67341396	98.02905052	96.42880588	94.87113868	93.35457338	91.87769698	90.43915583	89.03765268
191113A00013	11/13/2019	2.17	11/13/2026	11/13/2019	104.89121	101.4448008	98.13400608	94.95268665	91.89501842	88.95547571	86.12881391	83.41005332	80.79446402
150603A00032	6/3/2015	2.21	6/3/2025	6/3/2015	101.27357	100.0742505	98.9003133	97.75100383	96.62559457	95.52338603	94.44370541	93.38590536	92.3493627
160511A00016	5/11/2016	2.48	5/12/2031	5/11/2016	107.40522	103.1353229	99.10958394	95.31146137	91.72566554	88.33805932	85.1355631	82.10606822	79.23835805
190910A00044	9/10/2019	2.02	9/10/2026	9/10/2019	104.04036	100.7646542	97.61319806	94.58058206	91.6616601	88.85153823	86.14556083	83.53929765	81.02853148
160211A00038	2/11/2016	1.83	2/11/2026	2/11/2016	100.94159	99.42486139	97.94604094	96.50387728	95.09716755	93.72475772	92.38554015	91.07845143	89.80247025
200318A00012	3/18/2020	1.68	3/18/2033	3/18/2020	106.9722	100.9890271	95.47436294	90.38620982	85.68668134	81.34157005	77.31996529	73.59391302	70.13811277
220310A00008	3/10/2022	2.22	3/10/2025	3/10/2022	101.88971	99.97204794	98.10096825	96.27503824	94.4928798	92.75316675	91.05462251	89.39601785	87.7761688
160908A00030	9/8/2016	2.21	9/8/2026	9/8/2016	104.49752	101.3084028	98.23893745	95.28394106	92.43848654	89.69788731	87.05768409	84.51363254	82.06169163
160908A00028	9/8/2016	2.21	9/8/2026	9/8/2016	104.49752	101.3084028	98.23893744	95.28394097	92.43848638	89.69788707	87.05768378	84.51363217	82.0616912

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200221A00012	2/21/2020	2.14	2/21/2040	2/21/2020	111.46289	102.2712686	94.09681653	86.81026125	80.3002308	74.47061731	69.23834818	64.53149925	60.2876953
210331A00007	3/31/2021	1.25	3/31/2031	3/31/2021	102.05617	98.07583108	94.31915052	90.77121511	87.41822851	84.2474186	81.24695429	78.40586961	75.71399434
210915A00025	9/15/2021	1.09	9/15/2026	9/15/2021	100.8729	97.7561237	94.75703754	91.87052099	89.09170274	86.41595057	83.83885815	81.35623265	78.96408321
190905A00024	9/5/2019	2.08	9/5/2029	9/5/2019	108.17398	102.3864887	96.96587301	91.88662093	87.125135	82.65957514	78.46971877	74.53683284	70.84355658
130206A00009	2/6/2013	2.83	2/7/2028	2/6/2013	108.16703	104.3219383	100.6566772	97.16158832	93.82758631	90.64612463	87.60916067	84.70912322	81.93888221
160401A00005	4/1/2016	2.02	4/3/2023	4/1/2016	100.10717	100.0130457	99.91910607	99.82534676	99.73176721	99.63836692	99.54514536	99.45210203	99.35923641
170106A00030	1/6/2017	2.39	1/6/2027	1/6/2017	103.15365	101.1444711	99.19685303	97.30840338	95.47684202	93.69999357	91.97578186	90.30222463	88.67742863
200206A00008	2/6/2020	1.64	2/6/2025	2/6/2020	100.99918	99.19979303	97.44245347	95.725916	94.04898307	92.41050041	90.80935517	89.24447412	87.71482192
200406A00027	4/6/2020	1.31	4/5/2030	4/6/2020	104.7089	99.10683502	93.8756209	88.98805038	84.41906965	80.14559868	76.14636496	72.40175223	68.89366257
150714A00003	7/14/2015	3.76	7/12/2030	7/14/2015	112.64262	108.5721772	104.7147706	101.0571132	97.58684899	94.29248448	91.16332225	88.18940041	85.36143693
170619A00089	6/16/2017	2.79	6/16/2027	6/16/2017	108.22404	104.3117499	100.5716339	96.99510229	93.57404255	90.30079036	87.16810239	84.16913073	81.29739906
151001A00023	10/1/2015	2.02	10/1/2025	10/1/2015	101.28833	99.925686	98.59448722	97.29375328	96.02253857	94.77993457	93.56506803	92.37709935	91.21522096
170105A00012	1/5/2017	2.68	1/5/2024	1/5/2017	100.97877	100.1437913	99.32269448	98.51513769	97.72078734	96.93932065	96.17042532	95.41379909	94.66914931
201221A00022	12/21/2020	0.51	12/19/2025	12/21/2020	99.275071	96.77607918	94.35499215	92.0089198	89.73509776	87.53088107	85.39373817	83.32124531	81.31108115
150929A00076	9/29/2015	2.28	9/29/2025	9/29/2015	101.30295	99.9823091	98.69150721	97.42962379	96.19577421	94.98910816	93.80880804	92.65408737	91.5241894
151029A00008	10/29/2015	2.28	10/29/2025	10/29/2015	101.36954	100.0074942	98.67687013	97.37668134	96.10598289	94.86386693	93.64946088	92.46192579	91.30045476
200110A00043	1/10/2020	2.32	1/10/2030	1/10/2020	109.99003	103.8571876	98.12992302	92.77890423	87.77707515	83.09946762	78.72302997	74.6264705	70.79011455
200414A00009	4/14/2020	0.82	4/14/2025	4/14/2020	99.33149	98.23712176	97.16492173	96.11424879	95.0844865	94.07504152	93.08534259	92.11483945	91.16300193
210714A00016	7/14/2021	0.75	7/12/2024	7/14/2021	98.963115	97.68449957	96.42879292	95.19542904	93.98386062	92.79355786	91.62400775	90.4747134	89.34519347
210809A00015	8/9/2021	1.06	8/7/2026	8/9/2021	100.72462	97.63205668	94.65411548	91.78592207	89.02283395	86.36043049	83.79450101	81.32103366	78.93620494
170802A00013	8/2/2017	2.5	8/2/2024	8/2/2017	101.38683	100.0215573	98.68162604	97.36639295	96.07523276	94.80754085	93.56273244	92.34024179	91.13952139
160329A00017	3/29/2016	2.48	3/30/2026	3/29/2016	104.28131	101.5538337	98.91688692	96.36690807	93.90049872	91.51441477	89.20555841	86.97097053	84.80782361
171207A00026	12/7/2017	2.93	12/7/2027	12/7/2017	110.1269	105.6692887	101.4274985	97.38980007	93.54517169	89.88325004	86.39428706	83.06910979	79.89908307
200311A00015	3/11/2020	1.26	3/11/2027	3/11/2020	102.05357	98.40782313	94.91689951	91.57336179	88.37017122	85.30066401	82.35852916	79.5377879	76.83277428
161102A00014	11/2/2016	1.99	11/2/2023	11/2/2016	100.3628	99.69671897	99.03950833	98.39098682	97.75098275	97.11932896	96.4958626	95.88042505	95.27286177
170309A00014	3/9/2017	2.58	3/9/2027	3/9/2017	103.7567	101.652722	99.61540004	97.64207169	95.73020089	93.87737081	92.08127732	90.339723	88.65061138
190506A00026	5/6/2019	3.03	5/4/2029	5/6/2019	113.3289	107.5953243	102.2073957	97.14213356	92.37821363	87.89583946	83.67662454	79.70348427	75.96053677
190913A00018	9/13/2019	2.11	9/11/2026	9/13/2019	101.8606	100.0452938	98.28176934	96.56813015	94.90256287	93.28333363	91.70878391	90.17732672	88.68744302
170727A00003	7/27/2017	1.97	7/29/2024	7/27/2017	100.50322	99.75588455	99.02136747	98.29931554	97.58939143	96.8912705	96.20464017	95.52919935	94.86465789
160210A00051	2/10/2016	2.28	2/10/2031	2/10/2016	107.25811	103.0968189	99.16800279	95.45625186	91.94730086	88.62793795	85.4859195	82.5098924	79.68932305
200109A00008	1/9/2020	1.95	1/9/2030	1/9/2020	104.99017	101.4482414	98.08066709	94.8771617	91.8281303	88.92461385	86.15824264	83.52119351	81.00615038
200220A00026	2/20/2020	2.22	2/21/2040	2/20/2020	112.21487	102.961438	94.73200239	87.3964246	80.84258588	74.97373381	69.70623861	64.96769364	60.6953052
200724A00011	7/24/2020	1.41	7/26/2038	7/24/2020	107.71009	96.70328885	87.09895789	78.70233854	71.34717685	64.89138436	59.21338118	54.20901122	49.78893746

	Parallel-Shift Sensitivity Analysis												
2/28/2023					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	100.25088	99.73107367	99.21668418	98.70762398	98.20381036	97.70516231	97.21160048	96.72304714	96.23942616
181116A00006	11/16/2018	3.18	11/17/2025	11/16/2018	102.73894	101.3184018	99.93127681	98.57650629	97.25307113	95.95999265	94.69633065	93.46118158	92.25367683
160812A00006	8/12/2016	2.16	8/12/2026	8/12/2016	104.6504	101.6169097	98.69414349	95.87740922	93.16224086	90.54438595	88.01979422	85.58460677	83.23514594
210408A00007	4/8/2021	1.05	4/8/2031	4/8/2021	102.15679	98.11332008	94.29987767	90.70095128	87.30220441	84.09037603	81.05319231	78.1792862	75.45812405
220310A00010	3/10/2022	2.31	3/10/2027	3/10/2022	105.98248	102.2662859	98.70687455	95.29673803	92.02877294	88.89625333	85.89280854	83.01240242	80.2493139
150929A00087	9/29/2015	2.09	9/29/2025	9/29/2015	101.32404	99.99925045	98.70447857	97.43879186	96.20129842	94.99114103	93.80749555	92.64956931	91.51659968
170313A00045	3/13/2017	3.22	3/15/2032	3/13/2017	111.81047	106.9386861	102.3699898	98.08215635	94.05477481	90.26909076	86.70786007	83.35521638	80.19655113
160802A00026	8/2/2016	1.84	8/2/2023	8/2/2016	100.23222	99.80933574	99.3900177	98.97422474	98.56191256	98.15303757	97.74755692	97.34542846	96.94661075
170317A00040	3/17/2017	2.74	3/18/2024	3/17/2017	101.21795	100.1954591	99.1937873	98.21229952	97.25038837	96.30747062	95.38298608	94.4763964	93.58718405
190205A00021	2/5/2019	3.32	2/5/2029	2/5/2019	114.06059	108.6494438	103.5500792	98.7425778	94.20839843	89.93027812	85.89213767	82.07899432	78.47688143
210809A00016	8/9/2021	0.66	8/9/2024	8/9/2021	98.92533	97.70046648	96.49836769	95.31844236	94.1601192	93.02284632	91.9060904	90.80933588	89.73208429
150701A00056	7/1/2015	2.34	7/1/2025	7/1/2015	101.50647	100.2636422	99.04769236	97.85781774	96.69324323	95.55322331	94.43704064	93.3440048	92.27345102
190813A00064	8/13/2019	1.9	8/13/2024	8/13/2019	100.57349	99.18666094	97.82607704	96.49105581	95.18093858	93.89508886	92.63289144	91.39375145	90.17709358
201029A00004	10/29/2020	1.49	10/29/2038	10/29/2020	108.63616	97.42881661	87.6663639	79.14563411	71.69357581	65.16261144	59.42673247	54.3782136	49.9248448
210714A00009	7/14/2021	0.75	7/12/2024	7/14/2021	98.954833	97.66656522	96.40138968	95.15873723	93.93805667	92.73881441	91.56049372	90.40259412	89.26463072
190329A00067	3/29/2019	2.61	3/29/2024	3/29/2019	101.08223	100.0581772	99.05533821	98.07305414	97.11069338	96.16765003	95.24334266	94.33721299	93.44872482
160201A00016	2/1/2016	2.1	2/2/2026	2/1/2016	101.36296	99.84066349	98.35639202	96.90888439	95.49693534	94.11938844	92.77513377	91.46310567	90.1822806
160908A00024	9/8/2016	2.21	9/8/2026	9/8/2016	104.49752	101.3084028	98.23893743	95.28394102	92.43848647	89.69788721	87.05768397	84.5136324	82.06169147
181218A00089	12/18/2018	3.05	6/19/2023	12/18/2018	100.57503	100.2712972	99.96941591	99.66936863	99.37113854	99.07470909	98.78006392	98.48718687	98.19606197
200522A00009	5/22/2020	0.96	5/22/2030	5/22/2020	100.74289	97.11772539	93.68225361	90.42460543	87.3337523	84.39943971	81.61212723	78.96293369	76.4435868
200512A00018	5/12/2020	0.85	5/12/2025	5/12/2020	99.288078	97.29379388	95.35051315	93.45656039	91.61032939	89.81027972	88.05493347	86.34287208	84.67273342
150219A00016	2/19/2015	2.68	2/19/2025	2/19/2015	102.62405	100.734468	98.88994838	97.08913972	95.33073592	93.61347889	91.93615642	90.29760019	88.69668383
161229A00019	12/29/2016	2.46	12/29/2026	12/29/2016	103.20222	101.2320429	99.32127816	97.46765045	95.66898471	93.92320493	92.22832892	90.58246338	88.98379929
190205A00022	2/5/2019	3.32	2/5/2029	2/5/2019	114.0606	108.6494452	103.5500798	98.74257781	94.2083978	89.93027691	85.89213592	82.07899206	78.4768787
110719A00017	7/19/2011	3.68	7/20/2026	7/19/2011	104.54399	102.7639992	101.0329788	99.34918599	97.71095237	96.11668118	94.56484353	93.05397502	91.58267261
160908A00032	9/8/2016	2.17	9/8/2026	9/8/2016	104.15741	101.0909333	98.13808429	95.29397655	92.55395852	89.91360492	87.36870434	84.91524761	82.54941694
200512A00020	5/12/2020	0.86	5/12/2025	5/12/2020	99.305166	97.26334123	95.27403979	93.33553167	91.44615856	89.60433021	87.80852095	86.05726651	84.34916098
201103A00005	11/3/2020	0.89	11/4/2030	11/3/2020	100.52466	96.75927809	93.19778044	89.82703715	86.63486768	83.60996719	80.74183741	78.02072355	75.43755642
190104A00034	1/4/2019	3.18	1/4/2029	1/4/2019	111.05252	106.5351213	102.2592407	98.21017019	94.37418498	90.73847352	87.29107164	84.02080192	80.91721766
191112A00023	11/12/2019	2.36	11/13/2029	11/12/2019	110.06175	104.0475366	98.42307552	93.16065601	88.23469385	83.62155454	79.29939425	75.24801455	71.44872975
160106A00042	1/6/2016	2.43	1/6/2026	1/6/2016	101.80353	100.3151408	98.86319324	97.44649497	96.06390676	94.71433514	93.39673018	92.11008343	90.85342594
180906A00032	9/6/2018	3.24	9/5/2025	9/6/2018	105.26861	102.8577669	100.516217	98.24155825	96.03148489	93.88378545	91.79633815	89.76710663	87.79413595
191008A00014	10/8/2019	1.85	10/8/2026	10/8/2019	103.5982	100.2671658	97.06457983	93.98475056	91.0222725	88.17201027	85.42908338	82.78885204	80.24690379

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
110909A00006	9/9/2011	2.26	9/9/2026	9/9/2011	102.14093	100.3207935	98.5525673	96.83435419	95.16433642	93.54077588	91.96200999	90.42644786	88.9325667
150824A00050	8/24/2015	2.03	8/25/2025	8/24/2015	101.17819	99.8964445	98.64310848	97.4173181	96.21824114	95.04507744	93.89705738	92.77344049	91.67351404
200115A00013	1/15/2020	2.18	1/15/2030	1/15/2020	107.35027	102.3620701	97.67820724	93.27765476	89.14096719	85.25015642	81.5885743	78.14080541	74.8925689
160301A00012	3/1/2016	2.02	3/1/2023	3/1/2016	100.0031	100.0003272	99.99755815	99.99479151	99.99202724	99.98926534	99.9865058	99.98374862	99.9809938
161214A00034	12/14/2016	2.65	12/14/2026	12/14/2016	103.16377	101.2018341	99.29885282	97.45257188	95.66083932	93.92160103	92.23289551	90.59284903	88.99967103
210512A00008	5/12/2021	0.66	5/10/2024	5/12/2021	98.899841	97.76554614	96.65741331	95.5745432	94.51607719	93.48119519	92.46911356	91.47908306	90.51038701
120517A00021	5/17/2012	1.85	5/17/2024	5/17/2012	100.36999	99.70652365	99.05419497	98.41269094	97.78171349	97.16097606	96.55020299	95.94912904	95.35749885
180322A00040	3/22/2018	3.16	3/21/2031	3/22/2018	113.47352	108.2155393	103.2951006	98.68710914	94.36852642	90.31818884	86.51664306	82.9459967	79.5897829
210714A00011	7/14/2021	0.75	7/12/2024	7/14/2021	98.954833	97.66656518	96.40138962	95.15873714	93.93805657	92.73881428	91.56049358	90.40259396	89.26463055
160908A00027	9/8/2016	2.21	9/8/2026	9/8/2016	104.49752	101.3084029	98.23893742	95.28394088	92.43848621	89.69788683	87.05768348	84.5136318	82.06169077
190605A00024	6/5/2019	2.64	6/5/2029	6/5/2019	111.1988	105.4809637	100.1124693	95.06981134	90.3311963	85.87640948	81.68669195	77.74462782	74.03404086
150227A00011	2/27/2015	2.33	2/27/2025	2/27/2015	102.16949	100.4553717	98.78155069	97.1468062	95.54996641	93.98990309	92.46552971	90.97579953	89.51970385
190308A00016	3/8/2019	3.18	3/8/2034	3/8/2019	122.50179	113.2897725	104.9505632	97.3931502	90.53662784	84.30901995	78.64624331	73.49119679	68.79296023
190813A00052	8/13/2019	2.24	8/13/2029	8/13/2019	109.06558	103.2891702	97.87559817	92.79986252	88.03881425	83.57101315	79.376593	75.43713819	71.73557056
220104A00006	1/4/2022	1.76	1/4/2029	1/4/2022	106.67069	101.663286	96.94127091	92.48660201	88.28247828	84.31324456	80.56430759	77.02205865	73.6738022
190515A00035	5/15/2019	2.82	2/15/2029	5/15/2019	111.79409	106.2909189	101.1103247	96.23145954	91.63493417	87.30270815	83.21798917	79.36514038	75.72959507
200330A00058	3/30/2020	1.49	3/29/2030	3/30/2020	104.4659	98.92444776	93.74763581	88.90885083	84.38357885	80.14922728	76.18496392	72.47157034	68.99130826
210107A00008	1/7/2021	0.54	1/5/2024	1/7/2021	99.167393	98.34429961	97.53491324	96.73889293	95.95590908	95.18564284	94.42778571	93.68203909	92.94811393
191209A00005	12/9/2019	2.22	12/10/2029	12/9/2019	108.4408	102.9150375	97.73912842	92.88844521	88.34023568	84.07347335	80.06871706	76.3079827	72.7746261
180104A00024	1/4/2018	2.98	1/4/2028	1/4/2018	110.20437	105.792862	101.5959388	97.60191254	93.79979341	90.17924458	86.73054016	83.44452596	80.31258304
200309A00034	3/9/2020	0.96	3/9/2035	3/9/2020	102.61409	96.71608524	91.29212071	86.29789657	81.69367663	77.44377999	73.51613559	69.8818887	66.51505302
191004A00025	10/4/2019	1.74	10/4/2024	10/4/2019	100.4782	98.9617769	97.47586805	96.01961698	94.59219632	93.19280925	91.82068809	90.4750929	89.1553103
200406A00037	4/6/2020	0.9	4/6/2023	4/6/2020	99.998987	99.89672017	99.79467117	99.69283894	99.59122278	99.48982199	99.38863587	99.28766372	99.18690485
150311A00003	3/11/2015	2.72	3/31/2025	3/11/2015	102.85632	100.9560491	99.10219954	97.29331747	95.52800605	93.8049225	92.12277554	90.48032302	88.87636966
190605A00007	6/5/2019	2.47	6/5/2026	6/5/2019	104.98836	101.9179863	98.95626465	96.09868477	93.34095776	90.67899969	88.10892036	85.62701268	83.22974277
200110A00039	1/10/2020	2.32	1/10/2030	1/10/2020	109.99003	103.8571874	98.12992307	92.77890447	87.77707557	83.09946819	78.72303068	74.62647134	70.7901155
210714A00013	7/14/2021	1.12	7/14/2026	7/14/2021	100.86087	97.81814643	94.88627717	92.06062711	89.33677975	86.71052581	84.17785242	81.73493287	79.37811699
210809A00012	8/9/2021	1.06	8/7/2026	8/9/2021	100.72462	97.63205659	94.65411518	91.78592156	89.02283326	86.36042962	83.79449996	81.32103245	78.93620357
150224A00010	2/24/2015	2.34	2/24/2025	2/24/2015	101.43286	99.94664435	98.4941253	97.07429534	95.68618166	94.32884772	93.00139161	91.70294452	90.43266924
180718A00008	7/18/2018	3.37	7/18/2028	7/18/2018	113.56385	108.4061559	103.5249554	98.90380906	94.52733844	90.38115456	86.45178929	82.72663185	79.19386994
190103A00020	1/3/2019	3.12	1/5/2026	1/3/2019	105.89242	103.1711388	100.5359184	97.98356877	95.51103829	93.11540445	90.79386767	88.54374548	86.36246693
200818A00012	8/18/2020	0.97	8/18/2027	8/18/2020	101.29196	97.31369564	93.51980049	89.90071473	86.44742722	83.15143884	80.0047307	76.99973443	74.12930458
180813A00045	8/13/2018	2.89	8/13/2025	8/13/2018	102.3101	101.015187	99.74893969	98.51048611	97.29898771	96.11363826	94.95366225	93.81831346	92.70687365

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160209A00006	2/9/2016	1.91	2/9/2026	2/9/2016	101.06647	99.54803761	98.06755038	96.62375499	95.21544768	93.84147352	92.50072405	91.19213501	89.91468429
190205A00023	2/5/2019	3.32	2/5/2029	2/5/2019	114.06059	108.6494439	103.5500792	98.7425778	94.20839838	89.93027803	85.89213754	82.07899416	78.47688123
150617A00017	6/17/2015	2.27	6/17/2025	6/17/2015	101.35053	100.148919	98.97278622	97.82136913	96.69393835	95.58979256	94.50825704	93.44868249	92.41044377
191203A00011	12/3/2019	2.21	12/3/2029	12/3/2019	109.19995	103.1798428	97.55287269	92.2908888	87.36791709	82.75997605	78.44491317	74.40225562	70.61307395
160413A00020	4/13/2016	2.48	4/13/2026	4/13/2016	104.5517	101.6923573	98.92985075	96.26030856	93.68004273	91.18553521	88.77342893	86.44051927	84.1837462
210611A00008	6/11/2021	0.61	6/11/2024	6/11/2021	98.783498	97.56655345	96.37592727	95.21076425	94.07024665	92.95359186	91.86005045	90.78890447	89.73946575
170309A00016	3/9/2017	2.39	3/8/2024	3/9/2017	100.66361	100.0817319	99.5083416	98.94323381	98.38621024	97.83707923	97.29565551	96.76175989	96.23521901
180905A00017	9/5/2018	3.43	9/6/2033	9/5/2018	125.78643	116.2525042	107.6061837	99.75722735	92.62513241	86.13803356	80.23172953	74.84882425	69.93796856
171013A00024	10/13/2017	2.47	10/15/2024	10/13/2017	101.6323	100.1122887	98.62308644	97.16381198	95.73361877	94.33169206	92.95724739	91.60952922	90.28780958
190702A00071	7/2/2019	2.69	7/1/2039	7/2/2019	123.30899	110.6378184	99.6238958	90.02909866	81.65149386	74.31960595	67.88762628	62.23140167	57.24507212
190702A00068	7/2/2019	2.69	7/1/2039	7/2/2019	123.309	110.6378245	99.62389485	90.02909185	81.65148219	74.31959026	67.88760726	62.23137992	57.24504814
151209A00024	12/9/2015	2.22	12/9/2025	12/9/2015	101.72092	100.2699091	98.85380483	97.47147993	96.12185227	94.80388323	93.51657563	92.25897166	91.03015107
160603A00014	6/3/2016	1.74	6/3/2026	6/3/2016	101.36324	99.67328499	98.02905405	96.4289326	94.87137964	93.35492001	91.87814106	90.4396895	89.03826843
160608A00025	6/8/2016	2.36	6/8/2026	6/8/2016	104.50003	101.5149803	98.63492547	95.8555339	93.1726775	90.58242429	88.08102775	85.66491674	83.33068606
160908A00031	9/8/2016	2.21	9/8/2026	9/8/2016	104.49752	101.3084028	98.23893745	95.28394103	92.43848648	89.69788722	87.05768397	84.51363239	82.06169146
191105A00012	11/5/2019	2.07	11/3/2034	11/5/2019	109.41098	103.288082	97.6451747	92.43845961	87.62854498	83.1799694	79.06077926	75.24215458	71.69807719
120330A00013	3/30/2012	2.98	4/2/2024	3/30/2012	101.46819	100.4421434	99.43746184	98.45347673	97.48954759	96.54506023	95.61942538	94.71207749	93.82247348
190813A00067	8/13/2019	1.9	8/13/2024	8/13/2019	100.57349	99.18666091	97.82607698	96.49105571	95.18093844	93.89508869	92.63289123	91.39375122	90.17709331
191015A00025	10/15/2019	2.01	10/15/2029	10/15/2019	104.22669	100.8481419	97.63017051	94.56360831	91.63987827	88.85095538	86.1893273	83.64795812	81.22025492
220310A00009	3/10/2022	2.31	3/10/2027	3/10/2022	105.98248	102.2662862	98.70687448	95.29673767	92.0287723	88.89625243	85.89280738	83.01240102	80.24931227
150410A00021	4/10/2015	2.27	4/10/2025	4/10/2015	100.97953	99.86756489	98.77811274	97.71052405	96.66417307	95.63845752	94.63279747	93.64663434	92.6794299
150803A00041	8/3/2015	3.01	8/2/2030	8/3/2015	108.8002	104.8525369	101.1125774	97.56729224	94.20457649	91.01317421	87.98261287	85.10314349	82.36568559
190308A00026	3/8/2019	3.18	3/8/2034	3/8/2019	122.50179	113.2897724	104.9505631	97.3931502	90.5366279	84.30902006	78.64624347	73.49119698	68.79296046
170406A00026	4/6/2017	2.61	4/8/2024	4/6/2017	101.11004	100.0414813	98.99575759	97.97214192	96.96993593	95.98847046	95.027104	94.08522132	93.16223212
170615A00006	6/15/2017	2.15	6/17/2024	6/15/2017	100.44945	99.78450154	99.13076631	98.48792593	97.85567828	97.23373301	96.62181097	96.01964358	95.42697241
181214A00030	12/14/2018	3.47	12/14/2033	12/14/2018	126.84629	116.817278	107.7435827	99.52597383	92.07615107	85.31548391	79.17390044	73.58890911	68.50473732
190708A00028	7/8/2019	2.57	7/2/2029	7/8/2019	110.88941	105.1245491	99.71570268	94.6387397	89.87128952	85.39260582	81.1834408	77.22592952	73.50348384
200130A00046	1/30/2020	1.81	1/29/2027	1/30/2020	101.54497	99.57234458	97.6600541	95.80575748	94.00722273	92.26232026	90.56901745	88.92537351	87.32953471
160801A00002	8/1/2016	1.58	8/3/2026	8/1/2016	101.19803	99.42961167	97.71084478	96.03993345	94.41516009	92.83488166	91.29752585	89.80158752	88.34562532
170406A00034	4/6/2017	3.01	4/6/2027	4/6/2017	108.61749	104.851805	101.24564	97.7912866	94.48145727	91.30925655	88.26815769	85.35198078	82.55487225
210412A00008	4/12/2021	0.66	4/12/2024	4/12/2021	98.967993	97.9019079	96.85890804	95.83824831	94.83921501	93.86112456	92.90332199	91.9651794	91.0460946
140924A00057	9/24/2014	3.25	9/25/2028	9/24/2014	114.1537	109.0007892	104.1302377	99.52481369	95.16842933	91.04606273	87.14368152	83.44817237	79.9472758
170511A00011	5/11/2017	2.41	5/11/2027	5/11/2017	103.59039	101.4068613	99.29475916	97.25114706	95.27323555	93.35836947	91.50402054	89.70778034	87.96735382

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191224A00002	12/24/2019	2.17	12/24/2029	12/24/2019	104.92243	101.4394783	98.12564535	94.97108149	91.96658593	89.10356084	86.37396772	83.77028713	81.28548165
151030A00026	10/30/2015	3.29	10/30/2030	10/30/2015	116.17099	109.695369	103.6717017	98.06498028	92.84312363	87.97671467	83.43876448	79.20449844	75.2511624
160908A00026	9/8/2016	2.21	9/8/2026	9/8/2016	104.49752	101.3084028	98.23893745	95.28394099	92.4384864	89.69788711	87.05768383	84.51363223	82.06169127
180410A00002	4/10/2018	3.14	4/11/2033	4/10/2018	114.08624	108.5215944	103.3407395	98.51266253	94.00913229	89.80442777	85.87509622	82.1997364	78.75880379
161012A00011	10/12/2016	1.53	10/12/2023	10/12/2016	100.14778	99.75218897	99.36071292	98.97327604	98.58980822	98.21024103	97.83450769	97.46254297	97.09428319
170619A00092	6/16/2017	2.79	6/16/2027	6/16/2017	108.22404	104.3117495	100.5716337	96.99510244	93.57404298	90.30079105	87.16810333	84.16913191	81.29740047
180628A00068	6/28/2018	3.12	6/28/2028	6/28/2018	110.90594	106.7095288	102.7218598	98.93105114	95.32597242	91.89618874	88.6319135	85.52396456	82.56372356
190718A00012	7/18/2019	2.55	7/18/2029	7/18/2019	109.86542	104.5499621	99.55445171	94.85744165	90.43904638	86.28081725	82.36563112	78.67758833	75.20191892
210714A00018	7/14/2021	0.75	7/12/2024	7/14/2021	98.963115	97.68449956	96.4287929	95.19542902	93.9838606	92.79355784	91.62400772	90.47471337	89.34519344
221201A00043	12/1/2022	4.37	12/3/2029	12/1/2022	113.53276	109.628336	105.9138066	102.3781159	99.01093515	95.80261232	92.74412307	89.82702561	87.04341908
170105A00010	1/5/2017	2.61	1/5/2027	1/5/2017	103.17833	101.1755489	99.23394844	97.35116283	95.52493179	93.75309854	92.03360431	90.36448325	88.74385752
200306A00058	3/6/2020	1.06	3/6/2030	3/6/2020	101.04889	97.57667443	94.27834653	91.1434892	88.1623891	85.325986	82.62582442	80.05400906	77.6031639
160608A00033	6/8/2016	2.44	6/9/2031	6/8/2016	107.30814	103.0009717	98.94226736	95.11504659	91.50363294	88.0935407	84.87137605	81.82474703	78.94218152
161202A00001	12/2/2016	2.65	12/1/2023	12/2/2016	100.88041	100.1362134	99.40304591	98.68065887	97.96881543	97.26728566	96.57584625	95.89428033	95.22237719
170207A00055	2/7/2017	2.36	2/8/2027	2/7/2017	103.18778	101.1365122	99.14916584	97.22322188	95.35628068	93.54605411	91.79035952	90.08711416	88.43432985
200317A00009	3/17/2020	1.61	3/16/2035	3/17/2020	105.30483	99.29195473	93.76027511	88.66498234	83.96586602	79.62680671	75.61532787	71.90219994	68.4610901
150925A00034	9/25/2015	2.36	9/25/2025	9/25/2015	101.41077	100.0890938	98.79726554	97.53436935	96.29952059	95.09186889	93.91059654	92.75491699	91.62407336
161004A00070	10/4/2016	1.92	10/4/2023	10/4/2016	100.2986	99.70870963	99.12577364	98.54967116	97.9802824	97.41749032	96.86118062	96.31124161	95.76756416
160609A00075	6/9/2016	1.94	6/9/2026	6/9/2016	101.35335	99.66853494	98.02918971	96.43371825	94.88059159	93.36834592	91.89557919	90.46094812	89.06316521
140618A00019	6/18/2014	3.08	6/18/2024	6/18/2014	101.13914	100.4310806	99.73521886	99.05121286	98.37873103	97.71745475	97.06707767	96.42730514	95.79785362
191122A00003	11/22/2019	2.32	11/22/2039	11/22/2019	117.26195	105.9645282	96.08475837	87.42331253	79.81084279	73.10325047	67.17773014	61.92945824	57.26881771
171207A00024	12/7/2017	2.93	12/7/2027	12/7/2017	110.1269	105.6692887	101.4274985	97.38980002	93.54517159	89.8832499	86.39428688	83.06910956	79.8990828
180104A00023	1/4/2018	2.91	1/4/2028	1/4/2018	108.59625	104.7001345	100.9853431	97.44223046	94.06171956	90.83526488	87.75481861	84.81279898	82.00206075
200206A00034	2/6/2020	1.84	2/6/2025	2/6/2020	101.01791	99.18664934	97.39826003	95.65147769	93.94508294	92.27790032	90.64879636	89.05667781	87.5004899
200327A00094	3/27/2020	1.6	3/27/2030	3/27/2020	105.09924	99.53207065	94.33088209	89.46898946	84.92180601	80.66667065	76.68268677	72.95057537	69.45254121
150929A00083	9/29/2015	2.09	9/29/2025	9/29/2015	101.32404	99.99925045	98.70447857	97.43879186	96.20129842	94.99114103	93.80749555	92.64956931	91.51659968
160608A00030	6/8/2016	2.36	6/8/2026	6/8/2016	104.50003	101.5149804	98.63492547	95.85553384	93.17267739	90.58242413	88.08102754	85.66491648	83.33068576
180628A00078	6/28/2018	2.73	6/28/2023	6/28/2018	100.38497	100.1743073	99.96469682	99.75612767	99.54859132	99.34207931	99.13658326	98.93209492	98.72860612
181128A00011	11/28/2018	3.27	11/28/2023	11/28/2018	101.33457	100.597189	99.87060681	99.15458532	98.44889498	97.75331292	97.0676226	96.39161364	95.72508162
151228A00013	12/28/2015	2.27	12/29/2025	12/28/2015	101.79908	100.3453775	98.92670386	97.54192896	96.18996691	94.86977547	93.58035378	92.32074042	91.09001156
160908A00036	9/8/2016	2.3	9/8/2031	9/8/2016	106.90528	102.4913754	98.33877067	94.42917636	90.74573373	87.27289371	83.99630591	80.90271769	77.97988242
201207A00009	12/7/2020	1.01	12/7/2027	12/7/2020	101.62524	97.3928272	93.36739608	89.53763753	85.89292859	82.42328296	79.11930916	75.97217159	72.97355449
190605A00027	6/5/2019	2.64	6/5/2029	6/5/2019	111.19881	105.4809666	100.1124698	95.06980964	90.33119257	85.87640388	81.68668462	77.74461891	74.0340305

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210611A00011	6/11/2021	1.02	6/11/2026	6/11/2021	100.46991	97.51072786	94.65681216	91.90379729	89.24752753	86.68404447	84.20957623	81.82052746	79.51346984
160810A00025	8/10/2016	2.17	8/10/2026	8/10/2016	104.2241	101.105468	98.10162261	95.20769244	92.41903824	89.73124238	87.14009706	84.64159313	82.23190963
200109A00006	1/9/2020	1.95	1/9/2030	1/9/2020	104.99017	101.4482427	98.08066663	94.87715959	91.82812665	88.92460877	86.15823623	83.52118587	81.00614159
150722A00033	7/22/2015	2.47	7/22/2025	7/22/2015	101.41478	100.1746994	98.96142919	97.77416592	96.61213646	95.47459723	94.36083273	93.2701543	92.20189885
160810A00030	8/10/2016	2.24	8/11/2031	8/10/2016	106.56484	102.2056491	98.10232543	94.23710445	90.59359888	87.156685	83.91239631	80.84782673	77.95104267
160908A00017	9/8/2016	1.87	9/8/2023	9/8/2016	100.25088	99.73107366	99.21668417	98.70762397	98.20381035	97.70516229	97.21160046	96.72304712	96.23942613
171109A00016	11/9/2017	2.94	11/9/2032	11/9/2017	120.12419	111.365194	103.3714539	96.06996032	89.39511469	83.28793687	77.69536154	72.56961316	67.86765008
180517A00024	5/17/2018	3.46	5/17/2033	5/17/2018	116.01976	110.3169096	105.0102281	100.0674851	95.45935701	91.15914455	87.14251834	83.38729097	79.87321239
150803A00042	8/3/2015	3.01	8/2/2030	8/3/2015	108.8002	104.852537	101.1125775	97.56729219	94.20457635	91.01317398	87.98261256	85.1031431	82.36568513
160428A00028	4/28/2016	2	4/28/2026	4/28/2016	101.67459	100.0593405	98.48624259	96.95385151	95.46078534	94.00571979	92.58738533	91.2045645	89.85608939
170619A00101	6/16/2017	2.74	6/16/2027	6/16/2017	107.62098	103.881772	100.30473	96.88182776	93.60547963	90.46851746	87.4641649	84.58601381	81.82800207
170406A00032	4/6/2017	3.01	4/6/2027	4/6/2017	108.61749	104.851805	101.24564	97.7912866	94.48145724	91.30925649	88.2681576	85.35198066	82.55487211
200414A00024	4/14/2020	1.37	4/14/2027	4/14/2020	102.58158	98.84448946	95.26884229	91.84674564	88.57073779	85.43376241	82.42914412	79.55056566	76.79204654
200623A00028	6/23/2020	1.23	6/23/2038	6/23/2020	104.85622	97.36476099	90.61299702	84.51671656	79.00218589	74.00476092	69.46768947	65.34108001	61.58101252
160608A00020	6/8/2016	2.36	6/8/2026	6/8/2016	104.50003	101.5149803	98.63492546	95.85553396	93.17267761	90.58242447	88.08102798	85.66491702	83.33068639
161014A00029	10/14/2016	2.51	10/15/2031	10/14/2016	108.97247	104.4077477	100.1165751	96.07958784	92.27895423	88.69824256	85.32230117	82.13714962	79.12987979
200330A00079	3/30/2020	1.51	3/30/2035	3/30/2020	104.67821	98.70071603	93.20162498	88.13638443	83.46501362	79.15159992	75.16385315	71.47271187	68.05199503
180420A00011	4/20/2018	2.74	4/20/2023	4/20/2018	100.22614	100.112346	99.99883115	99.8855954	99.77263761	99.65995669	99.54755155	99.4354211	99.32356427
180605A00031	6/5/2018	3.37	6/5/2030	6/5/2018	110.00953	106.1031766	102.398376	98.88271351	95.54463707	92.37339156	89.35895839	86.49199994	83.76380856
181128A00004	11/28/2018	3.08	11/28/2023	11/28/2018	101.33095	100.5919444	99.86378282	99.14622913	98.43905227	97.74202782	97.0549378	96.37757043	95.70971991
190104A00038	1/4/2019	3.25	1/4/2029	1/4/2019	113.52129	108.1987439	103.1790067	98.44298099	93.97287412	89.75210393	85.76521052	81.99777461	78.43634237
200309A00083	3/9/2020	0.82	3/9/2023	3/9/2020	99.999111	99.97418704	99.94928993	99.9244198	99.89957659	99.87476027	99.84997078	99.82520808	99.80047212
130614A00018	6/14/2013	2.83	6/14/2023	6/14/2013	100.35249	100.1519306	99.95229822	99.75358553	99.55578561	99.35889166	99.16289693	98.96779476	98.77357854
150803A00037	8/3/2015	3.41	8/2/2030	8/3/2015	116.50818	110.1780608	104.2783962	98.77670138	93.64313364	88.85026433	84.37287083	80.18774743	76.27353346
180809A00034	8/9/2018	3.08	8/9/2023	8/9/2018	100.78737	100.3444811	99.90550334	99.47038425	99.03907293	98.61151939	98.18767452	97.76749007	97.35091861
170526A00017	5/26/2017	2.16	5/28/2024	5/26/2017	100.43809	99.81366038	99.19910324	98.59415793	97.99857418	97.4121109	96.83453569	96.26562448	95.70516114
190905A00019	9/5/2019	2.08	9/5/2029	9/5/2019	108.17398	102.3864891	96.96587271	91.88661994	87.12513338	82.65957294	78.46971604	74.53682964	70.84355296
181218A00086	12/18/2018	3.06	10/18/2023	12/18/2018	101.01391	100.392642	99.77912133	99.1731993	98.57473465	97.98358959	97.39962971	96.82272388	96.25274418
190403A00013	4/3/2019	3.05	4/3/2029	4/3/2019	112.86637	107.3762696	102.2098983	97.34610042	92.76521846	88.44898181	84.38040139	80.5436729	76.92408797
220407A00017	4/7/2022	3.16	4/6/2029	4/7/2022	112.9364	107.63045	102.6331547	97.92448166	93.4858141	89.2998432	85.35046914	81.62271006	78.10261837
160907A00041	9/7/2016	1.83	9/7/2023	9/7/2016	100.22979	99.71140542	99.19839894	98.69068501	98.18818189	97.6908095	97.19848943	96.71114481	96.22870039
180809A00032	8/9/2018	3.08	8/9/2023	8/9/2018	100.78737	100.3444811	99.90550334	99.47038426	99.03907295	98.61151941	98.18767455	97.7674901	97.35091865
151223A00078	12/23/2015	2.28	12/23/2025	12/23/2015	101.81286	100.3594392	98.94102146	97.55647875	96.20472594	94.88472149	93.59546531	92.33599676	91.10539272

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200413A00013	4/13/2020	1.19	4/12/2030	4/13/2020	101.54571	98.0169344	94.66668965	91.48417879	88.45934094	85.5827977	82.84580211	80.24019183	77.75834603
150213A00014	2/13/2015	2.41	2/13/2025	2/13/2015	101.2371	100.2004843	99.18402023	98.18714289	97.20930385	96.24997506	95.30864788	94.38483219	93.47805554
200709A00018	7/9/2020	0.59	7/7/2023	7/9/2020	99.773687	99.42152937	99.07186296	98.72466108	98.37989768	98.03754708	97.69758396	97.35998335	97.02472062
201228A00013	12/28/2020	0.84	12/30/2030	12/28/2020	100.33624	96.53851718	92.94842186	89.55246028	86.3381239	83.29381102	80.40875478	77.67295721	75.07712899
160511A00015	5/11/2016	2.42	5/11/2026	5/11/2016	104.53095	101.6081631	98.78621785	96.06100765	93.4286189	90.88532263	88.42756439	86.05195488	83.75526104
161207A00014	12/7/2016	2.75	12/8/2031	12/7/2016	110.29663	105.5918754	101.1737852	97.02175124	93.1168175	89.44153813	85.97984631	82.71693534	79.63915077
200512A00017	5/12/2020	0.85	5/12/2025	5/12/2020	99.288078	97.29379411	95.35051358	93.456561	91.61033018	89.8102807	88.05493462	86.34287338	84.67273489
150722A00035	7/22/2015	2.92	7/22/2025	7/22/2015	103.94268	101.7707621	99.65785183	97.60199865	95.60133028	93.65404724	91.75841958	89.91278374	88.11553958
150814A00029	8/14/2015	2.39	8/14/2025	8/14/2015	101.37939	100.0997953	98.84845346	97.62450859	96.42713601	95.25554271	94.10896585	92.98667132	91.88795245
160413A00016	4/13/2016	2.55	4/14/2031	4/13/2016	107.62885	103.3913602	99.39404838	95.6207707	92.05660129	88.68773068	85.50137445	82.48568996	79.62970037
200306A00048	3/6/2020	1.04	3/6/2035	3/6/2020	103.11132	97.18492212	91.73483458	86.71654643	82.09013214	77.81974069	73.87314799	70.22136154	66.83827089
200306A00050	3/6/2020	0.87	3/6/2030	3/6/2020	101.14739	97.65540524	94.33891166	91.18735771	88.19091276	85.34040912	82.6272928	80.04357821	77.58180647
190205A00019	2/5/2019	2.94	2/5/2024	2/5/2019	101.29872	100.3844312	99.48678074	98.60531642	97.73960206	96.88921705	96.05375562	95.23282626	94.42605107
210412A00007	4/12/2021	0.66	4/12/2024	4/12/2021	98.967993	97.90190789	96.85890802	95.83824829	94.83921498	93.86112453	92.90332196	91.96517936	91.04609456
190708A00025	7/8/2019	2.21	7/1/2024	7/8/2019	100.89554	99.61124669	98.34953679	97.1098648	95.89170111	94.69453269	93.51786242	92.3612085	91.22410389
191031A00025	10/31/2019	1.91	10/31/2024	10/31/2019	100.37674	99.51096334	98.66071886	97.82557868	97.00513115	96.19897999	95.40674353	94.62805402	93.86255697
200206A00033	2/6/2020	2.15	2/6/2030	2/6/2020	108.9987	102.8534809	97.11885393	91.76482231	86.76374357	82.09012966	77.72046833	73.63306012	69.80786966
190104A00006	1/4/2019	2.83	1/5/2026	1/4/2019	102.41623	100.9190306	99.45847686	98.03337804	96.64258837	95.2850081	93.95958127	92.66529364	91.40117069
190501A00015	5/1/2019	2.78	5/1/2029	5/1/2019	106.44308	103.2012169	100.1050875	97.14678032	94.31887409	91.61440346	89.026828	86.55000341	84.17815476
170921A00057	9/21/2017	2.79	9/21/2027	9/21/2017	108.30846	104.3539598	100.5797421	96.9764627	93.53531687	90.24800408	87.10669607	84.10400738	81.23296775
200311A00026	3/11/2020	1.34	3/11/2030	3/11/2020	103.83103	98.04222185	92.64122782	87.59952308	82.89083869	78.49097118	74.37760945	70.53017714	66.92968885
151118A00037	11/18/2015	2.75	11/18/2025	11/18/2015	103.88471	101.6262522	99.43378675	97.30492004	95.2373647	93.22893313	91.27753223	89.38115854	87.5378937
150812A00052	8/14/2015	2.13	8/14/2025	8/14/2015	101.30769	100.0252846	98.77127229	97.54478866	96.34500312	95.17111701	94.02236213	92.8979993	91.79731704
190404A00015	4/4/2019	2.88	4/3/2026	4/4/2019	105.84037	102.9031474	100.0654441	97.32329841	94.67293321	92.11074418	89.63329086	87.23728816	84.91959821
210714A00015	7/14/2021	1.11	7/14/2026	7/14/2021	100.78842	97.80837396	94.93619538	92.16739102	89.49767569	86.92296497	84.43936473	82.04316123	79.73081175
161222A00013	12/22/2016	2.93	12/22/2026	12/22/2016	107.96502	104.5721751	101.3130296	98.18151229	95.17186549	92.27862428	89.49660005	86.8208649	84.24673701
170406A00029	4/6/2017	3.01	4/6/2027	4/6/2017	108.61749	104.8518059	101.2456404	97.79128645	94.48145661	91.30925539	88.26815607	85.35197873	82.55486979
190930A00026	9/30/2019	1.95	9/30/2024	9/30/2019	100.77929	99.29509473	97.84056611	96.41487492	95.01722165	93.64683607	92.30297595	90.98492569	89.69199522
150603A00012	6/3/2015	2.77	6/3/2030	6/3/2015	108.52376	104.6514641	100.979669	97.49598305	94.18888176	91.04763811	88.06226179	85.2234435	82.52250379
190930A00028	9/30/2019	1.95	9/30/2024	9/30/2019	100.77929	99.29509477	97.84056623	96.41487512	95.01722192	93.64683642	92.30297637	90.98492619	89.69199579
210107A00010	1/7/2021	0.54	1/5/2024	1/7/2021	99.167393	98.34429969	97.53491336	96.73889309	95.95590926	95.18564306	94.42778596	93.68203938	92.94811425
160421A00016	4/21/2016	2.26	4/21/2026	4/21/2016	104.36946	101.5816044	98.88788395	96.28453135	93.76795188	91.33471746	88.98155779	86.70535198	84.50312071
160810A00028	8/10/2016	2.19	8/10/2026	8/10/2016	104.40336	101.2174671	98.1495948	95.19471981	92.34805785	89.6050536	86.9613685	84.41286916	81.95561652

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190402A00005	4/2/2019	2.77	4/2/2032	4/2/2019	112.75011	106.8794998	101.4328052	96.374893	91.67381591	87.30050446	83.22848898	79.43364976	75.89399286
160608A00027	6/8/2016	2.36	6/8/2026	6/8/2016	104.50003	101.5149804	98.63492547	95.85553387	93.17267743	90.5824242	88.08102763	85.66491659	83.33068589
160908A00037	9/8/2016	1.4	9/8/2023	9/8/2016	100.10641	99.6866049	99.27076276	98.85882661	98.45073896	98.04644344	97.6458848	97.24900892	96.85576269
181003A00032	10/3/2018	3.23	10/3/2025	10/3/2018	102.69829	101.320725	99.97486739	98.65973084	97.37436401	96.11785272	94.88931822	93.6879155	92.51283174
190829A00032	8/29/2019	1.69	8/28/2026	8/29/2019	101.4015	99.62796877	97.90430977	96.22871199	94.59944728	93.01486265	91.47337642	89.97347462	88.51370757
160616A00029	6/16/2016	1.58	6/16/2026	6/16/2016	101.08689	99.40062352	97.7600159	96.16345842	94.60941185	93.09640264	91.6230196	90.1879108	88.78978057
180517A00018	5/17/2018	3.46	5/17/2033	5/17/2018	116.01977	110.316912	105.0102293	100.0674852	95.45935614	91.15914284	87.14251589	83.38728788	79.87320874
191004A00017	10/4/2019	2.02	10/4/2029	10/4/2019	107.88832	102.0511546	96.58776918	91.47192093	86.67935314	82.1876334	77.9760069	74.02526229	70.31760894
191101A00005	11/1/2019	1.83	11/2/2026	11/1/2019	104.37266	100.9508471	97.66322041	94.50372872	91.4666319	88.54648238	85.73810825	83.03659754	80.43728346
200610A00006	6/10/2020	1.11	6/10/2027	6/10/2020	101.71994	97.87976373	94.21077459	90.70436515	87.35241451	84.14725387	81.08163869	78.14872265	75.34203343
150203A00027	2/3/2015	2.26	2/4/2030	2/3/2015	106.20341	102.579378	99.13557773	95.86128476	92.74649244	89.781863	86.95867824	84.26879417	81.70459925
160906A00027	9/6/2016	2.03	9/8/2031	9/6/2016	106.68496	102.2569564	98.09206703	94.17181089	90.47916255	86.99842317	83.71510772	80.6158425	77.68827199
190315A00029	3/15/2019	2.88	3/15/2034	3/15/2019	113.7767	107.752666	102.177081	97.01098389	92.21915807	87.76974042	83.63387651	79.78541362	76.20062706
220407A00014	4/7/2022	3.14	4/6/2029	4/7/2022	111.93469	106.9818531	102.3096646	97.90017899	93.73670749	89.80372268	86.08677085	82.57239176	79.24804483
180615A00021	6/15/2018	3.02	6/15/2023	6/15/2018	100.54955	100.2567351	99.96564393	99.67626007	99.38856843	99.1025541	98.81820235	98.53549862	98.25442852
190104A00035	1/4/2019	3.1	1/5/2026	1/4/2019	105.74914	103.0644607	100.4643706	97.94574264	95.50558172	93.14101936	90.84930769	88.62781371	86.47401378
170602A00019	6/2/2017	2.42	6/3/2024	6/2/2017	101.03372	99.82022782	98.635104	97.4773532	96.34602812	95.2402249	94.15908064	93.10177112	92.06750862
190305A00015	3/5/2019	3.32	3/5/2029	3/5/2019	114.21822	108.7370387	103.575449	98.71278484	94.12982753	89.80870008	85.73276631	81.88653829	78.2555911
210913A00015	9/13/2021	1.08	9/14/2026	9/13/2021	100.75962	97.76278447	94.87761139	92.09927331	89.42317936	86.844963	84.36046973	81.96574545	79.65702565
150803A00036	8/3/2015	3.41	8/2/2030	8/3/2015	116.50818	110.1780609	104.2783962	98.77670137	93.64313361	88.85026428	84.37287076	80.18774734	76.27353335
160210A00049	2/10/2016	1.78	2/10/2026	2/10/2016	101.18521	99.66024552	98.17349972	96.72370464	95.30964484	93.93015431	92.58411409	91.27045002	89.98813054
140917A00030	9/17/2014	3.23	9/17/2029	9/17/2014	114.61145	109.1239991	103.9697123	99.12591176	94.57160216	90.28733387	86.25508065	82.45812766	78.88096884
160711A00004	7/11/2016	1.51	7/13/2026	7/11/2016	101.01796	99.29253748	97.61470027	95.98275193	94.39506797	92.85009371	91.34634075	89.88238362	88.45685667
200608A00001	6/8/2020	1.34	6/7/2030	6/8/2020	103.67858	98.04742767	92.79527524	87.89385499	83.31717885	79.04133885	75.04432918	71.3058844	67.80733233
210423A00001	4/23/2021	1.72	4/23/2036	4/23/2021	107.92242	101.1990497	95.05869578	89.44277284	84.29915822	79.58143097	75.24820236	71.26252965	67.59140218
160427A00004	4/27/2016	2.09	4/27/2026	4/27/2016	101.4819	99.87481126	98.30954017	96.78465962	95.29880203	93.85065668	92.43896691	91.06252745	89.72018194
180309A00011	3/9/2018	3.19	3/10/2025	3/9/2018	103.81752	101.8701538	99.97005108	98.11576108	96.30588583	94.53908002	92.81404867	91.12954483	89.48436743
200110A00053	1/10/2020	1.99	1/10/2025	1/10/2020	101.19915	99.43221974	97.70522501	96.01703152	94.366541	92.75269333	91.17446484	89.63086693	88.12094454
221014A00032	10/14/2022	4.67	10/14/2027	10/14/2022	116.23436	111.9935193	107.947111	104.0849787	100.3975571	96.87583338	93.51131285	90.29598562	87.22229632
160908A00033	9/8/2016	2.17	9/8/2026	9/8/2016	104.15741	101.0909332	98.1380843	95.29397661	92.55395861	89.91360505	87.3687045	84.9152478	82.54941716
210319A00009	3/19/2021	1.1	3/19/2026	3/19/2021	100.51156	97.74283296	95.06716583	92.48089489	89.98051957	87.56269767	85.22423718	82.96208856	80.77333746
201207A00021	12/7/2020	1.85	12/7/2050	12/7/2020	111.1755	97.5893535	86.25770277	76.7542128	68.73959981	61.94289453	56.1469017	51.17688621	46.89174545
200227A00046	2/27/2020	1.52	3/1/2027	2/27/2020	101.00561	99.00312057	97.06291782	95.18255278	93.35969008	91.59210268	89.87766613	88.21435304	86.60022801

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200806A00004	8/6/2020	0.3	3/6/2024	8/6/2020	99.43523	98.86076316	98.29466699	97.73673901	97.18678395	96.6446131	96.11004401	95.58290018	95.06301088
140318A00003	3/17/2014	3.08	3/18/2024	3/17/2014	101.76297	100.73682	99.73156557	98.74657543	97.78123916	96.83497066	95.90720699	94.9974072	94.10505131
170829A00066	8/29/2017	2.11	8/29/2024	8/29/2017	101.20885	99.77536178	98.36978227	96.99136961	95.63940462	94.31319303	93.01206445	91.73537129	90.48248781
190911A00016	9/11/2019	1.9	9/11/2029	9/11/2019	104.54262	101.1795558	97.97514208	94.92038334	92.00686051	89.22669291	86.5725002	84.03736718	81.61481128
180126A00011	1/26/2018	2.72	1/26/2028	1/26/2018	105.20338	102.6499278	100.1905997	97.82111612	95.5374226	93.33567756	91.21223965	89.16365597	87.18665097
200512A00014	5/12/2020	1.17	5/12/2027	5/12/2020	101.88474	98.1042748	94.48965967	91.03266289	87.72550697	84.56084427	81.53173053	78.63160019	75.85424346
210915A00023	9/15/2021	0.74	9/16/2024	9/15/2021	98.915435	97.46706728	96.04735459	94.65551164	93.29078114	91.95243284	90.63976237	89.35209003	88.08875976
151204A00011	12/4/2015	2.28	12/4/2025	12/4/2015	101.8093	100.3574322	98.94047799	97.55730907	96.20684306	94.88804115	93.59990598	92.34147965	91.11184179
200709A00019	7/9/2020	0.77	7/9/2025	7/9/2020	99.188221	97.00942691	94.89008977	92.82826039	90.82206449	88.86969974	86.96943256	85.11959506	83.31858218
150824A00033	8/24/2015	2.22	8/25/2025	8/24/2015	101.15803	99.8802432	98.63070352	97.40855295	96.212966	95.04314889	93.89833807	92.77779879	91.6808238
210512A00009	5/12/2021	0.66	5/10/2024	5/12/2021	98.899841	97.76554615	96.65741332	95.57454322	94.51607721	93.48119521	92.46911358	91.47908308	90.51038704
161014A00019	10/14/2016	2.39	10/15/2031	10/14/2016	107.3897	102.9146221	98.70673411	94.7471822	91.01860018	87.50498123	84.19156177	81.06471606	78.11186048
190708A00030	7/8/2019	2.57	7/2/2029	7/8/2019	110.88941	105.1245496	99.71570267	94.63873931	89.87128875	85.39260471	81.18343937	77.22592778	73.50348182
190510A00049	5/10/2019	2.58	5/8/2026	5/10/2019	102.29535	100.67524	99.09729036	97.56006539	96.06218585	94.60232991	93.17923023	91.79167135	90.43848713
200424A00022	4/24/2020	1.39	4/24/2030	4/24/2020	103.92168	98.35841763	93.16435859	88.31233241	83.77733121	79.53632349	75.56808711	71.85305724	68.373188
160608A00021	6/8/2016	1.91	6/8/2023	6/8/2016	100.21404	99.93961532	99.66670201	99.39528756	99.1253596	98.85690587	98.58991429	98.32437287	98.06026977
190605A00025	6/5/2019	2.64	6/5/2029	6/5/2019	111.1988	105.4809649	100.1124695	95.06981064	90.33119476	85.87640716	81.6866889	77.7446241	74.03403652
180125A00027	1/25/2018	2.69	1/24/2025	1/25/2018	101.45961	100.3334471	99.22983888	98.14814922	97.08776346	96.04808935	95.0285561	94.02861339	93.04773048
210714A00010	7/14/2021	0.75	7/12/2024	7/14/2021	98.954833	97.66656498	96.40138931	95.15873673	93.93805605	92.73881367	91.56049287	90.40259315	89.26462964
190118A00006	1/18/2019	3.14	1/18/2034	1/18/2019	115.13569	109.1268709	103.5594022	98.39543019	93.60069054	89.14414232	84.99764062	81.1356444	77.53495574
160504A00022	5/4/2016	2	5/4/2023	5/4/2016	100.17659	99.99726809	99.81859201	99.64055807	99.46316282	99.2864028	99.11027462	98.93477487	98.7599002
190813A00051	8/13/2019	2.19	8/13/2029	8/13/2019	108.76977	103.0057857	97.60393706	92.53926801	87.78867185	83.33074762	79.14566563	75.21504421	71.52183678
191004A00026	10/4/2019	1.74	10/4/2024	10/4/2019	100.4782	98.96177688	97.47586799	96.01961687	94.59219617	93.19280907	91.82068787	90.47509265	89.15531001
210107A00009	1/7/2021	0.54	1/5/2024	1/7/2021	99.167393	98.34429966	97.53491332	96.73889303	95.95590919	95.18564297	94.42778586	93.68203927	92.94811413
170406A00036	4/6/2017	3.07	4/6/2032	4/6/2017	111.17832	106.2918508	101.711818	97.41557491	93.38234435	89.59304741	86.03015225	82.67753757	79.52036892
200406A00030	4/6/2020	1.61	4/5/2030	4/6/2020	105.72035	99.60308179	93.90361332	88.5907864	83.63593622	79.01267821	74.69671486	70.66565997	66.89887858
200406A00036	4/6/2020	1.09	4/4/2025	4/6/2020	99.715247	97.75947691	95.85230237	93.99218747	92.17765638	90.40729086	88.67972748	86.99365507	85.3478123
140428A00015	4/28/2014	2.35	4/29/2024	4/28/2014	100.67638	100.0492879	99.43212692	98.82463493	98.22655987	97.63765889	97.05769796	96.48645139	95.92370153
160413A00033	4/13/2016	2.32	4/13/2026	4/13/2016	103.51093	100.9801117	98.53175342	96.16262855	93.86965431	91.64988843	89.50052173	87.41887114	85.4023732
200206A00032	2/6/2020	2.15	2/6/2030	2/6/2020	108.9987	102.8534823	97.11885307	91.76481936	86.76373871	82.09012307	77.72046017	73.63305054	69.80785879
210714A00014	7/14/2021	1.12	7/14/2026	7/14/2021	100.86087	97.8181467	94.88627817	92.06062882	89.33678213	86.71052882	84.17785604	81.73493706	79.37812173
161227A00073	12/27/2016	2.83	12/28/2026	12/27/2016	106.85706	103.7652022	100.7916162	97.93101906	95.1783968	92.52898707	89.97826517	87.52193084	85.1558958
190926A00002	9/30/2019	2.01	9/29/2034	9/30/2019	108.91873	102.9045089	97.35590821	92.2309432	87.49180353	83.10440933	79.03801445	75.26485458	71.75983488

	Parallel-Shift Sensitivity Analysis												
2/28/2023					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	109.99003	103.8571874	98.12992308	92.77890455	87.77707572	83.09946841	78.72303096	74.62647168	70.79011591
200116A00012	1/16/2020	2.16	1/19/2027	1/16/2020	105.20228	101.5933433	98.13245043	94.81272328	91.6276436	88.57102831	85.63701058	82.82002191	80.11477548
200406A00033	4/6/2020	1.09	4/4/2025	4/6/2020	99.715247	97.75947691	95.85230236	93.99218745	92.17765637	90.40729084	88.67972746	86.99365504	85.34781226
171219A00067	12/19/2017	2.72	12/20/2027	12/19/2017	109.43659	105.2449487	101.2531515	97.45042446	93.82663213	90.37223992	87.07827509	83.93629053	80.93833109
180913A00062	9/13/2018	3.05	9/13/2023	9/13/2018	100.88877	100.3545148	99.82595872	99.30301108	98.7855826	98.27358591	97.7669355	97.26554762	96.7693403
190322A00008	3/22/2019	2.64	3/20/2026	3/22/2019	102.30352	100.724969	99.18669171	97.68733276	96.22559485	94.80023394	93.41005663	92.05391771	90.73071785
150615A00024	6/15/2015	2.26	6/16/2025	6/15/2015	101.33799	100.1366268	98.9607318	97.80954443	96.68233556	95.57840402	94.49707531	93.43770028	92.39965401
160209A00008	2/9/2016	2.45	2/10/2031	2/9/2016	107.03833	102.906364	99.00440864	95.31726025	91.83084603	88.53212936	85.40902617	82.45032875	79.64563604
190315A00019	3/15/2019	2.88	3/15/2034	3/15/2019	113.77669	107.7526639	102.1770804	97.01098465	92.2191601	87.76974364	83.63388083	79.78541895	76.20063333
191011A00027	10/11/2019	1.84	10/11/2029	10/11/2019	104.39974	101.0002953	97.76296046	94.678453	91.73809004	88.93374917	86.25782832	83.7032089	81.26322177
200616A00005	6/16/2020	0.74	6/17/2030	6/16/2020	100.7191	97.12349109	93.71412121	90.4794803	87.40886005	84.49229331	81.72049766	79.08482359	76.57720699
210611A00009	6/11/2021	0.61	6/11/2024	6/11/2021	98.789665	97.57823667	96.39297655	95.23303467	94.09759843	92.9858901	91.89716493	90.83070942	89.78583967
140717A00027	7/17/2014	3.14	7/17/2026	7/17/2014	106.68414	103.7397775	100.8996532	98.15946404	95.51510704	92.96267055	90.49842453	88.11881103	85.82043527
200512A00011	5/12/2020	1.48	5/10/2030	5/12/2020	104.94813	98.7968399	93.07062508	87.7374269	82.76777853	78.13458411	73.81291547	69.77982738	66.01418949
221209A00070	12/9/2022	4.42	12/9/2037	12/9/2022	131.08306	121.9630287	113.7213528	106.2603889	99.49437347	93.34787656	87.75446963	82.65557499	77.99947047
200428A00009	4/28/2020	1.08	4/29/2030	4/28/2020	101.14165	97.62632263	94.28889776	91.11860654	88.1054208	85.23999285	82.51360468	79.91812117	77.44594712
160303A00035	3/3/2016	2.14	3/3/2026	3/3/2016	101.51262	99.94696017	98.42153684	96.93499994	95.48605863	94.07347418	92.69605751	91.35266683	90.04220546
160810A00027	8/10/2016	2.13	8/10/2026	8/10/2016	103.90102	100.9005273	98.0091452	95.22226777	92.53551013	89.94469632	87.44584806	85.0351743	82.70906132
181105A00015	11/5/2018	3.57	11/5/2025	11/5/2018	106.61601	104.030928	101.523511	99.09092013	96.7304432	94.43948594	92.21556601	90.05630728	87.95943444
160119A00072	1/19/2016	2.77	1/21/2031	1/19/2016	109.10542	104.4964021	100.1541898	96.06058146	92.19876611	88.55320457	85.10952468	81.85442562	78.77559076
160908A00034	9/8/2016	2.17	9/8/2026	9/8/2016	104.15741	101.0909332	98.1380843	95.2939766	92.55395861	89.91360504	87.36870449	84.91524779	82.54941715
200212A00013	2/12/2020	1.98	2/12/2027	2/12/2020	104.65553	101.0036376	97.50398776	94.14939777	90.93306124	87.84852769	84.88968198	82.05072508	79.32615606
210319A00008	3/19/2021	0.63	3/19/2024	3/19/2021	99.020451	98.01305258	97.0262497	96.05941448	95.11194406	94.18325965	93.27280533	92.38004698	91.50447118
140908A00080	9/8/2014	2.51	3/8/2024	9/8/2014	101.07592	100.1494394	99.24085284	98.34963353	97.47527867	96.61730486	95.77524717	94.94865824	94.13710744
170524A00027	5/24/2017	2.32	5/24/2027	5/24/2017	103.3911	101.2110498	99.1023426	97.06204924	95.08738157	93.17568577	91.32443492	89.53122202	87.79375346
160404A00019	4/4/2016	2.48	4/4/2031	4/4/2016	107.32494	103.0996512	99.11382191	95.35135958	91.79738491	88.43813139	85.26085418	82.25374715	79.40586713
160608A00022	6/8/2016	1.91	6/8/2023	6/8/2016	100.21404	99.93961532	99.66670202	99.39528758	99.12535961	98.85690589	98.58991431	98.3243729	98.06026981
160908A00022	9/8/2016	2.21	9/8/2026	9/8/2016	104.49752	101.3084028	98.23893746	95.28394107	92.43848654	89.69788731	87.05768408	84.51363253	82.06169162
150427A00014	4/27/2015	2.98	4/27/2035	4/27/2015	114.21497	107.6531279	101.6195579	96.06478444	90.94443521	86.21867761	81.85171867	77.81136373	74.06862617
150803A00039	8/3/2015	3.01	8/2/2030	8/3/2015	108.80019	104.852535	101.1125768	97.56729275	94.20457811	91.01317687	87.98261652	85.10314805	82.36569101
190129A00073	1/29/2019	3.11	1/29/2029	1/29/2019	107.08195	103.9873192	101.0255204	98.18964082	95.47317624	92.87000732	90.37437422	87.98085306	85.684334
211007A00005	10/7/2021	0.86	10/7/2024	10/7/2021	99.106529	97.60393764	96.13167727	94.68888988	93.27474982	91.88846206	90.52926079	89.19640805	87.88919247
160719A00026	7/19/2016	1.87	7/20/2026	7/19/2016	101.29252	99.56754669	97.89003891	96.25830202	94.67071908	93.12574251	91.6218905	90.15774381	88.73194259

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210212A00004	2/12/2021	1.1	2/12/2036	2/12/2021	103.63515	97.25454922	91.42105822	86.08029131	81.18380018	76.68838155	72.55546749	68.75059077	65.2429156
120808A00006	8/8/2012	2.06	8/9/2027	8/8/2012	103.06418	100.7684022	98.55127125	96.4094345	94.33970376	92.3390493	90.40459076	88.53358884	86.72343734
160608A00028	6/8/2016	2.36	6/8/2026	6/8/2016	104.50003	101.5149804	98.63492546	95.85553383	93.17267736	90.58242409	88.08102749	85.66491642	83.33068569
180403A00014	4/3/2018	3.11	4/3/2025	4/3/2018	103.82677	101.8198836	99.86265591	97.95352463	96.09098494	94.2735906	92.49995116	90.76872938	89.07863874
190502A00016	5/2/2019	2.87	5/1/2026	5/2/2019	106.00864	102.9991803	100.0936061	97.28770077	94.57744627	91.95901276	89.42874865	86.98317095	84.61895634
210915A00026	9/15/2021	1.1	9/15/2026	9/15/2021	100.95184	97.76688692	94.70303419	91.75498673	88.91771618	86.18644142	83.55661497	81.02391013	78.58420899
180913A00012	9/13/2018	3.31	9/13/2033	9/13/2018	115.66813	109.8069086	104.3645349	99.30600983	94.59957102	90.21637138	86.13018976	82.31717222	78.75560047
160413A00014	4/13/2016	2.55	4/14/2031	4/13/2016	107.62885	103.3913604	99.39404837	95.62077054	92.056601	88.68773027	85.50137393	82.48568934	79.62969964
170301A00031	3/1/2017	2.11	3/1/2024	3/1/2017	100.47732	99.93264923	99.39546254	98.86558737	98.34285788	97.8271135	97.31819873	96.81596297	96.32026027
170317A00039	3/17/2017	2.73	3/18/2024	3/17/2017	101.20209	100.1849552	99.18848921	98.21206357	97.25507576	96.31694728	95.39712244	94.49506723	93.61026825
170406A00033	4/6/2017	3.01	4/6/2027	4/6/2017	108.61749	104.8518044	101.2456397	97.79128667	94.48145765	91.30925721	88.26815863	85.35198198	82.55487369
190905A00023	9/5/2019	2.08	9/5/2029	9/5/2019	108.17398	102.386489	96.96587279	91.88662018	87.12513376	82.65957346	78.46971669	74.53683041	70.84355383
221228A00129	12/28/2022	4.11	12/28/2027	12/28/2022	116.75756	112.0230399	107.5197515	103.2350702	99.15712634	95.27475754	91.57746276	88.05535982	84.69914576
191203A00009	12/3/2019	2.21	12/3/2029	12/3/2019	109.19995	103.1798435	97.55287244	92.29088777	87.36791533	82.75997363	78.44491015	74.40225206	70.6130699
170112A00015	1/12/2017	2.32	1/12/2027	1/12/2017	103.01055	101.0037906	99.05853853	97.17239963	95.34309511	93.56845091	91.84639213	90.17493776	88.5521958
200326A00032	3/26/2020	1.49	3/26/2030	3/26/2020	102.61615	99.0897593	95.74001678	92.5563333	89.52883828	86.64832512	83.90620197	81.29444647	78.80556411
161005A00016	10/5/2016	2.32	10/6/2031	10/5/2016	107.0682	102.606699	98.4115504	94.46396605	90.74663577	87.24360408	83.94015461	80.82270505	77.87871172
200306A00057	3/6/2020	0.92	3/8/2027	3/6/2020	101.40866	97.93492862	94.60668969	91.41700178	88.35929152	85.42733443	82.61523448	79.91740484	77.32854996
190205A00017	2/5/2019	3.36	2/5/2029	2/5/2019	114.27839	108.8589331	103.7516932	98.93672294	94.39545678	90.1106091	86.0660795	82.24686542	78.63898169
190925A00009	9/25/2019	2	9/25/2026	9/25/2019	103.82702	100.6548647	97.60243346	94.66450219	91.83610238	89.11251059	86.48923486	83.96200195	81.52674535
200512A00010	5/12/2020	1.48	5/10/2030	5/12/2020	104.94813	98.79684001	93.07062619	87.73742892	82.76778138	78.13458769	73.81291972	69.77983224	66.0141949
210915A00024	9/15/2021	1.1	9/15/2026	9/15/2021	100.95183	97.76688694	94.70303443	91.75498716	88.91771678	86.1864422	83.55661591	81.02391122	78.58421022
140219A00005	2/19/2014	3.13	2/20/2029	2/19/2014	107.97417	104.798172	101.7605765	98.85407396	96.07180083	93.40730467	90.85451684	88.40772703	86.06155965
190315A00023	3/15/2019	2.88	3/15/2034	3/15/2019	113.77668	107.7526592	102.177079	97.01098622	92.21916435	87.76975026	83.63388958	79.78542959	76.20064566
200520A00009	5/20/2020	1.63	5/20/2038	5/20/2020	110.16196	99.18765485	89.58622269	81.16986577	73.77792191	67.2727758	61.53641141	56.46749845	51.97892745
210714A00017	7/14/2021	0.73	7/12/2024	7/14/2021	98.98387	97.7592889	96.55658507	95.37521505	94.21465331	93.07439129	91.95393672	90.85281298	89.77055847
200206A00031	2/6/2020	2.15	2/6/2030	2/6/2020	108.9987	102.8534825	97.11885296	91.76481902	86.76373816	82.09012232	77.72045924	73.63304945	69.80785756
170303A00004	3/3/2017	2.8	3/4/2024	3/3/2017	101.24447	100.257093	99.28911013	98.33995268	97.40907399	96.49594839	95.60007022	94.72095288	93.85812795
200501A00002	5/1/2020	1.3	5/1/2035	5/1/2020	103.39945	97.41873303	91.92244476	86.86495395	82.20536429	77.90698589	73.93686974	70.26539687	66.8659154
210420A00035	4/20/2021	1.92	4/20/2034	4/20/2021	107.66026	101.0909207	95.07748878	89.56613234	84.50870113	79.86208469	75.58764925	71.65074106	68.02024784
180914A00049	9/14/2018	3.37	9/14/2033	9/14/2018	116.02078	110.1417285	104.6828051	99.60889819	94.88814842	90.49162084	86.39301443	82.5684026	78.99600094
200814A00003	8/14/2020	0.96	8/14/2035	8/14/2020	102.65839	96.56630956	90.97879088	85.84731414	81.12849204	76.78348793	72.77750269	69.07932293	65.66092289
211208A00013	12/8/2021	1.63	12/8/2026	12/8/2021	103.10936	99.63264084	96.29527408	93.09086547	90.01335596	87.05699932	84.21634392	81.48621574	78.86170249

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170406A00027	4/6/2017	2.61	4/8/2024	4/6/2017	101.11004	100.0414813	98.99575758	97.9721419	96.9699359	95.98847042	95.02710395	94.08522127	93.16223205
210809A00014	8/9/2021	1.06	8/7/2026	8/9/2021	100.72462	97.6320566	94.65411521	91.78592162	89.02283334	86.36042973	83.79450009	81.3210326	78.93620375
200429A00030	4/29/2020	1.41	4/29/2030	4/29/2020	104.31441	98.41285298	92.91257139	87.78361444	82.99843369	78.53167951	74.36001396	70.46194047	66.81764884
150601A00396	6/1/2015	3.61	1/3/2029	6/1/2015	107.9576	105.006842	102.1796697	99.46975689	96.87115344	94.37825641	91.98578749	89.68877193	87.48251904
150601A00739	6/1/2015	2.35	5/6/2025	6/1/2015	101.00244	99.92719842	98.8738165	97.84166107	96.83012183	95.83861147	94.86656461	93.91343675	92.97870334
150601A01051	6/1/2015	4.91	2/7/2025	6/1/2015	106.93194	105.0717312	103.2548343	101.4799644	99.7458878	98.05141526	96.39540044	94.77673788	93.19436122
150601A00477	6/1/2015	3.21	6/1/2029	6/1/2015	109.17306	105.6078312	102.2086786	98.96638364	95.87230862	92.91835524	90.09692735	87.40089637	84.82356947
160928A00033	9/28/2016	2.46	9/29/2036	9/28/2016	111.50914	104.4427272	98.00539281	92.13165838	86.76355024	81.84967957	77.34443877	73.20730173	69.40221373
150601A00919	6/1/2015	7.41	6/7/2030	6/1/2015	127.23632	122.7050305	118.4078845	114.3304674	110.4593691	106.7821033	103.2870372	99.9633277	96.80086191
220610A00068	6/10/2022	3.09	6/10/2025	6/10/2022	102.33218	101.1330663	99.95926669	98.81002399	97.68461424	96.58234129	95.5025355	94.44455243	93.4077717
150601A00871	6/1/2015	6.74	7/31/2028	6/1/2015	117.56836	114.4344083	111.4255528	108.5357099	105.7591359	103.0904063	100.5243965	98.05626269	95.68142491
200225A00049	2/25/2020	1.79	2/24/2040	2/25/2020	109.56275	101.2876401	93.89158322	87.26632737	81.31821448	75.96608118	71.13947715	66.77715117	62.8257627
150601A00950	6/1/2015	6.76	12/18/2031	6/1/2015	129.8014	124.2909804	119.1152445	114.2502312	109.6738938	105.3659342	101.3076514	97.48180489	93.87248974
080423A00066	4/23/2008	4.41	4/24/2023	4/23/2008	100.55187	100.399009	100.2466192	100.0947016	99.94325384	99.79227378	99.64175923	99.49170801	99.34211795
150601A00864	6/1/2015	7.37	3/31/2028	6/1/2015	118.2369	115.2586183	112.3940181	109.6377809	106.9848738	104.4305345	101.970255	99.59976655	97.31502496
970806A00018	8/1/1997	6.7	10/23/2026	8/1/1997	110.68687	108.7417772	106.8523579	105.0165571	103.2324113	101.4980435	99.81165903	98.17154158	96.57604876
200401A00011	4/1/2020	0.68	4/3/2023	4/1/2020	99.982399	99.89249542	99.80275463	99.7131763	99.62375999	99.53450527	99.44541172	99.3564789	99.26770639
150601A00953	6/1/2015	6.6	6/10/2032	6/1/2015	131.41752	125.4335498	119.834257	114.5906712	109.6762453	105.0666372	100.7395111	96.6743575	92.85233106
150601A00964	6/1/2015	5.25	1/6/2033	6/1/2015	122.81685	117.4245399	112.3818979	107.6619658	103.2401114	99.09380814	95.20244004	91.54712445	88.11055326
110414A00007	4/14/2011	3.95	1/21/2025	4/14/2011	102.71158	101.6205586	100.5533743	99.5093022	98.48764546	97.48773396	96.50892326	95.55059331	94.61214738
200210A00007	2/10/2020	1.78	2/10/2025	2/10/2023	101.13173	99.47992953	97.86607697	96.28905275	94.74777603	93.24120538	91.768337	90.3282031	88.91987033
221206A00040	12/6/2022	5	11/29/2024	12/6/2022	103.40149	102.4441267	101.5044286	100.5819016	99.67606893	98.78647219	97.91267001	97.05423741	96.21076502
150601A00906	6/1/2015	6.2	11/1/2029	6/1/2015	120.23143	116.2811014	112.5207178	108.9393363	105.5267322	102.2733432	99.17022223	96.20899329	93.38181147
150601A00261	6/1/2015	3.19	2/11/2033	6/1/2015	119.37586	111.6496202	104.5688185	98.07318603	92.10850644	86.62597504	81.58162622	76.9358248	72.65281344
150601A00459	6/1/2015	2.42	5/16/2024	6/1/2015	100.55484	99.95089819	99.35681039	98.77230485	98.19712427	97.63102105	97.07375685	96.52510208	95.98483554
190102A00015	1/2/2019	2.97	1/3/2034	1/2/2019	113.37245	107.7248019	102.4825781	97.6114878	93.08046505	88.86133811	84.92853734	81.25883465	77.83111077
160928A00042	9/28/2016	3.05	9/29/2036	9/28/2021	115.58197	108.3157751	101.6930874	95.64713727	90.11879745	85.05564126	80.4111261	76.14388249	72.21709412
150601A00736	6/1/2015	2.87	5/1/2030	6/1/2015	107.34383	103.7560676	100.3476243	97.10771978	94.02631166	91.09403629	88.30215804	85.64252281	83.10751527
200130A00027	1/31/2020	1.79	1/31/2025	1/31/2020	100.33524	99.35428756	98.39196026	97.44773855	96.52112023	95.61162169	94.7187771	93.84213758	92.98127037
150601A01013	6/1/2015	5.21	9/29/2023	6/1/2015	102.26437	101.6850716	101.1124314	100.5463336	99.98666592	99.43331904	98.88618592	98.34516193	97.81014484
150601A00897	6/1/2015	6.15	5/28/2029	6/1/2015	118.40561	114.7982248	111.353164	108.0616267	104.9153551	101.9065982	99.02807668	96.27295155	93.63479419
150601A01048	6/1/2015	5.27	1/3/2025	6/1/2015	107.16367	105.3881876	103.6522361	101.9546963	100.2944886	98.67057106	97.08193724	95.52761515	94.00666568
160928A00032	9/28/2016	2.52	9/29/2036	9/28/2016	111.92333	104.8365965	98.3804126	92.48916471	87.10476182	82.17570957	77.65630528	73.50593706	69.68847275

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170130A00043	1/30/2017	2.64	1/29/2027	1/30/2017	103.49976	101.3505779	99.26904363	97.25249074	95.29837608	93.40427358	91.56786808	89.78694957	88.05940777
190823A00009	8/23/2019	1.8	8/23/2029	8/23/2019	104.03588	100.7889949	97.69239015	94.73766922	91.91696672	89.22291424	86.64860549	84.18756415	81.83371418
191115A00029	11/15/2019	2.07	11/15/2029	11/15/2019	104.37539	101.0243695	97.83274854	94.79138427	91.89173227	89.12580084	86.48611146	83.96566225	81.55789435
050823A00088	8/23/2005	4.78	8/25/2025	8/23/2005	108.77875	106.4878651	104.2608219	102.0954477	99.98965437	97.94143815	95.94887524	94.01011832	92.12339294
150601A00270	6/1/2015	3.12	3/21/2031	6/1/2015	117.56591	110.5030422	103.9630712	97.90337274	92.28505235	87.07259599	82.23355805	77.73827998	73.55963598
110824A00006	8/24/2011	2.69	8/24/2026	8/24/2011	103.66313	101.6523931	99.70194571	97.809485	95.97281346	94.18983262	92.45853786	90.77701361	89.14342879
070518A00023	5/18/2007	5.46	5/18/2027	5/18/2007	110.12475	107.8094524	105.5749292	103.4176416	101.3342367	99.32153351	97.37651293	95.49630812	93.67819574
160930A00032	9/30/2016	2.15	9/30/2031	9/30/2016	106.01854	101.7620473	97.75423406	93.97783204	90.41691448	87.05678548	83.88387608	80.88564966	78.05051606
150601A01041	6/1/2015	5.99	10/2/2036	6/1/2015	140.68634	131.6766776	123.4708211	115.9857688	109.1479224	102.8919462	97.15977199	91.89973135	87.06579741
190520A00020	5/20/2019	2.39	5/20/2026	5/20/2019	102.37365	100.7269523	99.12382384	97.56275304	96.04229448	94.56106368	93.11773409	91.71103415	90.33974458
130207A00012	2/7/2013	2.9	2/7/2033	2/7/2013	111.67177	106.07665	100.8675197	96.01307484	91.48483515	87.25686664	83.30553494	79.60928412	76.14843825
050812A00050	8/12/2005	4.97	8/12/2025	8/12/2005	105.5243	104.0305072	102.5714059	101.1459177	99.7530094	98.39168672	97.06099316	95.76000807	94.48784507
120410A00005	4/10/2012	2.35	4/12/2027	4/10/2012	103.45931	101.2965292	99.20896337	97.19335793	95.24662483	93.36583159	91.5481923	89.79105928	88.09191522
150601A00690	6/1/2015	2.34	2/28/2025	6/1/2015	100.86417	99.88466064	98.92409192	97.98193328	97.05767014	96.15080705	95.26086675	94.3873893	93.52993139
170130A00046	1/30/2017	2.52	1/30/2026	1/30/2017	102.18603	100.5386384	98.93304885	97.36788821	95.84183626	94.35362511	92.90203666	91.4859004	90.10409118
150601A00448	6/1/2015	2.61	4/26/2024	6/1/2015	100.65014	100.0691606	99.49730433	98.93433276	98.38001596	97.83413241	97.29646852	96.76681833	96.2449831
160928A00041	9/28/2016	3.26	9/29/2036	9/30/2019	117.03162	109.6943176	103.0056567	96.89840942	91.31303799	86.19674627	81.50265888	77.18910616	73.21900069
150601A00943	6/1/2015	6.44	5/9/2031	6/1/2015	126.51657	121.4302857	116.6364495	112.1152055	107.8482085	103.8184962	100.0103758	96.40931962	93.0018708
050823A00085	8/23/2005	4.78	8/25/2025	8/23/2005	108.77873	106.4878497	104.2608113	102.0954417	99.98965297	97.9414411	95.94888238	94.0101295	92.12340801
170130A00039	1/30/2017	2.74	1/31/2028	1/30/2017	104.91302	102.2545989	99.69609276	97.23288805	94.86062067	92.57515746	90.37258244	88.24918402	86.20144304
200310A00067	3/10/2020	0.94	3/10/2025	3/10/2020	99.469135	98.41694576	97.38559454	96.37448719	95.3830521	94.41073887	93.45701736	92.52137678	91.60332476
150601A00905	6/1/2015	6.14	10/29/2029	6/1/2015	119.76226	115.8698139	112.16271	108.630372	105.2629062	102.0510544	98.98614898	96.06007133	93.26521319
150601A00993	6/1/2015	5.37	6/9/2034	6/1/2015	129.76576	122.7401296	116.2483366	110.2431651	104.6820058	99.52637403	94.74147929	90.29584221	86.16095423
150601A00473	6/1/2015	2.22	5/31/2024	6/1/2015	100.56538	99.93724318	99.31975028	98.71259965	98.11550299	97.5281833	96.95037426	96.38181978	95.82227341
150601A00527	6/1/2015	2.5	7/26/2024	6/1/2015	100.68804	99.98758793	99.29908131	98.62219082	97.95660304	97.30201632	96.65814018	96.02469478	95.40141043
150601A00893	6/1/2015	6.49	4/6/2029	6/1/2015	119.4026	115.7971621	112.3523221	109.0594606	105.9104834	102.8977878	100.0142302	97.25309447	94.60806409
190327A00030	3/27/2019	2.9	3/27/2036	3/27/2019	113.75675	107.1269999	101.0512553	95.47524364	90.3505701	85.63402947	81.28700674	77.27495105	73.56691371
200317A00024	3/17/2020	1.09	3/17/2025	3/17/2020	99.632906	98.57878851	97.5455581	96.53261901	95.5393978	94.56534236	93.6099209	92.67262108	91.75294903
150601A00030	6/1/2015	5.28	11/26/2027	6/1/2015	120.03664	115.5537711	111.2812373	107.207797	103.3228761	99.61652694	96.07938757	92.70264362	89.47799277
140911A00033	9/11/2014	3.02	9/13/2027	9/11/2014	106.95422	103.7773304	100.730846	97.80838622	95.00392192	92.31175696	89.72650762	87.24308359	84.85667018
150601A01040	6/1/2015	5.4	10/2/2026	6/1/2015	115.33638	111.9392795	108.6693792	105.5211249	102.4892427	99.56871962	96.75478902	94.04291697	91.42878946
150601A00928	6/1/2015	5.94	8/21/2030	6/1/2015	119.80493	115.7420661	111.8870783	108.2271418	104.7503314	101.4455488	98.30246008	95.31143695	92.46350394
130624A00019	6/24/2013	3.4	6/26/2023	6/24/2013	100.71242	100.3776868	100.0451212	99.71470413	99.38641499	99.06023327	98.73613874	98.41411144	98.09413168

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00931	6/1/2015	7.13	9/20/2030	6/1/2015	127.02533	122.3501188	117.9237659	113.7305308	109.7557923	105.9859616	102.4084031	99.01135989	95.78388764
130206A00004	2/6/2013	2.14	2/7/2028	2/6/2013	104.04823	101.3185761	98.69355112	96.16824404	93.73801354	91.39846776	89.14544923	86.97502088	84.88345285
170130A00036	1/30/2017	3.11	1/31/2033	1/30/2017	112.07663	106.8143553	101.904313	97.3186456	93.03194645	89.02102893	85.26471601	81.743651	78.44012744
150601A00946	6/1/2015	6.28	8/22/2031	6/1/2015	126.70246	121.4418206	116.492258	111.8321063	107.4413825	103.3016461	99.39586995	95.70832128	92.2244547
160928A00044	9/28/2016	2.89	9/29/2036	9/28/2023	114.47747	107.2654571	100.6930347	94.69378706	89.20889991	84.18622792	79.57948208	75.34752161	71.45373672
210514A00010	5/14/2021	1.34	5/14/2031	5/14/2021	103.34494	99.28511478	95.45643444	91.84326348	88.4311499	85.20673083	82.15764267	79.27243929	76.54051737
150601A00875	6/1/2015	7.14	9/29/2028	6/1/2015	119.30851	116.0506279	112.925862	109.9275941	107.0495865	104.2859551	101.6311474	99.07992112	96.6273249
150601A00900	6/1/2015	6.06	6/28/2024	6/1/2015	103.053	102.3977472	101.7536014	101.1202524	100.4974005	99.88475752	99.28204666	98.68900143	98.10536542
181211A00042	12/11/2018	3.7	12/11/2028	12/11/2023	114.56069	109.4989938	104.7138508	100.188221	95.90621661	91.85301753	88.0147934	84.37863201	80.93247312
970806A00059	8/1/1997	8.25	9/22/2025	8/1/1997	108.91603	107.5665805	106.2470211	104.9564445	103.6939762	102.4587751	101.2500324	100.0669697	98.90883762
150601A00883	6/1/2015	6.21	11/30/2028	6/1/2015	116.91163	113.6363311	110.4981109	107.4900076	104.6054625	101.8382963	99.18268472	96.63313567	94.18446803
150601A00899	6/1/2015	7.07	6/14/2029	6/1/2015	119.30977	115.9039265	112.6478093	109.533384	106.5531079	103.699899	100.9671049	98.3484733	95.8381254
150601A00976	6/1/2015	6.8	9/22/2033	6/1/2015	135.95105	129.1635727	122.8581643	116.9947094	111.5367964	106.4513446	101.7082748	97.28021369	93.14223045
200331A00056	3/31/2020	0.96	3/29/2030	3/31/2020	101.44755	97.98215085	94.69009649	91.56099781	88.58516718	85.75356933	83.05777293	80.48990603	78.04261509
150601A00939	6/1/2015	5.79	1/17/2031	6/1/2015	122.02754	117.3762994	112.9814462	108.8262147	104.8950672	101.1735985	97.64844574	94.30720536	91.13835782
171206A00020	12/6/2017	2.62	12/6/2027	12/6/2017	104.16426	101.7358481	99.39462812	97.13671041	94.95841164	92.85623884	90.82687817	88.8671845	86.97417163
150601A00929	6/1/2015	5.91	8/30/2030	6/1/2015	121.79133	117.2959056	113.0400833	109.0086964	105.1876594	101.5638821	98.12519229	94.86026497	91.75855775
210409A00010	4/9/2021	1.05	4/9/2031	4/9/2021	102.11411	98.12651801	94.36435274	90.81246891	87.45686654	84.28459321	81.28365826	78.44295456	75.75218716
150601A00678	6/1/2015	2.12	1/30/2025	6/1/2015	100.62026	99.66892097	98.73570839	97.8201136	96.92164758	96.0398394	95.17423541	94.32439845	93.48990705
181029A00097	10/29/2018	3.53	10/27/2028	10/29/2018	113.21771	108.4752862	103.9867578	99.73675035	95.71091377	91.89584759	88.27903278	84.84876868	81.59411484
190102A00020	1/2/2019	2.97	1/3/2034	1/2/2019	113.37233	107.7247392	102.4825603	97.61150882	93.08051971	88.8614218	84.928646	81.25896473	77.83125914
200428A00018	4/28/2020	1.33	4/27/2035	4/28/2020	103.47253	97.67144541	92.33185231	87.41083658	82.86989392	78.67443962	74.79337853	71.1987251	67.86526751
120827A00052	8/27/2012	2.01	8/27/2027	8/27/2012	103.293	100.826055	98.44892144	96.1575443	93.9480853	91.81690572	89.76055468	87.77575819	85.8594089
970806A00017	8/1/1997	7.02	7/23/2026	8/1/1997	110.42677	108.6153831	106.8530824	105.1381369	103.468886	101.8437405	100.2611784	98.71974176	97.21803335
150601A00038	6/1/2015	5.77	6/2/2023	6/1/2015	101.23702	100.9771663	100.7186548	100.4614764	100.2056207	99.95107757	99.69783687	99.44588859	99.19522283
191114A00014	11/14/2019	1.9	11/14/2023	11/14/2019	100.23381	99.82010274	99.41064676	99.00536923	98.60419939	98.2070682	97.81390824	97.42465366	97.03924014
150601A00018	6/1/2015	4.91	9/5/2025	6/1/2015	109.39262	106.985263	104.6464848	102.3739083	100.1652568	98.01834689	95.93108376	93.90145696	91.92753648
200402A00050	4/6/2020	0.73	4/5/2024	4/6/2020	99.53711	98.92361481	98.3196829	97.72506733	97.13952992	96.56284102	95.99477909	95.43513037	94.88368852
150601A01016	6/1/2015	5.73	10/28/2025	6/1/2015	111.84772	109.3159204	106.858554	104.4729348	102.1564955	99.90677944	97.72143474	95.59820916	93.53494499
150601A00971	6/1/2015	6.42	6/20/2033	6/1/2015	132.39918	125.7902185	119.6454332	113.926767	108.5996199	103.6325061	98.99675154	94.66622155	90.61707745
150601A00888	6/1/2015	5.92	3/1/2029	6/1/2015	117.0056	113.5475492	110.2412019	107.0785151	104.0519346	101.1543604	98.37911586	95.71992001	93.17086112
121120A00010	11/20/2012	1.93	11/22/2027	11/20/2012	103.47227	100.7364393	98.10448139	95.57150059	93.13286824	90.78420908	88.52138543	86.34048246	84.23779454
150601A00023	6/1/2015	5.46	10/30/2037	6/1/2015	139.61656	129.9291438	121.1705925	113.2382587	106.0419028	99.50208763	93.54879582	88.12023336	83.16179408

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
120217A00007	2/17/2012	2.25	2/20/2024	2/17/2012	100.84905	99.87160346	98.91292046	97.97247015	97.04973699	96.14422466	95.25545527	94.38296842	93.52632047
130925A00035	9/25/2013	1.53	6/25/2025	9/25/2013	100.59543	99.28363591	98.00095159	96.74650661	95.51946252	94.31901182	93.14437659	91.99480719	90.86958106
180529A00057	5/29/2018	3.09	5/30/2028	5/29/2018	108.54606	105.1418394	101.8907064	98.78447549	95.81545718	92.97642481	90.26058347	87.66154134	85.17328313
210514A00007	5/14/2021	0.95	5/15/2028	5/14/2021	100.78543	98.19957679	95.7140234	93.32399678	91.02498368	88.81271773	86.6831643	84.63250627	82.65713082
150601A01005	6/1/2015	5.82	3/10/2025	6/1/2015	108.91157	106.9748632	105.0846794	103.2395956	101.4382378	99.67928434	97.96146287	96.28354836	94.64436097
150601A00948	6/1/2015	6.04	10/22/2031	6/1/2015	122.29272	117.586135	113.150579	108.9673593	105.0192335	101.290287	97.76582129	94.43225221	91.27701699
150601A00395	6/1/2015	2.86	1/3/2024	6/1/2015	100.61493	100.1896682	99.76936895	99.35393585	98.94327481	98.53729437	98.1359055	97.73902159	97.34655831
150601A00001	6/1/2015	5.43	6/15/2037	6/1/2015	138.36402	128.9916325	120.4975558	112.7868563	105.7758271	99.39057174	93.56577357	88.2436285	83.37291773
150601A00425	6/1/2015	2.64	2/21/2024	6/1/2015	100.5876	100.0952963	99.60959076	99.13033934	98.65739901	98.19063123	97.72990176	97.27508045	96.8260411
150601A00426	6/1/2015	3.37	2/21/2029	6/1/2015	107.46422	104.4557801	101.5759239	98.81795462	96.17557449	93.64285937	91.21423385	88.88444835	86.6485579
121120A00011	11/20/2012	2.22	11/22/2027	11/20/2012	106.42049	102.6595688	99.06878434	95.63919366	92.36238614	89.23044522	86.23591607	83.37177569	80.63140515
120621A00009	6/21/2012	3.18	6/21/2032	6/21/2012	115.29765	108.8522103	102.8994073	97.39646159	92.30462138	87.58876138	83.2170212	79.16048176	75.39287556
150601A00927	6/1/2015	6.08	8/7/2030	6/1/2015	120.21587	116.1626514	112.3158145	108.6626818	105.1914613	101.8911758	98.75160097	95.76320799	92.91711156
200316A00008	3/16/2020	1.31	3/15/2030	3/16/2020	101.91318	98.4618877	95.1823009	92.06416905	89.09793581	86.2746858	83.5860972	81.02439813	78.58232652
150601A00872	6/1/2015	7.42	7/31/2028	6/1/2015	119.35691	116.2130001	113.1939377	110.2936665	107.5064705	104.8269511	102.2500074	99.7708175	97.38482163
150601A00558	6/1/2015	2.51	8/30/2024	6/1/2015	100.74311	99.99562389	99.26110933	98.53921079	97.82958871	97.13191612	96.44587805	95.77117099	95.10750229
120119A00015	1/19/2012	2.27	1/19/2024	1/19/2012	100.8123	99.91902975	99.04142445	98.17907753	97.33159412	96.49859289	95.67970541	94.87457568	94.08285959
160928A00029	9/28/2016	2.52	9/29/2036	9/28/2016	111.92333	104.8365965	98.3804126	92.48916471	87.10476182	82.17570957	77.65630528	73.50593706	69.68847275
140414A00009	4/14/2014	2.32	4/30/2024	4/14/2014	100.64924	99.9806655	99.32562141	98.68365637	98.05434142	97.43726649	96.83203931	96.2382845	95.65564264
030605A00010	6/5/2003	3.97	6/5/2023	6/5/2003	100.81826	100.5491453	100.2814788	100.0152441	99.75042957	99.48702389	99.22501574	98.96439397	98.70514752
150601A00952	6/1/2015	6.34	2/13/2032	6/1/2015	128.80118	123.138703	117.8287165	112.8454666	108.165292	103.7664412	99.62890565	95.73426697	92.06555979
190102A00022	1/2/2019	2.97	1/3/2034	1/2/2019	113.37222	107.7246802	102.4825434	97.61152862	93.0805712	88.86150063	84.92874837	81.25908727	77.83139892
150601A00865	6/1/2015	6	4/3/2028	6/1/2015	113.36152	110.6732312	108.0850551	105.5923694	103.1908011	100.8762105	98.64467679	96.49248545	94.41611559
160928A00030	9/28/2016	2.52	9/29/2036	9/28/2016	111.92333	104.8365965	98.3804126	92.48916471	87.10476182	82.17570957	77.65630528	73.50593706	69.68847275
150601A00035	6/1/2015	5.73	4/1/2038	6/1/2015	137.55553	128.8132609	120.8810498	113.670572	107.1041462	101.1133567	95.63786431	90.62437841	86.02576817
120827A00048	8/27/2012	2.01	8/27/2027	8/27/2012	103.29299	100.8260538	98.44892146	96.15754539	93.94808738	91.81690875	89.76055859	87.77576293	85.85941441
121217A00009	12/17/2012	2.02	12/17/2027	12/17/2012	103.84901	101.0271321	98.31414674	95.70494291	93.19468689	90.77880461	88.45296597	86.21307019	84.05523217
150601A00033	6/1/2015	5.96	12/24/2025	6/1/2015	113.43193	110.6995377	108.0514964	105.4847023	102.9961842	100.5830979	98.24271935	95.97243958	93.76975855
200311A00028	3/11/2020	1.04	3/12/2024	3/11/2020	99.755834	99.18720857	98.62723184	98.07568543	97.53235909	96.99704993	96.46956201	95.94970608	95.43729927
200326A00037	3/26/2020	1.78	3/26/2035	3/26/2020	106.14846	100.2804517	94.87467399	89.88849538	85.28363108	81.02566574	77.08363165	73.42963581	70.03852992
150601A00509	6/1/2015	2.52	7/8/2024	6/1/2015	100.677	100.002346	99.33910941	98.68698106	98.0456596	97.41485509	96.79428847	96.18369098	95.5828037
150601A00832	6/1/2015	7.17	8/28/2025	6/1/2015	107.18128	105.9037204	104.6541265	103.4316474	102.2354692	101.0648095	99.91891522	98.79706203	97.69855245
150601A00475	6/1/2015	3.04	6/1/2029	6/1/2015	106.83813	103.7078783	100.7167632	97.85727653	95.12237303	92.50543892	90.00026255	87.6010071	85.30218547

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A01012	6/1/2015	5.43	9/15/2023	6/1/2015	102.24588	101.7035011	101.1669696	100.6361899	100.1110693	99.59151702	99.07744444	98.56876469	98.06539275
170929A00046	9/29/2017	2.49	9/30/2027	9/29/2017	103.57583	101.2763446	99.05604093	96.9115175	94.83954367	92.83705037	90.9011209	89.02898234	87.21799743
150601A00955	6/1/2015	5.84	7/15/2032	6/1/2015	124.43315	119.2403394	114.369367	109.796445	105.4997571	101.4592806	97.65662499	94.07488678	90.69851808
160930A00033	9/30/2016	1.8	9/30/2026	9/30/2016	101.2646	99.47671548	97.7396809	96.05163408	94.41079586	92.81546503	91.26401432	89.75488672	88.28659183
150601A00851	6/1/2015	7.12	4/30/2027	6/1/2015	113.86106	111.5122082	109.2394017	107.0395503	104.9097104	102.8470787	100.8489847	98.91288373	97.03634984
150601A01047	6/1/2015	5.35	12/30/2024	6/1/2015	107.25564	105.4888634	103.7612228	102.071616	100.4189764	98.80227425	97.22051523	95.6727389	94.15801738
220629A00034	6/29/2022	3.51	6/29/2027	6/29/2022	105.57485	103.3664487	101.230538	99.16413021	97.16437849	95.22857395	93.35413775	91.53861397	89.7796629
150601A00868	6/1/2015	7.08	6/5/2028	6/1/2015	118.11803	115.039081	112.0810173	109.2380367	106.5046606	103.8757116	101.3462948	98.91178107	96.56779007
111007A00007	10/7/2011	3.92	10/7/2031	10/7/2011	121.18493	114.0206221	107.3940651	101.2600796	95.57757655	90.30916732	85.42080923	80.88148703	76.66292634
150601A00005	6/1/2015	4.84	6/9/2025	6/1/2015	108.2144	106.0354129	103.9133958	101.8464572	99.83278807	97.87065318	95.95838744	94.09439239	92.277133
130624A00017	6/24/2013	3.4	6/26/2023	6/24/2013	100.71242	100.3776868	100.0451212	99.71470413	99.38641499	99.06023327	98.73613874	98.41411144	98.09413168
150601A00410	6/1/2015	2.68	1/24/2024	6/1/2015	100.56553	100.1130405	99.66615475	99.22475464	98.78872789	98.35796539	97.93236115	97.51181219	97.09621843
150601A00988	6/1/2015	4.57	3/22/2024	6/1/2015	101.6531	101.1162333	100.5871135	100.0655519	99.55136862	99.04438964	98.54444674	98.05137721	97.56502364
170313A00041	3/13/2017	3.21	3/15/2032	3/13/2017	111.18968	106.5464584	102.186247	98.08854182	94.23450654	90.60682044	87.18954556	83.96800614	80.92867936
150601A00889	6/1/2015	6.55	3/2/2029	6/1/2015	119.47987	115.8949418	112.4683158	109.1915723	106.0567987	103.0565589	100.183862	97.43213208	94.79518099
200203A00046	2/3/2020	1.98	2/3/2040	2/3/2020	111.15543	102.795097	95.32089112	88.62384653	82.60967286	77.19664525	72.31381419	67.899484	63.89991792
150601A01015	6/1/2015	5.61	10/28/2025	6/1/2015	111.55669	109.0286939	106.5750437	104.1930564	101.8801675	99.63392264	97.45197245	95.33206698	93.27205076
150601A00935	6/1/2015	6.46	11/21/2030	6/1/2015	124.69791	120.0056237	115.5680789	111.3688669	107.3927665	103.6256501	100.0543972	96.6668157	93.45156978
150601A00022	6/1/2015	5.43	10/26/2037	6/1/2015	134.45143	126.0843672	118.4756431	111.5444019	105.2193172	99.4373853	94.14287988	89.28644553	84.82431129
150601A00918	6/1/2015	5.62	4/28/2025	6/1/2015	104.70504	103.6114167	102.5397014	101.4892622	100.4594932	99.4498114	98.45965517	97.48848366	96.53577564
150601A00496	6/1/2015	2.27	6/27/2024	6/1/2015	100.62627	99.96430375	99.31359334	98.67382298	98.04469208	97.4259116	96.81720345	96.2183	95.62894352
200521A00005	5/21/2020	0.75	5/21/2030	5/21/2020	100.7261	97.20016291	93.85434258	90.67763594	87.65979674	84.79128093	82.06319361	79.46724035	76.99568253
140311A00039	3/11/2014	3.06	3/11/2024	3/11/2014	101.33109	100.4311558	99.54915456	98.68455238	97.83683261	97.00549892	96.19007428	95.39010005	94.60513505
190628A00007	6/28/2019	2.28	6/28/2034	6/28/2019	109.94049	104.2162297	98.9186384	94.01036638	89.45769032	85.23013091	81.30011539	77.64267768	74.23519132
130913A00018	9/13/2013	3.72	9/13/2028	9/13/2013	108.85657	105.6851028	102.6484862	99.73970908	96.95217614	94.2796825	91.71638796	89.25679311	86.89571712
150601A00912	6/1/2015	5.96	11/30/2029	6/1/2015	119.39547	115.4599598	111.714055	108.1468164	104.7480231	101.5081174	98.41815705	95.46977158	92.65512171
150601A00411	6/1/2015	3.38	1/24/2029	6/1/2015	107.37828	104.4112454	101.5695736	98.84680579	96.23686175	93.73401865	91.33288745	89.02839108	86.81574433
190102A00024	1/2/2019	2.97	1/3/2034	1/2/2019	113.37227	107.7247069	102.4825511	97.61151965	93.08054786	88.8614649	84.92870197	81.25903173	77.83133556
150601A00960	6/1/2015	6.49	12/16/2032	6/1/2015	128.64617	123.0972355	117.9039588	113.0391653	108.4780065	104.197743	100.177549	96.39833694	92.84259899
150601A00978	6/1/2015	6.32	11/24/2033	6/1/2015	130.45653	124.3392697	118.6460594	113.3419754	108.395308	103.7772375	99.46154756	95.42436954	91.64395374
180518A00046	5/25/2018	3.62	5/18/2027	5/25/2018	112.39293	108.1207094	104.0377988	100.1347384	96.40259338	92.83292569	89.41776319	86.14957101	83.02122488
190829A00080	8/29/2019	1.8	12/29/2023	8/29/2019	100.23342	99.41070094	98.60143897	97.80530186	97.02197246	96.25114379	95.49251857	94.74580889	94.01073585
180618A00036	6/18/2018	3.89	6/18/2048	6/18/2018	161.73122	135.2649019	114.0849424	97.0588945	83.30642944	72.14168596	63.02908464	55.5494057	49.37370086

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180621A00068	6/21/2018	3.32	6/23/2025	6/21/2018	105.05291	102.7624153	100.5335572	98.36431326	96.25274432	94.19698676	92.19524897	90.24580807	88.34700679
170412A00019	4/12/2017	2.56	4/12/2024	4/12/2017	101.08197	99.98097307	98.90391283	97.85001808	96.81854716	95.80878979	94.82006542	93.85172167	92.90313293
180726A00046	7/26/2018	3.2	12/26/2023	7/26/2018	101.40457	100.5843444	99.77738432	98.98336884	98.20198815	97.43294228	96.67594069	95.93070191	95.19695316
190829A00078	8/29/2019	1.8	12/15/2023	8/29/2019	100.23303	99.447188	98.67363509	97.91208278	97.16225335	96.42387759	95.69669446	94.98045084	94.27490116
190515A00032	5/15/2019	2.49	5/15/2024	5/15/2019	101.08353	99.89707602	98.73841177	97.60657127	96.50063079	95.41970861	94.36296264	93.3295882	92.31881602
190501A00014	5/1/2019	2.62	5/1/2024	5/1/2019	101.19118	100.0404063	98.9157491	97.81632769	96.74129978	95.68986024	94.66123903	93.65469928	92.66953557
190621A00035	6/21/2019	2.19	12/15/2023	6/21/2019	100.54528	99.75807091	98.98316371	98.22027194	97.46911761	96.72943122	96.00095151	95.28342508	94.57660613
180911A00007	9/11/2018	3.12	9/8/2023	9/11/2018	100.91635	100.389281	99.86772226	99.35158299	98.84077891	98.3352275	97.83484796	97.33956113	96.84928947
081219A00006	12/19/2008	3.88	12/22/2023	12/19/2008	102.09908	101.2842852	100.4825147	99.69346013	98.91682047	98.15230393	97.39962786	96.65851836	95.92870993
160830A00068	11/30/2016	1.95	11/30/2023	11/30/2016	100.35396	99.60709716	98.87130479	98.14634248	97.43197264	96.72796461	96.03409436	95.35014427	94.67590291
171110A00019	5/4/2018	2.46	5/4/2023	5/4/2018	100.25977	100.0800259	99.90093104	99.72248036	99.5446704	99.36749773	99.19095891	99.01505053	98.83976923
200131A00031	1/31/2020	1.74	1/31/2024	1/31/2020	100.176	99.26709583	98.37460704	97.49809467	96.63713301	95.79131134	94.96023327	94.14351617	93.3407905
160819A00015	10/12/2016	2.3	10/13/2026	10/12/2016	105.51028	101.9533506	98.53589125	95.25165724	92.09472434	89.05946651	86.1405391	83.33286297	80.6316097
190829A00075	8/29/2019	1.8	6/15/2023	8/29/2019	100.19204	99.89727298	99.60425203	99.31295786	99.02337518	98.73548887	98.44928399	98.16474578	97.88185964
180328A00042	3/28/2018	2.95	3/28/2023	3/28/2018	100.16206	100.0844517	100.0069701	99.92961299	99.85238012	99.77527119	99.69828592	99.62142402	99.54468521
181206A00018	12/6/2018	3.13	12/6/2023	12/6/2018	101.27241	100.5057725	99.75073909	99.00704536	98.27443712	97.5526677	96.84149771	96.14069476	95.45003323
190830A00020	8/31/2020	1.67	8/31/2023	8/31/2020	100.14674	99.64351911	99.14533518	98.65211188	98.16377555	97.68025396	97.20147628	96.7273731	96.25787631
171228A00023	12/28/2017	2.69	3/29/2024	12/28/2017	101.20612	100.1405129	99.09730699	98.07579864	97.07531612	96.09521519	95.1348777	94.19371028	93.27114309
161125A00002	11/25/2016	2.62	11/27/2023	11/25/2016	100.85561	100.1146229	99.38450649	98.66501996	97.95593238	97.25701954	96.56806362	95.88885298	95.21918194
181220A00041	12/20/2018	3.36	12/18/2026	12/20/2018	109.92741	106.1139456	102.455385	98.94459072	95.57479765	92.33958839	89.23287314	86.2488711	83.382093
190815A00040	8/15/2019	1.86	8/15/2023	8/15/2019	100.24235	99.78192998	99.32573531	98.87371231	98.42580382	97.98195376	97.54210704	97.10620956	96.67420823
190829A00076	8/29/2019	1.81	6/30/2023	8/29/2019	100.20635	99.87063773	99.53716752	99.20591396	98.87685509	98.54996923	98.225235	97.90263127	97.58213721
150601A00356	6/1/2015	3.66	9/22/2023	6/1/2015	101.25014	100.6843037	100.1247933	99.57150542	99.02433653	98.48318543	97.94795315	97.41854285	96.89485982
180709A00081	7/9/2018	3.05	7/7/2023	7/9/2018	100.65163	100.2959204	99.94272474	99.59201998	99.24377976	98.8979781	98.5545894	98.21358843	97.87495027
180131A00022	1/31/2018	2.96	1/30/2025	1/31/2018	103.17687	101.2943562	99.4556435	97.65944807	95.90453521	94.18971413	92.51383613	90.87579281	89.27451443
171222A00037	12/22/2017	2.71	12/29/2023	12/22/2017	100.99694	100.1707398	99.35803328	98.55849095	97.77179494	96.99763752	96.23572071	95.48575591	94.74746354
181203A00039	12/3/2018	3.27	12/1/2023	12/3/2018	101.36064	100.6069129	99.86438266	99.13280387	98.41193556	97.70154378	97.00140135	96.31128763	95.63098825
180518A00042	5/25/2018	3.42	5/19/2025	5/25/2018	104.98356	102.7874333	100.6482899	98.56424142	96.53347414	94.55424946	92.62490009	90.74382644	88.90949327
181001A00031	10/1/2018	3.23	9/29/2023	10/1/2018	101.06314	100.4790792	99.90175633	99.33105809	98.76687101	98.20908418	97.65758921	97.11228012	96.57305332
190327A00027	3/27/2019	2.66	1/15/2025	3/27/2019	102.5166	100.6791725	98.88371116	97.12901198	95.4139132	93.73729359	92.09807074	90.49519946	88.9276703
180518A00048	5/25/2018	3.65	5/18/2028	5/25/2018	115.77099	110.4327738	105.3785522	100.5916276	96.05637393	91.75816486	87.68330439	83.81896226	80.15311442
171228A00024	12/28/2017	2.71	6/28/2024	12/28/2017	101.56586	100.2620698	98.9817175	97.72421566	96.48899376	95.27550008	94.08320086	92.91157964	91.76013649
190726A00014	7/26/2019	2.23	7/24/2024	7/26/2019	100.99875	99.63216801	98.29061663	96.97347047	95.68012156	94.40998166	93.16248148	91.93706992	90.73321334

	Parallel-Shift Sensitivity Analysis												
2/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190621A00039	6/21/2019	2.21	6/17/2024	6/21/2019	100.84763	99.57734616	98.33290251	97.11351465	95.9184332	94.74693885	93.59834087	92.47197567	91.36720543
190422A00030	4/22/2019	2.93	12/22/2025	4/22/2019	105.5015	102.72483	100.035846	97.43129343	94.90805407	92.46314369	90.09370526	87.79700278	85.57041534
170327A00079	3/27/2019	3.19	3/29/2027	3/27/2019	110.16302	106.0716556	102.1572324	98.41112908	94.82519648	91.39172518	88.10341924	84.95337164	81.93504132
181016A00019	10/18/2018	3.32	10/16/2023	10/18/2018	101.19139	100.5612615	99.93898361	99.32441242	98.71740522	98.11782278	97.52552928	96.9403922	96.3622822
180201A00022	2/1/2018	2.99	2/3/2025	2/1/2018	103.26375	101.3692298	99.51903034	97.71184979	95.94643182	94.22156508	92.5360813	90.88885343	89.27879396
180518A00071	5/25/2018	3.56	5/18/2026	5/25/2018	108.64156	105.4224621	102.3167972	99.31987831	96.42724781	93.63466062	90.93807254	88.33362928	85.81765613
170327A00078	3/27/2019	3.04	3/27/2026	3/27/2019	106.56065	103.5135479	100.5703391	97.72688591	94.97924409	92.3236493	89.75650786	87.27438789	84.87401099
190530A00049	5/30/2019	2.44	5/30/2023	5/30/2019	100.33876	100.087506	99.8375039	99.58874611	99.34122342	99.09492668	98.84984686	98.60597501	98.36330225
180403A00024	4/3/2018	2.96	4/3/2023	4/3/2018	100.19588	100.1016426	100.0075862	99.91371033	99.82001455	99.72649831	99.6331611	99.5400024	99.44702171
180515A00022	5/15/2018	3.19	5/15/2023	5/15/2018	100.44919	100.2389441	100.0295866	99.82111589	99.61352641	99.40681249	99.20096854	98.99598902	98.79186845
190829A00028	8/29/2019	1.78	8/29/2024	8/29/2019	100.44684	98.99220207	97.56590707	96.16720165	94.79535746	93.44967123	92.12946374	90.83407875	89.56288207
180328A00015	3/28/2018	2.93	3/28/2023	3/28/2018	100.1605	100.0828984	100.005418	99.92806209	99.85083042	99.77372269	99.69673861	99.6198779	99.54314028
190621A00034	6/21/2019	2.17	6/15/2023	6/21/2019	100.30178	100.0068081	99.7135776	99.42207481	99.13228445	98.84419139	98.55778068	98.27303755	97.9899474
190520A00048	5/20/2019	2.53	5/20/2024	5/20/2019	101.13287	99.93337684	98.76227572	97.61856995	96.50130636	95.40957553	94.34250937	93.29927873	92.27909128
190426A00023	4/26/2019	2.91	6/24/2026	4/26/2019	106.84702	103.5579693	100.3883061	97.33306054	94.38749917	91.54711021	88.8075921	86.16484245	83.6149477
180727A00017	7/27/2018	3.16	7/27/2023	7/27/2018	100.7755	100.3650699	99.95798221	99.55419539	99.15366942	98.75636493	98.36224315	97.97126597	97.58339584
180312A00014	3/12/2018	3	3/13/2023	3/12/2018	100.07739	100.0413304	100.0053164	99.96934532	99.93341722	99.89753195	99.86168944	99.82588961	99.79013238
200131A00029	1/31/2020	1.78	10/31/2024	1/31/2020	100.63397	99.01223192	97.42416765	95.86879102	94.34515544	92.85235088	91.38950208	89.95576687	88.55033457
150601A00677	6/1/2015	2.39	1/30/2025	6/1/2015	102.4099	100.5276113	98.68926941	96.89358906	95.13932794	93.42528811	91.75031408	90.11329104	88.51314315
180625A00012	6/25/2018	3.07	6/23/2023	6/25/2018	100.59955	100.2821775	99.9668081	99.65342598	99.3420124	99.03254884	98.725017	98.41939881	98.11567643
170327A00077	3/27/2019	2.74	3/27/2024	3/27/2019	101.25552	100.1948284	99.15632826	98.1393252	97.14315674	96.16718736	95.21080717	94.27343063	93.35449532
190805A00031	8/5/2020	1.77	8/4/2023	8/5/2020	100.19908	99.76846284	99.34154217	98.91826758	98.49859251	98.0824712	97.66985865	97.26071063	96.85498364
150601A00998	6/1/2015	5.37	10/25/2034	6/1/2015	150.68113	137.4234522	125.5502781	114.9060017	105.3534255	96.77148492	89.05326865	82.10429066	75.84098206
081028A00036	10/30/2008	4.22	10/30/2023		101.86686	101.196619	100.5351981	99.88242662	99.23813535	98.60215989	97.97434323	97.3545304	96.74256733
180406A00015	4/10/2018	2.61	4/10/2028	4/10/2023	112.38182	107.3468086	103.1489101	100.4172264	99.75882252	99.64099959	99.52861095	99.41649203	99.30463902
180925A00059	9/25/2018	3.01	9/25/2028	9/25/2023	115.66863	110.0325698	105.1626196	101.3593012	99.14137935	98.23691191	97.67914626	97.14213866	96.61105488
190522A00029	5/22/2019	2.41	5/22/2024	5/22/2023	101.2363	100.3178839	99.86044696	99.61538536	99.3893965	99.164421	98.94044339	98.71749466	98.4955593
190523A00048	5/23/2019	2.32	5/23/2024	5/23/2023	101.14926	100.2612526	99.8332984	99.59015906	99.36151364	99.13390714	98.90732491	98.68179355	98.4572982
190613A00024	6/13/2019	2.18	6/13/2024	6/13/2023	101.14497	100.2194781	99.72950555	99.42567298	99.14126545	98.85856549	98.57742905	98.29791522	98.01999675