

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												
4/28/2023					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	106.26992	103.36453	100.5577302	97.84557569	95.22430463	92.69032898	90.24022511	87.87072513	85.57870882
160608A00031	6/8/2016	2.36	6/8/2026	6/8/2016	106.26992	103.36453	100.5577302	97.84557568	95.2243046	92.69032893	90.24022503	87.87072503	85.57870871
160608A00032	6/8/2016	2.36	6/8/2026	6/8/2016	106.26992	103.36453	100.5577302	97.84557569	95.22430463	92.69032898	90.2402251	87.87072513	85.57870882
170406A00031	4/6/2017	3.01	4/6/2027	4/6/2017	110.84192	107.1209587	103.5531928	100.1314408	96.84889548	93.69910401	90.67594776	87.77362315	84.9866237
170921A00056	9/21/2017	2.82	9/21/2027	9/21/2017	111.40964	107.2883812	103.3529302	99.59383873	96.00219396	92.56958099	89.28805243	86.15010001	83.14862803
180508A00038	5/8/2018	3.57	5/9/2033	5/8/2018	118.03235	112.3102075	106.9814735	102.0144837	97.38040372	93.05295152	89.00815301	85.22412224	81.68086412
220511A00001	5/11/2022	2.38	5/8/2023	5/11/2022	100.04296	100.0152282	99.98752194	99.95984575	99.93219961	99.90458346	99.87699725	99.84944092	99.82191443
220518A00017	5/18/2022	2.47	5/18/2023	5/18/2022	100.09093	100.0354747	99.98009376	99.92478831	99.86955816	99.81440316	99.75932315	99.70431798	99.6493875
220601A00021	6/1/2022	2.48	6/1/2023	6/1/2022	100.14844	100.0542388	99.96021758	99.86637916	99.77272299	99.67924853	99.58595524	99.49284258	99.39991001
220602A00050	6/2/2022	2.41	6/2/2023	6/2/2022	100.16293	100.0657657	99.9688018	99.87203515	99.77546508	99.67909098	99.58291221	99.48692815	99.39113816
220614A00010	6/14/2022	3.46	6/14/2023	6/14/2022	100.31537	100.1851116	100.0552059	99.92565217	99.79644887	99.66759457	99.53908783	99.41092719	99.28311124
220621A00021	6/21/2022	3.31	6/21/2023	6/21/2022	100.333	100.1834181	100.0342943	99.8856238	99.73740447	99.58963427	99.44231115	99.29543307	99.148998
220726A00058	7/26/2022	3.38	7/26/2023	7/26/2022	100.52679	100.280711	100.0358398	99.7921635	99.54967348	99.30836107	99.06821773	98.82923501	98.59140453
220728A00069	7/28/2022	3.25	7/24/2023	7/28/2022	100.4852	100.2446795	100.0053114	99.76708907	99.5300043	99.29404897	99.05921503	98.82549449	98.59287945
220811A00002	8/11/2022	3.5	8/11/2023	8/11/2022	100.65088	100.360729	100.0722653	99.78547141	99.50033269	99.21683477	98.93496341	98.65470456	98.37604432
220815A00005	8/15/2022	3.52	8/15/2023	8/15/2022	100.68081	100.3796502	100.0803068	99.78275979	99.48699296	99.19299026	98.90073586	98.61021411	98.32140955
220831A00084	8/31/2022	3.84	8/30/2023	8/31/2022	100.88146	100.538869	100.1986006	99.86063349	99.52494456	99.19151079	98.86030953	98.53131842	98.20451541
220901A00003	9/1/2022	3.74	6/1/2023	9/1/2022	100.26734	100.1730279	100.0788962	99.98494747	99.89118122	99.79759688	99.70419392	99.61097179	99.51792996
220908A00027	9/8/2022	3.87	7/10/2023	9/8/2022	100.5442	100.3420276	100.1406782	99.94014876	99.74043412	99.5415293	99.34342932	99.14612925	98.94962419
220912A00017	9/12/2022	3.89	6/12/2023	9/12/2022	100.35884	100.2340327	100.1095562	99.98540437	99.86157578	99.73806917	99.61488326	99.49201675	99.36946836
220914A00019	9/14/2022	4.25	8/14/2023	9/14/2022	100.89328	100.5944467	100.2973981	100.0021158	99.70858423	99.41678762	99.12671055	98.83833776	98.55165418
220914A00052	9/14/2022	4.29	9/11/2023	9/14/2022	101.13569	100.7597178	100.3865574	100.0161728	99.64853289	99.28360715	98.92136546	98.56177816	98.20481603
220921A00020	9/21/2022	4.38	6/21/2023	9/21/2022	100.4933	100.3435261	100.1942088	100.0453453	99.89693343	99.74897121	99.60145657	99.45438745	99.30776184
220921A00021	9/21/2022	4.47	9/21/2023	9/21/2022	101.28754	100.883947	100.4835738	100.0863857	99.69234472	99.30141353	98.91355533	98.52873392	98.14691366
220921A00025	9/21/2022	4.47	9/21/2023	9/21/2022	101.28754	100.883947	100.4835738	100.0863857	99.69234472	99.30141353	98.91355533	98.52873392	98.14691366
220921A00045	9/21/2022	4.47	9/21/2023	9/21/2022	101.28754	100.883947	100.4835738	100.0863857	99.69234472	99.30141353	98.91355533	98.52873392	98.14691366
220921A00093	9/21/2022	4.44	9/21/2023	9/21/2022	101.3506	100.9459797	100.5446002	100.1464241	99.75141318	99.35952956	98.97073612	98.58499627	98.20227404
220923A00017	9/23/2022	4.41	5/23/2023	9/23/2022	100.2483	100.1788765	100.1095611	100.0403497	99.9712421	99.90223804	99.8333373	99.76453967	99.69584492
220923A00019	9/23/2022	4.46	6/23/2023	9/23/2022	100.52229	100.3669654	100.2121297	100.0577781	99.90390842	99.75051836	99.59760569	99.44516818	99.29320361
220923A00020	9/23/2022	4.54	8/23/2023	9/23/2022	101.05972	100.735907	100.4141726	100.094498	99.77686318	99.46124883	99.14763562	98.83600456	98.52633686
220926A00031	9/26/2022	4.44	5/26/2023	9/26/2022	100.28043	100.2026824	100.1250622	100.047565	99.97019036	99.89293808	99.81580787	99.73879945	99.66191253
220926A00032	9/26/2022	4.49	6/26/2023	9/26/2022	100.5527	100.3890759	100.2259814	100.0634177	99.90138225	99.7398725	99.57888591	99.41841995	99.25847212
220926A00033	9/26/2022	4.53	7/26/2023	9/26/2022	100.81056	100.5640114	100.3186721	100.0745295	99.83157496	99.58979978	99.34919542	99.10975342	98.87146538

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220926A00034	9/26/2022	4.58	8/28/2023	9/26/2022	101.11749	100.7798745	100.4445057	100.1113642	99.78042791	99.45167506	99.12508413	98.80063391	98.47830345
220926A00036	9/26/2022	4.68	9/26/2023	9/26/2022	101.41923	101.0016595	100.5875303	100.1767975	99.76941932	99.36535495	98.96456402	98.56700689	98.17264454
220927A00066	9/27/2022	4.57	7/27/2023	9/27/2022	100.82883	100.5795151	100.331426	100.0845584	99.83890348	99.59445219	99.35119579	99.10912556	98.86823287
220928A00054	9/28/2022	4.66	9/28/2023	9/28/2022	101.42946	101.0064146	100.5868898	100.1708462	99.75824072	99.34903089	98.94317496	98.54063189	98.14136128
220929A00026	9/29/2022	4.43	6/29/2023	9/29/2022	100.56771	100.3957958	100.2244689	100.0537253	99.8835619	99.71397594	99.54496445	99.37652453	99.20865332
221004A00029	10/4/2022	4.54	9/28/2023	10/4/2022	101.37862	100.9557026	100.5363055	100.1203888	99.70790937	99.29882487	98.89309352	98.49067427	98.09152674
221004A00030	10/4/2022	4.51	8/28/2023	10/4/2022	101.09383	100.7562618	100.4209425	100.0878502	99.75696289	99.42825877	99.10171634	98.77731439	98.45503195
221004A00031	10/4/2022	4.48	7/28/2023	10/4/2022	100.81454	100.5624968	100.3117126	100.0621746	99.8138737	99.56680072	99.32094663	99.07630246	98.83285934
221004A00032	10/4/2022	4.44	6/28/2023	10/4/2022	100.56141	100.3922646	100.2236809	100.0556599	99.88819867	99.72129456	99.55494479	99.38914664	99.22389741
221004A00033	10/4/2022	4.4	5/30/2023	10/4/2022	100.31384	100.2250076	100.1363314	100.0478146	99.9594569	99.87125773	99.78321671	99.69533341	99.60760742
221011A00017	10/11/2022	4.44	5/11/2023	10/11/2022	100.13019	100.0940773	100.0580044	100.0219737	99.9859851	99.95003851	99.91413386	99.87827108	99.84245008
221012A00047	10/12/2022	4.71	10/12/2023	10/12/2022	101.57496	101.1134248	100.6560981	100.2029209	99.75383672	99.30879024	98.86772698	98.43059349	97.99733728
221014A00006	10/14/2022	4.71	7/14/2023	10/14/2022	100.74734	100.533883	100.321345	100.109718	99.89899605	99.68917322	99.48024377	99.27220192	99.06504198
221018A00023	10/18/2022	4.89	10/18/2023	10/18/2022	101.70858	101.2304406	100.7568059	100.2876153	99.8228063	99.36231752	98.90608884	98.4540612	98.00617665
221019A00032	10/19/2022	4.66	5/15/2023	10/19/2022	100.18064	100.133406	100.0862374	100.0391291	99.99208103	99.9450931	99.89816518	99.85129714	99.80448888
221020A00038	10/20/2022	4.95	8/21/2023	10/20/2022	101.17268	100.8541119	100.5375597	100.2230024	99.91042111	99.59979729	99.29111252	98.98434862	98.67948766
221021A00012	10/21/2022	4.92	7/21/2023	10/21/2022	100.85762	100.6247492	100.3929654	100.162257	99.93261631	99.704036	99.4765087	99.25002712	99.02458403
221021A00013	10/21/2022	5.01	9/21/2023	10/21/2022	101.50588	101.1017518	100.7008477	100.3031317	99.90856602	99.51711314	99.12873628	98.7433992	98.36106626
221021A00020	10/21/2022	4.92	7/21/2023	10/21/2022	100.85762	100.6247492	100.3929654	100.162257	99.93261631	99.704036	99.4765087	99.25002712	99.02458403
221024A00016	10/24/2022	4.8	5/24/2023	10/24/2022	100.28638	100.2141587	100.142052	100.0700555	99.99816892	99.92639205	99.85472463	99.78316644	99.71171721
221026A00018	10/26/2022	4.78	5/5/2023	10/26/2022	100.07671	100.0572526	100.0378157	100.0183984	99.99900045	99.97962198	99.96026292	99.94092324	99.92160289
221027A00045	10/27/2022	4.83	6/27/2023	10/27/2022	100.61788	100.451417	100.2855014	100.1201327	99.9553081	99.79102505	99.62728089	99.46407299	99.30139875
221028A00038	10/28/2022	4.8	5/3/2023	10/28/2022	100.05507	100.0411708	100.0272853	100.0134129	99.99955373	99.98570765	99.97187467	99.95805478	99.94424795
221028A00039	10/28/2022	4.88	8/2/2023	10/28/2022	100.96439	100.6983516	100.4337214	100.1704872	99.90863775	99.64816227	99.38904987	99.13128984	98.87487158
221028A00041	10/28/2022	4.94	10/25/2023	10/28/2022	101.80289	101.305424	100.8128236	100.3250186	99.84193926	99.36351716	98.88968514	98.42037733	97.95552914
221031A00014	10/31/2022	4.9	6/30/2023	10/31/2022	100.65783	100.4830493	100.3088713	100.1352976	99.96232516	99.78995086	99.61817159	99.44698428	99.2763859
221102A00034	11/2/2022	4.99	8/2/2023	11/2/2022	100.99366	100.7275736	100.4628921	100.1996067	99.93770629	99.67718006	99.41801712	99.16020675	98.90373835
221103A00038	11/3/2022	4.92	6/2/2023	11/3/2022	100.38943	100.2922264	100.1952176	100.0984043	100.0017858	99.90536149	99.80913083	99.7130932	99.61724798
221103A00039	11/3/2022	4.99	7/3/2023	11/3/2022	100.70218	100.5190679	100.3366268	100.1548534	99.97374405	99.79329514	99.61350301	99.43436407	99.25587474
221116A00024	11/16/2022	4.99	11/16/2023	11/16/2022	102.04661	101.4886093	100.9367334	100.3908783	99.85094553	99.31683891	98.78846427	98.26572949	97.7485444
221118A00006	11/18/2022	4.92	5/30/2023	11/18/2022	100.36003	100.2711536	100.1824366	100.0938792	100.0054808	99.91724111	99.82915962	99.74123592	99.6534696
221118A00009	11/18/2022	5.05	8/30/2023	11/18/2022	101.29717	100.9536896	100.6125379	100.2736921	99.93712894	99.60282531	99.27075856	98.9409063	98.61324643
221118A00051	11/18/2022	5.01	7/31/2023	11/18/2022	100.97869	100.7181264	100.4589077	100.2010251	99.94446837	99.68922721	99.43529154	99.18265137	98.93129678

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221122A00010	11/22/2022	5.16	11/22/2023	11/22/2022	102.20543	101.6306234	101.0622978	100.5003447	99.94465709	99.39513059	98.85166293	98.31415416	97.78250652
221123A00027	11/23/2022	5.15	8/23/2023	11/23/2022	101.25749	100.9332675	100.6111301	100.2910543	99.97302033	99.65700869	99.34300011	99.03097555	98.72091622
221128A00048	11/28/2022	5.08	6/28/2023	11/28/2022	100.66972	100.50043	100.3317098	100.1635525	99.99595554	99.828916	99.66243118	99.49649835	99.33111481
221129A00022	11/29/2022	5.16	11/29/2023	11/29/2022	102.27999	101.685932	101.0987844	100.5184271	99.9447429	99.37761702	98.81693744	98.26259466	97.71448165
221129A00030	11/29/2022	5.1	7/27/2023	11/29/2022	100.96108	100.7115435	100.463235	100.216149	99.97027628	99.72560812	99.48213568	99.23985022	98.99874312
221129A00031	11/29/2022	5.13	8/23/2023	11/29/2022	101.251	100.9267967	100.6046725	100.2846098	99.96658895	99.65059034	99.33659471	99.02458305	98.71453657
221130A00011	11/30/2022	5.19	11/27/2023	11/30/2022	102.2763	101.6876899	101.1058608	100.5306996	99.96209196	99.39992638	98.84409377	98.29448752	97.75100338
221205A00055	12/5/2022	5.1	9/5/2023	12/5/2022	101.37758	101.0174824	100.6599489	100.3049558	99.95247593	99.60248255	99.25494934	98.90985032	98.5671599
221208A00095	12/8/2022	5.12	10/13/2023	12/8/2022	101.7751	101.3102886	100.8497399	100.3933932	99.94119081	99.49307644	99.04899462	98.60889094	98.17271197
221219A00004	12/19/2022	4.99	7/19/2023	12/19/2022	100.85483	100.6274677	100.4011359	100.1758318	99.95154846	99.72827889	99.50601619	99.2847535	99.06448406
221220A00001	12/20/2022	5.03	8/21/2023	12/20/2022	101.19817	100.8795542	100.5629506	100.2483421	99.93570998	99.6250355	99.31630031	99.00948623	98.70457532
221223A00012	12/23/2022	4.99	7/24/2023	12/23/2022	100.90492	100.6637133	100.423661	100.184757	99.94699315	99.71036124	99.47485322	99.24046111	99.00717697
221228A00038	12/28/2022	5.11	12/28/2023	12/28/2022	102.56381	101.8900118	101.2250797	100.5688428	99.92113134	99.28177987	98.6506272	98.02751626	97.412294
221228A00041	12/28/2022	5.08	7/28/2023	12/28/2022	100.96591	100.7136202	100.4625835	100.212794	99.96424253	99.71691997	99.47081726	99.22592541	98.98223557
221230A00030	12/30/2022	5.15	12/26/2023	12/30/2022	102.56935	101.9009376	101.2412605	100.5901447	99.94742412	99.31293706	98.68652588	98.06803696	97.45732055
221230A00033	12/30/2022	5.11	8/30/2023	12/30/2022	101.31778	100.9742592	100.6330637	100.2941744	99.95756783	99.62322107	99.29111141	98.96121644	98.63351408
221230A00103	12/30/2022	5.15	12/26/2023	12/30/2022	102.56935	101.9009376	101.2412605	100.5901447	99.94742412	99.31293706	98.68652588	98.06803696	97.45732055
221230A00107	12/30/2022	5.12	10/2/2023	12/30/2022	101.66272	101.2281967	100.7973892	100.3702538	99.94674358	99.52681258	99.11041548	98.69750774	98.2880456
230103A00096	1/3/2023	5.09	8/3/2023	1/3/2023	101.03064	100.7617404	100.494276	100.2282381	99.96361532	99.70039636	99.43856999	99.17812514	98.91905084
230104A00009	1/4/2023	5.11	10/5/2023	1/4/2023	101.69019	101.2473896	100.8084596	100.3733449	99.94199568	99.51436311	99.09039922	98.67005684	98.2532896
230112A00053	1/12/2023	5.13	8/3/2023	1/12/2023	101.0414	100.7724769	100.5049934	100.2389365	99.97429486	99.71105708	99.44921197	99.18874845	98.92965557
230117A00010	1/17/2023	5.14	12/15/2023	1/17/2023	102.44502	101.806875	101.1767051	100.5543638	99.93970558	99.33258846	98.73287398	98.14042702	97.55511576
230119A00015	1/19/2023	5.08	8/17/2023	1/19/2023	101.17273	100.8651329	100.5594131	100.2555583	99.95355121	99.65337506	99.35501312	99.05844888	98.76366606
230119A00016	1/19/2023	5.08	9/14/2023	1/19/2023	101.46097	101.076085	100.6941312	100.3150775	99.93889098	99.56553897	99.1949894	98.82721068	98.46217168
230119A00017	1/19/2023	5.09	10/12/2023	1/19/2023	101.75063	101.2886115	100.8308076	100.3771564	99.92760139	99.48208714	99.04055918	98.602964	98.1692491
230119A00021	1/19/2023	5.1	10/26/2023	1/19/2023	101.88816	101.3877834	100.8923252	100.4017134	99.91587716	99.43474695	98.95825466	98.48633343	98.01891772
230120A00048	1/20/2023	5.1	1/16/2024	1/20/2023	102.76716	102.0410296	101.3251977	100.619448	99.92356798	99.2373512	98.56059695	97.89311006	97.23470067
230124A00027	1/24/2023	5.1	7/25/2023	1/24/2023	100.94133	100.6973167	100.454483	100.2128223	99.97232613	99.73298606	99.4947938	99.25774111	99.02181983
230124A00043	1/24/2023	5.15	1/24/2024	1/24/2023	102.89307	102.1447623	101.4073766	100.6806727	99.96441951	99.2583923	98.56237292	97.87614936	97.19951556
230125A00044	1/25/2023	5.1	1/22/2024	1/25/2023	102.83351	102.0908664	101.3589817	100.6376269	99.92657565	99.22560787	98.53450984	97.8530738	97.18109781
230130A00022	1/30/2023	5.15	1/30/2024	1/30/2023	102.9614	102.1965502	101.4431024	100.7007993	99.96939458	99.24864918	98.53833104	97.83821477	97.14808143
230130A00048	1/30/2023	5.11	10/30/2023	1/30/2023	101.93516	101.4237499	100.9174801	100.4162693	99.92004205	99.4287242	98.94224313	98.46052767	97.983508
230130A00097	1/30/2023	5.15	1/25/2024	1/30/2023	102.90426	102.1532067	101.4131467	100.6838438	99.96506456	99.25658201	98.55817576	97.86963166	97.19074161

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230131A00022	1/31/2023	5.09	1/31/2024	1/31/2023	102.92709	102.1596715	101.4037337	100.6590189	99.9252783	99.20227022	98.48976011	97.78752022	97.09532933
230131A00037	1/31/2023	5.14	11/30/2023	1/31/2023	102.27876	101.6819908	101.0921949	100.5092529	99.93304555	99.36345663	98.80037249	98.24368207	97.69327686
230131A00038	1/31/2023	5.14	12/29/2023	1/31/2023	102.59521	101.9185771	101.2508851	100.5919609	99.94163242	99.2997322	98.666097	98.04056781	97.42298968
230131A00040	1/31/2023	5.09	1/31/2024	1/31/2023	102.92709	102.1596715	101.4037337	100.6590189	99.9252783	99.20227022	98.48976012	97.78752022	97.09532933
230203A00008	2/3/2023	5.13	10/3/2023	2/3/2023	101.67773	101.2404298	100.8068992	100.3770884	99.95094949	99.52843559	99.10950047	98.69409875	98.28218579
230207A00030	2/7/2023	5.23	12/7/2023	2/7/2023	102.4089	101.79267	101.1838762	100.5823879	99.98807403	99.40080647	98.82046018	98.24691308	97.68004593
230207A00031	2/7/2023	5.2	10/6/2023	2/7/2023	101.7409	101.2952432	100.8534973	100.4156153	99.98154642	99.55124103	99.12465016	98.70172575	98.28242056
230207A00032	2/7/2023	5.25	2/7/2024	2/7/2023	103.1265	102.3393306	101.5642269	100.8009153	100.0491278	99.30860406	98.57909186	97.86034632	97.15212982
230221A00009	2/21/2023	5.31	9/21/2023	2/21/2023	101.62718	101.2227545	100.8215554	100.4235462	100.028689	99.63694625	99.24828124	98.86265769	98.48003993
230221A00011	2/21/2023	5.32	10/23/2023	2/21/2023	101.96998	101.4774721	100.989735	100.5066961	100.0282877	99.55444349	99.08509817	98.62018785	98.15964981
230221A00013	2/21/2023	5.34	11/21/2023	2/21/2023	102.29785	101.7254529	101.1594832	100.5998301	100.0463881	99.499054	98.95772697	98.42230831	97.89270149
230221A00014	2/21/2023	5.37	12/21/2023	2/21/2023	102.65987	102.004676	101.3578699	100.719295	100.0887945	99.46621567	98.85140973	98.24423144	97.64453925
230221A00016	2/21/2023	5.39	1/22/2024	2/21/2023	103.04905	102.3055121	101.5727514	100.8505295	100.1386199	99.43680248	98.7448633	98.06259448	97.38979394
230227A00023	2/27/2023	5.48	2/22/2024	2/27/2023	103.49732	102.6678134	101.85167	101.0485646	100.2581861	99.48023298	98.71441333	97.96044429	97.21805177
230301A00026	3/1/2023	5.37	10/2/2023	3/1/2023	101.7714	101.3365898	100.9055026	100.4780893	100.054303	99.63409751	99.21742765	98.80424885	98.3945173
230301A00027	3/1/2023	5.38	10/11/2023	3/1/2023	101.87337	101.4137465	100.9582896	100.5069389	100.0596389	99.61633514	99.17697405	98.74150305	98.30987046
230301A00028	3/1/2023	5.4	11/6/2023	3/1/2023	102.1627	101.631536	101.1059156	100.5857498	100.0709537	99.5614444	99.05714046	98.55796226	98.06383173
230301A00030	3/1/2023	5.43	12/4/2023	3/1/2023	102.49784	101.8894452	101.288298	100.6942662	100.1072237	99.52704744	98.95361731	98.3868159	97.82652856
230301A00031	3/1/2023	5.44	12/11/2023	3/1/2023	102.58435	101.9566403	101.3366396	100.7242088	100.1192096	99.52150688	98.93096895	98.34746723	97.77087618
230301A00032	3/1/2023	5.46	1/2/2024	3/1/2023	102.8601	102.171591	101.4923283	100.82213	100.1608153	99.50820798	98.86413666	98.22843433	97.60093836
230302A00081	3/2/2023	5.48	12/1/2023	3/2/2023	102.49345	101.8932357	101.3000642	100.7138161	100.1343706	99.56160972	98.99541805	98.43568295	97.8822943
230303A00018	3/3/2023	5.53	3/1/2024	3/3/2023	103.64175	102.7898838	101.9520844	101.1280053	100.317311	99.51967675	98.73478825	97.96234125	97.20204108
230308A00039	3/8/2023	5.53	9/11/2023	3/8/2023	101.60281	101.2257599	100.8515229	100.4800676	100.1113629	99.74537814	99.38208329	99.02144856	98.6634447
230308A00040	3/8/2023	5.63	12/11/2023	3/8/2023	102.7036	102.0754646	101.455045	100.8421991	100.2367883	99.63867753	99.04773508	98.4638323	97.8868436
230313A00018	3/13/2023	5.3	10/13/2023	3/13/2023	101.85881	101.393766	100.9329888	100.4764151	100.0239873	99.57564893	99.13134462	98.6910199	98.25462132
230313A00020	3/13/2023	5.28	11/13/2023	3/13/2023	102.17574	101.6254819	101.0811757	100.5427214	100.0100247	99.48299329	98.96153702	98.44556748	97.93499818
230313A00024	3/13/2023	5.27	12/13/2023	3/13/2023	102.4997	101.866864	101.2418672	100.624568	100.0148243	99.41249793	98.81745368	98.2295598	97.64868764
230313A00025	3/13/2023	5.27	12/13/2023	3/13/2023	102.4997	101.866864	101.2418672	100.624568	100.0148243	99.41249793	98.81745368	98.2295598	97.64868764
230314A00044	3/17/2023	5.37	12/15/2023	3/17/2023	102.59191	101.953236	101.3225423	100.6996819	100.0845092	99.47688206	98.87666202	98.28371389	97.69790578
230315A00067	3/15/2023	4.61	3/11/2024	3/15/2023	102.96554	102.0897145	101.2288413	100.3825361	99.55043062	98.73216903	97.92740731	97.13581274	96.35706349
230315A00083	3/15/2023	4.61	3/11/2024	3/15/2023	102.96554	102.0897145	101.2288413	100.3825361	99.55043062	98.73216903	97.92740731	97.13581274	96.35706349
230315A00092	3/15/2023	4.61	3/11/2024	3/15/2023	102.96554	102.0897145	101.2288413	100.3825361	99.55043062	98.73216903	97.92740731	97.13581274	96.35706349
230316A00014	3/16/2023	4.86	3/11/2024	3/16/2023	103.185	102.3081292	101.446222	100.5988951	99.76577996	98.9465206	98.14077273	97.3482034	96.56849057

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230316A00025	3/16/2023	4.86	3/15/2024	3/16/2023	103.2302	102.3422804	101.4696969	100.6120533	99.76896753	98.94007044	98.12500532	97.32342735	96.53500307
230316A00041	3/16/2023	4.86	3/15/2024	3/16/2023	103.2302	102.3422804	101.4696969	100.6120533	99.76896753	98.94007044	98.12500532	97.32342735	96.53500307
230316A00062	3/16/2023	4.86	3/15/2024	3/16/2023	103.2302	102.3422804	101.4696969	100.6120533	99.76896753	98.94007044	98.12500532	97.32342735	96.53500307
230320A00017	3/20/2023	5.15	2/20/2024	3/20/2023	103.20046	102.3777135	101.5681422	100.7714287	99.98726779	99.21536399	98.45543094	97.70719116	96.97037571
230320A00020	3/20/2023	5.19	11/20/2023	3/20/2023	102.20124	101.6318825	101.0688825	100.5121384	99.96154624	99.41700418	98.87841273	98.34567456	97.81869444
230323A00041	3/23/2023	4.99	3/22/2024	3/23/2023	103.42735	102.5195221	101.6276951	100.7514492	99.89037818	99.04408945	98.21220408	97.39435595	96.59019127
230324A00056	3/24/2023	4.83	3/22/2024	3/24/2023	103.28206	102.3749465	101.4838244	100.608275	99.74789174	98.90228255	98.07106855	97.2538838	96.45037466
230328A00008	3/28/2023	5.08	3/22/2024	3/28/2023	103.50908	102.6008459	101.7086223	100.8319848	99.9705268	99.12385584	98.29159282	97.47337153	96.66883811
230331A00028	3/31/2023	5.05	3/29/2024	3/31/2023	103.56499	102.6375236	101.7267347	100.8321756	99.95341457	99.0900353	98.24163587	97.40782827	96.58823781
230428A00046	4/28/2023	5.15	3/28/2024	4/28/2023	103.64523	102.7200779	101.8115126	100.9190867	100.0423723	99.18095666	98.33444122	97.50244126	96.68458519
230414A00014	4/14/2023	5.21	11/14/2023	4/14/2023	102.14798	101.5950932	101.0482137	100.5072427	99.97208439	99.44264535	98.91883397	98.40056063	97.88773762
230427A00041	4/27/2023	5.26	12/27/2023	4/27/2023	102.65395	101.9825215	101.319892	100.6658938	100.0203588	99.38312347	98.75402828	98.13291787	97.5196408
230425A00035	4/25/2023	5.24	1/25/2024	4/25/2023	102.9719	102.2205581	101.4802206	100.7506433	100.0315923	99.32284086	98.62416842	97.9353608	97.25620984
230403A00025	4/3/2023	5.23	11/3/2023	4/3/2023	102.0399	101.5172874	101.0000373	100.4880709	99.98130738	99.47966752	98.98307381	98.49145024	98.00472235
230426A00090	4/26/2023	5.08	4/22/2024	4/26/2023	103.89791	102.9034442	101.9281099	100.9713572	100.0326576	99.11150258	98.20740268	97.31988638	96.44849948
230403A00030	4/3/2023	5.17	1/3/2024	4/3/2023	102.67178	101.9812713	101.3000836	100.6280255	99.96491411	99.31057136	98.66482383	98.02750265	97.39844338
230427A00029	4/27/2023	4.87	4/26/2024	4/27/2023	103.96651	102.9575452	101.9682417	100.99803	100.0463605	99.11270452	98.19655335	97.29741722	96.41482455
230420A00030	4/20/2023	5.1	4/19/2024	4/20/2023	103.88062	102.8943847	101.9269675	100.977836	100.0464742	99.13238536	98.2350911	97.35413062	96.48905984
230426A00029	4/26/2023	5.26	12/26/2023	4/26/2023	102.64293	101.9742456	101.3142961	100.6629104	100.0199225	99.38517049	98.75849679	98.13974772	97.52877349
160603A00015	6/3/2016	1.95	6/5/2023	6/3/2016	100.10533	100.0004333	99.89577347	99.79134487	99.68714673	99.58317825	99.47943864	99.37592712	99.27264291
160628A00006	6/28/2016	1.44	6/28/2023	6/28/2016	100.03577	99.9472345	99.85894781	99.77090678	99.68311034	99.5955574	99.50824688	99.42117771	99.33434884
220907A00022	4/17/2023	3.87	4/30/2024	4/17/2023	102.76885	101.7588224	100.7686787	99.79783306	98.84572481	97.91181488	96.99558468	96.09653519	95.21418601
221027A00056	4/25/2023	4.48	4/25/2030	4/25/2023	130.04444	122.3310593	115.1466408	108.4518108	102.2103301	96.38882935	90.95656683	85.8852091	81.1486304
230303A00038	4/14/2023	4.56	4/14/2028	4/14/2023	123.13242	117.7670331	112.6749725	107.8408114	103.2500702	98.88915763	94.74531171	90.80654461	87.06159196
230303A00041	4/14/2023	4.56	4/14/2028	4/14/2023	123.13242	117.7670331	112.6749725	107.8408114	103.2500702	98.88915763	94.74531171	90.80654461	87.06159196
230309A00068	4/10/2023	5.21	4/9/2025	4/10/2023	109.0642	107.0733655	105.1295298	103.2312913	101.3773022	99.5662635	97.79692326	96.06807423	94.37855205
200108A00015	12/18/2020	1.98	12/18/2023	12/18/2020	100.42656	99.78770449	99.15695722	98.53416825	97.91918758	97.31186899	96.71206986	96.11965111	95.53447709
200108A00016	12/18/2020	1.98	12/18/2023	12/18/2020	100.42656	99.78770449	99.15695722	98.53416825	97.91918758	97.31186899	96.71206986	96.11965111	95.53447709
200114A00017	1/11/2021	1.93	1/11/2024	1/11/2021	100.45181	99.74840619	99.05482997	98.37087897	97.69635373	97.03106028	96.37480993	95.72741911	95.08870921
200114A00021	1/11/2021	1.93	1/11/2024	1/11/2021	100.45181	99.74840619	99.05482997	98.37087897	97.69635373	97.03106028	96.37480993	95.72741911	95.08870921
200218A00026	2/21/2020	1.73	3/25/2024	2/21/2020	100.47519	99.57385632	98.688628	97.81907364	96.96477996	96.12534813	95.30039306	94.48954289	93.6924384
200220A00013	2/20/2020	2.09	12/14/2029	2/20/2020	112.76787	106.0009715	99.68609646	93.79068733	88.28469635	83.14037863	78.33210415	73.83618595	69.63072325
200220A00014	2/20/2020	2.09	12/21/2029	2/20/2020	112.78863	106.0020103	99.66987571	93.75940726	88.24032602	83.08467954	78.26665131	73.76238687	69.54983486

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200221A00011	2/21/2020	1.69	8/21/2024	2/21/2020	100.98362	99.68888696	98.4188422	97.17279936	95.95010175	94.75011674	93.57223465	92.41586766	91.28044889
200221A00023	2/21/2020	2.05	12/7/2029	2/21/2020	112.4802	105.7417027	99.45236447	93.57990863	88.09453944	82.96873924	78.17708294	73.6960685	69.50396199
200221A00024	2/21/2020	2.05	12/28/2029	2/21/2020	112.54016	105.7426631	99.40168406	93.48417865	87.95965833	82.79998335	77.97916979	73.47321355	69.25992959
200224A00006	2/24/2020	1.58	11/15/2024	2/24/2020	101.20682	99.68468766	98.19288274	96.73057191	95.29694918	93.89123755	92.51268765	91.16057655	89.83420654
200225A00023	2/25/2020	1.62	2/25/2025	2/25/2020	101.79663	99.9985695	98.2408056	96.52218884	94.84161431	93.19801563	91.59036328	90.01766312	88.47895488
200225A00028	2/25/2020	1.89	12/21/2029	2/25/2020	111.44636	104.7035966	98.41321977	92.54253573	87.06137769	81.9418981	77.15837866	72.68705683	68.50596743
200225A00029	2/25/2020	1.89	12/28/2029	2/25/2020	111.46328	104.7010574	98.39366829	92.50816145	87.01413901	81.88354599	77.09047782	72.61100469	68.42301113
200225A00034	10/5/2020	1.5	10/5/2023	10/5/2020	100.09104	99.65245736	99.21771417	98.7867595	98.35954393	97.93601891	97.51613673	97.09985049	96.68711409
200225A00035	10/5/2020	1.5	10/5/2023	10/5/2020	100.09104	99.65245736	99.21771417	98.7867595	98.35954393	97.93601891	97.51613673	97.09985049	96.68711409
200225A00040	10/30/2020	1.48	10/30/2023	10/30/2020	100.07695	99.57105484	99.07025232	98.57446926	98.08363056	97.59766261	97.11649325	96.64005173	96.1682687
200225A00041	10/30/2020	1.48	10/30/2023	10/30/2020	100.07695	99.57105484	99.07025232	98.57446926	98.08363056	97.59766261	97.11649325	96.64005173	96.1682687
200226A00004	2/26/2020	1.58	2/26/2025	2/26/2020	101.72809	99.92805417	98.16841126	96.44801355	94.76575598	93.12057175	91.51143075	89.93733805	88.39733245
200228A00047	5/18/2020	1.35	5/18/2023	5/18/2020	100.02875	99.9733472	99.91801789	99.86276395	99.80758525	99.75248161	99.69745291	99.64249897	99.58761965
200228A00070	5/18/2020	1.35	5/18/2023	5/18/2020	100.02875	99.9733472	99.91801789	99.86276395	99.80758525	99.75248161	99.69745291	99.64249897	99.58761965
200228A00071	2/28/2020	1.74	12/14/2029	2/28/2020	110.42563	103.7350358	97.49283476	91.6666738	86.22669938	81.14534836	76.39716084	71.95860921	67.80794197
200228A00091	2/28/2020	1.72	12/7/2029	2/28/2020	110.27814	103.6111778	97.38998143	91.5824632	86.15900862	81.09226966	76.35698004	71.92978647	67.78909442
200302A00002	3/2/2020	1.12	3/3/2025	3/2/2020	101.34317	99.52483191	97.74772289	96.01067171	94.31254746	92.65225825	91.02874959	89.44100288	87.88803396
200302A00005	3/2/2020	1.31	3/3/2025	3/2/2020	101.23699	99.4280149	97.65992543	95.93155982	94.24180009	92.58956667	90.97381682	89.39354312	87.8477721
200302A00013	3/2/2020	1.25	3/4/2024	3/2/2020	100.00629	99.16324346	98.3343423	97.51922986	96.71756448	95.92901569	95.15326376	94.38999929	93.63892278
200302A00016	3/2/2020	1.36	3/3/2025	3/2/2020	101.32985	99.5199911	97.75103447	96.02181777	94.3312226	92.67816896	91.06161369	89.48054898	87.93400096
200302A00017	3/2/2020	1.3	3/4/2024	3/2/2020	100.04922	99.2059738	98.37687444	97.56156612	96.75970713	95.97096695	95.19502582	94.43157429	93.68031282
200302A00060	3/2/2021	1.44	3/3/2025	3/2/2021	101.47842	99.66715303	97.89680892	96.16623049	94.47429862	92.81993263	91.20208868	89.61975834	88.07196712
200304A00002	3/4/2020	0.98	3/4/2025	3/4/2020	101.08781	99.26899825	97.49149661	95.75412829	94.05575862	92.39529214	90.77167096	89.18387325	87.63091178
200304A00005	3/4/2020	0.98	3/4/2025	3/4/2020	101.08781	99.26899825	97.49149661	95.75412829	94.05575862	92.39529214	90.77167096	89.18387325	87.63091178
200304A00012	3/4/2020	0.98	3/4/2025	3/4/2020	101.08781	99.26899825	97.49149661	95.75412829	94.05575862	92.39529214	90.77167096	89.18387325	87.63091178
200304A00018	3/4/2020	0.98	3/4/2025	3/4/2020	101.08781	99.26899825	97.49149661	95.75412829	94.05575862	92.39529214	90.77167096	89.18387325	87.63091178
200304A00020	3/4/2020	0.98	3/4/2025	3/4/2020	101.08781	99.26899825	97.49149661	95.75412829	94.05575862	92.39529214	90.77167096	89.18387325	87.63091178
200304A00030	3/4/2020	1.6	12/22/2028	3/4/2020	109.03706	103.3392175	97.9729299	92.91719139	88.15243692	83.66043504	79.4241899	75.42785104	71.65663015
200304A00032	3/4/2020	1.6	12/15/2028	3/4/2020	109.02298	103.3446271	97.99572886	92.95546929	88.20445923	83.72462712	79.49912253	75.51222723	71.7492733
200304A00033	3/4/2020	1.17	3/4/2025	3/4/2020	101.00035	99.19041084	97.42144631	95.69229606	94.00183784	92.34898798	90.73269986	89.15196236	87.60579848
200304A00035	3/4/2020	1.17	3/4/2025	3/4/2020	101.00035	99.19041084	97.42144631	95.69229606	94.00183784	92.34898798	90.73269986	89.15196236	87.60579848
200305A00001	3/5/2020	1.14	3/5/2025	3/5/2020	100.94952	99.13717497	97.36592174	95.63459299	93.94206174	92.28723985	90.66907641	89.08655624	87.53869845
200305A00030	3/5/2020	1.58	3/5/2030	3/5/2020	109.47768	102.6065683	96.21028067	90.25366136	84.70432059	79.53240608	74.71039259	70.21288987	66.01646735

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200305A00032	3/5/2020	1.58	3/5/2030	3/5/2020	109.47768	102.6065683	96.21028067	90.25366136	84.70432059	79.53240608	74.71039259	70.21288987	66.01646735
200305A00037	3/5/2020	1.43	3/6/2028	3/5/2020	107.30351	102.4347914	97.81409195	93.42755463	89.26216284	85.30568666	81.54663153	77.97419038	74.57819931
200305A00038	3/5/2020	1.51	3/5/2029	3/5/2020	108.61128	102.7321258	97.20602051	92.01002626	87.1228041	82.52449563	78.19661331	74.12193944	70.28443303
200305A00039	3/5/2020	1.58	3/5/2030	3/5/2020	109.47768	102.6065683	96.21028067	90.25366136	84.70432059	79.53240608	74.71039259	70.21288987	66.01646735
200306A00013	3/6/2020	1.01	3/6/2025	3/6/2020	100.71196	98.8989993	97.12721041	95.39542373	93.70250847	92.04737286	90.42896256	88.8462591	87.29827847
200306A00022	3/6/2020	1.2	3/8/2027	3/6/2020	104.59351	100.7647606	97.09593786	93.57957116	90.2085722	86.97621778	83.8761292	80.9022528	78.04884181
200306A00028	3/6/2020	1.01	3/6/2025	3/6/2020	100.71196	98.8989993	97.12721041	95.39542373	93.70250847	92.04737286	90.42896256	88.8462591	87.29827847
200306A00031	3/6/2020	1.01	3/6/2025	3/6/2020	100.71196	98.8989993	97.12721041	95.39542373	93.70250847	92.04737286	90.42896256	88.8462591	87.29827847
200306A00040	3/6/2020	1.01	3/6/2025	3/6/2020	100.71196	98.8989993	97.12721041	95.39542373	93.70250847	92.04737286	90.42896256	88.8462591	87.29827847
200306A00055	3/6/2020	0.82	3/6/2025	3/6/2020	100.79916	98.97729524	97.19694036	95.45690863	93.75605676	92.09328105	90.46751583	88.87773182	87.32293469
200306A00064	3/6/2020	1.2	3/8/2027	3/6/2020	104.59351	100.7647606	97.09593786	93.57957116	90.2085722	86.97621778	83.8761292	80.9022528	78.04884181
200306A00066	3/6/2020	1.2	3/8/2027	3/6/2020	104.59351	100.7647606	97.09593786	93.57957116	90.2085722	86.97621778	83.8761292	80.9022528	78.04884181
200306A00077	3/6/2020	1.06	3/6/2025	3/6/2020	100.80524	98.99138836	97.21872455	95.48607921	93.7923211	92.13635804	90.51713524	88.93363384	87.38486945
200306A00080	11/6/2020	1.12	11/6/2023	11/6/2020	99.88919	99.3650063	98.84631087	98.33301798	97.8250435	97.32230504	96.82472189	96.33221501	95.84470697
200306A00087	3/8/2021	1.26	3/7/2025	3/8/2021	101.18367	99.36330391	97.584324	95.84554795	94.14583773	92.48409463	90.85925767	89.27030203	87.71623761
200309A00007	3/9/2020	1.11	3/9/2027	3/9/2020	104.24943	100.4243942	96.75932253	93.24673261	89.87952835	86.65097954	83.55470108	80.58463356	77.73502494
200309A00030	3/9/2020	1.11	3/9/2027	3/9/2020	104.24943	100.4243942	96.75932253	93.24673261	89.87952835	86.65097954	83.55470108	80.58463356	77.73502494
200309A00038	3/9/2020	1.26	3/11/2030	3/9/2020	107.27571	100.4617291	94.121261	88.21910505	82.72284197	77.60260079	72.83084678	68.38218814	64.23319942
200310A00003	3/10/2020	1.1	3/10/2025	3/10/2020	100.88079	99.05500751	97.27091111	95.52731155	93.82305778	92.1570387	90.52818152	88.9354502	87.37784393
200310A00005	3/10/2020	1.41	3/8/2030	3/10/2020	108.30879	101.4684819	95.10223759	89.17488112	83.65401396	78.50978004	73.71465456	69.24325135	65.07214694
200310A00015	3/10/2020	1.37	3/11/2030	3/10/2020	108.03806	101.1983811	94.83347723	88.90807282	83.38967937	78.24836127	73.45652338	68.98871742	64.82146513
200310A00020	3/10/2020	1.1	3/10/2025	3/10/2020	100.88079	99.05500751	97.27091111	95.52731155	93.82305778	92.1570387	90.52818152	88.9354502	87.37784393
200310A00021	3/10/2020	1.1	3/10/2025	3/10/2020	100.88079	99.05500751	97.27091111	95.52731155	93.82305778	92.1570387	90.52818152	88.9354502	87.37784393
200310A00028	3/10/2020	1.1	3/10/2025	3/10/2020	100.88079	99.05500751	97.27091111	95.52731155	93.82305778	92.15703869	90.52818152	88.9354502	87.37784393
200310A00033	3/10/2020	0.91	3/10/2025	3/10/2020	100.98775	99.15244495	97.35918659	95.60676707	93.89402199	92.21982753	90.58309878	88.98278815	87.41788382
200310A00034	3/10/2020	1.41	3/11/2030	3/10/2020	108.31528	101.4662545	95.09246495	89.15860655	83.6321657	78.48318326	73.68404214	69.20927352	65.03537994
200310A00038	3/10/2020	1.41	3/11/2030	3/10/2020	108.31528	101.4662545	95.09246495	89.15860655	83.6321657	78.48318326	73.68404214	69.20927352	65.03537994
200310A00040	3/10/2020	1.36	3/10/2028	3/10/2020	106.97783	102.1056348	97.48229445	93.09387181	88.92727732	84.97021434	81.21112726	77.63915322	74.24407727
200310A00041	3/10/2020	1.39	3/12/2029	3/10/2020	107.91266	102.0334946	96.50889508	91.31573969	86.4325233	81.83923816	77.5172626	73.44925846	69.61907662
200310A00051	3/10/2020	1.41	3/8/2030	3/10/2020	108.30879	101.4684819	95.10223759	89.17488112	83.65401396	78.50978004	73.71465456	69.24325135	65.07214694
200310A00054	3/10/2020	1.1	3/10/2025	3/10/2020	100.88079	99.05500751	97.27091111	95.52731155	93.82305778	92.1570387	90.52818152	88.9354502	87.37784393
200310A00062	3/10/2020	1.05	3/8/2024	3/10/2020	99.837903	98.98498773	98.1465688	97.32227878	96.51176298	95.71467852	94.93069379	94.15948802	93.40075085
200311A00031	3/11/2020	1.41	12/24/2027	3/11/2020	106.89845	102.234675	97.79995955	93.58185143	89.56863953	85.74930985	82.11349995	78.65145672	75.35399713

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200311A00050	3/2/2021	1.46	3/2/2026	3/2/2021	103.4785	100.6681109	97.94804004	95.3149229	92.76553524	90.29678962	87.90572882	85.58951965	83.34544704
200311A00052	3/2/2021	1.43	2/28/2025	3/2/2021	101.46091	99.65816354	97.89597811	96.17321166	94.48875942	92.84155439	91.23056581	89.65479769	88.11328746
200311A00055	3/11/2020	1.66	12/17/2027	3/11/2020	108.03333	103.3626669	98.92023772	94.6936869	90.67139252	86.8424214	83.19648447	79.72389511	76.41553056
200312A00006	3/12/2020	1.23	3/12/2025	3/12/2020	101.1351	99.30109588	97.50907317	95.75783202	94.04621009	92.37308554	90.73737527	89.13803344	87.57404984
200312A00009	3/12/2020	1.46	3/12/2027	3/12/2020	105.6302	101.7697158	98.07071565	94.52563754	91.12730984	87.86893134	84.74405014	81.74654398	78.87060165
200312A00014	3/12/2020	1.04	3/12/2025	3/12/2020	101.24314	99.39954993	97.59830559	95.83818768	94.11802036	92.4366689	90.79303801	89.18607014	87.61474398
200312A00015	3/12/2020	1.23	3/10/2025	3/12/2020	101.12473	99.29659734	97.51020041	95.76434321	94.05787348	92.38967901	90.75868589	89.16385701	87.60419054
200312A00037	3/12/2020	1.3	3/12/2025	3/12/2020	101.26684	99.4315599	97.63829138	95.88582769	94.17300583	92.49870332	90.86183651	89.26135894	87.69625986
200316A00009	3/16/2020	1.25	3/14/2025	3/16/2020	101.2019	99.36112596	97.56261449	95.8051501	94.08755952	92.40871046	90.7675099	89.16290247	87.59386893
200316A00037	3/16/2020	1.06	3/14/2025	3/16/2020	101.29185	99.44196214	97.63468558	95.86878717	94.14308058	92.45642113	90.807704	89.19586259	87.61986691
200316A00042	3/16/2020	1.23	3/15/2024	3/16/2020	100.00374	99.13137956	98.27416724	97.43170932	96.60362748	95.78955624	94.9891424	94.20204456	93.42793261
200316A00043	3/16/2020	1.3	3/14/2025	3/16/2020	101.29628	99.45459291	97.65518634	95.89684359	94.17839092	92.49869559	90.85666415	89.25124083	87.68140596
200316A00046	3/16/2020	1.18	3/18/2024	3/16/2020	99.962874	99.08272014	98.2179871	97.36827206	96.53318655	95.71235539	94.90541613	94.11201851	93.33182398
200316A00049	3/16/2020	1.25	3/14/2025	3/16/2020	101.2019	99.36112596	97.56261449	95.8051501	94.08755952	92.40871046	90.7675099	89.16290247	87.59386893
200316A00050	3/16/2020	1.54	3/16/2027	3/16/2020	105.96924	102.0904415	98.37427763	94.81311298	91.39970736	88.1271955	84.98906572	81.97913987	79.09155457
200316A00055	3/16/2020	1.06	3/14/2025	3/16/2020	101.29185	99.44196214	97.63468558	95.86878716	94.14308058	92.45642113	90.807704	89.19586259	87.61986691
200317A00023	3/17/2020	1.1	3/17/2025	3/17/2020	101.38432	99.52480415	97.70829096	95.93353823	94.19934377	92.50454774	90.8480309	89.22871288	87.64555055
200317A00027	3/17/2020	1.29	3/17/2025	3/17/2020	101.29356	99.44322033	97.63554306	95.86929149	94.14327666	92.4563513	90.80740815	89.19537823	87.61922932
200317A00045	3/19/2020	1.43	3/19/2025	3/19/2020	101.55165	99.69336757	97.87802931	96.10439199	94.3712557	92.6774627	91.02189574	89.4034763	87.82116305
200318A00013	3/18/2020	1.5	3/18/2025	3/18/2020	101.6788	99.82217492	98.00839154	96.23621056	94.50443652	92.81191598	91.15753571	89.54022109	87.95893446
200318A00037	3/18/2020	1.35	3/18/2024	3/18/2020	100.11538	99.234481	98.36901556	97.51857704	96.68277678	95.86123943	95.05360236	94.25951516	93.47863909
200318A00038	3/18/2020	1.48	3/18/2025	3/18/2020	101.64083	99.78457618	97.97115479	96.19932901	94.46790358	92.77572522	91.1216809	89.50469616	87.92373349
200318A00044	3/18/2020	1.17	3/18/2024	3/18/2020	100.16392	99.27987513	98.41136032	97.55796654	96.71930165	95.89498698	95.08465674	94.28795748	93.50454756
200318A00047	3/18/2020	1.29	3/18/2025	3/18/2020	101.7515	99.88548524	98.06267524	96.28181399	94.54169229	92.84114362	91.17904233	89.55430193	87.96587347
200318A00054	3/18/2020	1.56	3/18/2025	3/18/2020	101.7927	99.93497115	98.1201018	96.34685521	94.61403535	92.92048824	91.26510014	89.6467959	88.06453738
200319A00025	3/19/2020	1.39	3/21/2024	3/19/2020	100.15657	99.26747408	98.39409125	97.536005	96.69281632	95.86413999	95.04960394	94.24884874	93.46152706
200320A00013	3/20/2020	1.25	3/20/2024	3/20/2020	100.2399	99.35013103	98.47607878	97.61733122	96.77348921	95.94416739	95.12899358	94.32760823	93.53966388
200320A00049	3/25/2020	1.47	3/25/2025	3/25/2020	101.68183	99.80455986	97.97103439	96.17997793	94.43015841	92.72038749	91.04951871	89.41644574	87.82010067
200320A00052	3/25/2020	1.47	3/25/2025	3/25/2020	101.68183	99.80455986	97.97103439	96.17997793	94.43015841	92.72038749	91.04951871	89.41644574	87.82010067
200324A00012	3/25/2020	1.78	3/25/2025	3/25/2020	102.27635	100.3932441	98.55399721	96.75732722	95.00199899	93.28682131	91.61064493	89.97236083	88.37089853
200324A00013	3/25/2020	1.78	3/25/2025	3/25/2020	102.27635	100.3932441	98.55399721	96.75732722	95.00199899	93.28682131	91.61064493	89.97236083	88.37089853
200324A00029	3/24/2020	1.86	3/24/2025	3/24/2020	102.42282	100.5411861	98.70330673	96.90790821	95.15375994	93.43967492	91.76450794	90.12715382	88.52654573
200324A00031	3/24/2020	1.64	3/22/2024	3/24/2020	100.38535	99.49246891	98.61540343	97.75373751	96.90706843	96.07500738	95.2571789	94.45322029	93.66278109

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200324A00051	3/24/2020	1.73	11/1/2024	3/24/2020	101.36911	99.88262355	98.42537181	96.996567	95.59544848	94.22128225	92.87335972	91.5509967	90.25353224
200324A00066	3/26/2020	1.81	3/26/2025	3/26/2020	102.32155	100.4354524	98.59333452	96.79391066	95.03594087	93.31822928	91.6396222	89.99900637	88.39530729
200325A00009	3/27/2020	1.67	3/27/2025	3/27/2020	102.0591	100.1726787	98.33031835	96.53072705	94.77266092	93.05492039	91.37634828	89.73582801	88.1322819
200325A00016	3/30/2020	1.67	3/31/2025	3/30/2020	102.08163	100.1842419	98.33140784	96.52181693	94.75420462	93.02735158	91.34008187	89.69126104	88.07979439
200325A00042	3/25/2020	1.58	3/25/2024	3/25/2020	100.33774	99.43709182	98.55253552	97.68364483	96.83000666	95.99122234	95.16690694	94.35668878	93.56020876
200325A00043	3/25/2020	1.62	6/25/2024	3/25/2020	100.67237	99.52420238	98.40208583	97.30513827	96.23252071	95.18343108	94.15710221	93.15279995	92.16982142
200325A00044	3/25/2020	1.7	12/23/2024	3/25/2020	101.58197	99.95468706	98.36113871	96.80033743	95.27133687	93.77322712	92.30513295	90.86621212	89.45565381
200325A00046	3/25/2020	1.76	3/25/2025	3/25/2020	102.23799	100.3552644	98.5163867	96.72007887	94.96510605	93.2502772	91.57444324	89.93649534	88.33536318
200325A00047	3/25/2020	1.68	9/25/2024	3/25/2020	101.11918	99.73383642	98.37407649	97.03925363	95.72874269	94.44193891	93.1782571	91.9371309	90.71801196
200326A00009	3/27/2020	1.54	3/27/2025	3/27/2020	101.8091	99.92513457	98.08518608	96.28796109	94.53221702	92.81675551	91.14042057	89.50209674	87.90070745
200326A00011	3/30/2020	1.54	3/31/2025	3/30/2020	101.8302	99.93529744	98.08490223	96.27770404	94.51243956	92.78789072	91.10288277	89.4562824	87.84699602
200326A00016	3/26/2020	1.54	3/25/2025	3/26/2020	101.81608	99.93748855	98.10267115	96.31034712	94.5592837	92.8482919	91.17622463	89.54197495	87.94447438
200327A00030	3/27/2020	1.01	3/27/2024	3/27/2020	99.816903	98.91351093	98.0263677	97.15503805	96.29910253	95.45815645	94.63180915	93.81968344	93.02141502
200327A00031	3/27/2020	1.18	3/27/2025	3/27/2020	101.11678	99.23962784	97.40635826	95.61568612	93.86637236	92.15722201	90.4870823	88.85484094	87.25942436
200327A00035	3/27/2020	0.83	3/27/2024	3/27/2020	99.866767	98.96011164	98.06980774	97.19541661	96.33651511	95.49269495	94.66356209	93.84873609	93.04784956
200327A00037	3/27/2020	1.18	3/27/2026	3/27/2020	103.55456	100.6531074	97.84747628	95.133993	92.50914911	89.96958921	87.51210339	85.13362007	82.83119925
200327A00042	3/27/2020	0.83	3/27/2024	3/27/2020	99.866767	98.96011164	98.06980774	97.19541661	96.33651511	95.49269495	94.66356209	93.84873609	93.04784956
200327A00043	3/27/2020	1.48	3/27/2028	3/27/2020	108.98687	103.9747439	99.22149197	94.7124428	90.43383233	86.3727403	82.51703437	78.85531814	75.37688289
200327A00045	3/27/2020	2.24	3/27/2034	3/27/2020	123.34197	111.7934876	101.4440419	92.16221157	83.83161742	76.34913312	69.62331595	63.57303034	58.12623954
200327A00046	3/27/2020	1.23	3/27/2025	3/27/2020	101.21293	99.33483711	97.5006399	95.70905764	93.95885079	92.24882388	90.57782373	88.94473758	87.34849145
200327A00047	3/27/2020	0.99	3/27/2025	3/27/2020	101.22826	99.34115439	97.49831131	95.6984294	93.94025509	92.22257962	90.54423713	88.9041028	87.30109115
200327A00048	3/27/2020	1.18	3/24/2025	3/27/2020	101.12059	99.25171131	97.42634779	95.64322942	93.90113214	92.19887527	90.53531968	88.90936605	87.31995321
200327A00051	3/27/2020	0.99	3/27/2025	3/27/2020	101.22826	99.34115439	97.49831131	95.6984294	93.94025509	92.22257962	90.54423713	88.9041028	87.30109115
200327A00055	3/27/2020	1.01	3/27/2024	3/27/2020	99.816903	98.91351093	98.0263677	97.15503805	96.29910253	95.45815645	94.63180915	93.81968344	93.02141502
200327A00056	3/27/2020	1.18	3/27/2025	3/27/2020	101.11678	99.23962784	97.40635826	95.61568612	93.86637236	92.15722201	90.4870823	88.85484094	87.25942436
200327A00059	3/27/2020	1.01	3/27/2024	3/27/2020	99.816903	98.91351093	98.0263677	97.15503805	96.29910253	95.45815645	94.63180915	93.81968344	93.02141502
200327A00060	3/27/2020	1.18	3/27/2025	3/27/2020	101.11678	99.23962784	97.40635826	95.61568612	93.86637236	92.15722201	90.4870823	88.85484094	87.25942436
200327A00061	3/31/2020	1.18	3/31/2025	3/31/2020	101.13393	99.24591274	97.40227133	95.60169911	93.84293633	92.12476835	90.44602372	88.80557232	87.20232363
200327A00066	6/25/2020	0.93	6/26/2023	6/25/2020	99.970012	99.80711268	99.64474476	99.48290566	99.32159283	99.16080372	99.00053582	98.8407866	98.68155357
200327A00068	6/25/2020	0.93	6/26/2023	6/25/2020	99.970012	99.80711268	99.64474476	99.48290566	99.32159283	99.16080372	99.00053582	98.8407866	98.68155357
200327A00073	3/27/2020	0.99	3/27/2025	3/27/2020	101.22826	99.34115439	97.49831131	95.6984294	93.94025509	92.22257962	90.54423713	88.9041028	87.30109115
200330A00006	3/30/2020	0.9	3/28/2025	3/30/2020	101.0598	99.17145037	97.32745893	95.52652143	93.76737989	92.04882137	90.369676	88.72881518	87.12514982
200330A00007	3/30/2020	0.93	4/1/2024	3/30/2020	99.747293	98.83094199	97.93132147	97.04797673	96.18046956	95.32837735	94.4912924	93.66882127	92.86058416

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200330A00008	3/30/2020	1.09	3/28/2025	3/30/2020	100.94851	99.07012351	97.23572025	95.44400621	93.69373795	91.98371637	90.31278476	88.67982708	87.0837662
200330A00011	3/30/2020	0.93	4/1/2024	3/30/2020	99.747293	98.83094199	97.93132147	97.04797673	96.18046956	95.32837735	94.4912924	93.66882127	92.86058416
200330A00028	3/30/2020	1.09	3/28/2025	3/30/2020	100.94851	99.07012351	97.23572025	95.44400621	93.69373795	91.98371637	90.31278476	88.67982708	87.0837662
200330A00037	3/30/2020	1.09	3/28/2025	3/30/2020	100.94851	99.07012351	97.23572025	95.44400621	93.69373795	91.98371637	90.31278476	88.67982708	87.0837662
200330A00038	3/30/2020	1.79	3/29/2030	3/30/2020	111.0057	104.0147067	97.51041118	91.45647871	85.81945783	80.56854055	75.67534112	71.11369429	66.85947141
200330A00044	3/30/2020	1.09	3/28/2025	3/30/2020	100.94851	99.07012351	97.23572025	95.44400621	93.69373795	91.98371637	90.31278476	88.67982708	87.0837662
200330A00054	3/30/2021	1.19	3/30/2026	3/30/2021	102.85893	99.97669262	97.18962465	94.49408064	91.88657682	89.36378135	86.92250675	84.55970284	82.27245006
200330A00066	3/30/2020	1.08	3/31/2025	3/30/2020	100.94052	99.05441699	97.21265164	95.41391996	93.65696321	91.94056769	90.26356288	88.62481952	87.02324797
200331A00007	3/31/2020	0.72	3/29/2024	3/31/2020	99.766827	98.85532527	97.96036126	97.08148891	96.21827778	95.37031268	94.53719297	93.71853193	92.91395615
200331A00011	3/31/2020	1.09	3/31/2025	3/31/2020	100.95986	99.07356656	97.23161361	95.43269788	93.67556052	91.95898776	90.28180896	88.6428948	87.04115553
200331A00014	3/31/2020	0.72	3/29/2024	3/31/2020	99.766827	98.85532527	97.96036126	97.08148891	96.21827778	95.37031268	94.53719297	93.71853193	92.91395615
200331A00016	3/31/2020	1.11	3/31/2026	3/31/2020	103.36959	100.4599862	97.64683865	94.92643848	92.29524112	89.74985728	87.28704516	84.90370326	82.5968634
200331A00017	3/31/2020	0.9	3/31/2025	3/31/2020	101.07165	99.17532448	97.3237225	95.51552597	93.7494613	92.02430069	90.33886018	88.69199773	87.08261149
200331A00022	4/1/2020	1.07	4/1/2025	4/1/2020	100.92491	99.03636131	97.19226836	95.39132175	93.63225766	91.91385761	90.23494647	88.59439067	86.9910964
200401A00001	4/1/2020	1.01	4/1/2025	4/1/2020	100.8087	98.9213023	97.07833814	95.27849894	93.52052147	91.80318783	90.12532345	88.48579528	86.88351003
200401A00012	4/2/2020	1	4/2/2025	4/2/2020	100.79287	98.90303124	97.05774386	95.25569411	93.49561372	91.77627996	90.09651367	88.45517747	86.85117391
200401A00013	4/1/2020	1.01	4/1/2025	4/1/2020	100.8087	98.9213023	97.07833814	95.27849894	93.52052147	91.80318783	90.12532345	88.48579528	86.88351003
200401A00023	4/1/2020	0.82	4/1/2025	4/1/2020	100.92027	99.02282692	97.17020189	95.36107097	93.59415614	91.86822542	90.18209086	88.53460666	86.92466737
200402A00009	4/2/2020	1.03	4/2/2025	4/2/2020	100.85106	98.96064153	97.11478817	95.31218318	93.55155797	91.83168953	90.15139844	88.50954701	86.90503758
200402A00010	4/2/2020	0.89	4/2/2024	4/2/2020	99.71981	98.80080846	97.89863866	97.01284147	96.14297469	95.28861191	94.44934181	93.62476749	92.81450589
200402A00013	4/2/2020	0.89	4/2/2024	4/2/2020	99.71981	98.80080846	97.89863866	97.01284147	96.14297469	95.28861191	94.44934181	93.62476749	92.81450589
200402A00014	4/2/2020	0.84	4/2/2025	4/2/2020	100.96289	99.06240321	97.2068665	95.39494855	93.6253659	91.89688142	90.20830222	88.55847784	86.94629838
200402A00036	4/2/2020	0.71	4/2/2024	4/2/2020	99.761306	98.83913848	97.93390434	97.04514086	96.17240209	95.31525804	94.47329399	93.6461098	92.83331929
200402A00038	4/2/2020	0.84	4/2/2025	4/2/2020	100.96289	99.06240321	97.2068665	95.39494855	93.6253659	91.89688142	90.20830222	88.55847784	86.94629838
200402A00041	4/2/2020	1.03	4/2/2025	4/2/2020	100.85106	98.96064153	97.11478817	95.31218318	93.55155797	91.83168953	90.15139844	88.50954701	86.90503758
200402A00044	4/2/2020	1.65	4/2/2030	4/2/2020	110.0366	103.0682335	96.58637189	90.55461343	84.93945277	79.71003744	74.83794536	70.29698211	66.06299604
200402A00048	4/2/2020	0.71	4/2/2024	4/2/2020	99.761306	98.83913848	97.93390434	97.04514086	96.17240209	95.31525804	94.47329399	93.6461098	92.83331929
200403A00018	4/3/2020	0.91	4/3/2024	4/3/2020	99.730287	98.80869985	97.90403949	97.01584284	96.14366394	95.28707284	94.44565484	93.61900981	92.80675161
200403A00025	4/3/2020	0.91	4/3/2024	4/3/2020	99.730287	98.80869985	97.90403949	97.01584284	96.14366394	95.28707284	94.44565484	93.61900981	92.80675161
200406A00053	4/6/2020	1.13	4/7/2025	4/6/2020	101.06449	99.15895381	97.29862536	95.48216491	93.70827688	91.97571255	90.28326808	88.62978256	87.01413614
200406A00060	4/6/2020	1.03	4/5/2024	4/6/2020	99.845571	98.91807521	98.00771079	97.11400699	96.23650992	95.37478203	94.52840142	93.69696109	92.88006836
200407A00004	4/7/2020	0.99	4/7/2025	4/7/2020	101.27555	99.35883839	97.48775159	95.66092776	93.87705559	92.13487144	90.43315723	88.77073851	87.14648252
200407A00019	4/7/2020	1.06	4/8/2024	4/7/2020	99.877758	98.94211189	98.02389678	97.12262966	96.23784481	95.36909346	94.51594298	93.6779762	92.85479071

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200413A00011	4/13/2020	0.94	4/12/2024	4/13/2020	99.776337	98.83043898	97.90236897	96.99162663	96.09773037	95.22021633	94.35863754	93.51256315	92.68157771
200413A00027	4/13/2020	0.94	4/12/2024	4/13/2020	99.776337	98.83043898	97.90236897	96.99162663	96.09773037	95.22021633	94.35863754	93.51256315	92.68157771
200414A00014	4/14/2020	0.76	4/12/2024	4/14/2020	99.819059	98.86986801	97.93861328	97.02479014	96.12791294	95.24751397	94.38314257	93.53436437	92.70076059
200415A00020	4/15/2020	0.86	4/15/2024	4/15/2020	99.691816	98.73851647	97.80333447	96.88575774	95.98529304	95.10146538	94.2338172	93.38190761	92.54531157
200415A00021	4/15/2020	1.37	4/15/2027	4/15/2020	105.47535	101.523393	97.7406435	94.11898744	90.65074382	87.32863794	84.14577776	81.0956317	78.17200791
200415A00023	4/15/2020	1.71	4/15/2030	4/15/2020	110.48436	103.4673779	96.94231491	90.87220191	85.22302269	79.96346695	75.06470226	70.50016633	66.24537771
200415A00024	4/15/2020	2.2	4/16/2035	4/15/2020	120.76557	108.5432572	97.6938322	88.05489129	79.48403212	71.85630372	65.06198918	59.00467975	53.59960057
200415A00027	4/15/2020	0.86	4/15/2024	4/15/2020	99.691816	98.73851647	97.80333447	96.88575774	95.98529304	95.10146538	94.2338172	93.38190761	92.54531157
200415A00031	4/15/2020	0.97	4/15/2025	4/15/2020	100.77961	98.85614504	96.97881123	95.14622612	93.35705366	91.6100067	89.90384487	88.23737256	86.60943693
200415A00033	4/15/2020	0.82	10/13/2023	4/15/2020	99.775421	99.31610706	98.86101662	98.41009173	97.9632753	97.52051129	97.08174468	96.64692145	96.21598852
200415A00036	4/15/2020	0.91	10/15/2024	4/15/2020	100.0752	98.64424765	97.24071222	95.86387745	94.51304985	93.18755939	91.8867586	90.61002155	89.35674298
200415A00037	4/15/2020	0.97	4/15/2025	4/15/2020	100.77961	98.85614504	96.97881123	95.14622612	93.35705366	91.6100067	89.90384487	88.23737256	86.60943693
200415A00038	4/15/2020	1.37	4/15/2027	4/15/2020	105.47535	101.523393	97.7406435	94.11898744	90.65074382	87.32863794	84.14577776	81.0956317	78.17200791
200417A00002	4/17/2020	0.96	4/17/2025	4/17/2020	100.76672	98.83818813	96.95603599	95.11886474	93.3253278	91.57412801	89.86401553	88.19378569	86.56227709
200417A00004	4/17/2020	0.86	4/17/2024	4/17/2020	99.702784	98.74397506	97.80349045	96.88080876	95.97542849	95.08686681	94.21465873	93.35835623	92.51752756
200417A00008	4/17/2020	0.96	4/17/2025	4/17/2020	100.76672	98.83818813	96.95603599	95.11886474	93.3253278	91.57412801	89.86401553	88.19378569	86.56227709
200417A00014	4/17/2020	0.96	4/17/2025	4/17/2020	100.76672	98.83818813	96.95603599	95.11886474	93.3253278	91.57412801	89.86401553	88.19378569	86.56227709
200417A00019	4/17/2020	0.77	4/17/2025	4/17/2020	100.88067	98.94174495	97.04960795	95.20283989	93.40007832	91.64001106	89.92137393	88.24294865	86.60356085
200421A00020	4/24/2020	0.83	3/15/2024	4/24/2020	99.648205	98.77756128	97.92204275	97.08125819	96.25482968	95.44239214	94.64359277	93.85809053	93.0855557
200421A00024	4/24/2020	0.8	10/16/2023	4/24/2020	99.757577	99.29026517	98.82732502	98.3686949	97.91431475	97.46412564	97.01806971	96.57609019	96.13813133
200421A00031	4/21/2020	0.84	4/19/2024	4/21/2020	99.684567	98.72053921	97.7750351	96.84752556	95.93750104	95.04447105	94.16796331	93.30752287	92.46271136
200421A00032	4/21/2020	1.31	4/21/2027	4/21/2020	105.26628	101.3026427	97.5094209	93.87841286	90.40185246	87.07238618	83.88304895	80.82724147	77.89870912
200423A00006	4/23/2020	0.82	4/23/2025	4/23/2020	101.00234	99.04647924	97.13817484	95.27597673	93.45848938	91.68436918	89.95232208	88.26110144	86.60950586
200423A00017	4/23/2020	1.82	4/23/2035	4/23/2020	119.56052	107.1862065	96.21679087	86.48482314	77.84360697	70.1645377	63.33479056	57.25531436	51.83908875
200423A00026	4/28/2020	0.85	12/15/2023	4/28/2020	99.705215	99.0769243	98.45652372	97.84386494	97.2388037	96.6411993	96.0509145	95.46781542	94.89177141
200423A00027	4/28/2020	0.88	4/15/2024	4/28/2020	99.711295	98.75789353	97.82261081	96.90493469	96.00437189	95.12044739	94.25270362	93.40069964	92.5640104
200424A00014	4/28/2020	1.01	4/23/2025	4/28/2020	100.88715	98.94182315	97.04363505	95.19115774	93.38301194	91.61786949	89.89445103	88.21152385	86.56789988
200427A00017	4/27/2020	1.02	4/25/2025	4/27/2020	100.91431	98.96351233	97.06010703	95.20265438	93.38976421	91.62009799	89.8923665	88.2053277	86.55778462
200427A00018	4/27/2020	1.51	4/27/2028	4/27/2020	107.91174	102.8865103	98.12420958	93.60974061	89.32895082	85.2685672	81.41613709	77.75997339	74.28910354
200428A00002	4/28/2020	1.47	4/26/2030	4/28/2020	110.71748	103.5856741	96.95844974	90.7975774	85.06790605	79.7371026	74.77541261	70.15544236	65.85196056
200428A00003	4/29/2020	1.01	4/29/2025	4/29/2020	100.90919	98.94793231	97.03455382	95.16758481	93.34561416	91.56728347	89.83128468	88.13635783	86.48128895
200429A00004	5/1/2020	0.74	5/1/2023	5/1/2020	99.999314	99.99100186	99.98269674	99.97439904	99.96610875	99.95782587	99.94955037	99.94128225	99.9330215
200429A00021	5/4/2020	0.97	4/29/2025	5/4/2020	100.82864	98.86821055	96.95564347	95.08947018	93.26828001	91.49071497	89.75546741	88.06127778	86.40693248

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200429A00049	4/29/2020	1.25	4/29/2026	4/29/2020	103.17263	100.2071164	97.34205473	94.57349518	91.89766607	89.31096493	86.80994994	84.39133171	82.05196569
200429A00054	4/29/2020	1.04	4/29/2025	4/29/2020	100.9696	99.00772363	97.09373658	95.22617078	93.40361478	91.62470985	89.88814763	88.19266786	86.5370563
200429A00057	4/29/2020	1.4	4/29/2027	4/29/2020	105.67002	101.6771139	97.85666036	94.20031593	90.70018562	87.34879612	84.13907093	81.06430713	78.11815366
200429A00061	4/29/2020	1.66	10/29/2029	4/29/2020	109.81896	103.2693888	97.15205052	91.43623477	86.09355982	81.09778771	76.42465201	72.05170016	67.95814933
200430A00030	4/30/2020	0.96	4/30/2025	4/30/2020	100.81256	98.84958833	96.93457637	95.06605713	93.24261526	91.46288835	89.72556458	88.02938042	86.37311853
200504A00006	5/4/2020	0.94	5/5/2025	5/4/2020	100.79228	98.81594603	96.88811039	95.00727591	93.17200341	91.38090795	89.63265637	87.925965	86.25959739
200504A00007	5/4/2020	1.47	5/4/2028	5/4/2020	107.73682	102.6967562	97.9213131	93.39524883	89.10427595	85.03499794	81.17484911	77.51203883	74.03549975
200511A00006	5/11/2020	1.65	5/13/2030	5/11/2020	110.1299	103.0515379	96.47452656	90.3608119	84.67541408	79.38616312	74.46345982	69.88005801	65.6108664
200518A00019	5/19/2020	0.9	5/19/2025	5/19/2020	100.76566	98.75163653	96.78763019	94.87207236	93.00345588	91.18033161	89.40130565	87.66503686	85.9702344
200521A00013	5/21/2020	2.09	5/21/2035	5/21/2020	119.5223	107.2830342	96.4306448	86.79979014	78.24564556	70.6412651	63.87529364	57.84998176	52.47946202
200521A00015	5/21/2020	2.14	5/21/2036	5/21/2020	120.7986	107.5755083	95.95784696	85.74084932	76.74687421	68.8216896	61.83128235	55.65911656	50.20377544
200521A00016	5/21/2020	2.18	5/21/2037	5/21/2020	121.93744	107.7506533	95.3994387	84.63458307	75.241946	67.03736939	59.86234467	53.58032461	48.07358129
200521A00017	5/21/2020	2.22	5/21/2038	5/21/2020	123.1058	107.9649989	94.90172479	83.61706608	73.85662569	65.40369419	58.0734968	51.70834282	46.17353254
200527A00012	5/27/2020	1.2	5/27/2027	5/27/2020	104.96876	100.9141548	97.03747484	93.32997975	89.78340422	86.38993198	83.14216882	80.0331174	77.05615371
200527A00013	5/27/2020	1.13	11/25/2026	5/27/2020	103.81083	100.2735423	96.87487086	93.60863828	90.46897704	87.45031311	84.54734948	81.75505073	79.06862855
200527A00014	5/27/2020	1.06	5/27/2026	5/27/2020	102.72827	99.69316044	96.76285789	93.93315523	91.20003968	88.55968302	86.00843188	83.54279858	81.15945261
200527A00015	5/27/2020	0.99	11/26/2025	5/27/2020	101.73046	99.19967352	96.74422565	94.36142337	92.04868833	89.80355083	87.62364441	85.50670085	83.45054534
200527A00016	5/27/2020	0.92	5/27/2025	5/27/2020	100.83867	98.80218268	96.81661274	94.88034828	92.99184212	91.14960724	89.35221396	87.59828729	85.88650437
200528A00021	5/28/2020	0.63	5/26/2023	5/28/2020	99.984298	99.90680026	99.82942566	99.75217357	99.67504371	99.59803581	99.52114958	99.44438476	99.36774106
200529A00022	6/1/2020	0.98	6/1/2026	6/1/2020	102.50151	99.45667135	96.51736415	93.67933601	90.93853178	88.29108367	85.73330129	83.26166241	80.87280416
200605A00005	6/5/2020	0.99	6/5/2025	6/5/2020	101.0202	98.95809063	96.94795057	94.98811646	93.07699392	91.21305142	89.3948172	87.62087652	85.88986892
200611A00019	6/11/2020	0.88	12/11/2025	6/11/2020	101.50721	98.9388637	96.44790766	94.03153991	91.68707696	89.41195033	87.20370077	85.05997274	82.97850932
200611A00020	6/11/2020	0.81	6/11/2025	6/11/2020	100.65973	98.58581123	96.56445898	94.59398439	92.67276407	90.79923914	88.97191213	87.189344	85.45015142
200611A00021	6/11/2020	0.72	6/11/2024	6/11/2020	99.605591	98.50119644	97.42110105	96.36451031	95.33066414	94.31883495	93.32832584	92.35846906	91.40862449
200611A00023	6/11/2020	0.64	6/12/2023	6/11/2020	99.953028	99.82867809	99.7046533	99.58095206	99.45757308	99.33451506	99.21177671	99.08935675	98.96725391
200629A00020	6/29/2020	1.4	6/28/2030	6/29/2020	108.44079	101.3015043	94.67687856	88.52722278	82.81610407	77.51006211	72.57835201	67.99271067	63.72714434
200629A00021	6/29/2020	1.21	6/29/2028	6/29/2020	106.57194	101.4105863	96.52756861	91.90644235	87.53181971	83.38929847	79.46539341	75.74747295	72.22370042
200629A00023	6/29/2020	0.95	6/29/2026	6/29/2020	102.52211	99.40325391	96.39455904	93.49149858	90.68975704	87.98522319	85.37397896	82.85228897	80.41659079
200708A00011	7/10/2020	2.87	7/10/2031	7/10/2020	121.45411	112.8216007	104.8790634	97.5674431	90.83304226	84.62700623	78.90486264	73.62610675	68.75382807
200730A00011	7/30/2020	1.15	7/28/2028	7/30/2020	106.31971	101.0861875	96.13885177	91.46055646	87.0352772	82.84803115	78.88480326	75.13247826	71.57877781
200730A00013	7/30/2020	0.74	1/30/2025	7/30/2020	100.10404	98.3896817	96.71251532	95.07140936	93.46527541	91.89306909	90.35378773	88.84646829	87.37018535
200818A00016	3/31/2021	0.57	4/1/2024	3/31/2021	99.410505	98.49585376	97.59791118	96.71622316	95.85035192	94.99987529	94.16438598	93.34349098	92.53681088
200818A00018	3/31/2021	0.57	4/1/2024	3/31/2021	99.410505	98.49585376	97.59791118	96.71622316	95.85035192	94.99987529	94.16438598	93.34349098	92.53681088

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200824A00020	8/26/2020	1.57	8/26/2025	8/26/2020	102.70779	100.4087296	98.17232373	95.99651831	93.87934298	91.81890293	89.81337559	87.86100741	85.96011083
200826A00019	8/26/2020	0.98	8/26/2026	8/26/2020	102.86942	99.59026144	96.43185432	93.38914539	90.45731589	87.6317729	84.90813756	82.2822339	79.7500784
200826A00021	8/26/2020	0.83	8/26/2025	8/26/2020	100.97552	98.69700574	96.48070695	94.32458561	92.22668382	90.18511877	88.19807944	86.26382338	84.38067375
200826A00028	8/28/2020	1.08	8/28/2024	8/28/2020	100.19708	98.89137956	97.60867425	96.34841144	95.11005348	93.89307944	92.69698445	91.52127909	90.36548883
200826A00029	8/28/2020	1.16	11/27/2024	8/28/2020	100.59404	99.04532651	97.52783633	96.04068978	94.58304299	93.15408305	91.75302658	90.37911842	89.03163029
200826A00035	8/28/2020	0.78	8/28/2023	8/28/2020	99.83296	99.49804098	99.16535811	98.83488912	98.50661204	98.18050519	97.85654718	97.53471689	97.21499348
200826A00036	8/28/2020	0.88	7/28/2023	8/28/2020	99.906275	99.65575645	99.40648717	99.15845832	98.91166071	98.66608524	98.42172289	98.17856475	97.93660198
200826A00038	8/28/2020	1.11	8/28/2024	8/28/2020	100.23741	98.93142573	97.64844134	96.38790413	95.14927634	93.93203691	92.73568085	91.55971863	90.4036756
200826A00039	8/28/2020	1.03	7/29/2024	8/28/2020	100.04055	98.80640282	97.6021094	96.42659891	95.27884859	94.1578836	93.0627743	91.99263363	90.94661472
200909A00001	9/9/2020	0.98	9/8/2028	9/9/2020	106.90167	101.4934024	96.38791243	91.56677639	87.01278162	82.7098398	78.64290805	74.79791602	71.16169838
200916A00015	9/16/2020	0.72	9/16/2025	9/16/2020	100.7856	98.4546943	96.18883821	93.98586117	91.84368131	89.76029776	87.73378697	85.76229925	83.84405553
200916A00016	9/16/2020	0.6	9/16/2024	9/16/2020	99.573896	98.22332344	96.89733427	95.59531686	94.31667901	93.06084751	91.82726742	90.61540134	89.42472877
200916A00017	9/16/2020	0.54	9/15/2023	9/16/2020	99.711021	99.3275481	98.94702659	98.5694225	98.19470228	97.82283292	97.45378188	97.08751712	96.72400712
200916A00019	9/16/2020	0.42	9/16/2024	9/16/2020	99.649808	98.29342697	96.96181171	95.6543436	94.37042445	93.10947539	91.87093609	90.65426403	89.45893377
200916A00023	9/16/2020	0.42	9/16/2024	9/16/2020	99.649808	98.29342697	96.96181171	95.6543436	94.37042445	93.10947539	91.87093609	90.65426403	89.45893377
200922A00015	9/24/2020	1.09	9/24/2025	9/24/2020	101.70703	99.34404652	97.04746245	94.81505319	92.6446779	90.53427971	88.48188186	86.48558417	84.54355954
200928A00009	9/28/2020	1.51	9/28/2032	9/28/2020	111.40934	102.0348267	93.52089413	85.78413229	78.74960182	72.3499361	66.52454234	61.21889037	56.3838792
201001A00011	10/1/2020	0.71	6/17/2025	10/1/2020	100.4652	98.37771416	96.34343717	94.36064782	92.42769244	90.54298366	88.70499711	86.9122684	85.16339024
201001A00012	10/1/2020	0.74	9/16/2025	10/1/2020	100.83357	98.50208569	96.23565971	94.03212493	91.88939915	89.80548114	87.77844701	85.80644676	83.887701
201014A00002	10/14/2020	0.61	10/15/2024	10/14/2020	99.632408	98.20485492	96.80466138	95.43111127	94.08351264	92.76119698	91.46351823	90.18985184	88.93959391
201015A00002	10/15/2020	0.61	10/15/2024	10/15/2020	99.632408	98.20485492	96.80466138	95.43111127	94.08351264	92.76119698	91.46351823	90.18985184	88.93959391
201015A00003	10/15/2020	0.75	10/15/2025	10/15/2020	100.95831	98.54848437	96.20799437	93.93445518	91.7255802	89.5791748	87.49313206	85.46542866	83.49412105
201015A00024	10/19/2020	1.53	10/18/2027	10/19/2020	107.16318	102.6738612	98.39766571	94.32338517	90.44046141	86.7389423	83.20944376	79.84311446	76.63160275
201015A00025	10/19/2020	1.54	10/18/2027	10/19/2020	107.20826	102.7179461	98.44078179	94.36556525	90.48173695	86.77934343	83.24899936	79.88185221	76.66954921
201015A00030	10/19/2020	2.39	10/18/2027	10/19/2020	111.04075	106.4651627	102.1056478	97.95087207	93.99015796	90.21343982	86.6112257	83.17456162	79.89499832
201015A00032	10/19/2020	2.33	10/19/2026	10/19/2020	107.8262	104.3174799	100.942403	97.69516726	94.57025501	91.56241696	88.66665756	85.87822126	83.1925797
201019A00005	10/19/2020	0.79	10/20/2025	10/19/2020	101.07597	98.65125934	96.29667774	94.00980204	91.78830715	89.62996207	87.53262546	85.49424148	83.5128358
201019A00006	10/19/2020	0.57	10/19/2023	10/19/2020	99.638109	99.16309378	98.692596	98.22655188	97.7648984	97.30757368	96.85451704	96.4056689	95.96097082
201019A00007	10/19/2020	0.64	10/21/2024	10/19/2020	99.687862	98.24384273	96.82779835	95.43898884	94.0766994	92.74023972	91.42894291	90.14216456	88.87928175
201021A00011	10/21/2020	1.11	10/21/2027	10/21/2020	105.28201	100.8264065	96.58325731	92.54135879	88.69015479	85.01969664	81.52060505	78.18403456	75.00164041
201021A00012	10/21/2020	1.85	10/19/2035	10/21/2020	116.80877	104.357027	93.36451632	83.65182656	75.06245793	67.45979724	60.72450298	54.75224535	49.45175161
201028A00011	10/28/2020	0.91	4/28/2026	10/28/2020	102.14197	99.19476207	96.34745901	93.59612919	90.93702203	88.36655513	85.88130576	83.47800269	81.15351865
201028A00013	10/28/2020	0.68	10/28/2024	10/28/2020	99.761365	98.29806004	96.86345624	95.45678462	94.07730326	92.72429596	91.39707119	90.09496092	88.81731974

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201029A00002	10/29/2020	0.59	10/29/2025	10/29/2020	101.23185	98.76772207	96.37577678	94.05348542	91.79842512	89.60827252	87.4807989	85.4138658	83.40542065
201030A00012	10/30/2020	0.63	10/30/2025	10/30/2020	101.33677	98.86865177	96.47287921	94.1469131	91.88832329	89.69477952	87.56404659	85.49397988	83.48252103
201030A00016	10/30/2020	1.14	10/8/2027	10/30/2020	105.31634	100.8966389	96.68600278	92.67349656	88.84881061	85.20222368	81.72456629	78.40718659	75.24191852
201030A00017	10/30/2020	1.14	10/15/2027	10/30/2020	105.39196	100.9501994	96.71944471	92.68860975	88.8472467	85.18550672	81.6941025	78.36427335	75.18775264
201030A00018	10/30/2020	1.15	10/22/2027	10/30/2020	105.46699	101.0045429	96.754952	92.70698267	88.85005427	85.17419546	81.67000589	78.32862052	75.14167639
201030A00019	10/30/2020	1.15	10/29/2027	10/30/2020	105.49677	101.0147105	96.74729335	92.68314838	88.81156529	85.12245314	81.60630126	78.25414282	75.05752095
201105A00003	11/6/2020	2.24	11/4/2030	11/6/2020	115.07128	107.3555009	100.2154613	93.60514816	87.48245386	81.80882302	76.54893595	71.67042178	67.1435984
201105A00016	11/9/2020	2.18	11/8/2027	11/9/2020	110.24162	105.6261131	101.2312462	97.04531542	93.05729673	89.25680568	85.63405683	82.17982598	78.885415
201116A00021	11/16/2020	0.53	11/15/2024	11/16/2020	99.93472	98.41669991	96.92904769	95.4709239	94.04151943	92.64005437	91.26577669	89.91796094	88.5959071
201116A00024	11/18/2020	2.36	11/15/2034	11/18/2020	122.24816	110.3320841	99.70999356	90.23358589	81.77228808	74.21105709	67.44846173	61.39500983	55.97168844
201116A00025	11/18/2020	1.96	11/15/2032	11/18/2020	115.83156	106.1303055	97.32529674	89.3288689	82.06235097	75.45510425	69.44366523	63.97098399	58.98574674
201117A00006	11/17/2020	0.57	11/17/2023	11/17/2020	99.574907	99.02215128	98.47551307	97.93489082	97.40018559	96.87130061	96.34814119	95.8306147	95.31863051
201117A00016	11/17/2020	0.52	11/18/2024	11/17/2020	99.926468	98.40060827	96.9053597	95.4398717	94.00332515	92.59493064	91.21392711	89.85958057	88.53118288
201117A00017	11/17/2020	0.39	11/17/2023	11/17/2020	99.604489	99.05002977	98.5017273	97.9594797	97.42318697	96.8927513	96.36807705	95.84907063	95.33564047
201118A00009	11/18/2020	0.61	11/18/2025	11/18/2020	101.35946	98.84072417	96.39683689	94.02513499	91.72306453	89.4881787	87.31813255	85.21067801	83.1636592
201118A00021	11/20/2020	0.97	11/20/2023	11/20/2020	99.796785	99.2352565	98.68002683	98.13099088	97.58804545	97.05108961	96.52002463	95.99475397	95.47518318
201119A00003	11/19/2020	0.56	11/17/2023	11/19/2020	99.569292	99.01655427	98.46993399	97.92932954	97.39464196	96.86577449	96.34263245	95.82512321	95.31315613
201119A00021	11/23/2020	2.22	11/21/2030	11/23/2020	114.99579	107.2379263	100.0620094	93.42129948	87.27304193	81.57810698	76.30066485	71.40789165	66.86970301
201119A00023	11/23/2020	2.23	11/21/2030	11/23/2020	115.07205	107.3113688	100.1327804	93.48953997	87.33888422	81.64167508	76.36207506	71.46725315	66.92711833
201123A00009	11/25/2020	1.02	11/25/2024	11/25/2020	100.36452	98.82294691	97.31239972	95.83200673	94.38093169	92.95836896	91.56354205	90.19570233	88.85412776
201123A00010	11/25/2020	1.48	11/24/2025	11/25/2020	102.9905	100.4485268	97.98199485	95.58821784	93.26461951	91.00873192	88.81819005	86.69072681	84.6241683
201123A00011	11/25/2020	1.41	11/24/2025	11/25/2020	102.8093	100.2696843	97.80546463	95.41394801	93.09255979	90.83883355	88.65040573	86.52501068	84.46047584
201201A00002	12/1/2020	0.54	12/1/2023	12/1/2020	99.529038	98.93889897	98.35572192	97.77938453	97.20976713	96.64675283	96.09022745	95.54007941	94.99619968
201203A00005	12/3/2020	0.78	12/3/2026	12/3/2020	103.49913	99.92176723	96.48590249	93.18516885	90.01352737	86.96524403	84.03487248	81.21723777	78.50742121
201204A00015	12/8/2020	1.07	12/8/2025	12/8/2020	101.99386	99.42719563	96.93764035	94.52240901	92.17883555	89.90436777	87.69656162	85.55307579	83.47166668
201210A00021	12/10/2020	0.89	12/10/2027	12/10/2020	105.64957	101.0147349	96.60737146	92.41513721	88.4264276	84.63032635	81.01656076	77.57546021	74.29791749
201215A00001	12/15/2020	0.76	12/15/2025	12/15/2020	101.20634	98.63116326	96.13386668	93.71161364	91.36169417	89.08151494	86.86859342	84.72055224	82.63511398
201216A00001	12/16/2020	0.49	7/14/2023	12/16/2020	99.84626	99.63417805	99.42300788	99.21274398	99.00338047	98.79491153	98.58733138	98.38063429	98.17481458
201216A00003	12/16/2020	0.59	7/1/2024	12/16/2020	99.461518	98.30511117	97.17535139	96.07132695	94.99216762	93.93704197	92.90515523	91.89574733	90.908091
201216A00004	12/16/2020	0.74	9/8/2025	12/16/2020	100.80735	98.49699936	96.25059032	94.06601468	91.94124166	89.87431879	87.86336838	85.9065843	84.00222874
201216A00013	12/16/2020	0.59	12/16/2025	12/16/2020	101.41966	98.8244541	96.3080652	93.86760968	91.50033434	89.20360507	86.97490075	84.81180757	82.71201359
201218A00014	12/18/2020	0.57	12/18/2025	12/18/2020	101.37458	98.77451922	96.25354957	93.80877616	91.43743128	89.13686722	86.9045501	84.73805407	82.63505595
201221A00014	12/21/2020	0.76	12/19/2025	12/21/2020	101.22172	98.63552644	96.12778651	93.69564069	91.33634945	89.04729172	86.82595887	84.66994899	82.57696158

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201221A00015	12/21/2020	0.88	12/4/2026	12/21/2020	102.95034	99.40423612	95.99802644	92.7254317	89.58049545	86.55756124	83.65125568	80.85647249	78.16835767
201223A00012	12/23/2020	0.91	12/18/2026	12/23/2020	103.12298	99.53567249	96.09107801	92.78274159	89.60453506	86.55064212	83.61554052	80.7939853	78.08099316
201223A00013	12/23/2020	0.9	12/11/2026	12/23/2020	103.05459	99.4875646	96.06184891	92.77107533	89.60920156	86.57049125	83.64949657	80.8410419	78.14020853
210104A00006	11/22/2021	0.88	11/20/2026	11/22/2021	102.88982	99.38221144	96.01183339	92.77258509	89.65867053	86.66458272	83.78508755	81.01520866	78.35021316
210104A00007	11/23/2021	0.88	11/23/2026	11/23/2021	102.90243	99.38668963	96.00873283	92.76242395	89.64193387	86.64172471	83.75653356	80.98135718	78.31143761
210104A00009	12/20/2021	0.89	12/18/2026	12/20/2021	103.04971	99.46373316	96.02043516	92.71335791	89.5363746	86.48367026	83.5497239	80.72929176	78.01739168
210104A00010	11/22/2021	0.88	11/20/2026	11/22/2021	102.88982	99.38221144	96.01183339	92.77258509	89.65867053	86.66458272	83.78508755	81.01520866	78.35021316
210104A00011	11/23/2021	0.88	11/23/2026	11/23/2021	102.90243	99.38668963	96.00873283	92.76242395	89.64193387	86.64172471	83.75653356	80.98135718	78.31143761
210104A00012	12/20/2021	0.89	12/18/2026	12/20/2021	103.04971	99.46373316	96.02043516	92.71335791	89.5363746	86.48367026	83.5497239	80.72929176	78.01739168
210108A00008	1/11/2021	0.51	8/15/2023	1/11/2021	99.771547	99.4721664	99.17459003	98.878802	98.58478614	98.29252648	98.00200724	97.71321283	97.42612786
210112A00003	1/12/2021	0.53	9/15/2023	1/12/2021	99.707144	99.32367974	98.94316737	98.56557237	98.1908612	97.81900082	97.44995871	97.08370285	96.72020168
210119A00005	1/20/2021	0.52	9/25/2023	1/20/2021	99.681883	99.27137509	98.86423666	98.46042655	98.05990412	97.66262939	97.26856302	96.87766629	96.48990111
210119A00007	1/20/2021	0.51	8/25/2023	1/20/2021	99.748579	99.42200395	99.09756305	98.77523497	98.45499917	98.13683532	97.82072341	97.50664364	97.19457649
210121A00012	1/22/2021	0.64	10/15/2024	1/22/2021	99.676688	98.24879419	96.84826646	95.47438789	94.12646636	92.80383322	91.50584227	90.23186881	88.98130881
210121A00014	1/22/2021	0.64	10/25/2024	1/22/2021	99.695312	98.24054315	96.81415852	95.41540184	94.043543	92.69787707	91.37772324	90.08242376	88.81134301
210121A00017	1/25/2021	0.48	5/25/2023	1/25/2021	99.973616	99.89889248	99.82428575	99.7497951	99.67542025	99.60116095	99.52701694	99.45298796	99.37907376
210121A00018	1/25/2021	0.5	8/25/2023	1/25/2021	99.745281	99.4187134	99.09427929	98.77195798	98.45172889	98.13357174	97.81746649	97.50339335	97.1913328
210122A00005	1/26/2021	0.6	7/15/2024	1/26/2021	99.497071	98.30313608	97.13759825	95.99945466	94.88774954	93.8015711	92.74004902	91.70235216	90.68768633
210122A00006	1/25/2021	0.61	8/15/2024	1/25/2021	99.541518	98.27086267	97.02609294	95.80642693	94.61111413	93.43943416	92.29069522	91.16423269	90.05940776
210127A00008	1/27/2021	0.93	1/27/2027	1/27/2021	103.36995	99.67204094	96.12486661	92.72143251	89.45510948	86.31961575	83.30899629	80.41760359	77.64007971
210127A00009	1/27/2021	1.3	7/27/2029	1/27/2021	107.43759	101.2078328	95.37553537	89.91330978	84.79579772	79.99950887	75.50267335	71.28510658	67.32808559
210127A00010	1/27/2021	1.41	7/26/2030	1/27/2021	108.57312	101.3554463	94.6629908	88.45487346	82.69359753	77.34475519	72.37675748	67.76058927	63.46958674
210129A00002	2/3/2021	0.59	7/25/2024	2/3/2021	99.481041	98.26089643	97.0703976	95.90847569	94.77411301	93.66633964	92.58423065	91.52690355	90.49351587
210201A00001	2/1/2021	0.77	12/16/2025	2/1/2021	101.23668	98.65839353	96.15814038	93.73307608	91.38048304	89.09776078	86.88242004	84.7320771	82.64444858
210201A00003	2/2/2021	0.74	10/15/2025	2/2/2021	100.93352	98.5240096	96.18382324	93.91058106	91.70199667	89.55587563	87.4701112	85.44268025	83.47163939
210201A00007	2/3/2021	0.57	8/15/2024	2/3/2021	99.489171	98.21887539	96.97445942	95.75514124	94.56017051	93.38882699	92.24041906	91.11428223	90.00977782
210208A00002	2/10/2021	0.45	6/15/2023	2/10/2021	99.920227	99.78766463	99.65546863	99.52363749	99.39216967	99.26106365	99.13031789	98.99993088	98.86990111
210208A00004	2/11/2021	0.76	10/15/2025	2/11/2021	100.98309	98.57295913	96.2321655	93.9583293	91.74916373	89.60247397	87.51615292	85.48817707	83.51660271
210208A00006	2/9/2021	0.46	8/15/2023	2/9/2021	99.756443	99.45709191	99.15954491	98.86378609	98.56979932	98.27756861	97.98707819	97.69831248	97.41125607
210208A00008	2/11/2021	0.78	11/17/2025	2/11/2021	101.15302	98.65339524	96.22774732	93.87345435	91.58800187	89.3689804	87.2140803	85.12108695	83.08787615
210208A00015	2/10/2021	0.46	8/25/2023	2/10/2021	99.732092	99.4055512	99.08114426	98.75884998	98.4386478	98.12051742	97.80443881	97.49039219	97.17835802
210211A00005	2/11/2021	0.45	6/15/2023	2/11/2021	99.920227	99.78766463	99.65546863	99.52363749	99.39216967	99.26106365	99.13031789	98.99993088	98.86990111
210211A00007	2/11/2021	0.47	9/15/2023	2/11/2021	99.683878	99.30046957	98.92001206	98.5424716	98.16781466	97.79600821	97.42701974	97.0608172	96.69736906

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210216A00011	2/17/2021	0.83	12/15/2025	2/17/2021	101.3916	98.81395185	96.31424131	93.88962925	91.537404	89.2549706	87.03984494	84.88964814	82.80210134
210217A00008	2/18/2021	0.63	8/15/2024	2/18/2021	99.567692	98.29685631	97.0519097	95.83206977	94.63658594	93.46473774	92.3158333	91.18920792	90.08422272
210217A00009	2/18/2021	0.68	11/15/2024	2/18/2021	99.801919	98.29114982	96.81051153	95.35917303	93.93633363	92.54122137	91.17309179	89.83122663	88.51493274
210218A00006	2/18/2021	0.5	2/20/2024	2/18/2021	99.373989	98.56846164	97.77591274	96.99603034	96.22851288	95.4730683	94.72941367	93.99727485	93.27638612
210218A00009	2/19/2021	0.62	7/15/2024	2/19/2021	99.521545	98.32745247	97.16175908	96.02346246	94.91160677	93.82528017	92.76361226	91.72577185	90.71096467
210218A00010	2/18/2021	1.72	2/18/2031	2/18/2021	111.46701	103.6083027	96.35878697	89.66813711	83.49042656	77.78372094	72.50971237	67.63338904	63.12273639
210218A00011	2/22/2021	0.85	10/24/2025	2/22/2021	101.24099	98.80345947	96.4367216	94.13831558	91.90588471	89.7371681	87.62999615	85.58228629	83.59203888
210219A00004	2/19/2021	0.91	2/19/2026	2/19/2021	101.86247	99.10458713	96.43468011	93.84945909	91.34577698	88.92062245	86.57111319	84.29448951	82.08810841
210219A00008	2/22/2021	0.86	12/1/2025	2/22/2021	101.41328	98.87326234	96.40918234	94.01831131	91.69803902	89.44586582	87.25939717	85.13633844	83.07449005
210224A00002	2/25/2021	0.88	11/3/2025	2/25/2021	101.35531	98.8898349	96.49656733	94.17298084	91.91664924	89.72524614	87.59654013	85.52839025	83.51874177
210224A00003	2/26/2021	0.9	12/3/2025	2/26/2021	101.52606	98.97914256	96.50847716	94.11132281	91.78505385	89.52715615	87.33522152	85.20694249	83.14010733
210224A00004	2/26/2021	0.91	12/18/2025	2/26/2021	101.6161	99.02733339	96.51700004	94.08224166	91.72032242	89.42862468	87.20464294	85.04597818	82.95033254
210224A00006	2/26/2021	0.88	10/21/2025	2/26/2021	101.30423	98.87395796	96.51403341	94.22202149	91.9955877	89.83249213	87.73058498	85.68780239	83.70216241
210224A00007	2/26/2021	0.68	10/21/2024	2/26/2021	99.74756	98.30307695	96.88657748	95.49732071	94.1345916	92.79769966	91.48597779	90.19878141	88.9354874
210225A00003	3/1/2021	0.93	9/24/2025	3/1/2021	101.31972	98.96147597	96.66953193	94.44166303	92.27573141	90.16968304	88.12154394	86.12941655	84.19147632
210225A00006	2/25/2021	0.98	2/25/2026	2/25/2021	102.08439	99.30765406	96.61991809	94.01786587	91.49832066	89.05824103	86.6947144	84.40495076	82.18627684
210225A00007	2/25/2021	1.79	8/23/2030	2/25/2021	111.43046	104.0391241	97.1885462	90.83642862	84.94398464	79.47562911	74.3986993	69.6832014	65.3015802
210225A00012	3/1/2021	0.91	8/25/2025	3/1/2021	101.15909	98.88100758	96.66505457	94.50919183	92.4114625	90.36998507	88.38294999	86.44861645	84.56530938
210225A00013	3/1/2021	0.93	10/6/2025	3/1/2021	101.36764	98.97687018	96.65418427	94.39726254	92.20388194	90.07190783	87.99928997	85.98405857	84.02432069
210225A00015	3/1/2021	0.7	8/26/2024	3/1/2021	99.682091	98.38469756	97.11069525	95.85949465	94.63052626	93.42323929	92.23710087	91.07159537	89.92622367
210225A00016	3/1/2021	0.88	7/15/2025	3/1/2021	100.93651	98.76919299	96.65858839	94.60280247	92.60002019	90.64850205	88.74658027	86.89265514	85.08519159
210226A00002	2/26/2021	0.86	2/26/2025	2/26/2021	100.40066	98.61317417	96.86584271	95.1575287	93.48713338	91.85359604	90.25589241	88.6930332	87.16406263
210226A00004	3/1/2021	1.04	12/5/2025	3/1/2021	101.90119	99.3438946	96.86325424	94.45650424	92.12100114	89.85421401	87.65371878	85.51719298	83.44241072
210302A00005	3/5/2021	0.92	9/10/2025	3/5/2021	101.2427	98.92189136	96.66541638	94.47114613	92.33703386	90.26111187	88.24148806	86.27634252	84.36392436
210303A00006	3/4/2021	0.97	10/10/2025	3/4/2021	101.48258	99.0796363	96.74540556	94.47754419	92.27379863	90.13200541	88.050087	86.02604781	84.05797047
210304A00002	3/5/2021	0.93	7/10/2025	3/5/2021	101.02746	98.87261483	96.77386931	94.72936407	92.73731318	90.79600455	88.90379618	87.05911265	85.26044182
210304A00006	3/4/2021	1.02	3/4/2026	3/4/2021	102.23069	99.43241924	96.72439377	94.10324158	91.56573325	89.10877669	86.72941049	84.42479772	82.19222001
210305A00005	3/9/2021	0.54	8/11/2023	3/9/2021	99.789469	99.50095693	99.21412172	98.92894907	98.64542446	98.36353355	98.08326217	97.80459632	97.52752213
210305A00006	3/8/2021	1.02	8/11/2025	3/8/2021	101.36019	99.1163286	96.93277582	94.80752537	92.73865111	90.72430475	88.76271202	86.85216911	84.99103932
210308A00009	3/8/2021	0.62	3/8/2024	3/8/2021	99.463972	98.61282549	97.77615337	96.9535895	96.14477962	95.34938123	94.5670631	93.79750485	93.04039648
210309A00002	3/11/2021	0.77	7/25/2024	3/11/2021	99.706235	98.48460601	97.29264776	96.1292907	94.99351646	93.88435446	92.80087917	91.74220749	90.70749638
210309A00004	3/11/2021	0.87	11/25/2024	3/11/2021	100.12625	98.58664016	97.07801673	95.59951384	94.15029615	92.7295589	91.33652645	89.97045099	88.63061125
210310A00003	3/15/2021	0.79	8/26/2024	3/15/2021	99.802587	98.50434884	97.2295156	95.97749805	94.74772629	93.53964915	92.35273343	91.18646314	90.04033884

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210310A00015	3/11/2021	0.51	5/15/2023	3/11/2021	99.984799	99.93773229	99.89072615	99.84378014	99.79689417	99.75006812	99.70330185	99.65659528	99.60994826
210311A00007	3/11/2021	1.06	3/11/2026	3/11/2021	102.3814	99.56066639	96.83149694	94.19044213	91.63420513	89.15963026	86.76369615	84.44350925	82.19629777
210312A00008	3/12/2021	1.13	3/12/2026	3/12/2021	102.58861	99.76198136	97.0271649	94.38070444	91.81929144	89.3397591	86.93907552	84.61433725	82.36276304
210315A00003	3/15/2021	1.13	3/13/2026	3/15/2021	102.59397	99.7643575	97.02674549	94.37766225	91.81378966	89.33195195	86.92910874	84.60234858	82.34888269
210318A00007	3/22/2021	1.41	3/21/2024	3/22/2021	100.17467	99.2854916	98.41202114	97.55384833	96.71057414	95.88181333	95.06719381	94.26635614	93.47895296
210319A00003	3/19/2021	0.95	3/19/2025	3/19/2021	100.63911	98.78970455	96.98307821	95.21798937	93.49324264	91.80768467	90.16020241	88.54972141	86.97520425
210324A00002	3/24/2021	2.06	3/24/2031	3/24/2021	114.30183	106.2402021	98.80821762	91.95342131	85.6279742	79.78822951	74.39434601	69.40993883	64.8017638
210324A00003	3/24/2021	1.18	3/24/2026	3/24/2021	102.79885	99.93433783	97.16389714	94.48394602	91.89105879	89.38195822	86.95350833	84.60270744	82.32668169
210330A00021	3/30/2021	2.16	3/28/2031	3/30/2021	115.11898	107.014306	99.54280495	92.65168223	86.29279818	80.42223584	74.99991107	69.98922042	65.35672297
210330A00022	3/30/2021	1.27	3/30/2026	3/30/2021	103.09382	100.2081272	97.41768489	94.71884903	92.10813314	89.58220279	87.13786803	84.77207632	82.48190582
210330A00024	3/30/2021	0.68	3/29/2024	3/30/2021	99.512751	98.60555784	97.71478584	96.83999249	95.98075143	95.13665133	94.30729526	93.49230002	92.6912956
210407A00012	4/7/2021	0.94	4/7/2025	4/7/2021	100.69337	98.79153069	96.93483665	95.12194149	93.35155154	91.62241995	89.93334468	88.28316652	86.67076731
210407A00013	4/7/2021	1.23	4/7/2026	4/7/2021	103.01245	100.107018	97.29817613	94.58220321	91.95553885	89.41477906	86.95666856	84.57809334	82.27607375
210420A00009	4/20/2021	1.08	12/5/2025	4/20/2021	102.00595	99.44727152	96.96527958	94.55720856	92.22041405	89.95236422	87.75063412	85.61290046	83.53693652
210420A00010	4/20/2021	1.08	12/12/2025	4/20/2021	102.03905	99.46091907	96.96048786	94.5349378	92.18157324	89.89781421	87.6811905	85.52933621	83.43998458
210518A00023	5/18/2021	1.17	5/18/2026	5/18/2021	103.02459	100.0094405	97.09775102	94.28539281	91.56842959	88.9431047	86.40583175	83.95318581	81.58189513
210525A00004	5/25/2021	1.02	12/19/2025	5/25/2021	101.9127	99.31724715	96.80046877	94.35949079	91.99156726	89.69407099	87.46448741	85.30040894	83.19952963
210526A00014	5/26/2021	1.01	12/19/2025	5/26/2021	101.88612	99.29102713	96.77459637	94.33395809	91.96636658	89.66919486	87.43992862	85.27616048	83.17558471
210526A00017	5/26/2021	2.13	5/26/2033	5/26/2021	118.14998	107.8361732	98.51921876	90.09717666	82.47903035	75.58346247	69.33777659	63.67694364	58.54275815
210526A00018	5/26/2021	1.11	5/26/2026	5/26/2021	102.87833	99.84362385	96.91361749	94.08411455	91.35110929	88.71078004	86.15947951	83.69372573	81.31019345
210609A00003	6/9/2021	0.47	6/9/2023	6/9/2021	99.938264	99.82220752	99.70643539	99.59094639	99.47573945	99.3608135	99.24616748	99.13180032	99.01771098
210610A00012	6/11/2021	1.9	6/10/2026	6/11/2021	105.423	102.3086582	99.30250527	96.40015954	93.59744491	90.89037956	88.27516562	85.74817935	83.30596203
210610A00014	6/11/2021	2.03	6/10/2026	6/11/2021	105.83056	102.7098205	99.69743905	96.7890243	93.98039483	91.26756367	88.646728	86.11425935	83.66669446
210611A00006	6/11/2021	1.85	6/11/2031	6/11/2021	112.92509	104.709311	97.1521881	90.19748076	83.79402052	77.89523292	72.45870317	67.44578496	62.82124786
210616A00006	2/11/2022	0.86	2/11/2025	2/11/2022	100.35384	98.60590443	96.89648556	95.22444928	93.588703	91.98819551	90.421915	88.88888724	87.38817378
210616A00007	3/18/2022	0.9	3/18/2025	3/18/2022	100.53977	98.69421268	96.891289	95.12976411	93.40844822	91.72619332	90.08189146	88.47447304	86.90290528
210616A00008	5/2/2022	0.95	5/2/2025	5/2/2022	100.80047	98.83219371	96.91209142	95.03868406	93.21054677	91.42630819	89.684648	87.98429464	86.32402318
210616A00009	2/11/2022	0.86	2/11/2025	2/11/2022	100.35384	98.60590443	96.89648556	95.22444928	93.588703	91.98819551	90.421915	88.88888724	87.38817378
210616A00011	5/2/2022	0.95	5/2/2025	5/2/2022	100.80047	98.83219371	96.91209142	95.03868406	93.21054677	91.42630819	89.684648	87.98429464	86.32402318
210616A00012	3/18/2022	0.9	3/18/2025	3/18/2022	100.53977	98.69421268	96.891289	95.12976411	93.40844822	91.72619332	90.08189146	88.47447304	86.90290528
210623A00026	6/23/2021	0.78	6/24/2024	6/23/2021	99.689299	98.54987525	97.43628426	96.34765641	95.28316066	94.2420025	93.22342192	92.22669158	91.25111508
210623A00028	6/23/2021	1.22	6/23/2026	6/23/2021	103.35359	100.2373957	97.23070083	94.32902598	91.52810141	88.8238584	86.21241834	83.69008259	81.2533228
210624A00002	6/24/2021	0.57	6/23/2023	6/24/2021	99.917937	99.76335685	99.60926079	99.45564694	99.30251303	99.14985681	98.99767605	98.84596854	98.69473207

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210624A00003	6/24/2021	0.78	6/24/2024	6/24/2021	99.689299	98.54987525	97.43628426	96.34765641	95.28316066	94.2420025	93.22342192	92.22669158	91.25111508
210624A00004	6/24/2021	1.01	6/24/2025	6/24/2021	101.13726	99.02408014	96.96506497	94.95844883	93.00253678	91.09570244	89.2363846	87.423084	85.65436037
210624A00005	6/24/2021	1.22	6/24/2026	6/24/2021	103.3584	100.2394824	97.23024061	94.32617722	91.52301302	88.81667046	86.20326268	83.67908327	81.24059666
210624A00025	6/24/2021	1.43	6/24/2027	6/24/2021	106.10821	101.9544537	97.98548983	94.19210335	90.56559116	87.097731	83.780752	80.60730721	77.57044792
210624A00026	6/24/2021	1.6	6/23/2028	6/24/2021	108.58632	103.3894451	98.4712863	93.81543727	89.40654831	85.23024926	81.2730816	77.52243562	73.9664923
210629A00005	6/29/2021	1.25	6/29/2026	6/29/2021	103.47838	100.3442803	97.32074291	94.4032248	91.5873974	88.86913692	86.24451328	83.70977958	81.2613623
210629A00009	6/29/2021	1.14	12/31/2025	6/29/2021	102.2892	99.65637053	97.10407597	94.62934789	92.22934718	89.90135908	87.64278674	85.45114515	83.32405546
210629A00012	6/29/2021	1.14	12/29/2025	6/29/2021	102.28017	99.65271407	97.10549736	94.63556907	92.24010531	89.9164056	87.66188648	85.47407554	83.35060576
210629A00014	6/29/2021	1.78	12/28/2029	6/29/2021	110.72292	103.9849535	97.70065745	91.83714962	86.36409447	81.2534953	76.47950209	72.01823609	67.84762969
210629A00015	6/29/2021	1.89	6/27/2031	6/29/2021	113.31269	105.0401549	97.43354764	90.4357629	83.99487276	78.06363161	72.59903141	67.5619014	62.91654742
210701A00007	7/1/2021	1.22	7/1/2026	7/1/2021	103.39306	100.2548739	97.22757019	94.30658312	91.48756498	88.76637421	86.13906412	83.60187232	81.15121086
210706A00006	7/6/2021	1.15	7/6/2026	7/6/2021	103.19434	100.0457302	97.00880779	94.07895258	91.25176882	88.52307009	85.88886789	83.3453608	80.8889244
210706A00014	7/6/2021	1.15	6/26/2026	7/6/2021	103.14545	100.0246454	97.01375612	94.10827311	91.3039013	88.59654834	85.9823136	83.45747784	81.01849354
210706A00015	7/6/2021	1.06	12/31/2025	7/6/2021	102.07395	99.44403362	96.89458739	94.42264208	92.02536063	89.70003025	87.44405598	85.25495463	83.1303491
210707A00002	7/7/2021	1.12	6/26/2026	7/7/2021	103.05007	99.93078384	96.92137132	94.01732689	91.21435674	88.50836976	85.89546651	83.3719289	80.93421049
210707A00008	7/9/2021	2.44	7/7/2031	7/9/2021	117.88812	109.4063227	101.605061	94.42599389	87.81607681	81.72705254	76.11499573	70.93990294	66.16532357
210709A00005	7/9/2021	1.69	7/9/2031	7/9/2021	111.71021	103.4698812	95.89679544	88.93346222	82.52762849	76.6317732	71.20265593	66.20091073	61.59068049
210709A00006	7/13/2021	2.4	7/11/2031	7/13/2021	117.57984	109.0995057	101.3006934	94.12489631	87.51892582	81.43439985	75.82728521	70.65748539	65.88846963
210712A00008	6/27/2022	1.05	6/27/2025	6/27/2022	101.2361	99.11396457	97.04636467	95.0315161	93.06770727	91.15329606	89.28670644	87.46642512	85.69099861
210712A00010	6/27/2022	1.05	6/27/2025	6/27/2022	101.2361	99.11396457	97.04636467	95.0315161	93.06770727	91.15329606	89.28670644	87.46642512	85.69099861
210714A00020	7/14/2021	0.9	3/14/2025	7/14/2021	100.54125	98.70685731	96.91461153	95.16329568	93.45173974	91.77881456	90.14343012	88.54453397	86.98110967
210719A00004	7/19/2021	1	4/20/2026	7/19/2021	102.38243	99.45244034	96.62105602	93.8844258	91.2388732	88.68088537	86.20710484	83.81432169	81.49946618
210719A00009	7/19/2021	1.04	7/17/2026	7/19/2021	102.89278	99.71915547	96.65904708	93.70772016	90.86067025	88.1136096	85.46245514	82.90331717	80.43248882
210721A00009	7/21/2021	1.7	7/21/2031	7/21/2021	111.83466	103.5577115	95.95327689	88.96321207	82.53468806	76.61967683	71.17449171	66.15937393	61.53812066
210729A00003	7/29/2021	1.11	7/29/2026	7/29/2021	103.17728	99.96654145	96.87159974	93.88758444	91.00986578	88.23403858	85.55590968	82.97148609	80.476964
210729A00004	7/29/2021	1.74	7/29/2031	7/29/2021	112.19449	103.8820848	96.24634745	89.22866008	82.77577035	76.83927529	71.37515602	66.34335944	61.70742184
210729A00006	7/29/2021	1.87	11/30/2032	7/29/2021	115.01559	105.3135405	96.51214039	88.52292517	81.26654849	74.67179607	68.67471488	63.21783939	58.24950384
210803A00005	8/5/2021	2.06	8/4/2026	8/5/2021	106.32733	103.0491023	99.88913704	96.84247684	93.90440519	91.0704324	88.33628304	85.69788424	83.15135467
210826A00008	8/26/2021	0.89	2/26/2025	8/26/2021	100.45597	98.66796083	96.9201164	95.2112989	93.54040932	91.90638669	90.30820651	88.74487923	87.21544887
210826A00009	8/26/2021	1.18	8/26/2026	8/26/2021	103.53902	100.2486679	97.0793757	94.02607435	91.08393483	88.24835443	85.51494489	82.87952128	80.33809144
210826A00013	8/26/2021	1.97	2/28/2033	8/26/2021	116.26222	106.2706823	97.22609672	89.0335906	81.60824149	74.87399137	68.76268179	63.21319835	58.17071134
210907A00004	9/7/2021	2.01	9/7/2033	9/7/2021	117.21905	106.6842674	97.19448321	88.6402614	80.92414824	73.95930436	67.66830129	61.98205966	56.83891187
210907A00006	9/7/2021	2.1	9/7/2034	9/7/2021	119.09748	107.5303834	97.20616257	87.98412011	79.74016352	72.36476866	65.76120459	59.84398232	54.53749825

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210907A00007	9/7/2021	2.35	9/4/2037	9/7/2021	124.51351	109.89817	97.20116523	86.15803545	76.54210582	68.15892273	60.84152902	54.44645192	48.85029332
210907A00008	9/7/2021	2.42	9/7/2038	9/7/2021	126.291	110.6639233	97.20863288	85.60819122	75.59354264	66.93606431	59.44130716	52.94373213	47.30227938
210907A00009	9/7/2021	2.5	9/7/2039	9/7/2021	128.2108	111.575408	97.37628457	85.23872963	74.84764527	65.93778778	58.28565198	51.70271075	46.02977823
210907A00010	9/7/2021	2.58	9/7/2040	9/7/2021	130.16651	112.5259845	97.59798985	84.94432661	74.19996219	65.06047706	57.27171954	50.6212698	44.93138955
210907A00011	9/7/2021	2.65	9/6/2041	9/7/2021	132.05723	113.4259535	97.79282674	84.65070653	73.58106401	64.23809071	56.33572172	49.63702945	43.9455454
210907A00013	9/9/2021	2.14	9/9/2025	9/9/2021	104.14183	101.7886998	99.50051435	97.27512859	95.11048062	93.00458808	90.95554467	88.96151674	87.02074011
210907A00014	9/9/2021	2.45	9/9/2026	9/9/2021	107.90727	104.5062643	101.2309573	98.07605384	95.0365113	92.10752447	89.28451329	86.56311104	83.93915333
210907A00015	9/9/2021	2.21	9/9/2026	9/9/2021	107.09446	103.7071856	100.445237	97.30332983	94.2764341	91.35975681	88.5487296	85.83899695	83.22640518
210914A00011	9/16/2021	0.52	9/18/2023	9/16/2021	99.69685	99.30527631	98.91677819	98.53131925	98.14886387	97.76937697	97.39282403	97.01917106	96.6483846
210914A00012	9/14/2021	1.18	9/14/2027	9/14/2021	106.57291	102.1548843	97.9435159	93.92810784	90.09857403	86.4453976	82.95959597	79.63268815	76.45666424
210914A00014	9/14/2021	0.97	9/14/2026	9/14/2021	103.77622	100.4100843	97.16999054	94.05057611	91.0467383	88.15361686	85.36658117	82.68121814	80.09332083
210914A00015	9/14/2021	0.81	9/15/2025	9/14/2021	101.59442	99.24393569	96.95914777	94.73786463	92.57797953	90.47746796	88.4343838	86.44685592	84.51308474
210914A00017	9/14/2021	1.32	9/14/2028	9/14/2021	108.76996	103.2957258	98.12801288	93.24814413	88.63867132	84.28328822	80.16675022	76.27480018	72.59409966
210914A00018	9/14/2021	1.43	9/14/2029	9/14/2021	110.01502	103.5112845	97.43118824	91.74505046	86.42540866	81.44684474	76.78582319	72.42054287	68.33080117
210916A00003	9/16/2021	0.75	9/16/2024	9/16/2021	99.783363	98.43126152	97.10376996	95.80027557	94.52018544	93.26292571	92.02794079	90.81469269	89.62266028
210916A00008	9/16/2021	1.48	9/15/2028	9/16/2021	108.17615	102.7650297	97.65582287	92.83018786	88.27098802	83.96220493	79.88886002	76.03694202	72.39333999
210916A00009	9/16/2021	2.25	9/16/2036	9/16/2021	122.45023	108.834567	96.90401464	86.43943673	77.25127669	69.17543191	62.06972205	55.81086228	50.29186723
210917A00003	9/17/2021	0.8	9/17/2024	9/17/2021	99.854897	98.49967831	97.16916761	95.86274836	94.57982437	93.31981861	92.0821725	90.86634512	89.67181259
210917A00004	9/17/2021	1.03	9/17/2025	9/17/2021	101.53327	99.190676	96.91346664	94.69945825	92.54655688	90.45275009	88.4161033	86.43475632	84.50691998
210917A00012	9/17/2021	1.2	9/11/2026	9/17/2021	103.68358	100.3486816	97.13790157	94.04599678	91.06796866	88.19905482	85.43471657	82.77062724	80.20266116
210920A00014	9/9/2022	1.28	9/9/2026	9/9/2022	103.94481	100.6107554	97.40057091	94.30902429	91.33113493	88.46215714	85.69756783	83.03305485	80.46450609
210920A00015	9/9/2022	1.28	9/9/2026	9/9/2022	103.94481	100.6107554	97.40057091	94.30902429	91.33113493	88.46215714	85.69756783	83.03305485	80.46450609
210928A00007	9/28/2021	0.88	9/27/2024	9/28/2021	99.98614	98.60400489	97.24748905	95.91594383	94.60874159	93.32527525	92.06495742	90.82721961	89.6115115
210928A00008	9/28/2021	1.35	9/28/2026	9/28/2021	104.28207	100.8921637	97.62989237	94.48979532	91.46667482	88.55558168	85.75180207	83.05084502	80.4484307
210928A00009	9/28/2021	2.18	9/28/2033	9/28/2021	119.04761	108.3675303	98.74949176	90.08187458	82.26532919	75.2113701	68.84113896	63.08431378	57.8781465
210928A00010	9/28/2021	1.12	9/26/2025	9/28/2021	101.7883	99.41909283	97.11659017	94.87855001	92.70281776	90.5873235	88.53007812	86.5291697	84.58276002
210929A00011	3/16/2022	1.03	3/14/2025	3/16/2022	100.78663	98.94987138	97.15529834	95.40169875	93.68790138	92.01277589	90.37523118	88.7742137	87.20870596
210929A00012	3/16/2022	1.03	3/14/2025	3/16/2022	100.78663	98.94987138	97.15529834	95.40169875	93.68790138	92.01277589	90.37523118	88.7742137	87.20870596
211014A00018	10/14/2021	0.8	10/11/2024	10/14/2021	100.24829	98.82109214	97.42112406	96.04767632	94.70006311	93.37762183	92.07971206	90.80571465	89.55503086
211015A00029	10/15/2021	0.98	10/15/2024	10/15/2021	100.17852	98.74677262	97.34245742	95.96485623	94.61327519	93.28704396	91.98551469	90.70806115	89.45407777
211015A00031	10/15/2021	1.22	10/15/2025	10/15/2021	102.12321	99.69879838	97.34403763	95.05653887	92.83400615	90.67423582	88.57511231	86.53460395	84.55075919
211019A00009	10/19/2021	1.48	10/9/2026	10/19/2021	104.79422	101.3655691	98.06702963	94.89299024	91.83810941	88.89730336	86.06573232	83.33878738	80.71207827
211019A00011	10/19/2021	1.48	10/16/2026	10/19/2021	104.83562	101.3871822	98.07031444	94.87930485	91.8087239	88.8534057	86.0084337	83.26912727	80.63102904

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
211026A00012	10/26/2021	1.52	10/26/2026	10/26/2021	105.03543	101.5562686	98.21083334	94.99327386	91.89803131	88.91981893	86.0536072	83.29460989	80.63827088
211026A00013	10/26/2021	1.52	10/26/2026	10/26/2021	105.03543	101.5562686	98.21083334	94.99327386	91.89803131	88.91981893	86.0536072	83.29460989	80.63827088
211028A00012	10/28/2021	1.64	10/15/2027	10/28/2021	107.64218	103.1504481	98.87142479	94.79395493	90.90752167	87.20221059	83.66867203	80.29808602	77.08212951
211028A00013	10/28/2021	1.65	10/22/2027	10/28/2021	107.72696	103.2141165	98.91585355	94.82086531	90.91850113	87.19872313	83.65206771	80.26960965	77.04292878
211028A00019	10/28/2021	1.1	10/28/2024	10/28/2021	100.39625	98.92796393	97.48846535	96.07698338	94.69277382	93.33511828	92.00332309	90.69671821	89.41465624
211028A00020	10/28/2021	2.05	1/28/2031	10/28/2021	113.98062	106.080373	98.78634847	92.04880864	85.82234316	80.06547464	74.74029825	69.81215633	65.24934419
211028A00021	10/28/2021	2.28	10/28/2033	10/28/2021	120.19056	109.3745434	99.64034487	90.87351975	82.97228939	75.84608155	69.41424528	63.60491889	58.354032
211115A00032	11/15/2021	1.75	11/12/2027	11/15/2021	108.30058	103.7180219	99.35553203	95.20139614	91.24458584	87.47471428	83.88199545	80.45720617	77.19165075
211117A00009	11/17/2021	0.84	11/17/2023	11/17/2021	99.726514	99.17327062	98.62614817	98.0850455	97.54986363	97.02050573	96.49687707	95.97888498	95.46643876
211117A00010	11/17/2021	1.18	11/18/2024	11/17/2021	100.59329	99.0682379	97.57366676	96.10873668	94.67263401	93.2645745	91.88380196	90.52958698	89.20122578
211119A00009	11/19/2021	1.68	11/19/2027	11/19/2021	107.97119	103.3786983	99.00754859	94.84592018	90.88268586	87.10736813	83.51009764	80.08157463	76.81303302
211123A00010	11/23/2021	0.94	11/24/2023	11/23/2021	99.77573	99.20352861	98.63786302	98.078622	97.52569665	96.97898051	96.43836952	95.90376191	95.37505816
211123A00011	11/23/2021	1.69	11/23/2026	11/23/2021	105.81392	102.2460868	98.81753265	95.52206187	92.35379293	89.30713792	86.37678608	83.55768837	80.84504302
211123A00012	11/23/2021	2.27	11/23/2033	11/23/2021	120.16928	109.2873	99.5000592	90.69110219	82.75693638	75.60552558	69.15496911	63.33233907	58.07265622
211129A00011	11/29/2021	1.53	11/20/2026	11/29/2021	105.2208	101.6715744	98.26077406	94.98224819	91.83015907	88.79895985	85.88337832	83.07840162	80.37926199
211129A00012	11/29/2021	1.53	11/25/2026	11/29/2021	105.25082	101.6877298	98.26399797	94.97341681	91.8100928	88.76842707	85.84309886	83.02905002	80.3214705
211206A00008	12/6/2021	1.24	12/6/2024	12/6/2021	100.7596	99.18519509	97.64283587	96.13161336	94.65064958	93.19909934	91.7761487	90.38101352	89.01293804
211206A00009	12/6/2021	1.43	12/5/2025	12/6/2021	102.9226	100.3518195	97.8580013	95.43837136	93.09027702	90.81117853	88.59864335	86.45034083	84.36403726
211206A00017	12/6/2021	1.56	12/4/2026	12/6/2021	105.41528	101.8247193	98.37533125	95.06079094	91.87509672	88.81254895	85.86773292	83.03550288	80.310967
211207A00011	12/7/2021	1.62	12/1/2026	12/7/2021	105.61317	102.0273143	98.58213838	95.27135959	92.08900869	89.02941607	86.08719492	83.25722538	80.53463966
211207A00012	12/7/2021	1.62	12/4/2026	12/7/2021	105.63277	102.0382914	98.58509344	95.26685205	92.07756153	89.01151845	86.06330445	83.22777027	80.50002077
211207A00017	12/7/2021	1.3	11/15/2024	12/7/2021	100.76974	99.25114255	97.7628117	96.30391448	94.87364656	93.47123251	92.09592449	90.74700102	89.4237658
211209A00006	12/9/2021	1.61	12/8/2026	12/9/2021	105.62254	102.0172253	98.55397182	95.22640431	92.02846907	88.95441798	85.99879108	83.1564004	80.42231466
211209A00007	12/9/2021	1.61	12/8/2026	12/9/2021	105.62254	102.0172253	98.55397182	95.22640431	92.02846907	88.95441798	85.99879108	83.1564004	80.42231466
211210A00014	12/10/2021	1.54	12/10/2025	12/10/2021	103.24067	100.652028	98.14116134	95.70525698	93.34162298	91.04768256	88.82096836	86.65911691	84.55986352
211210A00015	12/10/2021	1.63	12/10/2026	12/10/2021	105.70838	102.0960015	98.62612218	95.29234008	92.08857576	89.00905707	86.04830165	83.20110061	80.46250317
211210A00016	12/10/2021	1.76	12/10/2027	12/10/2021	108.46016	103.7990664	99.36480975	95.14515029	91.1285787	87.30426504	83.66201482	80.1922282	76.88586197
211213A00010	12/13/2021	1.02	12/13/2023	12/13/2021	99.808939	99.18570734	98.57023347	97.96237321	97.36198589	96.76893429	96.18308454	95.604306	95.03247119
211213A00011	12/13/2021	1.32	12/13/2024	12/13/2021	100.90448	99.31014011	97.74849975	96.2186194	94.71959421	93.25055355	91.81065939	90.39910476	89.01511229
211214A00013	12/14/2021	1.02	12/14/2023	12/14/2021	99.814435	99.18842906	98.57024941	97.95975021	97.35678892	96.76122655	96.17292749	95.59175942	95.01759324
211214A00014	12/14/2021	1.31	12/13/2024	12/14/2021	100.8881	99.29390186	97.73239758	96.2026509	94.70375705	93.23484545	91.79507814	90.3836482	88.99977832
211214A00015	12/14/2021	1.49	12/12/2025	12/14/2021	103.12075	100.5282363	98.0137517	95.57446748	93.2076781	90.91079407	88.68133608	86.51692948	84.41529905
211220A00005	12/20/2021	0.97	12/20/2023	12/20/2021	99.777915	99.13598411	98.50228041	97.87664682	97.25892996	96.64898028	96.04665203	95.45180303	94.86429467

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
211220A00006	12/20/2021	1.21	12/20/2024	12/20/2021	100.75354	99.14150928	97.56279864	96.01644398	94.50151402	93.01711317	91.56237978	90.13648454	88.73862891
211221A00010	12/21/2021	1.31	12/20/2024	12/21/2021	100.91923	99.30578055	97.72567839	96.17795687	94.66168406	93.17596371	91.71993355	90.29276367	88.89365495
211221A00023	12/21/2021	1.53	6/19/2026	12/21/2021	104.31396	101.1931399	98.18155202	95.27474048	92.4684601	89.7586648	87.14149685	84.61327686	82.17049427
211221A00025	12/21/2021	1.59	12/21/2026	12/21/2021	105.63367	101.9923469	98.49566452	95.13707485	91.91036579	88.80964179	85.8293057	82.96404174	80.20879959
211222A00035	12/22/2021	2.15	12/22/2033	12/22/2021	118.98601	108.0885127	98.2963671	89.49113531	81.56765359	74.43247933	68.00253046	62.20388898	56.97074802
211227A00005	12/27/2021	1.61	12/18/2026	12/27/2021	105.68759	102.0535492	98.56357779	95.21117052	91.99015102	88.89465697	85.91912208	83.05825928	80.30704499
211227A00009	12/27/2021	1.6	12/23/2026	12/27/2021	105.68335	102.0356083	98.53293527	95.16875169	91.93681997	88.83122083	85.84633501	82.9768261	80.21762456
220106A00007	1/6/2022	2.42	1/6/2034	1/6/2022	121.91989	110.8326181	100.8693173	91.90941352	83.84586818	76.58359562	70.03807249	64.13411504	58.80480355
220106A00008	1/6/2022	2.5	1/5/2035	1/6/2022	124.03149	111.8838189	101.0661297	91.42462246	82.82405862	75.14543299	68.28394963	62.14725904	56.65392213
220106A00009	1/6/2022	2.57	1/4/2036	1/6/2022	125.98781	112.791419	101.1450966	90.85679089	81.75922815	73.70659713	66.5716957	60.24346928	54.62488583
220106A00010	1/6/2022	2.64	1/6/2037	1/6/2022	127.95615	113.707091	101.2441265	90.33131055	80.76509207	72.36971419	64.9932898	58.50444828	52.78946816
220106A00011	1/6/2022	2.7	1/6/2038	1/6/2022	129.83834	114.5527804	101.300962	89.79786286	79.79991456	71.09877852	63.51608551	56.89898382	51.1163683
220106A00013	1/6/2022	2.75	1/6/2039	1/6/2022	131.60676	115.2987995	101.2840513	89.2229316	78.82797537	69.85559498	62.09917651	55.38329239	49.55884522
220111A00002	1/11/2022	1.75	1/16/2026	1/11/2022	104.02965	101.3308824	98.71556708	96.18058188	93.72294798	91.33981923	89.02847511	86.78631415	84.61084773
220112A00008	1/12/2022	1.47	11/20/2024	1/12/2022	101.05721	99.52311604	98.01973436	96.54621377	95.10173221	93.68549739	92.29674549	90.93473984	89.59876972
220114A00007	1/14/2022	1.7	1/27/2026	1/14/2022	103.95955	101.23267	98.59085724	96.03090576	93.54975116	91.14446709	88.81225783	86.55045129	84.35649258
220114A00009	1/14/2022	1.74	4/21/2026	1/14/2022	104.60402	101.6380551	98.77169836	96.0010656	93.32244427	90.73228708	88.22720367	85.80395272	83.45943452
220114A00010	1/14/2022	1.86	1/13/2027	1/14/2022	106.78478	103.0602581	99.48556485	96.05382386	92.75851492	89.59345564	86.55278158	83.63092782	80.82261165
220119A00009	1/19/2022	1.35	1/19/2024	1/19/2022	100.04425	99.32106883	98.60830871	97.90574171	97.21315033	96.53032327	95.85705512	95.19314622	94.53840244
220121A00013	1/21/2022	1.78	11/3/2025	1/21/2022	103.63307	101.1384903	98.71676795	96.36535574	94.08180838	91.86378112	89.70902488	87.61538174	85.58078061
220121A00014	1/21/2022	1.78	11/3/2025	1/21/2022	103.63307	101.1384903	98.71676795	96.36535574	94.08180838	91.86378112	89.70902488	87.61538174	85.58078061
220124A00007	1/24/2022	1.88	1/22/2027	1/24/2022	106.92147	103.1703279	99.57090041	96.11617815	92.79952423	89.61464778	86.55558357	83.61667285	80.79254563
220124A00008	1/24/2022	1.88	1/22/2027	1/24/2022	106.92147	103.1703279	99.57090041	96.11617815	92.79952423	89.61464778	86.55558357	83.61667285	80.79254563
220125A00008	1/25/2022	1.31	1/26/2024	1/25/2022	100.01928	99.27751192	98.54668975	97.82657694	97.11693962	96.41755067	95.72818949	95.04864177	94.37869927
220126A00002	1/26/2022	1.9	12/18/2026	1/26/2022	106.75008	103.0966696	99.58789913	96.21723393	92.97847764	89.86574884	86.87346301	83.99631565	81.22926646
220126A00003	1/26/2022	1.9	12/18/2026	1/26/2022	106.75008	103.0966696	99.58789913	96.21723393	92.97847764	89.86574884	86.87346301	83.99631565	81.22926646
220131A00003	1/31/2022	1.98	2/1/2027	1/31/2022	107.36884	103.5825444	99.9502475	96.46481319	93.11948049	89.9078413	86.8238196	83.86165203	81.01586971
220131A00006	1/31/2022	1.83	2/1/2027	1/31/2022	107.77896	103.9587062	100.2943778	96.7787281	93.40489048	90.16635779	87.05696122	84.07085038	81.20247476
220131A00011	1/31/2022	1.52	1/31/2024	1/31/2022	100.18547	99.42963778	98.68516094	97.95178644	97.22926747	96.5173645	95.81584498	95.12448313	94.44305964
220201A00011	2/1/2022	1.86	4/20/2026	2/1/2022	104.9574	101.9887678	99.11970092	96.34632198	93.66492378	91.07196403	88.56405701	86.13796568	83.79059425
220203A00009	2/3/2022	1.99	2/2/2027	2/3/2022	107.41383	103.6240101	99.98841929	96.49991351	93.15172121	89.93742401	86.85093591	83.88648388	81.0385897
220204A00004	2/4/2022	2.08	1/8/2027	2/4/2022	107.56947	103.8437982	100.2673889	96.83341298	93.53539772	90.36720447	87.3230091	84.39728375	81.58477985
220204A00005	2/4/2022	1.83	1/10/2025	2/4/2022	101.91859	100.2402983	98.59752689	96.98920768	95.4143199	93.87188332	92.36095619	90.88063337	89.43004442

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220209A00010	2/9/2022	2.14	1/11/2027	2/9/2022	107.8156	104.0773159	100.4890218	97.04384924	93.73528288	90.55714443	87.50357275	84.5690055	81.7481619
220209A00011	2/9/2022	2.14	1/11/2027	2/9/2022	107.8156	104.0773159	100.4890218	97.04384924	93.73528288	90.55714443	87.50357275	84.5690055	81.7481619
220209A00012	2/9/2022	1.98	7/29/2025	2/9/2022	103.48143	101.2472059	99.07209055	96.95408478	94.89127584	92.88183168	90.9239967	89.01608786	87.15649097
220209A00013	2/9/2022	1.98	7/29/2025	2/9/2022	103.48143	101.2472059	99.07209055	96.95408478	94.89127584	92.88183168	90.9239967	89.01608786	87.15649097
220214A00010	2/14/2022	2.46	12/21/2029	2/14/2022	115.27182	108.4040757	101.9946892	96.01061957	90.42138042	85.19882519	80.31695572	75.75174744	71.48098962
220214A00012	2/14/2022	2.47	12/28/2029	2/14/2022	115.36698	108.476878	102.0477255	96.0462238	90.44164656	85.20563142	80.3119862	75.73651181	71.45684053
220216A00002	2/16/2022	2.09	2/14/2025	2/16/2022	102.59038	100.8138246	99.07649996	97.37725549	95.71498723	94.0886323	92.49716705	90.9396052	89.41499615
220216A00003	2/16/2022	2.49	12/14/2029	2/16/2022	115.44472	108.5906124	102.1926813	96.21813137	90.63669289	85.42041323	80.54346793	75.98198794	71.71390186
220217A00011	2/17/2022	2.08	2/14/2025	2/17/2022	102.57227	100.7958858	99.05872641	97.35964412	95.69753508	94.07133651	92.48002484	90.92261384	89.39815301
220217A00012	2/17/2022	2.28	2/16/2027	2/17/2022	108.62409	104.773743	101.0812463	97.53928551	94.14092725	90.87959587	87.74905284	84.74337757	81.85694933
220217A00013	2/17/2022	2.08	2/14/2025	2/17/2022	102.57227	100.7958858	99.05872641	97.35964412	95.69753508	94.07133651	92.48002484	90.92261384	89.39815301
220217A00015	2/17/2022	2.28	2/16/2027	2/17/2022	108.62409	104.773743	101.0812463	97.53928551	94.14092725	90.87959587	87.74905284	84.74337757	81.85694933
220217A00016	2/17/2022	2.24	9/15/2026	2/17/2022	107.24248	103.8366249	100.5573109	97.39918012	94.35713331	91.42631265	88.60208891	85.88004951	83.25598721
220217A00017	2/17/2022	2.27	1/29/2027	2/17/2022	108.44387	104.6454248	101.0009601	97.50334158	94.14581545	90.92198096	87.82576959	84.85142557	81.9934876
220217A00018	2/17/2022	2.28	2/17/2027	2/17/2022	108.632	104.7788113	101.0836858	97.53930111	94.13871394	90.87533877	87.74292752	84.73555033	81.84757754
220217A00020	2/17/2022	2.08	2/13/2025	2/17/2022	102.5658	100.7921128	99.05754062	97.36093585	95.70119504	94.07725603	92.48809603	90.93272983	89.41020805
220218A00003	2/18/2022	2.16	9/4/2026	2/18/2022	106.88755	103.517153	100.2710355	97.14397486	94.13099979	91.22737219	88.4285752	85.7303017	83.12844343
220222A00018	2/22/2022	2.5	12/19/2031	2/22/2022	119.28769	110.3077993	102.0825723	94.54438618	87.63201368	81.28998816	75.46803379	70.12055504	65.20617871
220224A00010	2/24/2022	2.04	3/10/2025	2/24/2022	102.64463	100.8018878	99.00115682	97.24123275	95.52095597	93.83920712	92.19490541	90.58700713	89.01450404
220224A00018	2/24/2022	2.15	3/16/2026	2/24/2022	105.56551	102.6839853	99.89605209	97.19818176	94.58699469	92.05925656	89.61187125	87.24187422	84.94642611
220224A00023	2/24/2022	2.15	3/16/2026	2/24/2022	105.56551	102.6839853	99.89605209	97.19818176	94.58699469	92.05925656	89.61187125	87.24187422	84.94642611
220225A00014	2/25/2022	2.42	2/23/2029	2/25/2022	113.94976	107.9446865	102.2959805	96.98065642	91.97732281	87.26606576	82.82833971	78.64686678	74.70554399
220225A00015	2/25/2022	2.26	2/25/2027	2/25/2022	108.6182	104.7437309	101.0290101	97.46663199	94.04957359	90.77117173	87.62510291	84.60536419	81.70625523
220301A00013	3/1/2022	2.01	2/16/2027	3/1/2022	107.58994	103.7592624	100.0858418	96.56238907	93.18199226	89.93809635	86.82448247	83.83524878	80.9647925
220301A00014	3/1/2022	1.85	1/10/2025	3/1/2022	101.95288	100.2742883	98.63121957	97.02260831	95.44743366	93.90471526	92.39351124	90.9129163	89.4620599
220301A00015	3/1/2022	2	1/4/2027	3/1/2022	107.24284	103.5339384	99.97332305	96.5542275	93.27023554	90.11526113	87.08352917	84.16955756	81.36814049
220302A00010	3/2/2022	2.14	1/13/2027	3/2/2022	107.83082	104.0868702	100.4933271	97.04328689	93.7302089	90.54789104	87.4904501	84.5523032	81.72815049
220302A00011	3/2/2022	2.14	1/13/2027	3/2/2022	107.83082	104.0868702	100.4933271	97.04328689	93.7302089	90.54789104	87.4904501	84.5523032	81.72815049
220304A00004	3/4/2022	2.12	12/29/2028	3/4/2022	112.02852	106.2278964	100.7644038	95.61666837	90.7647827	86.19019868	81.87562735	77.80494673	73.96311687
220308A00011	3/8/2022	2.07	1/10/2025	3/8/2022	102.3301	100.6481792	99.00183904	97.39001517	95.81168501	94.26586666	92.75161675	91.26802853	89.81423008
220308A00016	3/8/2022	2.37	3/8/2029	3/8/2022	113.70621	107.6710711	101.9963107	96.65856713	91.63610382	86.90869133	82.45749556	78.26497491	74.31478553
220309A00010	3/9/2022	2.27	3/8/2027	3/9/2022	108.75121	104.8422897	101.0957348	97.50397688	94.05983805	90.75650957	87.58753109	84.54677099	81.628408
220311A00008	3/11/2022	2.07	3/11/2024	3/11/2022	100.73581	99.87062126	99.0202539	98.18432916	97.36248135	96.55435706	95.7596146	94.97792358	94.20896437

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220311A00013	3/15/2022	2.35	3/15/2027	3/15/2022	109.12558	105.1885659	101.4158153	97.79963477	94.33273073	91.0081865	87.81944098	84.76026856	81.82476019
220314A00004	3/14/2022	2.44	3/12/2027	3/14/2022	109.44907	105.5147485	101.7441585	98.12965135	94.6639725	91.34024168	88.15193152	85.09284766	82.15711003
220314A00005	3/14/2022	2.36	3/14/2025	3/14/2022	103.29712	101.4360922	99.61770958	97.84074555	96.10401654	94.40638034	92.74673435	91.124014	89.53719116
220314A00006	3/14/2022	2.36	3/14/2025	3/14/2022	103.29712	101.4360922	99.61770958	97.84074555	96.10401654	94.40638034	92.74673435	91.124014	89.53719116
220314A00007	3/14/2022	2.44	3/12/2027	3/14/2022	109.44907	105.5147485	101.7441585	98.12965135	94.6639725	91.34024168	88.15193152	85.09284766	82.15711003
220314A00008	3/14/2022	2.38	7/28/2025	3/14/2022	104.37923	102.1373542	99.95466741	97.82916835	95.7589403	93.74214761	91.77703148	89.86190598	87.99515436
220314A00009	3/14/2022	2.38	7/28/2025	3/14/2022	104.37923	102.1373542	99.95466741	97.82916835	95.7589403	93.74214761	91.77703148	89.86190598	87.99515436
220315A00014	3/15/2022	2.78	3/15/2032	3/15/2022	122.25771	112.9175307	104.3785636	96.56754508	89.41826583	82.87086241	76.87117976	71.37020062	66.32353453
220315A00015	3/15/2022	3.18	3/13/2037	3/15/2022	135.56143	120.6461143	107.6044245	96.18738129	86.18042558	77.39850153	69.68186093	62.89248258	56.91101395
220315A00018	3/15/2022	2.43	3/15/2027	3/15/2022	109.43799	105.4949241	101.7163052	98.09443377	94.62200946	91.29210906	88.09816527	85.03394654	82.09353818
220315A00021	3/15/2022	2.15	3/15/2024	3/15/2022	100.82146	99.94516159	99.08405355	98.23774692	97.40586243	96.58803367	95.78390656	94.99313882	94.21539951
220315A00036	3/17/2022	2.63	3/16/2027	3/17/2022	110.22887	106.2674841	102.4712546	98.83244629	95.343726	91.99813966	88.78909082	85.7103204	82.75588771
220315A00037	3/17/2022	2.63	3/16/2027	3/17/2022	110.22887	106.2674841	102.4712546	98.83244629	95.343726	91.99813966	88.78909082	85.7103204	82.75588771
220317A00010	3/17/2022	2.04	9/15/2023	3/17/2022	100.29265	99.90780221	99.52590936	99.1469417	98.77086563	98.39764804	98.02725634	97.65965841	97.29482264
220317A00011	3/17/2022	2.48	3/17/2025	3/17/2022	103.54959	101.6773539	99.84819342	98.06086115	96.31415696	94.60692284	92.93804114	91.30643289	89.71105624
220317A00023	5/3/2022	2.52	5/2/2025	5/3/2022	103.97497	101.97395	100.0217419	98.11685062	96.25783393	94.44330359	92.67192303	90.94240509	89.25350974
220317A00026	5/3/2022	2.59	5/3/2027	5/3/2022	110.50232	106.4016236	102.4772652	98.72071962	95.12392225	91.6792394	88.37944295	85.21768655	82.18748337
220317A00027	5/3/2022	2.59	5/3/2027	5/3/2022	110.50232	106.4016236	102.4772652	98.72071962	95.12392225	91.6792394	88.37944295	85.21768655	82.18748337
220317A00028	5/3/2022	2.59	5/3/2027	5/3/2022	110.50232	106.4016236	102.4772652	98.72071962	95.12392225	91.6792394	88.37944295	85.21768655	82.18748337
220323A00016	6/2/2022	2.78	6/2/2025	6/2/2022	104.78037	102.6857906	100.643641	98.65225809	96.71004071	94.81545041	92.96700859	91.16329359	89.40293807
220323A00017	6/2/2022	2.78	6/2/2025	6/2/2022	104.78037	102.6857906	100.643641	98.65225809	96.71004071	94.81545041	92.96700859	91.16329359	89.40293807
220324A00007	3/24/2022	2.72	3/24/2025	3/24/2022	104.06976	102.1719925	100.3182842	98.50735492	96.73796569	95.00892153	93.31906955	91.66729716	90.05253039
220324A00015	3/24/2022	2.79	3/3/2026	3/24/2022	107.29077	104.4226782	101.6464177	98.95856334	96.35584048	93.83511326	91.39337817	89.02775768	86.73549427
220325A00010	3/28/2022	2.78	3/21/2025	3/28/2022	104.13707	102.2477708	100.4021511	98.59894028	96.83691532	95.11489626	93.43174453	91.78636118	90.17768525
220325A00011	3/28/2022	2.79	4/25/2025	3/28/2022	104.45917	102.4721378	100.5332028	98.64090534	96.79383602	94.99063781	93.23000367	91.51067438	89.83143641
220325A00012	3/28/2022	2.85	3/23/2026	3/28/2022	107.6645	104.7316794	101.8944912	99.14930947	96.49266324	93.92123187	91.43183748	89.021438	86.68712063
220325A00015	3/28/2022	2.86	3/23/2027	3/28/2022	111.20112	107.1998317	103.36597	99.69166256	96.16944577	92.79224356	89.5533454	86.44638554	83.46532345
220325A00017	3/28/2022	2.86	3/23/2027	3/28/2022	111.20112	107.1998317	103.36597	99.69166256	96.16944577	92.79224356	89.5533454	86.44638554	83.46532345
220325A00018	3/28/2022	2.85	9/10/2026	3/28/2022	109.27138	105.8446202	102.5443787	99.36532907	96.30239587	93.35074301	90.50576101	87.76305519	85.11843452
220325A00019	3/28/2022	2.86	3/23/2027	3/28/2022	111.20112	107.1998317	103.36597	99.69166256	96.16944577	92.79224356	89.5533454	86.44638554	83.46532345
220325A00020	3/28/2022	2.86	3/23/2027	3/28/2022	111.20112	107.1998317	103.36597	99.69166256	96.16944577	92.79224356	89.5533454	86.44638554	83.46532345
220329A00007	3/29/2022	2.94	3/29/2029	3/29/2022	117.19999	111.0010856	105.1742394	99.69515398	94.54123976	89.6914861	85.12634331	80.82761398	76.77835297
220329A00009	3/29/2022	2.94	3/29/2029	3/29/2022	117.19999	111.0010856	105.1742394	99.69515398	94.54123976	89.6914861	85.12634331	80.82761398	76.77835297

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220331A00003	3/31/2022	2.66	5/17/2024	3/31/2022	101.63254	100.5832046	99.55550257	98.54877167	97.56237459	96.59569961	95.64815935	94.71918955	93.80824795
220331A00004	3/31/2022	2.66	5/20/2024	3/31/2022	101.66109	100.6033967	99.56767159	98.5532397	97.5594492	96.58567462	95.63131554	94.69579534	93.77856007
220331A00010	3/31/2022	2.83	2/18/2026	3/31/2022	107.28419	104.4519385	101.7093515	99.0530842	96.47993679	93.98684772	91.57088666	89.22924804	86.95924491
220331A00011	3/31/2022	2.73	10/15/2024	3/31/2022	102.76148	101.3098969	99.88608733	98.48932563	97.11890888	95.77415803	94.45441688	93.15905111	91.8874474
220331A00012	3/31/2022	2.81	3/17/2025	3/31/2022	104.17521	102.2969036	100.4617855	98.66860736	96.91616579	95.20329982	93.52888894	91.89185141	90.2911427
220404A00010	4/4/2022	2.93	4/2/2027	4/4/2022	111.57731	107.5400089	103.6727112	99.96736648	96.41634933	93.01243325	89.74876759	86.618856	83.6165363
220404A00014	4/4/2022	2.94	4/5/2027	4/4/2022	111.64565	107.598837	103.7227458	100.0092778	96.45076103	93.03992586	89.76988141	86.63409396	83.62636653
220408A00012	4/8/2022	3.12	6/29/2026	4/8/2022	109.43912	106.2100116	103.0939557	100.0863182	97.18268892	94.37886584	91.6708439	89.05480435	86.52710471
220408A00013	4/8/2022	3.15	1/14/2027	4/8/2022	111.61442	107.7974835	104.133224	100.6146489	97.23513017	93.98838278	90.8684446	87.86965758	84.98665022
220408A00014	4/8/2022	3.12	6/29/2026	4/8/2022	109.43912	106.2100116	103.0939557	100.0863182	97.18268892	94.37886584	91.6708439	89.05480435	86.52710471
220411A00002	4/11/2022	3.18	4/9/2027	4/11/2022	112.63794	108.5606764	104.6556484	100.9146667	97.3299768	93.89423156	90.60046767	87.4420836	84.41281883
220412A00010	4/12/2022	3.09	3/15/2027	4/12/2022	112.01538	108.0223792	104.1953467	100.5265256	97.00855896	93.63447014	90.39764059	87.29178988	84.31095661
220412A00016	4/12/2022	3.09	3/19/2027	4/12/2022	112.0599	108.0539533	104.2149767	100.5351406	97.0070251	93.62359432	90.3781748	87.26443489	84.27636545
220412A00017	4/12/2022	3.09	3/19/2027	4/12/2022	112.0599	108.0539533	104.2149767	100.5351406	97.0070251	93.62359432	90.3781748	87.26443489	84.27636545
220412A00018	4/12/2022	3.09	3/15/2027	4/12/2022	112.01538	108.0223792	104.1953467	100.5265256	97.00855896	93.63447014	90.39764059	87.29178988	84.31095661
220418A00015	4/22/2022	3.03	7/28/2025	4/22/2022	105.84896	103.5902234	101.3910264	99.24935727	97.16328946	95.13097774	93.1506541	91.22062376	89.33926143
220418A00016	4/22/2022	3.11	9/15/2026	4/22/2022	110.20337	106.747253	103.4190527	100.213366	97.12504674	94.14919212	91.28112988	88.51640625	85.8507745
220419A00013	4/19/2022	2.84	4/19/2024	4/19/2022	101.65455	100.6800911	99.72429913	98.78663844	97.86659642	96.96367965	96.07741298	95.20733872	94.35301581
220419A00014	4/19/2022	3.06	4/18/2025	4/19/2022	104.93554	102.9621797	101.036138	99.15598895	97.32035827	95.52792237	93.77740598	92.06758001	90.39725955
220419A00015	4/19/2022	3.14	4/17/2026	4/19/2022	108.76057	105.7429289	102.8257485	100.0051362	97.27736856	94.63888724	92.08629049	89.61632537	87.22588039
220419A00016	4/19/2022	3.21	4/19/2027	4/19/2022	112.86065	108.7516198	104.8172463	101.0491716	97.43948411	93.98069068	90.66569232	87.48776132	84.44051981
220420A00032	4/20/2022	3.26	10/16/2026	4/20/2022	111.04631	107.4898877	104.0680517	100.7749849	97.60515342	94.55329179	91.61438797	88.78366995	86.05659285
220420A00033	4/20/2022	3.29	4/20/2027	4/20/2022	113.19141	109.0730766	105.1298342	101.3532997	97.73553849	94.26903592	90.94667287	87.76170274	84.70772993
220420A00034	6/15/2022	3.3	6/15/2027	6/15/2022	113.84005	109.5510555	105.4500067	101.5276228	97.77513589	94.18425839	90.74715385	87.45640969	84.30501183
220420A00037	6/15/2022	3.3	6/15/2027	6/15/2022	113.84005	109.5510555	105.4500067	101.5276228	97.77513589	94.18425839	90.74715385	87.45640969	84.30501183
220420A00061	6/15/2022	3.3	6/15/2027	6/15/2022	113.84005	109.5510555	105.4500067	101.5276228	97.77513589	94.18425839	90.74715385	87.45640969	84.30501183
220421A00012	4/21/2022	3.31	4/21/2026	4/21/2022	109.30919	106.2725354	103.3372638	100.4994252	97.75525067	95.10113915	92.53364853	90.04948784	87.64550967
220421A00014	4/21/2022	3.24	5/30/2025	4/21/2022	105.71948	103.6228768	101.5785699	99.5848982	97.64027071	95.74315835	93.89209124	92.08565589	90.3224926
220421A00016	4/21/2022	3.31	4/21/2026	4/21/2022	109.30919	106.2725354	103.3372638	100.4994252	97.75525067	95.10113915	92.53364853	90.04948784	87.64550967
220422A00014	4/22/2022	3.36	9/29/2026	4/22/2022	111.2062	107.6947548	104.3144394	101.0596589	97.92509043	94.90566576	91.99655714	89.19316478	86.49110487
220425A00026	4/25/2022	3.13	2/25/2026	4/25/2022	108.20135	105.3372005	102.564159	99.87884003	97.2780015	94.75853926	92.31748049	89.95197733	87.65930091
220425A00027	4/29/2022	3.15	8/20/2026	4/29/2022	110.07337	106.6901313	103.4297849	100.2872011	97.25749462	94.33601044	91.51831135	88.80016662	86.17754113
220425A00028	4/29/2022	3.16	4/23/2027	4/29/2022	112.70136	108.5845602	104.6432308	100.8689573	97.25377052	93.79012405	90.47086944	87.28923318	84.2387949

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220426A00004	4/26/2022	3.41	4/26/2032	4/26/2022	128.20881	118.4950949	109.6182625	101.5011766	94.07420435	87.27444495	81.04506859	75.33465974	70.096716
220427A00011	4/29/2022	3.15	4/29/2027	4/29/2022	112.72279	108.5890467	104.632156	100.8436037	97.2153291	93.73970084	90.40949162	87.2178547	84.15830168
220428A00016	5/2/2022	3.09	10/15/2024	5/2/2022	103.29283	101.8371682	100.4093483	99.00864505	97.63435352	96.28579292	94.96230533	93.66325476	92.38802629
220428A00019	4/28/2022	3.27	4/28/2027	4/28/2022	113.19542	109.0550926	105.0916987	101.2967236	97.66210954	94.1802276	90.84385256	87.64613928	84.58060069
220502A00025	5/2/2022	3.21	5/2/2025	5/2/2022	105.37014	103.3547219	101.3884035	99.46967542	97.59708753	95.76924424	93.98480187	92.24246637	90.54099109
220502A00030	5/4/2022	3.24	6/20/2025	5/4/2022	105.93082	103.7755406	101.6750296	99.6275119	97.63128403	95.68471118	93.78622356	91.93431333	90.12753156
220506A00016	5/6/2022	3.35	5/6/2027	5/6/2022	113.60734	109.435879	105.4433644	101.621146	97.9610431	94.45531248	91.09662251	87.87802903	84.79295272
220509A00013	7/15/2022	3.37	7/15/2027	7/15/2022	114.41371	110.0295438	105.8405388	101.8369026	98.00938966	94.34927035	90.84829897	87.49868385	84.29305949
220509A00014	7/15/2022	3.37	7/15/2027	7/15/2022	114.41371	110.0295438	105.8405388	101.8369026	98.00938966	94.34927035	90.84829897	87.49868385	84.29305949
220509A00016	7/15/2022	3.37	7/15/2027	7/15/2022	114.41371	110.0295438	105.8405388	101.8369026	98.00938966	94.34927035	90.84829897	87.49868385	84.29305949
220510A00015	5/13/2022	3.13	11/3/2025	5/13/2022	107.04971	104.5114734	102.0470689	99.65391809	97.32954709	95.07158358	92.87775202	90.74586898	88.67383886
220510A00016	5/13/2022	3.23	5/5/2027	5/13/2022	113.1105	108.9518672	104.971645	101.1612147	97.51242153	94.01754672	90.66928159	87.4607036	84.38525374
220511A00002	5/11/2022	3.18	5/12/2025	5/11/2022	105.41112	103.3675257	101.374141	99.42940373	97.53181473	95.67993196	93.87236781	92.10778667	90.38490252
220511A00015	5/11/2022	3.29	5/11/2027	5/11/2022	113.41961	109.2376181	105.2355543	101.4046959	97.73679542	94.22404777	90.85906399	87.63484681	84.54476768
220512A00007	5/12/2022	2.91	5/13/2024	5/12/2022	101.87123	100.831282	99.81255013	98.81439056	97.83618434	96.87733717	95.93727816	95.01545866	94.11135124
220512A00013	5/12/2022	3.18	5/12/2027	5/12/2022	112.98336	108.8073038	104.8111127	100.9860662	97.32391311	93.81684497	90.45747006	87.23878876	84.15417059
220516A00034	5/16/2022	2.72	11/16/2023	5/16/2022	100.77824	100.2243068	99.67646602	99.13461419	98.59865341	98.06848786	97.54402377	97.02516943	96.51183505
220518A00009	5/18/2022	3.38	5/18/2028	5/18/2022	117.53399	112.2099195	107.1634721	102.3786612	97.84050719	93.53496713	89.44887088	85.5698624	81.88634512
220519A00010	5/19/2022	3.15	11/19/2026	5/19/2022	111.0198	107.3698077	103.8609993	100.4871376	97.24229212	94.12082751	91.1173864	88.22687433	85.44444517
220525A00020	5/25/2022	2.79	5/24/2024	5/25/2022	101.8151	100.7459437	99.6992122	98.67420207	97.67024223	96.686689	95.72292473	94.77835646	93.85241472
220526A00010	5/26/2022	3	5/26/2026	5/26/2022	108.72523	105.5999702	102.5817334	99.6662389	96.84940598	94.12734119	91.4963284	88.95281955	86.49342599
220526A00011	5/26/2022	3.29	5/24/2029	5/26/2022	119.61798	113.1922404	107.1598507	101.4945767	96.17207302	91.16973378	86.4665596	82.04303516	77.88101688
220527A00011	5/27/2022	2.75	5/24/2024	5/27/2022	101.77186	100.7029528	99.65646672	98.63169842	97.62797695	96.64465871	95.68112611	94.73678628	93.81106983
220527A00014	5/27/2022	2.99	5/27/2026	5/27/2022	108.70424	105.5765057	102.5559511	99.63828796	96.8194269	94.09546615	91.46268181	88.91751857	86.45658097
220527A00015	5/27/2022	3.03	5/27/2027	5/27/2022	112.48484	108.2773731	104.2526866	100.4018423	96.71638999	93.18833716	89.81012167	86.57458603	83.47495342
220601A00023	6/1/2022	2.9	6/3/2024	6/1/2022	102.00272	100.9056058	99.83206765	98.78135235	97.75273743	96.74553071	95.75906867	94.79271493	93.84585895
220601A00024	6/1/2022	3.09	6/2/2025	6/1/2022	105.43359	103.3320018	101.2829841	99.28486922	97.33605196	95.43499023	93.58020181	91.77026161	90.00379894
220603A00024	6/3/2022	2.94	6/3/2024	6/3/2022	102.04706	100.9496818	99.87588622	98.82491727	97.79605243	96.78859942	95.80189463	94.83530162	93.88820974
220609A00034	10/3/2022	3.32	9/30/2024	10/3/2022	103.49412	102.0777991	100.6878359	99.3235588	97.98431788	96.66948475	95.37845154	94.11063014	92.86545133
220609A00035	8/30/2022	3.11	9/29/2023	8/30/2022	100.77789	100.3537612	99.93319862	99.51615403	99.10258343	98.69244359	98.28569199	97.88228682	97.48218696
220609A00038	10/3/2022	3.28	3/29/2024	10/3/2022	101.92369	101.0044391	100.1017577	99.21520438	98.34434963	97.4887791	96.64809288	95.82190493	95.00984245
220613A00030	6/13/2022	3.08	6/13/2023	6/13/2022	100.26114	100.1337023	100.0066023	99.87984015	99.75341456	99.6273241	99.50156742	99.37614316	99.25104996
220614A00011	6/14/2022	3.71	6/14/2024	6/14/2022	103.00212	101.8693879	100.7616152	99.6779818	98.61770388	97.58003134	96.56424589	95.56965944	94.59561248

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220615A00010	6/15/2022	3.86	6/15/2027	6/15/2022	116.17012	111.8331408	107.685644	103.7182886	99.92224761	96.28917704	92.8111868	89.48081316	86.29099323
220617A00026	6/17/2022	3.36	12/18/2023	6/17/2022	101.31927	100.6771615	100.0431972	99.41722005	98.79907971	98.18862951	97.58572641	96.99023094	96.40200702
220617A00027	6/17/2022	3.45	6/17/2024	6/17/2022	102.74301	101.6035825	100.4894558	99.39978888	98.33378186	97.29066949	96.2697192	95.2702294	94.29152787
220617A00040	6/17/2022	3.23	6/16/2023	6/17/2022	100.29556	100.1598057	100.0244354	99.8894452	99.75483342	99.62059846	99.4867387	99.35325254	99.22013839
220622A00006	6/22/2022	3.58	6/22/2027	6/22/2022	115.08501	110.7508832	106.6070941	102.6442132	98.8533365	95.22604936	91.75439696	88.43085633	85.24831028
220623A00005	6/23/2022	3.45	6/23/2027	6/23/2022	114.55262	110.2267355	106.0910529	102.1361464	98.35311044	94.73352966	91.26944877	87.95334471	84.77810054
220624A00003	6/24/2022	3.5	6/24/2027	6/24/2022	114.77297	110.4397453	106.297094	102.3355678	98.54624059	94.92067765	91.45090569	88.12938483	84.94898243
220624A00033	6/24/2022	3.5	6/24/2027	6/24/2022	114.77297	110.4397453	106.297094	102.3355678	98.54624059	94.92067765	91.45090569	88.12938483	84.94898243
220624A00044	6/24/2022	3.43	6/24/2025	6/24/2022	106.38293	104.2119319	102.0962767	100.03416	98.02385406	96.063701	94.15210926	92.28755037	90.46855589
220624A00049	6/24/2022	3.29	6/24/2024	6/24/2022	102.88235	101.7191909	100.582331	99.47088604	98.38401031	97.32089532	96.28076773	95.26288743	94.2665458
220627A00055	6/27/2022	3.55	6/26/2026	6/27/2022	110.77569	107.5335732	104.4045398	101.3839705	98.46746616	95.65083507	92.93008113	90.30139362	87.76113726
220628A00034	6/28/2022	3.61	6/28/2027	6/28/2022	115.27942	110.9245672	106.7615257	102.7807688	98.97329708	95.33060752	91.84466342	88.50786576	85.31302684
220628A00044	8/15/2022	3.6	8/13/2027	8/15/2022	115.71839	111.2250467	106.9346985	102.837068	98.92245282	95.18169233	91.60613447	88.18760455	84.91837627
220628A00052	8/15/2022	3.6	8/13/2027	8/15/2022	115.71839	111.2250467	106.9346985	102.837068	98.92245282	95.18169233	91.60613447	88.18760455	84.91837627
220628A00053	8/15/2022	3.6	8/13/2027	8/15/2022	115.71839	111.2250467	106.9346985	102.837068	98.92245282	95.18169233	91.60613447	88.18760455	84.91837627
220629A00002	6/29/2022	3.48	6/28/2024	6/29/2022	102.87234	101.7024774	100.5592345	99.44171139	98.34904691	97.2804179	96.23503721	95.21215175	94.21104064
220629A00003	6/29/2022	3.59	6/29/2027	6/29/2022	115.20709	110.8508661	106.6866448	102.7048802	98.89655888	95.25316474	91.76664907	88.42940183	85.23422512
220630A00019	6/30/2022	3.25	12/29/2023	6/30/2022	101.31532	100.6435146	99.98060954	99.3264274	98.68079689	98.04355116	97.41452767	96.79356807	96.18051804
220630A00036	6/30/2022	3.42	6/30/2027	6/30/2022	114.50426	110.1597787	106.0070627	102.0365692	98.23928681	94.60670215	91.13076935	87.80388148	84.61884394
220630A00044	6/30/2022	3.34	6/30/2025	6/30/2022	106.25058	104.0647503	101.9349593	99.85936797	97.83621597	95.86381462	93.94054338	92.0648464	90.23522945
220630A00057	6/30/2022	3.34	6/30/2025	6/30/2022	106.25058	104.0647503	101.9349593	99.85936797	97.83621597	95.86381462	93.94054338	92.0648464	90.23522945
220701A00024	7/1/2022	3.08	7/1/2025	7/1/2022	105.69268	103.510281	101.3839182	99.31175277	97.29202187	95.32303472	93.40316878	91.53086645	89.70463187
220701A00049	7/1/2022	3.19	7/1/2025	7/1/2022	105.93324	103.7481637	101.6191819	99.54445043	97.5222049	95.55075307	93.62847099	91.7537997	89.92524201
220701A00050	7/1/2022	3.26	7/1/2027	7/1/2022	113.84254	109.5089635	105.3669449	101.4069402	97.61993918	93.9974301	90.53136901	87.21415119	84.03858452
220705A00005	7/5/2022	3.15	1/5/2024	7/5/2022	101.28745	100.5968878	99.91573889	99.24381301	98.58092362	97.92688914	97.28153286	96.64468271	96.01617119
220705A00011	7/5/2022	3.14	7/7/2025	7/5/2022	105.88473	103.6836019	101.5393121	99.44998613	97.41382441	95.42910146	93.49416201	91.60741758	89.76734312
220706A00032	7/6/2022	3.15	7/6/2027	7/6/2022	114.55984	110.1650319	105.9656908	101.9520165	98.1147627	94.44519788	90.93507347	87.57659411	84.36239001
220707A00041	7/7/2022	3.41	7/7/2025	7/7/2022	106.47964	104.2718526	102.1210387	100.0253211	97.98289642	95.99203539	94.05107925	92.15843607	90.31257753
220711A00009	7/11/2022	3.36	7/11/2023	7/11/2022	100.44601	100.2412283	100.0372976	99.83420872	99.63195636	99.4305353	99.22994036	99.03016641	98.83120835
220711A00021	7/11/2022	3.27	7/11/2025	7/11/2022	106.77883	104.5454107	102.3700448	100.2507997	98.18582514	96.17334746	94.21166587	92.29914871	90.43423007
220712A00006	7/12/2022	3.36	7/12/2024	7/12/2022	102.83718	101.6299338	100.4510514	99.29954241	98.17446058	97.07490291	96.00000715	94.94894951	93.92094257
220712A00016	7/15/2022	3.35	1/15/2026	7/15/2022	108.39468	105.6385519	102.9671294	100.3772588	97.86592613	95.43025153	93.0674817	90.77498361	88.55023812
220714A00034	7/14/2022	3.62	1/16/2024	7/14/2022	101.69164	100.9698394	100.2582981	99.55679598	98.86512127	98.18306828	97.51043696	96.8470328	96.19266662

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220714A00035	7/14/2022	3.62	7/15/2024	7/14/2022	103.19273	101.974911	100.7858833	99.62463238	98.49019209	97.38164065	96.29809814	95.23872413	94.20271553
220715A00001	7/15/2022	3.44	7/15/2027	7/15/2022	114.71075	110.3203471	106.1253109	102.1158382	98.28267553	94.61708582	91.11081619	87.75606813	84.54546964
220715A00027	7/15/2022	3.44	7/15/2027	7/15/2022	114.71075	110.3203471	106.1253109	102.1158382	98.28267553	94.61708582	91.11081619	87.75606813	84.54546964
220715A00047	7/15/2022	3.44	7/15/2027	7/15/2022	114.71075	110.3203471	106.1253109	102.1158382	98.28267553	94.61708582	91.11081619	87.75606813	84.54546964
220719A00004	7/19/2022	3.46	7/19/2027	7/19/2022	114.84047	110.4359093	106.2277578	102.2061374	98.36172585	94.68572264	91.16981606	87.80615316	84.58731145
220721A00017	7/21/2022	3.51	1/22/2024	7/21/2022	101.65181	100.9140158	100.1869343	99.4703336	98.76398817	98.06767882	97.38119258	96.70432247	96.03686732
220722A00044	9/1/2022	3.23	9/1/2027	9/1/2022	114.35642	109.8383888	105.5270687	101.411933	97.48304409	93.73101778	90.14698945	86.72258278	83.44988044
220722A00049	9/15/2022	3.25	9/15/2025	9/15/2022	106.8441	104.4423251	102.1070367	99.83602975	97.62718324	95.47845853	93.38789565	91.35360981	89.37378802
220722A00050	9/15/2022	3.25	9/15/2025	9/15/2022	106.8441	104.4423251	102.1070367	99.83602975	97.62718324	95.47845853	93.38789565	91.35360981	89.37378802
220722A00051	9/15/2022	3.23	9/15/2027	9/15/2022	114.44928	109.8918888	105.5446139	101.3966736	97.43789438	93.65867333	90.04994344	86.6031409	83.31017471
220726A00032	7/26/2022	3.36	7/26/2023	7/26/2022	100.52185	100.275784	100.0309209	99.78725279	99.54477084	99.30346648	99.06333116	98.82435643	98.58653391
220727A00001	7/27/2022	3.39	7/27/2023	7/27/2022	100.53439	100.285565	100.0379643	99.79158335	99.54641307	99.30244463	99.05966924	98.81807819	98.57766286
220727A00004	7/27/2022	3.23	7/27/2027	7/27/2022	113.94652	109.5380037	105.3271938	101.3040918	97.45926847	93.7838252	90.26936026	86.90793808	83.69206036
220727A00009	7/27/2022	3.31	7/28/2025	7/27/2022	106.48208	104.2160748	102.0097656	99.86113095	97.76823987	95.72924302	93.74236846	91.80591757	89.9182614
220727A00010	7/27/2022	3.38	7/24/2024	7/27/2022	102.96308	101.722678	100.5121786	99.33050999	98.17665058	97.04962637	95.94850843	94.87241031	93.82048558
220727A00027	7/27/2022	3.23	7/27/2027	7/27/2022	113.94652	109.5380037	105.3271938	101.3040918	97.45926847	93.7838252	90.26936026	86.90793808	83.69206036
220727A00035	10/24/2022	3.33	10/24/2029	10/24/2022	120.75415	113.8688346	107.4303491	101.4072444	95.77044409	90.49305329	85.55018433	80.91879713	76.57755309
220727A00049	7/27/2022	3.31	7/25/2025	7/27/2022	106.45025	104.1929179	101.9948776	99.85413274	97.76877099	95.73696065	93.75694635	91.82704514	89.9456428
220728A00070	7/28/2022	3.19	1/29/2024	7/28/2022	101.4552	100.6993887	99.95482804	99.22126677	98.49846252	97.78617996	97.08419058	96.39227245	95.71020998
220729A00043	7/29/2022	3.04	7/29/2027	7/29/2022	113.15353	108.7562062	104.5565078	100.5444337	96.71054713	93.04594238	89.54221139	86.19141287	82.9860434
220729A00045	7/29/2022	3.03	7/29/2027	7/29/2022	113.11071	108.7142895	104.515468	100.5042423	96.67117672	93.00736675	89.50440535	86.15435222	82.94970492
220729A00047	7/29/2022	3.06	1/29/2027	7/29/2022	111.43024	107.5757235	103.8768505	100.3264279	96.91764144	93.64403273	90.49947817	87.47816933	84.57459464
220802A00009	8/2/2022	3	8/2/2027	8/2/2022	113.02003	108.6145413	104.4075351	100.3889566	96.54932117	92.87967709	89.37157214	86.01702265	82.80848468
220804A00023	8/4/2022	3.19	8/4/2027	8/4/2022	113.85574	109.4269994	105.1977989	101.1580331	97.29816876	93.60920743	90.08265228	86.71047705	83.48509709
220804A00037	8/4/2022	3.35	8/4/2025	8/4/2022	106.64543	104.3587368	102.1327055	99.96530653	97.85459259	95.79869691	93.79582909	91.8442713	89.94237468
220808A00025	8/8/2022	3.25	8/6/2027	8/8/2022	114.13397	109.693794	105.4538307	101.4039376	97.5345477	93.83663036	90.30165785	86.92157434	83.68876698
220811A00021	8/11/2022	3.47	8/11/2025	8/11/2022	106.9943	104.6847312	102.4368507	100.2486112	98.11804732	96.04327289	94.02247731	92.05392175	90.13593581
220812A00001	8/12/2022	3.17	8/12/2027	8/12/2022	115.05354	110.5424945	106.2362114	102.1242796	98.19687516	94.44472525	90.85907385	87.43165011	84.15463866
220812A00002	8/12/2022	3.17	8/12/2027	8/12/2022	115.05354	110.5424945	106.2362114	102.1242796	98.19687516	94.44472525	90.85907385	87.43165011	84.15463866
220812A00014	8/12/2022	3.54	8/12/2024	8/12/2022	103.34636	102.0567243	100.7941023	99.55764808	98.34655068	97.16003282	95.9973492	94.85778478	93.74065329
220816A00009	8/16/2022	3.33	8/16/2027	8/16/2022	114.62832	110.1486473	105.8720173	101.7881329	97.88727669	94.16027341	90.59845696	87.19363918	83.93808091
220817A00036	10/14/2022	3.41	10/15/2027	10/14/2022	115.60798	110.9393282	106.4894343	102.2468769	98.20089507	94.34134227	90.65864817	87.14378289	83.78822366
220817A00037	10/14/2022	3.41	10/15/2027	10/14/2022	115.60798	110.9393282	106.4894343	102.2468769	98.20089507	94.34134227	90.65864817	87.14378289	83.78822366

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220817A00038	10/14/2022	3.41	10/15/2027	10/14/2022	115.60798	110.9393282	106.4894343	102.2468769	98.20089507	94.34134227	90.65864817	87.14378289	83.78822366
220817A00047	8/17/2022	3.29	8/17/2027	8/17/2022	115.63047	111.0929804	106.7618862	102.6266875	98.67747675	94.90490076	91.30012679	87.85481057	84.56106665
220819A00034	8/19/2022	3.73	8/19/2032	8/19/2022	132.08671	121.8787626	112.57307	104.084291	96.33559276	89.25776488	82.7884268	76.87132128	71.45568419
220823A00002	8/23/2022	3.38	8/23/2027	8/23/2022	116.09089	111.5265865	107.1704794	103.0119702	99.04105685	95.2482953	91.62476583	88.16204104	84.85215614
220823A00006	8/23/2022	3.66	2/23/2024	8/23/2022	101.99729	101.1718824	100.3598428	99.56084798	98.77458506	98.00075128	97.23905339	96.48920731	95.75093774
220823A00009	8/23/2022	3.52	8/23/2027	8/23/2022	115.52814	111.0097723	106.6967692	102.578714	98.64577079	94.88865096	91.29857966	87.86726482	84.58686811
220823A00015	8/23/2022	3.78	8/30/2032	8/23/2022	132.64586	122.3822475	113.0278218	104.4963985	96.71040571	89.59997999	83.10216392	77.16019116	71.72284854
220823A00032	8/23/2022	3.6	8/23/2023	8/23/2022	100.75497	100.4317776	100.1106644	99.79160784	99.47458824	99.15958609	98.84658216	98.53555747	98.22649326
220823A00034	8/23/2022	3.61	8/23/2024	8/23/2022	103.54798	102.230645	100.9378377	99.66890722	98.42322201	97.20017262	95.99917094	94.81964922	93.66105921
220824A00008	8/24/2022	3.62	8/24/2023	8/24/2022	100.76776	100.4418065	100.1179664	99.79621627	99.47653581	99.15890511	98.84330449	98.52971455	98.21811609
220824A00011	8/24/2022	3.7	8/22/2025	8/24/2022	107.64839	105.3015207	103.0179987	100.7957448	98.63276299	96.52713472	94.47701559	92.48063188	90.53627744
220825A00006	8/25/2022	3.56	8/25/2027	8/25/2022	115.72433	111.196189	106.8740368	102.7474227	98.80647853	95.04188445	91.44483596	88.00701259	84.72054888
220825A00022	8/25/2022	3.68	8/25/2025	8/25/2022	107.63576	105.2809601	102.9899102	100.7605294	98.59081417	96.47883827	94.42274904	92.42076422	90.4711688
220826A00015	8/26/2022	3.64	8/25/2023	8/26/2022	100.78066	100.4519461	100.1253792	99.80093565	99.47859467	99.15833589	98.84013921	98.52398476	98.20985293
220829A00048	8/29/2022	3.75	2/25/2025	8/29/2022	105.71775	103.8826813	102.0885986	100.3343345	98.61876549	96.94080716	95.29941282	93.69357171	92.12230756
220829A00057	8/29/2022	3.67	8/31/2026	8/29/2022	111.93382	108.4894808	105.1709601	101.9730056	98.89061183	95.91900755	93.05364314	90.29017933	87.62447635
220830A00093	11/16/2022	3.69	11/16/2029	11/16/2022	123.27365	116.2436244	109.6721082	103.5266246	97.77716782	92.39599905	87.35746392	82.63782545	78.21511126
220831A00078	8/31/2022	3.81	8/30/2024	8/31/2022	103.88705	102.550066	101.2366926	99.94635972	98.67851224	97.43261223	96.20813856	95.00458617	93.82146547
220831A00079	8/31/2022	3.79	8/29/2025	8/31/2022	107.93951	105.5703153	103.2655015	101.0229691	98.84069854	96.71674752	94.64924715	92.63639903	90.67647209
220901A00033	9/1/2022	3.72	9/1/2027	9/1/2022	116.5016	111.9371738	107.5810109	103.4225167	99.45169225	95.65909476	92.03580397	88.57339057	85.26388673
220901A00035	9/1/2022	3.82	9/1/2028	9/1/2022	120.77506	115.0676994	109.6714516	104.5676912	99.73900494	95.16910312	90.84274136	86.74564854	82.8644599
220906A00046	9/6/2022	3.79	9/7/2027	9/6/2022	116.87742	112.2880743	107.9087392	103.7287037	99.73785512	95.92664511	92.28605537	88.80756554	85.48312321
220907A00010	9/7/2022	3.9	9/9/2032	9/7/2022	136.70439	126.0905599	116.4210223	107.6058406	99.56410957	92.22300372	85.51693166	79.38678338	73.77925908
220907A00021	3/13/2023	3.92	3/29/2024	3/13/2023	102.51716	101.5949329	100.68932	99.79987192	98.92615842	98.06776439	97.22428921	96.39534613	95.58056168
220907A00023	9/7/2022	3.76	9/8/2026	9/7/2022	112.33193	108.8589097	105.5134386	102.2901607	99.18397536	96.19002137	93.30366496	90.52048777	87.83627568
220908A00029	9/8/2022	3.88	3/8/2024	9/8/2022	102.29888	101.4343346	100.5844192	99.74876865	98.92702556	98.11884442	97.32389109	96.54184234	95.7723854
220908A00030	9/8/2022	3.85	9/9/2024	9/8/2022	104.04181	102.6771859	101.3370802	100.0208848	98.72801383	97.45790053	96.20999585	94.98376802	93.77870184
220909A00017	9/9/2022	3.85	9/9/2024	9/9/2022	104.04181	102.6771859	101.3370802	100.0208848	98.72801383	97.45790053	96.20999585	94.98376802	93.77870184
220912A00033	9/12/2022	3.9	10/7/2024	9/12/2022	104.40195	102.9596619	101.5445534	100.1559221	98.79308961	97.4553998	96.14221851	94.85293243	93.58694823
220912A00044	11/15/2022	3.85	11/14/2025	11/15/2022	109.00485	106.411609	103.8942345	101.4500521	99.07649946	96.77112049	94.53156047	92.35556105	90.24095565
220912A00046	11/15/2022	3.85	11/14/2025	11/15/2022	109.00485	106.411609	103.8942345	101.4500521	99.07649946	96.77112049	94.53156047	92.35556105	90.24095565
220912A00050	11/15/2022	3.76	11/15/2027	11/15/2022	117.48754	112.6905856	108.1214942	103.768198	99.61933074	95.66418607	91.89267545	88.2952892	84.86306012
220912A00051	11/15/2022	3.76	11/15/2027	11/15/2022	117.48754	112.6905856	108.1214942	103.768198	99.61933074	95.66418607	91.89267545	88.2952892	84.86306012

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220913A00005	9/13/2022	4.09	9/13/2024	9/13/2022	104.41528	103.0373463	101.6843279	100.3556087	99.05058979	97.76869138	96.50935219	95.27202867	94.05619433
220913A00017	9/13/2022	3.98	9/14/2026	9/13/2022	113.15171	109.6482995	106.2739824	103.0233204	99.89113191	96.87248012	93.96265986	91.15718563	88.45178016
220913A00018	9/13/2022	3.91	9/13/2027	9/13/2022	117.47616	112.8569765	108.4497365	104.2435909	100.2283058	96.39422046	92.73221191	89.23366257	85.89042957
220915A00025	9/15/2022	4.34	9/15/2023	9/15/2022	101.18449	100.7975252	100.4135296	100.0324712	99.6543161	99.27903123	98.90658384	98.5369417	98.17007311
220915A00033	9/15/2022	4.3	3/15/2024	9/15/2022	102.73245	101.8469348	100.9767227	100.1214217	99.28065061	98.4540407	97.64123584	96.84189171	96.0556754
220915A00035	9/15/2022	4.2	3/17/2025	9/15/2022	106.8104	104.9065218	103.0463099	101.2285081	99.45189993	97.71531196	96.01761151	94.35770517	92.73453717
220915A00036	9/15/2022	4.23	9/16/2024	9/15/2022	104.64299	103.2554251	101.893078	100.5553175	99.24153456	97.95113991	96.68356313	95.43825192	94.21467139
220915A00039	9/15/2022	4.29	4/15/2024	9/15/2022	103.03249	102.0616824	101.1092267	100.1746035	99.2573143	98.35687946	97.47283668	96.60474053	95.75216159
220915A00040	9/15/2022	4.16	9/15/2025	9/15/2022	109.02441	106.5961882	104.2350268	101.938699	99.7050673	97.53207733	95.41775394	93.3601977	91.35758158
220915A00041	9/15/2022	4.28	5/15/2024	9/15/2022	103.34224	102.2884639	101.2562506	100.2449396	99.25389965	98.28252464	97.33023248	96.39646384	95.48068113
220916A00045	9/16/2022	4.1	9/16/2032	9/16/2022	138.68056	127.9558652	118.1848868	109.2767449	101.1496895	93.7301424	86.95184126	80.75507738	75.08601626
220919A00033	9/19/2022	4	9/17/2027	9/19/2022	117.87376	113.2360705	108.811507	104.5891449	100.5586752	96.71036777	93.03503489	89.52399888	86.16906098
220920A00015	9/20/2022	4.33	10/21/2024	9/20/2022	105.19494	103.7081999	102.2501735	100.8201032	99.41725467	98.04091887	96.69041082	95.36506865	94.06425267
220920A00024	9/20/2022	4.25	9/19/2025	9/20/2022	109.29179	106.8494771	104.4748644	102.1656964	99.91980714	97.7351154	95.60962038	93.5413984	91.52859932
220920A00025	9/20/2022	4.23	9/18/2026	9/20/2022	114.05483	110.5250207	107.1255124	103.8508003	100.6956429	97.655047	94.7242543	91.8987292	89.1741472
220920A00026	9/20/2022	4.1	9/20/2027	9/20/2022	118.35309	113.6964925	109.2541268	105.0149932	100.9687164	97.10550418	93.41611138	89.8918066	86.52434107
220921A00014	9/21/2022	4.08	9/21/2027	9/21/2022	118.27683	113.6190903	109.1757756	104.9358704	100.8889842	97.02531062	93.33559164	89.81108391	86.44352766
220921A00050	9/21/2022	4.51	4/29/2024	9/21/2022	103.40746	102.3966766	101.4057144	100.4339938	99.48095774	98.54607031	97.62881609	96.72869896	95.84524128
220921A00069	9/21/2022	3.98	9/21/2027	9/21/2022	119.09201	114.3799018	109.885476	105.5975116	101.5054277	97.59924025	93.86952507	90.30738387	86.90441205
220921A00074	9/21/2022	3.98	9/21/2027	9/21/2022	119.09201	114.3799018	109.885476	105.5975116	101.5054277	97.59924025	93.86952507	90.30738387	86.90441205
220929A00034	9/29/2022	4.67	5/31/2024	9/29/2022	103.92905	102.8287341	101.751813	100.6975466	99.66522407	98.65416446	97.66371458	96.69324781	95.74216275
220929A00041	9/29/2022	4.38	9/29/2027	9/29/2022	119.71207	115.0002103	110.5058624	106.2178126	102.1254857	98.21890342	94.48864745	90.92582531	87.52203819
220929A00043	9/29/2022	4.44	9/28/2029	9/29/2022	127.79286	120.7582887	114.1714523	108.0013177	102.2191583	96.79837365	91.71432153	86.94416444	82.46672862
220929A00063	9/29/2022	4.38	9/29/2027	9/29/2022	119.71207	115.0002103	110.5058624	106.2178126	102.1254857	98.21890342	94.48864745	90.92582531	87.52203819
220930A00046	9/30/2022	4.55	8/30/2024	9/30/2022	104.88592	103.5418741	102.2215609	100.924405	99.64984807	98.39734909	97.16638398	95.95644483	94.76703931
220930A00049	9/30/2022	4.55	6/28/2024	9/30/2022	104.13183	102.9541254	101.8031635	100.6780426	99.57789829	98.50190439	97.44927081	96.41924162	95.4110932
221003A00067	10/3/2022	4.48	11/13/2024	10/3/2022	105.70838	104.1552212	102.6328645	101.1404676	99.67721409	98.24231725	96.83501809	95.4545843	94.10030911
221005A00041	10/5/2022	4.3	10/5/2027	10/5/2022	119.43385	114.710683	110.2064066	105.9096949	101.8098672	97.89684826	94.16113026	90.59373829	87.18619756
221006A00012	10/6/2022	4.37	10/6/2027	10/6/2022	119.76008	115.0268091	110.5129346	106.2071037	102.0986072	98.1773426	94.43377711	90.85891231	87.44425152
221006A00095	10/6/2022	4.65	4/8/2024	10/6/2022	103.30527	102.3519899	101.4163683	100.4979193	99.59617234	98.71067392	97.84098689	96.98668966	96.14737552
221006A00097	10/6/2022	4.58	10/7/2024	10/6/2022	105.3907	103.940919	102.5184511	101.1225861	99.75264196	98.40795938	97.08790104	95.79185058	94.51921176
221011A00114	10/11/2022	4.66	8/12/2024	10/11/2022	104.80286	103.5032728	102.2308643	100.9847875	99.76422689	98.56840079	97.39655975	96.2479847	95.12198549
221011A00122	10/11/2022	4.64	12/11/2024	10/11/2022	106.31441	104.6798731	103.0786633	101.5098286	99.9724502	98.46564406	96.98855903	95.5403754	94.12030342

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221014A00027	10/14/2022	4.63	10/14/2027	10/14/2022	121.08454	116.2971865	111.7324722	107.3788233	103.2253303	99.26170479	95.47824119	91.86578046	88.41567656
221014A00031	10/14/2022	4.89	4/12/2024	10/14/2022	103.59113	102.6253923	101.677744	100.7476787	99.83470928	98.93836656	98.05819828	97.19376852	96.34465693
221018A00030	10/18/2022	4.71	10/17/2025	10/18/2022	110.80225	108.2635009	105.7971093	103.4005964	101.0715812	98.80777844	96.60699438	94.46712226	92.38613849
221018A00031	10/18/2022	4.71	10/17/2025	10/18/2022	110.80225	108.2635009	105.7971093	103.4005964	101.0715812	98.80777844	96.60699438	94.46712226	92.38613849
221019A00008	10/19/2022	4.8	10/17/2025	10/19/2022	111.02582	108.4842573	106.0151212	103.6159238	101.2842822	99.01790949	96.81461015	94.67227588	92.58888152
221019A00009	10/19/2022	4.8	10/17/2025	10/19/2022	111.02582	108.4842573	106.0151212	103.6159238	101.2842822	99.01790949	96.81461015	94.67227588	92.58888152
221020A00046	10/20/2022	4.95	1/21/2025	10/20/2022	107.42522	105.6685816	103.949437	102.2666493	100.6191277	99.00582557	97.42573785	95.87789919	94.36138183
221020A00052	10/20/2022	4.95	10/21/2024	10/20/2022	106.12025	104.6263304	103.1612501	101.7242471	100.3145837	98.93154789	97.57445149	96.24262977	94.93544019
221021A00022	10/21/2022	4.84	10/21/2024	10/21/2022	105.95608	104.4634363	102.9996075	101.5638344	100.1553802	98.77353307	97.41760557	96.08693344	94.78087466
221021A00026	10/21/2022	4.94	10/23/2023	10/21/2022	101.78279	101.2908191	100.8036162	100.3211079	99.84322636	99.36990529	98.90107953	98.4366852	97.97665962
221024A00018	10/24/2022	4.91	10/24/2024	10/24/2022	106.10127	104.5992367	103.126349	101.6818355	100.2649471	98.87496055	97.51117739	96.17292278	94.85954462
221024A00067	10/24/2022	4.92	10/24/2023	10/24/2022	101.78293	101.2882426	100.7983691	100.3132404	99.83278761	99.35694342	98.88564167	98.41881749	97.95640726
221025A00027	10/25/2022	4.57	10/25/2027	10/25/2022	120.96664	116.1497933	111.5584467	107.1808037	103.0057451	99.02278946	95.2220528	91.59421171	88.13046836
221026A00022	10/26/2022	4.84	10/26/2023	10/26/2022	101.75793	101.2579358	100.7628537	100.2726154	99.78715002	99.30638807	98.83026144	98.35870334	97.89164824
221027A00004	10/27/2022	4.76	10/28/2024	10/27/2022	105.92882	104.4171264	102.9349733	101.4815726	100.0561601	98.65799846	97.2863754	95.94060315	94.62001717
221027A00009	10/27/2022	4.68	10/27/2025	10/27/2022	110.87188	108.3041572	105.8103948	103.3880292	101.0346013	98.74775227	96.52521862	94.36482775	92.26449375
221027A00046	10/27/2022	4.92	10/27/2023	10/27/2022	101.80797	101.3051103	100.8072155	100.3142161	99.8260402	99.3426172	98.863878	98.38975477	97.92018101
221027A00047	10/27/2022	4.88	4/26/2024	10/27/2022	103.74638	102.741893	101.756936	100.7909441	99.84337264	98.91369752	98.0014144	97.10603774	96.22709994
221027A00050	10/27/2022	4.52	10/27/2027	10/27/2022	120.76758	115.9493481	111.3570059	106.9787176	102.8033313	98.82033538	95.01981837	91.39243152	87.9293538
221027A00060	12/1/2022	4.46	12/1/2027	12/1/2022	120.9097	115.9894238	111.3036676	106.8399423	102.5864914	98.53224575	94.66677904	90.98026722	87.46345021
221027A00061	12/15/2022	4.45	12/15/2027	12/15/2022	121.04963	116.0849882	111.358616	106.8577382	102.5703327	98.48508516	94.59134367	90.87907598	87.33882998
221027A00062	12/15/2022	4.45	12/15/2027	12/15/2022	121.04963	116.0849882	111.358616	106.8577382	102.5703327	98.48508516	94.59134367	90.87907598	87.33882998
221027A00063	12/15/2022	4.45	12/15/2027	12/15/2022	121.04963	116.0849882	111.358616	106.8577382	102.5703327	98.48508516	94.59134367	90.87907598	87.33882998
221028A00027	10/28/2022	4.73	10/28/2024	10/28/2022	105.88347	104.3721332	102.8903298	101.4372727	100.012198	98.6143683	97.24307169	95.89762049	94.57735028
221031A00033	10/31/2022	4.74	10/31/2025	10/31/2022	111.08076	108.4992966	105.9924112	103.557511	101.1921079	98.8938156	96.66034472	94.48949819	92.37916694
221031A00035	10/31/2022	4.67	10/30/2026	10/31/2022	116.1724	112.4867663	108.941153	105.5294594	102.245888	99.08492469	96.04132381	93.11009298	90.28647965
221031A00036	10/31/2022	4.59	10/29/2027	10/31/2022	121.11246	116.2807286	111.6756665	107.2853852	103.0986855	99.10501189	95.29441216	91.65749961	88.18541792
221031A00042	10/31/2022	4.73	10/30/2026	10/31/2022	116.38407	112.6947225	109.1454947	105.7302877	102.4433003	99.27901502	96.23218279	93.29780805	90.47113519
221031A00061	10/31/2022	4.94	4/30/2024	10/31/2022	103.8551	102.8391704	101.8432033	100.8666138	99.90883938	98.96933926	98.04759317	97.14310041	96.255379
221102A00012	11/2/2022	4.82	11/3/2025	11/2/2022	111.32684	108.7339485	106.2161123	103.770711	101.3952348	99.08727704	96.84452895	94.66477523	92.54588957
221102A00026	11/2/2022	4.66	11/2/2027	11/2/2022	121.48555	116.6339759	112.0103332	107.6026473	103.3996395	99.39068027	95.56574895	91.91539524	88.43070381
221104A00044	11/4/2022	5.11	11/15/2023	11/4/2022	102.10316	101.5476946	100.9982974	100.4548648	99.91729989	99.38550776	98.85939555	98.33887237	97.8238493
221107A00010	11/7/2022	5.12	11/7/2024	11/7/2022	106.61733	105.0730926	103.5593032	102.0751293	100.6197715	99.19245859	97.79244651	96.41901704	95.07147676

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221107A00029	11/7/2022	4.83	11/9/2026	11/7/2022	116.88834	113.1618747	109.5776763	106.1295149	102.8114689	99.61790806	96.54347781	93.58308401	90.73187873
221107A00030	11/7/2022	4.7	11/5/2027	11/7/2022	121.7094	116.8441857	112.2078047	107.7882237	103.5741054	99.55476673	95.72013684	92.06071913	88.56755528
221107A00048	11/7/2022	4.96	9/8/2025	11/7/2022	110.83693	108.4058697	106.0413449	103.7411615	101.5032144	99.3254795	97.20601039	95.14293469	93.13445085
221107A00053	11/7/2022	4.95	10/7/2025	11/7/2022	111.24684	108.730694	106.2854617	103.908739	101.5982173	99.35168015	97.16699838	95.04212656	92.97509897
221108A00033	11/8/2022	4.7	11/8/2027	11/8/2022	121.75123	116.8764582	112.2312856	107.8036225	103.5820793	99.55592385	95.71504061	92.0498914	88.5514795
221108A00036	11/8/2022	4.95	11/7/2025	11/8/2022	111.71631	109.1073722	106.5741427	104.1139676	101.7243077	99.40272816	97.146894	94.95456494	92.82359111
221108A00041	11/8/2022	5.15	4/8/2024	11/8/2022	103.78264	102.8269033	101.8888574	100.9680154	100.063906	99.1760751	98.30408493	97.44751326	96.6059528
221110A00023	11/10/2022	4.71	11/8/2024	11/10/2022	105.99962	104.4576136	102.9460483	101.4640923	100.010945	98.5858343	97.18801531	95.81676898	94.47140114
221110A00024	11/10/2022	4.51	11/10/2025	11/10/2022	110.63959	108.0362233	105.5086522	103.0542199	100.6703763	98.35467702	96.10477775	93.91842983	91.79347557
221110A00025	11/10/2022	4.39	11/10/2026	11/10/2022	115.33779	111.6359753	108.0758384	104.6511653	101.3560502	98.18487854	95.13231083	92.19326762	89.36291523
221110A00026	11/10/2022	4.29	11/10/2027	11/10/2022	119.90424	115.0653767	110.4551647	106.0615364	101.8731267	97.87922785	94.06974819	90.43517306	86.96652887
221110A00032	11/10/2022	4.75	11/12/2024	11/10/2022	106.11496	104.5612179	103.0382602	101.5452398	100.0813424	98.6457827	97.23780342	95.85667378	94.5016884
221110A00038	11/10/2022	4.34	11/10/2027	11/10/2022	120.13288	115.2888641	110.673674	106.2752382	102.0821844	98.08379803	94.26998066	90.63121147	87.15851089
221110A00064	1/17/2023	4.25	1/14/2028	1/17/2023	120.48875	115.4507095	110.6582912	106.0981143	101.7576072	97.62495105	93.68903019	89.93938593	86.36617398
221110A00065	1/17/2023	4.25	1/14/2028	1/17/2023	120.48875	115.4507095	110.6582912	106.0981143	101.7576072	97.62495105	93.68903019	89.93938593	86.36617398
221110A00074	11/10/2022	4.75	11/12/2024	11/10/2022	106.11496	104.5612179	103.0382602	101.5452398	100.0813424	98.6457827	97.23780342	95.85667378	94.5016884
221110A00075	11/10/2022	4.56	11/10/2025	11/10/2022	110.7671	108.1620884	105.6329128	103.1769117	100.7915339	98.47433389	96.2229664	94.03518181	91.90882149
221110A00076	11/10/2022	4.45	11/10/2026	11/10/2022	115.55129	111.8456965	108.2818839	104.8536386	101.555051	98.38050292	95.32465155	92.3824141	89.54895376
221110A00108	11/10/2022	4.48	12/10/2025	11/10/2022	110.98105	108.2896897	105.6784593	103.1444677	100.6849526	98.29726955	95.97888632	93.72737693	91.54041662
221110A00110	11/10/2022	4.47	1/13/2026	11/10/2022	111.42715	108.6348189	105.9278661	103.3031234	100.7575631	98.28829139	95.89254153	93.56766716	91.31113607
221114A00002	11/14/2022	4.37	11/15/2027	11/14/2022	120.28485	115.4246308	110.7944726	106.3822082	102.1763814	98.16620073	94.34149657	90.69268219	87.21071713
221114A00019	11/14/2022	4.94	11/14/2023	11/14/2022	101.9986	101.4461931	100.899785	100.3592816	99.82458733	99.29560874	98.77225427	98.25443436	97.74206132
221117A00008	11/17/2022	4.82	11/15/2024	11/17/2022	106.26448	104.7014239	103.1694191	101.6676079	100.1951652	98.75129577	97.33523275	95.94623624	94.58359222
221117A00012	11/17/2022	4.54	11/14/2025	11/17/2022	110.77204	108.1559577	105.6162558	103.1502435	100.7553431	98.42908392	96.16909732	93.9731114	91.83894661
221117A00013	11/17/2022	4.54	11/14/2025	11/17/2022	110.77204	108.1559577	105.6162558	103.1502435	100.7553431	98.42908392	96.16909732	93.9731114	91.83894661
221117A00014	11/17/2022	4.54	11/14/2025	11/17/2022	110.77204	108.1559577	105.6162558	103.1502435	100.7553431	98.42908392	96.16909732	93.9731114	91.83894661
221117A00025	11/17/2022	4.28	11/17/2027	11/17/2022	119.89761	115.0404664	110.4135647	106.0047176	101.8024472	97.79594204	93.97501445	90.33006143	86.85202772
221118A00018	11/18/2022	4.55	11/18/2025	11/18/2022	110.8537	108.2255614	105.6743677	103.1974024	100.7920605	98.45584561	96.18636474	93.98132308	91.83851945
221118A00019	11/18/2022	4.55	11/18/2025	11/18/2022	110.8537	108.2255614	105.6743677	103.1974024	100.7920605	98.45584561	96.18636474	93.98132308	91.83851945
221118A00023	11/18/2022	4.12	11/18/2027	11/18/2022	120.48796	115.5757001	110.8972997	106.4403284	102.1930849	98.14455035	94.28434411	90.60268346	87.09034588
221118A00045	11/18/2022	4.57	11/18/2025	11/18/2022	110.90515	108.276337	105.7244907	103.2468875	100.8409217	98.5040967	96.23401897	94.02839335	91.88501828
221118A00046	11/18/2022	4.4	11/18/2026	11/18/2022	115.48503	111.7581793	108.1746041	104.727987	101.4123294	98.22193001	95.1513686	92.19549013	89.34939033
221118A00080	11/18/2022	4.61	11/18/2025	11/18/2022	111.00803	108.3778883	105.8247369	103.3458576	100.9386442	98.60059889	96.32932744	94.1225339	91.97801593

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221121A00047	11/21/2022	4.89	11/21/2033	11/21/2022	147.89937	135.6093704	124.5143573	114.4895628	105.4239387	97.21858002	89.78533678	83.04559096	76.92917826
221121A00052	11/21/2022	4.35	11/22/2027	11/21/2022	120.28368	115.4035626	110.7552159	106.326346	102.1053765	98.08140445	94.24415777	90.58395501	87.09166821
221121A00064	11/21/2022	4.34	11/22/2027	11/21/2022	120.23763	115.3585559	110.7112185	106.2833231	102.0632947	98.04023201	94.20386409	90.54451081	87.05304545
221122A00029	11/22/2022	4.31	11/22/2027	11/22/2022	120.09947	115.2235357	110.5792262	106.1542543	101.9370495	97.9167147	94.08298303	90.42617821	86.93717717
221122A00040	11/22/2022	4.31	11/22/2027	11/22/2022	120.09947	115.2235357	110.5792262	106.1542543	101.9370495	97.9167147	94.08298303	90.42617821	86.93717717
221123A00034	11/23/2022	4.43	11/23/2026	11/23/2022	115.66264	111.9186153	108.3189049	104.8571333	101.5272421	98.32347399	95.24035634	92.27268525	89.41551068
221123A00039	11/23/2022	4.29	11/23/2027	11/23/2022	120.02014	115.1431589	110.4979914	106.0723281	101.8545839	97.83384793	93.99984117	90.34287591	86.85381865
221128A00034	11/28/2022	4.27	11/26/2027	11/28/2022	119.96611	115.0818427	110.4300746	105.9984501	101.7753338	97.74976878	93.91143331	90.25060043	86.75810044
221129A00032	11/29/2022	5.04	5/22/2024	11/29/2022	104.22227	103.1446801	102.0894903	101.0560073	100.0435647	99.05152361	98.0792704	97.12621605	96.1917947
221129A00034	11/29/2022	4.38	12/1/2025	11/29/2022	111.27531	108.5910546	105.9864077	103.4585123	101.0046369	98.62216601	96.30859421	94.06152065	91.87864398
221129A00035	11/29/2022	4.09	11/29/2027	11/29/2022	120.4932	115.5489765	110.8413785	106.3577624	102.0862317	98.01558728	94.13528241	90.43538103	86.90651906
221129A00037	11/29/2022	4.56	11/26/2025	11/29/2022	110.99175	108.3398122	105.7659578	103.2674093	100.8415067	98.48570192	96.19755301	93.97471921	91.81495593
221129A00038	11/29/2022	4.56	11/26/2025	11/29/2022	110.99175	108.3398122	105.7659578	103.2674093	100.8415067	98.48570192	96.19755301	93.97471921	91.81495593
221129A00039	11/29/2022	4.56	11/26/2025	11/29/2022	110.99175	108.3398122	105.7659578	103.2674093	100.8415067	98.48570192	96.19755301	93.97471921	91.81495593
221129A00040	11/29/2022	4.56	11/26/2025	11/29/2022	110.99175	108.3398122	105.7659578	103.2674093	100.8415067	98.48570192	96.19755301	93.97471921	91.81495593
221129A00041	11/29/2022	4.56	11/28/2025	11/29/2022	111.01983	108.3620283	105.7825918	103.2787302	100.8477698	98.48714921	96.19441449	93.96721328	91.8032901
221129A00042	11/29/2022	4.56	11/28/2025	11/29/2022	111.01983	108.3620283	105.7825918	103.2787302	100.8477698	98.48714921	96.19441449	93.96721328	91.8032901
221129A00043	11/29/2022	4.59	12/1/2025	11/29/2022	111.14103	108.4731106	105.8840353	103.370987	100.9312687	98.56229739	96.26159854	94.02680049	91.85562953
221129A00044	11/29/2022	4.56	11/28/2025	11/29/2022	111.01983	108.3620283	105.7825918	103.2787302	100.8477698	98.48714921	96.19441449	93.96721328	91.8032901
221129A00045	11/29/2022	4.56	11/28/2025	11/29/2022	111.01983	108.3620283	105.7825918	103.2787302	100.8477698	98.48714921	96.19441449	93.96721328	91.8032901
221129A00046	11/29/2022	4.56	12/1/2025	11/29/2022	111.06279	108.3959	105.8078301	103.2957644	100.8570068	98.48897488	96.18919478	93.95529543	91.78500374
221129A00047	11/29/2022	4.56	12/1/2025	11/29/2022	111.06279	108.3959	105.8078301	103.2957644	100.8570068	98.48897488	96.18919478	93.95529543	91.78500374
221129A00048	11/29/2022	4.56	12/1/2025	11/29/2022	111.06279	108.3959	105.8078301	103.2957644	100.8570068	98.48897488	96.18919478	93.95529543	91.78500374
221129A00049	11/29/2022	4.56	12/1/2025	11/29/2022	111.06279	108.3959	105.8078301	103.2957644	100.8570068	98.48897488	96.18919478	93.95529543	91.78500374
221129A00050	11/29/2022	4.56	12/2/2025	11/29/2022	111.07711	108.4071907	105.8162433	103.3014437	100.860088	98.489587	96.18746001	93.95132978	91.77891732
221129A00051	11/29/2022	4.56	12/2/2025	11/29/2022	111.07711	108.4071907	105.8162433	103.3014437	100.860088	98.489587	96.18746001	93.95132978	91.77891732
221129A00052	11/29/2022	4.56	12/2/2025	11/29/2022	111.07711	108.4071907	105.8162433	103.3014437	100.860088	98.489587	96.18746001	93.95132978	91.77891732
221129A00053	11/29/2022	4.56	12/2/2025	11/29/2022	111.07711	108.4071907	105.8162433	103.3014437	100.860088	98.489587	96.18746001	93.95132978	91.77891732
221129A00054	11/29/2022	4.56	12/3/2025	11/29/2022	111.09143	108.4184814	105.8246568	103.3071234	100.8631702	98.49020059	96.18572741	93.94736708	91.77283472
221129A00055	11/29/2022	4.56	12/3/2025	11/29/2022	111.09143	108.4184814	105.8246568	103.3071234	100.8631702	98.49020059	96.18572741	93.94736708	91.77283472
221129A00056	11/29/2022	4.31	11/29/2027	11/29/2022	120.18933	115.2913614	110.6268234	106.1832907	101.9490674	97.91314065	94.06513707	90.39528171	86.89436047
221129A00059	11/29/2022	4.39	11/27/2026	11/29/2022	115.57458	111.82093	108.2123155	104.7423135	101.4048213	98.19404068	95.10446074	92.13084182	89.26820064
221129A00060	11/29/2022	4.39	11/27/2026	11/29/2022	115.57458	111.82093	108.2123155	104.7423135	101.4048213	98.19404068	95.10446074	92.13084182	89.26820064

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221129A00061	11/29/2022	4.39	11/27/2026	11/29/2022	115.57458	111.82093	108.2123155	104.7423135	101.4048213	98.19404068	95.10446074	92.13084182	89.26820064
221129A00062	11/29/2022	4.39	11/27/2026	11/29/2022	115.57458	111.82093	108.2123155	104.7423135	101.4048213	98.19404068	95.10446074	92.13084182	89.26820064
221129A00064	11/29/2022	4.28	11/30/2027	11/29/2022	120.06342	115.1653866	110.5009442	106.057649	101.8237908	97.78834377	93.9409225	90.27174117	86.77157572
221129A00065	11/29/2022	4.28	11/30/2027	11/29/2022	120.06342	115.1653866	110.5009442	106.057649	101.8237908	97.78834377	93.9409225	90.27174117	86.77157572
221129A00066	11/29/2022	4.28	11/29/2027	11/29/2022	120.05059	115.1557824	110.494297	106.0537112	101.8223337	97.78915611	93.94380897	90.27652129	86.77808265
221129A00067	11/29/2022	4.28	11/29/2027	11/29/2022	120.05059	115.1557824	110.494297	106.0537112	101.8223337	97.78915611	93.94380897	90.27652129	86.77808265
221129A00068	11/29/2022	4.28	11/29/2027	11/29/2022	120.05059	115.1557824	110.494297	106.0537112	101.8223337	97.78915611	93.94380897	90.27652129	86.77808265
221129A00069	11/29/2022	4.28	11/26/2027	11/29/2022	120.01228	115.1269559	110.4741738	106.0415704	101.8175086	97.79103027	93.9518122	90.29012619	86.79680128
221129A00070	11/29/2022	4.28	11/26/2027	11/29/2022	120.01228	115.1269559	110.4741738	106.0415704	101.8175086	97.79103027	93.9518122	90.29012619	86.79680128
221129A00071	11/29/2022	4.28	11/26/2027	11/29/2022	120.01228	115.1269559	110.4741738	106.0415704	101.8175086	97.79103027	93.9518122	90.29012619	86.79680128
221129A00072	11/29/2022	4.39	12/2/2026	11/29/2022	115.64536	111.8760704	108.2528573	104.7692287	101.4190202	98.19637584	95.09573086	92.11179547	89.23953957
221129A00073	11/29/2022	4.39	12/2/2026	11/29/2022	115.64536	111.8760704	108.2528573	104.7692287	101.4190202	98.19637584	95.09573086	92.11179547	89.23953957
221129A00075	11/29/2022	4.38	12/1/2026	11/29/2022	115.59498	111.8294901	108.2098459	104.7295716	101.3825159	98.16283519	95.06497632	92.08366023	89.21386684
221129A00076	11/29/2022	4.38	12/1/2026	11/29/2022	115.59498	111.8294901	108.2098459	104.7295716	101.3825159	98.16283519	95.06497632	92.08366023	89.21386684
221129A00077	11/29/2022	4.38	12/1/2026	11/29/2022	115.59498	111.8294901	108.2098459	104.7295716	101.3825159	98.16283519	95.06497632	92.08366023	89.21386684
221129A00078	11/29/2022	4.38	12/1/2026	11/29/2022	115.59498	111.8294901	108.2098459	104.7295716	101.3825159	98.16283519	95.06497632	92.08366023	89.21386684
221129A00083	11/29/2022	4.38	11/30/2026	11/29/2022	115.5808	111.8184516	108.2017434	104.7242086	101.3797085	98.16241122	95.06677439	92.08752919	89.21966504
221129A00084	11/29/2022	4.38	11/30/2026	11/29/2022	115.5808	111.8184516	108.2017434	104.7242086	101.3797085	98.16241122	95.06677439	92.08752919	89.21966504
221129A00085	11/29/2022	4.38	11/30/2026	11/29/2022	115.5808	111.8184516	108.2017434	104.7242086	101.3797085	98.16241122	95.06677439	92.08752919	89.21966504
221129A00086	11/29/2022	4.38	11/30/2026	11/29/2022	115.5808	111.8184516	108.2017434	104.7242086	101.3797085	98.16241122	95.06677439	92.08752919	89.21966504
221130A00019	11/30/2022	4.63	11/26/2025	11/30/2022	111.17334	108.5190306	105.9428545	103.4420365	101.0139149	98.65594018	96.36566887	94.14075879	91.97896398
221130A00032	11/30/2022	4.37	11/30/2027	11/30/2022	120.47989	115.5723632	110.8987522	106.4466058	102.2042003	98.16049663	94.30509717	90.62820437	87.12058304
221130A00033	11/30/2022	4.37	11/30/2027	11/30/2022	120.47989	115.5723632	110.8987522	106.4466058	102.2042003	98.16049663	94.30509717	90.62820437	87.12058304
221130A00039	11/30/2022	5.16	11/30/2023	11/30/2022	102.29071	101.6938969	101.104061	100.5210792	99.94483244	99.3752044	98.81208147	98.25535258	97.70490921
221130A00041	11/30/2022	4.95	12/2/2024	11/30/2022	106.6905	105.077921	103.497889	101.9494882	100.4318328	98.94407017	97.48537869	96.05496671	94.65207101
221130A00044	11/30/2022	5.09	5/30/2024	11/30/2022	104.37812	103.2778989	102.2009975	101.1466773	100.1142322	99.10298518	98.11228691	97.14151441	96.19006968
221130A00061	11/30/2022	5.05	11/30/2023	11/30/2022	102.225	101.6284129	101.0387976	100.4560345	99.88000459	99.31059166	98.74768207	98.19116479	97.64093129
221130A00076	11/30/2022	4.15	11/30/2027	11/30/2022	120.78573	115.8318287	111.1150469	106.6227137	102.3429043	98.26439292	94.37660806	90.66959066	87.13395516
221130A00085	11/30/2022	4.19	11/30/2027	11/30/2022	119.64694	114.7584101	110.1031362	105.6686921	101.4433813	97.41619091	93.57674783	89.91527797	86.4225684
221130A00110	11/30/2022	4.15	11/30/2027	11/30/2022	119.46184	114.5775316	109.9263326	105.4958224	101.2743104	97.25078964	93.41489242	89.75684988	86.26745404
221202A00013	12/2/2022	4.78	12/3/2024	12/2/2022	106.43119	104.817976	103.237363	101.6884321	100.1702948	98.68209575	97.22301091	95.79224626	94.38903641
221202A00018	12/2/2022	4.16	12/2/2027	12/2/2022	119.5331	114.6413235	109.9832242	105.5463434	101.3189513	97.29000463	93.44910229	89.78644453	86.29279482
221202A00025	12/2/2022	4.06	12/2/2026	12/2/2022	115.42033	111.6301938	107.9875754	104.4858932	101.1189003	97.8806637	94.76554649	91.76819122	88.88350434

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221205A00024	12/5/2022	4.13	12/3/2027	12/5/2022	119.40652	114.5147114	109.8567386	105.4201254	101.1931276	97.16468905	93.3243966	89.66243964	86.16957172
221205A00048	12/5/2022	4.4	12/5/2025	12/5/2022	110.70103	108.0275553	105.4333828	102.9156671	100.4716856	98.0988314	95.79460731	93.55662062	91.38257781
221205A00065	12/5/2022	4.13	12/6/2027	12/5/2022	119.44376	114.5423309	109.8755487	105.4308686	101.1964899	97.16130383	93.3148492	89.64727086	86.14928129
221206A00011	12/6/2022	4.29	12/7/2026	12/6/2022	115.3531	111.5746412	107.9431244	104.4519953	101.0950329	97.86632901	94.76027017	91.77152138	88.89501044
221206A00025	12/6/2022	4.27	12/4/2026	12/6/2022	115.23879	111.4710568	107.8495902	104.3678844	101.0197576	97.79933817	94.70104666	91.71957989	88.84989539
221206A00036	12/6/2022	4.13	12/6/2027	12/6/2022	119.44376	114.5423309	109.8755487	105.4308686	101.1964899	97.16130383	93.3148492	89.64727086	86.14928129
221206A00039	12/6/2022	4.29	12/7/2026	12/6/2022	115.3531	111.5746412	107.9431244	104.4519953	101.0950329	97.86632901	94.76027017	91.77152138	88.89501044
221207A00009	12/7/2022	4.38	12/8/2025	12/7/2022	110.69012	108.0082898	105.4062007	102.8809845	100.4298966	98.05030908	95.73970526	93.49567394	91.31590427
221207A00010	12/7/2022	4.08	12/7/2027	12/7/2022	119.22382	114.3245085	109.6599256	105.2175143	100.9854625	96.9526515	93.10861073	89.44347685	85.94795492
221207A00012	12/7/2022	4.21	12/7/2026	12/7/2022	115.06244	111.2892368	107.6628225	104.17665	100.8245037	97.60048041	94.49897159	91.51464695	88.64243876
221207A00017	12/7/2022	3.86	12/7/2027	12/7/2022	119.52333	114.5776135	109.8698437	105.3872462	101.117806	97.05021552	93.17382914	89.47862047	85.95514296
221207A00032	12/7/2022	4.52	12/7/2032	12/7/2022	140.61198	129.6998085	119.7701201	110.7279065	102.4878588	94.97332927	88.11540972	81.85211133	76.12763591
221207A00035	12/7/2022	4.31	1/7/2026	12/7/2022	110.91138	108.1425585	105.4580394	102.8547102	100.3295952	97.87984976	95.50275332	93.195703	90.95620756
221207A00058	12/7/2022	4.01	12/7/2027	12/7/2022	118.89852	114.0066678	109.3492745	104.913803	100.6884522	96.66211342	92.82432587	89.16523547	85.67555606
221207A00074	12/7/2022	4.66	12/6/2024	12/7/2022	106.29526	104.6745306	103.0866767	101.53076	100.0058808	98.511173	97.0458024	95.60896542	94.19988758
221208A00020	12/8/2022	4.11	12/8/2027	12/8/2022	119.37558	114.4698794	109.7992817	105.3512105	101.1138302	97.076	93.22722916	89.55763551	86.05790663
221208A00051	2/15/2023	4.27	2/13/2026	2/15/2023	111.28801	108.4126077	105.6274157	102.9290725	100.3143594	97.78019823	95.32364357	92.94187652	90.63219825
221208A00052	2/15/2023	4.01	2/15/2028	2/15/2023	119.71181	114.6017308	109.7450719	105.1278768	100.7370336	96.56021838	92.58584335	88.80300917	85.20146017
221208A00054	2/1/2023	4.02	2/1/2028	2/1/2023	119.60241	114.5343668	109.7159091	105.1333284	100.7737496	96.62507365	92.67592632	88.91561047	85.33406177
221208A00110	12/8/2022	4.07	12/8/2027	12/8/2022	119.18959	114.2881497	109.6216652	105.1775642	100.9440173	96.90988958	93.06469593	89.39855942	85.90217267
221212A00011	12/12/2022	3.89	12/10/2027	12/12/2022	119.70146	114.7427597	110.0229357	105.5291501	101.2493248	97.17209442	93.28675955	89.58324429	86.0520563
221212A00040	12/12/2022	4.45	12/12/2025	12/12/2022	110.9301	108.2337458	105.6178029	103.0793647	100.6156546	98.2240145	95.90189932	93.64687109	91.45659372
221212A00041	12/12/2022	4.15	12/10/2027	12/12/2022	119.58651	114.670129	109.9895422	105.5321215	101.285987	97.23995699	93.38350293	89.70670751	86.20022581
221212A00052	12/12/2022	4.97	6/12/2024	12/12/2022	104.42272	103.286673	102.1754827	101.0883405	100.0244703	98.98312859	97.9636037	96.9652135	95.98730409
221212A00063	12/12/2022	4.45	12/12/2025	12/12/2022	110.9301	108.2337458	105.6178029	103.0793647	100.6156546	98.2240145	95.90189932	93.64687109	91.45659372
221212A00071	12/12/2022	4.15	12/13/2027	12/12/2022	119.62391	114.6979092	110.00851	105.5430229	101.2895107	97.23673913	93.37413099	89.69172421	86.18013254
221213A00004	12/13/2022	3.99	12/13/2027	12/13/2022	118.87771	113.9688625	109.2960114	104.8464958	100.6084036	96.57052421	92.72230295	89.05379911	85.55564676
221213A00017	12/13/2022	4.1	12/14/2026	12/13/2022	114.75664	110.9688359	107.3290813	103.830746	100.4675333	97.23346443	94.12286069	91.13032649	88.2507334
221213A00042	12/13/2022	4.49	3/13/2025	12/13/2022	107.28427	105.3880242	103.5350056	101.7239767	99.95373987	98.22313942	96.53105968	94.87642343	93.2581903
221213A00047	12/13/2022	3.8	12/13/2027	12/13/2022	119.31701	114.3583005	109.6389441	105.1460558	100.8675137	96.79191213	92.90851507	89.20721324	85.67848378
221213A00049	12/13/2022	4.01	12/13/2027	12/13/2022	118.97099	114.0599933	109.3850737	104.9335616	100.693542	96.65380108	92.80378146	89.13353975	85.63370748
221213A00052	12/13/2022	4.02	12/14/2027	12/13/2022	119.02973	114.1144731	109.4355977	104.980414	100.7369864	96.69408198	92.84112583	89.16815829	85.66579586
221213A00061	12/13/2022	4.15	12/11/2026	12/13/2022	114.89863	111.1168782	107.4826388	103.9893193	100.6306573	97.40070655	94.29381819	91.30462449	88.42802292

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221214A00003	12/14/2022	4.26	12/12/2025	12/14/2022	110.42882	107.7391354	105.129705	102.5976315	100.1401426	97.75458481	95.43841722	93.18920592	91.00461872
221214A00020	12/14/2022	4.2	12/12/2025	12/14/2022	110.27052	107.5829426	104.9755688	102.4455052	99.9899809	97.60634385	95.29205445	93.04468007	90.86188978
221214A00022	12/14/2022	4.17	2/13/2026	12/14/2022	111.00681	108.1353822	105.3540694	102.6595135	100.0484987	97.51794947	95.06492332	92.68660388	90.3802948
221214A00030	12/14/2022	4.02	12/14/2027	12/14/2022	119.02973	114.1144731	109.4355977	104.980414	100.7369864	96.69408198	92.84112583	89.16815829	85.66579586
221214A00031	12/14/2022	3.97	12/14/2027	12/14/2022	118.7964	113.8865131	109.2128148	104.7626279	100.5240244	96.48577898	92.63732361	88.96870538	85.47054715
221214A00102	12/14/2022	4.33	12/15/2025	12/14/2022	110.65456	107.9533813	105.3329727	102.7904097	100.3228955	97.92775348	95.60242086	93.34444324	91.15146908
221215A00082	12/15/2022	4.27	12/15/2025	12/15/2022	110.49577	107.7967053	105.1783659	102.6378249	100.1722871	97.7790772	95.45563385	93.1995039	91.00833706
221215A00115	12/15/2022	4	12/15/2027	12/15/2022	118.94845	114.0321503	109.3524268	104.8965711	100.6526314	96.60936054	92.75616997	89.08308785	85.58071945
221216A00007	12/16/2022	4.27	12/16/2025	12/16/2022	110.50929	107.807218	105.1860234	102.6427722	100.1746614	97.77900865	95.45324573	93.19491317	91.00165468
221216A00008	12/16/2022	4.27	12/16/2025	12/16/2022	110.50929	107.807218	105.1860234	102.6427722	100.1746614	97.77900865	95.45324573	93.19491317	91.00165468
221216A00009	12/16/2022	4.27	12/16/2025	12/16/2022	110.50929	107.807218	105.1860234	102.6427722	100.1746614	97.77900865	95.45324573	93.19491317	91.00165468
221216A00010	12/16/2022	4.27	12/16/2025	12/16/2022	110.50929	107.807218	105.1860234	102.6427722	100.1746614	97.77900865	95.45324573	93.19491317	91.00165468
221216A00044	12/16/2022	4.43	4/16/2025	12/16/2022	107.62705	105.6317884	103.6841272	101.782631	99.92592226	98.1126737	96.34160647	94.61148791	92.92112955
221216A00045	12/16/2022	4.38	5/16/2025	12/16/2022	107.9243	105.8432226	103.8133122	101.8329789	99.90068959	98.01496967	96.17440062	94.37761731	92.62330556
221216A00047	12/16/2022	4.34	6/16/2025	12/16/2022	108.25077	106.0808995	103.9658425	101.9038301	99.89316596	97.93222184	96.01943381	94.15329932	92.33237422
221216A00048	12/16/2022	4.32	7/16/2025	12/16/2022	108.60518	106.3483883	104.1502225	102.0087317	99.92204453	97.8883673	95.90598023	93.97323365	92.0885445
221216A00049	12/16/2022	4.29	8/15/2025	12/16/2022	108.93201	106.588982	104.3086604	102.088976	99.92794035	97.82364431	95.77425407	93.77800765	91.83321155
221219A00043	12/19/2022	4.07	12/17/2027	12/19/2022	119.29979	114.3695757	109.6767417	105.2085261	100.9529281	96.8986547	93.03507507	89.35217803	85.84053232
221220A00017	12/20/2022	4.99	12/20/2023	12/20/2022	102.40063	101.7490915	101.1058696	100.4708039	99.84373994	99.22452679	98.61301745	98.00906855	97.41254025
221220A00024	12/20/2022	4.7	12/20/2024	12/20/2022	106.53606	104.8745768	103.2473018	101.6532439	100.0914485	98.5609971	97.06100647	95.59062624	94.14903766
221220A00025	12/20/2022	4.38	12/22/2025	12/20/2022	110.88366	108.1596007	105.5174315	102.9541663	100.4669532	98.05306366	95.70988644	93.4349212	91.22577324
221221A00043	12/21/2022	4.26	12/19/2025	12/21/2022	110.52327	107.8125361	105.1831246	102.6320842	100.1565892	97.75393565	95.42153537	93.15690996	90.95768532
221221A00053	12/21/2022	4.15	12/21/2027	12/21/2022	119.72364	114.7719922	110.0591021	105.5721196	101.2989541	97.22823019	93.34924038	89.65190262	86.12671994
221223A00016	12/23/2022	4.73	12/23/2024	12/23/2022	106.62725	104.9566347	103.3205238	101.7179161	100.1478446	98.60937951	97.10162642	95.62372465	94.17484563
221223A00035	12/23/2022	4.44	12/23/2025	12/23/2022	111.0576	108.3283732	105.6812399	103.1132047	100.6214067	98.20310871	95.85569111	93.57664588	91.36357096
221228A00044	12/28/2022	4.31	12/28/2027	12/28/2022	120.5638	115.5722485	110.8219801	106.2999635	101.9939474	97.89240724	93.98449772	90.26000901	86.70932575
221229A00043	12/29/2022	4.96	7/1/2024	12/29/2022	104.64106	103.452182	102.2904671	101.1549925	100.0448745	98.95926884	97.89736855	96.85840163	95.84162932
221229A00075	12/29/2022	5.2	12/29/2037	12/29/2022	166.01622	148.2386541	132.730274	119.1805675	107.3234708	96.93077682	87.80654867	79.78238409	72.71339758
230104A00004	1/4/2023	4.19	1/4/2028	1/4/2023	120.08332	115.0830702	110.3255159	105.7974973	101.4866473	97.38133541	93.47061946	89.7442008	86.19238277
230104A00044	1/4/2023	4.2	1/4/2028	1/4/2023	120.13057	115.1292207	110.3706057	105.8415638	101.5297262	97.42346094	93.51182425	89.78451615	86.23183865
230105A00020	1/5/2023	4.32	1/5/2028	1/5/2023	120.70996	115.692286	110.9180838	106.3741508	102.0480792	97.92820051	94.0035371	90.26375701	86.6991324
230106A00017	1/6/2023	4.23	1/6/2028	1/6/2023	120.29659	115.2857125	110.5182187	105.980905	101.6613591	97.54790843	93.62957225	89.8960161	86.33751018
230106A00019	1/6/2023	4.23	1/6/2028	1/6/2023	120.29659	115.2857125	110.5182187	105.980905	101.6613591	97.54790843	93.62957225	89.8960161	86.33751018

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230109A00042	1/9/2023	4.07	12/20/2027	1/9/2023	119.33652	114.3967187	109.695105	105.2188575	100.9559175	96.89493908	93.0252427	89.33677213	85.82005459
230109A00083	1/9/2023	4.79	1/11/2038	1/9/2023	160.18376	142.7746351	127.6052274	114.3673976	102.7973049	92.66881	83.78789144	75.98791549	69.12562462
230110A00023	1/10/2023	4.3	1/12/2026	1/10/2023	110.95042	108.1673656	105.4693875	102.8533276	100.3161707	97.85503488	95.46716463	93.14992424	90.90079164
230110A00040	1/13/2023	4.07	12/13/2027	1/13/2023	119.25081	114.3333859	109.6522607	105.1947593	100.9489572	96.90363167	93.04821697	89.37276166	85.86788965
230110A00043	1/10/2023	3.84	1/10/2028	1/10/2023	119.84665	114.7940097	109.9885427	105.4167587	101.065979	96.92428585	92.98047138	89.22399153	85.64492271
230110A00047	1/10/2023	3.84	1/10/2028	1/10/2023	119.84665	114.7940097	109.9885427	105.4167587	101.065979	96.92428585	92.98047138	89.22399153	85.64492271
230110A00055	1/10/2023	4.06	1/10/2028	1/10/2023	119.53905	114.5345244	109.7737943	105.2435948	100.9314641	96.82568468	92.91523529	89.18974489	85.63945069
230110A00070	1/10/2023	4.27	1/9/2026	1/10/2023	110.82927	108.0560925	105.3674934	102.760345	100.2316567	97.77856986	95.3983509	93.08838465	90.84616838
230111A00004	1/11/2023	3.83	1/11/2028	1/11/2023	119.81081	114.7561439	109.9488858	105.3755241	101.0233619	96.88046486	92.93560982	89.17823874	85.59841518
230111A00013	1/11/2023	4.25	1/9/2026	1/11/2023	110.77496	108.0025253	105.3146512	102.708211	100.1802146	97.72780401	95.34824598	93.03892586	90.79734136
230111A00019	1/11/2023	3.83	1/11/2028	1/11/2023	119.81081	114.7561439	109.9488858	105.3755241	101.0233619	96.88046486	92.93560982	89.17823874	85.59841518
230111A00039	1/11/2023	4.6	1/13/2025	1/11/2023	106.70808	104.9794086	103.2873179	101.6307085	100.0085264	98.41976002	96.86343731	95.33862423	93.84442273
230111A00046	1/11/2023	4.28	1/13/2026	1/11/2023	110.90912	108.1238912	105.4238803	102.8059184	100.2669828	97.80418455	95.4147616	93.09607207	90.84558808
230111A00069	1/11/2023	4.54	1/10/2025	1/11/2023	106.56528	104.8459533	103.162885	101.5149922	99.90123427	98.32061191	96.77216491	95.25497038	93.76814079
230111A00072	1/11/2023	4.21	1/12/2026	1/11/2023	110.70528	107.9255887	105.2308924	102.6180383	100.0840133	97.62593797	95.24105899	92.92674275	90.68046921
230112A00004	1/12/2023	4	1/12/2028	1/12/2023	119.27753	114.273483	109.513522	104.9843593	100.6735038	96.56921212	92.66043881	88.93679113	85.38848648
230112A00014	1/12/2023	4.09	1/12/2027	1/12/2023	115.10268	111.2265006	107.5044948	103.9296288	100.4952314	97.19497618	94.02286036	90.97318667	88.04054557
230112A00041	1/12/2023	4.2	1/12/2026	1/12/2023	110.67804	107.8987246	105.204393	102.591895	100.058218	97.60048276	95.21593614	92.90194481	90.65598894
230112A00042	1/12/2023	4.09	1/12/2027	1/12/2023	115.10268	111.2265006	107.5044948	103.9296288	100.4952314	97.19497618	94.02286036	90.97318667	88.04054557
230112A00044	1/12/2023	4	1/12/2028	1/12/2023	119.27753	114.273483	109.513522	104.9843593	100.6735038	96.56921212	92.66043881	88.93679113	85.38848648
230112A00060	3/15/2023	4.01	3/13/2026	3/15/2023	110.91501	107.9647161	105.109354	102.3453649	99.66933879	97.07801186	94.56825912	92.13708784	89.78163122
230112A00061	3/15/2023	4.01	3/13/2026	3/15/2023	110.91501	107.9647161	105.109354	102.3453649	99.66933879	97.07801186	94.56825912	92.13708784	89.78163122
230112A00062	3/15/2023	3.83	3/15/2028	3/15/2023	119.15868	113.977427	109.0572691	104.3836593	99.94293617	95.72226384	91.70957844	87.89353767	84.26347411
230112A00063	3/15/2023	3.83	3/15/2028	3/15/2023	119.15868	113.977427	109.0572691	104.3836593	99.94293617	95.72226384	91.70957844	87.89353767	84.26347411
230112A00065	1/12/2023	4.09	1/12/2027	1/12/2023	115.10268	111.2265006	107.5044948	103.9296288	100.4952314	97.19497618	94.02286036	90.97318667	88.04054557
230112A00066	1/12/2023	4	1/12/2028	1/12/2023	119.27753	114.273483	109.513522	104.9843593	100.6735038	96.56921212	92.66043881	88.93679113	85.38848648
230113A00055	1/13/2023	3.88	1/13/2028	1/13/2023	118.71902	113.7252157	108.9752946	104.4559643	100.1547342	96.05986176	92.16030323	88.44566772	84.90617489
230113A00080	1/13/2023	4.18	1/13/2026	1/13/2023	110.63646	107.854982	105.1586247	102.5442316	100.0087827	97.54939148	95.16329848	92.84786413	90.60056283
230117A00015	1/17/2023	4.52	1/17/2025	1/17/2023	106.605	104.866786	103.1655229	101.5000935	99.86942791	98.2724994	96.7083218	95.17594764	93.67446616
230117A00040	1/17/2023	4.07	1/19/2027	1/17/2023	115.11874	111.2227769	107.4824393	103.8905939	100.440479	97.12568361	93.94012667	90.87803796	87.93394007
230117A00048	1/17/2023	3.97	1/14/2028	1/17/2023	119.15794	114.1510529	109.3886726	104.8574711	100.5449235	96.4392551	92.52939223	88.80491609	85.25602023
230117A00087	1/17/2023	3.93	1/18/2028	1/17/2023	119.01303	113.9982818	109.228954	104.6916417	100.3737487	96.26343503	92.34956706	88.62167102	85.06989004
230118A00019	1/18/2023	3.59	1/18/2028	1/18/2023	118.74337	113.6938108	108.8926056	104.3261318	99.98159454	95.84697002	91.91095435	88.16291614	84.59285245

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230118A00023	1/18/2023	3.8	1/18/2028	1/18/2023	118.39371	113.3934876	108.638169	104.1143695	99.80951464	95.7117851	91.81006689	88.09390491	84.55346001
230118A00029	1/18/2023	3.81	1/18/2028	1/18/2023	118.44135	113.4400102	108.683614	104.1587751	99.85291726	95.75421971	91.85156691	88.1345023	84.5931854
230118A00033	1/18/2023	3.81	1/18/2028	1/18/2023	118.44135	113.4400102	108.683614	104.1587751	99.85291726	95.75421971	91.85156691	88.1345023	84.5931854
230118A00034	1/18/2023	3.89	1/18/2028	1/18/2023	118.82247	113.8121913	109.047174	104.5140195	100.2001382	96.09369659	92.18356701	88.45928145	84.91098849
230118A00039	1/18/2023	3.81	1/18/2028	1/18/2023	118.44135	113.4400102	108.683614	104.1587751	99.85291726	95.75421971	91.85156691	88.1345023	84.5931854
230118A00058	1/23/2023	4	2/17/2026	1/23/2023	110.57805	107.7017532	104.916085	102.2176643	99.60326116	97.06978557	94.61427999	92.23391292	89.92597271
230118A00087	1/18/2023	4.02	1/16/2026	1/18/2023	110.23759	107.4533959	104.754655	102.1381848	99.60094534	97.14003194	94.75266767	92.43619691	90.18807896
230119A00034	1/19/2023	3.82	1/19/2028	1/19/2023	118.49998	113.4944642	108.7341946	104.2057671	99.89658467	95.79480676	91.88929988	88.1695909	84.62582399
230119A00075	1/19/2023	4.44	1/21/2025	1/19/2023	106.53535	104.7867039	103.0754015	101.4003143	99.76035544	98.15448196	96.58169249	95.04102514	93.53155552
230119A00105	1/19/2023	3.9	1/19/2027	1/19/2023	114.48082	110.5967503	106.867956	103.2873155	99.84807979	96.54384998	93.36855659	90.31644045	87.38203471
230119A00108	1/19/2023	3.81	1/19/2028	1/19/2023	118.45232	113.4479149	108.6887242	104.1613374	99.85315893	95.75235007	91.84777877	88.12897335	84.58607934
230119A00137	1/19/2023	3.9	1/19/2027	1/19/2023	114.48082	110.5967503	106.867956	103.2873155	99.84807979	96.54384998	93.36855659	90.31644045	87.38203471
230120A00021	1/20/2023	4.13	1/20/2026	1/20/2023	110.58945	107.7894878	105.0757023	102.4448739	99.89392768	97.41992562	95.02005971	92.69164498	90.43211311
230120A00022	1/20/2023	3.9	1/20/2028	1/20/2023	118.89255	113.8750019	109.1032962	104.5639861	100.2444414	96.13279104	92.21787275	88.48918673	84.93685224
230120A00027	1/20/2023	4.13	1/20/2026	1/20/2023	110.58945	107.7894878	105.0757023	102.4448739	99.89392768	97.41992562	95.02005971	92.69164498	90.43211311
230120A00029	1/20/2023	3.9	1/20/2028	1/20/2023	118.89255	113.8750019	109.1032962	104.5639861	100.2444414	96.13279104	92.21787275	88.48918673	84.93685224
230120A00063	1/20/2023	4.83	7/22/2024	1/20/2023	104.74828	103.5015661	102.2846955	101.096604	99.93627715	98.80274791	97.69509367	96.6124338	95.55392727
230120A00065	1/20/2023	4.52	1/21/2025	1/20/2023	106.67494	104.9250377	103.2125051	101.53621	99.89506482	98.28802606	96.71409176	95.1722995	93.66172436
230120A00071	1/20/2023	4.31	1/21/2025	1/20/2023	106.73401	104.9761106	103.2558761	101.5721576	99.92385651	98.30991866	96.72933218	95.18112514	93.66436365
230120A00079	1/20/2023	3.68	1/20/2028	1/20/2023	119.19772	114.1317496	109.3150407	104.7339156	100.3755241	96.22779128	92.27936563	88.51957165	84.9383654
230120A00103	1/20/2023	3.92	1/20/2026	1/20/2023	110.72941	107.9117468	105.1811128	102.5342461	99.9680317	97.47949397	95.06578932	92.7241992	90.4521235
230120A00114	1/20/2023	4.13	1/20/2026	1/20/2023	110.58945	107.7894878	105.0757023	102.4448739	99.89392768	97.41992562	95.02005971	92.69164498	90.43211311
230120A00117	1/20/2023	3.9	1/20/2028	1/20/2023	118.89255	113.8750019	109.1032962	104.5639861	100.2444414	96.13279104	92.21787275	88.48918673	84.93685224
230123A00051	1/23/2023	3.75	1/21/2028	1/23/2023	119.54534	114.4683086	109.6410993	105.0499983	100.6821235	96.52537017	92.5683591	88.800389	85.21139189
230123A00078	1/23/2023	4.41	6/23/2025	1/23/2023	108.49392	106.3023796	104.1665279	102.0845604	100.0547413	98.07540546	96.14495375	94.26185055	92.42462041
230124A00004	1/24/2023	3.99	1/24/2028	1/24/2023	119.36769	114.3277179	109.5350289	104.9760735	100.6381279	96.50923438	92.57815076	88.83430324	85.26774256
230124A00015	1/24/2023	4.09	1/25/2027	1/24/2023	115.27188	111.3563652	107.5977981	103.9889619	100.5230135	97.19346656	93.99416969	90.91928738	87.96328134
230124A00022	1/24/2023	4.39	1/24/2025	1/24/2023	106.91417	105.146528	103.4168779	101.7240632	100.0669713	98.44453537	96.85573104	95.29957482	93.77512182
230124A00024	1/24/2023	4.23	1/23/2026	1/24/2023	110.90313	108.0906354	105.3648747	102.7226041	100.1607214	97.67626316	95.26639743	92.92841667	90.65973132
230124A00025	1/24/2023	4.09	1/25/2027	1/24/2023	115.27188	111.3563652	107.5977981	103.9889619	100.5230135	97.19346656	93.99416969	90.91928738	87.96328134
230124A00035	1/24/2023	4.23	1/26/2026	1/24/2023	110.94224	108.1209957	105.3869651	102.7368723	100.1675906	97.67613368	95.25964798	92.91540578	90.64079849
230124A00041	1/24/2023	4.6	1/24/2025	1/24/2023	106.83663	105.0775191	103.3560907	101.671202	100.0217524	98.40668601	96.82498932	95.27568881	93.75784911
230124A00045	1/24/2023	3.99	1/24/2028	1/24/2023	119.36769	114.3277179	109.5350289	104.9760735	100.6381279	96.50923438	92.57815076	88.83430324	85.26774256

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230124A00046	1/24/2023	3.99	1/24/2028	1/24/2023	119.36769	114.3277179	109.5350289	104.9760735	100.6381279	96.50923438	92.57815076	88.83430324	85.26774256
230124A00056	3/28/2023	4.19	3/28/2033	3/28/2023	138.45314	127.3187137	117.2181756	108.0487064	99.71825493	92.14435775	85.25309496	78.97816398	73.26005816
230125A00023	1/25/2023	3.69	1/25/2028	1/25/2023	119.30311	114.2203752	109.3883194	104.7931479	100.421909	96.2624341	92.30328571	88.53370911	84.94358744
230125A00030	1/25/2023	3.91	1/25/2028	1/25/2023	118.99647	113.9624318	109.1756168	104.622475	100.2902764	96.16705838	92.24157434	88.50324678	84.94212346
230126A00015	1/26/2023	4.08	1/26/2027	1/26/2023	115.24718	111.3293427	107.5686501	103.9578684	100.490142	97.15897283	93.9581988	90.88197428	87.92475164
230126A00033	1/26/2023	4.84	7/26/2024	1/26/2023	104.82317	103.5649023	102.3370092	101.1383982	99.96802881	98.82490945	97.70809454	96.61668181	95.54980988
230126A00034	1/26/2023	4.56	1/24/2025	1/26/2023	106.76652	105.0080348	103.2872268	101.6029473	99.95409603	98.33961739	96.75849806	95.20976484	93.69248265
230126A00036	1/26/2023	4.19	1/26/2026	1/26/2023	110.83174	108.0120367	105.2795048	102.6308756	100.0630235	97.57296327	95.15784236	92.81493402	90.54163063
230127A00095	1/27/2023	4.59	1/27/2025	1/27/2023	106.87675	105.1088924	103.3790402	101.6860344	100.0287609	98.40615105	96.8171792	95.26086048	93.73624875
230127A00096	1/27/2023	4.21	1/27/2026	1/27/2023	110.89997	108.0765827	105.3405466	102.6885802	100.1175491	97.62445997	95.20645254	92.86079279	90.58486629
230130A00045	1/30/2023	4.02	1/28/2028	1/30/2023	119.55732	114.5016181	109.6944006	105.1220284	100.7716936	96.63136135	92.68971832	88.93612501	85.36057166
230130A00086	1/30/2023	4.16	2/1/2027	1/30/2023	115.62787	111.6861597	107.9030757	104.2713074	100.7839262	97.43436354	94.21639033	91.12409693	88.15187464
230130A00087	1/30/2023	4.04	1/28/2028	1/30/2023	119.65315	114.595195	109.785798	105.2113238	100.8589613	96.71667231	92.77314035	89.01772306	85.44040789
230130A00095	2/3/2023	4.25	5/26/2026	2/3/2023	112.59222	109.4070775	106.3304874	103.3581201	100.4858456	97.70972291	95.02599036	92.4310562	89.92148984
230130A00096	1/30/2023	4.67	1/30/2025	1/30/2023	107.05831	105.2807128	103.5414683	101.8394125	100.1734259	98.54243393	96.94540512	95.38134853	93.84931191
230130A00127	1/30/2023	4.02	2/1/2028	1/30/2023	119.60241	114.5343668	109.7159091	105.1333284	100.7737496	96.62507365	92.67592632	88.91561047	85.33406177
230131A00004	1/31/2023	3.76	1/31/2028	1/31/2023	119.70927	114.5997749	109.7429072	105.1247451	100.7322127	96.55302551	92.57563758	88.78919289	85.18347992
230131A00006	1/31/2023	4.23	2/2/2026	1/31/2023	111.03307	108.1913856	105.4380579	102.7697681	100.1833505	97.67578015	95.24416557	92.88574192	90.59786433
230131A00009	1/31/2023	3.98	1/31/2028	1/31/2023	119.39913	114.338707	109.527433	104.9516219	100.5984224	96.45575801	92.51227598	88.75729948	85.18078343
230131A00032	2/3/2023	4.17	7/30/2026	2/3/2023	113.19807	109.8208562	106.5639903	103.4224407	100.3914253	97.46639269	94.64300951	91.91714814	89.28487558
230131A00034	2/3/2023	3.99	12/23/2027	2/3/2023	118.99792	114.0572107	109.3551888	104.8789887	100.6165071	96.55635695	92.68782117	89.00080934	85.48581743
230131A00057	1/31/2023	4.1	1/29/2027	1/31/2023	115.36167	111.4333318	107.6628328	104.0428959	100.5666276	97.22749329	94.01929704	90.93616112	87.97250769
230131A00067	1/31/2023	4.02	2/2/2026	1/31/2023	111.17638	108.3165852	105.5460242	102.8613367	100.2593153	97.73689624	95.29115116	92.91928038	90.61860612
230131A00071	1/31/2023	4.22	1/30/2026	1/31/2023	110.96648	108.1339494	105.3892703	102.7291393	100.1504045	97.6500553	95.22521465	92.87313212	90.59117725
230131A00072	1/31/2023	4.99	4/30/2024	1/31/2023	103.90586	102.889654	101.8934148	100.9165568	99.95851763	99.01875629	98.09675244	97.19200533	96.30403288
230131A00095	1/31/2023	4.22	1/30/2026	1/31/2023	110.96648	108.1339494	105.3892703	102.7291393	100.1504045	97.6500553	95.22521465	92.87313212	90.59117725
230201A00011	2/1/2023	3.93	2/1/2028	2/1/2023	119.17014	114.1123146	109.3037092	104.7306294	100.3802154	96.24038307	92.29977208	88.54769858	84.97411084
230201A00012	2/1/2023	4.08	2/1/2027	2/1/2023	115.32479	111.3887793	107.6112288	103.9848306	100.5026621	97.15816089	93.94510333	90.85758519	87.8900029
230201A00022	2/1/2023	5.04	2/1/2024	2/1/2023	102.89255	102.1226663	101.3643386	100.6173097	99.8813279	99.15614924	98.44153673	97.7372603	97.04309653
230202A00008	2/2/2023	3.81	2/2/2028	2/2/2023	118.60446	113.557208	108.7589554	104.1960166	99.85553581	95.72543236	91.79434949	88.05160664	84.48715524
230202A00038	2/2/2023	3.84	2/2/2028	2/2/2023	118.74864	113.6979717	108.8964313	104.3303221	99.98678299	95.85372849	91.91979716	88.17430399	84.60719621
230202A00050	2/2/2023	3.82	2/2/2028	2/2/2023	118.65252	113.6041292	108.8047807	104.2407851	99.89928487	95.76819773	91.83616538	88.09250575	84.5271689
230202A00096	2/2/2023	3.81	2/2/2028	2/2/2023	118.60446	113.557208	108.7589554	104.1960166	99.85553581	95.72543236	91.79434949	88.05160664	84.48715524

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230203A00021	2/8/2023	4.21	6/17/2026	2/8/2023	112.75641	109.5076702	106.3712821	103.3426969	100.4175752	97.59178011	94.86136662	92.22257105	89.67180169
230203A00043	2/14/2023	4.31	2/13/2026	2/14/2023	111.40049	108.5234979	105.7367542	103.0368961	100.4207037	97.88509774	95.42713167	93.04398558	90.73295964
230203A00045	2/14/2023	4.31	2/13/2026	2/14/2023	111.40049	108.5234979	105.7367542	103.0368961	100.4207037	97.88509774	95.42713167	93.04398558	90.73295964
230203A00046	2/10/2023	4.65	2/10/2025	2/10/2023	107.17169	105.3633442	103.5945731	101.8642091	100.1711285	98.51425046	96.89253493	95.30498057	93.7506231
230203A00048	2/10/2023	4.65	2/10/2025	2/10/2023	107.17169	105.3633442	103.5945731	101.8642091	100.1711285	98.51425046	96.89253493	95.30498057	93.7506231
230203A00050	2/14/2023	4.64	2/14/2025	2/14/2023	107.20768	105.3882072	103.6087552	101.8681563	100.1652852	98.49905839	96.86843237	95.27240177	93.70999759
230203A00051	2/14/2023	4.64	2/14/2025	2/14/2023	107.20768	105.3882072	103.6087552	101.8681563	100.1652852	98.49905839	96.86843237	95.27240177	93.70999759
230203A00053	2/10/2023	4.32	2/10/2026	2/10/2023	111.38901	108.5204053	105.7415587	103.0491209	100.4398859	97.91078853	95.45889668	93.08140476	90.77562729
230203A00054	2/10/2023	4.32	2/10/2026	2/10/2023	111.38901	108.5204053	105.7415587	103.0491209	100.4398859	97.91078853	95.45889668	93.08140476	90.77562729
230203A00057	2/3/2023	4.34	2/3/2026	2/3/2023	111.3523	108.5034133	105.7431431	103.0681702	100.4753207	97.96156225	95.52399569	93.15984864	90.86646882
230203A00058	2/3/2023	4.34	2/3/2026	2/3/2023	111.3523	108.5034133	105.7431431	103.0681702	100.4753207	97.96156225	95.52399569	93.15984864	90.86646882
230203A00059	2/3/2023	4.67	2/3/2025	2/3/2023	107.11263	105.3237278	103.5736249	101.861154	100.1851942	98.54466888	96.93854335	95.36582307	93.8255515
230207A00025	2/7/2023	4.62	2/7/2025	2/7/2023	107.51594	105.7047451	103.9331578	102.199991	100.5041093	98.84442098	97.21987663	95.62946657	94.07221911
230207A00046	2/7/2023	4.83	2/7/2025	2/7/2023	107.45359	105.6507447	103.8871974	102.1617748	100.4733532	98.82085228	97.20323303	95.61949585	94.06867861
230208A00029	2/8/2023	4.27	2/8/2027	2/8/2023	116.13866	112.1677556	108.3572711	104.6998085	101.1883588	97.81627552	94.5772539	91.46531107	88.47476762
230208A00036	2/8/2023	4.43	2/6/2026	2/8/2023	111.64341	108.7822018	106.0101939	103.3240479	100.7205736	98.19672167	95.74957645	93.37634887	91.07437007
230208A00038	2/8/2023	4.27	2/8/2027	2/8/2023	116.13866	112.1677556	108.3572711	104.6998085	101.1883588	97.81627552	94.5772539	91.46531107	88.47476762
230208A00039	2/8/2023	4.17	2/8/2028	2/8/2023	120.4047	115.2978891	110.443219	105.8268287	101.4356978	97.25758965	93.28099926	89.49510555	85.88972685
230208A00040	2/8/2023	4.26	2/8/2029	2/8/2023	124.64361	118.3734872	112.4680445	106.9040051	101.6597062	96.71497526	92.05101919	87.650323	83.49655599
230208A00041	2/8/2023	4.32	2/8/2030	2/8/2023	128.19225	120.7634218	113.8308402	107.3584713	101.3130922	95.66405273	90.38306331	85.44400099	80.82273245
230208A00055	2/8/2023	4.22	2/6/2026	2/8/2023	111.78945	108.909956	106.1205505	103.417852	100.7986284	98.25979118	95.79838724	93.41159233	91.09670429
230208A00060	2/8/2023	4.06	2/8/2027	2/8/2023	116.3637	112.3614365	108.5214738	104.8363039	101.2988125	97.90225485	94.64023388	91.50668033	88.49583376
230209A00028	2/9/2023	4.9	12/9/2024	2/9/2023	106.7267	105.0939837	103.4944846	101.927252	100.3913729	98.88596852	97.41019287	95.96323101	94.54429768
230209A00049	2/9/2023	4.17	2/9/2028	2/9/2023	120.41639	115.3064754	110.4489789	105.8300221	101.4365678	97.25636285	93.27788699	89.49030449	85.88341989
230210A00040	2/10/2023	4.29	8/10/2027	2/10/2023	118.66289	114.1150712	109.7716002	105.6221556	101.656993	97.86691198	94.24322314	90.77771628	87.46263134
230210A00043	2/10/2023	4.34	2/10/2027	2/10/2023	116.43247	112.4504179	108.6293757	104.9619256	101.4410322	98.06002368	94.81257073	91.69266673	88.69460937
230210A00045	2/10/2023	4.43	8/10/2026	2/10/2023	114.20019	110.7760484	107.474757	104.2911945	101.2204861	98.25798874	95.39927923	92.64014181	89.97655729
230214A00031	2/14/2023	4.31	2/14/2028	2/14/2023	121.15234	116.0107678	111.1235918	106.476816	102.0572925	97.85266308	93.85130784	90.04229664	86.41534462
230214A00042	2/14/2023	4.96	2/14/2025	2/14/2023	107.78711	105.9622474	104.1775088	102.4317204	100.723754	99.05252363	97.41698331	95.81612526	94.24897816
230214A00049	2/14/2023	4.38	2/14/2029	2/14/2023	125.39802	119.0893618	113.1482125	107.5510939	102.2761527	97.30303869	92.61279301	88.18774594	84.01142269
230214A00050	2/14/2023	4.31	2/14/2028	2/14/2023	121.15234	116.0107678	111.1235918	106.476816	102.0572925	97.85266308	93.85130784	90.04229664	86.41534462
230215A00008	2/15/2023	4.49	2/16/2027	2/15/2023	117.08878	113.0774546	109.2288162	105.5353638	101.9899877	98.58594376	95.31683258	92.17657989	89.15941813
230215A00035	2/15/2023	4.47	2/17/2026	2/15/2023	112.64837	109.7261525	106.89613	104.1548559	101.4990375	98.92552479	96.4313033	94.01348743	91.66931402

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230215A00045	2/15/2023	4.37	2/15/2028	2/15/2023	121.45494	116.3033256	111.4066354	106.7508466	102.3227835	98.11006147	94.1010353	90.28475109	86.65090141
230216A00045	2/16/2023	4.43	5/16/2028	2/16/2023	122.86598	117.4142232	112.2445823	107.340882	102.687963	98.27161056	94.07849111	90.09609262	86.31266972
230216A00046	2/16/2023	4.42	4/17/2028	2/16/2023	122.46713	117.109603	112.0256535	107.1998055	102.6175394	98.26522818	94.13007748	90.20007078	86.46391794
230217A00036	2/17/2023	4.44	2/17/2028	2/17/2023	121.81877	116.6527995	111.7426093	107.0741255	102.6341252	98.41017916	94.39059966	90.5643926	86.92121249
230217A00052	2/17/2023	4.55	2/17/2027	2/17/2023	117.3328	113.3140287	109.4582978	105.7580937	102.2062912	98.7961313	95.52120043	92.37541048	89.3529806
230221A00004	2/21/2023	4.47	2/18/2028	2/21/2023	121.97672	116.8041423	111.8877473	107.2134421	102.7679809	98.5389129	94.51452995	90.68381853	87.0364148
230223A00033	2/23/2023	4.5	2/23/2028	2/23/2023	122.18529	116.9935001	112.059436	107.3689004	102.9085551	98.66586102	94.62902672	90.78695962	87.12922118
230224A00014	2/24/2023	4.98	2/24/2025	2/24/2023	108.41963	106.5536742	104.7293809	102.9455597	101.201063	99.49478343	97.8256526	96.19263911	94.59474713
230224A00015	2/24/2023	4.86	3/17/2026	2/24/2023	113.43348	110.4344748	107.5320472	104.7225618	102.002542	99.36866031	96.81773154	94.34670562	91.95266121
230224A00018	2/24/2023	5.19	2/24/2025	2/24/2023	108.35364	106.4964029	104.680502	102.904759	101.1680384	99.4692446	97.8073203	96.18124466	94.59003194
230228A00009	2/28/2023	4.69	2/27/2026	2/28/2023	113.42165	110.4605343	107.5935369	104.8171629	102.1280625	99.52302822	96.99898816	94.55299941	92.18224192
230228A00010	2/28/2023	4.5	2/26/2027	2/28/2023	118.31538	114.2247092	110.3014271	106.5377905	102.9264563	99.46045778	96.13318308	92.93835546	89.87001443
230301A00029	3/1/2023	4.59	3/1/2028	3/1/2023	122.71396	117.4891851	112.5245386	107.8056699	103.3190917	99.0521248	94.99284573	91.13003806	87.45314693
230301A00036	3/1/2023	4.91	3/2/2026	3/1/2023	113.34168	110.3896918	107.5314477	104.7634703	102.0824289	99.48513413	96.96853055	94.52969081	92.16580932
230303A00057	3/3/2023	4.77	3/3/2027	3/3/2023	118.38649	114.3073173	110.3949312	106.6416234	103.0400862	99.58338531	96.26493894	93.0784979	90.01812719
230303A00059	3/3/2023	4.56	3/3/2027	3/3/2023	118.62647	114.5146631	110.5716183	106.7895105	103.1609214	99.67881305	96.33650635	93.12766103	90.0462566
230306A00019	3/6/2023	5.26	3/6/2025	3/6/2023	108.64082	106.7520699	104.905912	103.1011392	101.3365822	99.61111246	97.92364001	96.27311215	94.65851186
230306A00029	3/6/2023	5.26	9/6/2024	3/6/2023	106.2741	104.8961963	103.5429852	102.2138564	100.9082203	99.62550649	98.36516252	97.12665331	95.90946052
230306A00040	3/6/2023	5.05	3/6/2025	3/6/2023	108.70889	106.8111894	104.9564226	103.1433666	101.3708396	99.63770076	97.9428486	96.28521942	94.66378569
230307A00021	3/7/2023	4.63	3/7/2028	3/7/2023	122.98973	117.7400571	112.7525248	108.0126232	103.5067224	99.22201131	95.14644519	91.26869553	87.57810407
230307A00022	3/7/2023	4.77	3/8/2027	3/7/2023	118.46545	114.3692268	110.4410547	106.6731491	103.0581228	99.58896703	96.25903084	93.0620004	89.99188042
230307A00034	3/7/2023	4.41	3/7/2028	3/7/2023	123.32928	118.0278163	112.9922042	108.2076786	103.6603682	99.3372389	95.2260384	91.31524581	87.59402422
230307A00039	3/7/2023	5.29	3/7/2025	3/7/2023	108.71316	106.8207223	104.9710198	103.162837	101.3949995	99.66637345	97.97586393	96.32241357	94.70500085
230307A00056	3/7/2023	5.08	3/7/2025	3/7/2023	108.78157	106.8801547	105.0218181	103.2053285	101.4294983	99.69318163	97.99527202	96.33470099	94.71043646
230307A00057	3/7/2023	5.08	3/7/2025	3/7/2023	108.78157	106.8801547	105.0218181	103.2053285	101.4294983	99.69318163	97.99527202	96.33470099	94.71043646
230307A00058	3/7/2023	5.29	3/7/2025	3/7/2023	108.71316	106.8207223	104.9710198	103.162837	101.3949995	99.66637345	97.97586393	96.32241357	94.70500085
230307A00114	3/7/2023	4.65	3/7/2028	3/7/2023	123.08774	117.8357053	112.8458969	108.1038019	103.5957863	99.3090359	95.23150243	91.35185428	87.6594302
230308A00021	3/8/2023	5.39	3/7/2025	3/8/2023	108.9	107.0057699	105.1543124	103.3444075	101.5748795	99.84459376	98.15245466	96.49740393	94.87841929
230308A00044	3/8/2023	5.68	3/11/2024	3/8/2023	103.90483	103.0245294	102.1592305	101.3085524	100.4721258	99.64959376	98.84061132	98.04484479	97.26197138
230309A00005	3/9/2023	5.06	3/9/2026	3/9/2023	113.88392	110.9027712	108.0168556	105.2226205	102.5166622	99.89572203	97.35667932	94.89654497	92.51245503
230309A00027	3/9/2023	4.68	3/9/2028	3/9/2023	123.26184	117.9995146	113.0001602	108.2492079	103.732973	99.43859402	95.35397941	91.46775735	87.76922947
230309A00030	3/9/2023	5.01	3/9/2026	3/9/2023	113.74001	110.7609402	107.8770536	105.0847988	102.3807734	99.76172033	97.2245204	94.76618586	92.38385414
230309A00031	3/9/2023	5.01	3/9/2026	3/9/2023	113.74001	110.7609402	107.8770536	105.0847988	102.3807734	99.76172033	97.2245204	94.76618586	92.38385414

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230309A00032	3/9/2023	4.82	3/9/2027	3/9/2023	118.67567	114.5722812	110.6373148	106.8629628	103.2418176	99.7668516	96.43139609	93.22912061	90.15401429
230309A00033	3/9/2023	4.82	3/9/2027	3/9/2023	118.67567	114.5722812	110.6373148	106.8629628	103.2418176	99.7668516	96.43139609	93.22912061	90.15401429
230309A00034	3/9/2023	4.64	3/9/2028	3/9/2023	123.06559	117.8080057	112.8132135	108.0666578	103.5546613	99.26436966	95.18369787	91.3012805	87.6064252
230309A00035	3/9/2023	4.64	3/9/2028	3/9/2023	123.06559	117.8080057	112.8132135	108.0666578	103.5546613	99.26436966	95.18369787	91.3012805	87.6064252
230309A00080	3/9/2023	4.68	3/9/2028	3/9/2023	123.26184	117.9995146	113.0001602	108.2492079	103.732973	99.43859402	95.35397941	91.46775735	87.76922947
230309A00091	3/9/2023	4.68	3/9/2028	3/9/2023	123.26184	117.9995146	113.0001602	108.2492079	103.732973	99.43859402	95.35397941	91.46775735	87.76922947
230309A00096	3/9/2023	4.68	3/9/2028	3/9/2023	123.26184	117.9995146	113.0001602	108.2492079	103.732973	99.43859402	95.35397941	91.46775735	87.76922947
230310A00017	3/10/2023	4.43	3/9/2029	3/10/2023	125.90707	119.5160493	113.5008804	107.8373792	102.50304	97.47691051	92.73947711	88.27255909	84.05921119
230310A00021	3/10/2023	4.38	3/10/2028	3/10/2023	121.80271	116.5725703	111.6044045	106.8836795	102.3967437	98.13076766	94.07369069	90.21417085	86.54153861
230310A00024	3/10/2023	4.38	3/10/2028	3/10/2023	121.80271	116.5725703	111.6044045	106.8836795	102.3967437	98.13076766	94.07369069	90.21417085	86.54153861
230310A00030	3/10/2023	4.38	3/10/2028	3/10/2023	121.80271	116.5725703	111.6044045	106.8836795	102.3967437	98.13076766	94.07369069	90.21417085	86.54153861
230310A00037	3/10/2023	4.69	3/10/2026	3/10/2023	112.83417	109.8651442	106.9911776	104.2087111	101.5143426	98.90481545	96.37701092	93.92794198	91.55474681
230310A00039	3/10/2023	4.33	3/10/2028	3/10/2023	121.55726	116.3330515	111.3705947	106.6553715	102.1737393	97.9128777	93.86073434	90.0059752	86.33793826
230310A00040	3/10/2023	4.38	3/10/2028	3/10/2023	121.80271	116.5725703	111.6044045	106.8836795	102.3967437	98.13076766	94.07369069	90.21417085	86.54153861
230310A00048	3/10/2023	5.03	3/10/2025	3/10/2023	108.25512	106.358454	104.5048107	102.6929608	100.9217173	99.18993432	97.49650588	95.84036374	94.2204761
230310A00049	3/10/2023	4.7	3/10/2026	3/10/2023	112.86298	109.8935372	107.0191641	104.2363008	101.541545	98.93163972	96.40346597	93.95403642	91.58048898
230310A00062	3/10/2023	4.38	4/10/2028	3/10/2023	122.18424	116.8535154	111.7941103	106.990733	102.4290301	98.09552694	93.97756982	90.06327119	86.34145971
230310A00068	3/10/2023	5.03	3/10/2025	3/10/2023	108.25512	106.358454	104.5048107	102.6929608	100.9217173	99.18993432	97.49650588	95.84036374	94.2204761
230310A00069	3/10/2023	4.7	3/9/2026	3/10/2023	112.84777	109.8815879	107.0102817	104.2303041	101.5382628	98.9309098	96.40513505	93.95795943	91.58652864
230310A00071	3/10/2023	4.38	3/10/2028	3/10/2023	121.80271	116.5725703	111.6044045	106.8836795	102.3967437	98.13076766	94.07369069	90.21417085	86.54153861
230310A00073	3/10/2023	4.7	3/6/2026	3/10/2023	112.80214	109.8457401	106.9836355	104.2123171	101.5284217	98.92872931	96.41015583	93.96974688	91.60467148
230310A00088	3/10/2023	5.03	3/10/2025	3/10/2023	108.25512	106.358454	104.5048107	102.6929608	100.9217173	99.18993432	97.49650588	95.84036374	94.2204761
230310A00089	3/10/2023	4.7	3/10/2026	3/10/2023	112.86298	109.8935372	107.0191641	104.2363008	101.541545	98.93163972	96.40346597	93.95403642	91.58048898
230310A00091	3/10/2023	4.53	3/10/2027	3/10/2023	117.56314	113.4781224	109.5611205	105.8043346	102.2003654	98.74219378	95.42315924	92.23693958	89.17753211
230310A00092	3/10/2023	4.38	3/10/2028	3/10/2023	121.80271	116.5725703	111.6044045	106.8836795	102.3967437	98.13076766	94.07369069	90.21417085	86.54153861
230310A00114	3/10/2023	4.5	3/10/2027	3/10/2023	117.4464	113.3636389	109.4488225	105.6941561	102.0922431	98.63606674	95.31896879	92.13462928	89.07704758
230310A00120	3/10/2023	4.33	3/10/2028	3/10/2023	121.55726	116.3330515	111.3705947	106.6553715	102.1737393	97.9128777	93.86073434	90.0059752	86.33793826
230313A00032	3/13/2023	4.45	3/13/2025	3/13/2023	107.20889	105.3133656	103.4610609	101.6507325	99.8811833	98.15125785	96.45984083	94.80585537	93.18826141
230313A00036	3/13/2023	4.06	3/13/2028	3/13/2023	120.2673	115.0652193	110.1246292	105.4309898	100.9706416	96.7307493	92.69924846	88.8647952	85.21671957
230313A00048	3/13/2023	4.25	3/13/2026	3/13/2023	111.60844	108.6480793	105.7829047	103.0093401	100.3239679	97.72351685	95.20485498	92.76498278	90.40102693
230313A00052	3/13/2023	4.17	3/15/2027	3/13/2023	116.23293	112.1582147	108.2519602	104.5063121	100.9138218	97.46742464	94.1604184	90.98644262	87.9394595
230313A00057	3/13/2023	4.06	3/13/2028	3/13/2023	120.2673	115.0652193	110.1246292	105.4309898	100.9706416	96.7307493	92.69924846	88.8647952	85.21671957
230313A00069	3/13/2023	4.71	9/13/2024	3/13/2023	105.27598	103.8917937	102.5326351	101.1978795	99.886925	98.59918919	97.33410814	96.09113581	94.86974326

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230313A00070	3/13/2023	4.71	9/13/2024	3/13/2023	105.27598	103.8917937	102.5326351	101.1978795	99.886925	98.59918919	97.33410814	96.09113581	94.86974326
230313A00072	3/13/2023	4.06	3/13/2028	3/13/2023	120.2673	115.0652193	110.1246292	105.4309898	100.9706416	96.7307493	92.69924846	88.8647952	85.21671957
230313A00075	3/13/2023	4.71	9/13/2024	3/13/2023	105.27598	103.8917937	102.5326351	101.1978795	99.886925	98.59918919	97.33410814	96.09113581	94.86974326
230313A00078	3/13/2023	4.41	3/13/2026	3/13/2023	112.07072	109.1036547	106.2319385	103.4519902	100.7603873	98.15385351	95.62925222	93.18357941	90.81395741
230313A00090	3/13/2023	4.41	3/13/2026	3/13/2023	112.07072	109.1036547	106.2319385	103.4519902	100.7603873	98.15385351	95.62925222	93.18357941	90.81395741
230313A00091	3/13/2023	4.15	3/13/2028	3/13/2023	120.70986	115.4970697	110.5461695	105.8425951	101.3726698	97.12354257	93.08313383	89.2400853	85.58371342
230313A00093	3/16/2023	4.65	3/17/2025	3/16/2023	107.66353	105.7513623	103.8830264	102.0572529	100.2728211	98.5285533	96.82331306	95.15600315	93.52556415
230313A00095	3/16/2023	4.65	3/17/2025	3/16/2023	107.66353	105.7513623	103.8830264	102.0572529	100.2728211	98.5285533	96.82331306	95.15600315	93.52556415
230313A00096	3/13/2023	4.36	3/14/2033	3/13/2023	140.00252	128.8372334	118.702879	109.4974213	101.1294607	93.51707604	86.58679667	80.27269006	74.5155523
230313A00099	3/13/2023	4.59	3/13/2025	3/13/2023	107.47274	105.5746708	103.7198674	101.9070871	100.1351313	98.40284336	96.70910681	95.05284359	93.43301254
230313A00102	3/13/2023	4.15	3/13/2028	3/13/2023	120.70986	115.4970697	110.5461695	105.8425951	101.3726698	97.12354257	93.08313383	89.2400853	85.58371342
230313A00104	3/13/2023	4.58	3/13/2025	3/13/2023	107.45389	105.5560061	103.7013812	101.8887761	100.1169921	98.38487297	96.6913021	95.03520158	93.41553032
230313A00109	3/13/2023	4.58	3/13/2025	3/13/2023	107.45389	105.5560061	103.7013812	101.8887761	100.1169921	98.38487297	96.6913021	95.03520158	93.41553032
230313A00112	3/13/2023	4.15	3/13/2028	3/13/2023	120.70986	115.4970697	110.5461695	105.8425951	101.3726698	97.12354257	93.08313383	89.2400853	85.58371342
230313A00113	3/13/2023	4.58	3/13/2025	3/13/2023	107.45389	105.5560061	103.7013812	101.8887761	100.1169921	98.38487297	96.6913021	95.03520158	93.41553032
230313A00118	3/13/2023	5.02	3/13/2024	3/13/2023	103.34893	102.4658607	101.597945	100.7447972	99.90604185	99.08131622	98.27026969	97.47256322	96.68786896
230313A00148	3/13/2023	4.43	3/13/2026	3/13/2023	112.1285	109.1606017	106.2880677	103.5073215	100.8149397	98.20764559	95.68230188	93.23590399	90.86557372
230313A00149	3/13/2023	4.15	3/13/2028	3/13/2023	120.70986	115.4970697	110.5461695	105.8425951	101.3726698	97.12354257	93.08313383	89.2400853	85.58371342
230313A00150	3/13/2023	4.3	3/12/2027	3/13/2023	116.69713	112.6226678	108.7162032	104.9699225	101.3764139	97.92864703	94.61995128	91.44399545	88.39476878
230313A00152	3/13/2023	4.18	3/13/2028	3/13/2023	120.85737	115.6410199	110.686683	105.9797968	101.5066792	97.25447366	93.21109562	89.365182	85.7060447
230313A00158	3/13/2023	4.41	3/13/2026	3/13/2023	112.07072	109.1036547	106.2319385	103.4519902	100.7603873	98.15385351	95.62925222	93.18357941	90.81395741
230313A00159	3/13/2023	4.41	3/13/2026	3/13/2023	112.07072	109.1036547	106.2319385	103.4519902	100.7603873	98.15385351	95.62925222	93.18357941	90.81395741
230313A00177	3/13/2023	4.41	3/13/2026	3/13/2023	112.07072	109.1036547	106.2319385	103.4519902	100.7603873	98.15385351	95.62925222	93.18357941	90.81395741
230313A00179	3/13/2023	4.29	3/15/2027	3/13/2023	116.70155	112.617752	108.702695	104.9485106	101.3477399	97.89330847	94.57850482	91.39695959	88.34262649
230313A00180	3/13/2023	4.15	3/13/2028	3/13/2023	120.70986	115.4970697	110.5461695	105.8425951	101.3726698	97.12354257	93.08313383	89.2400853	85.58371342
230313A00215	3/13/2023	4.13	3/13/2028	3/13/2023	120.61151	115.401103	110.4524939	105.7511272	101.2833302	97.03625518	92.99782597	89.1566875	85.50215923
230314A00003	3/14/2023	4.64	3/16/2026	3/14/2023	112.78037	109.7939101	106.9036054	104.1058413	101.3971581	98.77424463	96.23393104	93.77318187	91.38908969
230314A00006	3/14/2023	4.92	1/13/2025	3/14/2023	107.2594	105.525839	103.8289457	102.1676201	100.5408058	98.94748879	97.38669502	95.85748826	94.35896842
230314A00011	3/14/2023	4.38	3/14/2028	3/14/2023	121.85353	116.6100602	111.6297849	106.8980749	102.401188	98.1262112	94.06100706	90.19416292	86.51494409
230314A00016	3/14/2023	4.38	3/14/2028	3/14/2023	121.85353	116.6100602	111.6297849	106.8980749	102.401188	98.1262112	94.06100706	90.19416292	86.51494409
230314A00017	3/14/2023	4.39	1/18/2028	3/14/2023	121.20448	116.1383229	111.3194236	106.7342969	102.3702691	98.21542707	94.25856767	90.48915111	86.89725784
230314A00019	3/14/2023	4.39	1/18/2028	3/14/2023	121.20448	116.1383229	111.3194236	106.7342969	102.3702691	98.21542707	94.25856767	90.48915111	86.89725784
230314A00021	3/14/2023	4.41	10/13/2027	3/14/2023	120.0324	115.2727478	110.7345603	106.406331	102.2772084	98.33695873	94.57592762	90.98500419	87.55558768

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230314A00024	3/14/2023	4.41	10/13/2027	3/14/2023	120.0324	115.2727478	110.7345603	106.406331	102.2772084	98.33695873	94.57592762	90.98500419	87.55558768
230314A00028	3/14/2023	4.43	7/14/2027	3/14/2023	118.8978	114.4224317	110.1450504	106.0557543	102.1451949	98.40454431	94.8254626	91.40006804	88.12090893
230314A00030	3/14/2023	4.43	7/14/2027	3/14/2023	118.8978	114.4224317	110.1450504	106.0557543	102.1451949	98.40454431	94.8254626	91.40006804	88.12090893
230314A00032	3/14/2023	4.45	4/14/2027	3/14/2023	117.75462	113.5625131	109.5469138	105.6994334	102.0121243	98.47745713	95.08829645	91.83787815	88.71978802
230314A00034	3/14/2023	4.45	4/14/2027	3/14/2023	117.75462	113.5625131	109.5469138	105.6994334	102.0121243	98.47745713	95.08829645	91.83787815	88.71978802
230314A00043	3/14/2023	4.84	3/14/2025	3/14/2023	107.97833	106.072053	104.2092734	102.3887426	100.6092538	98.86964276	97.16878537	95.50559652	93.87902821
230314A00067	3/14/2023	4.16	3/14/2028	3/14/2023	122.1873	116.8919647	111.8635605	107.087199	102.5488942	98.23550783	94.13469286	90.23484239	86.52504141
230314A00073	3/14/2023	4.84	3/14/2025	3/14/2023	107.97833	106.072053	104.2092734	102.3887426	100.6092538	98.86964276	97.16878537	95.50559652	93.87902821
230314A00081	3/14/2023	4.16	3/14/2028	3/14/2023	122.1873	116.8919647	111.8635605	107.087199	102.5488942	98.23550783	94.13469286	90.23484239	86.52504141
230315A00007	3/15/2023	4.2	3/16/2026	3/15/2023	111.50546	108.5375379	105.6653229	102.8852107	100.1937557	97.58766039	95.06376786	92.61905522	90.25062705
230315A00013	3/15/2023	4.2	3/16/2026	3/15/2023	111.50546	108.5375379	105.6653229	102.8852107	100.1937557	97.58766039	95.06376786	92.61905522	90.25062705
230315A00014	3/15/2023	4.61	3/15/2024	3/15/2023	103.00799	102.121144	101.2496191	100.3930214	99.5509689	98.72309287	97.9090368	97.10845608	96.3210175
230315A00023	3/15/2023	4.2	3/16/2026	3/15/2023	111.50546	108.5375379	105.6653229	102.8852107	100.1937557	97.58766039	95.06376786	92.61905522	90.25062705
230315A00024	3/15/2023	4.03	3/15/2028	3/15/2023	120.14325	114.9381564	109.995037	105.2993016	100.837251	96.59601393	92.56349261	88.72831274	85.0797765
230315A00030	3/15/2023	4.03	3/15/2028	3/15/2023	120.14325	114.9381564	109.995037	105.2993016	100.837251	96.59601393	92.56349261	88.72831274	85.0797765
230315A00042	3/15/2023	4.61	3/15/2024	3/15/2023	103.00799	102.121144	101.2496191	100.3930214	99.5509689	98.72309287	97.9090368	97.10845608	96.3210175
230315A00043	3/15/2023	4.43	9/16/2024	3/15/2023	104.92228	103.5326759	102.1683256	100.8285958	99.51287646	98.22057751	96.95112763	95.70397372	94.47858008
230315A00045	3/15/2023	4.28	3/14/2025	3/15/2023	106.92128	105.0252231	103.1724687	101.3617755	99.59194219	97.86180931	96.17025772	94.51620691	92.89861339
230315A00047	3/15/2023	4.66	3/15/2024	3/15/2023	103.05243	102.1653713	101.2936347	100.4368278	99.59456863	98.76648839	97.95223051	97.15145034	96.36381462
230315A00048	3/15/2023	4.61	3/15/2024	3/15/2023	103.00799	102.121144	101.2496191	100.3930214	99.5509689	98.72309287	97.9090368	97.10845608	96.3210175
230315A00049	3/15/2023	4.28	3/14/2025	3/15/2023	106.92128	105.0252231	103.1724687	101.3617755	99.59194219	97.86180931	96.17025772	94.51620691	92.89861339
230315A00056	3/15/2023	4.24	3/16/2026	3/15/2023	111.62136	108.6517535	105.777894	102.9961771	100.3031559	97.69553169	95.17014633	92.72397582	90.35412365
230315A00063	3/15/2023	4.09	3/15/2028	3/15/2023	120.43862	115.2263752	110.2763673	105.5739943	101.1055455	96.85813896	92.81966686	88.97874526	85.32466722
230315A00068	3/15/2023	4.2	3/16/2026	3/15/2023	111.50546	108.5375379	105.6653229	102.8852107	100.1937557	97.58766039	95.06376786	92.61905522	90.25062705
230315A00070	3/15/2023	4.77	3/15/2024	3/15/2023	103.1502	102.2626713	101.3904689	100.5332018	99.69048802	98.86195851	98.04725665	97.24603769	96.45796827
230315A00072	3/15/2023	4.61	3/15/2024	3/15/2023	103.00799	102.121144	101.2496191	100.3930214	99.5509689	98.72309287	97.9090368	97.10845608	96.3210175
230315A00074	3/15/2023	4.43	9/16/2024	3/15/2023	104.92228	103.5326759	102.1683256	100.8285958	99.51287646	98.22057751	96.95112763	95.70397372	94.47858008
230315A00076	3/15/2023	4.28	3/14/2025	3/15/2023	106.92128	105.0252231	103.1724687	101.3617755	99.59194219	97.86180931	96.17025772	94.51620691	92.89861339
230315A00079	3/15/2023	4.43	9/16/2024	3/15/2023	104.92228	103.5326759	102.1683256	100.8285958	99.51287646	98.22057751	96.95112763	95.70397372	94.47858008
230315A00085	3/15/2023	4.43	9/16/2024	3/15/2023	104.92228	103.5326759	102.1683256	100.8285958	99.51287646	98.22057751	96.95112763	95.70397372	94.47858008
230315A00097	3/15/2023	4.08	3/15/2027	3/15/2023	115.88147	111.8135618	107.9139091	104.1746632	100.5883832	97.14801176	93.84685358	90.67855489	87.63708426
230315A00098	3/15/2023	4.08	3/15/2027	3/15/2023	115.88147	111.8135618	107.9139091	104.1746632	100.5883832	97.14801176	93.84685358	90.67855489	87.63708426
230315A00112	3/15/2023	4.5	3/14/2025	3/15/2023	107.33655	105.4364777	103.5797848	101.7652269	99.99160034	98.25774388	96.56253644	94.90489569	93.28377635

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230315A00116	3/15/2023	4.36	3/16/2026	3/15/2023	111.96906	108.9944005	106.1156074	103.3290763	100.6313566	98.01914557	95.48928175	93.03873764	90.66461346
230315A00117	3/15/2023	4.17	3/15/2027	3/15/2023	116.23293	112.1582147	108.2519602	104.5063121	100.9138218	97.46742464	94.1604184	90.98644262	87.9394595
230315A00125	3/15/2023	4.11	3/15/2027	3/15/2023	115.99862	111.9284461	108.0265928	104.2852129	100.6968627	97.25448272	93.95137519	90.78118414	87.73787601
230315A00128	3/15/2023	4.43	3/14/2025	3/15/2023	107.20442	105.305624	103.4501842	101.636856	99.86443639	98.1317647	96.43772049	94.78122199	93.1612245
230315A00130	3/15/2023	4.43	3/14/2025	3/15/2023	107.20442	105.305624	103.4501842	101.636856	99.86443639	98.1317647	96.43772049	94.78122199	93.1612245
230315A00131	3/15/2023	4.13	3/15/2027	3/15/2023	116.07673	112.0050357	108.1017153	104.3589126	100.7691824	97.32546336	94.02105626	90.84960363	87.80507051
230315A00133	3/15/2023	3.9	3/15/2028	3/15/2023	120.91207	115.6446754	110.6433709	105.8932931	101.3804829	97.09182754	93.01500519	89.1384332	85.45122011
230316A00001	3/16/2023	3.81	3/16/2028	3/16/2023	120.47816	115.2182707	110.2243786	105.4816162	100.9760185	96.69446782	92.62463817	88.75494362	85.07449006
230316A00021	3/16/2023	4.2	3/16/2026	3/16/2023	111.50546	108.5375379	105.6653229	102.8852107	100.1937557	97.58766039	95.06376786	92.61905522	90.25062705
230316A00026	3/16/2023	4.56	9/16/2024	3/16/2023	105.10381	103.7128889	102.3472366	101.0062267	99.6892487	98.39571195	97.12504456	95.87669289	94.65012072
230316A00032	3/16/2023	4.39	3/16/2026	3/16/2023	112.05599	109.0800622	106.2000358	103.4123012	100.7134067	98.10004904	95.5690656	93.11742809	90.74223591
230316A00039	3/16/2023	4.63	3/17/2025	3/16/2023	107.62561	105.7138138	103.845839	102.0204198	100.2363357	98.49240924	96.7875041	95.12052324	93.4904074
230316A00050	3/16/2023	4.2	3/16/2026	3/16/2023	111.50546	108.5375379	105.6653229	102.8852107	100.1937557	97.58766039	95.06376786	92.61905522	90.25062705
230316A00052	3/16/2023	4.56	9/16/2024	3/16/2023	105.10381	103.7128889	102.3472366	101.0062267	99.6892487	98.39571195	97.12504456	95.87669289	94.65012072
230316A00054	3/16/2023	4.62	3/17/2025	3/16/2023	107.60665	105.6950396	103.8272453	102.0020032	100.218093	98.47433721	96.76959962	95.10278329	93.47282902
230316A00055	3/16/2023	4.03	3/16/2028	3/16/2023	120.15498	114.9466002	110.000498	105.3020594	100.8375622	96.59411447	92.55959927	88.72262468	85.07247664
230316A00058	3/16/2023	4.1	3/16/2027	3/16/2023	115.97351	111.9007434	107.9965354	104.2530151	100.6627236	97.2185873	93.91389531	90.74227945	87.69769479
230316A00060	3/16/2023	3.89	3/16/2027	3/16/2023	116.20472	112.0991596	108.1641639	104.3917444	100.7743287	97.3047368	93.9761583	90.78213171	87.71652465
230316A00067	3/16/2023	3.89	3/16/2027	3/16/2023	116.20472	112.0991596	108.1641639	104.3917444	100.7743287	97.3047368	93.9761583	90.78213171	87.71652465
230316A00072	3/16/2023	4.1	3/16/2027	3/16/2023	115.97351	111.9007434	107.9965354	104.2530151	100.6627236	97.2185873	93.91389531	90.74227945	87.69769479
230316A00076	3/16/2023	4.45	3/16/2026	3/16/2023	112.22984	109.2513857	106.3688925	103.5787508	100.8775071	98.26185598	95.7286333	93.274809	90.89748082
230316A00078	3/16/2023	4.34	3/16/2027	3/16/2023	116.91141	112.8204592	108.898622	105.1380059	101.5311314	98.07090528	94.75059809	91.56382379	88.50452044
230316A00082	3/16/2023	4.3	3/16/2028	3/16/2023	121.48489	116.2443015	111.2671675	106.5388271	102.0455076	97.77426853	93.71294747	89.8501091	86.17499829
230316A00113	3/16/2023	4.28	3/16/2026	3/16/2023	112.50095	109.5012736	106.5985706	103.7891856	101.0696174	98.43651587	95.88667415	93.417022	91.02461908
230317A00015	3/17/2023	4.13	3/17/2028	3/17/2023	120.65955	115.4359395	110.4753492	105.7631209	101.2854915	97.02952994	92.98308332	89.13472596	85.47371233
230317A00016	3/17/2023	4.22	3/17/2027	3/17/2023	116.45672	112.3715139	108.4553912	104.7004599	101.0992349	97.64461779	94.32987443	91.14861475	88.09477318
230317A00025	3/17/2023	4.35	3/17/2026	3/17/2023	111.95433	108.9768575	106.0954362	103.3064485	100.6064339	97.99208095	95.46021953	93.00781415	90.63195745
230317A00026	3/17/2023	4.22	3/17/2027	3/17/2023	116.45672	112.3715139	108.4553912	104.7004599	101.0992349	97.64461779	94.32987443	91.14861475	88.09477318
230317A00027	3/17/2023	4.77	9/17/2024	3/17/2023	105.40967	104.0138424	102.6434196	101.2977634	99.9762592	98.67831232	97.40334716	96.15080646	94.92015055
230317A00033	3/17/2023	4.77	9/17/2024	3/17/2023	105.40967	104.0138424	102.6434196	101.2977634	99.9762592	98.67831232	97.40334716	96.15080646	94.92015055
230317A00047	3/17/2023	4.1	3/17/2028	3/17/2023	120.51169	115.2916709	110.3345322	105.62563	101.1512064	96.89833599	92.85487084	89.00939013	85.35115287
230317A00048	3/17/2023	4.1	3/17/2028	3/17/2023	120.51169	115.2916709	110.3345322	105.62563	101.1512064	96.89833599	92.85487084	89.00939013	85.35115287
230317A00049	3/17/2023	4.1	3/17/2028	3/17/2023	120.51169	115.2916709	110.3345322	105.62563	101.1512064	96.89833599	92.85487084	89.00939013	85.35115287

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230317A00050	3/17/2023	4.1	3/17/2028	3/17/2023	120.51169	115.2916709	110.3345322	105.62563	101.1512064	96.89833599	92.85487084	89.00939013	85.35115287
230317A00051	3/17/2023	4.35	3/17/2026	3/17/2023	111.95433	108.9768575	106.0954362	103.3064485	100.6064339	97.99208095	95.46021953	93.00781415	90.63195745
230320A00006	3/20/2023	4.25	3/20/2026	3/20/2023	111.7062	108.7232787	105.836882	103.0433635	100.3392365	97.72116428	95.18595327	92.73054583	90.35201378
230320A00033	3/20/2023	4.35	3/20/2026	3/20/2023	111.99706	109.0098904	106.1193521	103.3217925	100.6137216	97.99179968	95.45283008	92.99375232	90.61163542
230320A00092	3/20/2023	4.31	3/20/2026	3/20/2023	111.88071	108.8952457	106.006364	103.2104209	100.5039276	97.88354552	95.34607936	92.88846972	90.50778677
230321A00001	3/21/2023	4.48	3/23/2026	3/21/2023	112.41897	109.4165648	106.511497	103.7000863	100.9788085	98.34429146	95.79330797	93.32276864	90.92971517
230321A00002	3/21/2023	4.33	3/19/2027	3/21/2023	116.91604	112.8157574	108.8853214	105.1167974	101.5026586	98.03576759	94.70935373	91.51699265	88.45258667
230321A00009	3/21/2023	4.27	3/21/2028	3/21/2023	121.39912	116.1455174	111.1567711	106.4180997	101.9156221	97.63629855	93.56787526	89.69883298	86.01833943
230321A00020	3/21/2023	4.73	11/18/2024	3/21/2023	106.16407	104.5937284	103.0546662	101.5460203	100.0669561	98.61666918	97.19438383	95.79935188	94.43085143
230321A00025	3/21/2023	4.57	3/21/2025	3/21/2023	107.54992	105.6273263	103.749038	101.9137726	100.1202897	98.36739302	96.65392819	94.97878098	93.34087576
230321A00029	3/21/2023	4.57	3/21/2025	3/21/2023	107.54992	105.6273263	103.749038	101.9137726	100.1202897	98.36739302	96.65392819	94.97878098	93.34087576
230321A00052	3/21/2023	4.62	3/21/2025	3/21/2023	107.64525	105.7217273	103.8425265	102.0063656	100.212004	98.45824489	96.74393332	95.06795472	93.42923304
230321A00053	3/21/2023	4.27	3/21/2028	3/21/2023	121.39912	116.1455174	111.1567711	106.4180997	101.9156221	97.63629855	93.56787526	89.69883298	86.01833943
230321A00074	3/21/2023	4.23	3/21/2028	3/21/2023	121.20154	115.9527345	110.9686106	106.2343928	101.7362077	97.46102276	93.39659097	89.53139958	85.85462246
230322A00004	3/22/2023	4.3	3/22/2028	3/22/2023	121.55979	116.2992654	111.3040373	106.5592925	102.0511215	97.76645817	93.69302415	89.81927757	86.13436513
230322A00005	3/22/2023	4.42	3/22/2029	3/22/2023	125.97645	119.5428973	113.4899637	107.793015	102.4291355	97.37700035	92.61675758	88.12991919	83.89926072
230322A00006	3/22/2023	4.53	3/22/2030	3/22/2023	130.05599	122.4398943	115.339564	108.7170867	102.5375306	96.76869482	91.3808829	86.34669585	81.64084335
230322A00007	3/22/2023	4.54	3/21/2031	3/22/2023	134.01036	125.1975353	117.0551383	109.5281062	102.5661809	96.12346727	90.1580335	84.63154991	79.50896223
230322A00009	3/22/2023	4.59	3/22/2032	3/22/2023	138.50033	128.4377531	119.2230183	110.7792644	103.0369982	95.93335509	89.41143491	83.41970737	77.91147953
230322A00015	3/22/2023	4.24	3/22/2028	3/22/2023	121.26325	116.0099318	111.0216448	106.2835875	101.7818621	97.50341302	93.43597233	89.56800784	85.88867552
230322A00020	3/22/2023	4.2	3/22/2029	3/22/2023	126.40455	119.8974862	113.7771568	108.0184334	102.5979497	97.49396781	92.68625636	88.15597896	83.88559113
230322A00029	3/22/2023	4.67	3/21/2025	3/22/2023	107.74059	105.8161283	103.9360149	102.0989587	100.3037184	98.54909675	96.83393845	95.15712846	93.51759032
230322A00030	3/22/2023	4.86	9/23/2024	3/22/2023	105.61267	104.1993529	102.8120075	101.4499787	100.1126325	98.79935568	97.50955491	96.24265586	94.99810255
230323A00029	3/23/2023	4.39	3/24/2031	3/23/2023	132.85137	124.0739142	115.9658114	108.4719916	101.5421961	95.13053549	89.19508927	83.6975433	78.60286247
230323A00030	3/23/2023	4.72	3/23/2037	3/23/2023	156.81245	140.4661632	126.128777	113.5363685	102.4612609	92.70686508	84.10327788	76.50352331	69.78034086
230323A00034	3/23/2023	4.23	3/23/2026	3/23/2023	111.68976	108.6980241	105.8033672	103.0021144	100.2907494	97.66590808	95.12437078	92.66305535	90.27901048
230323A00048	3/23/2023	4.07	3/23/2028	3/23/2023	120.43489	115.1987038	110.227097	105.5052825	101.0193717	96.75631907	92.70386632	88.85049115	85.18535937
230323A00051	3/23/2023	3.85	3/23/2028	3/23/2023	120.76142	115.4732571	110.4534503	105.6869414	101.1595953	96.85813761	92.77009809	88.88375777	85.18809997
230323A00054	3/23/2023	3.95	3/23/2028	3/23/2023	119.84148	114.6197181	109.6620085	104.9535834	100.4805771	96.22996585	92.18951188	88.34771244	84.69375182
230323A00056	3/23/2023	4	3/23/2027	3/23/2023	115.67831	111.5898029	107.6713974	103.9151139	100.3133896	96.85905407	93.5453067	90.36569568	87.31409834
230323A00058	3/23/2023	3.96	9/23/2027	3/23/2023	117.76892	113.1166927	108.679012	104.4448436	100.4037773	96.54598837	92.86220251	89.34366151	85.98209225
230323A00064	3/23/2023	4.25	3/21/2025	3/23/2023	106.9398	105.0231599	103.1507119	101.3211768	99.53331773	97.78594109	96.07789536	94.40806906	92.77538919
230323A00065	3/23/2023	3.85	3/23/2028	3/23/2023	120.76142	115.4732571	110.4534503	105.6869414	101.1595953	96.85813761	92.77009809	88.88375777	85.18809997

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230323A00081	3/23/2023	3.85	3/23/2028	3/23/2023	120.76142	115.4732571	110.4534503	105.6869414	101.1595953	96.85813761	92.77009809	88.88375777	85.18809997
230324A00006	3/24/2023	4.06	3/24/2026	3/24/2023	111.20734	108.2196498	105.3290562	102.5318762	99.82458925	97.2038272	94.66636661	92.20912191	89.82913862
230324A00009	3/24/2023	4.19	3/24/2025	3/24/2023	106.88489	104.9595336	103.078769	101.2412929	99.44585226	97.69123842	95.97628534	94.29986777	92.66089952
230324A00023	3/24/2023	3.69	3/24/2028	3/24/2023	119.97673	114.7046906	109.7006008	104.9494069	100.4369816	96.15005858	92.07617597	88.20362315	84.52139193
230324A00029	3/24/2023	4.01	3/24/2025	3/24/2023	107.00948	105.0742957	103.1840648	101.3374775	99.53326674	97.77021046	96.04712989	94.36288764	92.71638595
230324A00031	3/24/2023	4.01	3/24/2025	3/24/2023	107.00948	105.0742957	103.1840648	101.3374775	99.53326674	97.77021046	96.04712989	94.36288764	92.71638595
230324A00032	3/24/2023	3.93	3/24/2028	3/24/2023	119.75403	114.5313995	109.5730378	104.8641557	100.3908689	96.14013596	92.09970349	88.25805422	84.60435921
230327A00045	3/27/2023	4.42	3/27/2025	3/27/2023	107.34762	105.4091884	103.5158087	101.6661609	99.85897428	98.09302358	96.36712672	94.68014318	93.0309722
230327A00046	3/27/2023	4.22	3/27/2026	3/27/2023	111.71613	108.7119325	105.8055793	102.9933498	100.2716882	97.63719272	95.08660834	92.61681958	90.22484366
230327A00047	3/27/2023	4.08	3/27/2028	3/27/2023	120.53182	115.2812613	110.2965495	105.5627964	101.0660204	96.79308979	92.73166738	88.87015806	85.19766057
230328A00010	3/28/2023	4.68	9/30/2024	3/28/2023	105.4455	104.0145889	102.6102849	101.2319107	99.87881012	98.55034822	97.24591105	95.96490459	94.70675394
230328A00011	3/28/2023	4.53	3/28/2025	3/28/2023	107.57341	105.6297895	103.7313925	101.8768934	100.0650151	98.29452608	96.56423844	94.87300606	93.21972284
230328A00019	3/28/2023	4.12	3/27/2026	3/28/2023	112.19468	109.1658699	106.236015	103.4013472	100.658259	98.00330003	95.43316916	92.94470726	90.53489021
230328A00020	3/28/2023	3.98	3/28/2028	3/28/2023	121.47099	116.1501903	111.0998946	106.3048911	101.7509026	97.42452322	93.31316103	89.40498455	85.68887295
230328A00024	3/28/2023	4.2	3/28/2028	3/28/2023	121.13878	115.8704168	110.8687466	106.1188282	101.606634	97.31898924	93.24351667	89.36858361	85.6832537
230328A00026	3/28/2023	4.34	3/28/2029	3/28/2023	125.55794	119.1179198	113.0601619	107.359851	101.9939084	96.94086259	92.18072893	87.6948999	83.46604329
230328A00098	3/28/2023	4.24	3/29/2027	3/28/2023	116.7057	112.5789957	108.6244727	104.8340261	101.1999757	97.71504135	94.3723196	91.16526255	88.08765749
230328A00100	3/28/2023	4.19	3/28/2028	3/28/2023	121.08919	115.8220353	110.8215294	106.0727328	101.5616195	97.27501691	93.20054929	89.32658566	85.64219124
230328A00111	3/28/2023	4.36	3/27/2026	3/28/2023	112.12603	109.115817	106.2035912	103.3856324	100.6583799	98.01842767	95.46251637	92.98752638	90.59047097
230328A00122	3/28/2023	4.58	3/28/2025	3/28/2023	107.6697	105.7251334	103.8258063	101.9703947	100.1576209	98.38625297	96.6551026	94.9630232	93.30890826
230329A00020	3/29/2023	4.23	3/29/2028	3/29/2023	121.29889	116.0237974	111.0158243	106.259999	101.7422658	97.44942432	93.36907323	89.48955775	85.79992107
230329A00043	3/29/2023	4.36	3/27/2026	3/29/2023	112.12603	109.115817	106.2035912	103.3856324	100.6583799	98.01842767	95.46251637	92.98752638	90.59047097
230329A00055	3/29/2023	4.59	3/28/2025	3/29/2023	107.68896	105.7442022	103.8446891	101.9890949	100.176142	98.40459835	96.67327543	94.98102663	93.32674534
230330A00011	3/30/2023	4.21	3/30/2028	3/30/2023	121.21094	115.9351641	110.9267142	106.1705948	101.6527319	97.35990829	93.27970745	89.40046068	85.71119844
230330A00029	3/30/2023	4.6	4/1/2025	3/30/2023	107.76192	105.8056662	103.8951629	102.0290638	100.2060699	98.42492916	96.6844338	94.98341897	93.32076065
230330A00061	3/30/2023	4.65	3/31/2025	3/30/2023	107.8452	105.8908153	103.9820747	102.1176355	100.2962036	98.51653122	96.7774151	95.07769445	93.41624918
230330A00062	3/30/2023	4.42	3/30/2026	3/30/2023	112.34278	109.3208622	106.3975568	103.5691044	100.831913	98.18254674	95.61771847	93.1342822	90.72922636
230331A00055	3/31/2023	4.5	3/31/2025	3/31/2023	107.55509	105.6035716	103.6976452	101.8359668	100.0172439	98.24023023	96.50372383	94.80656525	93.14763568
230331A00057	3/31/2023	4.08	3/31/2028	3/31/2023	120.57646	115.3133502	110.3172765	105.5732449	101.0671843	96.78588086	92.716922	88.84864321	85.17007951
230427A00077	4/27/2023	4.14	10/27/2026	4/27/2023	114.26284	110.6191941	107.1140274	103.7413191	100.4953394	97.37063869	94.36203176	91.4645836	88.67359592
230426A00037	4/26/2023	3.94	4/26/2027	4/26/2023	115.86901	111.680875	107.6708755	103.8304646	100.1515528	96.62648018	93.24799127	90.00921134	86.90362442
230426A00040	4/26/2023	3.9	4/26/2028	4/26/2023	119.95322	114.6324497	109.5855013	104.7967875	100.2516898	95.9364936	91.83832735	87.94510628	84.24548039
230412A00007	4/12/2023	3.95	4/12/2028	4/12/2023	120.05739	114.7732757	109.7591055	104.999628	100.4805302	96.18837709	92.11055336	88.2352093	84.5512104

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230426A00033	4/26/2023	3.88	4/26/2028	4/26/2023	119.85242	114.5341487	109.4896029	104.7032024	100.160333	95.84728395	91.75118719	87.85996151	84.16226019
230404A00019	4/4/2023	4.45	4/4/2025	4/4/2023	107.51044	105.5486039	103.6328449	101.7617986	99.93415174	98.1486384	96.40403791	94.69917299	93.03290788
230417A00045	4/17/2023	4.21	4/16/2027	4/17/2023	116.82364	112.6443585	108.64148	104.8066025	101.1317688	97.60944126	94.23247752	90.99410731	87.88791124
230425A00020	4/25/2023	4.62	10/25/2024	4/25/2023	105.67886	104.1773677	102.7050716	101.2611939	99.84498328	98.45571413	97.09268585	95.75522158	94.44266673
230412A00001	4/12/2023	4.62	10/11/2024	4/12/2023	105.49997	104.0383549	102.6044709	101.1975952	99.81703029	98.46210237	97.13216011	95.82657377	94.54473435
230413A00020	4/13/2023	3.88	4/13/2028	4/13/2023	119.7177	114.4391293	109.4304803	104.6764862	100.1628255	95.87605569	91.80355524	87.93346893	84.25465756
230426A00026	4/26/2023	4.61	10/25/2024	4/26/2023	105.66383	104.1624511	102.6902703	101.246506	99.8304068	98.44124721	97.07832664	95.74096832	94.42851824
230417A00036	4/17/2023	4.63	4/17/2025	4/17/2023	108.03616	106.0340769	104.079796	102.1718779	100.3089375	98.48964033	96.7127006	94.97687911	93.28098111
230426A00025	4/26/2023	3.62	4/26/2028	4/26/2023	119.97787	114.6111477	109.5219135	104.6943078	100.1134626	95.76543249	91.6371322	87.71627945	83.99134134
230424A00056	4/24/2023	4.79	10/24/2024	4/24/2023	105.9212	104.4205613	102.949053	101.5058953	100.0903396	98.70166326	97.33916841	96.00218081	94.69004889
230421A00043	4/21/2023	4.1	4/21/2028	4/21/2023	120.90631	115.5759943	110.5189617	105.719703	101.1636725	96.83722073	92.7275351	88.82258372	85.11106411
230426A00062	4/26/2023	4.13	4/27/2026	4/26/2023	111.84176	108.7506903	105.7630235	102.8747217	100.0819267	97.38095271	94.76827771	92.24053486	89.79450496
230428A00018	4/28/2023	3.99	4/28/2028	4/28/2023	120.42815	115.0900074	110.0267007	105.2225701	100.6629335	96.33401719	92.22289493	88.31743131	84.60622939
230413A00017	4/13/2023	3.88	4/13/2028	4/13/2023	119.7177	114.4391293	109.4304803	104.6764862	100.1628255	95.87605569	91.80355524	87.93346893	84.25465756
230425A00031	4/25/2023	3.69	4/25/2028	4/25/2023	120.32233	114.9498813	109.8549541	105.0216978	100.435253	96.08168144	91.9479045	88.0216453	84.29137564
230406A00105	4/6/2023	3.84	4/6/2028	4/6/2023	119.44579	114.1934923	109.2088931	104.476905	99.98337035	95.71499761	91.65930373	87.80456095	84.13974733
230414A00009	4/14/2023	5.04	4/12/2024	4/14/2023	103.736	102.7695045	101.8211126	100.8903135	99.97661987	99.07956214	98.19868793	97.33356113	96.48376121
230406A00026	4/6/2023	3.92	4/6/2027	4/6/2023	115.54217	111.4160041	107.463151	103.6754045	100.0449894	96.56453808	93.22706642	90.02595208	86.95491375
230420A00024	4/20/2023	4.31	4/20/2026	4/20/2023	112.29309	109.2143517	106.2379335	103.3598634	100.576347	97.8837579	95.27863006	92.75764914	90.31764515
230424A00064	4/24/2023	4.28	4/24/2026	4/24/2023	112.25499	109.1658819	106.1797958	103.2927188	100.5008175	97.8004291	95.18805314	92.66034301	90.21409841
230417A00046	4/17/2023	4.13	4/17/2028	4/17/2023	121.01284	115.6911598	110.6417154	105.8490972	101.2988436	96.97738269	92.87197232	88.97064537	85.26215859
230421A00025	4/21/2023	4.04	4/21/2028	4/21/2023	120.60475	115.2818869	110.2320239	105.4396692	100.8902893	96.57024636	92.46673849	88.56774418	84.8619707
230426A00051	4/26/2023	4.69	10/28/2024	4/26/2023	105.82301	104.3121424	102.8308051	101.3782061	99.95358171	98.55619474	97.18533342	95.84031027	94.52046109
230421A00064	4/21/2023	4.1	4/21/2028	4/21/2023	120.90631	115.5759943	110.5189617	105.719703	101.1636725	96.83722073	92.7275351	88.82258372	85.11106411
230419A00005	4/19/2023	5.1	4/19/2024	4/19/2023	103.88062	102.8943847	101.9269675	100.977836	100.0464742	99.13238536	98.2350911	97.35413062	96.48905984
230405A00008	4/5/2023	4.01	10/6/2025	4/5/2023	108.92516	106.440641	104.0262465	101.6796029	99.3984278	97.18052922	95.02380181	92.92622278	90.88584815
230419A00030	4/19/2023	4.39	4/20/2026	4/19/2023	112.53262	109.4502891	106.4703656	103.588877	100.8020261	98.10618382	95.49788143	92.97380207	90.53077334
230425A00040	4/25/2023	3.89	4/24/2026	4/25/2023	111.87333	108.7716719	105.7738982	102.8759454	100.0739346	97.36416017	94.74308152	92.20731411	89.75362189
230413A00045	4/13/2023	4.33	4/11/2025	4/13/2023	107.36582	105.3866219	103.454342	101.5675799	99.72498592	97.92525976	96.16714797	94.44944209	92.77097673
230426A00010	4/26/2023	3.94	8/8/2028	4/26/2023	121.20416	115.5528744	110.2060871	105.1456914	100.3547589	95.81745349	91.51895429	87.44538535	83.58375023
230421A00023	4/21/2023	4.04	4/21/2028	4/21/2023	120.60475	115.2818869	110.2320239	105.4396692	100.8902893	96.57024636	92.46673849	88.56774418	84.8619707
230425A00032	4/25/2023	3.95	4/25/2028	4/25/2023	120.19465	114.8707066	109.8205206	105.0285222	100.4801057	96.16156761	92.06004612	88.16346537	84.4604832
230406A00038	4/6/2023	4.24	4/7/2025	4/6/2023	107.13929	105.1730903	103.2532722	101.3784537	99.54730747	97.75855453	96.01096168	94.30333976	92.63454175

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230421A00036	4/21/2023	4.48	4/21/2025	4/21/2023	107.79143	105.7810738	103.8189764	101.903677	100.0337698	98.20790119	96.42476702	94.68311064	92.98172078
230406A00050	4/6/2023	3.67	4/6/2027	4/6/2023	115.61604	111.4594144	107.4780932	103.6637428	100.0084728	96.50480719	93.14566101	89.92431734	86.83440636
230421A00024	4/21/2023	4.23	4/21/2026	4/21/2023	112.06635	108.9882818	106.012627	103.1354066	100.3528188	97.66123082	95.05717037	92.53731733	90.09849639
230425A00006	4/25/2023	3.89	4/24/2026	4/25/2023	111.87333	108.7716719	105.7738982	102.8759454	100.0739346	97.36416017	94.74308152	92.20731411	89.75362189
230426A00063	4/26/2023	4.69	10/25/2024	4/26/2023	105.7841	104.2817842	102.8086806	101.3640094	99.94701866	98.55698263	97.19320027	95.85499441	94.54171069
230412A00002	4/12/2023	4.42	4/11/2025	4/12/2023	107.54261	105.5616338	103.6276134	101.739144	99.89487506	98.09350528	96.33378038	94.61449109	92.9344712
230428A00040	4/28/2023	4.78	10/28/2024	4/28/2023	105.95906	104.4471218	102.9647356	101.5111058	100.0854683	98.68708524	97.31524454	95.96925826	94.64846177
230406A00029	4/6/2023	3.84	4/6/2028	4/6/2023	119.44579	114.1934923	109.2088931	104.476905	99.98337035	95.71499761	91.65930373	87.80456095	84.13974733
230406A00023	4/6/2023	3.84	4/6/2028	4/6/2023	119.44579	114.1934923	109.2088931	104.476905	99.98337035	95.71499761	91.65930373	87.80456095	84.13974733
230417A00037	4/17/2023	4.39	4/16/2026	4/17/2023	112.47968	109.4091037	106.4401996	103.5690378	100.7918608	98.10507707	95.50525294	92.98910467	90.55349099
230411A00045	4/11/2023	4.66	10/11/2024	4/11/2023	105.55857	104.0965082	102.662185	101.2548775	99.87388822	98.51854298	97.18819031	95.8822003	94.59996378
230411A00018	4/11/2023	4.96	4/11/2024	4/11/2023	103.64673	102.683421	101.7380986	100.8102659	99.89943978	99.00515467	98.12696191	97.264429	96.4171388
230412A00028	4/12/2023	3.69	4/12/2028	4/12/2023	120.18357	114.8515562	109.7931808	104.9929198	100.4362125	96.10939473	91.99963901	88.09489916	84.38385861
230419A00024	4/19/2023	4.66	4/18/2025	4/19/2023	108.10917	106.1036602	104.1460888	102.2350145	100.3690463	98.54684418	96.7671172	95.02862114	93.33015651
230428A00017	4/28/2023	4.17	4/28/2026	4/28/2023	111.97493	108.8791165	105.8869392	102.9943448	100.1974636	97.49259921	94.87621911	92.34494693	89.89555437
230406A00042	4/6/2023	3.99	4/7/2025	4/6/2023	107.15019	105.1746316	103.2458336	101.3623996	99.52298759	97.72630419	95.97110275	94.25618127	92.58038048
230426A00053	4/26/2023	4	4/26/2028	4/26/2023	120.4572	115.1239545	110.0649933	105.2647125	100.7084734	96.38254187	92.27402815	88.37083014	84.66158139
230428A00054	4/28/2023	4.62	3/13/2025	4/28/2023	107.52928	105.6306648	103.775326	101.9620202	100.1895487	98.45675454	96.76252095	95.10576964	93.48545921
230405A00022	4/5/2023	3.8	4/5/2028	4/5/2023	119.23628	113.9919161	109.0147749	104.2898054	99.80288034	95.54073578	91.49091446	87.6417125	83.98213006
230420A00071	4/20/2023	4.31	4/20/2026	4/20/2023	112.29309	109.2143517	106.2379335	103.3598634	100.576347	97.8837579	95.27863006	92.75764914	90.31764515
230405A00012	4/5/2023	3.8	4/5/2028	4/5/2023	119.23628	113.9919161	109.0147749	104.2898054	99.80288034	95.54073578	91.49091446	87.6417125	83.98213006
230421A00003	4/21/2023	4.72	10/21/2024	4/21/2023	105.77699	104.2857336	102.82327	101.3888388	99.98170361	98.60115326	97.24650092	95.9170829	94.61225772
230428A00026	4/28/2023	4.56	4/28/2025	4/28/2023	108.04398	106.0122409	104.0296943	102.0948421	100.2062388	98.36249317	96.56226515	94.80426404	93.08724612
230405A00010	4/5/2023	3.96	4/6/2026	4/5/2023	111.07647	108.054115	105.1311432	102.3037404	99.56826218	96.92122381	94.35929226	91.87927876	89.47813167
230426A00007	4/26/2023	3.92	7/11/2028	4/26/2023	120.83076	115.2694265	110.0040106	105.0170925	100.2923792	95.81462101	91.56953912	87.54375823	83.72474426
230405A00028	4/5/2023	3.78	4/5/2028	4/5/2023	119.13666	113.8947289	108.9199367	104.19723	99.71248524	95.45244228	91.40464736	87.55739992	83.89970328
230413A00021	4/13/2023	4.07	4/13/2026	4/13/2023	111.48803	108.4404693	105.4936783	102.6437701	99.88702793	97.21989894	94.63898603	92.14104003	89.72295243
230419A00035	4/19/2023	4.16	4/19/2028	4/19/2023	121.18558	115.8539983	110.7953898	105.9942797	101.4361556	97.10739802	92.99522157	89.08761905	85.37331031
230421A00020	4/21/2023	4.23	4/21/2026	4/21/2023	112.06635	108.9882818	106.012627	103.1354066	100.3528188	97.66123082	95.05717037	92.53731733	90.09849639
230426A00049	4/26/2023	4.13	4/27/2026	4/26/2023	111.84176	108.7506903	105.7630235	102.8747217	100.0819267	97.38095271	94.76827771	92.24053486	89.79450496
230424A00010	4/24/2023	4.55	4/24/2025	4/24/2023	107.97072	105.9504751	103.9789049	102.0545296	100.1759261	98.34172448	96.55060481	94.80129559	93.09257134
230412A00006	4/12/2023	4.04	4/12/2027	4/12/2023	116.09404	111.9403268	107.9616437	104.1496728	100.496535	96.99476569	93.63729051	90.41740295	87.32874317
230426A00012	4/26/2023	3.96	9/12/2028	4/26/2023	121.6286	115.8676571	110.4220083	105.2727	100.4020118	95.79337169	91.43127623	87.30121619	83.38960806

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230427A00066	4/27/2023	4.07	4/27/2027	4/27/2023	116.40458	112.2029942	108.1801063	104.3273431	100.6365871	97.10015201	93.71075755	90.46150568	87.3458585
230413A00031	4/13/2023	4.07	4/13/2026	4/13/2023	111.48803	108.4404693	105.4936783	102.6437701	99.88702793	97.21989894	94.63898603	92.14104003	89.72295243
230405A00049	4/5/2023	3.81	4/5/2028	4/5/2023	119.2861	114.0405098	109.0621939	104.3360931	99.84807789	95.58488253	91.53404802	87.6838688	84.02334345
230425A00076	4/25/2023	4.95	4/25/2024	4/25/2023	103.8047	102.80261	101.8199481	100.8561567	99.91069529	98.98304355	98.07270084	97.17918513	96.30203213
230421A00041	4/21/2023	4.22	4/21/2027	4/21/2023	116.92935	112.7340241	108.7163285	104.8677743	101.1803248	97.64636831	94.25869375	91.01046693	87.89520904
230413A00018	4/13/2023	3.96	4/13/2027	4/13/2023	115.78784	111.6373936	107.6620232	103.8533991	100.203634	96.70525574	93.35118322	90.13470371	87.04945179
230424A00026	4/24/2023	4.28	4/24/2026	4/24/2023	112.25499	109.1658819	106.1797958	103.2927188	100.5008175	97.8004291	95.18805314	92.66034301	90.21409841
230420A00003	4/20/2023	4.06	4/20/2026	4/20/2023	112.33379	109.2362273	106.2419932	103.3470661	100.5476014	97.83992585	95.22052883	92.68605402	90.2332918
230426A00014	4/26/2023	3.98	10/10/2028	4/26/2023	121.98747	116.1371994	110.6112223	105.3897896	100.4544559	95.78798748	91.37427606	87.19825986	83.24585037
230425A00050	4/25/2023	4.14	4/24/2026	4/25/2023	111.83426	108.7514903	105.7715822	102.8905298	100.1045044	97.40984848	94.80306597	92.2808148	89.83989896
230426A00004	4/26/2023	3.89	5/9/2028	4/26/2023	120.04018	114.6795583	109.5964356	104.7749269	100.2001373	95.85809789	91.73570393	87.8206565	84.10140889
230425A00029	4/25/2023	4.14	4/24/2026	4/25/2023	111.83426	108.7514903	105.7715822	102.8905298	100.1045044	97.40984848	94.80306597	92.2808148	89.83989896
230428A00066	4/28/2023	4.78	10/28/2024	4/28/2023	105.95906	104.4471218	102.9647356	101.5111058	100.0854683	98.68708524	97.31524454	95.96925826	94.64846177
230426A00009	4/26/2023	3.94	8/8/2028	4/26/2023	121.20416	115.5528744	110.2060871	105.1456914	100.3547589	95.81745349	91.51895429	87.44538535	83.58375023
230421A00006	4/21/2023	4.04	4/21/2028	4/21/2023	120.60475	115.2818869	110.2320239	105.4396692	100.8902893	96.57024636	92.46673849	88.56774418	84.8619707
230424A00011	4/24/2023	4.55	4/24/2025	4/24/2023	107.97072	105.9504751	103.9789049	102.0545296	100.1759261	98.34172448	96.55060481	94.80129559	93.09257134
230419A00016	4/19/2023	4.41	4/18/2025	4/19/2023	108.12267	106.1075284	104.1407229	102.2207932	100.3463326	98.51598623	96.72844886	94.98246281	93.27681573
230426A00036	4/26/2023	4.06	4/27/2026	4/26/2023	111.63082	108.5429316	105.5583702	102.6730964	99.88325465	97.18516164	94.57529758	92.05029796	89.60694572
230406A00017	4/6/2023	3.99	4/7/2025	4/6/2023	107.15019	105.1746316	103.2458336	101.3623996	99.52298759	97.72630419	95.97110275	94.25618127	92.58038048
230421A00044	4/21/2023	4.13	10/21/2027	4/21/2023	118.92383	114.1641849	109.6274046	105.3018431	101.1765222	97.24109228	93.48579269	89.90141541	86.47927069
230424A00037	4/24/2023	4.79	10/24/2024	4/24/2023	105.9212	104.4205613	102.949053	101.5058953	100.0903396	98.70166326	97.33916841	96.00218081	94.69004889
230427A00069	4/27/2023	4.5	4/28/2025	4/27/2023	107.92332	105.8928197	103.911487	101.9778251	100.0903895	98.24778925	96.44868511	94.69178692	92.97585153
230426A00008	4/26/2023	3.92	7/11/2028	4/26/2023	120.83076	115.2694265	110.0040106	105.0170925	100.2923792	95.81462101	91.56953912	87.54375823	83.72474426
230419A00072	4/19/2023	4.53	10/20/2025	4/19/2023	110.39713	107.8550516	105.3856908	102.986548	100.6552223	98.38940984	96.18689921	94.04556713	91.96337437
230427A00013	4/27/2023	4.74	10/28/2024	4/27/2023	105.89859	104.3871309	102.9052109	101.4520393	100.026852	98.62891168	97.25750626	95.91194804	94.59157258
230425A00053	4/25/2023	4.14	4/24/2026	4/25/2023	111.83426	108.7514903	105.7715822	102.8905298	100.1045044	97.40984848	94.80306597	92.2808148	89.83989896
230413A00030	4/13/2023	4.33	4/14/2025	4/13/2023	107.40387	105.4162393	103.4759061	101.5814561	99.73152367	97.92479283	96.15999553	94.4359094	92.75135575
230425A00045	4/25/2023	3.95	4/25/2028	4/25/2023	120.19465	114.8707066	109.8205206	105.0285222	100.4801057	96.16156761	92.06004612	88.16346537	84.4604832
230404A00040	4/4/2023	4.28	4/4/2025	4/4/2023	107.17978	105.2212301	103.3086961	101.4408137	99.61627118	97.8338043	96.092194	94.39026452	92.72688157
230425A00028	4/25/2023	4.42	4/25/2025	4/25/2023	107.72365	105.703245	103.7315905	101.8072042	99.92865921	98.09458126	96.30364694	94.55458121	92.84615529
230421A00015	4/21/2023	4.54	4/21/2025	4/21/2023	107.91093	105.899364	103.9360748	102.0196065	100.1485527	98.32155903	96.53732091	94.79458106	93.09212764
230426A00057	4/26/2023	4.44	4/25/2025	4/26/2023	107.76371	105.7428904	103.7708345	101.8460545	99.9671233	98.13266645	96.34136035	94.59192976	92.88314571
230417A00023	4/17/2023	3.86	4/7/2028	4/17/2023	120.98355	115.6460743	110.5815339	105.774493	101.2104707	96.87587508	92.75794424	88.84469103	85.1248523

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230412A00052	4/12/2023	4.13	4/10/2026	4/12/2023	111.62897	108.5874991	105.6463189	102.8015706	100.049565	97.38677478	94.80982711	92.31549547	89.90069262
230426A00003	4/26/2023	3.89	5/9/2028	4/26/2023	120.04018	114.6795583	109.5964356	104.7749269	100.2001373	95.85809789	91.73570393	87.8206565	84.10140889
230428A00049	4/28/2023	4.78	10/28/2024	4/28/2023	105.95906	104.4471218	102.9647356	101.5111058	100.0854683	98.68708524	97.31524454	95.96925826	94.64846177
230426A00043	4/26/2023	4.35	4/22/2025	4/26/2023	107.54524	105.5347051	103.5725062	101.6571786	99.78731249	97.96155038	96.17858444	94.43715453	92.73604607
230426A00006	4/26/2023	3.91	6/13/2028	4/26/2023	120.50255	115.0297057	109.8444935	104.9301949	100.2711542	95.85270475	91.66110179	87.68345894	83.90769012
230425A00037	4/25/2023	4.65	10/25/2024	4/25/2023	105.72396	104.2221177	102.7494754	101.3052577	99.88871273	98.49911492	97.13576346	95.79798136	94.48511446
230420A00067	4/20/2023	4.57	4/21/2025	4/20/2023	107.97069	105.9585091	103.994624	102.0775712	100.2059441	98.37838795	96.59359786	94.85031627	93.14733107
230410A00012	4/10/2023	3.98	4/10/2028	4/10/2023	120.18613	114.9044666	109.8922983	105.1344175	100.6165497	96.32529556	92.24807207	88.37305907	84.68914901
230426A00046	4/26/2023	3.95	4/26/2028	4/26/2023	120.20521	114.8782021	109.8252473	105.03075	100.4800816	96.15951774	92.05617775	88.15796821	84.45353089
230426A00030	4/26/2023	3.81	4/27/2026	4/26/2023	111.66919	108.5623578	105.5598783	102.6576569	99.85178735	97.13853824	94.51434459	91.97579916	89.51964461
230426A00013	4/26/2023	3.98	10/10/2028	4/26/2023	121.98747	116.1371994	110.6112223	105.3897896	100.4544559	95.78798748	91.37427606	87.19825986	83.24585037
230417A00034	4/17/2023	4.63	4/17/2025	4/17/2023	108.03616	106.0340769	104.079796	102.1718779	100.3089375	98.48964033	96.7127006	94.97687911	93.28098111
230424A00012	4/24/2023	4.28	4/24/2026	4/24/2023	112.25499	109.1658819	106.1797958	103.2927188	100.5008175	97.8004291	95.18805314	92.66034301	90.21409841
230413A00082	4/13/2023	4.01	4/13/2027	4/13/2023	115.98712	111.8327407	107.8535546	104.041232	100.3878811	96.88602532	93.52857948	90.30882684	87.22039823
230425A00030	4/25/2023	4.01	4/26/2027	4/25/2023	116.15054	111.9567915	107.9413563	104.0956778	100.4116601	96.88163701	93.49834695	90.25490952	87.1448033
230426A00011	4/26/2023	3.96	9/12/2028	4/26/2023	121.6286	115.8676571	110.4220083	105.2727	100.4020118	95.79337169	91.43127623	87.30121619	83.38960806
230427A00057	4/27/2023	4.74	10/28/2024	4/27/2023	105.89859	104.3871309	102.9052109	101.4520393	100.026852	98.62891168	97.25750626	95.91194804	94.59157258
230410A00011	4/10/2023	4.08	4/9/2027	4/10/2023	116.21506	112.0673106	108.0939701	104.2867702	100.6378751	97.13985991	93.78568739	90.56868532	87.48252571
230425A00047	4/25/2023	4.01	4/26/2027	4/25/2023	116.15054	111.9567915	107.9413563	104.0956778	100.4116601	96.88163701	93.49834695	90.25490952	87.1448033
230417A00044	4/17/2023	4.32	4/17/2026	4/17/2023	112.28391	109.2135176	106.2449092	103.3741406	100.5974469	97.91122957	95.31204843	92.79661369	90.36177843
230426A00005	4/26/2023	3.91	6/13/2028	4/26/2023	120.50255	115.0297057	109.8444935	104.9301949	100.2711542	95.85270475	91.66110179	87.68345894	83.90769012
230417A00042	4/17/2023	4.58	4/17/2025	4/17/2023	107.93712	105.9360403	103.982742	102.0757878	100.213793	98.39542354	96.61939427	94.88446639	93.18944563
230424A00005	4/24/2023	4.08	4/24/2028	4/24/2023	120.83855	115.5014781	110.4384774	105.6339727	101.0733544	96.74291466	92.62978719	88.72189111	85.00787899
230428A00029	4/28/2023	4.23	4/28/2026	4/28/2023	112.1559	109.0573562	106.0625124	103.1673181	100.3679012	97.66056321	95.04176966	92.50814222	90.05645073
230425A00124	4/25/2023	4.42	4/25/2025	4/25/2023	107.72365	105.703245	103.7315905	101.8072042	99.92865921	98.09458126	96.30364694	94.55458121	92.84615529
230412A00005	4/12/2023	4.16	4/10/2026	4/12/2023	111.71797	108.6751715	105.7327002	102.8866926	100.1334583	97.4694693	94.89135157	92.39587772	89.97995966
230426A00045	4/26/2023	4.34	4/25/2025	4/26/2023	107.56343	105.544663	103.5746144	101.6518031	99.77480285	97.94224047	96.15279328	94.40518701	92.69819363
230412A00033	4/12/2023	4.04	4/12/2027	4/12/2023	116.09404	111.9403268	107.9616437	104.1496728	100.496535	96.99476569	93.63729051	90.41740295	87.32874317
230405A00044	4/5/2023	3.8	4/5/2028	4/5/2023	119.23628	113.9919161	109.0147749	104.2898054	99.80288034	95.54073578	91.49091446	87.6417125	83.98213006
141117A00011	11/17/2014	3.81	11/17/2034	11/17/2014	138.9935	126.1433416	114.6602928	104.3893716	95.19399881	86.95372662	79.56225546	72.92570362	66.96109643
150731A00016	7/31/2015	3.04	7/31/2025	7/31/2015	105.90026	103.6328986	101.4254866	99.27600713	97.18252665	95.14319272	93.15622965	91.21993463	89.33267405
160212A00037	2/12/2016	3.03	2/12/2031	2/12/2016	121.73529	113.500935	105.8948567	98.86560348	92.36619428	86.35371055	80.78892499	75.63596628	70.8620158
160222A00005	2/22/2016	2.79	2/22/2028	2/22/2016	113.85945	108.8696682	104.1300928	99.62687729	95.34700882	91.27825689	87.40912246	83.72879052	80.22708585

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160222A00019	2/22/2016	3.09	2/21/2031	2/22/2016	122.26749	113.9886411	106.3428138	99.27807683	92.74701437	86.7063141	81.11639272	75.94105724	71.14719869
160225A00024	2/25/2016	2.22	2/26/2024	2/25/2016	100.81152	99.98346472	99.16897142	98.36770958	97.57935886	96.8036092	96.04016039	95.28872167	94.5490114
160303A00020	3/3/2016	2.97	3/3/2031	3/3/2016	123.64928	115.1911089	107.3844397	100.1754888	93.51517835	87.35870022	81.6651244	76.39704546	71.52026268
160307A00029	3/7/2016	3.21	3/7/2031	3/7/2016	123.31928	114.9604094	107.2427799	100.1136044	93.52470356	87.43207942	81.79553297	76.57831848	71.74683089
160524A00015	11/25/2016	2.71	11/25/2026	11/25/2016	109.49878	105.8595828	102.3619229	98.99951346	95.76638429	92.65686325	89.66555952	86.78734792	84.01735425
160712A00019	7/12/2017	2.32	7/12/2027	7/12/2017	109.97831	105.694355	101.6019164	97.69137229	93.95363764	90.38013461	86.96276083	83.69386011	80.56619516
160714A00018	9/6/2016	2.28	9/4/2026	9/6/2016	107.29229	103.915087	100.6623432	97.52883564	94.50958639	91.59985142	88.79510811	86.09104381	83.48354496
160714A00024	9/20/2016	2.5	9/20/2028	9/20/2016	113.7443	108.1713239	102.907641	97.93448896	93.23433955	88.7908083	84.58857419	80.61330556	76.85159139
160729A00017	7/31/2017	2.47	7/31/2029	7/31/2017	114.83058	108.362688	102.3038651	96.62603863	91.30321197	86.31129807	81.62796903	77.23251841	73.10573491
161017A00007	10/17/2016	1.99	10/18/2023	10/17/2016	100.32003	99.84579143	99.37603563	98.91069735	98.44971444	97.99302588	97.5405718	97.09229345	96.64813315
161118A00026	12/20/2016	3.03	12/21/2026	12/20/2016	110.92142	107.1835299	103.5930916	100.1434493	96.82829104	93.64162586	90.57776532	87.63130638	84.79711525
170327A00080	3/27/2019	3.43	3/27/2029	3/27/2019	120.1151	113.8369006	107.9337515	102.3812305	97.1566269	92.2388146	87.6081331	83.24627907	79.13620598
170609A00052	6/11/2018	2.9	6/9/2027	6/11/2018	112.07478	107.8398482	103.7902865	99.91696263	96.21124713	92.66498161	89.27045049	86.02035432	82.90778492
170614A00019	6/14/2017	2.48	6/13/2025	6/14/2017	104.23595	102.1178997	100.0534284	98.04081228	96.07839563	94.16458881	92.29786487	90.47675657	88.69985355
170822A00023	8/23/2017	3.95	8/23/2028	8/23/2017	121.39512	115.6966808	110.3073309	105.2086351	100.3833499	95.81534244	91.48951336	87.39172537	83.50873719
180518A00042	5/25/2018	3.42	5/19/2025	5/25/2018	105.97875	103.9097638	101.8918818	99.92350478	98.00309559	96.1291763	94.30032528	92.51517468	90.7724079
180518A00046	5/25/2018	3.62	5/18/2027	5/25/2018	114.80064	110.5719319	106.5254876	102.6524556	98.9444594	95.39357346	91.99229624	88.73352522	85.61053336
180518A00048	5/25/2018	3.65	5/18/2028	5/25/2018	118.9113	113.5527199	108.4730708	103.6563028	99.08737879	94.75220151	90.63754936	86.73101753	83.02096326
180518A00071	5/25/2018	3.56	5/18/2026	5/25/2018	110.36546	107.2373975	104.2156663	101.2960439	98.47450146	95.7471936	93.11044881	90.56076048	88.09477847
180615A00039	6/15/2018	3.49	6/15/2028	6/15/2018	118.34712	112.923426	107.7858191	102.9176323	98.30326015	93.92808529	89.77841038	85.84139524	82.10499854
180618A00036	6/18/2018	3.89	6/18/2048	6/18/2018	167.13816	139.3415049	117.1358119	99.31972713	84.95964785	73.32849447	63.85877657	56.10655507	49.72372417
180821A00029	8/21/2018	3.01	8/21/2023	8/21/2018	100.55445	100.237136	99.92182994	99.60851286	99.29716597	98.98777066	98.68030859	98.37476165	98.07111194
180912A00017	9/12/2018	3.13	9/12/2023	9/12/2018	100.7038	100.3261022	99.95125153	99.57921119	99.20994956	98.84343547	98.47963823	98.11852758	97.76007373
180925A00033	9/25/2018	3.26	9/25/2023	9/25/2018	100.82003	100.4066845	99.99672592	99.59011261	99.18680377	98.78675925	98.38993954	97.99630577	97.60581968
181029A00051	2/5/2019	3.69	2/5/2029	2/5/2019	121.29353	115.1273895	109.3209297	103.8511626	98.69669349	93.83760125	89.25532917	84.93258407	80.85324354
181031A00070	3/1/2019	3.77	3/1/2029	3/1/2019	121.93467	115.6831129	109.799644	104.2606097	99.04399018	94.12928244	89.49738837	85.13051179	81.01206352
181206A00018	12/6/2018	3.13	12/6/2023	12/6/2018	101.10891	100.499905	99.89823723	99.3037723	98.71638131	98.1359384	97.56232072	96.99540828	96.4350839
181220A00041	12/20/2018	3.36	12/18/2026	12/20/2018	112.09912	108.3482411	104.7448273	101.2822428	97.95419094	94.75469412	91.67807599	88.71894423	85.87217456
190329A00012	3/29/2019	2.61	3/29/2024	3/29/2019	101.30241	100.3862658	99.4866534	98.60313055	97.73526856	96.88265387	96.04488734	95.22158366	94.41237076
190621A00035	6/21/2019	2.19	12/15/2023	6/21/2019	100.56101	99.92963616	99.3061841	98.69050095	98.08244205	97.48186631	96.88863611	96.30261718	95.7236785
190621A00037	6/21/2019	2.21	5/15/2024	6/21/2019	101.15558	100.114143	99.09409315	98.09477314	97.1155557	96.15583872	95.21504391	94.29261564	93.38801989
190815A00041	8/15/2019	1.86	8/15/2024	8/15/2019	101.17737	99.89546515	98.63964048	97.40910474	96.20310232	95.02090794	93.86182509	92.72518458	91.61034324
190829A00078	8/29/2019	1.8	12/15/2023	8/29/2019	100.31193	99.68145883	99.05889488	98.44409196	97.83690551	97.23719457	96.64482161	96.05965248	95.48155629

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190829A00080	8/29/2019	1.8	12/29/2023	8/29/2019	100.33339	99.66529206	99.0060595	98.35551547	97.7134892	97.07981438	96.45432898	95.83687514	95.22729905
200131A00029	1/31/2020	1.78	10/31/2024	1/31/2020	101.43997	99.95556612	98.50032786	97.07347059	95.67423666	94.30189489	92.95573939	91.63508847	90.33928363
171222A00037	12/22/2017	2.71	12/29/2023	12/22/2017	100.94963	100.279211	99.61767366	98.96484641	98.32055817	97.68464229	97.05693643	96.43728243	95.82552614
171228A00024	12/28/2017	2.71	6/28/2024	12/28/2017	101.96598	100.8017588	99.66407062	98.55201511	97.4647333	96.40140425	95.36124293	94.34349829	93.34745141
181001A00031	10/1/2018	3.23	9/29/2023	10/1/2018	100.82906	100.4048026	99.98411077	99.56693766	99.15323934	98.74297255	98.33609478	97.93256421	97.53233969
200605A00014	6/5/2020	1.02	6/5/2025	6/5/2020	101.01821	99.02708933	97.08576706	95.19265467	93.3462288	91.54502606	89.78764011	88.072719	86.39896259
200605A00016	6/5/2020	1.02	6/5/2025	6/5/2020	101.01821	99.02708933	97.08576707	95.19265469	93.34622884	91.54502611	89.78764017	88.07271907	86.39896267
200605A00017	6/5/2020	1.02	6/5/2025	6/5/2020	101.01821	99.02708933	97.08576708	95.1926547	93.34622885	91.54502612	89.78764019	88.07271909	86.3989627
200709A00021	7/9/2020	0.83	7/9/2025	7/9/2020	100.7412	98.67121471	96.65464062	94.68970856	92.77472624	90.90807111	89.08818681	87.31357984	85.58281652
200709A00025	7/9/2020	1.37	7/9/2030	7/9/2020	107.37285	101.0218739	95.11269199	89.61181215	84.48846146	79.71435446	75.26347904	71.1119018	67.23759108
200813A00019	8/13/2020	1.44	8/13/2030	8/13/2020	107.89138	101.4433525	95.44881713	89.87305589	84.68419301	79.85294989	75.35242018	71.1578656	67.24653027
200813A00020	8/13/2020	1.44	8/13/2030	8/13/2020	107.89138	101.4433524	95.44881715	89.87305599	84.68419319	79.85295013	75.35242049	71.15786598	67.2465307
200813A00023	8/13/2020	0.86	10/14/2025	8/13/2020	101.13606	98.82474353	96.57914811	94.39702937	92.27623077	90.21468229	88.21039642	86.26146431	84.36605217
200911A00011	9/11/2020	1.18	9/11/2030	9/11/2020	106.20482	99.77982239	93.8114997	88.26457916	83.10669861	78.30814996	73.84164858	69.68212382	65.80652868
200911A00012	9/11/2020	1.18	9/11/2030	9/11/2020	106.20388	99.77991194	93.81251605	88.266434	83.10931133	78.31144693	73.84556256	69.68659343	65.81149784
200911A00013	9/11/2020	0.69	9/11/2025	9/11/2020	100.63171	98.40848601	96.24638897	94.1434036	92.09758906	90.10707955	88.17008095	86.28486768	84.44977962
201007A00008	10/7/2020	1.22	10/7/2030	10/7/2020	106.29814	100.0323034	94.20961018	88.79579716	83.75943444	79.07167975	74.70605232	70.63822764	66.84585107
201007A00010	10/7/2020	1.22	10/7/2030	10/7/2020	106.29814	100.0323034	94.20961018	88.79579716	83.75943444	79.07167975	74.70605232	70.63822764	66.84585107
201007A00014	10/7/2020	0.8	10/7/2025	10/7/2020	100.9491	98.68131442	96.47737663	94.33512352	92.25247746	90.22744348	88.25810541	86.34262229	84.47922493
201015A00020	10/15/2020	0.94	10/15/2027	10/15/2020	104.04824	99.95122139	96.04469093	92.31874747	88.76405523	85.37181039	82.13370785	79.04191043	76.08902
201109A00012	11/9/2020	1.39	11/8/2030	11/9/2020	107.7054	101.088158	94.94960093	89.25207797	83.96110225	79.04506827	74.47499667	70.22430289	66.26858732
201211A00001	12/11/2020	0.95	12/11/2030	12/11/2020	106.0001	99.93271739	94.29462096	89.05228399	84.17499823	79.63462036	75.40534382	71.46349212	67.78733154
210107A00007	1/7/2021	0.84	1/7/2026	1/7/2021	101.39232	98.8689407	96.42238121	94.0498001	91.74848637	89.5158483	87.34940723	85.24679172	83.20573203
210201A00002	2/1/2021	1.19	2/1/2036	2/1/2021	105.83959	99.38863228	93.48685883	88.08010851	83.12008943	78.5636949	74.37240568	70.51176523	66.95091851
210809A00010	8/9/2021	1.06	8/7/2026	8/9/2021	102.77585	99.74999347	96.83201918	94.01744033	91.3019831	88.68157765	86.15234696	83.71059637	81.35280373
210915A00027	9/15/2021	1.1	9/15/2026	9/15/2021	103.05641	99.9348454	96.92767092	94.03007362	91.23747216	88.54550133	85.95000069	83.44700388	81.03272847
210921A00006	9/21/2021	1.43	9/21/2028	9/21/2021	107.19074	102.2068051	97.49475721	93.03824569	88.82198775	84.83169287	81.05399339	77.47638037	74.08714411
210921A00009	9/21/2021	1.28	9/21/2028	9/21/2021	107.77174	102.7359955	97.97592876	93.47490992	89.21739562	85.18885506	81.37569885	77.76521338	74.3455
211007A00006	10/7/2021	1.28	10/7/2026	10/7/2021	103.73694	100.5477398	97.47723111	94.52033858	91.67223649	88.92833067	86.28424605	83.73581499	81.27906626
211014A00012	10/14/2021	1.46	10/14/2031	10/14/2021	106.73382	102.321321	98.17099752	94.26445926	90.58476141	87.11627721	83.84458609	80.75637198	77.83933093
211110A00012	11/10/2021	1.44	11/10/2026	11/10/2021	104.43523	101.149413	97.98865436	94.9474821	92.02069694	89.20335559	86.49075665	83.87842724	81.36211061
211110A00013	11/10/2021	1.44	11/10/2026	11/10/2021	104.43523	101.1494131	97.98865431	94.94748187	92.02069652	89.20335501	86.49075591	83.87842635	81.36210957
211110A00014	11/10/2021	1.44	11/10/2026	11/10/2021	104.43523	101.1494127	97.98865443	94.94748252	92.02069767	89.20335664	86.49075799	83.87842886	81.3621125

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
211208A00012	12/8/2021	1.62	12/8/2026	12/8/2021	105.19996	101.8294509	98.58923906	95.47352918	92.4768189	89.59388209	86.81975318	84.14971249	81.57927259
220111A00005	1/11/2022	1.54	1/10/2025	1/11/2022	101.36056	99.73834735	98.15031287	96.59543702	95.07273925	93.58127791	92.12014826	90.68848065	89.28543876
220411A00008	4/11/2022	3.02	4/12/2027	4/11/2022	112.22013	108.3461225	104.6338129	101.0755433	97.66405738	94.3924802	91.25429625	88.24332856	85.35371929
220520A00006	5/20/2022	3.02	5/20/2027	5/20/2022	112.24939	108.3691011	104.6530445	101.0932969	97.68236284	94.41314955	91.27894284	88.27338472	85.39045237
220617A00030	6/17/2022	3.43	6/17/2025	6/17/2022	102.86753	101.7619978	100.6789803	99.61782542	98.5779039	97.55861035	96.55936196	95.57959748	94.61877618
220617A00061	6/17/2022	3.26	6/17/2024	6/17/2022	101.23061	100.6366349	100.0520732	99.47667254	98.91019439	98.35240891	97.80309455	97.2620377	96.72903227
220916A00018	9/16/2022	4.07	9/16/2027	9/16/2022	115.79879	111.728622	107.8382175	104.1185524	100.561101	97.15781019	93.90107053	90.78368964	87.79886702
220919A00036	9/19/2022	4.11	9/19/2029	9/19/2022	124.00714	117.5075033	111.4132766	105.6966993	100.3320597	95.29553242	90.56503011	86.12006835	81.94164126
221017A00055	10/17/2022	4.88	11/18/2024	10/17/2022	103.11513	102.2991498	101.4976078	100.7101073	99.93626814	99.17572392	98.42812189	97.69312206	96.97039668
221123A00016	11/23/2022	4.58	11/23/2029	11/23/2022	127.53173	120.7268936	114.3556423	108.3876123	102.7947367	97.55105565	92.63254737	88.01697317	83.68373603
221201A00068	12/1/2022	4.21	12/1/2027	12/1/2022	117.14794	112.8676372	108.7836894	104.8858421	101.1644404	97.61038683	94.2151056	90.97051001	87.86897161
221222A00053	12/22/2022	4.18	12/22/2027	12/22/2022	118.10978	113.5712264	109.2460778	105.1229944	101.1913026	97.44095461	93.86248856	90.44699051	87.18605967
230110A00035	1/10/2023	4.08	1/10/2028	1/10/2023	118.37449	113.6732015	109.1968478	104.9333124	100.8711998	96.99979139	93.3090013	89.78933535	86.43185269
230113A00057	1/13/2023	3.99	1/13/2028	1/13/2023	116.61523	112.257724	108.1042491	104.143933	100.3665473	96.76246745	93.32263329	90.0385127	86.90206749
230125A00031	1/25/2023	3.74	1/25/2028	1/25/2023	116.81087	112.3986141	108.1948559	104.1883852	100.3686611	96.7257712	93.25038979	89.93373963	86.76755625
230302A00047	3/2/2023	4.76	3/2/2028	3/2/2023	120.50416	115.915311	111.5459211	107.3841313	103.4187865	99.63939193	96.03607075	92.59952439	89.32099571
230328A00037	3/28/2023	4.21	3/28/2028	3/28/2023	119.81362	114.8724358	110.1768138	105.713123	101.4685643	97.43111231	93.58946526	89.93299731	86.45171488
230328A00045	3/28/2023	4.21	3/28/2028	3/28/2023	119.81362	114.872436	110.1768139	105.7131231	101.4685643	97.4311123	93.58946521	89.93299723	86.45171477
230328A00047	3/28/2023	4.21	3/28/2028	3/28/2023	119.81362	114.8724368	110.1768145	105.7131235	101.4685645	97.43111225	93.58946496	89.93299681	86.45171419
230328A00051	3/28/2023	4.53	3/28/2033	3/28/2023	136.74729	126.9277122	117.9767215	109.8102832	102.3530044	95.53720369	89.30208121	83.59298246	78.3607443
230328A00052	3/28/2023	4.53	3/28/2033	3/28/2023	136.7473	126.9277135	117.9767224	109.8102836	102.3530045	95.53720343	89.30208067	83.59298167	78.36074329
150601A00342	6/1/2015	3.97	8/26/2033	6/1/2015	119.1653	113.5838411	108.3835067	103.5335375	99.00594015	94.77521656	90.81812289	87.11345282	83.64184332
150601A00440	6/1/2015	3.27	3/16/2029	6/1/2015	109.09607	106.0501218	103.1335388	100.3396293	97.66209628	95.09501396	92.63280329	90.27020925	88.00227987
150601A00450	6/1/2015	3.28	4/27/2029	6/1/2015	109.31043	106.2029717	103.2296125	100.3833163	97.65746585	95.04583902	92.54258251	90.14218748	87.83946694
150601A00460	6/1/2015	3.05	5/16/2029	6/1/2015	108.69672	105.5771449	102.5932259	99.7377955	97.0041175	94.38586042	91.87707035	89.4721458	87.16581448
150601A00506	6/1/2015	3.14	7/6/2029	6/1/2015	109.19068	105.9876689	102.9266993	100.0001266	97.20077769	94.52191727	91.95721849	89.50073522	87.14687656
150601A00528	6/1/2015	3.08	7/27/2029	6/1/2015	109.08576	105.8577539	102.7739756	99.82661335	97.0083363	94.31226418	91.73193644	89.26128378	86.89460173
150601A00559	6/1/2015	3.06	8/31/2029	6/1/2015	109.1656	105.8869586	102.7567394	99.76680553	96.90952881	94.17775472	91.56476987	89.06427175	86.67034071
161222A00036	12/22/2016	2.69	12/22/2026	12/22/2016	104.17271	102.3235477	100.528094	98.78435138	97.09040791	95.44443674	93.84469167	92.289503	90.77727362
161222A00037	12/22/2016	3.08	12/22/2031	12/22/2016	112.61494	108.0820045	103.8167792	99.80047207	96.01576983	92.44671097	89.07857049	85.89775513	82.89170824
210603A00008	6/3/2021	1.74	6/3/2036	6/3/2021	111.23099	104.4646898	98.28089952	92.62126343	87.43385809	82.67243314	78.29574525	74.26697489	70.55321506
220722A00036	7/22/2022	3.34	7/22/2025	7/22/2022	102.86523	101.7321277	100.6225247	99.53573103	98.47108081	97.42793373	96.40567366	95.40370755	94.42146432
220916A00021	9/16/2022	4.17	9/16/2027	9/16/2022	108.61211	106.324166	104.1127874	101.9747615	99.9070342	97.90670142	95.97100024	94.09730133	92.28310149

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230428A00055	4/28/2023	4.61	4/28/2026	4/28/2023	106.25999	104.6797706	103.1390273	101.6364476	100.1707758	98.74080748	97.34538687	95.98340444	94.65379481
050902A00032	9/2/2005	4.69	8/22/2025	9/2/2005	110.56169	108.1681989	105.839343	103.5729949	101.3671138	99.2197383	97.12898329	95.09303598	93.1101529
050923A00096	9/23/2005	4.86	9/22/2025	9/23/2005	111.43537	108.945792	106.5255185	104.1722273	101.8836897	99.65776459	97.49239429	95.3856009	93.33548264
051003A00009	10/3/2005	5.15	10/15/2025	10/3/2005	111.86381	109.3173815	106.843293	104.4390685	102.1023338	99.8308099	97.62230886	95.4747293	93.38605255
051107A00075	11/7/2005	5.29	11/17/2025	11/7/2005	113.41991	110.746917	108.1521896	105.6329559	103.1865635	100.8104705	98.50224063	96.2595377	94.08012107
060308A00014	3/8/2006	5.44	3/16/2026	3/8/2006	115.0984	112.0782233	109.1550281	106.3251696	103.5851624	100.9316705	98.36150045	95.87159397	93.45902176
060808A00022	8/8/2006	5.57	6/15/2026	8/8/2006	117.01274	113.7024688	110.5059485	107.4185877	104.4360094	101.5540403	98.76869996	96.07619029	93.47288634
080909A00042	9/9/2008	4.74	9/11/2023	9/9/2008	101.37166	100.9943836	100.6199345	100.2482789	99.87938546	99.51322324	99.14976182	98.78897121	98.43082188
080910A00065	9/10/2008	5.03	9/15/2023	9/10/2008	101.45204	101.0644421	100.6798157	100.29813	99.91935125	99.54344619	99.17038209	98.80012669	98.43264825
081205A00033	12/5/2008	4.77	12/7/2023	12/5/2008	102.12527	101.5100221	100.9022089	100.3016929	99.70834302	99.12203123	98.54263262	97.97002524	97.40408997
081209A00008	12/9/2008	4.87	12/15/2023	12/9/2008	102.27259	101.6350599	101.0055049	100.383773	99.76971875	99.16320034	98.56407933	97.97222069	97.38749269
081211A00029	12/11/2008	4.57	12/15/2023	12/11/2008	102.08099	101.4441543	100.8152824	100.1942276	99.58084449	98.9749913	98.37652971	97.78532478	97.20124483
081215A00091	12/15/2008	4.19	12/15/2023	12/15/2008	101.98277	101.3444558	100.7141554	100.0917154	99.47698921	98.86983367	98.27010923	97.67767978	97.09241249
081217A00076	12/17/2008	3.86	12/22/2023	12/17/2008	101.8265	101.1697691	100.5215214	99.88159249	99.24982273	98.62605657	98.01014243	97.40193251	96.80128271
081219A00006	12/19/2008	3.88	12/22/2023	12/19/2008	101.83967	101.1828898	100.5345939	99.89461723	99.2628001	98.63898702	98.02302637	97.41477035	96.81407487
081219A00069	12/19/2008	4.26	12/22/2023	12/19/2008	101.94091	101.2856496	100.6388278	100.0002796	99.36984684	98.74737524	98.13271456	97.52571829	96.92624355
090226A00006	2/26/2009	4.55	3/1/2024	2/26/2009	103.00994	102.1582463	101.3206745	100.4968727	99.68650304	98.88923852	98.10476274	97.33276939	96.57296189
091112A00011	11/12/2009	4.77	11/15/2024	11/12/2009	106.56623	104.9943984	103.453885	101.9438224	100.4633764	99.01174293	97.5881468	96.19184016	94.82210143
091210A00005	12/10/2009	5.08	12/16/2024	12/10/2009	107.12326	105.4676409	103.8459525	102.2572166	100.7004914	99.17487095	97.6794833	96.21348902	94.77607959
100809A00029	8/9/2010	4.23	8/15/2025	8/9/2010	108.79337	106.4519678	104.1732362	101.9551086	99.79559765	97.69279499	95.64486774	93.65005482	91.70666356
100824A00009	8/24/2010	3.91	9/2/2025	8/24/2010	108.26941	105.8854724	103.566558	101.3105393	99.11536903	96.97907808	94.89977242	92.87562967	90.90489595
100930A00008	9/30/2010	3.82	9/30/2025	9/30/2010	108.38667	105.9255323	103.5334475	101.208094	98.94723825	96.74873472	94.61052197	92.53061886	90.50712086
110505A00022	5/5/2011	4.59	5/15/2026	5/5/2011	113.486	110.3185369	107.2581247	104.3005258	101.4416994	98.67778798	96.00510791	93.42014041	90.91952314
110805A00014	8/5/2011	4.06	8/17/2026	8/5/2011	113.06679	109.6420383	106.3409556	103.158387	100.0894239	97.12938946	94.27382647	91.51848541	88.85931364
110824A00004	8/24/2011	3.11	8/30/2023	8/24/2011	100.6911	100.3482282	100.0076947	99.66947331	99.33354042	98.99987284	98.66844768	98.33924236	98.01223459
111006A00023	10/6/2011	3.81	10/15/2026	10/6/2011	112.95298	109.3662346	105.9147934	102.5928183	99.39475631	96.31532309	93.34948849	90.49246287	87.73968422
111024A00010	10/24/2011	3.11	10/30/2023	10/24/2011	101.03162	100.521443	100.0164134	99.51645625	99.02149543	98.53145622	98.04626545	97.56585136	97.09014364
111024A00022	10/24/2011	3.11	10/30/2023	10/24/2011	101.03162	100.521443	100.0164134	99.51645625	99.02149543	98.53145622	98.04626545	97.56585136	97.09014364
111024A00027	10/24/2011	3.11	10/30/2023	10/24/2011	101.03162	100.521443	100.0164134	99.51645625	99.02149543	98.53145622	98.04626545	97.56585136	97.09014364
111216A00001	12/16/2011	3.95	12/30/2031	12/16/2011	131.99896	122.4529591	113.6987419	105.6657595	98.29011635	91.51391359	85.284656	79.55472112	74.28088292
120113A00012	1/13/2012	3.62	1/15/2027	1/13/2012	113.38328	109.5307146	105.8320013	102.2800955	98.86832155	95.59034916	92.4401733	89.41209521	86.50070472
120113A00013	1/13/2012	3.87	1/15/2032	1/13/2012	131.44563	121.8783071	113.1085818	105.0650473	97.68306951	90.90410773	84.6751097	78.94796971	73.67904282
120127A00018	1/27/2012	3.64	2/1/2027	1/27/2012	113.65783	109.7531872	106.0060708	102.4092079	98.95570979	95.63904631	92.45302484	89.39177063	86.44970833

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
120127A00019	1/27/2012	3.87	1/30/2032	1/27/2012	131.58088	121.9660448	113.1559438	105.0782592	97.6675527	90.86457838	84.6156654	78.87216563	73.58995867
120312A00009	3/12/2012	2.72	3/15/2024	3/12/2012	101.53764	100.6549902	99.78767061	98.93528372	98.09744606	97.27378723	96.46394928	95.66758628	94.88436372
120411A00013	4/11/2012	3.59	4/15/2027	4/11/2012	114.33594	110.2086655	106.2560396	102.4697324	98.84185927	95.36495149	92.03193179	88.8360919	85.77107123
120517A00007	5/17/2012	2.42	5/31/2023	5/17/2012	100.1572	100.0655805	99.97413125	99.88285504	99.79175136	99.70081968	99.61005951	99.51947034	99.42905165
120709A00016	7/9/2012	3.2	7/15/2027	7/9/2012	113.69234	109.323307	105.1489494	101.1594877	97.34569542	93.69886135	90.21075716	86.87360773	83.6800634
121116A00006	11/16/2012	2.64	11/13/2025	11/16/2012	105.89711	103.3467264	100.8711693	98.46780346	96.13409959	93.86763353	91.666081	89.52721287	87.44889053
121116A00021	11/16/2012	2.35	11/17/2025	11/16/2012	105.84105	103.2666587	100.7683009	98.34327879	95.98900578	93.7030037	91.48289729	89.32640924	87.23135541
121116A00022	11/16/2012	2.78	11/16/2029	11/16/2012	119.11268	112.1450275	105.6367123	99.55497336	93.86955418	88.55249687	83.57795612	78.92202906	74.56259973
130107A00002	1/7/2013	3.22	1/18/2028	1/7/2013	115.63057	110.6951749	106.0023594	101.5388478	97.29216284	93.25057775	89.40306613	85.7392561	82.24938757
130211A00017	2/11/2013	3.27	2/15/2028	2/11/2013	116.12871	111.1040081	106.3296358	101.7917722	97.47743665	93.37442981	89.47128213	85.75720632	82.22205319
130405A00006	4/5/2013	2.41	4/7/2025	4/5/2013	104.05621	102.1116472	100.2132437	98.35962443	96.5494634	94.78148294	93.05445145	91.36718142	89.71852756
130405A00007	4/5/2013	2.91	4/17/2028	4/5/2013	116.29956	111.0494846	106.0708884	101.3482905	96.86717495	92.61392336	88.57575477	84.74066989	81.09739926
130424A00004	4/24/2013	2.46	4/24/2025	4/24/2013	104.29449	102.3022981	100.3584411	98.46144867	96.60990181	94.80243443	93.03773093	91.31452392	89.63159213
130424A00005	4/24/2013	3.07	4/24/2030	4/24/2013	122.09872	114.5798768	107.5845077	101.073292	95.01005869	89.36151995	84.09702756	79.18835068	74.60947354
130508A00013	5/8/2013	2.23	5/15/2023	5/8/2013	100.07442	100.0271983	99.98003785	99.93293866	99.88590054	99.83892337	99.79200702	99.74515136	99.69835628
130513A00007	5/13/2013	2.54	5/15/2023	5/13/2013	100.08059	100.0334474	99.98636176	99.93933637	99.89237112	99.84546588	99.79862054	99.75183498	99.70510909
130528A00028	5/28/2013	2.63	5/30/2023	5/28/2013	100.15663	100.0679338	99.97939632	99.89101805	99.80279854	99.71473737	99.62683411	99.53908834	99.45149963
130531A00021	5/31/2013	3.22	5/30/2028	5/31/2013	118.27232	112.8486725	107.7104531	102.8410852	98.22504319	93.84778095	89.69566448	85.75590986	82.01652569
130606A00013	6/6/2013	2.94	6/15/2023	6/6/2013	100.25185	100.1189009	99.98632414	99.85411312	99.72226632	99.59078222	99.45965927	99.32889597	99.1984908
130702A00018	7/2/2013	3.17	7/17/2023	7/2/2013	100.47337	100.2516512	100.0309292	99.8111929	99.59243556	99.37465061	99.15783149	98.94197169	98.72706478
130712A00005	7/12/2013	3.25	7/17/2023	7/12/2013	100.49112	100.2693753	100.0486256	99.82886172	99.61007693	99.39226462	99.17541824	98.95953127	98.74459729
130821A00019	8/21/2013	3.81	8/29/2025	8/21/2013	108.59228	106.2030179	103.8788721	101.6177081	99.41747754	97.27621033	95.19201147	93.16305754	91.18759369
130904A00036	9/4/2013	3.57	9/15/2023	9/4/2013	100.9579	100.5706443	100.1863722	99.80505054	99.42664517	99.05112258	98.67844976	98.30859419	97.94152384
130904A00039	9/4/2013	4.19	9/15/2028	9/4/2013	124.48283	118.5854095	113.0116305	107.7419702	102.7581797	98.04319788	93.58106763	89.35685937	85.35659961
130926A00009	9/26/2013	4	10/2/2028	9/26/2013	123.61022	117.686832	112.0914654	106.8041593	101.8062735	97.0803911	92.61023144	88.38057068	84.37716776
131106A00003	11/6/2013	3.57	11/15/2023	11/6/2013	101.24692	100.6941934	100.147509	99.60676807	99.07187383	98.54273166	98.01924898	97.50133519	96.98890159
131217A00023	12/17/2013	3.74	1/2/2024	12/17/2013	101.67641	100.992434	100.3176678	99.65192322	98.99502004	98.34678285	97.70704084	97.07562766	96.4523813
131217A00024	12/17/2013	4.34	1/2/2029	12/17/2013	124.77821	118.6091064	112.7932556	107.30841	102.1338482	97.2502585	92.63963525	88.28518359	84.17123136
140313A00030	3/13/2014	3.27	3/15/2024	3/13/2014	102.02706	101.1420402	100.2723829	99.41768658	98.5775672	97.75165381	96.93958795	96.14102313	95.35562436
140423A00036	4/23/2014	4.03	4/23/2029	4/23/2014	123.90538	117.4408808	111.3651858	105.6527451	100.2798168	95.22433236	90.46577037	85.98504017	81.76437511
140521A00019	5/21/2014	3.43	5/22/2028	5/21/2014	119.27804	113.8522892	108.7106866	103.8367964	99.21522268	94.83153652	90.6722103	86.72455646	82.97667089
140626A00036	6/26/2014	3.55	6/26/2029	6/26/2014	123.21122	116.5199668	110.2437273	104.3544373	98.82608149	93.63453122	88.75739765	84.1738971	79.86472758
140710A00027	7/10/2014	2.8	7/17/2023	7/10/2014	100.39126	100.1696777	99.94908351	99.7294746	99.51084424	99.29318581	99.07649277	98.86075861	98.64597691

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
140815A00030	8/15/2014	2.96	10/16/2023	8/15/2014	100.77992	100.3097577	99.84398725	99.38254602	98.92537369	98.47241112	98.02360024	97.57888406	97.13820663
140815A00032	8/15/2014	3.59	10/15/2029	8/15/2014	122.39766	115.4853205	109.0189868	102.9674183	97.30171982	91.99515431	87.02297157	82.36225074	77.99175626
140827A00038	8/27/2014	3.07	8/30/2024	8/27/2014	102.88819	101.558258	100.2518243	98.96831444	97.7071764	96.46787537	95.24989314	94.05272751	92.87589163
140911A00027	9/11/2014	3.18	9/16/2024	9/11/2014	103.17672	101.7998585	100.4480282	99.12060658	97.81698957	96.53659252	95.2788495	94.0432125	92.8291508
140922A00026	9/22/2014	3.02	9/30/2024	9/22/2014	103.40665	101.9854403	100.5907644	99.22194241	97.87831832	96.55925808	95.26414843	93.99239609	92.74342698
141208A00008	12/8/2014	3.02	12/16/2024	12/8/2014	103.7324	102.1056049	100.5122258	98.95129832	97.42189436	95.92312105	94.45411914	93.01406138	91.60215102
141215A00062	12/15/2014	2.65	12/16/2024	12/15/2014	103.518	101.8862535	100.2881394	98.72268168	97.18894392	95.68602538	94.21305934	92.76921149	91.35367837
150105A00026	1/5/2015	2.54	1/5/2024	1/5/2015	101.01938	100.3278258	99.64573719	98.97291601	98.30917408	97.65432836	97.0082007	96.37061767	95.74141044
150220A00021	2/20/2015	2.72	2/20/2024	2/20/2015	101.20082	100.3870722	99.58639646	98.79847857	98.02301522	97.25971269	96.50828643	95.7684607	95.03996825
150220A00022	2/20/2015	2.8	2/20/2025	2/20/2015	103.92666	102.1217599	100.3569776	98.63115628	96.9431832	95.29198575	93.67652952	92.09581666	90.5488843
150317A00012	3/17/2015	2.46	3/18/2024	3/17/2015	101.32247	100.4327848	99.55869135	98.69978707	97.8556784	97.02598533	96.21034074	95.40838991	94.61978999
150317A00013	3/17/2015	2.58	3/17/2025	3/17/2015	104.19671	102.3098106	100.4664356	98.66532593	96.90526524	95.18508019	93.5036385	91.85984723	90.25265117
150319A00012	3/19/2015	3.13	3/19/2029	3/19/2015	118.27337	112.0729885	106.242512	100.7579135	95.59684324	90.73850611	86.16354574	81.85393813	77.79289351
150319A00013	3/19/2015	3.25	3/19/2030	3/19/2015	121.12489	113.8201012	107.0149681	100.6725899	94.75897396	89.24279171	84.09515746	79.28942633	74.80100981
150401A00008	4/1/2015	2.62	4/1/2025	4/1/2015	103.927	102.008719	100.1354657	98.30591103	96.5187758	94.7728267	93.06687434	91.39977136	89.77041073
150422A00019	4/22/2015	2.62	4/22/2025	4/22/2015	104.09474	102.1193458	100.1916015	98.3100658	96.47334762	94.68010721	92.92905404	91.21894455	89.54858018
150512A00029	5/12/2015	3.03	5/12/2025	5/12/2015	105.1037	103.0633205	101.0730853	99.1314361	97.23687545	95.38796298	93.58331271	91.82159056	90.10151204
150519A00013	5/19/2015	2.98	5/19/2025	5/19/2015	105.06853	103.0091384	101.0006633	99.04150865	97.13014263	95.26509231	93.4449409	91.66832522	89.93393316
150601A00356	6/1/2015	3.66	9/22/2023	6/1/2015	100.94616	100.5406747	100.1384488	99.73944462	99.3436236	98.95094766	98.56137938	98.17488192	97.79141905
150601A00404	6/1/2015	4.29	1/17/2029	6/1/2015	124.26216	118.0651339	112.2253955	106.7202994	101.528761	96.63113997	92.00913317	87.6456761	83.52485233
150601A00405	6/1/2015	4.63	1/17/2034	6/1/2015	144.97067	132.663842	121.5730919	111.5696214	102.5389905	94.37944284	87.00043686	80.32135311	74.27035728
150601A00470	6/1/2015	2.98	5/31/2024	6/1/2015	102.2827	101.1881717	100.1170395	99.06856009	98.04202026	97.03673659	96.05205373	95.08734305	94.14200127
150601A00485	6/1/2015	3.09	6/21/2024	6/1/2015	102.5712	101.4180961	100.2909008	99.18874817	98.11081023	97.05629502	96.02444482	95.01453428	94.02586876
150601A00490	6/1/2015	3.19	7/2/2024	6/1/2015	102.50664	101.3282814	100.1770074	99.05189018	97.95204537	96.87662803	95.82483052	94.7958805	93.78903897
150601A00495	6/1/2015	2.99	6/27/2024	6/1/2015	102.50365	101.3347436	100.1924566	99.07589129	97.98418619	96.91651776	95.87209853	94.85017509	93.85002627
150601A00512	6/1/2015	3.79	7/16/2029	6/1/2015	122.71629	116.0481203	109.7948979	103.9284528	98.42267941	93.25337385	88.39808523	83.8359793	79.54771342
150601A00515	6/1/2015	2.95	1/16/2024	6/1/2015	101.33882	100.6163031	99.90409206	99.20196482	98.50970802	97.82711431	97.15398214	96.49011553	95.83532389
150601A00522	6/1/2015	4.52	7/25/2030	6/1/2015	130.80371	122.8000461	115.3617707	108.4455524	102.0116189	96.02344125	90.44745277	85.25279304	80.41107583
150601A00523	6/1/2015	4.55	7/25/2031	6/1/2015	134.94849	125.7322985	117.2437254	109.4207803	102.2070857	95.5513421	89.40684481	83.73104872	78.48517684
150601A00530	6/1/2015	3.08	7/24/2024	6/1/2015	102.8288	101.5847004	100.3706747	99.18564498	98.02858128	96.89850197	95.79447084	94.71559459	93.66102035
150601A00531	6/1/2015	3.28	7/24/2024	6/1/2015	102.77718	101.5380189	100.3287382	99.14826791	97.99558699	96.86972199	95.76974453	94.69476863	93.64394837
150601A00664	6/1/2015	3.78	1/16/2032	6/1/2015	130.19025	120.673176	111.9509447	103.9523243	96.61283838	89.8740938	83.68317652	77.99211022	72.75737107
150601A00665	6/1/2015	3.82	1/14/2033	6/1/2015	133.63107	122.9367189	113.222437	104.3921445	96.35968804	89.04776738	82.38698202	76.3149851	70.77573185

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00666	6/1/2015	3.88	1/16/2035	6/1/2015	139.56103	126.5120756	114.8677445	104.4669336	95.16789898	86.84583258	79.39075533	72.70568253	66.70502455
150601A00667	6/1/2015	3.88	1/16/2036	6/1/2015	141.89726	127.704159	115.1497782	104.0327868	94.17770801	85.43147232	77.66044603	70.74786752	64.59163358
150601A00668	6/1/2015	3.89	1/16/2037	6/1/2015	144.21676	128.8826123	115.4364779	103.6312042	93.2533985	84.11864706	76.06743683	68.96166927	62.68167845
150601A00688	6/1/2015	2.61	2/21/2025	6/1/2015	103.95483	102.1391206	100.3639452	98.62814061	96.93058181	95.27018428	93.64590205	92.05672609	90.50168264
150601A00689	6/1/2015	2.81	2/28/2025	6/1/2015	103.93393	102.1077702	100.3226063	98.57728678	96.87069519	95.20175314	93.56941893	91.97268606	90.41058179
150601A00696	6/1/2015	2.83	3/13/2025	6/1/2015	104.07502	102.2097654	100.3871561	98.6059684	96.86502035	95.16317142	93.49932061	91.87240477	90.28139712
150601A00733	6/1/2015	2.72	5/1/2025	6/1/2015	104.79784	102.7814679	100.8143768	98.8950466	97.02201888	95.19389014	93.40930924	91.66697505	89.96563422
150601A00734	6/1/2015	2.92	5/1/2025	6/1/2015	104.68564	102.6800683	100.7233441	98.81397177	96.95051005	95.13157148	93.35582021	91.62196967	89.92878033
150601A00737	6/1/2015	2.68	12/31/2024	6/1/2015	103.63147	101.9575933	100.3187947	98.71403639	97.14232151	95.60269223	94.09422784	92.61604291	91.16728558
150601A00830	6/1/2015	6.743	7/31/2025	6/1/2015	114.67883	112.2985001	109.9807563	107.7234977	105.5247079	103.3824552	101.2948879	99.26023015	97.27677867
150601A00916	6/1/2015	7.27	4/5/2030	6/1/2015	148.63951	140.3495995	132.6123254	125.3873081	118.6373384	112.3281104	106.4279809	100.9077489	95.74045543
150601A01024	6/1/2015	5.33	2/27/2026	6/1/2015	114.26998	111.3135241	108.4506039	105.6777522	102.9916523	100.3891279	97.86713648	95.42276274	93.05321266
150603A00017	6/3/2015	2.84	6/3/2025	6/3/2015	105.45097	103.3361769	101.2745176	99.26429791	97.30388894	95.39172611	93.52630593	91.70618311	89.9299678
150610A00008	6/10/2015	3.58	6/10/2030	6/10/2015	126.13835	118.3437213	111.0976182	104.3583168	98.08748426	92.24988494	86.81311486	81.74735979	77.02517533
150610A00009	6/10/2015	3.03	6/10/2025	6/10/2015	105.92441	103.7855634	101.7007675	99.66828705	97.68645334	95.75366384	93.86837926	92.02912046	90.23446556
150610A00017	6/10/2015	2.9	6/15/2023	6/10/2015	100.24652	100.1135799	99.98100919	99.84880427	99.71696357	99.58548553	99.45436865	99.32361139	99.19321225
150720A00011	7/20/2015	2.69	7/20/2023	7/20/2015	100.37794	100.1481262	99.91937669	99.6916832	99.46503836	99.23943486	99.01486547	98.79132303	98.56880044
150720A00012	7/20/2015	2.99	7/21/2025	7/20/2015	106.26184	104.0063538	101.810107	99.67110188	97.58743006	95.55726344	93.57884998	91.65050978	89.77063146
150721A00027	7/21/2015	3.74	7/22/2030	7/21/2015	125.55933	117.7503337	110.495981	103.7536629	97.48427161	91.65189248	86.22352679	81.16883987	76.45993234
150727A00013	7/27/2015	3.04	7/28/2025	7/27/2015	105.87157	103.6125753	101.4131242	99.27120633	97.18489483	95.15234436	93.17178675	91.24152711	89.35994
150817A00077	8/17/2015	2.49	8/17/2023	8/17/2015	100.43016	100.1234229	99.81857563	99.51559717	99.21447026	98.91517784	98.61770308	98.32202932	98.02814014
150817A00099	8/17/2015	3.19	8/17/2027	8/17/2015	114.03165	109.5620041	105.2952115	101.2209848	97.32960973	93.61191449	90.05923587	86.66338847	83.4166357
150819A00012	8/19/2015	3.04	8/19/2025	8/19/2015	106.08197	103.7616195	101.5038205	99.30650905	97.16770756	95.08551595	93.05810828	91.08372931	89.16069122
150819A00013	8/19/2015	3.51	8/19/2030	8/19/2015	124.0958	116.2614159	108.9897998	102.2373612	95.96410526	90.13331892	84.71128587	79.6670274	74.97206703
150821A00018	8/21/2015	2.6	8/21/2024	8/21/2015	102.50485	101.1945974	99.90937343	98.64848751	97.41127214	96.19708436	95.00530459	93.83533561	92.6866015
150826A00038	8/26/2015	2.94	8/26/2026	8/26/2015	110.30613	106.8810564	103.5813891	100.4018777	97.33752241	94.38355808	91.53544199	88.78884218	86.13962655
150826A00039	8/26/2015	3.22	8/27/2029	8/26/2015	121.53266	114.7159956	108.3334719	102.3551093	96.75314892	91.50187509	86.57745513	81.95779248	77.62239202
150827A00029	8/27/2015	2.74	8/27/2024	8/27/2015	102.74068	101.4144123	100.1118396	98.83237057	97.57543729	96.34049028	95.12699762	93.93444425	92.76233132
150904A00021	9/4/2015	2.52	9/5/2023	9/4/2015	100.51166	100.1527757	99.79645918	99.44268642	99.09143014	98.74266343	98.39635977	98.052493	97.71103734
151002A00081	10/2/2015	2.29	10/2/2023	10/2/2015	100.51717	100.0846177	99.65578558	99.23062775	98.80909703	98.39114707	97.97673234	97.56580803	97.15833012
151106A00011	11/6/2015	3.1	1/15/2026	11/6/2015	107.71168	104.9649371	102.3026845	99.72177062	97.21918833	94.79206402	92.43765066	90.15332116	87.93656209
151109A00020	11/9/2015	2.79	11/9/2023	11/9/2015	100.7886	100.2535476	99.72417548	99.20039495	98.6821176	98.1692569	97.66172813	97.15944831	96.6623362
151116A00025	11/16/2015	3.04	11/14/2025	11/16/2015	106.93032	104.3638953	101.8727311	99.45417527	97.10568306	94.82481559	92.60923461	90.4566976	88.36505321

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
151211A00055	12/11/2015	2.62	12/11/2024	12/11/2015	103.42469	101.8075551	100.2235716	98.67178293	97.15127247	95.66115835	94.20059169	92.76875508	91.36486106
151223A00070	12/23/2015	2.57	12/26/2023	12/23/2015	100.99408	100.3296268	99.67390583	99.02674245	98.38796995	97.7574259	97.13495206	96.52039421	95.91360205
151223A00072	12/23/2015	2.81	12/23/2025	12/23/2015	107.39285	104.6979591	102.0847684	99.55028792	97.09165557	94.70613393	92.39110363	90.14405737	87.96259426
151223A00074	12/23/2015	3.01	12/23/2027	12/23/2015	115.71142	110.8068777	106.1413685	101.7019262	97.47636139	93.45320984	89.6216852	85.97163486	82.49349917
151223A00077	12/23/2015	3.57	12/24/2035	12/23/2015	142.41902	128.022325	115.2929097	104.0257454	94.04213171	85.18619016	77.32183851	70.33018053	64.1072517
151229A00079	12/29/2015	3	12/30/2025	12/29/2015	107.28419	104.586385	101.9705397	99.4336418	96.97281234	94.58529814	92.26846528	90.01979295	87.83686776
151229A00080	12/29/2015	3.49	12/30/2030	12/29/2015	124.9994	116.7613187	109.1406398	102.0875306	95.55643908	89.50570449	83.8972052	78.69604054	73.8702426
151229A00081	12/29/2015	3.76	12/31/2035	12/29/2015	140.98875	126.8942307	114.4238913	103.3786562	93.58494861	84.8913009	77.1654305	70.29171582	64.1690159
160113A00030	1/13/2016	2.52	1/13/2025	1/13/2016	103.53782	101.8300392	100.158594	98.52239274	96.92038499	95.35156222	93.81495585	92.30963519	90.83470554
160119A00019	1/19/2016	2.95	1/19/2027	1/19/2016	110.91596	107.0983662	103.4340786	99.91605375	96.53761356	93.29242674	90.17448847	87.17810138	84.2978577
160119A00025	1/19/2016	3.05	1/19/2028	1/19/2016	114.82954	109.9101746	105.2329767	100.7846753	96.5528027	92.52564141	88.6921745	85.04203954	81.56548585
160119A00026	1/19/2016	3.14	1/19/2029	1/19/2016	117.9903	111.9649447	106.2900524	100.9432994	95.90390659	91.15252265	86.67111853	82.44288963	78.45216598
160119A00027	1/19/2016	3.25	1/18/2030	1/19/2016	120.74165	113.6181286	106.9713431	100.7667231	94.97238797	89.55892289	84.4991752	79.76806864	75.34243385
160119A00028	1/19/2016	3.34	1/21/2031	1/19/2016	124.00494	115.7440339	108.1072757	101.043912	94.50758484	88.45592529	82.85018947	77.6549302	72.83769993
160119A00029	1/19/2016	3.39	1/20/2032	1/19/2016	127.2761	117.8718877	109.2568143	101.3599404	94.11707525	87.47009849	81.36635617	75.75811939	70.60209945
160119A00030	1/19/2016	3.44	1/18/2033	1/19/2016	130.49458	119.9367536	110.3511644	101.6422086	93.72418424	86.52021656	79.96130539	73.9854801	68.53704922
160122A00029	1/22/2016	2.48	1/22/2025	1/22/2016	103.54222	101.8103999	100.1158113	98.45732294	96.83384608	95.24433622	93.68779073	92.16324672	90.66977905
160129A00066	1/29/2016	3.04	1/29/2031	1/29/2016	123.95814	115.5804363	107.8410348	100.6876781	94.07266214	87.95241262	82.28710655	77.0403303	72.1787706
160129A00067	1/29/2016	2.53	1/29/2026	1/29/2016	106.98102	104.190948	101.4880695	98.86908398	96.33084534	93.87034919	91.48472544	89.17123111	86.92724362
160210A00042	2/10/2016	2.57	2/10/2026	2/10/2016	106.4825	103.6830405	100.9716927	98.34515681	95.80027779	93.33403919	90.94355581	88.62606712	86.37893093
160211A00035	2/11/2016	2.25	2/11/2025	2/11/2016	102.85928	101.0881511	99.35596994	97.66158822	96.00390179	94.38184833	92.79440533	91.24058827	89.71944879
160211A00036	2/11/2016	2.41	2/11/2026	2/11/2016	106.04184	103.245916	100.5381187	97.91514459	95.37383885	92.91118479	90.52429684	88.21041386	85.96689289
160222A00018	2/22/2016	2.59	2/23/2026	2/22/2016	106.64814	103.8115386	101.065187	98.40572678	95.82994184	93.33475349	90.91721379	88.5744992	86.30390462
160307A00027	3/7/2016	2.71	3/6/2026	3/7/2016	107.09098	104.2168744	101.4350744	98.74212989	96.13473996	93.6097441	91.16411555	88.79495491	86.49948401
160307A00028	3/7/2016	2.91	3/7/2028	3/7/2016	114.5608	109.5143058	104.7225171	100.1712602	95.84722325	91.737897	87.83152262	84.11704292	80.58405708
160328A00045	3/28/2016	2.49	3/27/2026	3/28/2016	107.40441	104.4462091	101.5852265	98.81774605	96.14021508	93.54923587	91.04155787	88.61407048	86.26379624
160329A00045	3/29/2016	2.12	3/29/2024	3/29/2016	101.06657	100.1485461	99.2471448	98.36191613	97.49242801	96.63826358	95.79902059	94.97431077	94.16375921
160330A00054	3/30/2016	2.9	3/31/2031	3/30/2016	123.31643	114.7865152	106.9202967	99.66245025	92.96253717	86.77454887	81.05649686	75.77004265	70.88016333
160330A00056	3/30/2016	2.26	3/31/2025	3/30/2016	103.70855	101.7860567	99.9087963	98.07542853	96.28466614	94.53526825	92.82603825	91.15582197	89.52350583
160401A00016	4/1/2016	2.42	4/1/2025	4/1/2016	103.53963	101.625189	99.75569829	97.92983499	96.14632185	94.40392746	92.70146429	91.03778676	89.41178952
160422A00026	4/22/2016	2.62	4/22/2026	4/22/2016	107.24966	104.2412779	101.3336773	98.52292754	95.80527463	93.17713188	90.63507127	88.17581551	85.7962305
160504A00004	5/4/2016	2.3	5/4/2026	5/4/2016	107.16238	104.1042742	101.1499646	98.29534846	95.53651109	92.86971456	90.29138872	87.79812265	85.38665652
160520A00017	9/20/2017	2.34	9/20/2024	9/20/2017	102.02745	100.6484808	99.2947611	97.96565615	96.66055334	95.37885989	94.12000208	92.88342447	91.66858922

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160520A00018	9/20/2017	2.34	9/20/2024	9/20/2017	102.02745	100.6484808	99.2947611	97.96565615	96.66055334	95.37885989	94.12000208	92.88342447	91.66858922
160524A00027	5/24/2016	3.06	5/27/2031	5/24/2016	122.71313	114.1504505	106.2622804	98.99165297	92.28670376	86.10018528	80.3890335	75.11397728	70.23918615
160606A00004	6/6/2016	2.43	6/8/2026	6/6/2016	107.06828	103.9335116	100.907262	97.98515004	95.16299646	92.43681613	89.80280751	87.25734299	84.7969598
160606A00005	6/6/2016	2.92	6/6/2031	6/6/2016	121.64035	113.092871	105.2216131	97.96926199	91.28365383	85.11728365	79.42686644	74.17294195	69.31951836
160610A00009	6/10/2016	1.89	6/12/2023	6/10/2016	100.10911	99.98458371	99.8603852	99.73651064	99.61295873	99.48972818	99.36681769	99.24422598	99.12195178
160613A00047	6/15/2016	2.18	6/16/2025	6/15/2016	103.61618	101.4969102	99.43142705	97.41799681	95.4549518	93.54069099	91.67367679	89.85243202	88.07553694
160615A00031	6/15/2016	2.51	6/17/2030	6/15/2016	118.42352	110.8803297	103.8745084	97.36487738	91.31362213	85.68600066	80.45007846	75.57648764	71.03820803
160616A00027	6/16/2016	2.27	6/16/2026	6/16/2016	106.62919	103.4798211	100.4401329	97.50566653	94.672174	91.93560579	89.29210029	86.73797379	84.26971109
160616A00028	6/16/2016	1.81	6/16/2023	6/16/2016	100.10251	99.96697754	99.83183104	99.69706406	99.56267497	99.42866216	99.29502402	99.16175895	99.02886536
160616A00034	6/16/2016	1.97	6/17/2024	6/16/2016	101.04557	99.91648293	98.81252798	97.73287692	96.67673387	95.64333742	94.6319587	93.64189971	92.67249167
160620A00015	6/20/2016	1.71	6/20/2023	6/20/2016	100.11976	99.9729086	99.82650355	99.68054015	99.53501636	99.38993016	99.24527955	99.10106251	98.95727706
160624A00011	6/24/2016	1.83	6/26/2023	6/24/2016	100.11732	99.9542382	99.7916866	99.62966432	99.46816881	99.30719752	99.14674792	98.9868175	98.82740377
160628A00031	6/28/2016	1.77	6/28/2023	6/28/2016	100.10959	99.94101192	99.772998	99.60554511	99.43865049	99.27231137	99.10652502	98.94128874	98.77659981
160628A00038	6/28/2016	1.88	6/27/2025	6/28/2016	103.58877	101.4298569	99.32648288	97.27682317	95.27913145	93.33173255	91.43301885	89.58144697	87.77553461
160628A00039	6/28/2016	2.01	6/29/2026	6/28/2016	106.71881	103.5132678	100.4207716	97.43666667	94.55652167	91.77611527	89.09142487	86.4986158	83.99403117
160628A00040	6/28/2016	1.56	6/28/2023	6/28/2016	100.10542	99.93651778	99.76818516	99.6004183	99.43321437	99.26657053	99.10048399	98.93495197	98.76997168
160628A00049	6/28/2016	1.88	6/27/2025	6/28/2016	103.58877	101.4298569	99.32648288	97.27682317	95.27913145	93.33173255	91.43301885	89.58144697	87.77553461
160628A00050	6/28/2016	1.56	6/28/2023	6/28/2016	100.10542	99.93651778	99.76818516	99.6004183	99.43321437	99.26657053	99.10048399	98.93495197	98.76997168
160630A00011	6/30/2016	1.8	6/30/2023	6/30/2016	100.11608	99.94199875	99.76852519	99.59565397	99.42338197	99.2517061	99.08062327	98.91013042	98.74022451
160630A00012	6/30/2016	2.11	6/30/2025	6/30/2016	103.5641	101.408097	99.30751857	97.26054959	95.26544677	93.32053781	91.4242179	89.5749464	87.77124369
160701A00019	7/1/2016	1.73	7/3/2023	7/1/2016	100.10538	99.92308006	99.74144746	99.56048018	99.38017458	99.20052699	99.0215338	98.84319143	98.66549631
160701A00020	7/1/2016	2.13	7/1/2026	7/1/2016	106.29877	103.1141938	100.0417139	97.07672355	94.21483504	91.45186857	88.78384076	86.20695405	83.71758675
160701A00039	7/1/2016	1.92	7/1/2026	7/1/2016	106.44646	103.2396929	100.146218	97.16136361	94.2806812	91.49993379	88.81508416	86.22228404	83.71786393
160705A00005	7/5/2016	1.49	7/5/2023	7/5/2016	100.09615	99.90800008	99.72057133	99.53385613	99.34785036	99.1625499	98.9779507	98.79404869	98.61083989
160705A00104	7/5/2016	2.1	7/6/2026	7/5/2016	106.24091	103.0434533	99.9589682	96.98278895	94.1104775	91.33780694	88.66074993	86.07546782	83.57830048
160706A00006	7/6/2016	1.47	7/6/2023	7/6/2016	100.09269	99.90179522	99.71164343	99.52222688	99.33354124	99.14558222	98.95834556	98.77182702	98.5860224
160706A00010	7/6/2016	1.99	7/7/2025	7/6/2016	103.35085	101.17809	99.06158771	96.99948519	94.98999918	93.03141987	91.12210712	89.26048698	87.44504842
160706A00026	7/6/2016	2.19	7/6/2027	7/6/2016	109.38137	105.1266577	101.0616598	97.17687186	93.46332044	89.91253113	86.5164976	83.2676529	80.15884265
160706A00027	7/6/2016	2.29	7/6/2028	7/6/2016	112.24441	106.918262	101.8780331	97.1068404	92.58888858	88.30939505	84.25451939	80.41129809	76.76758407
160706A00028	7/6/2016	2.39	7/6/2029	7/6/2016	114.24092	107.8597354	101.8784903	96.26998667	91.00901504	86.07220183	81.43786571	77.08588632	72.99758375
160706A00029	7/6/2016	2.49	7/8/2030	7/6/2016	116.37065	108.9254984	102.0129633	95.59206896	89.62519813	84.07780239	78.9181364	74.11701638	69.64760065
160706A00030	7/6/2016	2.59	7/7/2031	7/6/2016	119.12509	110.5938876	102.7460494	95.52304189	88.87164355	82.7434334	77.09433463	71.88420357	67.07645969
160707A00032	7/7/2016	1.52	7/7/2023	7/7/2016	100.10271	99.90905448	99.71616101	99.52402468	99.33264096	99.14200536	98.95211341	98.7629607	98.57454283

	Parallel-Shift Sensitivity Analysis												
4/28/2023					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	100.12452	99.91747208	99.71129659	99.50598378	99.30152819	99.0979244	98.89516703	98.69325077	98.49217032
160714A00020	9/6/2016	2.28	9/4/2026	9/6/2016	107.29229	103.915087	100.6623432	97.52883564	94.50958639	91.59985142	88.79510811	86.09104381	83.48354496
160714A00023	8/10/2016	2.49	8/10/2028	8/10/2016	113.48667	108.0316524	102.8737885	97.99531298	93.37961685	89.01116564	84.87542408	80.9587865	77.24851243
160714A00029	8/10/2016	2.27	8/10/2026	8/10/2016	107.06417	103.757767	100.5710502	97.49901257	94.53688518	91.68012655	88.92441048	86.2656143	83.69980806
160714A00054	7/14/2016	2.03	7/15/2024	7/14/2016	101.247	100.041758	98.86509746	97.71601232	96.59354188	95.4967696	94.42482063	93.37685942	92.35208757
160718A00010	7/18/2016	1.65	7/18/2023	7/18/2016	100.1369	99.91296034	99.69003928	99.4681255	99.24721211	99.02729226	98.8083592	98.59040622	98.37342667
160726A00005	7/26/2016	2.28	7/27/2026	7/26/2016	106.98791	103.7203655	100.5699093	97.53163328	94.60086978	91.77317732	89.0443279	86.41029513	83.8672431
160727A00002	7/27/2016	1.87	7/27/2023	7/27/2016	100.15512	99.90691739	99.65994592	99.41419169	99.16964578	98.92629931	98.68414352	98.44316972	98.2033693
160801A00001	8/1/2016	1.97	8/1/2024	8/1/2016	101.24355	99.9943021	98.77435855	97.58268717	96.41830842	95.28028772	94.16773288	93.0797917	92.01564979
160802A00003	8/2/2016	2.53	8/1/2031	8/2/2016	121.12263	112.3358186	104.2605584	96.83527933	90.00405099	83.71603768	77.9250092	72.58890097	67.66941841
160804A00014	8/4/2016	1.99	8/5/2024	8/4/2016	101.29139	100.0323612	98.80171429	97.59849107	96.421775	95.27069026	94.14439955	93.04210197	91.96303102
160811A00011	8/11/2016	2.25	8/11/2026	8/11/2016	107.0058	103.6976802	100.5094063	97.43596394	94.47257811	91.61470122	88.85800097	86.19834873	83.63180862
160815A00005	8/15/2016	2.23	8/17/2026	8/15/2016	106.98556	103.6617056	100.4587995	97.37178297	94.39583873	91.52637759	88.75902607	86.08961501	83.51416878
160815A00006	8/15/2016	2.23	8/17/2026	8/15/2016	106.98556	103.6617056	100.4587995	97.37178297	94.39583873	91.52637759	88.75902607	86.08961501	83.51416878
160815A00007	8/15/2016	2.23	8/17/2026	8/15/2016	106.98556	103.6617056	100.4587995	97.37178297	94.39583873	91.52637759	88.75902607	86.08961501	83.51416878
160816A00003	8/16/2016	1.63	8/16/2023	8/16/2016	100.16424	99.86077016	99.55915058	99.2593652	98.96139721	98.66523	98.37084715	98.07823246	97.78736992
160819A00015	10/12/2016	2.3	10/13/2026	10/12/2016	107.67217	104.1826974	100.8255504	97.59501116	94.48564036	91.4922618	88.60994828	85.8340082	83.15997302
160830A00034	8/30/2016	1.9	8/30/2023	8/30/2016	100.21496	99.87378483	99.53493239	99.19837417	98.86408696	98.53204784	98.20223423	97.87462381	97.5491946
160830A00035	8/30/2016	2.06	8/30/2024	8/30/2016	101.52487	100.204574	98.90761214	97.63341479	96.38143425	95.15113992	93.94201764	92.75356908	91.58531112
160830A00037	8/30/2016	2.16	8/29/2025	8/30/2016	104.11039	101.786753	99.5265309	97.32765002	95.18811862	93.10602097	91.07951395	89.10682388	87.1862435
160830A00038	8/30/2016	2.24	8/28/2026	8/30/2016	107.10322	103.7479638	100.5157511	97.40144563	94.40014933	91.50719299	88.71812425	86.02869637	83.43485769
160830A00061	8/30/2018	1.89	8/30/2023	8/30/2018	100.21152	99.87035656	99.53151142	99.19496046	98.86068047	98.52864855	98.19884209	97.87123879	97.54581665
160830A00068	11/30/2016	1.95	11/30/2023	11/30/2016	100.37328	99.78295446	99.19955469	98.62295529	98.05303797	97.48968716	96.93278994	96.38223596	95.83791737
160921A00020	9/21/2016	1.97	9/21/2023	9/21/2016	100.27672	99.87559118	99.47767615	99.08293177	98.69132022	98.30280427	97.91734727	97.53491316	97.15546645
160922A00014	9/22/2016	2.06	9/22/2026	9/22/2016	107.56271	104.1104085	100.7874782	97.58839854	94.50791495	91.54102371	88.6829586	85.92917831	83.27535466
160926A00004	9/26/2016	1.66	9/26/2023	9/26/2016	100.23362	99.81812195	99.40606169	98.99739829	98.59208986	98.1900952	97.79137378	97.39588574	97.00359185
160930A00005	9/30/2016	2.03	9/30/2024	9/30/2016	101.64318	100.240697	98.86433656	97.51343085	96.18733627	94.88543043	93.60711128	92.35179629	91.11892165
161003A00004	10/3/2016	1.91	10/3/2023	10/3/2016	100.26912	99.8354859	99.40560132	98.97941353	98.55687497	98.13793891	97.72255939	97.31069125	96.90229008
161020A00002	10/20/2016	1.96	8/15/2023	10/20/2016	100.20956	99.90932636	99.61089877	99.3142634	99.01940404	98.72630471	98.4349496	98.14532308	97.85740974
161109A00018	11/9/2016	2.63	11/9/2026	11/9/2016	109.06595	105.4779807	102.0283544	98.71097909	95.5200701	92.45012849	89.49592513	86.65248594	83.91507792
161125A00002	11/25/2016	2.62	11/27/2023	11/25/2016	100.7624	100.178843	99.60203262	99.03184869	98.46817759	97.9109083	97.35993229	96.81514348	96.27643816
161208A00007	12/8/2016	2.6	12/8/2023	12/8/2016	100.79695	100.1835748	99.57765424	98.97905737	98.38765187	97.80330859	97.22590147	96.65530743	96.0914063
161212A00040	12/12/2016	2.45	12/12/2023	12/12/2016	100.85885	100.2326961	99.61431445	99.00356148	98.40029648	97.80438213	97.21568448	96.63407282	96.05941959

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
161214A00023	12/14/2016	3.3	12/15/2031	12/14/2016	128.75026	119.2661104	110.5733492	102.6012712	95.28585165	88.56908189	82.39837492	76.72603213	71.50876518
161222A00030	12/22/2016	3.09	12/22/2026	12/22/2016	112.12163	108.3336837	104.6956312	101.2006822	97.84239964	94.61467515	91.51170994	88.52799721	85.65830554
170110A00020	1/10/2017	2.4	1/10/2024	1/10/2017	100.94301	100.2382721	99.54336407	98.8580838	98.182232	97.51561483	96.85804375	96.20933534	95.56931109
170111A00009	1/11/2017	3.16	1/11/2028	1/11/2017	115.28064	110.3728025	105.7054687	101.2655139	97.04060549	93.01914962	89.19024263	85.54362576	82.06964328
170111A00011	1/11/2017	3.24	1/11/2029	1/11/2017	118.52068	112.5023601	106.8326926	101.4895526	96.45233748	91.70185545	87.2202211	82.99075943	78.99791736
170111A00012	1/11/2017	3.31	1/11/2030	1/11/2017	121.10616	113.9897253	107.3481469	101.147083	95.35485678	89.94223493	84.88222645	80.14989901	75.72221133
170111A00013	1/11/2017	3.4	1/10/2031	1/11/2017	124.38797	116.1426844	108.5179386	101.4634582	94.93330303	88.88547166	83.2815438	78.08635702	73.26771415
170111A00014	1/11/2017	3.47	1/12/2032	1/11/2017	127.91493	118.5055339	109.8833451	101.9777817	94.7249582	88.06701613	81.95152548	76.33094868	71.16215999
170111A00016	1/11/2017	3.51	1/11/2033	1/11/2017	131.12735	120.5589008	110.9612293	102.239079	94.30703685	87.08847017	80.51458082	74.52356608	69.05987331
170117A00046	1/17/2017	2.55	1/17/2024	1/17/2017	100.91811	100.1967415	99.48567753	98.78469518	98.09358096	97.41212742	96.74013289	96.07740129	95.42374191
170119A00006	1/19/2017	2.85	1/21/2025	1/19/2017	103.76107	102.0373204	100.3504674	98.69938763	97.08300662	95.50029308	93.95025695	92.43194721	90.94444997
170120A00008	1/20/2017	3.63	1/20/2034	1/20/2017	134.97071	123.1725309	112.5545198	102.9908079	94.36961917	86.59162597	79.56850184	73.22164919	67.48108026
170120A00009	1/20/2017	3.67	1/22/2035	1/20/2017	137.79365	124.8280112	113.2626269	102.9365217	93.70809974	85.45271597	78.06056381	71.43483615	65.49012274
170120A00010	1/20/2017	3.71	1/22/2036	1/20/2017	140.48481	126.3617294	113.873769	102.8196413	93.02394741	84.33372369	76.61546163	69.75253789	63.64299556
170120A00011	1/20/2017	3.75	1/20/2037	1/20/2017	143.10124	127.829129	114.4410944	102.690157	92.36311103	83.27573748	75.26872043	68.20415712	61.96257328
170123A00039	1/23/2017	2.79	1/23/2026	1/23/2017	107.64519	104.8621317	102.1655557	99.55220426	97.01896914	94.56288188	92.18110618	89.87093098	87.62976383
170130A00010	1/30/2017	2.92	1/30/2025	1/30/2017	103.96163	102.2121875	100.5005859	98.82567064	97.18633597	95.58152083	94.01020653	92.47141458	90.96420466
170130A00031	1/30/2017	2.96	7/30/2025	1/30/2017	105.70937	103.4468797	101.2441636	99.09920448	97.01007251	94.97491875	92.99197117	91.0595307	89.17596753
170203A00012	2/3/2017	3.63	2/2/2035	2/3/2017	137.39011	124.4175649	112.8498315	102.5250342	93.30082	85.05191285	77.66798213	71.05178679	65.11755865
170203A00013	2/3/2017	3.67	2/1/2036	2/3/2017	140.03384	125.9115219	113.4281596	102.3815718	92.59563304	83.91678762	76.21104678	69.36139979	63.26557914
170215A00040	2/15/2017	2.59	5/15/2023	2/15/2017	100.08295	100.0358049	99.98871731	99.94168997	99.89472277	99.84781558	99.80096829	99.75418079	99.70745296
170215A00041	2/15/2017	2.6	10/16/2023	2/15/2017	100.60953	100.1398422	99.67454355	99.21357083	98.75686387	98.30436354	97.85601182	97.41175175	96.97152742
170215A00043	2/15/2017	2.7	8/28/2024	2/15/2017	102.37491	101.0538732	99.75609705	98.48101681	97.22808789	95.99678269	94.78658992	93.59701399	92.4275744
170216A00043	2/16/2017	3.17	2/16/2027	2/16/2017	112.03295	108.1177716	104.3623943	100.7594256	97.3018611	93.98305723	90.79671074	87.73683914	84.79776255
170216A00044	2/16/2017	3.52	2/17/2032	2/16/2017	128.6412	119.1023036	110.3687039	102.3676004	95.03314298	88.3057366	82.13141724	76.46129299	71.25104313
170216A00045	2/16/2017	3.73	2/17/2037	2/16/2017	142.98008	127.6422463	114.2060201	102.4209759	92.07106956	82.96975228	74.95580034	67.88975332	61.65086923
170224A00020	2/24/2017	3.08	2/24/2027	2/24/2017	111.76929	107.8372601	104.0665817	100.4497929	96.97981383	93.64992776	90.45375998	87.38525881	84.43867745
170224A00021	2/24/2017	3.4	2/24/2032	2/24/2017	127.63178	118.1170712	109.4081984	101.4321468	94.1228846	87.42066126	81.2713808	75.62603998	70.44022514
170224A00039	5/24/2017	3.17	5/24/2027	5/24/2017	113.02779	108.8178241	104.7903251	100.9363859	97.24758619	93.71596127	90.33397421	87.09449062	83.99075488
170224A00044	5/24/2017	3.29	5/24/2029	5/24/2017	119.61798	113.1922404	107.1598507	101.4945767	96.17207302	91.16973378	86.4665596	82.04303516	77.88101688
170228A00014	2/28/2017	2.89	3/1/2027	2/28/2017	112.10587	108.1259849	104.3105428	100.6519081	97.14283415	93.77644657	90.54622159	87.44596658	84.46980156
170228A00015	2/28/2017	2.87	5/28/2025	2/28/2017	104.92478	102.8420304	100.8111714	98.8305664	96.89863934	95.01387545	93.17481839	91.38006757	89.62827554
170313A00032	3/13/2017	3.69	6/14/2032	3/13/2017	131.16251	121.1808517	112.0671674	103.7406179	96.12831414	89.16449647	82.7898022	76.9506123	71.59846781

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170313A00033	3/13/2017	3.31	3/15/2027	3/13/2017	112.87451	108.8648642	105.0216939	101.3372228	97.80407546	94.41525717	91.16413237	88.04440433	85.05009609
170313A00034	3/13/2017	3.31	3/15/2027	3/13/2017	112.87451	108.8648642	105.0216939	101.3372228	97.80407546	94.41525717	91.16413237	88.04440433	85.05009609
170313A00035	3/13/2017	3.31	3/15/2027	3/13/2017	112.87451	108.8648642	105.0216939	101.3372228	97.80407546	94.41525717	91.16413237	88.04440433	85.05009609
170316A00018	3/16/2017	2.8	3/18/2024	3/16/2017	101.41613	100.5289119	99.65719953	98.80059014	97.95869349	97.13113273	96.31754377	95.51757478	94.73088565
170322A00011	3/22/2017	2.48	3/22/2024	3/22/2017	101.36225	100.4615952	99.57691209	98.70778077	97.85379377	97.01455774	96.18969286	95.37883226	94.58162145
170322A00022	3/22/2017	3.89	9/23/2041	3/22/2017	154.17125	133.6101918	116.281191	101.6442233	89.25295205	78.73799724	69.79326674	62.16477784	55.64150418
170322A00023	3/22/2017	3.82	9/22/2039	3/22/2017	149.42195	131.118872	115.4351112	101.9725746	90.3960697	80.4230514	71.81508898	64.37075451	57.91968964
170322A00024	3/22/2017	3.72	9/22/2036	3/22/2017	142.01569	127.1370361	114.0575598	102.5461177	92.40254207	83.45333957	75.54800831	68.55587966	62.36340797
170322A00025	3/22/2017	3.58	3/22/2033	3/22/2017	132.33596	121.512952	111.7006128	102.7981972	94.71551969	87.37179773	80.69462679	74.61907219	69.08686332
170322A00026	3/22/2017	3.22	3/22/2028	3/22/2017	116.22207	111.091261	106.2209721	101.5966036	97.20445181	93.03164555	89.06609134	85.29642257	81.71195226
170327A00070	3/29/2017	3.05	3/29/2027	3/29/2017	113.05909	108.9751654	105.0631331	101.3148571	97.72262735	94.27913723	90.97746022	87.81102815	84.77361067
170327A00072	3/29/2017	3.09	3/29/2027	3/29/2017	113.21764	109.1306028	105.215553	101.4643517	97.86928534	94.4230439	91.11869761	87.94967515	84.90974324
170327A00077	3/27/2019	2.74	3/27/2024	3/27/2019	101.41161	100.5002788	99.60530012	98.72623277	97.86265528	97.01416096	96.18035724	95.36086508	94.55531837
170327A00078	3/27/2019	3.04	3/27/2026	3/27/2019	108.26121	105.3077631	102.4509075	99.68696864	97.01242974	94.42392672	91.9182407	89.49229087	87.14312777
170327A00079	3/27/2019	3.19	3/29/2027	3/27/2019	112.56448	108.5187695	104.6427531	100.9284209	97.3681851	93.95485363	90.68160732	87.54197858	84.52983146
170328A00015	3/28/2017	2.75	11/29/2024	3/28/2017	103.14473	101.5695811	100.0262018	98.51369407	97.0311971	95.57788171	94.15294901	92.75562895	91.38517901
170417A00068	4/17/2019	2.59	4/17/2024	4/17/2019	101.39732	100.429582	99.48029099	98.54891931	97.63496287	96.73793636	95.85737237	94.99282055	94.14384687
170427A00044	4/27/2017	3.02	4/27/2027	4/27/2017	112.17876	108.0614427	104.1201989	100.3465517	96.73248262	93.2703998	89.95311295	86.77380999	83.72603499
170427A00046	4/27/2017	3.1	4/27/2028	4/27/2017	115.92953	110.7056529	105.7521465	101.0535719	96.59545138	92.36420444	88.34708699	84.53213575	80.90811639
170427A00047	4/27/2017	3.18	4/27/2029	4/27/2017	118.78824	112.4638778	106.5230443	100.9404065	95.69243212	90.75725358	86.11454226	81.74539246	77.63221479
170502A00028	5/2/2017	2.84	5/3/2027	5/2/2017	112.58263	108.4106404	104.4183057	100.5969271	96.93827064	93.43454358	90.07836839	86.8627582	83.781094
170508A00010	5/8/2017	2.43	5/8/2024	5/8/2017	101.58504	100.5565584	99.54885904	98.56131293	97.59331982	96.64430313	95.71370879	94.80100407	93.90567665
170515A00010	5/15/2017	2.58	5/15/2024	5/15/2017	101.54643	100.5027897	99.48056573	98.47910241	97.49777177	96.53597099	95.59312109	94.6686658	93.76207045
170518A00034	5/18/2017	2.15	5/18/2023	5/18/2017	100.08311	100.0275659	99.97209674	99.91670415	99.86138797	99.80614806	99.75098424	99.69589635	99.64088422
170524A00011	5/24/2017	2.54	5/24/2024	5/24/2017	101.54485	100.4772508	99.43205295	98.40855429	97.40608424	96.42399964	95.46168333	94.51854284	93.59400916
170531A00080	5/31/2017	2.3	5/31/2024	5/31/2017	101.58183	100.491406	99.42431472	98.37981664	97.35720005	96.35578289	95.3749112	94.41395766	93.47232028
170602A00023	6/2/2017	2.09	6/2/2023	6/2/2017	100.13184	100.0347058	99.93777154	99.84103443	99.74449387	99.64814921	99.55199983	99.45604509	99.36028438
170602A00026	6/2/2017	2.25	6/3/2024	6/2/2017	101.54439	100.446089	99.3714734	98.31978122	97.29028487	96.28228731	95.29512041	94.3281435	93.38074191
170608A00020	6/8/2017	2.27	6/10/2024	6/8/2017	101.60814	100.4905836	99.39754264	98.32821301	97.28182929	96.25765878	95.25499965	94.2731794	93.31155329
170609A00026	6/9/2017	2.3	6/9/2023	6/9/2017	100.15154	100.0352555	99.91925463	99.8035374	99.68810273	99.57294955	99.45807678	99.34348337	99.22916827
170609A00043	6/9/2017	3.07	6/9/2032	6/9/2017	128.11031	118.1483927	109.0604909	100.7647529	93.18741317	86.26195071	79.92834258	74.1323979	68.82516326
170612A00039	6/12/2017	2.29	6/12/2024	6/12/2017	101.6427	100.5195499	99.42114872	98.34668657	97.29538713	96.26650735	95.25933565	94.27319032	93.30741791
170613A00032	6/13/2017	2.45	6/13/2025	6/13/2017	104.71196	102.5782214	100.4986226	98.47141468	96.49491998	94.56752803	92.68769213	90.85392624	89.06480212

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170613A00033	6/13/2017	2.3	6/13/2024	6/13/2017	101.66007	100.5341148	99.43303289	98.3560041	97.30224662	96.27101218	95.26158434	94.27327674	93.30543159
170615A00015	6/15/2017	2.25	6/14/2024	6/15/2017	101.60907	100.4807338	99.37737922	98.29818572	97.24236615	96.20916722	95.19786772	94.20777681	93.23823246
170622A00036	6/22/2017	3.23	6/22/2032	6/22/2017	126.99878	117.1798867	108.2210272	100.0417213	92.56943076	85.73873917	79.49061795	73.77177181	68.53405428
170622A00037	6/22/2017	3.27	6/22/2033	6/22/2017	129.83951	118.8829029	108.9758725	100.0113011	91.89356136	84.53722456	77.86592421	71.8113511	66.3123646
170622A00038	6/22/2017	3.32	6/22/2034	6/22/2017	132.52976	120.437001	109.6001161	99.88043751	91.15533687	83.31629217	76.26719751	69.92288306	64.20781825
170622A00039	6/22/2017	3.36	6/22/2035	6/22/2017	134.96901	121.7514547	110.0114332	99.57361013	90.28438856	82.00911404	74.62964755	68.04226055	62.15580796
170622A00040	6/22/2017	3.41	6/23/2036	6/22/2017	137.45131	123.1034658	110.4713091	99.33725668	89.51250054	80.83306671	73.1564294	66.35860179	60.33163469
170623A00028	6/23/2017	2.79	6/23/2027	6/23/2017	111.79178	107.5230419	103.4426672	99.54130294	95.8101146	92.24075431	88.82533122	85.55638363	82.42685312
170629A00073	6/29/2017	2.2	6/29/2023	6/29/2017	100.21608	100.0442854	99.87307938	99.7024602	99.53242486	99.36297035	99.19409369	99.02579192	98.8580621
170630A00027	6/30/2017	2.35	6/28/2024	6/30/2017	101.80928	100.6419849	99.50136973	98.38652413	97.29658261	96.23071805	95.18813956	94.16809058	93.16984697
170706A00090	7/6/2017	2.48	7/6/2023	7/6/2017	100.25232	100.0615602	99.87153319	99.68223677	99.49366671	99.30581879	99.11868882	98.93227266	98.74656618
170728A00032	7/28/2017	2.36	7/27/2023	7/28/2017	100.27738	100.0289814	99.78180711	99.53585085	99.29110366	99.04755668	98.80520115	98.56402837	98.32402973
170728A00033	7/28/2017	2.46	1/29/2024	7/28/2017	100.8986	100.145126	99.40287596	98.67160114	97.95105959	97.24101639	96.54124345	95.85151922	95.17162848
170728A00040	7/28/2017	2.44	1/27/2025	7/28/2017	103.51243	101.7675522	100.0604055	98.38983389	96.75472743	95.15402142	93.58669424	92.05176504	90.54829167
170731A00029	7/31/2017	2.34	7/31/2023	7/31/2017	100.28291	100.0235477	99.76552661	99.50883688	99.2534682	98.99941039	98.74665338	98.49518719	98.24500195
170803A00020	8/3/2017	2.84	8/3/2027	8/3/2017	112.34208	107.9482419	103.7526521	99.74525917	95.91658424	92.25768084	88.76010166	85.4158677	82.21743937
170803A00021	8/3/2017	2.5	8/5/2024	8/3/2017	101.94483	100.6813937	99.44641673	98.23893588	97.05803262	95.9028292	94.77248645	93.66620168	92.5832067
170803A00032	8/3/2017	2.12	8/3/2023	8/3/2017	100.27944	100.0113598	99.74471873	99.47950744	99.21571434	98.953328	98.6923371	98.43273046	98.17449699
170809A00005	8/9/2017	2.61	8/11/2025	8/9/2017	105.01661	102.7301083	100.5048081	98.33867904	96.22976947	94.17620652	92.17619235	90.22800041	88.32997214
170815A00006	8/15/2017	2.5	8/15/2024	8/15/2017	102.01492	100.7272616	99.46577682	98.22967577	97.01820028	95.83062252	94.66624358	93.52439195	92.40442221
170818A00003	8/18/2017	2.23	8/20/2024	8/18/2017	102.00681	100.7024115	99.42321477	98.16850978	96.93761396	95.7298703	94.54464613	93.38133196	92.2393404
170821A00038	8/23/2017	2.39	8/23/2024	8/23/2017	102.24085	100.9276603	99.63901234	98.37425049	97.13274143	95.91387421	94.71705933	93.54172777	92.38733006
170822A00018	8/22/2017	2.25	8/22/2023	8/22/2017	100.31477	99.99521485	99.67769513	99.36219485	99.04869476	98.73717587	98.4276194	98.12000683	97.81431987
170822A00019	8/22/2017	2.44	8/22/2024	8/22/2017	101.98431	100.6802548	99.40077171	98.14519529	96.91288222	95.70321234	94.51558754	93.34943085	92.20418541
170822A00020	8/22/2017	2.59	8/22/2025	8/22/2017	105.0622	102.7458706	100.4922384	98.29924732	96.16491982	94.08735513	92.06472591	90.09527493	88.17731184
170824A00038	8/24/2017	2.23	8/24/2023	8/24/2017	100.31327	99.98825165	99.6653429	99.3445195	99.02576131	98.70904842	98.3943612	98.08168025	97.77098645
170831A00004	8/31/2017	2	8/31/2023	8/31/2017	100.31205	99.96726386	99.62484502	99.28477267	98.94702271	98.61157137	98.27839517	97.94747101	97.61877604
170831A00022	8/31/2017	2.27	2/29/2024	8/31/2017	100.86533	100.0289985	99.20648997	98.39746787	97.60160268	96.81857555	96.04807785	95.28981078	94.54348497
170906A00020	9/6/2017	2.14	9/6/2023	9/6/2017	100.31394	99.9534882	99.59563154	99.2403419	98.88759165	98.53735355	98.18960073	97.84430675	97.5014455
170908A00017	9/9/2019	2.32	9/9/2024	9/9/2019	101.93462	100.5851805	99.25999764	97.95847327	96.6800286	95.42410331	94.19015475	92.97765726	91.78610154
170914A00039	9/14/2017	2.23	9/16/2024	9/14/2017	102.18178	100.8068728	99.45704586	98.13167486	96.83015321	95.55189393	94.29632889	93.06290807	91.85109879
170915A00001	9/15/2017	2.43	9/16/2024	9/15/2017	102.12939	100.7601681	99.41584972	98.09581306	96.79945743	95.52620153	94.27548261	93.04675577	91.83949323
170915A00031	9/15/2017	2.1	9/15/2023	9/15/2017	100.38765	100.0017461	99.6188211	99.23883884	98.8617653	98.48756702	98.11621104	97.74766493	97.38189672

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170918A00007	9/18/2017	2.8	9/20/2027	9/18/2017	112.59431	108.0636875	103.743045	99.62156675	95.68904762	91.93585683	88.3529029	84.9316007	81.66384069
170919A00073	9/19/2017	2.28	9/19/2024	9/19/2017	102.27101	100.8875294	99.52940969	98.19601797	96.88673801	95.60097363	94.33814787	93.09770225	91.87909598
170929A00057	9/29/2017	2.16	9/29/2023	9/29/2017	100.4516	100.0273798	99.60673819	99.18962847	98.77600623	98.36582787	97.95905052	97.555632	97.15553084
171005A00006	10/5/2017	2.32	10/7/2024	10/5/2017	102.45055	101.0174132	99.61139217	98.23178408	96.87791045	95.54911558	94.24476562	92.96424762	91.70696869
171011A00013	10/11/2017	2.77	10/13/2026	10/11/2017	109.30817	105.7903141	102.4055784	99.14821414	96.01275474	92.99399785	90.08699125	87.28701942	84.58959088
171018A00003	10/18/2017	2.23	10/18/2023	10/18/2017	100.54237	100.0662242	99.59459581	99.12741708	98.66462509	98.20615812	97.7519556	97.3019581	96.85610728
171018A00011	10/18/2017	2.68	10/18/2027	10/18/2017	113.54777	108.880809	104.4344563	100.1971189	96.15787453	92.30642878	88.63307526	85.12865912	81.78454276
171025A00026	10/25/2017	2.64	10/25/2024	10/25/2017	102.70212	101.2238721	99.77441633	98.3529858	96.95883962	95.59126253	94.24956374	92.93307593	91.64115421
171026A00007	10/26/2017	2.47	10/26/2023	10/26/2017	100.57087	100.0743243	99.58267119	99.0958375	98.61375264	98.13634744	97.66355407	97.19530599	96.73153793
171026A00008	10/26/2017	2.6	10/25/2024	10/26/2017	102.64198	101.1642055	99.71521117	98.29423412	96.90053369	95.53339482	94.19212693	92.87606289	91.58455798
171026A00009	10/26/2017	2.75	10/27/2025	10/26/2017	106.02456	103.5183174	101.0846671	98.7210911	96.42517041	94.19458462	92.02710721	89.92060123	87.87301501
171026A00010	10/26/2017	2.84	10/26/2026	10/26/2017	109.67766	106.1171819	102.6927107	99.3983207	96.22837356	93.17750667	90.24061789	87.41285145	84.68958468
171026A00011	10/26/2017	2.94	10/26/2027	10/26/2017	113.59479	108.9398012	104.5049309	100.2785969	96.24989035	92.40852999	88.74482295	85.24962782	81.91432038
171030A00023	10/30/2017	2.9	11/1/2027	10/30/2017	113.46758	108.7987457	104.3513994	100.1138563	96.07510685	92.22477686	88.55308786	85.05081949	81.70927477
171127A00016	11/27/2017	2.28	11/27/2023	11/27/2017	100.69995	100.11489	99.53661315	98.96500271	98.39994395	97.84132474	97.28903549	96.74296908	96.20302079
171129A00020	11/29/2017	2.89	11/30/2026	11/29/2017	110.1962	106.5306812	103.0080192	99.62185168	96.36613785	93.2351395	90.22340395	87.32574804	84.53724321
171206A00038	12/6/2017	2.69	12/6/2027	12/6/2017	114.04375	109.226995	104.6434947	100.2806881	96.12676256	92.17060221	88.4017428	84.8103299	81.38707994
171206A00041	12/6/2017	2.44	12/6/2024	12/6/2017	103.08892	101.488432	99.92057478	98.38441923	96.87906949	95.40366323	93.95737016	92.53939044	91.14895333
171206A00048	12/6/2017	3.04	12/6/2032	12/6/2017	129.14467	118.6273899	109.0762404	100.396673	92.50387091	85.32170367	78.78179577	72.82269978	67.38916142
171219A00063	12/19/2017	2.8	12/20/2027	12/19/2017	114.69144	109.8192606	105.1844927	100.7742682	96.57648955	92.5797782	88.7734274	85.14735883	81.6920821
171227A00018	12/27/2017	2.83	12/27/2024	12/27/2017	103.49801	101.8432951	100.2229854	98.63607122	97.08158255	95.55858701	94.06618799	92.60352287	91.16976143
180102A00021	1/2/2018	2.82	1/2/2026	1/2/2018	106.82781	104.1281175	101.5106899	98.97249125	96.51062394	94.12231735	91.80492127	89.55589969	87.37282501
180104A00017	1/4/2018	2.77	1/3/2025	1/4/2018	103.47237	101.7989181	100.160555	98.55623627	96.98496338	95.44577686	93.9377545	92.46000949	91.0116887
180104A00018	1/4/2018	2.97	1/4/2027	1/4/2018	110.84239	107.0670812	103.4420101	99.96033229	96.61556192	93.40154632	90.31244679	87.3427204	84.48710314
180109A00028	1/9/2018	2.6	1/9/2025	1/9/2018	103.64198	101.9439427	100.2818709	98.65468258	97.06134335	95.50086017	93.972279	92.47468288	91.00719012
180110A00028	1/10/2018	2.85	1/10/2025	1/10/2018	103.66753	101.973792	100.3158535	98.69263948	97.10312162	95.54631253	94.02126354	92.5270628	91.06283346
180110A00029	1/10/2018	3.13	1/10/2028	1/10/2018	115.12923	110.2276961	105.5662836	101.1318951	96.91222218	92.89569337	89.07142559	85.42917919	81.95931619
180111A00007	1/11/2018	2.66	1/14/2025	1/11/2018	103.7882	102.0755168	100.3993123	98.75848591	97.15198172	95.57878628	94.03792623	92.52846635	91.04950765
180116A00014	1/16/2018	3.01	1/19/2027	1/16/2018	111.14111	107.3193168	103.650955	100.1289755	96.74669564	93.49777978	90.37621909	87.37631227	84.49264783
180116A00015	1/16/2018	3.06	1/18/2028	1/16/2018	114.86833	109.9508127	105.2752395	100.828359	96.59772097	92.571624	88.73906591	85.0896978	81.61378138
180118A00004	1/18/2018	2.88	1/17/2025	1/18/2018	103.76172	102.0488856	100.372533	98.73156512	97.12492449	95.55159621	94.0106056	92.50101622	91.02192796
180118A00037	1/18/2018	2.88	1/21/2025	1/18/2018	103.81341	102.0891956	100.4018812	98.75034851	97.13352263	95.55037212	93.99990668	92.4811751	90.99326328
180118A00039	1/18/2018	3.09	1/19/2027	1/18/2018	111.44131	107.6139175	103.9401237	100.4128713	97.02547174	93.77158385	90.64519324	87.64059345	84.752368

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180126A00029	1/26/2018	2.88	1/27/2025	1/26/2018	103.86493	102.1243355	100.4212505	98.75452618	97.12306204	95.52580232	93.96173378	92.42988355	90.92931702
180130A00070	1/30/2018	3.14	1/29/2027	1/30/2018	111.73266	107.8724626	104.1680799	100.61231	97.19833268	93.91968354	90.77023346	87.7441687	84.83597256
180130A00085	1/30/2018	2.79	1/30/2025	1/30/2018	104.15745	102.398678	100.6780691	98.99445291	97.3467117	95.733773	94.15460728	92.60822581	91.09367852
180131A00022	1/31/2018	2.96	1/30/2025	1/31/2018	104.03241	102.2823252	100.5700918	98.89455617	97.25461231	95.64919885	94.07729679	92.53792735	91.03014997
180201A00022	2/1/2018	2.99	2/3/2025	2/1/2018	104.12137	102.3598299	100.636589	98.95049084	97.30042785	95.68533641	94.10419451	92.55601963	91.03986689
180205A00019	2/5/2018	2.88	2/5/2025	2/5/2018	104.37313	102.5963138	100.8583409	99.15804842	97.49431593	95.86606698	94.27226692	92.71192084	91.18407167
180206A00013	2/6/2018	2.72	2/6/2024	2/6/2018	101.31417	100.5350694	99.76794036	99.0125104	98.26851313	97.53569025	96.81379116	96.10257273	95.40179901
180207A00002	2/7/2018	3.13	2/6/2026	2/7/2018	108.01292	105.2026776	102.4804278	99.84286592	97.286839	94.80933363	92.40746853	90.07848769	87.81975403
180207A00003	2/7/2018	3.28	2/7/2028	2/7/2018	116.10344	111.1014928	106.3477374	101.8284923	97.53090989	93.44291708	89.55316424	85.85097768	82.32631558
180222A00025	2/22/2018	3.48	2/22/2033	2/22/2018	134.07433	123.1024807	113.1522229	104.1220756	95.92116145	88.46804578	81.68971071	75.52064546	69.90203911
180222A00026	2/22/2018	2.98	2/21/2025	2/22/2018	104.7061	102.8832905	101.1011551	99.35851919	97.65425431	95.98727248	94.35652441	92.76099786	91.199716
180222A00027	2/22/2018	3.24	2/22/2028	2/22/2018	117.41574	112.2985163	107.4379041	102.8196725	98.43045712	94.25769875	90.28959116	86.51503192	82.92357682
180313A00026	3/13/2018	3.34	3/13/2028	3/13/2018	116.72688	111.6104156	106.7523063	102.1381481	97.7544162	93.58840312	89.62816552	85.86247439	82.28076877
180323A00013	3/23/2018	3.18	3/23/2028	3/23/2018	117.42659	112.2198903	107.2785321	102.587595	98.13307376	93.90181766	89.88147333	86.06043268	82.42778418
180327A00024	3/27/2018	2.79	5/26/2023	3/27/2018	100.16611	100.0883252	100.0106641	99.93312747	99.85571493	99.77842621	99.70126103	99.62421908	99.54730006
180328A00010	3/28/2018	3.1	3/28/2025	3/28/2018	104.81945	102.9029516	101.0311567	99.20275716	97.41649001	95.67113716	93.96552369	92.29851596	90.66901993
180329A00003	3/29/2018	3.08	3/29/2028	3/29/2018	116.98762	111.7738237	106.8267429	102.1313266	97.67345149	93.43985883	89.4180965	85.5964661	81.96397355
180403A00006	4/3/2018	3.07	4/3/2028	4/3/2018	116.98229	111.7545885	106.795009	102.0883862	97.62048715	93.37795229	89.34823709	85.51955836	81.88084421
180403A00041	4/3/2018	2.91	4/3/2025	4/3/2018	104.99732	103.0540242	101.1565719	99.30360522	97.49381449	95.72593742	93.99875698	92.31109947	90.66183267
180410A00017	4/10/2018	3.02	10/10/2023	4/10/2018	100.78409	100.3301449	99.88029803	99.4344897	98.9926656	98.55477236	98.12075758	97.69056979	97.26415842
180412A00034	4/12/2018	3.23	4/15/2030	4/12/2018	123.17296	115.6421329	108.6331765	102.1070486	96.02782114	90.36241925	85.0803808	80.15363746	75.55631502
180412A00036	4/12/2018	3.54	4/15/2038	4/12/2018	147.09652	130.0295538	115.2441154	102.4170637	91.27285791	81.57631463	73.1265006	65.75157674	59.30444134
180503A00040	5/3/2018	3.3	5/5/2025	5/3/2018	105.5836	103.5576424	101.5811583	99.6526197	97.77056091	95.93357136	94.14029324	92.38941908	90.67968954
180511A00035	5/11/2018	2.93	5/11/2023	5/11/2018	100.08217	100.0460362	100.0099427	99.97389211	99.93788426	99.90191909	99.86599652	99.83011645	99.7942788
180514A00035	5/14/2018	3.07	5/14/2024	5/14/2018	102.29648	101.2478151	100.2206412	99.2143038	98.22817335	97.26164521	96.31413873	95.38509601	94.47398078
180518A00014	5/18/2018	3.17	5/18/2023	5/18/2018	100.12979	100.0743043	100.0188912	99.96355353	99.90829123	99.85310412	99.79799205	99.74295486	99.6879924
180521A00025	5/21/2018	3.24	5/21/2025	5/21/2018	106.15493	104.0684269	102.0337216	100.0491814	98.1132405	96.22439384	94.38119407	92.58224891	90.82621859
180522A00019	5/22/2018	3.16	5/22/2023	5/22/2018	100.15509	100.0885119	100.0220339	99.9556538	99.88937139	99.82318648	99.75709885	99.69110829	99.62521461
180529A00042	5/29/2018	3.42	5/30/2028	5/29/2018	117.848	112.481648	107.3965257	102.5763557	98.00589292	93.67085056	89.55783468	85.65428355	81.94841156
180529A00043	5/29/2018	2.99	5/30/2023	5/29/2018	100.18861	100.099881	100.0113153	99.92290888	99.83466126	99.74657202	99.65864074	99.570867	99.48325037
180529A00044	5/29/2018	3.11	5/29/2024	5/29/2018	102.19756	101.1127626	100.0509815	99.01148701	97.99358273	96.99660096	96.0199013	95.06286926	94.12491495
180529A00056	5/29/2018	3	5/26/2023	5/29/2018	100.1685	100.0908529	100.0133256	99.93592098	99.85863887	99.78147895	99.70444096	99.6275246	99.55072962
180529A00066	5/29/2018	2.99	5/26/2023	5/29/2018	100.16773	100.0900763	100.0125496	99.93514567	99.85786421	99.78070493	99.70366758	99.62675186	99.54995751

	Parallel-Shift Sensitivity Analysis												
4/28/2023					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	100.18328	100.0945565	100.0059955	99.91759374	99.8293508	99.74126624	99.65333963	99.56557055	99.47795858
180530A00024	5/30/2018	3.44	5/30/2029	5/30/2018	120.57574	114.1043788	108.0295787	102.3248513	96.96561732	91.92905723	87.19397597	82.74067911	78.55085895
180530A00025	5/30/2018	3.49	5/30/2030	5/30/2018	123.33028	115.7479713	108.6962319	102.1349439	96.02722838	90.33916762	85.03955308	80.09965535	75.49301506
180530A00026	5/30/2018	3.55	5/30/2031	5/30/2018	126.72453	117.9953741	109.9509238	102.5334602	95.69042881	89.37394903	83.54037595	78.14990488	73.16621489
180530A00027	5/30/2018	3.61	6/1/2032	5/30/2018	130.32242	120.4139986	111.3651713	103.0960942	95.53475382	88.61616032	82.28162803	76.47813365	71.15774261
180530A00028	5/30/2018	3.67	5/31/2033	5/30/2018	133.75237	122.664629	112.6285104	103.5375028	95.29643801	87.8202313	81.03276428	74.86589677	69.25859225
180530A00030	5/30/2018	3.68	5/30/2034	5/30/2018	136.3944	124.1574253	113.1792091	103.3217732	94.46299739	86.49472126	79.32108109	72.85705253	67.02717274
180530A00072	5/30/2018	3.06	5/30/2024	5/30/2018	102.15027	101.0630584	99.99897088	98.9572763	97.9372731	96.93828873	95.95967821	95.00082271	94.06112822
180531A00015	5/31/2018	2.95	5/31/2023	5/31/2018	100.18939	100.0979023	100.0065846	99.91543792	99.82446179	99.73365573	99.64301926	99.55255189	99.46225316
180604A00048	6/4/2018	3.01	6/5/2023	6/4/2018	100.21741	100.1120862	100.0069927	99.90213147	99.79750175	99.69310273	99.58893362	99.48499363	99.38128197
180604A00050	6/4/2018	3.15	6/4/2024	6/4/2018	102.28753	101.1860383	100.1082688	99.05345766	98.02087647	97.00982747	96.01964183	95.04967817	94.09932117
180611A00030	6/11/2018	2.91	6/12/2023	6/11/2018	100.25858	100.1336651	100.009079	99.88482033	99.76088767	99.6372797	99.51399509	99.39103249	99.26839061
180614A00038	6/14/2018	3.08	6/14/2023	6/14/2018	100.26582	100.1356133	100.0057639	99.87626638	99.74711916	99.61832081	99.48986988	99.36176494	99.23400454
180619A00020	6/19/2018	3.1	6/19/2025	6/19/2018	106.1675	104.0016287	101.8909246	99.83359647	97.82792539	95.87226166	93.96502142	92.10468341	90.28978594
180619A00021	6/19/2018	3.24	6/19/2028	6/19/2018	118.55278	113.0652039	107.868914	102.9468451	98.28302585	93.86250172	89.67126459	85.69618757	81.92496481
180619A00023	6/19/2018	3.04	6/19/2023	6/19/2018	100.28342	100.1394108	99.99582835	99.85266936	99.70993191	99.56761413	99.42571413	99.28423008	99.14316011
180620A00014	6/20/2018	3.4	6/20/2028	6/20/2018	117.9234	112.496541	107.3567268	102.4871971	97.87225769	93.49721091	89.34828635	85.41257745	81.67798254
180620A00038	6/20/2018	3.4	6/20/2028	6/20/2018	117.9234	112.496541	107.3567268	102.4871971	97.87225769	93.49721091	89.34828635	85.41257745	81.67798254
180620A00044	6/20/2018	2.89	6/20/2023	6/20/2018	100.29331	100.1462489	99.99963546	99.85346425	99.70773318	99.56244024	99.41758341	99.27316067	99.12917005
180621A00017	6/21/2018	3.42	6/21/2028	6/21/2018	118.0358	112.6032854	107.4582031	102.5837619	97.96424155	93.58491991	89.43200429	85.49256757	81.7544891
180621A00068	6/21/2018	3.32	6/23/2025	6/21/2018	106.1342	103.968635	101.858233	99.80120338	97.79582543	95.84044785	93.9334853	92.07341525	90.25877488
180622A00004	6/22/2018	3.47	12/22/2028	6/22/2018	119.70981	113.7140071	108.0621403	102.7325758	97.7051593	92.96110403	88.48289055	84.25417451	80.25970161
180622A00005	6/22/2018	3.5	7/2/2029	6/22/2018	121.15192	114.5714614	108.3990502	102.6071037	97.17005373	92.06418548	87.26749316	82.75954796	78.52137673
180622A00006	6/22/2018	3.53	12/21/2029	6/22/2018	122.45293	115.3505891	108.7177984	102.5208822	96.72875397	91.31270588	86.24621443	81.50476313	77.0656804
180622A00018	6/22/2018	2.92	6/22/2023	6/22/2018	100.30719	100.1545954	100.002473	99.85082306	99.69964327	99.54893143	99.39868534	99.24890282	99.09958169
180625A00041	6/25/2018	3.06	6/20/2023	6/25/2018	100.29092	100.144151	99.99781856	99.85192435	99.70646637	99.56144267	99.41685128	99.27269025	99.12895765
180627A00026	6/27/2018	2.87	6/27/2023	6/27/2018	100.32255	100.156137	99.99027312	99.82495977	99.66019416	99.49597358	99.33229532	99.16915669	99.00655505
180627A00027	6/27/2018	2.87	6/27/2023	6/27/2018	100.32255	100.156137	99.99027312	99.82495977	99.66019416	99.49597358	99.33229532	99.16915669	99.00655505
180629A00008	6/29/2018	3.02	6/29/2023	6/29/2018	100.3252	100.1535997	99.98258354	99.81214974	99.64229539	99.47301755	99.30431331	99.13617978	98.96861409
180629A00071	6/29/2018	3.02	6/29/2023	6/29/2018	100.3252	100.1535997	99.98258354	99.81214974	99.64229539	99.47301755	99.30431331	99.13617978	98.96861409
180702A00012	7/2/2018	3.01	7/3/2023	7/2/2018	100.33971	100.1570876	99.9751375	99.79385371	99.61323253	99.43327031	99.25396343	99.07530829	98.89730134
180702A00034	7/2/2018	2.86	7/3/2023	7/2/2018	100.34628	100.1632891	99.98097801	99.79933851	99.61836687	99.43805936	99.25841227	99.07942193	98.9010847
180703A00015	7/3/2018	3.06	7/3/2023	7/3/2018	100.34886	100.1662285	99.98426602	99.80296986	99.62233636	99.44236185	99.26304271	99.08437536	98.90635622

	Parallel-Shift Sensitivity Analysis												
4/28/2023					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	100.35348	100.1653434	99.97792006	99.79120588	99.60519678	99.41988873	99.23527776	99.05135989	98.86813119
180705A00062	7/5/2018	3.04	7/6/2023	7/5/2018	100.35949	100.1685801	99.97840253	99.78895605	99.60023638	99.41223933	99.22496068	99.0383963	98.85254206
180706A00013	7/6/2018	3.01	7/6/2023	7/6/2018	100.35375	100.1628469	99.97267739	99.78323894	99.5945273	99.40653823	99.21926755	99.0327111	98.84686478
180709A00081	7/9/2018	3.05	7/7/2023	7/9/2018	100.3656	100.1719327	99.97902029	99.78686072	99.59544958	99.40478244	99.21485493	99.0256627	98.83720144
180713A00013	7/13/2018	2.88	7/13/2023	7/13/2018	100.39213	100.1815488	99.97186283	99.76306964	99.55516344	99.34813849	99.1419891	98.93670964	98.73229451
180716A00016	7/16/2018	3.03	7/14/2023	7/16/2018	100.38862	100.1757066	99.96371319	99.75262884	99.54244767	99.33316383	99.12477154	98.91726504	98.71063865
180716A00054	7/16/2018	3.59	7/16/2040	7/16/2018	152.30991	132.6046156	115.8599606	101.6047678	89.445685	79.05394376	70.15443061	62.51665637	55.94728681
180717A00047	7/17/2018	3.3	9/17/2025	7/17/2018	106.98454	104.5756985	102.233662	99.95621187	97.74121291	95.58661309	93.49043968	91.45079579	89.46585692
180717A00076	7/17/2018	3.03	7/17/2023	7/17/2018	100.40096	100.1797978	99.95962171	99.740424	99.52219807	99.30493742	99.08863562	98.87328627	98.65888306
180718A00026	7/18/2018	3.03	7/18/2023	7/18/2018	100.40507	100.1811625	99.9582598	99.73635884	99.51545282	99.29553501	99.07659875	98.85863744	98.64164453
180719A00004	7/19/2018	3.07	7/19/2023	7/19/2018	100.41828	100.1916081	99.9659649	99.74134701	99.51774741	99.29515913	99.07357529	98.85298907	98.63339371
180719A00061	7/19/2018	3.07	7/19/2023	7/19/2018	100.41828	100.1916081	99.9659649	99.74134701	99.51774741	99.29515913	99.07357529	98.85298907	98.63339371
180719A00063	7/19/2018	3.21	7/19/2024	7/19/2018	102.71087	101.4855775	100.2895278	99.12167854	97.98104022	96.86666921	95.77766508	94.71316817	93.6723573
180719A00064	7/19/2018	3.3	7/21/2025	7/19/2018	106.3854	104.1398789	101.9531159	99.82313957	97.74806269	95.72607699	93.75544922	91.83451732	89.96168675
180719A00065	7/19/2018	3.36	7/20/2026	7/19/2018	110.4366	107.1324815	103.9456592	100.8712513	97.90461462	95.04132937	92.27718669	89.60817694	87.03047885
180720A00068	7/20/2018	2.89	7/20/2023	7/20/2018	100.42398	100.1940942	99.96527143	99.73750494	99.51078735	99.28511137	99.06046976	98.83685536	98.61426107
180724A00075	7/24/2018	2.98	7/24/2023	7/24/2018	100.46269	100.2217499	99.98196771	99.74333853	99.50585406	99.26950603	99.03428628	98.8001867	98.56719927
180726A00046	7/26/2018	3.2	12/26/2023	7/26/2018	101.26492	100.6013868	99.94653833	99.30020645	98.6622258	98.03243528	97.41067795	96.79680082	96.19065478
180727A00017	7/27/2018	3.16	7/27/2023	7/27/2018	100.477	100.2282696	99.98076417	99.73447803	99.48940223	99.24552791	99.00284627	98.76134862	98.52102634
180727A00028	7/27/2018	3.25	7/27/2026	7/27/2018	111.01099	107.6569798	104.4230083	101.3040438	98.29529684	95.3922106	92.59044758	89.88587751	87.27456582
180727A00037	7/27/2018	3.13	7/27/2023	7/27/2018	100.46952	100.2207963	99.97330328	99.72702951	99.48196604	99.23810399	98.99543458	98.75394911	98.51363897
180727A00038	7/27/2018	3.36	7/25/2025	7/27/2018	106.56289	104.3042737	102.1049722	99.96299205	97.87642021	95.84342424	93.86224805	91.93120802	90.04868929
180727A00039	7/27/2018	3.48	7/27/2028	7/27/2018	118.65745	113.1061751	107.8533094	102.8811351	98.17308564	93.71366495	89.48837205	85.48363141	81.68672857
180730A00004	7/30/2018	3.14	7/28/2023	7/30/2018	100.47646	100.2249879	99.97476755	99.72579132	99.47804997	99.2315344	98.98623557	98.74214454	98.49925244
180730A00023	7/30/2018	3.13	7/30/2024	7/30/2018	103.00142	101.7405204	100.5097737	99.30810116	98.13447792	96.98792695	95.86751619	94.77235603	93.70159691
180730A00041	7/30/2018	3.14	7/31/2023	7/30/2018	100.49138	100.2316612	99.97328125	99.71623411	99.46050945	99.20609708	98.95298691	98.70116896	98.45063336
180730A00078	7/30/2018	3.14	7/28/2023	7/30/2018	100.47646	100.2249879	99.97476755	99.72579132	99.47804997	99.2315344	98.98623557	98.74214454	98.49925244
180730A00081	7/30/2018	3.5	7/28/2028	7/30/2018	118.77201	113.2148923	107.9565903	102.9793575	98.26659884	93.80279198	89.57341179	85.56486053	81.76440326
180731A00004	7/31/2018	2.97	7/31/2023	7/31/2018	100.49312	100.2328924	99.97401846	99.71648559	99.46028336	99.20540142	98.95182954	98.69955761	98.4485756
180801A00015	8/1/2018	3.16	8/1/2023	8/1/2018	100.50163	100.2391444	99.9780363	99.71829086	99.45989742	99.2028454	98.94712438	98.69272401	98.43963406
180802A00006	8/2/2018	2.99	8/2/2023	8/2/2018	100.50841	100.2426656	99.97833337	99.71540235	99.45386134	99.19369927	98.93490519	98.67746826	98.42137774
180808A00009	8/8/2018	3.12	8/7/2023	8/8/2018	100.52061	100.241658	99.96426424	99.68841506	99.41409754	99.14129887	98.87000638	98.60020755	98.33188998
180810A00028	8/10/2018	2.91	8/10/2023	8/10/2018	100.52566	100.237931	99.95186103	99.66743821	99.38464821	99.10347686	98.82391015	98.54593425	98.26953548

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180813A00026	8/13/2018	2.87	8/11/2023	8/13/2018	100.51884	100.2283758	99.93960776	99.65251821	99.36709239	99.08331571	98.80117377	98.52065236	98.24173741
180813A00059	8/13/2018	3.01	8/11/2023	8/13/2018	100.50828	100.2184018	99.93020776	99.64368224	99.35881072	99.07557882	98.79397233	98.51397718	98.2355795
180814A00010	8/14/2018	3.1	8/14/2025	8/14/2018	106.76243	104.4356055	102.1713596	99.96761458	97.82237651	95.73373124	93.69984083	91.71893981	89.78933179
180814A00032	8/14/2018	3.1	8/14/2025	8/14/2018	106.76243	104.4356055	102.1713596	99.96761458	97.82237651	95.73373124	93.69984083	91.71893981	89.78933179
180814A00033	8/14/2018	3.25	8/13/2027	8/14/2018	115.41219	110.8906356	106.5743467	102.4528835	98.51639845	94.7555962	91.16169923	87.72641616	84.44191203
180815A00021	8/15/2018	3.01	8/15/2023	8/15/2018	100.52675	100.2258905	99.92684648	99.62959751	99.33412735	99.04041998	98.74845958	98.4582305	98.1697173
180816A00024	8/16/2018	3.01	8/16/2023	8/16/2018	100.53136	100.2277637	99.92600827	99.62607986	99.32796182	99.03163769	98.73709124	98.44430644	98.15326742
180816A00038	8/16/2018	3.38	8/16/2028	8/16/2018	118.28039	112.6833458	107.3901148	102.382571	97.64376061	93.15782419	88.90991977	84.8861525	81.0735093
180817A00022	8/17/2018	2.87	8/17/2023	8/17/2018	100.54709	100.2401244	99.93504651	99.63183854	99.33048318	99.03096337	98.73326227	98.43736321	98.14324976
180820A00036	8/20/2018	3	8/21/2023	8/20/2018	100.55126	100.2339557	99.91865607	99.60534539	99.29400486	98.98461588	98.67716012	98.37161945	98.06797598
180820A00054	8/20/2018	3	8/18/2023	8/20/2018	100.53749	100.2284138	99.92124296	99.61596349	99.31255787	99.01100881	98.71129923	98.41341228	98.11733129
180820A00055	8/20/2018	3.37	8/21/2028	8/20/2018	118.2647	112.6542166	107.3489895	102.3307803	97.58253457	93.08829805	88.83313982	84.80308159	80.98503213
180823A00013	8/23/2018	2.97	8/23/2023	8/23/2018	100.55072	100.2279462	99.90724928	99.58860702	99.27199971	98.95740787	98.64481229	98.33419399	98.02553424
180823A00033	8/23/2018	2.85	8/23/2023	8/23/2018	100.56886	100.2454128	99.92405278	99.60475917	99.28751202	98.97229164	98.65907859	98.34785368	98.03859795
180823A00035	8/23/2018	3.05	8/22/2025	8/23/2018	106.72926	104.3811759	102.0967598	99.87391641	97.71063244	95.60497322	93.55507906	91.55916183	89.61550174
180823A00053	8/23/2018	3.2	8/23/2028	8/23/2018	118.88712	113.2044091	107.8324199	102.7525171	97.94727484	93.400395	89.0966283	85.02170171	81.16225104
180823A00055	8/23/2018	3.44	8/23/2033	8/23/2018	135.0769	123.5276119	113.1017792	103.6829919	95.16750326	87.46279033	80.48628693	74.16426519	68.43084778
180827A00010	8/27/2018	2.99	8/25/2023	8/27/2018	100.56633	100.2380603	99.91193498	99.58793072	99.26602691	98.94620319	98.62843944	98.31271584	97.99901277
180827A00020	8/27/2018	3.21	8/27/2025	8/27/2018	106.5569	104.2095123	101.925885	99.70393271	97.54165479	95.43712713	93.38849868	91.3939883	89.45188165
180828A00032	8/28/2018	3.49	8/29/2033	8/28/2018	135.64508	124.0503656	113.5843621	104.1300158	95.58301193	87.85032944	80.84896573	74.50481052	68.75165151
180829A00008	8/29/2018	3.23	8/30/2027	8/29/2018	115.51052	110.9390791	106.5771365	102.4140083	98.43960576	94.64440307	91.01940284	87.55610432	84.24647338
180830A00039	8/30/2018	3.03	8/30/2023	8/30/2018	100.60318	100.2611792	99.92150199	99.58412315	99.24901948	98.91616801	98.58554613	98.2571315	97.93090208
180831A00016	8/31/2018	2.99	8/31/2023	8/31/2018	100.59415	100.2494354	99.90708649	99.56707434	99.22937508	98.89396519	98.56082143	98.22992088	97.90124095
180831A00019	8/31/2018	3.21	9/2/2025	8/31/2018	106.6173	104.2531062	101.9535188	99.71641859	97.53977014	95.42161609	93.36007359	91.35333101	89.39964484
180904A00004	9/4/2018	2.89	9/5/2023	9/4/2018	100.64497	100.2857811	99.92916824	99.57510073	99.22355126	98.87449293	98.52789917	98.18374383	97.84200113
180904A00012	9/4/2018	3.35	9/4/2030	9/4/2018	125.1682	117.1627399	109.7379419	102.8484666	96.4527349	90.51260258	84.9930602	79.86196074	75.08977215
180904A00014	9/4/2018	3.37	9/1/2028	9/4/2018	118.34675	112.7036184	107.369049	102.3245447	97.55280893	93.03766185	88.76396309	84.71753975	80.88512002
180910A00007	9/10/2018	2.96	9/8/2023	9/10/2018	100.68551	100.3180287	99.9532424	99.59112077	99.2316345	98.87475474	98.52045307	98.16870146	97.81947232
180910A00013	9/10/2018	3.08	9/11/2023	9/10/2018	100.67986	100.3049509	99.93284111	99.5635013	99.19690044	98.83300804	98.47179403	98.11322881	97.75728322
180910A00028	9/10/2018	3.56	9/9/2033	9/10/2018	136.4634	124.7960828	114.2664239	104.7561983	96.16007721	88.38416038	81.34468263	74.96687206	69.18394214
180910A00032	9/10/2018	3.22	9/10/2024	9/10/2018	103.18249	101.8214197	100.484848	99.17216945	97.88279819	96.6161671	95.37172698	94.14894591	92.94730854
180910A00033	9/10/2018	3.43	9/8/2028	9/10/2018	118.72262	113.0500723	107.6885571	102.6193722	97.82503515	93.28919548	88.99655636	84.93280135	81.08452694
180911A00007	9/11/2018	3.12	9/8/2023	9/11/2018	100.67972	100.3129913	99.94894164	99.58754234	99.22876445	98.87257942	98.5189591	98.16787576	97.81930208

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180912A00011	9/12/2018	3.41	9/11/2026	9/12/2018	111.18047	107.7186921	104.3845117	101.1725565	98.07770994	95.09509676	92.22007006	89.44819957	86.77526034
180913A00029	9/13/2018	3.11	9/13/2023	9/13/2018	100.70125	100.3208351	99.94330513	99.56862572	99.19676457	98.82768985	98.46137021	98.09777476	97.7368731
180913A00030	9/13/2018	3.33	9/12/2025	9/13/2018	107.00456	104.6088901	102.2793238	100.0136765	97.8098454	95.66580933	93.57962477	91.54942255	89.57340446
180914A00008	9/14/2018	3.15	9/14/2023	9/14/2018	100.71794	100.3348009	99.95458927	99.57726805	99.2028042	98.83116524	98.46231918	98.0962345	97.73288019
180914A00013	9/14/2018	3.48	9/14/2028	9/14/2018	119.03889	113.3412501	107.9567579	102.8665397	98.05295251	93.4994992	89.19074825	85.11225975	81.25051688
180914A00026	9/14/2018	3.15	9/14/2023	9/14/2018	100.71794	100.3348009	99.95458927	99.57726805	99.2028042	98.83116524	98.46231918	98.0962345	97.73288018
180914A00028	9/14/2018	3.37	9/12/2025	9/14/2018	107.10007	104.703243	102.372547	100.105794	97.90088063	95.75578492	93.66856271	91.63734419	89.66033057
180914A00029	9/14/2018	3.48	9/14/2028	9/14/2018	119.03889	113.3412501	107.9567579	102.8665397	98.05295251	93.4994992	89.19074825	85.11225975	81.25051688
180917A00032	9/17/2018	3.17	9/15/2023	9/17/2018	100.73082	100.344927	99.96200105	99.58200617	99.20490869	98.83067544	98.45927376	98.0906715	97.724837
180917A00054	9/17/2018	3.17	9/15/2023	9/17/2018	100.73082	100.344927	99.96200105	99.58200617	99.20490869	98.83067544	98.45927376	98.0906715	97.724837
180917A00078	9/17/2018	3.05	9/15/2023	9/17/2018	100.75618	100.3694014	99.98560585	99.60475797	99.22682372	98.85176959	98.4795626	98.11017023	97.74356051
180918A00011	9/18/2018	3.17	9/18/2023	9/18/2018	100.74637	100.3522627	99.96125034	99.57329172	99.18835104	98.80639309	98.42738321	98.05128727	97.67807169
180918A00023	9/18/2018	3.17	9/18/2023	9/18/2018	100.74637	100.3522627	99.96125034	99.57329172	99.18835104	98.80639309	98.42738321	98.05128727	97.67807169
180918A00041	9/18/2018	3.18	9/18/2024	9/18/2018	103.52853	102.1384516	100.7738049	99.43395302	98.11827867	96.8261846	95.55709285	94.31044392	93.08569604
180920A00014	9/20/2018	3.59	9/20/2028	9/20/2018	119.68378	113.9522329	108.5363136	103.4169521	98.57632852	93.99778267	89.66573325	85.56560262	81.68374723
180920A00028	9/20/2018	3.12	9/20/2023	9/20/2018	100.81109	100.4105205	100.0131441	99.6189219	99.22781628	98.83979024	98.4548074	98.07283194	97.69382859
180920A00062	9/20/2018	3.12	9/20/2023	9/20/2018	100.81109	100.4105205	100.0131441	99.6189219	99.22781628	98.83979024	98.4548074	98.07283194	97.69382859
180924A00052	9/24/2018	3.22	9/22/2023	9/24/2018	100.78745	100.3823539	99.9805158	99.58189719	99.18645943	98.7941645	98.404975	98.01885413	97.63576565
180925A00060	9/25/2018	3.23	8/25/2023	9/25/2018	100.64546	100.3170335	99.99074516	99.66657869	99.34451347	99.02452911	98.70660551	98.39072282	98.07686145
180926A00031	9/26/2018	3.24	9/26/2023	9/26/2018	100.8171	100.401039	99.98840849	99.57916526	99.17326778	98.77067517	98.37134722	97.97524435	97.58232765
181004A00028	10/4/2018	3.31	10/4/2023	10/4/2018	100.88719	100.4492316	100.0150753	99.58467329	99.15797693	98.73493847	98.31551094	97.89964822	97.48730492
181004A00029	10/4/2018	3.7	10/4/2028	10/4/2018	120.39744	114.6072522	109.1377355	103.9694029	99.08404686	94.46465244	90.09531357	85.96115505	82.04826077
181005A00005	10/5/2018	3.31	10/5/2023	10/5/2018	100.89283	100.4521325	100.0152902	99.58224969	99.15296156	98.72737709	98.3054484	97.88712846	97.47237106
181005A00011	10/5/2018	3.2	10/5/2023	10/5/2018	100.9306	100.4887901	100.0508531	99.6167399	99.18640051	98.7597857	98.33684713	97.91753731	97.50180954
181005A00012	10/5/2018	3.33	10/4/2024	10/5/2018	103.89199	102.456143	101.0473004	99.66476164	98.3078544	96.97592888	95.66835679	94.38453049	93.12386211
181010A00023	10/10/2018	3.41	4/1/2024	10/10/2018	102.06739	101.1393276	100.2281479	99.33339021	98.45461332	97.59139159	96.7433144	95.90998549	95.09102232
181015A00024	10/15/2018	3.29	10/16/2023	10/15/2018	100.93611	100.4655135	99.99931065	99.53743994	99.07984103	98.62645473	98.17722296	97.73208868	97.29099592
181016A00087	10/16/2018	3.31	10/16/2023	10/16/2018	100.94558	100.4749532	100.0087242	99.54682745	99.08920269	98.63579071	98.18653343	97.74137381	97.30025587
181018A00011	10/18/2018	3.35	10/18/2023	10/18/2018	100.97121	100.4951441	100.0235693	99.5564244	99.09364717	98.63517644	98.1809522	97.73091557	97.28500872
181023A00021	10/23/2018	3.28	10/23/2023	10/23/2018	100.96506	100.4754402	99.99057124	99.51038046	99.03480036	98.56376473	98.09720863	97.63506836	97.17728142
181023A00025	10/23/2018	3.27	10/23/2023	10/23/2018	100.96013	100.4705283	99.98567338	99.50549656	99.02993032	98.55890846	98.09236603	97.63023934	97.17246589
181026A00002	10/26/2018	3.28	10/26/2023	10/26/2018	100.97657	100.4788497	99.98602471	99.49802742	99.01478719	98.53623474	98.06230216	97.5929228	97.12803133
181107A00008	11/7/2018	3.42	11/7/2023	11/7/2018	101.11678	100.5861173	100.0610318	99.54143306	99.02723521	98.51835423	98.01470782	97.5162154	97.02279799

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181108A00025	11/8/2018	3.44	7/31/2023	11/8/2018	100.56956	100.3097037	100.0511892	99.79400807	99.53814992	99.28360458	99.03036198	98.77841213	98.52774513
181109A00027	11/13/2018	3.48	4/15/2024	11/13/2018	102.24358	101.2769114	100.328535	99.39793727	98.48462123	97.5881082	96.70793704	95.84366337	94.99485881
181109A00028	11/9/2018	3.72	11/9/2026	11/9/2018	112.94159	109.2850009	105.7687003	102.3865264	99.13262678	96.00143746	92.98766714	90.08628226	87.29249287
181109A00029	11/9/2018	3.72	11/9/2026	11/9/2018	112.94159	109.2850009	105.7687003	102.3865264	99.13262678	96.00143746	92.98766714	90.08628226	87.29249287
181114A00014	11/14/2018	3.17	11/14/2023	11/14/2018	101.14928	100.5979819	100.0526995	99.51333827	98.97980205	98.45199655	97.92982958	97.41321089	96.90205219
181114A00021	11/14/2018	3.17	11/14/2023	11/14/2018	101.14928	100.5979819	100.0526995	99.51333827	98.97980205	98.45199655	97.92982958	97.41321089	96.90205219
181116A00015	11/19/2018	3.29	2/15/2024	11/19/2018	101.63671	100.8344473	100.0448548	99.26763316	98.5024931	97.74915416	97.00734453	96.27680073	95.55726724
181119A00018	11/19/2018	3.28	11/17/2023	11/19/2018	101.0966	100.5389417	99.98744316	99.44199894	98.90250964	98.36887798	97.84100879	97.31880896	96.80218738
181120A00024	11/20/2018	3.25	11/20/2023	11/20/2018	101.09588	100.530116	99.97068818	99.41748766	98.87041081	98.32935625	97.79422484	97.2649196	96.74134566
181128A00031	11/28/2018	3.29	11/28/2023	11/28/2018	101.16256	100.5749683	99.9941916	99.42011113	98.85261166	98.2915806	97.7369079	97.18848599	96.64620973
181130A00037	11/30/2018	3.05	11/30/2023	11/30/2018	101.1705	100.5757346	99.98795321	99.40703735	98.83286721	98.26532576	97.70429864	97.14967412	96.60134299
181203A00039	12/3/2018	3.27	12/1/2023	12/3/2018	101.16727	100.5715587	99.98285844	99.40104409	98.82599538	98.2575948	97.69572752	97.14028137	96.59114671
181203A00053	12/4/2018	3.23	12/1/2023	12/4/2018	101.14326	100.547637	99.95901761	99.37728351	98.80231438	98.23399272	97.67220371	97.11683518	96.56777752
181210A00015	12/10/2018	3.12	12/11/2023	12/10/2018	101.12829	100.5057333	99.89084697	99.28348584	98.68351218	98.09079161	97.50519303	96.92658847	96.35485301
181211A00009	12/11/2018	3.14	12/11/2023	12/11/2018	101.14084	100.5182411	99.9033107	99.29590587	98.69588888	98.10312537	97.51748421	96.93883743	96.36706011
181211A00018	12/11/2018	3.14	12/11/2023	12/11/2018	101.14084	100.5182411	99.9033107	99.29590587	98.69588888	98.10312537	97.51748421	96.93883743	96.36706011
181211A00031	12/11/2018	2.95	12/11/2023	12/11/2018	101.169	100.5444465	99.9276074	99.31834161	98.71650997	98.12197679	97.53460964	96.95427933	96.3808597
181213A00031	12/13/2018	2.97	12/13/2023	12/13/2018	101.19227	100.5622219	99.94002291	99.32552829	98.71859532	98.11908479	97.52686092	96.94179122	96.36374638
181217A00010	12/17/2018	3.11	12/15/2023	12/17/2018	101.14856	100.5150801	99.88953301	99.27177343	98.66165644	98.05904068	97.46378826	96.87576465	96.2948386
181218A00077	12/18/2018	3.09	12/18/2023	12/18/2018	101.14461	100.5031373	99.8698024	99.24444904	98.62692691	98.01708941	97.41479361	96.8199001	96.2322729
181219A00006	12/19/2018	3.06	12/19/2023	12/19/2018	101.13014	100.4860302	99.85012243	99.22226137	98.60229488	97.99007459	97.38545588	96.78829768	96.19846239
181227A00019	12/28/2020	3.1	12/29/2025	12/28/2020	107.54306	104.8444502	102.2277312	99.68989795	97.22807684	94.83951949	92.52159647	90.27179114	88.087694
181227A00026	12/27/2018	3.03	12/27/2023	12/27/2018	101.15609	100.4902695	99.83320241	99.18471481	98.54463955	97.91281376	97.28907879	96.67328	96.06526667
181227A00027	12/27/2018	3.24	12/26/2025	12/27/2018	107.88731	105.1923293	102.5788989	100.0440363	97.58488741	95.19872215	92.88292826	90.63500517	88.45255839
181227A00028	12/27/2018	3.46	12/27/2028	12/27/2018	119.6886	113.6790669	108.0149911	102.6746016	97.63761572	92.88513035	88.39952016	84.16434452	80.16426153
190102A00050	1/2/2019	3.38	1/3/2034	1/2/2019	135.39083	123.4446845	112.6968611	103.0194189	94.29874778	86.43389454	79.33509214	72.92246579	67.12489516
190102A00058	1/2/2019	2.91	1/2/2024	1/2/2019	101.1052	100.4234223	99.75082585	99.0872304	98.43245606	97.7863277	97.14867483	96.51933142	95.89813574
190103A00010	1/3/2019	2.7	1/3/2024	1/3/2019	101.12076	100.4342206	99.75699536	99.08889676	98.42974106	97.77934943	97.1375478	96.50416667	95.87904096
190104A00033	1/4/2019	3.37	1/31/2029	1/4/2019	119.39661	113.2983415	107.5558991	102.146544	97.04911046	92.24389239	87.71253423	83.43793111	79.4041368
190107A00024	1/7/2019	2.91	1/5/2024	1/7/2019	101.1203	100.4303887	99.74988181	99.07859182	98.41633224	97.76292159	97.11818324	96.48194524	95.85404015
190108A00039	1/8/2019	3.04	4/30/2024	1/8/2019	101.92624	100.9207954	99.93516898	98.96877886	98.02106585	97.09149222	96.17954071	95.28471357	94.40653163
190110A00003	1/10/2019	2.97	1/10/2024	1/10/2019	101.18808	100.4844498	99.79059971	99.10633059	98.43144475	97.76574993	97.10905909	96.46119026	95.82196633
190110A00004	1/10/2019	3.09	1/10/2025	1/10/2019	104.07904	102.3816729	100.7201657	99.09344697	97.50048673	95.94029587	94.41192409	92.91445796	91.44701912

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190110A00005	1/10/2019	3.2	1/9/2026	1/10/2019	107.92371	105.1902473	102.5404354	99.97117603	97.47950699	95.06259666	92.7177374	90.44233906	88.23392289
190110A00009	1/10/2019	2.97	1/16/2024	1/10/2019	101.21928	100.4993843	99.78972736	99.0900907	98.40026293	97.72003862	97.04921804	96.38760697	95.73501653
190110A00010	1/10/2019	2.97	1/16/2024	1/10/2019	101.21928	100.4993843	99.78972736	99.0900907	98.40026293	97.72003862	97.04921804	96.38760697	95.73501653
190110A00012	1/10/2019	2.97	1/18/2024	1/10/2019	101.22968	100.5043651	99.78944222	99.08468708	98.38988366	97.70482209	97.02929835	96.36311407	95.70607639
190110A00013	1/10/2019	2.97	1/17/2024	1/10/2019	101.22448	100.5018745	99.78958444	99.08738828	98.39507238	97.71242907	97.03925649	96.37535835	95.72054376
190110A00014	1/10/2019	2.97	1/17/2024	1/10/2019	101.22448	100.5018745	99.78958444	99.08738828	98.39507238	97.71242907	97.03925649	96.37535835	95.72054376
190111A00026	1/11/2019	3.48	1/11/2034	1/11/2019	136.53265	124.5046345	113.6836814	103.9407849	95.16140845	87.24379233	80.09746577	73.64193977	67.8055573
190114A00040	1/14/2019	2.89	1/14/2025	1/14/2019	104.18594	102.4697143	100.7900297	99.14578597	97.53592557	95.9594333	94.41533422	92.90269156	91.42060483
190114A00061	1/14/2019	2.98	1/31/2024	1/14/2019	101.30669	100.5461222	99.7969582	99.05894594	98.33183773	97.61539317	96.9093789	96.21356832	95.52774136
190115A00025	1/15/2019	2.96	1/12/2024	1/15/2019	101.19132	100.4822981	99.78320572	99.09383996	98.4139986	97.74348502	97.08210799	96.42968147	95.78602447
190115A00063	1/15/2019	2.96	1/16/2024	1/15/2019	101.21201	100.4921465	99.78251858	99.08291061	98.39311126	97.71291508	97.04212236	96.38053888	95.72797576
190122A00007	1/22/2019	3.03	1/22/2024	1/22/2019	101.29507	100.5587401	99.83310861	99.11794316	98.41301837	97.71811533	97.03302133	96.35752962	95.69143925
190122A00043	1/22/2019	2.96	1/22/2025	1/22/2019	104.38288	102.6434727	100.9414432	99.27564878	97.64499712	96.04844007	94.48497154	92.95362533	91.45347307
190122A00045	1/22/2019	3.17	1/22/2027	1/22/2019	112.76792	108.8812295	105.1511769	101.5705301	98.13243902	94.83041105	91.65828997	88.61023619	85.68070833
190122A00046	1/22/2019	3.29	1/22/2029	1/22/2019	120.52384	114.3611502	108.5579832	103.0913578	97.93988761	93.0836621	88.50413617	84.18402905	80.10723117
190128A00035	1/28/2019	3.04	1/26/2024	1/28/2019	101.32407	100.5768769	99.84068818	99.11526439	98.40037069	97.69577904	97.00126791	96.31662212	95.64163255
190130A00019	1/30/2019	3.01	1/30/2024	1/30/2019	101.32384	100.5658923	99.81926649	99.08371368	98.35898891	97.64485435	96.94107912	96.24743899	95.56371617
190131A00019	1/31/2019	3.44	1/30/2034	1/31/2019	136.22984	124.1639746	113.3145746	103.5510713	94.75759963	86.83127217	79.68066261	73.22447306	67.3903627
190131A00036	1/31/2019	2.69	7/31/2023	1/31/2019	100.42013	100.1600306	99.90128251	99.643875	99.38779761	99.13304002	98.879592	98.62744343	98.37658429
190208A00008	2/8/2019	2.86	2/8/2024	2/8/2019	101.25062	100.4688773	99.69919493	98.94129862	98.19491891	97.45979452	96.73567207	96.02230571	95.31945687
190208A00009	2/8/2019	2.67	2/8/2024	2/8/2019	101.28606	100.5016772	99.7294373	98.96905678	98.22026372	97.48279449	96.7563934	96.0408124	95.33581085
190211A00002	2/11/2019	2.88	2/12/2024	2/11/2019	101.29627	100.5034754	99.72308014	98.95479894	98.19835103	97.45346433	96.71987501	95.99732725	95.28557289
190211A00016	2/11/2019	3.01	2/11/2025	2/11/2019	104.22916	102.4453507	100.700724	98.99412462	97.32444214	95.69060814	94.09159429	92.52641041	90.99410274
190211A00017	2/11/2019	3.12	2/11/2026	2/11/2019	108.03444	105.2104083	102.4751734	99.82541117	97.25794619	94.76974188	92.35789357	90.0196218	87.752266
190212A00017	2/12/2019	2.86	6/30/2023	2/12/2019	100.30132	100.1270031	99.95328868	99.78017727	99.60766577	99.43575108	99.26443011	99.0936998	98.92355712
190213A00023	2/13/2019	2.93	2/13/2024	2/13/2019	101.33413	100.5385815	99.75552043	98.9846532	98.22569631	97.47837502	96.742423	96.017582	95.30360154
190214A00006	2/14/2019	2.67	2/14/2024	2/14/2019	101.3195	100.5187794	99.73071077	98.95499099	98.19133121	97.4394515	96.69908058	95.96995544	95.25182102
190215A00005	2/15/2019	2.89	2/15/2024	2/15/2019	101.31305	100.5122207	99.72404749	98.94822946	98.18447754	97.4325116	96.69206013	95.96285989	95.24465565
190215A00006	2/15/2019	2.89	2/15/2024	2/15/2019	101.31305	100.5122207	99.72404749	98.94822946	98.18447754	97.4325116	96.69206013	95.96285989	95.24465565
190215A00017	2/15/2019	2.89	2/15/2024	2/15/2019	101.31305	100.5122207	99.72404749	98.94822946	98.18447754	97.4325116	96.69206013	95.96285989	95.24465565
190215A00046	2/15/2019	2.7	2/15/2024	2/15/2019	101.34937	100.5458226	99.75501008	98.97662966	98.21038957	97.45600714	96.71320841	95.98172785	95.26130795
190220A00007	2/20/2019	2.87	2/20/2024	2/20/2019	101.32425	100.5099513	99.70872644	98.92026561	98.14426538	97.38043191	96.62848053	95.88813542	95.1591292
190222A00021	2/22/2019	2.95	8/21/2024	2/22/2019	102.65329	101.3469509	100.0654957	98.8082338	97.57450338	96.36366669	95.17510918	94.00823837	92.86248285

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190225A00026	2/25/2019	3.43	2/27/2034	2/25/2019	136.30984	124.1613624	113.2453346	103.4287512	94.59364717	86.63532677	79.46080872	72.98746051	67.14179798
190227A00005	2/27/2019	2.87	2/27/2024	2/27/2019	101.3626	100.5293412	99.70975929	98.90352011	98.11029986	97.32978512	96.56167247	95.80566806	95.06148728
190301A00012	3/1/2019	3.41	3/1/2029	3/1/2019	119.81119	113.6208311	107.7959469	102.3130185	97.15015351	92.28696875	87.70447903	83.38499453	79.31202626
190308A00007	3/8/2019	2.8	3/8/2024	3/8/2019	101.35971	100.4996015	99.65407346	98.82275838	98.00529991	97.20135355	96.41058611	95.63267532	94.86730932
190314A00027	3/22/2019	2.92	3/21/2025	3/22/2019	104.404	102.5120936	100.6639188	98.8582009	97.09371555	95.36928149	93.6837589	92.03604764	90.42508563
190315A00014	3/15/2019	2.74	3/15/2024	3/15/2019	101.34587	100.4670436	99.60343716	98.75466233	97.92033918	97.10010071	96.29359227	95.50047101	94.72040545
190318A00008	3/18/2019	2.76	3/18/2024	3/18/2019	101.38025	100.4932034	99.62166342	98.76522426	97.92349579	97.09610119	96.28267642	95.48286969	94.69634092
190318A00021	3/18/2019	2.76	3/18/2024	3/18/2019	101.38025	100.4932034	99.62166342	98.76522426	97.92349579	97.09610119	96.28267642	95.48286969	94.69634092
190321A00003	3/21/2019	2.67	3/21/2024	3/21/2019	101.31537	100.4205956	99.54160399	98.67797776	97.82931652	96.99523368	96.17535585	95.36932231	94.57678445
190326A00004	3/26/2019	2.58	9/26/2023	3/26/2019	100.54112	100.1257546	99.71381099	99.3052505	98.90003165	98.4981136	98.09945618	97.70401985	97.31176574
190326A00024	3/26/2019	2.59	3/26/2024	3/26/2019	101.26827	100.3603351	99.46864473	98.59276657	97.73228288	96.88679051	96.05590025	95.23923629	94.43643559
190326A00032	3/26/2019	2.4	3/26/2024	3/26/2019	101.31046	100.3992899	99.50446993	98.62556091	97.76214134	96.91380451	96.08015784	95.2608223	94.45543175
190327A00006	3/27/2019	2.53	3/27/2024	3/27/2019	101.21803	100.3076653	99.4136378	98.53550971	97.67285986	96.8252818	95.9923832	95.17378523	94.36912201
190327A00013	3/27/2019	2.53	3/27/2024	3/27/2019	101.21803	100.3076653	99.4136378	98.53550971	97.67285986	96.8252818	95.9923832	95.17378523	94.36912201
190327A00027	3/27/2019	2.66	1/15/2025	3/27/2019	103.3644	101.6604025	99.99262885	98.35998922	96.76143635	95.19596487	93.66260915	92.16044136	90.68856953
190327A00031	3/27/2019	2.53	3/27/2024	3/27/2019	101.21803	100.3076653	99.4136378	98.53550971	97.67285986	96.8252818	95.9923832	95.17378523	94.36912201
190327A00032	3/27/2019	2.53	1/26/2024	3/27/2019	100.93942	100.1938271	99.45922044	98.73536231	98.02201818	97.31896027	96.62596734	95.94282445	95.26932274
190328A00003	3/28/2019	2.64	9/30/2024	3/28/2019	102.51843	101.1094042	99.72661145	98.36938283	97.03707176	95.72905301	94.44472179	93.18349292	91.94480002
190328A00019	3/28/2019	2.56	3/28/2024	3/28/2019	101.25067	100.3374628	99.4406915	98.55991211	97.69469981	96.84464475	96.00935135	95.18843768	94.3815349
190328A00031	4/25/2019	2.56	4/25/2024	4/25/2019	101.41121	100.4219645	99.45197996	98.50069505	97.56757289	96.65209698	95.75377029	94.87211428	94.00666805
190328A00033	4/25/2019	2.56	4/25/2024	4/25/2019	101.41121	100.4219645	99.45197996	98.50069505	97.56757289	96.65209698	95.75377029	94.87211428	94.00666805
190328A00046	3/28/2019	2.7	3/4/2025	3/28/2019	103.84634	102.0092705	100.2136875	98.45841311	96.74231129	95.06428521	93.42327555	91.81825896	90.24824664
190328A00065	3/28/2019	2.56	3/28/2024	3/28/2019	101.25067	100.3374628	99.4406915	98.55991211	97.69469981	96.84464475	96.00935135	95.18843768	94.3815349
190328A00079	3/28/2019	2.37	3/28/2024	3/28/2019	101.29316	100.3766936	99.47676724	98.59293254	97.72476101	96.87183919	96.03376809	95.2101625	94.40065044
190328A00083	3/28/2019	2.37	3/28/2024	3/28/2019	101.29316	100.3766936	99.47676724	98.59293254	97.72476101	96.87183919	96.03376809	95.2101625	94.40065044
190329A00018	3/29/2019	2.6	3/29/2024	3/29/2019	101.29314	100.3770394	99.47747274	98.59399511	97.7261778	96.87360722	96.03588427	95.21262364	94.40345328
190401A00010	4/1/2019	2.62	4/1/2024	4/1/2019	101.32832	100.4039951	99.49649752	98.60537543	97.7301885	96.87051206	96.02593643	95.19606625	94.38051984
190402A00004	4/2/2019	2.9	4/2/2029	4/2/2019	118.66603	112.3529484	106.4206363	100.844108	95.60014202	90.66714796	86.025044	81.65514413	77.54005435
190403A00006	4/3/2019	2.48	4/3/2024	4/3/2019	101.42984	100.4965132	99.58032368	98.68080698	97.79751094	96.92999966	96.07785271	95.2406645	94.41804359
190404A00003	4/4/2019	2.47	4/4/2024	4/4/2019	101.42621	100.4901978	99.57143008	98.66943083	97.78374394	96.91392974	96.05956427	95.22023851	94.39555781
190409A00019	4/9/2019	2.91	4/9/2029	4/9/2019	118.76372	112.428332	106.4761671	100.8820002	95.62239628	90.6755716	86.02126904	81.64064368	77.51615751
190409A00031	4/9/2019	2.64	4/9/2024	4/9/2019	101.39185	100.4457285	99.51724168	98.6058979	97.71122539	96.83276951	95.97009206	95.12277049	94.29039724
190409A00033	4/9/2019	2.62	6/9/2023	4/9/2019	100.18884	100.0725098	99.95646892	99.84071179	99.7252373	99.61004438	99.49513196	99.38049899	99.26614441

	Parallel-Shift Sensitivity Analysis												
4/28/2023					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	101.4352	100.4727634	99.52856688	98.60209414	97.69284933	96.80035494	95.92415099	95.06379418	94.2188572
190422A00030	4/22/2019	2.93	12/22/2025	4/22/2019	107.01817	104.3460199	101.7545599	99.24084402	96.80205652	94.43550356	92.13860703	89.90889867	87.74401452
190424A00007	4/24/2019	2.66	4/24/2024	4/24/2019	101.50567	100.518599	99.55069143	98.60139236	97.67016888	96.75650832	95.8599172	94.9799204	94.11606029
190426A00009	4/26/2019	2.63	4/26/2024	4/26/2019	101.48691	100.4945832	99.52162112	98.56746201	97.63156477	96.71340886	95.81249338	94.92833612	94.06047269
190426A00023	4/26/2019	2.91	6/24/2026	4/26/2019	108.72201	105.5179657	102.4258083	99.4409725	96.55910636	93.77606262	91.08788764	88.49081093	85.98123545
190429A00003	4/29/2019	2.62	10/13/2023	4/29/2019	100.6125	100.1508807	99.69350545	99.24031093	98.79123993	98.34623623	97.90524466	97.468211	97.03508206
190429A00004	4/29/2019	2.65	4/15/2024	4/29/2019	101.4352	100.4727634	99.52856688	98.60209414	97.69284933	96.80035494	95.92415099	95.06379418	94.2188572
190430A00001	4/30/2019	2.47	5/2/2024	4/30/2019	101.58965	100.5773259	99.58513277	98.61247029	97.65876605	96.72346982	95.80605245	94.90600494	94.0228374
190430A00003	4/30/2019	2.43	8/2/2023	4/30/2019	100.35933	100.0938529	99.82978274	99.56711273	99.30583168	99.0459285	98.78739226	98.53021211	98.27437735
190501A00014	5/1/2019	2.62	5/1/2024	5/1/2019	101.49577	100.490128	99.50437009	98.53791476	97.59019911	96.660682	95.74884293	94.8541811	93.97621445
190501A00017	5/1/2019	2.61	5/1/2024	5/1/2019	101.4856	100.4800046	99.49430147	98.5279001	97.58023767	96.65077307	95.73898581	94.8443751	93.96645892
190501A00028	5/1/2019	2.42	5/1/2024	5/1/2019	101.53253	100.5232217	99.53392636	98.56405407	97.61303712	96.68032968	95.76540684	94.8677636	93.98691388
190507A00006	5/7/2019	2.57	5/8/2023	5/7/2019	100.04824	100.020498	99.9927873	99.96510674	99.93745623	99.90983571	99.88224514	99.85468446	99.82715362
190507A00027	5/7/2019	2.59	5/7/2024	5/7/2019	101.5001	100.4783315	99.47709436	98.49577813	97.53379248	96.59057017	95.66556601	94.75825575	93.86813506
190510A00018	5/10/2019	2.54	5/10/2023	5/10/2019	100.05689	100.0236022	99.99035451	99.9571448	99.92397297	99.89083896	99.85774269	99.82468411	99.79166313
190513A00013	5/13/2019	2.52	5/13/2024	5/13/2019	101.46141	100.4237675	99.40730435	98.41138152	97.43538078	96.47870856	95.54079466	94.62109112	93.71907118
190514A00020	5/14/2019	2.66	5/14/2025	5/14/2019	104.36287	102.3247162	100.3367727	98.3974776	96.505328	94.6588782	92.85673731	91.09756666	89.38007747
190514A00021	5/14/2019	2.72	11/14/2025	5/14/2019	106.11076	103.554922	101.0741125	98.66568072	96.32708892	94.05590502	91.84979723	89.70652932	87.62395596
190514A00024	5/14/2019	2.34	5/14/2024	5/14/2019	101.52636	100.4820382	99.45914913	98.45703593	97.47507024	96.5126489	95.5691926	94.64414473	93.7369703
190514A00073	5/14/2019	2.53	5/14/2024	5/14/2019	101.48794	100.4473083	99.42798142	98.4293063	97.45065979	96.49144359	95.55108306	94.62902603	93.72474171
190515A00032	5/15/2019	2.49	5/15/2024	5/15/2019	101.45136	100.408254	99.38655889	98.38561691	97.4048003	96.44350638	95.50115637	94.57719414	93.67108518
190517A00005	5/17/2019	2.31	5/17/2024	5/17/2019	101.51185	100.459535	99.42897689	98.41950864	97.43048772	96.46129749	95.51134587	94.58006417	93.66690592
190520A00007	5/20/2019	2.52	5/20/2024	5/20/2019	101.51128	100.4544406	99.41955837	98.40595725	97.4129857	96.44001853	95.48645561	94.55172058	93.63525973
190520A00048	5/20/2019	2.53	5/20/2024	5/20/2019	101.52198	100.4650804	99.43013789	98.41647742	97.42344737	96.45042254	95.49680275	94.56201164	93.64549547
190521A00043	5/21/2019	2.54	5/22/2023	5/21/2019	100.11378	100.0472416	99.98079778	99.91445187	99.84820362	99.78205282	99.71599924	99.65004269	99.58418296
190522A00003	5/22/2019	2.55	5/22/2024	5/22/2019	101.54425	100.4820181	99.44196031	98.42339102	97.42564929	96.44810105	95.49013774	94.55117503	93.63065165
190522A00019	5/23/2019	2.55	5/15/2024	5/23/2019	101.51474	100.4712778	99.44923012	98.44794058	97.46678128	96.50514945	95.56246618	94.63817525	93.73174203
190523A00014	5/23/2019	2.5	11/15/2023	5/23/2019	100.652	100.1011763	99.55637686	99.01750606	98.48446741	97.95716645	97.43551079	96.91941	96.40877559
190523A00015	5/23/2019	2.51	4/1/2024	5/23/2019	101.22542	100.301607	99.39462216	98.50400629	97.62931922	96.77013642	95.92604836	95.09665977	94.28158912
190523A00017	5/23/2019	2.51	3/15/2024	5/23/2019	101.14144	100.263598	99.40096558	98.55315293	97.71978045	96.90048136	96.09490123	95.30269744	94.52353873
190523A00018	5/23/2019	2.51	3/15/2024	5/23/2019	101.14144	100.263598	99.40096558	98.55315293	97.71978045	96.90048136	96.09490123	95.30269744	94.52353873
190523A00020	5/23/2019	2.5	2/9/2024	5/23/2019	100.97845	100.1951018	99.42388714	98.66452925	97.91675608	97.18030384	96.4549167	95.74034647	95.03635238
190524A00026	5/28/2019	2.45	6/15/2023	5/28/2019	100.18659	100.0537179	99.92121603	99.78907976	99.65730754	99.52589784	99.39484912	99.26415987	99.13382857

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190524A00032	5/24/2019	2.45	5/24/2023	5/24/2019	100.11677	100.044695	99.9727289	99.90087281	99.82912646	99.75748959	99.68596196	99.61454334	99.54323348
190524A00040	5/24/2019	2.47	5/24/2024	5/24/2019	101.46918	100.4020167	99.35724836	98.33417291	97.33212	96.35044662	95.38853574	94.44579503	93.52165561
190528A00005	5/28/2019	2.42	6/15/2023	5/28/2019	100.18259	100.0497271	99.91722981	99.78509813	99.65333048	99.52192533	99.39088115	99.26019643	99.12986966
190528A00006	5/28/2019	2.43	9/15/2023	5/28/2019	100.44388	100.0586683	99.67641888	99.2970967	98.92066811	98.54709998	98.17635969	97.80841514	97.44323468
190528A00007	5/28/2019	2.44	11/15/2023	5/28/2019	100.61864	100.067923	99.52322926	98.98446333	98.45152873	97.92433102	97.40277781	96.88677869	96.37624516
190528A00009	5/28/2019	2.45	5/15/2024	5/28/2019	101.4091	100.3662381	99.34477807	98.3440678	97.36347964	96.402411	95.46028316	94.53654007	93.63064728
190528A00028	5/28/2019	2.42	5/30/2023	5/28/2019	100.13798	100.0492979	99.9607769	99.87241506	99.78421195	99.69616716	99.60828024	99.52055078	99.43297836
190529A00011	5/29/2019	2.36	5/30/2023	5/29/2019	100.13265	100.0439734	99.95545707	99.86709992	99.7789015	99.69086138	99.60297914	99.51525434	99.42768657
190529A00013	5/29/2019	2.38	5/29/2024	5/29/2019	101.39841	100.3182724	99.26107663	98.22610023	97.21264844	96.22005518	95.24768157	94.29491461	93.36116584
190529A00023	5/29/2019	2.38	5/29/2024	5/29/2019	101.39841	100.3182724	99.26107663	98.22610023	97.21264844	96.22005518	95.24768157	94.29491461	93.36116584
190529A00028	5/29/2019	2.38	5/29/2024	5/29/2019	101.39841	100.3182724	99.26107663	98.22610023	97.21264844	96.22005518	95.24768157	94.29491461	93.36116584
190529A00031	5/29/2019	2.36	5/30/2023	5/29/2019	100.13265	100.0439734	99.95545707	99.86709992	99.7789015	99.69086138	99.60297914	99.51525434	99.42768657
190529A00032	5/29/2019	2.38	5/29/2024	5/29/2019	101.39841	100.3182724	99.26107663	98.22610023	97.21264844	96.22005518	95.24768157	94.29491461	93.36116584
190529A00089	5/29/2019	2.38	5/29/2024	5/29/2019	101.39841	100.3182724	99.26107663	98.22610023	97.21264844	96.22005518	95.24768157	94.29491461	93.36116584
190530A00004	5/30/2019	2.24	5/30/2023	5/30/2019	100.13787	100.0490272	99.96035052	99.87183494	99.78348004	99.69528536	99.60725046	99.51937488	99.43165819
190530A00006	5/30/2019	2.25	5/30/2024	5/30/2019	101.52087	100.4334939	99.369336	98.32765509	97.30774496	96.30892868	95.33055714	94.37200759	93.43268237
190530A00008	5/30/2019	2.38	5/30/2025	5/30/2019	104.44413	102.3509418	100.31021	98.3202676	96.37951306	94.48640734	92.63947127	90.83728263	89.07847348
190530A00024	5/30/2019	2.25	5/30/2024	5/30/2019	101.52087	100.4334939	99.369336	98.32765509	97.30774496	96.30892868	95.33055714	94.37200759	93.43268237
190530A00029	5/30/2019	2.25	5/30/2024	5/30/2019	101.52087	100.4334939	99.369336	98.32765509	97.30774496	96.30892868	95.33055714	94.37200759	93.43268237
190530A00034	5/30/2019	2.44	5/30/2024	5/30/2019	101.46984	100.3866047	99.32643074	98.28859225	97.27238903	96.27714992	95.30223122	94.34701539	93.41090965
190530A00045	5/30/2019	2.44	5/30/2024	5/30/2019	101.46984	100.3866047	99.32643074	98.28859225	97.27238903	96.27714992	95.30223122	94.34701539	93.41090965
190531A00037	5/31/2019	2.61	5/31/2029	5/31/2019	117.19621	110.760447	104.7230011	99.05709254	93.73787692	88.74229818	84.04895078	79.63795312	75.49083134
190531A00038	5/31/2019	2.82	5/31/2034	5/31/2019	130.10622	118.0195938	107.1952323	97.4934602	88.79076545	80.97785638	73.95795771	67.64531833	61.9639038
190603A00002	6/3/2019	2.03	6/2/2023	6/3/2019	100.12601	100.0288821	99.93195336	99.8352218	99.73868677	99.64234763	99.54620376	99.45025452	99.3544993
190603A00003	6/3/2019	2.05	6/3/2024	6/3/2019	101.32239	100.2254033	99.15208038	98.1016616	97.0734199	96.06665868	95.08071028	94.11493444	93.16871692
190603A00005	6/3/2019	2.25	6/3/2024	6/3/2019	101.28224	100.1893702	99.12001595	98.07342242	97.04886874	96.0456642	95.0631467	94.10068126	93.15765868
190603A00033	6/3/2019	2.05	6/3/2024	6/3/2019	101.32239	100.2254033	99.15208038	98.1016616	97.0734199	96.06665868	95.08071028	94.11493444	93.16871692
190603A00047	6/3/2019	2.22	6/2/2023	6/3/2019	100.12716	100.0302028	99.93344338	99.83687896	99.74050889	99.64433258	99.54834941	99.45255879	99.35696013
190604A00031	6/4/2019	2.25	6/5/2023	6/4/2019	100.13727	100.0320207	99.92700799	99.82222743	99.71767822	99.61335953	99.5092706	99.40541062	99.30177882
190605A00020	6/5/2019	2.19	2/5/2024	6/5/2019	100.71818	99.94668235	99.18697963	98.43880081	97.70188507	96.97597943	96.26083843	95.55622385	94.86190447
190606A00023	6/6/2019	2.23	6/6/2024	6/6/2019	101.28657	100.1854755	99.10824894	98.05412147	97.02235597	96.01224646	95.02311638	94.05431713	93.1052266
190606A00026	6/6/2019	2.23	6/6/2023	6/6/2019	100.1375	100.0294947	99.92173495	99.81422	99.706949	99.59992109	99.4931354	99.38659109	99.2802873
190606A00027	6/6/2019	2.51	6/5/2026	6/6/2019	107.29354	104.1633276	101.1412242	98.2228762	95.40412942	92.6810219	90.04977378	87.50677769	85.04858977

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190606A00028	6/6/2019	2.74	6/6/2029	6/6/2019	116.30169	109.9395464	103.9705015	98.36815707	93.10802274	88.16736941	83.52509333	79.1615916	75.05864787
190606A00029	6/6/2019	2.96	6/6/2034	6/6/2019	128.44048	116.6092734	106.0088621	96.50341919	87.97280565	80.31068257	73.42286096	67.22585626	61.64562142
190607A00018	6/7/2019	2.19	6/7/2024	6/7/2019	101.24699	100.1434523	99.06389461	98.00754348	96.97365655	95.96152288	94.97046125	93.99981864	93.04896877
190613A00011	6/13/2019	2.26	6/13/2024	6/13/2019	101.35705	100.2367759	99.14119715	98.0695029	97.02091836	95.99470192	94.99014338	94.00656238	93.04330676
190617A00027	6/17/2019	2.21	6/16/2023	6/17/2019	100.15689	100.0212953	99.88608579	99.75125593	99.61680411	99.48272873	99.34902816	99.21570081	99.08274509
190618A00002	6/18/2019	2.11	6/18/2025	6/18/2019	104.02159	101.8819913	99.79695939	97.76472704	95.7835941	93.85192886	91.96816462	90.13079659	88.33837886
190619A00009	6/19/2019	2.26	6/19/2024	6/19/2019	101.38874	100.2522077	99.14107662	98.0545056	96.99168707	95.95184849	94.93425052	93.93818522	92.96297445
190620A00026	6/20/2019	2.09	6/20/2023	6/20/2019	100.14829	100.0016912	99.85552965	99.70980591	99.56451798	99.41966389	99.27524168	99.1312494	98.98768513
190620A00027	6/20/2019	2.14	6/20/2024	6/20/2019	101.24405	100.1058959	98.99324202	97.90524097	96.8410803	95.79998288	94.78120507	93.78403488	92.80779032
190620A00045	6/20/2019	2.14	6/20/2024	6/20/2019	101.24405	100.1058959	98.99324202	97.90524097	96.8410803	95.79998288	94.78120507	93.78403488	92.80779032
190620A00057	6/25/2019	2.09	5/15/2023	6/25/2019	100.05936	100.0122298	99.96516174	99.91815396	99.87120628	99.82431859	99.77749078	99.73072273	99.68401433
190621A00015	6/21/2019	2.2	6/21/2024	6/21/2019	101.32984	100.188306	99.07241266	97.98129913	96.91414689	95.8701732	94.84862905	93.8487974	92.86999151
190625A00012	6/25/2019	2.12	6/25/2024	6/25/2019	101.2568	100.1050165	98.97933951	97.87888698	96.80281853	95.75033071	94.720655	93.71305597	92.72682948
190625A00021	6/25/2019	1.88	6/26/2023	6/25/2019	100.15588	99.99242795	99.82951592	99.66713789	99.50529124	99.34397336	99.18318164	99.0229135	98.8631664
190625A00023	6/25/2019	2.47	6/25/2027	6/25/2019	110.46985	106.2230307	102.1641352	98.28381496	94.57323953	91.024066	87.62840892	84.37881242	81.26822431
190625A00024	6/25/2019	2.26	6/25/2025	6/25/2019	103.85417	101.7083893	99.6174996	97.57971031	95.59330416	93.65663337	91.76811623	89.92623382	88.12952704
190626A00004	6/26/2019	2.15	6/26/2024	6/26/2019	101.29684	100.1421404	99.01366354	97.91052824	96.83188836	95.77693512	94.74489496	93.73502768	92.74662467
190626A00010	6/26/2019	2.1	6/26/2023	6/26/2019	100.16151	99.99837586	99.83576915	99.67369192	99.5121416	99.35111565	99.19061155	99.03062677	98.87115882
190626A00015	6/26/2019	2.15	6/26/2024	6/26/2019	101.29684	100.1421404	99.01366354	97.91052824	96.83188836	95.77693512	94.74489496	93.73502768	92.74662467
190627A00009	6/27/2019	1.93	6/27/2023	6/27/2019	100.16605	99.99983434	99.83416713	99.66904986	99.50447979	99.34045421	99.1769704	99.0140257	98.85161744
190627A00010	6/27/2019	1.97	6/27/2024	6/27/2019	101.35623	100.1944602	99.05919694	97.94954525	96.86464643	95.80367976	94.76586043	93.75043763	92.75669266
190628A00004	6/28/2019	2.12	6/28/2023	6/28/2019	100.16882	100.0001649	99.83207629	99.66454892	99.49758002	99.33116684	99.16530664	98.9999967	98.83523433
190701A00008	7/3/2019	2.1	7/3/2023	7/3/2019	100.17312	99.99072286	99.80899848	99.62793972	99.44754289	99.26780435	99.08872049	98.91028771	98.73250245
190701A00009	7/3/2019	2.14	7/2/2024	7/3/2019	101.31541	100.1445203	99.0005986	97.88271744	96.78999545	95.72159065	94.67669827	93.65454871	92.65440561
190701A00023	7/1/2019	1.95	7/1/2024	7/1/2019	101.35342	100.1808971	99.03537932	97.915942	96.8217026	95.75181805	94.70548247	93.68192522	92.68040893
190702A00002	7/2/2019	2.16	7/2/2024	7/2/2019	101.33917	100.1681323	99.02406368	97.90603791	96.81317357	95.74462863	94.69959827	93.67731281	92.67703586
190703A00017	7/3/2019	2.33	5/4/2026	7/3/2019	106.47378	103.4444405	100.5176193	97.68927788	94.95556069	92.31278578	89.75743591	87.28615019	84.89571612
190708A00011	7/8/2019	2.2	7/8/2024	7/8/2019	101.41823	100.2306264	99.07074148	97.93761664	96.8303338	95.74801647	94.68982741	93.65496646	92.64266848
190709A00018	7/9/2019	2.24	7/9/2024	7/9/2019	101.47178	100.2811544	99.11838019	97.98249006	96.87255973	95.78770682	94.72708855	93.68989953	92.67536972
190710A00012	7/10/2019	2.18	7/10/2023	7/10/2019	100.20206	100.0003854	99.7995371	99.59950706	99.40029023	99.20188161	99.00427622	98.80746914	98.61145548
190710A00022	7/10/2019	2.22	7/10/2024	7/10/2019	101.45295	100.2597629	99.09455366	97.95634542	96.84420778	95.75725265	94.69463187	93.65553502	92.63918729
190711A00019	7/11/2019	2.19	7/11/2023	7/11/2019	100.2059	100.0014751	99.79789945	99.59516439	99.39326468	99.19219512	98.99195052	98.79252577	98.59391578
190711A00022	7/11/2019	2	7/11/2023	7/11/2019	100.20305	99.9982508	99.7943029	99.59120148	99.3889412	99.18751673	98.98692283	98.78715427	98.58820587

	Parallel-Shift Sensitivity Analysis												
4/28/2023					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	101.53253	100.3292564	99.15438563	98.00692428	96.88592184	95.79047125	94.71970649	93.67280033	92.64896209
190712A00009	7/12/2019	2.19	7/12/2023	7/12/2019	100.20771	100.0005438	99.79424416	99.58880764	99.38422875	99.18050206	98.97762221	98.77558386	98.57438173
190712A00018	7/12/2019	2.25	7/12/2024	7/12/2019	101.48806	100.28948	99.11911935	97.97599424	96.85916214	95.76772361	94.70081985	93.65763038	92.63737097
190715A00010	7/15/2019	2.23	7/15/2024	7/15/2019	101.49175	100.2849219	99.10670574	97.95609032	96.83211423	95.73386029	94.66045302	93.61105624	92.58487096
190717A00008	7/17/2019	2.22	7/17/2024	7/17/2019	101.47802	100.2661179	99.08306543	97.92784418	96.79948071	95.69704651	94.61965546	93.56646139	92.53665591
190719A00006	7/19/2019	2.17	7/19/2024	7/19/2019	101.42686	100.2099365	99.0221124	97.86235367	96.72967451	95.62313484	94.54183767	93.48492662	92.45158366
190724A00021	7/24/2019	2.33	7/23/2027	7/24/2019	111.23275	106.8592514	102.6830078	98.69401311	94.88283047	91.24055484	87.7587797	84.42956592	81.24541285
190724A00023	7/24/2019	2.13	7/24/2025	7/24/2019	104.35259	102.1106217	99.92782625	97.80220479	95.73184327	93.71490849	91.74964387	89.83436548	87.96745837
190724A00024	7/24/2019	2.49	7/24/2029	7/24/2019	116.68675	110.115283	103.9594239	98.19063741	92.78249952	87.7105297	82.95203736	78.48598139	74.29284151
190724A00025	7/24/2019	1.96	7/24/2023	7/24/2019	100.21658	99.97603887	99.73665857	99.4984298	99.26134424	99.02539364	98.79056982	98.5568647	98.32427026
190726A00014	7/26/2019	2.23	7/24/2024	7/26/2019	101.5275	100.2965376	99.09532407	97.92278743	96.77791016	95.65972239	94.56729914	93.49975773	92.4562554
190726A00017	7/26/2019	2.44	7/24/2026	7/26/2019	107.48473	104.2173961	101.06682	98.02811778	95.09664644	92.26798715	89.53793299	86.90247705	84.35780154
190729A00007	7/29/2019	2.17	7/28/2023	7/29/2019	100.23174	99.98067174	99.7308596	99.48228999	99.2349537	98.98884162	98.74394473	98.5002541	98.25776087
190729A00008	7/29/2019	2.18	1/29/2024	7/29/2019	100.68511	99.93253214	99.19116832	98.46077049	97.74109682	97.03191256	96.33298976	95.64410701	94.96504927
190730A00007	7/30/2019	2.19	7/30/2024	7/30/2019	101.51069	100.2644007	99.04790409	97.86013681	96.70008723	95.56679076	94.4593272	93.37681819	92.31842484
190730A00016	7/30/2019	2	7/30/2024	7/30/2019	101.56993	100.3185937	99.09724181	97.90480649	96.74026731	95.60265145	94.49103092	93.40452001	92.34227292
190731A00004	7/31/2019	2.18	7/31/2024	7/31/2019	101.50417	100.255557	99.03650149	97.84596067	96.68293848	95.54648495	94.43569349	93.34969847	92.28767289
190801A00010	8/1/2019	1.97	8/1/2023	8/1/2019	100.23466	99.97214259	99.71100274	99.45123207	99.1928198	98.93575521	98.68002774	98.42562692	98.17254238
190802A00003	8/2/2019	2.01	8/2/2024	8/2/2019	101.30002	100.0480334	98.82512081	97.6302729	96.46252567	95.32095906	94.2046944	93.11289214	92.04474967
190802A00032	8/2/2019	2.01	8/2/2024	8/2/2019	101.30002	100.0480334	98.82512081	97.6302729	96.46252567	95.32095906	94.2046944	93.11289214	92.04474967
190805A00008	8/5/2019	1.88	8/4/2023	8/5/2019	100.169	99.89889317	99.6302515	99.36306028	99.09730774	98.83298222	98.57007221	98.3085663	98.04845321
190805A00009	8/5/2019	1.91	8/5/2024	8/5/2019	101.18889	99.93055222	98.7005845	97.49802914	96.32196988	95.17153121	94.04587612	92.94420397	91.86574857
190805A00011	8/5/2019	1.91	8/5/2024	8/5/2019	101.18889	99.93055222	98.7005845	97.49802914	96.32196988	95.17153121	94.04587612	92.94420397	91.86574857
190805A00031	8/5/2020	1.77	8/4/2023	8/5/2020	100.13912	99.8690647	99.60047644	99.33333841	99.06763883	98.80336605	98.54050857	98.27905497	98.01899398
190805A00049	8/5/2019	1.88	8/4/2023	8/5/2019	100.169	99.89889317	99.6302515	99.36306028	99.09730774	98.83298222	98.57007221	98.3085663	98.04845321
190805A00050	8/5/2019	1.91	8/5/2024	8/5/2019	101.18889	99.93055222	98.7005845	97.49802914	96.32196988	95.17153121	94.04587612	92.94420397	91.86574857
190806A00026	8/6/2019	1.71	8/7/2023	8/6/2019	100.17515	99.89629845	99.61900833	99.34326935	99.06906841	98.79639253	98.52522891	98.25556487	97.98738789
190806A00027	8/6/2019	1.71	8/7/2023	8/6/2019	100.17515	99.89629845	99.61900833	99.34326935	99.06906841	98.79639253	98.52522891	98.25556487	97.98738789
190807A00005	8/7/2019	1.77	8/7/2024	8/7/2019	101.01953	99.75760746	98.52357691	97.31651402	96.13553486	94.97979413	93.84848305	92.74082742	91.65608575
190807A00014	8/7/2019	1.75	8/7/2023	8/7/2019	100.13707	99.85882874	99.58213807	99.306989	99.03336861	98.76126411	98.49066285	98.22155233	97.95392018
190807A00020	8/7/2019	1.57	2/7/2024	8/7/2019	100.41371	99.6358161	98.86993343	98.11578877	97.37311374	96.64164808	95.92113936	95.21134271	94.51202049
190807A00021	8/7/2019	2	8/7/2026	8/7/2019	106.15114	102.8677977	99.70319264	96.65234684	93.71052559	90.87322113	88.13614009	85.49519186	82.94647764
190807A00036	8/7/2019	1.75	8/7/2023	8/7/2019	100.13707	99.85882874	99.58213807	99.306989	99.03336861	98.76126411	98.49066285	98.22155233	97.95392018

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190808A00009	8/8/2019	1.89	8/8/2024	8/8/2019	101.17927	99.91390607	98.67621849	97.46530371	96.28029325	95.12035626	93.98469745	92.87255521	91.78319984
190808A00023	8/8/2019	1.68	11/8/2023	8/8/2019	100.31424	99.7818246	99.25506309	98.73386117	98.218131	97.70778656	97.20274366	96.70291984	96.20823434
190808A00024	8/8/2019	1.69	2/8/2024	8/8/2019	100.51114	99.73013622	98.96123092	98.2041488	97.45861859	96.7243773	96.00116987	95.28874886	94.58687421
190808A00025	8/8/2019	1.7	8/8/2024	8/8/2019	101.23913	99.96859345	98.72592555	97.51020974	96.32056981	95.15616758	94.01620088	92.89990156	91.80653372
190808A00050	8/8/2019	1.7	8/8/2024	8/8/2019	101.23913	99.96859345	98.72592555	97.51020974	96.32056981	95.15616758	94.01620088	92.89990156	91.80653372
190808A00052	8/8/2019	1.7	8/8/2024	8/8/2019	101.23913	99.96859345	98.72592555	97.51020974	96.32056981	95.15616758	94.01620088	92.89990156	91.80653372
190809A00008	8/9/2019	1.87	8/3/2023	8/9/2019	100.16482	99.89745575	99.63152493	99.36701435	99.10391261	98.84220843	98.58189066	98.32294826	98.06537031
190809A00010	8/9/2019	1.88	8/8/2024	8/9/2019	101.16638	99.90109874	98.66349712	97.45266687	96.26773954	95.10788431	93.97230594	92.86024286	91.77096539
190809A00011	8/9/2019	1.69	8/9/2024	8/9/2019	101.23166	99.95879446	98.71356849	97.49508042	96.30247017	95.13491466	93.99162581	92.87184866	91.77485968
190809A00012	8/9/2019	1.69	8/9/2024	8/9/2019	101.23166	99.95879446	98.71356849	97.49508042	96.30247017	95.13491466	93.99162581	92.87184866	91.77485968
190809A00020	8/9/2019	2.44	8/9/2034	8/9/2019	126.11221	114.0506978	103.2746058	93.63922067	85.0168459	77.2947184	70.37319304	64.16415578	58.58963593
190809A00021	8/9/2019	2.12	8/9/2029	8/9/2019	114.38696	107.8427879	101.7163975	95.978927	90.60365889	85.56584642	80.84255828	76.41253607	72.25606389
190809A00022	8/9/2019	1.88	8/9/2024	8/9/2019	101.17169	99.90400715	98.66377639	97.4501051	96.26214083	95.0990677	93.96010444	92.84450253	91.75154453
190812A00003	8/12/2019	1.67	8/12/2024	8/12/2019	101.22194	99.94200824	98.68902554	97.46214061	96.26054202	95.08345213	93.93012541	92.79984671	91.69192972
190812A00006	8/12/2019	1.86	8/12/2024	8/12/2019	101.16161	99.88690149	98.63895922	97.4169389	96.22003636	95.04748087	93.89853338	92.77248491	91.66865499
190813A00008	8/13/2019	1.88	8/13/2024	8/13/2019	101.19292	99.91564135	98.66489596	97.43986426	96.23975817	95.06382197	93.91133069	92.78158849	91.67392722
190813A00016	8/13/2019	1.88	8/13/2024	8/13/2019	101.19292	99.91564135	98.66489596	97.43986426	96.23975817	95.06382197	93.91133069	92.78158849	91.67392722
190814A00003	8/14/2019	2.01	8/14/2029	8/14/2019	113.69703	107.1608284	101.0431013	95.31489737	89.94940952	84.92180897	80.20908948	75.78992445	71.64453603
190814A00005	8/14/2019	1.65	8/14/2024	8/14/2019	101.20655	99.92197606	98.66388435	97.43146353	96.2239348	95.0405511	93.88059545	92.74337948	91.62824194
190814A00006	8/14/2019	1.84	8/14/2023	8/14/2019	100.17193	99.87449995	99.57884386	99.2849479	98.9927963	98.70237349	98.41366406	98.12665281	97.84132469
190814A00008	8/14/2019	1.84	8/14/2024	8/14/2019	101.14599	99.86667104	98.61364981	97.38612539	96.18332603	95.00451132	93.84897061	92.71602148	91.60500836
190814A00009	8/14/2019	1.84	8/14/2024	8/14/2019	101.14599	99.86667104	98.61364981	97.38612539	96.18332603	95.00451132	93.84897061	92.71602148	91.60500836
190814A00015	8/14/2019	1.84	8/14/2024	8/14/2019	101.14599	99.86667104	98.61364981	97.38612539	96.18332603	95.00451132	93.84897061	92.71602148	91.60500836
190815A00007	8/15/2019	1.81	7/6/2023	8/15/2019	100.1241	99.93351856	99.74367164	99.55455477	99.3661637	99.17849422	98.99154213	98.80530331	98.61977361
190815A00040	8/15/2019	1.86	8/15/2023	8/15/2019	100.17935	99.8791774	99.58080851	99.28423158	98.98943039	98.69638897	98.4050915	98.11552237	97.82766616
190816A00006	8/16/2019	1.77	8/16/2024	8/16/2019	101.06459	99.78110482	98.52345219	97.29086447	96.08260267	94.89795709	93.73624581	92.59681335	91.47902935
190816A00007	8/16/2019	1.77	8/16/2023	8/16/2019	100.15335	99.85049844	99.54948242	99.25028999	98.95290455	98.65730969	98.36348919	98.07142703	97.7811074
190816A00011	8/16/2019	1.77	8/16/2024	8/16/2019	101.06459	99.78110482	98.52345219	97.29086447	96.08260267	94.89795709	93.73624581	92.59681335	91.47902935
190816A00020	8/16/2019	1.79	8/16/2024	8/16/2019	101.09082	99.8071526	98.54932239	97.31656005	96.10812654	94.92331206	93.76143462	92.62183866	91.50389376
190816A00021	8/16/2019	1.77	8/16/2023	8/16/2019	100.15335	99.85049844	99.54948242	99.25028999	98.95290455	98.65730969	98.36348919	98.07142703	97.7811074
190816A00022	8/16/2019	1.77	8/16/2024	8/16/2019	101.06459	99.78110482	98.52345219	97.29086447	96.08260267	94.89795709	93.73624581	92.59681335	91.47902935
190816A00031	8/16/2019	1.77	8/16/2024	8/16/2019	101.06459	99.78110482	98.52345219	97.29086447	96.08260267	94.89795709	93.73624581	92.59681335	91.47902935
190816A00033	8/16/2019	1.77	8/16/2024	8/16/2019	101.06459	99.78110482	98.52345219	97.29086447	96.08260267	94.89795709	93.73624581	92.59681335	91.47902935

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190816A00035	8/16/2019	1.77	8/16/2023	8/16/2019	100.15335	99.85049844	99.54948242	99.25028999	98.95290455	98.65730969	98.36348919	98.07142703	97.7811074
190816A00036	8/16/2019	1.77	8/16/2024	8/16/2019	101.06459	99.78110482	98.52345219	97.29086447	96.08260267	94.89795709	93.73624581	92.59681335	91.47902935
190819A00004	8/20/2019	1.81	5/24/2024	8/20/2019	100.75572	99.69266736	98.65194795	97.63286279	96.63474292	95.6569467	94.69885843	93.75988706	92.83946494
190819A00005	8/19/2019	1.62	8/21/2023	8/19/2019	100.16744	99.85028683	99.53514845	99.2220066	98.91084226	98.60163666	98.29437126	97.98902777	97.68558812
190819A00026	8/19/2019	1.62	8/19/2024	8/19/2019	101.19356	99.89719874	98.62616925	97.37974935	96.15724251	94.95797866	93.78131298	92.62662463	91.49331569
190819A00030	8/19/2019	2.01	8/20/2029	8/19/2019	113.71341	107.1605159	101.0281483	95.28716314	89.9105832	84.87342267	80.15253047	75.72644666	71.57527071
190820A00008	8/20/2019	1.76	8/20/2024	8/20/2019	101.0714	99.77841737	98.51036128	97.26652756	96.04624275	94.84885852	93.67375044	92.52031688	91.38797799
190820A00013	8/20/2019	1.76	8/21/2023	8/20/2019	100.15611	99.83959997	99.52509686	99.21257891	98.90202734	98.5934236	98.28674936	97.98198654	97.67911727
190820A00019	8/20/2019	1.76	8/21/2023	8/20/2019	100.15611	99.83959997	99.52509686	99.21257891	98.90202734	98.5934236	98.28674936	97.98198654	97.67911727
190820A00020	8/20/2019	1.76	8/20/2024	8/20/2019	101.0714	99.77841737	98.51036128	97.26652756	96.04624275	94.84885852	93.67375044	92.52031688	91.38797799
190820A00021	8/20/2019	2.13	8/20/2029	8/20/2019	112.7289	106.2730081	100.2298087	94.57080026	89.26959149	84.30173281	79.64456411	75.27707509	71.1797773
190820A00029	8/20/2019	1.76	8/20/2024	8/20/2019	101.0714	99.77841737	98.51036128	97.26652756	96.04624275	94.84885852	93.67375044	92.52031688	91.38797799
190820A00038	8/20/2019	1.76	8/20/2024	8/20/2019	101.0714	99.77841737	98.51036128	97.26652756	96.04624275	94.84885852	93.67375044	92.52031688	91.38797799
190821A00017	8/21/2019	1.8	8/21/2024	8/21/2019	101.12938	99.83363857	98.56259766	97.31557539	96.09191459	94.89098222	93.71216814	92.55488415	91.41856296
190821A00028	8/21/2019	1.8	8/21/2023	8/21/2019	100.16885	99.85232112	99.53779232	99.2252488	98.91467178	98.6060427	98.29934326	97.99455534	97.6916611
190821A00030	8/21/2019	1.8	8/21/2024	8/21/2019	101.12938	99.83363857	98.56259766	97.31557538	96.09191459	94.89098222	93.71216814	92.55488415	91.41856296
190823A00005	8/23/2019	1.62	8/23/2024	8/23/2019	101.21457	99.9085552	98.62696602	97.36914415	96.1344595	94.92230427	93.73209199	92.56325653	91.41525124
190826A00018	8/26/2019	1.9	8/27/2029	8/26/2019	113.0234	106.4732718	100.3450297	94.60937948	89.23919736	84.20936305	79.49660226	75.0793424	70.93758026
190826A00029	8/26/2019	1.53	8/26/2024	8/26/2019	101.10962	99.79722349	98.50855086	97.24300163	95.99999635	94.77897473	93.57939484	92.40073237	91.24247988
190826A00030	8/26/2019	1.72	8/26/2026	8/26/2019	106.2042	102.8479293	99.61519104	96.5008034	93.49982987	90.60756594	87.81952692	85.13143648	82.53921578
190826A00056	8/26/2019	1.72	8/26/2024	8/26/2019	101.04772	99.74074536	98.45732598	97.19686655	95.95879324	94.74255107	93.54760318	92.37343007	91.2195289
190826A00057	8/26/2019	1.87	8/26/2025	8/26/2019	103.41006	101.1026718	98.85811432	96.67432886	94.54933994	92.48124786	90.46822539	88.50851445	86.60042316
190826A00058	8/26/2019	1.91	8/26/2026	8/26/2019	105.98304	102.6518514	99.44282874	96.35086504	93.37109395	90.498877	87.72979167	85.05962022	82.48433904
190826A00060	8/26/2019	2.02	8/26/2027	8/26/2019	109.01911	104.6326649	100.4476423	96.45377675	92.64137708	89.00129187	85.52487668	82.20396342	79.03083168
190826A00063	8/26/2019	2.05	8/28/2028	8/26/2019	111.20931	105.7656803	100.6219822	95.76017896	91.16340995	86.81590442	82.70290578	78.8106015	75.1260583
190826A00065	8/26/2019	2.09	8/28/2029	8/26/2019	112.49172	106.0221583	99.9675866	94.299283	88.99065332	84.01706084	79.35567311	74.98532146	70.88637203
190827A00001	8/27/2019	1.74	8/27/2024	8/27/2019	101.07942	99.76986498	98.48364023	97.22016979	95.97889643	94.7592808	93.56080065	92.3829502	91.22523951
190827A00002	8/27/2019	1.74	8/27/2024	8/27/2019	101.07942	99.76986498	98.48364023	97.22016979	95.97889643	94.7592808	93.56080065	92.3829502	91.22523951
190828A00009	8/28/2019	1.71	8/28/2024	8/28/2019	101.04401	99.7323493	98.44378312	97.17775797	95.93373353	94.71118626	93.5096088	92.32850933	91.16741099
190828A00015	8/28/2019	2.04	8/28/2029	8/28/2019	112.17195	105.7123544	99.66729427	94.00807104	88.70811411	83.74280889	79.08934368	74.72656928	70.63487014
190828A00019	8/28/2019	2	3/28/2028	8/28/2019	110.22886	105.2264832	100.4809718	95.97783064	91.70345619	87.64507576	83.79069278	80.12903576	76.64951092
190828A00020	8/28/2019	1.95	5/28/2027	8/28/2019	108.05642	103.9362294	99.99618253	96.22743675	92.62163644	89.17087967	85.86769095	82.7049957	79.67609654
190828A00031	8/28/2019	1.71	8/28/2024	8/28/2019	101.04401	99.7323493	98.44378312	97.17775797	95.93373353	94.71118626	93.5096088	92.32850933	91.16741099

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190829A00005	8/30/2019	2.06	8/30/2023	8/30/2019	100.26992	99.92863713	99.5896679	99.25299349	98.91859068	98.58643654	98.25650848	97.92878419	97.60324167
190829A00028	8/29/2019	1.78	8/29/2024	8/29/2019	101.14252	99.82754266	98.53576576	97.26662497	96.01957673	94.7940944	93.58966765	92.4058018	91.24201728
190829A00029	8/29/2019	1.75	7/14/2023	8/29/2019	100.1153	99.90281033	99.69123177	99.48056088	99.27079176	99.06191858	98.85393555	98.64683695	98.44061707
190829A00031	8/29/2019	1.54	8/29/2024	8/29/2019	101.13748	99.81751638	98.52090607	97.24708638	95.99550858	94.76564111	93.55696896	92.36899301	91.20122943
190829A00045	8/29/2019	1.9	8/28/2026	8/29/2019	105.96303	102.6268527	99.41320325	96.31696132	93.3332464	90.45740598	87.68500375	85.01180831	82.43378274
190829A00050	8/29/2019	1.73	8/29/2024	8/29/2019	101.07516	99.76066382	98.46935395	97.20067233	95.95407562	94.7290374	93.52504751	92.34161149	91.17824993
190830A00002	8/30/2019	1.93	8/28/2026	8/30/2019	106.06364	102.7257742	99.51048689	96.41265111	93.42738489	90.55003425	87.77616144	85.10153373	82.52211288
190830A00010	9/3/2019	1.75	9/1/2023	9/3/2019	100.16599	99.81947713	99.4753614	99.13361626	98.79421726	98.4571403	98.12236158	97.78985765	97.45960536
190830A00012	8/30/2019	1.76	8/30/2024	8/30/2019	101.11992	99.80248968	98.50834121	97.23690994	95.98764945	94.76003038	93.55353977	92.36768043	91.20197038
190830A00020	8/31/2020	1.67	8/31/2023	8/31/2020	100.137	99.79327249	99.45190226	99.1128638	98.77613327	98.44168717	98.10950232	97.77955584	97.45182517
190830A00021	8/30/2019	1.76	8/30/2024	8/30/2019	101.11992	99.80248968	98.50834121	97.23690994	95.98764945	94.76003038	93.55353977	92.36768043	91.20197038
190904A00001	9/4/2019	1.5	9/4/2024	9/4/2019	101.10921	99.77366804	98.46201022	97.1736478	95.90801429	94.66456113	93.442757	92.24208716	91.06205279
190904A00019	9/4/2019	1.69	9/4/2024	9/4/2019	101.04619	99.71621694	98.40994892	97.12680981	95.86623868	94.62769228	93.41064434	92.21458492	91.03901978
190904A00020	9/4/2019	1.69	9/1/2023	9/4/2019	100.14504	99.79857739	99.45450683	99.11280664	98.77345236	98.43641988	98.10168542	97.76922552	97.43901704
190906A00005	9/6/2019	1.77	9/6/2023	9/6/2019	100.17967	99.81951684	99.46196013	99.10696883	98.75451532	98.40457238	98.05711318	97.71211126	97.36954054
190906A00012	9/6/2019	1.76	9/6/2024	9/6/2019	101.15033	99.81438122	98.50232958	97.21358822	95.94758991	94.70378537	93.48164257	92.28064604	91.10029622
190909A00025	9/9/2019	1.88	9/9/2024	9/9/2019	101.32863	99.98355801	98.6626667	97.36536147	96.09106553	94.83922045	93.60928541	92.40073652	91.21306616
190910A00004	9/11/2019	1.86	9/11/2024	9/11/2019	101.31032	99.96015153	98.63433612	97.33227497	96.05338533	94.79710305	93.56288184	92.35019255	91.15852255
190910A00017	9/16/2019	1.86	9/16/2024	9/16/2019	101.33342	99.97000335	98.63139409	97.31696998	96.02613301	94.75830438	93.51292378	92.28944865	91.08735348
190910A00030	9/10/2019	1.86	9/10/2024	9/10/2019	101.3057	99.95818148	98.63492554	97.33533806	96.05883932	94.80486808	93.57288082	92.36235108	91.17276876
190913A00014	9/13/2019	2.08	9/13/2024	9/13/2019	101.62497	100.267283	98.93417054	97.62502116	96.33924498	95.07627106	93.83554658	92.61653617	91.41872119
190917A00035	9/19/2019	2.02	10/16/2023	9/19/2019	100.33501	99.86608963	99.40155091	98.94133303	98.48537582	98.03362021	97.58600825	97.14248303	96.70298868
190919A00007	9/19/2019	2.04	9/19/2024	9/19/2019	101.60011	100.2269017	98.87879584	97.55516603	96.25540417	94.97892179	93.72514932	92.4935353	91.2835457
190919A00025	9/19/2019	1.8	9/19/2024	9/19/2019	101.59559	100.217073	98.86383716	97.53524641	96.23068678	94.94956424	93.69130395	92.45534941	91.2411618
190923A00012	9/23/2019	2.43	9/25/2034	9/23/2019	126.17495	113.984738	103.1068155	93.39203647	84.70894246	76.94158281	69.98761488	63.75664516	58.16877983
190923A00017	9/23/2019	1.74	9/23/2024	9/23/2019	101.53093	100.1423719	98.77944449	97.44150345	96.12792246	94.83809574	93.57143712	92.32737933	91.10537319
190923A00020	9/23/2019	2.05	9/24/2029	9/23/2019	114.07231	107.4134486	101.1875932	95.36437615	89.91570505	84.81558295	80.03994227	75.56649244	71.37458029
190923A00078	9/23/2019	1.96	6/28/2024	9/23/2019	101.08316	99.92443542	98.79215776	97.68542781	96.60338887	95.54522212	94.51014461	93.49740726	92.50629308
190923A00081	9/23/2019	1.96	9/20/2024	9/23/2019	101.49263	100.1175938	98.76773706	97.4424297	96.14106084	94.8630394	93.60779332	92.37476873	91.16342933
190924A00035	9/24/2019	1.88	9/13/2024	9/24/2019	101.34732	99.99165477	98.66052305	97.35332091	96.06945943	94.80836854	93.56949628	92.35230806	91.15628605
190925A00004	9/25/2019	1.7	9/24/2024	9/25/2019	101.47904	100.0882345	98.72314661	97.38312626	96.06754416	94.77579167	93.50727991	92.26143899	91.03771722
190925A00011	9/25/2019	1.89	9/25/2024	9/25/2019	101.41762	100.0300609	98.66812686	97.33116676	96.01855447	94.72968428	93.46397008	92.22084459	90.99975862
190925A00019	9/27/2019	1.93	9/27/2023	9/27/2019	100.27109	99.85367916	99.43973496	99.02921197	98.62206796	98.21826141	97.81775148	97.42049797	97.02646136

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190926A00015	9/26/2019	2.32	11/26/2030	9/26/2019	115.78219	107.9819933	100.7671796	94.09069013	87.90948447	82.18417492	76.87869907	71.96002314	67.39787313
190926A00016	9/26/2019	2.28	5/24/2030	9/26/2019	114.65356	107.3889372	100.6375043	94.36029695	88.5215047	83.08819803	78.03008261	73.3192756	68.93010209
190926A00017	9/26/2019	2.23	9/26/2029	9/26/2019	113.46512	106.8882578	100.7375042	94.98306304	89.59736455	84.55488993	79.83200908	75.40683185	71.25907183
190927A00012	10/1/2019	1.96	10/1/2024	10/1/2019	101.54822	100.1437496	98.76548516	97.41275919	96.08492481	94.78135646	93.50144911	92.24461732	91.01029453
190927A00036	9/27/2019	1.94	9/6/2024	9/27/2019	101.39675	100.0590392	98.74525219	97.45480471	96.18712872	94.9416742	93.71790834	92.51531498	91.33339388
190930A00008	9/30/2019	1.9	10/10/2023	9/30/2019	100.27251	99.81995549	99.37148422	98.92704248	98.48657605	98.05003166	97.61735702	97.18850073	96.76341233
190930A00012	9/30/2019	1.93	9/30/2024	9/30/2019	101.49969	100.098286	98.72298002	97.37311086	96.04803537	94.74713164	93.46979808	92.21545258	90.98353175
190930A00035	9/30/2019	1.93	9/30/2024	9/30/2019	101.49969	100.098286	98.72298002	97.37311086	96.04803537	94.74713164	93.46979808	92.21545258	90.98353175
190930A00069	9/30/2019	1.9	9/29/2023	9/30/2019	100.26191	99.83909324	99.41983453	99.00408576	98.59180303	98.1829432	97.77746385	97.37532322	96.97648028
190930A00070	9/30/2019	1.93	9/27/2024	9/30/2019	101.48408	100.0908066	98.72334143	97.3810329	96.06324832	94.76937574	93.49882311	92.25101744	91.02540407
190930A00071	9/30/2019	2.05	9/29/2025	9/30/2019	104.06562	101.6604537	99.32303788	97.05108577	94.84240466	92.69488825	90.60651278	88.5753332	86.59947969
190930A00075	9/30/2019	2.19	9/29/2027	9/30/2019	109.95589	105.4585866	101.17153	97.08381246	93.18515053	89.46584336	85.91673654	82.52918862	79.2950397
190930A00077	9/30/2019	2.23	9/28/2029	9/30/2019	113.47051	106.8881764	100.7326379	94.97402423	89.5847022	84.53909591	79.81352375	75.38604921	71.23634405
191001A00023	10/1/2019	1.85	9/27/2024	10/1/2019	101.36995	99.97752645	98.61089554	97.26940707	95.95242876	94.65934904	93.3895762	92.14253761	90.91767892
191002A00006	10/2/2019	1.84	10/2/2024	10/2/2019	101.38087	99.97494828	98.59531679	97.24129853	95.91224354	94.60752335	93.3265301	92.06867573	90.83339112
191002A00016	10/2/2019	1.79	10/2/2023	10/2/2019	100.21518	99.78440114	99.35731845	98.93388455	98.51405281	98.09777741	97.68501331	97.27571622	96.86984259
191002A00017	10/2/2019	1.84	10/2/2024	10/2/2019	101.38087	99.97494828	98.59531679	97.24129853	95.91224354	94.60752335	93.3265301	92.06867573	90.83339112
191003A00014	10/3/2019	1.71	9/20/2024	10/3/2019	101.14078	99.76832599	98.42101072	97.09820177	95.79928945	94.52368382	93.27081387	92.0401268	90.8310873
191003A00019	10/3/2019	1.71	9/27/2024	10/3/2019	101.17023	99.77928622	98.41411522	97.07406186	95.75849453	94.46680231	93.19839411	91.9526979	90.72915991
191004A00001	10/4/2019	2.47	10/4/2034	10/4/2019	123.3847	111.5140691	100.919061	91.45487657	82.99386916	75.42343437	68.64416903	62.56826351	57.11809683
191004A00002	10/4/2019	2.08	10/4/2029	10/4/2019	112.51353	105.9451922	99.80435426	94.06100011	88.6873704	83.65777854	78.94844598	74.53735154	70.40409316
191004A00003	10/4/2019	1.89	10/5/2026	10/4/2019	106.18863	102.746834	99.43500082	96.24754939	93.17916467	90.22478722	87.37959944	84.63901271	81.99865526
191004A00004	10/4/2019	1.54	10/4/2024	10/4/2019	101.29932	99.8830627	98.4934684	97.1298491	95.79154143	94.47790417	93.18831729	91.92218113	90.67891551
191004A00005	10/4/2019	1.54	10/4/2024	10/4/2019	101.29932	99.8830627	98.4934684	97.1298491	95.79154143	94.47790417	93.18831729	91.92218113	90.67891551
191004A00012	10/4/2019	1.78	10/4/2024	10/4/2019	101.30442	99.89368569	98.5094227	97.15095511	95.81762594	94.5088	93.22386302	91.96222078	90.72329831
191004A00032	10/4/2019	2.01	1/3/2028	10/4/2019	109.77682	105.019143	100.4953887	96.1927954	92.09937046	88.20383795	84.49559189	80.96465243	77.60162533
191007A00029	10/7/2019	1.88	10/9/2029	10/7/2019	113.00292	106.3368236	100.107488	94.28406666	88.83804549	83.74305168	78.97468245	74.51034856	70.32913086
191008A00031	10/8/2019	1.52	10/8/2024	10/8/2019	101.29016	99.86312903	98.46315888	97.08955076	95.74162647	94.41873063	93.1202297	91.84551108	90.59398224
191008A00033	10/8/2019	1.71	10/8/2024	10/8/2019	101.22241	99.80150224	98.40746426	97.03959638	95.69722719	94.37970772	93.08641054	91.81672888	90.57007574
191009A00017	10/9/2019	1.76	10/4/2024	10/9/2019	101.27551	99.86498732	98.48093839	97.12268123	95.78955894	94.48093642	93.1961995	91.93475404	90.69602517
191009A00027	10/9/2019	1.74	10/6/2023	10/9/2019	100.19866	99.75708211	99.31939647	98.88554868	98.45548836	98.029166	97.60653296	97.18754145	96.77214449
191009A00028	10/9/2019	1.76	10/9/2024	10/9/2019	101.30018	99.87598911	98.47877551	97.10783853	95.76250276	94.44211546	93.14604558	91.87368287	90.62443703
191015A00013	10/15/2019	1.72	10/15/2024	10/15/2019	101.62058	100.1720192	98.75128353	97.35763722	95.99037457	94.64881391	93.3322966	92.04018604	90.77186674

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191015A00029	10/15/2019	1.91	10/15/2024	10/15/2019	101.55118	100.1088901	98.69421503	97.30643139	95.94484052	94.60876743	93.29755985	92.01058724	90.74723991
191017A00022	10/17/2019	2.25	7/17/2028	10/17/2019	112.09168	106.7387883	101.6747974	96.88255377	92.34601969	88.05019167	83.98102769	80.12538019	76.47093404
191017A00026	10/17/2019	2.3	7/17/2029	10/17/2019	113.71327	107.3179434	101.3254829	95.70835911	90.44106922	85.49997625	80.86316257	76.51029575	72.42250561
191021A00021	10/21/2019	2.22	12/21/2027	10/21/2019	110.67963	105.936795	101.4253576	97.13278249	93.04728541	89.15778115	85.45383822	81.92563655	78.5639282
191023A00006	10/23/2019	1.95	10/23/2024	10/23/2019	101.65386	100.1891934	98.75297061	97.34443706	95.96286337	94.6075452	93.27780226	91.97297724	90.69243488
191025A00005	10/28/2019	1.98	10/28/2024	10/28/2019	101.72649	100.2477625	98.79800824	97.37644745	95.98233118	94.61493647	93.27356518	91.957543	90.66621843
191025A00009	10/25/2019	2.26	5/25/2029	10/25/2019	113.30648	107.0668194	101.2124838	95.71765918	90.55839005	85.71243798	81.15914975	76.87933638	72.85516202
191025A00010	10/25/2019	2.24	7/25/2028	10/25/2019	112.08006	106.7051926	101.6214968	96.81162223	92.25934915	87.94950793	83.86790489	80.00125389	76.3371132
191025A00013	10/25/2019	1.98	10/25/2024	10/25/2019	101.70987	100.2393735	98.79753125	97.38358309	95.99679174	94.63644533	93.30185638	91.99236072	90.70731651
191031A00033	10/31/2019	2.2	5/31/2028	10/31/2019	111.58896	106.3776995	101.4419271	96.76563	92.33380787	88.13240593	84.1482505	80.368989	76.78303444
191031A00041	10/31/2019	1.72	10/31/2023	10/31/2019	100.32137	99.81059666	99.30501045	98.80453678	98.30909836	97.81861944	97.33302579	96.85224468	96.37620477
191104A00009	11/4/2019	1.91	11/6/2023	11/4/2019	100.30883	99.78336108	99.26338745	98.74882596	98.23959236	97.73560413	97.23678046	96.74304219	96.25431177
191104A00018	11/5/2019	1.96	11/5/2024	11/5/2019	101.74237	100.242344	98.77192679	97.33031002	95.91671868	94.53040509	93.17064769	91.8367499	90.52803906
191104A00022	11/4/2019	2.17	8/4/2027	11/4/2019	109.47073	105.1351795	100.9961048	97.04352452	93.26802567	89.66072444	86.21323307	82.91762916	79.76642704
191104A00023	11/4/2019	2.24	8/4/2028	11/4/2019	112.1264	106.7231157	101.613892	96.78115136	92.20846646	87.88047391	83.78279961	79.90198952	76.22544576
191104A00024	11/4/2019	2.26	8/3/2029	11/4/2019	113.51178	107.0765679	101.0495649	95.40271336	90.11002969	85.14744009	80.49263032	76.12490791	72.02507594
191104A00025	11/4/2019	2.33	8/2/2030	11/4/2019	115.32468	107.8488691	100.9132125	94.47579211	88.49815408	82.94500624	77.78394239	72.98519175	68.52139162
191105A00007	11/5/2019	1.98	11/5/2026	11/5/2019	107.64022	104.0647541	100.6276358	97.32276189	94.14433651	91.08685028	88.14506455	85.31399647	82.58890502
191105A00008	11/5/2019	1.83	11/5/2024	11/5/2019	101.90727	100.3998704	98.92230878	97.47377494	96.05348559	94.66068525	93.29464496	91.95466108	90.64005422
191105A00014	11/5/2019	1.96	11/6/2023	11/5/2019	100.33539	99.80983924	99.2897847	98.77514292	98.26582963	97.7617623	97.26286012	96.76904391	96.28023613
191105A00018	11/5/2019	1.78	11/6/2023	11/5/2019	100.36403	99.83687513	99.31525813	98.79908927	98.28828337	97.782757	97.28242849	96.78721781	96.2970466
191106A00012	11/6/2019	2.02	10/11/2024	11/6/2019	101.69095	100.2583871	98.85305407	97.47424129	96.12126462	94.79346289	93.49019704	92.21084912	90.95482151
191106A00022	11/6/2019	2.34	1/2/2030	11/6/2019	114.50927	107.6340041	101.2200557	95.23401824	89.64507412	84.42478187	79.54688104	74.98711374	70.72306188
191108A00011	11/8/2019	2.08	10/18/2024	11/8/2019	101.81953	100.3670767	98.94257753	97.54529785	96.17452672	94.82957745	93.50978657	92.21451284	90.94313634
191108A00013	11/8/2019	2.25	11/8/2029	11/8/2019	115.54575	108.7154889	102.3363909	96.37628311	90.80545108	85.59643498	80.72384768	76.16420809	71.89578883
191108A00014	11/8/2019	2.25	11/8/2029	11/8/2019	115.54575	108.7154889	102.3363909	96.37628311	90.80545108	85.59643498	80.72384768	76.16420809	71.89578883
191113A00016	11/15/2019	2.02	8/15/2024	11/15/2019	101.38675	100.1034143	98.84617456	97.61424749	96.40687681	95.22333659	94.06292971	92.92498642	91.80886299
191114A00009	11/18/2019	1.94	8/16/2023	11/18/2019	100.20518	99.90222029	99.6011029	99.30180957	99.00432369	98.70862885	98.41470882	98.1225476	97.83212934
191115A00014	11/18/2019	2.45	11/18/2024	11/18/2019	102.58622	101.0449627	99.53447499	98.05390573	96.60243374	95.17926753	93.78364393	92.41482682	91.07210594
191115A00015	11/18/2019	2.61	11/18/2024	11/18/2019	102.8373	101.2939989	99.78150595	98.2989664	96.84555811	95.42048869	94.0229941	92.65233735	91.30780738
191115A00016	11/18/2019	2.48	11/18/2024	11/18/2019	102.6333	101.091657	99.5807933	98.09985461	96.64801956	95.2244965	93.82852208	92.45936005	91.11629996
191115A00028	11/15/2019	2.34	9/28/2029	11/15/2019	114.18339	107.578544	101.4015382	95.62244156	90.21356654	85.1492862	80.40587115	75.96134002	71.79532247
191115A00030	11/15/2019	2.35	11/9/2029	11/15/2019	114.38592	107.6608983	101.3785754	95.50747896	90.01853246	84.8848594	80.08160602	75.58577923	71.37609823

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191119A00027	11/19/2019	1.8	11/19/2024	11/19/2019	101.94499	100.4000131	98.88601783	97.40214432	95.94756239	94.52147204	93.12310204	91.75170866	90.40657441
191120A00005	11/20/2019	2.63	11/20/2034	11/20/2019	125.38168	113.278905	102.4863145	92.85392932	84.24969747	76.5572655	69.67403931	63.50949341	57.98369537
191120A00006	11/20/2019	2.67	11/20/2035	11/20/2019	127.10123	113.9537101	102.3351424	92.05780754	82.95799267	74.89280993	67.73745098	61.38281562	55.73346191
191120A00024	11/20/2019	2.23	11/16/2029	11/20/2019	113.61531	106.8964333	100.6213908	94.75854348	89.27866312	84.15473876	79.36179773	74.87674187	70.6781977
191121A00004	11/21/2019	1.77	11/21/2024	11/21/2019	101.90955	100.3595383	98.84067074	97.35207763	95.89292213	94.46239793	93.05972785	91.68416248	90.33497896
191121A00009	11/21/2019	2.55	11/21/2036	11/21/2019	130.51843	115.9623615	103.2253953	92.06818301	82.28409637	73.69460095	66.14530705	59.50259294	53.65071494
191121A00010	11/21/2019	2.59	11/20/2037	11/21/2019	132.31453	116.6830346	103.1271592	91.3569733	81.1245531	72.2177019	64.45463649	57.67948698	51.75848199
191121A00034	11/21/2019	2.28	11/2/2029	11/21/2019	113.90231	107.2114845	100.9603223	95.11763259	89.65459015	84.54454606	79.76285281	75.28670425	71.09498915
191122A00018	11/26/2019	3.11	11/22/2039	11/26/2019	138.22207	120.6314466	105.6131491	92.76995264	81.76823043	72.32746732	64.21154839	57.22151457	51.18953207
191122A00020	11/26/2019	3.2	11/23/2037	11/26/2019	136.90206	121.2390319	107.6271158	95.78222605	85.46118339	76.45563099	68.58688164	61.70155013	55.66784798
191122A00021	11/26/2019	3.4	11/22/2038	11/26/2019	141.42814	124.5102017	109.9272011	97.3379267	86.45297512	77.02663593	68.85008239	61.74565334	55.5620472
191125A00036	11/25/2019	2.29	11/23/2029	11/25/2019	114.03431	107.2832991	100.9790714	95.08971421	89.58575068	84.43994518	79.62712166	75.12399778	70.90903321
191126A00022	11/26/2019	1.72	5/26/2023	11/26/2019	100.08293	100.0052175	99.92762546	99.85015778	99.7728141	99.69559415	99.61849761	99.54152419	99.4646736
191126A00023	11/26/2019	1.81	5/27/2025	11/26/2019	103.22372	101.1517267	99.13158356	97.16165014	95.24034749	93.36615827	91.53762383	89.7533415	88.01196192
191126A00026	11/26/2019	1.91	11/25/2026	11/26/2019	107.54703	103.9186775	100.4323627	97.08175196	93.86082664	90.76386989	87.78544957	84.92040234	82.16381873
191129A00012	11/29/2019	1.99	11/29/2024	11/29/2019	101.92918	100.364086	98.83058236	97.32777717	95.85481423	94.41086892	92.99514667	91.60688166	90.24533541
191202A00005	12/2/2019	2.03	12/2/2024	12/2/2019	101.99659	100.4230225	98.88131201	97.37055974	95.88989837	94.43849269	93.01553814	91.62025936	90.25190887
191203A00004	12/4/2019	1.87	12/4/2024	12/4/2019	101.76731	100.1899186	98.6445481	97.13028583	95.64625749	94.19162123	92.76556624	91.36731125	89.99610319
191204A00013	12/4/2019	1.72	12/4/2024	12/4/2019	101.90861	100.3235111	98.77068813	97.24921937	95.75822129	94.29684332	92.86426634	91.45970121	90.08238737
191206A00008	12/6/2019	2.44	12/6/2030	12/6/2019	116.75203	108.8886795	101.6165357	94.88796228	88.65939805	82.89098879	77.54625366	72.59178335	67.99696675
191206A00009	12/6/2019	2.87	12/4/2037	12/6/2019	132.19114	116.8253328	103.4869592	91.89383106	81.80454671	73.01240389	65.34024879	58.63611259	52.76951131
191206A00013	12/6/2019	3.05	12/6/2044	12/6/2019	142.9309	120.6396464	102.4096706	87.45913096	75.16172749	65.01497687	56.61509834	49.63710488	43.81899953
191206A00019	12/6/2019	1.96	11/15/2023	12/6/2019	100.35176	99.80189666	99.25804847	98.7201215	98.1880193	97.66164756	97.14091394	96.62572813	96.11600172
191206A00021	12/6/2019	2.02	12/6/2024	12/6/2019	102.02212	100.4371488	98.88441361	97.36299769	95.87201811	94.41062491	92.97799955	91.57335342	90.19592653
191206A00044	12/10/2019	2.01	10/31/2024	12/10/2019	101.78954	100.3023766	98.84442901	97.41490917	96.01305821	94.63814372	93.28945863	91.96632014	90.66806864
191212A00029	12/13/2019	1.94	5/16/2023	12/13/2019	100.05536	100.0054629	99.95563562	99.90587347	99.85617633	99.80654406	99.75697655	99.70747365	99.65803525
191217A00012	12/20/2019	2.03	12/20/2024	12/20/2019	102.11219	100.4885337	98.89841256	97.3408497	95.81490835	94.31968761	92.85432072	91.41797342	90.00984243
191218A00014	12/18/2019	2.04	12/18/2024	12/18/2019	102.11586	100.4976272	98.91274378	97.3602411	95.83919012	94.34869726	92.88790272	91.45597881	90.0521285
191219A00036	12/20/2019	2.1	12/20/2024	12/20/2019	102.22817	100.6035236	99.01242838	97.45390873	95.92702738	94.43088299	92.96460836	91.52736881	90.11836065
191220A00001	12/20/2019	2.62	12/19/2031	12/20/2019	120.33097	111.3072027	103.0407355	95.46375516	88.5148628	82.1384336	76.2840459	70.90596956	65.96270716
191220A00002	12/20/2019	3.02	12/20/2038	12/20/2019	135.71129	119.1422401	104.8854078	92.60020699	81.99810327	72.83441226	64.90142619	58.02264795	52.0479497
191223A00055	12/23/2019	2.46	12/7/2029	12/23/2019	115.2161	108.3887186	102.0147192	96.06158326	90.49928985	85.30011054	80.43842291	75.89054012	71.63455503
191223A00056	12/23/2019	2.46	12/14/2029	12/23/2019	115.24396	108.3963893	102.0046874	96.03607307	90.46029315	85.24941063	80.37761564	75.8210528	71.55766346

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191226A00019	12/26/2019	2.4	12/22/2028	12/26/2019	113.60294	107.7776302	102.2891696	97.11628632	92.23916307	87.63933087	83.29956986	79.2038183	75.33708853
191226A00020	12/26/2019	2.44	12/21/2029	12/26/2019	115.13759	108.2742343	101.8690236	95.88893242	90.30348559	85.08454705	80.20612846	75.64421443	71.37660288
191230A00012	12/30/2019	1.77	12/1/2023	12/30/2019	100.40735	99.81247439	99.22462767	98.64368849	98.06953561	97.50205063	96.94111787	96.38662433	95.83845958
191230A00013	12/30/2019	1.84	12/2/2024	12/30/2019	102.08934	100.5082233	98.95922733	97.44143641	95.95397391	94.49599581	93.06668916	91.66527066	90.29098528
191230A00031	12/30/2019	1.85	12/30/2024	12/30/2019	102.29106	100.6315061	99.00672085	97.41567862	95.85739221	94.33091309	92.83532941	91.36976422	89.93337375
200103A00009	1/3/2020	1.9	1/3/2024	1/3/2020	100.41238	99.73057481	99.05800214	98.39447685	97.7398173	97.09384664	96.45639275	95.82728799	95.20636912
200106A00015	1/6/2020	1.87	2/15/2024	1/6/2020	100.48771	99.69054312	98.90598898	98.13375001	97.37353785	96.62507308	95.8880849	95.16231076	94.44749609
200108A00021	1/13/2020	1.97	1/13/2025	1/13/2020	102.1769	100.4884338	98.83581444	97.21796654	95.6338558	94.08248922	92.56291298	91.07421046	89.61550039
200110A00013	1/10/2020	1.76	1/10/2024	1/10/2020	100.48808	99.78513736	99.09201258	98.40849802	97.73439467	97.06950898	96.41365269	95.76664263	95.12830057
200110A00022	1/13/2020	2	1/6/2025	1/13/2020	102.16849	100.4988253	98.8643183	97.26392162	95.6966303	94.161479	92.65754003	91.18392149	89.73976552
200114A00006	1/15/2020	1.99	1/15/2025	1/15/2020	102.2065	100.5128006	98.85514205	97.23243542	95.64363848	94.08775068	92.56381104	91.07089619	89.60811848
200115A00018	1/15/2020	1.9	1/16/2024	1/15/2020	100.4417	99.72494274	99.01838778	98.321822	97.63503457	96.95782056	96.28998074	95.63132139	94.98165407
200121A00009	1/24/2020	1.94	1/24/2025	1/24/2020	102.1739	100.4568101	98.77664309	97.1322688	95.52260732	93.9466226	92.40332014	90.89174489	89.41097923
200122A00034	1/22/2020	1.87	1/22/2024	1/22/2020	100.43295	99.70015722	98.97802997	98.26633293	97.56484134	96.87333691	96.19160747	95.51944689	94.85665474
200122A00035	1/22/2020	1.94	1/22/2025	1/22/2020	102.17927	100.4670951	98.79164948	97.15181953	95.54653339	93.97476255	92.4355196	90.92785621	89.4508611
200123A00013	1/27/2020	1.89	1/27/2025	1/27/2020	102.12124	100.3964341	98.70884587	97.05733722	95.44081534	93.858232	92.30858117	90.7908969	89.30425129
200123A00048	1/23/2020	1.7	1/23/2025	1/23/2020	102.18218	100.4599674	98.77486871	97.12574721	95.51151593	93.93113214	92.38359502	90.86794346	89.38325413
200124A00008	1/24/2020	1.92	1/22/2027	1/24/2020	108.04445	104.2463749	100.602301	97.10509947	93.74801568	90.52464803	87.42892728	84.45509695	81.59769509
200127A00016	1/27/2020	1.81	1/27/2025	1/27/2020	101.98034	100.2568057	98.57046975	96.92019063	95.30487621	93.72347884	92.17499308	90.65845354	89.17293284
200127A00023	1/27/2020	1.8	1/27/2025	1/27/2020	101.96272	100.2393522	98.55317273	96.90304731	95.28788382	93.7066347	92.15829457	90.64189812	89.15651804
200127A00030	1/27/2020	1.8	1/27/2025	1/27/2020	101.96272	100.2393522	98.55317273	96.90304731	95.28788382	93.7066347	92.15829457	90.64189812	89.15651804
200128A00028	1/28/2020	1.81	1/28/2025	1/28/2020	101.98599	100.2597766	98.57086206	96.91810029	95.30039479	93.7166939	92.16598835	90.64730916	89.15972553
200130A00005	1/30/2020	1.73	1/30/2024	1/30/2020	100.34437	99.59054556	98.84800013	98.11648489	97.3957556	96.68557519	95.98571348	95.29594694	94.61605845
200130A00006	1/30/2020	1.77	1/30/2025	1/30/2020	101.92666	100.195728	98.50229179	96.8452117	95.22339118	93.63577794	92.08136175	90.55917227	89.06827704
200130A00016	1/30/2020	1.58	1/30/2025	1/30/2020	102.01162	100.2724263	98.57102912	96.90627445	95.27705423	93.68230535	92.12100732	90.59218002	89.09488177
200131A00015	2/5/2020	1.73	2/5/2025	2/5/2020	101.88894	100.1425648	98.43432662	96.76308024	95.12772779	93.5272144	91.96052605	90.42668754	88.92476067
200131A00016	1/31/2020	1.73	1/31/2025	1/31/2020	101.86139	100.1284193	98.43304211	96.77411716	95.15054789	93.56128189	92.00530856	90.48165701	88.98939408
200131A00031	1/31/2020	1.74	1/31/2024	1/31/2020	100.35442	99.59787515	98.85269203	98.11861869	97.39540819	96.68282088	95.98062407	95.28859185	94.60650483
200131A00032	1/31/2020	2.1	1/31/2030	1/31/2020	112.97197	106.0710109	99.63888269	93.64126378	88.04651861	82.82547617	77.95122526	73.39892785	69.14564878
200131A00038	1/31/2020	1.73	1/30/2025	1/31/2020	101.85588	100.1255903	98.43278591	96.77632618	95.15511484	93.56809993	92.0142715	90.49265949	89.00233173
200131A00048	1/31/2020	1.69	1/31/2024	1/31/2020	100.31602	99.55963939	98.81461678	98.08070227	97.35764894	96.64521715	95.94317428	95.25129442	94.56935819
200203A00005	2/3/2020	1.7	5/3/2023	2/3/2020	100.01204	99.99818082	99.98433104	99.97049439	99.95667086	99.9428604	99.92906302	99.91527869	99.90150738
200203A00006	2/3/2020	1.76	2/3/2025	2/3/2020	101.93133	100.1898332	98.48625925	96.8194696	95.18836674	93.59189657	92.02904624	90.49884211	89.0003478

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200204A00001	2/4/2020	1.79	2/4/2025	2/4/2020	101.99042	100.2457508	98.53912226	96.86939485	95.23547055	93.63629454	92.07085303	90.53817129	89.03731173
200204A00012	2/4/2020	1.98	2/4/2027	2/4/2020	107.39008	103.5953436	99.95524353	96.46261222	93.11065933	89.89294811	86.80337468	83.83614864	80.98577496
200204A00020	2/4/2020	1.6	2/4/2025	2/4/2020	102.07618	100.3231489	98.60846592	96.93097552	95.28956803	93.68317764	92.11078018	90.57139103	89.06406319
200205A00011	2/7/2020	2.31	2/7/2024	2/7/2020	100.81223	100.0350696	99.26986732	98.51635044	97.77425268	97.04331578	96.32328924	95.61392999	94.91500216
200207A00009	2/7/2020	1.58	2/7/2025	2/7/2020	102.05773	100.2969181	98.5747812	96.89015903	95.24194109	93.62906009	92.05048975	90.50524286	88.99236932
200207A00016	2/7/2020	1.74	2/7/2024	2/7/2020	100.36355	99.58832512	98.82504251	98.0734246	97.33320547	96.60412724	95.88593975	95.17840029	94.48127332
200207A00017	2/7/2020	1.96	2/8/2027	2/7/2020	107.34224	103.5376904	99.88858508	96.38771714	93.02825833	89.80373499	86.70800728	83.73524994	80.87993421
200207A00018	2/7/2020	2.14	2/7/2030	2/7/2020	113.26587	106.3368022	99.87948551	93.85932781	88.24445004	83.00545756	78.11523401	73.54875341	69.28290859
200210A00005	2/10/2020	1.77	2/10/2027	2/10/2020	107.61574	103.7741459	100.0902961	96.55684992	93.16685508	89.91372088	86.79119722	83.79335484	80.91456693
200210A00009	2/10/2020	1.57	2/10/2025	2/10/2020	102.05698	100.2882327	98.55848487	96.86657792	95.2114004	93.59188334	92.00699821	90.45575501	88.93720042
200210A00021	2/10/2020	1.76	2/10/2025	2/10/2020	101.97048	100.2102042	98.48861944	96.80457821	95.15698079	93.54476934	91.96692591	90.42247054	88.91045947
200212A00003	2/12/2020	1.63	2/12/2025	2/12/2020	102.177	100.4018474	98.66592729	96.96808633	95.30721181	93.68223306	92.09211948	90.53587866	89.01255457
200214A00002	2/14/2020	1.58	11/15/2024	2/14/2020	101.57696	100.0456111	98.54486826	97.07388225	95.63183777	94.21794894	92.83145796	91.47163386	90.13777126
200214A00005	2/14/2020	1.59	2/14/2025	2/14/2020	102.11622	100.3363278	98.59588498	96.8937298	95.22874909	93.59987124	92.00606432	90.4463342	88.91972287
200214A00007	2/14/2020	1.59	2/14/2025	2/14/2020	102.11622	100.3363278	98.59588498	96.8937298	95.22874909	93.59987124	92.00606432	90.4463342	88.91972287
200214A00014	2/18/2020	1.8	2/18/2025	2/18/2020	102.08808	100.3056741	98.56284736	96.85845167	95.19138387	93.56058091	91.96501806	90.40370718	88.87569517
200214A00015	2/18/2020	1.76	8/6/2024	2/18/2020	101.00168	99.74224373	98.51092407	97.30678297	96.12892062	94.97647689	93.84862918	92.74459031	91.66360668
200214A00020	2/18/2020	1.78	1/15/2025	2/18/2020	101.84357	100.1531045	98.49861634	96.87902304	95.29328393	93.74039996	92.21941163	90.72939696	89.26946965
200218A00024	2/20/2020	1.73	7/17/2023	2/20/2020	100.11258	99.8918657	99.67213795	99.45338696	99.2356062	99.01878916	98.80292943	98.58802061	98.3740564
200220A00015	2/20/2020	1.57	2/20/2025	2/20/2020	102.11433	100.3185791	98.56292819	96.84622372	95.16734996	93.52523146	91.9188312	90.34714898	88.80921975
200221A00003	2/25/2020	1.69	2/25/2025	2/25/2020	101.92549	100.1262164	98.36725889	96.64747062	94.96574604	93.32101817	91.71225693	90.13846763	88.59868948
200221A00004	2/21/2020	1.69	2/21/2025	2/21/2020	101.90389	100.1153278	98.36663739	96.65667434	94.98433503	93.34855531	91.74830872	90.18260486	88.65048784
200221A00013	2/21/2020	1.69	2/21/2025	2/21/2020	101.90389	100.1153278	98.36663739	96.65667434	94.98433503	93.34855531	91.74830872	90.18260486	88.65048784
200221A00016	2/21/2020	1.69	2/21/2025	2/21/2020	101.90389	100.1153278	98.36663739	96.65667434	94.98433503	93.34855531	91.74830872	90.18260486	88.65048784
200221A00031	2/21/2020	1.69	2/21/2025	2/21/2020	101.90389	100.1153278	98.36663739	96.65667434	94.98433503	93.34855531	91.74830872	90.18260486	88.65048784
200224A00001	2/24/2020	1.59	2/24/2025	2/24/2020	101.73627	99.94141105	98.18672037	96.47105684	94.79331629	93.15243332	91.54737956	89.97716219	88.44082242
200224A00007	2/24/2020	1.59	2/24/2025	2/24/2020	101.73627	99.94141105	98.18672037	96.47105684	94.79331629	93.15243332	91.54737956	89.97716219	88.44082242
200224A00015	2/24/2020	1.57	1/10/2024	2/24/2020	100.1938	99.49409438	98.80413215	98.12371276	97.45263916	96.7907197	96.13776794	95.49360248	94.85804678
200224A00019	2/24/2020	1.59	2/18/2025	2/24/2020	101.70552	99.92669602	98.18737909	96.48642866	94.82274335	93.19526182	91.60296098	90.04485432	88.51999025
200224A00020	2/24/2020	1.59	2/24/2025	2/24/2020	101.73627	99.94141105	98.18672037	96.47105684	94.79331629	93.15243332	91.54737956	89.97716219	88.44082242
200224A00021	2/24/2020	1.58	9/24/2024	2/24/2020	100.97322	99.59156285	98.23538394	96.90403717	95.596901	94.31337412	93.05287468	91.81483946	90.59872319
200224A00024	2/24/2020	1.59	2/24/2025	2/24/2020	101.73627	99.94141105	98.18672037	96.47105684	94.79331629	93.15243332	91.54737956	89.97716219	88.44082242
200224A00025	2/24/2020	1.59	1/23/2025	2/24/2020	101.57267	99.86331819	98.19070131	96.55369752	94.9512334	93.38227901	91.8458457	90.34098394	88.86678141

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200224A00046	2/24/2020	1.59	2/24/2025	2/24/2020	101.73627	99.94141105	98.18672037	96.47105684	94.79331629	93.15243332	91.54737956	89.97716219	88.44082242
200225A00012	2/25/2020	1.57	2/25/2025	2/25/2020	101.70458	99.90739317	98.15048182	96.43270185	94.75294879	93.11015667	91.50329639	89.93137418	88.39343017
200225A00015	2/25/2020	1.54	2/26/2024	2/25/2020	100.24074	99.41529261	98.6033804	97.80467011	97.01884199	96.2455865	95.48460398	94.7356042	93.99830601
200225A00017	2/25/2020	1.94	2/25/2030	2/25/2020	111.94133	105.0095609	98.55368041	92.53860461	86.93200753	81.70408742	76.82735782	72.27645697	68.02797369
200225A00018	2/25/2020	1.94	2/25/2030	2/25/2020	111.94133	105.0095609	98.55368041	92.53860461	86.93200753	81.70408742	76.82735782	72.27645697	68.02797369
200225A00050	2/25/2020	1.57	2/25/2025	2/25/2020	101.70458	99.90739317	98.15048182	96.43270185	94.75294879	93.11015667	91.50329639	89.93137418	88.39343017
200226A00006	2/26/2020	1.57	2/26/2025	2/26/2020	101.70965	99.90979195	98.15032003	96.43009015	94.74799733	93.10297486	91.49399272	89.92005604	88.38020371
200226A00008	2/26/2020	1.38	2/26/2025	2/26/2020	101.79766	99.98902558	98.22110541	96.49274061	94.80281405	93.15024748	91.53399984	89.95306578	88.40647417
200226A00009	2/26/2020	1.75	2/26/2030	2/26/2020	112.50861	105.4795114	98.93540734	92.84039777	87.16141495	81.86798256	76.93200061	72.32754905	68.03070863
200226A00015	2/26/2020	1.53	2/26/2024	2/26/2020	100.23234	99.40693714	98.59506288	97.79639012	97.01059909	96.23738029	95.47643403	94.72747012	93.9902074
200226A00016	2/26/2020	1.57	2/26/2025	2/26/2020	101.70965	99.90979195	98.15032003	96.43009015	94.74799733	93.10297486	91.49399272	89.92005604	88.38020371
200226A00025	2/26/2020	1.38	2/26/2025	2/26/2020	101.79766	99.98902558	98.22110541	96.49274061	94.80281405	93.15024748	91.53399984	89.95306578	88.40647417
200227A00004	2/27/2020	1.65	2/27/2030	2/27/2020	111.81525	104.8068925	98.28273335	92.20691101	86.54638838	81.27071837	76.35182884	71.76382645	67.48281748
200227A00005	2/27/2020	1.43	2/27/2024	2/27/2020	100.14993	99.32222841	98.5081447	97.70734064	96.91949363	96.14429143	95.38143176	94.63062188	93.89157828
200227A00006	2/27/2020	1.47	2/27/2025	2/27/2020	101.53008	99.72929899	97.96898143	96.24798493	94.56520488	92.91957469	91.31006421	89.73567826	88.1954552
200227A00009	2/27/2020	1.47	2/27/2025	2/27/2020	101.53008	99.72929899	97.96898143	96.24798493	94.56520488	92.91957469	91.31006421	89.73567826	88.1954552
200227A00013	2/27/2020	1.43	2/27/2024	2/27/2020	100.14993	99.32222841	98.5081447	97.70734064	96.91949363	96.14429143	95.38143176	94.63062188	93.89157828
200227A00016	2/27/2020	1.47	2/27/2025	2/27/2020	101.53008	99.72929899	97.96898143	96.24798493	94.56520488	92.91957469	91.31006421	89.73567826	88.1954552
200227A00027	2/27/2020	1.47	2/27/2025	2/27/2020	101.53008	99.72929899	97.96898143	96.24798493	94.56520488	92.91957469	91.31006421	89.73567826	88.1954552
200227A00030	2/27/2020	1.59	2/27/2026	2/27/2020	103.83124	101.0242625	98.3072073	95.67672898	93.12962286	90.66282018	88.27338159	85.95849098	83.71544963
200227A00031	2/27/2020	1.43	2/27/2024	2/27/2020	100.14993	99.32222841	98.5081447	97.70734064	96.91949363	96.14429143	95.38143176	94.63062188	93.89157828
200228A00005	2/28/2020	1.35	2/28/2024	2/28/2020	100.08386	99.25379481	98.43742966	97.63442326	96.84445014	96.06719529	95.3023538	94.54963042	93.8087392
200228A00012	3/3/2020	1.4	3/3/2025	3/3/2020	101.40413	99.59357207	97.82392169	96.09402413	94.40276061	92.74905079	91.13185118	89.55015366	88.00298404
200228A00014	2/28/2020	1.4	2/28/2025	2/28/2020	101.40544	99.60321514	97.84154558	96.11928546	94.43533025	92.78861322	91.17810384	89.60280638	88.06175847
200228A00015	3/3/2020	1.34	10/16/2023	3/3/2020	100.01316	99.54513829	99.08149058	98.62215768	98.16707948	97.71619701	97.26945235	96.82678866	96.38815015
200228A00016	2/28/2020	1.35	2/22/2024	2/28/2020	100.07605	99.26202948	98.46119077	97.67321709	96.89780046	96.13464268	95.38345488	94.64395724	93.91587859
200228A00019	2/28/2020	1.21	2/20/2025	2/28/2020	101.45506	99.66550865	97.91594107	96.20520755	94.53219548	92.89583238	91.29508415	89.72895336	88.19647764
200228A00025	2/28/2020	1.57	3/2/2027	2/28/2020	105.98978	102.1517537	98.47305531	94.94627848	91.56439564	88.3207395	85.20898274	82.22311898	79.35744488
200228A00026	2/28/2020	2.14	2/28/2035	2/28/2020	119.93626	107.8847073	97.17455378	87.64863268	79.16895015	71.61425967	64.87795515	58.86623807	53.49652183
200228A00031	2/28/2020	1.35	2/28/2024	2/28/2020	100.08386	99.25379481	98.43742966	97.63442326	96.84445014	96.06719529	95.3023538	94.54963042	93.8087392
200228A00059	2/28/2020	1.79	2/28/2030	2/28/2020	110.91361	104.008553	97.578738	91.58908536	86.00726689	80.80348049	75.95024113	71.42219016	67.19592105
200228A00066	2/28/2020	1.35	2/28/2024	2/28/2020	100.08386	99.25379481	98.43742966	97.63442326	96.84445014	96.06719529	95.3023538	94.54963042	93.8087392
200228A00067	2/28/2020	1.4	2/28/2025	2/28/2020	101.40544	99.60321514	97.84154558	96.11928546	94.43533025	92.78861322	91.17810384	89.60280638	88.06175847

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200302A00011	3/2/2020	1.31	2/27/2025	3/2/2020	101.23466	99.43667214	97.67909816	95.96079446	94.28065783	92.63762303	91.03066121	89.45877845	87.92101434
200302A00028	3/2/2020	1.25	2/26/2024	3/2/2020	99.997315	99.17298392	98.36217246	97.56455034	96.77979803	96.00760623	95.24767551	94.49971586	93.76344635
200302A00033	3/2/2020	1.31	3/3/2025	3/2/2020	101.23699	99.4280149	97.65992543	95.93155982	94.24180009	92.58956667	90.97381682	89.39354312	87.8477721
200302A00034	3/2/2020	1.25	3/1/2024	3/2/2020	100.00213	99.16711363	98.34596349	97.53834106	96.74391444	95.96236254	95.19337458	94.43664974	93.6918967
200302A00035	3/2/2020	1.22	7/3/2023	3/2/2020	100.01202	99.8298427	99.64833658	99.46749542	99.28731555	99.10779332	98.92892512	98.75070737	98.57313649
200302A00036	3/2/2020	1.45	3/2/2026	3/2/2020	103.44991	100.6399324	97.92026205	95.2875358	92.73852975	90.27015673	87.87945983	85.56360611	83.31988077
200302A00045	3/4/2020	1.31	3/4/2025	3/4/2020	101.26077	99.44834571	97.67694551	95.94540481	94.25260012	92.59744655	90.97889633	89.39593721	87.84759112
200302A00051	3/2/2020	1.22	8/8/2023	3/2/2020	99.988364	99.70766258	99.42854562	99.15099983	98.8750119	98.60056865	98.32765708	98.0562643	97.78637758
200302A00053	3/2/2020	1.31	3/3/2025	3/2/2020	101.23699	99.4280149	97.65992543	95.93155982	94.24180009	92.58956667	90.97381682	89.39354312	87.8477721
200302A00054	3/2/2020	1.31	3/3/2025	3/2/2020	101.23699	99.4280149	97.65992543	95.93155982	94.24180009	92.58956667	90.97381682	89.39354312	87.8477721
200303A00001	3/3/2020	1.15	3/3/2025	3/3/2020	101.39902	99.58014782	97.80251562	96.06495101	94.36632279	92.70553882	91.08154435	89.49332055	87.93988301
200303A00007	3/3/2020	1.11	3/4/2024	3/3/2020	100.08648	99.24031307	98.40838166	97.59032706	96.78580448	95.99448047	95.21603242	94.45014821	93.69652571
200303A00010	3/3/2020	1.34	3/3/2025	3/3/2020	101.2927	99.48320062	97.71459085	95.98571459	94.2954536	92.64272804	91.02649494	89.44574663	87.89950941
200303A00012	3/3/2020	1.71	3/1/2030	3/3/2020	110.36457	103.4750755	97.06031381	91.08521184	85.51745251	80.32724562	75.48711861	70.97172564	66.75767332
200303A00018	3/3/2020	1.27	3/3/2025	3/3/2020	101.1627	99.35443394	97.58703821	95.85935346	94.17026208	92.51868483	90.90357932	89.32393844	87.77878902
200303A00034	3/3/2020	1.21	3/3/2025	3/3/2020	101.05127	99.2440625	97.47770737	95.75104392	94.06295506	92.41236208	90.79822307	89.21953142	87.67531439
200304A00010	3/4/2020	1.2	3/4/2027	3/4/2020	105.5599	101.6972018	97.99584028	94.44827322	91.0473492	87.78628528	84.65864619	81.65832469	78.77952323
200304A00021	3/4/2020	0.94	3/4/2024	3/4/2020	99.940351	99.09487093	98.2636159	97.44622975	96.64236785	95.85169688	95.07389442	94.30864847	93.55565702
200304A00034	3/4/2020	1.12	3/4/2024	3/4/2020	99.894666	99.05214459	98.22375873	97.40915558	96.60799359	95.81994239	95.04468239	94.28190427	93.53130865
200304A00040	3/4/2020	1.12	3/1/2024	3/4/2020	99.891585	99.05707621	98.23643178	97.4293092	96.63537669	95.85431327	95.08580828	94.32956098	93.58528016
200304A00052	3/6/2020	2.11	3/8/2027	3/6/2020	108.1295	104.2325657	100.4976343	96.91714986	93.48394783	90.1912323	87.03255511	84.00179631	81.09314577
200304A00053	3/6/2020	2.33	3/6/2025	3/6/2020	103.17457	101.3380706	99.54318362	97.78872829	96.07356196	94.3965814	92.7567212	91.15295228	89.58428037
200304A00054	3/6/2020	2.35	3/8/2027	3/6/2020	109.06207	105.1471517	101.394785	97.79739039	94.34778316	91.03914821	87.86501908	84.81925833	81.89603912
200305A00002	3/5/2020	1.14	3/5/2025	3/5/2020	100.94952	99.13717497	97.36592174	95.63459299	93.94206174	92.28723985	90.66907641	89.08655624	87.53869845
200305A00007	3/5/2020	1.14	3/5/2025	3/5/2020	100.94952	99.13717497	97.36592174	95.63459299	93.94206174	92.28723985	90.66907641	89.08655624	87.53869845
200305A00008	3/10/2020	1.01	6/19/2023	3/10/2020	99.990551	99.84689193	99.70365773	99.5608461	99.41845514	99.27648297	99.13492773	98.99378757	98.85306064
200305A00009	3/10/2020	1.04	10/18/2023	3/10/2020	99.865157	99.39219947	98.92371432	98.45963802	97.99990849	97.54446482	97.09324726	96.64619712	96.20325683
200305A00012	3/5/2020	1.14	3/5/2025	3/5/2020	100.94952	99.13717497	97.36592174	95.63459299	93.94206174	92.28723985	90.66907641	89.08655624	87.53869845
200305A00020	3/5/2020	0.95	3/5/2025	3/5/2020	101.03706	99.21582718	97.43601776	95.69645295	93.99599329	92.33353879	90.70802724	89.11843268	87.56376394
200305A00029	3/5/2020	1.14	3/5/2025	3/5/2020	100.94952	99.13717497	97.36592174	95.63459299	93.94206174	92.28723985	90.66907641	89.08655624	87.53869845
200305A00035	3/5/2020	1.25	3/5/2026	3/5/2020	102.89519	100.084456	97.36437838	94.73156789	92.18277855	89.71490252	87.32496343	85.01011014	82.76761074
200305A00036	3/5/2020	1.36	3/5/2027	3/5/2020	105.19626	101.364671	97.69266241	94.17278998	90.79799779	87.56159254	84.4572231	81.47886122	78.62078354
200306A00001	3/6/2020	1.11	3/6/2026	3/6/2020	102.49909	99.69115324	96.97391968	94.34398941	91.79811139	89.33317307	86.94619372	84.63431814	82.39481067

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200306A00012	3/6/2020	0.95	3/6/2024	3/6/2020	99.749822	98.90264945	98.06978647	97.25087271	96.4455602	95.65351246	94.874404	94.10791994	93.35375551
200306A00014	3/6/2020	1.38	3/6/2030	3/6/2020	108.09696	101.269446	94.91487233	88.99816952	83.48703433	78.3516968	73.56470992	69.10075785	64.93648069
200306A00046	3/6/2020	1.01	3/3/2025	3/6/2020	100.67983	98.87615769	97.11327124	95.39001211	93.705265	92.05795292	90.44703559	88.871508	87.33039898
200306A00065	3/6/2020	1.38	3/6/2030	3/6/2020	108.09696	101.269446	94.91487233	88.99816952	83.48703433	78.3516968	73.56470992	69.10075785	64.93648069
200309A00004	3/9/2020	0.71	3/8/2024	3/9/2020	99.744975	98.88971116	98.04902679	97.22255196	96.40992894	95.61081192	94.82486653	94.05176936	93.2912075
200309A00005	3/9/2020	0.77	3/7/2025	3/9/2020	100.71035	98.88643482	97.1041364	95.36226588	93.65967535	91.99525677	90.36794027	88.7766926	87.22051566
200309A00019	3/9/2020	0.89	3/11/2024	3/9/2020	99.699952	98.83970393	97.99421722	97.16311491	96.34603248	95.54261764	94.75252981	93.97543964	93.21102856
200309A00020	3/9/2020	0.96	3/10/2025	3/9/2020	100.61809	98.79483384	97.01321494	95.27204669	93.57017932	91.90650297	90.27994605	88.68947364	87.13408604
200309A00021	3/9/2020	1.05	3/9/2026	3/9/2020	102.34229	99.52792338	96.80474082	94.16931872	91.61837957	89.14878589	86.75753345	84.44174493	82.1986638
200309A00027	3/9/2020	0.97	3/10/2025	3/9/2020	100.63686	98.81341767	97.03162181	95.2902799	93.58824207	91.92439838	90.29767715	88.70704339	87.15149731
200309A00033	3/9/2020	1.06	3/9/2026	3/9/2020	102.37107	99.55628959	96.8327012	94.19688306	91.64555734	89.17558623	86.78396524	84.46781675	82.22438398
200309A00046	3/9/2020	0.78	3/11/2025	3/9/2020	100.74794	98.91204523	97.11827697	95.36542608	93.65232424	91.97784395	90.34089678	88.74043179	87.17543397
200310A00025	3/10/2020	0.87	3/11/2024	3/10/2020	99.887333	99.02336569	98.17426173	97.33964009	96.51913282	95.71238435	94.91905095	94.13880028	93.37131087
200310A00042	3/10/2020	1.41	3/11/2030	3/10/2020	108.31528	101.4662545	95.09246495	89.15860655	83.6321657	78.48318326	73.68404214	69.20927352	65.03537994
200310A00065	3/13/2020	1.1	3/13/2025	3/13/2020	100.89529	99.0607046	97.26818941	95.51653358	93.80457093	92.13117591	90.49526197	88.89577993	87.33171643
200310A00073	3/12/2020	2.12	3/11/2027	3/12/2020	108.19366	104.2865788	100.5422539	96.95307893	93.51184196	90.21170301	87.04617285	84.00909319	81.09461818
200311A00006	3/13/2020	1.12	3/10/2025	3/13/2020	100.91832	99.09217517	97.30772485	95.56377796	93.85918327	92.19282951	90.56364373	88.97058971	87.41266648
200311A00040	3/12/2020	1.3	3/11/2025	3/12/2020	101.26146	99.42912203	97.63866986	95.88890143	94.17865881	92.50682435	90.87231897	89.27410062	87.71116272
200311A00056	3/13/2020	1.27	4/10/2024	3/13/2020	100.09131	99.14909967	98.22454247	97.31714254	96.42642578	95.55193545	94.69323132	93.849889	93.02149915
200312A00004	3/13/2020	1.23	1/24/2025	3/13/2020	100.92933	99.22346289	97.55430933	95.92074905	94.32170771	92.75615454	91.22310017	89.72159445	88.25072449
200313A00032	3/18/2020	1.46	3/18/2025	3/18/2020	101.60286	99.74697744	97.93391804	96.16244747	94.43137064	92.73953447	91.0858261	89.46917122	87.88853252
200317A00026	3/17/2020	1.22	3/15/2024	3/17/2020	99.99485	99.1225341	98.26536412	97.42294804	96.59490754	95.78087714	94.98050366	94.19344571	93.41937319
200317A00065	3/19/2020	2.05	3/19/2025	3/19/2020	102.73035	100.860599	99.03400781	97.24932872	95.5053559	93.80092599	92.13491628	90.50624303	88.91385984
200325A00030	3/25/2020	1.5	3/25/2025	3/25/2020	102.19806	100.3072283	98.46058631	96.65683549	94.89472785	93.1730599	91.49067075	89.84644028	88.23928744
200326A00026	3/26/2020	1.32	3/26/2024	3/26/2020	100.10108	99.19893909	98.31296956	97.44274109	96.58783739	95.74785675	94.92241134	94.11112671	93.31364114
200326A00028	3/26/2020	1.54	3/26/2025	3/26/2020	101.80306	99.92204981	98.08492752	96.29040504	94.53724505	92.82425419	91.1502812	89.51421518	87.91498387
200326A00029	3/26/2020	1.82	3/26/2027	3/26/2020	107.13948	103.2084469	99.44314174	95.83573254	92.37879864	89.06530622	85.88858609	82.84231289	79.92048559
200327A00036	3/27/2020	0.77	9/27/2023	3/27/2020	99.860353	99.44307222	99.02926772	98.61889669	98.21191654	97.80828539	97.40796205	97.01090602	96.61707742
200327A00074	3/31/2020	1.76	3/29/2024	3/31/2020	100.51422	99.60201619	98.70629722	97.82661897	96.96255376	96.11368902	95.27962658	94.45998206	93.6543843
200327A00075	3/31/2020	1.75	3/29/2024	3/31/2020	100.50495	99.59278972	98.69711656	97.81748354	96.953463	96.10464237	95.27062351	94.45102204	93.64546681
200330A00041	4/1/2020	1.09	4/1/2025	4/1/2020	100.96365	99.07471431	97.2302451	95.42892935	93.66950306	91.95074753	90.27148747	88.63058913	87.02695852
200330A00045	3/30/2020	1.47	3/30/2027	3/30/2020	105.78627	101.8704904	98.12054591	94.52857543	91.08712788	87.78914192	84.62792346	81.59712467	78.69072424
200331A00060	3/31/2020	1.09	3/31/2025	3/31/2020	100.95986	99.07356656	97.23161361	95.43269788	93.67556052	91.95898776	90.28180896	88.6428948	87.04115553

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200402A00021	4/2/2020	0.77	10/2/2024	4/2/2020	100.17826	98.77586684	97.39978922	96.04935174	94.72390225	93.42281026	92.14546606	90.89127982	89.65968082
200403A00006	4/3/2020	1.05	4/3/2025	4/3/2020	100.89353	99.0000885	97.151344	95.34597145	93.5826969	91.86029219	90.17757306	88.5333972	86.9266625
200406A00006	4/6/2020	1.13	4/7/2025	4/6/2020	101.06449	99.15895381	97.29862536	95.48216491	93.70827688	91.97571255	90.28326808	88.62978256	87.01413614
200407A00001	4/8/2020	2.41	4/7/2025	4/8/2020	103.56473	101.6342254	99.74941248	97.90893327	96.11147918	94.35578899	92.6406468	90.96488005	89.32735774
200407A00002	4/8/2020	1.82	4/8/2024	4/8/2020	100.60336	99.66398022	98.74208018	97.83717566	96.94879994	96.07650325	95.219852	94.37842808	93.55182816
200408A00021	4/8/2020	0.99	4/4/2025	4/8/2020	101.26295	99.35423335	97.4907687	95.67121258	93.89426952	92.15869094	90.46327307	88.80685504	87.18831707
200414A00016	4/16/2020	1.64	4/15/2024	4/16/2020	100.4515	99.49422184	98.55511172	97.63365852	96.72936785	95.84176363	94.97038723	94.11479673	93.27456609
200415A00035	4/17/2020	2.16	4/16/2025	4/17/2020	103.13692	101.1870378	99.28387108	97.42601761	95.61212348	93.84088447	92.11104381	90.42139015	88.77075557
200417A00009	4/17/2020	1.35	4/16/2027	4/17/2020	105.4007	101.4475852	97.66385109	94.04137348	90.57245813	87.24981813	84.06655012	81.01611204	78.09230238
200417A00016	4/21/2020	2.18	4/21/2025	4/21/2020	103.21038	101.2466159	99.3302046	97.45971322	95.63376072	93.85101709	92.11020106	90.41007796	88.74945771
200428A00011	4/30/2020	1.95	4/29/2025	4/30/2020	102.8021	100.8213937	98.88894707	97.00327859	95.16296678	93.36664327	91.6129904	89.90073893	88.22866599
200428A00013	4/30/2020	1.49	4/29/2024	4/30/2020	100.34988	99.35566963	98.38105638	97.42546198	96.48833436	95.56914262	94.66737603	93.78254308	92.91417058
200429A00009	4/29/2020	0.78	4/29/2025	4/29/2020	100.94463	98.97354186	97.05073506	95.1747247	93.34408344	91.55743748	89.81346415	88.11088957	86.44848656
200429A00010	4/29/2020	0.78	4/29/2025	4/29/2020	100.94463	98.97354186	97.05073506	95.1747247	93.34408344	91.55743748	89.81346415	88.11088957	86.44848656
200429A00015	4/29/2020	0.66	4/29/2024	4/29/2020	99.736394	98.74224408	97.76775697	96.812355	95.87548258	94.95660548	94.05520982	93.17080111	92.30290334
200429A00035	5/1/2020	1.41	4/30/2024	5/1/2020	100.27148	99.2750316	98.29827636	97.34063627	96.40155487	95.48049712	94.57694834	93.69041327	92.8204152
200429A00043	5/1/2020	1.56	4/30/2025	5/1/2020	102.02245	100.0470297	98.11981364	96.23932643	94.40414607	92.61290374	90.86428147	89.1570098	87.48986568
200429A00044	5/1/2020	1.86	4/30/2025	5/1/2020	102.6274	100.6457503	98.71243227	96.82596108	94.98491147	93.18791143	91.43363991	89.72082449	88.04823925
200429A00045	5/1/2020	1.54	4/30/2025	5/1/2020	101.98212	100.007115	98.08030573	96.20021746	94.36542837	92.57456989	90.82632424	89.11942216	87.45264078
200429A00046	5/1/2020	2.07	4/30/2025	5/1/2020	103.05086	101.0648548	99.12726531	97.23660534	95.39144725	93.59041682	91.83219082	90.11549478	88.43910076
200429A00047	5/1/2020	2.7	4/30/2025	5/1/2020	104.32124	102.3221682	100.3717644	98.4685381	96.61105459	94.79793297	93.02784356	91.29950563	89.61168526
200429A00050	5/1/2020	2.61	4/30/2025	5/1/2020	104.13976	102.142552	100.1939789	98.29254771	96.43682497	94.62543067	92.85703602	91.13036122	89.44417319
200429A00051	5/1/2020	2.54	4/30/2025	5/1/2020	103.9986	102.0028505	100.0557012	98.15566629	96.30131305	94.4912622	92.72418572	90.99880446	89.31388602
200429A00052	5/1/2020	1.43	4/30/2024	5/1/2020	100.29178	99.29522502	98.31836093	97.36061348	96.42142617	95.50026393	94.59661205	93.70997524	92.83987675
200429A00053	5/1/2020	2.18	4/30/2025	5/1/2020	103.27267	101.2843857	99.34455881	97.45170471	95.60439456	93.80125297	92.04095559	90.32222683	88.64383773
200429A00056	5/1/2020	1.54	4/30/2025	5/1/2020	101.98212	100.007115	98.08030573	96.20021746	94.36542837	92.57456989	90.82632424	89.11942216	87.45264078
200429A00058	5/1/2020	1.83	4/30/2025	5/1/2020	102.5669	100.5858783	98.65317041	96.76729762	94.92683493	93.13041066	91.37670407	89.66444302	87.9924019
200430A00008	4/30/2020	0.94	4/30/2025	4/30/2020	100.77223	98.80967362	96.89506846	95.02694816	93.20389757	91.42455451	89.68760735	87.99179277	86.33589363
200430A00009	4/30/2020	1.16	4/30/2026	4/30/2020	102.90581	99.94160403	97.07790692	94.31076436	91.63639924	89.05120409	86.55173245	84.13469068	81.79693024
200430A00016	4/30/2020	0.82	4/30/2024	4/30/2020	99.672519	98.67932567	97.70578148	96.75130858	95.81535151	94.8973762	93.99686889	93.11333525	92.24629943
200430A00017	4/30/2020	0.94	4/30/2025	4/30/2020	100.77223	98.80967362	96.89506846	95.02694816	93.20389757	91.42455451	89.68760735	87.99179277	86.33589363
200504A00004	5/4/2020	0.75	5/5/2025	5/4/2020	100.90926	98.92212891	96.98392256	95.09312681	93.24828543	91.44799734	89.69091402	87.9757372	86.30121652
200504A00015	5/4/2020	0.68	5/4/2023	5/4/2020	99.997464	99.98084366	99.96423911	99.94765075	99.93107857	99.91452254	99.89798264	99.88145882	99.86495109

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200505A00004	5/5/2020	0.77	5/5/2025	5/5/2020	100.94997	98.96241615	97.02379513	95.13259278	93.28735266	91.48667345	89.72920643	88.01365311	86.33876296
200505A00005	5/5/2020	0.77	5/5/2025	5/5/2020	100.94997	98.96241615	97.02379513	95.13259278	93.28735266	91.48667345	89.72920643	88.01365311	86.33876296
200506A00002	5/8/2020	0.97	5/5/2025	5/8/2020	100.85319	98.87622183	96.94776778	95.06632689	93.23045965	91.43878079	89.68995684	87.98270382	86.315785
200506A00005	5/6/2020	0.97	5/6/2025	5/6/2020	100.85728	98.87755712	96.94645577	95.06247131	93.22415937	91.43013012	89.67904577	87.96961823	86.30060691
200506A00010	5/6/2020	0.94	5/6/2026	5/6/2020	103.03184	100.0312171	97.13311733	94.33347679	91.62841416	89.01422397	86.4873676	84.04446466	81.68228497
200508A00004	5/8/2020	0.43	5/8/2023	5/8/2020	99.993803	99.96606039	99.93834893	99.91066807	99.88301774	99.85539789	99.82780846	99.8002494	99.77272065
200511A00016	5/11/2020	0.71	2/1/2024	5/11/2020	99.555522	98.79978389	98.05545275	97.32227241	96.59999395	95.88837581	95.18718352	94.49618944	93.81517251
200511A00017	5/11/2020	0.83	2/3/2025	5/11/2020	100.27546	98.54910402	96.86040014	95.20820964	93.59144249	92.00905181	90.46003171	88.9434152	87.45827239
200511A00018	5/11/2020	0.98	2/2/2026	5/11/2020	101.99269	99.27744174	96.64754932	94.09979022	91.63109074	89.2385145	86.91925508	84.67062931	82.49007079
200511A00019	5/11/2020	1.18	2/1/2027	5/11/2020	104.338	100.6087406	97.03177846	93.60004466	90.30683986	87.14581479	84.11094961	81.19653464	78.39715231
200511A00020	5/11/2020	1.4	2/1/2028	5/11/2020	107.01848	102.2479586	97.71631357	93.41031246	89.31753238	85.42630338	81.72565832	78.20528642	74.85549019
200511A00021	5/11/2020	1.53	2/1/2029	5/11/2020	108.69207	102.8956334	97.44246832	92.31047041	87.4790717	82.92912889	78.64281692	74.6035311	70.7957971
200511A00022	5/11/2020	1.6	2/1/2030	5/11/2020	109.56164	102.7713361	96.44472314	90.54776472	85.04909201	79.91978387	75.13316334	70.66461208	66.49140117
200511A00023	5/11/2020	1.7	2/3/2031	5/11/2020	111.26458	103.4518919	96.24213764	89.58568263	83.43721819	77.75536743	72.50232483	67.64353059	63.14737644
200511A00028	5/13/2020	1.02	5/13/2024	5/13/2020	99.885199	98.8564038	97.84866672	96.86134676	95.89382864	94.94552158	94.01585811	93.1042929	92.21030171
200513A00002	5/13/2020	0.56	5/13/2024	5/13/2020	99.647621	98.61657539	97.60669934	96.61734666	95.64789729	94.69775587	93.76635061	92.85313208	91.95757215
200513A00003	5/13/2020	0.68	5/13/2025	5/13/2020	100.79883	98.79098345	96.83291671	94.92307416	93.05996099	91.24213964	89.46822715	87.73689261	86.04685483
200515A00001	5/15/2020	0.59	5/15/2023	5/15/2020	99.988574	99.94150432	99.89449504	99.84754591	99.80065681	99.75382763	99.70705826	99.66034856	99.61369844
200529A00004	5/29/2020	0.56	5/29/2024	5/29/2020	99.662349	98.58852774	97.53764333	96.50896796	95.50180455	94.51548486	93.54936809	92.60283943	91.67530877
200529A00009	5/29/2020	0.42	5/30/2023	5/29/2020	99.976186	99.887491	99.79895721	99.7105843	99.6223718	99.53431929	99.44642629	99.35869238	99.27111171
200601A00006	6/1/2020	0.6	6/1/2023	6/1/2020	99.971037	99.87699794	99.78314158	99.68946771	99.59597579	99.50266527	99.40953562	99.31658629	99.22381675
200601A00009	6/1/2020	0.84	6/2/2025	6/1/2020	100.69248	98.64175895	96.64259024	94.69333688	92.79242192	90.93833028	89.12960583	87.36484854	85.64271196
200604A00001	6/4/2020	0.65	6/5/2023	6/4/2020	99.968537	99.86346165	99.75861913	99.6540084	99.54962866	99.44547912	99.34155898	99.23786745	99.13440376
200604A00004	6/4/2020	0.76	6/4/2024	6/4/2020	99.631809	98.54601441	97.48370298	96.44411993	95.42654266	94.43027889	93.45466509	92.49906502	91.56286833
200604A00005	6/4/2020	0.89	6/4/2025	6/4/2020	100.80505	98.74788103	96.74251706	94.7873065	92.8806614	91.02105634	89.20702536	87.43715921	85.71010263
200604A00009	6/4/2020	0.7	6/4/2025	6/4/2020	100.92732	98.85863971	96.84223066	94.87641974	92.9596001	91.0902283	89.26682136	87.4879538	85.75225499
200604A00010	6/4/2020	0.89	6/4/2025	6/4/2020	100.80505	98.74788103	96.74251706	94.7873065	92.8806614	91.02105634	89.20702536	87.43715921	85.71010263
200604A00012	6/4/2020	1.59	6/4/2030	6/4/2020	109.75844	102.6347656	96.01962972	89.87415228	84.16261516	78.8521903	73.91269186	69.31635073	65.03760947
200604A00013	6/4/2020	2.21	6/4/2035	6/4/2020	120.99842	108.6383768	97.67996126	87.95580463	79.31934844	71.64216166	64.81161597	58.72886948	53.3071164
200604A00014	6/4/2020	2.42	6/4/2040	6/4/2020	127.33469	110.1388099	95.5627917	83.18787319	72.66445641	63.70036811	56.05116298	49.51210542	43.9115324
200605A00007	6/5/2020	0.52	6/5/2023	6/5/2020	99.973541	99.86827333	99.76324073	99.65844236	99.55387741	99.44954503	99.34544442	99.24157475	99.13793521
200611A00010	6/11/2020	1.08	6/11/2027	6/11/2020	104.54287	100.4571368	96.55226701	92.8192948	89.24975096	85.83563079	82.56936587	79.44379771	76.45215318
200611A00011	6/11/2020	1.2	6/9/2028	6/11/2020	106.4728	101.3668184	96.53378326	91.95770348	87.62361137	83.51748902	79.62620288	75.93744325	72.43966823

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200611A00013	6/11/2020	0.59	6/12/2023	6/11/2020	99.946785	99.82244187	99.69842402	99.57472972	99.45135765	99.32830653	99.20557507	99.08316198	98.96106599
200615A00005	6/15/2020	0.61	6/15/2023	6/15/2020	99.941536	99.80894889	99.67672842	99.54487287	99.4133807	99.28225038	99.15148039	99.0210692	98.89101531
200615A00019	6/17/2020	1.34	6/16/2025	6/17/2020	101.81385	99.71424772	97.66804325	95.67350611	93.72897963	91.83287343	89.98366018	88.17987251	86.42010022
200626A00014	6/26/2020	0.62	6/26/2025	6/26/2020	100.83597	98.71023976	96.63930857	94.62137507	92.65471585	90.73767766	88.86867389	87.04618126	85.2687368
200626A00015	6/26/2020	0.43	6/26/2023	6/26/2020	99.918489	99.75533746	99.59272199	99.4306397	99.26908798	99.10806421	98.94756581	98.78759019	98.62813481
200630A00004	6/30/2020	0.66	7/1/2024	6/30/2020	99.544485	98.38755852	97.25728688	96.15275867	95.07310343	94.01748954	92.98512203	91.97524065	90.98711793
200709A00002	7/10/2020	1.66	7/10/2025	7/10/2020	102.64195	100.46896	98.35244621	96.2905342	94.28142751	92.32340397	90.4148119	88.55406654	86.73964676
200709A00003	7/10/2020	1.63	7/10/2026	7/10/2020	104.7588	101.5741538	98.50256503	95.5393501	92.68005047	89.92042061	87.25641625	84.68418338	82.20004794
200709A00004	7/10/2020	1.4	7/10/2025	7/10/2020	102.06693	99.90039868	97.79021334	95.734501	93.73146898	91.7793987	89.87664192	88.02161721	86.21280664
200709A00005	7/10/2020	2.23	7/10/2030	7/10/2020	114.49294	107.1085541	100.2541553	93.88888727	87.97524879	82.47880266	77.36791006	72.61348907	68.18879534
200709A00006	7/10/2020	2.58	7/10/2030	7/10/2020	117.03434	109.5603027	102.6208376	96.17480821	90.18445262	84.61509096	79.43485813	74.61446119	70.12695889
200709A00007	7/10/2020	1.67	7/9/2027	7/10/2020	107.20615	102.9885533	98.95989537	95.11067724	91.43193505	87.91520485	84.55249154	81.33623999	78.25930816
200709A00008	7/10/2020	1.88	7/10/2026	7/10/2020	105.56329	102.365706	99.28151636	96.30602957	93.4347758	90.66349874	87.98814378	85.40484703	82.9099249
200710A00006	7/10/2020	0.4	7/10/2023	7/10/2020	99.87726	99.67568952	99.47494677	99.2750265	99.07592357	98.87763289	98.6801494	98.4834681	98.28758402
200716A00015	7/20/2020	1.54	7/19/2024	7/20/2020	100.64905	99.43719242	98.25435115	97.09949341	95.97163566	94.86983999	93.79321145	92.74089568	91.71207656
200720A00012	7/20/2020	0.77	7/15/2025	7/20/2020	100.69172	98.52716868	96.4192739	94.3661425	92.36596101	90.4169915	88.51756767	86.66609124	84.86102853
200720A00034	7/20/2020	0.77	7/21/2025	7/20/2020	100.71346	98.53249452	96.40895193	94.34089988	92.32648883	90.36394688	88.45157574	86.58774696	84.77089842
200720A00035	7/20/2020	1.81	7/20/2035	7/20/2020	116.22509	104.0285552	93.23692125	83.68035035	75.21035113	67.69700129	61.02654155	55.09929201	49.82784622
200720A00037	7/22/2020	2.1	7/21/2025	7/22/2020	103.69515	101.4802499	99.32347289	97.22286778	95.17656521	93.18277417	91.23977801	89.34593059	87.49965276
200720A00039	7/22/2020	2.48	7/21/2025	7/22/2020	104.54706	102.3224658	100.1561932	98.04628718	95.99087274	93.9881534	92.03640722	90.13398305	88.27929686
200720A00042	7/22/2020	2.04	7/21/2026	7/22/2020	106.15979	102.9222847	99.80041578	96.78935717	93.88451628	91.08152198	88.37621224	85.76462257	83.24297517
200720A00044	7/22/2020	2.22	7/21/2026	7/22/2020	106.7445	103.4975041	100.3663957	97.34634052	94.43273758	91.62120777	88.90758139	86.28788659	83.75833853
200722A00010	7/22/2020	0.66	7/22/2024	7/22/2020	99.565599	98.35284869	97.1693738	96.01412618	94.88610671	93.78436289	92.70798616	91.65610942	90.62790465
200722A00011	7/22/2020	0.59	7/24/2023	7/22/2020	99.84356	99.6040876	99.36576546	99.12858519	98.8925386	98.65761759	98.42381411	98.19112023	97.95952805
200722A00012	7/22/2020	0.41	7/21/2023	7/22/2020	99.850444	99.6187311	99.38810243	99.15855059	98.93006798	98.70264711	98.47628051	98.25096082	98.02668072
200727A00016	7/27/2020	0.43	7/27/2023	7/27/2020	99.839712	99.5915652	99.34465038	99.09895854	98.85448061	98.61120761	98.36913066	98.12824095	97.88852976
200730A00001	7/30/2020	0.46	7/30/2024	7/30/2020	99.619062	98.38074673	97.17219835	95.9923518	94.84019267	93.71475387	92.61511294	91.5403895	90.48974287
200730A00002	7/30/2020	0.67	11/6/2024	7/30/2020	99.766279	98.27936204	96.82185369	95.39295395	93.99189178	92.61792339	91.27033101	89.94842175	88.65152653
200731A00004	7/31/2020	0.38	7/31/2023	7/31/2020	99.817977	99.5589207	99.30121094	99.04483759	98.78979021	98.53605852	98.2836323	98.03250146	97.78265601
200731A00005	7/31/2020	0.45	7/31/2024	7/31/2020	99.608425	98.36782473	97.15675776	95.97417614	94.81908124	93.6905207	92.5875858	91.50940899	90.45516157
200803A00005	8/3/2020	0.54	6/30/2023	8/3/2020	99.89588	99.72208789	99.54890066	99.37631495	99.20432765	99.03293565	98.86213588	98.6919253	98.52230085
200803A00011	8/3/2020	0.72	8/4/2025	8/3/2020	100.64803	98.43071595	96.2726135	94.17173667	92.12617943	90.13411462	88.19378996	86.30352432	84.46170421
200806A00002	8/6/2020	0.43	8/6/2024	8/6/2020	99.594891	98.34024684	97.11374415	95.91443709	94.74142246	93.59383698	92.47085514	91.37168711	90.29557684

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200810A00004	8/10/2020	0.43	8/9/2024	8/10/2020	99.600819	98.33906883	97.10476687	95.89701946	94.71497161	93.55780512	92.42473661	91.31501566	90.22792305
200811A00003	8/11/2020	0.57	8/11/2025	8/11/2020	100.89584	98.64578901	96.45646051	94.32582711	92.25194317	90.23294194	88.2670317	86.35249217	84.48767102
200812A00004	8/12/2020	0.59	8/12/2025	8/12/2020	100.94548	98.69221954	96.49982577	94.3662706	92.28960575	90.26796169	88.29954382	86.38262883	84.51556128
200814A00009	8/18/2020	1.36	8/16/2028	8/18/2020	107.46992	102.1565227	97.13577833	92.39009399	87.90302404	83.65918877	79.64419982	75.84459122	72.24775562
200814A00011	8/18/2020	1.58	8/16/2030	8/18/2020	109.86418	102.5468552	95.76480046	89.4761741	83.64260409	78.22888565	73.20270481	68.5343874	64.19667104
200818A00004	8/18/2020	0.92	8/18/2026	8/18/2020	102.63635	99.38203978	96.24691098	93.22597015	90.31445852	87.50784251	84.80180179	82.19221788	79.67516361
200818A00005	8/18/2020	1.05	8/18/2027	8/18/2020	104.75634	100.4828084	96.40578553	92.51523477	88.80168926	85.256212	81.87036338	78.63617077	75.54610027
200818A00006	8/18/2020	1.18	8/18/2028	8/18/2020	106.50955	101.2161213	96.21491048	91.48833267	87.01994821	82.79438325	78.79725513	75.01510358	71.43532689
200818A00007	8/18/2020	1.31	8/20/2029	8/18/2020	107.5027	101.2091846	95.32094526	89.80989271	84.65001785	79.81722957	75.28920407	71.04524676	67.06616568
200818A00008	8/18/2020	1.5	8/18/2031	8/18/2020	110.25264	101.967911	94.36348983	87.38008483	80.96385333	75.06587317	69.64167033	64.65079424	60.05643542
200818A00009	8/18/2020	1.7	8/18/2033	8/18/2020	113.96579	103.643488	94.34489883	85.9630305	78.40257634	71.57858619	65.41529458	59.84508668	54.80758514
200818A00010	8/18/2020	1.88	8/20/2035	8/18/2020	117.11305	104.7894195	93.89227207	84.2483015	75.70608257	68.13321116	61.4138308	55.44649144	50.14229436
200819A00007	8/19/2020	0.38	8/21/2023	8/19/2020	99.772143	99.45579108	99.14145096	98.82910355	98.51872985	98.21031113	97.90382889	97.59926485	97.29660098
200825A00007	8/27/2020	4.79	8/27/2026	8/27/2020	115.63994	112.1446008	108.7759984	105.5288597	102.3981635	99.37912255	96.46717168	93.65795632	90.94732163
200826A00040	8/28/2020	0.92	10/27/2023	8/28/2020	99.793452	99.29647268	98.80441992	98.31722083	97.834804	97.35709939	96.88403834	96.4155535	95.95157883
200827A00007	8/27/2020	0.77	8/27/2025	8/27/2020	100.83838	98.55889037	96.34171104	94.18480768	92.08622096	90.04406648	88.05653141	86.12187138	84.23840745
200828A00002	8/28/2020	0.73	8/28/2026	8/28/2020	102.884	99.57812038	96.39462898	93.32838499	90.37448867	87.52827021	84.78527769	82.1412658	79.59218518
200911A00006	9/11/2020	0.37	9/11/2023	9/11/2020	99.724745	99.35129441	98.98064816	98.61277429	98.24764162	97.88521946	97.52547756	97.16838612	96.8139158
200922A00027	9/24/2020	1.65	9/23/2025	9/24/2020	103.05685	100.6799622	98.36969595	96.12381811	93.94018402	91.81673304	89.75148476	87.74253535	85.78805412
200922A00029	9/24/2020	2.73	9/25/2023	9/24/2020	100.59988	100.1870809	99.77766778	99.37159669	98.96882683	98.56931807	98.17303094	97.7799266	97.38996682
200922A00030	9/24/2020	2.45	9/25/2023	9/24/2020	100.48357	100.0710639	99.66193895	99.25615432	98.8536692	98.45444349	98.05843772	97.66561307	97.27593135
200922A00033	9/24/2020	2.37	9/23/2024	9/24/2020	102.08772	100.7004442	99.33869147	98.00182134	96.68921165	95.40026048	94.1343854	92.8910226	91.66962621
200922A00034	9/24/2020	2.24	9/23/2026	9/24/2020	107.30437	103.8760321	100.5757983	97.39821663	94.33809699	91.3904963	88.5507055	85.81423715	83.17681383
200922A00035	9/24/2020	2.94	9/23/2024	9/24/2020	102.89464	101.5013992	100.1337879	98.79115856	97.47288629	96.17836661	94.90701456	93.65826395	92.43156658
200922A00036	9/24/2020	1.55	9/23/2025	9/24/2020	102.81505	100.4411243	98.13375177	95.89070553	93.70984277	91.58910465	89.52651246	87.52016402	85.56823024
200922A00037	9/24/2020	2.76	9/23/2025	9/24/2020	105.74078	103.3310627	100.9886764	98.71136782	96.49697191	94.34340823	92.24867734	90.2108571	88.22809922
200922A00038	9/24/2020	2.33	9/25/2023	9/24/2020	100.43372	100.0213423	99.61234088	99.20667902	98.80431593	98.40521152	98.00932634	97.61662156	97.227059
200922A00039	9/24/2020	3	9/23/2025	9/24/2020	106.32109	103.9042737	101.5549424	99.27083803	97.04979092	94.88971638	92.78861087	90.74454829	88.75567654
200922A00040	9/24/2020	2	9/23/2024	9/24/2020	101.56394	100.180526	98.82257624	97.48944455	96.18051056	94.89517405	93.63285419	92.39298874	91.17503335
200922A00041	9/24/2020	2.68	9/23/2024	9/24/2020	102.52657	101.1360513	99.77111234	98.43111	97.11542066	95.82344101	94.55458722	93.30829421	92.08401483
200922A00043	9/24/2020	2.4	9/25/2023	9/24/2020	100.4628	100.0503465	99.64127309	99.23553961	98.83310534	98.43393017	98.03797464	97.64519994	97.25556787
200922A00044	9/24/2020	2.61	9/25/2023	9/24/2020	100.55003	100.1373593	99.72806971	99.32212139	98.91947356	98.52008611	98.12391956	97.73093509	97.34109448
200925A00002	9/25/2020	0.74	9/25/2025	9/25/2020	100.86306	98.50780951	96.21887513	93.99403127	91.83113705	89.72813561	87.68305033	85.6939812	83.75910142

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200925A00003	9/25/2020	0.59	9/25/2024	9/25/2020	99.570152	98.19629016	96.84781506	95.52408551	94.22448154	92.94840339	91.69527071	90.46452174	89.25561262
200925A00004	9/25/2020	0.53	9/25/2023	9/25/2020	99.686037	99.27551856	98.86836983	98.46454949	98.06401689	97.66673205	97.27265563	96.88174891	96.49397381
200925A00008	9/25/2020	0.74	9/25/2025	9/25/2020	100.86306	98.50780951	96.21887513	93.99403127	91.83113705	89.72813561	87.68305033	85.6939812	83.75910142
200928A00002	9/28/2020	0.35	9/28/2023	9/28/2020	99.681383	99.26183669	98.8458077	98.43325179	98.02412567	97.61838674	97.21599313	96.81690363	96.42107773
200928A00003	9/28/2020	0.55	9/26/2025	9/28/2020	101.00746	98.63524618	96.33012251	94.0898271	91.91218523	89.79510799	87.73658836	85.73469747	83.78758108
201006A00007	10/8/2020	1.47	10/10/2023	10/8/2020	100.0761	99.62407919	99.17613606	98.73221899	98.29227381	97.85624729	97.42408716	96.99574207	96.57116159
201022A00012	10/26/2020	2.25	10/24/2030	10/26/2020	115.0971	107.4096217	100.2937223	93.70388329	87.59843174	81.93919821	76.69120562	71.82238722	67.30333082
201028A00003	10/30/2020	1.42	2/27/2026	10/30/2020	103.34664	100.5465958	97.83631067	95.21244047	92.67178564	90.2112824	87.8279962	85.51911554	83.28194611
201028A00004	10/30/2020	1.55	12/29/2023	10/30/2020	100.16409	99.496633	98.83803363	98.18811686	97.54671202	96.91365287	96.28877748	95.67192809	95.06295095
201028A00005	10/30/2020	1.85	10/31/2025	10/30/2020	103.79051	101.3018934	98.88579414	96.53967716	94.2611151	92.04778002	89.89743865	87.80794796	85.77725086
201028A00006	10/30/2020	1.56	2/15/2024	10/30/2020	100.23687	99.44081756	98.65736335	97.88621213	97.12707578	96.3796751	95.64373949	94.91900662	94.20522211
201030A00001	11/2/2020	2.54	10/29/2040	11/2/2020	129.57528	111.8635895	96.89688976	84.22836751	73.48636735	64.36140466	56.59547659	49.97325621	44.31483031
201030A00002	11/2/2020	2.8	10/29/2040	11/2/2020	134.00175	115.9284109	100.6405456	87.68614309	76.68907753	67.33601175	59.36561752	52.55969274	46.73583411
201030A00003	11/2/2020	2.58	10/29/2040	11/2/2020	130.25628	112.4889466	97.4728368	84.76033298	73.97909199	64.81903652	57.02165212	50.37116952	44.68729243
201030A00004	11/2/2020	2.56	10/29/2040	11/2/2020	129.91578	112.176268	97.18486328	84.49435025	73.73272967	64.59022059	56.80856436	50.17221287	44.50106137
201030A00005	11/2/2020	2.49	10/29/2040	11/2/2020	128.72404	111.081893	96.17695595	83.56341067	72.87046155	63.78936483	56.06275718	49.47586457	43.84925265
201116A00010	11/16/2020	0.57	11/15/2023	11/16/2020	99.578929	99.03152868	98.49012912	97.9546316	97.42493993	96.90096004	96.38259984	95.86976925	95.36238009
201116A00011	11/16/2020	0.71	11/15/2024	11/16/2020	99.848749	98.33760108	96.85659057	95.40488633	93.98168748	92.58622191	91.21774498	89.87553829	88.55890853
201204A00016	12/8/2020	1.58	12/8/2023	12/8/2020	100.16519	99.55402281	98.95029568	98.35387328	97.76462357	97.18241768	96.6071298	96.03863711	95.4768197
201208A00029	12/10/2020	1.52	12/9/2025	12/10/2020	103.18207	100.5969404	98.08942113	95.65671046	93.29612427	91.00509317	88.78115673	86.62195803	84.52523856
201208A00031	12/10/2020	1.43	12/9/2024	12/10/2020	101.08155	99.49630092	97.94341974	96.42198344	94.93110139	93.46991638	92.03760311	90.63336662	89.2564409
210106A00006	1/8/2021	0.48	7/17/2023	1/8/2021	99.835286	99.61500794	99.39571125	99.17738981	98.96003709	98.74364661	98.52821193	98.3137267	98.10018461
210106A00007	1/8/2021	0.49	7/25/2023	1/8/2021	99.816548	99.57438472	99.33339564	99.09357258	98.85490711	98.61739088	98.38101563	98.14577316	97.91165535
210114A00009	1/19/2021	2.66	1/17/2030	1/19/2021	116.73236	109.743953	103.2255513	97.14298985	91.46476614	86.16181773	81.2073204	76.57650424	72.24648575
210125A00006	1/27/2021	2.16	1/26/2027	1/27/2021	108.00514	104.2229992	100.5939783	97.1109927	93.76733264	90.55663907	87.47288281	84.51034523	81.66360013
210125A00007	1/27/2021	2.98	1/27/2031	1/27/2021	121.23886	113.066347	105.5146585	98.53313261	92.07550019	86.09948527	80.56644014	75.44101565	70.69086321
210128A00008	1/28/2021	0.54	4/9/2024	1/28/2021	99.38113	98.44538448	97.52713596	96.62589805	95.74120179	94.87259535	94.01964319	93.18192539	92.35903691
210128A00010	1/28/2021	0.57	7/9/2024	1/28/2021	99.455642	98.27788147	97.12776443	96.004328	94.90665329	93.8338632	92.78511998	91.75962313	90.7566073
210129A00008	1/29/2021	0.62	10/8/2024	1/29/2021	99.634515	98.22565953	96.84346131	95.48723114	94.15630308	92.85003341	91.56779979	90.30900031	89.0730527
210129A00013	1/29/2021	0.65	1/9/2025	1/29/2021	99.876053	98.21870337	96.59643487	95.00819807	93.45298548	91.92982956	90.4378007	88.97600534	87.5435842
210201A00004	2/3/2021	1.15	2/3/2025	2/3/2021	100.84522	99.113656	97.41983553	95.76262167	94.1409218	92.55368657	90.99990768	89.47861586	87.98887898
210201A00012	2/3/2021	0.75	11/17/2025	2/3/2021	101.07594	98.57731234	96.15264124	93.79930328	91.51478468	89.29667658	87.14266998	85.05055082	83.0181955
210209A00029	2/12/2021	0.8	12/15/2025	2/12/2021	101.3122	98.73561388	96.2369379	93.81333685	91.46209978	89.18063246	86.96645143	84.81717847	82.73053533

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210210A00005	2/10/2021	0.52	2/13/2024	2/10/2021	99.397314	98.61030368	97.8356851	97.07316748	96.32246907	95.58331681	94.85544598	94.1385999	93.43252965
210212A00008	2/12/2021	0.95	10/13/2026	2/12/2021	102.97303	99.56507501	96.28717215	93.13368346	90.09924801	87.17876466	84.36737804	81.66046533	79.05362383
210212A00014	2/17/2021	1.38	2/17/2026	2/17/2021	103.18171	100.4103373	97.72707764	95.12863111	92.6118458	90.17370622	87.81132652	85.52194408	83.30291339
210212A00016	2/17/2021	1.32	2/18/2025	2/17/2021	101.21367	99.43943844	97.70463416	96.00811337	94.34877697	92.72556584	91.13745903	89.58347206	88.06265535
210216A00006	2/16/2021	1.44	2/15/2030	2/16/2021	110.33212	103.4053323	96.95602438	90.94890077	85.35144362	80.13368368	75.26798814	70.72886727	66.49279788
210216A00007	2/16/2021	1.3	2/16/2029	2/16/2021	108.93635	103.0368708	97.4906476	92.27476126	87.36789334	82.75020675	78.4032353	74.30978215	70.45382626
210216A00008	2/16/2021	0.71	2/17/2026	2/16/2021	101.99556	99.22500209	96.54299322	93.94620324	91.43145244	88.99569931	86.63603364	84.34966991	82.13394116
210216A00009	2/16/2021	0.92	2/16/2027	2/16/2021	104.3877	100.5914738	96.95240494	93.46316772	90.1168177	86.90677059	83.82678134	80.87092477	78.03357729
210226A00012	2/26/2021	2.31	2/26/2036	2/26/2021	122.81318	109.6792925	98.1100241	87.9092744	78.90648651	70.95320648	63.92011991	57.69449849	52.17799805
210304A00004	3/4/2021	0.58	3/4/2024	3/4/2021	99.431013	98.59065695	97.7644116	96.95192395	96.15285295	95.3668687	94.59365207	93.8328942	93.08429613
210305A00013	3/5/2021	2.41	3/5/2036	3/5/2021	124.11102	110.8768744	99.21908029	88.93993979	79.86753476	71.85224582	64.76375979	58.48849151	52.92736088
210312A00005	3/12/2021	0.53	3/12/2024	3/12/2021	99.588614	98.72340342	97.87313093	97.03741232	96.21587661	95.40816533	94.61393198	93.8328416	93.06457021
210312A00010	3/12/2021	0.63	3/12/2024	3/12/2021	99.471394	98.60957719	97.76260032	96.93008288	96.11165727	95.30696823	94.51567238	93.7374377	92.97194303
210323A00007	3/23/2021	0.51	3/25/2024	3/23/2021	99.571383	98.67153989	97.78784186	96.91985787	96.0671722	95.22938366	94.40610495	93.59696212	92.80159396
210414A00001	4/14/2021	0.7	5/16/2024	4/14/2021	99.561128	98.5260373	97.5123102	96.51929078	95.54635011	94.59288451	93.65831427	92.74208248	91.84365394
210428A00006	4/28/2021	1.23	4/28/2026	4/28/2021	103.10717	100.1453736	97.2838497	94.51865342	91.84602243	89.26236314	86.76424204	84.34837758	82.01163259
210428A00007	4/28/2021	1.74	10/27/2028	4/28/2021	109.7025	104.1371308	98.88791147	93.93526348	89.26092284	84.84784121	80.68009892	76.7428246	73.02212105
210428A00008	4/28/2021	1.93	4/26/2030	4/28/2021	112.06072	104.9614321	98.36072678	92.22102003	86.50774574	81.18909672	76.23579136	71.6208611	67.31945685
210428A00015	4/28/2021	2.02	4/28/2031	4/28/2021	114.12353	105.9774529	98.4749587	91.56181333	85.1886151	79.31034099	73.88593815	68.87795533	64.25221023
210429A00005	4/29/2021	2.08	4/29/2031	4/29/2021	114.61152	106.4436951	98.92092256	91.9888515	85.59797073	79.70315781	74.26326941	69.2407719	64.60140789
210507A00008	5/7/2021	1.94	5/7/2031	5/7/2021	113.51713	105.3705448	97.86985581	90.9604682	84.59266854	78.72116212	73.30465946	68.30550345	63.68933298
210507A00009	5/7/2021	2.02	5/7/2032	5/7/2021	115.68455	106.4889339	98.10112104	90.44579253	83.45501585	77.06748558	71.2278462	65.88608727	60.99700282
210514A00033	5/18/2021	2.8	5/18/2028	5/18/2021	114.57533	109.3253852	104.35026	99.63409776	95.16204229	90.92016735	86.89541341	83.07552915	79.44901726
210527A00008	5/27/2021	0.32	5/30/2023	5/27/2021	99.967303	99.87861539	99.79008945	99.70172437	99.6135197	99.525475	99.4375898	99.34986367	99.26229616
210527A00009	5/27/2021	0.5	5/28/2024	5/27/2021	99.595509	98.52474773	97.47680221	96.45095023	95.44650006	94.46278858	93.49917977	92.55506337	91.62985358
210527A00019	5/27/2021	1	5/27/2026	5/27/2021	103.32376	100.2607066	97.30374545	94.44860597	91.69121429	89.02768458	86.45430909	83.96754877	81.56402453
210527A00026	6/1/2021	2.78	6/1/2028	6/1/2021	114.57538	109.2860378	104.2753213	99.52705929	95.02610364	90.75826061	86.71022548	82.86952213	79.22444704
210528A00003	5/28/2021	0.63	5/28/2024	5/28/2021	99.481872	98.41554964	97.37189133	96.35018212	95.34973635	94.36989665	93.41003246	92.4695387	91.5478345
210601A00002	6/1/2021	0.9	6/2/2025	6/1/2021	100.81891	98.76683209	96.76633408	94.81577774	92.91358539	91.05824122	89.24828839	87.48232623	85.75900761
210603A00015	6/7/2021	2.71	6/7/2028	6/7/2021	114.25493	108.9572055	103.9394213	99.18527905	94.67951877	90.4078447	86.35685914	82.5140012	78.86749003
210607A00001	6/7/2021	0.46	6/7/2023	6/7/2021	99.942279	99.83172965	99.72143783	99.61140308	99.50162447	99.39210108	99.28283198	99.17381625	99.06505298
210608A00005	6/8/2021	0.51	6/7/2024	6/8/2021	99.617379	98.51979537	97.44618941	96.39578296	95.36783128	94.3616212	93.37646945	92.41172113	91.46674821
210608A00017	6/10/2021	2.67	6/8/2029	6/10/2021	115.87796	109.5231488	103.5615086	97.96660425	92.71391787	87.78069631	83.1458151	78.7896535	74.69397984

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210609A00007	6/11/2021	2.6	6/11/2029	6/11/2021	115.45722	109.1069863	103.1503036	97.56067997	92.31354169	87.38608614	82.757145	78.40705884	74.31756178
210609A00011	6/11/2021	1.32	6/11/2024	6/11/2021	100.28386	99.17539255	98.09128526	97.03074329	95.99300502	94.97734136	93.98305402	93.00947385	92.05595942
210609A00013	6/11/2021	1.64	6/11/2025	6/11/2021	102.42921	100.3360865	98.29592085	96.30700781	94.36771328	92.47646806	90.63176476	88.83215477	87.07624553
210621A00008	6/21/2021	1.04	6/23/2025	6/21/2021	101.19827	99.08704103	97.02987296	95.02500715	93.07075361	91.16549064	89.3076614	87.49577077	85.72838239
210623A00011	6/23/2021	0.56	6/23/2023	6/23/2021	99.916384	99.76180515	99.607711	99.45409905	99.30096702	99.14831269	98.99613382	98.84442818	98.69319359
210624A00020	6/24/2021	0.78	6/24/2024	6/24/2021	99.689299	98.54987525	97.43628426	96.34765641	95.28316066	94.2420025	93.22342192	92.22669158	91.25111508
210624A00022	6/24/2021	0.87	6/24/2025	6/24/2021	101.37228	99.24589472	97.17419421	95.15538621	93.18775475	91.26965352	89.39950239	87.57578415	85.79704146
210709A00002	7/9/2021	1.36	7/9/2029	7/9/2021	109.49031	103.1821384	97.27448149	91.73986361	86.55283527	81.68981321	77.12893374	72.84991834	68.83395058
210715A00009	7/15/2021	0.54	7/17/2023	7/15/2021	99.848596	99.62829712	99.40897973	99.19063768	98.97326441	98.75685345	98.54139837	98.32689281	98.11333045
210720A00035	7/22/2021	2.27	7/21/2031	7/22/2021	116.55681	108.0904112	100.3074154	93.14893683	86.56146234	80.49633157	74.90927287	69.75998611	65.01176704
210722A00001	7/22/2021	1.1	7/22/2026	7/22/2021	103.11112	99.92038832	96.8441577	93.87763933	91.01627379	88.25572196	85.59185273	83.02073147	80.53860921
210802A00002	8/2/2021	0.7	8/1/2025	8/2/2021	101.1575	98.93071854	96.76339768	94.65352417	92.59917253	90.59849801	88.64973245	86.75118037	84.9012153
210804A00008	8/6/2021	2.28	8/4/2028	8/6/2021	112.33913	106.9303008	101.8157461	96.97788143	92.40026944	88.0675375	83.96530271	80.08010272	76.39933178
210816A00003	8/16/2021	0.71	8/16/2024	8/16/2021	99.674486	98.40057255	97.15233198	95.92899858	94.72983773	93.55414389	92.40123916	91.27047192	90.16121555
210817A00013	8/19/2021	2	8/19/2026	8/19/2021	106.23528	102.9185356	99.72277797	96.64294152	93.67420621	90.81197952	88.05188447	85.38974812	82.82159094
210818A00005	8/18/2021	0.6	8/19/2024	8/18/2021	99.845293	98.55829452	97.29647078	96.05910182	94.84549538	93.6549855	92.48693129	91.34071572	90.21574451
210818A00007	8/18/2021	0.81	8/18/2025	8/18/2021	101.47824	99.20290851	96.98938862	94.83562859	92.73966252	90.69960232	88.71363411	86.7800147	84.89706838
210830A00011	8/30/2021	0.53	8/30/2023	8/30/2021	99.744277	99.40411196	99.0662595	98.73069619	98.39739886	98.06634463	97.73751094	97.41087555	97.0864165
210901A00012	9/1/2021	0.51	9/1/2023	9/1/2021	99.733122	99.38754904	99.04436701	98.70355075	98.36507586	98.02891826	97.69505421	97.3634603	97.03411341
210903A00002	9/8/2021	1.22	9/8/2023	9/8/2021	99.979713	99.61457602	99.25211037	98.89228652	98.53507556	98.18044903	97.82837885	97.47883738	97.13179734
210916A00007	9/16/2021	0.75	9/16/2024	9/16/2021	99.783363	98.43126152	97.10376996	95.80027557	94.52018544	93.26292571	92.02794079	90.81469269	89.62266028
210917A00008	9/17/2021	1.55	9/15/2028	9/17/2021	108.55661	103.1353583	98.01642277	93.18144338	88.61326492	84.29585143	80.21420775	76.35430699	72.70302336
210924A00003	9/24/2021	2.37	9/24/2036	9/24/2021	124.06183	110.3237801	98.284801	87.72388066	78.44985873	70.29726118	63.12273319	56.80198254	51.22715846
210924A00004	9/24/2021	2.37	9/24/2036	9/24/2021	124.06183	110.3237801	98.284801	87.72388066	78.44985873	70.29726118	63.12273319	56.80198254	51.22715846
210924A00005	9/24/2021	2.37	9/24/2036	9/24/2021	124.06183	110.3237801	98.284801	87.72388066	78.44985873	70.29726118	63.12273319	56.80198254	51.22715846
210924A00011	9/24/2021	2.19	9/25/2034	9/24/2021	120.16298	108.4922448	98.07856986	88.77921805	80.46835223	73.03495689	66.38102591	60.41997977	55.07528209
211001A00001	10/1/2021	0.59	10/2/2023	10/1/2021	99.693543	99.26411446	98.83837405	98.41627402	97.99776784	97.58280978	97.17135487	96.76335891	96.35877843
211005A00019	10/5/2021	0.47	10/5/2023	10/5/2021	99.720649	99.28203203	98.84726931	98.41631011	97.9891046	97.56560379	97.14575956	96.72952461	96.31685246
211015A00028	10/15/2021	0.73	10/16/2023	10/15/2021	99.724445	99.25722606	98.79437764	98.33583861	97.88154895	97.43144972	96.98548308	96.54359225	96.10572148
211022A00008	10/22/2021	1.12	10/22/2024	10/22/2021	100.40741	98.95512548	97.53101564	96.13433296	94.76435625	93.42038911	92.10175884	90.80781541	89.53793056
211206A00010	12/6/2021	1.54	12/4/2026	12/6/2021	105.34278	101.7535286	98.30541052	94.9921039	91.80760845	88.74622578	85.80254242	82.97141375	80.24794908
211217A00021	12/21/2021	2.44	12/18/2026	12/21/2021	108.72849	105.0390317	101.4952561	98.09059338	94.81880996	91.67398888	88.65051165	85.74304129	82.94650644
211222A00003	12/22/2021	1.33	1/15/2025	12/22/2021	101.06588	99.38232713	97.73463267	96.12171079	94.54252417	92.996077	91.4814129	89.99761289	88.54379357

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
211222A00004	12/22/2021	1.26	10/15/2024	12/22/2021	100.59179	99.1568725	97.7494382	96.36877133	95.01417658	93.68498221	92.38053904	91.10021954	89.84341691
211222A00005	12/22/2021	1.2	7/15/2024	12/22/2021	100.23131	99.03262779	97.86242309	96.71968865	95.6034666	94.51284319	93.4469462	92.40494262	91.3860365
211222A00008	12/22/2021	1.13	4/15/2024	12/22/2021	99.954785	99.00010679	98.06356505	97.14464647	96.2428574	95.35772247	94.48878375	93.63559999	92.79774583
211222A00010	12/22/2021	1.06	1/16/2024	12/22/2021	99.831271	99.11696996	98.41285017	97.71869517	97.03429455	96.35944377	95.69394399	95.03760186	94.39022933
211222A00011	12/22/2021	0.97	10/16/2023	12/22/2021	99.838039	99.370503	98.90734011	98.44848874	97.99388883	97.54348144	97.09720869	96.65501379	96.21684096
211222A00012	12/22/2021	0.88	7/17/2023	12/22/2021	99.924019	99.70360242	99.48416779	99.2657089	99.04821921	98.83169222	98.61612153	98.40150075	98.18782358
211222A00017	12/22/2021	0.88	7/17/2023	12/22/2021	99.924019	99.70360242	99.48416779	99.2657089	99.04821921	98.83169222	98.61612153	98.40150075	98.18782358
211222A00018	12/22/2021	0.88	7/17/2023	12/22/2021	99.924019	99.70360242	99.48416779	99.2657089	99.04821921	98.83169222	98.61612153	98.40150075	98.18782358
211222A00019	12/22/2021	0.97	10/16/2023	12/22/2021	99.838039	99.370503	98.90734011	98.44848874	97.99388883	97.54348144	97.09720869	96.65501379	96.21684096
211222A00020	12/22/2021	0.97	10/16/2023	12/22/2021	99.838039	99.370503	98.90734011	98.44848874	97.99388883	97.54348144	97.09720869	96.65501379	96.21684096
211222A00021	12/22/2021	1.06	1/16/2024	12/22/2021	99.831271	99.11696996	98.41285017	97.71869517	97.03429455	96.35944377	95.69394399	95.03760186	94.39022933
211222A00022	12/22/2021	1.06	1/16/2024	12/22/2021	99.831271	99.11696996	98.41285017	97.71869517	97.03429455	96.35944377	95.69394399	95.03760186	94.39022933
211222A00023	12/22/2021	1.13	4/15/2024	12/22/2021	99.954785	99.00010679	98.06356505	97.14464647	96.2428574	95.35772247	94.48878375	93.63559999	92.79774583
211222A00024	12/22/2021	1.13	4/15/2024	12/22/2021	99.954785	99.00010679	98.06356505	97.14464647	96.2428574	95.35772247	94.48878375	93.63559999	92.79774583
211222A00025	12/22/2021	1.2	7/15/2024	12/22/2021	100.23131	99.03262779	97.86242309	96.71968865	95.6034666	94.51284319	93.4469462	92.40494262	91.3860365
211222A00026	12/22/2021	1.2	7/15/2024	12/22/2021	100.23131	99.03262779	97.86242309	96.71968865	95.6034666	94.51284319	93.4469462	92.40494262	91.3860365
211222A00027	12/22/2021	1.26	10/15/2024	12/22/2021	100.59179	99.1568725	97.7494382	96.36877133	95.01417658	93.68498221	92.38053904	91.10021954	89.84341691
211222A00029	12/22/2021	1.26	10/15/2024	12/22/2021	100.59179	99.1568725	97.7494382	96.36877133	95.01417658	93.68498221	92.38053904	91.10021954	89.84341691
211222A00030	12/22/2021	1.33	1/15/2025	12/22/2021	101.06588	99.38232713	97.73463267	96.12171079	94.54252417	92.996077	91.4814129	89.99761289	88.54379357
211222A00031	12/22/2021	1.33	1/15/2025	12/22/2021	101.06588	99.38232713	97.73463267	96.12171079	94.54252417	92.996077	91.4814129	89.99761289	88.54379357
220106A00018	1/10/2022	3.11	1/8/2032	1/10/2022	124.73379	115.4699614	106.9834368	99.20444773	92.06984674	85.52244541	79.51042284	73.98679562	68.90894272
220106A00019	1/10/2022	3.17	1/7/2033	1/10/2022	127.78887	117.3881245	107.9457874	99.3676945	91.56941875	84.47521607	78.01709031	72.13396322	66.77093738
220112A00004	1/12/2022	1.55	1/12/2026	1/12/2022	104.14817	101.4431116	98.8217252	96.28088344	93.81760043	91.4290231	89.11242423	86.86519584	84.68484297
220112A00005	1/12/2022	1.55	1/12/2026	1/12/2022	104.14817	101.4431116	98.8217252	96.28088344	93.81760043	91.4290231	89.11242423	86.86519584	84.68484297
220118A00008	1/18/2022	1.36	1/18/2024	1/18/2022	100.05082	99.33029304	98.62010303	97.920033	97.22986778	96.54939827	95.87842121	95.21673902	94.56415952
220118A00009	1/18/2022	1.65	1/17/2025	1/18/2022	101.62927	99.93546029	98.27779062	96.65516887	95.06654694	93.51091882	91.98731845	90.49481766	89.03252431
220125A00010	1/25/2022	1.89	1/25/2027	1/25/2022	106.97981	103.2195605	99.61165453	96.14904741	92.82506281	89.63337322	86.56797932	83.62319071	80.79360788
220217A00021	2/17/2022	1.85	2/13/2024	2/17/2022	100.46618	99.67445699	98.89517929	98.12805379	97.37279779	96.62913731	95.89680674	95.17554853	94.46511289
220225A00013	2/25/2022	1.92	2/23/2024	2/25/2022	100.5511	99.7322576	98.9267052	98.13412391	97.35420239	96.58663921	95.83114243	95.08742924	94.35522563
220310A00005	3/10/2022	2.06	3/8/2024	3/10/2022	100.7162	99.85913625	99.01661434	98.18826986	97.37374715	96.57270239	95.78480307	95.00972755	94.24716459
220317A00012	3/17/2022	1.99	9/15/2023	3/17/2022	100.27327	99.88846041	99.50661327	99.12769106	98.75166019	98.37848754	98.00814052	97.64058703	97.27579545
220322A00010	3/22/2022	2.34	9/22/2023	3/22/2022	100.42921	100.0249917	99.62402904	99.22628065	98.83170798	98.44027307	98.05193856	97.66666771	97.28442432
220323A00008	3/23/2022	2.47	3/25/2024	3/23/2022	101.15325	100.2485612	99.36001757	98.48718909	97.62966157	96.78703535	95.95892456	95.14495654	94.34477131

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220401A00009	4/1/2022	2.98	4/1/2027	4/1/2022	111.76536	107.7270962	103.8587245	100.1522048	96.59992254	93.19466109	89.92957883	86.79818775	83.79433331
220406A00006	4/6/2022	2.65	10/6/2023	4/6/2022	100.60428	100.1616274	99.72287385	99.28796503	98.85685045	98.42948053	98.00580656	97.58578067	97.16935583
220406A00007	4/6/2022	2.87	4/8/2024	4/6/2022	101.60584	100.6612983	99.73430723	98.82437737	97.93104058	97.05384572	96.19235788	95.34615764	94.51484044
220421A00013	4/21/2022	3.33	9/15/2026	4/21/2022	110.9521	107.483274	104.1427116	100.9249992	97.82497888	94.83773635	91.95858852	89.18307118	86.5069276
220421A00015	4/21/2022	3.12	9/16/2024	4/21/2022	103.09294	101.7166833	100.3654539	99.03862309	97.735587	96.45576124	95.19858014	93.96349596	92.74997819
220429A00002	4/29/2022	3.63	4/29/2032	4/29/2022	130.22313	120.4130571	111.4467492	103.2464758	95.74206835	88.87014658	82.57342901	76.80011701	71.50334392
220429A00006	4/29/2022	3.06	4/29/2024	4/29/2022	101.93941	100.9365905	99.95347795	98.98950007	98.04410214	97.11675072	96.20693262	95.31415392	94.43793912
220429A00007	4/29/2022	3.14	10/29/2024	4/29/2022	103.48898	101.993755	100.5278197	99.09038792	97.68070119	96.2980273	94.94165936	93.61091461	92.30513344
220505A00026	5/9/2022	2.69	8/22/2023	5/9/2022	100.45621	100.1363604	99.818554	99.5027684	99.18898436	98.87718287	98.56734514	98.25945265	97.95348709
220510A00014	5/13/2022	2.72	11/6/2023	5/13/2022	100.7391	100.2123071	99.69102293	99.17516072	98.66463612	98.15936648	97.65927089	97.16427006	96.67428632
220518A00008	5/18/2022	3.01	5/20/2024	5/18/2022	102.03562	100.9757869	99.93795462	98.92144584	97.92560796	96.94981483	95.99346534	95.05598223	94.1368109
220531A00020	5/31/2022	2.86	5/31/2024	5/31/2022	101.93768	100.8490177	99.78357822	98.74062415	97.71944907	96.7193759	95.73975535	94.77996456	93.83940573
220601A00022	6/1/2022	2.73	12/1/2023	6/1/2022	100.84322	100.2486151	99.66100726	99.08027626	98.50630188	97.93896672	97.37815608	96.8237579	96.27566268
220601A00038	6/3/2022	3.69	5/28/2032	6/3/2022	131.02016	121.0920601	112.0236244	103.7351239	96.15463426	89.21723666	82.8643017	77.04284955	71.70497838
220602A00039	6/2/2022	3.11	6/2/2027	6/2/2022	114.01802	109.730618	105.6305167	101.7085046	97.95587298	94.36438836	90.9262633	87.63412985	84.48101443
220622A00010	6/22/2022	3.43	7/12/2024	6/22/2022	102.92226	101.714467	100.5350471	99.38300941	98.25740733	97.15733764	96.08193788	95.03038405	94.00188853
220624A00016	6/24/2022	3.34	6/24/2026	6/24/2022	110.91796	107.6591522	104.5142741	101.4786643	98.54788277	95.71769893	92.98408011	90.34318098	87.79133354
220630A00045	6/30/2022	3.39	6/30/2026	6/30/2022	110.31091	107.0650934	103.9328702	100.9095859	97.99080816	95.17231396	92.45007828	89.82026342	87.27920897
220701A00014	7/1/2022	3.15	7/14/2023	7/1/2022	100.41424	100.2012906	99.98925832	99.77813521	99.56791541	99.35859307	99.15016241	98.94261768	98.73595318
220711A00020	7/11/2022	3.25	1/11/2024	7/11/2022	101.55381	100.843948	100.1440162	99.45380895	98.77312422	98.10176564	97.4395422	96.78626805	96.14176239
220726A00059	7/26/2022	3.34	1/26/2024	7/26/2022	101.55034	100.8022003	100.065081	99.3387362	98.62293099	97.91743713	97.22203296	96.53650311	95.86063832
220726A00060	7/26/2022	3.32	7/26/2024	7/26/2022	102.91724	101.6715592	100.4560426	99.26960183	98.11120227	96.97985781	95.87462813	94.79461606	93.73896511
220729A00035	8/3/2022	3.14	8/3/2027	8/3/2022	113.63095	109.2097421	104.9876781	100.9546743	97.10121639	93.41832433	89.89751884	86.53079037	83.31057033
220815A00004	8/15/2022	3.54	2/15/2024	8/15/2022	101.839	101.0358388	100.2453593	99.46726048	98.70125283	97.94705575	97.20439728	96.47301375	95.75264949
220815A00006	8/15/2022	3.52	8/15/2024	8/15/2022	103.34977	102.0529373	100.7824316	99.53746086	98.31726264	97.12110513	95.94828555	94.79812869	93.66998557
220819A00037	8/19/2022	3.61	2/20/2024	8/19/2022	101.9332	101.1161548	100.312221	99.52108169	98.74243283	97.97598004	97.22143812	96.4785307	95.74698991
220819A00038	8/19/2022	3.59	8/19/2024	8/19/2022	103.48138	102.1740661	100.8921897	99.63502145	98.40186382	97.1920458	96.00492153	94.83986912	93.69628954
220823A00056	8/23/2022	3.5	8/23/2024	8/23/2022	103.7203	102.3967599	101.0979363	99.82317002	98.57182317	97.34328022	96.13694732	94.95225124	93.78863849
220823A00060	8/23/2022	3.5	8/23/2024	8/23/2022	103.7203	102.3967599	101.0979363	99.82317002	98.57182317	97.34328022	96.13694732	94.95225124	93.78863849
220826A00033	8/26/2022	3.73	8/26/2025	8/26/2022	107.76413	105.4051129	103.110016	100.8767543	98.70332107	96.58778644	94.52829411	92.5230581	90.57035959
220830A00055	8/30/2022	3.7	8/30/2029	8/30/2022	122.80184	116.0053301	109.6392132	103.6738868	98.08193254	92.83794331	87.91836595	83.30135723	78.96665155
220902A00042	9/2/2022	3.89	9/5/2023	9/2/2022	100.94182	100.5826887	100.2261222	99.87209088	99.5205677	99.17152599	98.82493943	98.48078212	98.13902849
220902A00043	9/2/2022	3.91	3/4/2024	9/2/2022	102.29021	101.4364974	100.5970522	99.77151899	98.95955354	98.1608231	97.37500567	96.60178963	95.84087333

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220909A00052	9/9/2022	3.95	3/8/2024	9/9/2022	102.35976	101.4949191	100.6447194	99.80878783	98.98676704	98.17831142	97.38308679	96.60076983	95.83104774
220916A00042	9/16/2022	4.07	9/16/2030	9/16/2022	130.67979	122.4400594	114.7963429	107.7020808	101.1145852	94.99470058	89.30649443	84.0169765	79.09584392
220916A00043	9/16/2022	4.07	9/16/2031	9/16/2022	134.54937	125.0852445	116.3851415	108.3827561	101.0178802	94.23580957	87.98681409	82.22566202	76.91119165
220920A00050	9/20/2022	4.37	9/20/2024	9/20/2022	104.8845	103.4845354	102.110179	100.7607869	99.43573697	98.13442724	96.85627521	95.60071698	94.36720654
220922A00042	9/22/2022	4.6	3/22/2024	9/22/2022	103.07321	102.1671189	101.2770104	100.4024619	99.54306749	98.69843512	97.86818622	97.05195508	96.24938829
220923A00035	9/23/2022	4.7	3/22/2024	9/23/2022	103.16401	102.2574787	101.3669295	100.4919458	99.63212151	98.78706444	97.95639593	97.13975018	96.33677367
220927A00024	9/27/2022	4.7	9/27/2024	9/27/2022	105.4358	104.013131	102.6167806	101.2460774	99.9003756	98.57905038	97.28149738	96.00713172	94.75538732
220927A00071	9/27/2022	4.7	9/26/2024	9/27/2022	105.42339	104.003479	102.6097905	101.2416595	99.89844324	98.57951998	97.28428829	96.01216614	94.76259012
220927A00073	9/27/2022	4.72	9/26/2025	9/27/2022	110.52267	108.046277	105.6389194	103.2982798	101.0221365	98.80835465	96.65488297	94.55974955	92.52105846
221006A00033	10/6/2022	4.56	10/7/2024	10/6/2022	105.36161	103.9120585	102.4898071	101.0941548	99.72441983	98.37994292	97.06008685	95.76423534	94.49179224
221007A00003	10/7/2022	4.67	10/7/2025	10/7/2022	110.55902	108.0514173	105.6145405	103.245992	100.943469	98.70475985	96.5277407	94.41037086	92.35068929
221011A00036	10/11/2022	4.59	10/6/2026	10/11/2022	115.54163	111.9357044	108.4644383	105.1220699	101.9031178	98.80236345	95.81483722	92.93580523	90.16075677
221011A00037	10/11/2022	4.68	10/7/2024	10/11/2022	105.5361	104.0852215	102.6616714	101.2647426	99.8937526	98.54804167	97.226972	95.92992678	94.65630934
221012A00051	10/12/2022	4.7	10/11/2024	10/12/2022	105.61717	104.1546616	102.7198991	101.3121599	99.93074615	98.57498358	97.24422051	95.93782684	94.6551932
221014A00026	10/14/2022	4.63	10/14/2027	10/14/2022	121.08454	116.2971865	111.7324722	107.3788233	103.2253303	99.26170479	95.47824119	91.86578046	88.41567656
221014A00037	10/14/2022	4.86	10/15/2024	10/14/2022	105.90532	104.4295853	102.9820483	101.5619655	100.168623	98.80133115	97.45942354	96.14225604	94.84920585
221014A00043	10/14/2022	4.49	10/14/2027	10/14/2022	121.69756	116.8603747	112.2489581	107.8515319	103.6569989	99.65489625	95.83535541	92.18906555	88.70723892
221014A00050	10/14/2022	4.49	10/14/2027	10/14/2022	121.69756	116.8603747	112.2489581	107.8515319	103.6569989	99.65489625	95.83535541	92.18906555	88.70723892
221018A00006	10/18/2022	4.55	10/18/2027	10/18/2022	120.77976	115.9875012	111.418719	107.0617694	102.9056749	98.94008478	95.15523616	91.54191729	88.09143369
221018A00046	10/18/2022	4.9	4/30/2024	10/18/2022	103.81449	102.7987836	101.8030342	100.8266594	99.86909678	98.92980564	98.00826575	97.10397648	96.2164559
221018A00047	10/18/2022	4.78	10/20/2025	10/18/2022	111.02021	108.4702783	105.9932452	103.5865979	101.2479305	98.97493443	96.76539345	94.61717981	92.52824994
221018A00048	10/18/2022	4.71	10/19/2026	10/18/2022	116.15016	112.4963774	108.9803035	105.595988	102.337773	99.20027462	96.17836877	93.26717679	90.46205239
221018A00049	10/18/2022	4.59	10/18/2027	10/18/2022	120.96011	116.1638408	111.5911833	107.2304897	103.0707771	99.10168932	95.31345857	91.69686832	88.24321953
221026A00031	10/26/2022	4.9	4/26/2024	10/26/2022	103.76647	102.7618691	101.7768054	100.8107084	99.86303315	98.93325564	98.02087148	97.12539509	96.24635885
221026A00032	10/26/2022	4.81	10/25/2024	10/26/2022	105.96451	104.460784	102.9862961	101.5402644	100.1219365	98.73058575	97.3655107	96.02603354	94.71149936
221028A00043	10/28/2022	4.88	4/24/2024	10/28/2022	103.72282	102.7238751	101.7442513	100.7833935	99.84076542	98.91585094	98.00815327	97.11719406	96.24251255
221028A00056	10/28/2022	4.77	10/28/2024	10/28/2022	105.94394	104.4321241	102.9498544	101.4963392	100.0708142	98.67254185	97.30080997	95.9549307	94.63423947
221031A00003	10/31/2022	4.89	11/12/2024	10/31/2022	106.33235	104.7768563	103.2521792	101.7574692	100.2919112	98.85471925	97.44513525	96.06242768	94.70589049
221031A00004	10/31/2022	4.79	10/28/2025	10/31/2022	111.16287	108.5886451	106.0886218	103.6602254	101.3009867	99.0085371	96.78060393	94.61500585	92.50964867
221031A00044	10/31/2022	4.89	10/31/2024	10/31/2022	106.16674	104.6450474	103.1531738	101.690314	100.2556932	98.84856377	97.4682039	96.11391664	94.78502874
221031A00045	10/31/2022	4.79	10/31/2025	10/31/2022	111.20689	108.6238191	106.115363	103.6789268	101.3120212	99.01225912	96.77735002	94.60509594	92.49338694
221103A00050	11/3/2022	5.14	11/4/2024	11/3/2022	106.60465	105.0686507	103.5628524	102.0864352	100.6386094	99.21861333	97.82571202	96.45919575	95.11837919
221107A00056	11/7/2022	4.73	11/8/2027	11/7/2022	121.88825	117.0103909	112.3622384	107.9316976	103.7073743	99.6785324	95.83505233	92.16739218	88.6665517

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221110A00036	11/10/2022	4.56	11/10/2025	11/10/2022	110.7671	108.1620884	105.6329128	103.1769117	100.7915339	98.47433389	96.2229664	94.03518181	91.90882149
221110A00037	11/10/2022	4.45	11/10/2026	11/10/2022	115.55129	111.8456965	108.2818839	104.8536386	101.555051	98.38050292	95.32465155	92.3824141	89.54895376
221110A00039	11/10/2022	4.34	11/10/2027	11/10/2022	120.13288	115.2888641	110.673674	106.2752382	102.0821844	98.08379803	94.26998066	90.63121147	87.15851089
221110A00084	11/10/2022	4.56	11/6/2025	11/10/2022	110.71094	108.1176588	105.5996592	103.1543068	100.7790773	98.47155034	96.22940461	94.0504129	91.93243781
221110A00086	11/10/2022	4.34	11/8/2027	11/10/2022	120.107	115.269266	110.6598514	106.2667215	102.0785389	98.08462125	94.27490007	90.63988206	87.17061314
221116A00026	11/16/2022	4.78	11/15/2024	11/16/2022	106.20204	104.6394889	103.1079804	101.6066568	100.1346934	98.69129505	97.27569516	95.88715403	94.52495783
221116A00027	11/16/2022	4.46	11/14/2025	11/16/2022	110.56715	107.9537144	105.4166012	102.9531199	100.5606945	98.23685628	95.97923797	93.78556933	91.6536723
221116A00028	11/16/2022	4.21	11/16/2027	11/16/2022	119.56367	114.7169275	110.0999183	105.7004871	101.507184	97.50922352	93.69644234	90.05926015	86.58864294
221118A00008	11/18/2022	5.09	11/30/2023	11/18/2022	102.2489	101.6522253	101.0625297	100.4796871	99.90357835	99.3340872	98.77110003	98.2145058	97.66419599
221122A00011	11/22/2022	5.14	5/22/2024	11/22/2022	104.32982	103.2516143	102.1958168	101.1617348	100.1487019	99.15607873	98.18325163	97.22963136	96.29465185
221122A00015	11/22/2022	4.97	11/22/2024	11/22/2022	106.59677	105.0120871	103.4590809	101.9368693	100.4446026	98.98146177	97.54665741	96.1394283	94.75904013
221122A00041	11/22/2022	4.97	11/22/2024	11/22/2022	106.59677	105.0120871	103.4590809	101.9368693	100.4446026	98.98146177	97.54665741	96.1394283	94.75904013
221130A00069	11/30/2022	4.15	11/30/2027	11/30/2022	120.78573	115.8318287	111.1150469	106.6227137	102.3429043	98.26439291	94.37660806	90.66959066	87.13395516
221130A00075	11/30/2022	4.15	11/30/2027	11/30/2022	120.78573	115.8318287	111.1150469	106.6227137	102.3429043	98.26439292	94.37660806	90.66959066	87.13395516
221130A00078	11/30/2022	4.15	11/30/2027	11/30/2022	120.78573	115.8318287	111.1150469	106.6227137	102.3429043	98.26439291	94.37660806	90.66959066	87.13395516
221130A00081	11/30/2022	4.15	11/30/2027	11/30/2022	120.78573	115.8318287	111.1150469	106.6227137	102.3429043	98.26439292	94.37660806	90.66959066	87.13395516
221201A00006	12/1/2022	4.77	12/2/2024	12/1/2022	106.40115	104.7909752	103.2133055	101.6672255	100.1518506	98.66632909	97.20984057	95.78159433	94.38082814
221201A00009	12/1/2022	4.22	12/1/2025	12/1/2022	110.85664	108.1779127	105.5786638	103.0560443	100.6073264	98.22989843	95.92125828	93.6790085	91.50085096
221201A00011	12/1/2022	3.95	12/1/2027	12/1/2022	119.86737	114.9315423	110.2323601	105.757163	101.4940375	97.43176957	93.55979926	89.86817887	86.34753412
221201A00037	12/1/2022	4.26	12/1/2026	12/1/2022	115.16099	111.4033085	107.7912499	104.318345	100.9784504	97.76573002	94.674638	91.69990219	88.83650914
221201A00048	12/1/2022	4.22	12/1/2027	12/1/2022	119.79843	114.9035146	110.2422365	105.8021415	101.5715096	97.53930633	93.69513831	90.02921279	86.53229948
221205A00034	12/5/2022	4.89	6/5/2024	12/5/2022	104.23345	103.1177398	102.0260404	100.9575795	99.91161949	98.88745337	97.88440366	96.9018207	95.93908129
221205A00088	12/5/2022	4.13	12/3/2027	12/5/2022	119.40652	114.5147114	109.8567386	105.4201254	101.1931276	97.16468905	93.3243966	89.66243964	86.16957172
221207A00101	12/7/2022	4.87	6/7/2024	12/7/2022	104.24719	103.1257891	102.0286448	100.9549705	99.90401727	98.87506777	97.8674347	96.88045909	95.91350896
221208A00001	12/8/2022	4.6	12/8/2033	12/8/2022	144.99129	132.7997307	121.8019749	111.8726971	102.9004158	94.78589845	87.44075506	80.78619972	74.75195939
221208A00005	12/8/2022	4.88	12/8/2037	12/8/2022	161.20348	143.8207286	128.6596976	115.4165528	103.8308885	93.67929823	84.76992555	76.93784299	70.04112948
221208A00006	12/8/2022	4.88	12/8/2037	12/8/2022	161.20348	143.8207286	128.6596976	115.4165528	103.8308885	93.67929823	84.76992555	76.93784299	70.04112948
221208A00050	12/8/2022	4.11	12/8/2027	12/8/2022	119.37558	114.4698794	109.7992817	105.3512105	101.1138302	97.076	93.22722916	89.55763551	86.05790663
221208A00058	12/8/2022	4.41	12/8/2025	12/8/2022	110.76894	108.0860641	105.482955	102.956742	100.5046796	98.12413937	95.81260384	93.56766123	91.38700008
221208A00059	12/8/2022	4.25	12/8/2026	12/8/2022	115.22159	111.44263	107.8107418	104.3193653	100.9622697	97.73353741	94.62754654	91.63895418	88.76268083
221208A00061	12/8/2022	4.11	12/8/2027	12/8/2022	119.37558	114.4698794	109.7992817	105.3512105	101.1138302	97.076	93.22722916	89.55763551	86.05790663
221208A00062	12/8/2022	4.24	12/8/2028	12/8/2022	123.97375	117.8998606	112.1704691	106.7640935	101.6607073	96.8416324	92.28944099	87.98786526	83.9217141
221209A00035	12/9/2022	3.91	12/9/2027	12/9/2022	119.78246	114.8248565	110.1059319	105.6128656	101.3335959	97.25677222	93.37170881	89.66834226	86.13719168

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221209A00037	12/9/2022	3.91	12/9/2027	12/9/2022	119.78246	114.8248565	110.1059319	105.6128656	101.3335959	97.25677222	93.37170881	89.66834226	86.13719168
221213A00051	12/13/2022	4.02	12/13/2027	12/13/2022	119.01762	114.1055588	109.4296049	104.9770946	100.7361112	96.69543951	92.84452071	89.17341006	85.67273784
221213A00056	12/13/2022	4.02	5/13/2026	12/13/2022	112.52132	109.3555241	106.2971085	103.3418171	100.4855865	97.72453832	95.05496911	92.47334162	89.9762762
221213A00070	12/13/2022	4.07	12/13/2027	12/13/2022	119.25081	114.3333859	109.6522607	105.1947593	100.9489572	96.90363167	93.04821697	89.37276166	85.86788965
221214A00002	12/14/2022	4.62	12/13/2024	12/14/2022	106.30882	104.6687609	103.0622151	101.4882225	99.9458564	98.43422552	96.95247178	95.49976889	94.07532088
221214A00046	12/14/2022	4.02	12/14/2027	12/14/2022	119.02973	114.1144731	109.4355977	104.980414	100.7369864	96.69408198	92.84112583	89.16815829	85.66579586
221214A00077	12/14/2022	3.84	12/14/2027	12/14/2022	119.51719	114.5508988	109.8243884	105.3247453	101.0398216	96.95818767	93.06908537	89.36238468	85.82854356
221214A00079	12/14/2022	3.84	12/14/2027	12/14/2022	119.51719	114.5508988	109.8243884	105.3247453	101.0398216	96.95818767	93.06908537	89.36238468	85.82854356
221216A00013	12/16/2022	4.04	12/16/2027	12/16/2022	119.14738	114.2235925	109.5367989	105.0742662	100.8240175	96.77478168	92.91594861	89.23752605	85.73010038
221216A00023	12/16/2022	4.04	12/13/2027	12/16/2022	119.1109	114.1966896	109.5186672	105.0641605	100.8212496	96.77871638	92.92599921	89.2531507	85.75079857
221219A00009	12/19/2022	4.83	6/19/2024	12/19/2022	104.35041	103.1957731	102.0668194	100.9627001	99.88260053	98.82574146	97.79137696	96.77879278	95.78730467
221220A00029	12/20/2022	4.7	12/20/2024	12/20/2022	106.53606	104.8745768	103.2473018	101.6532439	100.0914485	98.5609971	97.06100647	95.59062624	94.14903766
221221A00038	12/21/2022	4.43	12/20/2024	12/21/2022	106.50896	104.8405002	103.2065127	101.6059906	100.0379694	98.50152161	96.99575508	95.5198112	94.07286333
221221A00046	12/21/2022	4.33	12/19/2025	12/21/2022	110.7093	107.9960763	105.3642314	102.8108131	100.332994	97.92806853	95.5934469	93.32664918	91.12529979
221221A00048	12/21/2022	4.22	12/21/2026	12/21/2022	115.29115	111.4734658	107.8055486	104.2806615	100.8924098	97.63472381	94.50183958	91.48828201	88.58884833
221221A00049	12/21/2022	4.15	12/21/2027	12/21/2022	119.72364	114.7719922	110.0591021	105.5721196	101.2989541	97.22823019	93.34924038	89.65190262	86.12671994
221222A00012	12/22/2022	4.35	12/16/2025	12/22/2022	110.72123	108.016334	105.392375	102.8464224	100.3756712	97.97743717	95.64915031	93.38834942	91.19267654
221222A00013	12/22/2022	4.34	12/23/2025	12/22/2022	110.79074	108.0650992	105.42147	102.8568588	100.368407	97.95337992	95.60916022	93.3332421	91.12322563
221222A00014	12/22/2022	4.65	12/23/2024	12/22/2022	106.49405	104.82457	103.1895829	101.5880791	100.0190919	98.48169232	96.97498633	95.49811376	94.0502465
221222A00024	12/22/2022	4.35	12/15/2025	12/22/2022	110.70749	108.0056066	105.3845083	102.8412713	100.3730983	97.97731224	95.65134987	93.39275636	91.19917975
221222A00026	12/22/2022	4.22	12/15/2026	12/22/2022	115.2087	111.4097995	107.7593925	104.250825	100.8777791	97.63425637	94.51455969	91.51327597	88.62526034
221222A00027	12/22/2022	4.16	12/15/2027	12/22/2022	119.69554	114.7620483	110.0657385	105.593875	101.3344808	97.27628485	93.40867618	89.72166141	86.20582542
221222A00035	12/30/2022	4.34	12/30/2025	12/30/2022	110.88598	108.1394328	105.4759746	102.8925587	100.3862722	97.95432891	95.59406351	93.30292482	91.0784703
221223A00025	12/23/2022	4.25	12/23/2027	12/23/2022	120.21774	115.2488277	110.5196051	106.0171565	101.7293372	97.64472078	93.75255294	90.0427078	86.50564765
221228A00075	12/28/2022	4.09	12/28/2027	12/28/2022	120.87563	115.836308	111.041605	106.4782615	102.1338143	97.99654208	94.0554168	90.30005884	86.720695
221228A00094	12/28/2022	4.95	6/28/2024	12/28/2022	104.60267	103.4220312	102.2681837	101.1402225	100.037282	98.95853486	97.90318992	96.87049017	95.85971098
221230A00055	12/30/2022	4.59	12/30/2024	12/30/2022	106.91612	105.2162875	103.5519533	101.9220697	100.3256302	98.7616675	97.22925188	95.72748899	94.25551837
221230A00059	12/30/2022	4.47	6/30/2025	12/30/2022	109.28333	107.0528173	104.8795048	102.7615189	100.6970596	98.68440035	96.72188453	94.80792176	92.9409848
221230A00072	12/30/2022	4.8	12/31/2024	12/30/2022	106.85539	105.1607819	103.5014838	101.876459	100.2847073	98.72526751	97.19721573	95.69966318	94.23175469
221230A00086	12/30/2022	4.8	1/2/2025	12/30/2022	106.90025	105.1995511	103.5343794	101.9036846	100.3064578	98.74172949	97.20856784	95.70607665	94.23339366
221230A00087	12/30/2022	4.56	1/2/2026	12/30/2022	111.51915	108.7557826	106.0761543	103.4771883	100.9559423	98.50960254	96.13547749	93.8309914	91.59367845
221230A00088	12/30/2022	4.42	12/30/2026	12/30/2022	116.1535	112.2942287	108.5870416	105.0250568	101.6017495	98.31092808	95.14671501	92.10352897	89.17606788
221230A00108	12/30/2022	4.8	12/30/2024	12/30/2022	106.84157	105.149776	103.4931986	101.8707993	100.2815821	98.72458996	97.1989025	95.70363449	94.23793408

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221230A00109	12/30/2022	4.56	12/30/2025	12/30/2022	111.47732	108.722769	106.0514937	103.4604406	100.9466909	98.50745337	96.14005724	93.84194647	91.6106737
221230A00111	12/30/2022	4.42	12/30/2026	12/30/2022	116.1535	112.2942287	108.5870416	105.0250568	101.6017495	98.31092808	95.14671501	92.10352897	89.17606788
230103A00066	1/3/2023	4.19	7/15/2026	1/3/2023	113.9227	110.5556591	107.3076664	104.1737859	101.1493159	98.22978056	95.41091685	92.68866327	90.05914864
230103A00068	1/3/2023	4.69	3/13/2025	1/3/2023	107.66121	105.7613174	103.9047293	102.0901975	100.3165227	98.5825473	96.88715394	95.22926376	93.60783478
230103A00070	1/3/2023	4.53	10/15/2025	1/3/2023	110.32712	107.799946	105.3446827	102.958873	100.6401549	98.38626132	96.19501577	94.06432785	91.99218948
230105A00028	1/5/2023	4.93	10/18/2024	1/5/2023	106.04952	104.5644114	103.1078256	101.6790096	100.2772377	98.90180868	97.55204541	96.22729329	94.9269196
230106A00032	1/6/2023	4.28	1/6/2026	1/6/2023	111.52621	108.7362861	106.0314893	103.408673	100.8648265	98.3970719	96.00265693	93.67894877	91.42342772
230109A00011	1/9/2023	4.61	1/6/2025	1/9/2023	106.61468	104.9059903	103.2331632	101.5951326	99.99087481	98.41940626	96.87978185	95.37109287	93.89246525
230109A00027	1/9/2023	4.64	12/17/2024	1/9/2023	106.41261	104.7602471	103.141801	101.5562926	100.0027789	98.48035311	96.98814238	95.52530653	94.09103636
230110A00006	1/10/2023	4.06	1/10/2028	1/10/2023	119.53905	114.5345244	109.7737943	105.2435948	100.9314641	96.82568468	92.91523529	89.18974489	85.63945069
230110A00037	1/11/2023	4.66	11/15/2024	1/11/2023	106.01472	104.4536838	102.9236643	101.4238036	99.95327795	98.51129289	97.09708238	95.70990737	94.34905466
230110A00074	1/12/2023	4.65	1/10/2025	1/12/2023	106.75389	105.0328987	103.3481947	101.6986956	100.08336	98.5011876	96.95121767	95.43252649	93.94422588
230112A00054	1/12/2023	5.02	2/5/2024	1/12/2023	102.9304	102.1493954	101.380288	100.6228052	99.87668449	99.14167108	98.41751779	97.70398475	97.0008391
230112A00059	3/1/2023	4.04	3/2/2026	3/1/2023	110.85445	107.9381627	105.1147623	102.3807931	99.73295139	97.16807334	94.68312837	92.27521286	89.94154405
230118A00020	1/18/2023	3.87	1/16/2026	1/18/2023	110.54043	107.736412	105.0187401	102.3841926	99.82968845	97.3522842	94.94916631	92.61764451	90.35514531
230118A00053	1/18/2023	3.87	1/16/2026	1/18/2023	110.54043	107.736412	105.0187401	102.3841926	99.82968845	97.3522842	94.94916631	92.61764451	90.35514531
230118A00056	1/18/2023	3.87	1/16/2026	1/18/2023	110.54043	107.736412	105.0187401	102.3841926	99.82968845	97.3522842	94.94916631	92.61764451	90.35514531
230119A00067	1/19/2023	3.84	1/20/2026	1/19/2023	110.50898	107.6943686	104.9667184	102.3227656	99.75939748	97.27364056	94.86265329	92.52371903	90.25423959
230120A00049	1/20/2023	4.53	1/16/2025	1/20/2023	106.60925	104.8736896	103.1749793	101.5120083	99.88371094	98.28906447	96.72708644	95.19683291	93.69739648
230120A00082	1/20/2023	4.53	1/16/2025	1/20/2023	106.60925	104.8736896	103.1749793	101.5120083	99.88371094	98.28906447	96.72708644	95.19683291	93.69739648
230120A00099	1/20/2023	3.92	1/20/2026	1/20/2023	110.72941	107.9117468	105.1811128	102.5342461	99.9680317	97.47949397	95.06578932	92.7241992	90.4521235
230123A00016	1/23/2023	4.64	12/2/2024	1/23/2023	106.19218	104.5837366	103.007773	101.4633691	99.94964116	98.46573832	97.01084082	95.58415873	94.18493051
230124A00014	1/24/2023	4.23	1/26/2026	1/24/2023	110.94224	108.1209957	105.3869651	102.7368723	100.1675906	97.67613368	95.25964798	92.91540578	90.64079849
230125A00010	1/25/2023	4.01	1/25/2027	1/25/2023	114.97035	111.0604814	107.3073929	103.7038741	100.2430881	96.91855407	93.72412641	90.65397477	87.70256594
230125A00021	1/25/2023	3.95	1/26/2026	1/25/2023	110.89021	108.053771	105.3053412	102.641609	100.0594091	97.55571881	95.12765012	92.77244285	90.48745775
230125A00022	1/25/2023	3.8	1/25/2027	1/25/2023	115.18757	111.2470531	107.4651474	103.8345324	100.3482692	96.99978168	93.78283478	90.69151445	87.72020897
230125A00062	1/25/2023	4.84	7/25/2024	1/25/2023	104.79812	103.5429281	102.3179709	101.1221635	99.95447218	98.81391184	97.6995429	96.61046875	95.54583336
230125A00065	1/25/2023	4.84	7/25/2024	1/25/2023	104.79812	103.5429281	102.3179709	101.1221635	99.95447218	98.81391184	97.6995429	96.61046875	95.54583336
230126A00009	1/26/2023	4.84	7/26/2024	1/26/2023	104.82317	103.5649023	102.3370092	101.1383982	99.96802881	98.82490945	97.70809454	96.61668181	95.54980988
230126A00011	1/26/2023	4.84	7/26/2024	1/26/2023	104.82317	103.5649023	102.3370092	101.1383982	99.96802881	98.82490945	97.70809454	96.61668181	95.54980988
230127A00012	1/27/2023	4	1/27/2028	1/27/2023	119.44998	114.3996308	109.5974085	105.0297049	100.6837351	96.54748572	92.60966314	88.85964616	85.28744187
230127A00028	1/27/2023	4.7	7/26/2024	1/27/2023	104.93728	103.6737828	102.44086	101.2374068	100.062374	98.91476182	97.79361692	96.69802967	95.62713175
230127A00029	1/27/2023	4.7	7/26/2024	1/27/2023	104.93728	103.6737828	102.44086	101.2374068	100.062374	98.91476182	97.79361692	96.69802967	95.62713175

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230127A00044	1/27/2023	4.25	1/27/2026	1/27/2023	111.01058	108.185649	105.4481114	102.7946786	100.2222152	97.72772679	95.30835206	92.96135601	90.68412324
230127A00045	1/27/2023	4.12	1/27/2027	1/27/2023	115.41116	111.4874615	107.7212116	104.1051538	100.6324163	97.29648553	94.09118515	91.01065614	88.04933839
230127A00046	1/27/2023	4	1/27/2028	1/27/2023	119.44998	114.3996308	109.5974085	105.0297049	100.6837351	96.54748572	92.60966314	88.85964616	85.28744187
230127A00048	1/27/2023	4	1/27/2028	1/27/2023	119.44998	114.3996308	109.5974085	105.0297049	100.6837351	96.54748572	92.60966314	88.85964616	85.28744187
230127A00053	1/27/2023	4	1/27/2028	1/27/2023	119.44998	114.3996308	109.5974085	105.0297049	100.6837351	96.54748572	92.60966314	88.85964616	85.28744187
230127A00056	1/27/2023	3.78	1/27/2028	1/27/2023	119.7598	114.6605481	109.8128888	105.2029734	100.8177941	96.64513077	92.67349783	88.89209601	85.29076708
230127A00059	1/27/2023	4.41	1/27/2025	1/27/2023	106.98975	105.213299	103.4751566	101.7741533	100.1091635	98.47910735	96.88294886	95.31969319	93.78838477
230127A00060	1/30/2023	4.25	2/3/2026	1/30/2023	111.10171	108.2563243	105.4994789	102.8278502	100.2382669	97.72769887	95.29324953	92.93214872	90.64174631
230127A00073	1/27/2023	4.24	2/17/2026	1/27/2023	111.25557	108.3696691	105.5746201	102.8670414	100.2436962	97.7014875	95.2374513	92.84874977	90.53266517
230127A00075	1/27/2023	4.23	7/28/2025	1/27/2023	109.1471	106.838895	104.5915356	102.4029644	100.2712097	98.1943834	96.17067677	94.19835596	92.27575841
230127A00079	1/27/2023	4.23	7/28/2025	1/27/2023	109.1471	106.838895	104.5915356	102.4029644	100.2712097	98.1943834	96.17067677	94.19835596	92.27575841
230130A00084	1/30/2023	4.29	1/30/2026	1/30/2023	111.16061	108.3253788	105.5780566	102.9153446	100.3340889	97.83127703	95.4040301	93.04959594	90.76534244
230131A00041	1/31/2023	5.06	2/28/2024	1/31/2023	103.21838	102.3738986	101.5432846	100.7261932	99.92229594	99.13127471	98.35282162	97.58663852	96.83243663
230131A00087	2/3/2023	4.26	1/5/2026	2/3/2023	110.74965	107.9885089	105.3113186	102.7149827	100.196543	97.75317094	95.38216109	93.08092491	90.84698467
230201A00003	2/1/2023	3.93	1/31/2028	2/1/2023	119.15911	114.1043664	109.2985597	104.728021	100.3799075	96.24215092	92.30340627	88.55300407	84.98090623
230201A00047	2/1/2023	4.42	2/3/2025	2/1/2023	107.10247	105.305967	103.5485541	101.8290529	100.146331	98.49930112	96.88691843	95.30817874	93.76211636
230201A00048	2/1/2023	4.42	2/3/2025	2/1/2023	107.10247	105.305967	103.5485541	101.8290529	100.146331	98.49930112	96.88691843	95.30817874	93.76211636
230202A00006	2/2/2023	3.92	2/2/2027	2/2/2023	114.73108	110.8034687	107.0341918	103.4159503	99.94182372	96.60525134	93.40001133	90.32020083	87.36021755
230202A00011	2/2/2023	3.92	2/2/2027	2/2/2023	114.73108	110.8034687	107.0341918	103.4159503	99.94182372	96.60525134	93.40001133	90.32020083	87.36021755
230202A00033	2/2/2023	4.26	2/3/2025	2/2/2023	106.81696	105.0230771	103.2682358	101.5512591	99.8710161	98.22642061	96.61642912	95.04003857	93.49628438
230202A00041	2/2/2023	3.82	2/2/2028	2/2/2023	118.65252	113.6041292	108.8047807	104.2407851	99.89928487	95.76819773	91.83616538	88.09250575	84.5271689
230202A00042	2/2/2023	3.82	2/2/2028	2/2/2023	118.65252	113.6041292	108.8047807	104.2407851	99.89928487	95.76819773	91.83616538	88.09250575	84.5271689
230202A00045	2/2/2023	3.62	2/2/2028	2/2/2023	119.05498	113.9553148	109.1082566	104.4998735	100.1170798	95.94758146	91.97982379	88.20294227	84.60671747
230202A00061	2/2/2023	4.16	2/2/2026	2/2/2023	110.83835	107.999393	105.2487238	102.5830301	99.99914801	97.49405443	95.06485981	92.70880104	90.42323493
230202A00063	2/2/2023	4.4	5/15/2025	2/2/2023	107.952	105.8734309	103.8459294	101.8679037	99.93782513	98.05422391	96.21568578	94.42084967	92.66840528
230202A00064	2/2/2023	4.11	5/15/2026	2/2/2023	112.01566	108.8707554	105.8323284	102.8961608	100.0582303	97.31469707	94.66189439	92.09631976	89.61462645
230202A00065	2/2/2023	3.87	5/15/2028	2/2/2023	120.00192	114.6247575	109.5267248	104.6917953	100.1049497	95.75210548	91.62005341	87.69639882	83.96950709
230202A00071	2/2/2023	4.03	2/2/2027	2/2/2023	115.14813	111.2126606	107.4357643	103.8101286	100.3288244	96.98528295	93.77327469	90.68688936	87.72051759
230203A00025	2/3/2023	4.63	2/3/2025	2/3/2023	107.04141	105.2531588	103.5036954	101.7918525	100.1165093	98.47658953	96.87105885	95.29892299	93.75922567
230203A00026	2/3/2023	3.98	2/3/2028	2/3/2023	119.43261	114.3629504	109.5432624	104.9598114	100.5996952	96.45078919	92.50169491	88.7416922	85.16069497
230203A00038	2/3/2023	4.1	2/3/2027	2/3/2023	115.42648	111.4829866	107.6984307	104.0654893	100.5772178	97.2270323	94.00868872	90.91626269	87.94413133
230203A00039	2/3/2023	3.98	2/3/2028	2/3/2023	119.43261	114.3629504	109.5432624	104.9598114	100.5996952	96.45078919	92.50169491	88.7416922	85.16069497
230203A00065	2/3/2023	3.76	2/3/2028	2/3/2023	119.74345	114.6245651	109.7591487	105.1332258	100.7336687	96.54814375	92.56505832	88.77351215	85.16325186

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230206A00008	2/6/2023	4.58	2/6/2025	2/6/2023	107.43008	105.6224063	103.8542075	102.1243046	100.4315628	98.77489163	97.15324264	95.56560749	94.01101594
230206A00009	2/6/2023	4.58	2/6/2025	2/6/2023	107.43008	105.6224063	103.8542075	102.1243046	100.4315628	98.77489163	97.15324264	95.56560749	94.01101594
230207A00045	2/7/2023	5.07	8/7/2024	2/7/2023	105.26576	103.9750951	102.712813	101.4779712	100.2696729	99.08706002	97.92931177	96.79564229	95.6852989
230208A00024	2/8/2023	5.08	8/8/2024	2/8/2023	105.29271	103.9994458	102.7343356	101.496457	100.284929	99.09890842	97.93758833	96.80019579	95.68599022
230209A00015	2/9/2023	4.8	2/5/2025	2/9/2023	107.37197	105.5752857	103.8176636	102.0979341	100.4149746	98.76770611	97.15509149	95.57613333	94.02987198
230209A00023	2/9/2023	4.79	2/10/2025	2/9/2023	107.42365	105.6129773	103.8419204	102.1093123	100.4140284	98.75498657	97.13114574	95.54150355	93.98509469
230209A00024	2/9/2023	4.4	2/5/2026	2/9/2023	111.54621	108.6891113	105.9210203	103.2386026	100.6386737	98.11818973	95.67424068	93.30404303	91.00493345
230209A00025	2/9/2023	4.25	2/5/2027	2/9/2023	116.02236	112.0620403	108.2614284	104.6131616	101.1102632	97.74611834	94.51445284	91.4093135	88.42504957
230209A00027	2/9/2023	4.12	2/7/2028	2/9/2023	120.15202	115.0540326	110.2076998	105.5991896	101.2155077	97.04444168	93.07450994	89.29491343	85.69549137
230209A00037	2/9/2023	4.12	2/9/2028	2/9/2023	120.17512	115.0709396	110.2189659	105.6053343	101.217016	97.04176653	93.06807326	89.28510803	85.68268249
230210A00009	2/10/2023	4.93	12/11/2024	2/10/2023	106.78775	105.1492172	103.5440867	101.9714004	100.4302377	98.91971275	97.43897264	95.98719596	94.56359135
230210A00035	2/10/2023	4.52	2/10/2026	2/10/2023	111.94976	109.073247	106.2866863	103.5867168	100.9701268	98.4338456	95.97493563	93.5905862	91.27810687
230210A00049	2/10/2023	5.07	8/12/2024	2/10/2023	105.33605	104.0328128	102.7568219	101.5072225	100.2831977	99.08396407	97.90877075	96.75689716	95.62765174
230210A00055	2/10/2023	4.02	2/10/2028	2/10/2023	121.08651	115.9155513	111.0011319	106.3290941	101.8861423	97.65978308	93.63827257	89.81056701	86.16627724
230210A00062	2/10/2023	4.13	2/10/2027	2/10/2023	116.65926	112.645716	108.7950801	105.0998151	101.5527801	98.1472044	94.87666598	91.73507142	88.71663699
230210A00065	2/10/2023	4.02	2/10/2028	2/10/2023	121.08651	115.9155513	111.0011319	106.3290941	101.8861423	97.65978308	93.63827257	89.81056701	86.16627724
230213A00020	2/15/2023	4.28	1/25/2028	2/15/2023	120.76638	115.6906539	110.8636521	106.2717526	101.9021624	97.74285912	93.78253945	90.01057208	86.41695364
230215A00019	2/15/2023	5.01	2/18/2025	2/15/2023	107.93569	106.0986253	104.3021482	102.5450891	100.8263175	99.14474422	97.49931906	95.88902953	94.31289899
230221A00007	2/21/2023	4.5	10/18/2027	2/21/2023	120.55432	115.7670767	111.2031387	106.850869	102.6992972	98.73807911	94.95745814	91.3482285	87.90170139
230222A00024	2/22/2023	4.74	3/2/2026	2/22/2023	112.85567	109.9106574	107.0592218	104.2978897	101.6233356	99.03237512	96.52195771	94.08916063	91.73118277
230223A00010	2/23/2023	4.68	10/3/2025	2/23/2023	111.16458	108.6475566	106.2014296	103.8237943	101.5123453	99.26486905	97.07923925	94.95341301	92.88542702
230223A00012	2/23/2023	4.68	10/3/2025	2/23/2023	111.16458	108.6475566	106.2014296	103.8237943	101.5123453	99.26486905	97.07923925	94.95341301	92.88542702
230224A00020	2/24/2023	5.38	8/26/2024	2/24/2023	105.94791	104.606564	103.2893539	101.9956716	100.7249277	99.47655217	98.24999382	97.04471928	95.86021236
230224A00029	2/24/2023	4.87	2/24/2026	2/24/2023	113.1371	110.205179	107.3658997	104.6158278	101.9516733	99.3702864	96.86865058	94.44387626	92.09319464
230227A00029	2/27/2023	5.46	3/28/2024	2/27/2023	103.93183	103.0052558	102.0952789	101.201459	100.3233679	99.46059245	98.61273383	97.77940694	96.96023986
230227A00031	2/27/2023	5.44	4/29/2024	2/27/2023	104.34903	103.3331457	102.3371489	101.3604623	100.4025272	99.46280632	98.54078273	97.63595888	96.74785577
230227A00034	2/27/2023	5.42	5/28/2024	2/27/2023	104.71243	103.6157223	102.5421261	101.4909168	100.461398	99.45290212	98.46478858	97.49644272	96.54727433
230227A00035	2/27/2023	5.41	6/28/2024	2/27/2023	105.14413	103.9601228	102.8029569	101.6717294	100.5655732	99.48365989	98.42519689	97.389426	96.37562143
230227A00060	2/27/2023	4.86	2/27/2026	2/27/2023	113.15275	110.2123232	107.3650423	104.607455	101.9362565	99.34828217	96.84050045	94.41000674	92.05401729
230302A00028	3/2/2023	5.02	3/2/2026	3/2/2023	113.65616	110.6996553	107.8370056	105.0647283	102.3794893	99.77809583	97.25748945	94.81473974	92.44703826
230303A00019	3/3/2023	5.26	3/3/2025	3/3/2023	108.57292	106.6941349	104.8575389	103.0619379	101.3061787	99.58914774	97.90976963	96.2670055	94.65985155
230303A00020	3/3/2023	4.96	3/3/2026	3/3/2023	113.50055	110.5432306	107.6798963	104.9070573	102.2213718	99.61963959	97.09879525	94.65590182	92.28814469
230307A00020	3/7/2023	4.98	3/9/2026	3/7/2023	113.65367	110.6758416	107.7931725	105.0021057	102.2992401	99.68131931	97.14522504	94.6879704	92.30669361

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230307A00026	3/7/2023	4.98	3/6/2026	3/7/2023	113.60573	110.6377413	107.7643376	104.9819917	102.2873317	99.67712925	97.14829215	94.69785831	92.32298932
230307A00038	3/7/2023	5.56	3/7/2024	3/7/2023	103.7466	102.8779221	102.0238701	101.1840741	100.3581786	99.54583958	98.74672458	97.96051181	97.18688989
230307A00092	3/23/2023	5.6	9/6/2024	3/23/2023	106.40736	105.0337513	103.6846786	102.35954	101.0577513	99.77874692	98.52197899	97.28691687	96.0730464
230308A00019	3/8/2023	5.05	3/9/2026	3/8/2023	113.85514	110.874405	107.9888952	105.1950561	102.4894845	99.86892169	97.33024754	94.87047315	92.48673485
230308A00029	3/8/2023	5.57	9/9/2024	3/8/2023	106.41067	105.0289828	103.6721012	102.3394127	101.030324	99.7442608	98.48066689	97.23900364	96.01874923
230308A00030	3/8/2023	5.22	9/8/2025	3/8/2023	111.45486	109.0163688	106.6445668	104.3372606	102.0923407	99.90777851	97.78162341	95.71199893	93.6970996
230309A00002	3/9/2023	5.41	3/10/2025	3/9/2023	108.96816	107.0646397	105.2042718	103.3858226	101.6081016	99.86995986	98.17028788	96.50801441	94.88210466
230309A00003	3/9/2023	5.06	3/9/2026	3/9/2023	113.88392	110.9027712	108.0168556	105.2226205	102.5166622	99.89572203	97.35667932	94.89654497	92.51245503
230309A00004	3/9/2023	4.86	3/9/2027	3/9/2023	118.83121	114.724819	110.7869428	107.0097685	103.3858854	99.90826262	96.57022838	93.36544931	90.28791175
230309A00006	3/9/2023	5.72	3/11/2024	3/9/2023	103.93994	103.0594757	102.1940114	101.3431698	100.5065817	99.68389001	98.87474979	98.07882729	97.29579972
230309A00020	3/9/2023	5.72	3/11/2024	3/9/2023	103.93994	103.0594757	102.1940114	101.3431698	100.5065817	99.68389001	98.87474979	98.07882729	97.29579972
230309A00021	3/9/2023	5.41	3/10/2025	3/9/2023	108.96816	107.0646397	105.2042718	103.3858226	101.6081016	99.86995986	98.17028788	96.50801441	94.88210466
230309A00036	3/9/2023	4.46	3/9/2028	3/9/2023	123.60361	118.2893068	113.2417062	108.445977	103.8881922	99.55526616	95.43489882	91.51552513	87.78626727
230309A00038	3/9/2023	4.85	3/9/2026	3/9/2023	114.04324	111.0426199	108.1382056	105.3263882	102.6037184	99.96689443	97.41275515	94.93827297	92.54054755
230309A00041	3/9/2023	4.85	3/9/2026	3/9/2023	114.04324	111.0426199	108.1382056	105.3263882	102.6037184	99.96689443	97.41275515	94.93827297	92.54054755
230309A00057	3/9/2023	4.86	3/9/2027	3/9/2023	118.83121	114.724819	110.7869428	107.0097685	103.3858854	99.90826262	96.57022838	93.36544931	90.28791175
230310A00034	3/10/2023	5.48	3/11/2024	3/10/2023	103.72926	102.8497976	101.985326	101.1354653	100.2998463	99.4781125	98.66991898	97.87493225	97.09282972
230310A00035	3/10/2023	5.21	9/10/2024	3/10/2023	105.92867	104.5477756	103.1917198	101.859886	100.5516792	99.26652376	98.00386217	96.76315452	95.54387777
230310A00065	3/10/2023	5	9/16/2024	3/10/2023	106.05668	104.653417	103.2757191	101.9229498	100.5944895	99.28973888	98.00811787	96.74906496	95.51203641
230313A00027	3/13/2023	4.81	3/13/2024	3/13/2023	103.16343	102.2812492	101.4142125	100.561933	99.72403572	98.900158	98.08994944	97.29307123	96.50919567
230313A00030	3/13/2023	4.57	9/13/2024	3/13/2023	105.08163	103.698854	102.3410819	101.0076893	99.69807512	98.41165742	97.14787293	95.90617613	94.68603867
230313A00053	3/13/2023	4.57	9/13/2024	3/13/2023	105.08163	103.698854	102.3410819	101.0076893	99.69807512	98.41165742	97.14787293	95.90617613	94.68603867
230313A00061	3/13/2023	4.06	3/13/2028	3/13/2023	120.2673	115.0652193	110.1246292	105.4309898	100.9706416	96.7307493	92.69924846	88.8647952	85.21671957
230313A00080	3/13/2023	4.59	3/14/2025	3/13/2023	107.50644	105.6047182	103.7464142	101.9302751	100.1550969	98.41971711	96.7230141	95.06390473	93.44134302
230313A00097	3/13/2023	4.78	9/13/2024	3/13/2023	105.37315	103.9882636	102.6284118	101.2929746	99.98134995	98.69295507	97.42722575	96.18361565	94.96159556
230313A00098	3/13/2023	4.41	3/13/2026	3/13/2023	112.07072	109.1036547	106.2319385	103.4519902	100.7603873	98.15385351	95.62925222	93.18357941	90.81395741
230313A00115	3/13/2023	5.11	3/13/2024	3/13/2023	103.42843	102.5449799	101.6766875	100.8231676	99.98404448	99.15895546	98.34754979	97.54948836	96.76444322
230313A00117	3/13/2023	4.59	3/13/2025	3/13/2023	107.47274	105.5746708	103.7198674	101.9070871	100.1351313	98.40284336	96.70910681	95.05284359	93.43301254
230313A00119	3/13/2023	4.41	3/13/2026	3/13/2023	112.07072	109.1036547	106.2319385	103.4519902	100.7603873	98.15385351	95.62925222	93.18357941	90.81395741
230313A00121	3/13/2023	4.29	3/15/2027	3/13/2023	116.70155	112.617752	108.702695	104.9485106	101.3477399	97.89330847	94.57850482	91.39695959	88.34262649
230313A00123	3/13/2023	4.22	9/15/2027	3/13/2023	118.82103	114.1682976	109.7288862	105.4918806	101.4469793	97.58445752	93.89513251	90.37033025	87.0018548
230313A00128	3/13/2023	4.18	12/15/2027	3/13/2023	119.78892	114.8532855	110.1549025	105.681038	101.4197119	97.35965039	93.49023945	89.8014831	86.28396366
230313A00134	3/13/2023	4.16	4/14/2028	3/13/2023	121.12986	115.8137418	110.7691217	105.9806499	101.4339268	97.1154366	93.01248868	89.1131631	85.40625978

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230313A00135	3/13/2023	4.17	6/15/2028	3/13/2023	121.86893	116.3556973	111.1319854	106.1809619	101.4868688	97.03494458	92.81135529	88.80313154	84.9981096
230313A00144	3/13/2023	4.59	3/13/2025	3/13/2023	107.47274	105.5746708	103.7198674	101.9070871	100.1351313	98.40284336	96.70910681	95.05284359	93.43301254
230314A00015	3/14/2023	4.55	9/14/2026	3/14/2023	115.09003	111.5537376	108.1474419	104.8656711	101.7032129	98.65510099	95.71660223	92.88320414	90.15060364
230314A00054	3/14/2023	4.46	3/15/2027	3/14/2023	117.36542	113.2687632	109.341236	105.5749585	101.9624572	98.4966439	95.17079392	91.9785253	88.91377972
230314A00070	3/14/2023	4.25	3/12/2027	3/14/2023	117.55755	113.4381769	109.4891749	105.702593	102.0708933	98.58692658	95.243911	92.03541076	88.95531688
230315A00010	3/15/2023	4.2	3/13/2026	3/15/2023	111.46397	108.5057119	105.6425816	102.8710119	100.1875868	97.58903664	95.07223084	92.63417134	90.27198616
230315A00012	3/15/2023	4.24	9/15/2025	3/15/2023	109.21608	106.7855388	104.4221029	102.123549	99.88773842	97.71261525	95.59620302	93.53660103	91.53198101
230315A00016	3/15/2023	4.08	3/16/2027	3/15/2023	115.89535	111.8241004	107.9213615	104.1792658	100.5903563	97.1475608	93.84417008	90.67381743	87.63045932
230315A00052	3/15/2023	4.07	3/14/2025	3/15/2023	106.98672	105.081619	103.2201696	101.4011142	99.62323825	97.88536978	96.18637779	94.5251704	92.90069329
230315A00055	3/15/2023	4.2	3/11/2026	3/15/2023	111.43632	108.4844948	105.6274217	102.8615485	100.1834789	97.58996171	95.07788389	92.64426383	90.28624513
230315A00084	3/15/2023	4.08	3/24/2027	3/15/2023	116.00638	111.9084098	107.9809863	104.2161026	100.6061728	97.14400481	93.82277762	90.63602033	87.5775923
230315A00086	3/15/2023	4.28	3/11/2025	3/15/2023	106.86137	104.9751331	103.1317954	101.3301281	99.56894579	97.84710455	96.16349987	94.51706524	92.90677052
230316A00017	3/16/2023	3.81	3/16/2028	3/16/2023	120.47816	115.2182707	110.2243786	105.4816162	100.9760185	96.69446782	92.62463817	88.75494362	85.07449006
230316A00038	3/16/2023	4.42	3/14/2025	3/16/2023	107.18555	105.2869306	103.4316699	101.6185173	99.84627011	98.11376767	96.41988963	94.76355432	93.14371709
230316A00042	3/16/2023	4.42	3/14/2025	3/16/2023	107.18555	105.2869306	103.4316699	101.6185173	99.84627011	98.11376767	96.41988963	94.76355432	93.14371709
230316A00046	3/16/2023	4.18	6/16/2026	3/16/2023	112.6488	109.404517	106.2723746	103.2478315	100.3265594	97.50443174	94.77751304	92.14204879	89.59445583
230316A00047	3/16/2023	4.07	9/16/2027	3/16/2023	118.17095	113.5295863	109.1013136	104.8752206	100.8410074	96.98895133	93.30987192	89.79509771	86.43643561
230316A00048	3/16/2023	4.05	6/16/2028	3/16/2023	121.25772	115.7571993	110.5458759	105.6069278	100.9246021	96.4841425	92.27172074	88.27437336	84.47994271
230316A00061	3/16/2023	4.31	9/16/2025	3/16/2023	109.3969	106.9614491	104.5932958	102.2902061	100.0500332	97.87071368	95.75026398	93.68677653	91.67841655
230317A00010	3/17/2023	4.77	9/17/2024	3/17/2023	105.40967	104.0138424	102.6434196	101.2977634	99.9762592	98.67831232	97.40334716	96.15080646	94.92015055
230317A00024	3/17/2023	4.54	3/17/2025	3/17/2023	107.45499	105.5448457	103.6784957	101.8546708	100.0721514	98.32976097	96.62636379	94.96086365	93.332202
230320A00005	3/20/2023	4.37	3/20/2025	3/20/2023	107.15479	105.239013	103.3673444	101.5385039	99.75125844	98.00441854	96.29683633	94.6274039	92.99505159
230320A00021	3/20/2023	4.91	3/20/2024	3/20/2023	103.33183	102.4298826	101.5437434	100.6729991	99.8172504	98.97611161	98.14921019	97.3361862	96.53669174
230320A00045	3/20/2023	5.03	3/20/2024	3/20/2023	103.44014	102.5376612	101.650999	100.7797383	99.92347936	99.0818365	98.25443703	97.44092089	96.64094006
230321A00038	3/21/2023	4.87	7/25/2024	3/21/2023	104.83565	103.580213	102.3550126	101.158966	99.99103942	98.85024764	97.73565098	96.64635274	95.58149678
230323A00027	3/23/2023	4.43	3/24/2025	3/23/2023	107.3445	105.4146423	103.5294604	101.6876501	99.88795619	98.1291677	96.41011649	94.72967521	93.0867557
230323A00031	3/23/2023	4.6	9/23/2024	3/23/2023	105.2446	103.834005	102.4493319	101.0899301	99.75516684	98.44443008	97.15712757	95.89268612	94.6505508
230323A00033	3/23/2023	4.43	3/24/2025	3/23/2023	107.3445	105.4146423	103.5294604	101.6876501	99.88795619	98.1291677	96.41011649	94.72967521	93.0867557
230324A00001	3/24/2023	4.04	6/24/2026	3/24/2023	112.30834	109.0473657	105.8997678	102.8609244	99.92643504	97.09210591	94.35393865	91.70811996	89.15101169
230324A00004	3/24/2023	4.46	9/24/2024	3/24/2023	105.05816	103.6462819	102.260394	100.8998422	99.56399139	98.25222701	96.96395455	95.69859862	94.45560216
230324A00036	3/24/2023	3.98	3/24/2027	3/24/2023	115.61336	111.5230575	107.6030602	103.845377	100.2424308	96.7870377	93.4723847	90.29200843	87.23977548
230324A00037	3/24/2023	3.99	3/24/2028	3/24/2023	120.0509	114.8210515	109.8557337	105.1401499	100.660404	96.40344404	92.35700611	88.50956322	84.85027717
230327A00017	3/27/2023	4.98	3/27/2024	3/27/2023	103.47642	102.5548221	101.6496982	100.7606121	99.88713976	99.028872	98.18541374	97.35638352	96.54141288

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230328A00061	3/28/2023	4.68	9/27/2024	3/28/2023	105.40726	103.984811	102.5886691	101.218171	99.87267071	98.55154371	97.25418565	95.98001177	94.72845604
230329A00019	3/29/2023	4.76	10/1/2024	3/29/2023	105.57345	104.138824	102.7309231	101.3490648	99.99258875	98.66085615	97.3532493	96.06917059	94.80804172
230329A00053	3/29/2023	4.89	3/29/2024	3/29/2023	103.6382	102.7072759	101.7931379	100.8953329	100.0134253	99.146995	98.29563667	97.45895892	96.63658385
230330A00052	3/30/2023	4.79	9/30/2024	3/30/2023	105.60333	104.171241	102.7657771	101.3862627	100.0320411	98.70247688	97.39695557	96.11488267	94.85568283
230330A00055	3/30/2023	5.06	4/1/2024	3/30/2023	103.611	102.6751487	101.7562783	100.8539274	99.96765252	99.09702606	98.24163549	97.40108266	96.5749832
230330A00080	3/30/2023	4.44	3/31/2025	3/30/2023	107.93533	105.9709068	104.0525176	102.1788018	100.3484504	98.56020153	96.81283839	95.10518729	93.43611587
230330A00083	3/30/2023	4.1	3/30/2027	3/30/2023	117.23469	113.0659288	109.0718264	105.2441268	101.5750104	98.05706646	94.68326943	91.44695694	88.34180907
230331A00013	3/31/2023	4.75	9/30/2024	3/31/2023	105.54594	104.1142766	102.7092344	101.3301347	99.97632075	98.64715737	97.34203029	96.06034518	94.80152687
230331A00014	3/31/2023	4.34	3/31/2026	3/31/2023	112.12098	109.0995883	106.1769019	103.3491568	100.6127538	97.96425079	95.40035432	92.91791275	90.51390918
230331A00033	3/31/2023	4.34	3/31/2026	3/31/2023	112.12098	109.0995883	106.1769019	103.3491568	100.6127538	97.96425079	95.40035432	92.91791275	90.51390918
230331A00048	3/31/2023	4.75	9/30/2024	3/31/2023	105.54594	104.1142766	102.7092344	101.3301347	99.97632075	98.64715737	97.34203029	96.06034518	94.80152687
150601A00677	6/1/2015	2.39	1/30/2025	6/1/2015	103.38353	101.6318433	99.91818202	98.24138669	96.60034307	94.99398208	93.42127748	91.88124365	90.37293356
170412A00019	4/12/2017	2.56	4/12/2024	4/12/2017	101.34088	100.3868502	99.45075061	98.53208341	97.63036476	96.74512858	95.87592574	95.02232333	94.18390387
171228A00023	12/28/2017	2.69	3/29/2024	12/28/2017	101.3766	100.4600776	99.56009869	98.67621399	97.80799466	96.95502703	96.11691188	95.29326381	94.48371067
181016A00019	10/18/2018	3.32	10/16/2023	10/18/2018	100.95031	100.4796731	100.013431	99.55152121	99.09388352	98.6404587	98.19118866	97.74601637	97.30488585
190621A00039	6/21/2019	2.21	6/17/2024	6/21/2019	101.32083	100.1900666	99.08446223	98.00318696	96.94544436	95.91047235	94.89754149	93.90595318	92.93503808
230405A00020	4/5/2023	4.17	4/4/2025	4/5/2023	106.96582	105.0094	103.0989528	101.2331176	99.41058375	97.63008812	95.89041265	94.19038257	92.52886455
230425A00024	4/25/2023	4.48	4/25/2025	4/25/2023	107.84382	105.8221814	103.8493225	101.9237551	100.0440515	98.20883684	96.41678718	94.66662686	92.95712654
230403A00031	4/3/2023	4.98	4/3/2024	4/3/2023	103.56021	102.6191831	101.6953343	100.7881934	99.89730932	99.022247	98.16258688	97.31792409	96.48786788
230418A00007	4/18/2023	4.61	4/18/2025	4/18/2023	108.01	106.0054889	104.0489028	102.138795	100.2737748	98.45250287	96.67368873	94.93608861	93.23850348
230425A00104	4/25/2023	3.86	7/15/2026	4/25/2023	112.85182	109.5021401	106.2710503	103.1536285	100.1451885	97.2412688	94.43762058	91.73019571	89.11513591
230405A00046	4/5/2023	3.82	10/5/2027	4/5/2023	117.28749	112.6116988	108.1531886	103.9007021	99.84362334	95.97193866	92.27619888	88.74748477	85.37737456
230420A00056	4/20/2023	4.38	4/20/2033	4/20/2023	140.55247	129.2523714	119.0050233	109.70527	101.2590195	93.58202826	86.59882285	80.2417443	74.45010106
230412A00038	4/12/2023	3.69	4/12/2028	4/12/2023	120.18357	114.8515562	109.7931808	104.9929198	100.4362125	96.10939473	91.99963901	88.09489916	84.38385861
230406A00091	4/6/2023	3.99	4/7/2025	4/6/2023	107.15019	105.1746316	103.2458336	101.3623996	99.52298759	97.72630419	95.97110275	94.25618127	92.58038048
230424A00036	4/24/2023	5.13	4/24/2024	4/24/2023	103.9725	102.972217	101.9912738	101.0291143	100.085202	99.15902016	98.25007175	97.35787803	96.4819779
230418A00059	4/18/2023	4.09	4/17/2026	4/18/2023	112.38443	109.2943942	106.3071671	103.4187543	100.6253407	97.92328016	95.30908795	92.77943195	90.33112528
230413A00024	4/13/2023	4.41	4/14/2025	4/13/2023	107.56168	105.5724516	103.6305587	101.7345789	99.88314558	98.07494203	96.30869943	94.58319465	92.8972483
230413A00069	4/13/2023	4.33	4/14/2025	4/13/2023	107.40387	105.4162393	103.4759061	101.5814561	99.73152367	97.92479283	96.15999553	94.4359094	92.75135575
230420A00063	4/20/2023	4.65	4/20/2037	4/20/2023	156.06729	139.6912646	125.3392839	112.7440048	101.6749908	91.93343413	83.34765389	75.76925601	69.06985443
230428A00022	4/28/2023	4.78	10/28/2024	4/28/2023	105.95906	104.4471218	102.9647356	101.5111058	100.0854683	98.68708524	97.31524454	95.96925826	94.64846177
230420A00059	4/20/2023	4.72	4/20/2038	4/20/2023	159.95512	142.2807495	126.918037	113.5438051	101.8820582	91.6968498	82.7862647	74.97733253	68.12172566
230425A00011	4/25/2023	4.3	9/25/2025	4/25/2023	109.49058	107.0295702	104.6371705	102.3110854	100.0491077	97.84911663	95.70907425	93.62702145	91.60107451

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230406A00052	4/6/2023	4.02	4/6/2026	4/6/2023	111.2538	108.2288166	105.3032813	102.4733779	99.73545997	97.08604079	94.52178546	92.03950337	89.63614114
230428A00010	4/28/2023	4.31	4/28/2025	4/28/2023	108.05745	106.0158851	104.0239226	102.0800448	100.18279	98.33075108	96.52257342	94.75695221	93.03263038
230427A00076	4/27/2023	5.09	4/30/2024	4/27/2023	104.00738	102.9906211	101.9938376	101.0164429	100.0578741	99.11759035	98.19507099	97.28981516	96.40134064
230405A00026	4/5/2023	4.75	4/5/2024	4/5/2023	103.36656	102.4210976	101.4929954	100.5817809	99.6869952	98.80819616	97.94495726	97.09686711	96.26352869
230412A00037	4/12/2023	4.62	10/15/2024	4/12/2023	105.55108	104.0780711	102.6332076	101.2157526	99.82499325	98.46024122	97.12083124	95.80612027	94.51548659
230424A00003	4/24/2023	4.15	4/26/2027	4/24/2023	116.71359	112.5086245	108.4823178	104.6261043	100.9318748	97.39195066	93.9990583	90.74630588	87.62716107
230405A00051	4/5/2023	4.17	4/7/2025	4/5/2023	107.00255	105.0377238	103.1192448	101.2457398	99.41588235	97.6283941	95.88204253	94.17563912	92.50803744
230427A00028	4/27/2023	4.74	10/28/2024	4/27/2023	105.89859	104.3871309	102.9052109	101.4520393	100.026852	98.62891168	97.25750626	95.91194804	94.59157258
230426A00042	4/26/2023	4.97	4/26/2024	4/26/2023	103.83676	102.8317854	101.8463486	100.8798834	99.93184495	99.00170907	98.08897124	97.19314581	96.31376503
230418A00028	4/18/2023	5.13	4/18/2024	4/18/2023	103.89771	102.9140907	101.9491945	101.0024872	100.0734569	99.16161067	98.26647387	97.38758918	96.52451587
230428A00032	4/28/2023	5.11	4/29/2024	4/28/2023	104.01493	103.0008502	102.0066399	101.0317154	100.0755187	99.1375129	98.21718166	97.31402794	96.42757321
230411A00028	4/11/2023	4.2	4/11/2025	4/11/2023	107.61365	105.6226222	103.6789438	101.7811974	99.92801684	98.118086	96.35013658	94.62294596	92.93533519
230404A00004	4/4/2023	4.45	4/4/2025	4/4/2023	107.51044	105.5486039	103.6328449	101.7617986	99.93415174	98.1486384	96.40403791	94.69917299	93.03290788
230420A00060	4/20/2023	4.72	4/20/2038	4/20/2023	159.95512	142.2807495	126.918037	113.5438051	101.8820582	91.6968498	82.7862647	74.97733253	68.12172566
230405A00021	4/5/2023	3.96	4/6/2026	4/5/2023	111.07647	108.054115	105.1311432	102.3037404	99.56826218	96.92122381	94.35929226	91.87927876	89.47813167
230427A00078	4/27/2023	4.74	10/29/2024	4/27/2023	105.91198	104.3977091	102.9130599	101.4572373	100.029474	98.62902927	97.25518821	95.90726026	94.58457826
230406A00088	4/6/2023	4.23	10/7/2024	4/6/2023	105.2328	103.7785288	102.3517404	100.9517203	99.57778023	98.22925526	96.90550259	95.60590067	94.32984832
230418A00057	4/18/2023	4.36	4/18/2025	4/18/2023	108.02324	106.0091102	104.0432956	102.1243379	100.2508306	98.4214196	96.63480008	94.88971483	93.18495198
230405A00050	4/5/2023	4.38	10/7/2024	4/5/2023	105.09989	103.652314	102.2320106	100.8382732	99.47042068	98.12779479	96.80975912	95.51569818	94.2450166
230414A00019	4/14/2023	4.23	4/14/2026	4/14/2023	111.9768	108.9192095	105.962752	103.1035201	100.3377817	97.66196933	95.07267193	92.56662723	90.14071422
230406A00006	4/6/2023	4.82	4/8/2024	4/6/2023	103.46758	102.5134605	101.5770146	100.657752	99.75520178	98.86891032	97.99844023	97.14336969	96.3032918
230426A00024	4/26/2023	4.97	4/26/2024	4/26/2023	103.83676	102.8317854	101.8463486	100.8798834	99.93184495	99.00170907	98.08897124	97.19314581	96.31376503
230425A00013	4/25/2023	4.67	10/25/2024	4/25/2023	105.75403	104.2519509	102.779078	101.3346335	99.91786569	98.52804877	97.16448186	95.82648789	94.51341258
230405A00037	4/5/2023	3.71	4/6/2026	4/5/2023	111.11216	108.0714904	105.1311761	102.2873568	99.53634031	96.8745967	94.29875043	91.80557251	89.39197332
230412A00044	4/12/2023	3.91	4/10/2026	4/12/2023	111.75619	108.6949018	105.7349227	102.8723436	100.1034258	97.42459547	94.83243551	92.32367779	89.89519567
230405A00045	4/5/2023	4.15	5/5/2025	4/5/2023	107.30928	105.2654568	103.271451	101.3257308	99.42682103	97.57330183	95.76380652	93.99701907	92.27167188
230425A00052	4/25/2023	4.01	4/26/2027	4/25/2023	116.15054	111.9567915	107.9413563	104.0956778	100.4116601	96.88163701	93.49834695	90.25490952	87.1448033
230411A00054	4/11/2023	3.74	4/11/2028	4/11/2023	120.42444	115.089334	110.0277951	105.224319	100.6643577	96.33425856	92.22120419	88.31315749	84.59880996
230404A00002	4/4/2023	4.1	4/2/2027	4/4/2023	116.20482	112.0767598	108.1215002	104.3308799	100.6971695	97.21304325	93.87155584	90.66612055	87.59048889
230411A00030	4/11/2023	4.2	4/11/2025	4/11/2023	107.61365	105.6226222	103.6789438	101.7811974	99.92801684	98.118086	96.35013658	94.62294596	92.93533519
230412A00031	4/12/2023	3.91	4/10/2026	4/12/2023	111.75619	108.6949018	105.7349227	102.8723436	100.1034258	97.42459547	94.83243551	92.32367779	89.89519567
230410A00023	4/10/2023	4.75	4/10/2024	4/10/2023	103.65292	102.6891922	101.7434567	100.8152158	99.90398626	99.00930257	98.13071611	97.26779435	96.42012016
090429A00044	4/29/2009	4.1	4/29/2024	4/29/2014	99.998582	99.99321997	99.96479954	99.7989997	99.42355089	98.96477769	98.48892739	98.01510793	97.5470689

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
130416A00025	4/16/2013	2.27	4/18/2028	4/16/2018	99.815329	99.56670508	98.82674896	97.5656412	95.8416953	93.82224388	91.71358263	89.63789696	87.63134884
140508A00011	5/8/2014	2.32	5/8/2024	5/8/2019	99.964761	99.87965054	99.56171426	99.09294186	98.58042114	98.065222	97.55630689	97.05445925	96.55955109
140723A00038	7/23/2014	2.3	7/23/2024	7/23/2019	99.954757	99.85202182	99.49628138	98.97141306	98.38963367	97.80109793	97.21986994	96.64777506	96.08468875
141119A00005	11/19/2014	2.53	11/19/2024	11/19/2019	99.923046	99.79942963	99.39353422	98.7773588	98.06768999	97.3331709	96.60356324	95.88555323	95.17949687
150202A00006	2/2/2015	1.92	2/3/2025	2/3/2020	99.864761	99.63470252	99.09002232	98.34522832	97.51297998	96.66273877	95.82213788	94.99612921	94.18469938
151223A00007	12/23/2015	3.76	12/23/2030	12/23/2022	99.898421	99.80947914	99.26803249	97.8361591	95.25885138	91.55988847	87.17233027	82.63082626	78.27841275
161012A00020	10/11/2016	2.96	10/14/2031	10/11/2023	100.37976	99.69563891	98.41143684	96.08363442	92.47258331	87.87129513	82.92694975	78.1119476	73.60965877
170515A00052	5/15/2017	3.78	5/15/2042	5/15/2024	102.59882	101.4096889	99.82807524	97.43627883	93.60559995	88.27835951	82.27152641	76.48085855	71.23990376
170519A00006	5/19/2017	3	5/19/2032	5/19/2022	99.895829	99.74549087	99.08060772	97.6206805	95.25950974	92.14302255	88.68744134	85.25316303	81.99059543
170705A00037	7/5/2017	2.85	7/6/2032	7/6/2027	109.53833	105.9868175	102.4319822	98.84109455	95.19044025	91.51020239	87.88636114	84.40853731	81.11987476
170802A00074	8/2/2017	2.92	8/2/2027	8/2/2022	99.853496	99.66849575	99.00791838	97.72616056	95.80158188	93.35496279	90.65129538	87.92152333	85.27516997
170809A00042	8/9/2017	2.35	8/9/2027	8/9/2022	99.880483	99.64422497	98.99093234	97.87096763	96.35190706	94.57760469	92.72183818	90.88843323	89.10884737
171004A00022	10/4/2017	2.74	10/4/2027	10/4/2022	99.889161	99.72822963	99.11149041	97.88267637	96.00486237	93.58204722	90.87475906	88.12664843	85.46104627
171005A00047	10/5/2017	3.29	10/5/2032	10/5/2022	99.896008	99.75096927	99.03239087	97.32871597	94.4118411	90.44218078	85.95769179	81.48136983	77.26377387
180105A00005	1/5/2018	3.07	1/5/2028	1/5/2023	99.942698	99.91090571	99.5255281	98.68955875	97.38682338	95.68659611	93.7533655	91.75844528	89.80156652
180105A00006	1/5/2018	3.07	1/5/2028	1/5/2023	99.942698	99.91090571	99.5255281	98.68955877	97.38682341	95.68659615	93.75336556	91.75844535	89.80156662
180130A00087	1/30/2018	2.92	1/31/2028	1/30/2023	99.929833	99.84943157	99.42282365	98.51578607	97.1426133	95.38886398	93.43032234	91.43254818	89.48092577
180302A00003	3/2/2018	3.89	3/2/2033	3/2/2023	99.949201	99.91099189	99.51272603	98.25592522	95.74636313	91.91593236	87.16986954	82.13702232	77.29202913
180315A00030	3/15/2018	3.76	3/15/2033	3/17/2025	105.76131	103.6891768	101.3773833	98.59120466	95.0599212	90.6013496	85.48048591	80.22765725	75.23382351
180504A00024	5/4/2018	3.62	5/4/2028	5/4/2023	99.981963	99.94740144	99.64016374	98.77176387	97.15752856	94.74003784	91.67104906	88.27283565	84.85927448
180627A00005	6/27/2018	3.63	6/30/2033	6/30/2023	100.29063	100.0814452	99.59472104	98.52286155	96.54597575	93.61669132	90.04134785	86.28387221	82.65851667
180703A00033	7/3/2018	3.4	7/3/2028	7/3/2023	100.20954	99.9957323	99.54617836	98.69943038	97.3585509	95.56534066	93.48854687	91.32380198	89.1967504
190111A00040	1/11/2019	3.74	1/11/2034	1/11/2024	101.56607	100.7647335	99.64616778	97.87180852	94.98485121	90.83414485	85.91063742	80.86901716	76.09930837
190116A00015	1/16/2019	3.61	1/17/2034	1/16/2024	101.32775	100.5668184	99.54016162	97.99010558	95.58292105	92.2581681	88.41166912	84.51688975	80.81680478
190204A00054	2/4/2019	3.98	2/6/2034	2/2/2024	101.68066	100.8331991	99.65556394	97.79882231	94.78564416	90.46287229	85.33096778	80.06859165	75.09639461
190222A00023	2/22/2019	3.66	2/22/2034	2/22/2026	109.36675	106.1211612	102.6016102	98.62538202	93.97171865	88.61014892	82.81760705	77.0666962	71.69237572
190301A00015	3/1/2019	3.86	3/1/2034	3/2/2026	108.81768	105.7622666	102.4424837	98.67791174	94.24737293	89.11303859	83.5416001	77.99486408	72.80384246
190409A00016	4/9/2019	2.91	4/9/2029	4/9/2024	101.53493	100.5553204	99.35202899	97.725776	95.42577864	92.4512343	89.11326184	85.747766	82.52054486
190409A00017	4/9/2019	3.01	4/9/2029	4/9/2024	101.63376	100.6350061	99.39671163	97.70218071	95.26540265	92.05736673	88.40475954	84.69341882	81.13267225
190430A00020	4/30/2019	3.41	4/28/2034	4/28/2026	108.62073	105.3154924	101.7007288	97.56532188	92.74254548	87.25950821	81.48444186	75.8712092	70.68000737
190520A00018	5/20/2019	3.7	5/20/2044	5/20/2024	102.13498	100.7944588	98.84661986	95.6552411	90.6948896	84.40630574	77.95954365	72.06156996	66.82266887
190530A00044	5/30/2019	2.85	5/30/2034	5/30/2024	101.91735	100.6290485	99.00884799	96.76215943	93.63546023	89.77986016	85.69259176	81.74108182	78.0414836
190807A00041	8/7/2019	2.27	8/7/2034	7/7/2024	101.15445	99.68867201	97.68776019	94.83502096	91.09110401	86.89889253	82.7487689	78.84417251	75.21015754

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190807A00044	8/7/2019	2.27	8/7/2034	8/7/2024	101.32822	99.78678382	97.72621229	94.84292741	91.09158267	86.89889717	82.74876903	78.84417267	75.21015772
190827A00044	8/27/2019	1.9	8/27/2029	8/27/2024	101.16788	99.85838606	98.32078497	96.40252815	94.05914238	91.47220797	88.87128272	86.36161337	83.95931587
190930A00079	9/30/2019	2.04	10/1/2029	9/30/2024	101.51588	100.1473115	98.58422202	96.67877133	94.35748625	91.76322023	89.13059479	86.58326245	84.14536412
190930A00083	9/30/2019	2.04	10/1/2029	9/30/2024	101.51588	100.1473114	98.58422172	96.67877073	94.3574852	91.76321866	89.13059272	86.58325991	84.14536114
191007A00012	10/7/2019	2	10/5/2029	10/7/2024	101.12363	99.70348945	98.04122535	95.98706687	93.52877985	90.8696372	88.2284741	85.68950232	83.26176731
191007A00013	10/7/2019	2	10/5/2029	10/7/2024	101.12363	99.70348939	98.04122492	95.98706596	93.52877836	90.86963507	88.22847135	85.68949897	83.26176338
191028A00015	10/28/2019	2.49	10/27/2034	10/28/2024	102.16779	100.4751223	98.37007669	95.56148171	91.91364106	87.7384754	83.52640434	79.54002653	75.82960629
191031A00036	10/31/2019	2.9	10/31/2039	10/31/2024	102.20894	100.2706503	97.66185818	93.93518291	89.0112649	83.49822318	78.12501805	73.19552844	68.72809199
191031A00037	10/31/2019	2.59	10/30/2034	10/31/2024	101.90862	100.1781849	97.98744525	95.06340887	91.31935813	87.12469163	82.95009965	79.01759692	75.35863031
191220A00029	12/20/2019	2.57	12/19/2031	12/20/2024	102.33038	100.6590388	98.73417259	96.35561108	93.42636039	90.11752141	86.75263097	83.52513695	80.47388413
200108A00009	1/8/2020	2.4	1/8/2035	1/8/2025	102.47636	100.4540907	97.94423147	94.66978144	90.55283562	85.9758482	81.44391434	77.19179327	73.2514724
200108A00040	1/8/2020	2.52	1/8/2030	1/8/2025	102.35505	100.4628881	98.21504832	95.35204934	91.78555803	87.75977371	83.68278798	79.78656442	76.11830268
200110A00012	1/10/2020	2.57	1/10/2035	1/10/2025	102.30689	100.3755165	97.99146381	94.90089113	91.03721701	86.75672963	82.51944959	78.53660946	74.83631775
200115A00023	1/15/2020	2.16	1/15/2030	1/15/2025	101.85276	100.2268733	98.40967884	96.26527872	93.75060912	91.01882593	88.28615266	85.65690279	83.14604668
200115A00025	1/15/2020	2.1	1/15/2025	1/15/2023	99.706032	99.3523052	98.52842102	97.35198929	95.97406181	94.53464996	93.10615564	91.70468743	90.33094377
200306A00021	3/6/2020	1.16	3/6/2030	3/6/2025	100.31234	98.39046819	96.12321251	93.46400192	90.60035069	87.7664563	85.05150272	82.46318241	79.99508431
200309A00013	3/9/2020	1.1	3/8/2030	3/9/2025	100.21437	98.27051085	95.97283547	93.28730245	90.41550661	87.58470516	84.87528248	82.29243098	79.82955098
200316A00030	3/16/2020	1.35	3/15/2030	3/16/2025	101.17151	99.32206975	97.20279146	94.70905016	91.91766042	89.06041122	86.29349267	83.65281009	81.13516694
200316A00032	3/16/2020	1.35	3/15/2030	3/16/2025	101.17151	99.32206972	97.20279131	94.70904986	91.91765994	89.06041055	86.29349183	83.65280907	81.13516576
200318A00015	3/18/2020	1.69	3/18/2030	3/18/2023	99.512185	98.87843234	97.46988383	95.27076395	92.48267091	89.48341114	86.53419085	83.71536996	81.03073484
200326A00035	3/26/2020	1.68	3/26/2030	3/26/2025	101.34887	99.49816828	97.39905921	94.94427921	92.18935619	89.34860945	86.58878683	83.95289077	81.43927418
200423A00008	4/23/2020	1.59	4/23/2030	4/23/2025	101.40939	98.9209056	95.85779868	92.03330625	87.63776872	83.12221159	78.79906841	74.74462046	70.95169323
200423A00009	4/23/2020	1.59	4/23/2030	4/23/2025	101.40939	98.92090568	95.8577989	92.03330665	87.63776933	83.12221242	78.79906944	74.74462167	70.95169462
200423A00010	4/23/2020	1.59	4/23/2030	4/23/2025	101.40939	98.92090576	95.85779905	92.0333069	87.63776973	83.12221296	78.79907012	74.74462248	70.95169554
200430A00021	4/30/2020	1.2	4/30/2030	4/30/2025	100.55531	98.53480929	96.20249292	93.50676409	90.6134789	87.74826585	85.00336577	82.3877344	79.8948657
200505A00010	5/5/2020	0.89	5/6/2030	5/5/2025	100.4677	98.39865438	96.0002622	93.23331452	90.2847317	87.37992372	84.60231188	81.95756802	79.43863939
200512A00023	5/12/2020	1.78	5/11/2035	5/12/2025	101.37895	98.48442745	94.72497255	89.92027161	84.45937828	78.99894078	73.90993315	69.26517636	65.03560958
200609A00003	6/9/2020	1.66	6/8/2035	6/9/2025	100.89454	97.61511481	93.27304437	87.78836166	81.71240951	75.75326295	70.26128681	65.28774237	60.7912293
200612A00001	6/12/2020	0.75	6/12/2030	6/12/2025	100.29071	98.10737664	95.58706452	92.72157433	89.72676319	86.80305933	84.01388107	81.35977186	78.83317109
201022A00008	10/22/2020	1.02	10/22/2035	10/22/2025	100.37325	97.11635246	93.1458552	88.56839299	83.83772126	79.33400435	75.16305858	71.31431164	67.75959401
201029A00008	10/29/2020	0.92	10/29/2030	10/29/2025	100.50321	97.98924418	95.19759479	92.15137029	89.03829779	86.02557932	83.15940075	80.437055	77.85006592
201030A00025	10/30/2020	2.02	10/28/2050	10/30/2025	101.73991	97.18755071	90.88990999	82.98422585	74.77710634	67.37856346	61.0145978	55.56035805	50.86469884
201116A00019	11/16/2020	1.32	11/15/2030	11/16/2025	100.84079	97.67238817	93.92600456	89.59350916	85.00914046	80.5478012	76.35360189	72.43700863	68.78012779

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201118A00015	11/18/2020	1.66	11/18/2036	11/18/2027	103.98483	98.46151986	92.24946911	85.47229909	78.54974095	71.98568126	66.04124461	60.73259497	55.99525647
201118A00017	11/18/2020	1.66	11/18/2036	11/18/2027	103.98483	98.46152127	92.24947151	85.47230266	78.54974573	71.98568715	66.04125144	60.73260257	55.99526469
201118A00018	11/18/2020	1.85	11/18/2036	11/18/2027	103.63627	98.1206683	91.91835297	85.16706367	78.30426207	71.81889642	65.9519467	60.7104536	56.02965832
201202A00016	12/2/2020	1.32	12/3/2035	12/2/2025	100.60221	97.29710502	93.30960961	88.72807869	83.9839156	79.45903165	75.26802503	71.40242275	67.83378131
201202A00017	12/2/2020	1.32	12/3/2035	12/2/2025	100.60221	97.29710546	93.30961052	88.72808022	83.98391781	79.45903453	75.26802852	71.4024268	67.83378587
201229A00003	12/29/2020	1.28	12/30/2030	12/30/2025	100.93028	97.57330662	93.66415818	89.21443676	84.55775469	80.04761176	75.81562632	71.8686271	68.18761492
201230A00018	12/30/2020	1.52	12/28/2035	12/28/2027	103.6464	98.12504875	91.98413379	85.35753114	78.63475973	72.26530862	66.47567359	61.27805344	56.61489067
210108A00007	1/8/2021	1.65	1/8/2036	1/8/2026	101.64558	97.78435418	92.94829832	87.12253081	80.83307045	74.73319854	69.14531282	64.10701256	59.5693624
210225A00010	2/25/2021	2.02	2/25/2041	2/25/2026	102.54589	98.68900782	93.96238311	88.33084288	82.29228567	76.48722263	71.20931419	66.46630203	62.19988822
210405A00013	4/5/2021	1.82	4/7/2036	4/5/2026	102.59898	99.25903638	95.40619752	90.96667172	86.19683414	81.50417699	77.11715457	73.07178705	69.34355755
210622A00004	6/22/2021	2.42	6/20/2036	6/22/2026	104.34761	100.4175448	95.78203412	90.26680286	84.11521589	77.89252934	72.07437834	66.80813763	62.07014996
210910A00009	9/10/2021	1.77	9/10/2036	9/10/2026	103.93034	100.292115	96.21758715	91.62953614	86.72348381	81.86392763	77.30815995	73.11391514	69.2585982
210924A00016	9/24/2021	1.91	9/24/2036	9/24/2026	104.50188	100.8870795	96.8613284	92.34392383	87.47542296	82.60649536	78.01544653	73.78289493	69.89195063
211019A00005	10/19/2021	2.49	10/20/2036	10/19/2026	106.30074	102.2007355	97.48346306	91.9949978	85.83365581	79.47394664	73.4343134	67.94850377	63.02149759
211110A00017	11/10/2021	2.01	11/10/2036	11/10/2026	105.07637	101.3813045	97.29865543	92.75045787	87.85161931	82.9325725	78.28063916	73.99145708	70.05159144
211116A00012	11/16/2021	2.22	12/18/2034	11/16/2026	105.12443	101.6611058	97.94013336	93.88226835	89.55749889	85.19674835	81.02751715	77.13785328	73.52578456
211124A00008	11/24/2021	2.62	11/22/2041	11/24/2026	107.0696	103.0295688	98.43182523	93.10536186	87.12946401	80.97701239	75.18170931	69.95261842	65.26825948
211215A00020	12/15/2021	1.85	12/15/2031	12/15/2026	104.20829	101.0679512	97.82080638	94.41988456	90.92161187	87.46135429	84.14829981	81.01578117	78.05856361
211227A00012	12/27/2021	2.39	12/29/2036	12/27/2028	110.03129	103.9433409	97.51260969	90.74109575	83.77690585	76.94602699	70.59571925	64.88009599	59.77963141
220217A00024	2/17/2022	2.43	2/17/2027	2/17/2025	103.06833	101.2013798	99.25289508	97.13659449	94.77757243	92.20731342	89.56609596	86.97307206	84.46992767
220617A00069	6/17/2022	4.06	6/17/2027	6/17/2025	106.69481	104.7526269	102.8161112	100.8617599	98.833779	96.6598105	94.29586693	91.77595552	89.21490797
220831A00108	8/31/2022	4.07	8/31/2027	9/2/2025	107.52034	105.3351156	103.1624837	100.9760742	98.71795518	96.31831416	93.73541109	91.00661978	88.25044559
221212A00004	12/12/2022	4.36	12/10/2032	12/10/2027	116.34938	112.4384918	108.591826	104.7988557	101.0365703	97.27826897	93.53009911	89.82401229	86.23256774
221214A00057	12/14/2022	4.65	12/14/2027	12/12/2025	110.93405	108.2473365	105.5940632	102.9506109	100.2661921	97.46295239	94.47083969	91.2652631	87.92352542
221222A00137	12/22/2022	5.4	12/22/2037	12/22/2027	121.47215	116.866204	112.2454466	107.6010688	102.876267	97.99012033	92.92889773	87.7448539	82.64611664
210611A00010	6/11/2021	1.02	6/11/2026	6/11/2021	102.42756	99.54311198	96.7575629	94.06693468	91.46743117	88.95543228	86.52748465	84.1802928	81.91071084
160608A00029	6/8/2016	2.36	6/8/2026	6/8/2016	106.26992	103.36453	100.5577302	97.84557568	95.2243046	92.69032893	90.24022503	87.87072503	85.57870871
210915A00018	9/15/2021	0.74	9/16/2024	9/15/2021	99.766552	98.452542	97.16240411	95.89554266	94.65138092	93.42936082	92.22894215	91.04960188	89.89083349
160212A00047	2/12/2016	1.94	2/12/2026	2/12/2016	101.88364	100.4592894	99.06931949	97.71262146	96.38812711	95.0948112	93.83168942	92.59781634	91.39228358
170711A00010	7/11/2017	2.38	7/12/2027	7/11/2017	105.06398	102.8630366	100.7345878	98.67563894	96.68334253	94.75498903	92.88799904	91.07991613	89.32840012
200514A00008	5/14/2020	1.23	5/14/2030	5/14/2020	105.8687	100.2244748	94.95286711	90.02663893	85.42070433	81.1119448	77.07904443	73.30233974	69.76368289
230406A00016	4/6/2023	3.89	4/6/2028	4/6/2023	116.99539	112.4237735	108.0751389	103.9372101	99.99845121	96.24802243	92.6757339	89.27200342	86.02781701
170504A00049	5/4/2017	2.63	5/6/2024	5/4/2017	101.5086	100.5059102	99.52321537	98.55991897	97.6154492	96.68925655	95.78081276	94.88960976	94.01515877

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171207A00025	12/7/2017	2.91	12/7/2027	12/7/2017	112.37471	108.0469222	103.9219658	99.98911708	96.23827976	92.65994599	89.2451585	85.98547553	82.87293831
200421A00026	4/21/2020	1.34	4/19/2030	4/21/2020	106.4786	100.8529044	95.59546432	90.67958359	86.08065616	81.77598982	77.74464725	73.96730117	70.42610204
120807A00026	8/7/2012	2.42	8/9/2027	8/7/2012	104.6937	102.4680427	100.3165748	98.23620136	96.22398081	94.27711504	92.39294143	90.5689253	88.8026529
190205A00020	2/5/2019	3.32	2/5/2029	2/5/2019	117.07897	111.6198478	106.4693492	101.6080756	97.01795758	92.68215754	88.58497868	84.71178141	81.04890629
190305A00017	3/5/2019	3.12	3/5/2026	3/5/2019	107.57417	104.8977833	102.3054655	99.79410712	97.36073005	95.00248243	92.71663251	90.50056296	88.35176542
151120A00019	11/20/2015	2.72	11/20/2030	11/20/2015	111.21103	107.0937996	103.1979193	99.50924153	96.01463728	92.70191427	89.5597437	86.57759304	83.74566453
180402A00013	4/2/2018	2.99	4/3/2028	4/2/2018	112.52451	108.5028236	104.6705598	101.0174844	97.53397309	94.21097541	91.03997768	88.01296801	85.12240395
180713A00031	7/13/2018	3.06	7/14/2025	7/13/2018	102.5796	101.4361222	100.3164272	99.2198138	98.145608	97.09316157	96.06185074	95.0510751	94.06025648
160908A00025	9/8/2016	2.21	9/8/2026	9/8/2016	106.43801	103.3166951	100.3082063	97.40784588	94.61113338	91.91379819	89.31176863	86.80116162	84.37827288
170407A00001	4/6/2017	2.97	4/6/2027	4/6/2017	110.18564	106.6255494	103.2100942	99.93253468	96.78648588	93.76589401	90.86501757	88.07840953	85.40090054
181003A00019	10/3/2018	3.44	10/3/2025	10/3/2018	107.2281	104.8474145	102.533308	100.283538	98.09594896	95.96847074	93.89911461	91.8859695	89.92719846
220308A00012	3/8/2022	2.51	3/8/2032	3/8/2022	116.06605	108.69537	101.9098256	95.65821862	89.89414117	84.57550386	79.66411112	75.12528023	70.92749945
150320A00019	3/20/2015	2.25	3/20/2025	3/20/2015	103.0359	101.3942981	99.78968852	98.22099768	96.68719259	95.18727712	93.72029035	92.28530512	90.88142657
150803A00038	8/3/2015	3.41	8/2/2030	8/3/2015	119.44041	113.0130161	107.017409	101.4213869	96.19534476	91.31204992	86.74643833	82.47543001	78.47776093
160608A00019	6/8/2016	2.36	6/8/2026	6/8/2016	106.26992	103.36453	100.5577302	97.84557569	95.22430462	92.69032897	90.24022508	87.8707251	85.57870879
190826A00032	8/26/2019	1.72	8/24/2029	8/26/2019	105.99235	102.7032815	99.56549876	96.57062587	93.71081089	90.97869335	88.36737012	85.87036387	83.48159392
191008A00007	10/8/2019	1.67	10/9/2029	10/8/2019	105.97956	102.6067414	99.39252652	96.32795763	93.40464765	90.61474391	87.95089041	85.40619307	82.97418753
200319A00035	3/19/2020	1.72	3/18/2033	3/19/2020	111.08613	104.5163133	98.45832335	92.8666264	87.7001048	82.92159919	78.49750125	74.39739086	70.59371229
200910A00006	9/10/2020	0.96	9/10/2027	9/10/2020	104.0199	100.0036868	96.17056112	92.51119586	89.01678398	85.67901001	82.49002015	79.44239425	76.52911967
190227A00033	2/27/2019	2.65	2/27/2026	2/27/2019	103.29247	101.8412295	100.4251834	99.04318562	97.69414006	96.37699459	95.0907391	93.83440347	92.60705562
190403A00010	4/3/2019	3.08	4/3/2029	4/3/2019	116.57385	110.8445369	105.4507068	100.3707042	95.5843906	91.0730259	86.81916455	82.80655947	79.02007371
160524A00028	5/24/2016	2.06	5/24/2023	5/24/2016	100.08839	100.0165281	99.94477192	99.87312537	99.80158823	99.73016024	99.65884116	99.58763077	99.5165288
160908A00035	9/8/2016	2.3	9/8/2031	9/8/2016	109.26477	104.816542	100.6291603	96.68454822	92.96603173	89.45821942	86.14689466	83.01891762	80.06213618
161229A00018	12/29/2016	2.46	12/29/2026	12/29/2016	104.29993	102.4103352	100.5761695	98.79535343	97.06590073	95.38591424	93.75358102	92.16716802	90.62501796
181129A00005	11/29/2018	3.21	11/29/2023	11/29/2018	101.10811	100.5245895	99.94784978	99.37777013	98.81423555	98.25713367	97.70635468	97.16179125	96.62333848
191112A00024	11/12/2019	2.09	11/12/2024	11/12/2019	101.92964	100.4436347	98.98706156	97.55911203	96.1590076	94.78599759	93.43935791	92.11838988	90.82241913
180716A00062	7/16/2018	2.91	7/16/2025	7/16/2018	102.69383	101.5450514	100.4202459	99.31870537	98.23974851	97.18271995	96.14698921	95.13194947	94.13701652
160824A00019	8/24/2016	1.98	8/25/2031	8/24/2016	108.93155	104.5125709	100.3516385	96.43094245	92.73405023	89.24578873	85.95213866	82.84013866	79.89779803
170713A00021	7/13/2017	3.25	7/13/2037	7/13/2017	133.52342	121.063754	110.0701665	100.3535091	91.75047206	84.11989839	77.33964343	71.30389596	65.92089134
181115A00044	11/15/2018	3.26	11/15/2023	11/15/2018	101.04888	100.5038277	99.964718	99.43145513	98.90394385	98.38209101	97.86580547	97.35499805	96.84958146
200317A00043	3/17/2020	1.29	3/15/2030	3/17/2020	104.96337	101.4140003	98.04076086	94.83319992	91.78156509	88.87675398	86.11026642	83.47416047	80.96101191
190708A00032	7/8/2019	2.58	7/2/2029	7/8/2019	114.03955	108.2028955	102.7205736	97.56890286	92.72591592	88.17122647	83.88590682	79.8523756	76.05429485
210217A00005	2/17/2021	0.83	2/14/2031	2/17/2021	103.66276	99.70562529	95.96735688	92.43359881	89.09104908	85.92737824	82.93115152	80.09175763	77.39934369

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210212A00006	2/12/2021	0.77	2/12/2026	2/12/2021	101.32366	98.71637981	96.1908115	93.74390953	91.37275772	89.07456715	86.84666969	84.68651189	82.59164926
160705A00010	7/5/2016	1.68	7/5/2023	7/5/2016	100.09665	99.90974166	99.72353908	99.53804052	99.35324196	99.1691394	98.98572888	98.80300647	98.62096826
190708A00026	7/8/2019	2.21	7/1/2024	7/8/2019	101.35387	100.2058785	99.08411109	97.98767244	96.91570986	95.86740862	94.84198978	93.83870834	92.85685132
210423A00003	4/23/2021	1.31	4/23/2031	4/23/2021	105.74131	101.6200417	97.73098129	94.05862632	90.58863803	87.30774276	84.20364548	81.26495067	78.48109029
160307A00024	3/7/2016	2.17	3/6/2026	3/7/2016	102.31805	100.8467475	99.41166163	98.01160936	96.64545328	95.31210183	94.0105071	92.73966272	91.49860191
200501A00009	5/4/2020	0.67	5/1/2025	5/4/2020	99.769896	98.74189909	97.73436367	96.74670445	95.77835833	94.82878317	93.89745686	92.98387633	92.08755673
151223A00036	12/23/2015	2.64	12/23/2025	12/23/2015	104.20355	102.2382676	100.3257533	98.46417462	96.65177916	94.88688859	93.16789508	91.49325776	89.86149931
190605A00023	6/5/2019	2.64	6/5/2029	6/5/2019	114.2985	108.5129227	103.0750381	97.96183876	93.15196466	88.62557726	84.36424317	80.35082724	76.56939424
141015A00029	10/15/2014	2.32	10/15/2024	10/15/2014	102.1931	100.8955383	99.62258561	98.37358912	97.14792175	95.94497808	94.76417337	93.6049427	92.4667401
200406A00029	4/6/2020	1.61	4/5/2030	4/6/2020	108.76155	102.5432618	96.74393598	91.33278637	86.28144963	81.56378386	77.15568365	73.03491136	69.18094321
210809A00013	8/9/2021	1.05	8/7/2026	8/9/2021	102.66015	99.69836958	96.84154139	94.08531058	91.4255316	88.85825643	86.37972372	83.98634875	81.67471387
150414A00037	4/14/2015	2.34	4/14/2025	4/14/2015	101.45691	100.4500729	99.46286332	98.49472462	97.54512193	96.61354023	95.69948346	94.80247362	93.92204992
180717A00021	7/17/2018	3.34	7/17/2028	7/17/2018	115.12411	110.4186764	105.953389	101.714412	97.68878692	93.86437533	90.22980177	86.77440137	83.48817125
150604A00039	6/4/2015	2.82	6/4/2030	6/4/2015	111.00051	107.1118451	103.4221427	99.91926047	96.59188845	93.42949029	90.422245	87.56099343	84.83718913
200406A00032	4/6/2020	1.09	4/4/2025	4/6/2020	100.92153	99.0851962	97.29198747	95.54062695	93.82988554	92.15857844	90.52556327	88.92973821	87.37004031
221018A00007	10/18/2022	4.68	10/18/2027	10/18/2022	110.38914	107.9495106	105.5937751	103.3183415	101.1197995	98.99490813	96.94058709	94.95390704	93.03208141
131018A00006	10/18/2013	3.28	10/20/2025	10/18/2013	106.99883	104.7383514	102.5411713	100.4051274	98.32814374	96.30822829	94.34346896	92.43202979	90.57214748
140821A00030	8/21/2014	2.27	8/21/2024	8/21/2014	100.9217	100.2448605	99.57967552	98.92581281	98.28295753	97.65080712	97.0290706	96.41746802	95.81572992
170201A00016	2/1/2017	2.49	2/1/2024	2/1/2017	101.09388	100.338909	99.59529522	98.86278245	98.14112295	97.43007629	96.72940913	96.03889491	95.35831364
150617A00018	6/17/2015	2.45	6/17/2025	6/17/2015	101.76966	100.6766301	99.60586221	98.55671016	97.52855189	96.5207888	95.53284467	94.56416454	93.61421382
170322A00033	3/22/2017	3.61	3/24/2042	3/22/2017	132.23284	120.42376	110.0423872	100.8912315	92.80246521	85.63319649	79.26153272	73.58329579	68.50927646
190315A00017	3/15/2019	2.88	3/15/2034	3/15/2019	116.88751	110.7304833	105.0297806	99.74599524	94.84347679	90.28994812	86.05616104	82.11558918	78.44415406
150617A00030	6/17/2015	2.91	6/16/2025	6/17/2015	104.7244	102.7520245	100.8287649	98.95304742	97.12336093	95.33825464	93.59633498	91.89626288	90.23675113
160413A00021	4/13/2016	2.48	4/13/2026	4/13/2016	106.21659	103.4439025	100.7617023	98.16651514	95.65502284	93.22405302	90.87057199	88.59167779	86.38459369
170619A00096	6/16/2017	2.79	6/16/2027	6/16/2017	110.58523	106.7078794	102.9965518	99.44313966	96.03998356	92.77984068	89.6558598	86.6615577	83.79079721
191004A00023	10/4/2019	2.02	10/4/2029	10/4/2019	110.95417	105.0368573	99.49256172	94.2955293	89.42191839	84.84964924	80.55826499	76.52880433	72.74368475
210611A00007	6/11/2021	0.61	6/11/2024	6/11/2021	99.489528	98.41206624	97.3581343	96.32696543	95.31782634	94.33001499	93.36285893	92.41571375	91.48796163
160608A00024	6/8/2016	2.36	6/8/2026	6/8/2016	106.26992	103.3645301	100.5577303	97.84557567	95.22430453	92.69032881	90.24022486	87.87072482	85.57870845
170317A00044	3/17/2017	3.11	3/17/2027	3/17/2017	110.51411	106.9913733	103.609891	100.3631652	97.24503694	94.2496626	91.37149595	88.60527146	85.94598858
191101A00004	11/1/2019	1.91	11/1/2029	11/1/2019	110.95645	105.4118131	100.2104998	95.32888866	90.74512026	86.4389552	82.39164552	78.58581683	75.00536037
160810A00029	8/10/2016	2.17	8/10/2026	8/10/2016	106.12318	103.0750135	100.1348369	97.29817826	94.56077748	91.91857641	89.36770809	86.90448647	84.52539671
180925A00116	9/25/2018	3.28	9/25/2028	9/25/2018	109.52675	106.6095417	103.8097941	101.1217306	98.53990593	96.05918064	93.67470219	91.38188684	89.17640293
190529A00061	5/29/2019	2.46	5/29/2026	5/29/2019	102.99057	101.4239383	99.89752894	98.4099826	96.95999654	95.54632183	94.16776065	92.82316381	91.51142838

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150825A00008	8/25/2015	2.82	8/25/2025	8/25/2015	105.08649	102.9484268	100.8672122	98.84099707	96.86800541	94.94652976	93.07492785	91.25161975	89.47508511
200330A00047	3/30/2020	1.5	3/30/2035	3/30/2020	107.5558	101.4437693	95.81905764	90.63652278	85.85562733	81.43993463	77.35666225	73.57628721	70.07219637
210913A00014	9/13/2021	1.15	9/13/2028	9/13/2021	102.67246	99.95493973	97.34640202	94.84150796	92.43522341	90.12279612	87.89973794	85.76180842	83.70499942
110701A00011	7/1/2011	3.87	7/1/2026	7/1/2011	105.61282	103.9214077	102.2750372	100.6721412	99.11122045	97.59083936	96.10962221	94.66625044	93.25945983
190131A00023	1/31/2019	3.02	1/30/2034	1/31/2019	117.49349	111.3945492	105.7415544	100.496482	95.62489041	91.09555831	86.88015941	82.95297216	79.29062056
210714A00012	7/14/2021	1.12	7/14/2026	7/14/2021	102.86194	99.8904779	97.02317546	94.25574054	91.58408374	89.00431082	86.51271193	84.1057515	81.7800588
191009A00009	10/9/2019	1.8	10/9/2026	10/9/2019	102.37887	100.6163685	98.90353062	97.23855323	95.6197137	94.04536425	92.51392819	91.02389634	89.57382361
230323A00028	3/23/2023	4.1	3/23/2028	3/23/2023	118.68004	113.904235	109.3632709	105.0442066	100.9348792	97.02385796	93.30039611	89.75438642	86.3763199
151229A00026	12/29/2015	2.28	12/29/2025	12/29/2015	102.51728	101.1607198	99.83573167	98.54132026	97.27652879	96.04043825	94.83216565	93.65086228	92.4957121
160412A00029	4/12/2016	2.48	4/14/2031	4/12/2016	109.6081	105.3595203	101.3492559	97.5614582	93.98146483	90.5956984	87.39157881	84.35744293	81.48247145
160923A00009	9/23/2016	2.24	9/23/2031	9/23/2016	108.99452	104.5569929	100.3797288	96.44468785	92.73523005	89.23599543	85.93279679	82.8125218	79.86304402
191112A00022	11/12/2019	2.36	11/13/2029	11/12/2019	113.11998	107.0215472	101.3126321	95.96596698	90.95633679	86.26041713	81.85662273	77.72496884	73.84694445
171204A00024	12/4/2017	2.71	12/4/2024	12/4/2017	103.03613	101.4854855	99.96619185	98.47735613	97.01812306	95.58766922	94.18520148	92.80995566	91.46119513
200309A00081	3/9/2020	1.18	3/8/2030	3/9/2020	106.00657	99.97783958	94.35185917	89.09930981	84.19315961	79.60847304	75.32223818	71.313209	67.56176126
150803A00033	8/3/2015	3.41	8/2/2030	8/3/2015	119.44041	113.0130161	107.017409	101.4213869	96.19534476	91.31204991	86.74643831	82.47542999	78.4777609
151125A00037	11/25/2015	2.41	11/25/2025	11/25/2015	102.24586	100.9394323	99.66267337	98.41466817	97.19453341	96.00142014	94.83451217	93.6930245	92.5762019
160328A00038	3/28/2016	2.54	3/30/2026	3/28/2016	106.02519	103.3798434	100.8189503	98.3393219	95.93791054	93.61180066	91.35820216	89.17444433	87.05797
181010A00025	10/10/2018	3.48	10/10/2030	10/10/2018	114.22681	110.0421846	106.080321	102.3271149	98.76946553	95.39519911	92.19299644	89.15232723	86.26338959
190905A00021	9/5/2019	2.08	9/5/2029	9/5/2019	111.25598	105.3894817	99.88868556	94.72861635	89.88613742	85.33980307	81.06972665	77.05745963	73.28588051
200612A00004	6/12/2020	1.42	6/12/2040	6/12/2020	108.34349	99.53655149	91.72074022	84.76823081	78.56913076	73.02880843	68.06563721	63.60908994	59.59812691
160126A00004	1/26/2016	2.52	1/26/2026	1/26/2016	106.56399	103.90896	101.3357437	98.84127123	96.4226099	94.07695868	91.80164129	89.59409954	87.45188712
181119A00008	11/19/2018	3.23	11/17/2023	11/19/2018	101.04255	100.4987906	99.96099143	99.4290521	98.90287675	98.38237161	97.86744491	97.35800687	96.85396962
190708A00029	7/8/2019	2.57	7/2/2029	7/8/2019	113.98091	108.1466435	102.6665783	97.51704217	92.67607548	88.12329896	83.83979149	79.80797788	76.01152587
160713A00015	7/13/2016	1.57	7/13/2026	7/13/2016	102.141	100.5003206	98.90350877	97.34903757	95.83544104	94.3613154	92.92531591	91.52615392	90.16259411
220211A00010	2/11/2022	1.99	2/11/2025	2/11/2022	101.70242	100.3419817	99.01000615	97.70566229	96.42815401	95.17671537	93.95060909	92.74912523	91.57157991
180322A00044	3/22/2018	3.18	3/22/2033	3/22/2018	117.0825	111.4590026	106.2182876	101.3298518	96.76588959	92.50103389	88.51212419	84.77799857	81.27930642
200605A00018	6/5/2020	0.91	6/5/2025	6/5/2020	100.79276	98.80509866	96.86715757	94.97734864	93.1341509	91.33610323	89.5818015	87.86989587	86.19908824
210512A00011	5/12/2021	1.16	5/12/2026	5/12/2021	102.71677	99.89676034	97.17154918	94.53739872	91.99074332	89.52817858	87.146453	84.84246013	82.61323117
171204A00009	12/4/2017	2.23	12/4/2024	12/4/2017	101.14032	100.3373416	99.54863452	98.77380611	98.01247864	97.26428853	96.52888559	95.80593244	95.09510389
181226A00030	12/26/2018	2.91	12/26/2028	12/26/2018	108.89498	105.8634753	102.9587865	100.1744625	97.50443068	94.94297082	92.48469159	90.12450965	87.85762989
200103A00002	1/3/2020	2.07	1/3/2030	1/3/2020	112.02893	106.3148198	100.9618092	95.94454306	91.2395984	86.82532501	82.68170126	78.79020257	75.13368118
170707A00007	7/7/2017	2.65	7/8/2024	7/7/2017	101.91972	100.7509019	99.60918247	98.49362219	97.40332676	96.33744232	95.29515314	94.27567956	93.27827596
180925A00013	9/25/2018	3.41	9/25/2028	9/25/2018	109.13042	106.2378457	103.4612893	100.7950725	98.23383403	95.77251313	93.40633028	91.13076989	88.94156386

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190829A00039	8/29/2019	1.85	8/29/2034	8/29/2019	111.02112	104.9611828	99.36565231	94.19312637	89.40627317	84.97140174	80.85807911	77.03879033	73.48863631
191206A00005	12/6/2019	2.18	12/7/2026	12/6/2019	107.21295	103.764453	100.4493629	97.26174874	94.19597647	91.2466948	88.40881909	85.67751651	83.04819189
200430A00027	4/30/2020	1.31	4/30/2035	4/30/2020	106.38888	100.3034589	94.70625645	89.55177551	84.79918958	80.41182544	76.35670854	72.60416117	69.12744705
200512A00013	5/12/2020	1.17	5/12/2027	5/12/2020	104.39522	100.6473369	97.05946139	93.62386959	90.33325199	87.18069051	84.15963527	81.26388292	78.48755633
200716A00004	7/16/2020	0.97	7/16/2027	7/16/2020	103.83034	99.94847853	96.23821042	92.69095432	89.29860697	86.05351656	82.94845464	79.97659001	77.13146444
181218A00040	12/18/2018	3.23	6/18/2030	12/18/2018	111.56037	107.6728444	103.9834475	100.4801241	97.15164761	93.98755666	90.978098	88.11417355	85.38729197
190905A00025	9/5/2019	2.08	9/5/2029	9/5/2019	111.25597	105.3894805	99.8886854	94.72861712	89.88613905	85.3398055	81.06972983	77.05746349	73.28588501
200327A00084	3/27/2020	1.1	3/27/2025	3/27/2020	100.87509	99.09918354	97.36435712	95.6694104	94.01318573	92.39456672	90.81247653	89.26587614	87.75376279
220801A00066	8/1/2022	2.93	7/30/2027	8/1/2022	112.89753	108.7357999	104.7583532	100.9559223	97.31976077	93.84161276	90.5136823	87.32860471	84.27942005
230421A00062	4/21/2023	4.33	4/21/2028	4/21/2023	110.94656	108.1908967	105.538594	102.9848788	100.5252365	98.15539238	95.87129725	93.66911409	91.54520546
150729A00028	7/29/2015	2.25	7/29/2025	7/29/2015	101.92957	100.7885176	99.67131239	98.57724879	97.50564795	96.45585705	95.42724805	94.41921657	93.4311807
180305A00030	3/5/2018	3.12	3/5/2025	3/5/2018	104.50146	102.7018365	100.9426931	99.22288009	97.54128807	95.89684595	94.28851941	92.71530941	91.17625072
180612A00012	6/12/2018	2.94	6/12/2023	6/12/2018	100.147	100.0730176	99.9991991	99.92554749	99.85206219	99.77874261	99.70558814	99.63259821	99.55977221
200413A00009	4/13/2020	0.77	4/13/2027	4/13/2020	101.32421	99.32689927	97.39226981	95.51783748	93.70123551	91.94020769	90.23260241	88.57636706	86.96954276
221012A00053	10/12/2022	4.66	10/11/2024	10/12/2022	102.74891	101.9788842	101.2222353	100.4785987	99.74762364	99.0289726	98.32232032	97.62735342	96.94376975
160523A00086	5/23/2016	2.2	5/26/2026	5/23/2016	106.17055	103.3845174	100.6915248	98.08788865	95.57009714	93.13479881	90.77879423	88.499028	86.2925814
170921A00055	9/21/2017	2.82	9/21/2027	9/21/2017	111.40964	107.2883813	103.3529302	99.59383873	96.00219394	92.56958094	89.28805236	86.15009992	83.14862792
180104A00041	1/4/2018	3.08	1/4/2033	1/4/2018	125.87498	116.6060226	108.151695	100.4339324	93.38262348	86.93475733	81.03366622	75.62835292	70.67289276
160210A00054	2/10/2016	1.78	2/10/2026	2/10/2016	102.01078	100.5797009	99.18327311	97.82037476	96.48992613	95.1908911	93.92227501	92.68312268	91.47251649
151013A00033	10/13/2015	2.23	10/14/2025	10/13/2015	101.90403	100.6445019	99.41294079	98.20849383	97.03034122	95.87769468	94.74979603	93.64591576	92.56535171
160603A00029	6/3/2016	2.18	6/3/2031	6/3/2016	109.64347	105.2823259	101.1713129	97.2934535	93.63306514	90.17564812	86.90778818	83.81706757	80.89198405
190813A00057	8/13/2019	1.9	8/13/2024	8/13/2019	101.1891	99.93705913	98.71093672	97.50993024	96.33327096	95.18022178	94.05007552	92.94215342	91.8558037
191203A00010	12/3/2019	2.21	12/3/2029	12/3/2019	112.25216	106.1462241	100.4331932	95.08537052	90.07715978	85.38489698	80.98669476	76.86229966	72.9929618
200406A00014	4/6/2020	1.33	4/6/2035	4/6/2020	108.1834	101.9482298	96.21573792	90.93889706	86.07552271	81.58773678	77.44149464	73.6061673	70.05417201
230328A00028	3/28/2023	4.34	3/27/2026	3/28/2023	111.60999	108.706249	105.8961837	103.1762491	100.5430543	97.9933551	95.52404706	93.13215851	90.81484414
160115A00011	1/15/2016	2.18	1/15/2026	1/15/2016	102.13434	100.7474922	99.39345101	98.07117049	96.77964531	95.5179102	94.28503803	93.08013796	91.90235374
170124A00017	1/24/2017	2.82	1/23/2032	1/24/2017	113.36032	108.5369521	104.0075662	99.75104716	95.74797118	91.98045976	88.43204573	85.08755175	81.93298004
160608A00034	6/8/2016	2.44	6/9/2031	6/8/2016	109.62105	105.2864399	101.1993846	97.34314502	93.70225234	90.26240051	87.01035072	83.93384437	81.02152356
190131A00013	1/31/2019	3.48	1/31/2034	1/31/2019	129.01942	118.7933559	109.5423444	101.1650184	93.57119145	86.68056041	80.42156841	74.73040429	69.55012156
200406A00035	4/6/2020	1.05	4/4/2025	4/6/2020	100.77255	99.02433072	97.31675155	95.64861767	94.01877318	92.42610391	90.86953561	89.34803225	87.86059437
161116A00006	11/16/2016	2.39	11/16/2026	11/16/2016	103.56687	101.7408567	99.96725644	98.24414292	96.56967095	94.94207664	93.35967309	91.82084656	90.3240527
171219A00009	12/19/2017	2.3	12/19/2024	12/19/2017	101.28324	100.4393925	99.6107773	98.79696932	97.99756306	97.21216821	96.44040891	95.68192307	94.93636173
180717A00026	7/17/2018	3.24	7/16/2025	7/17/2018	105.77976	103.683421	101.6409403	99.65053323	97.71048925	95.81916871	93.97499927	92.17647245	90.42214049

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200110A00037	1/10/2020	2.32	1/10/2030	1/10/2020	113.04669	106.821923	101.0027741	95.56028564	90.46772415	85.70040154	81.2355074	77.05195622	73.13024776
161014A00026	10/14/2016	2.16	10/14/2031	10/14/2016	109.92429	105.3784152	101.1026221	97.07796859	93.28699932	89.71361669	86.34296558	83.16132866	80.15603115
170804A00005	8/4/2017	1.94	8/5/2024	8/4/2017	100.68965	100.0167974	99.35578645	98.70627171	98.06792364	97.44042591	96.82347465	96.2167779	95.62005496
191004A00019	10/4/2019	2.02	10/4/2029	10/4/2019	110.95417	105.0368576	99.4925617	94.29552901	89.42191787	84.8496485	80.55826406	76.52880322	72.74368348
170309A00042	3/9/2017	2.18	3/11/2024	3/9/2017	100.52982	100.0651397	99.60630091	99.15317936	98.70565686	98.26361868	97.82695339	97.39555273	96.9693115
200512A00021	5/12/2020	0.86	5/12/2025	5/12/2020	100.6075	98.68240483	96.80448343	94.97227673	93.18437723	91.43943097	89.73613512	88.07323563	86.44952502
140730A00037	7/30/2014	2.83	1/30/2024	7/30/2014	100.68472	100.297982	99.91535125	99.53675468	99.16212124	98.79138166	98.42446838	98.06131551	97.70185875
141017A00022	10/17/2014	2.78	10/17/2024	10/17/2014	102.66635	101.2914497	99.94279173	98.619681	97.32144993	96.04745378	94.79706974	93.56969594	92.36475058
170619A00095	6/16/2017	2.79	6/16/2027	6/16/2017	110.58523	106.7078824	102.9965534	99.44314001	96.03998273	92.77983874	89.65585681	86.66155372	83.7907923
191004A00022	10/4/2019	2.02	10/4/2029	10/4/2019	110.95418	105.0368593	99.49256151	94.2955271	89.42191438	84.84964358	80.55825782	76.52879579	72.74367497
210611A00012	6/11/2021	1.02	6/11/2026	6/11/2021	102.42756	99.54311206	96.75756263	94.06693409	91.46743026	88.95543106	86.52748314	84.18029101	81.91070878
170406A00024	4/6/2017	2.61	4/8/2024	4/6/2017	101.32783	100.4040534	99.49732998	98.60719171	97.73318494	96.87487247	96.03183281	95.20365945	94.38996025
200323A00090	3/23/2020	1.55	3/23/2027	3/23/2020	102.69869	100.5416611	98.45531195	96.43675409	94.48324014	92.59215354	90.7610014	88.98740787	87.26910785
170524A00037	5/24/2017	2.46	5/24/2024	5/24/2017	101.40401	100.37304	99.3634657	98.3746231	97.4058751	96.45661055	95.52624292	94.61420906	93.71996807
200303A00028	3/3/2020	1.54	3/4/2030	3/3/2020	107.57178	101.9797059	96.74764182	91.84992255	87.26285908	82.96457414	78.93485428	75.15501487	71.6077766
160414A00042	4/13/2016	2.48	4/13/2026	4/13/2016	106.21659	103.4439025	100.7617023	98.16651514	95.65502284	93.22405303	90.87057201	88.59167781	86.38459371
190802A00011	8/2/2019	2.01	8/2/2029	8/2/2019	106.96654	103.6475418	100.4811467	97.45890155	94.57288986	91.81569041	89.18034304	86.66031673	84.24948027
160629A00066	6/29/2016	2.61	6/30/2036	6/29/2016	124.83168	113.7930463	103.9792433	95.24139489	87.44979639	80.49133339	74.26726144	68.69129446	63.68795758
200206A00027	2/6/2020	2.15	2/6/2030	2/6/2020	112.04904	105.8098232	99.98124846	94.53373796	89.44000831	84.67487874	80.21509785	76.03918565	72.12728934
140703A00026	7/3/2014	3.11	7/3/2024	7/3/2014	102.35095	101.2249892	100.1245737	99.04883341	97.99693856	96.96809647	95.96154932	94.97657234	94.01247194
160608A00023	6/8/2016	2.36	6/8/2026	6/8/2016	106.26992	103.3645299	100.5577302	97.8455757	95.22430465	92.69032901	90.24022515	87.87072518	85.57870888
180913A00033	9/13/2018	3.31	9/13/2033	9/13/2018	118.68314	112.7060453	107.1538887	101.9913889	97.18650688	92.71012437	88.53575601	84.63929155	80.99876516
150729A00041	7/29/2015	2.44	7/29/2025	7/29/2015	101.86373	100.72718	99.61431126	98.5244218	97.45683945	96.41091771	95.38603454	94.38159123	93.39701133
180907A00013	9/7/2018	3.27	9/8/2025	9/7/2018	106.48869	104.2086257	101.9905997	99.83257382	97.73258894	95.68876139	93.69927964	91.7624011	89.87644909
160908A00016	9/8/2016	1.87	9/8/2023	9/8/2016	100.21732	99.85526498	99.49585324	99.13905277	98.78483506	98.433172	98.0840359	97.73739946	97.39323579
190620A00033	6/20/2019	2.1	6/20/2029	6/20/2019	107.07126	103.8339928	100.7422567	97.78815388	94.96427785	92.26367688	89.67982315	87.20658394	84.83819506
200309A00082	3/9/2020	1.18	3/8/2030	3/9/2020	106.00657	99.97783959	94.35185956	89.09931054	84.19316065	79.60847436	75.32223977	71.31321082	67.56176329
200309A00084	3/9/2020	1.06	3/9/2027	3/9/2020	103.70116	100.1246865	96.69499531	93.40528404	90.24909715	87.22031029	84.31311166	81.52198436	78.84168999
210212A00007	2/12/2021	0.76	2/12/2026	2/12/2021	101.26817	98.69207995	96.19647408	93.77835273	91.43484761	89.16321554	86.96083204	84.82518537	82.75387087
210512A00012	5/12/2021	1.16	5/12/2026	5/12/2021	102.71677	99.89676026	97.17154933	94.53739907	91.99074388	89.52817933	87.14645394	84.84246125	82.61323247
160908A00023	9/8/2016	2.21	9/8/2026	9/8/2016	106.43801	103.3166949	100.3082062	97.40784592	94.61113351	91.9137984	89.31176893	86.80116199	84.37827333
190403A00014	4/3/2019	3.05	4/3/2029	4/3/2019	115.88932	110.3436042	105.1193356	100.195884	95.554053	91.17597443	87.04501024	83.14566128	79.46348362
190712A00016	7/12/2019	2.39	7/12/2029	7/12/2019	107.25898	103.9901599	100.8693692	97.88852477	95.0400452	92.31681755	89.7121651	87.21981766	84.83388405

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200512A00001	5/12/2020	1.17	5/12/2027	5/12/2020	104.39522	100.647337	97.05946136	93.62386943	90.33325172	87.18069013	84.15963479	81.26388233	78.48755566
201110A00003	11/10/2020	1.12	11/10/2027	11/10/2020	104.90332	100.7195936	96.73291519	92.93290046	89.30977093	85.8543133	82.55784368	79.41217428	76.40958238
120806A00015	8/6/2012	2.38	8/6/2027	8/6/2012	104.60252	102.3790166	100.2296177	98.15123666	96.14093539	94.19591896	92.31352785	90.49123031	88.72661537
160606A00018	6/6/2016	1.74	6/5/2026	6/6/2016	102.32862	100.7269071	99.16720116	97.64805664	96.16809144	94.72598124	93.32045668	91.95030059	90.61434547
191113A00013	11/13/2019	2.17	11/13/2026	11/13/2019	107.00641	103.6212961	100.3653458	97.23290132	94.21858122	91.3172697	88.52410178	85.83444954	83.24390912
150603A00032	6/3/2015	2.21	6/3/2025	6/3/2015	101.77265	100.6774633	99.60462325	98.55347761	97.52340151	96.51379358	95.52407499	94.55368828	93.60209646
160511A00016	5/11/2016	2.48	5/12/2031	5/11/2016	109.7025	105.4074342	101.3554753	97.53032447	93.91690714	90.50127306	87.27050471	84.21263357	81.31656376
190910A00044	9/10/2019	2.02	9/10/2026	9/10/2019	106.06676	102.858652	99.76774769	96.7891318	93.91812491	91.15026759	88.48130888	85.90719541	83.42406118
160211A00038	2/11/2016	1.83	2/11/2026	2/11/2016	101.72309	100.3011626	98.91355526	97.5591606	96.2369123	94.94578697	93.68480201	92.45301369	91.24951527
200318A00012	3/18/2020	1.68	3/18/2033	3/18/2020	110.82146	104.267016	98.2232265	92.64465846	87.49028742	82.72303826	78.30937896	74.21895852	70.42428392
220310A00008	3/10/2022	2.22	3/10/2025	3/10/2022	102.87026	101.0813004	99.33287631	97.62383087	95.9530458	94.31944175	92.72197667	91.15964427	89.63147259
160908A00030	9/8/2016	2.21	9/8/2026	9/8/2016	106.43801	103.3166949	100.3082062	97.40784591	94.61113349	91.91379837	89.31176888	86.80116193	84.37827326
160908A00028	9/8/2016	2.21	9/8/2026	9/8/2016	106.43801	103.3166951	100.3082063	97.40784588	94.61113339	91.9137982	89.31176865	86.80116164	84.37827291
200221A00012	2/21/2020	2.14	2/21/2040	2/21/2020	115.34243	105.8361576	97.38163009	89.84544221	83.11260141	77.0838277	71.67326815	66.80656059	62.41919088
210331A00007	3/31/2021	1.25	3/31/2031	3/31/2021	104.35431	100.3521853	96.57256128	93.00077033	89.62322596	86.42733959	83.40144027	80.53470143	77.81707388
210915A00025	9/15/2021	1.09	9/15/2026	9/15/2021	102.9309	99.87715652	96.93459677	94.09856198	91.36461182	88.72851521	86.18623918	83.73393862	81.36794645
190905A00024	9/5/2019	2.08	9/5/2029	9/5/2019	111.25597	105.3894797	99.8886854	94.72861791	89.88614056	85.33980767	81.06973261	77.05746682	73.28588885
130206A00009	2/6/2013	2.83	2/7/2028	2/6/2013	110.49761	106.6665583	103.01067	99.52071053	96.18798826	93.0043211	89.96200349	87.05377575	84.27279555
170106A00030	1/6/2017	2.39	1/6/2027	1/6/2017	104.29121	102.3608743	100.4880872	98.67066512	96.90651946	95.19365624	93.53017101	91.91424417	90.34413659
200206A00008	2/6/2020	1.64	2/6/2025	2/6/2020	102.02839	100.3530477	98.714152	97.11061322	95.54138492	94.00546158	92.50187646	91.02969974	89.58803674
200406A00027	4/6/2020	1.31	4/5/2030	4/6/2020	107.8157	102.1133206	96.78382849	91.80023559	87.13766131	82.77315685	78.68554514	74.85527476	71.2642867
150714A00003	7/14/2015	3.76	7/12/2030	7/14/2015	114.91667	110.8354021	106.9652532	103.2932055	99.80714709	96.49580242	93.34866833	90.35595595	87.5085372
170619A00089	6/16/2017	2.79	6/16/2027	6/16/2017	110.58523	106.7078815	102.9965529	99.44313989	96.03998297	92.77983931	89.65585769	86.6615549	83.79079376
151001A00023	10/1/2015	2.02	10/1/2025	10/1/2015	101.94834	100.6851518	99.45006608	98.24222069	97.06079088	95.90498371	94.77403659	93.66721579	92.58381516
170105A00012	1/5/2017	2.68	1/5/2024	1/5/2017	100.94922	100.2678056	99.59565515	98.93257886	98.27839347	97.63292063	96.99598671	96.36742268	95.74706397
201221A00022	12/21/2020	0.51	12/19/2025	12/21/2020	101.05038	98.64029856	96.3021812	94.03341805	91.83151012	89.69406633	87.618798	85.60351364	83.64611411
150929A00076	9/29/2015	2.28	9/29/2025	9/29/2015	101.87294	100.6536599	99.46090821	98.29388733	97.1518282	96.03399129	94.93966514	93.86816507	92.81883195
151029A00008	10/29/2015	2.28	10/29/2025	10/29/2015	101.97232	100.710543	99.47683306	98.27032874	97.09020586	95.93567207	94.80596529	93.70035233	92.61812755
200110A00043	1/10/2020	2.32	1/10/2030	1/10/2020	113.04669	106.8219222	101.0027741	95.56028629	90.46772546	85.70040344	81.23550984	77.05195915	73.13025113
200414A00009	4/14/2020	0.82	4/14/2025	4/14/2020	99.902099	98.91172107	97.94064984	96.9883385	96.0542609	95.13791042	94.23879907	93.35645664	92.49042987
210714A00016	7/14/2021	0.75	7/12/2024	7/14/2021	99.668767	98.52027525	97.39862217	96.30287129	95.23212976	94.18554545	93.16230459	92.16162969	91.18277749
210809A00015	8/9/2021	1.06	8/7/2026	8/9/2021	102.77585	99.74999339	96.83201931	94.01744067	91.30198364	88.68157838	86.15234788	83.71059745	81.35280497
170802A00013	8/2/2017	2.5	8/2/2024	8/2/2017	101.88035	100.6492311	99.44651349	98.27121705	97.122403	95.99917528	94.9006781	93.82609369	92.77464017

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160329A00017	3/29/2016	2.48	3/30/2026	3/29/2016	105.86382	103.2217618	100.664061	98.18753176	95.78912981	93.46594276	91.21518362	89.03418462	86.9203914
171207A00026	12/7/2017	2.93	12/7/2027	12/7/2017	112.83627	108.3878791	104.1496966	100.1105586	96.25995845	92.58800352	89.08537553	85.74329403	82.55348228
200311A00015	3/11/2020	1.26	3/11/2027	3/11/2020	104.45001	100.8482174	97.39437113	94.08160622	90.90340918	87.85360117	84.92631899	82.1159974	79.41735236
161102A00014	11/2/2016	1.99	11/2/2023	11/2/2016	100.34059	99.83077453	99.32616891	98.82668931	98.33225779	97.84279798	97.35823506	96.8784957	96.40350803
170309A00014	3/9/2017	2.58	3/9/2027	3/9/2017	104.94422	102.916301	100.950938	99.04568786	97.19822082	95.40631458	93.66784871	91.98079918	90.34323336
190506A00026	5/6/2019	3.03	5/4/2029	5/6/2019	116.42473	110.6295048	105.1779308	100.0475467	95.21747975	90.66832574	86.3820382	82.34182632	78.53206116
190913A00018	9/13/2019	2.11	9/11/2026	9/13/2019	102.83639	101.1070893	99.42562857	97.7902997	96.19946581	94.65156041	93.14508391	91.67860019	90.25073351
170727A00003	7/27/2017	1.97	7/29/2024	7/27/2017	100.65489	100.0197484	99.39542116	98.78159732	98.17798311	97.58429623	97.00026534	96.42562952	95.86013772
160210A00051	2/10/2016	2.28	2/10/2031	2/10/2016	109.694	105.5037361	101.5452022	97.80319207	94.26362406	90.91344612	87.74055315	84.73371171	81.88249118
200109A00008	1/9/2020	1.95	1/9/2030	1/9/2020	107.20933	103.668355	100.2994099	97.0924795	94.03820916	91.12785679	88.35324869	85.70673867	83.18117036
200220A00026	2/20/2020	2.22	2/21/2040	2/20/2020	116.10978	106.5395837	98.02819613	90.44131282	83.66317029	77.59382285	72.14684177	67.2473661	62.83044891
200724A00011	7/24/2020	1.41	7/26/2038	7/24/2020	112.67143	101.0916235	90.98763872	82.15497058	74.41895724	67.63025095	61.66099877	56.40161938	51.75808001
160908A00019	9/8/2016	1.87	9/8/2023	9/8/2016	100.21732	99.85526498	99.49585324	99.13905277	98.78483506	98.433172	98.08403589	97.73739945	97.39323578
181116A00006	11/16/2018	3.18	11/17/2025	11/16/2018	103.27435	101.9548211	100.6652435	99.4046895	98.17226825	96.96712345	95.78843186	94.63540165	93.50727101
160812A00006	8/12/2016	2.16	8/12/2026	8/12/2016	106.58466	103.6172038	100.7541411	97.99115513	95.32413876	92.74917934	90.2625481	87.86069031	85.54021605
210408A00007	4/8/2021	1.05	4/8/2031	4/8/2021	104.64641	100.5687729	96.72084209	93.08729169	89.65394008	86.40765883	83.33628711	80.42855353	77.67400494
220310A00010	3/10/2022	2.31	3/10/2027	3/10/2022	108.265	104.5976491	101.0799836	97.70507376	94.46635172	91.35758627	88.37286388	85.5065708	82.7533763
150929A00087	9/29/2015	2.09	9/29/2025	9/29/2015	101.9439	100.7196326	99.52209278	98.35046933	97.20398539	96.08189401	94.98347674	93.90804223	92.85492501
170313A00045	3/13/2017	3.22	3/15/2032	3/13/2017	114.25357	109.3333511	104.7166613	100.3814408	96.30742128	92.47596436	88.86991875	85.47349108	82.27212861
160802A00026	8/2/2016	1.84	8/2/2023	8/2/2016	100.15467	99.89156943	99.62986318	99.36953715	99.11058039	98.85298209	98.59673155	98.34181816	98.08823146
170317A00040	3/17/2017	2.74	3/18/2024	3/17/2017	101.34213	100.46779	99.60866311	98.76435561	97.93448552	97.11868386	96.31659417	95.52787195	94.75218416
190205A00021	2/5/2019	3.32	2/5/2029	2/5/2019	117.07897	111.6198474	106.469349	101.6080755	97.01795769	92.6821578	88.58497909	84.71178196	81.04890698
210809A00016	8/9/2021	0.66	8/9/2024	8/9/2021	99.612202	98.50828239	97.42758535	96.36936765	95.33291797	94.31755523	93.322627	92.34750798	91.39159859
150701A00056	7/1/2015	2.34	7/1/2025	7/1/2015	102.02532	100.8859718	99.77035815	98.6777828	97.60757227	96.55907883	95.53167929	94.52477377	93.53778466
190813A00064	8/13/2019	1.9	8/13/2024	8/13/2019	101.1891	99.93705913	98.71093678	97.50993035	96.33327113	95.180222	94.05007579	92.94215374	91.85580408
201029A00004	10/29/2020	1.49	10/29/2038	10/29/2020	113.6522	101.8566066	91.58271234	82.61693622	74.77726418	67.90840032	61.87768562	56.57166105	51.89317035
210714A00009	7/14/2021	0.75	7/12/2024	7/14/2021	99.667888	98.51059956	97.38042259	96.27641067	95.19766074	94.14331093	93.11253823	92.10455631	91.11861352
190329A00067	3/29/2019	2.61	3/29/2024	3/29/2019	101.24891	100.3683958	99.50357653	98.65403057	97.81935363	96.99915556	96.1930598	95.40070278	94.62173336
160201A00016	2/1/2016	2.1	2/2/2026	2/1/2016	102.11513	100.6881698	99.29563327	97.93640221	96.60940719	95.31362189	94.04806098	92.81177817	91.60386426
160908A00024	9/8/2016	2.21	9/8/2026	9/8/2016	106.43801	103.3166949	100.3082062	97.40784589	94.61113347	91.91379834	89.31176885	86.80116189	84.37827322
181218A00089	12/18/2018	3.05	6/19/2023	12/18/2018	100.28255	100.1398381	99.99754247	99.85566567	99.71420585	99.57316117	99.43252977	99.29230982	99.1524995
200522A00009	5/22/2020	0.96	5/22/2030	5/22/2020	102.91427	99.32375091	95.91889378	92.68824765	89.62116147	86.70771933	83.93868468	81.30544907	78.7999851
200512A00018	5/12/2020	0.85	5/12/2025	5/12/2020	100.55614	98.67633809	96.84236618	95.05280576	93.30629185	91.60151143	89.93720099	88.31214434	86.72517043

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150219A00016	2/19/2015	2.68	2/19/2025	2/19/2015	103.50661	101.7530671	100.038156	98.36076468	96.71982366	95.11430213	93.54320607	92.00557666	90.50048872
161229A00019	12/29/2016	2.46	12/29/2026	12/29/2016	104.29993	102.4103352	100.5761695	98.79535345	97.06590076	95.38591428	93.75358107	92.16716808	90.62501803
190205A00022	2/5/2019	3.32	2/5/2029	2/5/2019	117.07897	111.6198495	106.4693502	101.608076	97.01795735	92.68215674	88.58497735	84.7117796	81.04890404
110719A00017	7/19/2011	3.68	7/20/2026	7/19/2011	105.29393	103.6063848	101.9638359	100.3647122	98.80751418	97.2908055	95.81321019	94.37340952	92.97013919
160908A00032	9/8/2016	2.17	9/8/2026	9/8/2016	106.02183	103.0225151	100.1303679	97.34094729	94.65002006	92.05355078	89.54769148	87.12877187	84.79329022
200512A00020	5/12/2020	0.86	5/12/2025	5/12/2020	100.6075	98.68240474	96.80448302	94.97227602	93.18437622	91.43942968	89.73613355	88.07323379	86.44952293
201103A00005	11/3/2020	0.89	11/4/2030	11/3/2020	102.78142	99.0022499	95.42539689	92.03797756	88.8280348	85.78446147	82.89693405	80.15585199	77.55228201
190104A00034	1/4/2019	3.18	1/4/2029	1/4/2019	113.63374	109.0949899	104.7948166	100.7188972	96.85385569	93.18719851	89.70725117	86.40309957	83.26453601
191112A00023	11/12/2019	2.36	11/13/2029	11/12/2019	113.11999	107.0215485	101.3126324	95.96596622	90.95633511	86.26041461	81.85661944	77.72496485	73.84693982
160106A00042	1/6/2016	2.43	1/6/2026	1/6/2016	102.48714	101.0960114	99.73776362	98.41135265	97.11577159	95.85005369	94.61327034	93.40452925	92.22297274
180906A00032	9/6/2018	3.24	9/5/2025	9/6/2018	106.47851	104.1800885	101.9441997	99.76879162	97.65189321	95.59160921	93.58611674	91.63366207	89.73255759
191008A00014	10/8/2019	1.85	10/8/2026	10/8/2019	105.68238	102.4161217	99.27166675	96.24380288	93.32757118	90.51825091	87.81134673	85.20257668	82.68786082
110909A00006	9/9/2011	2.26	9/9/2026	9/9/2011	103.10151	101.3677246	99.68189538	98.04231216	96.44733418	94.89539133	93.38498048	91.91466215	90.48305737
150824A00050	8/24/2015	2.03	8/25/2025	8/24/2015	101.76971	100.5894711	99.434432	98.30383548	97.19695748	96.1131017	95.05159833	94.01180277	92.99309443
200115A00013	1/15/2020	2.18	1/15/2030	1/15/2020	109.98688	104.9439736	100.2047811	95.74856563	91.55614088	87.6097458	83.89293051	80.39045166	77.08817683
161214A00034	12/14/2016	2.65	12/14/2026	12/14/2016	104.1813	102.3021958	100.4779869	98.70661975	96.98613528	95.31466169	93.69040993	92.11166941	90.57680404
210512A00008	5/12/2021	0.66	5/10/2024	5/12/2021	99.523436	98.52688716	97.55045133	96.59352244	95.65551897	94.73588235	93.8340758	92.94958333	92.08190868
120517A00021	5/17/2012	1.85	5/17/2024	5/17/2012	100.46837	99.91950178	99.37875569	98.84593187	98.32083754	97.80328646	97.2930987	96.79010036	96.29412329
180322A00040	3/22/2018	3.16	3/21/2031	3/22/2018	116.25353	110.9196414	105.9252134	101.2452664	96.85684468	92.73884033	88.87183293	85.23794375	81.8207036
180322A00030	3/22/2018	2.79	3/24/2025	3/22/2018	102.03808	101.068894	100.1182177	99.18552571	98.27031641	97.37210707	96.49043278	95.62484559	94.77491382
210714A00011	7/14/2021	0.75	7/12/2024	7/14/2021	99.667888	98.51059956	97.38042259	96.27641066	95.19766073	94.14331092	93.11253822	92.1045563	91.1186135
160908A00027	9/8/2016	2.21	9/8/2026	9/8/2016	106.43801	103.3166952	100.3082063	97.40784583	94.61113326	91.913798	89.31176837	86.80116129	84.37827249
190605A00024	6/5/2019	2.64	6/5/2029	6/5/2019	114.2985	108.5129211	103.0750374	97.96183897	93.15196571	88.62557909	84.36424574	80.35083049	76.56939813
150227A00011	2/27/2015	2.33	2/27/2025	2/27/2015	103.02361	101.4302526	99.87184287	98.34739397	96.85595089	95.39659197	93.96842752	92.57059852	91.20227527
190308A00016	3/8/2019	3.18	3/8/2034	3/8/2019	127.63544	117.8124854	108.9157592	100.8493708	93.52798915	86.875624	80.82455136	75.31436805	70.29115907
190813A00052	8/13/2019	2.24	8/13/2029	8/13/2019	112.15554	106.3022654	100.8104918	95.65570275	90.81518084	86.26786229	81.99420809	77.97608568	74.19666045
220104A00006	1/4/2022	1.76	1/4/2029	1/4/2022	109.88536	104.8197459	100.0376301	95.52134907	91.25443948	87.22155229	83.40837104	79.80153651	76.38857736
190515A00035	5/15/2019	2.82	2/15/2029	5/15/2019	114.9025	109.346932	104.1105932	99.17323994	94.51601896	90.12136741	85.97291771	82.05540996	78.35461116
200330A00058	3/30/2020	1.49	3/29/2030	3/30/2020	107.32127	101.6967883	96.43764498	91.51755603	86.91228092	82.59945013	78.55841093	74.77008675	71.21684875
210107A00008	1/7/2021	0.54	1/5/2024	1/7/2021	99.47807	98.8051767	98.14144039	97.48667509	96.8406995	96.20333719	95.5744164	94.95376994	94.34123501
191209A00005	12/9/2019	2.22	12/10/2029	12/9/2019	111.29887	105.7018054	100.4542308	95.53188443	90.91233394	86.57482507	82.50014701	78.67050918	75.06942858
180104A00024	1/4/2018	2.98	1/4/2028	1/4/2018	112.88587	108.4795656	104.2824617	100.2833513	96.47169072	92.83755966	89.37162072	86.06508156	82.90965991
200309A00034	3/9/2020	0.96	3/9/2035	3/9/2020	105.80225	99.74567925	94.17439883	89.04327219	84.3117867	79.94354234	75.90580253	72.16909692	68.70687005

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191004A00025	10/4/2019	1.74	10/4/2024	10/4/2019	101.21066	99.83170446	98.47858058	97.15062118	95.84718448	94.56765006	93.311418	92.077908	90.86655864
150311A00003	3/11/2015	2.72	3/31/2025	3/11/2015	103.76962	101.9893426	100.2501776	98.55092186	96.89041226	95.26752755	93.68118641	92.13034581	90.6139993
190605A00007	6/5/2019	2.47	6/5/2026	6/5/2019	106.79749	103.8084921	100.9215102	98.13245228	95.43741984	92.83269432	90.3147275	87.88013256	85.52567567
200110A00039	1/10/2020	2.32	1/10/2030	1/10/2020	113.04669	106.8219219	101.0027741	95.56028649	90.46772584	85.70040398	81.23551052	77.05195996	73.13025205
210714A00013	7/14/2021	1.12	7/14/2026	7/14/2021	102.86195	99.8904782	97.02317495	94.25573927	91.58408174	89.00430812	86.51270856	84.10574749	81.78005418
210809A00012	8/9/2021	1.06	8/7/2026	8/9/2021	102.77585	99.74999345	96.8320192	94.01744038	91.30198317	88.68157775	86.15234709	83.71059652	81.35280391
150224A00010	2/24/2015	2.34	2/24/2025	2/24/2015	102.01972	100.6762388	99.3603962	98.0714311	96.80860945	95.57122245	94.35858548	93.17003715	92.00493832
180718A00008	7/18/2018	3.37	7/18/2028	7/18/2018	116.59045	111.417876	106.517038	101.8720151	97.46791008	93.29077906	89.32756514	85.56603673	81.99473061
190103A00020	1/3/2019	3.12	1/5/2026	1/3/2019	107.35337	104.7323154	102.1905211	99.72506926	97.33317398	95.01217138	92.75951337	90.5727617	88.44958237
200818A00012	8/18/2020	0.97	8/18/2027	8/18/2020	103.98562	100.0227451	96.23826146	92.62315414	89.16891504	85.86750943	82.71134699	79.69325475	76.80645192
180813A00045	8/13/2018	2.89	8/13/2025	8/13/2018	102.80412	101.6123675	100.4460209	99.30432116	98.18653748	97.09196723	96.01993458	94.96978924	93.94090527
160209A00006	2/9/2016	1.91	2/9/2026	2/9/2016	101.83932	100.4158407	99.02672194	97.67084641	96.34714679	95.05459872	93.79221871	92.55906219	91.35422159
190205A00023	2/5/2019	3.32	2/5/2029	2/5/2019	117.07897	111.6198476	106.4693491	101.6080756	97.01795763	92.68215766	88.58497886	84.71178166	81.0489066
150617A00017	6/17/2015	2.27	6/17/2025	6/17/2015	101.84392	100.7465005	99.67150236	98.61827349	97.58618568	96.57463447	95.58303805	94.61083621	93.65748929
191203A00011	12/3/2019	2.21	12/3/2029	12/3/2019	112.25216	106.1462244	100.4331932	95.08537028	90.07715931	85.38489632	80.98669391	76.86229864	72.99296063
160413A00020	4/13/2016	2.48	4/13/2026	4/13/2016	106.21659	103.4439025	100.7617023	98.16651512	95.65502279	93.22405295	90.87057189	88.59167766	86.38459353
210611A00008	6/11/2021	0.61	6/11/2024	6/11/2021	99.487956	98.40552674	97.34677102	96.31091693	95.29722616	94.30499186	93.33353701	92.38221282	91.45039727
170309A00016	3/9/2017	2.39	3/8/2024	3/9/2017	100.62712	100.1626033	99.70391052	99.25091885	98.80351085	98.36157248	97.92499297	97.49366467	97.067483
180905A00017	9/5/2018	3.43	9/6/2033	9/5/2018	130.20821	120.3493804	111.4033158	103.2779191	95.89094767	89.16890847	83.04608086	77.46365357	72.36896156
171013A00024	10/13/2017	2.47	10/15/2024	10/13/2017	102.25599	100.8710275	99.5124501	98.17956407	96.87170063	95.58821384	94.32847958	93.09189461	91.87787575
190702A00071	7/2/2019	2.69	7/1/2039	7/2/2019	128.82569	115.4877339	103.8964636	93.80123979	84.98942542	77.28038341	70.5204562	64.57876013	59.34365864
190702A00068	7/2/2019	2.69	7/1/2039	7/2/2019	128.82571	115.4877423	103.8964646	93.8012346	84.98941509	77.28036882	70.52043807	64.5787391	59.34363523
151209A00024	12/9/2015	2.22	12/9/2025	12/9/2015	102.42902	101.07542	99.75327213	98.46158572	97.19940956	95.96582994	94.75996882	93.58098217	92.42805839
160603A00014	6/3/2016	1.74	6/3/2026	6/3/2016	102.32825	100.7266879	99.1671209	97.64810689	96.16826426	94.72626917	93.32085267	91.95079802	90.61493809
160608A00025	6/8/2016	2.36	6/8/2026	6/8/2016	106.26992	103.3645299	100.5577302	97.84557572	95.22430472	92.69032913	90.24022531	87.87072538	85.57870913
160908A00031	9/8/2016	2.21	9/8/2026	9/8/2016	106.43801	103.316695	100.3082062	97.40784589	94.61113345	91.9137983	89.31176878	86.80116181	84.37827312
191105A00012	11/5/2019	2.07	11/3/2034	11/5/2019	112.61601	106.3392553	100.5528478	95.21227119	90.27746008	85.7123245	81.48432498	77.56409589	73.9251114
120330A00013	3/30/2012	2.98	4/2/2024	3/30/2012	101.59532	100.7115796	99.84372109	98.99131282	98.15394156	97.33120877	96.52272991	95.72813388	94.94706239
190813A00067	8/13/2019	1.9	8/13/2024	8/13/2019	101.1891	99.93705912	98.71093675	97.50993028	96.33327103	95.18022187	94.05007563	92.94215355	91.85580386
191015A00025	10/15/2019	2.01	10/15/2029	10/15/2019	106.24574	102.881746	99.67533131	96.61762063	93.70030823	90.91561582	88.25625548	85.71539541	83.28662829
230301A00047	3/1/2023	4.61	3/1/2028	3/1/2023	121.43466	116.5123724	111.8310015	107.3773718	103.1390963	99.10452624	95.26270375	91.60331713	88.11665959
220310A00009	3/10/2022	2.31	3/10/2027	3/10/2022	108.265	104.5976496	101.0799838	97.70507361	94.46635127	91.35758555	88.37286289	85.50656955	82.75337482
150410A00021	4/10/2015	2.27	4/10/2025	4/10/2015	101.38379	100.3781568	99.39211623	98.42511265	97.47661245	96.54610185	95.63308593	94.7370878	93.85764774

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150803A00041	8/3/2015	3.01	8/2/2030	8/3/2015	110.94408	106.9915267	103.2444338	99.6900671	96.31658639	93.11297221	90.06896357	87.17500045	84.42217103
190308A00026	3/8/2019	3.18	3/8/2034	3/8/2019	127.63544	117.8124852	108.9157591	100.8493708	93.5279892	86.87562412	80.82455154	75.31436829	70.29115936
170406A00026	4/6/2017	2.61	4/8/2024	4/6/2017	101.32783	100.4040534	99.49732998	98.60719172	97.73318497	96.87487251	96.03183286	95.20365952	94.38996033
170615A00006	6/15/2017	2.15	6/17/2024	6/15/2017	100.5151	99.96463445	99.42236683	98.888091	98.36161063	97.84273619	97.33128463	96.82707906	96.32994856
181214A00030	12/14/2018	3.47	12/14/2033	12/14/2018	131.41508	121.0502253	111.6674927	103.1654764	95.45387032	88.45219684	82.08868364	76.29927492	71.02675972
190708A00028	7/8/2019	2.57	7/2/2029	7/8/2019	113.98091	108.146643	102.6665781	97.51704228	92.67607587	88.1232996	83.83979236	79.80797897	76.01152716
200130A00046	1/30/2020	1.81	1/29/2027	1/30/2020	102.67686	100.783372	98.94621097	97.16323915	95.43241597	93.75179306	92.11950939	90.53378675	88.99292539
160801A00002	8/1/2016	1.58	8/3/2026	8/1/2016	102.2466	100.5632039	98.92565132	97.33231851	95.78165217	94.27216568	92.8024357	91.37109896	89.97684928
170406A00034	4/6/2017	3.01	4/6/2027	4/6/2017	110.84192	107.1209584	103.5531926	100.1314407	96.84889554	93.69910418	90.67594804	87.77362353	84.98662418
210412A00008	4/12/2021	0.66	4/12/2024	4/12/2021	99.514283	98.58914949	97.68134598	96.79038797	95.91580876	95.05715874	94.21400468	93.38592894	92.57252878
140924A00057	9/24/2014	3.25	9/25/2028	9/24/2014	117.35199	112.1564487	107.2400028	102.585969	98.17874835	94.00375319	90.04733614	86.29672477	82.73996101
170511A00011	5/11/2017	2.41	5/11/2027	5/11/2017	104.86217	102.75064	100.7064696	98.72695004	96.80950421	94.95167681	93.15112771	91.40562565	89.71304247
191224A00002	12/24/2019	2.17	12/24/2029	12/24/2019	106.96901	103.49672	100.1906914	97.04137229	94.03983176	91.17771694	88.44721134	85.84099688	83.3522186
151030A00026	10/30/2015	3.29	10/30/2030	10/30/2015	119.13608	112.5543474	106.4271959	100.7198266	95.40030959	90.43933385	85.80997809	81.48750335	77.44916437
160908A00026	9/8/2016	2.21	9/8/2026	9/8/2016	106.43801	103.3166951	100.3082063	97.40784588	94.6111334	91.91379821	89.31176867	86.80116166	84.37827294
180410A00002	4/10/2018	3.14	4/11/2033	4/10/2018	116.99635	111.3318193	106.0556993	101.136828	96.54681327	92.25976919	88.25207616	84.50216593	80.99032826
161012A00011	10/12/2016	1.53	10/12/2023	10/12/2016	100.10134	99.86727005	99.63532744	99.40548083	99.17770156	98.95196149	98.72823298	98.50648891	98.28670264
170619A00092	6/16/2017	2.79	6/16/2027	6/16/2017	110.58523	106.7078808	102.9965525	99.44313984	96.0399832	92.77983981	89.65585845	86.6615559	83.79079499
180628A00068	6/28/2018	3.12	6/28/2028	6/28/2018	113.54684	109.341541	105.3414474	101.5350568	97.91158728	94.46092497	91.17357872	88.0406379	85.05373339
190718A00012	7/18/2019	2.55	7/18/2029	7/18/2019	112.74397	107.3701397	102.3146268	97.55638415	93.07588294	88.85499323	84.87687589	81.12588333	77.58746842
210714A00018	7/14/2021	0.75	7/12/2024	7/14/2021	99.668767	98.52027525	97.39862217	96.30287128	95.23212975	94.18554544	93.16230458	92.16162968	91.18277748
221201A00043	12/1/2022	4.37	12/3/2029	12/1/2022	115.41847	111.5640271	107.8941856	104.3983449	101.066594	97.88966269	94.85887563	91.96611039	89.20375827
170105A00010	1/5/2017	2.61	1/5/2027	1/5/2017	104.23177	102.3101452	100.4456168	98.63602032	96.87929024	95.17345422	93.51662821	91.90701179	90.34288389
200306A00058	3/6/2020	1.06	3/6/2030	3/6/2020	103.19196	99.72254247	96.42456604	93.28789517	90.30307097	87.46126263	84.75422138	82.17423819	79.71410476
160608A00033	6/8/2016	2.44	6/9/2031	6/8/2016	109.62105	105.286441	101.1993849	97.34314458	93.70225125	90.26239882	87.01034849	83.93384164	81.02152037
161202A00001	12/2/2016	2.65	12/1/2023	12/2/2016	100.78737	100.1988912	99.61732286	99.04254084	98.47442669	97.91286472	97.3577419	96.80894782	96.26637454
170207A00055	2/7/2017	2.36	2/8/2027	2/7/2017	104.36254	102.3883289	100.474001	98.61724933	96.81587065	95.06776263	93.37091848	91.72342194	90.12344246
200317A00009	3/17/2020	1.61	3/16/2035	3/17/2020	108.25147	102.0999152	96.43878352	91.22265091	86.41072609	81.96634365	77.85651485	74.0515304	70.52460888
150925A00034	9/25/2015	2.36	9/25/2025	9/25/2015	101.9716	100.7514409	99.55781779	98.38993284	97.24701719	96.12833145	95.03316426	93.96083106	92.91067277
160609A00075	6/9/2016	1.94	6/9/2026	6/9/2016	102.25087	100.6559875	99.10280121	97.58988353	96.11586612	94.67943768	93.27934119	91.91437113	90.58337107
161004A00070	10/4/2016	1.92	10/4/2023	10/4/2016	100.27317	99.84051915	99.41162407	98.9864324	98.56489624	98.14696849	97.73260289	97.32175393	96.91437691
140618A00019	6/18/2014	3.08	6/18/2024	6/18/2014	101.12294	100.5294921	99.94545048	99.37056674	98.80460225	98.24732707	97.69851961	97.15796616	96.62546062
191122A00003	11/22/2019	2.32	11/22/2039	11/22/2019	122.24298	110.4116936	100.0683505	91.0038725	83.04055973	76.02715588	69.83471692	64.35315072	59.4883148

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171207A00024	12/7/2017	2.93	12/7/2027	12/7/2017	112.83627	108.3878791	104.1496966	100.1105586	96.25995842	92.58800347	89.08537547	85.74329396	82.5534822
180104A00023	1/4/2018	2.91	1/4/2028	1/4/2018	110.95122	107.0703396	103.3660424	99.82908335	96.45075974	93.22287565	90.13770943	87.18798332	84.36683513
200206A00034	2/6/2020	1.84	2/6/2025	2/6/2020	102.01964	100.315465	98.64838601	97.01729097	95.42111644	93.85884035	92.32947996	90.83208996	89.36576068
200327A00094	3/27/2020	1.6	3/27/2030	3/27/2020	107.95549	102.3056223	97.02235229	92.07933587	87.45226895	83.11872165	79.05798411	75.25092564	71.67986614
150929A00083	9/29/2015	2.09	9/29/2025	9/29/2015	101.9439	100.7196326	99.52209278	98.35046933	97.20398539	96.08189401	94.98347674	93.90804223	92.85492501
160608A00030	6/8/2016	2.36	6/8/2026	6/8/2016	106.26992	103.3645299	100.5577302	97.8455757	95.22430465	92.69032901	90.24022514	87.87072517	85.57870887
180628A00078	6/28/2018	2.73	6/28/2023	6/28/2018	100.16708	100.0781731	99.9895118	99.90109905	99.81293376	99.72501479	99.63734103	99.54991139	99.46272477
181128A00011	11/28/2018	3.27	11/28/2023	11/28/2018	101.13806	100.5570455	99.98274572	99.41504565	98.85383191	98.29899372	97.75042278	97.20801326	96.67166168
151228A00013	12/28/2015	2.27	12/29/2025	12/28/2015	102.50346	101.147093	99.82229234	98.52806413	97.26345167	96.02753609	94.81943451	93.63829836	92.4833117
160908A00036	9/8/2016	2.3	9/8/2031	9/8/2016	109.26477	104.8165421	100.6291604	96.68454813	92.96603154	89.45821915	86.1468943	83.01891717	80.06213566
201207A00009	12/7/2020	1.01	12/7/2027	12/7/2020	104.47282	100.2416867	96.21241731	92.37423951	88.71701581	85.23120287	81.90781319	78.7383796	75.71492225
190605A00027	6/5/2019	2.64	6/5/2029	6/5/2019	114.29851	108.5129253	103.0750391	97.96183834	93.15196295	88.62557436	84.36423919	80.35082226	76.56938836
210611A00011	6/11/2021	1.02	6/11/2026	6/11/2021	102.42756	99.54311208	96.75756259	94.06693399	91.4674301	88.95543085	86.52748288	84.18029069	81.91070842
160810A00025	8/10/2016	2.17	8/10/2026	8/10/2016	106.12318	103.0750134	100.1348368	97.29817831	94.56077759	91.91857657	89.36770831	86.90448674	84.52539703
200109A00006	1/9/2020	1.95	1/9/2030	1/9/2020	107.20934	103.6683575	100.2994105	97.09247833	94.03820633	91.12785241	88.35324287	85.7067315	83.18116193
150722A00033	7/22/2015	2.47	7/22/2025	7/22/2015	101.89643	100.7601979	99.64761968	98.55799667	97.49065789	96.44495799	95.420276	94.41601424	93.43159719
160810A00030	8/10/2016	2.24	8/11/2031	8/10/2016	108.91075	104.51948	100.3834843	96.48521628	92.80847907	89.33831233	86.06088919	82.9634224	80.03407881
160908A00017	9/8/2016	1.87	9/8/2023	9/8/2016	100.21732	99.85526498	99.49585323	99.13905276	98.78483505	98.43317199	98.08403588	97.73739944	97.39323577
171109A00016	11/9/2017	2.94	11/9/2032	11/9/2017	124.20971	115.2008062	106.9738737	99.4549159	92.57737464	86.28134692	80.51288455	75.22337091	70.36896592
180517A00024	5/17/2018	3.46	5/17/2033	5/17/2018	118.96007	113.1533891	107.7478096	102.7109259	98.01323185	93.62784277	89.53024354	85.69806216	82.11086656
150803A00042	8/3/2015	3.01	8/2/2030	8/3/2015	110.94408	106.9915268	103.2444338	99.69006712	96.31658638	93.11297219	90.06896354	87.1750004	84.42217097
160428A00028	4/28/2016	2	4/28/2026	4/28/2016	102.54597	101.0224223	99.53735409	98.08947798	96.67756199	95.30042461	93.95693233	92.64599727	91.36657502
170619A00101	6/16/2017	2.74	6/16/2027	6/16/2017	109.8771	106.1741661	102.6275796	99.22976736	95.9735666	92.85220247	89.85926469	86.98868572	84.2347203
170406A00032	4/6/2017	3.01	4/6/2027	4/6/2017	110.84192	107.1209585	103.5531926	100.1314408	96.84889552	93.69910413	90.67594794	87.7736234	84.98662401
200414A00024	4/14/2020	1.37	4/14/2027	4/14/2020	105.03176	101.3317136	97.78703189	94.39033681	91.1346421	88.01332897	85.02012465	82.14908253	79.39456333
200623A00028	6/23/2020	1.23	6/23/2038	6/23/2020	108.61009	100.8365505	93.83078147	87.50553739	81.78439796	76.60033748	71.89449108	67.61509181	63.71655366
160608A00020	6/8/2016	2.36	6/8/2026	6/8/2016	106.26992	103.3645297	100.5577301	97.84557572	95.22430478	92.69032925	90.24022549	87.87072562	85.57870941
161014A00029	10/14/2016	2.51	10/15/2031	10/14/2016	111.54241	106.9288727	102.5894291	98.50485896	94.65744733	91.03085739	87.61001321	84.38099356	81.3309353
200330A00079	3/30/2020	1.51	3/30/2035	3/30/2020	107.61894	101.5032932	95.87525474	90.68965414	85.90593011	81.4876245	77.40193554	73.61932282	70.11315752
180605A00031	6/5/2018	3.37	6/5/2030	6/5/2018	112.10685	108.2004923	104.4931825	100.9728129	97.62810753	94.44855869	91.42436976	88.54640204	85.80612604
181128A00004	11/28/2018	3.08	11/28/2023	11/28/2018	101.16389	100.5812216	100.0053072	99.43603268	98.87328358	98.31694799	97.76691657	97.22308244	96.68534113
190104A00038	1/4/2019	3.25	1/4/2029	1/4/2019	116.5375	111.1699457	106.1021115	101.3153662	96.79234591	92.5168586	88.47379861	84.64906757	81.02950163
130614A00018	6/14/2013	2.83	6/14/2023	6/14/2013	100.14077	100.0649626	99.98932726	99.91386788	99.83858387	99.76347458	99.68853935	99.61377755	99.53918853

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150803A00037	8/3/2015	3.41	8/2/2030	8/3/2015	119.44041	113.0130161	107.017409	101.4213869	96.19534476	91.31204991	86.74643831	82.47542999	78.4777609
180809A00034	8/9/2018	3.08	8/9/2023	8/9/2018	100.51601	100.2334093	99.95241693	99.67301784	99.39519841	99.11894518	98.84424485	98.57108423	98.29945033
170526A00017	5/26/2017	2.16	5/28/2024	5/26/2017	100.46442	99.95559605	99.45379841	98.95886669	98.47064425	97.98897947	97.51372555	97.04474034	96.58188608
190905A00019	9/5/2019	2.08	9/5/2029	9/5/2019	111.25597	105.3894805	99.88868539	94.72861715	89.88613912	85.33980561	81.06972998	77.05746367	73.28588523
181218A00086	12/18/2018	3.06	10/18/2023	12/18/2018	100.81494	100.3495209	99.88846588	99.43171526	98.97920874	98.53088709	98.0866922	97.64656701	97.21045553
190403A00013	4/3/2019	3.05	4/3/2029	4/3/2019	115.88932	110.3436034	105.1193351	100.195884	95.55405326	91.17597499	87.04501108	83.14566237	79.46348495
220407A00017	4/7/2022	3.16	4/6/2029	4/7/2022	115.85063	110.4953223	105.4464104	100.6843542	96.19097067	91.94933062	87.94366574	84.15928297	80.58248553
160907A00041	9/7/2016	1.83	9/7/2023	9/7/2016	100.20167	99.8414454	99.48382695	99.12878888	98.77630322	98.4263424	98.07887926	97.733887	97.39133923
180809A00032	8/9/2018	3.08	8/9/2023	8/9/2018	100.51601	100.2334093	99.95241693	99.67301784	99.39519842	99.1189452	98.84424486	98.57108425	98.29945036
151223A00078	12/23/2015	2.28	12/23/2025	12/23/2015	102.51565	101.1596278	99.83515386	98.5412297	97.27689989	96.0412468	94.83338872	93.65247814	92.49770016
200413A00013	4/13/2020	1.19	4/12/2030	4/13/2020	103.69787	100.1699757	96.81825731	93.63219668	90.60198499	87.71847055	84.97311034	82.35792533	79.86545941
150213A00014	2/13/2015	2.41	2/13/2025	2/13/2015	101.57436	100.6457272	99.73448367	98.84014392	97.96223667	97.10030851	96.25392301	95.4226599	94.60611431
200709A00018	7/9/2020	0.59	7/7/2023	7/9/2020	99.888617	99.69650048	99.50513532	99.31451672	99.12464025	98.93550154	98.74709624	98.55942006	98.37246872
201228A00013	12/28/2020	0.84	12/30/2030	12/28/2020	102.60726	98.79360831	95.18613524	91.77159393	88.53769368	85.47302511	82.56699086	79.80974216	77.19212073
160511A00015	5/11/2016	2.42	5/11/2026	5/11/2016	106.24511	103.4062235	100.6619343	98.00853366	95.44247893	92.96038695	90.55902612	88.23530859	85.98628294
161207A00014	12/7/2016	2.75	12/8/2031	12/7/2016	112.90093	108.1420988	103.6708418	99.46666774	95.51071718	91.78561974	88.27536574	84.96518999	81.84146614
200512A00017	5/12/2020	0.85	5/12/2025	5/12/2020	100.55614	98.67633814	96.84236639	95.05280612	93.30629236	91.60151208	89.93720178	88.31214527	86.72517148
150722A00035	7/22/2015	2.92	7/22/2025	7/22/2015	105.03489	102.9745612	100.9672394	99.01116204	97.1046387	95.24604952	93.43384149	91.6665251	89.94267112
150814A00029	8/14/2015	2.39	8/14/2025	8/14/2015	101.90298	100.726048	99.57413224	98.44648484	97.34238831	96.26115272	95.20211439	94.16463461	93.14809848
160413A00016	4/13/2016	2.55	4/14/2031	4/13/2016	109.90987	105.6494594	101.6280234	97.82967263	94.23970394	90.84450228	87.63145258	84.58885935	81.7058732
200306A00048	3/6/2020	1.04	3/6/2035	3/6/2020	106.30541	100.2198957	94.62197526	89.46630121	84.71216953	80.32300813	76.26592553	72.51131184	69.03248577
200306A00050	3/6/2020	0.87	3/6/2030	3/6/2020	103.44329	99.94642623	96.62306955	93.46292126	90.45637623	87.59446936	84.8688285	82.27163124	79.79556496
190205A00019	2/5/2019	2.94	2/5/2024	2/5/2019	101.28509	100.5224374	99.77137652	99.03164569	98.30298918	97.58515893	96.87791426	96.1810216	95.4942542
210412A00007	4/12/2021	0.66	4/12/2024	4/12/2021	99.514283	98.58914948	97.68134597	96.79038796	95.91580873	95.05715871	94.21400465	93.38592891	92.57252874
190708A00025	7/8/2019	2.21	7/1/2024	7/8/2019	101.35387	100.2058785	99.08411109	97.98767244	96.91570987	95.86740863	94.8419898	93.83870835	92.85685134
191031A00025	10/31/2019	1.91	10/31/2024	10/31/2019	100.62815	99.87253889	99.13011443	98.40051189	97.68338452	96.97839844	96.28523213	95.60357575	94.93313064
200206A00033	2/6/2020	2.15	2/6/2030	2/6/2020	112.04903	105.8098216	99.98124852	94.53373954	89.44001128	84.67488296	80.21510321	76.03919205	72.12729668
190104A00006	1/4/2019	2.83	1/5/2026	1/4/2019	103.05631	101.6571747	100.2911155	98.95707313	97.65403526	96.38102974	95.13712279	93.92141716	92.73305036
190501A00015	5/1/2019	2.78	5/1/2029	5/1/2019	108.31889	105.1037865	102.0309228	99.09269387	96.28195947	93.59201185	91.01654669	88.54963606	86.18570343
170921A00057	9/21/2017	2.79	9/21/2027	9/21/2017	110.71229	106.781389	103.0250969	99.43460907	96.00161099	92.71825074	89.5771106	86.57118078	83.69383485
200311A00026	3/11/2020	1.34	3/11/2030	3/11/2020	106.78853	100.9106802	95.42084614	90.29094561	85.49508204	81.00936062	76.81172349	72.88179946	69.20076667
151118A00037	11/18/2015	2.75	11/18/2025	11/18/2015	105.08076	102.9199942	100.8199693	98.77857567	96.79379291	94.86368399	92.9863914	91.16013322	89.38319953
150812A00052	8/14/2015	2.13	8/14/2025	8/14/2015	101.88708	100.706451	99.55099147	98.41995209	97.31260885	96.22826563	95.16625285	94.12592623	93.10666559

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190404A00015	4/4/2019	2.88	4/3/2026	4/4/2019	107.49768	104.6502112	101.8955088	99.23003091	96.65039429	94.15336324	91.73584234	89.39486957	87.12760977
210714A00015	7/14/2021	1.11	7/14/2026	7/14/2021	102.74661	99.83724171	97.02924877	94.31846159	91.70091182	89.17282016	86.73058589	84.37077713	82.09012173
230307A00004	3/7/2023	4.67	3/7/2028	3/7/2023	121.79363	116.8446114	112.1385152	107.6620167	103.4025908	99.34846136	95.48855261	91.81244399	88.31032805
161222A00013	12/22/2016	2.93	12/22/2026	12/22/2016	110.04932	106.7103277	103.4989744	100.4095795	97.43675315	94.57537777	91.82059241	89.16777826	86.61254493
170406A00029	4/6/2017	3.01	4/6/2027	4/6/2017	110.84192	107.1209599	103.5531934	100.131441	96.84889523	93.69910334	90.6759467	87.77362171	84.98662191
190930A00026	9/30/2019	1.95	9/30/2024	9/30/2019	101.4558	100.1079122	98.78504636	97.48656544	96.21185127	94.96030613	93.73135193	92.52442943	91.33899745
150603A00012	6/3/2015	2.77	6/3/2030	6/3/2015	110.80523	106.9235242	103.2404287	99.74381676	96.42239913	93.26565857	90.2637919	87.40765661	84.6887217
190930A00028	9/30/2019	1.95	9/30/2024	9/30/2019	101.4558	100.1079122	98.78504641	97.48656553	96.21185141	94.96030631	93.73135216	92.52442971	91.33899777
210107A00010	1/7/2021	0.54	1/5/2024	1/7/2021	99.47807	98.80517675	98.14144046	97.48667519	96.84069963	96.20333734	95.57441658	94.95377015	94.34123524
160421A00016	4/21/2016	2.26	4/21/2026	4/21/2016	106.09626	103.3899018	100.7718237	98.23861958	95.78703586	93.41396347	91.11643028	88.89159428	86.73673708
160810A00028	8/10/2016	2.19	8/10/2026	8/10/2016	106.34415	103.2293186	100.2255024	97.32809233	94.53269636	91.8351312	89.23141097	86.71773655	84.2904856
190402A00005	4/2/2019	2.77	4/2/2032	4/2/2019	115.68178	109.7334626	104.2126018	99.08406678	94.31588246	89.8789264	85.74665604	81.89486353	78.30145529
160608A00027	6/8/2016	2.36	6/8/2026	6/8/2016	106.26992	103.3645299	100.5577302	97.84557569	95.22430465	92.69032902	90.24022516	87.8707252	85.57870891
160908A00037	9/8/2016	1.4	9/8/2023	9/8/2016	100.09245	99.80555614	99.52060591	99.23758126	98.95646192	98.6772279	98.39985953	98.12433739	97.85064234
181003A00032	10/3/2018	3.23	10/3/2025	10/3/2018	103.19347	101.9182002	100.671213	99.45164586	98.25867095	97.09149209	95.94934353	94.83148841	93.73721748
190829A00032	8/29/2019	1.69	8/28/2026	8/29/2019	102.44032	100.7519331	99.10959248	97.51167088	95.95660748	94.44290829	92.96914276	91.53394065	90.13598894
160616A00029	6/16/2016	1.58	6/16/2026	6/16/2016	102.06899	100.4707225	98.91440158	97.39858107	95.9218797	94.48297412	93.08059588	91.7135288	90.38060636
180517A00018	5/17/2018	3.46	5/17/2033	5/17/2018	118.96008	113.153392	107.7478111	102.7109263	98.01323125	93.62784128	89.53024127	85.6980592	82.110863
191004A00017	10/4/2019	2.02	10/4/2029	10/4/2019	110.95418	105.0368605	99.49256133	94.29552566	89.4219118	84.84963995	80.55825325	76.52879036	72.74366875
191101A00005	11/1/2019	1.83	11/2/2026	11/1/2019	106.63124	103.2653712	100.0276246	96.91239795	93.91436907	91.02847727	88.24990905	85.57408453	82.99664476
200610A00006	6/10/2020	1.11	6/10/2027	6/10/2020	104.24673	100.4359387	96.79033307	93.30181009	89.96271424	86.76580702	83.70424177	80.77154012	77.96157
150203A00027	2/3/2015	2.26	2/4/2030	2/3/2015	108.42907	104.8041412	101.3571836	98.07773397	94.95602703	91.98294294	89.14996002	86.44911141	83.87294515
160906A00027	9/6/2016	2.03	9/8/2031	9/6/2016	109.24103	104.7668377	100.5561564	96.5906591	92.85344267	89.32890868	86.00265348	82.86136826	79.89274811
190315A00029	3/15/2019	2.88	3/15/2034	3/15/2019	116.88752	110.7304855	105.0297816	99.74599527	94.84347585	90.28994627	86.05615834	82.11558571	78.44414985
220407A00014	4/7/2022	3.14	4/6/2029	4/7/2022	114.67429	109.6827832	104.9696368	100.5173567	96.30964878	92.33133249	88.56825826	85.00723211	81.63594591
180615A00021	6/15/2018	3.02	6/15/2023	6/15/2018	100.26035	100.1286134	99.99723852	99.86622544	99.73557259	99.60527844	99.4753415	99.34576025	99.21653322
190104A00035	1/4/2019	3.1	1/5/2026	1/4/2019	107.19043	104.6049757	102.0974441	99.66497101	97.30482167	95.01438113	92.79114797	90.63272851	88.53683128
170602A00019	6/2/2017	2.42	6/3/2024	6/2/2017	101.44161	100.367112	99.31559822	98.28633083	97.27860745	96.29175499	95.32512818	94.37810814	93.45010107
190305A00015	3/5/2019	3.32	3/5/2029	3/5/2019	117.22573	111.6974238	106.4852396	101.5691531	96.9305147	92.55194881	88.41726043	84.51134898	80.8201289
210913A00015	9/13/2021	1.08	9/14/2026	9/13/2021	102.7344	99.80034781	96.97177845	94.24429502	91.61371086	89.07603587	86.62746615	84.26437431	81.98330026
150803A00036	8/3/2015	3.41	8/2/2030	8/3/2015	119.44041	113.013016	107.0174089	101.4213869	96.1953448	91.31204999	86.74643844	82.47543016	78.47776111
160210A00049	2/10/2016	1.78	2/10/2026	2/10/2016	102.01078	100.5796999	99.18327324	97.82037596	96.48992838	95.19089435	93.92227925	92.68312787	91.47252259
140917A00030	9/17/2014	3.23	9/17/2029	9/17/2014	117.64272	112.0836563	106.8572564	101.9412352	97.31493425	92.95919046	88.85621988	84.98951114	81.3437276

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160711A00004	7/11/2016	1.51	7/13/2026	7/11/2016	102.0404	100.4013937	98.8062152	97.25333416	95.74128607	94.2686686	92.83413836	91.43640803	90.07424355
200608A00001	6/8/2020	1.34	6/7/2030	6/8/2020	106.54526	100.8246648	95.48443242	90.49656671	85.83529254	81.476871	77.39942757	73.5827956	70.00837377
210423A00001	4/23/2021	1.72	4/23/2036	4/23/2021	111.37783	104.4487467	98.11945731	92.32990733	87.02663782	82.16201258	77.69353762	73.58326491	69.79726929
160427A00004	4/27/2016	2.09	4/27/2026	4/27/2016	102.30067	100.7864479	99.31033609	97.87106849	96.46742853	95.09824926	93.76241095	92.45883882	91.18650087
180309A00011	3/9/2018	3.19	3/10/2025	3/9/2018	104.66202	102.8467167	101.0725252	99.33826639	97.64280634	95.98505061	94.36394258	92.77846192	91.22762306
200110A00053	1/10/2020	1.99	1/10/2025	1/10/2020	102.12395	100.4855555	98.88168976	97.31132422	95.77346809	94.26716987	92.79151539	91.34562591	89.92865641
221014A00032	10/14/2022	4.67	10/14/2027	10/14/2022	118.59713	114.381474	110.3545922	106.5068661	102.8292174	99.31307919	95.95036385	92.73343376	89.65507381
160908A00033	9/8/2016	2.17	9/8/2026	9/8/2016	106.02183	103.0225151	100.1303679	97.3409473	94.6500201	92.05355084	89.54769156	87.12877198	84.79329035
210319A00009	3/19/2021	1.1	3/19/2026	3/19/2021	102.32672	99.64343765	97.04653807	94.53276464	92.09900522	89.74228154	87.45974274	85.24865912	83.10641636
201207A00021	12/7/2020	1.85	12/7/2050	12/7/2020	115.29936	101.0791251	89.23321863	79.31122904	70.95485407	63.87806404	57.85170649	52.69152782	48.24882817
200227A00046	2/27/2020	1.52	3/1/2027	2/27/2020	102.1959	100.2703803	98.40313139	96.59190987	94.83457751	93.12909365	91.47350995	89.86596561	88.30468278
200806A00004	8/6/2020	0.3	3/6/2024	8/6/2020	99.650396	99.19150725	98.73836149	98.29083921	97.84882481	97.41220606	96.98087388	96.55472231	96.13364835
140318A00003	3/17/2014	3.08	3/18/2024	3/17/2014	101.84759	100.9698115	100.1073266	99.25973815	98.42666152	97.6077251	96.80256992	96.01084913	95.2322274
170829A00066	8/29/2017	2.11	8/29/2024	8/29/2017	101.85746	100.5612413	99.28793744	98.03698944	96.80785707	95.60001714	94.41296282	93.24620304	92.09926183
190911A00016	9/11/2019	1.9	9/11/2029	9/11/2019	106.6851	103.3319756	100.1347927	97.08482825	94.17391375	91.39439648	88.7391034	86.20130774	83.77469827
180126A00011	1/26/2018	2.72	1/26/2028	1/26/2018	106.72324	104.226621	101.8200959	99.49964315	97.26144901	95.1018972	93.01755713	91.00517305	89.06165398
200512A00014	5/12/2020	1.17	5/12/2027	5/12/2020	104.39522	100.647337	97.0594613	93.62386927	90.33325145	87.18068976	84.15963433	81.26388179	78.48755503
210915A00023	9/15/2021	0.74	9/16/2024	9/15/2021	99.766552	98.4525419	97.16240391	95.89554236	94.65138052	93.42936032	92.22894156	91.0496012	89.89083271
151204A00011	12/4/2015	2.28	12/4/2025	12/4/2015	102.51043	101.1561389	99.83330163	98.54092949	97.27807162	96.04381463	94.83728077	93.65762629	92.5040398
200709A00019	7/9/2020	0.77	7/9/2025	7/9/2020	100.61313	98.54520617	96.53064018	94.56766866	92.65460082	90.78981555	88.97175786	87.19893562	85.46991637
150824A00033	8/24/2015	2.22	8/25/2025	8/24/2015	101.70159	100.5260795	99.37558838	98.2493667	97.14669757	96.0668915	95.00928516	93.97324007	92.9581415
210512A00009	5/12/2021	0.66	5/10/2024	5/12/2021	99.523436	98.52688715	97.55045132	96.59352243	95.65551897	94.73588234	93.8340758	92.94958332	92.08190868
161014A00019	10/14/2016	2.39	10/15/2031	10/14/2016	109.76251	105.2508682	101.0061059	97.00957861	93.24409741	89.69380574	86.34406659	83.18136014	80.19319059
190708A00030	7/8/2019	2.57	7/2/2029	7/8/2019	113.98091	108.1466435	102.6665783	97.51704215	92.67607543	88.12329887	83.83979137	79.80797773	76.01152569
190510A00049	5/10/2019	2.58	5/8/2026	5/10/2019	103.06245	101.5362392	100.0484495	98.59780288	97.18307244	95.80308152	94.45670104	93.14284727	91.86047962
200424A00022	4/24/2020	1.39	4/24/2030	4/24/2020	106.77289	101.1259217	95.84913131	90.91563794	86.30067161	81.98139215	77.93672866	74.14723316	70.59494708
160608A00021	6/8/2016	1.91	6/8/2023	6/8/2016	100.10427	99.99131309	99.87862557	99.76620696	99.65405627	99.54217251	99.43055469	99.31920183	99.20811294
190605A00025	6/5/2019	2.64	6/5/2029	6/5/2019	114.2985	108.5129228	103.0750381	97.96183878	93.15196467	88.62557726	84.36424318	80.35082725	76.56939426
180125A00027	1/25/2018	2.69	1/24/2025	1/25/2018	101.8209	100.8026589	99.80395004	98.82420861	97.86289567	96.91949314	95.99350279	95.08444518	94.19185883
210714A00010	7/14/2021	0.75	7/12/2024	7/14/2021	99.667888	98.51059946	97.3804224	96.27641039	95.19766037	94.14331048	93.1125377	92.1045557	91.11861283
190118A00006	1/18/2019	3.14	1/18/2034	1/18/2019	118.22184	112.0851281	106.3970835	101.1194529	96.21758855	91.66008158	87.41843518	83.4667726	79.78157651
160504A00022	5/4/2016	2	5/4/2023	5/4/2016	100.01941	100.0028048	99.98621328	99.96963798	99.95307884	99.93653584	99.92000894	99.90349813	99.88700338
190813A00051	8/13/2019	2.19	8/13/2029	8/13/2019	111.85965	106.0187301	100.538624	95.39485882	90.56475771	86.0272949	81.76296669	77.75367342	73.9826111

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191004A00026	10/4/2019	1.74	10/4/2024	10/4/2019	101.21066	99.83170447	98.47858052	97.15062106	95.8471843	94.56764982	93.3114177	92.07790765	90.86655823
210107A00009	1/7/2021	0.54	1/5/2024	1/7/2021	99.47807	98.80517673	98.14144043	97.48667514	96.84069957	96.20333727	95.5744165	94.95377005	94.34123513
170406A00036	4/6/2017	3.07	4/6/2032	4/6/2017	113.63812	108.7007993	104.0705485	99.72488132	95.64314962	91.80637735	88.19711334	84.79929782	81.59814157
200406A00030	4/6/2020	1.61	4/5/2030	4/6/2020	108.76155	102.543262	96.74393566	91.33278556	86.28144836	81.56378217	77.15568159	73.03490896	69.1809405
200406A00036	4/6/2020	1.09	4/4/2025	4/6/2020	100.92153	99.08519621	97.29198764	95.54062729	93.82988603	92.15857909	90.52556406	88.92973914	87.37004138
140428A00015	4/28/2014	2.35	4/29/2024	4/28/2014	100.68301	100.171785	99.66763538	99.17039949	98.67991926	98.19604178	97.71861897	97.24750744	96.78256827
160413A00033	4/13/2016	2.32	4/13/2026	4/13/2016	104.97788	102.5297493	100.1586526	97.86168101	95.63605568	93.47911893	91.38832829	89.36125075	87.39555736
200206A00032	2/6/2020	2.15	2/6/2030	2/6/2020	112.04904	105.8098238	99.98124848	94.53373738	89.44000719	84.67487712	80.21509577	76.03918315	72.12728646
210714A00014	7/14/2021	1.12	7/14/2026	7/14/2021	102.86194	99.89047791	97.02317537	94.25574035	91.58408345	89.00431045	86.51271147	84.10575095	81.78005817
161227A00073	12/27/2016	2.83	12/28/2026	12/27/2016	108.7495	105.7123398	102.7880364	99.97163328	97.25842608	94.64394655	92.12394901	89.69439778	87.35145537
190926A00002	9/30/2019	2.01	9/29/2034	9/30/2019	112.08579	105.9242557	100.2379937	94.98436563	90.12495479	85.62511317	81.45356289	77.5820426	73.98499332
200110A00038	1/10/2020	2.32	1/10/2030	1/10/2020	113.04669	106.8219219	101.002774	95.56028648	90.46772587	85.70040405	81.23551063	77.0519601	73.13025223
200116A00012	1/16/2020	2.16	1/19/2027	1/16/2020	107.44617	103.8879981	100.4710519	97.1888802	94.03536609	91.00470914	88.09140696	85.29023779	82.59624429
200406A00033	4/6/2020	1.09	4/4/2025	4/6/2020	100.92153	99.0851962	97.29198762	95.54062725	93.82988598	92.15857903	90.52556398	88.92973905	87.37004128
171219A00067	12/19/2017	2.72	12/20/2027	12/19/2017	112.15113	107.9622649	103.968583	100.1597497	96.52604009	93.05829863	89.74790247	86.58672732	83.56711565
180913A00062	9/13/2018	3.05	9/13/2023	9/13/2018	100.67093	100.2949483	99.92180729	99.55147464	99.18391854	98.81910768	98.45701123	98.09759881	97.7408405
190322A00008	3/22/2019	2.64	3/20/2026	3/22/2019	103.03088	101.5476865	100.1010536	98.68977807	97.31271055	95.96874789	94.65683113	93.3759434	92.12510784
150615A00024	6/15/2015	2.26	6/16/2025	6/15/2015	101.83244	100.7352493	99.66047662	98.60746642	97.57559074	96.56424538	95.5728488	94.600841	93.64768256
160209A00008	2/9/2016	2.45	2/10/2031	2/9/2016	109.29217	105.1415789	101.2195432	97.51112952	94.0024964	90.68081058	87.53416669	84.5515137	81.7225876
190315A00019	3/15/2019	2.88	3/15/2034	3/15/2019	116.88751	110.7304829	105.0297804	99.74599529	94.84347702	90.2899485	86.05616157	82.11558985	78.44415486
180321A00015	3/21/2018	3.02	3/21/2025	3/21/2018	102.56585	101.40369	100.265283	99.14994872	98.05703639	96.98591901	95.93599218	94.90667315	93.89739986
191011A00027	10/11/2019	1.84	10/11/2029	10/11/2019	106.56536	103.1735183	99.94118373	96.85934259	93.91955992	91.11393826	88.4350797	85.87605087	83.43035062
200616A00005	6/16/2020	0.74	6/17/2030	6/16/2020	103.06702	99.45966453	96.03694607	92.78758888	89.70109421	86.7676817	83.97823528	81.32425342	78.79780348
210611A00009	6/11/2021	0.61	6/11/2024	6/11/2021	99.489528	98.41206625	97.35813433	96.32696546	95.31782638	94.33001505	93.362859	92.41571383	91.48796172
140717A00027	7/17/2014	3.14	7/17/2026	7/17/2014	108.31786	105.4503943	102.6807998	100.0050884	97.4194636	94.92030921	92.50417893	90.16778728	87.90800092
200512A00011	5/12/2020	1.48	5/10/2030	5/12/2020	107.98684	101.7319387	95.9037227	90.47045111	85.40291434	80.67421885	76.25959179	72.13620309	68.28300332
221209A00070	12/9/2022	4.42	12/9/2037	12/9/2022	135.30599	125.8653857	117.333935	109.6107954	102.6073505	96.24562853	90.45693506	85.18067134	80.36331147
200428A00009	4/28/2020	1.08	4/29/2030	4/28/2020	103.29823	99.78361492	96.44456368	93.27058865	90.25191176	87.37941039	84.64456892	82.03943413	79.5565743
160303A00035	3/3/2016	2.14	3/3/2026	3/3/2016	102.42132	100.8693788	99.3562102	97.88053045	96.44111144	95.03677477	93.66638934	92.32886909	91.02317087
160810A00027	8/10/2016	2.13	8/10/2026	8/10/2016	105.72657	102.7957929	99.96767855	97.23799914	94.60272633	92.05802229	89.60022937	87.22586046	84.93158991
181105A00015	11/5/2018	3.57	11/5/2025	11/5/2018	107.89329	105.4172641	103.0127053	100.677121	98.40812142	96.20341534	94.06080485	91.9781811	89.95352004
160119A00072	1/19/2016	2.77	1/21/2031	1/19/2016	111.45597	106.8493126	102.5057637	98.40749608	94.53803811	90.88216076	87.42577511	84.15583875	81.06027056
160908A00034	9/8/2016	2.17	9/8/2026	9/8/2016	106.02183	103.0225151	100.1303679	97.3409473	94.6500201	92.05355085	89.54769157	87.12877199	84.79329037

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200212A00013	2/12/2020	1.98	2/12/2027	2/12/2020	106.94931	103.3469134	99.88967007	96.57090471	93.38428811	90.3238172	87.38379621	84.55881908	81.84375293
210319A00008	3/19/2021	0.63	3/19/2024	3/19/2021	99.478329	98.61493384	97.76662927	96.93302186	96.11373137	95.30839061	94.51664485	93.73815132	92.97257868
140908A00080	9/8/2014	2.51	3/8/2024	9/8/2014	101.19301	100.4056772	99.63133313	98.86965818	98.12033878	97.38307164	96.65756343	95.9435303	95.24069755
170524A00027	5/24/2017	2.32	5/24/2027	5/24/2017	104.67177	102.563412	100.5223431	98.54586092	96.63138908	94.77647324	92.97877418	91.23606166	89.54620855
160404A00019	4/4/2016	2.48	4/4/2031	4/4/2016	109.60751	105.3592566	101.3492649	97.56169825	93.98189925	90.59629519	87.39231001	84.35828417	81.48340151
160608A00022	6/8/2016	1.91	6/8/2023	6/8/2016	100.10427	99.99131309	99.87862557	99.76620696	99.65405628	99.54217251	99.43055469	99.31920183	99.20811294
160908A00022	9/8/2016	2.21	9/8/2026	9/8/2016	106.43801	103.3166949	100.3082062	97.40784593	94.61113353	91.91379843	89.31176896	86.80116203	84.37827338
150427A00014	4/27/2015	2.98	4/27/2035	4/27/2015	117.2646	110.5530008	104.3797427	98.69467028	93.45277067	88.61360969	84.14083071	80.0017117	76.16677341
150803A00039	8/3/2015	3.01	8/2/2030	8/3/2015	110.94407	106.9915242	103.2444324	99.69006689	96.31658722	93.11297403	90.06896631	87.17500406	84.42217546
190129A00073	1/29/2019	3.11	1/29/2029	1/29/2019	108.84001	105.7812703	102.8515835	100.0443373	97.3533067	94.77263002	92.29678509	89.92056733	87.6390693
211007A00005	10/7/2021	0.86	10/7/2024	10/7/2021	99.971708	98.60334815	97.26075801	95.94327114	94.65024388	93.38105411	92.13510035	90.91180095	89.71059326
160719A00026	7/19/2016	1.87	7/20/2026	7/19/2016	102.22944	100.592843	98.99987944	97.44903307	95.93884929	94.46793512	93.03495596	91.63863278	90.27773931
210212A00004	2/12/2021	1.1	2/12/2036	2/12/2021	106.99568	100.422001	94.41089281	88.90663561	83.8595718	79.22539605	74.96453608	71.04160928	67.42494544
120808A00006	8/8/2012	2.06	8/9/2027	8/8/2012	104.46892	102.2385653	100.0828284	97.99858577	95.98286912	94.03285564	92.14585966	90.319325	88.55081782
160608A00028	6/8/2016	2.36	6/8/2026	6/8/2016	106.26992	103.36453	100.5577302	97.8455757	95.22430465	92.69032901	90.24022513	87.87072517	85.57870886
180403A00014	4/3/2018	3.11	4/3/2025	4/3/2018	104.74463	102.863568	101.0265049	99.23213922	97.47921934	95.76653874	94.092934	92.45728301	90.85850319
190502A00016	5/2/2019	2.87	5/1/2026	5/2/2019	107.70481	104.7845105	101.961559	99.23215105	96.59265414	94.03959853	91.56966877	89.17969596	86.86665034
210915A00026	9/15/2021	1.1	9/15/2026	9/15/2021	103.05641	99.93484533	96.9276711	94.03007405	91.23747283	88.54550222	85.95000181	83.44700521	81.03273
180913A00012	9/13/2018	3.31	9/13/2033	9/13/2018	118.68314	112.7060427	107.1538874	101.9913887	97.18650759	92.71012594	88.53575834	84.63929455	80.99876875
160413A00014	4/13/2016	2.55	4/14/2031	4/13/2016	109.90987	105.6494596	101.6280234	97.82967257	94.23970378	90.84450203	87.63145224	84.58885892	81.70587269
170301A00031	3/1/2017	2.11	3/1/2024	3/1/2017	100.45285	100.0255217	99.60319565	99.18577359	98.77316051	98.36526396	97.96199402	97.56326314	97.16898613
170317A00039	3/17/2017	2.73	3/18/2024	3/17/2017	101.326	100.4562678	99.6016448	98.76173933	97.93617227	97.12457749	96.32660128	95.54190176	94.77014846
170406A00033	4/6/2017	3.01	4/6/2027	4/6/2017	110.84192	107.1209576	103.5531921	100.1314406	96.8488957	93.69910463	90.67594877	87.77362452	84.98662541
190905A00023	9/5/2019	2.08	9/5/2029	9/5/2019	111.25597	105.3894803	99.88868539	94.72861731	89.88613942	85.33980604	81.06973053	77.05746434	73.28588599
221228A00129	12/28/2022	4.11	12/28/2027	12/28/2022	119.6365	114.9016624	110.3926251	106.0972579	102.0041576	98.102596	94.38247585	90.83428996	87.44908328
191203A00009	12/3/2019	2.21	12/3/2029	12/3/2019	112.25217	106.1462253	100.4331932	95.08536956	90.07715785	85.38489419	80.98669116	76.86229534	72.99295682
170112A00015	1/12/2017	2.32	1/12/2027	1/12/2017	104.15513	102.227019	100.3564086	98.54111466	96.77904973	95.06822083	93.40672456	91.79274237	90.22453615
200326A00032	3/26/2020	1.49	3/26/2030	3/26/2020	104.74121	101.2181762	97.86929553	94.68426134	91.65346139	88.76792206	86.01926153	83.39964671	80.90175356
161005A00016	10/5/2016	2.32	10/6/2031	10/5/2016	109.44185	104.9437853	100.7117742	96.72722949	92.97301785	89.4333337	86.09358688	82.94030069	79.96101899
200306A00057	3/6/2020	0.92	3/8/2027	3/6/2020	103.84487	100.410182	97.11475876	93.95216812	90.91631358	88.00141102	85.20197106	82.5127825	79.92889672
190205A00017	2/5/2019	3.36	2/5/2029	2/5/2019	117.29613	111.8287949	106.6705014	101.8018281	97.20468261	92.86220542	88.75867945	84.87944609	81.21082811
190925A00009	9/25/2019	2	9/25/2026	9/25/2019	105.78193	102.6760857	99.68345273	96.79926798	94.0189925	91.33830235	88.75307723	86.25938981	83.85349556
200512A00010	5/12/2020	1.48	5/10/2030	5/12/2020	107.98684	101.7319384	95.90372346	90.47045277	85.4029168	80.67422205	76.25959565	72.13620755	68.28300832

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210915A00024	9/15/2021	1.1	9/15/2026	9/15/2021	103.05641	99.93484521	96.92767115	94.03007426	91.23747318	88.54550272	85.95000244	83.44700596	81.03273086
140219A00005	2/19/2014	3.13	2/20/2029	2/19/2014	109.88061	106.733094	103.720501	100.8358219	98.07246086	95.42421193	92.88523325	90.45002331	88.11339872
190315A00023	3/15/2019	2.88	3/15/2034	3/15/2019	116.8875	110.7304774	105.0297781	99.74599579	94.84348005	90.28995379	86.05616887	82.11559894	78.44416552
200520A00009	5/20/2020	1.63	5/20/2038	5/20/2020	115.11294	103.5813843	93.4928438	84.65035792	76.8853254	70.05325379	64.03016713	58.70956755	53.99986278
210714A00017	7/14/2021	0.73	7/12/2024	7/14/2021	99.651196	98.55224163	97.47858697	96.42935643	95.40371466	94.40086417	93.42004325	92.46052397	91.52161027
230314A00014	3/14/2023	4.18	3/14/2028	3/14/2023	120.25753	115.4247436	110.8291905	106.4578182	102.2983591	98.33928248	94.56974668	90.97955431	87.55911064
200206A00031	2/6/2020	2.15	2/6/2030	2/6/2020	112.04904	105.8098241	99.98124846	94.53373711	89.44000668	84.6748764	80.21509485	76.03918205	72.12728519
170303A00004	3/3/2017	2.8	3/4/2024	3/3/2017	101.3185	100.4807142	99.65689423	98.84669063	98.04976713	97.26579843	96.49446978	95.73547659	94.98852397
200501A00002	5/1/2020	1.3	5/1/2035	5/1/2020	106.35309	100.2301582	94.60139812	89.42049808	84.6459254	80.24039504	76.17040236	72.40581028	68.91948443
210420A00035	4/20/2021	1.92	4/20/2034	4/20/2021	110.69834	104.0022895	97.87137806	92.25119084	87.0930176	82.3532119	77.99262985	73.97613425	70.27215642
180914A00049	9/14/2018	3.37	9/14/2033	9/14/2018	119.03833	113.0431985	107.4742844	102.2962038	97.47682069	92.98692878	88.79996257	84.89173891	81.24022559
200814A00003	8/14/2020	0.96	8/14/2035	8/14/2020	105.91918	99.6535951	93.9056234	88.62570355	83.76948838	79.2972596	75.1734084	71.36597804	67.84626031
211208A00013	12/8/2021	1.63	12/8/2026	12/8/2021	105.33086	101.9102794	98.62248731	95.46156711	92.42189987	89.49814908	86.68524464	83.97836785	81.37293742
170406A00027	4/6/2017	2.61	4/8/2024	4/6/2017	101.32783	100.4040534	99.49732998	98.60719172	97.73318496	96.87487251	96.03183285	95.20365951	94.38996032
210809A00014	8/9/2021	1.06	8/7/2026	8/9/2021	102.77585	99.74999344	96.83201922	94.01744044	91.30198327	88.68157788	86.15234725	83.71059671	81.35280412
200429A00030	4/29/2020	1.41	4/29/2030	4/29/2020	107.27612	101.2796813	95.68583335	90.4649305	85.58967311	81.03490943	76.77745557	72.79593151	69.07061152
150601A00396	6/1/2015	3.61	1/3/2029	6/1/2015	109.71299	106.7600364	103.9286751	101.2127876	98.60660626	96.10469539	93.70192966	91.39347435	89.17476686
150601A00739	6/1/2015	2.35	5/6/2025	6/1/2015	101.44308	100.4325251	99.44176317	98.47023141	97.5173884	96.58271292	95.66570294	94.76587475	93.88276215
150601A01051	6/1/2015	4.91	2/7/2025	6/1/2015	107.52732	105.7932287	104.0967601	102.4367973	100.812264	99.22212589	97.6653882	96.14109402	94.64832237
150601A00477	6/1/2015	3.21	6/1/2029	6/1/2015	111.41288	107.8339637	104.4190149	101.1590735	98.04573439	95.07110956	92.22779336	89.50882955	86.90768111
160928A00033	9/28/2016	2.46	9/29/2036	9/28/2016	114.6743	107.4534472	100.8745709	94.87109741	89.3840466	84.36110492	79.75581641	75.52687773	71.63752292
150601A00919	6/1/2015	7.41	6/7/2030	6/1/2015	129.60946	125.0388353	120.7014933	116.5832531	112.6709052	108.9521395	105.4154777	102.0502117	98.84634598
220610A00068	6/10/2022	3.09	6/10/2025	6/10/2022	102.72342	101.6292135	100.5572746	99.50695699	98.47763799	97.46871849	96.47962179	95.50979254	94.55869575
150601A00871	6/1/2015	6.74	7/31/2028	6/1/2015	119.23158	116.1157322	113.1218559	110.2441189	107.4770131	104.8153325	102.2541538	99.78882006	97.41492373
200225A00049	2/25/2020	1.79	2/24/2040	2/25/2020	113.55888	104.941469	97.24145385	90.34590482	84.15709325	78.59030817	73.57200435	69.0382277	64.93327478
150601A00950	6/1/2015	6.76	12/18/2031	6/1/2015	132.61184	127.0098136	121.745148	116.7939135	112.1340737	107.7453241	103.6089432	99.7076583	96.02552298
150601A00864	6/1/2015	7.37	3/31/2028	6/1/2015	119.73373	116.7814901	113.9396317	111.2030787	108.5670293	106.0269365	103.5784918	101.2176119	98.94042477
970806A00018	8/1/1997	6.7	10/23/2026	8/1/1997	111.24997	109.3970904	107.5957665	105.8441393	104.1404295	102.4829352	100.8700277	99.30014823	97.77180375
230428A00050	4/28/2023	4.31	4/28/2028	4/28/2023	110.4795	107.821143	105.2611285	102.7949503	100.4183451	98.12727485	95.9179138	93.7866355	91.7300012
150601A00953	6/1/2015	6.6	6/10/2032	6/1/2015	134.41598	128.3199288	122.6127605	117.2654336	112.2513179	107.5459764	103.1269687	98.97367431	95.06713167
150601A00964	6/1/2015	5.25	1/6/2033	6/1/2015	125.69754	120.1818023	115.0217678	110.1901987	105.6621928	101.4149618	97.4276358	93.68108765	90.15777388
230417A00085	4/17/2023	4.68	4/17/2026	4/17/2023	106.36482	104.7843125	103.2432423	101.7403066	100.2742521	98.8438766	97.44802626	96.0855935	94.75551469
110414A00007	4/14/2011	3.95	1/21/2025	4/14/2011	102.82676	101.8851453	100.9630188	100.0597976	99.17492158	98.30785266	97.45807399	96.62508873	95.80841912

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200210A00007	2/10/2020	1.78	2/10/2025	2/10/2023	102.03015	100.4948587	98.99255216	97.52226327	96.08305858	94.67404026	93.2943444	91.94313943	90.61962451
221206A00040	12/6/2022	5	11/29/2024	12/6/2022	103.34386	102.4990329	101.6693025	100.8542551	100.0534916	99.26662784	98.49329376	97.73313273	96.98580095
150601A00439	6/1/2015	2.57	3/18/2024	6/1/2015	100.56858	100.1179557	99.67284865	99.23315056	98.79875185	98.36954604	97.94542964	97.52630208	97.11206557
150601A00906	6/1/2015	6.2	11/1/2029	6/1/2015	122.4363	118.4624142	114.6769232	111.0691212	107.6289956	104.347175	101.2148825	98.22389497	95.36650383
150601A00261	6/1/2015	3.19	2/11/2033	6/1/2015	123.03933	115.1235843	107.8653375	101.2036156	95.08353212	89.45564146	84.27536685	79.50249161	75.1007064
150601A00459	6/1/2015	2.42	5/16/2024	6/1/2015	100.61535	100.0848919	99.56203338	99.04659485	98.53840076	98.03728143	97.54307276	97.05561603	96.57475761
190102A00015	1/2/2019	2.97	1/3/2034	1/2/2019	116.32107	110.5584976	105.2079028	100.2346396	95.60729758	91.29737481	87.27898613	83.5286027	80.02481927
160928A00042	9/28/2016	3.05	9/29/2036	9/28/2021	118.76151	111.3395607	104.5740908	98.39724097	92.74887411	87.57563518	82.83012952	78.47020669	74.45833354
150601A00736	6/1/2015	2.87	5/1/2030	6/1/2015	109.45248	105.8285408	102.383474	99.10666535	95.98821399	93.01888029	90.19003688	87.49362389	84.92210765
200130A00027	1/31/2020	1.79	1/31/2025	1/31/2020	100.70412	99.83037278	98.97264062	98.13047904	97.30345752	96.4911618	95.69319308	94.9091673	94.13871441
150601A01013	6/1/2015	5.21	9/29/2023	6/1/2015	101.70006	101.27822	100.8599203	100.4451126	100.0337533	99.62579938	99.22120859	98.81993933	98.4219507
150601A00897	6/1/2015	6.15	5/28/2029	6/1/2015	120.43701	116.8208855	113.3649126	110.0605377	106.899728	103.8749369	100.9790708	98.20545913	95.54782641
150601A01048	6/1/2015	5.27	1/3/2025	6/1/2015	107.63042	105.9834568	104.3708032	102.7914472	101.2444135	99.72876494	98.24360078	96.78805491	95.36129411
160928A00032	9/28/2016	2.52	9/29/2036	9/28/2016	115.08995	107.8486452	101.2507933	95.22968828	89.72623245	84.6880063	80.06845842	75.82619932	71.9243852
170130A00043	1/30/2017	2.64	1/29/2027	1/30/2017	104.56166	102.5284324	100.5580488	98.64801205	96.79594303	94.99957598	93.25675224	91.56541431	89.92360028
230324A00021	3/24/2023	3.72	3/24/2028	3/24/2023	117.42666	112.8268078	108.4516097	104.2886995	100.3264621	96.55398205	92.96099704	89.53785599	86.27547913
190823A00009	8/23/2019	1.8	8/23/2029	8/23/2019	106.12093	102.8873506	99.80132349	96.8547144	94.03989979	91.34973182	88.77750534	86.31692749	83.96208944
191115A00029	11/15/2019	2.07	11/15/2029	11/15/2019	106.36396	103.0269911	99.84656031	96.81381292	93.9204645	91.15875958	88.52143427	86.00168173	83.59312027
050823A00088	8/23/2005	4.78	8/25/2025	8/23/2005	109.67706	107.511206	105.4024863	103.3490469	101.3491073	99.40095536	97.50294417	95.65348942	93.85106645
230426A00142	4/26/2023	4.51	4/27/2026	4/26/2023	106.1037	104.5251775	102.9860917	101.4851316	100.0210429	98.59262238	97.19871539	95.83821356	94.51005252
150601A00270	6/1/2015	3.12	3/21/2031	6/1/2015	121.06163	113.8231431	107.1151216	100.8948403	95.12325976	89.76469082	84.78648934	80.15878074	75.85421068
110824A00006	8/24/2011	2.69	8/24/2026	8/24/2011	104.66447	102.7763128	100.9427173	99.16167161	97.43125192	95.74961808	94.11500932	92.52574039	90.98019781
070518A00023	5/18/2007	5.46	5/18/2027	5/18/2007	110.85169	108.654988	106.5332815	104.4833837	102.5022711	100.5870694	98.73504522	96.94359813	95.21025334
160930A00032	9/30/2016	2.15	9/30/2031	9/30/2016	108.32193	104.0346125	99.99550262	96.18753337	92.59495131	89.20320861	85.9988622	82.96948197	80.10356721
150601A01041	6/1/2015	5.99	10/2/2036	6/1/2015	144.95294	135.6307906	127.139237	119.3927848	112.3155881	105.8402823	99.90696662	94.46231763	89.45881252
190520A00020	5/20/2019	2.39	5/20/2026	5/20/2019	103.22358	101.6675348	100.1513838	98.67377416	97.23341375	95.82906365	94.45953576	93.12369029	91.82043337
130207A00012	2/7/2013	2.9	2/7/2033	2/7/2013	114.3149	108.6749948	103.4205771	98.5206548	93.94700505	89.67390607	85.67789693	81.93756194	78.43333712
050812A00050	8/12/2005	4.97	8/12/2025	8/12/2005	105.72233	104.3725915	103.0524895	101.7611348	100.4976678	99.26126156	98.0511203	96.86647804	95.70659718
120410A00005	4/10/2012	2.35	4/12/2027	4/10/2012	104.65586	102.6060953	100.6263235	98.7136104	96.86516969	95.07834985	93.35062702	91.67959794	90.06297343
150601A00690	6/1/2015	2.34	2/28/2025	6/1/2015	101.23037	100.3173432	99.42132478	98.54184078	97.67843365	96.83066288	95.99810431	95.18034929	94.37700399
170130A00046	1/30/2017	2.52	1/30/2026	1/30/2017	102.89236	101.3779821	99.90152314	98.46168809	97.05723678	95.68698249	94.34978905	93.04456826	91.77027737
150601A00448	6/1/2015	2.61	4/26/2024	6/1/2015	100.67745	100.1705909	99.67068214	99.17756356	98.6910814	98.21108677	97.7374355	97.2699879	96.80860862
160928A00041	9/28/2016	3.26	9/29/2036	9/30/2019	120.21628	112.7227536	105.8908691	99.65230901	93.94652458	88.71979002	83.92437656	79.51783225	75.4623534

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00943	6/1/2015	6.44	5/9/2031	6/1/2015	129.17447	124.016886	119.1528978	114.5627785	110.2282868	106.1325427	102.2599164	98.59592733	95.1271515
230324A00050	3/24/2023	4.13	3/24/2026	3/24/2023	105.5577	104.0607263	102.6005362	101.1759235	99.78573106	98.42884872	97.10421082	95.81079412	94.54761576
050823A00085	8/23/2005	4.78	8/25/2025	8/23/2005	109.67703	107.5111865	105.4024718	103.3490373	101.3491024	99.40095487	97.50294803	95.65349749	93.85107858
170130A00039	1/30/2017	2.74	1/31/2028	1/30/2017	106.33002	103.765996	101.2967325	98.91786256	96.62525898	94.4150157	92.28343433	90.2270115	88.24242716
200310A00067	3/10/2020	0.94	3/10/2025	3/10/2020	99.990377	99.04332919	98.11430737	97.20280578	96.30833803	95.43043574	94.56864777	93.72253935	92.89169139
150601A00905	6/1/2015	6.14	10/29/2029	6/1/2015	121.94373	118.0299389	114.2998385	110.7430878	107.3500082	104.1115353	101.0191754	98.06496578	95.24143806
150601A00993	6/1/2015	5.37	6/9/2034	6/1/2015	133.2644	126.0455075	119.3728424	113.1983655	107.4786945	102.1746207	97.25067677	92.67475082	88.4177439
150601A00473	6/1/2015	2.22	5/31/2024	6/1/2015	100.66618	100.1107807	99.56370028	99.02473546	98.49368549	97.97035666	97.45456193	96.94612062	96.44485816
150601A00527	6/1/2015	2.5	7/26/2024	6/1/2015	100.81653	100.1871167	99.56833022	98.95986919	98.36144661	97.77278668	97.19362422	96.62370419	96.06278116
150601A00893	6/1/2015	6.49	4/6/2029	6/1/2015	121.40021	117.7897746	114.337552	111.035178	107.8747932	104.849009	101.9508766	99.17385755	96.51179675
190327A00030	3/27/2019	2.9	3/27/2036	3/27/2019	116.82932	110.0345601	103.8064045	98.0895684	92.83472415	87.99780899	83.53941986	79.42428207	75.62078242
200317A00024	3/17/2020	1.09	3/17/2025	3/17/2020	100.14698	99.19785639	98.26681939	97.3533603	96.45699057	95.5772398	94.71365489	93.86579923	93.03325195
150601A00030	6/1/2015	5.28	11/26/2027	6/1/2015	122.66078	118.1780824	113.9010223	109.818859	105.9214782	102.1993499	98.64349108	95.2454309	91.99717882
140911A00033	9/11/2014	3.02	9/13/2027	9/11/2014	108.69467	105.5972995	102.6239936	99.76884605	97.02626717	94.39096629	91.85793432	89.42242705	87.0799497
150601A01040	6/1/2015	5.4	10/2/2026	6/1/2015	117.11215	113.7765681	110.5618815	107.4629955	104.4750566	101.5934425	98.81374976	96.13178203	93.54353928
150601A00928	6/1/2015	5.94	8/21/2030	6/1/2015	122.09367	117.9818568	114.0781868	110.3699667	106.8453773	103.4934109	100.3038093	97.26700801	94.37408409
130624A00019	6/24/2013	3.4	6/26/2023	6/24/2013	100.36873	100.2004151	100.0326464	99.86542414	99.69874578	99.53260866	99.36701019	99.20194775	99.03741877
150601A00931	6/1/2015	7.13	9/20/2030	6/1/2015	129.47751	124.7542572	120.2795142	116.0377447	112.0145056	108.1963627	104.5708135	101.1262157	97.85172259
130206A00004	2/6/2013	2.14	2/7/2028	2/6/2013	105.67978	103.0395003	100.4976035	98.04958546	95.69118394	93.41836069	91.22728821	89.11433735	87.07606573
170130A00036	1/30/2017	3.11	1/31/2033	1/30/2017	114.55783	109.2622267	104.3189812	99.70036867	95.38109674	91.33807479	87.55020541	83.99819704	80.66439554
150601A00946	6/1/2015	6.28	8/22/2031	6/1/2015	129.43738	124.0962921	119.0680696	114.3311366	109.8655771	105.6529982	101.6764029	97.92007442	94.36947065
160928A00044	9/28/2016	2.89	9/29/2036	9/28/2023	117.65312	110.2856994	103.5708312	97.44099864	91.83637852	86.70389816	81.99641749	77.67201579	73.6933693
210514A00010	5/14/2021	1.34	5/14/2031	5/14/2021	105.80675	101.7127255	97.84963647	94.20200825	90.75553414	87.49697512	84.41407254	81.49546858	78.73063373
150601A00875	6/1/2015	7.14	9/29/2028	6/1/2015	121.02562	117.7814792	114.6674338	111.6771252	108.8045544	106.0440576	103.3902855	100.838183	98.38297176
150601A00900	6/1/2015	6.06	6/28/2024	6/1/2015	102.8534	102.2760982	101.7075338	101.1474907	100.595756	100.0521246	99.51639816	98.9883855	98.46790174
181211A00042	12/11/2018	3.7	12/11/2028	12/11/2023	117.31866	112.2483649	107.4499854	102.9070272	98.60409444	94.5268114	90.66174928	86.99635847	83.51890592
970806A00059	8/1/1997	8.25	9/22/2025	8/1/1997	109.05126	107.775836	106.5275865	105.3056994	104.1093961	102.9379279	101.7905745	100.6666423	99.56546371
150601A00883	6/1/2015	6.21	11/30/2028	6/1/2015	118.73498	115.4657102	112.3308505	109.323682	106.4378734	103.6674539	101.0067909	98.45056815	95.99376617
150601A00899	6/1/2015	7.07	6/14/2029	6/1/2015	121.07688	117.6633402	114.3976629	111.2720222	108.2790701	105.4119015	102.664024	100.029331	97.50207549
150601A00976	6/1/2015	6.8	9/22/2033	6/1/2015	139.28931	132.3386308	125.8791129	119.8701451	114.2748406	109.0596645	104.1941037	99.65037248	95.40314797
200331A00056	3/31/2020	0.96	3/29/2030	3/31/2020	103.71649	100.2471719	96.94924158	93.81255107	90.82763311	87.98565055	85.27835002	82.6980193	80.23744819
150601A00939	6/1/2015	5.79	1/17/2031	6/1/2015	124.55732	119.8453964	115.3904685	111.1759059	107.1862904	103.407316	99.8257011	96.42910782	93.20606843
171206A00020	12/6/2017	2.62	12/6/2027	12/6/2017	105.53557	103.1690752	100.8857093	98.68184028	96.55402136	94.49898067	92.51361119	90.59496128	88.74022587

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00929	6/1/2015	5.91	8/30/2030	6/1/2015	124.25015	119.7049692	115.3992287	111.3179465	107.4471994	103.7740372	100.2864079	96.97308909	93.82362527
210409A00010	4/9/2021	1.05	4/9/2031	4/9/2021	104.57417	100.5541105	96.75914111	93.17429301	89.78571766	86.58059238	83.54703719	80.67403885	77.95138152
230412A00053	4/12/2023	4.2	4/12/2028	4/10/2026	116.82809	112.7891037	108.9379155	105.2644242	101.7591328	98.41311019	95.21795401	92.16575661	89.2490729
150601A00678	6/1/2015	2.12	1/30/2025	6/1/2015	100.98126	100.0965561	99.22811437	98.37548196	97.5382208	96.7159094	95.90814208	95.11452813	94.33469115
181029A00097	10/29/2018	3.53	10/27/2028	10/29/2018	115.93516	111.1681783	106.6521074	102.3720243	98.31397858	94.4649258	90.81266333	87.34577165	84.05355978
190102A00020	1/2/2019	2.97	1/3/2034	1/2/2019	116.32093	110.5584176	105.2078707	100.234649	95.60734308	91.29745154	87.27908982	83.52872959	80.02496605
200428A00018	4/28/2020	1.33	4/27/2035	4/28/2020	106.35889	100.4245744	94.96073026	89.92383297	85.27480117	80.97850946	77.00335691	73.32088558	69.90544294
120827A00052	8/27/2012	2.01	8/27/2027	8/27/2012	104.76148	102.3910873	100.1047115	97.89867057	95.76946519	93.71377251	91.72843625	89.81045726	87.95698474
970806A00017	8/1/1997	7.02	7/23/2026	8/1/1997	110.84402	109.1296814	107.4604294	105.834704	104.2510118	102.7079227	101.2040664	99.73812935	98.30885207
150601A00038	6/1/2015	5.77	6/2/2023	6/1/2015	100.48016	100.3830048	100.2860471	100.1892865	100.0927224	99.99635424	99.90018127	99.80420291	99.70841854
150601A00684	6/1/2015	2.25	2/7/2025	6/1/2015	101.10776	100.2162889	99.34125779	98.48220182	97.63867841	96.81026164	95.99654149	95.19712311	94.41162606
191114A00014	11/14/2019	1.9	11/14/2023	11/14/2019	100.17759	99.88318417	99.59118022	99.3015422	99.0142384	98.7292377	98.44650956	98.166024	97.8877516
150601A00018	6/1/2015	4.91	9/5/2025	6/1/2015	110.45209	108.1501474	105.9103829	103.7307602	101.6093201	99.54417887	97.53352491	95.5756157	93.66877457
200402A00050	4/6/2020	0.73	4/5/2024	4/6/2020	99.728408	99.2296484	98.73764994	98.25226068	97.77333345	97.30072569	96.83429923	96.37392014	95.91945855
150601A01016	6/1/2015	5.73	10/28/2025	6/1/2015	112.90041	110.4688611	108.1061411	105.8098772	103.5777914	101.4076991	99.29750364	97.24519302	95.24883536
150601A00971	6/1/2015	6.42	6/20/2033	6/1/2015	135.39647	128.6548708	122.3837191	116.5447323	111.1030786	106.0270374	101.2876988	96.85869377	92.71595272
150601A00888	6/1/2015	5.92	3/1/2029	6/1/2015	118.97173	115.5094033	112.1964622	109.025113	105.9880247	103.0783006	100.28945	97.61536126	95.05027717
121120A00010	11/20/2012	1.93	11/22/2027	11/20/2012	105.1269	102.4807744	99.93284341	97.47858494	95.11372305	92.83420894	90.63620735	88.51608382	86.47039277
150601A00023	6/1/2015	5.46	10/30/2037	6/1/2015	144.1592	134.101561	125.0079816	116.7721779	109.3006698	102.5111316	96.33096968	90.69609085	85.54983594
120217A00007	2/17/2012	2.25	2/20/2024	2/17/2012	100.99665	100.1711126	99.35892164	98.55975351	97.7732972	96.99925156	96.23732484	95.48723441	94.74870635
130925A00035	9/25/2013	1.53	6/25/2025	9/25/2013	101.25169	100.0803699	98.93682658	97.82014145	96.72943564	95.66386715	94.62262897	93.60494724	92.61007961
180529A00057	5/29/2018	3.09	5/30/2028	5/29/2018	110.65075	107.2639466	104.0269026	100.9317491	97.97108697	95.13795427	92.42579715	89.82844346	87.34007811
210514A00007	5/14/2021	0.95	5/15/2028	5/14/2021	102.55292	100.0114649	97.56669826	95.21409405	92.94937417	90.76849091	88.66761289	86.64311204	84.69155139
230418A00035	4/18/2023	4.13	4/18/2028	4/18/2023	110.7261	108.0462918	105.4660128	102.9806932	100.5860038	98.27784533	96.0523345	93.90579097	91.83472553
150601A01005	6/1/2015	5.82	3/10/2025	6/1/2015	109.44295	107.6316971	105.8611676	104.1301914	102.4376432	100.7824371	99.16352529	97.57989597	96.03057215
150601A00948	6/1/2015	6.04	10/22/2031	6/1/2015	124.66235	119.8850433	115.3805159	111.130132	107.1166863	103.3242864	99.73824299	96.34496975	93.1318927
150601A00395	6/1/2015	2.86	1/3/2024	6/1/2015	100.53572	100.1871083	99.84184317	99.49987384	99.16114775	98.82561356	98.49322103	98.16392106	97.83766564
150601A00001	6/1/2015	5.43	6/15/2037	6/1/2015	142.787	133.0664485	124.2562151	116.2581688	108.9857424	102.3624787	96.32076818	90.8007518	85.74936863
150601A00425	6/1/2015	2.64	2/21/2024	6/1/2015	100.55051	100.1340473	99.72232307	99.31524332	98.91272062	98.51466985	98.12100816	97.73165486	97.34653132
150601A00426	6/1/2015	3.37	2/21/2029	6/1/2015	109.27155	106.2571028	103.369387	100.6019034	97.94853545	95.40352422	92.96144511	90.61718621	88.36592809
121120A00011	11/20/2012	2.22	11/22/2027	11/20/2012	108.81859	105.1007412	101.547375	98.1500585	94.9008394	91.79221977	88.81712731	85.96888866	83.24120457
120621A00009	6/21/2012	3.18	6/21/2032	6/21/2012	118.14916	111.609262	105.5667267	99.97867141	94.80622792	90.01414096	85.57040978	81.44596736	77.61439312
150601A00927	6/1/2015	6.08	8/7/2030	6/1/2015	122.49272	118.3917858	114.4974247	110.7970949	107.2791139	103.9325983	100.747403	97.71406613	94.8237579

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200316A00008	3/16/2020	1.31	3/15/2030	3/16/2020	104.01576	100.5687559	97.29100989	94.17254947	91.20406867	88.37687802	85.68285941	83.11442465	80.66447721
150601A00872	6/1/2015	7.42	7/31/2028	6/1/2015	120.97291	117.8477994	114.8444105	111.9569455	109.1799222	106.5081584	103.9367532	101.46107	99.07672021
150601A00558	6/1/2015	2.51	8/30/2024	6/1/2015	100.90877	100.2315875	99.56590023	98.91138963	98.26775095	97.63469106	97.01192785	96.39918972	95.79621502
120119A00015	1/19/2012	2.27	1/19/2024	1/19/2012	100.87492	100.1363546	99.40846908	98.69103759	97.98383624	97.28664753	96.59926005	95.92146833	95.2530726
160928A00029	9/28/2016	2.52	9/29/2036	9/28/2016	115.08995	107.8486452	101.2507933	95.22968828	89.72623245	84.6880063	80.06845842	75.82619932	71.9243852
140414A00009	4/14/2014	2.32	4/30/2024	4/14/2014	100.71267	100.2014707	99.70036239	99.20905143	98.72725177	98.25468834	97.79109658	97.33622195	96.88981945
030605A00010	6/5/2003	3.97	6/5/2023	6/5/2003	100.33743	100.2317936	100.1263933	100.0212281	99.91629701	99.81159926	99.70713401	99.60290045	99.49889776
150601A00952	6/1/2015	6.34	2/13/2032	6/1/2015	131.68892	125.927435	120.5216221	115.4457218	110.6760556	106.1908396	101.9700198	97.99512226	94.24911763
190102A00022	1/2/2019	2.97	1/3/2034	1/2/2019	116.32081	110.5583422	105.2078404	100.2346579	95.60738595	91.29752383	87.2791875	83.52884913	80.02510432
150601A00865	6/1/2015	6	4/3/2028	6/1/2015	114.84194	112.1699888	109.5956119	107.114384	104.7221142	102.4148316	100.1887723	98.04036719	95.96623035
160928A00030	9/28/2016	2.52	9/29/2036	9/28/2016	115.08995	107.8486452	101.2507933	95.22968828	89.72623245	84.6880063	80.06845842	75.82619932	71.9243852
150601A00035	6/1/2015	5.73	4/1/2038	6/1/2015	141.79701	132.7147651	124.4750196	116.9860385	110.1671098	103.9471256	98.26335255	93.06037013	88.28915046
120827A00048	8/27/2012	2.01	8/27/2027	8/27/2012	104.76148	102.3910853	100.1047107	97.89867088	95.76946656	93.71377488	91.72843955	89.81046144	87.95698975
230412A00059	4/12/2023	4.2	4/12/2028	4/10/2026	116.82807	112.7890902	108.9379058	105.264418	101.7591299	98.41311028	95.21795697	92.16576224	89.24908102
121217A00009	12/17/2012	2.02	12/17/2027	12/17/2012	105.5625	102.8251056	100.1906314	97.65427651	95.21150148	92.85801195	90.58974361	88.40284821	86.29368055
150601A00033	6/1/2015	5.96	12/24/2025	6/1/2015	114.59596	111.9616404	109.4052769	106.9240476	104.5152501	102.1762991	99.90472012	97.69814399	95.55430146
161222A00035	12/22/2016	2.29	12/22/2023	12/22/2016	100.33994	100.0008827	99.6649962	99.33223371	99.00254687	98.67588841	98.3522121	98.03147267	97.71362585
200311A00028	3/11/2020	1.04	3/12/2024	3/11/2020	99.872475	99.33863199	98.81180814	98.29185114	97.77861318	97.27195092	96.77172526	96.27780123	95.79004778
200326A00037	3/26/2020	1.78	3/26/2035	3/26/2020	109.02931	103.0302236	97.50206404	92.40161772	87.69005297	83.33244056	79.29733077	75.55637933	72.08401595
150601A00509	6/1/2015	2.52	7/8/2024	6/1/2015	100.78419	100.1812793	99.58813214	99.00448725	98.43009093	97.86469903	97.30807643	96.75999667	96.22024149
150601A00832	6/1/2015	7.17	8/28/2025	6/1/2015	107.39835	106.1874959	105.0021787	103.8416388	102.7051472	101.5920028	100.5015309	99.43308211	98.38603116
150601A00475	6/1/2015	3.04	6/1/2029	6/1/2015	108.73545	105.5918149	102.5857658	99.70999194	96.95762325	94.32220463	91.79766796	89.37830626	87.05874977
150601A01012	6/1/2015	5.43	9/15/2023	6/1/2015	101.63069	101.2465524	100.8653595	100.4870801	100.1116804	99.73912745	99.36938875	99.00243224	98.63822638
170929A00046	9/29/2017	2.49	9/30/2027	9/29/2017	104.86891	102.6364077	100.4790007	98.39353048	96.37699189	94.42652768	92.53942004	90.71308279	88.94505413
150601A00955	6/1/2015	5.84	7/15/2032	6/1/2015	127.20498	121.9047177	116.9308721	112.2595038	107.8686374	103.7380901	99.84931157	96.18524017	92.73017203
160930A00033	9/30/2016	1.8	9/30/2026	9/30/2016	102.25944	100.5564426	98.90044809	97.28977224	95.72280768	94.19801629	92.7139256	91.26912556	89.86226539
150601A00851	6/1/2015	7.12	4/30/2027	6/1/2015	114.89734	112.5978482	110.3709297	108.2136946	106.1233908	104.0973949	102.1332061	100.2284387	98.38081673
150601A01047	6/1/2015	5.35	12/30/2024	6/1/2015	107.7017	106.0639455	104.4601648	102.889354	101.3505521	99.84283579	98.36531743	96.91714318	95.49749149
220629A00034	6/29/2022	3.51	6/29/2027	6/29/2022	106.6724	104.5386702	102.4732823	100.4734751	98.53661814	96.66020606	94.84185169	93.07927973	91.37032066
230328A00027	3/28/2023	4.22	3/28/2028	3/28/2023	118.96806	114.2384417	109.7409759	105.4628546	101.39205	97.51725908	93.82785625	90.31384897	86.96583692
150601A00868	6/1/2015	7.08	6/5/2028	6/1/2015	119.71463	116.6565717	113.7162223	110.8880337	108.1667611	105.5474436	103.0253868	100.5961469	98.25551507
111007A00007	10/7/2011	3.92	10/7/2031	10/7/2011	124.23973	116.9652121	110.232352	103.9961109	98.215481	92.85310489	87.8749306	83.24990067	78.94967224
150601A00005	6/1/2015	4.84	6/9/2025	6/1/2015	109.08825	107.0240173	105.0111339	103.0479614	101.1329253	99.26451367	97.44127364	95.66180901	93.92477739

	Parallel-Shift Sensitivity Analysis												
4/28/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
130624A00017	6/24/2013	3.4	6/26/2023	6/24/2013	100.36873	100.2004151	100.0326464	99.86542414	99.69874578	99.53260866	99.36701019	99.20194775	99.03741877
150601A00410	6/1/2015	2.68	1/24/2024	6/1/2015	100.51186	100.1356748	99.7633759	99.39489331	99.03016175	98.66911751	98.3116984	97.95784369	97.60749411
150601A00988	6/1/2015	4.57	3/22/2024	6/1/2015	101.4889	101.0283346	100.5734869	100.1242354	99.68046508	99.24206449	98.80892522	98.38094198	97.95801245
170313A00041	3/13/2017	3.21	3/15/2032	3/13/2017	113.53857	108.8532155	104.4511761	100.312112	96.41731904	92.74958478	89.29305849	86.03313363	82.95634105
150601A00889	6/1/2015	6.55	3/2/2029	6/1/2015	121.45493	117.8681646	114.4371458	111.1537125	108.010194	104.9993753	102.1144672	99.34907787	96.6971874
200203A00046	2/3/2020	1.98	2/3/2040	2/3/2020	115.1766	106.4719002	98.69185773	91.72281382	85.46638962	79.837297	74.7614776	70.17452055	66.02031518
150601A01015	6/1/2015	5.61	10/28/2025	6/1/2015	112.62366	110.1955401	107.8361798	105.5432019	103.314331	101.1473842	99.04026729	96.99097004	94.99756251
150601A00935	6/1/2015	6.46	11/21/2030	6/1/2015	127.20086	122.4540789	117.9621376	113.7088065	109.6790177	105.8587741	102.2350658	98.79579338	95.52969816
150601A00022	6/1/2015	5.43	10/26/2037	6/1/2015	138.54934	129.8647426	121.9678006	114.7746745	108.211379	102.212538	96.72030719	91.68343884	87.05647003
150601A00918	6/1/2015	5.62	4/28/2025	6/1/2015	104.89647	103.8752971	102.8738211	101.8914815	100.9277425	99.98208845	99.05402252	98.14306618	97.2487582
150601A00496	6/1/2015	2.27	6/27/2024	6/1/2015	100.74947	100.1594166	99.57873102	99.00716373	98.44447611	97.89043834	97.34482898	96.80743453	96.27804911
200521A00005	5/21/2020	0.75	5/21/2030	5/21/2020	103.03924	99.5046009	96.14837326	92.95978389	89.92879744	87.04605834	84.30284005	81.69099838	79.20292866
140311A00039	3/11/2014	3.06	3/11/2024	3/11/2014	101.58803	100.7048611	99.83686694	98.98365945	98.14486363	97.3201171	96.50906954	95.71138219	94.92672737
190628A00007	6/28/2019	2.28	6/28/2034	6/28/2019	112.96951	107.1162408	101.6976844	96.67598546	92.01694314	87.68962742	83.66604114	79.92081907	76.43095992
130913A00018	9/13/2013	3.72	9/13/2028	9/13/2013	110.44198	107.3519094	104.3907996	101.5520822	98.82957405	96.21744921	93.71021599	91.30269576	88.99000305
150601A00912	6/1/2015	5.96	11/30/2029	6/1/2015	121.61085	117.6511293	113.8795001	110.2852584	106.8583941	103.5895379	100.4699168	97.49131107	94.64601638
150601A00411	6/1/2015	3.38	1/24/2029	6/1/2015	109.16061	106.1895612	103.3419658	100.6115548	97.99242881	95.47903027	93.06612127	90.74876301	88.52229662
190102A00024	1/2/2019	2.97	1/3/2034	1/2/2019	116.32087	110.5583764	105.2078541	100.2346539	95.60736652	91.29749107	87.27914323	83.52879495	80.02504165
150601A00960	6/1/2015	6.49	12/16/2032	6/1/2015	131.54185	125.8708936	120.5614252	115.5860144	110.9195622	106.5390842	102.4235164	98.55354058	94.91142587
150601A00978	6/1/2015	6.32	11/24/2033	6/1/2015	133.6018	127.3283788	121.4881053	116.0455128	110.9683725	106.2273742	101.7958398	97.64946556	93.76609289
171110A00019	5/4/2018	2.46	5/4/2023	5/4/2018	100.02711	100.0104651	99.99383596	99.97722301	99.96062626	99.94404569	99.92748126	99.91093295	99.89440074
180515A00022	5/15/2018	3.19	5/15/2023	5/15/2018	100.11127	100.0640951	100.016984	99.96993319	99.92294255	99.87601196	99.8291413	99.78233046	99.73557931
180625A00012	6/25/2018	3.07	6/23/2023	6/25/2018	100.30634	100.1512801	99.99670866	99.8426207	99.68901392	99.53588608	99.38323494	99.23105828	99.07935389
190530A00049	5/30/2019	2.44	5/30/2023	5/30/2019	100.13975	100.0510728	99.96255018	99.87418677	99.78598211	99.69793575	99.61004728	99.52231627	99.43474229
190621A00034	6/21/2019	2.17	6/15/2023	6/21/2019	100.1493	100.0164704	99.88401139	99.75191784	99.62018824	99.48882105	99.35781475	99.22716781	99.09687873
190829A00075	8/29/2019	1.8	6/15/2023	8/29/2019	100.10002	99.96725057	99.83484812	99.70281102	99.57113774	99.43982673	99.30887647	99.17828545	99.04805215
190829A00076	8/29/2019	1.81	6/30/2023	8/29/2019	100.11783	99.94374408	99.77026824	99.59739476	99.4251205	99.25344237	99.08235729	98.9118622	98.74195407
081028A00036	10/30/2008	4.22	10/30/2023		101.47954	100.9694949	100.4645681	99.96468941	99.46978309	98.97977459	98.49459364	98.01417121	97.53843687
180925A00059	9/25/2018	3.01	9/25/2028	9/25/2023	118.82929	113.0777501	107.8926221	103.4171535	100.1900838	98.82021016	98.35819867	97.96368353	97.57249058
190522A00029	5/22/2019	2.41	5/22/2024	5/22/2023	101.39359	100.4392838	99.9775352	99.89747413	99.83132113	99.7652644	99.69930384	99.63343942	99.5676709
190523A00048	5/23/2019	2.32	5/23/2024	5/23/2023	101.30217	100.3604348	99.95693039	99.88792206	99.81901644	99.75021312	99.68151196	99.61291291	99.54441572
190613A00024	6/13/2019	2.18	6/13/2024	6/13/2023	101.31405	100.3817637	99.90412086	99.75010922	99.62408032	99.49827666	99.37281383	99.2476755	99.12286479