

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												
10/31/2023					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	102.87686	100.4124498	98.0218863	95.70247561	93.45163968	91.2669127	89.14593536	87.08644939	85.08629238
160608A00031	6/8/2016	2.36	6/8/2026	6/8/2016	102.87686	100.4124498	98.0218863	95.70247561	93.45163968	91.2669127	89.14593536	87.08644939	85.08629238
160608A00032	6/8/2016	2.36	6/8/2026	6/8/2016	102.87686	100.4124498	98.0218863	95.70247561	93.45163968	91.2669127	89.14593536	87.08644939	85.08629238
170921A00056	9/21/2017	2.82	9/21/2027	9/21/2017	106.24886	102.6592985	99.21820168	95.91857567	92.75379456	89.71757934	86.80397772	84.00734539	81.32232836
180508A00038	5/8/2018	3.57	5/9/2033	5/8/2018	111.14961	106.0966942	101.3719199	96.95020234	92.80858953	88.92606722	85.28338131	81.86287757	78.64835698
170406A00031	4/6/2017	3.01	4/6/2027	4/6/2017	106.09376	102.8770791	99.78071996	96.79948352	93.92842654	91.1628465	88.49826848	85.93043273	83.45528312
231017A00034	10/17/2023	4.99	10/17/2028	10/17/2023	118.35424	113.4200025	108.734975	104.285076	100.0570967	96.0386427	92.21808006	88.58448401	85.12759213
231017A00035	10/17/2023	4.99	10/17/2028	10/17/2023	118.35424	113.4200025	108.734975	104.285076	100.0570967	96.0386427	92.21808006	88.58448401	85.12759213
231017A00037	10/17/2023	4.99	10/17/2028	10/17/2023	118.35424	113.4200025	108.734975	104.285076	100.0570967	96.0386427	92.21808006	88.58448401	85.12759213
231017A00039	10/17/2023	5.12	10/16/2026	10/17/2023	111.58681	108.5872407	105.6876135	102.8840118	100.172696	97.55009471	95.01279658	92.55754174	90.18121426
231017A00029	10/17/2023	4.99	10/17/2028	10/17/2023	118.35424	113.4200025	108.734975	104.285076	100.0570967	96.0386427	92.21808006	88.58448401	85.12759213
231017A00040	10/17/2023	5.12	10/16/2026	10/17/2023	111.58681	108.5872407	105.6876135	102.8840118	100.172696	97.55009471	95.01279658	92.55754174	90.18121426
231017A00033	10/17/2023	4.99	10/17/2028	10/17/2023	118.35424	113.4200025	108.734975	104.285076	100.0570967	96.0386427	92.21808006	88.58448401	85.12759213
231017A00036	10/17/2023	4.99	10/17/2028	10/17/2023	118.35424	113.4200025	108.734975	104.285076	100.0570967	96.0386427	92.21808006	88.58448401	85.12759213
231017A00032	10/17/2023	4.99	10/17/2028	10/17/2023	118.35424	113.4200025	108.734975	104.285076	100.0570967	96.0386427	92.21808006	88.58448401	85.12759213
230120A00048	1/20/2023	5.1	1/16/2024	1/20/2023	100.75851	100.5451185	100.3326426	100.1210793	99.91042265	99.70066686	99.49180603	99.28383437	99.07674612
221116A00024	11/16/2022	4.99	11/16/2023	11/16/2022	100.15427	100.1098116	100.0654108	100.0210657	99.97677635	99.93254262	99.88836439	99.84424154	99.80017398
221122A00010	11/22/2022	5.16	11/22/2023	11/22/2022	100.22251	100.1613896	100.1003601	100.0394175	99.97856146	99.91779194	99.8571087	99.79651158	99.73600038
230125A00044	1/25/2023	5.1	1/22/2024	1/25/2023	100.81666	100.5866948	100.357792	100.1299424	99.90313869	99.67737368	99.45264017	99.22893104	99.00623924
221129A00022	11/29/2022	5.16	11/29/2023	11/29/2022	100.29332	100.2127904	100.1323894	100.0521184	99.97197708	99.89196508	99.81208213	99.73232792	99.65270215
221130A00011	11/30/2022	5.19	11/27/2023	11/30/2022	100.27533	100.2003472	100.1254767	100.0507231	99.97608605	99.9015654	99.82716083	99.75287208	99.67869889
230130A00097	1/30/2023	5.15	1/25/2024	1/30/2023	100.85765	100.6193848	100.3822555	100.1462517	99.91136548	99.6775888	99.44491381	99.2133327	98.98283773
230130A00022	1/30/2023	5.15	1/30/2024	1/30/2023	100.9068	100.6547438	100.4039436	100.1543923	99.90608066	99.65899939	99.41313943	99.16849174	98.9250474
230131A00022	1/31/2023	5.09	1/31/2024	1/31/2023	100.90134	100.6465495	100.3930424	100.1408093	99.88984051	99.64012668	99.3916584	99.14442642	98.89842154
230131A00040	1/31/2023	5.09	1/31/2024	1/31/2023	100.90134	100.6465495	100.3930424	100.1408093	99.88984051	99.64012668	99.3916584	99.14442642	98.89842154
230131A00037	1/31/2023	5.14	11/30/2023	1/31/2023	100.30179	100.2185021	100.1353489	100.0523324	99.96945222	99.88670815	99.8040998	99.72162687	99.63928902
230131A00038	1/31/2023	5.14	12/29/2023	1/31/2023	100.59035	100.426721	100.2636231	100.1010569	99.93901972	99.77750896	99.6165221	99.45605659	99.29610992
221228A00038	12/28/2022	5.11	12/28/2023	12/28/2022	100.57558	100.4147158	100.2543742	100.0945484	99.93523606	99.77643462	99.61814166	99.46035474	99.30307143
221230A00103	12/30/2022	5.15	12/26/2023	12/30/2022	100.56205	100.4067123	100.2518645	100.0975017	99.94362156	99.79022179	99.63730016	99.4848544	99.3328823
230414A00014	4/14/2023	5.21	11/14/2023	4/14/2023	100.14353	100.1046154	100.0657508	100.026933	99.9881617	99.949437	99.91075874	99.87212685	99.83354124
230301A00030	3/1/2023	5.43	12/4/2023	3/1/2023	100.36893	100.2745215	100.1802927	100.0862477	99.99238584	99.89870664	99.80520954	99.71189397	99.6187594
230301A00031	3/1/2023	5.44	12/11/2023	3/1/2023	100.44534	100.3315073	100.2179481	100.1046606	99.99164393	99.87889701	99.76641883	99.6542084	99.54226472
230207A00030	2/7/2023	5.23	12/7/2023	2/7/2023	100.38067	100.2779501	100.1754549	100.0731802	99.97112529	99.86928947	99.76767196	99.66627204	99.56508898

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230301A00028	3/1/2023	5.4	11/6/2023	3/1/2023	100.06467	100.0479833	100.0313132	100.0146594	99.99802201	99.98140088	99.96479603	99.94820743	99.93163504
230301A00032	3/1/2023	5.46	1/2/2024	3/1/2023	100.68574	100.5109719	100.3368094	100.1632521	99.99029702	99.81794092	99.64618073	99.47501335	99.30443571
230207A00032	2/7/2023	5.25	2/7/2024	2/7/2023	101.01131	100.7371323	100.4644495	100.193251	99.92352463	99.65525839	99.38844036	99.12305878	98.85910201
230302A00081	3/2/2023	5.48	12/1/2023	3/2/2023	100.34098	100.2548896	100.1689481	100.0831548	99.99750951	99.91201169	99.826661	99.74145707	99.65639952
230420A00030	4/20/2023	5.1	4/19/2024	4/20/2023	101.64375	101.1719098	100.7044673	100.2413601	99.78252783	99.32791143	98.87745275	98.4310948	97.98878157
230425A00035	4/25/2023	5.24	1/25/2024	4/25/2023	100.87909	100.6407955	100.4036313	100.1675927	99.93267183	99.69886063	99.46615125	99.23453587	99.00400677
230303A00018	3/3/2023	5.53	3/1/2024	3/3/2023	101.33321	100.9954899	100.6600201	100.3267791	99.99574485	99.66689541	99.34020923	99.01566501	98.69324174
230221A00016	2/21/2023	5.39	1/22/2024	2/21/2023	100.88335	100.6532838	100.4242746	100.1963189	99.96940959	99.74353932	99.51870091	99.29488727	99.07209134
230221A00014	2/21/2023	5.37	12/21/2023	2/21/2023	100.54326	100.4017252	100.2606035	100.1198922	99.97958917	99.83969278	99.7002012	99.56111264	99.42242531
230221A00013	2/21/2023	5.34	11/21/2023	2/21/2023	100.22288	100.164526	100.1062567	100.0480687	99.98996181	99.93193592	99.87399084	99.81612638	99.75834238
230308A00040	3/8/2023	5.63	12/11/2023	3/8/2023	100.46694	100.3530883	100.2395062	100.126196	100.0131565	99.90038689	99.78788606	99.67565301	99.56368676
230609A00035	6/9/2023	5.47	6/7/2024	6/9/2023	102.25742	101.6520354	101.0538411	100.4627113	99.87852097	99.30114825	98.73047407	98.16638209	97.60875867
221230A00030	12/30/2022	5.15	12/26/2023	12/30/2022	100.56205	100.4067123	100.2518645	100.0975017	99.94362156	99.79022179	99.63730016	99.4848544	99.3328823
230313A00024	3/13/2023	5.27	12/13/2023	3/13/2023	100.44663	100.3272746	100.2082188	100.0894613	99.97100085	99.85283633	99.73496657	99.61739043	99.50010676
230613A00093	6/13/2023	5.46	4/12/2024	6/13/2023	101.74247	101.289347	100.8402819	100.3952156	99.95409475	99.51686684	99.08348032	98.65388452	98.22802971
230426A00090	4/26/2023	5.08	4/22/2024	4/26/2023	101.66181	101.1817885	100.706317	100.2353281	99.76875843	99.30654584	98.84862935	98.39494913	97.94544643
230426A00029	4/26/2023	5.26	12/26/2023	4/26/2023	100.57913	100.4237703	100.2689017	100.114518	99.96061704	99.80719654	99.65425421	99.50178782	99.34979514
230427A00029	4/27/2023	4.87	4/26/2024	4/27/2023	101.65328	101.1617634	100.6750116	100.1929552	99.7155262	99.24265819	98.7742859	98.31034531	97.85077362
230427A00041	4/27/2023	5.26	12/27/2023	4/27/2023	100.58941	100.4312882	100.2736679	100.1165479	99.95992602	99.80379976	99.6481668	99.4930248	99.33837143
230427A00034	5/2/2023	5.23	2/2/2024	5/2/2023	100.95668	100.6963089	100.4372805	100.1795856	99.92321388	99.66815521	99.41439948	99.16193675	98.91075713
230428A00046	4/28/2023	5.15	3/28/2024	4/28/2023	101.46104	101.0494196	100.6411439	100.2361723	99.83446501	99.4359825	99.04068606	98.64853754	98.25949941
230503A00046	5/3/2023	4.96	4/29/2024	5/3/2023	101.66597	101.166988	100.6729116	100.1836653	99.69917848	99.21938188	98.74420761	98.2735891	97.80746102
230504A00038	5/4/2023	5.24	2/5/2024	5/4/2023	100.98886	100.7201987	100.4529774	100.1871797	99.92279408	99.65980933	99.3982143	99.13799793	98.87914932
230504A00014	5/4/2023	4.98	4/29/2024	5/4/2023	101.67598	101.1769675	100.6828623	100.1935873	99.70907197	99.22924707	98.75404471	98.2833983	97.81724251
230615A00055	6/15/2023	5.57	1/16/2024	6/15/2023	100.8588	100.6452561	100.4326273	100.2209118	100.0101034	99.80019637	99.59118482	99.38306295	99.175825
230227A00023	2/27/2023	5.48	2/22/2024	2/27/2023	101.23221	100.9165444	100.6028512	100.2911167	99.98132268	99.67345087	99.36748338	99.06340253	98.76119085
230314A00044	3/17/2023	5.37	12/15/2023	3/17/2023	100.47973	100.3548179	100.2302332	100.1059738	99.98203847	99.85842588	99.73513471	99.61216368	99.48951148
230315A00092	3/15/2023	4.61	3/11/2024	3/15/2023	101.10242	100.7379188	100.3760549	100.0168031	99.66013506	99.3060228	98.95443882	98.60535596	98.25874748
230315A00083	3/15/2023	4.61	3/11/2024	3/15/2023	101.10242	100.7379188	100.3760549	100.0168031	99.66013506	99.3060228	98.95443882	98.60535596	98.25874748
230315A00067	3/15/2023	4.61	3/11/2024	3/15/2023	101.10242	100.7379188	100.3760549	100.0168031	99.66013506	99.3060228	98.95443882	98.60535596	98.25874748
230316A00014	3/16/2023	4.86	3/11/2024	3/16/2023	101.19376	100.8290536	100.4669846	100.1075288	99.75065784	99.39634375	99.044559	98.69527644	98.34846931
230316A00025	3/16/2023	4.86	3/15/2024	3/16/2023	101.22852	100.8528282	100.4799438	100.1098311	99.74245923	99.37779763	99.01581624	98.65648544	98.29977605
230316A00062	3/16/2023	4.86	3/15/2024	3/16/2023	101.22852	100.8528282	100.4799438	100.1098311	99.74245923	99.37779763	99.01581624	98.65648544	98.29977605

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230316A00041	3/16/2023	4.86	3/15/2024	3/16/2023	101.22852	100.8528282	100.4799438	100.1098311	99.74245923	99.37779763	99.01581624	98.65648544	98.29977605
230320A00020	3/20/2023	5.19	11/20/2023	3/20/2023	100.20394	100.1483712	100.0928791	100.0374629	99.98212249	99.92685766	99.87166825	99.81655411	99.7615151
230320A00017	3/20/2023	5.15	2/20/2024	3/20/2023	101.10882	100.798867	100.4908236	100.184673	99.88039758	99.5779802	99.27740375	98.9786514	98.68170651
230323A00041	3/23/2023	4.99	3/22/2024	3/23/2023	101.34078	100.9457745	100.5538586	100.164998	99.77915691	99.39630027	99.01639336	98.63940209	98.26529287
230623A00020	6/23/2023	5.5	1/23/2024	6/23/2023	100.91945	100.6865768	100.4547883	100.2240774	99.9944367	99.76585869	99.53833595	99.31186113	99.08642696
230627A00064	6/27/2023	5.59	1/29/2024	6/27/2023	101.00669	100.7572026	100.5089528	100.2619275	100.0161179	99.77151495	99.52810978	99.28589362	99.04485779
230628A00026	6/28/2023	5.6	2/28/2024	6/28/2023	101.33523	101.002947	100.6728426	100.3448958	100.0190857	99.69539139	99.37379233	99.05426823	98.73679908
230629A00089	6/29/2023	5.68	3/28/2024	6/29/2023	101.67954	101.2673803	100.858567	100.453061	100.0508224	99.6518118	99.25599035	98.86331989	98.47376286
230508A00003	5/8/2023	4.99	5/2/2024	5/8/2023	101.70731	101.2001124	100.6979768	100.200831	99.70860082	99.22121367	98.7385982	98.26068453	97.78740414
230718A00030	7/18/2023	5.67	3/20/2024	7/18/2023	101.58802	101.1978651	100.8107244	100.4265611	100.0453407	99.66702941	99.29159388	98.91900126	98.5492192
230511A00033	5/11/2023	5.33	12/11/2023	5/11/2023	100.43283	100.319013	100.205467	100.0921928	99.97918928	99.8664555	99.75399044	99.6417931	99.52986248
230511A00056	5/11/2023	4.95	5/10/2024	5/11/2023	101.73999	101.2112714	100.6880609	100.1702773	99.65783613	99.1506549	98.64865268	98.15175022	97.65986988
230721A00046	7/21/2023	5.61	1/22/2024	7/21/2023	100.93395	100.7037996	100.4747096	100.2466736	100.0196841	99.79373394	99.56881596	99.34492304	99.1220481
230512A00005	5/12/2023	4.76	5/10/2024	5/12/2023	101.71746	101.1878637	100.6637988	100.1451818	99.63192794	99.12395397	98.6211785	98.12352176	97.63090564
230512A00021	5/12/2023	4.99	5/10/2024	5/12/2023	101.76122	101.2324324	100.7091573	100.1913096	99.67880485	99.17156048	98.66949558	98.17253091	97.68058881
230324A00056	3/24/2023	4.83	3/22/2024	3/24/2023	101.27747	100.8826127	100.4908481	100.1021379	99.71644653	99.33373866	98.95397968	98.5771355	98.20317253
230725A00090	7/25/2023	5.6	7/18/2024	7/25/2023	102.76665	102.0492928	101.3419975	100.6445546	99.95675868	99.27841006	98.60931455	97.94928327	97.29813245
230725A00089	7/25/2023	5.65	6/26/2024	7/25/2023	102.55937	101.9019221	101.252929	100.612232	99.97967258	99.35509619	98.73835214	98.12929353	97.52777712
230516A00060	5/16/2023	5.07	5/9/2024	5/16/2023	101.79484	101.2686441	100.7479093	100.2325471	99.72247438	99.21760991	98.71787396	98.22318846	97.73347694
230328A00008	3/28/2023	5.08	3/22/2024	3/28/2023	101.3764	100.9813031	100.589302	100.2003567	99.8144315	99.43149117	99.05150106	98.67442705	98.30023556
230331A00028	3/31/2023	5.05	3/29/2024	3/31/2023	101.42903	101.0147694	100.6038965	100.196369	99.79214623	99.39118805	98.99345502	98.59890831	98.20750974
230403A00030	4/3/2023	5.17	1/3/2024	4/3/2023	100.64498	100.4675035	100.2906608	100.1144442	99.93885042	99.76387611	99.589518	99.41577282	99.24263733
230403A00025	4/3/2023	5.23	11/3/2023	4/3/2023	100.03092	100.0225758	100.0142399	100.0059115	99.99759051	99.98927701	99.98097096	99.97267235	99.96438117
230630A00009	6/30/2023	5.59	6/27/2024	6/30/2023	102.52977	101.8697488	101.2182526	100.5751172	99.94018208	99.31329103	98.69429162	98.08303532	97.47937728
230630A00044	6/30/2023	5.69	3/29/2024	6/30/2023	101.69465	101.2797256	100.8681962	100.4600162	100.0551448	99.65354175	99.2551677	98.85998376	98.46795168
230630A00045	6/30/2023	5.7	4/30/2024	6/30/2023	102.04719	101.5444083	101.0465864	100.5536524	100.0655348	99.58216302	99.10346818	98.62938259	98.15983991
230703A00040	7/3/2023	5.68	2/5/2024	7/3/2023	101.10708	100.8382165	100.5707857	100.3047793	100.0401859	99.77699423	99.5151931	99.25477148	98.99571844
230711A00029	7/11/2023	5.55	7/5/2024	7/11/2023	102.58387	101.9022205	101.2296592	100.5660098	99.91109538	99.26474418	98.62678867	97.99706573	97.37541645
230712A00032	10/12/2023	5.23	10/11/2024	10/12/2023	103.40813	102.4603275	101.5299942	100.616648	99.71982551	98.83908023	97.9739816	97.12411433	96.28907774
230517A00028	5/19/2023	4.87	5/17/2024	5/19/2023	101.83668	101.2877891	100.7448403	100.2077358	99.6763813	99.15068444	98.63055493	98.11590438	97.60664627
230524A00031	5/24/2023	5.53	1/12/2024	5/24/2023	100.80675	100.6042798	100.4026367	100.2018159	100.0018123	99.80262074	99.60423631	99.40665401	99.20986891
230525A00032	5/25/2023	5.55	1/25/2024	5/25/2023	100.95296	100.7145434	100.477259	100.2411006	100.0060604	99.77213028	99.53930243	99.30756902	99.07692232
230728A00008	7/28/2023	5.67	5/28/2024	7/28/2023	102.28232	101.7036845	101.1316122	100.5659935	100.0067194	99.45368364	98.90678201	98.36591277	97.83097639

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230821A00067	8/21/2023	5.66	5/22/2024	8/21/2023	102.22564	101.6632157	101.1070045	100.5569035	100.0128122	99.47463229	98.94226755	98.41562386	97.89460913
230117A00010	1/17/2023	5.14	12/15/2023	1/17/2023	100.45103	100.3261489	100.2015961	100.0773686	99.95346508	99.82988421	99.70662471	99.58368526	99.46106458
230713A00015	7/13/2023	5.44	7/12/2024	7/13/2023	102.5848	101.8843109	101.1934256	100.5119518	99.83969779	99.17647681	98.52210725	97.8764123	97.23921988
230713A00054	7/13/2023	5.64	4/12/2024	7/13/2023	101.82411	101.3707756	100.9214922	100.476209	100.0348727	99.59743067	99.16383143	98.73402428	98.30795946
230922A00019	9/22/2023	5.53	9/16/2024	9/22/2023	103.397	102.5160647	101.6502256	100.7990965	99.96230381	99.13948657	98.33029591	97.53439447	96.75145596
230922A00029	9/22/2023	5.67	5/22/2024	9/22/2023	102.23128	101.6688335	101.1126043	100.5624854	100.0183764	99.48017882	98.9477966	98.42113557	97.90010364
230824A00017	8/24/2023	5.66	3/22/2024	8/24/2023	101.60591	101.2102648	100.817715	100.4282242	100.0417566	99.65827701	99.27775066	98.90014346	98.52542177
230815A00036	8/15/2023	5.68	5/15/2024	8/15/2023	102.17458	101.6310777	101.093381	100.5613994	100.0350418	99.51421909	98.99884407	98.48883128	97.9840971
230815A00034	8/15/2023	5.66	3/14/2024	8/15/2023	101.51874	101.145109	100.774244	100.4061146	100.0406905	99.67794183	99.3178391	98.96035329	98.60545579
230815A00035	8/15/2023	5.67	4/16/2024	8/15/2023	101.8809	101.4165474	100.9564426	100.5005317	100.0487574	99.60106321	99.15739396	98.71769532	98.28191397
230830A00060	8/30/2023	5.67	3/1/2024	8/30/2023	101.3805	101.0426789	100.7071103	100.373771	100.0426388	99.713692	99.38690891	99.06226827	98.73974905
230830A00023	8/30/2023	5.68	6/28/2024	8/30/2023	102.59961	101.9366491	101.2822851	100.63635	99.99868141	99.36912127	98.7475154	98.13371355	97.52756924
230830A00010	8/30/2023	5.71	3/29/2024	8/30/2023	101.70295	101.2880055	100.8764556	100.4682552	100.0633635	99.6617403	99.26334622	98.86814236	98.47609049
230928A00030	9/28/2023	5.67	6/28/2024	9/28/2023	102.59296	101.9300224	101.2756829	100.6297721	99.99212754	99.36259123	98.74100896	98.12723051	97.52110938
230929A00037	9/29/2023	5.66	6/28/2024	9/29/2023	102.58631	101.9233957	101.2690807	100.6231941	99.98557367	99.35606118	98.73450253	98.12074747	97.51464953
230929A00027	9/29/2023	5.52	9/23/2024	9/29/2023	103.46646	102.5665179	101.6823171	100.8134469	99.95951025	99.12012356	98.29491643	97.48353092	96.68562105
230913A00043	9/13/2023	5.59	9/12/2024	9/13/2023	103.40456	102.5342659	101.6787079	100.8375105	100.0103134	99.1967683	98.39653834	97.60929772	96.83473121
230918A00059	9/18/2023	5.68	4/19/2024	9/18/2023	101.91802	101.4454195	100.977218	100.513357	100.053776	99.59841582	99.14721836	98.70012653	98.25708427
230918A00045	9/18/2023	5.52	9/12/2024	9/18/2023	103.34341	102.4734133	101.6181419	100.7772277	99.95031045	99.13704191	98.33708532	97.55011492	96.77581556
230918A00032	9/18/2023	5.67	3/19/2024	9/18/2023	101.57709	101.1896923	100.8052616	100.4237676	100.0451767	99.66945553	99.29657154	98.9264925	98.55918671
230918A00061	9/18/2023	5.55	8/19/2024	9/18/2023	103.08661	102.2821143	101.4902447	100.7107016	99.94319811	99.1874562	98.44320628	97.710187	96.98814489
231005A00007	10/5/2023	5.51	10/4/2024	10/5/2023	103.59786	102.6677167	101.7543691	100.8573635	99.97626324	99.1106471	98.26010861	97.42425544	96.6027088
231010A00131	10/10/2023	5.44	10/4/2024	10/10/2023	103.5325	102.6026859	101.689663	100.7929781	99.91219442	99.04689098	98.19666134	97.36111326	96.53986801
231011A00020	10/11/2023	5.65	4/12/2024	10/11/2023	101.82865	101.3752994	100.9260039	100.4807086	100.0393603	99.60190644	99.16829538	98.73847649	98.3124
231012A00014	10/12/2023	5.55	10/11/2024	10/12/2023	103.71304	102.7636697	101.8317925	100.9169221	100.018595	99.13636402	98.26979833	97.41848224	96.58201467
231017A00082	10/17/2023	5.69	5/17/2024	10/17/2023	102.19564	101.646737	101.1037537	100.5665972	100.0351739	99.50939198	98.98916178	98.4743954	97.96500682
231018A00003	10/18/2023	5.68	4/23/2024	10/18/2023	101.96132	101.4777458	100.9987724	100.5243366	100.054374	99.58882134	99.12761667	98.67069911	98.21800896
231018A00049	10/18/2023	5.65	7/18/2024	10/18/2023	102.80265	102.0851498	101.3777123	100.6801285	99.99219308	99.31370632	98.64447402	97.98430727	97.33302227
231018A00041	10/18/2023	5.65	7/18/2024	10/18/2023	102.80265	102.0851498	101.3777123	100.6801285	99.99219308	99.31370632	98.64447402	97.98430727	97.33302227
231019A00035	10/19/2023	5.54	10/18/2024	10/19/2023	103.78115	102.8128168	101.8626668	100.9301915	100.0148995	99.11631801	98.23399105	97.3674793	96.51635913
231025A00009	10/25/2023	5.49	10/21/2024	10/25/2023	103.76542	102.7892001	101.8314592	100.8916778	99.96935288	99.06400013	98.17515299	97.30236188	96.44519345
231027A00004	10/27/2023	5.61	7/26/2024	10/27/2023	102.86452	102.1252828	101.396715	100.6785884	99.97067925	99.27277021	98.58465004	97.90611344	97.23696081
231031A00041	10/31/2023	5.51	10/25/2024	10/31/2023	103.83889	102.851515	101.8830355	100.932908	100.0006134	99.08565183	98.18754194	97.30582019	96.44003988

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230919A00045	9/19/2023	5.52	9/13/2024	9/19/2023	103.3546	102.4818751	101.6239716	100.7805132	99.9511363	99.13548954	98.33323313	97.54403842	96.76758747
200108A00015	12/18/2020	1.98	12/18/2023	12/18/2020	100.06029	99.92758359	99.79524648	99.66327527	99.53166841	99.40042435	99.26954155	99.13901847	99.0088536
200108A00016	12/18/2020	1.98	12/18/2023	12/18/2020	100.06029	99.92758359	99.79524648	99.66327527	99.53166841	99.40042435	99.26954155	99.13901847	99.0088536
200114A00017	1/11/2021	1.93	1/11/2024	1/11/2021	100.07749	99.87883225	99.6809781	99.48392048	99.28765453	99.09217542	98.89747834	98.70355854	98.51041131
200114A00021	1/11/2021	1.93	1/11/2024	1/11/2021	100.07749	99.87883225	99.6809781	99.48392048	99.28765453	99.09217542	98.89747834	98.70355854	98.51041131
200218A00026	2/21/2020	1.73	3/25/2024	2/21/2020	100.05092	99.65090141	99.25407998	98.86041853	98.46987938	98.08242544	97.69802022	97.31662778	96.93821277
200220A00013	2/20/2020	2.09	12/14/2029	2/20/2020	105.08685	99.25610628	93.78718434	88.65575088	83.83923338	79.31668284	75.06864874	71.07706426	67.32514088
200220A00014	2/20/2020	2.09	12/21/2029	2/20/2020	105.08222	99.23495089	93.75147125	88.60725501	83.77955397	79.2472604	74.99078027	70.991917	67.23376472
200221A00024	2/21/2020	2.05	12/28/2029	2/21/2020	104.83669	98.98012556	93.48900675	88.33862722	83.50607842	78.9701083	74.71099295	70.7104189	66.95137509
200221A00023	2/21/2020	2.05	12/7/2029	2/21/2020	104.85273	99.04562176	93.59805596	88.4859123	83.68680872	79.17996894	74.94609911	70.96727462	67.22683608
200221A00011	2/21/2020	1.69	8/21/2024	2/21/2020	99.969534	99.17356252	98.39022553	97.61922391	96.86026797	96.11307704	95.37737911	94.65291049	93.93941553
200224A00006	2/24/2020	1.58	11/15/2024	2/24/2020	99.941007	98.91989395	97.91954937	96.93934491	95.97867713	95.03696652	94.11365628	93.20821123	92.32011677
200225A00029	2/25/2020	1.89	12/28/2029	2/25/2020	103.87299	98.04528954	92.58175025	87.45773902	82.65041176	78.13857695	73.90256757	69.92412362	66.18628433
200225A00028	2/25/2020	1.89	12/21/2029	2/25/2020	103.8812	98.06978945	92.62058422	87.5091411	82.71279161	78.21050287	73.98275121	70.01140619	66.27962418
200225A00023	2/25/2020	1.62	2/25/2025	2/25/2020	100.06226	98.7726688	97.50656066	96.26332793	95.04238722	93.84317484	92.66514601	91.50777405	90.37054961
200226A00004	2/26/2020	1.58	2/26/2025	2/26/2020	100.01288	98.72084179	97.4520354	96.20587711	94.98180151	93.77926183	92.59772916	91.43669168	90.29565402
200228A00091	2/28/2020	1.72	12/7/2029	2/28/2020	102.88292	97.13427006	91.74259599	86.68390867	81.9359547	77.47807869	73.29110047	69.35720231	65.65982538
200228A00071	2/28/2020	1.74	12/14/2029	2/28/2020	102.99136	97.22299461	91.81370254	86.73929387	81.97733406	77.50700373	73.30897419	69.36529317	65.65927994
200302A00016	3/2/2020	1.36	3/3/2025	3/2/2020	99.728601	98.42527775	97.14493132	95.88700645	94.65096576	93.43628859	92.24247042	91.06902216	89.91546966
200302A00060	3/2/2021	1.44	3/3/2025	3/2/2021	99.835996	98.53191956	97.25083186	95.99217812	94.75542063	93.54003842	92.34552663	91.17139588	90.01717173
200302A00002	3/2/2020	1.12	3/3/2025	3/2/2020	99.563088	98.258443	96.97683405	95.71770396	94.48051335	93.26473966	92.06987656	90.89543325	89.74093393
200302A00013	3/2/2020	1.25	3/4/2024	3/2/2020	99.883714	99.54091184	99.20046116	98.86233788	98.52651815	98.19297846	97.86169563	97.53264678	97.20580933
200302A00005	3/2/2020	1.31	3/3/2025	3/2/2020	99.661478	98.35862662	97.07874349	95.82127416	94.58568146	93.37144495	92.17806028	91.00503858	89.85190586
200302A00017	3/2/2020	1.3	3/4/2024	3/2/2020	99.901017	99.55817719	99.21768949	98.87952937	98.543673	98.21009686	97.87877776	97.54969281	97.22281945
200304A00035	3/4/2020	1.17	3/4/2025	3/4/2020	99.47366	98.16956829	96.8885083	95.6299232	94.3932735	93.17803655	91.98370586	90.80979053	89.65581463
200304A00020	3/4/2020	0.98	3/4/2025	3/4/2020	99.374909	98.06902257	96.78623597	95.52598952	94.2877415	93.07096714	91.87515796	90.69982113	89.54447889
200304A00018	3/4/2020	0.98	3/4/2025	3/4/2020	99.374909	98.06902257	96.78623597	95.52598952	94.2877415	93.07096714	91.87515796	90.69982113	89.54447889
200304A00030	3/4/2020	1.6	12/22/2028	3/4/2020	102.58211	97.69248182	93.06395464	88.68123914	84.53002038	80.59689202	76.86929376	73.33545333	69.98433286
200304A00032	3/4/2020	1.6	12/15/2028	3/4/2020	102.58317	97.71050666	93.09724981	88.72825077	84.58932736	80.66719474	76.94940377	73.42428397	70.08089067
200304A00033	3/4/2020	1.17	3/4/2025	3/4/2020	99.47366	98.16956829	96.8885083	95.6299232	94.3932735	93.17803655	91.98370586	90.80979053	89.65581463
200304A00012	3/4/2020	0.98	3/4/2025	3/4/2020	99.374909	98.06902257	96.78623597	95.52598952	94.2877415	93.07096714	91.87515796	90.69982113	89.54447889
200304A00002	3/4/2020	0.98	3/4/2025	3/4/2020	99.374909	98.06902257	96.78623597	95.52598952	94.2877415	93.07096714	91.87515796	90.69982113	89.54447889
200304A00005	3/4/2020	0.98	3/4/2025	3/4/2020	99.374909	98.06902257	96.78623597	95.52598952	94.2877415	93.07096714	91.87515796	90.69982113	89.54447889

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200305A00037	3/5/2020	1.43	3/6/2028	3/5/2020	101.60311	97.45619897	93.50080151	89.72713557	86.12596312	82.68856091	79.40668931	76.27256302	73.2788239
200305A00038	3/5/2020	1.51	3/5/2029	3/5/2020	102.09408	97.03362357	92.25310382	87.73566268	83.46553965	79.42799346	75.60923132	71.99634344	68.5772423
200305A00032	3/5/2020	1.58	3/5/2030	3/5/2020	101.89226	95.96105964	90.41174257	85.21784437	80.35486143	75.80009419	71.53250598	67.53259357	63.78226833
200305A00001	3/5/2020	1.14	3/5/2025	3/5/2020	99.433349	98.126982	96.8437285	95.58302812	94.34433857	93.12713454	91.93090698	90.75516255	89.59942295
200305A00030	3/5/2020	1.58	3/5/2030	3/5/2020	101.89226	95.96105964	90.41174257	85.21784437	80.35486143	75.80009419	71.53250598	67.53259357	63.78226833
200305A00039	3/5/2020	1.58	3/5/2030	3/5/2020	101.89226	95.96105964	90.41174257	85.21784437	80.35486143	75.80009419	71.53250598	67.53259357	63.78226833
200306A00055	3/6/2020	0.82	3/6/2025	3/6/2020	99.158473	97.8489894	96.56275206	95.29919618	94.05777485	92.83795833	91.6392334	90.46110269	89.30308407
200306A00066	3/6/2020	1.2	3/8/2027	3/6/2020	100.2516	97.04639915	93.95969261	90.98650656	88.12210168	85.36196085	82.70177757	80.13744503	77.66504585
200306A00077	3/6/2020	1.06	3/6/2025	3/6/2020	99.325344	98.01718222	96.73220668	95.46985471	94.22958146	93.01085912	91.8131763	90.63603737	89.47896188
200306A00087	3/8/2021	1.26	3/7/2025	3/8/2021	99.595834	98.28320138	96.99387397	95.72728475	94.48288507	93.2601435	92.05854517	90.87759111	89.71679764
200306A00080	11/6/2020	1.12	11/6/2023	11/6/2020	99.993429	99.9768041	99.96019514	99.94360249	99.9270261	99.91046594	99.89392201	99.87739426	99.86088267
200306A00022	3/6/2020	1.2	3/8/2027	3/6/2020	100.2516	97.04639915	93.95969261	90.98650656	88.12210168	85.36196085	82.70177757	80.13744503	77.66504585
200306A00064	3/6/2020	1.2	3/8/2027	3/6/2020	100.2516	97.04639915	93.95969261	90.98650656	88.12210168	85.36196085	82.70177757	80.13744503	77.66504585
200306A00031	3/6/2020	1.01	3/6/2025	3/6/2020	99.257814	97.95012917	96.66562251	95.40373157	94.16391171	92.94563533	91.74839124	90.57168399	89.41503332
200306A00028	3/6/2020	1.01	3/6/2025	3/6/2020	99.257814	97.95012917	96.66562251	95.40373157	94.16391171	92.94563533	91.74839124	90.57168399	89.41503332
200306A00040	3/6/2020	1.01	3/6/2025	3/6/2020	99.257814	97.95012917	96.66562251	95.40373157	94.16391171	92.94563533	91.74839124	90.57168399	89.41503332
200306A00013	3/6/2020	1.01	3/6/2025	3/6/2020	99.257814	97.95012917	96.66562251	95.40373157	94.16391171	92.94563533	91.74839124	90.57168399	89.41503332
200309A00038	3/9/2020	1.26	3/11/2030	3/9/2020	99.892246	94.00897395	88.50654672	83.35847271	78.54022719	74.02909691	69.80403789	65.84554509	62.13553282
200309A00030	3/9/2020	1.11	3/9/2027	3/9/2020	99.953169	96.75047923	93.6663271	90.69573215	87.8339492	85.07645571	82.41894024	79.85729141	77.38758762
200309A00007	3/9/2020	1.11	3/9/2027	3/9/2020	99.953169	96.75047923	93.6663271	90.69573215	87.8339492	85.07645571	82.41894024	79.85729141	77.38758762
200310A00041	3/10/2020	1.39	3/12/2029	3/10/2020	101.45304	96.39270017	91.61345872	87.09832993	82.83143341	78.79791936	74.98389675	71.37636692	67.963162
200310A00040	3/10/2020	1.36	3/10/2028	3/10/2020	101.30565	97.15533248	93.19721023	89.42143565	85.81871669	82.38028036	79.09784119	75.96357167	72.97007478
200310A00028	3/10/2020	1.1	3/10/2025	3/10/2020	99.379108	98.06033963	96.76510953	95.49284242	94.24298154	93.01498764	91.80833838	90.62252764	89.45706489
200310A00020	3/10/2020	1.1	3/10/2025	3/10/2020	99.379108	98.06033963	96.76510953	95.49284242	94.24298154	93.01498764	91.80833838	90.62252764	89.45706489
200310A00054	3/10/2020	1.1	3/10/2025	3/10/2020	99.379108	98.06033963	96.76510953	95.49284242	94.24298154	93.01498764	91.80833838	90.62252764	89.45706489
200310A00003	3/10/2020	1.1	3/10/2025	3/10/2020	99.379108	98.06033963	96.76510953	95.49284242	94.24298154	93.01498764	91.80833838	90.62252764	89.45706489
200310A00033	3/10/2020	0.91	3/10/2025	3/10/2020	99.279053	97.95846789	96.66149022	95.38754247	94.13606552	92.90651795	91.69837533	90.51112955	89.3442882
200310A00021	3/10/2020	1.1	3/10/2025	3/10/2020	99.379108	98.06033963	96.76510953	95.49284242	94.24298154	93.01498764	91.80833838	90.62252764	89.45706489
200310A00051	3/10/2020	1.41	3/8/2030	3/10/2020	100.83145	94.92605254	89.40193276	84.23262108	79.39360758	74.86218982	70.61733119	66.63953106	62.91070554
200310A00005	3/10/2020	1.41	3/8/2030	3/10/2020	100.83145	94.92605254	89.40193276	84.23262108	79.39360758	74.86218982	70.61733119	66.63953106	62.91070554
200310A00062	3/10/2020	1.05	3/8/2024	3/10/2020	99.807202	99.45373785	99.10278064	98.75430341	98.40827985	98.06468403	97.72349039	97.38467372	97.04820917
200310A00038	3/10/2020	1.41	3/11/2030	3/10/2020	100.82375	94.91171759	89.38184312	84.20756029	79.36427683	74.82921613	70.58127478	66.60089194	62.86992955
200310A00034	3/10/2020	1.41	3/11/2030	3/10/2020	100.82375	94.91171759	89.38184312	84.20756029	79.36427683	74.82921613	70.58127478	66.60089194	62.86992955

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200310A00015	3/10/2020	1.37	3/11/2030	3/10/2020	100.57535	94.67098595	89.14843074	83.98113693	79.14453026	74.615851	70.37401161	66.39946612	62.67409042
200311A00052	3/2/2021	1.43	2/28/2025	3/2/2021	99.820079	98.52380686	97.25026525	95.99890788	94.76920577	93.56064631	92.37273267	91.20498317	90.05693072
200311A00031	3/11/2020	1.41	12/24/2027	3/11/2020	101.41684	97.45889028	93.67628701	90.060329	86.60279664	83.29592195	80.13236105	77.10516845	74.20777315
200311A00050	3/2/2021	1.46	3/2/2026	3/2/2021	100.46587	98.20756127	96.0108863	93.87383954	91.79448814	89.77097285	87.8015047	85.88436201	84.01788741
200311A00055	3/11/2020	1.66	12/17/2027	3/11/2020	102.42747	98.46621039	94.67954465	91.0588481	87.59597041	84.28320702	81.11327213	78.07927345	75.17468866
200312A00015	3/12/2020	1.23	3/10/2025	3/12/2020	99.556099	98.23607089	96.93960236	95.66611757	94.41505918	93.18588742	91.97807942	90.79112855	89.6245438
200312A00014	3/12/2020	1.04	3/12/2025	3/12/2020	99.456364	98.12938747	96.82621372	95.54625872	94.28895685	93.05376042	91.84013903	90.64757881	89.47558185
200312A00037	3/12/2020	1.3	3/12/2025	3/12/2020	99.652359	98.32652668	97.02443884	95.74551346	94.48918696	93.2549136	92.04216478	90.8504284	89.67920819
200316A00042	3/16/2020	1.23	3/15/2024	3/16/2020	99.862184	99.48965746	99.119917	98.75293098	98.38866861	98.02709951	97.66819378	97.31192195	96.958255
200316A00037	3/16/2020	1.06	3/14/2025	3/16/2020	99.484005	98.15170247	96.84338128	95.55845059	94.2963387	93.05649212	91.83837486	90.64146772	89.46526766
200316A00043	3/16/2020	1.3	3/14/2025	3/16/2020	99.653317	98.32235926	97.01532039	95.731612	94.47066455	93.23192659	92.01486407	90.81895963	89.64371198
200316A00046	3/16/2020	1.18	3/18/2024	3/16/2020	99.83897	99.45838561	99.08070793	98.70590382	98.33394047	97.96478554	97.59840721	97.23477414	96.87385544
200316A00049	3/16/2020	1.25	3/14/2025	3/16/2020	99.5847	98.25423441	96.94767929	95.66444655	94.40396686	93.16568898	91.94907906	90.75361994	89.57881053
200316A00050	3/16/2020	1.54	3/16/2027	3/16/2020	101.39598	98.15171146	95.02788931	92.01943464	89.1215066	86.32949263	83.63899644	81.04582674	78.54598659
200316A00009	3/16/2020	1.25	3/14/2025	3/16/2020	99.5847	98.25423441	96.94767929	95.66444655	94.40396686	93.16568898	91.94907906	90.75361994	89.57881053
200317A00023	3/17/2020	1.1	3/17/2025	3/17/2020	99.539691	98.19929679	96.88315331	95.59066061	94.32123777	93.07432247	91.84937026	90.64585385	89.46326243
200317A00045	3/19/2020	1.43	3/19/2025	3/19/2020	99.835884	98.49081282	97.17012072	95.87320275	94.59947375	93.34836732	92.11933508	90.91184595	89.72538548
200317A00027	3/17/2020	1.29	3/17/2025	3/17/2020	99.64095	98.30240526	96.98804039	95.69725728	94.42947745	93.18414086	91.96070526	90.75864542	89.57745251
200318A00013	3/18/2020	1.5	3/18/2025	3/18/2020	99.931876	98.58867143	97.26977005	95.97456958	94.70248758	93.45296025	92.22544167	91.01940316	89.83433254
200318A00047	3/18/2020	1.29	3/18/2025	3/18/2020	99.802976	98.45811337	97.13762172	95.8408971	94.5673547	93.31642851	92.0875705	90.88024996	89.69395281
200318A00038	3/18/2020	1.48	3/18/2025	3/18/2020	99.904211	98.56120713	97.24250222	95.94749493	94.6756029	93.42626241	92.19892765	90.99306999	89.80817734
200318A00037	3/18/2020	1.35	3/18/2024	3/18/2020	99.904365	99.52362678	99.14579604	98.77083974	98.39872503	98.02941959	97.66289159	97.29910967	96.93804295
200318A00044	3/18/2020	1.17	3/18/2024	3/18/2020	99.880102	99.49890779	99.12063112	98.74523859	98.37269715	98.00297427	97.63603791	97.27185651	96.91039898
200318A00054	3/18/2020	1.56	3/18/2025	3/18/2020	100.01487	98.67106434	97.35157354	96.05579354	94.78314163	93.53305374	92.30498373	91.09840267	89.91279814
200319A00025	3/19/2020	1.39	3/21/2024	3/19/2020	99.917099	99.52821817	99.14236798	98.75951305	98.37961852	98.00265006	97.62857385	97.25735663	96.88896561
200320A00013	3/20/2020	1.25	3/20/2024	3/20/2020	99.908973	99.52229391	99.13861458	98.75790032	98.3801167	98.00522986	97.63320644	97.26401358	96.89761895
200320A00052	3/25/2020	1.47	3/25/2025	3/25/2020	99.896971	98.53609735	97.20013919	95.88847294	94.60049494	93.33562112	92.09328615	90.87294272	89.67406083
200320A00049	3/25/2020	1.47	3/25/2025	3/25/2020	99.896971	98.53609735	97.20013919	95.88847294	94.60049494	93.33562112	92.09328615	90.87294272	89.67406083
200324A00012	3/25/2020	1.78	3/25/2025	3/25/2020	100.33166	98.96760876	97.62852471	96.31378511	95.02278488	93.75493858	92.50967958	91.28645931	90.08474655
200324A00066	3/26/2020	1.81	3/26/2025	3/26/2020	100.3756	99.00865494	97.66677843	96.34933728	95.05572321	93.7853477	92.53764115	91.31205217	90.10804684
200324A00013	3/25/2020	1.78	3/25/2025	3/25/2020	100.33166	98.96760876	97.62852471	96.31378511	95.02278488	93.75493858	92.50967958	91.28645931	90.08474655
200324A00029	3/24/2020	1.86	3/24/2025	3/24/2020	100.44184	99.07954587	97.74214733	96.42902102	95.13956461	93.87319524	92.62934875	91.40747895	90.2070569
200324A00051	3/24/2020	1.73	11/1/2024	3/24/2020	100.09679	99.11107655	98.14468234	97.19704763	96.26763061	95.35591014	94.46138477	93.58357186	92.72200666

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200324A00031	3/24/2020	1.64	3/22/2024	3/24/2020	100.01514	99.6233232	99.2345763	98.84886652	98.46615828	98.08641656	97.70960687	97.33569528	96.96464836
200325A00009	3/27/2020	1.67	3/27/2025	3/27/2020	100.18039	98.81231589	97.46937185	96.15092521	94.85636526	93.58510112	92.33656097	91.11019128	89.90545607
200325A00016	3/30/2020	1.67	3/31/2025	3/30/2020	100.18632	98.80795799	97.45508262	96.12705066	94.82323888	93.54304443	92.28588402	91.05119314	89.8384253
200325A00044	3/25/2020	1.7	12/23/2024	3/25/2020	100.06303	98.9433213	97.84855348	96.77789711	95.73056264	94.70579465	93.70287003	92.72109629	91.7598099
200325A00046	3/25/2020	1.76	3/25/2025	3/25/2020	100.30362	98.93976931	97.60088694	96.28634561	94.99554037	93.72788584	92.48281549	91.25978083	90.0582507
200325A00047	3/25/2020	1.68	9/25/2024	3/25/2020	99.998213	99.10998368	98.23746871	97.38025447	96.5379413	95.71014337	94.89648803	94.09661533	93.3101774
200325A00043	3/25/2020	1.62	6/25/2024	3/25/2020	99.90191	99.25691589	98.62022409	97.99167479	97.37111258	96.75838599	96.15334733	95.55585264	94.96576149
200325A00042	3/25/2020	1.58	3/25/2024	3/25/2020	99.990323	99.59045079	99.19377639	98.80026111	98.40986728	98.02255781	97.63829623	97.2570466	96.87877358
200326A00011	3/30/2020	1.54	3/31/2025	3/30/2020	100.00191	98.62491227	97.27337646	95.9466614	94.64414446	93.36522339	92.10931546	90.87585671	89.66430118
200326A00016	3/26/2020	1.54	3/25/2025	3/26/2020	99.995128	98.63353541	97.29687141	95.98451117	94.69585073	93.43030571	92.18731047	90.96631744	89.76679632
200326A00009	3/27/2020	1.54	3/27/2025	3/27/2020	99.997392	98.63066279	97.28903925	95.97189091	94.67860764	93.40859915	92.16129417	90.9361397	89.73260028
200327A00056	3/27/2020	1.18	3/27/2025	3/27/2020	99.490633	98.12762345	96.78965667	95.4761036	94.18635576	92.91982446	91.67593995	90.45415071	89.2539227
200327A00055	3/27/2020	1.01	3/27/2024	3/27/2020	99.756185	99.35148461	98.95006143	98.55187623	98.15688993	97.76506411	97.37636093	96.99074318	96.6081742
200327A00051	3/27/2020	0.99	3/27/2025	3/27/2020	99.387204	98.02230416	96.68252143	95.36722425	94.07580158	92.80766228	91.5622343	90.33896391	89.13731499
200327A00060	3/27/2020	1.18	3/27/2025	3/27/2020	99.490633	98.12762345	96.78965667	95.4761036	94.18635576	92.91982446	91.67593995	90.45415071	89.2539227
200327A00031	3/27/2020	1.18	3/27/2025	3/27/2020	99.490633	98.12762345	96.78965667	95.4761036	94.18635576	92.91982446	91.67593995	90.45415071	89.2539227
200327A00030	3/27/2020	1.01	3/27/2024	3/27/2020	99.756185	99.35148461	98.95006143	98.55187623	98.15688993	97.76506411	97.37636093	96.99074318	96.6081742
200327A00037	3/27/2020	1.18	3/27/2026	3/27/2020	100.11609	97.79301454	95.53512745	93.34024024	91.20625472	89.13115492	87.11300335	85.14993742	83.24016614
200327A00048	3/27/2020	1.18	3/24/2025	3/27/2020	99.490171	98.13482686	96.80425987	95.49785033	94.21499901	92.95512602	91.71767007	90.50208772	89.30785269
200327A00073	3/27/2020	0.99	3/27/2025	3/27/2020	99.387204	98.02230416	96.68252143	95.36722425	94.07580158	92.80766228	91.5622343	90.33896391	89.13731499
200327A00046	3/27/2020	1.23	3/27/2025	3/27/2020	99.561016	98.19749003	96.85901536	95.54496295	94.25472408	92.98770983	91.74335025	90.52109362	89.3204057
200327A00035	3/27/2020	0.83	3/27/2024	3/27/2020	99.730246	99.32505702	98.92315715	98.52450597	98.12906417	97.73679306	97.34765459	96.9616113	96.57862634
200327A00043	3/27/2020	1.48	3/27/2028	3/27/2020	102.35811	98.12794436	94.09564954	90.25098612	86.58429301	83.08645474	79.74886786	76.56340957	73.52240849
200327A00061	3/31/2020	1.18	3/31/2025	3/31/2020	99.491243	98.11801641	96.77019017	95.4471219	94.14819068	92.87279589	91.62035638	90.39030969	89.18211131
200327A00047	3/27/2020	0.99	3/27/2025	3/27/2020	99.387204	98.02230416	96.68252143	95.36722425	94.07580158	92.80766228	91.5622343	90.33896391	89.13731499
200327A00045	3/27/2020	2.24	3/27/2034	3/27/2020	107.7821	98.20639587	89.57870189	81.79973453	74.78109012	68.44400024	62.71823821	57.54115433	52.85682434
200327A00042	3/27/2020	0.83	3/27/2024	3/27/2020	99.730246	99.32505702	98.92315715	98.52450597	98.12906417	97.73679306	97.34765459	96.9616113	96.57862634
200327A00059	3/27/2020	1.01	3/27/2024	3/27/2020	99.756185	99.35148461	98.95006143	98.55187623	98.15688993	97.76506411	97.37636093	96.99074318	96.6081742
200330A00007	3/30/2020	0.93	4/1/2024	3/30/2020	99.712553	99.29447412	98.87988776	98.46875067	98.06101999	97.65665358	97.25560998	96.85784839	96.46332872
200330A00037	3/30/2020	1.09	3/28/2025	3/30/2020	99.363853	97.99922197	96.65970684	95.34467563	94.0535172	92.78564029	91.54047272	90.31746062	89.11606772
200330A00008	3/30/2020	1.09	3/28/2025	3/30/2020	99.363853	97.99922197	96.65970684	95.34467563	94.0535172	92.78564029	91.54047272	90.31746062	89.11606772
200330A00044	3/30/2020	1.09	3/28/2025	3/30/2020	99.363853	97.99922197	96.65970684	95.34467563	94.0535172	92.78564029	91.54047272	90.31746062	89.11606772
200330A00066	3/30/2020	1.08	3/31/2025	3/30/2020	99.34939	97.97721201	96.6304162	95.30836093	94.01042574	92.73601047	91.48453441	90.25543551	89.04816968

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200330A00011	3/30/2020	0.93	4/1/2024	3/30/2020	99.712553	99.29447412	98.87988776	98.46875067	98.06101999	97.65665358	97.25560998	96.85784839	96.46332872
200330A00028	3/30/2020	1.09	3/28/2025	3/30/2020	99.363853	97.99922197	96.65970684	95.34467563	94.0535172	92.78564029	91.54047271	90.31746062	89.11606772
200330A00006	3/30/2020	0.9	3/28/2025	3/30/2020	99.260109	97.89358491	96.55225186	95.23547481	93.94264003	92.67315383	91.42644169	90.20194754	88.99913299
200330A00038	3/30/2020	1.79	3/29/2030	3/30/2020	103.15487	97.12920048	91.49434722	86.22300275	81.28990178	76.67165514	72.34660168	68.29467248	64.49726643
200330A00054	3/30/2021	1.19	3/30/2026	3/30/2021	99.861165	97.53951706	95.28311984	93.08978294	90.95740295	88.88395899	86.86750892	84.90618583	82.99819465
200331A00014	3/31/2020	0.72	3/29/2024	3/31/2020	99.680353	99.26988061	98.86278103	98.45901236	98.05853384	97.66130539	97.26728755	96.87644152	96.48872912
200331A00017	3/31/2020	0.9	3/31/2025	3/31/2020	99.259218	97.88502957	96.53630024	95.212386	93.91266373	92.63653073	91.3834039	90.15271892	88.9439295
200331A00016	3/31/2020	1.11	3/31/2026	3/31/2020	99.95197	97.62079683	95.35531226	93.15330634	91.01265636	88.93132314	86.90734721	84.93884519	83.02400634
200331A00007	3/31/2020	0.72	3/29/2024	3/31/2020	99.680353	99.26988061	98.86278103	98.45901236	98.05853384	97.66130539	97.26728755	96.87644152	96.48872912
200331A00022	4/1/2020	1.07	4/1/2025	4/1/2020	99.335498	97.96079339	96.61156527	95.28716874	93.98697992	92.71039531	91.45683107	90.22572215	89.01652156
200401A00012	4/2/2020	1	4/2/2025	4/2/2020	99.236115	97.85951793	96.50848161	95.18235752	93.88051858	92.60235828	91.34728987	90.11474553	88.90417564
200401A00023	4/1/2020	0.82	4/1/2025	4/1/2020	99.145574	97.76959235	96.41915223	95.09360628	93.79232824	92.51471243	91.26017288	90.02814253	88.81807251
200401A00013	4/1/2020	1.01	4/1/2025	4/1/2020	99.250224	97.87615025	96.52754275	95.20375635	93.90416742	92.62817277	91.3751888	90.14465072	88.93601178
200401A00001	4/1/2020	1.01	4/1/2025	4/1/2020	99.250224	97.87615025	96.52754275	95.20375635	93.90416742	92.62817277	91.3751888	90.14465072	88.93601178
200402A00041	4/2/2020	1.03	4/2/2025	4/2/2020	99.278834	97.90191975	96.55057194	95.22414163	93.92200159	92.6435452	91.38818555	90.15535471	88.94450294
200402A00044	4/2/2020	1.65	4/2/2030	4/2/2020	102.27164	96.26411356	90.64736161	85.39401932	80.47877123	75.8781855	71.5705649	67.53581031	63.75529553
200402A00014	4/2/2020	0.84	4/2/2025	4/2/2020	99.174017	97.79518974	96.4420048	95.11381075	93.80997773	92.52989659	91.27297806	90.03865193	88.82636628
200402A00009	4/2/2020	1.03	4/2/2025	4/2/2020	99.278834	97.90191975	96.55057194	95.22414163	93.92200159	92.6435452	91.38818555	90.15535471	88.94450294
200402A00048	4/2/2020	0.71	4/2/2024	4/2/2020	99.666219	99.24498956	98.82731164	98.41314017	98.00243115	97.59514128	97.19122799	96.79064941	96.39336438
200402A00036	4/2/2020	0.71	4/2/2024	4/2/2020	99.666219	99.24498956	98.82731164	98.41314017	98.00243115	97.59514128	97.19122799	96.79064941	96.39336438
200402A00038	4/2/2020	0.84	4/2/2025	4/2/2020	99.174017	97.79518974	96.4420048	95.11381075	93.80997773	92.52989659	91.27297806	90.03865193	88.82636628
200402A00010	4/2/2020	0.89	4/2/2024	4/2/2020	99.693246	99.27252574	98.85534508	98.44165946	98.03142515	97.62459912	97.22113904	96.8210033	96.42415096
200402A00013	4/2/2020	0.89	4/2/2024	4/2/2020	99.693246	99.27252574	98.85534508	98.44165946	98.03142515	97.62459912	97.22113904	96.8210033	96.42415096
200403A00025	4/3/2020	0.91	4/3/2024	4/3/2020	99.699447	99.27602137	98.8561826	98.43988519	98.02708448	97.61773656	97.21179826	96.8092271	96.40998132
200403A00018	4/3/2020	0.91	4/3/2024	4/3/2020	99.699447	99.27602137	98.8561826	98.43988519	98.02708448	97.61773656	97.21179826	96.8092271	96.40998132
200406A00060	4/6/2020	1.03	4/5/2024	4/6/2020	99.746926	99.31799878	98.89275421	98.47114459	98.05312343	97.63864503	97.22766444	96.82013751	96.4160208
200406A00053	4/6/2020	1.13	4/7/2025	4/6/2020	99.423514	98.03237652	96.66730878	95.32764284	94.01273332	92.72195625	91.45470817	90.21040529	88.98848272
200407A00019	4/7/2020	1.06	4/8/2024	4/7/2020	99.754237	99.31722353	98.88403521	98.45462224	98.02893533	97.60692606	97.18854686	96.77375096	96.36249239
200413A00027	4/13/2020	0.94	4/12/2024	4/13/2020	99.692185	99.24458437	98.80100124	98.36138128	97.92567143	97.4938196	97.0657746	96.64148616	96.22090488
200413A00011	4/13/2020	0.94	4/12/2024	4/13/2020	99.692185	99.24458437	98.80100124	98.36138128	97.92567143	97.4938196	97.0657746	96.64148616	96.22090488
200414A00014	4/14/2020	0.76	4/12/2024	4/14/2020	99.66345	99.2153063	98.77119255	98.3310546	97.89483909	97.46249361	97.0339667	96.6092078	96.18816724
200415A00031	4/15/2020	0.97	4/15/2025	4/15/2020	99.193692	97.78327225	96.39967521	95.04220354	93.71018394	92.40296577	91.11992011	89.86043885	88.6239338
200415A00037	4/15/2020	0.97	4/15/2025	4/15/2020	99.193692	97.78327225	96.39967521	95.04220354	93.71018394	92.40296577	91.11992011	89.86043885	88.6239338

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200415A00036	4/15/2020	0.91	10/15/2024	4/15/2020	99.285666	98.34861435	97.42914409	96.52676458	95.64100292	94.77140355	93.9175274	93.07895122	92.25526678
200415A00027	4/15/2020	0.86	4/15/2024	4/15/2020	99.648531	99.19299019	98.74161201	98.29433925	97.85111598	97.41188729	96.97659923	96.54519885	96.11763414
200415A00021	4/15/2020	1.37	4/15/2027	4/15/2020	100.87189	97.56084529	94.37559916	91.31071777	88.36103427	85.52163138	82.78782785	80.15516591	77.61939929
200415A00024	4/15/2020	2.2	4/16/2035	4/15/2020	105.75474	95.54229646	86.4296297	78.291795	71.01864761	64.51302523	58.68915941	53.47128829	48.79244421
200415A00038	4/15/2020	1.37	4/15/2027	4/15/2020	100.87189	97.56084529	94.37559916	91.31071777	88.36103427	85.52163138	82.78782785	80.15516591	77.61939929
200415A00020	4/15/2020	0.86	4/15/2024	4/15/2020	99.648531	99.19299019	98.74161201	98.29433925	97.85111598	97.41188729	96.97659923	96.54519885	96.11763414
200415A00023	4/15/2020	1.71	4/15/2030	4/15/2020	102.62713	96.57775357	90.92371552	85.63719191	80.69245396	76.06569728	71.73488881	67.67962663	63.88101154
200417A00004	4/17/2020	0.86	4/17/2024	4/17/2020	99.643621	99.18272391	98.72608671	98.27365086	97.82535846	97.38115269	96.94097776	96.50477888	96.07250227
200417A00002	4/17/2020	0.96	4/17/2025	4/17/2020	99.179091	97.76353461	96.37499526	95.01276871	93.67617446	92.36455498	91.07727478	89.81371945	88.57329482
200417A00014	4/17/2020	0.96	4/17/2025	4/17/2020	99.179091	97.76353461	96.37499526	95.01276871	93.67617446	92.36455498	91.07727478	89.81371945	88.57329482
200417A00019	4/17/2020	0.77	4/17/2025	4/17/2020	99.071294	97.65375771	96.2633203	94.8992739	93.56093508	92.24764356	90.95876124	89.69367124	88.451777
200417A00008	4/17/2020	0.96	4/17/2025	4/17/2020	99.179091	97.76353461	96.37499526	95.01276871	93.67617446	92.36455498	91.07727478	89.81371945	88.57329482
200421A00031	4/21/2020	0.84	4/19/2024	4/21/2020	99.629255	99.16302854	98.70116039	98.24358985	97.79025708	97.3411033	96.89607085	96.45510311	96.01814449
200421A00032	4/21/2020	1.31	4/21/2027	4/21/2020	100.67511	97.35215138	94.15605433	91.08131333	88.12269413	85.27521651	82.53414055	79.89495369	77.35335852
200421A00020	4/24/2020	0.83	3/15/2024	4/24/2020	99.711624	99.33944581	98.97005179	98.60341031	98.23949058	97.87826225	97.51969543	97.16376069	96.81042899
200423A00017	4/23/2020	1.82	4/23/2035	4/23/2020	102.9148	92.76514755	83.71878124	75.64957381	68.44641738	62.01136498	56.25801328	51.11009096	46.50022584
200423A00027	4/28/2020	0.88	4/15/2024	4/28/2020	99.657768	99.20220227	98.75079901	98.30350135	97.86025333	97.42100005	96.98568757	96.55426293	96.12667411
200423A00026	4/28/2020	0.85	12/15/2023	4/28/2020	99.915692	99.7914095	99.66745256	99.54381957	99.42050921	99.29752018	99.17485117	99.0525009	98.93046808
200423A00006	4/23/2020	0.82	4/23/2025	4/23/2020	99.144231	97.7103558	96.30418512	94.92498785	93.5720582	92.24471455	90.94229842	89.66417343	88.40972443
200424A00014	4/28/2020	1.01	4/23/2025	4/28/2020	99.253118	97.82125218	96.41700694	95.03965491	93.6884933	92.36284336	91.06204929	89.78547732	88.53251473
200427A00017	4/27/2020	1.02	4/25/2025	4/27/2020	99.268247	97.83101754	96.42160981	95.03928855	93.68334352	92.35308885	91.04786195	89.76702255	88.50995175
200427A00018	4/27/2020	1.51	4/27/2028	4/27/2020	102.00868	97.72382424	93.64274905	89.75472954	86.04965692	82.51800341	79.15078579	75.93953146	72.87624674
200428A00003	4/29/2020	1.01	4/29/2025	4/29/2020	99.253912	97.80630253	96.38691324	94.9949929	93.62981641	92.29068369	90.97691861	89.68786793	88.4229004
200429A00021	5/4/2020	0.97	4/29/2025	5/4/2020	99.194022	97.74687777	96.32794621	94.93647577	93.57174156	92.2330437	90.91970624	89.63107615	88.36652235
200429A00049	4/29/2020	1.25	4/29/2026	4/29/2020	100.0427	97.64121777	95.30941399	93.04487472	90.84528137	88.70840961	86.63212496	84.6143785	82.65320291
200429A00054	4/29/2020	1.04	4/29/2025	4/29/2020	99.29883	97.85087111	96.43113851	95.03888074	93.67337255	92.33391369	91.01982788	89.73046177	88.46518394
200429A00057	4/29/2020	1.4	4/29/2027	4/29/2020	100.99831	97.64934696	94.42895058	91.33151057	88.35169221	85.48442137	82.72487029	80.06844421	77.51076882
200429A00061	4/29/2020	1.66	10/29/2029	4/29/2020	102.58251	96.93722888	91.6375244	86.66049746	81.98488119	77.59091395	73.46022546	69.57573211	65.92154063
200430A00030	4/30/2020	0.96	4/30/2025	4/30/2020	99.179044	97.72939765	96.30806257	94.91428342	93.54733159	92.20650364	90.89112022	89.60052508	88.33408401
200504A00007	5/4/2020	1.47	5/4/2028	5/4/2020	101.8388	97.54028385	93.44699656	89.54809146	85.83335236	82.2931525	78.91841754	75.70059085	72.63160137
200504A00006	5/4/2020	0.94	5/5/2025	5/4/2020	99.149123	97.68683167	96.25322662	94.84753698	93.46901871	92.11695374	90.79064885	89.48943456	88.21266416
200511A00006	5/11/2020	1.65	5/13/2030	5/11/2020	102.20189	96.10021681	90.40173066	85.0777532	80.10178805	75.44934185	71.09776317	67.0260951	63.21494038
200518A00019	5/19/2020	0.9	5/19/2025	5/19/2020	99.087293	97.58946625	96.12139792	94.6822708	93.27129691	91.88771653	90.53079687	89.19983092	87.89413626

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200521A00017	5/21/2020	2.22	5/21/2038	5/21/2020	104.68301	92.36872587	81.68491282	72.40469803	64.33392472	57.30628792	51.17921364	45.83036517	41.15467854
200521A00016	5/21/2020	2.18	5/21/2037	5/21/2020	104.36894	92.74542392	82.57135978	73.65674134	65.83741487	58.97144361	52.9360012	47.62471265	42.94537674
200521A00015	5/21/2020	2.14	5/21/2036	5/21/2020	104.40872	93.47656798	83.82093948	75.28499116	67.73191609	61.0422964	55.1118149	49.84927775	45.17490453
200521A00013	5/21/2020	2.09	5/21/2035	5/21/2020	104.51262	94.29643429	85.19043856	77.06748701	69.81560909	63.33613245	57.54204363	52.35655795	47.71187112
200527A00014	5/27/2020	1.06	5/27/2026	5/27/2020	99.590471	97.12369088	94.72999383	92.40678227	90.1515684	87.96196857	85.83569823	83.77056705	81.76447439
200527A00015	5/27/2020	0.99	11/26/2025	5/27/2020	99.305477	97.31211988	95.368287	93.47242455	91.62303876	89.81869345	88.05800739	86.33965169	84.66234745
200527A00013	5/27/2020	1.13	11/25/2026	5/27/2020	99.914382	96.97978986	94.14595666	91.40886356	88.76467633	86.20973582	83.74054882	81.35377945	79.0462411
200527A00012	5/27/2020	1.2	5/27/2027	5/27/2020	100.33784	96.93034152	93.65590189	90.508611	87.48285822	84.57331237	81.77490608	79.08282118	76.49247494
200527A00016	5/27/2020	0.92	5/27/2025	5/27/2020	99.118028	97.59938446	96.1111334	94.65242971	93.22245962	91.82043891	90.44561159	89.09724859	87.77464655
200529A00022	6/1/2020	0.98	6/1/2026	6/1/2020	99.388401	96.91152663	94.50832042	92.17615271	89.91250551	87.71496687	85.58122555	83.50906616	81.49636448
200605A00005	6/5/2020	0.99	6/5/2025	6/5/2020	99.231552	97.68845435	96.17651825	94.69486628	93.24265326	91.81906525	90.42331803	89.05465581	87.71234987
200611A00021	6/11/2020	0.72	6/11/2024	6/11/2020	99.358205	98.75220747	98.15357448	97.56217278	96.97787192	96.40054454	95.83006635	95.26631598	94.7091749
200611A00019	6/11/2020	0.88	12/11/2025	6/11/2020	99.080979	97.05155728	95.0732326	93.14437451	91.26341741	89.42885737	87.63924916	85.89320343	84.18938413
200611A00020	6/11/2020	0.81	6/11/2025	6/11/2020	98.944403	97.38781589	95.86287446	94.36867946	92.90436512	91.469098	90.06207546	88.68252423	87.32969905
200629A00021	6/29/2020	1.21	6/29/2028	6/29/2020	100.70096	96.28840812	92.09264029	88.10187851	84.30505077	80.69174302	77.25215631	73.97706695	70.85778952
200629A00023	6/29/2020	0.95	6/29/2026	6/29/2020	99.329073	96.78015818	94.30873858	91.91197868	89.5871669	87.33170933	85.14312369	83.01903364	80.95716349
200629A00020	6/29/2020	1.4	6/28/2030	6/29/2020	100.51196	94.35627153	88.61500096	83.25817073	78.25812242	73.58932356	69.22819351	65.15294464	61.34343712
200708A00011	7/10/2020	2.87	7/10/2031	7/10/2020	110.83303	103.4353306	96.59466747	90.26599146	84.40812402	78.98340724	73.95738536	69.29851661	64.9779125
200730A00011	7/30/2020	1.15	7/28/2028	7/30/2020	100.41608	95.93994342	91.68696041	87.64483081	83.80200046	80.14761284	76.67146274	73.36395333	70.21605632
200730A00013	7/30/2020	0.74	1/30/2025	7/30/2020	98.863009	97.65384331	96.47398464	95.32237958	94.19802435	93.09996218	92.02728057	90.97910881	89.95461557
200818A00018	3/31/2021	0.57	4/1/2024	3/31/2021	99.560166	99.14247133	98.72826736	98.31751033	97.91015741	97.50616646	97.10549605	96.70810542	96.31395448
200818A00016	3/31/2021	0.57	4/1/2024	3/31/2021	99.560166	99.14247133	98.72826736	98.31751033	97.91015741	97.50616646	97.10549605	96.70810542	96.31395448
200824A00020	8/26/2020	1.57	8/26/2025	8/26/2020	100.31736	98.55251497	96.82697617	95.13962754	93.48939083	91.87522569	90.29612805	88.75112854	87.23929107
200826A00028	8/28/2020	1.08	8/28/2024	8/28/2020	99.472421	98.6601892	97.86115034	97.0749855	96.30138571	95.54005182	94.79069412	94.05303194	93.32679333
200826A00029	8/28/2020	1.16	11/27/2024	8/28/2020	99.483304	98.43381042	97.40631528	96.40013303	95.41460648	94.44910523	93.50302428	92.57578276	91.66682277
200826A00038	8/28/2020	1.11	8/28/2024	8/28/2020	99.497393	98.68504787	97.88589703	97.09962147	96.32591222	95.56447008	94.81500534	94.07723729	93.35089395
200826A00039	8/28/2020	1.03	7/29/2024	8/28/2020	99.459967	98.72677912	98.00434506	97.29242947	96.59080415	95.89924742	95.21754395	94.54548448	93.88286567
200826A00021	8/26/2020	0.83	8/26/2025	8/26/2020	98.970735	97.21848548	95.50531107	93.8301001	92.19178056	90.58931812	89.02171445	87.48800577	85.98726136
200826A00019	8/26/2020	0.98	8/26/2026	8/26/2020	99.425708	96.72985616	94.12004095	91.59306128	89.14585387	86.77548599	84.4791492	82.25415326	80.09792049
200909A00001	9/9/2020	0.98	9/8/2028	9/9/2020	100.14676	95.55633365	91.20038	87.06578901	83.14024714	79.41218499	75.87072865	72.50565458	69.30734761
200916A00016	9/16/2020	0.6	9/16/2024	9/16/2020	99.036889	98.17687129	97.33169706	96.50098479	95.68436593	94.88148437	94.09199592	93.31556779	92.55187812
200916A00015	9/16/2020	0.72	9/16/2025	9/16/2020	98.765981	96.96111336	95.19764784	93.47439617	91.79021141	90.14398662	88.53465315	86.9611791	85.42256783
200916A00019	9/16/2020	0.42	9/16/2024	9/16/2020	99.005706	98.14407897	97.29735031	96.46513633	95.64706651	94.84278286	94.05193936	93.27420151	92.5092458

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200916A00023	9/16/2020	0.42	9/16/2024	9/16/2020	99.005706	98.14407897	97.2973503	96.46513633	95.64706651	94.84278286	94.05193936	93.27420151	92.5092458
200922A00015	9/24/2020	1.09	9/24/2025	9/24/2020	99.467086	97.6345113	95.84438908	94.09548812	92.38662067	90.71664086	89.08444293	87.48895955	85.92916023
200928A00009	9/28/2020	1.51	9/28/2032	9/28/2020	100.27806	92.28959498	84.99724158	78.33682157	72.25036661	66.68549288	61.5948382	56.93555835	52.66887613
201001A00011	10/1/2020	0.71	6/17/2025	10/1/2020	98.781813	97.21073942	95.67181853	94.16412823	92.68678144	91.23892455	89.81973585	88.42842402	87.06422669
201001A00012	10/1/2020	0.74	9/16/2025	10/1/2020	98.803513	96.99828335	95.23446301	93.51086314	91.8263366	90.17977627	88.57011334	86.99631576	85.4573867
201014A00002	10/14/2020	0.61	10/15/2024	10/14/2020	98.996538	98.06098537	97.14299441	96.24207496	95.35775456	94.48957805	93.63710675	92.79991778	91.97760329
201015A00002	10/15/2020	0.61	10/15/2024	10/15/2020	98.996538	98.06098537	97.14299441	96.24207496	95.35775456	94.48957805	93.63710675	92.79991778	91.97760329
201015A00003	10/15/2020	0.75	10/15/2025	10/15/2020	98.813934	96.93436893	95.09959481	93.30827466	91.55912062	89.85089164	88.18239142	86.55246652	84.96000446
201015A00032	10/19/2020	2.33	10/19/2026	10/19/2020	103.42165	100.5295937	97.7337788	95.03048507	92.41615422	89.88738509	87.44092577	85.07366611	82.78263076
201015A00030	10/19/2020	2.39	10/18/2027	10/19/2020	105.15669	101.2937951	97.59496946	94.05239459	90.6586616	87.40675184	84.29001418	81.30214377	78.43716218
201015A00025	10/19/2020	1.54	10/18/2027	10/19/2020	101.82423	98.0267587	94.39134456	90.9102409	87.57611411	84.38201731	81.32136781	78.38792612	75.57577623
201015A00024	10/19/2020	1.53	10/18/2027	10/19/2020	101.78502	97.98832298	94.35365485	90.87327438	87.53984885	84.3464322	81.28644255	78.3536412	75.54211286
201019A00005	10/19/2020	0.79	10/20/2025	10/19/2020	98.89024	96.99734869	95.14985627	93.34639851	91.58566172	89.86638027	88.18733453	86.54734883	84.94528958
201019A00007	10/19/2020	0.64	10/21/2024	10/19/2020	99.011693	98.06048987	97.12743551	96.21201479	95.3137319	94.43210945	93.56668762	92.71702339	91.88268976
201021A00011	10/21/2020	1.11	10/21/2027	10/21/2020	100.13982	96.36811218	92.75805932	89.30191445	85.99234019	82.8223871	79.78547111	76.8753523	74.08611514
201021A00012	10/21/2020	1.85	10/19/2035	10/21/2020	101.5536	91.20226296	82.01596869	73.85693272	66.60432233	60.15209281	54.40711242	49.28753312	44.72137376
201028A00011	10/28/2020	0.91	4/28/2026	10/28/2020	99.197906	96.80963998	94.49067275	92.23860204	90.05112343	87.92602609	85.8611884	83.85457371	81.90422641
201028A00013	10/28/2020	0.68	10/28/2024	10/28/2020	99.04526	98.07558301	97.12475128	96.19222006	95.27746561	94.37998398	93.49929012	92.63491697	91.78641464
201029A00002	10/29/2020	0.59	10/29/2025	10/29/2020	98.719994	96.80185108	94.93033159	93.10401596	91.32153767	89.58158093	87.88287846	86.22420931	84.6043968
201030A00018	10/30/2020	1.15	10/22/2027	10/30/2020	100.29755	96.52029459	92.90500336	89.4439053	86.12964548	82.95525811	79.9141438	77.00004838	74.20704296
201030A00017	10/30/2020	1.14	10/15/2027	10/30/2020	100.25434	96.49501257	92.8961682	89.4501427	86.14967959	82.98790446	79.95830281	77.05469931	74.27123833
201030A00019	10/30/2020	1.15	10/29/2027	10/30/2020	100.30163	96.50722796	92.87624965	89.40082101	86.07348881	82.88719602	79.83525862	76.9113438	74.1094497
201030A00016	10/30/2020	1.14	10/8/2027	10/30/2020	100.25044	96.50828159	92.92514925	89.49348914	86.20614162	83.05632217	80.03759982	77.14387678	74.36936953
201030A00012	10/30/2020	0.63	10/30/2025	10/30/2020	98.799304	96.87783299	95.00312237	93.17374618	91.3883322	89.64555928	87.944155	86.28289352	84.66059352
201105A00016	11/9/2020	2.18	11/8/2027	11/9/2020	104.40723	100.5057422	96.77223629	93.19859264	89.77713099	86.50058124	83.36205922	80.35504409	77.47335716
201105A00003	11/6/2020	2.24	11/4/2030	11/6/2020	105.97174	99.3371658	93.16652713	87.42495195	82.08035964	77.10322439	72.46635958	68.14472127	64.11522925
201116A00025	11/18/2020	1.96	11/15/2032	11/18/2020	104.11005	95.85407895	88.32250485	81.4478847	75.16937568	69.43206078	64.1863444	59.38741231	54.99474888
201116A00024	11/18/2020	2.36	11/15/2034	11/18/2020	107.62159	97.62704474	88.67149941	80.64074252	73.43367928	66.96076561	61.14263566	55.90889841	51.19708186
201116A00021	11/16/2020	0.53	11/15/2024	11/16/2020	98.96155	97.94416047	96.94752574	95.97101603	95.01402716	94.07597892	93.15631388	92.25449628	91.37001102
201117A00006	11/17/2020	0.57	11/17/2023	11/17/2020	99.955461	99.90840762	99.8614144	99.81448156	99.76760898	99.72079655	99.67404414	99.62735164	99.58071892
201117A00016	11/17/2020	0.52	11/18/2024	11/17/2020	98.942435	97.91741682	96.91346684	95.92994132	94.96622258	94.02171762	93.09585688	92.18809312	91.29790034
201117A00017	11/17/2020	0.39	11/17/2023	11/17/2020	99.952558	99.90545365	99.85841031	99.81142799	99.76450656	99.71764589	99.67084586	99.62410633	99.57742718
201118A00021	11/20/2020	0.97	11/20/2023	11/20/2020	99.9698	99.91443306	99.85914175	99.80392606	99.74878584	99.69372093	99.63873118	99.58381643	99.52897653

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201118A00009	11/18/2020	0.61	11/18/2025	11/18/2020	98.75979	96.78866304	94.86629294	92.99116022	91.16180406	89.37681949	87.63485478	85.93460901	84.27482973
201119A00003	11/19/2020	0.56	11/17/2023	11/19/2020	99.95499	99.90793642	99.8609436	99.81401116	99.76713899	99.72032696	99.67357496	99.62688285	99.58025054
201119A00023	11/23/2020	2.23	11/21/2030	11/23/2020	105.9159	99.24218453	93.03779195	87.26725468	81.89796027	76.89990747	72.24548447	67.90926716	63.86783534
201119A00021	11/23/2020	2.22	11/21/2030	11/23/2020	105.84734	99.17595855	92.97378667	87.20536061	81.8380744	76.84193282	72.18932972	67.85484626	63.81506715
201123A00009	11/25/2020	1.02	11/25/2024	11/25/2020	99.335593	98.29209997	97.27038054	96.26975951	95.28958918	94.32924816	93.38813994	92.46569176	91.56135338
201123A00010	11/25/2020	1.48	11/24/2025	11/25/2020	100.31487	98.31613754	96.36693087	94.46569565	92.61094184	90.8012367	89.03520213	87.31151213	85.62889043
201123A00011	11/25/2020	1.41	11/24/2025	11/25/2020	100.17045	98.17324469	96.22553069	94.32575896	92.47244026	90.66414266	88.8994888	87.17715344	85.49586101
201201A00002	12/1/2020	0.54	12/1/2023	12/1/2020	99.916145	99.83041943	99.74484184	99.6594119	99.57412924	99.48899347	99.40400422	99.31916112	99.23446379
201203A00005	12/3/2020	0.78	12/3/2026	12/3/2020	99.206708	96.25393294	93.40336009	90.6508807	87.99257702	85.42471181	82.94371871	80.54619338	78.22888504
201204A00015	12/8/2020	1.07	12/8/2025	12/8/2020	99.479822	97.45373078	95.47849541	93.55249889	91.67418811	89.84207085	88.0547129	86.31073529	84.60881172
201210A00021	12/10/2020	0.89	12/10/2027	12/10/2020	99.763576	95.86017929	92.12919537	88.56210839	85.15087063	81.88787389	78.76592293	75.77821063	72.91829487
201215A00001	12/15/2020	0.76	12/15/2025	12/15/2020	98.827038	96.79022202	94.80488435	92.8693756	90.98211185	89.14157188	87.34629418	85.59487404	83.88596092
201216A00003	12/16/2020	0.59	7/1/2024	12/16/2020	99.203166	98.5449221	97.89536263	97.2543164	96.62161711	95.99710277	95.38061555	94.77200167	94.17111123
201216A00004	12/16/2020	0.74	9/8/2025	12/16/2020	98.804321	97.01997778	95.27613144	93.57163138	91.9053672	90.27626679	88.68329471	87.12545074	85.60176843
201216A00013	12/16/2020	0.59	12/16/2025	12/16/2020	98.71299	96.67004439	94.67887031	92.73780443	90.84524987	88.99967316	87.19960119	85.4436183	83.73036353
201218A00014	12/18/2020	0.57	12/18/2025	12/18/2020	98.669649	96.62209597	94.62652552	92.68126367	90.78470376	88.9353031	87.13157988	85.3721102	83.65552539
201221A00015	12/21/2020	0.88	12/4/2026	12/21/2020	99.154486	96.20866684	93.3646985	90.61849055	87.96614192	85.40393111	82.92830666	80.53587834	78.22340871
201221A00014	12/21/2020	0.76	12/19/2025	12/21/2020	98.826177	96.77924299	94.78422651	92.8394561	90.94332784	89.09430168	87.29089832	85.53169625	83.81532906
201223A00013	12/23/2020	0.9	12/11/2026	12/23/2020	99.216678	96.25244393	93.3911665	90.62869015	87.96105284	85.38447601	82.89535477	80.49024881	78.16587378
201223A00012	12/23/2020	0.91	12/18/2026	12/23/2020	99.248531	96.26635457	93.3882354	90.60995197	87.92748113	85.33698713	82.83481159	80.41746406	78.0816132
210104A00009	12/20/2021	0.89	12/18/2026	12/20/2021	99.186346	96.20514396	93.32797369	90.55061488	87.86904521	85.2794297	82.77811073	80.36159856	78.02656255
210104A00006	11/22/2021	0.88	11/20/2026	11/22/2021	99.150668	96.24074224	93.4305076	90.71599995	88.09343651	85.55920659	83.10986258	80.74211161	78.45280758
210104A00007	11/23/2021	0.88	11/23/2026	11/23/2021	99.15175	96.23404647	93.41649568	90.69510688	88.06607219	85.52575736	83.07069273	80.69756471	78.40320778
210104A00010	11/22/2021	0.88	11/20/2026	11/22/2021	99.150668	96.24074224	93.4305076	90.71599995	88.09343651	85.55920659	83.10986258	80.74211161	78.45280758
210104A00012	12/20/2021	0.89	12/18/2026	12/20/2021	99.186346	96.20514396	93.32797369	90.55061488	87.86904521	85.2794297	82.77811073	80.36159856	78.02656255
210104A00011	11/23/2021	0.88	11/23/2026	11/23/2021	99.15175	96.23404647	93.41649568	90.69510688	88.06607219	85.52575736	83.07069273	80.69756471	78.40320778
210121A00012	1/22/2021	0.64	10/15/2024	1/22/2021	99.025451	98.08974827	97.17160938	96.27054392	95.3860794	94.5177606	93.66514882	92.82782112	92.00536964
210121A00014	1/22/2021	0.64	10/25/2024	1/22/2021	99.012084	98.05036634	97.10719516	96.18203857	95.27438481	94.38374133	93.50963389	92.65160576	91.80921686
210122A00005	1/26/2021	0.6	7/15/2024	1/26/2021	99.169631	98.47460748	97.78928128	97.11345065	96.44691929	95.78949625	95.1409958	94.50123722	93.87004465
210122A00006	1/25/2021	0.61	8/15/2024	1/25/2021	99.106811	98.33039812	97.56608509	96.81359095	96.07264325	95.34297784	94.62433861	93.91647712	93.21915235
210127A00009	1/27/2021	1.3	7/27/2029	1/27/2021	100.70907	95.34017787	90.28791659	85.53198862	81.05350808	76.83489135	72.85976011	69.11285223	65.57993972
210127A00010	1/27/2021	1.41	7/26/2030	1/27/2021	100.51383	94.29463454	88.49824378	83.09377931	78.05277159	73.34896142	68.95811698	64.85786703	61.02754863
210127A00008	1/27/2021	0.93	1/27/2027	1/27/2021	99.317814	96.23527021	93.26325727	90.39715806	87.63258013	84.96534275	82.39146506	79.90715508	77.50879934

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210129A00002	2/3/2021	0.59	7/25/2024	2/3/2021	99.135991	98.41473857	97.70392408	97.00332207	96.3127138	95.63188673	94.96063433	94.29875584	93.64605608
210201A00001	2/1/2021	0.77	12/16/2025	2/1/2021	98.848048	96.80847171	94.8204885	92.88244281	90.99274559	89.14987081	87.35235238	85.59878132	83.887803
210201A00007	2/3/2021	0.57	8/15/2024	2/3/2021	99.07494	98.29866646	97.53449114	96.78213321	96.04132024	95.31178813	94.59328076	93.88554974	93.18835409
210201A00003	2/2/2021	0.74	10/15/2025	2/2/2021	98.794384	96.91501479	95.08043275	93.28930103	91.54033187	89.83228431	88.16396216	86.53421206	84.94192162
210208A00008	2/11/2021	0.78	11/17/2025	2/11/2021	98.86936	96.90429313	94.98770655	93.11809384	91.29400613	89.51404972	87.77688357	86.0812169	84.42580689
210208A00004	2/11/2021	0.76	10/15/2025	2/11/2021	98.833484	96.95372307	95.11875687	93.32724829	91.57790938	89.86949897	88.20082069	86.57072098	84.97808731
210216A00011	2/17/2021	0.83	12/15/2025	2/17/2021	98.975423	96.93700075	94.95008946	93.01303835	91.1242626	89.28224013	87.4855086	85.73266253	84.02235059
210217A00008	2/18/2021	0.63	8/15/2024	2/18/2021	99.122747	98.34626395	97.58188207	96.82931983	96.08830475	95.3585727	94.63986753	93.9319408	93.23455149
210217A00009	2/18/2021	0.68	11/15/2024	2/18/2021	98.997408	97.98157701	96.98643922	96.01136833	95.05576265	94.11904431	93.20065813	92.30007047	91.41676825
210218A00011	2/22/2021	0.85	10/24/2025	2/22/2021	99.007485	97.10336006	95.24513306	93.43141816	91.66088052	89.93223439	88.24424105	86.59570665	84.98548029
210218A00009	2/19/2021	0.62	7/15/2024	2/19/2021	99.183866	98.48878654	97.80340463	97.12751885	96.46093287	95.80345574	95.15490172	94.51509008	93.88384495
210218A00006	2/18/2021	0.5	2/20/2024	2/18/2021	99.666658	99.35958012	99.05439893	98.75109714	98.44965737	98.15006246	97.85229545	97.55633959	97.26217835
210218A00010	2/18/2021	1.72	2/18/2031	2/18/2021	102.36216	95.60264538	89.33546204	83.52226999	78.12789487	73.12005498	68.46910975	64.14783131	60.13119679
210219A00008	2/22/2021	0.86	12/1/2025	2/22/2021	99.038261	97.03466396	95.08107193	93.17590641	91.31765117	89.50484889	87.73609834	86.01005176	84.32541243
210219A00004	2/19/2021	0.91	2/19/2026	2/19/2021	99.174958	96.96221205	94.80919733	92.7139496	90.67458194	88.68928153	86.7563062	84.87398119	83.04069604
210224A00007	2/26/2021	0.68	10/21/2024	2/26/2021	99.050899	98.09948954	97.16623158	96.25060995	95.35212877	94.47031061	93.60469558	92.75484062	91.92031865
210224A00002	2/25/2021	0.88	11/3/2025	2/25/2021	99.067302	97.13706895	95.25389622	93.41634408	91.62302728	89.87261232	88.16381508	86.49539864	84.86617119
210224A00004	2/26/2021	0.91	12/18/2025	2/26/2021	99.145574	97.09770234	95.10170796	93.15592277	91.25874595	89.40864032	87.60412922	85.84379367	84.12626955
210224A00006	2/26/2021	0.88	10/21/2025	2/26/2021	99.067271	97.17008055	95.3184425	93.51098618	91.74639186	90.02338814	88.34074992	86.6972963	85.09188869
210224A00003	2/26/2021	0.9	12/3/2025	2/26/2021	99.121863	97.1123008	95.15297634	93.24230089	91.37874798	89.56085059	87.78719835	86.05643485	84.36725514
210225A00003	3/1/2021	0.93	9/24/2025	3/1/2021	99.163371	97.33375365	95.54653352	93.80048034	92.09440786	90.42717166	88.79766736	87.20482898	85.64762732
210225A00016	3/1/2021	0.88	7/15/2025	3/1/2021	99.061854	97.41587764	95.80467108	94.22719691	92.68245918	91.16950138	89.68740442	88.23528481	86.81229287
210225A00012	3/1/2021	0.91	8/25/2025	3/1/2021	99.11622	97.36516308	95.65309752	93.97891139	92.34153258	90.73992687	89.17309628	87.64007754	86.13994062
210225A00015	3/1/2021	0.7	8/26/2024	3/1/2021	99.152763	98.34732633	97.55489709	96.77516208	96.00781839	95.25257269	94.50914084	93.77724754	93.05662597
210225A00013	3/1/2021	0.93	10/6/2025	3/1/2021	99.165841	97.30540719	95.48877094	93.71464091	91.98177262	90.28896623	88.63506465	87.01895166	85.43955022
210225A00006	2/25/2021	0.98	2/25/2026	2/25/2021	99.344021	97.11243271	94.94149558	92.82922838	90.7737268	88.77315967	86.82576567	84.92985023	83.08378259
210225A00007	2/25/2021	1.79	8/23/2030	2/25/2021	102.97433	96.60995782	90.68102686	85.15555118	80.00405166	75.19934375	70.716348	66.53191711	62.62467809
210226A00002	2/26/2021	0.86	2/26/2025	2/26/2021	99.056105	97.77072366	96.5084629	95.26874125	94.05099628	92.85468404	91.67927837	90.52427008	89.38916635
210226A00004	3/1/2021	1.04	12/5/2025	3/1/2021	99.415176	97.39740289	95.43014615	93.51180486	91.64084106	89.81577683	88.03519145	86.29771875	84.60204449
210302A00005	3/5/2021	0.92	9/10/2025	3/5/2021	99.138981	97.34621589	95.59423452	93.88187548	92.20801765	90.57157866	88.97151329	87.40681198	85.87649932
210303A00006	3/4/2021	0.97	10/10/2025	3/4/2021	99.243496	97.37221825	95.54522289	93.76119744	92.01887702	90.31704239	88.65451801	87.03017009	85.44290488
210304A00006	3/4/2021	1.02	3/4/2026	3/4/2021	99.44256	97.19132711	95.00174085	92.87178643	90.79952613	88.78309613	86.82070327	84.91062194	83.05119117
210304A00002	3/5/2021	0.93	7/10/2025	3/5/2021	99.146637	97.51264555	95.91296541	94.3465798	92.81251236	91.30982507	89.83761633	88.39501917	86.98119956

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210305A00006	3/8/2021	1.02	8/11/2025	3/8/2021	99.310587	97.59351985	95.91396631	94.270817	92.66300583	91.08950749	89.54933556	88.04154059	86.56520837
210308A00009	3/8/2021	0.62	3/8/2024	3/8/2021	99.653654	99.30053024	98.94991106	98.60177009	98.25608103	97.91281797	97.57195535	97.23346799	96.89733104
210309A00002	3/11/2021	0.77	7/25/2024	3/11/2021	99.269047	98.54725178	97.83589972	97.13476558	96.44363054	95.76228198	95.09051328	94.42812358	93.77491761
210309A00004	3/11/2021	0.87	11/25/2024	3/11/2021	99.174235	98.13166551	97.11085676	96.11113331	95.13184777	94.17237904	93.23213092	92.31053093	91.4070291
210310A00003	3/15/2021	0.79	8/26/2024	3/15/2021	99.227182	98.42141035	97.62864923	96.84858606	96.08091788	95.3253513	94.58160209	93.84939491	93.12846285
210311A00007	3/11/2021	1.06	3/11/2026	3/11/2021	99.539348	97.26936151	95.06197868	92.91513842	90.82685924	88.79523581	86.81843563	84.89469572	83.02231964
210312A00008	3/12/2021	1.13	3/12/2026	3/12/2021	99.704654	97.43017497	95.21847533	93.06748631	90.97521905	88.9397612	86.95927354	85.03198676	83.15619838
210315A00003	3/15/2021	1.13	3/13/2026	3/15/2021	99.705339	97.42833563	95.21424562	93.06099376	90.96658497	88.929101	86.94669707	85.01759857	83.14009798
210318A00007	3/22/2021	1.41	3/21/2024	3/22/2021	99.924958	99.53605846	99.15018957	98.76731606	98.38740305	98.01041621	97.63632173	97.26508634	96.89667726
210319A00003	3/19/2021	0.95	3/19/2025	3/19/2021	99.170639	97.83038334	96.51442443	95.22216024	93.95300774	92.7064026	91.48179843	90.27866605	89.09649288
210324A00002	3/24/2021	2.06	3/24/2031	3/24/2021	104.77872	97.85420027	91.43808674	85.49043223	79.9746209	74.85707223	70.10697546	65.69604838	61.59831831
210324A00003	3/24/2021	1.18	3/24/2026	3/24/2021	99.832218	97.5260107	95.28423146	93.10473056	90.98544302	88.92438435	86.91964693	84.96939654	83.07186915
210330A00021	3/30/2021	2.16	3/28/2031	3/30/2021	105.49621	98.53704151	92.08893909	86.11172171	80.56855695	75.42566866	70.65206916	66.21931621	62.10129226
210330A00024	3/30/2021	0.68	3/29/2024	3/30/2021	99.615365	99.20561491	98.79922464	98.39615298	97.99635946	97.59980424	97.20644812	96.81625255	96.42917958
210330A00022	3/30/2021	1.27	3/30/2026	3/30/2021	100.0534	97.72940529	95.47071292	93.27513001	91.14055169	89.06495566	87.04639845	85.08301184	83.17299951
210407A00013	4/7/2021	1.23	4/7/2026	4/7/2021	99.966628	97.62303886	95.34587948	93.13290029	90.98194149	88.89092888	86.85786987	84.88084975	82.95802822
210407A00012	4/7/2021	0.94	4/7/2025	4/7/2021	99.150382	97.76129043	96.39823288	95.06054306	93.7475765	92.45871012	91.1933413	89.9508871	88.73078338
210420A00009	4/20/2021	1.08	12/5/2025	4/20/2021	99.498887	97.48021949	95.51208587	93.59288502	91.72107847	89.89518782	88.11379192	86.37552414	84.67906984
210420A00010	4/20/2021	1.08	12/12/2025	4/20/2021	99.503423	97.46691061	95.48169525	93.54613873	91.65866798	89.81777198	88.02199874	86.26995251	84.56029113
210518A00023	5/18/2021	1.17	5/18/2026	5/18/2021	99.862987	97.41549293	95.04002384	92.73403939	90.49510534	88.32088843	86.20915152	84.15774892	82.16462206
210525A00004	5/25/2021	1.02	12/19/2025	5/25/2021	99.380127	97.32716929	95.32624996	93.37569421	91.47389478	89.61930842	87.81045268	86.04590311	84.32429038
210526A00014	5/26/2021	1.01	12/19/2025	5/26/2021	99.358821	97.3060952	95.3054029	93.35506966	91.45348836	89.59911585	87.79046982	86.02612592	84.30471495
210526A00017	5/26/2021	2.13	5/26/2033	5/26/2021	105.62892	96.88228514	88.94039615	81.72475095	75.16488822	69.1975236	63.76578561	58.81853638	54.30976733
210526A00018	5/26/2021	1.11	5/26/2026	5/26/2021	99.717587	97.25169142	94.85878888	92.53628761	90.28170496	88.0926621	85.96687899	83.90216957	81.89643717
210610A00012	6/11/2021	1.9	6/10/2026	6/11/2021	101.78383	99.25201459	96.79580819	94.41249334	92.09946921	89.85424547	87.67443681	85.55775765	83.50201732
210610A00014	6/11/2021	2.03	6/10/2026	6/11/2021	102.1214	99.58514547	97.12459917	94.7370422	92.41987073	90.17059154	87.98681653	85.86625747	83.80672113
210611A00006	6/11/2021	1.85	6/11/2031	6/11/2021	103.25435	96.20332336	89.68446081	83.65485233	78.07525344	72.9097576	68.12549626	63.69236733	59.58278929
210616A00009	2/11/2022	0.86	2/11/2025	2/11/2022	99.030428	97.78697379	96.57027306	95.37946337	94.21371971	93.07225221	91.9543043	90.85915088	89.78609675
210616A00012	3/18/2022	0.9	3/18/2025	3/18/2022	99.101951	97.76474232	96.45173515	95.16233001	93.89594714	92.6520253	91.43002106	90.22940811	89.04967657
210616A00006	2/11/2022	0.86	2/11/2025	2/11/2022	99.030428	97.78697379	96.57027306	95.37946337	94.21371971	93.07225221	91.9543043	90.85915088	89.78609675
210616A00008	5/2/2022	0.95	5/2/2025	5/2/2022	99.16413	97.70944726	96.28322531	94.88470233	93.51314355	92.16783972	90.84810595	89.55328073	88.28272486
210616A00007	3/18/2022	0.9	3/18/2025	3/18/2022	99.101951	97.76474232	96.45173515	95.16233001	93.89594714	92.6520253	91.43002106	90.22940811	89.04967657
210616A00011	5/2/2022	0.95	5/2/2025	5/2/2022	99.16413	97.70944726	96.28322531	94.88470233	93.51314355	92.16783972	90.84810595	89.55328073	88.28272486

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210623A00026	6/23/2021	0.78	6/24/2024	6/23/2021	99.353337	98.71300234	98.08088476	97.45682686	96.84067534	96.23228072	95.63149729	95.03818296	94.45219917
210623A00028	6/23/2021	1.22	6/23/2026	6/23/2021	100.0358	97.49305498	95.02718976	92.63540558	90.31502667	88.06349263	85.87835252	83.7572594	81.69796507
210624A00025	6/24/2021	1.43	6/24/2027	6/24/2021	101.20613	97.71128398	94.35504907	91.13117109	88.03371153	85.05703355	82.19578473	79.44488087	76.7994909
210624A00005	6/24/2021	1.22	6/24/2026	6/24/2021	100.03716	97.49179278	95.02344054	92.62930105	90.30669148	88.05304482	85.86590391	83.74291595	81.68182724
210624A00004	6/24/2021	1.01	6/24/2025	6/24/2021	99.275157	97.68140255	96.12050131	94.59150154	93.09348827	91.62558149	90.18693448	88.77673216	87.39418967
210624A00026	6/24/2021	1.6	6/23/2028	6/24/2021	102.4852	98.0469618	93.825553	89.80924868	85.98701817	82.34848372	78.88387812	75.58400536	72.44020399
210624A00003	6/24/2021	0.78	6/24/2024	6/24/2021	99.353337	98.71300234	98.08088476	97.45682686	96.84067534	96.23228072	95.63149729	95.03818296	94.45219917
210629A00009	6/29/2021	1.14	12/31/2025	6/29/2021	99.645518	97.55918718	95.52628539	93.54507148	91.61387572	89.73109586	87.89519381	86.10469249	84.35817287
210629A00005	6/29/2021	1.25	6/29/2026	6/29/2021	100.12341	97.56385214	95.08203057	92.67510611	90.34035981	88.07519069	85.87710967	83.7437339	81.67278139
210629A00012	6/29/2021	1.14	12/29/2025	6/29/2021	99.643902	97.56266767	95.53463795	93.55808278	91.6313427	89.75282513	87.92100113	86.13440225	84.39161759
210629A00014	6/29/2021	1.78	12/28/2029	6/29/2021	103.21045	97.40258978	91.9580114	86.85212838	82.06214093	77.56689915	73.34677512	69.38354561	65.66028443
210629A00015	6/29/2021	1.89	6/27/2031	6/29/2021	103.55033	96.45118835	89.89026967	83.82396877	78.21243037	73.01920505	68.21094164	63.757109	59.62974405
210701A00007	7/1/2021	1.22	7/1/2026	7/1/2021	100.04628	97.48263721	94.99698906	92.58647956	90.24837612	87.98006495	85.77904494	83.64292198	81.56940346
210706A00015	7/6/2021	1.06	12/31/2025	7/6/2021	99.47248	97.38805816	95.35702596	93.37764405	91.44824378	89.56722394	87.73304743	85.94423814	84.19937796
210706A00014	7/6/2021	1.15	6/26/2026	7/6/2021	99.855109	97.3069571	94.83604472	92.43955391	90.11478944	87.85917265	85.67023549	83.54561496	81.48304775
210706A00006	7/6/2021	1.15	7/6/2026	7/6/2021	99.864343	97.29058899	94.79547538	92.37610738	90.02971773	87.75366019	85.54540324	83.40252418	81.3227036
210707A00002	7/7/2021	1.12	6/26/2026	7/7/2021	99.775917	97.2288234	94.75894515	92.36346491	90.0396882	87.78503705	85.59704409	83.47334695	81.41168297
210707A00008	7/9/2021	2.44	7/7/2031	7/9/2021	107.63321	100.360669	93.63779843	87.42007654	81.66681007	76.34078699	71.40796154	66.8371693	62.59986936
210709A00005	7/9/2021	1.69	7/9/2031	7/9/2021	102.06203	94.99084468	88.45896293	82.42248867	76.84131109	71.67876219	66.90130455	62.47824887	58.3814985
210709A00006	7/13/2021	2.4	7/11/2031	7/13/2021	107.34021	100.0693769	93.34899036	87.13440363	81.38481289	76.06290981	71.13456483	66.56854071	62.33623336
210712A00008	6/27/2022	1.05	6/27/2025	6/27/2022	99.343289	97.74101712	96.17187902	94.63491122	93.12918726	91.65381626	90.20794119	88.79073725	87.40141031
210712A00010	6/27/2022	1.05	6/27/2025	6/27/2022	99.343289	97.74101712	96.17187902	94.63491122	93.12918726	91.65381626	90.20794119	88.79073725	87.40141031
210714A00020	7/14/2021	0.9	3/14/2025	7/14/2021	99.104382	97.77736046	96.47419162	95.19428839	93.937083	92.70202568	91.48858399	90.29624216	89.12450041
210719A00009	7/19/2021	1.04	7/17/2026	7/19/2021	99.576092	96.97867409	94.46135579	92.02115939	89.65523963	87.36087715	85.13547184	82.97653664	80.88169173
210719A00004	7/19/2021	1	4/20/2026	7/19/2021	99.416549	97.04616793	94.74396791	92.50760574	90.33483321	88.22349261	86.17151249	84.17690359	82.23775512
210721A00009	7/21/2021	1.7	7/21/2031	7/21/2021	102.12765	95.02749896	88.47078066	82.41310604	76.81392717	71.63618922	66.84601231	62.41240408	58.30699955
210722A00008	7/21/2023	1.84	7/22/2030	7/21/2023	103.33869	97.03656265	91.16043169	85.67929923	80.56457632	75.78988742	71.33088766	67.16509616	63.27174391
210722A00009	7/21/2023	1.96	7/22/2032	7/21/2023	104.11501	96.11414233	88.79328687	82.09100597	75.95171643	70.32510091	65.16558381	60.43186187	56.08648343
210729A00006	7/29/2021	1.87	11/30/2032	7/29/2021	103.33187	95.07575655	87.54774308	80.67974798	74.41037931	68.6842486	63.45135601	58.6665414	54.28899369
210729A00003	7/29/2021	1.11	7/29/2026	7/29/2021	99.772626	97.14246503	94.59417549	92.12468144	89.73104622	87.41046467	85.16025619	82.97785806	80.86081939
210729A00004	7/29/2021	1.74	7/29/2031	7/29/2021	102.42111	95.29236995	88.71032954	82.63023213	77.01120696	71.81591223	67.01021294	62.56288985	58.44537616
210803A00005	8/5/2021	2.06	8/4/2026	8/5/2021	102.38372	99.70221902	97.1043378	94.58694331	92.14704049	89.78176753	87.48838881	85.26428832	83.1069635
210826A00009	8/26/2021	1.18	8/26/2026	8/26/2021	99.98643	97.28263501	94.66506596	92.13051645	89.67591732	87.29833023	84.99494134	82.7630552	80.60008917

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210826A00008	8/26/2021	0.89	2/26/2025	8/26/2021	99.095971	97.81031191	96.54777842	95.30778858	94.08977983	92.89320812	91.71754715	90.56228765	89.42693667
210826A00013	8/26/2021	1.97	2/28/2033	8/26/2021	104.20268	95.70810569	87.97966841	80.94417754	74.53577474	68.69516971	63.36895595	58.5090007	54.0719008
210907A00013	9/9/2021	2.14	9/9/2025	9/9/2021	101.40492	99.59315109	97.82245733	96.09167012	94.39966206	92.74534467	91.12766684	89.54561324	87.99820291
210907A00015	9/9/2021	2.21	9/9/2026	9/9/2021	102.92582	100.1439939	97.45163964	94.8454157	92.32212239	89.8786962	87.51220321	85.21983283	82.99889203
210907A00014	9/9/2021	2.45	9/9/2026	9/9/2021	103.60771	100.8160916	98.11418759	95.4986427	92.96624995	90.51393881	88.13876855	85.83792213	83.60870024
210907A00011	9/7/2021	2.65	9/6/2041	9/7/2021	113.42241	98.31145821	85.54100428	74.72772828	65.55333671	57.75321881	51.10713266	45.43154739	40.57334035
210907A00004	9/7/2021	2.01	9/7/2033	9/7/2021	104.49696	95.57752067	87.50138455	80.18421583	73.55051113	67.53263468	62.06996341	57.1081287	52.5983434
210907A00006	9/7/2021	2.1	9/7/2034	9/7/2021	105.03013	95.31187282	86.59267557	78.76414569	71.73016415	65.4054443	59.71426295	54.58934561	49.97088636
210907A00008	9/7/2021	2.42	9/7/2038	9/7/2021	107.39373	94.6989276	83.70655201	74.17626375	65.90289611	58.71114792	52.45110089	46.99442857	42.23118757
210907A00009	9/7/2021	2.5	9/7/2039	9/7/2021	109.08582	95.61061468	84.03916255	74.08801141	65.51743178	58.1244731	51.73715161	46.20958133	41.41789127
210907A00007	9/7/2021	2.35	9/4/2037	9/7/2021	106.41839	94.4676453	84.02916365	74.90156385	66.9112888	59.90864067	53.76439411	48.36690442	43.61963646
210907A00010	9/7/2021	2.58	9/7/2040	9/7/2021	111.22656	96.93678498	84.7645103	74.37852669	65.50128169	57.89994002	51.37896816	45.77398025	40.94662569
210914A00015	9/14/2021	0.81	9/15/2025	9/14/2021	99.153167	97.34317186	95.57469396	93.84654111	92.15756306	90.50664969	88.89272934	87.31476719	85.77176381
210914A00018	9/14/2021	1.43	9/14/2029	9/14/2021	102.01775	96.47013922	91.25674742	86.35580137	81.74705178	77.41165762	73.33208153	69.4919935	65.87618212
210914A00014	9/14/2021	0.97	9/14/2026	9/14/2021	99.739771	96.98307717	94.31596868	91.73507303	89.23716273	86.81914858	84.47807296	82.21110348	80.01552697
210914A00017	9/14/2021	1.32	9/14/2028	9/14/2021	101.7798	97.13523605	92.72808127	88.54503573	84.57360949	80.80206926	77.21938883	73.81520305	70.57976497
210914A00012	9/14/2021	1.18	9/14/2027	9/14/2021	100.83627	97.130498	93.57993497	90.17731242	86.9157369	83.78867093	80.78991266	77.91357701	75.15407783
210916A00008	9/16/2021	1.48	9/15/2028	9/16/2021	101.97868	97.34507585	92.94787447	88.77384833	84.8105768	81.04639076	77.47032344	74.07206479	70.8419189
210916A00009	9/16/2021	2.25	9/16/2036	9/16/2021	105.52092	94.2955135	84.40728217	75.68857977	67.99359955	61.1954342	55.18354194	49.86156309	45.14543712
210916A00003	9/16/2021	0.75	9/16/2024	9/16/2021	99.16955	98.30889543	97.46309246	96.63175898	95.81452631	95.01103819	94.22095028	93.44392965	92.67965433
210917A00012	9/17/2021	1.2	9/11/2026	9/17/2021	100.05831	97.31247816	94.65544361	92.08388223	89.59460829	87.18457194	84.85085262	82.5906529	80.40129259
210917A00004	9/17/2021	1.03	9/17/2025	9/17/2021	99.348405	97.53530724	95.76383238	94.03278392	92.34100745	90.68738887	89.07085271	87.4903605	85.94490933
210917A00003	9/17/2021	0.8	9/17/2024	9/17/2021	99.212048	98.34857697	97.50004941	96.66608018	95.84629724	95.04034114	94.24786448	93.46853143	92.70201721
210920A00014	9/9/2022	1.28	9/9/2026	9/9/2022	100.28352	97.53961512	94.88426635	92.31416107	89.82612806	87.41713111	85.08426249	82.82473682	80.63588522
210920A00015	9/9/2022	1.28	9/9/2026	9/9/2022	100.28352	97.53961512	94.88426635	92.31416107	89.82612806	87.41713111	85.08426249	82.82473682	80.63588522
210928A00010	9/28/2021	1.12	9/26/2025	9/28/2021	99.525888	97.68750329	95.89181401	94.13757876	92.42360007	90.74872277	89.11183227	87.5118528	85.94774581
210928A00008	9/28/2021	1.35	9/28/2026	9/28/2021	100.5099	97.71362251	95.00907379	92.39276725	89.86136612	87.41167814	85.04064849	82.74535306	80.52299213
210928A00007	9/28/2021	0.88	9/27/2024	9/28/2021	99.276839	98.38680788	97.51263431	96.65389736	95.81019135	94.9811247	94.16631931	93.36541001	92.57804398
210928A00009	9/28/2021	2.18	9/28/2033	9/28/2021	106.08536	97.04602408	88.8637385	81.45244931	74.73515625	68.64291815	63.1139731	58.09295858	53.53021968
210929A00011	3/16/2022	1.03	3/14/2025	3/16/2022	99.282786	97.95448507	96.65005847	95.36891857	94.110497	92.87424347	91.65962502	90.46612534	89.29324417
210929A00012	3/16/2022	1.03	3/14/2025	3/16/2022	99.282786	97.95448507	96.65005847	95.36891857	94.110497	92.87424347	91.65962502	90.46612534	89.29324417
211014A00018	10/14/2021	0.8	10/11/2024	10/14/2021	99.306852	98.37840947	97.46721841	96.572802	95.69470057	94.83247112	93.98568654	93.15393494	92.33681897
211015A00029	10/15/2021	0.98	10/15/2024	10/15/2021	99.35313	98.41572778	97.49591235	96.59319215	95.7070942	94.83716283	93.98295889	93.14405902	92.32005492

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
211015A00031	10/15/2021	1.22	10/15/2025	10/15/2021	99.732783	97.84401352	96.00021167	94.20003542	92.44219213	90.72543615	89.04856677	87.41042626	85.80989804
211019A00011	10/19/2021	1.48	10/16/2026	10/19/2021	100.91134	98.06410686	95.31169572	92.65044407	90.07685006	87.58756614	85.17939133	82.84926395	80.59425472
211019A00009	10/19/2021	1.48	10/9/2026	10/19/2021	100.90177	98.0721336	95.33616932	92.69027853	90.13102246	87.65511286	85.25940448	82.94088808	80.6966837
211026A00013	10/26/2021	1.52	10/26/2026	10/26/2021	101.04371	98.16957758	95.39196631	92.70711761	90.11143708	87.60149019	85.17399416	82.82581037	80.55393718
211026A00012	10/26/2021	1.52	10/26/2026	10/26/2021	101.04371	98.16957758	95.39196631	92.70711761	90.11143708	87.60149019	85.17399416	82.82581037	80.55393718
211028A00012	10/28/2021	1.64	10/15/2027	10/28/2021	102.21062	98.41296285	94.77696565	91.29492226	87.95953228	84.76387935	81.701409	78.7659077	75.95148336
211028A00013	10/28/2021	1.65	10/22/2027	10/28/2021	102.26314	98.44719517	94.79440584	91.2969595	87.94745659	84.73888869	81.66461579	78.71834493	75.89411017
211028A00020	10/28/2021	2.05	1/28/2031	10/28/2021	104.68219	97.89376852	91.59425	85.74585104	80.31389736	75.2665539	70.57457804	66.2110954	62.15139631
211028A00019	10/28/2021	1.1	10/28/2024	10/28/2021	99.464977	98.49305349	97.54000576	96.60528831	95.68837673	94.78876644	93.90597176	93.039525	92.18897571
211028A00021	10/28/2021	2.28	10/28/2033	10/28/2021	107.0199	97.87334029	89.59911452	82.10904932	75.32431305	69.17438252	63.59612933	58.53301082	53.93435306
211115A00032	11/15/2021	1.75	11/12/2027	11/15/2021	102.70814	98.83011953	95.11982176	91.56911816	88.17031613	84.91613508	81.79968209	78.81442913	75.9541917
211117A00010	11/17/2021	1.18	11/18/2024	11/17/2021	99.517451	98.49096837	97.48553525	96.50050999	95.53527644	94.58924303	93.66184156	92.75252605	91.86077165
211117A00009	11/17/2021	0.84	11/17/2023	11/17/2021	99.968195	99.92113008	99.87412594	99.82718219	99.78029872	99.73347541	99.68671214	99.64000878	99.59336523
211119A00009	11/19/2021	1.68	11/19/2027	11/19/2021	102.44658	98.55568328	94.8337516	91.27256606	87.86434855	84.60173938	81.47777236	78.48585155	75.61972958
211123A00010	11/23/2021	0.94	11/24/2023	11/23/2021	99.961771	99.89534732	99.82902162	99.76279397	99.69666415	99.63063195	99.56469715	99.49885955	99.43311892
211123A00011	11/23/2021	1.69	11/23/2026	11/23/2021	101.616	98.66050334	95.80612114	93.04882814	90.38478567	87.81032994	85.32196298	82.91634399	80.59028137
211123A00012	11/23/2021	2.27	11/23/2033	11/23/2021	106.9285	97.72890035	89.41217479	81.88855478	75.07783485	68.90831218	63.31584604	58.24302565	53.63843318
211129A00011	11/29/2021	1.53	11/20/2026	11/29/2021	101.12293	98.18283036	95.34319118	92.60001782	89.94950302	87.38801257	84.91207633	82.51837979	80.20375606
211129A00012	11/29/2021	1.53	11/25/2026	11/29/2021	101.13344	98.18011962	95.32803593	92.57315237	89.91161942	87.33976326	84.85407661	82.4512101	80.12796416
211206A00008	12/6/2021	1.24	12/6/2024	12/6/2021	99.557495	98.48444706	97.43438591	96.40657971	95.40032724	94.41495648	93.44982307	92.50430892	91.57782088
211206A00009	12/6/2021	1.43	12/5/2025	12/6/2021	100.23136	98.20486474	96.22905849	94.30233643	92.42315578	90.59003403	88.80154605	87.05632135	85.35304161
211206A00017	12/6/2021	1.56	12/4/2026	12/6/2021	101.24327	98.26512076	95.38964888	92.61273644	89.93045569	87.33905951	84.83497193	82.41477913	80.07522108
211207A00012	12/7/2021	1.62	12/4/2026	12/7/2021	101.42758	98.44657258	95.56832097	92.78869931	90.10377749	87.50980614	85.0032071	82.58056449	80.23861629
211207A00017	12/7/2021	1.3	11/15/2024	12/7/2021	99.647443	98.62797313	97.62924844	96.65064108	95.69154818	94.75139072	93.82961241	92.92567855	92.03907501
211207A00011	12/7/2021	1.62	12/1/2026	12/7/2021	101.42147	98.44813086	95.57707739	92.8042137	90.12563554	87.53761775	85.03660485	82.61920221	80.28216771
211209A00007	12/9/2021	1.61	12/8/2026	12/9/2021	101.4049	98.41415269	95.52677451	92.73860289	90.04567346	87.44420483	84.93058885	82.50138154	80.15329455
211209A00006	12/9/2021	1.61	12/8/2026	12/9/2021	101.4049	98.41415269	95.52677451	92.73860289	90.04567346	87.44420483	84.93058885	82.50138154	80.15329455
211210A00015	12/10/2021	1.63	12/10/2026	12/10/2021	101.47067	98.47386063	95.58075329	92.78717119	90.08913178	87.48283663	84.96466164	82.53114785	80.17899287
211210A00014	12/10/2021	1.54	12/10/2025	12/10/2021	100.47102	98.42918028	96.43863133	94.49773532	92.60492339	90.75868835	88.95758171	87.20021096	85.48523688
211210A00016	12/10/2021	1.76	12/10/2027	12/10/2021	102.81959	98.86778685	95.08942053	91.47595907	88.01933653	84.71192624	81.54651427	78.51627468	75.61474645
211213A00011	12/13/2021	1.32	12/13/2024	12/13/2021	99.637423	98.5459454	97.47824146	96.43354103	95.41110723	94.41023433	93.43024617	92.4704946	91.53035803
211213A00010	12/13/2021	1.02	12/13/2023	12/13/2021	99.939835	99.82103136	99.70252634	99.58431835	99.46640624	99.34878885	99.23146503	99.11443364	98.99769353
211214A00013	12/14/2021	1.02	12/14/2023	12/14/2021	99.93837	99.81681525	99.69557223	99.57463966	99.45401629	99.3337009	99.21369227	99.09398917	98.97459039

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
211214A00014	12/14/2021	1.31	12/13/2024	12/14/2021	99.626175	98.53476471	97.46712688	96.42249157	95.40012191	94.39931221	93.41938634	92.45969615	91.51962009
211214A00015	12/14/2021	1.49	12/12/2025	12/14/2021	100.36921	98.32336441	96.32900082	94.38447738	92.48821589	90.63870035	88.83447399	87.07413648	85.35634119
211220A00005	12/20/2021	0.97	12/20/2023	12/20/2021	99.922654	99.78460517	99.646952	99.50969281	99.37282588	99.23634949	99.10026194	98.96456154	98.82924659
211220A00006	12/20/2021	1.21	12/20/2024	12/20/2021	99.503081	98.39447275	97.31041003	96.25008559	95.21272681	94.19759427	93.20397997	92.23120572	91.27862155
211221A00010	12/21/2021	1.31	12/20/2024	12/21/2021	99.617466	98.50816451	97.42341931	96.36242279	95.32440207	94.30861746	93.31436074	92.34095347	91.38774543
211221A00023	12/21/2021	1.53	6/19/2026	12/21/2021	100.84283	98.2998032	95.83335058	93.44069226	91.11917318	88.86625222	86.67949648	84.55657576	82.49525754
211221A00025	12/21/2021	1.59	12/21/2026	12/21/2021	101.36868	98.34573646	95.42818017	92.6117305	89.89231016	87.26603208	84.72918925	82.27824511	79.90982455
211222A00035	12/22/2021	2.15	12/22/2033	12/22/2021	105.77193	96.56530816	88.2496759	80.7337728	73.93612724	67.78396438	62.21223762	57.16277227	52.58350808
211227A00005	12/27/2021	1.61	12/18/2026	12/27/2021	101.42499	98.40872584	95.49739536	92.68675014	89.97273849	87.35149727	84.81934183	82.37275655	80.00838591
211227A00009	12/27/2021	1.6	12/23/2026	12/27/2021	101.40382	98.37528696	95.45247071	92.63107099	89.90699243	87.27633107	84.73536404	82.28053994	79.90846976
200428A00002	4/28/2020	1.47	4/26/2030	4/28/2020	101.83608	95.75629249	90.07702259	84.76989066	79.80866342	75.16908267	70.8287072	66.766768	62.96403579
220106A00008	1/6/2022	2.5	1/5/2035	1/6/2022	109.04233	98.8669604	89.75834896	81.59815179	74.28174618	67.71657634	61.82070546	56.52154807	51.75475946
220106A00009	1/6/2022	2.57	1/4/2036	1/6/2022	109.51526	98.56275705	88.8458493	80.2172393	72.54793881	65.72490579	59.64899913	54.23320473	49.40109597
220106A00007	1/6/2022	2.42	1/6/2034	1/6/2022	108.36589	99.0028756	90.54551117	82.90091004	75.98617507	69.72727584	64.05805872	58.91937199	54.25829208
220106A00011	1/6/2022	2.7	1/6/2038	1/6/2022	110.89558	98.42368645	87.55155037	78.06253215	69.7704743	62.51527151	56.15910302	50.58322643	45.68524678
220106A00010	1/6/2022	2.64	1/6/2037	1/6/2022	110.10369	98.38559076	88.08147886	79.01119145	71.01845555	63.96760591	57.74077172	52.23545988	47.36247701
220106A00013	1/6/2022	2.75	1/6/2039	1/6/2022	112.03254	98.79770509	87.3579823	77.4561944	68.87341204	61.42308305	54.94609135	49.30659154	44.38849411
220111A00002	1/11/2022	1.75	1/16/2026	1/11/2022	101.0035	98.86142047	96.77495909	94.74227629	92.76160557	90.83125338	88.94959537	87.11507296	85.32619005
220112A00008	1/12/2022	1.47	11/20/2024	1/12/2022	99.822671	98.7893004	97.77721511	96.78576289	95.81431794	94.86227958	93.92907092	93.01413776	92.11694745
220114A00010	1/14/2022	1.86	1/13/2027	1/14/2022	102.2717	99.17655476	96.19088219	93.31016558	90.53010455	87.8466033	85.25575935	82.753853	80.33733751
220114A00009	1/14/2022	1.74	4/21/2026	1/14/2022	101.23913	98.8433961	96.51648614	94.25603762	92.05978062	89.92553666	87.85121439	85.83480557	83.8743812
220114A00007	1/14/2022	1.7	1/27/2026	1/14/2022	100.91824	98.74913614	96.63694773	94.57977007	92.57577526	90.62321188	88.72040115	86.86573313	85.05766328
220119A00009	1/19/2022	1.35	1/19/2024	1/19/2022	99.956265	99.73588712	99.51649318	99.29807697	99.0806319	98.86415142	98.64862908	98.43405844	98.22043316
220121A00014	1/21/2022	1.78	11/3/2025	1/21/2022	100.87301	98.92424596	97.02289899	95.1675233	93.35672385	91.58915765	89.86353148	88.17859964	86.53316184
220121A00013	1/21/2022	1.78	11/3/2025	1/21/2022	100.87301	98.92424596	97.02289899	95.1675233	93.35672385	91.58915765	89.86353148	88.17859964	86.53316184
220124A00007	1/24/2022	1.88	1/22/2027	1/24/2022	102.35971	99.24050242	96.23229924	93.3304861	90.53067552	87.82869038	85.22055221	82.70247026	80.27083132
220124A00008	1/24/2022	1.88	1/22/2027	1/24/2022	102.35971	99.24050242	96.23229924	93.3304861	90.53067552	87.82869038	85.22055221	82.70247026	80.27083132
220125A00008	1/25/2022	1.31	1/26/2024	1/25/2022	99.941836	99.70233528	99.46398701	99.226783	98.99071499	98.75577483	98.52195442	98.28924575	98.0576409
220126A00002	1/26/2022	1.9	12/18/2026	1/26/2022	102.32667	99.29627966	96.3711902	93.54713795	90.82005939	88.18608004	85.64150436	83.18280629	80.80662031
220126A00003	1/26/2022	1.9	12/18/2026	1/26/2022	102.32667	99.29627966	96.3711902	93.54713795	90.82005939	88.18608004	85.64150436	83.18280629	80.80662031
220131A00006	1/31/2022	1.83	2/1/2027	1/31/2022	102.61084	99.45266091	96.40783227	93.47161148	90.63948447	87.90715524	85.27053368	82.72572414	80.26901478
220131A00003	1/31/2022	1.98	2/1/2027	1/31/2022	102.71085	99.56051058	96.52301652	93.59365452	90.76793781	88.04159599	85.410563	82.87096578	80.41911373
220131A00011	1/31/2022	1.52	1/31/2024	1/31/2022	99.991395	99.73814456	99.48617135	99.23546605	98.98601915	98.73782123	98.49086297	98.24513513	98.00062857

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220201A00011	2/1/2022	1.86	4/20/2026	2/1/2022	101.5317	99.13491125	96.80688557	94.5452588	92.34776596	90.21223317	88.13657339	86.11878244	84.15693508
220203A00009	2/3/2022	1.99	2/2/2027	2/3/2022	102.74721	99.5934661	96.55277838	93.62042569	90.79191329	88.06296296	85.42950088	82.88764641	80.43370152
220204A00005	2/4/2022	1.83	1/10/2025	2/4/2022	100.21991	99.05303812	97.91321298	96.79950426	95.71102242	94.64691793	93.60637902	92.58862959	91.59292732
220204A00004	2/4/2022	2.08	1/8/2027	2/4/2022	102.95479	99.86134929	96.87683774	93.9967841	91.21692593	88.53320263	85.9417444	83.43886188	81.02103653
220209A00012	2/9/2022	1.98	7/29/2025	2/9/2022	100.97978	99.28097229	97.61858377	95.99151075	94.39869209	92.83910956	91.31178563	89.81578139	88.3501946
220209A00010	2/9/2022	2.14	1/11/2027	2/9/2022	103.15495	100.0507265	97.05601583	94.16630856	91.37731109	88.68493366	86.08527917	83.57463269	81.14945166
220209A00013	2/9/2022	1.98	7/29/2025	2/9/2022	100.97978	99.28097229	97.61858377	95.99151075	94.39869209	92.83910956	91.31178563	89.81578139	88.3501946
220209A00011	2/9/2022	2.14	1/11/2027	2/9/2022	103.15495	100.0507265	97.05601583	94.16630856	91.37731109	88.68493366	86.08527917	83.57463269	81.14945166
220214A00010	2/14/2022	2.46	12/21/2029	2/14/2022	107.30411	101.3904996	95.84361227	90.63876574	85.75306434	81.16526184	76.85563404	72.80586199	68.99892472
220214A00012	2/14/2022	2.47	12/28/2029	2/14/2022	107.36639	101.4340701	95.87055508	90.65095876	85.75220341	81.15287809	76.83310956	72.77444401	68.95973835
220216A00003	2/16/2022	2.49	12/14/2029	2/16/2022	107.4817	101.5796625	96.04259211	90.84598747	85.96711832	81.38488754	77.07970537	73.03337407	69.22898195
220216A00002	2/16/2022	2.09	2/14/2025	2/16/2022	100.62991	99.3672256	98.13074522	96.91965839	95.73318685	94.57058432	93.43113489	92.3141514	91.21897405
220217A00015	2/17/2022	2.28	2/16/2027	2/17/2022	103.75234	100.5426953	97.44930244	94.467315	91.59211769	88.81931344	86.14471162	83.56431712	81.07431997
220217A00012	2/17/2022	2.28	2/16/2027	2/17/2022	103.75234	100.5426953	97.44930244	94.467315	91.59211769	88.81931344	86.14471162	83.56431712	81.07431997
220217A00016	2/17/2022	2.24	9/15/2026	2/17/2022	103.03407	100.2349651	97.52635272	94.90483338	92.36715495	89.91020439	87.53100107	85.22669037	82.99453764
220217A00018	2/17/2022	2.28	2/17/2027	2/17/2022	103.75718	100.5446325	97.44853735	94.46404006	91.58651754	88.811565	86.13498425	83.55277272	81.06111316
220217A00013	2/17/2022	2.08	2/14/2025	2/17/2022	100.61695	99.35435158	98.11795788	96.9069563	95.72056859	94.55804854	93.41868025	92.30177662	91.20667787
220217A00017	2/17/2022	2.27	1/29/2027	2/17/2022	103.63514	100.4776613	97.43289652	94.49614437	91.66293177	88.92900125	86.29029886	83.74296297	81.28331366
220217A00011	2/17/2022	2.08	2/14/2025	2/17/2022	100.61695	99.35435158	98.11795788	96.9069563	95.72056859	94.55804854	93.41868025	92.30177662	91.20667787
220217A00020	2/17/2022	2.08	2/13/2025	2/17/2022	100.61192	99.35216124	98.1188495	96.91115384	95.72827881	94.56946205	93.43397259	92.32110918	91.23019884
220218A00003	2/18/2022	2.16	9/4/2026	2/18/2022	102.76566	99.99922425	97.32139282	94.7288697	92.2184994	89.78726004	87.43225698	85.15071677	82.93998136
220222A00018	2/22/2022	2.5	12/19/2031	2/22/2022	108.31491	100.6348013	93.56450227	87.05224587	81.05091758	75.51761374	70.41324501	65.7021789	61.3519177
220224A00010	2/24/2022	2.04	3/10/2025	2/24/2022	100.65889	99.33101183	98.02682693	96.74575504	95.48723528	94.25072452	93.03569665	91.8416419	90.66806625
220224A00018	2/24/2022	2.15	3/16/2026	2/24/2022	102.1199	99.80632522	97.55668365	95.36886468	93.24083676	91.17064687	89.15641697	87.19634071	85.28868022
220224A00023	2/24/2022	2.15	3/16/2026	2/24/2022	102.1199	99.80632522	97.55668365	95.36886468	93.24083676	91.17064687	89.15641697	87.19634071	85.28868022
220225A00014	2/25/2022	2.42	2/23/2029	2/25/2022	106.85494	101.6959383	96.81896494	92.20715765	87.84474591	83.71697515	79.81003621	76.11100013	72.60775771
220225A00015	2/25/2022	2.26	2/25/2027	2/25/2022	103.73002	100.4953514	97.37871178	94.3751858	91.4800885	88.68895383	85.99752327	83.401735	80.89771374
220301A00015	3/1/2022	2	1/4/2027	3/1/2022	102.68942	99.61030108	96.6393471	93.77212688	91.00441929	88.33220238	85.75164256	83.25908442	80.85104123
220301A00013	3/1/2022	2.01	2/16/2027	3/1/2022	102.8695	99.67437957	96.59511959	93.62688971	90.76508765	88.00532879	85.34343442	82.77542085	80.29748908
220301A00014	3/1/2022	1.85	1/10/2025	3/1/2022	100.24393	99.07690623	97.93693132	96.82307522	95.73444833	94.67020106	93.62952156	92.6116337	91.61579509
220302A00010	3/2/2022	2.14	1/13/2027	3/2/2022	103.16177	100.0523797	97.05283641	94.1586098	91.36538715	88.66906088	86.06571722	83.55162568	81.12322912
220302A00011	3/2/2022	2.14	1/13/2027	3/2/2022	103.16177	100.0523797	97.05283641	94.1586098	91.36538715	88.66906088	86.06571722	83.55162568	81.12322912
220304A00004	3/4/2022	2.12	12/29/2028	3/4/2022	105.22177	100.2483864	95.54036568	91.0821493	86.85917532	82.85780797	79.06527359	75.46960147	72.05956898

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220308A00011	3/8/2022	2.07	1/10/2025	3/8/2022	100.50816	99.33945541	98.19783306	97.08235581	95.99213335	94.92631542	93.88408952	92.8646789	91.86734056
220309A00010	3/9/2022	2.27	3/8/2027	3/9/2022	103.80747	100.5428515	97.39833944	94.36890209	91.44974583	88.63630155	85.92421295	83.30932552	80.78767612
220311A00013	3/15/2022	2.35	3/15/2027	3/15/2022	104.10115	100.8139234	97.64819937	94.59886784	91.6610567	88.83012321	86.10164199	83.47139367	80.93535421
220311A00008	3/11/2022	2.07	3/11/2024	3/11/2022	100.1744	99.81198923	99.4522092	99.09503008	98.74042363	98.388362	98.03881776	97.69176387	97.34717366
220314A00004	3/14/2022	2.44	3/12/2027	3/14/2022	104.38928	101.1048084	97.94142809	94.89405655	91.95784901	89.12818829	86.40067284	83.77110557	81.23548325
220314A00005	3/14/2022	2.36	3/14/2025	3/14/2022	101.108	99.76660609	98.44931163	97.15551956	95.88465567	94.63616403	93.40950628	92.20416091	91.01962263
220314A00008	3/14/2022	2.38	7/28/2025	3/14/2022	101.67334	99.97087491	98.3048459	96.67414909	95.07772448	93.51455487	91.98366364	90.4841127	89.01500055
220314A00006	3/14/2022	2.36	3/14/2025	3/14/2022	101.108	99.76660609	98.44931163	97.15551956	95.88465567	94.63616403	93.40950628	92.20416091	91.01962263
220314A00007	3/14/2022	2.44	3/12/2027	3/14/2022	104.38928	101.1048084	97.94142809	94.89405655	91.95784901	89.12818829	86.40067284	83.77110557	81.23548325
220314A00009	3/14/2022	2.38	7/28/2025	3/14/2022	101.67334	99.97087491	98.3048459	96.67414909	95.07772448	93.51455487	91.98366364	90.4841127	89.01500055
220315A00014	3/15/2022	2.78	3/15/2032	3/15/2022	110.70166	102.7240246	95.39406974	88.65559901	82.45756863	76.7535877	71.50147269	66.66284652	62.20277767
220315A00015	3/15/2022	3.18	3/13/2037	3/15/2022	116.71876	104.4598652	93.68371711	84.20016374	75.84445955	68.47374998	61.96405998	56.20770998	51.11109677
220315A00018	3/15/2022	2.43	3/15/2027	3/15/2022	104.36851	101.0767875	97.90669367	94.85311032	91.91116121	89.07619963	86.34379642	83.70972856	81.16996856
220315A00036	3/17/2022	2.63	3/16/2027	3/17/2022	105.04162	101.7360517	98.55259783	95.48612239	92.53172805	89.68474818	86.9407347	84.2954467	81.7448397
220315A00037	3/17/2022	2.63	3/16/2027	3/17/2022	105.04162	101.7360517	98.55259783	95.48612239	92.53172805	89.68474818	86.9407347	84.2954467	81.7448397
220315A00021	3/15/2022	2.15	3/15/2024	3/15/2022	100.20847	99.83514426	99.46460698	99.09682854	98.73177808	98.3694252	98.00973997	97.65269286	97.29825483
220317A00028	5/3/2022	2.59	5/3/2027	5/3/2022	105.13769	101.7064561	98.4065168	95.23214576	92.17789601	89.23858702	86.40929014	83.68531488	81.06219605
220317A00011	3/17/2022	2.48	3/17/2025	3/17/2022	101.28373	99.93334266	98.60733181	97.30509804	96.02605758	94.76964533	93.53531412	92.32253404	91.13079171
220317A00023	5/3/2022	2.52	5/2/2025	5/3/2022	101.52761	100.0544558	98.61008079	97.19371666	95.80462029	94.4420743	93.10538605	91.79388648	90.50692917
220317A00026	5/3/2022	2.59	5/3/2027	5/3/2022	105.13769	101.7064561	98.4065168	95.23214576	92.17789601	89.23858702	86.40929014	83.68531488	81.06219605
220317A00027	5/3/2022	2.59	5/3/2027	5/3/2022	105.13769	101.7064561	98.4065168	95.23214576	92.17789601	89.23858702	86.40929014	83.68531488	81.06219605
220323A00016	6/2/2022	2.78	6/2/2025	6/2/2022	102.07507	100.5165277	98.98929438	97.49249655	96.02528894	94.58685737	93.17641722	91.79321213	90.43651273
220323A00017	6/2/2022	2.78	6/2/2025	6/2/2022	102.07507	100.5165277	98.98929438	97.49249655	96.02528894	94.58685737	93.17641722	91.79321213	90.43651273
220324A00015	3/24/2022	2.79	3/3/2026	3/24/2022	103.56658	101.2690016	99.03397522	96.85945864	94.74349077	92.68418516	90.67972682	88.72836905	86.82843048
220324A00007	3/24/2022	2.72	3/24/2025	3/24/2022	101.64542	100.2743376	98.92829912	97.60667807	96.30886816	95.03428277	93.78235414	92.55253257	91.34428576
220325A00010	3/28/2022	2.78	3/21/2025	3/28/2022	101.71589	100.3520395	99.01297935	97.69808838	96.40676924	95.13844389	93.89255276	92.668554	91.46592285
220325A00015	3/28/2022	2.86	3/23/2027	3/28/2022	105.84826	102.5112757	99.29806202	96.20338571	93.2222619	90.34994167	87.58189959	84.91382203	82.34159611
220325A00011	3/28/2022	2.79	4/25/2025	3/28/2022	101.89918	100.4416263	99.01224011	97.61028136	96.23503063	94.88579323	93.56189809	92.26269678	90.98756249
220325A00012	3/28/2022	2.85	3/23/2026	3/28/2022	103.81279	101.4608808	99.1742995	96.95087216	94.78851043	92.68520723	90.6390331	88.64813275	86.71072174
220325A00017	3/28/2022	2.86	3/23/2027	3/28/2022	105.84826	102.5112757	99.29806202	96.20338571	93.2222619	90.34994167	87.58189959	84.91382203	82.34159611
220325A00018	3/28/2022	2.85	9/10/2026	3/28/2022	104.74965	101.9390041	99.2186271	96.58514748	94.03533743	91.56610652	89.17449513	86.85766811	84.61290895
220325A00019	3/28/2022	2.86	3/23/2027	3/28/2022	105.84826	102.5112757	99.29806202	96.20338571	93.2222619	90.34994167	87.58189959	84.91382203	82.34159611
220325A00020	3/28/2022	2.86	3/23/2027	3/28/2022	105.84826	102.5112757	99.29806202	96.20338571	93.2222619	90.34994167	87.58189959	84.91382203	82.34159611

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220329A00007	3/29/2022	2.94	3/29/2029	3/29/2022	109.6629	104.3450389	99.32136147	94.57406082	90.08649302	85.84309889	81.82932792	78.03156794	74.43708008
220329A00009	3/29/2022	2.94	3/29/2029	3/29/2022	109.6629	104.3450389	99.32136147	94.57406082	90.08649302	85.84309889	81.82932792	78.03156794	74.43708008
220331A00004	3/31/2022	2.66	5/20/2024	3/31/2022	100.53057	99.97896745	99.43341467	98.89381587	98.36007383	97.83209345	97.30978166	96.79304739	96.28180154
220331A00003	3/31/2022	2.66	5/17/2024	3/31/2022	100.52954	99.98590199	99.44814444	98.91617331	98.38989543	97.86921958	97.35405651	96.84431885	96.33992108
220331A00012	3/31/2022	2.81	3/17/2025	3/31/2022	101.7393	100.3856194	99.05637901	97.75096984	96.46880669	95.20932303	93.97197036	92.75621744	91.56154964
220331A00010	3/31/2022	2.83	2/18/2026	3/31/2022	103.58042	101.3190309	99.11830716	96.97625439	94.89095767	92.86057754	90.88334644	88.95756541	87.08160084
220331A00011	3/31/2022	2.73	10/15/2024	3/31/2022	101.03971	100.0935635	99.16511885	98.25388158	97.35937627	96.48114489	95.61874602	94.77175406	93.93975856
220404A00014	4/4/2022	2.94	4/5/2027	4/4/2022	106.19073	102.8144163	99.56447815	96.43552466	93.42242006	90.5202742	87.72442935	85.0304479	82.43410074
220404A00010	4/4/2022	2.93	4/2/2027	4/4/2022	106.13942	102.7718582	99.53006783	96.40869235	93.40263207	90.50703052	87.71726148	85.02891681	82.437795
220408A00012	4/8/2022	3.12	6/29/2026	4/8/2022	105.07481	102.4488778	99.90221736	97.43193378	95.03526227	92.70955779	90.45228895	88.26103217	86.1334663
220408A00013	4/8/2022	3.15	1/14/2027	4/8/2022	106.37849	103.2150492	100.1629743	97.21767663	94.37478962	91.63015417	88.97980734	86.4199717	83.94704528
220408A00014	4/8/2022	3.12	6/29/2026	4/8/2022	105.07481	102.4488778	99.90221736	97.43193378	95.03526227	92.70955779	90.45228895	88.26103217	86.1334663
220411A00002	4/11/2022	3.18	4/9/2027	4/11/2022	107.03205	103.6308195	100.3571458	97.2055709	94.17089853	91.24818141	88.43270817	85.71999075	83.10575257
220412A00017	4/12/2022	3.09	3/19/2027	4/12/2022	106.59801	103.2585885	100.0425465	96.94468671	93.96005562	91.08393335	88.31182151	85.63943153	83.06267383
220412A00018	4/12/2022	3.09	3/15/2027	4/12/2022	106.5742	103.2454164	100.0392717	96.95061083	93.9745234	91.10633008	88.34157041	85.67599142	83.10553689
220412A00010	4/12/2022	3.09	3/15/2027	4/12/2022	106.5742	103.2454164	100.0392717	96.95061082	93.9745234	91.10633008	88.34157041	85.67599142	83.10553689
220412A00016	4/12/2022	3.09	3/19/2027	4/12/2022	106.59801	103.2585885	100.0425465	96.94468671	93.96005562	91.08393335	88.31182151	85.63943153	83.06267383
220418A00015	4/22/2022	3.03	7/28/2025	4/22/2022	102.80516	101.0925413	99.41654377	97.77605772	96.17001826	94.59740346	93.05723216	91.54856185	90.07048681
220418A00016	4/22/2022	3.11	9/15/2026	4/22/2022	105.51991	102.6849293	99.94131309	97.28563201	94.71460683	92.22509853	89.81410154	87.47873726	85.21624802
220419A00015	4/19/2022	3.14	4/17/2026	4/19/2022	104.66079	102.2328937	99.87416371	97.58223829	95.35484942	93.18981993	91.08505929	89.03855959	87.04839176
220419A00016	4/19/2022	3.21	4/19/2027	4/19/2022	107.19958	103.7691072	100.4682417	97.2913908	94.23323615	91.28871667	88.4530145	85.72154197	83.08992928
220419A00014	4/19/2022	3.06	4/18/2025	4/19/2022	102.26063	100.8189153	99.40472474	98.01733528	96.65605222	95.32020438	94.00914311	92.7222414	91.45889292
220419A00013	4/19/2022	2.84	4/19/2024	4/19/2022	100.57503	100.1061653	99.64168007	99.18151014	98.72559546	98.27387707	97.8262971	97.38279873	96.94332622
220420A00032	4/20/2022	3.26	10/16/2026	4/20/2022	106.14532	103.2204205	100.3922716	97.65714219	95.0114698	92.45184867	89.97502196	87.57787435	85.25742501
220420A00033	4/20/2022	3.29	4/20/2027	4/20/2022	107.48115	104.0431857	100.7351545	97.55145272	94.4867456	91.53595636	88.69425241	85.9570322	83.31991289
220420A00061	6/15/2022	3.3	6/15/2027	6/15/2022	107.897	104.3048782	100.8531719	97.5356018	94.34620947	91.27933666	88.32960798	85.49191508	82.76140168
220420A00037	6/15/2022	3.3	6/15/2027	6/15/2022	107.897	104.3048782	100.8531719	97.5356018	94.34620947	91.27933666	88.32960798	85.49191508	82.76140168
220420A00034	6/15/2022	3.3	6/15/2027	6/15/2022	107.897	104.3048782	100.8531719	97.5356018	94.34620947	91.27933666	88.32960798	85.49191508	82.76140168
220421A00014	4/21/2022	3.24	5/30/2025	4/21/2022	102.78668	101.2302887	99.70506018	98.21012138	96.74463489	95.30779389	93.89882073	92.51696562	91.16150534
220421A00016	4/21/2022	3.31	4/21/2026	4/21/2022	105.10474	102.6606917	100.2865346	97.97986612	95.73838558	93.55988488	91.44224421	89.3834279	87.38148054
220421A00012	4/21/2022	3.31	4/21/2026	4/21/2022	105.10474	102.6606917	100.2865346	97.97986612	95.73838558	93.55988488	91.44224421	89.3834279	87.38148054
220422A00014	4/22/2022	3.36	9/29/2026	4/22/2022	106.33	103.4460924	100.6561601	97.95663981	95.34412103	92.8153407	90.3671762	87.99663846	85.70086547
220425A00026	4/25/2022	3.13	2/25/2026	4/25/2022	104.31913	102.028978	99.80071557	97.63232059	95.52185363	93.46744977	91.46731522	89.51972413	87.62301563

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220425A00027	4/29/2022	3.15	8/20/2026	4/29/2022	105.47292	102.7069673	100.0281506	97.43323376	94.91911838	92.48283948	90.12155891	87.83255908	85.61323702
220425A00028	4/29/2022	3.16	4/23/2027	4/29/2022	107.05338	103.6149009	100.3067492	97.1232827	94.05913746	91.10920986	88.26864233	85.53281011	82.89730883
220426A00004	4/26/2022	3.41	4/26/2032	4/26/2022	115.92255	107.6362612	100.0260638	93.03279772	86.60277618	80.68725562	75.24195707	70.22663612	65.60469615
220427A00011	4/29/2022	3.15	4/29/2027	4/29/2022	107.0571	103.6027843	100.2799793	97.08297256	94.00632752	91.04487276	88.19368735	85.44808738	82.80361312
220428A00016	5/2/2022	3.09	10/15/2024	5/2/2022	101.38666	100.4387183	99.50849847	98.59550911	97.69927429	96.81933549	95.9552508	95.10659418	94.27295474
220428A00019	4/28/2022	3.27	4/28/2027	4/28/2022	107.46589	104.0070914	100.6798088	97.47832985	94.39722337	91.43132275	88.57571144	85.82570941	83.17686048
220502A00030	5/4/2022	3.24	6/20/2025	5/4/2022	102.9261	101.3120064	99.73095273	98.18199188	96.6642093	95.1767251	93.71869241	92.28929582	90.88774993
220502A00025	5/2/2022	3.21	5/2/2025	5/2/2022	102.56634	101.0850647	99.63271155	98.2085064	96.81170242	95.44157867	94.09743908	92.7786113	91.48444571
220506A00016	5/6/2022	3.35	5/6/2027	5/6/2022	107.79769	104.3122591	100.9599504	97.73495563	94.63175179	91.64508644	88.76996277	86.00162567	83.33554869
220509A00014	7/15/2022	3.37	7/15/2027	7/15/2022	108.357	104.6779272	101.1452241	97.75222579	94.4926117	91.3603863	88.34986025	85.45563267	82.67257461
220509A00016	7/15/2022	3.37	7/15/2027	7/15/2022	108.357	104.6779272	101.1452241	97.75222579	94.4926117	91.3603863	88.34986025	85.45563267	82.67257461
220509A00013	7/15/2022	3.37	7/15/2027	7/15/2022	108.357	104.6779272	101.1452241	97.75222579	94.4926117	91.3603863	88.34986025	85.45563267	82.67257461
220510A00016	5/13/2022	3.23	5/5/2027	5/13/2022	107.37343	103.8980087	100.5553282	97.33959721	94.24531024	91.26723138	88.40037943	85.64001398	82.98162245
220510A00015	5/13/2022	3.13	11/3/2025	5/13/2022	103.58158	101.6050115	99.67640313	97.79429214	95.95726869	94.16397564	92.41310608	90.70340113	89.03364782
220511A00002	5/11/2022	3.18	5/12/2025	5/11/2022	102.58211	101.0744933	99.59657566	98.14755005	96.72663802	95.33308867	93.96617747	92.62520503	91.30949604
220511A00015	5/11/2022	3.29	5/11/2027	5/11/2022	107.62244	104.1270884	100.7656487	97.53225992	94.42135043	91.42762233	88.54603646	85.77179824	83.10034436
220512A00007	5/12/2022	2.91	5/13/2024	5/12/2022	100.66089	100.1274933	99.59975192	99.07757786	98.56088319	98.04958182	97.54358946	97.04282356	96.54720331
220512A00013	5/12/2022	3.18	5/12/2027	5/12/2022	107.24451	103.7531946	100.3957843	97.16640893	94.0594929	91.06973487	88.1920926	85.42176875	82.75419758
220516A00034	5/16/2022	2.72	11/16/2023	5/16/2022	100.05351	100.0091407	99.96482621	99.92056746	99.87636432	99.83221669	99.78812444	99.74408747	99.70010568
220518A00009	5/18/2022	3.38	5/18/2028	5/18/2022	110.42001	105.8947202	101.5842875	97.47735163	93.56321433	89.83179687	86.27360065	82.87967072	79.6415617
220519A00010	5/19/2022	3.15	11/19/2026	5/19/2022	106.03195	103.0194435	100.109135	97.29698283	94.57912738	91.95188389	89.41173359	86.95531514	84.57941652
220525A00020	5/25/2022	2.79	5/24/2024	5/25/2022	100.60754	100.0450517	99.48885049	98.93883087	98.39489009	97.85692769	97.32484544	96.79854721	96.277939
220526A00011	5/26/2022	3.29	5/24/2029	5/26/2022	111.70927	106.1946776	100.991879	96.08155923	91.44569838	87.06747991	82.93120388	79.02220717	75.32678967
220526A00010	5/26/2022	3	5/26/2026	5/26/2022	104.54912	102.0206217	99.56652642	97.1841961	94.87110657	92.6248391	90.44307524	88.32359198	86.26425711
220527A00014	5/27/2022	2.99	5/27/2026	5/27/2022	104.52945	101.998614	99.54230219	97.15787221	94.84279372	92.5946422	90.41109375	88.28992021	86.22898453
220527A00015	5/27/2022	3.03	5/27/2027	5/27/2022	106.81038	103.287957	99.90186221	96.64606586	93.51484306	90.50275338	87.60462493	84.81553955	82.13081875
220527A00011	5/27/2022	2.75	5/24/2024	5/27/2022	100.58478	100.0223624	99.46623462	98.91628781	98.37241925	97.83452852	97.30251735	96.77628967	96.25575145
220601A00024	6/1/2022	3.09	6/2/2025	6/1/2022	102.56782	101.0052173	99.47400149	97.97329069	96.50223779	95.06002678	93.64587131	92.25901335	90.89872188
220601A00023	6/1/2022	2.9	6/3/2024	6/1/2022	100.6858	100.0964796	99.51404857	98.93838661	98.36937617	97.80690246	97.2508533	96.70111907	96.15759265
220603A00024	6/3/2022	2.94	6/3/2024	6/3/2022	100.70966	100.1202599	99.53774891	98.96200767	98.3929186	97.8303669	97.2742404	96.72442946	96.18082695
220609A00034	10/3/2022	3.32	9/30/2024	10/3/2022	101.5239	100.6148591	99.7220911	98.84516098	97.98364992	97.13715382	96.30528257	95.48765949	94.6839207
220609A00038	10/3/2022	3.28	3/29/2024	10/3/2022	100.69443	100.2819997	99.87294243	99.46721972	99.06479095	98.66561612	98.26965588	97.87687154	97.48722498
220614A00011	6/14/2022	3.71	6/14/2024	6/14/2022	101.22189	100.6013722	99.98846825	99.38304189	98.78495669	98.19407947	97.61028029	97.03343231	96.4634117

	Parallel-Shift Sensitivity Analysis												
10/31/2023					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	109.90605	106.2777549	102.7909159	99.43921512	96.2166577	93.11755021	90.13648373	87.26831782	84.5081655
220617A00026	6/17/2022	3.36	12/18/2023	6/17/2022	100.24396	100.1110486	99.97850052	99.84631887	99.71450207	99.58304856	99.4519568	99.32122526	99.19085241
220617A00027	6/17/2022	3.45	6/17/2024	6/17/2022	101.07124	100.4432563	99.82307886	99.21056611	98.6055764	98.00797152	97.41761668	96.83438031	96.25813405
220622A00006	6/22/2022	3.58	6/22/2027	6/22/2022	108.95562	105.3256853	101.8380454	98.4863155	95.26443685	92.1666569	89.18751211	86.3218115	83.56462136
220623A00005	6/23/2022	3.45	6/23/2027	6/23/2022	108.49419	104.8699311	101.3879192	98.04176342	94.82540161	91.7330786	88.75932855	85.89895851	83.14703314
220624A00044	6/24/2022	3.43	6/24/2025	6/24/2022	103.26608	101.6383123	100.0440041	98.48218642	96.95192823	95.4523342	93.9825428	92.5417247	91.12908125
220624A00049	6/24/2022	3.29	6/24/2024	6/24/2022	101.12976	100.4812127	99.84098485	99.20891898	98.5848595	97.96865484	97.36015721	96.75922252	96.16571024
220624A00003	6/24/2022	3.5	6/24/2027	6/24/2022	108.68215	105.0518152	101.564015	98.21234404	94.99072501	91.89338855	88.9148555	86.04992047	83.29363641
220624A00033	6/24/2022	3.5	6/24/2027	6/24/2022	108.68215	105.0518152	101.564015	98.21234404	94.99072501	91.89338855	88.9148555	86.04992047	83.29363641
220627A00055	6/27/2022	3.55	6/26/2026	6/27/2022	106.19048	103.5576527	101.0040106	98.52667373	96.12288856	93.79002048	91.52554765	89.32705531	87.19223039
220628A00034	6/28/2022	3.61	6/28/2027	6/28/2022	109.11066	105.4618471	101.956559	98.58833214	95.35103439	92.23884518	89.24623745	86.367961	83.59902686
220628A00053	8/15/2022	3.6	8/13/2027	8/15/2022	109.41434	105.640532	102.0194083	98.54394404	95.20747866	92.00369462	88.92659779	85.9704989	83.12999613
220628A00044	8/15/2022	3.6	8/13/2027	8/15/2022	109.41434	105.640532	102.0194083	98.54394404	95.20747866	92.00369462	88.92659779	85.9704989	83.12999613
220628A00052	8/15/2022	3.6	8/13/2027	8/15/2022	109.41434	105.640532	102.0194083	98.54394404	95.20747866	92.00369462	88.92659779	85.9704989	83.12999613
220629A00003	6/29/2022	3.59	6/29/2027	6/29/2022	109.04596	105.3956479	101.8890218	98.51960404	95.28125192	92.168135	89.17471708	86.29573945	83.52620527
220629A00002	6/29/2022	3.48	6/28/2024	6/29/2022	101.1363	100.4787828	99.8298064	99.18920932	98.55683	97.93251103	97.31609899	96.70744435	96.10640132
220630A00044	6/30/2022	3.34	6/30/2025	6/30/2022	103.15923	101.516216	99.90719972	98.33118616	96.78722193	95.27439045	93.79181012	92.33863261	90.91404129
220630A00036	6/30/2022	3.42	6/30/2027	6/30/2022	108.43699	104.7951005	101.2967658	97.93551028	94.70519087	91.59997693	88.61433239	85.74299893	82.98098029
220630A00019	6/30/2022	3.25	12/29/2023	6/30/2022	100.2812	100.1179502	99.95523785	99.79305609	99.6314023	99.47027393	99.30966842	99.14958324	98.99001588
220630A00057	6/30/2022	3.34	6/30/2025	6/30/2022	103.15923	101.516216	99.90719972	98.33118616	96.78722193	95.27439045	93.79181012	92.33863261	90.91404129
220701A00024	7/1/2022	3.08	7/1/2025	7/1/2022	102.73215	101.0902116	99.48229657	97.90741008	96.36459659	94.85293747	93.37154921	91.91958172	90.4962167
220701A00049	7/1/2022	3.19	7/1/2025	7/1/2022	102.91564	101.272124	99.66265717	98.08624646	96.54193554	95.02880506	93.54597083	92.09258206	90.66781983
220701A00050	7/1/2022	3.26	7/1/2027	7/1/2022	107.86304	104.2290234	100.7384476	97.38483577	94.1620438	91.06424036	88.08588897	85.22173121	82.46677097
220705A00005	7/5/2022	3.15	1/5/2024	7/5/2022	100.29518	100.1126764	99.93084436	99.74967944	99.56917793	99.38933615	99.21015047	99.03161725	98.85373292
220705A00011	7/5/2022	3.14	7/7/2025	7/5/2022	102.86878	101.2100691	99.58597001	97.99546178	96.43756457	94.91133671	93.41587294	91.95030253	90.51378766
220706A00032	7/6/2022	3.15	7/6/2027	7/6/2022	107.94113	104.2810873	100.7662195	97.3899397	94.1460013	91.02847724	88.03174176	85.15045308	82.37953721
220707A00041	7/7/2022	3.41	7/7/2025	7/7/2022	103.32356	101.6608947	100.0329128	98.4385909	96.87694723	95.34703833	93.84795715	92.3788313	90.93882134
220711A00021	7/11/2022	3.27	7/11/2025	7/11/2022	103.31549	101.638959	99.99762407	98.39043682	96.81639459	95.27453418	93.76392986	92.28369154	90.832963
220712A00016	7/15/2022	3.35	1/15/2026	7/15/2022	104.52658	102.3474813	100.2246928	98.15635633	96.14068817	94.17597821	92.26058605	90.39293753	88.57152145
220712A00006	7/12/2022	3.36	7/12/2024	7/12/2022	101.12143	100.4266631	99.74144531	99.06558409	98.39888849	97.74117274	97.09225605	96.45196246	95.82012068
220714A00034	7/14/2022	3.62	1/16/2024	7/14/2022	100.4427	100.2297918	100.0177969	99.80671308	99.59653433	99.38725476	99.17886854	98.97136989	98.76475305
220714A00035	7/14/2022	3.62	7/15/2024	7/14/2022	101.31916	100.615645	99.92190773	99.23774849	98.56296962	97.89737886	97.24078919	96.59301862	95.95389007
220715A00001	7/15/2022	3.44	7/15/2027	7/15/2022	108.61373	104.9299353	101.3926474	97.99519733	94.73125959	91.59483394	88.58022652	85.68203211	82.89511768

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220715A00047	7/15/2022	3.44	7/15/2027	7/15/2022	108.61373	104.9299353	101.3926474	97.99519733	94.73125959	91.59483394	88.58022652	85.68203211	82.89511768
220715A00027	7/15/2022	3.44	7/15/2027	7/15/2022	108.61373	104.9299353	101.3926474	97.99519733	94.73125959	91.59483394	88.58022652	85.68203211	82.89511768
220719A00004	7/19/2022	3.46	7/19/2027	7/19/2022	108.71508	105.0191143	101.470476	98.06244401	94.78864253	91.64302463	88.61985299	85.71368195	82.91934076
220721A00017	7/21/2022	3.51	1/22/2024	7/21/2022	100.45098	100.2216034	99.99328403	99.76601576	99.53979132	99.31460346	99.09044503	98.86730892	98.6451881
220722A00044	9/1/2022	3.23	9/1/2027	9/1/2022	108.15025	104.3509314	100.7074956	97.21274673	93.85985949	90.64235639	87.55408829	84.58921608	81.74219349
220722A00050	9/15/2022	3.25	9/15/2025	9/15/2022	103.50704	101.6591653	99.85343628	98.08864426	96.36362393	94.6772506	93.0284385	91.41613917	89.83933996
220722A00049	9/15/2022	3.25	9/15/2025	9/15/2022	103.50704	101.6591653	99.85343628	98.08864426	96.36362393	94.6772506	93.0284385	91.41613917	89.83933996
220722A00051	9/15/2022	3.23	9/15/2027	9/15/2022	108.2418	104.4037281	100.724561	97.19689905	93.8137246	90.56838102	87.45455227	84.46624365	81.59776384
220727A00010	7/27/2022	3.38	7/24/2024	7/27/2022	101.19406	100.4670553	99.75050251	99.04417393	98.34785165	97.66132394	96.98438503	96.31683485	95.65847891
220727A00004	7/27/2022	3.23	7/27/2027	7/27/2022	107.92018	104.2183633	100.6649814	97.25322427	93.97663475	90.82909059	87.80478484	84.8982075	82.1041283
220727A00049	7/27/2022	3.31	7/25/2025	7/27/2022	103.27306	101.5640277	99.89140505	98.2540886	96.65102379	95.08119842	93.5436405	92.03741618	90.56162787
220727A00009	7/27/2022	3.31	7/28/2025	7/27/2022	103.29271	101.5757207	99.895429	98.25072605	96.64054481	95.06386132	93.51969244	92.00709379	90.52515782
220727A00027	7/27/2022	3.23	7/27/2027	7/27/2022	107.92018	104.2183633	100.6649814	97.25322427	93.97663475	90.82909059	87.80478484	84.8982075	82.1041283
220727A00035	10/24/2022	3.33	10/24/2029	10/24/2022	112.3713	106.4525886	100.8903511	95.66118549	90.74334641	86.11661767	81.76219702	77.66259031	73.80151407
220728A00070	7/28/2022	3.19	1/29/2024	7/28/2022	100.40824	100.1597571	99.91250495	99.66647367	99.42165417	99.17803754	98.93561493	98.6943776	98.45431687
220729A00043	7/29/2022	3.04	7/29/2027	7/29/2022	107.22901	103.5349129	99.98925696	96.58522119	93.31633755	90.17647413	87.15981535	84.26084348	81.47432141
220729A00045	7/29/2022	3.03	7/29/2027	7/29/2022	107.19197	103.4985521	99.95356414	96.5501768	93.28192279	90.14267089	87.12660618	84.22821158	81.44225058
220729A00047	7/29/2022	3.06	1/29/2027	7/29/2022	106.18023	102.9814911	99.89656155	96.92069936	94.04939522	91.27835698	88.60349746	86.02092315	83.5269236
220802A00009	8/2/2022	3	8/2/2027	8/2/2022	107.10389	103.4018444	99.84897026	96.43839432	93.16360763	90.01843947	86.99703753	84.09384931	81.30360475
220804A00023	8/4/2022	3.19	8/4/2027	8/4/2022	107.82241	104.1017949	100.5311519	97.10357344	93.81251733	90.6517807	87.61548029	84.69803374	81.89414229
220804A00037	8/4/2022	3.35	8/4/2025	8/4/2022	103.40912	101.6728298	99.973981	98.31145147	96.68415954	95.09106657	93.53117466	92.00352469	90.50719436
220808A00025	8/8/2022	3.25	8/6/2027	8/8/2022	108.05854	104.3283378	100.7486368	97.31251195	94.01339731	90.84506698	87.80161536	84.87743853	82.06721697
220811A00021	8/11/2022	3.47	8/11/2025	8/11/2022	103.66953	101.9125395	100.193798	98.51217299	96.8665788	95.25597126	93.67934576	92.13573536	90.62420897
220812A00014	8/12/2022	3.54	8/12/2024	8/12/2022	101.42506	100.6464763	99.87985868	99.12493144	98.38142829	97.64909098	96.92766901	96.21691936	95.51660614
220812A00002	8/12/2022	3.17	8/12/2027	8/12/2022	108.257	104.4952459	100.8861205	97.4225828	94.09796007	90.90592426	87.84047216	84.89590664	82.06681916
220812A00001	8/12/2022	3.17	8/12/2027	8/12/2022	108.257	104.4952459	100.8861205	97.4225828	94.09796007	90.90592426	87.84047216	84.89590664	82.06681916
220816A00009	8/16/2022	3.33	8/16/2027	8/16/2022	108.42319	104.6602077	101.049965	97.58543205	94.25993913	91.0671596	88.00109017	85.05603246	82.22657568
220817A00047	8/17/2022	3.29	8/17/2027	8/17/2022	108.74152	104.9575958	101.3275938	97.84441934	94.5013409	91.29197344	88.21025857	85.25044588	82.40707551
220817A00037	10/14/2022	3.41	10/15/2027	10/14/2022	109.13587	105.2025069	101.4349886	97.82544192	94.36641078	91.05083048	87.87200492	84.8235854	81.89955075
220817A00036	10/14/2022	3.41	10/15/2027	10/14/2022	109.13587	105.2025069	101.4349886	97.82544192	94.36641078	91.05083048	87.87200492	84.8235854	81.89955075
220817A00038	10/14/2022	3.41	10/15/2027	10/14/2022	109.13587	105.2025069	101.4349886	97.82544192	94.36641078	91.05083048	87.87200492	84.8235854	81.89955075
220819A00034	8/19/2022	3.73	8/19/2032	8/19/2022	119.03806	110.3489383	102.3881714	95.09025743	88.39592141	82.25149322	76.60835081	71.42242114	66.65373293
220823A00015	8/23/2022	3.78	8/30/2032	8/23/2022	119.50853	110.7732572	102.7719798	95.43854825	88.71310706	82.5414687	76.87455046	71.66786963	66.88109087

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220823A00002	8/23/2022	3.38	8/23/2027	8/23/2022	109.12307	105.316242	101.6647979	98.16156776	94.79975284	91.57290294	88.4748966	85.49992248	82.64246195
220823A00006	8/23/2022	3.66	2/23/2024	8/23/2022	100.66319	100.3459447	100.0306998	99.7174408	99.40614896	99.09680572	98.78939279	98.48389209	98.18028579
220823A00009	8/23/2022	3.52	8/23/2027	8/23/2022	109.18637	105.3908023	101.7498416	98.25636931	94.90363174	91.68522065	88.59505391	85.62735699	82.77664577
220823A00034	8/23/2022	3.61	8/23/2024	8/23/2022	101.55013	100.741718	99.94619094	99.16324008	98.39256855	97.63388881	96.88692224	96.15139881	95.42705674
220824A00011	8/24/2022	3.7	8/22/2025	8/24/2022	104.16287	102.3725217	100.621708	98.90929189	97.2341797	95.59531715	93.99168761	92.4223104	90.88623923
220825A00006	8/25/2022	3.56	8/25/2027	8/25/2022	109.35177	105.547866	101.8990761	98.3982565	95.03863011	91.81376632	88.71756126	85.74421945	82.88823653
220825A00022	8/25/2022	3.68	8/25/2025	8/25/2022	104.14947	102.3513958	100.5931789	98.87368725	97.19182537	95.54653671	93.93680171	92.36163633	90.82009051
220829A00048	8/29/2022	3.75	2/25/2025	8/29/2022	102.88693	101.5777181	100.2923208	99.03012006	97.79052369	96.57295965	95.3768751	94.20173556	93.04702419
220829A00057	8/29/2022	3.67	8/31/2026	8/29/2022	107.0049	104.1886129	101.4617354	98.82095669	96.26311009	93.78516253	91.38420804	89.05746175	86.80225418
220830A00093	11/16/2022	3.69	11/16/2029	11/16/2022	114.56424	108.5227328	102.8472675	97.51364393	92.49938526	87.78360793	83.3469005	79.17121252	75.23975226
220831A00079	8/31/2022	3.79	8/29/2025	8/31/2022	104.38091	102.5701945	100.7998198	99.06865188	97.37559175	95.71957833	94.09958695	92.51462784	90.96374467
220831A00078	8/31/2022	3.81	8/30/2024	8/31/2022	101.75727	100.9293729	100.1149559	99.31369137	98.52526241	97.74936225	96.98569383	96.23396943	95.49391028
220901A00035	9/1/2022	3.82	9/1/2028	9/1/2022	113.12419	108.2607566	103.6398199	99.24801164	95.07277065	91.10228698	87.32545308	83.73181865	80.31154856
220901A00033	9/1/2022	3.72	9/1/2027	9/1/2022	110.01003	106.1753371	102.4975919	98.96955693	95.58436787	92.3355102	89.21679936	86.22236241	83.34662074
220906A00046	9/6/2022	3.79	9/7/2027	9/6/2022	110.32389	106.4671924	102.7688983	99.22167905	95.81858222	92.55301092	89.41870375	86.409716	83.52040201
220907A00025	7/17/2023	3.7	7/31/2024	7/17/2023	101.47341	100.7266023	99.99078145	99.26571067	98.55115562	97.84688871	97.15268891	96.46834144	95.79363763
220907A00027	8/14/2023	3.65	8/30/2024	8/14/2023	101.62321	100.7959244	99.98211178	99.18144469	98.39360642	97.61829032	96.85519947	96.10404624	95.36455199
220907A00024	5/15/2023	3.81	5/31/2024	5/15/2023	101.21339	100.6303114	100.0539467	99.48417923	98.92089622	98.36398749	97.81334533	97.26886444	96.73044189
220907A00021	3/13/2023	3.92	3/29/2024	3/13/2023	100.96005	100.546956	100.1372422	99.73086692	99.32778947	98.92796981	98.53136857	98.13794698	97.74766693
220907A00022	4/17/2023	3.87	4/30/2024	4/17/2023	101.12635	100.6262495	100.1310929	99.6408052	99.15531503	98.6745522	98.19844795	97.72693484	97.25994672
220907A00010	9/7/2022	3.9	9/9/2032	9/7/2022	121.66526	112.7630866	104.6110395	97.14129053	90.29248714	84.00910727	78.24087756	72.94225243	68.07194733
220907A00023	9/7/2022	3.76	9/8/2026	9/7/2022	107.32174	104.4795032	101.7280975	99.0641412	96.48439592	93.98576086	91.56526614	89.22006653	86.94743552
220908A00029	9/8/2022	3.88	3/8/2024	9/8/2022	100.81776	100.4620577	100.1088758	99.75818549	99.40996046	99.06417465	98.72080241	98.37981842	98.04119774
220908A00030	9/8/2022	3.85	9/9/2024	9/8/2022	101.86487	101.009839	100.1691805	99.34253734	98.52956072	97.72991331	96.94326883	96.16931158	95.40773602
220909A00017	9/9/2022	3.85	9/9/2024	9/9/2022	101.86487	101.009839	100.1691805	99.34253734	98.52956072	97.72991331	96.94326883	96.16931158	95.40773602
220912A00033	9/12/2022	3.9	10/7/2024	9/12/2022	102.10517	101.1747429	100.2613022	99.36438529	98.4835462	97.61835495	96.76839672	95.93327128	95.11259233
220912A00046	11/15/2022	3.85	11/14/2025	11/15/2022	105.1195	103.0972448	101.1244323	99.1995331	97.32107739	95.48765121	93.69789372	91.95049484	90.24419295
220912A00044	11/15/2022	3.85	11/14/2025	11/15/2022	105.1195	103.0972448	101.1244323	99.1995331	97.32107739	95.48765121	93.69789372	91.95049484	90.24419295
220912A00051	11/15/2022	3.76	11/15/2027	11/15/2022	110.74616	106.6996223	102.8264483	99.11826657	95.56715533	92.16561655	88.90655082	85.783234	82.78929521
220912A00050	11/15/2022	3.76	11/15/2027	11/15/2022	110.74616	106.6996223	102.8264483	99.11826657	95.56715533	92.16561655	88.90655082	85.783234	82.78929521
220913A00018	9/13/2022	3.91	9/13/2027	9/13/2022	110.83136	106.9489093	103.2264379	99.65652058	96.23211184	92.94652791	89.79342621	86.76678614	83.86089112
220913A00017	9/13/2022	3.98	9/14/2026	9/13/2022	107.99724	105.1291963	102.3532148	99.66585026	97.06380524	94.54392302	92.1031809	89.73868368	87.44765763
220913A00005	9/13/2022	4.09	9/13/2024	9/13/2022	102.10163	101.2348698	100.3828555	99.54521616	98.7215897	97.91162605	97.11498674	96.33134443	95.56038241

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220915A00036	9/15/2022	4.23	9/16/2024	9/15/2022	102.24728	101.3718555	100.5114656	99.66572019	98.83424716	98.0166868	97.21269145	96.42192496	95.64406221
220915A00035	9/15/2022	4.2	3/17/2025	9/15/2022	103.65818	102.2906639	100.9478202	99.62903594	98.33371961	97.06129883	95.81121937	94.58294448	93.37595424
220915A00040	9/15/2022	4.16	9/15/2025	9/15/2022	105.21226	103.3479843	101.5261565	99.74556523	98.00503696	96.303439	94.63967791	93.01269786	91.42147904
220915A00039	9/15/2022	4.29	4/15/2024	9/15/2022	101.23273	100.7728626	100.3171837	99.86563865	99.41817124	98.97472624	98.53524941	98.09968749	97.66798818
220915A00041	9/15/2022	4.28	5/15/2024	9/15/2022	101.41244	100.8713268	100.3360007	99.80637151	99.28234838	98.76384244	98.25076666	97.74303585	97.24056657
220915A00033	9/15/2022	4.3	3/15/2024	9/15/2022	101.01773	100.6425319	100.2701325	99.90050216	99.53360999	99.16942547	98.80791856	98.44905967	98.09281964
220916A00045	9/16/2022	4.1	9/16/2032	9/16/2022	123.40969	114.4161456	106.1801783	98.63323194	91.71330797	85.36430618	79.53543572	74.18068741	69.25836091
220919A00033	9/19/2022	4	9/17/2027	9/19/2022	111.21019	107.3097507	103.5703748	99.98456623	96.5452162	93.24558181	90.0792652	87.04019413	84.1226037
220920A00024	9/20/2022	4.25	9/19/2025	9/20/2022	105.41849	103.5414364	101.707338	99.91496128	98.1631128	96.45064098	94.77643436	93.13941988	91.53856132
220920A00026	9/20/2022	4.1	9/20/2027	9/20/2022	111.62057	107.7041827	103.9497509	100.3497197	96.89693024	93.58459228	90.4062639	87.35583154	84.42749167
220920A00025	9/20/2022	4.23	9/18/2026	9/20/2022	108.7476	105.8579547	103.0613075	100.3541625	97.73317903	95.19515977	92.73704342	90.3558983	88.04891613
220920A00015	9/20/2022	4.33	10/21/2024	9/20/2022	102.62845	101.6582096	100.7063731	99.77241818	98.85584353	97.95616648	97.0729221	96.20566236	95.35395546
220921A00069	9/21/2022	3.98	9/21/2027	9/21/2022	111.6478	107.7152342	103.9457106	100.3316077	96.86570239	93.54114479	90.35143701	87.2904132	84.35222087
220921A00074	9/21/2022	3.98	9/21/2027	9/21/2022	111.6478	107.7152342	103.9457106	100.3316077	96.86570239	93.54114479	90.35143701	87.2904132	84.35222087
220921A00014	9/21/2022	4.08	9/21/2027	9/21/2022	111.55245	107.6346955	103.8790705	100.2780092	96.82434001	93.51126129	90.33232036	87.28139374	84.35266863
220921A00050	9/21/2022	4.51	4/29/2024	9/21/2022	101.44077	100.9424474	100.4490213	99.96042072	99.47657498	98.99741497	98.52287285	98.05288207	97.58737739
220929A00041	9/29/2022	4.38	9/29/2027	9/29/2022	112.78386	108.8208043	105.0223354	101.3807459	97.8887253	94.53934221	91.3260224	88.24252865	85.2829417
220929A00063	9/29/2022	4.38	9/29/2027	9/29/2022	112.78386	108.8208043	105.0223354	101.3807459	97.8887253	94.53934221	91.3260224	88.24252865	85.2829417
220929A00034	9/29/2022	4.67	5/31/2024	9/29/2022	101.71932	101.1345538	100.5565168	99.98509064	99.42016254	98.8616221	98.30936141	97.76327502	97.22325979
220929A00043	9/29/2022	4.44	9/28/2029	9/29/2022	118.73327	112.6954263	107.0142053	101.666553	96.63102637	91.8876692	87.41790179	83.20441922	79.23109769
220930A00046	9/30/2022	4.55	8/30/2024	9/30/2022	102.3773	101.5465721	100.72936	99.92533228	99.13417135	98.35556989	97.58923027	96.8348642	96.09219235
220930A00049	9/30/2022	4.55	6/28/2024	9/30/2022	101.848	101.1878359	100.5362392	99.89304591	99.2580941	98.63122601	98.01228788	97.40112983	96.79760572
221003A00067	10/3/2022	4.48	11/13/2024	10/3/2022	102.96627	101.9334805	100.9214848	99.92966136	98.95741049	98.00415586	97.06934362	96.15244133	95.25293686
221006A00097	10/6/2022	4.58	10/7/2024	10/6/2022	102.74563	101.8119567	100.8953078	99.99522346	99.11125693	98.24297731	97.38996901	96.55183098	95.72817616
221006A00095	10/6/2022	4.65	4/8/2024	10/6/2022	101.34311	100.9019107	100.4645648	100.0310207	99.60122891	99.17514066	98.75270812	98.33388424	97.91862281
221006A00012	10/6/2022	4.37	10/6/2027	10/6/2022	112.80959	108.8276985	105.0119217	101.3544426	97.84785099	94.48512277	91.25959751	88.1649578	85.19520976
200407A00004	4/7/2020	0.99	4/7/2025	4/7/2020	99.389805	97.99618984	96.62873183	95.28675967	93.96962502	92.67670108	91.40738171	90.16108055	88.93723026
221011A00114	10/11/2022	4.66	8/12/2024	10/11/2022	102.30825	101.5258407	100.7554422	99.99677484	99.24957162	98.51357357	97.78852949	97.07419567	96.37033555
221011A00122	10/11/2022	4.64	12/11/2024	10/11/2022	103.35604	102.2476042	101.1630491	100.1016101	99.06255237	98.04517204	97.04879448	96.07277285	95.11648664
221014A00027	10/14/2022	4.63	10/14/2027	10/14/2022	113.89936	109.8752758	106.0196928	102.3246431	98.78257823	95.38634467	92.12916133	89.00459806	86.00655559
221014A00031	10/14/2022	4.89	4/12/2024	10/14/2022	101.48391	101.0314898	100.583116	100.1387365	99.69829801	99.26174805	98.82903513	98.40010862	97.97491884
221018A00030	10/18/2022	4.71	10/17/2025	10/18/2022	106.57616	104.6136112	102.6975877	100.8266999	98.99960927	97.21502617	95.47170756	93.76845505	92.10411295
221018A00031	10/18/2022	4.71	10/17/2025	10/18/2022	106.57616	104.6136112	102.6975877	100.8266999	98.99960927	97.21502617	95.47170756	93.76845505	92.10411295

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221019A00008	10/19/2022	4.8	10/17/2025	10/19/2022	106.7526	104.7882755	102.870514	100.9979212	99.16915787	97.3829333	95.63800362	93.93316964	92.2672749
221019A00009	10/19/2022	4.8	10/17/2025	10/19/2022	106.7526	104.7882755	102.870514	100.9979212	99.16915787	97.3829333	95.63800362	93.93316964	92.2672749
221020A00052	10/20/2022	4.95	10/21/2024	10/20/2022	103.23614	102.2627045	101.3077122	100.3706431	99.45099508	98.54828447	97.6620455	96.79182935	95.93720335
221020A00046	10/20/2022	4.95	1/21/2025	10/20/2022	104.06676	102.8467529	101.6555226	100.4920598	99.35539938	98.24462089	97.15884547	96.09723372	95.05898352
221021A00022	10/21/2022	4.84	10/21/2024	10/21/2022	103.12833	102.1554554	101.201023	100.2645065	99.34540367	98.44323128	97.55752361	96.68783198	95.83372389
221024A00018	10/24/2022	4.91	10/24/2024	10/24/2022	103.23481	102.2532955	101.2905311	100.3459808	99.41913035	98.50948459	97.61656674	96.73991754	95.87909438
221025A00027	10/25/2022	4.57	10/25/2027	10/25/2022	113.77127	109.7209319	105.8414167	102.1245841	98.56272944	95.14855466	91.87514428	88.73594339	85.72473685
221027A00009	10/27/2022	4.68	10/27/2025	10/27/2022	106.61872	104.6296267	102.6882891	100.7932616	98.94315331	97.13662466	95.37238527	93.64919172	91.96584548
221027A00004	10/27/2022	4.76	10/28/2024	10/27/2022	103.12251	102.1310105	101.1586519	100.204883	99.26917368	98.35101362	97.4499117	96.56539498	95.69700786
221027A00056	4/25/2023	4.48	4/25/2030	4/25/2023	120.13118	113.5078079	107.3083964	101.503367	96.0653584	90.96904834	86.1909912	81.70946981	77.50435956
221027A00062	12/15/2022	4.45	12/15/2027	12/15/2022	113.79192	109.603935	105.5975205	101.7637816	98.09431309	94.58116692	91.21682441	87.99417063	84.90647032
221027A00060	12/1/2022	4.46	12/1/2027	12/1/2022	113.70049	109.5513135	105.5807216	101.7800303	98.14102975	94.65595303	91.3174494	88.11855973	85.05269331
221027A00061	12/15/2022	4.45	12/15/2027	12/15/2022	113.79192	109.603935	105.5975205	101.7637816	98.09431309	94.58116692	91.21682441	87.99417063	84.90647032
221027A00063	12/15/2022	4.45	12/15/2027	12/15/2022	113.79192	109.603935	105.5975205	101.7637816	98.09431309	94.58116692	91.21682441	87.99417063	84.90647032
221027A00050	10/27/2022	4.52	10/27/2027	10/27/2022	113.59341	109.5413623	105.6604654	101.9425519	98.37989227	94.96516527	91.69143411	88.55212413	85.54100194
221027A00047	10/27/2022	4.88	4/26/2024	10/27/2022	101.60006	101.1093921	100.6234681	100.1422232	99.66558988	99.19350204	98.72589481	98.26270451	97.80386871
221028A00027	10/28/2022	4.73	10/28/2024	10/28/2022	103.09253	102.1011912	101.1289909	100.1753782	99.23982289	98.32181487	97.42086301	96.53649441	95.6682535
221031A00035	10/31/2022	4.67	10/30/2026	10/31/2022	110.43022	107.4051428	104.4807838	101.6532214	98.91871252	96.27368072	93.71470768	91.23852535	88.84200837
221031A00036	10/31/2022	4.59	10/29/2027	10/31/2022	113.88898	109.8258761	105.9345427	102.2067736	98.63480337	95.21127714	91.92922675	88.78204826	85.76348094
221031A00042	10/31/2022	4.73	10/30/2026	10/31/2022	110.6089	107.5811376	104.6541621	101.8240482	99.0870506	96.43959073	93.87824836	91.39975356	89.00097915
221031A00061	10/31/2022	4.94	4/30/2024	10/31/2022	101.66476	101.1630964	100.6663814	100.1745465	99.68752002	99.20523175	98.72761278	98.25459555	97.78611378
221031A00033	10/31/2022	4.74	10/31/2025	10/31/2022	106.77913	104.7779689	102.8250905	100.9190266	99.05836407	97.24174219	95.46785046	93.7354263	92.04325296
221102A00012	11/2/2022	4.82	11/3/2025	11/2/2022	106.97231	104.9609327	102.9981972	101.0826176	99.21276558	97.38726631	95.60479576	93.86407855	92.16388582
221102A00026	11/2/2022	4.66	11/2/2027	11/2/2022	114.20611	110.126023	106.2187565	102.4760375	98.8900371	95.45334147	92.15892746	89.00013986	85.97067014
221104A00044	11/4/2022	5.11	11/15/2023	11/4/2022	100.14962	100.107934	100.0663004	100.024718	99.98318667	99.94170637	99.90027698	99.85889839	99.8175705
221107A00010	11/7/2022	5.12	11/7/2024	11/7/2022	103.57766	102.557286	101.5571237	100.5765748	99.61506529	98.67204327	97.74697812	96.83935932	95.9486956
221107A00053	11/7/2022	4.95	10/7/2025	11/7/2022	106.938	104.9980201	103.10343	101.2528873	99.44510277	97.67883368	95.9528816	94.26609052	92.61734514
221107A00048	11/7/2022	4.96	9/8/2025	11/7/2022	106.63216	104.7732325	102.9561996	101.1798691	99.44309308	97.74476341	96.08380994	94.459199	92.86993188
221107A00029	11/7/2022	4.83	11/9/2026	11/7/2022	111.01552	107.954295	104.995601	102.1354231	99.36992538	96.6954442	94.10847933	91.60568564	89.1838652
221107A00030	11/7/2022	4.7	11/5/2027	11/7/2022	114.39612	110.304031	106.3854979	102.6322067	99.0362841	95.59027476	92.28711693	89.12011944	86.08294022
221108A00033	11/8/2022	4.7	11/8/2027	11/8/2022	114.42772	110.326765	106.4000117	102.6391022	99.03612188	95.58357753	92.274372	89.10178123	86.05943258
221108A00036	11/8/2022	4.95	11/7/2025	11/8/2022	107.27896	105.2534452	103.2770553	101.3482886	99.46569631	97.6278842	95.8335099	94.08128065	92.36995105
221108A00041	11/8/2022	5.15	4/8/2024	11/8/2022	101.5644	101.1226192	100.6846942	100.2505748	99.8202113	99.39355495	98.97055788	98.551173	98.13535407

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221110A00023	11/10/2022	4.71	11/8/2024	11/10/2022	103.16498	102.1442394	101.1437825	100.1630088	99.20134047	98.25822218	97.33311989	96.42551997	95.53492812
221110A00026	11/10/2022	4.29	11/10/2027	11/10/2022	112.81629	108.7419638	104.8412559	101.1058168	97.52774282	94.09955176	90.81415765	87.66484767	84.64526042
221110A00024	11/10/2022	4.51	11/10/2025	11/10/2022	106.42222	104.3973396	102.4217328	100.4938876	98.61234583	96.77570453	94.98261303	93.23177079	91.52192514
221110A00025	11/10/2022	4.39	11/10/2026	11/10/2022	109.70319	106.6591193	103.7172378	100.8735378	98.12419087	95.46554079	92.89409454	90.40651406	87.99960838
221110A00074	11/10/2022	4.75	11/12/2024	11/10/2022	103.23953	102.2078508	101.19688	100.2060014	99.23461917	98.28216087	97.34807624	96.43183621	95.53293188
221110A00076	11/10/2022	4.45	11/10/2026	11/10/2022	109.88364	106.8368295	103.8922804	101.0459793	98.29409585	95.6329715	93.05911126	90.56917512	88.15997025
221110A00075	11/10/2022	4.56	11/10/2025	11/10/2022	106.52349	104.4975535	102.5209181	100.5920642	98.70953328	96.87192158	95.077878	93.32610149	91.61533891
221110A00038	11/10/2022	4.34	11/10/2027	11/10/2022	113.01538	108.9370807	105.0325285	101.2933641	97.71167935	94.27998751	90.99119837	87.83859506	84.81581233
221110A00110	11/10/2022	4.47	1/13/2026	11/10/2022	106.97493	104.773583	102.6288715	100.5389278	98.50196387	96.51626509	94.58018647	92.69214925	90.85063762
221110A00108	11/10/2022	4.48	12/10/2025	11/10/2022	106.66348	104.5550434	102.4992232	100.494348	98.53881224	96.63107343	94.76964906	92.95311381	91.18009689
221110A00065	1/17/2023	4.25	1/14/2028	1/17/2023	113.24084	108.9854924	104.9177479	101.0282681	97.30823183	93.74930656	90.34361806	87.08372247	83.96258006
221110A00064	1/17/2023	4.25	1/14/2028	1/17/2023	113.24084	108.9854924	104.9177479	101.0282681	97.30823183	93.74930656	90.34361806	87.08372247	83.96258006
221114A00002	11/14/2022	4.37	11/15/2027	11/14/2022	113.18311	109.0878361	105.167454	101.4135307	97.8180869	94.3735696	91.07282709	87.90908523	84.87592548
221114A00019	11/14/2022	4.94	11/14/2023	11/14/2022	100.13304	100.0941381	100.0552825	100.0164736	99.97771134	99.9389956	99.90032629	99.86170335	99.82312666
221117A00013	11/17/2022	4.54	11/14/2025	11/17/2022	106.52438	104.4874997	102.5003447	100.5613817	98.66913305	96.82217722	95.0191461	93.25872262	91.53963843
221117A00014	11/17/2022	4.54	11/14/2025	11/17/2022	106.52438	104.4874997	102.5003447	100.5613817	98.66913305	96.82217722	95.0191461	93.25872262	91.53963843
221117A00012	11/17/2022	4.54	11/14/2025	11/17/2022	106.52438	104.4874997	102.5003447	100.5613817	98.66913305	96.82217722	95.0191461	93.25872262	91.53963843
221117A00008	11/17/2022	4.82	11/15/2024	11/17/2022	103.33796	102.297835	101.278746	100.2800606	99.30116926	98.34148647	97.40044963	96.47751796	95.57217145
221117A00025	11/17/2022	4.28	11/17/2027	11/17/2022	112.84239	108.7484931	104.8296874	101.0775241	97.48400484	94.04155937	90.74302001	87.58159803	84.5508615
221118A00045	11/18/2022	4.57	11/18/2025	11/18/2022	106.62719	104.5782989	102.5795885	100.6295029	98.72654493	96.86927445	95.05630579	93.2863052	91.55798855
221118A00046	11/18/2022	4.4	11/18/2026	11/18/2022	109.81161	106.7440625	103.7800172	100.9153918	98.14628832	95.46898514	92.87992792	90.37572099	87.95311928
221118A00023	11/18/2022	4.12	11/18/2027	11/18/2022	112.71339	108.6054764	104.6737313	100.9096289	97.30510446	93.85252557	90.5446668	87.37468553	84.33609957
221118A00019	11/18/2022	4.55	11/18/2025	11/18/2022	106.58625	104.5377899	102.5394996	100.5898258	98.68727174	96.83039743	95.01781741	93.24819816	91.52025573
221118A00018	11/18/2022	4.55	11/18/2025	11/18/2022	106.58625	104.5377899	102.5394996	100.5898258	98.68727174	96.83039743	95.01781741	93.24819816	91.52025573
221121A00052	11/21/2022	4.35	11/22/2027	11/21/2022	113.17043	109.0563472	105.1186094	101.3486864	97.73850437	94.2804228	90.96720856	87.79201198	84.74834434
221121A00064	11/21/2022	4.34	11/22/2027	11/21/2022	113.1303	109.0170174	105.0800605	101.3108941	97.70144533	94.24407448	90.93154936	87.75702113	84.71400186
221121A00047	11/21/2022	4.89	11/21/2033	11/21/2022	131.90435	121.5210456	112.1002841	103.5460153	95.77229973	88.70219801	82.26678339	76.4042677	71.05922658
221122A00029	11/22/2022	4.31	11/22/2027	11/22/2022	113.00989	108.8990281	104.964414	101.1975174	97.5902682	94.13502954	90.82457178	87.65204859	84.61097442
221122A00040	11/22/2022	4.31	11/22/2027	11/22/2022	113.00989	108.8990281	104.964414	101.1975174	97.5902682	94.13502954	90.82457178	87.65204859	84.61097442
221123A00034	11/23/2022	4.43	11/23/2026	11/23/2022	109.95185	106.8685179	103.8895456	101.0107988	98.22833497	95.53839029	92.93737098	90.42184429	87.9885303
221123A00039	11/23/2022	4.29	11/23/2027	11/23/2022	112.93906	108.826904	104.8911588	101.1232831	97.51519512	94.0592469	90.74819867	87.57519471	84.53374076
221128A00034	11/28/2022	4.27	11/26/2027	11/28/2022	112.88691	108.7676481	104.8253959	101.0515673	97.43804101	93.97713241	90.66156771	87.48445961	84.43928457
221129A00032	11/29/2022	5.04	5/22/2024	11/29/2022	101.87621	101.3149108	100.7598177	100.210826	99.66783531	99.13074737	98.59946609	98.07389747	97.55394954

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221129A00034	11/29/2022	4.38	12/1/2025	11/29/2022	106.61926	104.5302295	102.4930055	100.5059599	98.567524	96.67619005	94.83050845	93.02908491	91.27057793
221129A00035	11/29/2022	4.09	11/29/2027	11/29/2022	112.69501	108.55743	104.5983276	100.8090183	97.18128666	93.70736108	90.37988661	87.19190047	84.13680888
221129A00043	11/29/2022	4.59	12/1/2025	11/29/2022	106.80406	104.7178882	102.6833619	100.6988554	98.76280753	96.87371743	95.03014207	93.23069339	91.47403583
221129A00056	11/29/2022	4.31	11/29/2027	11/29/2022	113.07636	108.9451294	104.9916635	101.2073249	97.58394657	94.11380154	90.7895765	87.60434737	84.55155635
221129A00047	11/29/2022	4.56	12/1/2025	11/29/2022	106.7416	104.6560928	102.6222175	100.6383491	98.70292692	96.81445039	94.97147684	93.17261853	91.4165402
221129A00050	11/29/2022	4.56	12/2/2025	11/29/2022	106.75164	104.6633851	102.6268727	100.640475	98.70262587	96.81182029	94.96661101	93.16560606	91.40746614
221129A00062	11/29/2022	4.39	11/27/2026	11/29/2022	109.86922	106.7762631	103.7882686	100.9010735	98.11070126	95.4133567	92.8054165	90.28342026	87.84406206
221129A00069	11/29/2022	4.28	11/26/2027	11/29/2022	112.92715	108.8070801	104.8640428	101.0894538	97.47519066	94.01356782	90.69731063	87.51953096	84.47370448
221129A00085	11/29/2022	4.38	11/30/2026	11/29/2022	109.86788	106.766784	103.7711444	100.8767613	98.079632	95.37593654	92.76202846	90.23442563	87.78980178
221129A00048	11/29/2022	4.56	12/1/2025	11/29/2022	106.7416	104.6560928	102.6222175	100.6383491	98.70292692	96.81445039	94.97147684	93.17261853	91.4165402
221129A00049	11/29/2022	4.56	12/1/2025	11/29/2022	106.7416	104.6560928	102.6222175	100.6383491	98.70292692	96.81445039	94.97147684	93.17261853	91.4165402
221129A00070	11/29/2022	4.28	11/26/2027	11/29/2022	112.92715	108.8070801	104.8640428	101.0894538	97.47519066	94.01356782	90.69731063	87.51953096	84.47370448
221129A00072	11/29/2022	4.39	12/2/2026	11/29/2022	109.91739	106.8102595	103.8089179	100.9091526	98.10694249	95.39845085	92.78001512	90.24813817	87.79947964
221129A00084	11/29/2022	4.38	11/30/2026	11/29/2022	109.86788	106.766784	103.7711444	100.8767613	98.079632	95.37593654	92.76202846	90.23442563	87.78980178
221129A00086	11/29/2022	4.38	11/30/2026	11/29/2022	109.86788	106.766784	103.7711444	100.8767613	98.079632	95.37593654	92.76202846	90.23442563	87.78980178
221129A00041	11/29/2022	4.56	11/28/2025	11/29/2022	106.71077	104.6336808	102.6078805	100.6317625	98.70378093	96.8224496	94.98633932	93.19407515	91.44433391
221129A00042	11/29/2022	4.56	11/28/2025	11/29/2022	106.71077	104.6336808	102.6078805	100.6317625	98.70378093	96.8224496	94.98633932	93.19407515	91.44433391
221129A00059	11/29/2022	4.39	11/27/2026	11/29/2022	109.86922	106.7762631	103.7882686	100.9010735	98.11070126	95.4133567	92.8054165	90.28342026	87.84406206
221129A00060	11/29/2022	4.39	11/27/2026	11/29/2022	109.86922	106.7762631	103.7882686	100.9010735	98.11070126	95.4133567	92.8054165	90.28342026	87.84406206
221129A00061	11/29/2022	4.39	11/27/2026	11/29/2022	109.86922	106.7762631	103.7882686	100.9010735	98.11070126	95.4133567	92.8054165	90.28342026	87.84406206
221129A00071	11/29/2022	4.28	11/26/2027	11/29/2022	112.92715	108.8070801	104.8640428	101.0894538	97.47519066	94.01356782	90.69731063	87.51953096	84.47370448
221129A00046	11/29/2022	4.56	12/1/2025	11/29/2022	106.7416	104.6560928	102.6222175	100.6383491	98.70292692	96.81445039	94.97147684	93.17261853	91.4165402
221129A00054	11/29/2022	4.56	12/3/2025	11/29/2022	106.76168	104.6706777	102.6315286	100.6426019	98.70232651	96.8091926	94.96174842	93.15859773	91.39839723
221129A00055	11/29/2022	4.56	12/3/2025	11/29/2022	106.76168	104.6706777	102.6315286	100.6426019	98.70232651	96.8091926	94.96174842	93.15859773	91.39839723
221129A00064	11/29/2022	4.28	11/30/2027	11/29/2022	112.96477	108.8330941	104.8793218	101.0948061	97.47136868	94.00127236	90.67719433	87.49220179	84.4397289
221129A00067	11/29/2022	4.28	11/29/2027	11/29/2022	112.95539	108.8266039	104.8755018	101.0934532	97.47229369	94.00429922	90.68215912	87.49895183	84.448122
221129A00068	11/29/2022	4.28	11/29/2027	11/29/2022	112.95539	108.8266039	104.8755018	101.0934532	97.47229369	94.00429922	90.68215912	87.49895183	84.448122
221129A00075	11/29/2022	4.38	12/1/2026	11/29/2022	109.8773	106.7734266	103.7751666	100.8783172	98.07886655	95.37298653	92.75702283	90.22748599	87.78104286
221129A00076	11/29/2022	4.38	12/1/2026	11/29/2022	109.8773	106.7734266	103.7751666	100.8783172	98.07886655	95.37298653	92.75702283	90.22748599	87.78104286
221129A00078	11/29/2022	4.38	12/1/2026	11/29/2022	109.8773	106.7734266	103.7751666	100.8783172	98.07886655	95.37298653	92.75702283	90.22748599	87.78104286
221129A00073	11/29/2022	4.39	12/2/2026	11/29/2022	109.91739	106.8102595	103.8089179	100.9091526	98.10694249	95.39845085	92.78001512	90.24813817	87.79947964
221129A00044	11/29/2022	4.56	11/28/2025	11/29/2022	106.71077	104.6336808	102.6078805	100.6317625	98.70378093	96.8224496	94.98633932	93.19407515	91.44433391
221129A00045	11/29/2022	4.56	11/28/2025	11/29/2022	106.71077	104.6336808	102.6078805	100.6317625	98.70378093	96.8224496	94.98633932	93.19407515	91.44433391

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221129A00051	11/29/2022	4.56	12/2/2025	11/29/2022	106.75164	104.6633851	102.6268727	100.640475	98.70262587	96.81182029	94.96661101	93.16560606	91.40746614
221129A00052	11/29/2022	4.56	12/2/2025	11/29/2022	106.75164	104.6633851	102.6268727	100.640475	98.70262587	96.81182029	94.96661101	93.16560606	91.40746614
221129A00065	11/29/2022	4.28	11/30/2027	11/29/2022	112.96477	108.8330941	104.8793218	101.0948061	97.47136868	94.00127236	90.67719433	87.49220179	84.4397289
221129A00066	11/29/2022	4.28	11/29/2027	11/29/2022	112.95539	108.8266039	104.8755018	101.0934532	97.47229369	94.00429922	90.68215912	87.49895183	84.448122
221129A00077	11/29/2022	4.38	12/1/2026	11/29/2022	109.8773	106.7734266	103.7751666	100.8783172	98.07886655	95.37298653	92.75702283	90.22748599	87.78104286
221129A00083	11/29/2022	4.38	11/30/2026	11/29/2022	109.86788	106.766784	103.7711444	100.8767613	98.079632	95.37593654	92.76202846	90.23442563	87.78980178
221129A00037	11/29/2022	4.56	11/26/2025	11/29/2022	106.68996	104.6185515	102.5982084	100.6273342	98.70439275	96.82790727	94.99645729	93.20867621	91.4632487
221129A00038	11/29/2022	4.56	11/26/2025	11/29/2022	106.68996	104.6185515	102.5982084	100.6273342	98.70439275	96.82790727	94.99645729	93.20867621	91.4632487
221129A00039	11/29/2022	4.56	11/26/2025	11/29/2022	106.68996	104.6185515	102.5982084	100.6273342	98.70439275	96.82790727	94.99645729	93.20867621	91.4632487
221129A00040	11/29/2022	4.56	11/26/2025	11/29/2022	106.68996	104.6185515	102.5982084	100.6273342	98.70439275	96.82790727	94.99645729	93.20867621	91.4632487
221129A00053	11/29/2022	4.56	12/2/2025	11/29/2022	106.75164	104.6633851	102.6268727	100.640475	98.70262587	96.81182029	94.96661101	93.16560606	91.40746614
221130A00076	11/30/2022	4.15	11/30/2027	11/30/2022	112.94693	108.8015432	104.8350068	101.0386168	97.40413799	93.92377975	90.5901696	87.39632834	84.33564674
221130A00019	11/30/2022	4.63	11/26/2025	11/30/2022	106.83476	104.7618148	102.7399716	100.7676265	98.84324283	96.96534283	95.13250533	93.34336296	91.59659971
221130A00041	11/30/2022	4.95	12/2/2024	11/30/2022	103.62501	102.5385744	101.4750286	100.4336573	99.41377112	98.41470889	97.43583637	96.47654489	95.53625004
221130A00044	11/30/2022	5.09	5/30/2024	11/30/2022	101.95766	101.3747925	100.7985948	100.2289563	99.66576537	99.10891303	98.55829264	98.01379996	97.47533306
221130A00110	11/30/2022	4.15	11/30/2027	11/30/2022	112.44024	108.3191522	104.3756359	100.6010549	96.9872438	93.52647726	90.21144411	87.03522257	83.99125729
221130A00085	11/30/2022	4.19	11/30/2027	11/30/2022	112.60163	108.4772882	104.5306162	100.7529784	97.1362053	93.67256806	90.35475187	87.17583156	84.12924856
221130A00061	11/30/2022	5.05	11/30/2023	11/30/2022	100.2943	100.2110177	100.1278707	100.0448604	99.96198649	99.87924859	99.79664642	99.71417965	99.63184795
221130A00032	11/30/2022	4.37	11/30/2027	11/30/2022	113.32791	109.1889	105.2280274	101.4366337	97.80653207	94.32997666	90.99963679	87.80857202	84.75020925
221130A00033	11/30/2022	4.37	11/30/2027	11/30/2022	113.32791	109.1889	105.2280274	101.4366337	97.80653207	94.32997666	90.99963679	87.80857202	84.75020925
221130A00039	11/30/2022	5.16	11/30/2023	11/30/2022	100.30346	100.2201652	100.1370107	100.0539928	99.97111127	99.88836582	99.80575611	99.72328181	99.6409426
221202A00013	12/2/2022	4.78	12/3/2024	12/2/2022	103.4471	102.3590737	101.2940378	100.2512682	99.23007086	98.22978016	97.24975772	96.28939093	95.34809164
221202A00018	12/2/2022	4.16	12/2/2027	12/2/2022	112.49787	108.370372	104.4208909	100.6407656	97.02180182	93.55624774	90.23676741	87.05641607	84.00861705
221202A00025	12/2/2022	4.06	12/2/2026	12/2/2022	109.28318	106.1769432	103.1767436	100.278348	97.47771848	94.77100219	92.15452184	89.62476639	87.17838252
221205A00065	12/5/2022	4.13	12/6/2027	12/5/2022	112.41093	108.2746866	104.3172432	100.5298736	96.90433069	93.43281405	90.10794255	86.92272965	83.87055994
221205A00024	12/5/2022	4.13	12/3/2027	12/5/2022	112.38523	108.257384	104.3076915	100.5274783	96.90853918	93.44311228	90.12385237	86.94380619	83.89638922
221205A00048	12/5/2022	4.4	12/5/2025	12/5/2022	106.44692	104.3539973	102.3130833	100.3225384	98.38078327	96.48630047	94.63763102	92.83337192	91.07217349
221206A00025	12/6/2022	4.27	12/4/2026	12/6/2022	109.56769	106.4606945	103.4596717	100.5603929	97.75882377	95.05111537	92.43359381	89.90275141	87.45523803
221206A00039	12/6/2022	4.29	12/7/2026	12/6/2022	109.65668	106.5404099	103.5306262	100.6230731	97.81368861	95.09859787	92.47410274	89.93667278	87.48293644
221206A00036	12/6/2022	4.13	12/6/2027	12/6/2022	112.41093	108.2746866	104.3172432	100.5298736	96.90433069	93.43281405	90.10794255	86.92272965	83.87055994
221206A00011	12/6/2022	4.29	12/7/2026	12/6/2022	109.65668	106.5404099	103.5306262	100.6230731	97.81368861	95.09859787	92.47410274	89.93667278	87.48293644
221207A00012	12/7/2022	4.21	12/7/2026	12/7/2022	109.4103	106.2978513	103.2917931	100.3878707	97.58202553	94.87038562	92.24925578	89.71510834	87.26457446
221207A00010	12/7/2022	4.08	12/7/2027	12/7/2022	112.21682	108.0818925	104.1258468	100.339948	96.71594027	93.24601486	89.9227832	86.73925194	83.68879946

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221207A00009	12/7/2022	4.38	12/8/2025	12/7/2022	106.43374	104.3330432	102.2846919	100.287025	98.33844833	96.43743026	94.5824985	92.77223743	91.00528545
221207A00074	12/7/2022	4.66	12/6/2024	12/7/2022	103.33903	102.2437778	101.1718424	100.122485	99.0949964	98.0886969	97.10293475	96.13708467	95.19054659
221207A00017	12/7/2022	3.86	12/7/2027	12/7/2022	111.8313	107.6900631	103.7284241	99.93760173	96.3092915	92.83563934	89.50921464	86.32298493	83.27029221
221207A00035	12/7/2022	4.31	1/7/2026	12/7/2022	106.56734	104.3862948	102.2610668	100.1898279	98.17082621	96.20238142	94.28288087	92.41077639	90.58458104
221207A00032	12/7/2022	4.52	12/7/2032	12/7/2022	126.37909	117.1090603	108.6317966	100.8743006	93.77068907	87.26146246	81.29285458	75.81625205	70.7876751
221208A00020	12/8/2022	4.11	12/8/2027	12/8/2022	112.34693	108.2067472	104.2457327	100.4551386	96.82669207	93.35256864	90.02536507	86.83807428	83.78406189
221208A00110	12/8/2022	4.07	12/8/2027	12/8/2022	112.18469	108.0477955	104.0899695	100.3024636	96.67700907	93.20578508	89.88139205	86.69682635	83.64545689
221208A00052	2/15/2023	4.01	2/15/2028	2/15/2023	112.51003	108.183757	104.051953	100.1048121	96.33307744	92.72800701	89.28134199	85.98527739	82.8324346
221208A00051	2/15/2023	4.27	2/13/2026	2/15/2023	106.8342	104.549364	102.3252502	100.1598505	98.05124078	95.99757436	93.99707781	92.04804764	90.14884696
221208A00054	2/1/2023	4.02	2/1/2028	2/1/2023	112.43144	108.1459725	104.0515065	100.1384357	96.39769361	92.8207211	89.39943463	86.12619693	82.99378946
221212A00052	12/12/2022	4.97	6/12/2024	12/12/2022	101.99501	101.3771182	100.766733	100.1637213	99.56795006	98.97928898	98.39761107	97.82279233	97.25471167
221212A00041	12/12/2022	4.15	12/10/2027	12/12/2022	112.52641	108.3773387	104.4079675	100.6095145	96.97367497	93.49259467	90.15884274	86.96538639	83.90556724
221212A00040	12/12/2022	4.45	12/12/2025	12/12/2022	106.61978	104.5065431	102.4461337	100.4368735	98.47714714	96.56540271	94.700149	92.87995242	91.10343435
221212A00011	12/12/2022	3.89	12/10/2027	12/12/2022	111.97803	107.8259152	103.854124	100.0538234	96.4166637	92.93474887	89.60060938	86.40717654	83.34775872
221212A00071	12/12/2022	4.15	12/13/2027	12/12/2022	112.55227	108.3948006	104.4176798	100.6120745	96.96963763	93.48247617	90.14312309	86.94451209	83.87995372
221212A00063	12/12/2022	4.45	12/12/2025	12/12/2022	106.61978	104.5065431	102.4461337	100.4368735	98.47714714	96.56540271	94.700149	92.87995242	91.10343435
221212A00117	6/12/2023	4.11	6/12/2026	6/12/2023	107.54082	104.9278496	102.39249	99.93195623	97.54358207	95.22481477	92.97320922	90.78642263	88.66220949
221213A00047	12/13/2022	3.8	12/13/2027	12/13/2022	111.6357	107.4826791	103.5103896	99.70996119	96.07301083	92.5916121	89.2582674	86.06588225	83.00774128
221213A00061	12/13/2022	4.15	12/11/2026	12/13/2022	109.26076	106.140125	103.1264647	100.2154868	97.40309923	94.68539866	92.05866063	89.51933004	87.06401241
221213A00017	12/13/2022	4.1	12/14/2026	12/13/2022	109.13227	106.005765	102.9866675	100.0706569	97.25361578	94.53161768	91.90091621	89.35793585	86.89926297
221213A00004	12/13/2022	3.99	12/13/2027	12/13/2022	111.90116	107.7569541	103.7926696	99.99949558	96.36910151	92.89360949	89.56556716	86.37792217	83.32399835
221213A00049	12/13/2022	4.01	12/13/2027	12/13/2022	111.98255	107.8366849	103.8707959	100.0760679	96.44416852	92.96721783	89.63776165	86.44874591	83.39349277
221213A00042	12/13/2022	4.49	3/13/2025	12/13/2022	104.02193	102.6622606	101.3269521	100.0154053	98.72703956	97.46129296	96.21762123	94.99549717	93.79441003
221214A00030	12/14/2022	4.02	12/14/2027	12/14/2022	112.03152	107.8820401	103.9127797	100.1149043	96.48006647	93.00037234	89.66835481	86.47694775	83.41946214
221214A00020	12/14/2022	4.2	12/12/2025	12/14/2022	106.09186	103.9843152	101.929484	99.92569144	97.97132525	96.06483663	94.20473726	92.38959634	90.61803797
221214A00022	12/14/2022	4.17	2/13/2026	12/14/2022	106.60603	104.3238493	102.1023298	99.93947052	97.83334916	95.78212038	93.78401225	91.83732269	89.94041615
221214A00102	12/14/2022	4.33	12/15/2025	12/14/2022	106.39465	104.2759373	102.2103454	100.196176	98.23180002	96.31565251	94.44622992	92.62208706	90.84183436
221214A00031	12/14/2022	3.97	12/14/2027	12/14/2022	111.82791	107.6825857	103.7173416	99.92335598	96.29228616	92.81624321	89.48776458	86.29978848	83.24563009
221214A00003	12/14/2022	4.26	12/12/2025	12/14/2022	106.21856	104.1096499	102.0534799	100.0483751	98.0927225	96.18497249	94.32363608	92.5072818	90.7345331
221215A00115	12/15/2022	4	12/15/2027	12/15/2022	111.9583	107.8076975	103.8374768	100.0387894	96.40327537	92.92303008	89.59057612	86.39883794	83.34111783
221215A00082	12/15/2022	4.27	12/15/2025	12/15/2022	106.26746	104.150127	102.0858838	100.0730365	98.10995652	96.19507973	94.32690326	92.50398264	90.72492892
221216A00008	12/16/2022	4.27	12/16/2025	12/16/2022	106.27672	104.1566568	102.0897977	100.0744434	98.10896027	96.19177936	94.32139323	92.49635304	90.71526578
221216A00009	12/16/2022	4.27	12/16/2025	12/16/2022	106.27672	104.1566568	102.0897977	100.0744434	98.10896027	96.19177936	94.32139323	92.49635304	90.71526578

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221216A00007	12/16/2022	4.27	12/16/2025	12/16/2022	106.27672	104.1566568	102.0897977	100.0744434	98.10896027	96.19177936	94.32139323	92.49635304	90.71526578
221216A00010	12/16/2022	4.27	12/16/2025	12/16/2022	106.27672	104.1566568	102.0897977	100.0744434	98.10896027	96.19177936	94.32139323	92.49635304	90.71526578
221216A00048	12/16/2022	4.32	7/16/2025	12/16/2022	104.93992	103.2395886	101.575053	99.94524977	98.3491539	96.7857812	95.25418597	93.75345909	92.2827263
221216A00045	12/16/2022	4.38	5/16/2025	12/16/2022	104.45855	102.9254291	101.4225865	99.94919118	98.50444504	97.0875785	95.69784916	94.33454059	92.99696121
221216A00049	12/16/2022	4.29	8/15/2025	12/16/2022	105.16542	103.3841856	101.6418861	99.93738374	98.26958413	96.63743384	95.03991852	93.47606105	91.94491984
221216A00044	12/16/2022	4.43	4/16/2025	12/16/2022	104.25213	102.800592	101.3766376	99.97954633	98.60862403	97.26319991	95.94262572	94.6462747	93.37354078
221216A00047	12/16/2022	4.34	6/16/2025	12/16/2022	104.68966	103.0714986	101.4862797	99.93306449	98.41094625	96.91905251	95.45654331	94.02260966	92.61647212
221219A00043	12/19/2022	4.07	12/17/2027	12/19/2022	112.26034	108.0983482	104.1173507	100.3084624	96.6632886	93.17389157	89.83276343	86.6328001	83.56727726
221220A00024	12/20/2022	4.7	12/20/2024	12/20/2022	103.49512	102.3623155	101.254434	100.1706539	99.1101932	98.07230369	97.05626877	96.06140195	95.08704526
221220A00025	12/20/2022	4.38	12/22/2025	12/20/2022	106.56754	104.4285289	102.3434652	100.3106133	98.32830699	96.39494673	94.50899612	92.66897895	90.8734763
221220A00017	12/20/2022	4.99	12/20/2023	12/20/2022	100.47999	100.3412846	100.2029796	100.0650701	99.92755449	99.79043097	99.65369786	99.51735344	99.38139602
221221A00053	12/21/2022	4.15	12/21/2027	12/21/2022	112.62121	108.4413788	104.4436084	100.6189508	96.95894649	93.45559779	90.10134092	86.88901979	83.81186164
221221A00043	12/21/2022	4.26	12/19/2025	12/21/2022	106.2832	104.155174	102.080696	100.0580461	98.08557521	96.16170004	94.28489944	92.45371167	90.66673152
221223A00035	12/23/2022	4.44	12/23/2025	12/23/2022	106.70558	104.5624301	102.4733711	100.4366614	98.45062887	96.51366822	94.62423773	92.7808561	90.98209962
221223A00016	12/23/2022	4.73	12/23/2024	12/23/2022	103.55365	102.4126593	101.2969341	100.2056419	99.13798484	98.09319968	97.07055563	96.06935279	95.08892055
221228A00044	12/28/2022	4.31	12/28/2027	12/28/2022	113.33903	109.1261158	105.0972139	101.2432443	97.55563148	94.02626992	90.64749537	87.41205824	84.31309865
221229A00043	12/29/2022	4.96	7/1/2024	12/29/2022	102.1458	101.4765177	100.8160211	100.1641396	99.52070518	98.88555436	98.25852779	97.63947021	97.02823026
221229A00075	12/29/2022	5.2	12/29/2037	12/29/2022	143.10832	128.5538026	115.786653	104.5707429	94.70263328	86.00687963	78.33203216	71.54722602	65.53927251
230104A00004	1/4/2023	4.19	1/4/2028	1/4/2023	112.90619	108.6838791	104.6467937	100.7857553	97.09209831	93.55763439	90.17462287	86.93574368	83.83407189
230104A00044	1/4/2023	4.2	1/4/2028	1/4/2023	112.94746	108.7243051	104.6863949	100.8245579	97.13012772	93.5949148	90.21117757	86.97159504	83.86924142
230105A00020	1/5/2023	4.32	1/5/2028	1/5/2023	113.45169	109.2154995	105.1651115	101.2913183	97.58542578	94.03921873	90.64493126	87.39521961	84.2831366
230106A00017	1/6/2023	4.23	1/6/2028	1/6/2023	113.08859	108.8572902	104.8117647	100.9428024	97.24170366	93.70024862	90.31066733	87.06561246	83.9581338
230106A00019	1/6/2023	4.23	1/6/2028	1/6/2023	113.08859	108.8572902	104.8117647	100.9428024	97.24170366	93.70024862	90.31066733	87.06561246	83.9581338
230109A00042	1/9/2023	4.07	12/20/2027	1/9/2023	112.28555	108.1152046	104.1264896	100.3104824	96.65874572	93.16330292	89.8166097	86.61152833	83.54130323
230109A00083	1/9/2023	4.79	1/11/2038	1/9/2023	137.88822	123.6455751	111.1663515	100.2162853	90.59368638	82.12474057	74.65951226	68.06853833	62.23992426
230110A00040	1/13/2023	4.07	12/13/2027	1/13/2023	112.22671	108.0758773	104.1051747	100.305785	96.66936957	93.18804283	89.85434513	86.66121713	83.60197604
230110A00023	1/10/2023	4.3	1/12/2026	1/10/2023	106.59197	104.3975385	102.2595304	100.1760899	98.14543714	96.16586508	94.23573605	92.35347821	90.51758232
230110A00043	1/10/2023	3.84	1/10/2028	1/10/2023	112.02493	107.7905696	103.7431595	99.87338585	96.1724557	92.63206303	89.24435861	86.00192205	82.89773575
230110A00047	1/10/2023	3.84	1/10/2028	1/10/2023	112.02493	107.7905696	103.7431595	99.87338585	96.1724557	92.63206303	89.24435861	86.00192205	82.89773575
230110A00055	1/10/2023	4.06	1/10/2028	1/10/2023	112.41873	108.1908704	104.1491961	100.2844561	96.58790925	93.0512979	89.66681753	86.42708932	83.32513426
230110A00070	1/10/2023	4.27	1/9/2026	1/10/2023	106.49848	104.3129603	102.1834786	100.1081996	98.0853609	96.11327188	94.1903104	92.31491926	90.48560308
230111A00072	1/11/2023	4.21	1/12/2026	1/11/2023	106.39439	104.2021691	102.0663268	99.98500824	97.95643482	95.97890073	94.05076945	92.17047027	90.33649503
230111A00069	1/11/2023	4.54	1/10/2025	1/11/2023	103.47467	102.2871667	101.1270481	99.99336973	98.88523336	97.80178119	96.74219344	95.70568636	94.69151019

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230111A00046	1/11/2023	4.28	1/13/2026	1/11/2023	106.5573	104.3606351	102.2205068	100.1350535	98.10248983	96.12110359	94.18925236	92.30535976	90.46791229
230111A00019	1/11/2023	3.83	1/11/2028	1/11/2023	111.99132	107.7550438	103.7059147	99.83460144	96.13229725	92.59068321	89.20189825	85.95851101	82.85349379
230111A00039	1/11/2023	4.6	1/13/2025	1/11/2023	103.57105	102.3751136	101.2069271	100.0655345	98.95001961	97.8595079	96.79316378	95.75018858	94.72981854
230111A00013	1/11/2023	4.25	1/9/2026	1/11/2023	106.45474	104.2697031	102.1406993	100.0658885	98.04350853	96.07186918	94.1493485	92.27438957	90.44549722
230111A00004	1/11/2023	3.83	1/11/2028	1/11/2023	111.99132	107.7550438	103.7059147	99.83460144	96.13229725	92.59068321	89.20189825	85.95851101	82.85349379
230112A00041	1/12/2023	4.2	1/12/2026	1/12/2023	106.37244	104.1804614	102.0448597	99.96377694	97.93543456	95.95812691	94.0302176	92.15013605	90.31637422
230112A00042	1/12/2023	4.09	1/12/2027	1/12/2023	109.35184	106.1459948	103.0524276	100.0665265	97.183903	94.40037671	91.71196382	89.11486646	86.60546269
230112A00044	1/12/2023	4	1/12/2028	1/12/2023	112.18618	107.9579384	103.9161622	100.0515708	96.35539971	92.81936984	89.435657	86.1968643	83.09599618
230112A00014	1/12/2023	4.09	1/12/2027	1/12/2023	109.35184	106.1459948	103.0524276	100.0665265	97.183903	94.40037671	91.71196382	89.11486646	86.60546269
230112A00004	1/12/2023	4	1/12/2028	1/12/2023	112.18618	107.9579384	103.9161622	100.0515708	96.35539971	92.81936984	89.435657	86.1968643	83.09599618
230112A00065	1/12/2023	4.09	1/12/2027	1/12/2023	109.35184	106.1459948	103.0524276	100.0665265	97.183903	94.40037671	91.71196382	89.11486646	86.60546269
230112A00066	1/12/2023	4	1/12/2028	1/12/2023	112.18618	107.9579384	103.9161622	100.0515708	96.35539971	92.81936984	89.435657	86.1968643	83.09599618
230112A00062	3/15/2023	3.83	3/15/2028	3/15/2023	111.97028	107.5777239	103.3861476	99.3852991	95.56550347	91.91762563	88.43303745	85.10358701	81.92156996
230112A00060	3/15/2023	4.01	3/13/2026	3/15/2023	106.49384	104.1355024	101.8418088	99.610636	97.43993946	95.32775313	93.2721863	91.2714201	89.32370444
230112A00063	3/15/2023	3.83	3/15/2028	3/15/2023	111.97028	107.5777239	103.3861476	99.3852991	95.56550347	91.91762563	88.43303745	85.10358701	81.92156996
230112A00061	3/15/2023	4.01	3/13/2026	3/15/2023	106.49384	104.1355024	101.8418088	99.610636	97.43993946	95.32775313	93.2721863	91.2714201	89.32370444
230113A00055	1/13/2023	3.88	1/13/2028	1/13/2023	111.69601	107.4753484	103.4410391	99.58379888	95.89486158	92.3659464	88.98922817	85.75730937	82.66319414
230113A00080	1/13/2023	4.18	1/13/2026	1/13/2023	106.3375	104.1432941	102.0055781	99.92248816	97.89224033	95.91312386	93.98349757	92.10178635	90.26647791
230117A00040	1/17/2023	4.07	1/19/2027	1/17/2023	109.34833	106.1242878	103.0137013	100.0118934	97.11440788	94.31700094	91.61562956	89.00644053	86.48576012
230117A00048	1/17/2023	3.97	1/14/2028	1/17/2023	112.07762	107.8464383	103.802081	99.93523846	96.23711998	92.69942172	89.31429691	86.07432783	82.9724997
230117A00015	1/17/2023	4.52	1/17/2025	1/17/2023	103.50589	102.299934	101.1222129	99.97173908	98.84757311	97.74881828	96.67461828	95.62415495	94.59664615
230117A00087	1/17/2023	3.93	1/18/2028	1/17/2023	111.94285	107.7040904	103.6529336	99.78000563	96.07646016	92.53394215	89.14455757	85.90084508	82.7957496
230118A00039	1/18/2023	3.81	1/18/2028	1/18/2023	111.44305	107.2147027	103.1736189	99.3104405	95.616334	92.08295688	88.70242698	85.46729425	82.37051439
230118A00023	1/18/2023	3.8	1/18/2028	1/18/2023	111.4014	107.1739204	103.1336761	99.27131008	95.57799015	92.04537477	88.66558276	85.43116502	82.33507812
230118A00034	1/18/2023	3.89	1/18/2028	1/18/2023	111.77625	107.5409611	103.493162	99.62348392	95.92308477	92.38361373	88.99718071	85.75632814	82.65400453
230118A00033	1/18/2023	3.81	1/18/2028	1/18/2023	111.44305	107.2147027	103.1736189	99.3104405	95.616334	92.08295688	88.70242698	85.46729425	82.37051439
230118A00087	1/18/2023	4.02	1/16/2026	1/18/2023	106.01142	103.8130282	101.6714148	99.58469995	97.55108479	95.56884465	93.63632525	91.75193917	89.91416252
230118A00058	1/23/2023	4	2/17/2026	1/23/2023	106.2562	103.9664675	101.7379027	99.56849886	97.4563251	95.39952701	93.39632284	91.44500021	89.54391278
230118A00029	1/18/2023	3.81	1/18/2028	1/18/2023	111.44305	107.2147027	103.1736189	99.3104405	95.616334	92.08295688	88.70242698	85.46729425	82.37051439
230118A00019	1/18/2023	3.59	1/18/2028	1/18/2023	111.04469	106.8099089	102.7631489	98.89500027	95.19657706	91.65948796	88.27580557	85.03803785	81.93910151
230119A00034	1/19/2023	3.82	1/19/2028	1/19/2023	111.49226	107.2602993	103.2158534	99.34954479	95.65252405	92.11643376	88.73337795	85.4958938	82.39692514
230119A00105	1/19/2023	3.9	1/19/2027	1/19/2023	108.80521	105.589894	102.4878121	99.49428696	96.60486984	93.81532421	91.12161403	88.51989273	86.006493
230119A00108	1/19/2023	3.81	1/19/2028	1/19/2023	111.45058	107.2194915	103.1758861	99.31039095	95.61415774	92.07883009	88.69651304	85.4597447	82.3614698

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230119A00137	1/19/2023	3.9	1/19/2027	1/19/2023	108.80521	105.589894	102.4878121	99.49428696	96.60486984	93.81532421	91.12161403	88.51989273	86.006493
230119A00075	1/19/2023	4.44	1/21/2025	1/19/2023	103.43898	102.2230432	101.0358153	99.87628952	98.74350266	97.63653583	96.55451187	95.49659298	94.46197855
230120A00063	1/20/2023	4.83	7/22/2024	1/20/2023	102.24536	101.5194143	100.8038083	100.0983238	99.40274679	98.71686915	98.04048868	97.37340873	96.71543806
230120A00065	1/20/2023	4.52	1/21/2025	1/20/2023	103.53746	102.32088	101.1330243	99.97288093	98.83948646	97.73192172	96.6493093	95.59081114	94.55562639
230120A00079	1/20/2023	3.68	1/20/2028	1/20/2023	111.43555	107.1874106	103.1279916	99.24784115	95.53803312	91.99013891	88.59619634	85.34868095	82.2404792
230120A00021	1/20/2023	4.13	1/20/2026	1/20/2023	106.28942	104.077445	101.9227957	99.82356925	97.77794216	95.78416669	93.8405667	91.94553416	90.09752567
230120A00022	1/20/2023	3.9	1/20/2028	1/20/2023	111.83344	107.5917797	103.5380793	99.66293785	95.95748218	92.41333264	89.02257255	85.77771964	82.67169956
230120A00071	1/20/2023	4.31	1/21/2025	1/20/2023	103.42473	102.2066614	101.0173954	99.8559153	98.72125411	97.61248915	96.52873971	95.46916465	94.4329602
230120A00103	1/20/2023	3.92	1/20/2026	1/20/2023	106.09175	103.8767173	101.7191979	99.6172799	97.56913127	95.572996	93.62719023	91.73009856	89.88017068
230120A00029	1/20/2023	3.9	1/20/2028	1/20/2023	111.83344	107.5917797	103.5380793	99.66293785	95.95748218	92.41333264	89.02257255	85.77771964	82.67169956
230120A00027	1/20/2023	4.13	1/20/2026	1/20/2023	106.28942	104.077445	101.9227957	99.82356925	97.77794216	95.78416669	93.8405667	91.94553416	90.09752567
230120A00114	1/20/2023	4.13	1/20/2026	1/20/2023	106.28942	104.077445	101.9227957	99.82356925	97.77794216	95.78416669	93.8405667	91.94553416	90.09752567
230120A00117	1/20/2023	3.9	1/20/2028	1/20/2023	111.83344	107.5917797	103.5380793	99.66293785	95.95748218	92.41333264	89.02257255	85.77771964	82.67169956
230123A00051	1/23/2023	3.75	1/21/2028	1/23/2023	111.73593	107.4789093	103.4110314	99.52281954	95.80532483	92.25009729	88.8491548	85.59495426	82.48036468
230123A00078	1/23/2023	4.41	6/23/2025	1/23/2023	104.87241	103.2336668	101.6285385	100.05605	98.51526779	97.00529395	95.52526431	94.07434701	92.6517409
230124A00046	1/24/2023	3.99	1/24/2028	1/24/2023	112.2408	107.9802711	103.9088403	100.0170369	96.29591761	92.73703772	89.33242011	86.07452632	82.95622978
230124A00045	1/24/2023	3.99	1/24/2028	1/24/2023	112.2408	107.9802711	103.9088403	100.0170369	96.29591761	92.73703772	89.33242011	86.07452632	82.95622978
230124A00056	3/28/2023	4.19	3/28/2033	3/28/2023	124.09417	114.6510491	106.0418284	98.18745622	91.01678646	84.46575178	78.47662544	72.99736358	67.98101867
230124A00055	6/15/2023	4.13	6/15/2032	6/15/2023	122.06542	113.4069318	105.4586005	98.15774541	91.4475457	85.27646568	79.59773695	74.36889407	69.55135751
230124A00058	6/15/2023	4.21	6/15/2034	6/15/2023	126.27692	115.6697823	106.1012789	97.46244587	89.65634648	82.59668197	76.20657204	70.41748068	65.16826952
230124A00015	1/24/2023	4.09	1/25/2027	1/24/2023	109.464	106.2224513	103.0954321	100.0781982	97.16623321	94.35523691	91.64111366	89.01996096	86.48805899
230124A00022	1/24/2023	4.39	1/24/2025	1/24/2023	103.54687	102.3201764	101.1226669	99.95330478	98.81110441	97.69512586	96.60447215	95.53828683	94.49575171
230124A00024	1/24/2023	4.23	1/23/2026	1/24/2023	106.53842	104.3157806	102.1508924	100.0418311	97.98675467	95.9838975	94.03156679	92.12813869	90.27205489
230124A00025	1/24/2023	4.09	1/25/2027	1/24/2023	109.464	106.2224513	103.0954321	100.0781982	97.16623321	94.35523691	91.64111366	89.01996096	86.48805899
230124A00004	1/24/2023	3.99	1/24/2028	1/24/2023	112.2408	107.9802711	103.9088403	100.0170369	96.29591761	92.73703772	89.33242011	86.07452632	82.95622978
230124A00035	1/24/2023	4.23	1/26/2026	1/24/2023	106.56573	104.3349308	102.1622595	100.0457705	97.98360419	95.97397874	94.01518583	92.10558704	90.24361031
230124A00041	1/24/2023	4.6	1/24/2025	1/24/2023	103.66027	102.4350767	101.238989	100.0709739	98.93004971	97.81528002	96.72577118	95.66066986	94.61916086
230125A00030	1/25/2023	3.91	1/25/2028	1/25/2023	111.91413	107.6578362	103.5906408	99.70306096	95.98614708	92.43144894	89.03098453	85.77721111	82.66299833
230125A00023	1/25/2023	3.69	1/25/2028	1/25/2023	111.51515	107.2523405	103.1794011	99.28679187	95.56550999	92.00705571	88.6034011	85.34696084	82.23056502
230126A00033	1/26/2023	4.84	7/26/2024	1/26/2023	102.2932	101.5563032	100.8300509	100.1142162	99.40857572	98.7129126	98.02701596	97.35068085	96.68370805
230126A00036	1/26/2023	4.19	1/26/2026	1/26/2023	106.4764	104.2466224	102.0749461	99.95943169	97.89822027	95.88953049	93.93165463	92.02295478	90.16185939
230126A00034	1/26/2023	4.56	1/24/2025	1/26/2023	103.6107	102.3858359	101.190066	100.0223635	98.88174685	97.76727976	96.6780687	95.61326049	94.57204004
230126A00015	1/26/2023	4.08	1/26/2027	1/26/2023	109.44049	106.1967182	103.0676342	100.0484861	97.13474794	94.32211077	91.60647063	88.98391735	86.45072387

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230127A00096	1/27/2023	4.21	1/27/2026	1/27/2023	106.53011	104.2971078	102.1223415	100.0038659	97.93981602	95.92840476	93.96791891	92.05671547	90.19321802
230127A00095	1/27/2023	4.59	1/27/2025	1/27/2023	103.67213	102.4390505	101.2354429	100.0602577	98.91249503	97.79120143	96.69546722	95.62442404	94.5772425
230130A00095	2/3/2023	4.25	5/26/2026	2/3/2023	107.74457	105.1746761	102.6801094	100.2582097	97.90642511	95.62231066	93.40352249	91.24781314	89.15302692
230130A00096	1/30/2023	4.67	1/30/2025	1/30/2023	103.79682	102.5551111	101.3432572	100.1601887	99.00488691	97.87638105	96.77374502	95.69609501	94.6425871
230130A00045	1/30/2023	4.02	1/28/2028	1/30/2023	112.39859	108.1243792	104.0402478	100.1366528	96.40458706	92.83554683	89.42150022	86.15485807	83.02844679
230130A00086	1/30/2023	4.16	2/1/2027	1/30/2023	109.75148	106.4867367	103.3378746	100.3000755	97.36875191	94.53953686	91.80827175	89.17099483	86.62393043
230130A00087	1/30/2023	4.04	1/28/2028	1/30/2023	112.48242	108.2064529	104.1206218	100.215382	96.48172411	92.91114227	89.49560257	86.22751392	83.09970089
230130A00127	1/30/2023	4.02	2/1/2028	1/30/2023	112.43144	108.1459725	104.0515065	100.1384357	96.39769361	92.8207211	89.39943463	86.12619693	82.99378946
230131A00032	2/3/2023	4.17	7/30/2026	2/3/2023	108.13046	105.3823721	102.7190092	100.1372049	97.63393205	95.20629909	92.85154237	90.56701962	88.35020355
230131A00034	2/3/2023	3.99	12/23/2027	2/3/2023	111.9831	107.8111009	103.8211716	100.0043436	96.35214552	92.85656913	89.51004125	86.30539748	83.23585773
230131A00009	1/31/2023	3.98	1/31/2028	1/31/2023	112.25482	107.9758595	103.887537	99.98026491	96.24499464	92.67318437	89.25676712	85.9881214	82.86004377
230131A00006	1/31/2023	4.23	2/2/2026	1/31/2023	106.63147	104.3810284	102.1896352	100.0553149	97.97617349	95.95039581	93.97624172	92.05204219	90.17619577
230131A00004	1/31/2023	3.76	1/31/2028	1/31/2023	111.85515	107.5696131	103.4754923	99.56314362	95.82346459	92.2478632	88.82822604	85.55688852	82.42660721
230131A00072	1/31/2023	4.99	4/30/2024	1/31/2023	101.68992	101.1881827	100.6913949	100.1994877	99.71238941	99.23002986	98.75234011	98.27925259	97.81070102
230131A00057	1/31/2023	4.1	1/29/2027	1/31/2023	109.53072	106.2776721	103.1398674	100.1125186	97.19106862	94.37117971	91.64872093	89.01975681	86.48053667
230131A00071	1/31/2023	4.22	1/30/2026	1/31/2023	106.57968	104.3382717	102.155484	100.0293511	97.95799018	95.93959737	93.97244368	92.05487115	90.1852893
230131A00095	1/31/2023	4.22	1/30/2026	1/31/2023	106.57968	104.3382717	102.155484	100.0293511	97.95799018	95.93959737	93.97244368	92.05487115	90.1852893
230131A00067	1/31/2023	4.02	2/2/2026	1/31/2023	106.43117	104.1775934	101.9832647	99.84619386	97.76447765	95.73629245	93.75989	91.83359364	89.95579464
230201A00022	2/1/2023	5.04	2/1/2024	2/1/2023	100.8979	100.6403711	100.3841565	100.1292453	99.87562756	99.62329355	99.37223352	99.12243786	98.87389704
230201A00011	2/1/2023	3.93	2/1/2028	2/1/2023	112.05325	107.7757261	103.688946	99.78331227	96.04976868	92.47976565	89.06522884	85.79852968	82.67245799
230201A00012	2/1/2023	4.08	2/1/2027	2/1/2023	109.49311	106.2325633	103.087788	100.0539683	97.1265202	94.30108032	91.57349345	88.9398011	86.39623074
230202A00050	2/2/2023	3.82	2/2/2028	2/2/2023	111.59913	107.3283554	103.2482589	99.34923856	95.62223677	92.05870282	88.65056115	85.39018196	82.27035385
230202A00096	2/2/2023	3.81	2/2/2028	2/2/2023	111.55708	107.2871915	103.2079501	99.30975707	95.58355609	92.02079745	88.61340663	85.35375479	82.23463147
230202A00008	2/2/2023	3.81	2/2/2028	2/2/2023	111.55708	107.2871915	103.2079501	99.30975707	95.58355609	92.02079745	88.61340663	85.35375479	82.23463147
230202A00038	2/2/2023	3.84	2/2/2028	2/2/2023	111.68322	107.4106832	103.3288766	99.42820154	95.69959814	92.13451356	88.7248702	85.4630363	82.34179863
230203A00021	2/8/2023	4.21	6/17/2026	2/8/2023	107.84806	105.2174673	102.6652904	100.1886983	97.78498664	95.45156671	93.18595952	90.98579037	88.84878361
230203A00051	2/14/2023	4.64	2/14/2025	2/14/2023	103.93527	102.6500999	101.3915154	100.1586922	98.9508418	97.76720834	96.60706655	95.46972032	94.3545012
230203A00053	2/10/2023	4.32	2/10/2026	2/10/2023	106.91715	104.6400993	102.4233412	100.2648802	98.1627995	96.11526032	94.12049761	92.17681661	90.28258943
230203A00046	2/10/2023	4.65	2/10/2025	2/10/2023	103.90015	102.6266234	101.3806448	100.1613202	98.96779275	97.79924247	96.6548841	95.53396543	94.43576548
230203A00058	2/3/2023	4.34	2/3/2026	2/3/2023	106.88962	104.6332979	102.4362352	100.2964493	98.21204184	96.18119338	94.20215931	92.2732661	90.39290774
230203A00059	2/3/2023	4.67	2/3/2025	2/3/2023	103.84134	102.5881734	101.364254	100.1685612	99.00012007	97.85800039	96.74131398	95.6492124	94.58088471
230203A00045	2/14/2023	4.31	2/13/2026	2/14/2023	106.92546	104.6395698	102.4144184	100.2480024	98.13839743	96.08375595	94.08230403	92.13233762	90.23221928
230203A00043	2/14/2023	4.31	2/13/2026	2/14/2023	106.92546	104.6395698	102.4144184	100.2480024	98.13839743	96.08375595	94.08230403	92.13233762	90.23221928

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230203A00057	2/3/2023	4.34	2/3/2026	2/3/2023	106.88962	104.6332979	102.4362352	100.2964493	98.21204184	96.18119338	94.20215931	92.2732661	90.39290774
230203A00048	2/10/2023	4.65	2/10/2025	2/10/2023	103.90015	102.6266234	101.3806448	100.1613202	98.96779275	97.79924247	96.6548841	95.53396543	94.43576548
230203A00050	2/14/2023	4.64	2/14/2025	2/14/2023	103.93527	102.6500999	101.3915154	100.1586922	98.9508418	97.76720834	96.60706655	95.46972032	94.3545012
230203A00054	2/10/2023	4.32	2/10/2026	2/10/2023	106.91715	104.6400993	102.4233412	100.2648802	98.1627995	96.11526032	94.12049761	92.17681661	90.28258943
230207A00025	2/7/2023	4.62	2/7/2025	2/7/2023	103.97766	102.7098217	101.4703641	100.2583306	99.07280926	97.91292861	96.77785526	95.6667919	94.57897534
230207A00046	2/7/2023	4.83	2/7/2025	2/7/2023	104.09399	102.8277128	101.5897412	100.3791202	99.19494121	98.03633612	96.90247462	95.79256236	94.70583895
230208A00036	2/8/2023	4.43	2/6/2026	2/8/2023	107.12456	104.8567768	102.6487535	100.4984951	98.40409424	96.36372167	94.37562273	92.43811353	90.54957747
230208A00038	2/8/2023	4.27	2/8/2027	2/8/2023	110.17788	106.8858157	103.7112224	100.6492175	97.69515384	94.84460534	92.09335548	89.43738569	86.87286475
230208A00040	2/8/2023	4.26	2/8/2029	2/8/2023	116.36071	110.9973675	105.9211948	101.1152073	96.56351392	92.25124473	88.1644793	84.29018104	80.6161362
230208A00041	2/8/2023	4.32	2/8/2030	2/8/2023	118.7239	112.3429976	106.3590135	100.7449828	95.47591554	90.52864186	85.88167024	81.51505699	77.4102868
230208A00039	2/8/2023	4.17	2/8/2028	2/8/2023	113.12504	108.8053505	104.6788504	100.7358103	96.96705118	93.36390607	89.9181882	86.62216156	83.46851333
230208A00029	2/8/2023	4.27	2/8/2027	2/8/2023	110.17788	106.8858157	103.7112224	100.6492175	97.69515384	94.84460535	92.09335548	89.43738569	86.87286475
230208A00060	2/8/2023	4.06	2/8/2027	2/8/2023	109.89702	106.5997724	103.4204358	100.3541054	97.39610814	94.54199418	91.78752442	89.12865918	86.56154743
230208A00055	2/8/2023	4.22	2/6/2026	2/8/2023	106.92411	104.6531572	102.4421604	100.2891164	98.19210842	96.14929863	94.15892416	92.21929336	90.32878228
230209A00028	2/9/2023	4.9	12/9/2024	2/9/2023	103.63	102.5251755	101.4440312	100.3858118	99.34979203	98.33527724	97.3416014	96.36812576	95.41423749
230209A00049	2/9/2023	4.17	2/9/2028	2/9/2023	113.13407	108.8113946	104.6821497	100.736601	96.96555575	93.36033388	89.91273594	86.61501381	83.45984316
230210A00040	2/10/2023	4.29	8/10/2027	2/10/2023	111.97066	108.1567843	104.4964049	100.9824698	97.60829584	94.36754467	91.25420266	88.2625622	85.38720426
230210A00045	2/10/2023	4.43	8/10/2026	2/10/2023	108.94551	106.1570615	103.455331	100.8370872	98.29924219	95.83884347	93.45306711	91.13921108	88.89468907
230210A00043	2/10/2023	4.34	2/10/2027	2/10/2023	110.42596	107.1240184	103.9400531	100.8691672	97.90669428	95.04818951	92.28941795	89.62634302	87.05511594
230214A00042	2/14/2023	4.96	2/14/2025	2/14/2023	104.35006	103.0620685	101.8007101	100.5651592	99.35462596	98.16835332	97.00561484	95.86571328	94.74797911
230214A00031	2/14/2023	4.31	2/14/2028	2/14/2023	113.7724	109.4221831	105.2670702	101.2972323	97.50339176	93.87678663	90.40913944	87.09262745	83.9198551
230214A00049	2/14/2023	4.38	2/14/2029	2/14/2023	117.02809	111.6302619	106.5220939	101.6864318	97.10722755	92.76946289	88.65907832	84.76290655	81.06861124
230214A00050	2/14/2023	4.31	2/14/2028	2/14/2023	113.7724	109.4221831	105.2670702	101.2972323	97.50339176	93.87678663	90.40913944	87.09262745	83.9198551
230215A00035	2/15/2023	4.47	2/17/2026	2/15/2023	107.61331	105.3021214	103.0526945	100.8629933	98.73106692	96.65504142	94.63311661	92.66356239	90.74471556
230215A00045	2/15/2023	4.37	2/15/2028	2/15/2023	114.03617	109.6775502	105.5144665	101.5370656	97.73604859	94.10263388	90.62852486	87.30588057	84.12728809
230215A00008	2/15/2023	4.49	2/16/2027	2/15/2023	110.97853	107.6500201	104.4409473	101.3463517	98.36151174	95.48192853	92.70331387	90.02157913	87.43282468
230216A00046	2/16/2023	4.42	4/17/2028	2/16/2023	114.8106	110.2692918	105.9389476	101.8086179	97.86798297	94.10731	90.51741598	87.08963402	83.8157816
230216A00045	2/16/2023	4.43	5/16/2028	2/16/2023	115.11225	110.4871441	106.0800662	101.8795313	97.87472546	94.05545915	90.41212764	86.93567434	83.61755652
230217A00052	2/17/2023	4.55	2/17/2027	2/17/2023	111.18562	107.8507907	104.6356849	101.5353391	98.54502072	95.66022018	92.87663877	90.19017762	87.59692716
230217A00036	2/17/2023	4.44	2/17/2028	2/17/2023	114.35243	109.9814747	105.8067675	101.8184181	98.00709206	94.363973	90.88073138	87.54949473	84.36282005
230221A00004	2/21/2023	4.47	2/18/2028	2/21/2023	114.4896	110.1129189	105.9328254	101.9394138	98.12333209	94.47574727	90.98831375	87.65314375	84.46277968
230223A00033	2/23/2023	4.5	2/23/2028	2/23/2023	114.66659	110.2720611	106.0754743	102.0668518	98.23676773	94.57631828	91.07709015	87.73113083	84.53092096
230224A00018	2/24/2023	5.19	2/24/2025	2/24/2023	104.78307	103.4635507	102.1683007	100.8966838	99.648084	98.42190705	97.21757898	96.03454543	94.87227076

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230224A00014	2/24/2023	4.98	2/24/2025	2/24/2023	104.6637	103.3425247	102.0456888	100.7725513	99.522494	98.29492019	97.08925375	95.90493822	94.74143599
230224A00015	2/24/2023	4.86	3/17/2026	2/24/2023	108.54034	106.1469495	103.81928	101.5551649	99.3525188	97.20933734	95.12369297	93.0937318	91.11767026
230228A00009	2/28/2023	4.69	2/27/2026	2/28/2023	108.23587	105.8880254	103.6036041	101.38054	99.21684918	97.11062342	95.06002691	93.06329303	91.11872132
230228A00010	2/28/2023	4.5	2/26/2027	2/28/2023	111.53011	108.1532065	104.8986126	101.7612454	98.73626407	95.81905376	93.00521353	90.29054541	87.67104389
230301A00029	3/1/2023	4.59	3/1/2028	3/1/2023	115.12022	110.6965012	106.4727662	102.4389198	98.58542364	94.90326685	91.3839341	88.01937587	84.80198064
230301A00036	3/1/2023	4.91	3/2/2026	3/1/2023	108.49567	106.1423403	103.852658	101.6245558	99.45604337	97.34520638	95.29020271	93.28925956	91.34067031
230303A00037	5/15/2023	4.81	5/15/2026	5/15/2023	109.05741	106.4997182	104.0163036	101.6045642	99.26200709	96.98624205	94.77497695	92.62601285	90.5372396
230303A00041	4/14/2023	4.56	4/14/2028	4/14/2023	115.39914	110.8529583	106.5174351	102.3816614	98.43535361	94.66881138	91.07288134	87.63892354	84.35877988
230303A00035	5/15/2023	4.65	5/15/2030	5/15/2023	121.32577	114.6133172	108.3329073	102.4542198	96.9492169	91.79196342	86.95845867	82.42648247	78.17545412
230303A00036	5/15/2023	4.53	5/15/2028	5/15/2023	115.5512	110.9189223	106.5047824	102.2972995	98.28566178	94.45968125	90.8097543	87.32682499	84.00235088
230303A00038	4/14/2023	4.56	4/14/2028	4/14/2023	115.39914	110.8529583	106.5174351	102.3816614	98.43535361	94.66881138	91.07288134	87.63892354	84.35877988
230303A00059	3/3/2023	4.56	3/3/2027	3/3/2023	111.7816	108.3867437	105.1152742	101.962061	98.92221072	95.99105825	93.16415483	90.43725686	87.80631534
230303A00057	3/3/2023	4.77	3/3/2027	3/3/2023	112.06336	108.6739772	105.4075153	102.2588663	99.22316408	96.29576912	93.47225654	90.74840521	88.12018724
230306A00019	3/6/2023	5.26	3/6/2025	3/6/2023	104.99786	103.6496383	102.325277	101.0241987	99.74584051	98.48965751	97.25512167	96.04172137	94.84896075
230306A00040	3/6/2023	5.05	3/6/2025	3/6/2023	104.87633	103.5264006	102.2004075	100.8977623	99.61790007	98.3602736	97.12435285	95.90962428	94.71559017
230306A00029	3/6/2023	5.26	9/6/2024	3/6/2023	103.18032	102.3253944	101.4846994	100.6578838	99.84460537	99.04453284	98.25734578	97.48273406	96.72039744
230307A00021	3/7/2023	4.63	3/7/2028	3/7/2023	115.34787	110.9034938	106.6606572	102.609153	98.73933978	95.04211098	91.50886249	88.13146244	84.90222284
230307A00022	3/7/2023	4.77	3/8/2027	3/7/2023	112.11557	108.7121327	105.432561	102.2716954	99.22461535	96.2866303	93.4532676	90.72026125	88.08354125
230307A00034	3/7/2023	4.41	3/7/2028	3/7/2023	114.94765	110.4961576	106.2470459	102.1900439	98.31545175	94.61410878	91.07736056	87.69702852	84.46538136
230307A00039	3/7/2023	5.29	3/7/2025	3/7/2023	105.0497	103.6984754	102.3712065	101.067311	99.78622305	98.52739468	97.29029498	96.07440959	94.87924001
230307A00114	3/7/2023	4.65	3/7/2028	3/7/2023	115.43377	110.987549	106.74293	102.689702	98.81822136	95.11937911	91.58456899	88.205657	84.97495318
230307A00056	3/7/2023	5.08	3/7/2025	3/7/2023	104.92796	103.5750282	102.2461233	100.9406573	99.65806182	98.39778677	97.15929922	95.94208285	94.74563732
230307A00058	3/7/2023	5.29	3/7/2025	3/7/2023	105.0497	103.6984754	102.3712065	101.067311	99.78622305	98.52739468	97.29029498	96.07440959	94.87924001
230307A00057	3/7/2023	5.08	3/7/2025	3/7/2023	104.92796	103.5750282	102.2461233	100.9406573	99.65806182	98.39778677	97.15929922	95.94208285	94.74563732
230308A00021	3/8/2023	5.39	3/7/2025	3/8/2023	105.18503	103.8328495	102.504639	101.1998178	99.91781953	98.6580957	97.42011507	96.2033629	95.00734032
230308A00044	3/8/2023	5.68	3/11/2024	3/8/2023	101.49336	101.1279757	100.765234	100.4051091	100.0475726	99.69259645	99.3401532	98.99021562	98.64275693
230309A00068	4/10/2023	5.21	4/9/2025	4/10/2023	105.31172	103.8710707	102.4574455	101.0701472	99.70850348	98.37186443	97.05960165	95.77110739	94.50579367
230309A00027	3/9/2023	4.68	3/9/2028	3/9/2023	115.58172	111.127052	106.874564	102.8139991	98.93567688	95.23045454	91.68969423	88.30523262	85.0693525
230309A00034	3/9/2023	4.64	3/9/2028	3/9/2023	115.40971	110.9587387	106.7098242	102.652715	98.77773552	95.07574756	91.53811769	88.15668679	84.92374162
230309A00033	3/9/2023	4.82	3/9/2027	3/9/2023	112.29231	108.8832795	105.5983815	102.4324412	99.3805249	96.43792919	93.60016954	90.8629687	88.22224609
230309A00030	3/9/2023	5.01	3/9/2026	3/9/2023	108.8064	106.4309045	104.120095	101.8718551	99.68414826	97.55501637	95.48257577	93.46501417	91.50058746
230309A00032	3/9/2023	4.82	3/9/2027	3/9/2023	112.29231	108.8832795	105.5983815	102.4324412	99.3805249	96.43792919	93.60016954	90.8629687	88.22224609
230309A00031	3/9/2023	5.01	3/9/2026	3/9/2023	108.8064	106.4309045	104.120095	101.8718551	99.68414826	97.55501637	95.48257577	93.46501417	91.50058746

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230309A00035	3/9/2023	4.64	3/9/2028	3/9/2023	115.40971	110.9587387	106.7098242	102.652715	98.77773552	95.07574756	91.53811769	88.15668679	84.92374162
230309A00005	3/9/2023	5.06	3/9/2026	3/9/2023	108.92372	106.5468221	104.2346431	101.9850624	99.79604282	97.66562541	95.59192571	93.57313068	91.60749546
230309A00080	3/9/2023	4.68	3/9/2028	3/9/2023	115.58172	111.127052	106.874564	102.8139991	98.93567688	95.23045454	91.68969423	88.30523262	85.0693525
230309A00091	3/9/2023	4.68	3/9/2028	3/9/2023	115.58172	111.127052	106.874564	102.8139991	98.93567688	95.23045454	91.68969423	88.30523262	85.0693525
230309A00096	3/9/2023	4.68	3/9/2028	3/9/2023	115.58172	111.127052	106.874564	102.8139991	98.93567688	95.23045454	91.68969423	88.30523262	85.0693525
230310A00024	3/10/2023	4.38	3/10/2028	3/10/2023	114.30039	109.8706515	105.6424004	101.6054092	97.75001762	94.06710231	90.54804441	87.18469902	83.96936678
230310A00030	3/10/2023	4.38	3/10/2028	3/10/2023	114.30039	109.8706515	105.6424004	101.6054092	97.75001762	94.06710231	90.54804441	87.18469902	83.96936678
230310A00071	3/10/2023	4.38	3/10/2028	3/10/2023	114.30039	109.8706515	105.6424004	101.6054092	97.75001762	94.06710231	90.54804441	87.18469902	83.96936678
230310A00114	3/10/2023	4.5	3/10/2027	3/10/2023	111.23774	107.8437192	104.5735387	101.4220285	98.38425991	95.45553519	92.63137505	89.90750759	87.27985751
230310A00120	3/10/2023	4.33	3/10/2028	3/10/2023	114.08525	109.660133	105.4363542	101.4036878	97.55247953	93.87361188	90.35847151	86.99891876	83.7872593
230310A00073	3/10/2023	4.7	3/6/2026	3/10/2023	108.04812	105.6895585	103.3950801	101.1625932	98.99008577	96.8756228	94.81734269	92.81345411	90.86223296
230310A00021	3/10/2023	4.38	3/10/2028	3/10/2023	114.30039	109.8706515	105.6424004	101.6054092	97.75001762	94.06710231	90.54804441	87.18469902	83.96936678
230310A00017	3/10/2023	4.43	3/9/2029	3/10/2023	117.45266	111.9803391	106.8048539	101.9084894	97.27467705	92.8879148	88.73369341	84.79842792	81.06939431
230310A00088	3/10/2023	5.03	3/10/2025	3/10/2023	104.72968	103.3728308	102.0401621	100.7310835	99.44502113	98.18141951	96.93974049	95.71946279	94.52008125
230310A00092	3/10/2023	4.38	3/10/2028	3/10/2023	114.30039	109.8706515	105.6424004	101.6054092	97.75001762	94.06710231	90.54804441	87.18469902	83.96936678
230310A00089	3/10/2023	4.7	3/10/2026	3/10/2023	108.08934	105.7197678	103.4148376	101.1724311	98.99051078	96.86711755	94.80036688	92.78844572	90.82960933
230310A00091	3/10/2023	4.53	3/10/2027	3/10/2023	111.3376	107.9419056	104.6700993	101.5170069	98.47769855	95.54747475	92.7218549	89.99656576	87.36753072
230310A00062	3/10/2023	4.38	4/10/2028	3/10/2023	114.57256	110.0552559	105.7470051	101.6370053	97.71506833	93.97158287	90.39747838	86.98419198	83.72363741
230310A00069	3/10/2023	4.7	3/9/2026	3/10/2023	108.07904	105.712215	103.4098972	101.1699699	98.99040199	96.8692403	94.8046061	92.7946918	90.83775783
230310A00068	3/10/2023	5.03	3/10/2025	3/10/2023	104.72968	103.3728308	102.0401621	100.7310835	99.44502113	98.18141951	96.93974049	95.71946279	94.52008125
230310A00047	6/9/2023	4.22	6/9/2028	6/9/2023	114.37015	109.6979364	105.2487221	101.0106258	96.97246455	93.12370906	89.4544418	85.95531811	82.61752989
230310A00040	3/10/2023	4.38	3/10/2028	3/10/2023	114.30039	109.8706515	105.6424004	101.6054092	97.75001762	94.06710231	90.54804441	87.18469902	83.96936678
230310A00048	3/10/2023	5.03	3/10/2025	3/10/2023	104.72968	103.3728308	102.0401621	100.7310835	99.44502113	98.18141951	96.93974049	95.71946279	94.52008125
230310A00049	3/10/2023	4.7	3/10/2026	3/10/2023	108.08934	105.7197678	103.4148376	101.1724311	98.99051078	96.86711755	94.80036688	92.78844572	90.82960933
230310A00039	3/10/2023	4.33	3/10/2028	3/10/2023	114.08525	109.660133	105.4363542	101.4036878	97.55247953	93.87361188	90.35847151	86.99891876	83.7872593
230310A00037	3/10/2023	4.69	3/10/2026	3/10/2023	108.06585	105.6965579	103.3919023	101.1497645	98.96810737	96.84497181	94.77847351	92.76679958	90.80820542
230310A00054	9/8/2023	4.09	9/11/2028	9/8/2023	114.48363	109.561233	104.8851038	100.4416165	96.21796347	92.20210662	88.38272711	84.74917893	81.29144561
230313A00102	3/13/2023	4.15	3/13/2028	3/13/2023	113.33516	108.9183665	104.7030709	100.6790155	96.83651885	93.16643885	89.66013981	86.30946194	83.10669272
230313A00112	3/13/2023	4.15	3/13/2028	3/13/2023	113.33516	108.9183665	104.7030709	100.6790155	96.83651885	93.16643885	89.66013981	86.30946194	83.10669272
230313A00158	3/13/2023	4.41	3/13/2026	3/13/2023	107.43669	105.0670534	102.7623036	100.5203085	98.33901647	96.21645482	94.15072647	92.14000642	90.18253867
230313A00159	3/13/2023	4.41	3/13/2026	3/13/2023	107.43669	105.0670534	102.7623036	100.5203085	98.33901647	96.21645482	94.15072647	92.14000642	90.18253867
230313A00078	3/13/2023	4.41	3/13/2026	3/13/2023	107.43669	105.0670534	102.7623036	100.5203085	98.33901647	96.21645482	94.15072647	92.14000642	90.18253867
230313A00093	3/16/2023	4.65	3/17/2025	3/16/2023	104.2794	102.907405	101.5601573	100.237043	98.9374684	97.66085934	96.40665969	95.17433093	93.96335141

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230313A00177	3/13/2023	4.41	3/13/2026	3/13/2023	107.43669	105.0670534	102.7623036	100.5203085	98.33901647	96.21645482	94.15072647	92.14000642	90.18253867
230313A00179	3/13/2023	4.29	3/15/2027	3/13/2023	110.58454	107.1883781	103.9166863	100.7642481	97.72609103	94.79747636	91.97388677	89.25101481	86.62475205
230313A00180	3/13/2023	4.15	3/13/2028	3/13/2023	113.33516	108.9183665	104.7030709	100.6790155	96.83651885	93.16643885	89.66013981	86.30946194	83.10669272
230313A00052	3/13/2023	4.17	3/15/2027	3/13/2023	110.18351	106.7940819	103.5289449	100.3828844	97.35093427	94.42836173	91.61065513	88.89351247	86.27283053
230313A00057	3/13/2023	4.06	3/13/2028	3/13/2023	112.94718	108.5387482	104.3315319	100.3152889	96.48034874	92.81757983	89.31835647	85.97452839	82.77839214
230313A00048	3/13/2023	4.25	3/13/2026	3/13/2023	107.05955	104.694433	102.3941057	100.1564395	97.97938566	95.86097415	93.7993104	91.79257189	89.83900498
230313A00152	3/13/2023	4.18	3/13/2028	3/13/2023	113.46448	109.044906	104.8269172	100.8002577	96.95524222	93.28272519	89.77406759	86.42110646	83.21612624
230313A00036	3/13/2023	4.06	3/13/2028	3/13/2023	112.94718	108.5387482	104.3315319	100.3152889	96.48034874	92.81757983	89.31835647	85.97452839	82.77839214
230313A00096	3/13/2023	4.36	3/14/2033	3/13/2023	125.5437	116.0692132	107.4268357	99.53804725	92.33214581	85.7454346	79.72049448	74.20553528	69.15381718
230313A00099	3/13/2023	4.59	3/13/2025	3/13/2023	104.15889	102.7982423	101.4619701	100.1494756	98.86017795	97.59351472	96.34894124	95.12592994	93.92396967
230313A00104	3/13/2023	4.58	3/13/2025	3/13/2023	104.1452	102.7846441	101.4484683	100.1360686	98.84686411	97.58029255	96.33580924	95.11288666	93.9110137
230313A00091	3/13/2023	4.15	3/13/2028	3/13/2023	113.33516	108.9183665	104.7030709	100.6790155	96.83651885	93.16643885	89.66013981	86.30946194	83.10669272
230313A00090	3/13/2023	4.41	3/13/2026	3/13/2023	107.43669	105.0670534	102.7623036	100.5203085	98.33901647	96.21645482	94.15072647	92.14000642	90.18253867
230313A00072	3/13/2023	4.06	3/13/2028	3/13/2023	112.94718	108.5387482	104.3315319	100.3152889	96.48034874	92.81757983	89.31835647	85.97452839	82.77839214
230313A00149	3/13/2023	4.15	3/13/2028	3/13/2023	113.33516	108.9183665	104.7030709	100.6790155	96.83651885	93.16643885	89.66013981	86.30946194	83.10669272
230313A00113	3/13/2023	4.58	3/13/2025	3/13/2023	104.1452	102.7846441	101.4484683	100.1360686	98.84686411	97.58029255	96.33580924	95.11288666	93.9110137
230313A00215	3/13/2023	4.13	3/13/2028	3/13/2023	113.24894	108.8340069	104.6205067	100.5981873	96.75736994	93.08891462	89.58418796	86.23503226	83.03373703
230313A00075	3/13/2023	4.71	9/13/2024	3/13/2023	102.64488	101.7755294	100.9209618	100.0807995	99.25467983	98.44225218	97.64317748	96.85712784	96.083786
230313A00069	3/13/2023	4.71	9/13/2024	3/13/2023	102.64488	101.7755294	100.9209618	100.0807995	99.25467983	98.44225218	97.64317748	96.85712784	96.083786
230313A00070	3/13/2023	4.71	9/13/2024	3/13/2023	102.64488	101.7755294	100.9209618	100.0807995	99.25467983	98.44225218	97.64317748	96.85712784	96.083786
230313A00095	3/16/2023	4.65	3/17/2025	3/16/2023	104.2794	102.907405	101.5601573	100.237043	98.9374684	97.66085934	96.40665969	95.17433093	93.96335141
230313A00032	3/13/2023	4.45	3/13/2025	3/13/2023	103.96715	102.6078679	101.2729449	99.96177714	98.6737842	97.40840426	96.16509322	94.94332407	93.74258617
230313A00118	3/13/2023	5.02	3/13/2024	3/13/2023	101.27048	100.9001452	100.5325326	100.167613	99.80535659	99.44573424	99.08871712	98.73427686	98.38238549
230313A00109	3/13/2023	4.58	3/13/2025	3/13/2023	104.1452	102.7846441	101.4484683	100.1360686	98.84686411	97.58029255	96.33580924	95.11288666	93.9110137
230314A00003	3/14/2023	4.64	3/16/2026	3/14/2023	108.00926	105.6248842	103.3059563	101.0503187	98.8558964	96.7206948	94.64279573	92.62035422	90.65159521
230314A00067	3/14/2023	4.16	3/14/2028	3/14/2023	113.93074	109.4827403	105.2380302	101.1862441	97.3175968	93.62284938	90.09327572	86.72063154	83.49712532
230314A00081	3/14/2023	4.16	3/14/2028	3/14/2023	113.93074	109.4827403	105.2380302	101.1862441	97.3175968	93.62284938	90.09327572	86.72063154	83.49712532
230314A00028	3/14/2023	4.43	7/14/2027	3/14/2023	112.23506	108.4872641	104.8877353	101.4297401	98.10689546	94.91314576	91.84274402	88.89023396	86.05043343
230314A00032	3/14/2023	4.45	4/14/2027	3/14/2023	111.41035	107.9206592	104.5615931	101.3275563	98.21322151	95.21351769	92.32361603	89.53891725	86.85503931
230314A00034	3/14/2023	4.45	4/14/2027	3/14/2023	111.41035	107.9206592	104.5615931	101.3275563	98.21322151	95.21351769	92.32361603	89.53891725	86.85503931
230314A00017	3/14/2023	4.39	1/18/2028	3/14/2023	113.85874	109.5800766	105.4903063	101.5800053	97.8402771	94.26271901	90.83939151	87.56278993	84.42581791
230314A00019	3/14/2023	4.39	1/18/2028	3/14/2023	113.85874	109.5800766	105.4903063	101.5800053	97.8402771	94.26271901	90.83939151	87.56278993	84.42581791
230314A00021	3/14/2023	4.41	10/13/2027	3/14/2023	113.02993	109.0254734	105.1887826	101.5119205	97.98737201	94.60801577	91.36710073	88.25822516	85.27531667

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230314A00011	3/14/2023	4.38	3/14/2028	3/14/2023	114.33541	109.8944533	105.6559472	101.6095847	97.74563951	94.05492742	90.52877305	87.15897921	83.93779808
230314A00024	3/14/2023	4.41	10/13/2027	3/14/2023	113.02993	109.0254734	105.1887826	101.5119205	97.98737201	94.60801577	91.36710073	88.25822516	85.27531667
230314A00016	3/14/2023	4.38	3/14/2028	3/14/2023	114.33541	109.8944533	105.6559472	101.6095847	97.74563951	94.05492742	90.52877305	87.15897921	83.93779808
230314A00030	3/14/2023	4.43	7/14/2027	3/14/2023	112.23506	108.4872641	104.8877353	101.4297401	98.10689546	94.91314576	91.84274402	88.89023396	86.05043343
230314A00073	3/14/2023	4.84	3/14/2025	3/14/2023	104.5114	103.1455987	101.80431	100.4869259	99.19286129	97.92154972	96.67244276	95.44500919	94.23873436
230314A00006	3/14/2023	4.92	1/13/2025	3/14/2023	103.95799	102.7595826	101.5889685	100.4451871	99.32732152	98.23449598	97.16587399	96.12065596	95.09807721
230314A00043	3/14/2023	4.84	3/14/2025	3/14/2023	104.5114	103.1455987	101.80431	100.4869259	99.19286129	97.92154972	96.67244276	95.44500919	94.23873436
230315A00079	3/15/2023	4.43	9/16/2024	3/15/2023	102.42416	101.5478877	100.6866594	99.84008578	99.00779434	98.18942523	97.3846306	96.59307411	95.81443048
230315A00007	3/15/2023	4.2	3/16/2026	3/15/2023	106.96857	104.5967051	102.2900206	100.046367	97.86367702	95.73996344	93.67331515	91.661894	89.70393152
230315A00013	3/15/2023	4.2	3/16/2026	3/15/2023	106.96857	104.5967051	102.2900206	100.046367	97.86367702	95.73996344	93.67331515	91.661894	89.70393152
230315A00023	3/15/2023	4.2	3/16/2026	3/15/2023	106.96857	104.5967051	102.2900206	100.046367	97.86367702	95.73996344	93.67331515	91.661894	89.70393152
230315A00024	3/15/2023	4.03	3/15/2028	3/15/2023	112.83351	108.422335	104.2127615	100.1945109	96.35788383	92.6937217	89.19337407	85.84866779	82.65187829
230315A00043	3/15/2023	4.43	9/16/2024	3/15/2023	102.42416	101.5478877	100.6866594	99.84008578	99.00779434	98.18942523	97.3846306	96.59307411	95.81443048
230315A00045	3/15/2023	4.28	3/14/2025	3/15/2023	103.74289	102.3826003	101.0467297	99.73467287	98.44584712	97.17968844	95.93565065	94.71320474	93.51183817
230315A00130	3/15/2023	4.43	3/14/2025	3/15/2023	103.94874	102.5869749	101.249653	99.93616923	98.6459402	97.37840128	96.13300568	94.90922379	93.7065425
230315A00068	3/15/2023	4.2	3/16/2026	3/15/2023	106.96857	104.5967051	102.2900206	100.046367	97.86367702	95.73996344	93.67331515	91.661894	89.70393152
230315A00014	3/15/2023	4.61	3/15/2024	3/15/2023	101.13442	100.7589459	100.386278	100.0163807	99.64922296	99.28477434	98.92300477	98.56388465	98.2073848
230315A00097	3/15/2023	4.08	3/15/2027	3/15/2023	109.88273	106.4983598	103.2381388	100.0968616	97.06956669	94.15152576	91.3382314	88.62538572	86.0088894
230315A00112	3/15/2023	4.5	3/14/2025	3/15/2023	104.0448	102.6823497	101.3443506	100.0302009	98.73931697	97.47113394	96.22510469	95.00069935	93.79740453
230315A00117	3/15/2023	4.17	3/15/2027	3/15/2023	110.18351	106.7940819	103.5289449	100.3828844	97.35093427	94.42836173	91.61065513	88.89351247	86.27283053
230315A00133	3/15/2023	3.9	3/15/2028	3/15/2023	112.81411	108.3876185	104.1638451	100.1324393	96.28363158	92.60819835	89.09742847	85.74309231	82.5374126
230315A00116	3/15/2023	4.36	3/16/2026	3/15/2023	107.347	104.9705884	102.6594517	100.4114403	98.22448407	96.09659302	94.02585354	92.01042499	90.0485365
230315A00098	3/15/2023	4.08	3/15/2027	3/15/2023	109.88273	106.4983598	103.2381388	100.0968616	97.06956669	94.15152576	91.3382314	88.62538572	86.0088894
230315A00131	3/15/2023	4.13	3/15/2027	3/15/2023	110.04983	106.6626498	103.3996977	100.2557631	97.22588201	94.30532352	91.48957792	88.77434503	86.15552336
230315A00048	3/15/2023	4.61	3/15/2024	3/15/2023	101.13442	100.7589459	100.386278	100.0163807	99.64922296	99.28477434	98.92300477	98.56388465	98.2073848
230315A00049	3/15/2023	4.28	3/14/2025	3/15/2023	103.74289	102.3826003	101.0467297	99.73467287	98.44584712	97.17968844	95.93565065	94.71320474	93.51183817
230315A00085	3/15/2023	4.43	9/16/2024	3/15/2023	102.42416	101.5478877	100.6866594	99.84008578	99.00779434	98.18942523	97.3846306	96.59307411	95.81443048
230315A00063	3/15/2023	4.09	3/15/2028	3/15/2023	113.09248	108.6757184	104.4607456	100.4372745	96.59559795	92.92655053	89.42147506	86.07219202	82.87097079
230315A00076	3/15/2023	4.28	3/14/2025	3/15/2023	103.74289	102.3826003	101.0467297	99.73467287	98.44584712	97.17968844	95.93565065	94.71320474	93.51183817
230315A00047	3/15/2023	4.66	3/15/2024	3/15/2023	101.15324	100.7777224	100.4050112	100.0350708	99.66787021	99.303379	98.94156707	98.58240481	98.22586305
230315A00070	3/15/2023	4.77	3/15/2024	3/15/2023	101.19464	100.8190306	100.4462241	100.076189	99.70889417	99.34430925	98.98240411	98.62314916	98.2665152
230315A00030	3/15/2023	4.03	3/15/2028	3/15/2023	112.83351	108.422335	104.2127615	100.1945109	96.35788383	92.6937217	89.19337407	85.84866779	82.65187829
230315A00128	3/15/2023	4.43	3/14/2025	3/15/2023	103.94874	102.5869749	101.249653	99.93616923	98.6459402	97.37840128	96.13300568	94.90922379	93.7065425

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230315A00042	3/15/2023	4.61	3/15/2024	3/15/2023	101.13442	100.7589459	100.386278	100.0163807	99.64922296	99.28477434	98.92300477	98.56388465	98.2073848
230315A00072	3/15/2023	4.61	3/15/2024	3/15/2023	101.13442	100.7589459	100.386278	100.0163807	99.64922296	99.28477434	98.92300477	98.56388465	98.2073848
230315A00074	3/15/2023	4.43	9/16/2024	3/15/2023	102.42416	101.5478877	100.6866594	99.84008578	99.00779434	98.18942523	97.3846306	96.59307411	95.81443048
230315A00125	3/15/2023	4.11	3/15/2027	3/15/2023	109.98299	106.5969338	103.3350741	100.1922025	97.16335588	94.24380441	91.42903931	88.7147613	86.09686978
230316A00054	3/16/2023	4.62	3/17/2025	3/16/2023	104.23798	102.8662889	101.5193349	100.1965092	98.89721848	97.62088864	96.36696367	95.13490517	93.9241916
230316A00113	3/16/2023	4.28	3/16/2026	3/16/2023	107.44637	105.0628573	102.7449263	100.4904065	98.29721554	96.16335139	94.08688914	92.06597739	90.09883504
230316A00026	3/16/2023	4.56	9/16/2024	3/16/2023	102.53913	101.6623086	100.8005354	99.95342341	99.1206	98.30170521	97.49639105	96.70432106	95.92516985
230316A00067	3/16/2023	3.89	3/16/2027	3/16/2023	109.66915	106.2754926	103.006686	99.85747894	96.82287003	93.89809364	91.07860738	88.36008045	85.73838266
230316A00032	3/16/2023	4.39	3/16/2026	3/16/2023	107.41796	105.0406915	102.7287201	100.4798916	98.29213539	96.16346107	94.09195449	92.07577455	90.11314993
230316A00058	3/16/2023	4.1	3/16/2027	3/16/2023	109.95822	106.5699784	103.3061038	100.1613802	97.13083405	94.20972585	91.39353768	88.6779617	86.0588893
230316A00076	3/16/2023	4.45	3/16/2026	3/16/2023	107.55987	105.1808978	102.8672568	100.6167941	98.42743803	96.29719717	94.22415639	92.20647367	90.2423768
230316A00060	3/16/2023	3.89	3/16/2027	3/16/2023	109.66915	106.2754926	103.006686	99.85747894	96.82287003	93.89809364	91.07860738	88.36008045	85.73838266
230316A00050	3/16/2023	4.2	3/16/2026	3/16/2023	106.96857	104.5967051	102.2900206	100.046367	97.86367702	95.73996344	93.67331515	91.661894	89.70393152
230316A00082	3/16/2023	4.3	3/16/2028	3/16/2023	114.00741	109.5683088	105.3318851	101.2878089	97.42633083	93.7382455	90.21485817	86.84795393	83.62976876
230316A00078	3/16/2023	4.34	3/16/2027	3/16/2023	110.76093	107.359191	104.0821864	100.9246876	97.8817085	94.94849772	92.12052592	89.39347435	86.76322393
230316A00001	3/16/2023	3.81	3/16/2028	3/16/2023	112.43222	108.0113805	103.7932142	99.76736648	95.92406263	92.25407429	88.74868628	85.39966544	82.19923155
230316A00021	3/16/2023	4.2	3/16/2026	3/16/2023	106.96857	104.5967051	102.2900206	100.046367	97.86367702	95.73996344	93.67331515	91.661894	89.70393152
230316A00072	3/16/2023	4.1	3/16/2027	3/16/2023	109.95822	106.5699784	103.3061038	100.1613802	97.13083405	94.20972585	91.39353768	88.6779617	86.0588893
230316A00055	3/16/2023	4.03	3/16/2028	3/16/2023	112.84133	108.4273987	104.2153005	100.1947448	96.35601572	92.68993944	89.18785146	85.84156559	82.64334518
230316A00052	3/16/2023	4.56	9/16/2024	3/16/2023	102.53913	101.6623086	100.8005354	99.95342341	99.1206	98.30170521	97.49639105	96.70432106	95.92516985
230316A00039	3/16/2023	4.63	3/17/2025	3/16/2023	104.25179	102.8799943	101.5329424	100.2100204	98.91063512	97.63421221	96.38019568	95.14804709	93.93724487
230317A00026	3/17/2023	4.22	3/17/2027	3/17/2023	110.36855	106.9707977	103.6977871	100.5442829	97.50529463	94.57606639	91.75206498	89.0289681	86.40265342
230317A00025	3/17/2023	4.35	3/17/2026	3/17/2023	107.33271	104.9538546	102.6404079	100.3902139	98.20119655	96.07135974	93.99878428	91.98162417	90.01810351
230317A00032	5/18/2023	4.27	5/19/2025	5/18/2023	104.31593	102.7760303	101.2666258	99.78687731	98.33597749	96.91314812	95.51763857	94.14872464	92.80570734
230317A00015	3/17/2023	4.13	3/17/2028	3/17/2023	113.2813	108.8552758	104.6316331	100.6000511	96.75078521	93.07463457	89.56290938	86.20739975	83.00034677
230317A00016	3/17/2023	4.22	3/17/2027	3/17/2023	110.36855	106.9707977	103.6977871	100.5442829	97.50529463	94.57606639	91.75206498	89.0289681	86.40265342
230317A00051	3/17/2023	4.35	3/17/2026	3/17/2023	107.33271	104.9538546	102.6404079	100.3902139	98.20119655	96.07135974	93.99878428	91.98162417	90.01810351
230317A00027	3/17/2023	4.77	9/17/2024	3/17/2023	102.73399	101.8535737	100.9883082	100.1378025	99.30168048	98.47957873	97.67114604	96.87604283	96.09394074
230317A00033	3/17/2023	4.77	9/17/2024	3/17/2023	102.73399	101.8535737	100.9883082	100.1378025	99.30168048	98.47957873	97.67114604	96.87604283	96.09394074
230317A00049	3/17/2023	4.1	3/17/2028	3/17/2023	113.15166	108.7284319	104.5074952	100.4785298	96.63179446	92.95809208	89.44873616	86.09552001	82.89068777
230317A00050	3/17/2023	4.1	3/17/2028	3/17/2023	113.15166	108.7284319	104.5074952	100.4785298	96.63179446	92.95809208	89.44873616	86.09552001	82.89068777
230317A00047	3/17/2023	4.1	3/17/2028	3/17/2023	113.15166	108.7284319	104.5074952	100.4785298	96.63179446	92.95809208	89.44873616	86.09552001	82.89068777
230317A00048	3/17/2023	4.1	3/17/2028	3/17/2023	113.15166	108.7284319	104.5074952	100.4785298	96.63179446	92.95809208	89.44873616	86.09552001	82.89068777

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230317A00031	5/18/2023	4.3	5/19/2025	5/18/2023	104.36247	102.8222015	101.3124291	99.83231891	98.38106367	96.95788489	95.56203182	94.19278008	92.84943052
230320A00033	3/20/2023	4.35	3/20/2026	3/20/2023	107.3608	104.973758	102.6525483	100.3949927	98.19899534	96.06254204	93.98369611	91.96059506	89.99144728
230320A00092	3/20/2023	4.31	3/20/2026	3/20/2023	107.26576	104.8798662	102.5597795	100.3033229	98.10840147	95.97300164	93.89518736	91.87309676	89.90493886
230320A00006	3/20/2023	4.25	3/20/2026	3/20/2023	107.1232	104.7390284	102.4206261	100.1658182	97.97251067	95.83869104	93.76242422	91.74184932	89.77517624
230321A00002	3/21/2023	4.33	3/19/2027	3/21/2023	110.75529	107.3457998	104.061602	100.897431	97.84826838	94.90933243	92.0760653	89.34412159	86.70935718
230321A00001	3/21/2023	4.48	3/23/2026	3/21/2023	107.69882	105.2998384	102.9671954	100.6986867	98.49219508	96.34568546	94.25720155	92.22486222	90.24685812
230321A00053	3/21/2023	4.27	3/21/2028	3/21/2023	113.92015	109.4699093	105.2234413	101.1703367	97.30076702	93.60545395	90.07563519	86.70303339	83.47982677
230321A00052	3/21/2023	4.62	3/21/2025	3/21/2023	104.27599	102.8935466	101.536206	100.2033414	98.89434719	97.60863743	96.34564484	95.10482023	93.88563167
230321A00020	3/21/2023	4.73	11/18/2024	3/21/2023	103.26848	102.2208502	101.1945745	100.1890018	99.20350897	98.23749771	97.29039328	96.3616434	95.45071713
230321A00009	3/21/2023	4.27	3/21/2028	3/21/2023	113.92015	109.4699093	105.2234413	101.1703367	97.30076702	93.60545395	90.07563519	86.70303339	83.47982677
230321A00029	3/21/2023	4.57	3/21/2025	3/21/2023	104.20642	102.8244839	101.4676401	100.1352639	98.82674996	97.5415126	96.27898473	95.03861734	93.81987871
230321A00074	3/21/2023	4.23	3/21/2028	3/21/2023	113.74687	109.3003781	105.0575355	101.007936	97.14175613	93.44972235	89.92307688	86.55354666	83.33331401
230321A00025	3/21/2023	4.57	3/21/2025	3/21/2023	104.20642	102.8244839	101.4676401	100.1352639	98.82674996	97.5415126	96.27898473	95.03861734	93.81987871
230322A00030	3/22/2023	4.86	9/23/2024	3/22/2023	102.87012	101.9730925	101.0917711	100.225745	99.37461793	98.53800704	97.71554256	96.90686723	96.11163571
230322A00029	3/22/2023	4.67	3/21/2025	3/22/2023	104.34556	102.9626093	101.6047719	100.2714189	98.96194442	97.67576225	96.41230496	95.17102311	93.95138463
230322A00015	3/22/2023	4.24	3/22/2028	3/22/2023	113.79858	109.3483595	105.1020655	101.0492658	97.18011937	93.48533589	89.95614233	86.58425138	83.36183217
230322A00005	3/22/2023	4.42	3/22/2029	3/22/2023	117.48272	111.9760471	106.7698355	101.8460513	97.18783201	92.77940727	88.6060224	84.65386812	80.91001533
230322A00006	3/22/2023	4.53	3/22/2030	3/22/2023	120.25844	113.7185454	107.5916388	101.8492932	96.46518491	91.41492509	86.67590821	82.227173	78.04927494
230322A00004	3/22/2023	4.3	3/22/2028	3/22/2023	114.05866	109.6028085	105.35107	101.2930065	97.41876943	93.71906141	90.18510257	86.80859917	83.58171414
230322A00007	3/22/2023	4.54	3/21/2031	3/22/2023	122.52844	114.9790078	107.9697101	101.4586927	95.40756069	89.78107344	84.54687022	79.6752211	75.13880056
230322A00009	3/22/2023	4.59	3/22/2032	3/22/2023	125.3135	116.7333468	108.8374177	101.5668542	94.86816528	88.69271337	82.99625053	77.73850129	72.88278705
230322A00020	3/22/2023	4.2	3/22/2029	3/22/2023	116.99404	111.4777997	106.2634092	101.3327127	96.66873576	92.2556052	88.07847223	84.12344122	80.3775039
230323A00064	3/23/2023	4.25	3/21/2025	3/23/2023	103.76119	102.3824827	101.028818	99.69956768	98.39412771	97.11191373	95.85236002	94.61491887	93.39905979
230323A00034	3/23/2023	4.23	3/23/2026	3/23/2023	107.1028	104.7110413	102.3854629	100.1238686	97.92414529	95.78426242	93.70226774	91.67628408	89.70450592
230323A00051	3/23/2023	3.85	3/23/2028	3/23/2023	112.65929	108.2153032	103.9757938	99.93027174	96.06884099	92.38216079	88.86141181	85.49826435	82.28484862
230323A00065	3/23/2023	3.85	3/23/2028	3/23/2023	112.65929	108.2153032	103.9757938	99.93027174	96.06884099	92.38216079	88.86141181	85.49826435	82.28484862
230323A00058	3/23/2023	3.96	9/23/2027	3/23/2023	111.10757	107.1930447	103.4408183	99.84330717	96.39332139	93.08404265	89.90900287	86.86206446	83.93740168
230323A00054	3/23/2023	3.95	3/23/2028	3/23/2023	112.54913	108.123386	103.9008937	99.87124216	96.02461007	92.35172637	88.84383669	85.49267186	82.29041862
230323A00056	3/23/2023	4	3/23/2027	3/23/2023	109.68246	106.2806573	103.0043948	99.84838012	96.80756822	93.87715257	91.05255262	88.32940192	85.70353696
230323A00081	3/23/2023	3.85	3/23/2028	3/23/2023	112.65929	108.2153032	103.9757938	99.93027174	96.06884099	92.38216079	88.86141181	85.49826435	82.28484862
230323A00048	3/23/2023	4.07	3/23/2028	3/23/2023	113.06961	108.6325884	104.3991941	100.3590027	96.50217763	92.81943365	89.30200276	85.94160282	82.73040824
230323A00030	3/23/2023	4.72	3/23/2037	3/23/2023	135.64895	122.1984444	110.3375858	99.86494807	90.60582859	82.40856883	75.14139858	68.68972666	62.95381317
230323A00029	3/23/2023	4.39	3/24/2031	3/23/2023	121.47236	113.9530986	106.9730827	100.4904603	94.46683894	88.86698455	83.65854665	78.81180855	74.29946028

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230324A00006	3/24/2023	4.06	3/24/2026	3/24/2023	106.70609	104.316532	101.9931897	99.73386287	97.53643529	95.39887295	93.31922063	91.29559831	89.32619781
230324A00009	3/24/2023	4.19	3/24/2025	3/24/2023	103.7027	102.3165978	100.9557911	99.61964999	98.30756143	97.0189324	95.75318893	94.50977538	93.28815369
230324A00029	3/24/2023	4.01	3/24/2025	3/24/2023	103.61757	102.229411	100.866631	99.52859102	98.21467555	96.924289	95.65685504	94.41181576	93.18863093
230324A00031	3/24/2023	4.01	3/24/2025	3/24/2023	103.61757	102.229411	100.866631	99.52859102	98.21467555	96.924289	95.65685504	94.41181576	93.18863093
230324A00023	3/24/2023	3.69	3/24/2028	3/24/2023	111.97075	107.5391187	103.3116992	99.27800217	95.42813515	91.75276123	88.2430651	84.89072127	81.68786433
230324A00032	3/24/2023	3.93	3/24/2028	3/24/2023	112.46994	108.0433317	103.8201455	99.78995958	95.94293862	92.26979866	88.76177342	85.4105828	82.20840342
230327A00045	3/27/2023	4.42	3/27/2025	3/27/2023	104.05147	102.6549775	101.2840999	99.93818936	98.61662263	97.31879666	96.04412793	94.79205162	93.56202089
230327A00046	3/27/2023	4.22	3/27/2026	3/27/2023	107.11501	104.7126664	102.3770612	100.1059711	97.89725733	95.74886458	93.65881743	91.62521664	89.64623574
230327A00047	3/27/2023	4.08	3/27/2028	3/27/2023	113.14482	108.6957974	104.4513886	100.401096	96.53501545	92.84379911	89.31862096	85.95114517	82.73349635
230328A00100	3/28/2023	4.19	3/28/2028	3/28/2023	113.63134	109.1691564	104.9121694	100.8498541	96.97227621	93.27005895	89.73434954	86.35678696	83.12947219
230328A00122	3/28/2023	4.58	3/28/2025	3/28/2023	104.28609	102.8852608	101.510166	100.1601536	98.83459637	97.53288761	96.25444023	94.99868599	93.76507478
230328A00098	3/28/2023	4.24	3/29/2027	3/28/2023	110.54382	107.1118059	103.806859	100.6235967	97.5568948	94.6018723	91.75387853	89.00848112	86.36145452
230328A00111	3/28/2023	4.36	3/27/2026	3/28/2023	107.45029	105.0438663	102.7042703	100.4292745	98.21673777	96.06460227	93.97089026	91.93370024	89.95120361
230328A00010	3/28/2023	4.68	9/30/2024	3/28/2023	102.77882	101.8635406	100.9646091	100.0815924	99.21407001	98.36163629	97.52389964	96.70048189	95.89101779
230328A00011	3/28/2023	4.53	3/28/2025	3/28/2023	104.21557	102.8152602	101.4406752	100.0911639	98.76609953	97.46487547	96.18690487	94.93161972	93.69847009
230328A00019	3/28/2023	4.12	3/27/2026	3/28/2023	107.16726	104.7582739	102.4163229	100.1391688	97.92466006	95.77072946	93.67539016	91.63673209	89.6529185
230328A00026	3/28/2023	4.34	3/28/2029	3/28/2023	117.09601	111.5840954	106.3739064	101.4472755	96.78722321	92.37787244	88.20437177	84.25282402	80.51022029
230328A00024	3/28/2023	4.2	3/28/2028	3/28/2023	113.67485	109.2117168	104.9538159	100.8906172	97.01218495	93.30914134	89.77263239	86.39429597	83.16623205
230328A00020	3/28/2023	3.98	3/28/2028	3/28/2023	113.26484	108.794655	104.5305618	100.4619634	96.57886363	92.8718286	89.33195242	85.95082484	82.72050116
230329A00055	3/29/2023	4.59	3/28/2025	3/29/2023	104.30019	102.8992609	101.5240642	100.1739515	98.84829574	97.54649004	96.2679473	95.01209924	93.77839571
230329A00043	3/29/2023	4.36	3/27/2026	3/29/2023	107.45029	105.0438663	102.7042703	100.4292745	98.21673777	96.06460227	93.97089026	91.93370024	89.95120361
230329A00020	3/29/2023	4.23	3/29/2028	3/29/2023	113.81371	109.3449638	105.0817858	101.0136241	97.13052229	93.42308352	89.88243595	86.50020089	83.26846286
230330A00011	3/30/2023	4.21	3/30/2028	3/30/2023	113.73493	109.2653032	105.0014218	100.9327187	97.04922308	93.34152495	89.80074041	86.41847963	83.18681688
230330A00062	3/30/2023	4.42	3/30/2026	3/30/2023	107.62261	105.2062543	102.8571906	100.5731711	98.35203333	96.1916998	94.09017384	92.04553607	90.05594087
230330A00061	3/30/2023	4.65	3/31/2025	3/30/2023	104.41353	103.0039292	101.6203469	100.2621276	98.92863404	97.61924982	96.33337867	95.07044354	93.82988586
230330A00029	3/30/2023	4.6	4/1/2025	3/30/2023	104.35249	102.9406314	101.55489	100.194598	98.85911507	97.54782156	96.26011816	94.99542492	93.7531805
230331A00055	3/31/2023	4.5	3/31/2025	3/31/2023	104.20075	102.7927226	101.410686	100.0539862	98.72198663	97.4140717	96.12964572	94.86813228	93.62897342
230331A00057	3/31/2023	4.08	3/31/2028	3/31/2023	113.17659	108.7165253	104.4620344	100.402547	96.52809233	92.82926041	89.29716797	85.92342615	82.70011044
230404A00040	4/4/2023	4.28	4/4/2025	4/4/2023	103.92472	102.5079486	101.1175338	99.75279867	98.41309324	97.09778924	95.80627894	94.53797439	93.29230659
230404A00019	4/4/2023	4.45	4/4/2025	4/4/2023	104.16771	102.749135	101.3569418	99.99045822	98.64903371	97.33203914	96.03886606	94.76892578	93.52164859
230405A00022	4/5/2023	3.8	4/5/2028	4/5/2023	111.99272	107.5451774	103.3035548	99.25722787	95.39617313	91.71093297	88.19258096	84.83268923	81.62329812
230405A00012	4/5/2023	3.8	4/5/2028	4/5/2023	111.99272	107.5451774	103.3035548	99.25722787	95.39617313	91.71093297	88.19258096	84.83268923	81.62329812
230405A00010	4/5/2023	3.96	4/6/2026	4/5/2023	106.57687	104.1545827	101.8003458	99.51186238	97.28692874	95.12342827	93.0193275	90.97267229	88.98158423

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230405A00008	4/5/2023	4.01	10/6/2025	4/5/2023	105.1123	103.1930175	101.3186541	99.48788816	97.69944478	95.95209499	94.24465357	92.57597722	90.94496279
230405A00044	4/5/2023	3.8	4/5/2028	4/5/2023	111.99272	107.5451774	103.3035548	99.25722787	95.39617313	91.71093297	88.19258096	84.83268923	81.62329812
230405A00028	4/5/2023	3.78	4/5/2028	4/5/2023	111.90529	107.4596514	103.2198739	99.17533045	95.31600006	91.6324276	88.11568897	84.75735851	81.54947868
230405A00049	4/5/2023	3.81	4/5/2028	4/5/2023	112.03644	107.5879404	103.3453952	99.29817658	95.43625966	91.75018566	88.23102696	84.8703546	81.66020784
230406A00017	4/6/2023	3.99	4/7/2025	4/6/2023	103.70626	102.2802791	100.881008	99.50776287	98.15988065	96.83672056	95.53766293	94.26210841	93.0094771
230406A00050	4/6/2023	3.67	4/6/2027	4/6/2023	109.09808	105.6589235	102.3483477	99.16085945	96.09123045	93.13448276	90.28587544	87.54089193	84.89522817
230406A00042	4/6/2023	3.99	4/7/2025	4/6/2023	103.70626	102.2802791	100.881008	99.50776287	98.15988065	96.83672056	95.53766293	94.26210841	93.0094771
230406A00105	4/6/2023	3.84	4/6/2028	4/6/2023	112.17501	107.720826	103.4729478	99.42071903	95.55409311	91.8635912	88.34026705	84.97567439	81.76183638
230406A00026	4/6/2023	3.92	4/6/2027	4/6/2023	109.52926	106.093262	102.7854157	99.60025471	96.53257787	93.57743253	90.73010141	87.9860901	85.34111529
230406A00023	4/6/2023	3.84	4/6/2028	4/6/2023	112.17501	107.720826	103.4729478	99.42071903	95.55409311	91.8635912	88.34026705	84.97567439	81.76183638
230406A00038	4/6/2023	4.24	4/7/2025	4/6/2023	103.89424	102.4696278	101.0716564	99.69964452	98.35293179	97.03087975	95.732871	94.45830833	93.20661388
230406A00029	4/6/2023	3.84	4/6/2028	4/6/2023	112.17501	107.720826	103.4729478	99.42071903	95.55409311	91.8635912	88.34026705	84.97567439	81.76183638
230410A00012	4/10/2023	3.98	4/10/2028	4/10/2023	112.81855	108.3396703	104.0685422	99.99442092	96.10717061	92.39722938	88.85557381	85.47368585	82.2435219
230410A00011	4/10/2023	4.08	4/9/2027	4/10/2023	110.09992	106.6461434	103.3213739	100.1201044	97.03708849	94.06733157	91.2060767	88.44879222	85.79115979
230411A00018	4/11/2023	4.96	4/11/2024	4/11/2023	101.50683	101.057054	100.611283	100.169459	99.73152958	99.29744324	98.86714938	98.44059827	98.01774108
230411A00045	4/11/2023	4.66	10/11/2024	4/11/2023	102.86501	101.9199992	100.9924161	100.0817847	99.18764243	98.30954349	97.44705804	96.59977149	95.76728384
230412A00006	4/12/2023	4.04	4/12/2027	4/12/2023	109.9898	106.5298841	103.1995177	99.9931566	96.90552064	93.93158327	91.06655793	88.30588526	85.64522104
230412A00007	4/12/2023	3.95	4/12/2028	4/12/2023	112.70241	108.2207554	103.947261	99.87114302	95.98223373	92.27094194	88.7282173	85.34551694	82.11477446
230412A00005	4/12/2023	4.16	4/10/2026	4/12/2023	107.09758	104.6581483	102.2874975	99.9833003	97.74332032	95.56540986	93.44750602	91.38762672	89.38386706
230412A00001	4/12/2023	4.62	10/11/2024	4/12/2023	102.8269	101.8820814	100.9546914	100.0442504	99.15029625	98.27238301	97.41008095	96.5629755	95.73066673
230412A00002	4/12/2023	4.42	4/11/2025	4/12/2023	104.19056	102.7529486	101.342416	99.95826049	98.59980608	97.26639964	95.95740972	94.67222563	93.41025665
230412A00033	4/12/2023	4.04	4/12/2027	4/12/2023	109.9898	106.5298841	103.1995177	99.9931566	96.90552064	93.93158327	91.06655793	88.30588526	85.64522104
230412A00028	4/12/2023	3.69	4/12/2028	4/12/2023	112.10998	107.6251689	103.3492535	99.27139418	95.38136644	91.66952666	88.12677602	84.74452688	81.51467143
230413A00020	4/13/2023	3.88	4/13/2028	4/13/2023	112.4026	107.9248736	103.655324	99.58316372	95.69821616	91.99088237	88.45210503	85.07333507	81.84650055
230413A00021	4/13/2023	4.07	4/13/2026	4/13/2023	106.9052	104.4600923	102.0841672	99.7750706	97.5305459	95.34842634	93.22663099	91.16316076	89.15609467
230413A00018	4/13/2023	3.96	4/13/2027	4/13/2023	109.72499	106.2669486	102.9385301	99.73418072	96.64861277	93.6767926	90.81392715	88.05545108	85.39701464
230413A00017	4/13/2023	3.88	4/13/2028	4/13/2023	112.4026	107.9248736	103.655324	99.58316372	95.69821616	91.99088237	88.45210503	85.07333507	81.84650055
230413A00045	4/13/2023	4.33	4/11/2025	4/13/2023	104.0602	102.6235763	101.2140102	99.8308046	98.47328418	97.14079621	95.83270962	94.54841414	93.28731942
230413A00031	4/13/2023	4.07	4/13/2026	4/13/2023	106.9052	104.4600923	102.0841672	99.7750706	97.5305459	95.34842634	93.22663099	91.16316076	89.15609467
230413A00030	4/13/2023	4.33	4/14/2025	4/13/2023	104.08764	102.6427341	101.22519	99.83429635	98.46936696	97.12973856	95.81477006	94.5238416	93.25635366
230413A00082	4/13/2023	4.01	4/13/2027	4/13/2023	109.89596	106.4349826	103.1037079	99.89658096	96.80831107	93.83386199	90.96843811	88.20747164	85.54661049
230414A00009	4/14/2023	5.04	4/12/2024	4/14/2023	101.55195	101.099347	100.6507912	100.206231	99.76561294	99.32888458	98.89599439	98.46689176	98.04152696
230417A00046	4/17/2023	4.13	4/17/2028	4/17/2023	113.53356	109.0203509	104.7171436	100.6130381	96.69775327	92.9615926	89.39540776	85.99056482	82.73891263

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230417A00044	4/17/2023	4.32	4/17/2026	4/17/2023	107.55344	105.0895437	102.6956047	100.3692336	98.10813961	95.9101235	93.77307365	91.69496181	89.67383931
230417A00042	4/17/2023	4.58	4/17/2025	4/17/2023	104.48125	103.0252745	101.5970124	100.1957386	98.82075465	97.4713854	96.14697855	94.84690347	93.57055033
230417A00045	4/17/2023	4.21	4/16/2027	4/17/2023	110.60744	107.126193	103.7755854	100.5500104	97.44412951	94.45286186	91.57136968	88.79504553	86.11950005
230417A00036	4/17/2023	4.63	4/17/2025	4/17/2023	104.55448	103.0979505	101.6691397	100.2673266	98.89181239	97.54192173	96.21700208	94.91642258	93.6395732
230417A00023	4/17/2023	3.86	4/7/2028	4/17/2023	112.81923	108.3322052	104.0533772	99.97197351	96.07783719	92.36138645	88.81357897	85.4258788	82.19022532
230417A00034	4/17/2023	4.63	4/17/2025	4/17/2023	104.55448	103.0979505	101.6691397	100.2673266	98.89181239	97.54192173	96.21700208	94.91642258	93.6395732
230417A00037	4/17/2023	4.39	4/16/2026	4/17/2023	107.71533	105.2521077	102.8587385	100.5328374	98.27211945	96.0743912	93.93754634	91.85956167	89.83849325
230419A00024	4/19/2023	4.66	4/18/2025	4/19/2023	104.60847	103.1488264	101.7170159	100.3123063	98.93399491	97.5814027	96.25387357	94.95077332	93.67148867
230419A00030	4/19/2023	4.39	4/20/2026	4/19/2023	107.75417	105.2797026	102.8757015	100.5397498	98.26953325	96.06283037	93.91750838	91.83151904	89.80289473
230419A00016	4/19/2023	4.41	4/18/2025	4/19/2023	104.41731	102.9562587	101.5231133	100.1171386	98.7376292	97.38390355	96.05530312	94.75119137	93.47095284
230419A00072	4/19/2023	4.53	10/20/2025	4/19/2023	106.25248	104.2853579	102.3650619	100.4901893	98.65938762	96.87135412	95.12483325	93.41861477	91.75153175
230419A00035	4/19/2023	4.16	4/19/2028	4/19/2023	113.68219	109.1603742	104.8491684	100.7376254	96.81542409	93.07283074	89.50066269	86.0902542	82.83342459
230419A00005	4/19/2023	5.1	4/19/2024	4/19/2023	101.64375	101.1719098	100.7044673	100.2413601	99.78252783	99.32791143	98.87745275	98.4310948	97.98878157
230420A00067	4/20/2023	4.57	4/21/2025	4/20/2023	104.50579	103.0388593	101.6000414	100.1886008	98.8038241	97.44502204	96.11152874	94.80270063	93.51791553
230420A00071	4/20/2023	4.31	4/20/2026	4/20/2023	107.55741	105.0854009	102.6838021	100.3502007	98.08228369	95.87783125	93.73471202	91.65087915	89.62436637
230420A00003	4/20/2023	4.06	4/20/2026	4/20/2023	107.24237	104.7680392	102.3643267	100.0288136	97.75917629	95.55318447	93.40869721	91.32365852	89.29609351
230420A00024	4/20/2023	4.31	4/20/2026	4/20/2023	107.55741	105.0854009	102.6838021	100.3502007	98.08228369	95.87783125	93.73471202	91.65087915	89.62436637
230421A00003	4/21/2023	4.72	10/21/2024	4/21/2023	103.01071	102.0384564	101.0846348	100.148721	99.23021305	98.3286278	97.44349972	96.5743803	95.7208372
230421A00043	4/21/2023	4.1	4/21/2028	4/21/2023	113.43386	108.9121887	104.6014341	100.4906192	96.56939485	92.82800149	89.25723287	85.84840162	82.59330732
230421A00044	4/21/2023	4.13	10/21/2027	4/21/2023	112.00398	107.9988687	104.1626251	100.4872216	96.96505166	93.58890916	90.35196513	87.24774588	84.27011266
230421A00041	4/21/2023	4.22	4/21/2027	4/21/2023	110.68784	107.1918021	103.8274426	100.5890854	97.47133051	94.46903922	91.57731985	88.79151453	86.10718669
230421A00020	4/21/2023	4.23	4/21/2026	4/21/2023	107.36993	104.8975783	102.495735	100.1619822	97.89400122	95.68956665	93.54654194	91.46287537	89.43659608
230421A00064	4/21/2023	4.1	4/21/2028	4/21/2023	113.43386	108.9121887	104.6014341	100.4906192	96.56939485	92.82800149	89.25723287	85.84840162	82.59330732
230421A00006	4/21/2023	4.04	4/21/2028	4/21/2023	113.16901	108.6531793	104.3480655	100.2427014	96.32674578	92.59044668	89.02460508	85.62054049	82.37005903
230421A00023	4/21/2023	4.04	4/21/2028	4/21/2023	113.16901	108.6531793	104.3480655	100.2427014	96.32674578	92.59044668	89.02460508	85.62054049	82.37005903
230421A00024	4/21/2023	4.23	4/21/2026	4/21/2023	107.36993	104.8975783	102.495735	100.1619822	97.89400122	95.68956665	93.54654194	91.46287537	89.43659608
230421A00025	4/21/2023	4.04	4/21/2028	4/21/2023	113.16901	108.6531793	104.3480655	100.2427014	96.32674578	92.59044668	89.02460508	85.62054049	82.37005903
230421A00036	4/21/2023	4.48	4/21/2025	4/21/2023	104.37299	102.9070795	101.4692633	100.0588074	98.67499876	97.31714858	95.98459143	94.67668414	93.39280491
230421A00015	4/21/2023	4.54	4/21/2025	4/21/2023	104.46153	102.9949327	101.5564487	100.1453364	98.76088232	97.40239755	96.0692163	94.76069513	93.47621199
230424A00010	4/24/2023	4.55	4/24/2025	4/24/2023	104.50551	103.0305076	101.5839194	100.1649993	98.77302242	97.40728902	96.06712302	94.75187112	93.46090183
230424A00011	4/24/2023	4.55	4/24/2025	4/24/2023	104.50551	103.0305076	101.5839194	100.1649993	98.77302242	97.40728902	96.06712302	94.75187112	93.46090183
230424A00005	4/24/2023	4.08	4/24/2028	4/24/2023	113.36972	108.8414829	104.5248531	100.4088	96.48292251	92.73741357	89.16302301	85.75102303	82.49317589
230424A00064	4/24/2023	4.28	4/24/2026	4/24/2023	107.52128	105.0389811	102.6276848	100.284949	98.00843168	95.79588529	93.64515246	91.55416171	89.52092347

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230424A00012	4/24/2023	4.28	4/24/2026	4/24/2023	107.52128	105.0389811	102.6276848	100.284949	98.00843168	95.79588529	93.64515246	91.55416171	89.52092347
230424A00037	4/24/2023	4.79	10/24/2024	4/24/2023	103.1162	102.1353166	101.1731727	100.2292346	99.30298823	98.39393869	97.50160935	96.62554109	95.76529148
230424A00026	4/24/2023	4.28	4/24/2026	4/24/2023	107.52128	105.0389811	102.6276848	100.284949	98.00843168	95.79588529	93.64515246	91.55416171	89.52092347
230425A00045	4/25/2023	3.95	4/25/2028	4/25/2023	112.80256	108.2841897	103.9772544	99.87071484	95.95416929	92.21781056	88.65238881	85.24917695	81.99993838
230425A00047	4/25/2023	4.01	4/26/2027	4/25/2023	110.00859	106.5109464	103.1456518	99.90697767	96.7894746	93.78795795	90.89749342	88.1133835	85.43115481
230425A00050	4/25/2023	4.14	4/24/2026	4/25/2023	107.17544	104.6974819	102.2904255	99.95183733	97.67937795	95.47080259	93.32395642	91.23677042	89.20725739
230425A00031	4/25/2023	3.69	4/25/2028	4/25/2023	112.20579	107.684236	103.3748709	99.26659406	95.34894556	91.61206437	88.04665095	84.64393229	81.39562938
230425A00040	4/25/2023	3.89	4/24/2026	4/25/2023	106.85848	104.3781905	101.9690275	99.62853627	97.35436647	95.14426296	92.99606113	90.90768273	88.87713181
230425A00029	4/25/2023	4.14	4/24/2026	4/25/2023	107.17544	104.6974819	102.2904255	99.95183733	97.67937795	95.47080259	93.32395642	91.23677042	89.20725739
230425A00032	4/25/2023	3.95	4/25/2028	4/25/2023	112.80256	108.2841897	103.9772544	99.87071484	95.95416929	92.21781056	88.65238881	85.24917695	81.99993838
230425A00028	4/25/2023	4.42	4/25/2025	4/25/2023	104.32203	102.8457461	101.3979618	99.97791881	98.58488938	97.21817071	95.87708392	94.56097304	93.26920401
230425A00030	4/25/2023	4.01	4/26/2027	4/25/2023	110.00859	106.5109464	103.1456518	99.90697767	96.7894746	93.78795795	90.89749342	88.1133835	85.43115481
230425A00076	4/25/2023	4.95	4/25/2024	4/25/2023	101.6257	101.1376618	100.6543203	100.1756089	99.7014609	99.23181135	98.7665963	98.30575306	97.84922011
230425A00020	4/25/2023	4.62	10/25/2024	4/25/2023	102.95678	101.9740977	101.0102433	100.0646793	99.13688787	98.22637044	97.33264704	96.45525534	95.59374984
230425A00124	4/25/2023	4.42	4/25/2025	4/25/2023	104.32203	102.8457461	101.3979618	99.97791881	98.58488938	97.21817071	95.87708392	94.56097304	93.26920401
230425A00006	4/25/2023	3.89	4/24/2026	4/25/2023	106.85848	104.3781905	101.9690275	99.62853627	97.35436647	95.14426296	92.99606113	90.90768273	88.87713181
230425A00037	4/25/2023	4.65	10/25/2024	4/25/2023	102.98651	102.0036735	101.0396632	100.0939455	99.16600221	98.25533498	97.36146372	96.48392606	95.62227647
230425A00053	4/25/2023	4.14	4/24/2026	4/25/2023	107.17544	104.6974819	102.2904255	99.95183733	97.67937795	95.47080259	93.32395642	91.23677042	89.20725739
230426A00025	4/26/2023	3.62	4/26/2028	4/26/2023	111.90241	107.3849139	103.0796286	98.97544058	95.06188122	91.32908164	87.76773536	84.36906321	81.12478067
230426A00030	4/26/2023	3.81	4/27/2026	4/26/2023	106.68604	104.1998688	101.7852265	99.43964145	97.16074259	94.94625497	92.79399534	90.70186782	88.66785986
230426A00062	4/26/2023	4.13	4/27/2026	4/26/2023	107.17777	104.6917421	102.2770722	99.93130136	97.65206804	95.43710643	93.28424186	91.19138655	89.15653555
230426A00049	4/26/2023	4.13	4/27/2026	4/26/2023	107.17777	104.6917421	102.2770722	99.93130136	97.65206804	95.43710643	93.28424186	91.19138655	89.15653555
230426A00033	4/26/2023	3.88	4/26/2028	4/26/2023	112.50034	107.9860075	103.6831219	99.58064139	95.66815568	91.93584976	88.3744669	84.97527384	81.73002851
230426A00040	4/26/2023	3.9	4/26/2028	4/26/2023	112.58889	108.0725973	103.7678204	99.66351254	95.74926064	92.01524718	88.45221295	85.05142242	81.80463129
230426A00010	4/26/2023	3.94	8/8/2028	4/26/2023	113.53047	108.7199603	104.1462318	99.79630913	95.65800266	91.71985439	87.97108983	84.40157327	81.0017663
230426A00007	4/26/2023	3.92	7/11/2028	4/26/2023	113.24205	108.5107279	104.0091536	99.72488257	95.64621456	91.7621453	88.06232108	84.53699647	81.17699503
230426A00005	4/26/2023	3.91	6/13/2028	4/26/2023	112.99163	108.3399596	103.9111526	99.69330026	95.67519596	91.84628993	88.19664706	84.71690761	81.39825067
230426A00003	4/26/2023	3.89	5/9/2028	4/26/2023	112.6412	108.0896483	103.7526527	99.61893107	95.67785661	91.91941464	88.33416386	84.91320053	81.64812495
230426A00004	4/26/2023	3.89	5/9/2028	4/26/2023	112.6412	108.0896483	103.7526527	99.61893107	95.67785661	91.91941464	88.33416386	84.91320053	81.64812495
230426A00009	4/26/2023	3.94	8/8/2028	4/26/2023	113.53047	108.7199603	104.1462318	99.79630913	95.65800266	91.71985439	87.97108983	84.40157327	81.0017663
230426A00006	4/26/2023	3.91	6/13/2028	4/26/2023	112.99163	108.3399596	103.9111526	99.69330026	95.67519596	91.84628993	88.19664706	84.71690761	81.39825067
230426A00013	4/26/2023	3.98	10/10/2028	4/26/2023	114.15356	109.162955	104.4259119	99.92817974	95.65638421	91.59796673	87.74113071	84.07479137	80.58852923
230426A00008	4/26/2023	3.92	7/11/2028	4/26/2023	113.24205	108.5107279	104.0091536	99.72488257	95.64621456	91.7621453	88.06232108	84.53699647	81.17699503

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230426A00012	4/26/2023	3.96	9/12/2028	4/26/2023	113.86764	108.9572998	104.2929591	99.8609882	95.64858265	91.64370776	87.83504852	84.21196307	80.76443928
230426A00011	4/26/2023	3.96	9/12/2028	4/26/2023	113.86764	108.9572998	104.2929591	99.8609882	95.64858265	91.64370776	87.83504852	84.21196307	80.76443928
230426A00014	4/26/2023	3.98	10/10/2028	4/26/2023	114.15356	109.162955	104.4259119	99.92817974	95.65638421	91.59796673	87.74113071	84.07479137	80.58852923
230426A00051	4/26/2023	4.69	10/28/2024	4/26/2023	103.05256	102.0614321	101.0894428	100.1360383	99.20068849	98.28288321	97.38213143	96.49796031	95.62991435
230426A00037	4/26/2023	3.94	4/26/2027	4/26/2023	109.7668	106.2733506	102.9121342	99.67742519	96.56377838	93.56601294	90.67919827	87.8986404	85.21986934
230426A00036	4/26/2023	4.06	4/27/2026	4/26/2023	107.00429	104.5204408	102.1079043	99.76422021	97.48702851	95.27406469	93.12315537	91.03221402	88.99923687
230426A00043	4/26/2023	4.35	4/22/2025	4/26/2023	104.19037	102.7231732	101.2841471	99.87255457	98.48767938	97.12882987	95.79533778	94.48655729	93.20186403
230426A00057	4/26/2023	4.44	4/25/2025	4/26/2023	104.35175	102.8752445	101.4272345	100.0069696	98.613722	97.24678883	95.90549111	94.58917275	93.29719962
230426A00063	4/26/2023	4.69	10/25/2024	4/26/2023	103.02616	102.043108	101.0788899	100.132967	99.20482134	98.29395437	97.39988597	96.5221537	95.66031198
230426A00045	4/26/2023	4.34	4/25/2025	4/26/2023	104.20311	102.7277525	101.2808712	99.86171574	98.46955889	97.10369819	95.76345517	94.4481742	93.15722161
230426A00046	4/26/2023	3.95	4/26/2028	4/26/2023	112.81026	108.2890717	103.9795667	99.87069039	95.95202305	92.21374072	88.6465781	85.24179388	81.99113824
230426A00026	4/26/2023	4.61	10/25/2024	4/26/2023	102.94687	101.964239	101.0004366	100.0549239	99.12718309	98.21671559	97.32304148	96.44569843	95.58424096
230426A00064	6/15/2023	3.87	6/15/2028	6/15/2023	112.82427	108.1710469	103.7410342	99.52228859	95.5035747	91.6743164	88.02455448	84.54490709	81.2265331
230426A00065	6/15/2023	3.87	6/15/2028	6/15/2023	112.82427	108.1710469	103.7410342	99.52228859	95.5035747	91.67431641	88.02455448	84.54490709	81.2265331
230427A00069	4/27/2023	4.5	4/28/2025	4/27/2023	104.46976	102.9842749	101.5276051	100.0989879	98.69768376	97.32297863	95.97418288	94.65063027	93.35167693
230427A00066	4/27/2023	4.07	4/27/2027	4/27/2023	110.22466	106.7205999	103.3491901	100.1046887	96.98163073	93.97481657	91.07929804	88.29036454	85.60353036
230427A00013	4/27/2023	4.74	10/28/2024	4/27/2023	103.10252	102.111131	101.1388779	100.1852131	99.24960649	98.33154778	97.43054591	96.54612793	95.67783828
230427A00077	4/27/2023	4.14	10/27/2026	4/27/2023	108.82641	105.8331931	102.939574	100.1416854	97.43583181	94.81848151	92.28625883	89.83593609	87.46442624
230427A00057	4/27/2023	4.74	10/28/2024	4/27/2023	103.10252	102.111131	101.1388779	100.1852131	99.24960649	98.33154778	97.43054591	96.54612793	95.67783828
230428A00049	4/28/2023	4.78	10/28/2024	4/28/2023	103.1425	102.1508901	101.1784259	100.224553	99.28874088	98.37047945	97.46927749	96.58466203	95.71617743
230428A00040	4/28/2023	4.78	10/28/2024	4/28/2023	103.1425	102.1508901	101.1784259	100.224553	99.28874088	98.37047945	97.46927749	96.58466203	95.71617743
230428A00066	4/28/2023	4.78	10/28/2024	4/28/2023	103.1425	102.1508901	101.1784259	100.224553	99.28874088	98.37047945	97.46927749	96.58466203	95.71617743
230428A00017	4/28/2023	4.17	4/28/2026	4/28/2023	107.28602	104.7959519	102.3774223	100.0279644	97.74520862	95.52688116	93.37079992	91.27487007	89.23707998
230428A00018	4/28/2023	3.99	4/28/2028	4/28/2023	113.00298	108.4722188	104.1537842	100.0365729	96.11012347	92.36457324	88.79062116	85.37949269	82.12290725
230428A00029	4/28/2023	4.23	4/28/2026	4/28/2023	107.43489	104.9429392	102.5225771	100.1713269	97.88681755	95.6667742	93.50901363	91.41143994	89.37204047
230428A00026	4/28/2023	4.56	4/28/2025	4/28/2023	104.55944	103.0732517	101.6158976	100.1866078	98.78464238	97.40928711	96.059852	94.73567054	93.43609858
230428A00054	4/28/2023	4.62	3/13/2025	4/28/2023	104.19998	102.8390368	101.5024754	100.1896967	98.90011947	97.63318125	96.38833725	95.16505977	93.96283756
230501A00011	5/1/2023	4.09	4/26/2027	5/1/2023	110.28492	106.7824844	103.4125291	100.1693234	97.04741315	94.0416094	91.14697359	88.35880419	85.67262392
230501A00022	5/1/2023	4.54	5/1/2025	5/1/2023	104.55874	103.0645463	101.5994644	100.1627196	98.75356083	97.3712635	96.01512773	94.68447753	93.37865974
230501A00039	5/1/2023	4.33	5/1/2025	5/1/2023	104.42317	102.9270621	101.4601541	100.0216644	98.61083906	97.22695037	95.86929568	94.53719631	93.22999657
230501A00038	5/1/2023	4.33	5/1/2025	5/1/2023	104.42317	102.9270621	101.4601541	100.0216644	98.61083905	97.22695037	95.86929568	94.53719631	93.22999657
230501A00013	5/1/2023	4.54	5/1/2025	5/1/2023	104.55874	103.0645463	101.5994644	100.1627196	98.75356083	97.3712635	96.01512773	94.68447753	93.37865974
230501A00041	5/1/2023	4.58	4/28/2025	5/1/2023	104.58933	103.1029106	101.6453284	100.2158144	98.81362859	97.4380566	96.08840838	94.7640173	93.46423914

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230502A00034	5/2/2023	4.92	5/2/2024	5/2/2023	101.6717	101.1646087	100.6625773	100.1655349	99.67340743	99.18612222	98.70360797	98.22579481	97.75261422
230502A00122	5/2/2023	3.7	5/3/2027	5/2/2023	109.42125	105.9043962	102.5216045	99.26703108	96.13512013	93.12058752	90.21840614	87.42379182	84.73219017
230502A00079	5/2/2023	3.6	5/2/2028	5/2/2023	111.85601	107.3236977	103.0050031	98.88870225	94.96422406	91.22160549	87.65145311	84.24490753	80.99361022
230502A00002	5/2/2023	5.05	5/28/2024	5/2/2023	101.92268	101.3452331	100.7743374	100.2098856	99.65176919	99.09988171	98.55411924	98.01438012	97.48056493
230502A00017	5/2/2023	4.26	5/4/2026	5/2/2023	107.56525	105.0557345	102.6186556	100.2514982	97.95185045	95.71739902	93.54592421	91.4352957	89.38346831
230502A00045	5/2/2023	4.38	5/2/2025	5/2/2023	104.32766	102.8326189	101.3667376	99.92923683	98.51936342	97.13639043	95.77961597	94.44836208	93.14197376
230502A00047	5/2/2023	4.1	5/1/2026	5/2/2023	107.13906	104.6428585	102.2185925	99.86376977	97.5760004	95.35299177	93.19254392	91.09254515	89.05096791
230502A00052	5/2/2023	3.96	5/3/2027	5/2/2023	109.89548	106.3812651	103.0006731	99.7478933	96.61739821	93.60393027	90.70248711	87.90830769	85.21685926
230502A00042	5/2/2023	4.64	11/4/2024	5/2/2023	103.06075	102.0511137	101.061333	100.0908262	99.13903337	98.20541624	97.28945692	96.39065705	95.50853691
230502A00055	5/2/2023	4.08	5/4/2026	5/2/2023	107.11576	104.6119388	102.1804268	99.81871411	97.52439254	95.29515223	93.12877693	91.02313961	88.97619824
230502A00076	5/2/2023	3.95	5/3/2027	5/2/2023	109.86075	106.3471424	102.9671391	99.71493164	96.58499309	93.57206645	90.67114991	87.87748292	85.18653325
230502A00120	5/2/2023	4.38	5/2/2025	5/2/2023	104.32766	102.8326189	101.3667376	99.92923683	98.51936342	97.13639043	95.77961597	94.44836208	93.14197376
230502A00081	5/2/2023	3.96	5/3/2027	5/2/2023	109.89548	106.3812651	103.0006731	99.7478933	96.61739821	93.60393027	90.70248711	87.90830769	85.21685926
230502A00025	5/2/2023	4.81	11/1/2024	5/2/2023	103.20836	102.2058332	101.2228558	100.258863	99.31330795	98.38566456	97.4754266	96.58210679	95.7052359
230502A00058	5/2/2023	4.39	5/2/2025	5/2/2023	104.34272	102.8475552	101.3815583	99.94394393	98.53395882	97.150876	95.79399355	94.46263345	93.15614067
230502A00086	5/2/2023	4.08	5/1/2026	5/2/2023	107.08928	104.5937053	102.1700539	99.81583224	97.52865091	95.30621767	93.1463329	91.04688527	89.00584759
230502A00024	5/2/2023	4.38	5/2/2025	5/2/2023	104.32766	102.8326189	101.3667376	99.92923683	98.51936342	97.13639043	95.77961597	94.44836208	93.14197376
230503A00014	5/3/2023	3.94	5/3/2027	5/3/2023	109.82603	106.3130197	102.9336051	99.68196998	96.55258796	93.54020263	90.6398127	87.84665816	85.15620724
230503A00022	5/3/2023	4.4	5/2/2025	5/3/2023	104.35777	102.8624916	101.3963791	99.95865103	98.54855421	97.16536158	95.80837113	94.47690482	93.17030757
230503A00072	5/3/2023	3.83	5/4/2026	5/3/2023	106.79526	104.2890974	101.8554636	99.49183712	97.19579845	94.96502705	92.7972966	90.69047055	88.64249789
230503A00020	5/3/2023	3.84	5/3/2028	5/3/2023	112.3746	107.8446494	103.52771	99.41261347	95.48883464	91.74645294	88.17611423	84.76899545	81.51677165
230503A00031	5/3/2023	4.4	5/2/2025	5/3/2023	104.35777	102.8624916	101.3963791	99.95865103	98.54855421	97.16536158	95.80837113	94.47690482	93.17030757
230503A00032	5/3/2023	4.08	5/1/2026	5/3/2023	107.08928	104.5937053	102.1700539	99.81583224	97.52865091	95.30621767	93.1463329	91.04688527	89.00584759
230503A00036	5/3/2023	4.15	5/2/2025	5/3/2023	104.16149	102.664771	101.1972962	99.75827942	98.34696447	96.96262154	95.60454599	94.2720573	92.96449801
230503A00038	5/3/2023	4.15	5/2/2025	5/3/2023	104.16149	102.664771	101.1972962	99.75827942	98.34696447	96.96262154	95.60454599	94.2720573	92.96449801
230503A00017	5/3/2023	4.41	11/4/2024	5/3/2023	102.94696	101.9362237	100.945393	99.97388611	99.02114101	98.08661728	97.16979506	96.27017413	95.38727299
230503A00004	5/3/2023	3.94	5/3/2027	5/3/2023	109.82603	106.3130197	102.9336051	99.68196998	96.55258796	93.54020263	90.6398127	87.84665816	85.15620724
230503A00012	5/3/2023	3.82	5/3/2028	5/3/2023	112.28568	107.7577055	103.4426727	99.32941811	95.40741933	91.6667584	88.09808361	84.69257426	81.44190765
230503A00029	5/3/2023	4.08	5/4/2026	5/3/2023	107.11576	104.6119388	102.1804268	99.81871411	97.52439254	95.29515223	93.12877693	91.02313961	88.97619824
230503A00030	5/3/2023	3.84	5/3/2028	5/3/2023	112.3746	107.8446494	103.52771	99.41261347	95.48883464	91.74645294	88.17611423	84.76899545	81.51677165
230503A00034	5/3/2023	3.84	5/3/2028	5/3/2023	112.3746	107.8446494	103.52771	99.41261347	95.48883464	91.74645294	88.17611423	84.76899545	81.51677165
230503A00025	5/3/2023	3.84	5/3/2028	5/3/2023	112.3746	107.8446494	103.52771	99.41261347	95.48883464	91.74645294	88.17611423	84.76899545	81.51677165
230504A00034	5/4/2023	3.95	5/4/2026	5/4/2023	106.79113	104.2914197	101.8639283	99.50614785	97.21567294	94.99019621	92.82750389	90.72547132	88.68205875

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230504A00046	5/4/2023	4.24	5/5/2025	5/4/2023	104.14381	102.6422711	101.1700997	99.72650712	98.31073135	96.92203715	95.55971472	94.22307862	92.91146672
230504A00047	5/4/2023	4.5	11/4/2024	5/4/2023	102.91817	101.9093095	100.9202946	99.9505431	98.99949542	98.0666134	97.15137939	96.25329529	95.37188155
230504A00092	5/4/2023	4.5	11/4/2024	5/4/2023	102.91817	101.9093095	100.9202946	99.9505431	98.99949542	98.0666134	97.15137939	96.25329529	95.37188155
230504A00042	5/4/2023	3.83	5/4/2027	5/4/2023	109.45217	105.9430659	102.5675413	99.31978434	96.19426479	93.18572259	90.28915322	87.49979379	84.81310998
230504A00043	5/4/2023	3.76	5/4/2028	5/4/2023	112.02597	107.5011507	103.189303	99.07925018	95.16046236	91.42301481	87.85754984	84.45524136	81.2077619
230504A00041	5/4/2023	3.95	5/4/2026	5/4/2023	106.79113	104.2914197	101.8639283	99.50614785	97.21567294	94.99019621	92.82750389	90.72547132	88.68205875
230504A00069	5/4/2023	3.82	5/4/2026	5/4/2023	106.4665	103.9709006	101.5474297	99.1935816	96.90695334	94.6852402	92.52623086	90.42780303	88.38791925
230504A00040	5/4/2023	4.5	11/4/2024	5/4/2023	102.91817	101.9093095	100.9202946	99.9505431	98.99949542	98.0666134	97.15137939	96.25329529	95.37188155
230504A00011	5/4/2023	3.7	5/4/2026	5/4/2023	106.47014	103.9680953	101.5384947	99.17881269	96.8866325	94.65963613	92.49559974	90.39238917	88.34795569
230504A00019	5/4/2023	3.95	5/4/2026	5/4/2023	106.79113	104.2914197	101.8639283	99.50614785	97.21567294	94.99019621	92.82750389	90.72547132	88.68205875
230504A00018	5/4/2023	4.24	5/5/2025	5/4/2023	104.14381	102.6422711	101.1700997	99.72650712	98.31073135	96.92203715	95.55971472	94.22307862	92.91146672
230504A00021	5/4/2023	3.76	5/4/2028	5/4/2023	112.02597	107.5011507	103.189303	99.07925018	95.16046236	91.42301481	87.85754984	84.45524136	81.2077619
230504A00020	5/4/2023	3.83	5/4/2027	5/4/2023	109.45217	105.9430659	102.5675413	99.31978434	96.19426479	93.18572259	90.28915322	87.49979379	84.81310998
230504A00057	5/4/2023	3.86	5/4/2026	5/4/2023	106.56639	104.0695219	101.6448139	99.28975583	97.00194399	94.77907282	92.61893025	90.51939327	88.47842371
230504A00085	5/4/2023	4.24	5/5/2025	5/4/2023	104.14381	102.6422711	101.1700997	99.72650712	98.31073135	96.92203715	95.55971472	94.22307862	92.91146672
230504A00084	5/4/2023	3.5	5/4/2028	5/4/2023	111.42386	106.8959334	102.5817361	98.47003062	94.55022805	90.81234912	87.24698581	83.84526559	80.5988181
230504A00054	5/4/2023	3.95	5/4/2026	5/4/2023	106.79113	104.2914197	101.8639283	99.50614785	97.21567294	94.99019621	92.82750389	90.72547132	88.68205875
230504A00058	5/4/2023	3.69	5/4/2028	5/4/2023	111.71457	107.1966701	102.8915033	98.78790471	94.87535419	91.14393605	87.58430126	84.18763196	80.94560852
230504A00064	5/4/2023	4.35	11/4/2024	5/4/2023	102.7654	101.7573764	100.769182	99.80023982	98.84999047	97.91789606	97.00343919	96.10612197	95.2254651
230504A00055	5/4/2023	4.24	5/5/2025	5/4/2023	104.14381	102.6422711	101.1700997	99.72650712	98.31073135	96.92203715	95.55971472	94.22307862	92.91146672
230504A00065	5/4/2023	4.11	5/5/2025	5/4/2023	103.94705	102.4470568	100.9764047	99.53430526	98.11999722	96.73274599	95.37184243	94.03660174	92.72636238
230504A00049	5/4/2023	3.95	5/4/2026	5/4/2023	106.79113	104.2914197	101.8639283	99.50614785	97.21567294	94.99019621	92.82750389	90.72547132	88.68205875
230505A00046	5/5/2023	4.33	5/5/2025	5/5/2023	104.28003	102.7774194	101.3041963	99.85956994	98.44277806	97.05308488	95.68978016	94.35217801	93.03961589
230505A00048	5/5/2023	4.01	5/5/2026	5/5/2023	106.9496	104.4452464	102.0132844	99.65119747	97.35657262	95.12709547	92.96054552	90.85479178	88.8077885
230505A00022	5/5/2023	3.85	5/5/2028	5/5/2023	112.43362	107.8971307	103.5741489	99.45346448	95.52451953	91.77736301	88.20261261	84.79141921	81.53543377
230505A00014	5/5/2023	3.59	5/5/2028	5/5/2023	111.83225	107.2926101	102.9672386	98.84486416	94.91486954	91.16724902	87.59256983	84.18193624	80.92695617
230505A00016	5/5/2023	3.85	5/5/2028	5/5/2023	112.43362	107.8971307	103.5741489	99.45346448	95.52451953	91.77736301	88.20261261	84.79141921	81.53543377
230505A00027	5/5/2023	4.01	5/5/2026	5/5/2023	106.9496	104.4452464	102.0132844	99.65119747	97.35657262	95.12709547	92.96054552	90.85479178	88.8077885
230505A00017	5/5/2023	4.01	5/5/2026	5/5/2023	106.9496	104.4452464	102.0132844	99.65119747	97.35657262	95.12709547	92.96054552	90.85479178	88.8077885
230505A00035	5/5/2023	3.9	5/5/2027	5/5/2023	109.70381	106.1876816	102.805438	99.55124579	96.41956006	93.40510699	90.50286913	87.70807142	85.01616805
230505A00002	5/5/2023	4.01	5/5/2026	5/5/2023	106.9496	104.4452464	102.0132844	99.65119747	97.35657262	95.12709547	92.96054552	90.85479178	88.8077885
230505A00001	5/5/2023	4.33	5/5/2025	5/5/2023	104.28003	102.7774194	101.3041963	99.85956994	98.44277806	97.05308488	95.68978016	94.35217801	93.03961589
230505A00005	5/5/2023	3.99	5/5/2026	5/5/2023	106.8996	104.3958833	101.9645412	99.60306049	97.30902869	95.08013175	92.91414959	90.80895157	88.7624923

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230505A00013	5/5/2023	4.33	5/5/2025	5/5/2023	104.28003	102.7774194	101.3041963	99.85956994	98.44277806	97.05308488	95.68978016	94.35217801	93.03961589
230509A00060	5/9/2023	3.92	5/9/2028	5/9/2023	112.77505	108.2205192	103.8806437	99.74413994	95.80037717	92.03933669	88.45157347	85.0281802	81.7607538
230509A00010	5/9/2023	4.14	5/8/2026	5/9/2023	107.30155	104.7848154	102.3409559	99.96743138	97.66180738	95.42174919	93.24501711	91.12946196	89.07302079
230509A00009	5/9/2023	4.45	5/9/2025	5/9/2023	104.49981	102.9848798	101.4996794	100.0434039	98.61527744	97.21455152	95.84050375	94.4924367	93.16967685
230509A00019	5/9/2023	4.7	11/8/2024	5/9/2023	103.15469	102.1340025	101.1336015	100.1528829	99.19126889	98.24820418	97.32315477	96.415607	95.52506663
230509A00037	5/9/2023	4.47	11/8/2024	5/9/2023	103.03976	102.0179627	101.0165007	100.034772	99.07219673	98.12821726	97.20229763	96.29392226	95.40259507
230509A00118	5/9/2023	4.12	5/8/2026	5/9/2023	107.25139	104.7352949	102.2920592	99.91914481	97.61411759	95.37464325	93.19848248	91.08348648	89.02759265
230509A00047	5/9/2023	4.43	5/9/2025	5/9/2023	104.46932	102.9546332	101.4696698	100.0136273	98.58572982	97.18522902	95.81140261	94.46355326	93.14100753
230509A00048	5/9/2023	4.43	5/9/2025	5/9/2023	104.46932	102.9546332	101.4696698	100.0136273	98.58572982	97.18522902	95.81140261	94.46355326	93.14100753
230509A00036	5/9/2023	4.02	5/10/2027	5/9/2023	110.16453	106.6272043	103.2248674	99.95162729	96.80187898	93.77029266	90.85179833	88.04157171	85.33502082
230509A00035	5/9/2023	4.14	5/8/2026	5/9/2023	107.30155	104.7848154	102.3409559	99.96743138	97.66180738	95.42174919	93.24501711	91.12946196	89.07302079
230510A00012	5/10/2023	5.02	5/10/2024	5/10/2023	101.77714	101.2483032	100.7249797	100.2070839	99.69453139	99.18723966	98.68512776	98.18811642	97.69612801
230510A00023	5/10/2023	4.74	9/30/2024	5/10/2023	102.83419	101.9186295	101.0194261	100.1361408	99.26835324	98.41565757	97.57766215	96.75398877	95.94427207
230510A00022	5/10/2023	5.01	5/15/2024	5/10/2023	101.80984	101.2674826	100.7309204	100.2000646	99.67482422	99.15511027	98.6408356	98.1319149	97.62826463
230510A00009	5/10/2023	4.07	5/11/2026	5/10/2023	107.1524	104.6296542	102.1801266	99.80125808	97.49059675	95.24579142	93.06458697	90.94481965	88.8844128
230510A00031	5/10/2023	4.14	5/9/2025	5/10/2023	104.20961	102.6939506	101.2080861	99.75120942	98.32254199	96.92133278	95.54685698	94.1984149	92.87533084
230510A00007	5/10/2023	4.39	5/9/2025	5/10/2023	104.40835	102.89414	101.4096507	99.95407405	98.52663457	97.12658402	95.75320033	94.40578637	93.08366888
230510A00033	5/10/2023	4.39	5/12/2025	5/10/2023	104.43647	102.9141093	101.4217002	99.95843284	98.52352223	97.11621096	95.73576824	94.38148868	93.05269118
230510A00014	5/10/2023	4.07	5/11/2026	5/10/2023	107.1524	104.6296542	102.1801266	99.80125808	97.49059675	95.24579142	93.06458697	90.94481965	88.8844128
230510A00062	8/10/2023	3.78	8/10/2026	8/10/2023	107.15109	104.3876882	101.7104108	99.11604576	96.60152345	94.16390883	91.80039473	89.5082952	87.28503942
230510A00057	5/10/2023	3.98	5/11/2026	5/10/2023	106.92596	104.4061037	101.9594011	99.58329537	97.27533631	95.03317463	92.85455695	90.73732119	88.67939232
230511A00044	5/11/2023	3.79	5/11/2027	5/11/2023	109.36954	105.8435289	102.4522963	99.18994734	96.05088034	93.02976874	90.12154593	87.32139108	84.62471572
230511A00029	5/11/2023	4.25	5/9/2025	5/11/2023	104.19493	102.6824136	101.1995836	99.74563774	98.31980119	96.92132653	95.54949236	94.20360225	92.88298362
230511A00038	5/11/2023	3.95	5/11/2026	5/11/2023	106.85048	104.3315869	101.885826	99.51064113	97.20358283	94.96230237	92.78454694	90.66815504	88.61105216
230511A00023	5/11/2023	3.95	5/19/2026	5/11/2023	106.91831	104.3775081	101.9108883	99.51584062	97.18986494	94.9305647	92.73564202	90.60289288	88.53020266
230511A00011	5/11/2023	4.54	11/5/2024	5/11/2023	102.96668	101.9549213	100.9631184	99.99068275	99.0370501	98.10167808	97.18404499	96.28364885	95.40000648
230511A00015	5/11/2023	4.25	5/12/2025	5/11/2023	104.22192	102.7012612	101.2105287	99.74890921	98.31561827	96.90989929	95.5310222	94.17828231	92.85099918
230511A00036	5/11/2023	3.79	5/19/2027	5/11/2023	109.43398	105.8858952	102.4740355	99.19241707	96.03535324	92.99743817	90.07353127	87.25874253	84.54841888
230511A00067	5/11/2023	4.58	11/13/2024	5/11/2023	103.07057	102.0371982	101.0246296	100.0322414	99.0594336	98.10562964	97.17027556	96.25283872	95.35280684
230511A00069	5/11/2023	3.98	5/12/2026	5/11/2023	106.93452	104.4119216	101.9626085	99.58401635	97.27368871	95.02927032	92.84850219	90.72921696	88.66933458
230511A00068	5/11/2023	4.31	5/12/2025	5/11/2023	104.31387	102.7924818	101.3010308	99.83870506	98.40471997	96.99831858	95.6187705	94.26537075	92.93743861
230511A00053	5/11/2023	4.53	11/12/2024	5/11/2023	103.01068	101.9802657	100.9705487	99.98090649	99.01074357	98.05948786	97.12658949	96.21151978	95.31377019
230511A00032	5/11/2023	3.7	5/11/2026	5/11/2023	106.52712	104.0058876	101.5580067	99.18091233	96.87214352	94.62934067	92.45024073	90.33267251	88.27455234

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230511A00034	5/11/2023	4	5/12/2025	5/11/2023	104.02193	102.4998192	101.0077096	99.54478865	98.11026898	96.70339106	95.32342209	93.96965477	92.64140619
230511A00050	5/11/2023	3.98	5/11/2026	5/11/2023	106.92596	104.4061037	101.9594011	99.58329537	97.27533631	95.03317463	92.85455695	90.73732119	88.67939232
230511A00046	5/11/2023	3.95	5/11/2026	5/11/2023	106.85048	104.3315869	101.885826	99.51064113	97.20358283	94.96230237	92.78454694	90.66815504	88.61105216
230511A00052	5/11/2023	4.25	5/12/2025	5/11/2023	104.22192	102.7012612	101.2105287	99.74890921	98.31561827	96.90989929	95.5310222	94.17828231	92.85099918
230512A00009	5/12/2023	4.08	5/12/2025	5/12/2023	104.14465	102.621561	101.128491	99.66462622	98.22917887	96.82138898	95.44052332	94.0858742	92.75675833
230512A00010	5/12/2023	3.75	5/12/2026	5/12/2023	106.66139	104.1358023	101.6837335	99.30261056	96.98996519	94.74343078	92.56073764	90.43970834	88.37825328
230512A00026	5/12/2023	4	5/12/2026	5/12/2023	106.98489	104.461652	102.0117098	99.63250238	97.32157298	95.07656591	92.89522177	90.77537283	88.71493869
230512A00033	5/12/2023	3.75	5/12/2026	5/12/2023	106.66139	104.1358023	101.6837335	99.30261056	96.98996519	94.74343078	92.56073764	90.43970834	88.37825328
230512A00042	5/12/2023	4	5/12/2026	5/12/2023	106.98489	104.461652	102.0117098	99.63250238	97.32157298	95.07656591	92.89522177	90.77537283	88.71493869
230512A00037	5/12/2023	3.86	5/12/2027	5/12/2023	109.62237	106.0893058	102.6913164	99.42249669	96.27723028	93.25017668	90.33625622	87.53063576	84.82871526
230512A00008	5/12/2023	3.75	5/12/2026	5/12/2023	106.66139	104.1358023	101.6837335	99.30261056	96.98996519	94.74343078	92.56073764	90.43970834	88.37825328
230512A00007	5/12/2023	4.08	5/12/2025	5/12/2023	104.14465	102.621561	101.128491	99.66462622	98.22917887	96.82138898	95.44052332	94.0858742	92.75675833
230515A00034	5/15/2023	4.69	11/15/2024	5/15/2023	103.20166	102.1623003	101.1439634	100.1460195	99.16785939	98.20889771	97.26857212	96.34634208	95.44168777
230515A00011	5/15/2023	4.11	5/15/2026	5/15/2023	107.28868	104.7536473	102.2923898	99.90231731	97.58095184	95.3259175	93.13493586	91.00582121	88.93647612
230515A00024	5/15/2023	4.69	11/15/2024	5/15/2023	103.20166	102.1623003	101.1439634	100.1460195	99.16785939	98.20889771	97.26857212	96.34634208	95.44168777
230515A00045	5/15/2023	4.08	5/15/2026	5/15/2023	107.21287	104.6788157	102.2185077	99.82936388	97.50890661	95.25476073	93.06464839	90.93638443	88.86787197
230516A00069	5/16/2023	4.1	5/15/2026	5/16/2023	107.26341	104.7287034	102.2677624	99.8779995	97.55693676	95.30219857	93.1115067	90.98267562	88.91360807
230516A00067	5/16/2023	4.44	5/16/2025	5/16/2023	104.55115	103.0172907	101.5137196	100.0396084	98.59415853	97.17660021	95.78619069	94.42221325	93.08397599
230516A00009	5/16/2023	4.46	5/16/2025	5/16/2023	104.58202	103.0479113	101.5440973	100.0697474	98.62406302	97.20627411	95.81563787	94.45143747	93.11298092
230516A00035	5/16/2023	4.11	5/15/2026	5/16/2023	107.28868	104.7536473	102.2923898	99.90231731	97.58095184	95.3259175	93.13493586	91.00582121	88.93647612
230516A00013	5/16/2023	4.11	5/15/2026	5/16/2023	107.28868	104.7536473	102.2923898	99.90231731	97.58095184	95.3259175	93.13493586	91.00582121	88.93647612
230516A00123	5/16/2023	5.01	5/16/2024	5/16/2023	101.81311	101.2681099	100.7289633	100.1955779	99.66786138	99.14572359	98.62907611	98.11783241	97.61190781
230517A00048	5/17/2023	4.17	5/15/2026	5/17/2023	107.44028	104.9033105	102.4401538	100.0482242	97.72504229	95.46823103	93.27551081	91.14469478	89.07368442
230517A00020	5/17/2023	4.47	7/17/2025	5/17/2023	105.20593	103.5006253	101.8312587	100.196758	98.59609313	97.02827503	95.49235325	93.98741427	92.51257956
230517A00014	5/17/2023	4.14	5/18/2026	5/17/2023	107.39145	104.8471958	102.3771306	99.97864666	97.64924619	95.38653473	93.18821629	91.05208857	88.9760385
230517A00046	5/17/2023	4.53	5/16/2025	5/17/2023	104.69005	103.1550832	101.6504193	100.1752341	98.72872876	97.31013278	95.91870299	94.55372223	93.21449818
230518A00019	5/18/2023	3.81	5/18/2028	5/18/2023	112.9119	108.3140184	103.934164	99.76080705	95.7830913	91.99078951	88.3742635	84.92442705	81.63271128
230518A00017	5/18/2023	4.28	5/18/2026	5/18/2023	107.74633	105.1975118	102.7229875	100.3201433	97.98647842	95.7195955	93.51719578	91.37707428	89.29711537
230519A00011	5/19/2023	4.73	5/19/2025	5/19/2023	105.02963	103.4839886	101.9689418	100.4836485	99.02729887	97.59911207	96.19833507	94.82424129	93.4761295
230519A00013	5/19/2023	4.39	5/19/2026	5/19/2023	108.03482	105.4796554	102.9989923	100.5902129	98.2508075	95.97837046	93.77059514	91.62526913	89.5402697
230519A00029	5/19/2023	4.39	5/19/2026	5/19/2023	108.03482	105.4796554	102.9989923	100.5902129	98.2508075	95.97837046	93.77059514	91.62526913	89.5402697
230519A00028	5/19/2023	4.73	5/19/2025	5/19/2023	105.02963	103.4839886	101.9689418	100.4836485	99.02729887	97.59911207	96.19833507	94.82424129	93.4761295
230519A00025	5/19/2023	4.95	11/19/2024	5/19/2023	103.50983	102.4582084	101.4280665	100.4187485	99.4296262	98.46009659	97.50958039	96.57752099	95.66338339

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230519A00027	5/19/2023	4.39	5/19/2026	5/19/2023	108.03482	105.4796554	102.9989923	100.5902129	98.2508075	95.97837046	93.77059514	91.62526913	89.5402697
230519A00026	5/19/2023	4.73	5/19/2025	5/19/2023	105.02963	103.4839886	101.9689418	100.4836485	99.02729887	97.59911207	96.19833507	94.82424129	93.4761295
230519A00041	5/19/2023	3.92	5/19/2028	5/19/2023	113.41447	108.8026794	104.409528	100.2234562	96.23357588	92.42963004	88.80195259	85.34143115	82.0394723
230519A00038	5/19/2023	3.92	5/19/2028	5/19/2023	113.41447	108.8026794	104.409528	100.2234562	96.23357588	92.42963004	88.80195259	85.34143115	82.0394723
230522A00046	5/22/2023	4.17	5/22/2028	5/22/2023	113.99612	109.3802425	104.9828802	100.79249	96.79819809	92.98976037	89.35752279	85.89238407	82.585761
230522A00093	5/22/2023	4.17	5/22/2028	5/22/2023	113.99612	109.3802425	104.9828802	100.79249	96.79819809	92.98976037	89.35752279	85.89238407	82.585761
230522A00029	5/22/2023	4.67	5/22/2025	5/22/2023	104.96695	103.4138681	101.8916135	100.3993335	98.93620884	97.50144967	96.09429441	94.71400839	93.35988267
230522A00026	5/22/2023	4.35	5/22/2026	5/22/2023	107.96199	105.399833	102.9125511	100.4975025	98.15215917	95.87409814	93.66099648	91.5106264	89.42085067
230522A00058	5/22/2023	4.7	5/19/2025	5/22/2023	104.98308	103.4378174	101.9231386	100.4382069	98.98221269	97.55437529	96.15394182	94.78018586	93.43240631
230522A00043	5/22/2023	4.17	5/16/2028	5/22/2023	113.94737	109.3483278	104.9664129	100.7901826	96.80885954	93.01228883	89.39089872	85.93566394	82.63807156
230522A00014	5/23/2023	5.14	5/22/2024	5/23/2023	101.93257	101.371089	100.8158156	100.266645	99.72347675	99.18621268	98.65475665	98.12901463	97.60889463
230523A00047	5/23/2023	4.77	5/23/2025	5/23/2023	105.13332	103.5762483	102.0501034	100.5540329	99.08721352	97.64885188	96.23818287	94.85446847	93.49699657
230523A00045	5/23/2023	5	11/22/2024	5/23/2023	103.58988	102.5299165	101.4917545	100.4747292	99.47819831	98.50154573	97.54417962	96.60553153	95.68505517
230523A00048	5/23/2023	4.44	5/26/2026	5/23/2023	108.23028	105.6540924	103.1533741	100.7254597	98.36779352	96.07792634	93.85351047	91.69229476	89.59211993
230523A00031	5/23/2023	4.76	11/22/2024	5/23/2023	103.46037	102.3993014	101.3600964	100.3420819	99.34461316	98.36707165	97.40886338	96.46941778	95.54818658
230523A00008	5/23/2023	4.44	5/26/2026	5/23/2023	108.23028	105.6540924	103.1533741	100.7254597	98.36779352	96.07792634	93.85351047	91.69229476	89.59211993
230523A00030	5/23/2023	5.3	5/23/2024	5/23/2023	102.021	101.4566769	100.8986186	100.3467194	99.80087732	99.26099301	98.72696904	98.19871018	97.67612325
230523A00027	5/23/2023	5.3	5/23/2024	5/23/2023	102.021	101.4566769	100.8986186	100.3467194	99.80087732	99.26099301	98.72696904	98.19871018	97.67612325
230523A00011	5/23/2023	5.46	2/26/2024	5/23/2023	101.26778	100.9410989	100.6165315	100.2940547	99.97364815	99.65529203	99.33896666	99.02465265	98.71233085
230523A00014	5/23/2023	5.3	5/22/2024	5/23/2023	102.02274	101.4609741	100.9054122	100.3559553	99.81250304	99.27495717	98.74322154	98.21720208	97.69680679
230523A00085	5/23/2023	4.39	5/23/2029	5/23/2023	117.70881	112.0338128	106.676971	101.6186646	96.84058525	92.32564359	88.05788166	84.02239208	80.20524356
230523A00088	5/23/2023	4.59	5/23/2033	5/23/2023	128.01389	118.2581774	109.3718686	101.271606	93.88247596	87.13710982	80.97488697	75.34122571	70.18695202
230523A00089	5/23/2023	4.65	5/23/2034	5/23/2023	130.57107	119.8048382	110.0817838	101.2933268	93.34279189	86.14404172	79.62027594	73.70297303	68.33095688
230523A00083	5/23/2023	4.21	5/23/2028	5/23/2023	114.1842	109.5614733	105.1576354	100.9611181	96.96102579	93.14709409	89.50965005	86.03957477	82.72826864
230523A00086	5/23/2023	4.42	5/23/2030	5/23/2023	119.90262	113.2148885	106.9595899	101.1062631	95.62675228	90.49502012	85.68697761	81.18032847	76.95442678
230523A00090	5/23/2023	4.71	5/23/2035	5/23/2023	132.81812	121.0662996	110.5427243	101.1096245	92.64546689	85.04296018	78.20731494	72.05472455	66.51103756
230523A00091	5/23/2023	4.77	5/23/2036	5/23/2023	134.97822	122.2570265	110.9601287	100.9164404	91.97643085	84.00929889	76.90053219	70.54979626	64.86910675
230524A00028	5/24/2023	4.36	5/26/2026	5/24/2023	108.02577	105.4522329	102.9541048	100.5287229	98.17353314	95.88608816	93.66404185	91.50514461	89.40723866
230524A00037	5/24/2023	4.69	5/23/2025	5/24/2023	105.00833	103.4522704	101.92712	100.4320268	98.96616791	97.52875046	96.11900975	94.73620819	93.37963405
230524A00036	5/24/2023	5.34	5/24/2024	5/24/2023	102.0587	101.4914924	100.9306125	100.3759514	99.82740603	99.28487536	98.74826069	98.21746543	97.69239511
230524A00020	5/24/2023	4.44	5/23/2025	5/24/2023	104.80517	103.247611	101.7210474	100.2246196	98.75750183	97.31889788	95.90804023	94.52418855	93.16662852
230524A00021	5/24/2023	4.44	5/23/2025	5/24/2023	104.80517	103.247611	101.7210474	100.2246196	98.75750183	97.31889788	95.90804023	94.52418855	93.16662852
230524A00038	5/24/2023	4.36	5/26/2026	5/24/2023	108.02577	105.4522329	102.9541048	100.5287229	98.17353314	95.88608816	93.66404185	91.50514461	89.40723866

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230524A00009	5/24/2023	3.9	5/24/2028	5/24/2023	113.36325	108.7394504	104.3353866	100.139414	96.14056628	92.3285142	88.69352512	85.22642526	81.91856451
230524A00006	5/24/2023	5.47	2/26/2024	5/24/2023	101.27104	100.9443593	100.6197853	100.2973017	99.97688856	99.65852582	99.34219387	99.02787332	98.71554499
230525A00024	5/25/2023	5.06	11/25/2024	5/25/2023	103.68152	102.613135	101.5668877	100.5420918	99.53809122	98.55425636	97.5899828	96.6446901	95.71782063
230525A00094	5/25/2023	4.31	5/25/2028	5/25/2023	114.65108	110.0125993	105.5938287	101.3831447	97.36960468	93.54290096	89.89332008	86.41170539	83.0894221
230525A00014	5/25/2023	5.22	8/23/2024	5/25/2023	102.86825	102.0539429	101.2525853	100.463869	99.68749586	98.92317722	98.1706333	97.42959294	96.69979325
230525A00007	5/25/2023	5.53	2/26/2024	5/25/2023	101.29065	100.963922	100.6393077	100.3167841	99.99633103	99.6779286	99.36155716	99.04719729	98.73482985
230526A00016	5/26/2023	4.46	5/26/2027	5/26/2023	111.85831	108.2489045	104.7781944	101.4400704	98.2287294	95.13865562	92.16460503	89.30159012	86.54486588
230526A00013	5/26/2023	4.39	5/26/2026	5/26/2023	108.4159	105.8306323	103.3212211	100.8849774	98.51932894	96.22181085	93.99006065	91.82181312	89.71489562
230526A00009	5/26/2023	5.33	8/23/2024	5/26/2023	102.95831	102.143598	101.3418421	100.5527318	99.77596916	99.01126525	98.25834027	97.51692297	96.78675041
230526A00027	5/26/2023	4.49	5/26/2027	5/26/2023	111.96434	108.3530505	104.8805126	101.5406124	98.3275448	95.23579235	92.26010925	89.39550636	86.63723711
230526A00028	5/26/2023	4.38	5/26/2028	5/26/2023	114.97505	110.326649	105.8984382	101.6787648	97.65666016	93.82179204	90.16442411	86.67537832	83.34599987
230526A00031	5/26/2023	4.54	5/24/2030	5/26/2023	120.67586	113.9609926	107.680016	101.8023773	96.29983156	91.14625865	86.31749306	81.79116765	77.54657079
230526A00029	5/26/2023	4.53	5/25/2029	5/26/2023	118.48573	112.7844146	107.4026635	102.3207587	97.52030765	92.98414293	88.6962341	84.64160657	80.80626659
230526A00034	5/26/2023	4.66	5/26/2032	5/26/2023	126.31335	117.5305249	109.4602009	102.0400033	95.21334986	88.92888372	83.13996505	77.80421462	72.88310362
230526A00026	5/26/2023	4.49	5/26/2027	5/26/2023	111.96434	108.3530505	104.8805126	101.5406124	98.3275448	95.23579235	92.26010925	89.39550636	86.63723711
230526A00033	5/26/2023	4.63	5/27/2031	5/26/2023	123.61687	115.8588134	108.667125	101.9970089	95.80744903	90.06087002	84.7228312	79.7617496	75.14864875
230530A00027	5/30/2023	4.22	5/30/2028	5/30/2023	114.28697	109.6435643	105.2207216	101.0067447	96.99062276	93.16198516	89.51106077	86.02863993	82.70603918
230530A00171	5/30/2023	4.43	5/29/2026	5/30/2023	108.23402	105.6498593	103.1415652	100.7064501	98.34193865	96.04556366	93.81496024	91.64786105	89.54209156
230530A00118	5/30/2023	4.4	5/28/2027	5/30/2023	111.66562	108.0543542	104.582042	101.2425596	98.03008563	94.93908778	91.96430646	89.10073978	86.34362934
230530A00161	5/30/2023	5.08	11/29/2024	5/30/2023	103.74003	102.6607906	101.6041243	100.5693258	99.55572014	98.56265998	97.58952403	96.63571591	95.70066281
230530A00184	5/30/2023	5.5	5/30/2024	5/30/2023	102.19774	101.6140667	101.0370782	100.4666553	99.90268639	99.34506236	98.79367648	98.24842444	97.70920422
230530A00166	5/30/2023	4.81	5/30/2025	5/30/2023	105.26942	103.6927026	102.1475056	100.6329461	99.14817752	97.69238386	96.26477879	94.86460412	93.49112855
230530A00041	5/30/2023	4.93	5/27/2025	5/30/2023	105.42667	103.8566164	102.3178544	100.8095163	99.33076471	97.88079277	96.4588226	95.06410404	93.69591343
230530A00058	5/30/2023	5.5	5/30/2024	5/30/2023	102.19774	101.6140667	101.0370782	100.4666553	99.90268639	99.34506236	98.79367648	98.24842444	97.70920422
230530A00048	5/30/2023	4.45	5/29/2026	5/30/2023	108.28531	105.7004816	103.191536	100.7557839	98.3906497	96.09366559	93.86246632	91.69478415	89.58844418
230530A00018	5/30/2023	5.13	11/25/2024	5/30/2023	103.75682	102.6880044	101.6413321	100.6161174	99.61170388	98.62746195	97.66278701	96.71709849	95.78983863
230531A00037	5/31/2023	4.41	5/29/2026	5/31/2023	108.18273	105.5992371	103.0915945	100.6571162	98.2932276	95.99746174	93.76745417	91.60093795	89.49573893
230531A00036	5/31/2023	4.79	5/30/2025	5/31/2023	105.23779	103.6613343	102.1163916	100.6020821	99.11755914	97.66200692	96.23463919	94.8346979	93.46145182
230531A00042	5/31/2023	4.01	5/28/2027	5/31/2023	110.72483	107.1189906	103.6523323	100.3187039	97.1122624	94.02745509	91.05900371	88.20188909	85.45133687
230531A00038	5/31/2023	4.01	5/28/2027	5/31/2023	110.72483	107.1189906	103.6523323	100.3187039	97.1122624	94.02745509	91.05900371	88.20188909	85.45133687
230531A00091	5/31/2023	4.26	6/1/2027	5/31/2023	111.2075	107.5937579	104.1194778	100.7784902	97.56493805	94.47325578	91.49815314	88.63459972	85.87781071
230531A00088	5/31/2023	4.79	5/30/2025	5/31/2023	105.23779	103.6613343	102.1163916	100.6020821	99.11755914	97.66200692	96.23463919	94.8346979	93.46145182
230531A00090	5/31/2023	4.41	6/1/2026	5/31/2023	108.21208	105.6201981	103.1045863	100.6625311	98.29143733	95.98881909	93.75229396	91.57957809	89.46848135

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230531A00099	5/31/2023	4.41	5/29/2026	5/31/2023	108.18273	105.5992371	103.0915945	100.6571162	98.2932276	95.99746174	93.76745417	91.60093795	89.49573893
230531A00061	5/31/2023	4.42	4/1/2026	5/31/2023	107.64193	105.2200307	102.8657169	100.5767269	98.35088448	96.18609905	94.08036146	92.03174055	90.03837952
230531A00060	5/31/2023	4.44	2/27/2026	5/31/2023	107.37187	105.0399603	102.7709966	100.5629306	98.41379564	96.32170009	94.28482384	92.3014153	90.36978837
230531A00062	5/31/2023	4.39	4/30/2026	5/31/2023	107.85123	105.3486901	102.9181539	100.5571328	98.26323719	96.03417476	93.86774562	91.76183805	89.71442443
230531A00063	5/31/2023	4.37	5/29/2026	5/31/2023	108.08015	105.4979926	102.9916529	100.5584485	98.19580551	95.90125789	93.67244202	91.50709175	89.40303368
230531A00006	5/31/2023	5.05	11/25/2024	5/31/2023	103.67076	102.6024394	101.5562527	100.5315167	99.52757513	98.54379842	97.5795822	96.63434605	95.70753235
230601A00018	6/1/2023	4.1	6/1/2026	6/1/2023	107.72892	105.1366156	102.6207697	100.1786571	97.80767165	95.50531727	93.26920185	91.09703246	88.98661044
230601A00022	6/1/2023	5.04	12/2/2024	6/1/2023	103.72355	102.6365348	101.5724244	100.5304968	99.51006231	98.51045967	97.53105442	96.5712377	95.63042493
230601A00025	6/1/2023	4.12	6/1/2028	6/1/2023	113.85126	109.2123709	104.7941692	100.5849372	96.57364472	92.74990404	89.10392845	85.62649436	82.30890575
230601A00012	6/1/2023	4.72	6/2/2025	6/1/2023	105.1587	103.5747789	102.0226227	100.5013373	99.01006558	97.54798206	96.11429122	94.70822617	93.32904739
230601A00007	6/1/2023	5.04	12/2/2024	6/1/2023	103.72355	102.6365348	101.5724244	100.5304968	99.51006231	98.51045967	97.53105442	96.5712377	95.63042493
230601A00006	6/1/2023	4.77	6/2/2025	6/1/2023	105.23817	103.6535998	102.1008013	100.5788847	99.08699282	97.62429971	96.19000962	94.7833554	93.40359725
230601A00040	6/1/2023	4.35	6/1/2026	6/1/2023	108.05773	105.4678598	102.9542143	100.5140813	98.14486709	95.84408698	93.60935982	91.43840295	89.32902741
230602A00012	6/2/2023	4.39	6/2/2026	6/2/2023	108.17051	105.5764547	103.0587886	100.6147996	98.24188606	95.9375559	93.69942086	91.52519157	89.41267279
230602A00027	6/2/2023	4.2	6/2/2026	6/2/2023	107.9963	105.3977768	102.8759273	100.4280207	98.05144162	95.74368506	93.50235057	91.3251373	89.20983909
230602A00030	6/2/2023	4.2	6/2/2026	6/2/2023	107.9963	105.3977768	102.8759273	100.4280207	98.05144162	95.74368506	93.50235057	91.3251373	89.20983909
230602A00020	6/2/2023	3.94	6/2/2028	6/2/2023	113.61469	108.9613864	104.5300998	100.3090108	96.28699803	92.45358898	88.79891878	85.31369131	81.98914339
230605A00022	6/5/2023	4.39	6/4/2027	6/5/2023	111.69869	108.0680341	104.5776546	101.2213418	97.99319547	94.88760972	91.89925626	89.02306911	86.25423007
230606A00015	6/6/2023	4.24	6/6/2028	6/6/2023	114.43588	109.7702778	105.3270116	101.0942523	97.06086609	93.21636879	89.55088452	86.05510691	82.72026315
230606A00014	6/6/2023	4.35	6/7/2027	6/6/2023	111.58571	107.9489094	104.4529032	101.0914427	97.85859507	94.74872407	91.75647326	88.87675045	86.10471302
230606A00008	6/6/2023	3.98	6/6/2028	6/6/2023	113.82841	109.1594254	104.7135808	100.478979	96.44442307	92.59937091	88.93389304	85.43863374	82.10477464
230606A00029	6/6/2023	4.45	6/5/2026	6/6/2023	108.35518	105.7505313	103.2227552	100.7691074	98.38696389	96.07381108	93.82724074	91.64494464	89.52470968
230607A00012	6/7/2023	4.24	6/7/2028	6/7/2023	114.44426	109.7757682	105.3298558	101.0946768	97.05907991	93.21256513	89.5452418	86.04778994	82.71142419
230607A00007	6/7/2023	4.24	6/7/2028	6/7/2023	114.44426	109.7757682	105.3298558	101.0946768	97.05907991	93.21256513	89.5452418	86.04778994	82.71142419
230607A00001	6/7/2023	4.9	6/6/2025	6/7/2023	105.48944	103.8918618	102.3264472	100.7922909	99.28851992	97.81429386	96.36880288	94.95126658	93.56093256
230607A00002	6/7/2023	4.5	6/5/2026	6/7/2023	108.48434	105.8780037	103.3485754	100.8933126	98.50958994	96.1948929	93.94681215	91.76303845	89.64135773
230608A00003	6/8/2023	4.23	6/8/2028	6/8/2023	114.40723	109.7368774	105.2893126	101.0526737	97.01579328	93.16815681	89.49986019	86.00157111	82.66449283
230608A00015	6/8/2023	4.81	6/9/2025	6/8/2023	105.37816	103.7733027	102.200866	100.6599287	99.14960737	97.66905141	96.21744158	94.79398852	93.39793131
230608A00049	6/8/2023	4.47	6/8/2026	6/8/2023	108.43715	105.8232608	103.2866833	100.8246574	98.43453712	96.11378857	93.85998418	91.67079753	89.54399839
230608A00011	6/8/2023	5.55	12/14/2023	6/8/2023	100.4911	100.3689405	100.2470894	100.1255501	100.0043213	99.88340187	99.76279051	99.64248601	99.52248718
230609A00036	6/9/2023	4.91	6/6/2025	6/9/2023	105.50544	103.9077327	102.3421878	100.8079036	99.30400691	97.82965728	96.38404484	94.96638912	93.57593767
230609A00038	6/9/2023	4.91	6/10/2025	6/9/2023	105.55019	103.9411713	102.3646844	100.8198076	99.3056529	97.82136574	96.36612292	94.93913133	93.53962654
230609A00039	6/9/2023	4.73	12/10/2025	6/9/2023	107.19005	105.0759501	103.0145796	101.004264	99.04339463	97.13042591	95.26387247	93.44230623	91.66435369

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230609A00042	6/9/2023	4.46	11/25/2026	6/9/2023	110.06303	106.9725352	103.9867666	101.1015679	98.31297753	95.61721422	93.01066767	90.48988962	88.05158556
230609A00043	6/9/2023	4.32	9/29/2027	6/9/2023	112.55166	108.593105	104.799	101.1616422	97.67372631	94.32832566	91.1188707	88.03912863	85.08318439
230609A00040	6/9/2023	4.38	5/12/2027	6/9/2023	111.44074	107.8757437	104.4467232	101.1477403	97.9731471	94.91757335	91.97591075	89.14329876	86.41511113
230609A00041	6/9/2023	4.53	7/13/2026	6/9/2023	108.94638	106.2316352	103.5993859	101.0465907	98.57034418	96.16786884	93.83650793	91.57371939	89.37706999
230609A00016	6/9/2023	4.91	6/9/2025	6/9/2023	105.539	103.9328112	102.3590593	100.8168299	99.30523876	97.82343485	96.3705983	94.94593919	93.54869607
230609A00034	6/9/2023	3.99	6/9/2028	6/9/2023	113.89814	109.2194355	104.7646511	100.5218269	96.47971189	92.62771429	88.95585874	85.45474715	82.11552206
230609A00076	7/10/2023	4.19	7/10/2028	7/10/2023	114.48399	109.7265861	105.1997031	100.8908732	96.78837136	92.88116947	89.15889064	85.61176699	82.23060035
230612A00023	6/12/2023	4.32	6/12/2026	6/12/2023	108.40635	105.7751082	103.2220815	100.7444552	98.33953987	96.00476043	93.73765064	91.53584757	89.39708653
230612A00024	6/12/2023	4.69	6/12/2025	6/12/2023	105.41152	103.7948831	102.2110612	100.659116	99.13814833	97.64729299	96.18571673	94.75261694	93.34722013
230612A00058	6/12/2023	5.16	12/12/2024	6/12/2023	103.94734	102.8327635	101.7422387	100.6749895	99.63027479	98.60738443	97.60563806	96.62438332	95.66299446
221118A00080	11/18/2022	4.61	11/18/2025	11/18/2022	106.70907	104.6593168	102.6597663	100.7088571	98.8050913	96.9470285	95.13328255	93.36251929	91.63345419
230613A00091	6/13/2023	4.58	6/15/2026	6/13/2023	108.795	106.1573185	103.5980489	101.1143724	98.70359027	96.36311906	94.09048445	91.88331598	89.73934187
230613A00021	6/13/2023	4.35	6/14/2027	6/13/2023	111.65418	107.997132	104.4822474	101.1031938	97.853956	94.72882097	91.72236072	88.82941628	86.04508277
230613A00019	6/13/2023	4.49	6/15/2026	6/13/2023	108.56009	105.9255107	103.3692762	100.8885662	98.48068418	96.14304855	93.87318701	91.66873097	89.52741046
230613A00010	6/13/2023	4.9	6/13/2025	6/13/2023	105.56756	103.9501956	102.3656392	100.8129541	99.29124117	97.79963526	96.33730318	94.90344233	93.49727928
230613A00061	6/13/2023	4.56	6/15/2026	6/13/2023	108.7428	106.1058056	103.5472105	101.0641932	98.65405558	96.3142145	94.04219613	91.83563043	89.692246
230613A00062	6/13/2023	4.97	6/13/2025	6/13/2023	105.68091	104.0625982	102.477109	100.9235074	99.40089396	97.90840301	96.44520095	95.01048482	93.60348078
230613A00055	6/13/2023	5.14	2/13/2025	6/13/2023	104.57002	103.2833978	102.0236691	100.7899959	99.58157066	98.39761946	97.23740017	96.10020083	94.9853381
230613A00034	6/13/2023	4.56	6/12/2026	6/13/2023	108.71176	106.0833524	103.5329089	101.0576315	98.65484348	96.32198212	94.05659262	91.8563229	89.71891848
230613A00080	6/13/2023	5.22	12/13/2024	6/13/2023	104.02407	102.9064123	101.8129273	100.7428326	99.69538175	98.66985967	97.66558118	96.68188941	95.71815437
230614A00029	6/14/2023	4.55	6/15/2026	6/14/2023	108.7167	106.0800492	103.5217913	101.0391037	98.62928824	96.28976222	94.01805197	91.81178765	89.66869807
230614A00031	6/14/2023	4.94	6/16/2025	6/14/2023	105.66613	104.0397499	102.4464571	100.8853096	99.35539717	97.85584348	96.38580502	94.94446939	93.53105385
230614A00047	6/14/2023	4.94	6/16/2025	6/14/2023	105.66613	104.0397499	102.4464571	100.8853096	99.35539717	97.85584348	96.38580502	94.94446939	93.53105385
230614A00048	6/14/2023	4.55	6/15/2026	6/14/2023	108.7167	106.0800492	103.5217913	101.0391037	98.62928824	96.28976222	94.01805197	91.81178765	89.66869807
230614A00001	6/14/2023	4.55	6/12/2026	6/14/2023	108.68574	106.0576746	103.5075663	101.0326165	98.63014878	96.29760063	94.03251744	91.83254733	89.69543606
230615A00105	6/15/2023	5.55	6/10/2024	6/15/2023	102.3356	101.7218837	101.115555	100.5164829	99.92453749	99.33959172	98.76152171	98.19020645	97.62552776
230615A00023	6/15/2023	4.58	6/15/2026	6/15/2023	108.795	106.1573185	103.5980489	101.1143724	98.70359027	96.36311906	94.09048445	91.88331598	89.73934187
230615A00033	6/15/2023	4.58	6/15/2026	6/15/2023	108.795	106.1573185	103.5980489	101.1143724	98.70359027	96.36311906	94.09048445	91.88331598	89.73934187
230615A00103	6/15/2023	4.99	6/16/2025	6/15/2023	105.74751	104.1204375	102.5264718	100.9646634	99.43410142	97.93390939	96.4632435	95.02129104	93.60726899
230616A00012	6/16/2023	4.41	6/16/2026	6/16/2023	108.68209	106.0362704	103.4693123	100.978375	98.56073807	96.2137972	93.93505856	91.72213327	89.57273211
230616A00038	6/16/2023	4.32	6/16/2028	6/16/2023	114.88468	110.1818671	105.7041351	101.4394581	97.37651588	93.50465251	89.81383327	86.29460504	82.93805928
230616A00037	6/16/2023	4.48	6/16/2027	6/16/2023	112.14048	108.4692359	104.9407928	101.5487823	98.28715693	95.1501734	92.13237536	89.22857726	86.43384915
230616A00039	6/16/2023	5.07	6/16/2025	6/16/2023	105.8777	104.2495377	102.6544955	101.0916294	99.5600282	98.05881485	96.58714506	95.14420567	93.72921322

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230616A00040	6/16/2023	4.66	6/16/2026	6/16/2023	109.01443	106.3711167	103.8064259	101.3175269	98.90171192	96.55638886	94.27907531	92.06739313	89.91906327
230616A00106	6/16/2023	4.61	6/16/2026	6/16/2023	108.88379	106.2422036	103.6792024	101.1919548	98.77775413	96.43400949	94.15823955	91.94806719	89.8012144
230620A00015	6/20/2023	5.46	6/20/2024	6/20/2023	102.37634	101.7356347	101.1029838	100.4782322	99.86123224	99.25183996	98.64991499	98.05532037	97.46792247
230620A00007	6/20/2023	5.21	12/20/2024	6/20/2023	104.07848	102.9421435	101.8307813	100.7435736	99.67973699	98.63852197	97.61921069	96.62111544	95.64357709
230620A00089	6/20/2023	4.98	6/20/2025	6/20/2023	105.77674	104.1384962	102.5337252	100.9614643	99.42078776	97.91080472	96.43065787	94.97952168	93.55660098
230620A00091	6/20/2023	4.56	6/22/2026	6/20/2023	108.81523	106.1582054	103.5806021	101.079542	98.6522764	96.29617449	94.00871762	91.78749353	89.63019112
230620A00035	6/20/2023	4.36	6/20/2030	6/20/2023	119.67097	112.9181823	106.6064823	100.7044967	95.18325091	90.01597204	85.17790979	80.64617344	76.39958269
230620A00065	6/20/2023	4.56	6/18/2026	6/20/2023	108.77384	106.1282611	103.5615176	101.0707648	98.65328292	96.3064686	94.02782878	91.81497539	89.66562006
230620A00042	6/20/2023	5.15	12/20/2024	6/20/2023	104.00985	102.8739284	101.7629758	100.6761713	99.61273184	98.57190806	97.55298223	96.55526679	95.57810276
230621A00045	6/21/2023	4.95	6/23/2025	6/21/2023	105.76148	104.1151736	102.5026142	100.9228257	99.37487089	97.8578484	96.37089082	94.91316309	93.48386102
230621A00016	6/21/2023	4.55	6/22/2026	6/21/2023	108.78894	106.1322656	103.5550043	101.0542785	98.62733953	96.27155703	93.98441249	91.76349387	89.60649027
230621A00022	6/21/2023	4.24	6/21/2028	6/21/2023	114.56162	109.8526726	105.3697542	101.1007525	97.03427181	93.15958653	89.46659831	85.94579556	82.58821615
230621A00041	6/21/2023	4.24	6/21/2028	6/21/2023	114.56162	109.8526726	105.3697542	101.1007525	97.03427181	93.15958653	89.46659831	85.94579556	82.58821615
230622A00047	6/22/2023	4.49	6/22/2026	6/22/2023	108.6312	105.9766269	103.4014175	100.9026971	98.47771834	96.12385227	93.8385817	91.6194959	89.46428517
230622A00049	6/22/2023	4.71	12/17/2025	6/22/2023	107.22106	105.0881215	103.0087063	100.9811028	99.00366643	97.07481801	95.1930403	93.35687511	91.56492048
230622A00045	6/22/2023	4.91	6/23/2025	6/22/2023	105.69562	104.0498768	102.4378678	100.8586201	99.31119658	97.79469622	96.30825182	94.85102857	93.42222249
230622A00039	6/26/2023	4.49	6/26/2026	6/26/2023	108.67183	106.0058418	103.4197973	100.9107957	98.47606072	96.11293588	93.81887825	91.59145277	89.42832693
230622A00004	6/22/2023	4.23	6/22/2027	6/22/2023	111.75001	108.0578273	104.5101363	101.1004512	97.82262042	94.67080384	91.63945481	88.72330355	85.91734157
230622A00005	6/22/2023	4.05	6/22/2028	6/22/2023	114.27865	109.5560347	105.0607811	100.780671	96.70421545	92.82060295	89.11965546	85.59178781	82.22796969
230622A00093	6/22/2023	4.55	6/22/2026	6/22/2023	108.78894	106.1322656	103.5550043	101.0542785	98.62733953	96.27155703	93.98441249	91.76349387	89.60649027
230622A00096	6/22/2023	4.21	6/22/2028	6/22/2023	114.43266	109.7239635	105.241433	100.9729425	96.90708295	93.03311699	89.34093541	85.82101674	82.46438984
230622A00095	6/22/2023	4.38	6/22/2027	6/22/2023	111.84063	108.1584889	104.6201483	101.2191699	97.94944135	94.80515924	91.78081126	88.87115981	86.07122659
230622A00030	6/22/2023	4.17	6/22/2028	6/22/2023	114.24954	109.5450235	105.0665308	100.8019378	96.73984158	92.86951058	89.180841	85.66431657	82.31097108
230622A00027	6/22/2023	4.49	6/22/2026	6/22/2023	108.6312	105.9766269	103.4014175	100.9026971	98.47771834	96.12385227	93.8385817	91.6194959	89.46428517
230622A00028	6/22/2023	4.35	6/22/2027	6/22/2023	111.73244	108.0522587	104.5158194	101.1166878	97.84875368	94.7062154	91.68356254	88.77555925	85.97722889
230622A00056	6/26/2023	4.49	6/26/2026	6/26/2023	108.67183	106.0058418	103.4197973	100.9107957	98.47606072	96.11293588	93.81887825	91.59145277	89.42832693
230622A00083	6/22/2023	4.55	6/22/2026	6/22/2023	108.78894	106.1322656	103.5550043	101.0542785	98.62733953	96.27155703	93.98441249	91.76349387	89.60649027
230623A00002	6/23/2023	4.45	6/23/2026	6/23/2023	108.53609	105.8800663	103.3035183	100.8035664	98.37745707	96.02255532	93.73633848	91.51639059	89.36039709
230623A00004	6/23/2023	4.13	6/23/2028	6/23/2023	114.07451	109.3713021	104.8942197	100.6311245	96.57060219	92.70191067	89.01493669	85.50015543	82.14859292
230623A00003	6/23/2023	4.29	6/23/2027	6/23/2023	111.52569	107.8465361	104.311212	100.9132717	97.6465969	94.50537882	91.48410027	88.57751927	85.78065351
230623A00058	6/23/2023	4.38	6/23/2027	6/23/2023	111.85049	108.165458	104.624422	101.2209333	97.94886782	94.80241098	91.7760401	88.86450792	86.06282712
230623A00057	6/23/2023	4.52	6/23/2026	6/23/2023	108.72031	106.0618282	103.4828815	100.9805854	98.55218466	96.19504275	93.90663539	91.68454514	89.52645599
230623A00051	6/23/2023	4.18	6/23/2028	6/23/2023	114.30354	109.5951033	105.112968	100.8449956	96.77976393	92.90652385	89.21515524	85.69612678	82.34045832

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230623A00056	6/23/2023	4.18	6/23/2028	6/23/2023	114.30354	109.5951033	105.112968	100.8449956	96.77976393	92.90652385	89.21515524	85.69612678	82.34045832
230623A00040	6/23/2023	5.48	6/24/2024	6/23/2023	102.42789	101.7762784	101.1329888	100.4978602	99.87073763	99.25147027	98.63991088	98.03591595	97.43934549
230623A00053	6/23/2023	4.4	6/23/2026	6/23/2023	108.72781	106.062245	103.4765597	100.9678589	98.53337102	96.17044411	93.87653939	91.64922564	89.48617385
230623A00025	6/23/2023	4.45	6/23/2026	6/23/2023	108.53609	105.8800663	103.3035183	100.8035664	98.37745707	96.02255532	93.73633848	91.51639059	89.36039709
230623A00026	6/23/2023	4.29	6/23/2027	6/23/2023	111.52569	107.8465361	104.311212	100.9132717	97.6465969	94.50537882	91.48410027	88.57751927	85.78065351
230623A00027	6/23/2023	4.13	6/23/2028	6/23/2023	114.07451	109.3713021	104.8942197	100.6311245	96.57060219	92.70191067	89.01493669	85.50015543	82.14859292
230623A00036	6/23/2023	4.45	6/23/2026	6/23/2023	108.53609	105.8800663	103.3035183	100.8035664	98.37745707	96.02255532	93.73633848	91.51639059	89.36039709
230623A00037	6/23/2023	4.13	6/23/2028	6/23/2023	114.07451	109.3713021	104.8942197	100.6311245	96.57060219	92.70191067	89.01493669	85.50015543	82.14859292
230626A00019	6/26/2023	4.91	6/20/2025	6/26/2023	105.66206	104.0247868	102.4209699	100.8496465	99.30989092	97.80081302	96.32155581	94.8712942	93.44923341
230626A00020	6/26/2023	4.49	6/26/2026	6/26/2023	108.67183	106.0058418	103.4197973	100.9107957	98.47606072	96.11293588	93.81887825	91.59145277	89.42832693
230626A00026	6/26/2023	4.84	6/26/2025	6/26/2023	105.61336	103.9601397	102.3409144	100.754702	99.20055479	97.67756107	96.18484383	94.72155894	93.28689357
230626A00023	6/26/2023	4.18	6/26/2028	6/26/2023	114.32822	109.6111398	105.1211076	100.845923	96.77411126	92.89487435	89.19804732	85.67405748	82.31388651
230626A00021	6/26/2023	4.49	6/26/2026	6/26/2023	108.67183	106.0058418	103.4197973	100.9107957	98.47606072	96.11293588	93.81887825	91.59145277	89.42832693
230626A00022	6/26/2023	4.34	6/25/2027	6/26/2023	111.72565	108.0374482	104.4935681	101.0875333	97.81319829	94.66472884	91.63658395	88.72349937	85.92047195
230627A00065	6/27/2023	4.95	6/27/2025	6/27/2023	105.80666	104.1490573	102.5255733	100.9352192	99.37704261	97.85012756	96.35359292	94.88659061	93.44830409
230627A00090	6/27/2023	4.21	6/27/2028	6/27/2023	114.47418	109.7510697	105.2553606	100.9748337	96.89799195	93.01401669	89.31272386	85.78452301	82.42037936
230627A00102	6/27/2023	4.95	6/27/2025	6/27/2023	105.80666	104.1490573	102.5255733	100.9352192	99.37704261	97.85012756	96.35359292	94.88659061	93.44830409
230627A00078	6/27/2023	4.95	6/27/2025	6/27/2023	105.80666	104.1490573	102.5255733	100.9352192	99.37704261	97.85012756	96.35359292	94.88659061	93.44830409
230627A00060	6/27/2023	4.89	6/27/2025	6/27/2023	105.70723	104.050472	102.4278241	100.8382914	99.28092175	97.7547997	96.25904443	94.79280825	93.35527496
230627A00004	6/27/2023	4.47	6/29/2026	6/27/2023	108.64934	105.9755006	103.3820314	100.8660072	98.42463035	96.05522389	93.75522587	91.52218333	89.35374685
230627A00005	6/27/2023	4.3	6/28/2027	6/27/2023	111.61003	107.9157923	104.3663976	100.9553316	97.67641564	94.52378439	91.49186818	88.57537603	85.76927992
230627A00037	6/27/2023	4.56	6/26/2026	6/27/2023	108.85661	106.1881538	103.5996963	101.0883367	98.65129694	96.28591895	93.98965818	91.76007812	89.59484476
230627A00035	6/27/2023	4.21	6/27/2028	6/27/2023	114.47418	109.7510697	105.2553606	100.9748337	96.89799195	93.01401669	89.31272386	85.78452301	82.42037936
230627A00036	6/27/2023	4.38	6/28/2027	6/27/2023	111.89981	108.2003077	104.6457992	101.2297664	97.94602506	94.78870487	91.75223116	88.8313082	86.02090347
230627A00030	6/27/2023	4.17	6/27/2028	6/27/2023	114.29053	109.5716249	105.0799762	100.8033684	96.73031042	92.84998957	89.15222725	85.62743825	82.26659276
230627A00087	6/27/2023	4.95	6/30/2025	6/27/2023	105.84053	104.1744647	102.5428097	100.9445591	99.3787486	97.84445105	96.34077472	94.8668615	93.42188536
230627A00089	6/27/2023	4.56	6/30/2026	6/27/2023	108.89796	106.2180862	103.6188018	101.0971752	98.65039861	96.27578608	93.97076693	91.73288	89.55976809
230627A00006	6/27/2023	4.12	6/27/2028	6/27/2023	114.06096	109.3473189	104.8607457	100.5890367	96.52070851	92.64495568	88.95160649	85.4310823	82.07435951
230627A00049	6/27/2023	4.95	6/27/2025	6/27/2023	105.80666	104.1490573	102.5255733	100.9352192	99.37704261	97.85012756	96.35359292	94.88659061	93.44830409
230628A00045	6/28/2023	4.18	6/28/2028	6/28/2023	114.34467	109.6218327	105.1265377	100.8465477	96.77035222	92.88712093	89.18665884	85.6593656	82.2961974
230628A00017	6/28/2023	4.41	6/28/2027	6/28/2023	112.00848	108.3070009	104.7505748	101.3326794	98.04712859	94.88805006	91.84986728	88.92728277	86.1152623
230628A00015	6/28/2023	4.98	6/27/2025	6/28/2023	105.85638	104.1983499	102.5744478	100.9836831	99.42510303	97.8977915	96.40086716	94.93348179	93.49481866
230628A00018	6/28/2023	4.23	6/28/2028	6/28/2023	114.57437	109.8462649	105.3458888	101.0609945	96.98006418	93.09226002	89.38738017	85.85581772	82.48852264

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230628A00053	6/28/2023	5.47	6/28/2024	6/28/2023	102.45993	101.7974891	101.1436394	100.4982138	99.86105014	99.23199029	98.6108802	97.99756968	97.3919123
230628A00055	6/28/2023	5.19	12/27/2024	6/28/2023	104.12089	102.9659687	101.8368267	100.7326074	99.65249042	98.5956911	97.56145853	96.54907379	95.55784823
230628A00059	6/28/2023	4.87	6/27/2025	6/28/2023	105.67408	104.0176103	102.3952411	100.8059821	99.24888147	97.72302374	96.22752827	94.76154746	93.32426525
230628A00068	6/28/2023	4.29	6/28/2027	6/28/2023	111.5738	107.8802279	104.3314724	100.9210273	97.64271446	94.49066933	91.45932281	88.5433845	85.73782698
230628A00061	6/28/2023	4.47	6/26/2026	6/28/2023	108.61904	105.9537527	103.3683976	100.8600697	98.42599323	96.06351215	93.77008398	91.54327411	89.38075041
230628A00038	6/28/2023	4.58	6/24/2026	6/28/2023	108.88861	106.2251634	103.6414456	101.1345637	98.7017539	96.34037122	94.0478837	91.82186651	89.65999672
230628A00028	6/28/2023	4.58	6/24/2026	6/28/2023	108.88861	106.2251634	103.6414456	101.1345637	98.7017539	96.34037122	94.0478837	91.82186651	89.65999672
230628A00016	6/28/2023	4.58	6/26/2026	6/28/2023	108.90941	106.2402429	103.651096	101.1390627	98.70136444	96.33534268	94.03845245	91.80825679	89.64242128
230629A00019	6/29/2023	4.51	6/24/2027	6/29/2023	112.32987	108.633427	105.0814332	101.6674091	98.38520985	95.22900137	92.19324269	89.27266926	86.46227746
230629A00025	6/29/2023	4.7	6/24/2026	6/29/2023	109.20473	106.5370695	103.9492315	101.4383231	99.00157756	96.63634717	94.34009726	92.11040046	89.94493135
230629A00109	6/29/2023	5.3	12/27/2024	6/29/2023	104.24881	103.0931031	101.9631868	100.8582052	99.77733761	98.71979904	97.6848383	96.67173621	95.67980385
230629A00108	6/29/2023	5.52	6/28/2024	6/29/2023	102.49319	101.8306224	101.1766503	100.5311034	99.89381949	99.26464053	98.64341239	98.02998488	97.42421157
230629A00120	6/29/2023	5.03	6/27/2025	6/29/2023	105.93924	104.2805043	102.6559055	101.0644563	99.50520374	97.97723138	96.47965757	95.01163376	93.57234294
230629A00045	6/29/2023	4.69	6/29/2026	6/29/2023	109.23186	106.5502095	103.9491122	101.425634	98.97697182	96.60044355	94.29348225	92.05363018	89.87853332
230629A00046	6/29/2023	4.51	6/29/2027	6/29/2023	112.3809	108.6699398	105.1044224	101.6778069	98.38388825	95.21677629	92.17087781	89.2408796	86.42173262
230629A00008	6/29/2023	4.34	6/29/2028	6/29/2023	115.08834	110.3457564	105.831559	101.5334633	97.43991665	93.54004896	89.823628	86.28101848	82.90314377
230629A00037	6/29/2023	4.69	6/29/2026	6/29/2023	109.23186	106.5502095	103.9491122	101.425634	98.97697182	96.60044355	94.29348225	92.05363018	89.87853332
230629A00070	6/29/2023	5.09	6/30/2025	6/29/2023	106.07368	104.4056168	102.7719932	101.171809	99.60409875	98.06793458	96.56242381	95.0867075	93.63995875
230629A00072	6/29/2023	4.69	6/29/2026	6/29/2023	109.23186	106.5502095	103.9491122	101.425634	98.97697182	96.60044355	94.29348225	92.05363018	89.87853332
230629A00076	6/29/2023	4.51	6/29/2027	6/29/2023	112.3809	108.6699398	105.1044224	101.6778069	98.38388825	95.21677629	92.17087781	89.2408796	86.42173262
230629A00041	6/29/2023	5.09	6/30/2025	6/29/2023	106.07368	104.4056168	102.7719932	101.171809	99.60409875	98.06793458	96.56242381	95.0867075	93.63995875
230629A00042	6/29/2023	4.69	6/29/2026	6/29/2023	109.23186	106.5502095	103.9491122	101.425634	98.97697182	96.60044355	94.29348225	92.05363018	89.87853332
230630A00088	6/30/2023	4.54	6/30/2027	6/30/2023	112.4999	108.7840717	105.213946	101.7829658	98.48491186	95.31388059	92.26426633	89.33074418	86.50825417
230630A00086	6/30/2023	4.72	6/30/2026	6/30/2023	109.32204	106.636475	104.0316327	101.5045751	99.05249068	96.67268955	94.36259746	92.11974973	89.9417858
230630A00011	6/30/2023	5.37	12/27/2024	6/30/2023	104.33022	103.1740068	102.0435978	100.9381311	99.85678583	98.79877682	97.76335271	96.74979412	95.75741196
230630A00003	6/30/2023	4.54	6/30/2027	6/30/2023	112.4999	108.7840717	105.213946	101.7829658	98.48491186	95.31388059	92.26426633	89.33074418	86.50825417
230630A00079	6/30/2023	4.65	6/30/2026	6/30/2023	109.13651	106.4534299	103.8510192	101.3263377	98.8765754	96.49904428	94.1911716	91.95049422	89.77465305
230630A00080	6/30/2023	5.02	6/30/2025	6/30/2023	105.95711	104.2900407	102.6574015	101.058184	99.49142368	97.95619282	96.45159927	94.9767845	93.53092205
230630A00081	6/30/2023	5.53	6/28/2024	6/30/2023	102.49984	101.8372491	101.1832525	100.5376813	99.90037336	99.27117057	98.64991883	98.03646793	97.43067142
230630A00062	6/30/2023	4.6	6/30/2026	6/30/2023	109.33062	106.6378533	104.0261691	101.4926096	99.03434639	96.64867411	94.33300356	92.08485601	89.9018576
230630A00030	6/30/2023	4.23	6/30/2028	6/30/2023	115.1747	110.4098441	105.875014	101.5578143	97.44658533	93.53035774	89.79880724	86.24221313	82.8514195
230630A00028	6/30/2023	4.42	6/30/2027	6/30/2023	112.51931	108.7913116	105.2097685	101.7680809	98.45998725	95.27954487	92.22111112	89.27932647	86.4490985
230630A00094	6/30/2023	4.42	6/30/2027	6/30/2023	112.51931	108.7913116	105.2097685	101.7680809	98.45998725	95.27954487	92.22111112	89.27932647	86.4490985

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230630A00066	6/30/2023	5.26	2/7/2025	6/30/2023	104.64317	103.3732172	102.1316245	100.9174426	99.72976133	98.56771095	97.43045962	96.31721151	95.2272048
230630A00061	6/30/2023	5	7/11/2025	6/30/2023	106.04622	104.3493267	102.6879223	101.0609592	99.46742802	97.90635936	96.37682125	94.87791759	93.40878632
230630A00055	6/30/2023	4.35	6/30/2028	6/30/2023	115.14293	110.3964193	105.8785763	101.5771016	97.48042306	93.5776526	89.85854141	86.31343886	82.93325415
230630A00026	6/30/2023	5.36	12/30/2024	6/30/2023	104.34796	103.1837877	102.0457625	100.9330107	99.84469539	98.78001617	97.73820737	96.71853609	95.72030049
230703A00015	7/3/2023	4.34	7/3/2028	7/3/2023	115.12121	110.3673585	105.8428774	101.5354063	97.43332151	93.52568734	89.8022113	86.25320259	82.86953342
230703A00013	7/3/2023	4.34	7/3/2028	7/3/2023	115.12121	110.3673585	105.8428774	101.5354063	97.43332151	93.52568734	89.8022113	86.25320259	82.86953342
230703A00018	7/3/2023	4.61	7/3/2026	7/3/2023	109.38837	106.6868694	104.0669098	101.5255045	99.05980233	96.6670762	94.34471665	92.0902259	89.90121213
230703A00021	7/3/2023	4.99	7/3/2025	7/3/2023	106.14278	104.4626938	102.8174709	101.2060935	99.62757918	98.08098393	96.56539984	95.07995353	93.62380443
230703A00019	7/3/2023	4.61	7/3/2026	7/3/2023	109.38837	106.6868694	104.0669098	101.5255045	99.05980233	96.6670762	94.34471665	92.0902259	89.90121213
230703A00025	7/3/2023	4.73	7/3/2026	7/3/2023	109.37968	106.6854193	104.0723346	101.5374619	99.07796698	96.69113849	94.37438199	92.12521386	89.94125571
230703A00043	7/3/2023	4.53	7/6/2027	7/3/2023	112.52273	108.7906902	105.2055181	101.7605829	98.44959276	95.26657684	92.20586673	89.26207919	86.4300999
230703A00029	7/3/2023	4.89	2/3/2026	7/3/2023	108.12969	105.8591372	103.648137	101.4947005	99.39692088	97.35297078	95.36109782	93.41962101	91.52692718
230703A00028	7/3/2023	5.11	7/3/2025	7/3/2023	106.14127	104.4646885	102.8228426	101.2147192	99.6393408	98.09576776	96.58309655	95.10045789	93.6470151
230703A00027	7/3/2023	5.45	11/4/2024	7/3/2023	103.88568	102.8715526	101.877341	100.9024639	99.94636007	99.00848983	98.088334	97.18539297	96.29918579
230705A00103	7/5/2023	4.56	7/6/2027	7/5/2023	112.63204	108.8980001	105.3108882	101.8640692	98.55124929	95.36645552	92.30401765	89.35855059	86.52493832
230705A00111	7/5/2023	4.9	1/6/2026	7/5/2023	107.84372	105.6511212	103.5145051	101.4320441	99.40198391	97.4226417	95.4924023	93.60971502	91.77309044
230705A00019	7/5/2023	4.44	7/6/2027	7/5/2023	112.6518	108.9054984	105.3068827	101.8492772	98.52634565	95.33207515	92.26075806	89.30697423	86.46557473
230705A00006	7/5/2023	4.26	7/5/2028	7/5/2023	115.35421	110.5720676	106.0213055	101.6894201	97.56465761	93.63596162	89.89292779	86.32576155	82.92523883
230705A00008	7/5/2023	4.63	7/6/2026	7/5/2023	109.47298	106.7623938	104.1338048	101.5842092	99.11073246	96.71062556	94.38125847	92.12011401	89.92478213
230705A00040	7/5/2023	4.38	7/5/2028	7/5/2023	115.32189	110.5581958	106.0245155	101.7084405	97.59830528	93.68313549	89.95260293	86.39698376	83.00711959
230705A00034	7/5/2023	4.75	7/6/2026	7/5/2023	109.46415	106.7608292	104.1391495	101.5961186	99.12887879	96.73469721	94.41095889	92.15516094	89.96490687
230705A00033	7/5/2023	5.12	7/7/2025	7/5/2023	106.20383	104.5161231	102.8635504	101.2450753	99.65970413	98.1064819	96.58449051	95.0928469	93.63070133
230705A00042	7/5/2023	4.42	7/5/2028	7/5/2023	115.50638	110.738447	106.2006699	101.8806413	97.76668938	93.84783397	90.11374125	86.55468203	83.16149289
230705A00035	7/5/2023	5.03	8/8/2025	7/5/2023	106.41127	104.637138	102.901385	101.2028695	99.54049473	97.91320674	96.31999202	94.75987567	93.23191943
230705A00036	7/5/2023	5.39	12/13/2024	7/5/2023	104.21528	103.096484	102.0018751	100.9306735	99.88213218	98.85553565	97.85019835	96.86546303	95.90069934
230706A00006	7/6/2023	4.59	7/6/2028	7/6/2023	116.29925	111.5104378	106.95267	102.6134868	98.481172	94.54470398	90.79370992	87.21842408	83.80964869
230706A00029	7/6/2023	5.53	1/6/2025	7/6/2023	104.62112	103.4368605	102.2796145	101.1484636	100.04253	98.96097508	97.90299687	96.86782841	95.8547357
230706A00032	7/6/2023	5.53	1/6/2025	7/6/2023	104.62112	103.4368605	102.2796145	101.1484636	100.04253	98.96097508	97.90299687	96.86782841	95.8547357
230706A00031	7/6/2023	5.72	7/8/2024	7/6/2023	102.73904	102.0486569	101.3675992	100.6956737	100.0326971	99.37849112	98.7328821	98.095701	97.46678316
230706A00034	7/6/2023	5.18	7/7/2025	7/6/2023	106.30489	104.6163065	102.962871	101.3435484	99.75734472	98.20330448	96.68050923	95.18807551	93.72515326
230707A00035	7/7/2023	5.07	7/7/2025	7/7/2023	106.11961	104.4326369	102.7807832	101.1630144	99.57833697	98.02579642	96.50447492	95.01348972	93.55199139
230707A00038	7/7/2023	5.35	1/7/2025	7/7/2023	104.41704	103.2314419	102.072954	100.9406558	99.83366412	98.75113539	97.69226302	96.65627563	95.64243511
230707A00031	7/7/2023	4.84	7/7/2026	7/7/2023	109.71482	107.0054727	104.3779912	101.8293717	99.35674683	96.95737422	94.6286302	92.36800359	90.17309003

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230707A00021	9/1/2023	4.61	8/30/2030	9/1/2023	121.7114	114.7116437	108.1795435	102.0811508	96.38515563	91.06266625	86.0870109	81.43355658	77.07954351
230707A00022	9/1/2023	4.61	8/30/2030	9/1/2023	121.7114	114.7116437	108.1795435	102.0811508	96.38515563	91.06266625	86.0870109	81.43355658	77.07954351
230707A00023	9/1/2023	4.61	8/30/2030	9/1/2023	121.7114	114.7116437	108.1795435	102.0811508	96.38515563	91.06266625	86.0870109	81.43355658	77.07954351
230710A00066	7/10/2023	5	7/10/2025	7/10/2023	106.03509	104.3409336	102.6821681	101.0577499	99.46667416	97.90797502	96.38072429	94.8840293	93.41703125
230710A00013	7/10/2023	4.55	7/10/2029	7/10/2023	118.89077	113.056743	107.5557741	102.3669353	97.47073225	92.84899417	88.48477675	84.36227259	80.46672881
230711A00012	7/11/2023	5.07	7/11/2025	7/11/2023	106.16489	104.4669529	102.8045291	101.1765648	99.58205008	98.02001506	96.48952735	94.98969038	93.51964167
230711A00013	7/11/2023	4.78	7/13/2026	7/11/2023	109.61773	106.8938677	104.2527067	101.6912051	99.20645117	96.79566115	94.45617239	92.18543717	89.98101676
230711A00037	7/11/2023	5.48	7/19/2024	7/11/2023	102.69031	101.9705833	101.2609902	100.5613189	99.87136161	99.19091668	98.51978787	97.85778429	97.20472031
230711A00038	7/11/2023	4.89	10/10/2025	7/11/2023	106.8541	104.907096	103.0058187	101.1489189	99.33509265	97.56308303	95.83167818	94.13970938	92.48604915
230711A00027	7/11/2023	5.07	7/11/2025	7/11/2023	106.16489	104.4669529	102.8045291	101.1765648	99.58205008	98.02001506	96.48952735	94.98969038	93.51964167
230711A00089	7/11/2023	5.32	12/16/2024	7/11/2023	104.16558	103.0392094	101.9373604	100.8592392	99.80408323	98.77116245	97.75977749	96.76925809	95.79896157
230711A00087	7/11/2023	5.04	6/16/2025	7/11/2023	105.82888	104.2011252	102.6064866	101.0440172	99.51280566	98.0119753	96.54068197	95.09811268	93.68348414
230712A00056	7/12/2023	4.22	7/12/2028	7/12/2023	114.63831	109.8721397	105.3370978	101.0206694	96.91108905	92.99729139	89.26886504	85.71601026	82.32949942
230712A00002	7/12/2023	4.31	7/12/2028	7/12/2023	115.05509	110.2792918	105.7349595	101.4095665	97.29133308	93.3691804	89.63268432	86.07203295	82.67798715
230712A00039	7/12/2023	4.62	7/13/2026	7/12/2023	109.18807	106.4700389	103.8345814	101.2786519	98.7993427	96.39387407	94.05958714	91.79393779	89.59449083
230712A00041	7/12/2023	4.31	7/12/2028	7/12/2023	115.05509	110.2792918	105.7349595	101.4095665	97.29133308	93.3691804	89.63268432	86.07203295	82.67798715
230712A00040	7/12/2023	4.45	7/12/2027	7/12/2023	112.28908	108.5455422	104.9499126	101.4954829	98.17589309	94.98510928	91.91740445	88.96734093	86.12975384
230712A00051	7/12/2023	4.62	7/13/2026	7/12/2023	109.18807	106.4700389	103.8345814	101.2786519	98.7993427	96.39387407	94.05958714	91.79393779	89.59449083
230712A00046	7/12/2023	4.52	7/13/2026	7/12/2023	108.91952	106.2051459	103.5732531	101.0208061	98.5448999	96.14275715	93.81172135	91.54925068	89.35291211
230712A00027	7/12/2023	4.29	1/12/2028	7/12/2023	113.38941	109.1361967	105.0702587	101.1822792	97.46346282	93.90550058	90.50054004	87.24115735	84.12033124
230712A00020	7/12/2023	4.31	7/12/2028	7/12/2023	115.05509	110.2792918	105.7349595	101.4095665	97.29133308	93.3691804	89.63268432	86.07203295	82.67798715
230712A00018	7/12/2023	4.31	7/12/2028	7/12/2023	115.05509	110.2792918	105.7349595	101.4095665	97.29133308	93.3691804	89.63268432	86.07203295	82.67798715
230712A00019	7/12/2023	4.31	7/12/2028	7/12/2023	115.05509	110.2792918	105.7349595	101.4095665	97.29133308	93.3691804	89.63268432	86.07203295	82.67798715
230712A00014	7/12/2023	4.62	7/13/2026	7/12/2023	109.18807	106.4700389	103.8345814	101.2786519	98.7993427	96.39387407	94.05958714	91.79393779	89.59449083
230712A00015	7/12/2023	4.62	7/13/2026	7/12/2023	109.18807	106.4700389	103.8345814	101.2786519	98.7993427	96.39387407	94.05958714	91.79393779	89.59449083
230712A00016	7/12/2023	4.45	7/12/2027	7/12/2023	112.28908	108.5455422	104.9499126	101.4954829	98.17589309	94.98510928	91.91740445	88.96734093	86.12975384
230712A00021	7/12/2023	4.31	7/12/2028	7/12/2023	115.05509	110.2792918	105.7349595	101.4095665	97.29133308	93.3691804	89.63268432	86.07203295	82.67798715
230712A00017	7/12/2023	4.45	7/12/2027	7/12/2023	112.28908	108.5455422	104.9499126	101.4954829	98.17589309	94.98510928	91.91740445	88.96734093	86.12975384
230712A00005	7/12/2023	5.2	12/16/2024	7/12/2023	104.02963	102.9040718	101.8030271	100.725698	99.67132236	98.63917032	97.62854285	96.63876993	95.66920918
230712A00009	7/12/2023	4.89	6/16/2025	7/12/2023	105.58476	103.9590623	102.3664423	100.8059559	99.27669293	97.77777756	96.30836654	94.86764775	93.45483871
230713A00045	7/13/2023	4.2	7/13/2028	7/13/2023	114.55341	109.7866054	105.2510963	100.9343546	96.8246	92.91075367	89.18239196	85.62970392	82.24345166
230713A00025	7/13/2023	4.82	7/14/2025	7/13/2023	105.77301	104.0706023	102.4039296	100.7719329	99.17359204	97.60792708	96.07399632	94.57089439	93.09775048
230713A00026	7/13/2023	4.49	7/13/2026	7/13/2023	108.83896	106.125678	103.4948546	100.9434524	98.46856706	96.06742207	93.73736162	91.47584455	89.2804385

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230713A00014	7/13/2023	4.2	7/13/2028	7/13/2023	114.55341	109.7866054	105.2510963	100.9343546	96.8246	92.91075367	89.18239196	85.62970392	82.24345166
230713A00058	7/13/2023	4.08	7/13/2028	7/13/2023	114.58364	109.7983355	105.2457058	100.9131247	96.78872254	92.86133734	89.12046852	85.55623363	82.15932843
230713A00021	7/13/2023	4.44	7/13/2026	7/13/2023	108.70469	105.9932314	103.3641904	100.8145295	98.34134566	95.94186361	93.61342872	91.353501	89.15964915
230713A00031	7/13/2023	4.49	7/13/2026	7/13/2023	108.83896	106.125678	103.4948546	100.9434524	98.46856706	96.06742207	93.73736162	91.47584455	89.2804385
230713A00023	7/13/2023	4.2	7/13/2028	7/13/2023	114.55341	109.7866054	105.2510963	100.9343546	96.8246	92.91075367	89.18239196	85.62970392	82.24345166
230713A00019	7/13/2023	4.51	7/13/2026	7/13/2023	108.89267	106.1786566	103.5471203	100.9950215	98.51945562	96.11764546	93.78693477	91.52478197	89.32875424
230714A00034	7/14/2023	4.37	7/16/2027	7/14/2023	112.03401	108.2846742	104.6838787	101.2248745	97.90125817	94.70695525	91.63620127	88.68352379	85.8437257
230714A00030	7/14/2023	4.52	7/17/2026	7/14/2023	108.95878	106.2333577	103.591016	101.0286841	98.54342656	96.13243722	93.79303262	91.52264557	89.31881919
230714A00026	7/14/2023	4.18	7/14/2028	7/14/2023	114.46841	109.7009707	105.1649995	100.8479494	96.73802526	92.82413489	89.09584233	85.54332539	82.15733597
230714A00018	7/14/2023	4.24	7/14/2027	7/14/2023	111.9969	108.2414877	104.6349774	101.1705929	97.84191286	94.64284591	91.56761158	88.61072234	85.76696677
230714A00022	7/14/2023	4.36	7/14/2027	7/14/2023	111.97851	108.2354358	104.6404854	101.1869357	97.86840862	94.67885341	91.61252751	88.66397895	85.82802968
230714A00023	7/14/2023	4.18	7/14/2028	7/14/2023	114.46841	109.7009707	105.1649995	100.8479494	96.73802526	92.82413489	89.09584233	85.54332539	82.15733597
230714A00019	7/14/2023	4.85	7/14/2025	7/14/2023	105.82411	104.1212532	102.4541395	100.8217097	99.22294337	97.65686041	96.1225189	94.61901328	93.14547255
230714A00020	7/14/2023	4.52	7/14/2026	7/14/2023	108.92934	106.2121984	103.5776929	101.0227739	98.54452902	96.14017359	93.80704443	91.54259337	89.34438143
230717A00088	7/17/2023	4.43	7/19/2027	7/17/2023	112.28299	108.5211941	104.9086626	101.4385955	98.10454817	94.90040749	91.82037303	88.85893878	86.0108763
230717A00106	7/17/2023	5.49	7/11/2024	7/17/2023	102.60992	101.9120063	101.223627	100.5445888	99.87470198	99.21378199	98.5616492	97.91812878	97.2830505
230717A00022	7/17/2023	4.59	7/17/2026	7/17/2023	109.14751	106.4195152	103.7746586	101.2098699	98.72221193	96.30887664	93.96717895	91.69455006	89.48853153
230717A00061	7/17/2023	4.93	7/17/2025	7/17/2023	105.9932	104.2809466	102.6047554	100.9635521	99.35630343	97.78201695	96.23973918	94.72855361	93.24757884
230718A00012	7/18/2023	5.2	12/16/2024	7/18/2023	104.02963	102.9040718	101.8030271	100.725698	99.67132236	98.63917032	97.62854285	96.63876993	95.66920918
230718A00023	7/18/2023	4.54	7/20/2026	7/18/2023	109.04231	106.3078644	103.6569669	101.0865203	98.59356561	96.17527445	93.82894256	91.55198319	89.34192103
230718A00093	7/18/2023	4.06	7/18/2028	7/18/2023	114.5292	109.7320884	105.1688147	100.8266572	96.69365895	92.75857797	89.01084007	85.44049519	82.03817692
230718A00047	7/18/2023	5.18	1/21/2025	7/18/2023	104.34988	103.1280337	101.9349984	100.76976	99.6313528	98.51885533	97.43138807	96.36811092	95.32822106
230718A00038	7/18/2023	4.46	11/13/2026	7/18/2023	109.94357	106.8876605	103.9345054	101.0800692	98.32049516	95.6521001	93.0713659	90.57493077	88.15958146
230718A00013	7/18/2023	4.54	7/17/2026	7/18/2023	109.01271	106.2865456	103.6434853	101.0804515	98.59450809	96.18284848	93.84278871	91.57176114	89.36730843
230718A00014	7/18/2023	4.37	7/19/2027	7/18/2023	112.06229	108.3045706	104.6959912	101.2297614	97.89944061	94.69891989	91.62240271	88.66438681	85.81964729
230718A00015	7/18/2023	4.19	7/18/2028	7/18/2023	114.54555	109.7659409	105.2188189	100.89156	96.77229622	92.84986759	89.11377615	85.55414254	82.16166595
230718A00070	7/18/2023	4.06	7/18/2028	7/18/2023	114.5292	109.7320884	105.1688147	100.8266572	96.69365895	92.75857797	89.01084007	85.44049519	82.03817692
230718A00016	7/18/2023	4.54	7/17/2026	7/18/2023	109.01271	106.2865456	103.6434853	101.0804515	98.59450809	96.18284848	93.84278871	91.57176114	89.36730843
230719A00006	7/19/2023	4.54	7/20/2026	7/19/2023	109.04231	106.3078644	103.6569669	101.0865203	98.59356561	96.17527445	93.82894256	91.55198319	89.34192103
230719A00061	7/19/2023	5.18	1/21/2025	7/19/2023	104.34988	103.1280337	101.9349984	100.76976	99.6313528	98.51885533	97.43138807	96.36811092	95.32822106
230719A00034	7/19/2023	4.19	7/19/2028	7/19/2023	114.55325	109.7708621	105.221212	100.8916518	96.77029548	92.84596656	89.10815188	85.54695811	82.15307157
230719A00035	7/19/2023	4.92	7/18/2025	7/19/2023	105.987	104.2721652	102.5934897	100.949894	99.34034079	97.76383383	96.219416	94.70616734	93.22320322
230719A00027	7/19/2023	4.92	7/18/2025	7/19/2023	105.987	104.2721652	102.5934897	100.949894	99.34034079	97.76383383	96.219416	94.70616734	93.22320322

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230719A00013	7/19/2023	4.54	7/17/2026	7/19/2023	109.01271	106.2865456	103.6434853	101.0804515	98.59450809	96.18284848	93.84278871	91.57176114	89.36730843
230719A00010	7/19/2023	4.92	7/18/2025	7/19/2023	105.987	104.2721652	102.5934897	100.949894	99.34034079	97.76383383	96.219416	94.70616734	93.22320322
230719A00012	7/19/2023	4.92	7/18/2025	7/19/2023	105.987	104.2721652	102.5934897	100.949894	99.34034079	97.76383383	96.219416	94.70616734	93.22320322
230719A00015	7/19/2023	4.37	7/19/2027	7/19/2023	112.06229	108.3045706	104.6959912	101.2297614	97.89944061	94.69891989	91.62240271	88.66438681	85.81964729
230719A00011	7/19/2023	4.92	7/18/2025	7/19/2023	105.987	104.2721652	102.5934897	100.949894	99.34034079	97.76383383	96.219416	94.70616734	93.22320322
230720A00037	7/20/2023	4.55	7/20/2026	7/20/2023	109.40264	106.6559597	103.9933132	101.4115816	98.90778458	96.47907407	94.12272687	91.83613836	89.61681627
230720A00039	7/20/2023	4.68	7/20/2026	7/20/2023	109.4209	106.6812778	104.0253212	101.4499328	98.95214954	96.52913978	94.17819581	91.89672761	89.68225678
230720A00038	7/20/2023	4.55	7/20/2026	7/20/2023	109.40264	106.6559597	103.9933132	101.4115816	98.90778458	96.47907407	94.12272687	91.83613836	89.61681627
230720A00025	7/20/2023	5.18	1/21/2025	7/20/2023	104.49647	103.2714486	102.0753403	100.9071299	99.76584713	98.65056644	97.5604043	96.49451687	95.45209775
230720A00100	7/20/2023	5.05	7/21/2025	7/20/2023	106.24364	104.5186234	102.8300996	101.1769752	99.55819931	97.97276315	96.41969752	94.89807111	93.40698848
230721A00043	7/21/2023	4.98	7/21/2025	7/21/2023	106.12308	104.3991333	102.7116607	101.0595687	99.44180701	97.85736712	96.30528043	94.78461606	93.29447904
230721A00038	7/21/2023	4.67	7/21/2026	7/21/2023	109.40408	106.6620523	104.0038363	101.4263221	98.92653926	96.50164913	94.14893743	91.86580799	89.64977659
230721A00003	7/21/2023	4.67	7/21/2026	7/21/2023	109.40408	106.6620523	104.0038363	101.4263221	98.92653926	96.50164913	94.14893743	91.86580799	89.64977659
230721A00006	7/21/2023	4.32	7/21/2028	7/21/2023	115.17375	110.3717617	105.8035027	101.4562646	97.31810442	93.37779301	89.62476791	86.04908995	82.64140272
230721A00029	7/21/2023	4.67	7/21/2026	7/21/2023	109.40408	106.6620523	104.0038363	101.4263221	98.92653926	96.50164913	94.14893743	91.86580799	89.64977659
230721A00028	7/21/2023	5.03	7/21/2025	7/21/2023	106.2092	104.4844834	102.7962599	101.1434305	99.52494437	97.93979285	96.38700692	94.86565538	93.37484293
230721A00031	7/21/2023	5.03	7/21/2025	7/21/2023	106.2092	104.4844834	102.7962599	101.1434305	99.52494437	97.93979285	96.38700692	94.86565538	93.37484293
230721A00032	7/21/2023	5.03	7/21/2025	7/21/2023	106.2092	104.4844834	102.7962599	101.1434305	99.52494437	97.93979285	96.38700692	94.86565538	93.37484293
230724A00064	7/24/2023	4.53	7/19/2027	7/24/2023	112.65081	108.8822333	105.2631148	101.7866524	98.44639412	95.23622015	92.15032354	89.18319206	86.3295913
230724A00065	7/24/2023	4.37	7/18/2028	7/24/2023	115.38197	110.5829657	106.0171387	101.6718325	97.53515026	93.59590485	89.84357244	86.26824911	82.86061072
230724A00063	7/24/2023	5.08	7/24/2025	7/24/2023	106.32935	104.5956622	102.8987732	101.2375779	99.61101266	98.0180565	96.45772891	94.92908777	93.43122745
230724A00066	7/24/2023	4.71	8/18/2026	7/24/2023	109.80084	106.9792079	104.2458524	101.5974935	99.0309974	96.54336591	94.13172919	91.79333965	89.52556581
230724A00037	7/24/2023	4.29	7/24/2028	7/24/2023	115.05799	110.2508886	105.6781434	101.3269924	97.18544311	93.24222105	89.48672231	85.90896966	82.49957183
230724A00105	7/24/2023	5.56	7/18/2024	7/24/2023	102.73785	102.0206071	101.3134257	100.6160955	99.92841116	99.25017305	98.58118697	97.92126407	97.27022059
230725A00018	7/25/2023	4.4	7/25/2028	7/25/2023	115.57913	110.757297	106.1704953	101.805922	97.65154888	93.69606787	89.92884376	86.33987003	82.91972798
230725A00016	7/25/2023	4.75	7/31/2026	7/25/2023	109.72492	106.9521759	104.2648323	101.6596898	99.13369793	96.68394241	94.3076382	92.00212254	89.76484861
230725A00014	7/25/2023	5.32	1/27/2025	7/25/2023	104.58263	103.3435797	102.1341003	100.9531404	99.79969722	98.67281491	97.57158128	96.49512561	95.44261621
230725A00028	7/25/2023	4.46	7/25/2030	7/25/2023	120.51183	113.6431352	107.2281249	101.2341614	95.6311288	90.39122673	85.48878041	80.90006672	76.60315566
230725A00023	7/25/2023	4.57	4/9/2027	7/25/2023	111.77021	108.2878197	104.9352315	101.7069059	98.59756969	95.60220221	92.71602179	89.93447302	87.25321484
230725A00015	7/25/2023	4.4	7/25/2028	7/25/2023	115.57913	110.757297	106.1704953	101.805922	97.65154888	93.69606787	89.92884376	86.33987003	82.91972798
230725A00004	7/25/2023	5.06	7/25/2025	7/25/2023	106.30604	104.5699193	102.8706969	101.2072582	99.57853582	97.98350482	96.42118112	94.89061917	93.39091012
230725A00071	7/25/2023	4.4	7/25/2028	7/25/2023	115.57913	110.757297	106.1704953	101.805922	97.65154888	93.69606787	89.92884376	86.33987003	82.91972798
230726A00023	7/26/2023	4.24	7/26/2028	7/26/2023	115.43341	110.5943066	105.991737	101.6127844	97.44531708	93.47793142	89.69990375	86.10114576	82.67216306

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230726A00060	7/26/2023	4.99	7/28/2025	7/26/2023	106.42877	104.6799409	102.9684678	101.2932135	99.65309195	98.04706102	96.47412016	94.93330829	93.42370181
230726A00058	7/26/2023	4.99	7/28/2025	7/26/2023	106.42877	104.6799409	102.9684678	101.2932135	99.65309195	98.04706102	96.47412016	94.93330829	93.42370181
230726A00012	7/26/2023	4.24	7/26/2028	7/26/2023	115.43341	110.5943066	105.991737	101.6127844	97.44531708	93.47793142	89.69990375	86.10114576	82.67216306
230726A00011	7/26/2023	4.24	7/26/2028	7/26/2023	115.43341	110.5943066	105.991737	101.6127844	97.44531708	93.47793142	89.69990375	86.10114576	82.67216306
230727A00020	7/27/2023	4.39	7/27/2028	7/27/2023	115.54892	110.7225867	106.1317361	101.7635344	97.60591869	93.64754902	89.87776096	86.28652115	82.8643862
230727A00063	7/27/2023	4.38	7/27/2028	7/27/2023	116.09732	111.2400974	106.6202021	102.2246765	98.04134738	94.05877267	90.26619257	86.65348493	83.21112366
230727A00073	7/27/2023	4.81	7/27/2026	7/27/2023	109.84662	107.0827162	104.4036554	101.8062703	99.28754036	96.8445794	94.47462875	92.17505034	89.94332055
230727A00075	7/27/2023	4.5	7/27/2028	7/27/2023	116.06268	111.2243737	106.6219785	102.2426398	98.07427668	94.10553249	90.32572662	86.72481043	83.29332605
230727A00070	7/27/2023	4.75	7/27/2026	7/27/2023	109.68323	106.9215834	104.2447201	101.6494813	99.13284823	96.6919362	94.32398801	92.02636703	89.79655098
230727A00016	7/27/2023	4.51	7/27/2033	7/27/2023	127.65416	117.7562412	108.7548139	100.5625706	93.10118492	86.30034192	80.09687824	74.43401893	69.26069928
230728A00017	7/28/2023	5.15	7/22/2025	7/28/2023	106.42741	104.6981192	103.0054519	101.3483061	99.72562632	98.13639885	96.5796502	95.05444483	93.55988336
230728A00026	7/28/2023	4.46	7/28/2028	7/28/2023	115.88427	111.0475109	106.4467582	102.0691431	97.90257299	93.93568058	90.15777573	86.55880121	83.1292914
230728A00024	7/28/2023	4.59	7/28/2027	7/28/2023	112.96163	109.1636482	105.5170605	102.0149324	98.6506953	95.41812087	92.31130116	89.32462984	86.45278483
230728A00027	7/28/2023	4.46	7/28/2028	7/28/2023	115.88427	111.0475109	106.4467582	102.0691431	97.90257299	93.93568058	90.15777573	86.55880121	83.1292914
230728A00004	7/28/2023	4.77	7/28/2026	7/28/2023	109.74818	106.9830048	104.3027837	101.7043473	99.18466831	96.74085437	94.37014085	92.06988419	89.83755559
230728A00006	7/28/2023	4.46	7/28/2028	7/28/2023	115.88427	111.0475109	106.4467582	102.0691431	97.90257299	93.93568058	90.15777573	86.55880121	83.1292914
230728A00005	7/28/2023	4.59	7/28/2027	7/28/2023	112.96163	109.1636482	105.5170605	102.0149324	98.6506953	95.41812087	92.31130116	89.32462984	86.45278483
230731A00012	7/31/2023	4.5	7/31/2029	7/31/2023	118.73539	112.8517668	107.3069846	102.0795705	97.14953318	92.49825086	88.10836988	83.96371121	80.04918444
230731A00037	7/31/2023	4.74	7/31/2026	7/31/2023	109.69758	106.9252159	104.2382413	101.6334592	99.10781937	96.65840783	94.28243976	91.97725267	89.74029994
230731A00036	7/31/2023	5.1	7/31/2025	7/31/2023	106.44374	104.6905811	102.9749365	101.2956675	99.6516805	98.04192624	96.46539746	94.92112676	93.40818456
230801A00028	8/1/2023	5.14	8/1/2025	8/1/2023	106.52526	104.7687062	103.0497874	101.3673652	99.72034529	98.10767751	96.52835351	94.98140463	93.46589993
230801A00001	8/1/2023	5.14	8/1/2025	8/1/2023	106.52526	104.7687062	103.0497874	101.3673652	99.72034529	98.10767751	96.52835351	94.98140463	93.46589993
230801A00024	8/1/2023	4.82	8/3/2026	8/1/2023	109.94804	107.1642297	104.4663566	101.8512146	99.31573743	96.85699515	94.47218694	92.15863429	89.91377474
230801A00022	8/1/2023	4.65	8/2/2027	8/1/2023	113.23456	109.4183051	105.754598	102.2364391	98.85719772	95.61058688	92.49064315	89.49170783	86.60840936
230801A00021	8/1/2023	4.49	8/1/2028	8/1/2023	116.05821	111.206929	106.5927864	102.2028268	98.02488184	94.0475136	90.25996668	86.65212323	83.21446136
230802A00022	9/8/2023	4.41	9/8/2028	9/8/2023	115.99264	111.0422377	106.338629	101.8681923	97.61812348	93.57638605	89.73166122	86.07330155	82.59128787
230802A00017	8/2/2023	4.79	8/3/2026	8/2/2023	109.86579	107.0831147	104.3863551	101.7723005	99.2378856	96.78018116	94.3963871	92.08382568	89.83993512
230802A00007	8/2/2023	5.46	8/2/2024	8/2/2023	102.82472	102.0669394	101.3203657	100.5847558	99.85986922	99.14547229	98.44133817	97.74724654	97.06298332
230807A00023	8/7/2023	5.26	2/7/2025	8/7/2023	104.64317	103.3732172	102.1316245	100.9174426	99.72976133	98.56771095	97.43045962	96.31721151	95.2272048
230807A00024	8/7/2023	5.03	8/7/2025	8/7/2023	106.40002	104.6286482	102.8955429	101.1995644	99.53961656	97.91464606	96.32364028	94.76562534	93.23966418
230807A00010	8/7/2023	4.4	8/7/2028	8/7/2023	115.68535	110.8269394	106.2068634	101.8120877	97.63036227	93.65017182	89.86068752	86.25172204	82.81368788
230807A00033	8/7/2023	4.57	8/7/2026	8/7/2023	109.64181	106.8440988	104.1332463	101.5060086	98.95928601	96.49011591	94.09566541	91.77322471	89.52020083
230807A00018	8/7/2023	4.65	8/7/2026	8/7/2023	109.52246	106.733918	104.0318134	101.4129188	98.87415402	96.41257497	94.02536626	91.70983469	89.46340293

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230808A00014	8/8/2023	4.6	8/7/2026	8/8/2023	109.38483	106.5982041	103.8979697	101.2809014	98.74392059	96.28408435	93.89857861	91.5847114	89.33990656
230808A00057	8/8/2023	4.19	8/8/2028	8/8/2023	115.30276	110.4324143	105.80174	101.397599	97.2076465	93.22027916	89.42458656	85.81030565	82.36777869
230808A00060	8/8/2023	4.19	8/8/2028	8/8/2023	115.30276	110.4324143	105.80174	101.397599	97.2076465	93.22027916	89.42458656	85.81030565	82.36777869
230808A00008	8/8/2023	4.67	4/24/2026	8/8/2023	108.48468	105.9903003	103.5671928	101.212903	98.92508135	96.70147281	94.53991288	92.43832318	90.39470754
230808A00054	8/8/2023	4.19	8/8/2028	8/8/2023	115.30276	110.4324143	105.80174	101.397599	97.2076465	93.22027916	89.42458656	85.81030565	82.36777869
230808A00010	8/8/2023	4.95	8/8/2025	8/8/2023	106.26959	104.4967468	102.762262	101.0649916	99.40383965	97.77775267	96.18571779	94.62676065	93.09994356
230809A00020	8/9/2023	4.51	11/9/2026	8/9/2023	110.054	107.0073393	104.0628477	101.2165176	98.464525	95.80321744	93.22910547	90.73885426	88.32927581
230809A00026	8/9/2023	4.59	8/7/2026	8/9/2023	109.3573	106.5710613	103.871201	101.254498	98.71787391	96.25838623	93.87322108	91.55968674	89.31520728
230809A00034	8/9/2023	4.59	8/10/2026	8/9/2023	109.38721	106.5925995	103.8848499	101.2607282	98.71714219	96.25113507	93.85987877	91.5406673	89.29091052
230810A00001	8/10/2023	4.22	8/10/2028	8/10/2023	115.46021	110.5808539	105.9418155	101.5299132	97.33276426	93.33872989	89.53686579	85.9168769	82.46907521
230810A00013	8/10/2023	4.34	8/10/2028	8/10/2023	115.42725	110.5669787	105.9455877	101.5499979	97.36792076	93.38780465	89.59878618	85.99064533	82.55376375
230810A00024	8/10/2023	4.34	8/7/2028	8/10/2023	115.40338	110.5515776	105.9378752	101.5492469	97.3734525	93.39898631	89.61502843	86.01140003	82.57852168
230810A00025	8/10/2023	4.37	5/8/2028	8/10/2023	114.7742	110.1777623	105.7972879	101.6214395	97.63953994	93.84152623	90.21791073	86.75974522	83.4585874
230810A00026	8/10/2023	4.4	1/10/2028	8/10/2023	113.82761	109.570546	105.500615	101.6085223	97.88549049	94.32322719	90.91389487	87.65008321	84.52478321
230810A00053	8/10/2023	4.82	1/20/2026	8/10/2023	107.81909	105.5898411	103.4182681	101.3024624	99.24059065	97.23089555	95.27169172	93.36136223	91.49835513
230810A00045	8/10/2023	5.23	1/21/2025	8/10/2023	104.41143	103.1891817	101.995754	100.8301297	99.69134268	98.57847152	97.49063647	96.42699727	95.38675096
230810A00046	8/10/2023	4.88	11/18/2025	8/10/2023	107.26172	105.2061877	103.2009669	101.2444977	99.33527935	97.47186834	95.65287565	93.87696436	92.14284726
230810A00010	8/10/2023	4.62	8/10/2026	8/10/2023	109.47003	106.6742629	103.9653846	101.3401609	98.79549844	96.32843974	93.93615596	91.61594034	89.36520205
230810A00057	8/10/2023	4.62	8/10/2026	8/10/2023	109.47003	106.6742629	103.9653846	101.3401609	98.79549844	96.32843974	93.93615596	91.61594034	89.36520205
230811A00017	8/11/2023	4.78	8/11/2026	8/11/2023	109.92222	107.117477	104.3999369	101.7663501	99.21361437	96.73876307	94.33895844	92.01148498	89.75374328
230811A00018	8/11/2023	5.1	8/11/2025	8/11/2023	106.56956	104.7860097	103.0411962	101.3339731	99.66324163	98.02794511	96.42706683	94.8596282	93.32468692
230814A00029	8/14/2023	4.71	2/12/2027	8/14/2023	111.65252	108.3246363	105.1156744	102.0206976	99.03500576	96.1541217	93.37377881	90.68990983	88.09863626
230814A00028	8/14/2023	4.86	8/14/2026	8/14/2023	110.17537	107.3591118	104.630613	101.9866125	99.42399123	96.93976626	94.53108325	92.19521026	89.92953153
230814A00011	8/14/2023	4.61	8/14/2028	8/14/2023	116.73293	111.8313991	107.1708605	102.738123	98.52078818	94.50719975	90.68639524	87.04806072	83.5824889
230815A00031	8/15/2023	5.14	8/13/2025	8/15/2023	106.66382	104.8740914	103.1233355	101.4104041	99.7341973	98.09365642	96.48776267	94.91553497	93.3760283
230815A00084	8/15/2023	5.14	8/15/2025	8/15/2023	106.68691	104.8916597	103.1356025	101.4175931	99.73653009	98.09135354	96.48104264	94.90461414	93.3611205
230815A00038	8/15/2023	4.57	8/16/2027	8/15/2023	113.54928	109.6773414	105.9618259	102.395544	98.97167584	95.68375214	92.52563422	89.49149504	86.5758016
230815A00037	8/15/2023	4.53	8/15/2028	8/15/2023	116.36395	111.4684562	106.8138986	102.3870813	98.17560302	94.16780483	90.35272169	86.72003732	83.26004222
230817A00036	8/17/2023	4.91	8/17/2026	8/17/2023	110.34643	107.5197909	104.7814459	102.1281192	99.55667599	97.06411744	94.64757334	92.3042959	90.03165365
230818A00005	8/18/2023	5.01	8/18/2025	8/18/2023	106.70564	104.8983769	103.1307857	101.4017182	99.71006594	98.05476106	96.43477488	94.84911594	93.29682835
230818A00007	8/18/2023	4.73	8/18/2026	8/18/2023	110.20058	107.365682	104.6195848	101.9589904	99.38074221	96.88182004	94.45933349	92.11051538	89.83271566
230818A00064	8/18/2023	5.09	8/18/2025	8/18/2023	106.63164	104.8289406	103.0657506	101.3409291	99.65337345	98.00202156	96.38585015	94.80387289	93.2551388
230818A00065	8/18/2023	4.82	8/18/2026	8/18/2023	110.10687	107.2809383	104.5433813	101.8909201	99.32041779	96.82887305	94.41341319	92.07128782	89.79986278

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230818A00025	8/18/2023	4.68	8/18/2027	8/18/2023	113.51005	109.6460421	105.9380411	102.3788892	98.9617936	95.68030962	92.52832098	89.50002109	86.58989561
230818A00024	8/18/2023	4.81	8/18/2026	8/18/2023	110.07905	107.2535082	104.5163332	101.8642449	99.29410684	96.80291786	94.38780556	92.0460198	89.77492669
230821A00004	8/21/2023	5.38	2/21/2025	8/21/2023	104.99251	103.680111	102.392733	101.1296757	99.89026974	98.67387023	97.47985605	96.30762852	95.15661039
230821A00074	8/21/2023	5.18	8/21/2025	8/21/2023	106.82844	105.0159495	103.2433382	101.5094592	99.8132071	98.15351664	96.52936082	94.93974917	93.38372613
230821A00087	8/21/2023	5.37	3/3/2025	8/21/2023	105.11182	103.7706983	102.4531956	101.1587364	99.88676642	98.63674867	97.40816293	96.20050505	95.0132863
230821A00006	8/21/2023	4.66	8/21/2028	8/21/2023	117.03044	112.1033422	107.4192758	102.9649177	98.72774609	94.69598807	90.85857038	87.20507432	83.72569356
230821A00035	8/21/2023	5.36	2/21/2025	8/21/2023	104.9662	103.6539872	102.3667875	101.1039056	99.86467204	98.64844218	97.45459491	96.28253161	95.13167514
230823A00066	8/23/2023	4.68	8/23/2027	8/23/2023	113.56132	109.6830407	105.9618461	102.39052	98.96221846	95.67044754	92.50904299	89.47215194	86.55421532
230823A00019	8/23/2023	5.44	8/23/2024	8/23/2023	103.04837	102.2332531	101.4310988	100.6415947	99.86444245	99.09935328	98.34604724	97.60425301	96.87370756
230823A00036	8/23/2023	4.87	8/24/2026	8/23/2023	110.31032	107.4655739	104.7102346	102.0409904	99.45467378	96.9482527	94.51882354	92.16360507	89.87993251
230823A00010	8/23/2023	5.44	8/23/2024	8/23/2023	103.04837	102.2332531	101.4310988	100.6415947	99.86444245	99.09935328	98.34604724	97.60425301	96.87370756
230824A00061	8/24/2023	4.61	8/24/2028	8/24/2023	116.81963	111.8895701	107.2031311	102.7469441	98.50844646	94.4758265	90.63797422	86.9844362	83.50537337
230824A00043	8/24/2023	4.89	8/24/2026	8/24/2023	110.36628	107.5207473	104.7646355	102.0946371	99.50758401	97.0004436	94.57031175	92.21440671	89.93006319
230824A00031	8/24/2023	4.49	8/24/2028	8/24/2023	116.85674	111.9071863	107.2027245	102.7298828	98.47600219	94.42918111	90.57822652	86.91260789	83.42241457
230825A00019	8/25/2023	5.41	2/25/2025	8/25/2023	105.08831	103.7638129	102.4633828	101.1863994	99.93226384	98.70039758	97.49024142	96.30125485	95.13291518
230825A00043	8/25/2023	4.89	8/25/2026	8/25/2023	110.37706	107.5287148	104.7699574	102.0974729	99.5080883	96.99876604	94.56659702	92.2087945	89.92268827
230825A00044	8/25/2023	5.2	8/25/2025	8/25/2023	106.9114	105.0875235	103.3039817	101.5596292	99.85335788	98.18409878	96.55082057	94.9525278	93.38825941
230825A00045	8/25/2023	5.57	8/26/2024	8/25/2023	103.1797	102.3560952	101.545707	100.7482152	99.96331327	99.19070407	98.43009987	97.68122185	96.94379977
230825A00037	8/25/2023	4.91	8/25/2026	8/25/2023	110.43308	107.5839405	104.8244091	102.151169	99.56104658	97.05100371	94.61813073	92.25964042	89.97286204
230825A00010	8/25/2023	4.62	8/25/2028	8/25/2023	116.87577	111.9417358	107.2516258	102.7920521	98.55043417	94.51494279	90.67445165	87.01849182	83.53720962
230825A00009	8/25/2023	4.91	8/25/2026	8/25/2023	110.43308	107.5839405	104.8244091	102.151169	99.56104658	97.05100371	94.61813073	92.25964042	89.97286204
230825A00062	8/25/2023	5.21	8/25/2025	8/25/2023	106.92957	105.1055243	103.321816	101.5772999	99.87086796	98.20145117	96.56801807	94.96957314	93.40515525
230828A00055	8/28/2023	5.24	8/28/2025	8/28/2023	107.01954	105.1866877	103.3945267	101.6419069	99.92771771	98.25088724	96.61038054	95.00519811	93.43437446
230828A00056	8/28/2023	4.92	8/28/2026	8/28/2023	110.49366	107.6356926	104.8678332	102.1867535	99.5892652	97.0723147	94.63297713	92.26845	89.97604741
230828A00036	8/28/2023	4.8	8/28/2026	8/28/2023	110.50448	107.6385831	104.8632068	102.1749995	99.57075325	97.04739619	94.60198605	92.23170393	89.93384835
230828A00047	8/28/2023	4.92	8/28/2026	8/28/2023	110.49366	107.6356926	104.8678332	102.1867535	99.5892652	97.0723147	94.63297713	92.26845	89.97604741
230829A00006	8/29/2023	5.21	8/29/2025	8/29/2023	106.97651	105.1414122	103.3471098	101.5924541	99.8763341	98.19767699	96.5554469	94.94864323	93.37629924
230830A00030	8/30/2023	5.03	8/29/2025	8/30/2023	106.64749	104.8154832	103.0242139	101.2725355	99.55933859	97.88355181	96.24414071	94.64010607	93.07048247
230830A00034	8/30/2023	4.44	8/30/2028	8/30/2023	116.06238	111.134446	106.4510141	101.9986475	97.76471376	93.73733456	89.9053371	86.2582086	82.7860541
230830A00029	8/30/2023	4.45	8/30/2027	8/30/2023	113.23777	109.3343483	105.590116	101.9977459	98.55028315	95.24112717	92.064012	89.0129875	86.08240181
230830A00051	8/30/2023	4.45	8/30/2027	8/30/2023	113.23777	109.3343483	105.590116	101.9977459	98.55028315	95.24112717	92.064012	89.0129875	86.08240181
230830A00028	8/30/2023	4.45	8/30/2027	8/30/2023	113.23777	109.3343483	105.590116	101.9977459	98.55028315	95.24112717	92.064012	89.0129875	86.08240181
230831A00007	8/31/2023	4.48	8/31/2028	8/31/2023	116.26108	111.3257941	106.6354437	102.1765612	97.93649068	93.90333134	90.0658892	86.41363138	82.93664393

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230831A00001	8/31/2023	4.77	8/31/2026	8/31/2023	110.10363	107.2432499	104.473335	101.7905443	99.19167859	96.67367319	94.23359197	91.86862104	89.57606304
230831A00006	8/31/2023	4.61	8/31/2027	8/31/2023	113.37778	109.48175	105.7443768	102.1583661	98.71679715	95.41310092	92.24104061	89.19469308	86.26843149
230831A00016	8/31/2023	4.65	8/31/2026	8/31/2023	110.11379	107.2454671	104.4680207	101.7780896	99.17245488	96.64803362	94.20187214	91.83114005	89.53312434
230831A00070	8/31/2023	4.48	8/31/2028	8/31/2023	116.26108	111.3257941	106.6354437	102.1765612	97.93649068	93.90333134	90.0658892	86.41363138	82.93664393
230831A00066	8/31/2023	4.77	8/31/2026	8/31/2023	110.10363	107.2432499	104.473335	101.7905443	99.19167859	96.67367319	94.23359197	91.86862104	89.57606304
230831A00069	8/31/2023	4.61	8/31/2027	8/31/2023	113.37778	109.48175	105.7443768	102.1583661	98.71679715	95.41310092	92.24104061	89.19469308	86.26843149
230831A00041	8/31/2023	4.48	8/31/2028	8/31/2023	116.26108	111.3257941	106.6354437	102.1765612	97.93649068	93.90333134	90.0658892	86.41363138	82.93664393
230901A00009	9/1/2023	4.42	9/1/2028	9/1/2023	115.98345	111.0520765	106.3656536	101.9107108	97.67458246	93.64535947	89.81184024	86.16348524	82.69037462
230901A00037	9/1/2023	4.3	9/1/2028	9/1/2023	116.01823	111.0673161	106.3628369	101.8912164	97.63969129	93.59626183	89.74964247	86.08921578	82.60498957
230905A00033	9/5/2023	4.71	9/4/2026	9/5/2023	110.32639	107.444097	104.6534251	101.9509707	99.33347823	96.7978298	94.34103896	91.96024428	89.65270342
230905A00030	9/5/2023	4.55	9/5/2028	9/5/2023	116.63692	111.6792267	106.9681018	102.4899585	98.23202829	94.18230671	90.32950385	86.66299828	83.17279414
230906A00020	9/6/2023	5.19	9/8/2025	9/6/2023	107.05879	105.1958032	103.3747815	101.5945361	99.853917	98.15181417	96.48715556	94.85890566	93.26606402
230907A00051	9/7/2023	4.79	9/8/2026	9/7/2023	110.59715	107.7000383	104.8953136	102.1795311	99.54939734	97.00175891	94.53359573	92.14201457	89.82424308
230907A00050	9/7/2023	5.05	9/5/2025	9/7/2023	106.98849	105.1303011	103.3138809	101.5380423	99.80164365	98.10358281	96.44279523	94.81825259	93.2289613
230907A00012	9/7/2023	5.17	9/8/2025	9/7/2023	107.02169	105.1590579	103.3383831	101.5584781	99.81819318	98.11641845	96.45208203	94.82414856	93.23161774
230907A00047	9/7/2023	5.08	9/5/2025	9/7/2023	106.81983	104.9672836	103.1563133	101.3857436	99.65443975	97.96130589	96.30528365	94.68535056	93.10051865
230911A00001	9/11/2023	4.49	9/11/2028	9/11/2023	117.01325	112.0114628	107.2596269	102.7439057	98.45129959	94.36959025	90.48729008	86.79359476	83.27833922
230911A00010	9/11/2023	4.9	9/11/2026	9/11/2023	110.59055	107.6932785	104.8884709	102.1726822	99.54261283	96.99510382	94.52712971	92.13579232	89.81831463
230911A00014	9/11/2023	4.61	9/11/2028	9/11/2023	116.97537	111.9934238	107.259922	102.7611318	98.48415312	94.41686034	90.54785155	86.86640196	83.36242028
230911A00030	9/11/2023	5.09	9/11/2025	9/11/2023	106.9083	105.0385795	103.2111501	101.4248063	99.67838489	97.97076329	96.30085737	94.6676202	93.07004038
230911A00026	9/11/2023	5.08	9/11/2025	9/11/2023	106.88967	105.0201272	103.1928727	101.4067006	99.66044773	97.95299157	96.28324811	94.65017049	93.05274739
230912A00053	9/12/2023	4.74	9/7/2027	9/12/2023	113.94476	110.0189034	106.2535379	102.6412539	99.1750226	95.84817418	92.6543776	89.58762167	86.64219716
230912A00026	9/12/2023	4.84	9/14/2026	9/12/2023	110.4522	107.5487577	104.7382383	102.0171661	99.38221715	96.83020899	94.35809437	91.96295448	89.64199287
230912A00036	9/12/2023	4.57	9/12/2028	9/12/2023	116.79224	111.8119773	107.0802617	102.5833475	98.30832167	94.24304658	90.37610962	86.69677631	83.19494661
230913A00030	9/13/2023	5.16	9/15/2025	9/13/2023	107.08614	105.2038293	103.3643105	101.5663575	99.80878753	98.09045922	96.41027068	94.76715795	93.16009341
230913A00032	9/13/2023	4.74	9/15/2027	9/13/2023	114.02924	110.0800177	106.293071	102.6608679	99.17626716	95.83249403	92.62311974	89.54204195	86.58346647
230913A00031	9/13/2023	4.91	9/15/2026	9/13/2023	110.66302	107.7538206	104.9377828	102.2114223	99.57140382	97.01453468	94.53775767	92.13814461	89.81289019
230913A00014	9/13/2023	5.34	3/13/2025	9/13/2023	105.18611	103.8181054	102.4746047	101.155003	99.85871589	98.58517791	97.33384134	96.10417568	94.89566696
230913A00013	9/13/2023	4.87	9/14/2026	9/13/2023	110.53784	107.633161	104.8214368	102.0991888	99.46309198	96.90996316	94.43675414	92.04054532	89.71853945
230807A00025	8/7/2023	4.69	8/7/2026	8/7/2023	109.63256	106.8424892	104.1388884	101.5185327	98.97834076	96.51536746	94.12679638	91.80993332	89.56220002
230808A00029	8/8/2023	4.6	8/7/2026	8/8/2023	109.38483	106.5982041	103.8979697	101.2809014	98.74392059	96.28408435	93.89857861	91.5847114	89.33990656
230609A00026	6/9/2023	4.11	6/9/2027	6/9/2023	111.19278	107.5461148	104.0411399	100.6715463	97.43134539	94.31484899	91.31665228	88.43161788	85.65486095
230630A00043	6/30/2023	4.6	6/30/2026	6/30/2023	109.33062	106.6378533	104.0261691	101.4926096	99.03434639	96.64867411	94.33300356	92.08485601	89.9018576

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200312A00009	3/12/2020	1.46	3/12/2027	3/12/2020	101.12203	97.89232048	94.78221886	91.78669012	88.90093974	86.12039864	83.44071137	80.85772498	78.36747856
200316A00055	3/16/2020	1.06	3/14/2025	3/16/2020	99.484005	98.15170247	96.84338128	95.55845059	94.2963387	93.05649212	91.83837486	90.64146772	89.46526767
200312A00006	3/12/2020	1.23	3/12/2025	3/12/2020	99.556676	98.23152702	96.93011123	95.65184664	94.39616998	93.16253579	91.95041577	90.75929808	89.58868671
200331A00011	3/31/2020	1.09	3/31/2025	3/31/2020	99.363575	97.99129245	96.64439359	95.32223702	94.02420224	92.74968901	91.4981166	90.26892293	89.06156384
230630A00046	6/30/2023	4.6	6/30/2026	6/30/2023	109.33062	106.6378533	104.0261691	101.4926096	99.03434639	96.64867411	94.33300356	92.08485601	89.9018576
230609A00027	6/9/2023	3.99	6/9/2028	6/9/2023	113.89814	109.2194355	104.7646511	100.5218269	96.47971189	92.62771429	88.95585874	85.45474715	82.11552206
221005A00041	10/5/2022	4.3	10/5/2027	10/5/2022	112.52843	108.5546133	104.7465344	101.0963919	97.59679612	94.24074189	91.02158677	87.93303015	84.96909391
150731A00016	7/31/2015	3.04	7/31/2025	7/31/2015	102.84002	101.1193179	99.43554308	97.78756783	96.17431449	94.59474908	93.04787905	91.53275112	90.04844939
160303A00020	3/3/2016	2.97	3/3/2031	3/3/2016	112.12969	104.9559246	98.30096803	92.1244815	86.38945939	81.06193771	76.1107299	71.50718681	67.22497859
160225A00024	2/25/2016	2.22	2/26/2024	2/25/2016	100.20921	99.88471348	99.56232074	99.24200789	98.92375487	98.60754185	98.29334927	97.9811578	97.67094837
160222A00005	2/22/2016	2.79	2/22/2028	2/22/2016	107.37578	103.1392376	99.09527442	95.23413488	91.54660817	88.02399536	84.65807819	81.44108994	78.36568831
170609A00052	6/11/2018	2.9	6/9/2027	6/11/2018	106.42648	102.8767281	99.46550069	96.18662192	93.03422915	90.0027537	87.08690435	84.28165176	81.58221391
160524A00015	11/25/2016	2.71	11/25/2026	11/25/2016	104.72965	101.7210924	98.8151698	96.00780437	93.29510153	90.67334419	88.13898359	85.68863052	83.31904718
160712A00019	7/12/2017	2.32	7/12/2027	7/12/2017	104.49415	100.8937124	97.43699659	94.11745603	90.92888015	87.86537758	84.92135763	82.09151295	79.37080332
160729A00017	7/31/2017	2.47	7/31/2029	7/31/2017	107.29382	101.730983	96.4935609	91.56076921	86.91325976	82.5330167	78.40325738	74.50834112	70.83368533
170614A00019	6/14/2017	2.48	6/13/2025	6/14/2017	101.64881	100.0642759	98.51196867	96.99096705	95.50038734	94.03937903	92.60712315	91.20283079	89.82574173
160714A00018	9/6/2016	2.28	9/4/2026	9/6/2016	103.10499	100.3337088	97.65114685	95.05400622	92.53912779	90.10348622	87.74418354	85.45844308	83.24360374
160714A00024	9/20/2016	2.5	9/20/2028	9/20/2016	106.89251	102.1284173	97.60629839	93.31262458	89.23469456	85.36057596	81.679055	78.17958968	74.85226622
161118A00026	12/20/2016	3.03	12/21/2026	12/20/2016	105.85754	102.7641121	99.77789145	96.89453706	94.10991241	91.42007365	88.82125929	86.30988053	83.88251213
160212A00037	2/12/2016	3.03	2/12/2031	2/12/2016	111.61623	104.5467745	97.98409427	91.88905971	86.2257612	80.96122724	76.06516944	71.50975114	67.26937694
160222A00019	2/22/2016	3.09	2/21/2031	2/22/2016	112.0718	104.9625544	98.36431669	92.23754798	86.54596367	81.25625073	76.33781009	71.76252271	67.50453682
170822A00023	8/23/2017	3.95	8/23/2028	8/23/2017	113.68141	108.8282221	104.2157145	99.83066246	95.66063286	91.69393669	87.91958046	84.32722125	80.90712482
170327A00080	3/27/2019	3.43	3/27/2029	3/27/2019	112.2591	106.8775754	101.7924225	96.98574567	92.44082056	88.14201067	84.07469113	80.22517834	76.58066474
180615A00039	6/15/2018	3.49	6/15/2028	6/15/2018	111.09162	106.4778305	102.0858748	97.9038691	93.92063458	90.12564904	86.50900441	83.06136747	79.77394332
171228A00024	12/28/2017	2.71	6/28/2024	12/28/2017	100.62415	99.96852956	99.32143886	98.6827101	98.05218201	97.42969744	96.81510325	96.20825013	95.60899255
180618A00036	6/18/2018	3.89	6/18/2048	6/18/2018	139.66502	117.8141691	100.1954767	85.92599504	74.31460012	64.81913823	57.01335908	50.56135835	45.1977908
181029A00051	2/5/2019	3.69	2/5/2029	2/5/2019	113.38776	108.1096743	103.1148773	98.38658988	93.9091183	89.66777876	85.64882659	81.83939095	78.22741441
181031A00070	3/1/2019	3.77	3/1/2029	3/1/2019	113.94281	108.5827606	103.5137484	98.71842367	94.1805596	89.88497174	85.81744591	81.96467153	78.31417983
190621A00037	6/21/2019	2.21	5/15/2024	6/21/2019	100.28556	99.74798093	99.21615991	98.69000891	98.16943745	97.65435698	97.14468079	96.64032403	96.14120359
181206A00018	12/6/2018	3.13	12/6/2023	12/6/2018	100.16078	100.0610404	99.96150968	99.8621867	99.76307077	99.6641612	99.56545733	99.4669585	99.36866402
181220A00041	12/20/2018	3.36	12/18/2026	12/20/2018	106.86615	103.764654	100.7702952	97.87874556	95.08588187	92.3877726	89.78066744	87.26098778	84.82531767
190329A00012	3/29/2019	2.61	3/29/2024	3/29/2019	100.41637	100.0046236	99.59625362	99.19121406	98.78946437	98.39096459	97.99567542	97.60355818	97.21457482
160307A00029	3/7/2016	3.21	3/7/2031	3/7/2016	112.96911	105.7930959	99.13477647	92.95395508	87.21374935	81.8803059	76.92253741	72.31188377	68.02209489

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190815A00041	8/15/2019	1.86	8/15/2024	8/15/2019	100.10278	99.32201249	98.5533961	97.79664546	97.05148727	96.31765654	95.59489635	94.88295747	94.18159813
200131A00029	1/31/2020	1.78	10/31/2024	1/31/2020	100.14707	99.16367064	98.19949896	97.25399174	96.32661145	95.41684097	94.5241827	93.64815762	92.78830443
221017A00050	9/18/2023	4.59	9/30/2024	9/18/2023	102.69578	101.7809072	100.8823837	99.99976973	99.13264515	98.28060436	97.44325586	96.62022159	95.81113636
230719A00101	10/16/2023	4.65	10/17/2025	10/16/2023	106.45854	104.4971684	102.5823035	100.7125523	98.88657686	97.10308809	95.36084352	93.65864531	91.99533832
230802A00023	10/16/2023	4.37	10/16/2028	10/16/2023	116.09685	111.0435678	106.2471494	101.6931374	97.36796076	93.25887831	89.35392375	85.64185453	82.11210438
230920A00026	9/20/2023	4.9	9/16/2026	9/20/2023	110.64542	107.7337563	104.9154147	102.1869033	99.54487816	96.98613853	94.50761959	92.10638598	89.77962563
230920A00025	9/20/2023	5.14	9/16/2025	9/20/2023	107.06046	105.1756809	103.3338016	101.5335962	99.77387728	98.05349917	96.37135581	94.72637927	93.11753812
230921A00021	9/21/2023	4.62	9/21/2028	9/21/2023	117.72841	112.6822832	107.889402	103.3356822	99.00789556	94.89361267	90.98115113	87.25952672	83.7184082
230922A00032	9/22/2023	5.18	9/22/2025	9/22/2023	107.20699	105.3044751	103.4455955	101.6290942	99.85375449	98.11840295	96.42190699	94.76317336	93.14114651
230922A00025	9/22/2023	5.18	9/22/2025	9/22/2023	107.20699	105.3044751	103.4455955	101.6290942	99.85375449	98.11840295	96.42190699	94.76317336	93.14114651
230922A00022	9/22/2023	4.99	9/22/2026	9/22/2023	110.97011	108.0374262	105.1991882	102.4518467	99.7920013	97.21639803	94.72192178	92.30558976	89.96454505
230925A00080	9/25/2023	5.07	9/30/2025	9/25/2023	107.32452	105.3948546	103.5099821	101.6685893	99.86941382	98.11123818	96.39288811	94.71323057	93.07117204
230925A00003	9/25/2023	4.99	9/25/2026	9/25/2023	111.00376	108.0624254	105.216058	102.4610782	99.79405877	97.21172024	94.71092353	92.2886632	89.94206099
230925A00004	9/25/2023	4.74	9/25/2028	9/25/2023	117.72419	112.6865146	107.9016477	103.3555211	99.03492646	94.92745343	91.0214377	87.30591235	83.77056265
230925A00057	9/25/2023	5.19	9/30/2025	9/25/2023	107.3214	105.3960428	103.5152979	101.6778672	99.88249509	98.12797045	96.41312502	94.73683149	93.09800182
230925A00056	9/25/2023	5.19	9/25/2025	9/25/2023	107.26174	105.3505297	103.4833278	101.6588548	99.87587956	98.13321468	96.42971425	94.76427237	93.13582137
230925A00121	9/25/2023	5.2	9/25/2025	9/25/2023	107.28075	105.3693536	103.5019698	101.6773183	99.89416795	98.15133113	96.4476619	94.78205426	93.15344048
230926A00021	9/26/2023	4.73	9/26/2028	9/26/2023	117.68487	112.6454432	107.8590562	103.3116205	98.98990892	94.88149406	90.97469587	87.25853299	83.72267747
230926A00020	9/26/2023	5.2	9/26/2025	9/26/2023	107.29271	105.3784842	103.5083866	101.6811373	99.89550047	98.1502837	96.44433668	94.77654917	93.14584943
230926A00010	9/26/2023	4.74	9/26/2028	9/26/2023	117.73318	112.6925925	107.9050844	103.3565683	99.03381521	94.92439601	91.016629	87.29953126	83.76277336
230926A00076	9/26/2023	4.73	9/26/2028	9/26/2023	117.68487	112.6454432	107.8590562	103.3116205	98.98990892	94.88149406	90.97469587	87.25853299	83.72267747
230926A00048	9/26/2023	5.2	9/26/2025	9/26/2023	107.29271	105.3784842	103.5083866	101.6811373	99.89550047	98.1502837	96.44433668	94.77654917	93.14584943
230927A00034	9/27/2023	4.82	9/27/2028	9/27/2023	118.12889	113.0760659	108.2769386	103.7173814	99.38413008	95.26472267	91.34744693	87.62129147	84.07590028
230927A00008	9/27/2023	4.98	9/28/2026	9/27/2023	111.00849	108.0589277	105.204846	102.4426343	99.76883859	97.18015407	94.6734179	92.24560223	89.89380762
230927A00007	9/27/2023	5.19	9/29/2025	9/27/2023	107.30948	105.3869392	103.5088895	101.6740351	99.88112525	98.12895379	96.41635704	94.7422121	93.1054351
230927A00020	9/27/2023	5.01	10/16/2026	9/27/2023	111.29108	108.28983	105.3872198	102.5794578	99.86292179	97.23414891	94.68982736	92.22678906	89.84200254
230927A00021	9/27/2023	4.96	1/29/2027	9/27/2023	112.30132	109.0033602	105.8218319	102.7519076	99.78899086	96.92870621	94.16688649	91.49956156	88.92294748
230927A00031	9/27/2023	5.4	3/28/2025	9/27/2023	105.4426	104.0332699	102.6498154	101.2915839	99.95794448	98.6482867	97.36201998	96.09857275	94.85739162
230927A00032	9/27/2023	5.02	9/23/2026	9/27/2023	111.06769	108.1308663	105.2886934	102.5376101	99.87420632	97.29521853	94.79752281	92.37812796	90.03416917
230927A00033	9/27/2023	4.78	9/25/2028	9/27/2023	117.91733	112.8750114	108.0856647	103.5352211	99.21046473	95.09897839	91.18909122	87.46983006	83.93087429
230927A00006	9/27/2023	5.36	3/27/2025	9/27/2023	105.37467	103.9684691	102.5880433	101.2327451	99.90194697	98.59504169	97.31144173	96.05057843	94.81190123
230928A00016	9/28/2023	4.83	9/28/2028	9/28/2023	118.18646	113.1295449	108.3266443	103.763607	99.42714645	95.30477988	91.38477601	87.65610587	84.10839721
230928A00033	9/28/2023	5.03	9/28/2026	9/28/2023	111.1531	108.201425	105.3452837	102.5810622	99.90530515	97.31470608	94.80610068	92.37645965	90.02288222

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230928A00064	9/28/2023	4.78	9/30/2027	9/28/2023	114.83325	110.8145355	106.9627203	103.2699788	99.72889062	96.33242063	93.07389687	89.94698993	86.9456935
230928A00017	9/28/2023	4.83	9/28/2028	9/28/2023	118.18646	113.1295449	108.3266443	103.763607	99.42714645	95.30477988	91.38477601	87.65610587	84.10839721
230928A00001	9/28/2023	4.91	9/28/2026	9/28/2023	111.16556	108.2055467	105.3415026	102.5697965	99.88695154	97.28964121	94.77468221	92.33902728	89.97975861
230928A00047	9/28/2023	5.21	9/29/2025	9/28/2023	107.34772	105.4247994	103.5463819	101.7111667	99.91790278	98.16538378	96.45244584	94.77796589	93.14085991
230928A00014	9/28/2023	4.9	9/28/2027	9/28/2023	114.7853	110.7861553	106.9525661	103.2767901	99.75148707	96.36969721	93.12481876	90.01058792	87.02105976
230929A00031	9/29/2023	5.14	9/29/2025	9/29/2023	107.21389	105.2922889	103.4151585	101.581206	99.78918142	98.03787883	96.32613506	94.65282763	93.01687309
230929A00033	9/29/2023	4.92	9/29/2026	9/29/2023	110.84598	107.8960733	105.0417654	102.2794328	99.60561445	97.01699869	94.51041636	92.08283362	89.73134547
230929A00059	9/29/2023	5.14	9/29/2025	9/29/2023	107.21389	105.2922889	103.4151585	101.581206	99.78918142	98.03787883	96.32613506	94.65282763	93.01687309
230929A00062	9/29/2023	4.78	9/29/2027	9/29/2023	114.33187	110.3387993	106.5112379	102.8414369	99.32205186	95.94611915	92.70703369	89.59852881	86.61465712
230929A00061	9/29/2023	4.92	9/29/2026	9/29/2023	110.84598	107.8960733	105.0417654	102.2794328	99.60561445	97.01699869	94.51041636	92.08283362	89.73134547
230929A00046	9/29/2023	4.66	9/29/2027	9/29/2023	114.35677	110.3500191	106.5096694	102.8279138	99.29735677	95.91098664	92.66215353	89.54454878	86.55218566
230929A00018	9/29/2023	5.14	9/29/2025	9/29/2023	107.21389	105.2922889	103.4151585	101.581206	99.78918142	98.03787883	96.32613506	94.65282763	93.01687309
231002A00018	10/2/2023	4.87	10/1/2027	10/2/2023	114.70151	110.6959417	106.8565354	103.1755068	99.64547504	96.25944205	93.01077076	89.89316451	86.90064779
231002A00042	10/2/2023	4.73	10/2/2028	10/2/2023	118.3614	113.270256	108.4358668	103.8438767	99.48080844	95.33400377	91.39156894	87.6423249	84.07576071
231003A00011	10/3/2023	4.89	10/15/2027	10/3/2023	114.92647	110.8796397	107.0021491	103.2859894	99.72357472	96.30771616	93.03159924	89.88876223	86.87307603
231003A00036	10/3/2023	4.84	10/3/2028	10/3/2023	118.27933	113.2069367	108.3899556	103.8141282	99.46606285	95.33318048	91.40366104	87.66639393	84.11093184
231003A00005	10/3/2023	4.84	10/3/2028	10/3/2023	118.27933	113.2069367	108.3899556	103.8141282	99.46606285	95.33318048	91.40366104	87.66639393	84.11093184
230913A00049	9/13/2023	4.74	9/13/2027	9/13/2023	114.00812	110.0647374	106.2831839	102.6559577	99.17594579	95.83639976	92.63091536	89.55341309	86.59812007
230913A00046	9/13/2023	4.91	9/14/2026	9/13/2023	110.65202	107.7456987	104.9323681	102.2085523	99.57092509	97.01630204	94.54163384	92.14399978	89.82060155
230913A00050	9/13/2023	4.6	9/13/2028	9/13/2023	116.94469	111.958092	107.2204327	102.7179438	98.43768651	94.36749966	90.49594867	86.81227871	83.30637091
230914A00021	9/14/2023	5.49	9/13/2024	9/14/2023	103.32831	102.4557141	101.5979342	100.7545979	99.92534162	99.10981408	98.30767551	97.51859729	96.74226149
230914A00031	9/14/2023	5.08	9/15/2025	9/14/2023	106.93623	105.0553617	103.2172582	101.4206941	99.66448748	97.9474976	96.26862326	94.62680115	93.02100426
230914A00027	9/14/2023	4.76	1/8/2027	9/14/2023	111.43817	108.2095228	105.0933433	102.0850352	99.18022002	96.374726	93.66457678	91.04598083	88.51532155
230914A00050	9/14/2023	4.67	9/14/2027	9/14/2023	113.75057	109.8094174	106.0301568	102.4052817	98.9276707	95.59056778	92.38756159	89.31256622	86.35980289
230914A00051	9/14/2023	4.84	9/14/2026	9/14/2023	110.4522	107.5487577	104.7382383	102.0171661	99.38221715	96.83020899	94.35809437	91.96295448	89.64199287
230915A00055	9/15/2023	4.7	9/15/2027	9/15/2023	113.87593	109.9296524	106.1455608	102.516127	99.03421305	95.69304732	92.48620404	89.40758371	86.45139487
230915A00054	9/15/2023	4.88	9/15/2026	9/15/2023	110.5773	107.6693391	104.8545083	102.1293258	99.49045721	96.93471074	94.45903006	92.06048782	89.73627949
230915A00028	9/15/2023	4.57	9/15/2028	9/15/2023	116.81787	111.828915	107.0893209	102.5852759	98.30380644	94.23271884	90.36054912	86.67651544	83.17047417
230915A00030	9/15/2023	4.7	9/8/2027	9/15/2023	113.80276	109.8768935	106.1116571	102.4996248	99.03375712	95.70737424	92.51413589	89.44802233	86.50331643
230915A00023	9/15/2023	4.7	9/15/2027	9/15/2023	113.87593	109.9296524	106.1455608	102.516127	99.03421305	95.69304732	92.48620404	89.40758371	86.45139487
230915A00026	9/15/2023	4.57	9/15/2028	9/15/2023	116.81787	111.828915	107.0893209	102.5852759	98.30380644	94.23271884	90.36054912	86.67651544	83.17047417
230915A00018	9/15/2023	4.88	9/15/2026	9/15/2023	110.5773	107.6693391	104.8545083	102.1293258	99.49045721	96.93471074	94.45903006	92.06048782	89.73627949
230918A00011	9/18/2023	4.91	9/18/2026	9/18/2023	110.69602	107.7781881	104.954031	102.220039	99.57285044	97.00924727	94.52614858	92.12060381	89.78978652

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230918A00027	9/18/2023	5.11	9/30/2025	9/18/2023	107.16825	105.24439	103.3651196	101.5291357	99.73518337	97.98205226	96.2685748	94.5936244	92.95611367
230918A00023	9/18/2023	4.91	9/18/2026	9/18/2023	110.69602	107.7781881	104.954031	102.220039	99.57285044	97.00924727	94.52614858	92.12060381	89.78978652
230918A00062	9/18/2023	5.52	9/18/2024	9/18/2023	103.41053	102.5241907	101.6531333	100.7969621	99.95529704	99.12777073	98.31402816	97.51372616	96.72653284
231004A00012	10/5/2023	5.51	10/4/2024	10/5/2023	103.59786	102.6677167	101.7543691	100.8573635	99.97626324	99.1106471	98.26010861	97.42425544	96.6027088
231004A00006	10/4/2023	4.88	10/4/2028	10/4/2023	118.48212	113.4021934	108.5781291	103.995631	99.64127926	95.502469	91.56735614	87.8248078	84.26435606
231004A00016	10/4/2023	5.36	4/4/2025	10/4/2023	105.46845	104.040192	102.6384784	101.2626358	99.91200913	98.58596511	97.28389124	96.00519496	94.74930282
230918A00008	9/18/2023	4.91	9/18/2026	9/18/2023	110.69602	107.7781881	104.954031	102.220039	99.57285044	97.00924727	94.52614858	92.12060381	89.78978652
230918A00088	9/18/2023	5.53	9/18/2024	9/18/2023	103.41943	102.5330465	101.6619467	100.8057336	99.96402716	99.13645994	98.32267696	97.522335	96.7351022
230918A00018	9/18/2023	5.01	3/18/2026	9/18/2023	108.90667	106.5062305	104.1717491	101.9010453	99.69202501	97.54267493	95.45105933	93.41531646	91.43365524
230919A00055	9/19/2023	4.65	9/19/2028	9/19/2023	117.23707	112.2272941	107.4682987	102.9461734	98.64784892	94.56104318	90.67421042	86.97649317	83.45767788
230919A00047	9/19/2023	4.98	8/19/2026	9/19/2023	110.56303	107.7280195	104.9816971	102.3207738	99.7421031	97.24267456	94.81960633	92.47013904	90.19162976
230919A00010	9/19/2023	4.76	9/20/2027	9/19/2023	114.15896	110.193662	106.3918014	102.7457706	99.24835573	95.89271447	92.67235503	89.58111629	86.61314922
230919A00029	9/19/2023	4.63	9/19/2028	9/19/2023	117.14081	112.1333468	107.376577	102.8565968	98.56034039	94.47552918	90.59062062	86.89476036	83.37773773
231004A00011	10/5/2023	5.51	10/4/2024	10/5/2023	103.59786	102.6677167	101.7543691	100.8573635	99.97626324	99.1106471	98.26010861	97.42425544	96.6027088
231005A00035	10/5/2023	4.98	10/5/2026	10/5/2023	111.08459	108.1153273	105.2427636	102.4632158	99.77316541	97.1692469	94.64824024	92.20706367	89.84276705
231005A00039	10/5/2023	5.16	10/6/2025	10/5/2023	107.33257	105.3913135	103.4953962	101.6434837	99.83428991	98.06657488	96.33914294	94.65084066	93.00055514
231005A00037	10/5/2023	4.88	10/5/2027	10/5/2023	114.78229	110.7646044	106.9140011	103.2226263	99.68304043	96.28819101	93.03139013	89.9062939	86.90688281
231005A00054	10/5/2023	4.98	10/5/2026	10/5/2023	111.08459	108.1153273	105.2427636	102.4632158	99.77316541	97.1692469	94.64824024	92.20706367	89.84276705
231005A00003	10/5/2023	5.14	10/6/2025	10/5/2023	107.29396	105.3530823	103.4575398	101.6059951	99.79716217	98.02980132	96.30271703	94.61475607	92.96480571
231005A00040	10/5/2023	4.98	10/5/2026	10/5/2023	111.08459	108.1153273	105.2427636	102.4632158	99.77316541	97.1692469	94.64824024	92.20706367	89.84276705
231006A00032	10/6/2023	5.08	10/6/2026	10/6/2023	111.3867	108.4103667	105.5310065	102.7449274	100.0485983	97.43864165	94.91182627	92.46505976	90.09538187
231006A00033	10/6/2023	4.98	10/6/2027	10/6/2023	115.18165	111.1535593	107.2929982	103.5920963	100.043391	96.63980793	93.37463894	90.24152097	87.23441653
231006A00015	10/6/2023	5.38	4/7/2025	10/6/2023	105.53303	104.0961443	102.6861118	101.3022432	99.94387271	98.61035654	97.30107217	96.01541749	94.75280987
231006A00009	10/6/2023	4.98	10/15/2027	10/6/2023	115.2786	111.2248708	107.3406926	103.6180498	100.0493482	96.62739164	93.34535835	90.19677974	87.17552014
231006A00010	10/6/2023	4.93	10/16/2028	10/6/2023	118.83185	113.7119787	108.8514373	104.2356528	99.85094775	95.68448026	91.72418848	87.95873927	84.37748045
231010A00075	10/10/2023	4.78	10/10/2028	10/10/2023	118.04807	112.9629517	108.134882	103.5494509	99.19313391	95.05323008	91.11780784	87.37565444	83.81622904
231010A00007	10/10/2023	4.83	10/12/2027	10/10/2023	114.6606	110.6268631	106.7616554	103.0570181	99.50541414	96.0997005	92.83310534	89.69920672	86.69191267
231010A00101	10/10/2023	4.78	10/10/2028	10/10/2023	118.04807	112.9629517	108.134882	103.5494509	99.19313391	95.05323008	91.11780784	87.37565444	83.81622904
231010A00057	10/10/2023	4.66	10/10/2028	10/10/2023	118.08964	112.9840109	108.1370061	103.5341052	99.16167814	95.00692634	91.05782776	87.3030858	83.73208191
231010A00076	10/10/2023	4.66	10/10/2028	10/10/2023	118.08964	112.9840109	108.1370061	103.5341052	99.16167814	95.00692634	91.05782776	87.3030858	83.73208191
231010A00031	10/10/2023	5.08	10/10/2025	10/10/2023	107.22299	105.2723069	103.3674292	101.5069972	99.68970514	97.91429418	96.17955074	94.4843044	92.82742604
231010A00068	10/10/2023	4.83	10/8/2027	10/10/2023	114.61911	110.596704	106.7419343	103.0469038	99.50413389	96.10653554	92.84738722	89.7203138	86.71926682
231010A00067	10/10/2023	4.93	10/9/2026	10/10/2023	110.98151	108.0032476	105.1223179	102.335006	99.63775795	97.02717485	94.50000537	92.05313831	89.68359582

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
231010A00030	10/10/2023	4.88	10/15/2026	10/10/2023	110.89834	107.9055405	105.0110678	102.2111433	99.50215883	96.88066442	94.34336069	91.88709131	89.5088359
231011A00016	10/11/2023	4.75	10/11/2028	10/11/2023	117.91048	112.8260878	107.9988847	103.4144433	99.05922368	94.92051148	90.98636275	87.24555357	83.68753293
231011A00004	10/11/2023	4.81	10/8/2027	10/11/2023	114.54123	110.520344	106.6670465	102.9734436	99.43205805	96.03580267	92.77795748	89.65214883	86.65232971
231011A00028	10/11/2023	4.92	10/9/2026	10/11/2023	110.9523	107.9744618	105.0939523	102.3070503	99.6102022	97.00000945	94.47322101	92.02672599	89.6575468
231011A00029	10/11/2023	4.81	10/8/2027	10/11/2023	114.54123	110.520344	106.6670465	102.9734436	99.43205805	96.03580267	92.77795748	89.65214883	86.65232971
231011A00030	10/11/2023	4.75	10/11/2028	10/11/2023	117.91048	112.8260878	107.9988847	103.4144433	99.05922368	94.92051148	90.98636275	87.24555357	83.68753293
231012A00027	10/12/2023	4.78	10/16/2028	10/12/2023	118.09926	112.9972258	108.1538602	103.5546219	99.18586195	95.03476545	91.08929614	87.33814514	83.77068329
231013A00017	10/13/2023	5.13	10/14/2025	10/13/2023	107.36547	105.4028683	103.4865786	101.6152242	99.78747779	98.00206055	96.25773959	94.55332617	92.88767374
231013A00020	10/13/2023	4.98	10/13/2026	10/13/2023	111.17061	108.1790315	105.2855397	102.4863723	99.77793611	97.1567957	94.61966511	92.1634006	89.7849936
231016A00016	10/16/2023	5.01	10/16/2026	10/16/2023	111.29108	108.28983	105.3872198	102.5794578	99.86292179	97.23414891	94.68982736	92.22678906	89.84200254
231017A00046	10/17/2023	5.26	10/17/2025	10/17/2023	107.65438	105.6810043	103.7543595	101.8730527	100.0357397	98.24112526	96.48796127	94.77504427	93.10121373
231017A00017	10/17/2023	5.11	10/16/2026	10/17/2023	111.58512	108.5795105	105.6726454	102.8607329	100.1401476	97.50742321	94.95924481	92.49244133	90.1039784
231017A00008	10/17/2023	5.26	10/17/2025	10/17/2023	107.65438	105.6810043	103.7543595	101.8730527	100.0357397	98.24112526	96.48796127	94.77504427	93.10121373
231018A00026	10/18/2023	5.28	1/7/2026	10/18/2023	108.68373	106.4791477	104.3308576	102.2370222	100.1958764	98.20572678	96.2649484	94.3719811	92.52532643
231019A00036	10/19/2023	5.27	10/20/2025	10/19/2023	107.70918	105.7273704	103.7926694	101.9036666	100.0590018	98.25736499	96.49749342	94.77817006	93.09822138
231019A00006	10/19/2023	5.29	10/20/2025	10/19/2023	107.74855	105.7663437	103.8312534	101.9418687	100.0968293	98.29482474	96.53459235	94.8149148	93.1346184
231019A00007	10/19/2023	5.19	10/19/2026	10/19/2023	111.85431	108.8367921	105.9186367	103.0960127	100.3652636	97.72289399	95.16556138	92.69006871	90.29335712
231019A00009	10/19/2023	5.14	10/19/2027	10/19/2023	115.9494	111.8719537	107.9653365	104.2214572	100.6326489	97.19164721	93.89156662	90.72587905	87.68839315
231019A00041	10/19/2023	5.08	10/19/2028	10/19/2023	119.59241	114.4461291	109.5606617	104.9213321	100.5143717	96.32685411	92.34663905	88.56232065	84.96317916
231019A00043	10/19/2023	5.19	10/19/2026	10/19/2023	111.85431	108.8367921	105.9186367	103.0960127	100.3652636	97.72289399	95.16556138	92.69006871	90.29335712
231019A00044	10/19/2023	5.14	10/19/2027	10/19/2023	115.9494	111.8719537	107.9653365	104.2214572	100.6326489	97.19164721	93.89156662	90.72587905	87.68839315
231020A00049	10/20/2023	5.03	10/20/2027	10/20/2023	115.52876	111.4569337	107.5559077	103.8175778	100.2342721	96.79872165	93.50403727	90.34368743	87.3114779
231020A00048	10/20/2023	5.08	10/20/2026	10/20/2023	111.54099	108.5255112	105.6094414	102.7889523	100.0603817	97.42022892	94.86514655	92.39193305	89.99752536
231020A00051	10/20/2023	5.02	10/20/2028	10/20/2023	119.30806	114.1660939	109.2849431	104.6499274	100.2472689	96.06403262	92.08807112	88.30797206	84.71301011
231020A00069	10/20/2023	5.08	10/15/2026	10/20/2023	111.48589	108.4843809	105.5814135	102.7732028	100.0561338	97.42675002	94.88174583	92.41795889	90.03236304
231020A00070	10/20/2023	5.19	10/15/2025	10/20/2023	107.49412	105.5276072	103.6075498	101.7325678	99.90132803	98.11254617	96.36498404	94.65744787	92.9887863
231020A00067	10/20/2023	5.32	4/15/2025	10/20/2023	105.54145	104.0828082	102.6518198	101.2477622	99.86994044	98.51768306	97.19034103	95.88728686	94.60791372
231020A00041	10/20/2023	5.19	10/20/2025	10/20/2023	107.5517	105.5714771	103.6383335	101.7508582	99.9076922	98.10752598	96.34909773	94.63119111	92.95263331
231020A00061	10/20/2023	5.32	4/21/2025	10/20/2023	105.61245	104.137024	102.6898584	101.2702124	99.87736861	98.51063417	97.16933966	95.85283809	94.56050399
231023A00048	10/23/2023	5.04	10/25/2027	10/23/2023	115.62268	111.5358242	107.6209219	103.8697889	100.2746785	96.82825224	93.52355623	90.35399882	87.31332982
231023A00029	10/23/2023	5.19	10/23/2025	10/23/2023	107.58625	105.5978028	103.6568116	101.7618462	99.91153144	98.10454292	96.33960445	94.61548604	92.93100193
231023A00028	10/23/2023	5.33	4/23/2025	10/23/2023	105.65093	104.1697942	102.7171272	101.2921789	99.89422446	98.52256379	97.17652053	95.85544109	94.55869368
231024A00076	10/24/2023	5.31	4/24/2025	10/24/2023	105.63312	104.1494138	102.6942772	101.2669544	99.86671674	98.49286071	97.14470657	95.82159755	94.52289878

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
231024A00046	10/24/2023	4.96	10/24/2028	10/24/2023	119.05043	113.9042624	109.0197429	104.3821057	99.97750059	95.79292692	91.81617688	88.03578321	84.44097041
231024A00008	10/30/2023	5.5	10/30/2024	10/30/2023	103.88404	102.8831551	101.9016711	100.9390238	99.99467365	99.06810151	98.15880778	97.26631144	96.39014916
231024A00029	10/24/2023	4.97	10/25/2027	10/24/2023	115.34693	111.2655211	107.3558892	103.6098648	100.0197074	96.57808451	93.27804806	90.11301184	87.07673087
231024A00030	10/24/2023	4.96	10/24/2028	10/24/2023	119.05043	113.9042624	109.0197429	104.3821057	99.97750059	95.79292692	91.81617688	88.03578321	84.44097041
231024A00017	10/24/2023	4.97	10/25/2027	10/24/2023	115.34693	111.2655211	107.3558892	103.6098648	100.0197074	96.57808451	93.27804806	90.11301184	87.07673087
231024A00039	10/24/2023	5.06	10/26/2026	10/24/2023	111.54778	108.5164214	105.5855069	102.7511444	100.0096153	97.35736606	94.79099959	92.30726754	89.90306286
231024A00079	10/24/2023	5.18	10/24/2025	10/24/2023	107.57797	105.5869859	103.6435763	101.7463081	99.89380097	98.08472549	96.3178008	94.59179247	92.90551047
231024A00082	10/24/2023	5.05	10/23/2026	10/24/2023	111.48528	108.4627424	105.5401079	102.7135181	99.97928326	97.333877	94.7739278	92.29621134	89.89764321
231024A00007	10/30/2023	5.5	10/30/2024	10/30/2023	103.88404	102.8831551	101.9016711	100.9390238	99.99467365	99.06810151	98.15880778	97.26631144	96.39014916
231025A00013	10/25/2023	5.08	10/26/2026	10/25/2023	111.60713	108.5748782	105.6430975	102.8078903	100.0655372	97.412484	94.84533295	92.36083509	89.95588278
231025A00018	10/25/2023	5.19	10/27/2025	10/25/2023	107.63231	105.6329079	103.6814583	101.7765127	99.91667461	98.1005994	96.32699163	94.59460306	92.90223051
231025A00024	10/25/2023	5	10/25/2028	10/25/2023	119.25574	114.1019336	109.2102247	104.5658187	100.1548367	95.96425139	91.98183045	88.1960838	84.59621483
231025A00004	10/25/2023	5.07	10/24/2025	10/25/2023	107.60122	105.6055184	103.6575791	101.755963	99.89928256	98.08620116	96.31543118	94.58573175	92.89590672
231025A00003	10/25/2023	5.07	10/24/2025	10/25/2023	107.60122	105.6055184	103.6575791	101.755963	99.89928256	98.08620116	96.31543118	94.58573175	92.89590672
231025A00036	10/25/2023	5.08	10/21/2026	10/25/2023	111.55202	108.5337382	105.615049	102.7921057	100.0612366	97.41893201	94.86183629	92.38673998	89.99057261
231025A00068	10/25/2023	5.33	4/25/2025	10/25/2023	105.67465	104.1879235	102.7298678	101.2997287	99.89677371	98.52029556	97.16961098	95.84405979	94.54300389
231027A00021	10/27/2023	5.13	10/30/2025	10/27/2023	107.54711	105.5407127	103.5826283	101.6713874	99.80557799	97.98384056	96.20486561	94.46739151	92.77020236
231027A00036	10/27/2023	5.13	11/3/2025	10/27/2023	107.59428	105.5765159	103.6075204	101.6858015	99.80992773	97.97852081	96.19025363	94.44384778	92.73807149
231027A00035	10/27/2023	4.99	10/30/2026	10/27/2023	111.38317	108.3437815	105.4054684	102.5642979	99.81651561	97.1585341	94.58692463	92.09840911	89.68985252
231027A00043	10/27/2023	4.99	10/27/2026	10/27/2023	111.35085	108.3198175	105.389324	102.5554732	99.81453945	97.16296254	94.59733924	92.11441544	89.71107873
231027A00019	10/27/2023	4.99	10/27/2026	10/27/2023	111.35085	108.3198175	105.389324	102.5554732	99.81453945	97.16296254	94.59733924	92.11441544	89.71107873
231030A00061	10/30/2023	5.32	4/30/2025	10/30/2023	105.71894	104.218362	102.7469758	101.3040053	99.88869845	98.50032967	97.13819811	95.80162678	94.48996153
231030A00035	10/30/2023	4.85	10/30/2028	10/30/2023	119.19875	114.0133455	109.0929029	104.4224019	99.98775428	95.77574015	91.77394972	87.97072951	84.35513229
231030A00007	10/30/2023	5.32	4/30/2025	10/30/2023	105.71894	104.218362	102.7469758	101.3040053	99.88869845	98.50032967	97.13819811	95.80162678	94.48996153
141117A00011	11/17/2014	3.81	11/17/2034	11/17/2014	122.66651	111.886915	102.2046244	93.50033975	85.66837392	78.61503114	72.25718882	66.52105336	61.34106814
231031A00022	10/31/2023	5.04	10/30/2026	10/31/2023	111.53207	108.4904438	105.5499504	102.7066536	99.95679734	97.29679244	94.72320853	92.23276594	89.82232817
231031A00021	10/31/2023	5.18	10/30/2025	10/31/2023	107.64688	105.639471	103.6803876	101.7681668	99.90139627	98.07871584	96.29881557	94.56043333	92.86235276
231031A00033	10/31/2023	5.05	10/30/2026	10/31/2023	111.56185	108.5197763	105.5788468	102.7351248	99.98485369	97.32444411	94.75046531	92.25963731	89.8488233
230919A00082	9/19/2023	5.17	9/19/2025	9/19/2023	107.15241	105.2585822	103.4080252	101.599497	99.83179546	98.103761	96.41427424	94.76225454	93.14665838
230920A00002	9/20/2023	4.47	10/2/2028	9/20/2023	117.09743	112.0368967	107.2319877	102.6684021	98.33271122	94.2123026	90.29532612	86.57064404	83.02778459
201007A00008	10/7/2020	1.22	10/7/2030	10/7/2020	99.314083	93.78233078	88.62111674	83.80320323	79.30350421	75.09890424	71.16809356	67.49141782	64.05074108
201007A00014	10/7/2020	0.8	10/7/2025	10/7/2020	98.935912	97.07424417	95.25769491	93.48488198	91.75447532	90.0651948	88.41580798	86.80512793	85.23201122
201007A00010	10/7/2020	1.22	10/7/2030	10/7/2020	99.314083	93.78233078	88.62111674	83.80320323	79.30350421	75.09890424	71.16809356	67.49141782	64.05074108

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201015A00020	10/15/2020	0.94	10/15/2027	10/15/2020	99.465173	95.88948053	92.46616568	89.18788863	86.0477044	83.03903888	80.15566698	77.39169207	74.74152683
200605A00017	6/5/2020	1.02	6/5/2025	6/5/2020	99.30853	97.72792663	96.18017363	94.66430657	93.17939845	91.72455833	90.29892956	88.90168806	87.53204079
200605A00016	6/5/2020	1.02	6/5/2025	6/5/2020	99.30853	97.72792663	96.18017363	94.66430657	93.17939845	91.72455833	90.29892956	88.90168806	87.53204079
200605A00014	6/5/2020	1.02	6/5/2025	6/5/2020	99.30853	97.72792663	96.18017363	94.66430657	93.17939845	91.72455833	90.29892956	88.90168806	87.53204079
200709A00021	7/9/2020	0.83	7/9/2025	7/9/2020	98.993147	97.33213464	95.70713495	94.11707918	92.56094042	91.03773147	89.54650294	88.08634137	86.65636752
200709A00025	7/9/2020	1.37	7/9/2030	7/9/2020	100.30218	94.70624418	89.47819021	84.59157452	80.02200053	75.7469468	71.74561309	67.9987798	64.48867972
201109A00012	11/9/2020	1.39	11/8/2030	11/9/2020	100.24631	94.425114	89.00260235	83.94898453	79.23686079	74.84101378	70.7382235	66.90709895	63.32792474
200813A00020	8/13/2020	1.44	8/13/2030	8/13/2020	100.66311	94.98481899	89.68432678	84.73421058	80.10917784	75.78589296	71.74281635	67.96005746	64.41924052
200813A00023	8/13/2020	0.86	10/14/2025	8/13/2020	99.050017	97.15418951	95.30465845	93.49999349	91.73881893	90.01981125	88.34169666	86.70324891	85.10328707
200813A00019	8/13/2020	1.44	8/13/2030	8/13/2020	100.66311	94.98481899	89.68432678	84.73421058	80.10917784	75.78589296	71.74281635	67.96005746	64.41924052
211007A00006	10/7/2021	1.28	10/7/2026	10/7/2021	100.29229	97.55703536	94.91302267	92.35668367	89.88461395	87.49356158	85.18041932	82.94221728	80.77611598
211014A00012	10/14/2021	1.46	10/14/2031	10/14/2021	101.31058	97.4129603	93.7320865	90.2536349	86.96434867	83.85194702	80.90504655	78.11308935	75.46627737
200911A00011	9/11/2020	1.18	9/11/2030	9/11/2020	99.060755	93.40301899	88.12588052	83.20141707	78.60390134	74.30961747	70.2966938	66.54495045	63.03576007
200911A00012	9/11/2020	1.18	9/11/2030	9/11/2020	99.060755	93.40301899	88.12588052	83.20141707	78.60390134	74.30961747	70.2966938	66.54495045	63.03576007
200911A00013	9/11/2020	0.69	9/11/2025	9/11/2020	98.728489	96.91845451	95.1510342	93.4249654	91.73903115	90.0920585	88.48291658	86.91051482	85.3738012
220111A00005	1/11/2022	1.54	1/10/2025	1/11/2022	99.903984	98.68391894	97.49023094	96.3220627	95.17859393	94.05903957	92.96264795	91.88869895	90.83650237
201211A00001	12/11/2020	0.95	12/11/2030	12/11/2020	98.463358	93.14911306	88.19040836	83.56088729	79.23630368	75.19434112	71.41444874	67.87769181	64.56661579
210107A00007	1/7/2021	0.84	1/7/2026	1/7/2021	99.020804	96.92106014	94.87671398	92.88592302	90.94692064	89.05801256	87.21757328	85.42404266	83.67592272
210201A00002	2/1/2021	1.19	2/1/2036	2/1/2021	98.449007	92.79623974	87.60104265	82.82025366	78.41519876	74.35119054	70.59708581	67.12489538	63.90943942
210809A00010	8/9/2021	1.06	8/7/2026	8/9/2021	99.642805	97.05911463	94.55743616	92.13472521	89.78806736	87.51467175	85.3118651	83.17708615	81.10788029
211110A00012	11/10/2021	1.44	11/10/2026	11/10/2021	100.79922	97.97735852	95.25160267	92.61811081	90.07321894	87.61343168	85.23541341	82.93597983	80.71209015
211110A00014	11/10/2021	1.44	11/10/2026	11/10/2021	100.79922	97.97735852	95.25160267	92.61811081	90.07321894	87.61343168	85.23541341	82.93597983	80.71209015
211110A00013	11/10/2021	1.44	11/10/2026	11/10/2021	100.79922	97.97735852	95.25160267	92.61811081	90.07321894	87.61343168	85.23541341	82.93597983	80.71209015
220411A00008	4/11/2022	3.02	4/12/2027	4/11/2022	106.70752	103.3898923	100.1977588	97.12565576	94.16838778	91.32101411	88.57883488	85.93737787	83.39238612
210915A00027	9/15/2021	1.1	9/15/2026	9/15/2021	99.770824	97.09839154	94.51356056	92.0129706	89.59341	87.25180806	84.98522796	82.79086014	80.66601604
210921A00006	9/21/2021	1.43	9/21/2028	9/21/2021	101.5704	97.1935757	93.03881596	89.09362007	85.34625266	81.78569688	78.40160669	75.18426254	72.12453021
210921A00009	9/21/2021	1.28	9/21/2028	9/21/2021	101.42387	97.04019306	92.87934633	88.92876365	85.17665125	81.61193862	78.22423035	75.00376154	71.94135626
220520A00006	5/20/2022	3.02	5/20/2027	5/20/2022	106.77046	103.4297295	100.2173279	97.12755299	94.15499317	91.29450904	88.54121773	85.89047847	83.33787905
211208A00012	12/8/2021	1.62	12/8/2026	12/8/2021	101.37914	98.47964989	95.68076182	92.97837155	90.36857002	87.84763249	85.41200846	83.05831228	80.7833143
220617A00030	6/17/2022	3.43	6/17/2025	6/17/2022	101.63341	100.7604821	99.90315401	99.06099984	98.23360778	97.42058129	96.62153838	95.83611096	95.06394417
220617A00061	6/17/2022	3.26	6/17/2024	6/17/2022	100.58103	100.2093702	99.8411122	99.47620194	99.11458896	98.75622388	98.40105834	98.049045	97.7001375
220916A00018	9/16/2022	4.07	9/16/2027	9/16/2022	110.37586	106.8268905	103.4218121	100.1539217	97.0168696	94.00463573	91.11151075	88.33207823	85.66119797
220919A00036	9/19/2022	4.11	9/19/2029	9/19/2022	115.9787	110.2870299	104.928981	99.88298656	95.12898647	90.6483166	86.42360474	82.43867459	78.67845736

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221017A00055	10/17/2022	4.88	11/18/2024	10/17/2022	101.90955	101.3228502	100.7447047	100.17491	99.61326557	99.05957769	98.51365907	97.97532863	97.44441119
221123A00016	11/23/2022	4.58	11/23/2029	11/23/2022	118.9979	113.0437666	107.4463336	102.1820116	97.22890501	92.56667843	88.17643722	84.04061762	80.14288593
230125A00031	1/25/2023	3.74	1/25/2028	1/25/2023	110.47734	106.6398795	102.9695607	99.45808972	96.09763372	92.88078931	89.80055686	86.85031621	84.02380408
221222A00053	12/22/2022	4.18	12/22/2027	12/22/2022	111.99932	108.048739	104.2690192	100.6517149	97.18885319	93.87290138	90.69673999	87.65363743	84.73722635
221201A00068	12/1/2022	4.21	12/1/2027	12/1/2022	111.44299	107.7017203	104.1182761	100.6850057	97.39467313	94.24043545	91.21581865	88.3146955	85.53126485
230302A00047	3/2/2023	4.76	3/2/2028	3/2/2023	114.28084	110.2646005	106.4261068	102.7563994	99.24702359	95.88999491	92.67777057	89.60322266	86.65961306
230607A00020	6/7/2023	4.28	6/7/2028	6/7/2023	114.01381	109.5237697	105.247051	101.1722391	97.28859679	93.58602037	90.05499824	86.68657277	83.47230476
230110A00035	1/10/2023	4.08	1/10/2028	1/10/2023	112.04604	107.9609193	104.0557769	100.3216208	96.74996406	93.33278998	90.06252363	86.93200467	83.93446228
230328A00037	3/28/2023	4.21	3/28/2028	3/28/2023	113.17866	108.8780475	104.7752429	100.860006	97.12267862	93.55415265	90.14583542	86.88961786	83.77784471
230328A00052	3/28/2023	4.53	3/28/2033	3/28/2023	124.33035	115.8393615	108.0677051	100.9485153	94.42154979	88.43250012	82.93237573	77.87695472	73.22629422
230328A00045	3/28/2023	4.21	3/28/2028	3/28/2023	113.17866	108.8780475	104.7752429	100.860006	97.12267862	93.55415265	90.14583542	86.88961786	83.77784471
230328A00047	3/28/2023	4.21	3/28/2028	3/28/2023	113.17866	108.8780475	104.7752429	100.860006	97.12267862	93.55415265	90.14583542	86.88961786	83.77784471
230328A00051	3/28/2023	4.53	3/28/2033	3/28/2023	124.33035	115.8393615	108.0677051	100.9485153	94.42154979	88.43250012	82.93237573	77.87695472	73.22629422
230629A00094	6/29/2023	4.41	6/29/2028	6/29/2023	115.00264	110.3665838	105.9540783	101.7530083	97.7519842	93.94029714	90.30787391	86.84523551	83.54345846
230629A00097	6/29/2023	4.41	6/29/2028	6/29/2023	115.00264	110.3665838	105.9540783	101.7530083	97.7519842	93.94029714	90.30787391	86.84523551	83.54345846
230629A00071	6/29/2023	4.41	6/29/2028	6/29/2023	115.00264	110.3665838	105.9540783	101.7530083	97.7519842	93.94029714	90.30787391	86.84523551	83.54345846
230113A00057	1/13/2023	3.99	1/13/2028	1/13/2023	110.89605	107.0810251	103.4307101	99.93696975	96.59211714	93.388888	90.32041501	87.38020374	84.56211017
161222A00036	12/22/2016	2.69	12/22/2026	12/22/2016	102.1887	100.5940389	99.04061177	97.52701996	96.05191995	94.61402394	93.21209707	91.84495489	90.51146084
161222A00037	12/22/2016	3.08	12/22/2031	12/22/2016	107.35944	103.3159553	99.49684498	95.88721971	92.47330612	89.24235174	86.1825421	83.28292495	80.53334118
150601A00440	6/1/2015	3.27	3/16/2029	6/1/2015	105.58199	102.8612954	100.2475183	97.73549793	95.32035914	92.99749683	90.76255925	88.61143229	86.54022492
150601A00450	6/1/2015	3.28	4/27/2029	6/1/2015	105.69592	102.9330258	100.2801172	97.73182092	95.28306611	92.92906583	90.66529926	88.48749508	86.391616
150601A00460	6/1/2015	3.05	5/16/2029	6/1/2015	105.14515	102.3532771	99.67400243	97.10175681	94.63129315	92.25766108	89.9761882	87.78246255	85.67231631
150601A00506	6/1/2015	3.14	7/6/2029	6/1/2015	105.54963	102.6716028	99.91243476	97.26612371	94.72701667	92.28978675	89.94941209	87.70115622	85.54054997
150601A00528	6/1/2015	3.08	7/27/2029	6/1/2015	105.37971	102.5041595	99.74744917	97.10356959	94.56686498	92.13200613	89.79396919	87.54801611	85.3896764
150601A00559	6/1/2015	3.06	8/31/2029	6/1/2015	105.39589	102.4805206	99.68709668	97.00939125	94.44154068	91.9780231	89.6136361	87.34347606	85.16291893
150601A00342	6/1/2015	3.97	8/26/2033	6/1/2015	112.46017	107.5054949	102.8710486	98.53223351	94.46656492	90.65347325	87.0741264	83.71126986	80.54908254
210603A00008	6/3/2021	1.74	6/3/2036	6/3/2021	102.4572	96.6737633	91.36026183	86.471953	81.96880369	77.81495491	73.97825281	70.42983552	67.14376906
220722A00036	7/22/2022	3.34	7/22/2025	7/22/2022	101.58612	100.7015476	99.8329403	98.97985777	98.14187577	97.31858591	96.50959488	95.71452373	94.93300723
220916A00021	9/16/2022	4.17	9/16/2027	9/16/2022	105.67358	103.7120484	101.8093643	99.96327793	98.17163926	96.43239584	94.74358781	93.10334306	91.50987265
230428A00055	4/28/2023	4.61	4/28/2026	4/28/2023	104.08242	102.7979085	101.5415379	100.3124601	99.10985687	97.93294144	96.78095679	95.65317441	94.54889291
230622A00019	6/22/2023	4.33	6/22/2028	6/22/2023	113.72907	109.3847287	105.2456007	101.3006998	97.53969223	93.95285605	90.53104115	87.2656322	84.14851409
150512A00029	5/12/2015	3.03	5/12/2025	5/12/2015	102.35223	100.8464417	99.37032055	97.92306045	96.50388377	95.11204045	93.74680671	92.40748391	91.09339747
150519A00013	5/19/2015	2.98	5/19/2025	5/19/2015	102.31446	100.790669	99.29708755	97.83288847	96.39727187	94.98946659	93.60872884	92.25434099	90.9256104

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160630A00012	6/30/2016	2.11	6/30/2025	6/30/2016	101.11078	99.48537999	97.89365916	96.33463414	94.80735993	93.310928	91.84446449	90.40712854	88.99811073
160801A00001	8/1/2016	1.97	8/1/2024	8/1/2016	100.1672	99.42317276	98.69016353	97.96792598	97.25622413	96.55482886	95.86351763	95.18207426	94.51028873
150319A00012	3/19/2015	3.13	3/19/2029	3/19/2015	110.64261	105.3237283	100.2973549	95.54587015	91.05280524	86.8027593	82.78132502	78.97501967	75.37122136
150319A00013	3/19/2015	3.25	3/19/2030	3/19/2015	112.26724	105.9824627	100.0984039	94.5873626	89.42368774	84.58361802	80.0451337	75.78782071	71.79274594
160726A00005	7/26/2016	2.28	7/27/2026	7/26/2016	102.9573	100.2882821	97.70188082	95.19500075	92.76468902	90.40812453	88.12261103	85.90557048	83.75453697
150220A00021	2/20/2015	2.72	2/20/2024	2/20/2015	100.35517	100.0467235	99.74017588	99.43551399	99.13272044	98.83177802	98.53266974	98.23537878	97.93988857
150220A00022	2/20/2015	2.8	2/20/2025	2/20/2015	101.59216	100.30602	99.0447479	97.80763564	96.59400656	95.40320947	94.23461741	93.08762651	91.96165493
150317A00012	3/17/2015	2.46	3/18/2024	3/17/2015	100.37647	99.99410889	99.61466904	99.23811986	98.86442827	98.49356166	98.12548793	97.76017545	97.39759311
150317A00013	3/17/2015	2.58	3/17/2025	3/17/2015	101.58458	100.2294147	98.89875441	97.59198871	96.30853007	95.04780983	93.80927744	92.59239971	91.39666016
081215A00091	12/15/2008	4.19	12/15/2023	12/15/2008	100.34715	100.2222381	100.0976542	99.97339743	99.84946634	99.72585961	99.60257591	99.47961392	99.35697232
081217A00076	12/17/2008	3.86	12/22/2023	12/17/2008	100.35303	100.2087918	100.0649832	99.92160143	99.77864442	99.63611028	99.49399706	99.35230288	99.21102584
121116A00006	11/16/2012	2.64	11/13/2025	11/16/2012	102.65064	100.6567815	98.71175024	96.81404121	94.96220318	93.15483981	91.39060725	89.66821169	87.98640715
121116A00021	11/16/2012	2.35	11/17/2025	11/16/2012	102.32106	100.3152872	98.35890151	96.45036491	94.58820125	92.77099068	90.99736707	89.26601555	87.57567015
121116A00022	11/16/2012	2.78	11/16/2029	11/16/2012	109.90827	103.9771116	98.40849433	93.17832073	88.26422011	83.64541342	79.30259193	75.21780585	71.37436199
130405A00006	4/5/2013	2.41	4/7/2025	4/5/2013	101.43293	100.0239921	98.6414759	97.28470118	95.95301269	94.64577697	93.36238149	92.10223374	90.86476043
130405A00007	4/5/2013	2.91	4/17/2028	4/5/2013	108.70284	104.2797994	100.0643404	96.0456315	92.21346201	88.55820369	85.07077472	81.74260573	78.5656083
140521A00019	5/21/2014	3.43	5/22/2028	5/21/2014	111.22875	106.6582229	102.3053217	98.15850314	94.20690059	90.44027881	86.84899362	83.42395456	80.15659011
140626A00036	6/26/2014	3.55	6/26/2029	6/26/2014	113.95597	108.2704481	102.9105067	97.85569993	93.08697701	88.58657778	84.33793829	80.32560388	76.53514894
150826A00038	8/26/2015	2.94	8/26/2026	8/26/2015	105.25906	102.4729437	99.77523886	97.16266194	94.63206976	92.18045318	89.8049306	87.50274176	85.27124188
150826A00039	8/26/2015	3.22	8/27/2029	8/26/2015	112.2995	106.503166	101.0482272	95.91276557	91.07637848	86.5200673	82.22613399	78.1780857	74.36054691
150827A00029	8/27/2015	2.74	8/27/2024	8/27/2015	100.98032	100.1621434	99.35721052	98.56519926	97.78580026	97.01871395	96.26365016	95.52032779	94.78847444
160122A00029	1/22/2016	2.48	1/22/2025	1/22/2016	101.17303	99.966998	98.78964817	97.63996449	96.51698026	95.41977339	94.34746381	93.29921113	92.2742124
160330A00054	3/30/2016	2.9	3/31/2031	3/30/2016	111.6971	104.4721609	97.77491534	91.56394378	85.80128005	80.4521078	75.48448429	70.86908981	66.57900001
160330A00056	3/30/2016	2.26	3/31/2025	3/30/2016	101.19012	99.80163921	98.43886388	97.10114164	95.78784294	94.49835887	93.23210038	91.98849738	90.76699807
160613A00047	6/15/2016	2.18	6/16/2025	6/15/2016	101.17437	99.58579373	98.02964127	96.50498195	95.01092294	93.54660505	92.11120114	90.7039146	89.3239779
160615A00031	6/15/2016	2.51	6/17/2030	6/15/2016	108.49003	102.0731933	96.08260561	90.48768191	85.26018563	80.37403776	75.80514109	71.53121967	67.5316721
160701A00039	7/1/2016	1.92	7/1/2026	7/1/2016	102.21895	99.61919441	97.09845658	94.65384047	92.28257696	89.98201741	87.7496275	85.58298137	83.47975612
051107A00075	11/7/2005	5.29	11/17/2025	11/7/2005	108.33847	106.269699	104.2515559	102.282466	100.3609192	98.48546284	96.65469951	94.86728399	93.12192111
060808A00022	8/8/2006	5.57	6/15/2026	8/8/2006	111.37905	108.7072043	106.1145482	103.5982398	101.1555572	98.78389464	96.4807563	94.2437511	92.0705874
160701A00020	7/1/2016	2.13	7/1/2026	7/1/2016	102.46067	99.86460373	97.34728095	94.90582112	92.53746914	90.23958963	88.00966074	85.84526836	83.74410072
160815A00005	8/15/2016	2.23	8/17/2026	8/15/2016	102.89752	100.1755408	97.53936583	94.98579891	92.51178195	90.11438939	87.79082158	85.5383985	83.35455382
160815A00006	8/15/2016	2.23	8/17/2026	8/15/2016	102.89752	100.1755408	97.53936583	94.98579891	92.51178195	90.11438939	87.79082158	85.5383985	83.35455382
160815A00007	8/15/2016	2.23	8/17/2026	8/15/2016	102.89752	100.1755408	97.53936583	94.98579891	92.51178195	90.11438939	87.79082158	85.5383985	83.35455382

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160520A00017	9/20/2017	2.34	9/20/2024	9/20/2017	100.58571	99.70774009	98.84506433	97.99728666	97.16402353	96.34490441	95.53957132	94.74767828	93.9688908
140827A00038	8/27/2014	3.07	8/30/2024	8/27/2014	101.13724	100.3121737	99.50055179	98.70205047	97.91635346	97.1431546	96.38215739	95.63307467	94.8956282
150721A00027	7/21/2015	3.74	7/22/2030	7/21/2015	115.7806	109.0734447	102.8116435	96.96308589	91.49814347	86.38946869	81.61180704	77.14182603	72.9579589
151229A00079	12/29/2015	3	12/30/2025	12/29/2015	103.66281	101.5347686	99.46093691	97.4395571	95.46893965	93.54746316	91.67357102	89.84576817	88.06261824
151229A00080	12/29/2015	3.49	12/30/2030	12/29/2015	114.69828	107.6296144	101.0580404	94.94577862	89.25811716	83.96314614	79.03151752	74.4362265	70.15241274
151229A00081	12/29/2015	3.76	12/31/2035	12/29/2015	122.97228	111.2644165	100.8513984	91.58055881	83.31807139	75.94653151	69.3628614	63.4764918	58.20778285
160830A00068	11/30/2016	1.95	11/30/2023	11/30/2016	100.03629	99.95322415	99.87029105	99.78749429	99.70483354	99.62230849	99.53991881	99.45766418	99.37554429
130424A00004	4/24/2013	2.46	4/24/2025	4/24/2013	101.57967	100.1243474	98.69715739	97.29735257	95.92421496	94.57705121	93.25519157	91.95798886	90.68481752
130424A00005	4/24/2013	3.07	4/24/2030	4/24/2013	111.99456	105.599463	99.61910341	94.02433576	88.78821038	83.88579556	79.29401663	74.99150858	70.95848115
161222A00030	12/22/2016	3.09	12/22/2026	12/22/2016	106.42933	103.3152699	100.3093233	97.407102	94.60442674	91.89731347	89.28196274	86.75474992	84.31221591
141215A00062	12/15/2014	2.65	12/16/2024	12/15/2014	101.27342	100.1624569	99.07582448	98.01273295	96.9724232	95.95416846	94.95727257	93.98106844	93.02491648
150401A00008	4/1/2015	2.62	4/1/2025	4/1/2015	101.53842	100.1474078	98.78214692	97.44198897	96.12630272	94.83447766	93.56592314	92.32006756	91.09635764
091210A00005	12/10/2009	5.08	12/16/2024	12/10/2009	103.89367	102.7689342	101.6686938	100.5921569	99.53856148	98.5071782	97.4973082	96.50828178	95.53945679
160802A00003	8/2/2016	2.53	8/1/2031	8/2/2016	109.24632	101.8165619	94.95280861	88.60883706	82.74243295	77.31502395	72.29134729	67.63914926	63.32891361
160606A00004	6/6/2016	2.43	6/8/2026	6/6/2016	103.15085	100.6063556	98.1376035	95.7418769	93.41657667	91.15921384	88.96740413	86.83886274	84.77139948
160606A00005	6/6/2016	2.92	6/6/2031	6/6/2016	111.11799	103.7911845	97.0101055	90.73107179	84.91412109	79.52267223	74.52322256	69.885074	65.58008473
160628A00049	6/28/2016	1.88	6/27/2025	6/28/2016	100.91383	99.29473728	97.70914037	96.15606512	94.63457418	93.14376623	91.68277428	90.25076393	88.8469319
050902A00032	9/2/2005	4.69	8/22/2025	9/2/2005	106.17227	104.359321	102.5864041	100.8523651	99.15609552	97.49652671	95.87262835	94.28340662	92.72790264
060308A00014	3/8/2006	5.44	3/16/2026	3/8/2006	109.90142	107.4943007	105.1531122	102.8756854	100.6599316	98.50384273	96.40548771	94.36300916	92.37462011
151211A00055	12/11/2015	2.62	12/11/2024	12/11/2015	101.22622	100.1284938	99.05453692	98.00357994	96.97488962	95.96776364	94.98152894	94.01554023	93.06917858
111006A00023	10/6/2011	3.81	10/15/2026	10/6/2011	107.75494	104.808744	101.959718	99.20412492	96.53839272	93.95910645	91.46300018	89.04694974	86.70796565
131106A00003	11/6/2013	3.57	11/15/2023	11/6/2013	100.08554	100.0439059	100.0023273	99.96079978	99.91932332	99.87789779	99.83652309	99.79519913	99.75392581
151223A00070	12/23/2015	2.57	12/26/2023	12/23/2015	100.17961	100.0245535	99.86998853	99.71590996	99.56231545	99.40920271	99.25656944	99.10441336	98.95273222
151223A00072	12/23/2015	2.81	12/23/2025	12/23/2015	103.47055	101.3577652	99.2985773	97.29125316	95.33413146	93.4256174	91.56417945	89.74834624	87.97670373
151223A00074	12/23/2015	3.01	12/23/2027	12/23/2015	108.47215	104.357861	100.4243226	96.6626002	93.06425093	89.62129505	86.32618761	83.17179219	80.15135632
151223A00077	12/23/2015	3.57	12/24/2035	12/23/2015	122.26032	110.521067	100.0842799	90.79613668	82.52181616	75.14305933	68.55605456	62.66960264	57.40352326
160628A00038	6/28/2016	1.88	6/27/2025	6/28/2016	100.91383	99.29473728	97.70914037	96.15606512	94.63457418	93.14376623	91.68277428	90.25076393	88.8469319
160628A00039	6/28/2016	2.01	6/29/2026	6/28/2016	102.45093	99.85324842	97.33437755	94.89142947	92.52164748	90.22239454	87.99114722	85.82548982	83.72310897
140922A00026	9/22/2014	3.02	9/30/2024	9/22/2014	101.37347	100.463419	99.56969295	98.69185121	97.82947312	96.98215274	96.14949821	95.33113119	94.52668622
161212A00040	12/12/2016	2.45	12/12/2023	12/12/2016	100.12155	100.0051631	99.88906707	99.77325708	99.65773201	99.54249075	99.42753219	99.31285525	99.19845883
160328A00045	3/28/2016	2.49	3/27/2026	3/28/2016	103.25794	100.8965825	98.60123835	96.3696948	94.19982989	92.0896048	90.03706006	88.04031192	86.09754899
160329A00045	3/29/2016	2.12	3/29/2024	3/29/2016	100.26156	99.84964038	99.44110254	99.03590423	98.63400463	98.23536354	97.83994145	97.44769946	97.0585993
141208A00008	12/8/2014	3.02	12/16/2024	12/8/2014	101.55979	100.449072	99.36263868	98.29970015	97.25949984	96.24131334	95.24444676	94.2682351	93.31204079

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
140423A00036	4/23/2014	4.03	4/23/2029	4/23/2014	115.58833	110.0484224	104.8161322	99.872691	95.2005696	90.78339228	86.60585526	82.65365103	78.91339856
131217A00023	12/17/2013	3.74	1/2/2024	12/17/2013	100.38535	100.210966	100.0371943	99.86402672	99.69146021	99.51949159	99.34811776	99.17733564	99.00714217
131217A00024	12/17/2013	4.34	1/2/2029	12/17/2013	116.52291	111.2532807	106.2609769	101.5298417	97.0447466	92.79152248	88.75689318	84.92841441	81.29441693
150603A00017	6/3/2015	2.84	6/3/2025	6/3/2015	102.36461	100.7977927	99.26253017	97.75793768	96.28316111	94.83737787	93.41979536	92.02964963	90.66620405
160504A00004	5/4/2016	2.3	5/4/2026	5/4/2016	102.96877	100.5111489	98.12498299	95.80778035	93.55715305	91.37081087	89.24655668	87.18228199	85.17596282
130904A00039	9/4/2013	4.19	9/15/2028	9/4/2013	115.60312	110.6243159	105.8952924	101.4021801	97.13195152	93.07236467	89.21191132	85.53976961	82.04575963
130926A00009	9/26/2013	4	10/2/2028	9/26/2013	114.81257	109.8073625	105.0557448	100.5435058	96.25730472	92.18461204	88.31365642	84.63337478	81.13336621
160930A00005	9/30/2016	2.03	9/30/2024	9/30/2016	100.33357	99.43044791	98.5435262	97.67236941	96.81656029	95.97569619	95.14938845	94.33726176	93.53895362
090226A00006	2/26/2009	4.55	3/1/2024	2/26/2009	101.0421	100.7045396	100.3692407	100.0361759	99.70532267	99.37665919	99.0501637	98.72581478	98.4035913
081219A00006	12/19/2008	3.88	12/22/2023	12/19/2008	100.35591	100.2116723	100.0678604	99.92447516	99.78151474	99.63897718	99.49686057	99.355163	99.21388257
111216A00001	12/16/2011	3.95	12/30/2031	12/16/2011	119.72986	111.5780979	104.0652714	97.13743448	90.74547824	84.84467253	79.39425396	74.35705441	69.69916623
120113A00012	1/13/2012	3.62	1/15/2027	1/13/2012	107.88116	104.691064	101.6131315	98.64274428	95.77550522	93.0072263	90.33391711	87.75177402	85.25717014
120113A00013	1/13/2012	3.87	1/15/2032	1/13/2012	119.17593	111.0075312	103.482772	96.54704469	90.15065936	84.24837824	78.79899442	73.76495256	69.11200716
120127A00018	1/27/2012	3.64	2/1/2027	1/27/2012	108.07207	104.8346094	101.7123121	98.70037874	95.79424579	92.98956932	90.28221278	87.6682356	85.14388241
120127A00019	1/27/2012	3.87	1/30/2032	1/27/2012	119.24619	111.0392317	103.4816577	96.51813844	90.09835346	84.17650986	78.71091218	73.66357506	68.99987459
151109A00020	11/9/2015	2.79	11/9/2023	11/9/2015	100.03184	100.0068725	99.98192954	99.95701311	99.93212317	99.90725968	99.88242258	99.85761184	99.83282741
160804A00014	8/4/2016	1.99	8/5/2024	8/4/2016	100.19448	99.43968548	98.6962327	97.96386581	97.24233821	96.53141061	95.83085069	95.14043289	94.45993816
161208A00007	12/8/2016	2.6	12/8/2023	12/8/2016	100.11368	100.008472	99.90349596	99.79875247	99.69424073	99.58995993	99.48590927	99.38208795	99.27849518
140313A00030	3/13/2014	3.27	3/15/2024	3/13/2014	100.67429	100.2993811	99.92727935	99.5579521	99.19136819	98.82749697	98.46630824	98.10777225	97.75185968
150720A00012	7/20/2015	2.99	7/21/2025	7/20/2015	102.90043	101.2015042	99.53867198	97.91084543	96.31698293	94.75608448	93.2271896	91.72937538	90.26175455
130107A00002	1/7/2013	3.22	1/18/2028	1/7/2013	108.98571	104.8085464	100.8169887	97.0017453	93.35404705	89.86561265	86.52861824	83.33566934	80.27977461
130531A00021	5/31/2013	3.22	5/30/2028	5/31/2013	110.32954	105.7585168	101.4062266	97.26101536	93.31191788	89.54860849	85.96136039	82.54100762	79.27890958
161125A00002	11/25/2016	2.62	11/27/2023	11/25/2016	100.08284	100.0080134	99.93330781	99.85871889	99.78424633	99.70988987	99.63564923	99.56152416	99.48751438
150821A00018	8/21/2015	2.6	8/21/2024	8/21/2015	100.84423	100.0425613	99.25362823	98.47712613	97.71276269	96.96025472	96.21932776	95.48971577	94.77116082
160616A00034	6/16/2016	1.97	6/17/2024	6/16/2016	100.13152	99.50689556	98.89004977	98.28083926	97.6791228	97.08476263	96.49762436	95.91757684	95.3444921
160706A00010	7/6/2016	1.99	7/7/2025	7/6/2016	100.93176	99.28988631	97.68232485	96.10805999	94.56611987	93.05557057	91.57551424	90.12508736	88.70345901
140815A00032	8/15/2014	3.59	10/15/2029	8/15/2014	113.86601	107.9260275	102.3417147	97.08984246	92.14881204	87.49853654	83.12032766	78.99679145	75.11173235
081205A00033	12/5/2008	4.77	12/7/2023	12/5/2008	100.33346	100.2307906	100.1283421	100.0261141	99.92410581	99.82231647	99.72074535	99.61939173	99.51825487
081209A00008	12/9/2008	4.87	12/15/2023	12/9/2008	100.41734	100.292494	100.1679787	100.0437886	99.9199224	99.79637878	99.67315644	99.55025408	99.4276704
081211A00029	12/11/2008	4.57	12/15/2023	12/11/2008	100.3799	100.2550996	100.130626	100.0064775	99.88265276	99.75915053	99.63596948	99.51310832	99.39056575
081219A00069	12/19/2008	4.26	12/22/2023	12/19/2008	100.39381	100.2496945	100.1060086	99.96274722	99.81990833	99.67749005	99.53549051	99.39390783	99.25274014
100809A00029	8/9/2010	4.23	8/15/2025	8/9/2010	105.05802	103.2777757	101.5364473	99.83289838	98.166035	96.53480422	94.93819211	93.375222	91.84495273
100824A00009	8/24/2010	3.91	9/2/2025	8/24/2010	104.63363	102.8098999	101.027018	99.28382944	97.57922356	95.9121276	94.28150527	92.6863553	91.12571002

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
100930A00008	9/30/2010	3.82	9/30/2025	9/30/2010	104.69861	102.7989877	100.9434945	99.13084006	97.35978178	95.6291213	93.9377026	92.28441016	90.6681673
110505A00022	5/5/2011	4.59	5/15/2026	5/5/2011	108.50152	105.9509531	103.4745021	101.0695724	98.73367544	96.46442576	94.25953546	92.11680976	90.03414251
110805A00014	8/5/2011	4.06	8/17/2026	8/5/2011	107.9839	105.1904579	102.4845175	99.86283102	97.32228795	94.85991265	92.4728573	90.15839561	87.91391676
120411A00013	4/11/2012	3.59	4/15/2027	4/11/2012	108.47489	105.0330131	101.7205659	98.5319833	95.46197409	92.50550181	89.65777121	86.91421533	84.27048332
120709A00016	7/9/2012	3.2	7/15/2027	7/9/2012	107.73351	104.0659076	100.544339	97.16215207	93.91303824	90.79101345	87.79039932	84.90580543	82.13211288
130211A00017	2/11/2013	3.27	2/15/2028	2/11/2013	109.37297	105.1131823	101.045675	97.16073543	93.44919229	89.90238511	86.51213275	83.2707042	80.17079129
150610A00008	6/10/2015	3.58	6/10/2030	6/10/2015	115.40206	108.7807256	102.5938932	96.81061941	91.40232048	86.34258451	81.60699541	77.17297204	73.01962107
150610A00009	6/10/2015	3.03	6/10/2025	6/10/2015	102.71241	101.1237907	99.56740312	98.0423308	96.54769265	95.08264053	93.64635763	92.23805705	90.85698035
150819A00012	8/19/2015	3.04	8/19/2025	8/19/2015	102.95138	101.1801207	99.44785456	97.75345606	96.09583874	94.47395595	92.88679902	91.33339556	89.81280779
150819A00013	8/19/2015	3.51	8/19/2030	8/19/2015	114.36379	107.6339313	101.35633	95.49807913	90.02883517	84.9206033	80.14754404	75.68579668	71.51331818
160129A00066	1/29/2016	3.04	1/29/2031	1/29/2016	112.51118	105.4107236	98.81731997	92.69192007	86.99868712	81.70471398	76.77976858	72.19606274	67.92804229
160129A00067	1/29/2016	2.53	1/29/2026	1/29/2016	103.0496	100.8457602	98.69982481	96.60984395	94.57395392	92.5903693	90.65737888	88.7733419	86.93668444
150601A00830	6/1/2015	6.743	7/31/2025	6/1/2015	109.35299	107.5698246	105.8247946	104.1167417	102.4445541	100.8071651	99.20355055	97.63272695	96.0937493
150422A00019	4/22/2015	2.62	4/22/2025	4/22/2015	101.63298	100.1854452	98.76574235	97.37314374	96.006942	94.66645398	93.35101961	92.06000097	90.79278134
160714A00054	7/14/2016	2.03	7/15/2024	7/14/2016	100.18746	99.48841002	98.79910109	98.11932678	97.44889014	96.78759961	96.13526883	95.49171649	94.85676616
170531A00080	5/31/2017	2.3	5/31/2024	5/31/2017	100.4454	99.86339139	99.28811309	98.71944716	98.15728015	97.60150117	97.05200185	96.50867626	95.97142082
150601A00404	6/1/2015	4.29	1/17/2029	6/1/2015	116.0424	110.7462278	105.730827	100.9797182	96.47748485	92.20969543	88.16283449	84.32423949	80.68204217
150601A00405	6/1/2015	4.63	1/17/2034	6/1/2015	129.08085	118.6947464	109.2874764	100.7599223	93.02355147	85.99923141	79.61618444	73.81106389	68.52713676
150601A00522	6/1/2015	4.52	7/25/2030	6/1/2015	120.47525	113.6075867	107.19356	101.2005349	95.59839795	90.35935111	85.45772179	80.86978891	76.57362441
150601A00523	6/1/2015	4.55	7/25/2031	6/1/2015	122.92715	115.0449547	107.7492137	100.9926935	94.73222033	88.92830787	83.54482366	78.54868685	73.90959498
150601A00664	6/1/2015	3.78	1/16/2032	6/1/2015	118.03963	109.9132801	102.4284213	95.53057028	89.17015258	83.302039	77.88512483	72.88195088	68.25836209
150601A00665	6/1/2015	3.82	1/14/2033	6/1/2015	119.96383	110.8824747	102.591854	95.0181441	88.0947994	81.76180145	75.96498648	70.65544557	65.78898901
150601A00666	6/1/2015	3.88	1/16/2035	6/1/2015	122.9541	112.024131	102.2202464	93.41854785	85.50944428	78.39592714	71.9920639	66.22167926	61.01719945
150601A00667	6/1/2015	3.88	1/16/2036	6/1/2015	123.72656	111.9413727	101.4621802	92.13462467	83.82344848	76.41003506	69.79027969	63.87274284	58.57704683
150601A00668	6/1/2015	3.89	1/16/2037	6/1/2015	124.59397	111.9707996	100.8424981	91.02038062	82.34064905	74.66098535	67.85762876	61.82286411	56.46286155
150817A00099	8/17/2015	3.19	8/17/2027	8/17/2015	107.90408	104.1482694	100.5451184	97.08759134	93.76901933	90.58307635	87.52375955	84.58537089	81.76249983
160119A00019	1/19/2016	2.95	1/19/2027	1/19/2016	105.77008	102.6035752	99.54901953	96.60178039	93.75745141	91.01183665	88.36093898	85.80094913	83.32823559
160119A00025	1/19/2016	3.05	1/19/2028	1/19/2016	108.28317	104.1181017	100.1383717	96.33469894	92.69831807	89.22095172	85.89478019	82.71241333	79.66686423
160119A00026	1/19/2016	3.14	1/19/2029	1/19/2016	110.47633	105.3173048	100.4340844	95.81040684	91.43105977	87.28180567	83.34931406	79.62109852	76.08545855
160119A00027	1/19/2016	3.25	1/18/2030	1/19/2016	112.11059	105.9847699	100.2402293	94.851126	89.79350859	85.04516578	80.58549093	76.39535751	72.45700506
160119A00028	1/19/2016	3.34	1/21/2031	1/19/2016	113.72486	106.6371978	100.052214	93.93140423	88.23941688	82.94377622	78.0146336	73.42454159	69.14824863
160119A00029	1/19/2016	3.39	1/20/2032	1/19/2016	115.40107	107.3693829	99.97474275	93.16287746	86.88441767	81.0944314	75.7520031	70.81985465	66.2640041
160119A00030	1/19/2016	3.44	1/18/2033	1/19/2016	117.12617	108.1599233	99.97822201	92.50759317	85.6818258	79.44121845	73.73190719	68.50526638	63.71737368

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160706A00026	7/6/2016	2.19	7/6/2027	7/6/2016	103.99673	100.4205228	96.98665186	93.68864881	90.52038343	87.47603927	84.55009553	81.73731009	79.03270363
160706A00027	7/6/2016	2.29	7/6/2028	7/6/2016	105.68456	101.140203	96.81826525	92.70666679	88.79404981	85.06973249	81.52366491	78.14638797	74.92899533
160706A00028	7/6/2016	2.39	7/6/2029	7/6/2016	106.83246	101.342981	96.17158415	91.29814651	86.70392696	82.37146135	78.28446864	74.4277644	70.78718118
160706A00029	7/6/2016	2.49	7/8/2030	7/6/2016	107.58857	101.1809694	95.20167617	89.61977283	84.40672966	79.53621035	74.98389213	70.72730158	66.74566468
160706A00030	7/6/2016	2.59	7/7/2031	7/6/2016	108.74715	101.4334593	94.67164922	88.41705251	82.62884513	77.26969366	72.30543956	67.70481354	63.43917714
170602A00026	6/2/2017	2.25	6/3/2024	6/2/2017	100.42008	99.83013916	99.24712267	98.67090473	98.10136689	97.53839346	96.98187137	96.43169018	95.88774193
170608A00020	6/8/2017	2.27	6/10/2024	6/8/2017	100.442	99.83330278	99.23197678	98.63789042	98.05091335	97.47091836	96.89778123	96.3313807	95.77159835
170609A00043	6/9/2017	3.07	6/9/2032	6/9/2017	114.30678	105.9339347	98.25594938	91.21111802	84.74352506	78.80247552	73.34198235	68.32030664	63.69954492
170612A00039	6/12/2017	2.29	6/12/2024	6/12/2017	100.45729	99.84320206	99.23661709	98.63739921	98.04541461	97.46053271	96.88262604	96.31157021	95.74724374
170613A00032	6/13/2017	2.45	6/13/2025	6/13/2017	101.79154	100.2025408	98.64590486	97.12070822	95.62606235	94.16111209	92.72503408	91.3170352	89.93635124
170613A00033	6/13/2017	2.3	6/13/2024	6/13/2017	100.46502	99.84823446	99.23902017	98.63723689	98.04274906	97.45542442	96.87513388	96.30175144	95.73515409
160811A00011	8/11/2016	2.25	8/11/2026	8/11/2016	102.93099	100.2239253	97.60174575	95.06127878	92.59949297	90.21348984	87.90049705	85.65786197	83.48304562
170615A00015	6/15/2017	2.25	6/14/2024	6/15/2017	100.43517	99.81582507	99.20411377	98.59989639	98.00303562	97.41339752	96.83085137	96.2552696	95.6865277
150601A00916	6/1/2015	7.27	4/5/2030	6/1/2015	136.86195	129.7683115	123.1160044	116.874814	111.0167582	105.5159085	100.3482298	95.49143207	90.92483514
150601A00470	6/1/2015	2.98	5/31/2024	6/1/2015	100.81833	100.2350822	99.65857126	99.08868282	98.52530331	97.96832172	97.41762954	96.87312069	96.33469149
150601A00485	6/1/2015	3.09	6/21/2024	6/1/2015	100.95646	100.3165665	99.68478327	99.06096097	98.44494965	97.83660305	97.23577859	96.64233717	96.05614314
150601A00495	6/1/2015	2.99	6/27/2024	6/1/2015	100.91249	100.2567344	99.6094975	98.97061154	98.33991564	97.71725297	97.10247071	96.49541988	95.89595525
150601A00512	6/1/2015	3.79	7/16/2029	6/1/2015	114.36219	108.6387863	103.244894	98.15969466	93.36380043	88.83914577	84.56888995	80.53732739	76.72980493
150601A00515	6/1/2015	2.95	1/16/2024	6/1/2015	100.31561	100.1026278	99.89056612	99.67941891	99.4691802	99.25984402	99.05140448	98.84385573	98.63719197
150601A00530	6/1/2015	3.08	7/24/2024	6/1/2015	101.07407	100.3457834	99.62798706	98.92045912	98.22298018	97.53533707	96.85732259	96.18873538	95.52937961
150601A00531	6/1/2015	3.28	7/24/2024	6/1/2015	101.08233	100.355787	99.63968838	98.93380929	98.23793198	97.55184479	96.87534201	96.20822367	95.55029532
150601A00677	6/1/2015	2.39	1/30/2025	6/1/2015	101.03362	99.80788277	98.61178642	97.44426575	96.30430629	95.19094108	94.10324792	93.04034679	92.00139749
150601A00688	6/1/2015	2.61	2/21/2025	6/1/2015	101.44998	100.1595831	98.89387384	97.65216516	96.43379545	95.23812761	94.06454789	92.91246477	91.78130795
150601A00689	6/1/2015	2.81	2/28/2025	6/1/2015	101.60244	100.2937283	99.00795914	97.74457888	96.50305297	95.28286345	94.0835083	92.90450088	91.7453693
150601A00696	6/1/2015	2.83	3/13/2025	6/1/2015	101.6876	100.3446396	99.02575686	97.73036054	96.45787757	95.2077531	93.97944979	92.77244712	91.58624071
150601A00733	6/1/2015	2.72	5/1/2025	6/1/2015	101.93817	100.4614729	99.01363904	97.59389537	96.20149683	94.8357242	93.49588306	92.18130264	90.89133487
150601A00734	6/1/2015	2.92	5/1/2025	6/1/2015	102.05637	100.5816942	99.13579217	97.71789766	96.32726874	94.9631892	93.62496743	92.31193539	91.02344755
150601A00737	6/1/2015	2.68	12/31/2024	6/1/2015	101.29914	100.1491853	99.02528043	97.92654564	96.85214266	95.80127005	94.77316124	93.76708262	92.7823318
150727A00013	7/27/2015	3.04	7/28/2025	7/27/2015	102.82257	101.1097977	99.43364681	97.79301016	96.18682278	94.61406267	93.07374859	91.56493799	90.08672506
151106A00011	11/6/2015	3.1	1/15/2026	11/6/2015	103.97572	101.8028096	99.68608073	97.62368081	95.61382981	93.65482101	91.74501729	89.88284765	88.06680396
151116A00025	11/16/2015	3.04	11/14/2025	11/16/2015	103.47029	101.4652065	99.50923082	97.60084125	95.73857727	93.92103374	92.14685833	90.41474919	88.72345262
160422A00026	4/22/2016	2.62	4/22/2026	4/22/2016	103.41078	100.9852763	98.62934015	96.34058371	94.11671251	91.95552455	89.85490597	87.81282697	85.82733789
160714A00020	9/6/2016	2.28	9/4/2026	9/6/2016	103.10499	100.3337088	97.65114685	95.05400622	92.53912779	90.10348622	87.74418354	85.45844308	83.24360374

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160714A00023	8/10/2016	2.49	8/10/2028	8/10/2016	106.71847	102.062705	97.63848129	93.43305103	89.43443463	85.63137334	82.01328174	78.57020367	75.29277139
160714A00029	8/10/2016	2.27	8/10/2026	8/10/2016	102.98252	100.277298	97.65682679	95.11793404	92.65759221	90.27290683	87.96110965	85.71955215	83.54569947
160819A00015	10/12/2016	2.3	10/13/2026	10/12/2016	103.3118	100.436522	97.65645344	94.96792898	92.36744617	89.85165635	87.41735698	85.0614844	82.78110697
161109A00018	11/9/2016	2.63	11/9/2026	11/9/2016	104.40504	101.4439748	98.58292151	95.81794765	93.14529773	90.56138526	88.06278402	85.64621988	83.30856314
160210A00042	2/10/2016	2.57	2/10/2026	2/10/2016	102.93843	100.7074255	98.53575107	96.42144138	94.36260708	92.35743543	90.40418661	88.50119009	86.64684135
160222A00018	2/22/2016	2.59	2/23/2026	2/22/2016	103.05814	100.7885549	98.58024286	96.43120338	94.33951158	92.30331697	90.32084019	88.39036972	86.51025888
160616A00027	6/16/2016	2.27	6/16/2026	6/16/2016	102.76974	100.2090713	97.72514274	95.31517923	92.97652935	90.706655	88.50312574	86.3636134	84.28588702
160705A00104	7/5/2016	2.1	7/6/2026	7/5/2016	102.39762	99.78968016	97.26116717	94.80916588	92.43088523	90.12365607	87.88492487	85.71224777	83.60328502
150601A00490	6/1/2015	3.19	7/2/2024	6/1/2015	100.92378	100.2564281	99.59789129	98.94799696	98.30657577	97.67346279	97.04849736	96.43152293	95.82238695
170622A00036	6/22/2017	3.23	6/22/2032	6/22/2017	114.64338	106.2738244	98.59903492	91.55724475	85.09249138	79.15404502	73.69589388	68.67628259	64.05729797
170622A00037	6/22/2017	3.27	6/22/2033	6/22/2017	116.08842	106.803725	98.36587849	90.69241073	83.70930604	77.35009699	71.55505834	66.2704908	61.4480843
170622A00038	6/22/2017	3.32	6/22/2034	6/22/2017	117.37462	107.197038	98.02957656	89.76542038	82.30960389	75.57764267	69.49432653	63.99265704	59.01291175
170622A00039	6/22/2017	3.36	6/22/2035	6/22/2017	118.26725	107.2368065	97.38849617	88.58754458	80.71525617	73.66702094	67.35057549	61.68448672	56.59682863
170622A00040	6/22/2017	3.41	6/23/2036	6/22/2017	119.20698	107.3407723	96.83838911	87.53322013	79.27991207	71.95155459	65.43725159	59.64002326	54.47499254
170623A00028	6/23/2017	2.79	6/23/2027	6/23/2017	106.11229	102.53117	99.09104634	95.78557836	92.60874817	89.55484272	86.61843648	83.79437505	81.07775998
170630A00027	6/30/2017	2.35	6/28/2024	6/30/2017	100.52099	99.86402403	99.21562835	98.57563602	97.9438845	97.32021535	96.70447423	96.09651067	95.496178
160922A00014	9/22/2016	2.06	9/22/2026	9/22/2016	102.8862	100.0630296	97.33187276	94.6892435	92.1318105	89.65638608	87.25991921	84.93948891	82.69229788
170110A00020	1/10/2017	2.4	1/10/2024	1/10/2017	100.19196	99.99563766	99.80009845	99.60533793	99.41135135	99.21813402	99.02568129	98.83398854	98.64305118
170111A00009	1/11/2017	3.16	1/11/2028	1/11/2017	108.69517	104.5419198	100.5725861	96.77799448	93.14948564	89.67887997	86.35844785	83.18088214	80.13927254
170111A00011	1/11/2017	3.24	1/11/2029	1/11/2017	110.95935	105.808087	100.931048	96.31213176	91.93626757	87.78934692	83.85815646	80.13031624	76.59422251
170111A00012	1/11/2017	3.31	1/11/2030	1/11/2017	112.45883	106.3396357	100.6001195	95.2146262	90.15936732	85.41227799	80.95288275	76.76217276	72.82249304
170111A00013	1/11/2017	3.4	1/10/2031	1/11/2017	114.1089	107.0342055	100.4592114	94.34579222	88.65892731	83.36643397	78.43872317	73.84857743	69.57094877
170111A00014	1/11/2017	3.47	1/12/2032	1/11/2017	116.00451	107.9678617	100.5666726	93.7469522	87.459574	81.65981563	76.30694231	71.36383154	66.79663499
170111A00016	1/11/2017	3.51	1/11/2033	1/11/2017	117.71818	108.7420944	100.5493843	93.06684892	86.22850523	79.97484417	74.25216363	69.01197349	64.21046444
170117A00046	1/17/2017	2.55	1/17/2024	1/17/2017	100.21702	100.0017097	99.78734152	99.57390613	99.36139739	99.1498092	98.93913552	98.72937035	98.52050775
170119A00006	1/19/2017	2.85	1/21/2025	1/19/2017	101.48179	100.2785367	99.10378679	97.9565353	96.83582463	95.74074122	94.67041301	93.62400714	92.60072775
170120A00008	1/20/2017	3.63	1/20/2034	1/20/2017	120.07035	110.1124758	101.1048548	92.95058226	85.56314937	78.86527681	72.78788507	67.26918441	62.25387001
170120A00009	1/20/2017	3.67	1/22/2035	1/20/2017	121.34556	110.4873727	100.7516701	92.01466002	84.16686732	77.11141085	70.7624931	65.0440781	59.88873316
170120A00010	1/20/2017	3.71	1/22/2036	1/20/2017	122.44098	110.7166339	100.2952405	91.02248403	82.7631768	75.3987921	68.82532944	62.95146307	57.69693503
170120A00011	1/20/2017	3.75	1/20/2037	1/20/2017	123.58692	111.0171459	99.93895947	90.16381936	81.52808174	73.88958789	67.12473763	61.12597485	55.79962522
170123A00039	1/23/2017	2.79	1/23/2026	1/23/2017	103.59985	101.405248	99.2679405	97.18601768	95.15764663	93.18107089	91.25460651	89.37663831	87.54561646
170728A00033	7/28/2017	2.46	1/29/2024	7/28/2017	100.22621	99.97803402	99.73108541	99.48535645	99.24083811	98.99752149	98.75539775	98.51445814	98.27469401
170728A00040	7/28/2017	2.44	1/27/2025	7/28/2017	101.1364	99.91771018	98.72830899	97.56714712	96.43322796	95.32560131	94.2433607	93.18564089	92.1516156

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170803A00020	8/3/2017	2.84	8/3/2027	8/3/2017	106.51475	102.8211051	99.27650843	95.87408944	92.60734143	89.47009568	86.45650161	83.56100829	80.77834702
170803A00021	8/3/2017	2.5	8/5/2024	8/3/2017	100.58687	99.83041821	99.08532346	98.35133189	97.62819663	96.91567806	96.21354358	95.52156736	94.83953006
170130A00010	1/30/2017	2.92	1/30/2025	1/30/2017	101.59983	100.3726127	99.17500607	98.00594797	96.86442648	95.74947697	94.66017943	93.59565586	92.55506797
170130A00031	1/30/2017	2.96	7/30/2025	1/30/2017	102.69447	100.9776695	99.29766985	97.6533523	96.04364398	94.46751549	92.92397863	91.41208426	89.93092037
170203A00012	2/3/2017	3.63	2/2/2035	2/3/2017	120.94465	110.0831255	100.3476531	91.61372629	83.77127637	76.72292667	70.38246724	64.67351986	59.52836885
170203A00013	2/3/2017	3.67	2/1/2036	2/3/2017	122.0019	110.2813536	99.86657338	90.60257613	82.35362408	75.0007425	68.43956749	62.57848013	57.33698744
170809A00005	8/9/2017	2.61	8/11/2025	8/9/2017	102.13945	100.3964755	98.69148972	97.02337048	95.3910389	93.79345745	92.22962789	90.69858944	89.19941692
170815A00006	8/15/2017	2.5	8/15/2024	8/15/2017	100.61271	99.82971905	99.05889934	98.29996937	97.5526554	96.81669203	96.09182191	95.37779541	94.67437037
170818A00003	8/18/2017	2.23	8/20/2024	8/18/2017	100.54083	99.74315702	98.95812362	98.18542622	97.42477559	96.67589145	95.93850217	95.21234445	94.49716296
170821A00038	8/23/2017	2.39	8/23/2024	8/23/2017	100.67879	99.87257131	99.07923922	98.2984907	97.53002796	96.77356257	96.02881504	95.29551454	94.57333985
170215A00043	2/15/2017	2.7	8/28/2024	2/15/2017	100.82091	100.0025576	99.19747165	98.40532829	97.62581721	96.85863799	96.10349969	95.36012044	94.62822713
170216A00043	2/16/2017	3.17	2/16/2027	2/16/2017	106.66243	103.4049211	100.2649422	97.23760579	94.31825376	91.50244802	88.78595868	86.16475295	83.63498476
170216A00044	2/16/2017	3.52	2/17/2032	2/16/2017	116.54743	108.4013814	100.9059377	94.00530279	87.64875273	81.79014633	76.38748922	71.40254124	66.80046293
170216A00045	2/16/2017	3.73	2/17/2037	2/16/2017	123.41001	110.7894962	99.6747715	89.87452679	81.22282746	73.5756269	66.80777296	60.81043742	55.48890666
170224A00020	2/24/2017	3.08	2/24/2027	2/24/2017	106.42399	103.1475478	99.99013514	96.94680266	94.01283303	91.18372946	88.45520418	85.8231675	83.2837176
170224A00021	2/24/2017	3.4	2/24/2032	2/24/2017	115.61871	107.4918285	100.0162845	93.1360877	86.80033987	80.96274846	75.58118805	70.61730568	66.03616541
170224A00039	5/24/2017	3.17	5/24/2027	5/24/2017	107.28634	103.763229	100.376151	97.1191061	93.98639253	90.97259135	88.07255049	85.28137008	82.59438859
170224A00044	5/24/2017	3.29	5/24/2029	5/24/2017	111.70927	106.1946776	100.991879	96.08155923	91.44569838	87.06747991	82.93120388	79.02220717	75.32678967
170822A00019	8/22/2017	2.44	8/22/2024	8/22/2017	100.58979	99.78831454	98.99959103	98.22331619	97.45919689	96.70694911	95.96629767	95.2369758	94.51872489
170822A00020	8/22/2017	2.59	8/22/2025	8/22/2017	102.15495	100.3832813	98.65080322	96.95638728	95.29894909	93.67744326	92.09086168	90.53823194	89.01861568
170228A00014	2/28/2017	2.89	3/1/2027	2/28/2017	106.23145	102.9342748	99.75761811	96.69645773	93.74600593	90.90169828	88.159182	85.51430509	82.963106
170228A00015	2/28/2017	2.87	5/28/2025	2/28/2017	102.19108	100.6447798	99.12939491	97.64406106	96.18794972	94.76026252	93.36022988	91.98710968	90.64018602
170831A00022	8/31/2017	2.27	2/29/2024	8/31/2017	100.23053	99.89783881	99.56735098	99.23904282	98.91289288	98.58887997	98.26698319	97.94718191	97.62945574
170313A00032	3/13/2017	3.69	6/14/2032	3/13/2017	118.42074	109.9148272	102.1097855	94.94360456	88.36008382	82.30825719	76.74188009	71.61896906	66.90138848
170313A00033	3/13/2017	3.31	3/15/2027	3/13/2017	107.30943	103.9682927	100.7501311	97.64977766	94.6623108	91.78304023	89.00749508	86.33141238	83.75072634
170313A00034	3/13/2017	3.31	3/15/2027	3/13/2017	107.30943	103.9682927	100.7501311	97.64977766	94.6623108	91.78304023	89.00749508	86.33141238	83.75072634
170313A00035	3/13/2017	3.31	3/15/2027	3/13/2017	107.30943	103.9682927	100.7501311	97.64977766	94.6623108	91.78304023	89.00749508	86.33141238	83.75072634
170316A00018	3/16/2017	2.8	3/18/2024	3/16/2017	100.46215	100.0800956	99.70095935	99.32470486	98.95129922	98.58071005	98.21290543	97.84785396	97.48552467
170322A00011	3/22/2017	2.48	3/22/2024	3/22/2017	100.39393	100.0006647	99.61049137	99.22337089	98.83926739	98.45814559	98.07997072	97.70470858	97.3323255
170908A00017	9/9/2019	2.32	9/9/2024	9/9/2019	100.54102	99.69221419	98.85770692	98.03714267	97.23017405	96.43646513	95.65569095	94.88753714	94.13169942
170322A00022	3/22/2017	3.89	9/23/2041	3/22/2017	132.91225	116.2087153	102.0300901	89.96806809	79.68310476	70.89247436	63.36045819	56.89027269	51.31742139
170322A00023	3/22/2017	3.82	9/22/2039	3/22/2017	127.86027	113.0027848	100.1938395	89.13217643	79.56268688	71.26910854	64.06791375	57.80318683	52.34232627
170322A00024	3/22/2017	3.72	9/22/2036	3/22/2017	122.99474	110.7126247	99.85852941	90.25564177	81.75001376	74.20749842	67.51110793	61.55873606	56.26119288

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170322A00025	3/22/2017	3.58	3/22/2033	3/22/2017	118.60453	109.4205327	101.0522768	93.42224521	86.46068065	80.10477338	74.29793662	68.98916088	64.13243812
170322A00026	3/22/2017	3.22	3/22/2028	3/22/2017	109.37718	105.0227272	100.8689898	96.90567466	93.12306842	89.5120021	86.06381811	82.77033902	79.62383858
170327A00070	3/29/2017	3.05	3/29/2027	3/29/2017	106.93426	103.5531956	100.2981335	97.16371854	94.14485068	91.23667248	88.43455651	85.73409309	83.13107887
170327A00072	3/29/2017	3.09	3/29/2027	3/29/2017	107.06972	103.6863444	100.429041	97.29244596	94.27145694	91.36121451	88.55708922	85.8546695	83.24975021
170327A00077	3/27/2019	2.74	3/27/2024	3/27/2019	100.46463	100.0581881	99.65502975	99.25511964	98.85841862	98.46488813	98.07449026	97.68718768	97.30294366
170327A00078	3/27/2019	3.04	3/27/2026	3/27/2019	104.28909	101.9211245	99.61915619	97.3809851	95.20449362	93.08764696	91.02848936	89.02514052	87.07579225
170327A00079	3/27/2019	3.19	3/29/2027	3/27/2019	106.99548	103.6237285	100.377389	97.25113817	94.23990809	91.33887157	88.54342958	85.84919916	83.2520021
170915A00001	9/15/2017	2.43	9/16/2024	9/15/2017	100.65535	99.7875658	98.93472085	98.09642991	97.27232259	96.46204097	95.66523912	94.88158256	94.11074779
170328A00015	3/28/2017	2.75	11/29/2024	3/28/2017	101.20817	100.1435546	99.10130054	98.0807049	97.08109783	96.10183682	95.14230538	94.20191166	93.28008729
170919A00073	9/19/2017	2.28	9/19/2024	9/19/2017	100.66007	99.78257723	98.9203502	98.07299422	97.24012687	96.42137878	95.616393	94.82482459	94.04634
170412A00019	4/12/2017	2.56	4/12/2024	4/12/2017	100.42702	99.97744178	99.53189386	99.0903219	98.65267271	98.21889405	97.78893461	97.36274398	96.94027263
170417A00068	4/17/2019	2.59	4/17/2024	4/17/2019	100.45218	99.98905319	99.5301995	99.07556199	98.62508259	98.17870432	97.73637121	97.29802833	96.86362175
180514A00035	5/14/2018	3.07	5/14/2024	5/14/2018	100.83519	100.2975377	99.76562881	99.23937097	98.71867421	98.20345048	97.6936136	97.18907919	96.68976461
180521A00025	5/21/2018	3.24	5/21/2025	5/21/2018	102.91534	101.3783625	99.87195354	98.3952662	96.94748807	95.52783604	94.13555493	92.76991625	91.43021701
170427A00044	4/27/2017	3.02	4/27/2027	4/27/2017	106.59499	103.153954	99.84380753	96.65887179	93.59374234	90.6432778	87.80258551	85.0670081	82.43211086
170427A00046	4/27/2017	3.1	4/27/2028	4/27/2017	109.05244	104.6117366	100.3801333	96.3466725	92.50103089	88.83347684	85.33483326	81.99644311	78.81013726
170427A00047	4/27/2017	3.18	4/27/2029	4/27/2017	111.02874	105.6006909	100.4764989	95.63753185	91.0663913	86.7468282	82.66366128	78.80270146	75.15068212
170502A00028	5/2/2017	2.84	5/3/2027	5/2/2017	106.42828	102.9637269	99.63176226	96.42659962	93.34273392	90.3749298	87.5182067	84.76782504	82.11927317
171011A00013	10/11/2017	2.77	10/13/2026	10/11/2017	104.69002	101.7943501	98.99439021	96.28646195	93.66704701	91.13278153	88.68044833	86.3069697	84.00940052
180529A00042	5/29/2018	3.42	5/30/2028	5/29/2018	110.67311	106.1112001	101.7670275	97.62901851	93.68627784	89.92854465	86.34615212	82.92998977	79.67146844
180529A00044	5/29/2018	3.11	5/29/2024	5/29/2018	100.795	100.2186635	99.64890993	99.08562645	98.52870334	97.97803334	97.4335116	96.89503558	96.36250502
180530A00072	5/30/2018	3.06	5/30/2024	5/30/2018	100.76902	100.1900934	99.61781125	99.05205629	98.49271738	97.93968587	97.39285558	96.85212267	96.31738562
180530A00024	5/30/2018	3.44	5/30/2029	5/30/2018	112.54994	106.9973331	101.7590544	96.81559456	92.14875972	87.74157325	83.57818802	79.6438054	75.92460047
180530A00026	5/30/2018	3.55	5/30/2031	5/30/2018	115.71866	108.2410515	101.3156096	94.89838529	88.94914928	83.43106136	78.31036857	73.55613128	69.13997513
180530A00027	5/30/2018	3.61	6/1/2032	5/30/2018	117.70294	109.2583419	101.5077537	94.3899576	87.84944877	81.83587604	76.30353841	71.21093312	66.52034978
180530A00025	5/30/2018	3.49	5/30/2030	5/30/2018	113.97553	107.4589856	101.3681932	95.67296985	90.34542698	85.35978474	80.69220184	76.3206201	72.22462226
180530A00028	5/30/2018	3.67	5/31/2033	5/30/2018	119.67225	110.2763026	101.7285253	93.94696528	86.85801773	80.39553252	74.50002326	69.11796402	64.2011635
180530A00030	5/30/2018	3.68	5/30/2034	5/30/2018	120.92503	110.6229531	101.333201	92.94952961	85.37741024	78.53267842	72.34034777	66.73356499	61.65268867
171206A00048	12/6/2017	3.04	12/6/2032	12/6/2017	114.58736	105.7776043	97.73533264	90.3891463	83.67464661	77.53371848	71.91388724	66.76774436	62.05243433
171206A00038	12/6/2017	2.69	12/6/2027	12/6/2017	107.07197	103.0300179	99.16439298	95.46644533	91.92800117	88.54133067	85.29912135	82.194453	79.22077448
171206A00041	12/6/2017	2.44	12/6/2024	12/6/2017	101.01386	99.93035591	98.87003762	97.83216689	96.81603648	95.82096861	94.84631341	93.89144749	92.95577265
170508A00010	5/8/2017	2.43	5/8/2024	5/8/2017	100.47654	99.95612711	99.44110252	98.93138679	98.42689798	97.92755584	97.43328175	96.94399868	96.45963117
170515A00010	5/15/2017	2.58	5/15/2024	5/15/2017	100.48699	99.94877223	99.41632469	98.88955198	98.36836356	97.8526708	97.34238696	96.83742711	96.33770808

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171025A00026	10/25/2017	2.64	10/25/2024	10/25/2017	100.99434	100.0220906	99.06852588	98.13311432	97.21534112	96.31471073	95.43074603	94.56298746	93.71099223
171026A00008	10/26/2017	2.6	10/25/2024	10/26/2017	100.9547	99.98265614	99.02929926	98.09409281	97.17652199	96.27609134	95.39232379	94.52475983	93.67295672
171026A00009	10/26/2017	2.75	10/27/2025	10/26/2017	102.78297	100.8328958	98.9298251	97.07233111	95.25904329	93.48864183	91.7598553	90.07145858	88.42227076
171026A00010	10/26/2017	2.84	10/26/2026	10/26/2017	104.96048	102.0277227	99.19294755	96.45234793	93.8022832	91.23927441	88.75999618	86.36126898	84.04005184
171026A00011	10/26/2017	2.94	10/26/2027	10/26/2017	107.35576	103.4294422	99.67023521	96.07014284	92.62159273	89.31741317	86.15080968	83.1153431	80.20490913
171030A00023	10/30/2017	2.9	11/1/2027	10/30/2017	107.22999	103.2908773	99.5200732	95.90949279	92.45148168	89.13879213	85.96455912	82.92227806	80.00578396
171219A00063	12/19/2017	2.8	12/20/2027	12/19/2017	107.59376	103.5052075	99.59621038	95.85789729	92.28188913	88.86026575	85.58553796	82.45062155	79.44881295
171228A00023	12/28/2017	2.69	3/29/2024	12/28/2017	100.44957	100.0377432	99.62929109	99.22416996	98.82233919	98.42375881	98.02838951	97.63619261	97.24713006
181004A00029	10/4/2018	3.7	10/4/2028	10/4/2018	112.75634	107.8149253	103.1242725	98.67032173	94.43987233	90.42052694	86.60063837	82.96926043	79.51610229
181005A00012	10/5/2018	3.33	10/4/2024	10/5/2018	101.68131	100.7591542	99.8537274	98.96457548	98.0912623	97.23336714	96.39048407	95.56222132	94.74820064
181010A00023	10/10/2018	3.41	4/1/2024	10/10/2018	100.76233	100.3416045	99.92438381	99.51062852	99.10029558	98.69334265	98.28972813	97.88941107	97.49235121
180102A00021	1/2/2018	2.82	1/2/2026	1/2/2018	103.2899	101.1582105	99.08100581	97.05650532	95.08300564	93.15887233	91.28253651	89.45249161	87.66729041
180620A00038	6/20/2018	3.4	6/20/2028	6/20/2018	110.71207	106.0936774	101.6980019	97.51307986	93.52765973	89.73115242	86.11358868	82.66557925	79.37827783
180620A00014	6/20/2018	3.4	6/20/2028	6/20/2018	110.71207	106.0936774	101.6980019	97.51307986	93.52765973	89.73115242	86.11358868	82.66557925	79.37827783
180621A00017	6/21/2018	3.42	6/21/2028	6/21/2018	110.80974	106.1864723	101.7862347	97.59704398	93.60762827	89.80737967	86.1863115	82.73501835	79.44463898
180104A00017	1/4/2018	2.77	1/3/2025	1/4/2018	101.32696	100.1711418	99.04165044	97.93759303	96.85811758	95.80240976	94.76969084	93.75921581	92.77027153
180104A00018	1/4/2018	2.97	1/4/2027	1/4/2018	105.74951	102.6217879	99.60349503	96.69016026	93.87752095	91.16151536	88.53827174	86.00409808	83.55547256
180621A00068	6/21/2018	3.32	6/23/2025	6/21/2018	103.0778	101.4543292	99.86420037	98.30644713	96.78014303	95.284397	93.81835155	92.38118122	90.97209104
180622A00005	6/22/2018	3.5	7/2/2029	6/22/2018	113.00353	107.3530168	102.0265594	97.0037853	92.26571033	87.79463813	83.57406574	79.58859679	75.82386132
180622A00004	6/22/2018	3.47	12/22/2028	6/22/2018	112.04416	106.9160173	102.0580693	97.45459795	93.09088575	88.95314532	85.02845569	81.3047031	77.77052617
180622A00006	6/22/2018	3.53	12/21/2029	6/22/2018	113.72958	107.6241133	101.8938579	96.51367514	91.46024298	86.71191464	82.24858953	78.05159481	74.10357661
180109A00028	1/9/2018	2.6	1/9/2025	1/9/2018	101.28238	100.1092295	98.9632029	97.84336517	96.74882606	95.67873529	94.63228031	93.60868423	92.60720392
180110A00028	1/10/2018	2.85	1/10/2025	1/10/2018	101.44495	100.2703116	99.12284834	98.00162336	96.90574388	95.83435724	94.78664865	93.76183915	92.75918361
180110A00029	1/10/2018	3.13	1/10/2028	1/10/2018	108.56505	104.4170517	100.452668	96.6627455	93.0386429	89.57219718	86.25569423	83.08184132	80.04374154
180111A00007	1/11/2018	2.66	1/14/2025	1/11/2018	101.37007	100.1834308	99.02452598	97.89238941	96.78610131	95.70478365	94.64759776	93.6137422	92.60245066
180116A00014	1/16/2018	3.01	1/19/2027	1/16/2018	105.96177	102.7921848	99.73462748	96.78446502	93.93728836	91.18889903	88.5352974	85.97267189	83.49738869
180116A00015	1/16/2018	3.06	1/18/2028	1/16/2018	108.31931	104.1560295	100.1779026	96.37565847	92.74054551	89.26429896	85.93911078	82.75760156	79.71279432
180118A00004	1/18/2018	2.88	1/17/2025	1/18/2018	101.50499	100.311905	99.14684	98.00881746	96.89690339	95.81020643	94.74787539	93.70909703	92.69309397
170524A00011	5/24/2017	2.54	5/24/2024	5/24/2017	100.46527	99.90324375	99.34750128	98.7979367	98.25444735	97.71693282	97.18529492	96.65943758	96.13926683
180126A00029	1/26/2018	2.88	1/27/2025	1/26/2018	101.53931	100.3202217	99.13036855	97.96871064	96.83425429	95.72605204	94.64320002	93.58483541	92.5501342
181107A00008	11/7/2018	3.42	11/7/2023	11/7/2018	100.037	100.0175654	99.99815158	99.97875733	99.95938263	99.94002745	99.92069175	99.9013755	99.88207868
181109A00029	11/9/2018	3.72	11/9/2026	11/9/2018	107.68023	104.6695425	101.7601127	98.94796959	96.2293178	93.60053264	91.05815124	88.59886428	86.21950825
181109A00028	11/9/2018	3.72	11/9/2026	11/9/2018	107.68023	104.6695425	101.7601127	98.94796959	96.2293178	93.60053264	91.05815124	88.59886428	86.21950825

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180130A00085	1/30/2018	2.79	1/30/2025	1/30/2018	101.58379	100.35442	99.15474798	97.98371112	96.84029329	95.72352596	94.63248539	93.56629013	92.52409855
180130A00070	1/30/2018	3.14	1/29/2027	1/30/2018	106.43796	103.2350435	100.1460466	97.16622391	94.29106241	91.51626642	88.83774542	86.25160266	83.7541246
180131A00022	1/31/2018	2.96	1/30/2025	1/31/2018	101.65005	100.4224984	99.22456609	98.05518776	96.91335129	95.79809192	94.7084895	93.6436659	92.60278269
180201A00022	2/1/2018	2.99	2/3/2025	2/1/2018	101.71396	100.4749356	99.26492644	98.08291227	96.92792465	95.79903948	94.69537452	93.616087	92.56037148
180205A00019	2/5/2018	2.88	2/5/2025	2/5/2018	101.73845	100.4913168	99.27279427	98.08190266	96.91770306	95.77929886	94.66583343	93.57648793	92.5104792
180206A00013	2/6/2018	2.72	2/6/2024	2/6/2018	100.34625	100.0756591	99.8065359	99.53886758	99.27264225	99.00784819	98.74447381	98.48250765	98.22193834
180207A00002	2/7/2018	3.13	2/6/2026	2/7/2018	104.18296	101.9490629	99.77421746	97.6564528	95.59388132	93.58469304	91.62715177	89.71959139	87.86041243
180207A00003	2/7/2018	3.28	2/7/2028	2/7/2018	109.36194	105.1244115	101.0772297	97.21078601	93.51601663	89.98436418	86.60774632	83.3785266	80.28948709
181109A00027	11/13/2018	3.48	4/15/2024	11/13/2018	100.85862	100.3997732	99.94510992	99.49457378	99.04810863	98.60565932	98.16717167	97.73259251	97.30186959
181114A00021	11/14/2018	3.17	11/14/2023	11/14/2018	100.06891	100.0300175	99.99117385	99.95237737	99.91362795	99.8749255	99.83626993	99.79766113	99.75909903
181116A00015	11/19/2018	3.29	2/15/2024	11/19/2018	100.50959	100.2144762	99.92110111	99.62945394	99.33951942	99.0512824	98.76472792	98.47984119	98.1966076
181119A00018	11/19/2018	3.28	11/17/2023	11/19/2018	100.08327	100.0361034	99.98900059	99.94195828	99.89497638	99.84805476	99.8011933	99.75439189	99.7076504
140911A00027	9/11/2014	3.18	9/16/2024	9/11/2014	101.31865	100.4476865	99.59169782	98.75030086	97.92312449	97.10981007	96.31001093	95.52339189	94.7496288
171129A00020	11/29/2017	2.89	11/30/2026	11/29/2017	105.30694	102.2761976	99.34911212	96.52154848	93.78956172	91.14938746	88.59743242	86.13026551	83.74460946
181120A00024	11/20/2018	3.25	11/20/2023	11/20/2018	100.0963	100.0408262	99.98542638	99.93010237	99.87485398	99.81968106	99.76458344	99.70956096	99.65461348
190122A00007	1/22/2019	3.03	1/22/2024	1/22/2019	100.34059	100.1113872	99.8832439	99.65615113	99.43010155	99.20508793	98.9811031	98.75813998	98.53619153
190122A00045	1/22/2019	3.17	1/22/2027	1/22/2019	106.88104	103.679485	100.5913977	97.6120693	94.73702049	91.96198675	89.28290632	86.69590903	84.19730591
190122A00046	1/22/2019	3.29	1/22/2029	1/22/2019	111.89864	106.6746609	101.7304029	97.04933616	92.61600199	88.41593497	84.43559342	80.66229518	77.08415816
190122A00043	1/22/2019	2.96	1/22/2025	1/22/2019	101.76564	100.5557584	99.37461781	98.22120549	97.09455301	95.99373665	94.91787477	93.86612547	92.83768435
180716A00054	7/16/2018	3.59	7/16/2040	7/16/2018	127.97154	112.3673198	99.01560948	87.57007819	77.73980044	69.28010882	61.98500161	55.68083129	50.22105224
180717A00047	7/17/2018	3.3	9/17/2025	7/17/2018	103.61438	101.7601266	99.94826759	98.17758736	96.44691072	94.75510355	93.10107111	91.48375637	89.90213848
180719A00065	7/19/2018	3.36	7/20/2026	7/19/2018	105.85131	103.1605232	100.5522659	98.02347272	95.57121535	93.19269524	90.88523662	88.64628015	86.4733769
180719A00063	7/19/2018	3.21	7/19/2024	7/19/2018	101.04965	100.3364969	99.63340962	98.94017935	98.25659958	97.58246958	96.91759415	96.26178343	95.61485274
180719A00064	7/19/2018	3.3	7/21/2025	7/19/2018	103.22962	101.5313709	99.86912862	98.24181484	96.64839162	95.08786244	93.55927014	92.06169489	90.59425236
190605A00020	6/5/2019	2.19	2/5/2024	6/5/2019	100.16932	99.90212065	99.63635172	99.37200033	99.10905513	98.8475049	98.5873385	98.32854495	98.07111336
190606A00023	6/6/2019	2.23	6/6/2024	6/6/2019	100.28837	99.69241271	99.10352573	98.52158368	97.94646419	97.37804775	96.81621763	96.26085981	95.71186287
190606A00028	6/6/2019	2.74	6/6/2029	6/6/2019	108.7301	103.263777	98.1094491	93.24764349	88.66020709	84.33020705	80.24184232	76.38036211	72.7319907
190606A00029	6/6/2019	2.96	6/6/2034	6/6/2019	113.74649	103.7866342	94.81684879	86.7325125	79.44059316	72.8583093	66.91195246	61.53585006	56.67145161
190606A00027	6/6/2019	2.51	6/5/2026	6/6/2019	103.34366	100.8046012	98.34092975	95.94994701	93.62907292	91.37583643	89.18787005	87.06290473	84.99876511
190607A00018	6/7/2019	2.19	6/7/2024	6/7/2019	100.26482	99.66628188	99.07488034	98.49048563	97.9129737	97.34222342	96.77811649	96.22053737	95.66937316
180222A00025	2/22/2018	3.48	2/22/2033	2/22/2018	118.7435	109.5638022	101.1957359	93.56256078	86.59518186	80.2313526	74.41496369	69.09540902	64.22702009
180222A00026	2/22/2018	2.98	2/21/2025	2/22/2018	101.99116	100.6970264	99.42764275	98.18232081	96.96039738	95.76123376	94.58421462	93.42874698	92.29425911
180222A00027	2/22/2018	3.24	2/22/2028	2/22/2018	109.81842	105.514638	101.4062342	97.48331427	93.73653274	90.15706399	86.73657035	83.4671726	80.3414223

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181128A00031	11/28/2018	3.29	11/28/2023	11/28/2018	100.13795	100.0603156	99.98280502	99.90541763	99.82815309	99.75101114	99.67399148	99.59709382	99.52031789
181130A00037	11/30/2018	3.05	11/30/2023	11/30/2018	100.13772	100.0544669	99.97135297	99.88837675	99.80553787	99.72283599	99.64027077	99.55784188	99.47554898
181203A00053	12/4/2018	3.23	12/1/2023	12/4/2018	100.14748	100.061558	99.97578227	99.89015451	99.80467436	99.71934145	99.63415538	99.5491158	99.46422232
181203A00039	12/3/2018	3.27	12/1/2023	12/3/2018	100.15092	100.064995	99.97921633	99.89358563	99.80810255	99.7227667	99.63757771	99.5525352	99.4676388
190130A00019	1/30/2019	3.01	1/30/2024	1/30/2019	100.36727	100.1161155	99.86621994	99.61756975	99.37015567	99.12396854	98.87899926	98.63523884	98.39267837
190131A00019	1/31/2019	3.44	1/30/2034	1/31/2019	119.48945	109.4719149	100.4162996	92.22402247	84.80712786	78.08708565	71.99373506	66.46435185	61.4428239
180920A00014	9/20/2018	3.59	9/20/2028	9/20/2018	112.1414	107.2512784	102.6077337	98.19703241	94.00627617	90.02334593	86.23685082	82.63608086	79.21096288
180726A00046	7/26/2018	3.2	12/26/2023	7/26/2018	100.25928	100.1043199	99.94984272	99.79584952	99.64233801	99.48930592	99.336751	99.18467102	99.03306374
180727A00028	7/27/2018	3.25	7/27/2026	7/27/2018	105.92845	103.2112159	100.5779241	98.02543704	95.55075488	93.1510117	90.8234685	88.56550644	86.37462057
180727A00039	7/27/2018	3.48	7/27/2028	7/27/2018	111.29874	106.5714393	102.0760945	97.80002677	93.73132071	89.85877669	86.17186328	82.66067346	79.31588385
180727A00038	7/27/2018	3.36	7/25/2025	7/27/2018	103.35971	101.6499103	99.97652767	98.33846488	96.73466699	95.16412146	93.62585595	92.11893627	90.6424645
180730A00023	7/30/2018	3.13	7/30/2024	7/30/2018	101.17146	100.4268137	99.69312142	98.97014136	98.25764019	97.55539125	96.8631744	96.18077574	95.50798745
180730A00081	7/30/2018	3.5	7/28/2028	7/30/2018	111.39803	106.6658599	102.1659709	97.88565673	93.81298096	89.93672437	86.24633752	82.73189669	79.3840631
190613A00011	6/13/2019	2.26	6/13/2024	6/13/2019	100.31233	99.69767939	99.09055568	98.4908183	97.89833293	97.31296849	96.73459705	96.16309372	95.59833657
190618A00002	6/18/2019	2.11	6/18/2025	6/18/2019	101.26005	99.66210571	98.09689169	96.56346949	95.06093414	93.58841495	92.14507388	90.73010397	89.34272785
190619A00009	6/19/2019	2.26	6/19/2024	6/19/2019	100.31732	99.68672173	99.06403864	98.4491247	97.84183506	97.24202845	96.64956708	96.06431654	95.48614566
190620A00027	6/20/2019	2.14	6/20/2024	6/20/2019	100.24097	99.60799512	98.98299715	98.3658301	97.75634737	97.15440602	96.55986662	95.97259318	95.39245302
190620A00045	6/20/2019	2.14	6/20/2024	6/20/2019	100.24097	99.60799512	98.98299715	98.3658301	97.75634737	97.15440602	96.55986662	95.97259318	95.39245302
190621A00015	6/21/2019	2.2	6/21/2024	6/21/2019	100.28023	99.64445953	99.01673334	98.39690365	97.78482207	97.18034389	96.58332802	95.99363683	95.41113604
190621A00039	6/21/2019	2.21	6/17/2024	6/21/2019	100.28391	99.65873784	99.04135179	98.43160578	97.82935852	97.23447218	96.6468123	96.06624767	95.49265026
190625A00012	6/25/2019	2.12	6/25/2024	6/25/2019	100.23036	99.58415953	98.94627022	98.31653431	97.69479623	97.08090434	96.47471079	95.87607146	95.28484578
190625A00023	6/25/2019	2.47	6/25/2027	6/25/2019	104.96697	101.4013356	97.97647958	94.68605423	91.52403973	88.48472179	85.56267421	82.75274249	80.05002852
190625A00024	6/25/2019	2.26	6/25/2025	6/25/2019	101.34059	99.7265579	98.14578655	96.5973082	95.08019589	93.59355811	92.13653711	90.70830726	89.30807355
190626A00004	6/26/2019	2.15	6/26/2024	6/26/2019	100.2506	99.60167422	98.96112651	98.32879783	97.70453076	97.08817188	96.47957166	95.8785843	95.28506763
190626A00015	6/26/2019	2.15	6/26/2024	6/26/2019	100.2506	99.60167422	98.96112651	98.32879783	97.70453076	97.08817188	96.47957166	95.8785843	95.28506763
190627A00010	6/27/2019	1.97	6/27/2024	6/27/2019	100.26744	99.61407392	98.96920629	98.33266785	97.70429802	97.08394031	96.47144221	95.86665505	95.2694339
190208A00009	2/8/2019	2.67	2/8/2024	2/8/2019	100.33887	100.0628217	99.78830524	99.51530442	99.24380665	98.97379944	98.70527045	98.43820747	98.17259843
190208A00008	2/8/2019	2.86	2/8/2024	2/8/2019	100.35919	100.0834652	99.80925955	99.53656363	99.26536499	98.99565124	98.72741014	98.46062961	98.19529766
190211A00017	2/11/2019	3.12	2/11/2026	2/11/2019	104.19603	101.9475874	99.75893133	97.62807892	95.55312959	93.53225957	91.56371815	89.64582412	87.77696245
190211A00016	2/11/2019	3.01	2/11/2025	2/11/2019	101.79975	100.5375766	99.30246667	98.09355399	96.91000515	95.75102221	94.61584077	93.50372829	92.41398233
180313A00026	3/13/2018	3.34	3/13/2028	3/13/2018	109.84337	105.5018013	101.3592199	97.40547609	93.63098789	90.02670767	86.58408976	83.29506002	80.15198752
190213A00023	2/13/2019	2.93	2/13/2024	2/13/2019	100.39596	100.1065197	99.81875545	99.53265549	99.24820534	98.96539068	98.68419734	98.40461132	98.12661878
190214A00006	2/14/2019	2.67	2/14/2024	2/14/2019	100.35745	100.0649765	99.77421808	99.48516154	99.19779181	98.91209405	98.62805357	98.34565588	98.06488664

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190215A00017	2/15/2019	2.89	2/15/2024	2/15/2019	100.39106	100.0961735	99.80302604	99.5116055	99.22189659	98.93388418	98.6475533	98.36288919	98.07987722
190215A00005	2/15/2019	2.89	2/15/2024	2/15/2019	100.39106	100.0961735	99.80302604	99.5116055	99.22189659	98.93388418	98.6475533	98.36288919	98.07987722
181210A00015	12/10/2018	3.12	12/11/2023	12/10/2018	100.18154	100.0679919	99.95471171	99.8417027	99.72896387	99.61649421	99.50429272	99.39235838	99.28069021
190215A00006	2/15/2019	2.89	2/15/2024	2/15/2019	100.39106	100.0961735	99.80302604	99.5116055	99.22189659	98.93388418	98.6475533	98.36288919	98.07987722
190215A00046	2/15/2019	2.7	2/15/2024	2/15/2019	100.36944	100.074212	99.78073115	99.48898373	99.19895431	98.91062764	98.62398863	98.33902239	98.0557142
190220A00007	2/20/2019	2.87	2/20/2024	2/20/2019	100.4017	100.0931522	99.78651216	99.48175837	99.17887335	98.87783989	98.57864097	98.28125981	97.9856798
190222A00021	2/22/2019	2.95	8/21/2024	2/22/2019	100.99416	100.1936347	99.40579143	98.63033356	97.86697045	97.11542051	96.37541084	95.64667692	94.92896224
190225A00026	2/25/2019	3.43	2/27/2034	2/25/2019	119.485	109.3967458	100.2842532	92.04688621	84.59490711	77.84824197	71.73539502	66.1924896	61.16242063
190227A00005	2/27/2019	2.87	2/27/2024	2/27/2019	100.42489	100.0972263	99.77170079	99.44829043	99.12697467	98.80773322	98.49054606	98.17539341	97.86225575
190701A00009	7/3/2019	2.14	7/2/2024	7/3/2019	100.24774	99.58293285	98.92691512	98.27951633	97.64056751	97.00990411	96.38736582	95.77279644	95.16604373
190701A00023	7/1/2019	1.95	7/1/2024	7/1/2019	100.25672	99.59276998	98.937586	98.29099757	97.65283645	97.02293873	96.40114475	95.78729893	95.18124966
190702A00002	7/2/2019	2.16	7/2/2024	7/2/2019	100.26127	99.59640417	98.94033598	98.29288719	97.65388885	97.02317639	96.40058948	95.78597192	95.17917148
190703A00017	7/3/2019	2.33	5/4/2026	7/3/2019	102.74573	100.2972583	97.91986955	95.61109147	93.36855178	91.18997511	89.07317838	87.01606649	85.01662814
190708A00011	7/8/2019	2.2	7/8/2024	7/8/2019	100.30115	99.62016876	98.94841871	98.28571185	97.63186637	96.98670534	96.35005649	95.72175208	95.10162877
190709A00018	7/9/2019	2.24	7/9/2024	7/9/2019	100.33	99.64626698	98.97183289	98.30651351	97.65012487	97.00248793	96.36342841	95.73277664	95.11036739
190710A00022	7/10/2019	2.22	7/10/2024	7/10/2019	100.3172	99.63086231	98.9539041	98.28613073	97.62735606	96.97739898	96.33608321	95.70323715	95.0786937
190712A00001	7/12/2019	2.05	7/12/2024	7/12/2019	100.33683	99.64336045	98.95946547	98.28494501	97.61960708	96.96326494	96.31573688	95.67684605	95.04642033
190712A00018	7/12/2019	2.25	7/12/2024	7/12/2019	100.3405	99.64878378	98.96659046	98.29372438	97.62999507	96.97521721	96.32921046	95.69179932	95.06281294
190715A00010	7/15/2019	2.23	7/15/2024	7/15/2019	100.32981	99.63020059	98.94033463	98.26000876	97.58902592	96.92719448	96.27432799	95.63024506	94.99476917
180323A00013	3/23/2018	3.18	3/23/2028	3/23/2018	109.74558	105.3648689	101.1865092	97.20010295	93.39583868	89.76445614	86.29721256	82.98585111	79.82257141
181211A00031	12/11/2018	2.95	12/11/2023	12/11/2018	100.17559	100.06191	99.94850328	99.83536952	99.72250769	99.60991675	99.49759567	99.38554344	99.27375903
181211A00018	12/11/2018	3.14	12/11/2023	12/11/2018	100.18382	100.0702636	99.95698099	99.84396958	99.73122836	99.61875631	99.50655242	99.39461571	99.28294517
181211A00009	12/11/2018	3.14	12/11/2023	12/11/2018	100.18382	100.0702636	99.95698099	99.84396958	99.73122836	99.61875631	99.50655242	99.39461571	99.28294517
181213A00031	12/13/2018	2.97	12/13/2023	12/13/2018	100.18638	100.067164	99.94825145	99.82963842	99.71132372	99.59330617	99.47558459	99.35815781	99.24102466
180328A00010	3/28/2018	3.1	3/28/2025	3/28/2018	102.19872	100.8132443	99.45323775	98.11805978	96.80709002	95.51972829	94.25539383	93.01352451	91.79357608
180329A00003	3/29/2018	3.08	3/29/2028	3/29/2018	109.34455	104.9571906	100.7732861	96.78234005	92.97445443	89.34028928	85.87102841	82.55834729	79.39438318
181217A00010	12/17/2018	3.11	12/15/2023	12/17/2018	100.19771	100.0731137	99.94884286	99.82489668	99.70127384	99.57797303	99.45499294	99.33233229	99.20998978
181218A00077	12/18/2018	3.09	12/18/2023	12/18/2018	100.20803	100.0751532	99.94264647	99.81050599	99.67873027	99.54731774	99.41626686	99.28557611	99.15524395
190301A00012	3/1/2019	3.41	3/1/2029	3/1/2019	112.05619	106.7453703	101.7236482	96.97377303	92.47960594	88.22604546	84.19895583	80.38510068	76.77208141
180403A00006	4/3/2018	3.07	4/3/2028	4/3/2018	109.32924	104.9292135	100.7338186	96.73247393	92.91519639	89.27256758	85.79569878	82.47619848	79.30614203
180403A00041	4/3/2018	2.91	4/3/2025	4/3/2018	102.12984	100.7263819	99.34903566	97.99714036	96.67005265	95.36715047	94.08783215	92.83151555	91.59763728
181219A00006	12/19/2018	3.06	12/19/2023	12/19/2018	100.20822	100.0725937	99.93734637	99.80247948	99.66799142	99.53388057	99.40014529	99.26678397	99.133795
190308A00007	3/8/2019	2.8	3/8/2024	3/8/2019	100.4321	100.0772572	99.72492427	99.37507854	99.02769365	98.6827436	98.34020277	98.00004589	97.66224804

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190314A00027	3/22/2019	2.92	3/21/2025	3/22/2019	101.91068	100.545415	99.20496399	97.88870546	96.59604148	95.3263934	94.07920107	92.85392209	91.65003113
190315A00014	3/15/2019	2.74	3/15/2024	3/15/2019	100.43055	100.0567065	99.68565816	99.31737153	98.95181567	98.58896016	98.22877502	97.87123073	97.51629819
190318A00008	3/18/2019	2.76	3/18/2024	3/18/2019	100.44676	100.0647447	99.6856445	99.30942582	98.93605579	98.56550203	98.19773264	97.83271619	97.47042173
190318A00021	3/18/2019	2.76	3/18/2024	3/18/2019	100.44676	100.0647447	99.6856445	99.30942582	98.93605579	98.56550203	98.19773264	97.83271619	97.47042173
190717A00008	7/17/2019	2.22	7/17/2024	7/17/2019	100.33187	99.62687648	98.93177453	98.24635796	97.57042524	96.90378037	96.24623273	95.5975969	94.95769246
190321A00003	3/21/2019	2.67	3/21/2024	3/21/2019	100.42008	100.0299962	99.64294975	99.25890539	98.87782821	98.49968379	98.12443828	97.75205834	97.38251112
190719A00006	7/19/2019	2.17	7/19/2024	7/19/2019	100.29799	99.58784055	98.88773392	98.19745463	97.51679671	96.84555989	96.18354945	95.53057599	94.88645527
150601A01024	6/1/2015	5.33	2/27/2026	6/1/2015	109.25235	106.8981933	104.6074485	102.3780575	100.2080403	98.09549239	96.03858126	94.03554341	92.08468127
190724A00023	7/24/2019	2.13	7/24/2025	7/24/2019	101.4287	99.73512197	98.07768636	96.45530337	94.86692532	93.31154667	91.78820182	90.2959631	88.83393884
190724A00021	7/24/2019	2.33	7/23/2027	7/24/2019	105.02008	101.3702963	97.86736146	94.50452996	91.27540659	88.17392794	85.19434289	82.33119443	79.57930259
190724A00024	7/24/2019	2.49	7/24/2029	7/24/2019	108.08747	102.4951256	97.22937214	92.26937775	87.59575314	83.19044195	79.03662177	75.118613	71.42179508
190726A00014	7/26/2019	2.23	7/24/2024	7/26/2019	100.34713	99.62357158	98.91043026	98.20747863	97.51449937	96.83128135	96.15761932	95.49331379	94.83817076
190726A00017	7/26/2019	2.44	7/24/2026	7/26/2019	103.38031	100.7131228	98.12825196	95.62262531	93.19330841	90.83749746	88.55251229	86.33578993	84.1848785
190729A00008	7/29/2019	2.18	1/29/2024	7/29/2019	100.15639	99.90833203	99.66149983	99.41588683	99.17148401	98.92828245	98.68627335	98.44544794	98.20579757
190730A00007	7/30/2019	2.19	7/30/2024	7/30/2019	100.33127	99.59184069	98.86328013	98.14534775	97.43781239	96.74044953	96.05304109	95.37537516	94.70724582
190730A00016	7/30/2019	2	7/30/2024	7/30/2019	100.32001	99.57890323	98.84870887	98.12919058	97.42011562	96.72125794	96.03239799	95.35332247	94.68382411
180814A00010	8/14/2018	3.1	8/14/2025	8/14/2018	103.24204	101.4773407	99.75128319	98.06273685	96.41061098	94.79385598	93.2114615	91.66245449	90.14589755
190731A00004	7/31/2019	2.18	7/31/2024	7/31/2019	100.32478	99.58274478	98.85164715	98.13125066	97.42132183	96.7216339	96.03196663	95.35210604	94.6818442
180412A00034	4/12/2018	3.23	4/15/2030	4/12/2018	112.98641	106.5827031	100.5922359	94.98609301	89.7375292	84.82179368	80.21597166	75.89883929	71.85073071
180412A00036	4/12/2018	3.54	4/15/2038	4/12/2018	123.6728	110.049011	98.17672948	87.81660283	78.76334846	70.84074148	63.89736018	57.80297337	52.44547
190802A00032	8/2/2019	2.01	8/2/2024	8/2/2019	100.19875	99.45195287	98.71625383	97.99140521	97.2771684	96.57331173	95.87961025	95.19584544	94.52180503
190802A00003	8/2/2019	2.01	8/2/2024	8/2/2019	100.19875	99.45195287	98.71625383	97.99140521	97.2771684	96.57331173	95.87961025	95.19584544	94.52180503
180816A00038	8/16/2018	3.38	8/16/2028	8/16/2018	110.94065	106.1702826	101.6365129	97.32633088	93.22751312	89.32856945	85.61869493	82.08772529	78.72609548
181227A00026	12/27/2018	3.03	12/27/2023	12/27/2018	100.237	100.0793074	99.92212117	99.76543423	99.60924417	99.45354862	99.29834524	99.14363169	98.98940564
181227A00028	12/27/2018	3.46	12/27/2028	12/27/2018	112.01722	106.8770229	102.0082569	97.3950964	93.02272679	88.87727221	84.94573065	81.21591415	77.67639338
181227A00019	12/28/2020	3.1	12/29/2025	12/28/2020	103.87274	101.7449795	99.67136047	97.65013025	95.67960321	93.75816159	91.88425221	90.05638325	88.27312134
181227A00027	12/27/2018	3.24	12/26/2025	12/27/2018	104.15537	102.0322871	99.96307315	97.94598531	95.97935169	94.06156749	92.19109169	90.36644396	88.58620174
190326A00032	3/26/2019	2.4	3/26/2024	3/26/2019	100.37114	99.96708179	99.56627981	99.16869448	98.7742871	98.38301962	97.99485457	97.60975508	97.22768488
190326A00024	3/26/2019	2.59	3/26/2024	3/26/2019	100.40078	99.99719881	99.59686242	99.1997321	98.8057694	98.4149365	98.02719616	97.64251174	97.26084719
190327A00006	3/27/2019	2.53	3/27/2024	3/27/2019	100.37864	99.97240328	99.56945556	99.16975484	98.77326196	98.3799384	97.98974624	97.60264817	97.21860748
190327A00013	3/27/2019	2.53	3/27/2024	3/27/2019	100.37864	99.97240328	99.56945556	99.16975484	98.77326196	98.3799384	97.98974624	97.60264817	97.21860748
190102A00058	1/2/2019	2.91	1/2/2024	1/2/2019	100.24039	100.0661957	99.89261255	99.71963307	99.54725407	99.37547243	99.20428505	99.03368884	98.86368074
190102A00050	1/2/2019	3.38	1/3/2034	1/2/2019	118.83847	108.913748	99.93703816	91.81172602	84.45155142	77.77944486	71.72650391	66.23108829	61.2380196

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190327A00027	3/27/2019	2.66	1/15/2025	3/27/2019	101.23091	100.0447432	98.88632432	97.75469151	96.64892329	95.56814008	94.5115018	93.47820567	92.46748416
190327A00031	3/27/2019	2.53	3/27/2024	3/27/2019	100.37864	99.97240328	99.56945556	99.16975484	98.77326196	98.3799384	97.98974624	97.60264817	97.21860748
190327A00032	3/27/2019	2.53	1/26/2024	3/27/2019	100.23592	99.995936	99.75710603	99.51942212	99.28287602	99.04745954	98.81316458	98.57998314	98.34790725
190328A00065	3/28/2019	2.56	3/28/2024	3/28/2019	100.39327	99.98429081	99.5786423	99.17628239	98.77717121	98.38126951	97.98853869	97.59894077	97.21243835
190328A00046	3/28/2019	2.7	3/4/2025	3/28/2019	101.53176	100.2131924	98.91789863	97.64531801	96.39490458	95.16612943	93.9584801	92.77145988	91.60458728
190328A00079	3/28/2019	2.37	3/28/2024	3/28/2019	100.36321	99.95374735	99.54762638	99.14480481	98.74524253	98.34890004	97.9557385	97.56571971	97.17880603
190328A00003	3/28/2019	2.64	9/30/2024	3/28/2019	100.89644	99.99051829	99.10083208	98.22694527	97.36843988	96.52491259	95.69597404	94.88124828	94.08037216
190328A00083	3/28/2019	2.37	3/28/2024	3/28/2019	100.36321	99.95374735	99.54762638	99.14480481	98.74524253	98.34890004	97.9557385	97.56571971	97.17880603
190328A00031	4/25/2019	2.56	4/25/2024	4/25/2019	100.456	99.97130661	99.49128843	99.01587705	98.54500633	98.07861142	97.61662866	97.15899562	96.70565104
190103A00010	1/3/2019	2.7	1/3/2024	1/3/2019	100.22744	100.0503058	99.87380027	99.69792247	99.522669	99.34803652	99.17402169	99.00062121	98.8278318
190104A00033	1/4/2019	3.37	1/31/2029	1/4/2019	111.7065	106.4858156	101.5452492	96.86821337	92.43919388	88.24367585	84.26807378	80.49966667	76.92653808
190328A00019	3/28/2019	2.56	3/28/2024	3/28/2019	100.39327	99.98429081	99.5786423	99.17628239	98.77717121	98.38126951	97.98853869	97.59894077	97.21243835
190328A00033	4/25/2019	2.56	4/25/2024	4/25/2019	100.456	99.97130661	99.49128843	99.01587705	98.54500633	98.07861142	97.61662866	97.15899562	96.70565104
190329A00018	3/29/2019	2.6	3/29/2024	3/29/2019	100.41222	100.0004837	99.59212393	99.18709458	98.78535502	98.38686532	97.99158616	97.59947888	97.21050541
160524A00027	5/24/2016	3.06	5/27/2031	5/24/2016	112.11774	104.7785556	97.98356489	91.6893774	85.85627668	80.44789504	75.43091499	70.77479868	66.45154261
171018A00011	10/18/2017	2.68	10/18/2027	10/18/2017	106.77116	102.8633831	99.1215409	95.53771903	92.1044203	88.81454271	85.66135656	82.63848286	79.73987323
160401A00016	4/1/2016	2.42	4/1/2025	4/1/2016	101.25418	99.86526403	98.50207187	97.16394765	95.85026107	94.56040252	93.29378223	92.04982944	90.8279917
160307A00027	3/7/2016	2.71	3/6/2026	3/7/2016	103.39499	101.0917431	98.85140587	96.67192092	94.55130983	92.48766976	90.47917016	88.52404962	86.62061279
171127A00016	11/27/2017	2.28	11/27/2023	11/27/2017	100.06625	99.99135595	99.91657858	99.84191888	99.76737656	99.69295135	99.61864297	99.54445114	99.47037558
160307A00028	3/7/2016	2.91	3/7/2028	3/7/2016	107.96057	103.6747474	99.58520162	95.68193819	91.95552417	88.39705128	84.99810411	81.75073043	78.64741338
161214A00023	12/14/2016	3.3	12/15/2031	12/14/2016	115.55016	107.5534541	100.1861727	93.39512348	87.13187969	81.35233106	76.01627786	71.0870652	66.53125326
190401A00010	4/1/2019	2.62	4/1/2024	4/1/2019	100.42793	100.0080428	99.59166128	99.17874001	98.76923601	98.36310702	97.96031146	97.56080845	97.16455776
190107A00024	1/7/2019	2.91	1/5/2024	1/7/2019	100.25127	100.0688281	99.88705562	99.70595009	99.52550779	99.34572506	99.16659824	98.98812371	98.81029789
190402A00004	4/2/2019	2.9	4/2/2029	4/2/2019	110.11745	104.7552532	99.69072829	94.90579187	90.38355031	86.10821465	82.06502296	78.24016849	74.62073319
190403A00006	4/3/2019	2.48	4/3/2024	4/3/2019	100.42289	99.99703204	99.57478298	99.15609865	98.74093399	98.3292447	97.92098723	97.51611874	97.11459711
190404A00003	4/4/2019	2.47	4/4/2024	4/4/2019	100.42091	99.99234789	99.56744648	99.14615638	98.72843162	98.31422701	97.9034981	97.49620122	97.09229341
190805A00011	8/5/2019	1.91	8/5/2024	8/5/2019	100.13293	99.37839407	98.63519886	97.90308681	97.1818114	96.47113336	95.77082043	95.0806471	94.40039434
190805A00009	8/5/2019	1.91	8/5/2024	8/5/2019	100.13293	99.37839407	98.63519886	97.90308681	97.1818114	96.47113336	95.77082043	95.0806471	94.40039434
190805A00050	8/5/2019	1.91	8/5/2024	8/5/2019	100.13293	99.37839407	98.63519886	97.90308681	97.1818114	96.47113336	95.77082043	95.08064709	94.40039434
190409A00019	4/9/2019	2.91	4/9/2029	4/9/2019	110.19007	104.8079513	99.72558372	94.92469424	90.38821846	86.10021176	82.0457702	78.2109575	74.58273744
190409A00031	4/9/2019	2.64	4/9/2024	4/9/2019	100.45597	100.014404	99.57672849	99.14288715	98.71282966	98.28650656	97.86386925	97.44486997	97.02946179
190411A00017	4/15/2019	2.65	4/15/2024	4/15/2019	100.47527	100.0174717	99.56384913	99.11434681	98.66890867	98.22747963	97.79000559	97.35643345	96.92671103
190807A00021	8/7/2019	2	8/7/2026	8/7/2019	102.2281	99.54107871	96.9380954	94.4159988	91.97178228	89.60257218	87.30562086	85.07830019	82.91809541

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190807A00020	8/7/2019	1.57	2/7/2024	8/7/2019	100.03406	99.76129892	99.49003604	99.220256	98.95194658	98.68509569	98.41969139	98.15572186	97.8931754
190808A00050	8/8/2019	1.7	8/8/2024	8/8/2019	100.10088	99.33686985	98.5844911	97.84347652	97.11357	96.39452312	95.68609478	94.98805103	94.30016469
190808A00052	8/8/2019	1.7	8/8/2024	8/8/2019	100.10088	99.33686985	98.5844911	97.84347652	97.11357	96.39452312	95.68609478	94.98805103	94.30016469
190808A00023	8/8/2019	1.68	11/8/2023	8/8/2019	100.0063	99.98409932	99.96192067	99.93976527	99.91763306	99.89552402	99.8734381	99.85137525	99.82933544
190808A00025	8/8/2019	1.7	8/8/2024	8/8/2019	100.10088	99.33686985	98.5844911	97.84347652	97.11357	96.39452312	95.68609478	94.98805103	94.30016469
190808A00009	8/8/2019	1.89	8/8/2024	8/8/2019	100.11273	99.35047269	98.59978942	97.86041949	97.13210854	96.41460978	95.70768372	95.0110979	94.32462663
190808A00024	8/8/2019	1.69	2/8/2024	8/8/2019	100.06736	99.79181127	99.51778947	99.24528124	98.97427397	98.70475519	98.43671257	98.17013391	97.90500717
190809A00011	8/9/2019	1.69	8/9/2024	8/9/2019	100.09391	99.32728638	98.57237471	97.82890542	97.09661974	96.37526666	95.66460264	94.96439133	94.2744033
190809A00012	8/9/2019	1.69	8/9/2024	8/9/2019	100.09391	99.32728638	98.57237471	97.82890542	97.09661974	96.37526666	95.66460264	94.96439133	94.2744033
190809A00020	8/9/2019	2.44	8/9/2034	8/9/2019	109.7472	99.78103614	90.82879014	82.78126272	75.54156108	69.02365214	63.1510949	57.85592644	53.07768239
190809A00021	8/9/2019	2.12	8/9/2029	8/9/2019	106.00142	100.4284321	95.18408309	90.24727431	85.59837073	81.21909224	77.09241303	73.20246893	69.53447208
190809A00010	8/9/2019	1.88	8/8/2024	8/9/2019	100.10496	99.34273014	98.59207973	97.85274231	97.12446353	96.4069966	95.70010203	95.00354739	94.31710698
190809A00022	8/9/2019	1.88	8/9/2024	8/9/2019	100.10582	99.3409507	98.58774161	97.84592375	97.11524009	96.39544128	95.68628539	94.9875376	94.29896996
190812A00006	8/12/2019	1.86	8/12/2024	8/12/2019	100.10028	99.32742969	98.56648342	97.81716634	97.07921328	96.35236708	95.63637829	94.93100489	94.23601201
190812A00003	8/12/2019	1.67	8/12/2024	8/12/2019	100.08056	99.30606942	98.54353028	97.79266923	97.0532194	96.32492203	95.60752613	94.90078818	94.20447189
190813A00008	8/13/2019	1.88	8/13/2024	8/13/2019	100.11694	99.3413807	98.57780933	97.82594662	97.08552468	96.35628374	95.63797186	94.93034459	94.23316478
190813A00016	8/13/2019	1.88	8/13/2024	8/13/2019	100.11694	99.3413807	98.57780933	97.82594662	97.08552468	96.35628374	95.63797186	94.93034459	94.23316478
190814A00015	8/14/2019	1.84	8/14/2024	8/14/2019	100.08606	99.3080062	98.5420145	97.78780882	97.04511861	96.31368151	95.59324311	94.8835566	94.18438252
190814A00009	8/14/2019	1.84	8/14/2024	8/14/2019	100.08606	99.3080062	98.5420145	97.78780882	97.04511861	96.31368151	95.59324311	94.8835566	94.18438252
180820A00055	8/20/2018	3.37	8/21/2028	8/20/2018	110.92041	106.1376588	101.5927349	97.27254879	93.16479876	89.25792042	85.54103849	82.00392212	78.63694337
190814A00003	8/14/2019	2.01	8/14/2029	8/14/2019	105.37513	99.8075675	94.56933166	89.63924137	84.99758706	80.62601964	76.5074495	72.62595367	68.96669019
190814A00008	8/14/2019	1.84	8/14/2024	8/14/2019	100.08606	99.3080062	98.5420145	97.78780882	97.04511861	96.31368151	95.59324311	94.8835566	94.18438252
190816A00011	8/16/2019	1.77	8/16/2024	8/16/2019	100.03165	99.24856716	98.47770678	97.71878783	96.97153434	96.23567879	95.51096178	94.79713175	94.09394464
190816A00036	8/16/2019	1.77	8/16/2024	8/16/2019	100.03165	99.24856716	98.47770678	97.71878783	96.97153434	96.23567879	95.51096178	94.79713175	94.09394464
190816A00031	8/16/2019	1.77	8/16/2024	8/16/2019	100.03165	99.24856716	98.47770678	97.71878783	96.97153434	96.23567879	95.51096178	94.79713175	94.09394464
190816A00020	8/16/2019	1.79	8/16/2024	8/16/2019	100.04764	99.26448729	98.49355761	97.73457012	96.98724883	96.25132621	95.52654285	94.81264716	94.10939509
190816A00006	8/16/2019	1.77	8/16/2024	8/16/2019	100.03165	99.24856716	98.47770678	97.71878783	96.97153434	96.23567879	95.51096178	94.79713175	94.09394464
190816A00022	8/16/2019	1.77	8/16/2024	8/16/2019	100.03165	99.24856716	98.47770678	97.71878783	96.97153434	96.23567879	95.51096178	94.79713175	94.09394464
190816A00033	8/16/2019	1.77	8/16/2024	8/16/2019	100.03165	99.24856716	98.47770678	97.71878783	96.97153434	96.23567879	95.51096178	94.79713175	94.09394464
180823A00055	8/23/2018	3.44	8/23/2033	8/23/2018	119.01597	109.3932643	100.6607405	92.7304722	85.5236642	78.96966486	73.00508613	67.57302244	62.62235732
180827A00020	8/27/2018	3.21	8/27/2025	8/27/2018	103.3081	101.5126695	99.75717405	98.04048232	96.36150161	94.71917742	93.11249181	91.54046191	90.00213838
180828A00032	8/28/2018	3.49	8/29/2033	8/28/2018	119.50494	109.8452662	101.0799388	93.12053281	85.8878182	79.31075953	73.32562992	67.87522499	62.90816479
190108A00039	1/8/2019	3.04	4/30/2024	1/8/2019	100.7087	100.2098168	99.71586901	99.22678158	98.74248311	98.26290358	97.7879743	97.31762794	96.85179844

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190110A00013	1/10/2019	2.97	1/17/2024	1/10/2019	100.3078	100.0923534	99.87784577	99.6642714	99.45162416	99.23989794	99.02908669	98.81918443	98.61018521
190110A00005	1/10/2019	3.2	1/9/2026	1/10/2019	104.15813	101.9987035	99.89478526	97.84455301	95.84625907	93.89822721	91.99884905	90.14658069	88.33993952
190110A00003	1/10/2019	2.97	1/10/2024	1/10/2019	100.28122	100.0850158	99.88958679	99.69493319	99.50105031	99.30793351	99.11557819	98.92397979	98.73313378
190110A00010	1/10/2019	2.97	1/16/2024	1/10/2019	100.304	100.0913037	99.87952011	99.66864686	99.45867798	99.24960756	99.04142978	98.83413886	98.62772907
190110A00012	1/10/2019	2.97	1/18/2024	1/10/2019	100.3116	100.0934037	99.87617243	99.65989754	99.44457269	99.23019156	99.01674788	98.80423544	98.59264809
190110A00009	1/10/2019	2.97	1/16/2024	1/10/2019	100.304	100.0913037	99.87952011	99.66864686	99.45867798	99.24960756	99.04142978	98.83413886	98.62772907
190110A00014	1/10/2019	2.97	1/17/2024	1/10/2019	100.3078	100.0923534	99.87784577	99.6642714	99.45162416	99.23989794	99.02908669	98.81918443	98.61018521
190110A00004	1/10/2019	3.09	1/10/2025	1/10/2019	101.73319	100.5567289	99.40746843	98.28447492	97.18685481	96.11375472	95.06435916	94.03788846	93.03359685
180831A00019	8/31/2018	3.21	9/2/2025	8/31/2018	103.34653	101.5349633	99.76401219	98.03253417	96.33942458	94.68361653	93.06407939	91.47981731	89.92986784
190111A00026	1/11/2019	3.48	1/11/2034	1/11/2019	119.82898	109.8382093	100.802207	92.62356765	85.21533635	78.49983531	72.40762893	66.87660931	61.85118748
190114A00040	1/14/2019	2.89	1/14/2025	1/14/2019	101.64902	100.4605942	99.29993322	98.16606882	97.05808042	95.97508925	94.91625596	93.88077841	92.86788965
190114A00061	1/14/2019	2.98	1/31/2024	1/14/2019	100.36353	100.1096491	99.85704859	99.60571846	99.35564918	99.1068313	98.8592555	98.61291252	98.36779321
190115A00025	1/15/2019	2.96	1/12/2024	1/15/2019	100.28679	100.0850895	99.88421007	99.68415043	99.48490547	99.28647016	99.0888395	98.89200852	98.6959723
190115A00063	1/15/2019	2.96	1/16/2024	1/15/2019	100.30187	100.0891731	99.87739277	99.66652277	99.45655711	99.24748991	99.03931534	98.83202762	98.625621
190819A00026	8/19/2019	1.62	8/19/2024	8/19/2019	100.04545	99.252627	98.472327	97.70425902	96.94813705	96.20368391	95.47063097	94.74871777	94.03769175
190422A00030	4/22/2019	2.93	12/22/2025	4/22/2019	103.46646	101.3612912	99.3093898	97.30903862	95.3585904	93.45646371	91.60113965	89.79115886	88.02511864
190819A00030	8/19/2019	2.01	8/20/2029	8/19/2019	105.37323	99.79103905	94.53989137	89.5984624	84.9469097	80.56676046	76.44081005	72.55302866	68.8884753
191002A00017	10/2/2019	1.84	10/2/2024	10/2/2019	100.16016	99.25267182	98.36156307	97.48639249	96.62673559	95.78218284	94.95233899	94.13682251	93.33526491
191002A00006	10/2/2019	1.84	10/2/2024	10/2/2019	100.16016	99.25267182	98.36156307	97.48639249	96.62673559	95.78218284	94.95233899	94.13682251	93.33526491
191003A00019	10/3/2019	1.71	9/27/2024	10/3/2019	100.0359	99.14211831	98.2642421	97.40184833	96.55453037	95.72189571	94.90356536	94.09917329	93.30836585
191003A00014	10/3/2019	1.71	9/20/2024	10/3/2019	100.02165	99.14641007	98.28643663	97.44132849	96.61070275	95.79418954	94.99143151	94.20208328	93.42581095
190424A00007	4/24/2019	2.66	4/24/2024	4/24/2019	100.50243	100.0203025	99.5427953	99.06984656	98.60139113	98.13736514	97.67770591	97.22235195	96.77124292
191004A00012	10/4/2019	1.78	10/4/2024	10/4/2019	100.11512	99.20250395	98.30645982	97.42653943	96.56231069	95.71335682	94.87927569	94.0596792	93.2541926
191004A00003	10/4/2019	1.89	10/5/2026	10/4/2019	102.08978	99.2526769	96.50901455	93.85522454	91.28789033	88.8037443	86.3996604	84.07264712	81.81984103
191004A00002	10/4/2019	2.08	10/4/2029	10/4/2019	105.06754	99.40877642	94.09152056	89.09342641	84.3937198	79.97307936	75.81352791	71.89833257	68.21191267
191004A00001	10/4/2019	2.47	10/4/2034	10/4/2019	108.79275	98.82522111	89.88270072	81.85363701	74.63916429	68.15160501	62.31315286	57.05471666	52.3149047
191004A00004	10/4/2019	1.54	10/4/2024	10/4/2019	100.00889	99.09516029	98.19805449	97.31711846	96.45191823	95.60203524	94.76706565	93.94661971	93.14032115
191004A00005	10/4/2019	1.54	10/4/2024	10/4/2019	100.00889	99.09516029	98.19805449	97.31711846	96.45191823	95.60203524	94.76706565	93.94661971	93.14032115
191004A00032	10/4/2019	2.01	1/3/2028	10/4/2019	103.90478	99.87080985	96.0158738	92.33105381	88.80792914	85.43854398	82.215379	79.13132471	76.17965668
190819A00004	8/20/2019	1.81	5/24/2024	8/20/2019	100.04984	99.48916464	98.93476158	98.38652572	97.84435455	97.30814781	96.77780742	96.25323746	95.7343441
190426A00023	4/26/2019	2.91	6/24/2026	4/26/2019	104.48923	101.8844703	99.3580919	96.90724567	94.52920799	92.22137268	89.98124493	87.80643573	85.69465653
190426A00009	4/26/2019	2.63	4/26/2024	4/26/2019	100.49268	100.0051916	99.52242691	99.04431917	98.5708012	98.10180711	97.63727228	97.1771333	96.72132796
191007A00029	10/7/2019	1.88	10/9/2029	10/7/2019	104.59655	98.91409329	93.5763346	88.56062453	83.84591008	79.41261655	75.24253664	71.31872838	67.6254211

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191008A00031	10/8/2019	1.52	10/8/2024	10/8/2019	99.991996	99.06788359	98.1607773	97.27021084	96.39573509	95.53691704	94.69333911	93.86459845	93.0503063
191008A00033	10/8/2019	1.71	10/8/2024	10/8/2019	100.0431	99.12052724	98.21490089	97.32575961	96.45265643	95.59516045	94.75285603	93.92534223	93.11223207
191009A00017	10/9/2019	1.76	10/4/2024	10/9/2019	100.09645	99.18392372	98.28797237	97.40814359	96.54400531	95.69514078	94.8611479	94.04163857	93.23623809
180904A00012	9/4/2018	3.35	9/4/2030	9/4/2018	114.18336	107.386875	101.0510533	95.14216049	89.62909574	84.48317615	79.67793742	75.18895182	70.99366188
180904A00014	9/4/2018	3.37	9/1/2028	9/4/2018	110.97973	106.1672667	101.5954447	97.25098728	93.1214118	89.19498261	85.4606627	81.90806871	78.52742902
180823A00035	8/23/2018	3.05	8/22/2025	8/23/2018	103.2023	101.4170246	99.67126848	97.96389273	96.29380248	94.65994237	93.06129475	91.49687805	89.96574515
180823A00053	8/23/2018	3.2	8/23/2028	8/23/2018	110.71352	105.9122244	101.3504991	97.01512764	92.89369005	88.97451185	85.2466152	81.69967377	78.3239707
180503A00040	5/3/2018	3.3	5/5/2025	5/3/2018	102.72108	101.2307217	99.76953587	98.33673987	96.93157684	95.55331642	94.20125353	92.87470728	91.57301993
200309A00046	3/9/2020	0.78	3/11/2025	3/9/2020	99.101289	97.77941159	96.48120722	95.20609572	93.95351559	92.72292309	91.5137916	90.32561089	89.15788653
200309A00027	3/9/2020	0.97	3/10/2025	3/9/2020	99.202117	97.88460837	96.59061669	95.31956728	94.07090389	92.84408786	91.63859734	90.45392673	89.28958597
200309A00004	3/9/2020	0.71	3/8/2024	3/9/2020	99.727577	99.3738189	99.02257528	98.6738196	98.32752538	97.98366653	97.6422173	97.30315231	96.96644656
200309A00020	3/9/2020	0.96	3/10/2025	3/9/2020	99.188502	97.87109058	96.57719417	95.30623842	94.05766715	92.83094172	91.62554034	90.44095743	89.27670298
200309A00005	3/9/2020	0.77	3/7/2025	3/9/2020	99.090236	97.77867495	96.49043864	95.22495921	93.98168701	92.76008972	91.5596516	90.37987289	89.22026915
200309A00021	3/9/2020	1.05	3/9/2026	3/9/2020	99.514892	97.25022628	95.04789102	92.9058383	90.82209915	88.79478016	86.82206006	84.90218659	83.03347347
200309A00019	3/9/2020	0.89	3/11/2024	3/9/2020	99.743269	99.38183297	99.02302103	98.66680482	98.31315612	97.96204714	97.6134505	97.2673392	96.92368661
180910A00032	9/10/2018	3.22	9/10/2024	9/10/2018	101.32465	100.4695156	99.62881289	98.80218227	97.98927225	97.18974299	96.40326577	95.62952261	94.86820575
180910A00033	9/10/2018	3.43	9/8/2028	9/10/2018	111.30443	106.4658702	101.8700376	97.50349434	93.35360944	89.40851048	85.65703431	82.08868117	78.69357208
180910A00028	9/10/2018	3.56	9/9/2033	9/10/2018	120.20061	110.4822669	101.665332	93.66049156	86.38773649	79.77535107	73.75901469	68.28100462	63.28948834
200309A00033	3/9/2020	1.06	3/9/2026	3/9/2020	99.538355	97.27340981	95.07080063	92.92847976	90.84447807	88.81690197	86.84393005	84.92380989	83.05485507
200310A00065	3/13/2020	1.1	3/13/2025	3/13/2020	99.378914	98.05247931	96.74984336	95.47042151	94.2136481	92.97897536	91.76587278	90.57382642	89.40233826
200310A00073	3/12/2020	2.12	3/11/2027	3/12/2020	103.31906	100.0550478	96.91145784	93.88323683	90.96556704	88.15385694	85.44372933	82.83101027	80.31171852
200310A00025	3/10/2020	0.87	3/11/2024	3/10/2020	99.778706	99.41670681	99.05734146	98.70058147	98.34639846	97.99476443	97.64565179	97.29903338	96.95488238
200310A00042	3/10/2020	1.41	3/11/2030	3/10/2020	100.82375	94.91171759	89.38184312	84.20756029	79.36427683	74.82921613	70.58127478	66.60089194	62.86992955
200311A00040	3/12/2020	1.3	3/11/2025	3/12/2020	99.65188	98.32861088	97.02899909	95.75246594	94.49845079	93.26641076	92.05581999	90.86616897	89.69696393
200311A00006	3/13/2020	1.12	3/10/2025	3/13/2020	99.406337	98.08737521	96.79195458	95.51950014	94.26945502	93.04127991	91.83445239	90.64846624	89.48283087
200311A00056	3/13/2020	1.27	4/10/2024	3/13/2020	99.844526	99.40189448	98.96318609	98.52834876	98.09733133	97.67008351	97.24655592	96.82670003	96.41046814
200312A00004	3/13/2020	1.23	1/24/2025	3/13/2020	99.484498	98.28653732	97.11722656	95.97554878	94.86053425	93.7712581	92.70683784	91.66643084	90.6492322
180912A00011	9/12/2018	3.41	9/11/2026	9/12/2018	106.34919	103.5129021	100.7676031	98.10989516	95.53652452	93.04437612	90.63046677	88.29193888	86.0260544
180913A00030	9/13/2018	3.33	9/12/2025	9/13/2018	103.63623	101.7951424	99.99587325	98.23723035	96.5180617	94.83725532	93.19373753	91.58647144	90.01445539
180914A00029	9/14/2018	3.48	9/14/2028	9/14/2018	111.57766	106.7168177	102.1004992	97.71512238	93.54792831	89.58692679	85.82084604	82.23908611	78.83167556
200313A00032	3/18/2020	1.46	3/18/2025	3/18/2020	99.876547	98.53374282	97.21523439	95.92042028	94.64871822	93.39956458	92.17241363	90.96673682	89.78202214
180914A00028	9/14/2018	3.37	9/12/2025	9/14/2018	103.71086	101.8690576	100.0690869	98.30975531	96.5899107	94.90844067	93.26427123	91.65636516	90.0837205
180914A00013	9/14/2018	3.48	9/14/2028	9/14/2018	111.57766	106.7168177	102.1004992	97.71512238	93.54792831	89.58692679	85.82084604	82.23908611	78.83167556

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200317A00026	3/17/2020	1.22	3/15/2024	3/17/2020	99.85842	99.48590217	99.11617037	98.74919297	98.38493916	98.02337858	97.66448132	97.30821792	96.95455935
200317A00065	3/19/2020	2.05	3/19/2025	3/19/2020	100.69516	99.34386756	98.01706176	96.71413266	95.43449235	94.17757175	92.94281992	91.72970331	90.53770509
190429A00004	4/29/2019	2.65	4/15/2024	4/29/2019	100.47527	100.0174717	99.56384913	99.11434681	98.66890867	98.22747963	97.79000559	97.35643345	96.92671103
190430A00001	4/30/2019	2.47	5/2/2024	4/30/2019	100.48508	99.98076431	99.48150534	98.98722645	98.49785337	98.0133133	97.53353488	97.05844813	96.58798447
190501A00017	5/1/2019	2.61	5/1/2024	5/1/2019	100.49447	99.99353077	99.49757286	99.006525	98.52031458	98.03887042	97.56212271	97.09000302	96.62244422
180604A00050	6/4/2018	3.15	6/4/2024	6/4/2018	100.8382	100.2456983	99.66015214	99.08144158	98.50944742	97.94405317	97.38514504	96.83261185	96.28634494
190501A00028	5/1/2019	2.42	5/1/2024	5/1/2019	100.45769	99.95614887	99.45960345	98.96798317	98.481215	97.9992274	97.52195018	97.04931454	96.58125302
190501A00014	5/1/2019	2.62	5/1/2024	5/1/2019	100.49953	99.99857538	99.50260274	99.01154027	98.52531534	98.04385676	97.56709475	97.09496085	96.62738794
191009A00028	10/9/2019	1.76	10/9/2024	10/9/2019	100.09107	99.16563955	98.25725716	97.36545569	96.4897843	95.62980839	94.78510884	93.95528133	93.13993572
191015A00029	10/15/2019	1.91	10/15/2024	10/15/2019	100.24943	99.30737762	98.38297638	97.47572996	96.5851641	95.71082187	94.85226291	94.00906267	93.18081171
191015A00013	10/15/2019	1.72	10/15/2024	10/15/2019	100.18802	99.24458046	98.31883761	97.41030161	96.51849607	95.64296207	94.78325731	93.93895543	93.10964525
191017A00022	10/17/2019	2.25	7/17/2028	10/17/2019	105.52826	100.9601949	96.61697642	92.48631791	88.55667795	84.81720624	81.25769817	77.86855257	74.64073254
191017A00026	10/17/2019	2.3	7/17/2029	10/17/2019	106.33306	100.8308756	95.6491718	90.76758041	86.16713351	81.83016213	77.74020015	73.88189592	70.24093088
191021A00021	10/21/2019	2.22	12/21/2027	10/21/2019	104.72625	100.7079932	96.86663994	93.19344707	89.68015269	86.31894743	83.10244691	80.02366613	77.0759955
190507A00027	5/7/2019	2.59	5/7/2024	5/7/2019	100.48671	99.96981103	99.45822701	98.95187737	98.45068199	97.95456235	97.46344154	96.97724418	96.49589641
190820A00008	8/20/2019	1.76	8/20/2024	8/20/2019	100.0259	99.232307	98.45127112	97.68249373	96.92568786	96.18057545	95.44688698	94.72436117	94.01274466
190820A00038	8/20/2019	1.76	8/20/2024	8/20/2019	100.0259	99.232307	98.45127112	97.68249373	96.92568786	96.18057545	95.44688698	94.72436117	94.01274466
191023A00006	10/23/2019	1.95	10/23/2024	10/23/2019	100.30784	99.34445571	98.39951449	97.47248912	96.56287374	95.6701814	94.79394315	93.93370724	93.08903829
191025A00013	10/25/2019	1.98	10/25/2024	10/25/2019	100.3402	99.37142161	98.42128674	97.48925933	96.57482554	95.67749083	94.79677902	93.9322315	93.08340636
191025A00010	10/25/2019	2.24	7/25/2028	10/25/2019	105.50219	100.9149075	96.55430453	92.40795127	88.46416872	84.71198028	81.14106531	77.74171603	74.50479752
191025A00009	10/25/2019	2.26	5/25/2029	10/25/2019	106.08636	100.722089	95.66365411	90.89202676	86.38945676	82.1393826	78.12634569	74.33591133	70.75459567
191025A00005	10/28/2019	1.98	10/28/2024	10/28/2019	100.34438	99.36775354	98.41006276	97.47076464	96.54933338	95.64526303	94.75806661	93.88727516	93.03243699
190820A00029	8/20/2019	1.76	8/20/2024	8/20/2019	100.0259	99.232307	98.45127112	97.68249373	96.92568786	96.18057545	95.44688698	94.72436117	94.01274466
190820A00020	8/20/2019	1.76	8/20/2024	8/20/2019	100.0259	99.232307	98.45127112	97.68249373	96.92568786	96.18057545	95.44688698	94.72436117	94.01274466
190820A00021	8/20/2019	2.13	8/20/2029	8/20/2019	105.37148	99.8139212	94.58518781	89.66413852	85.03109732	80.66774402	76.55701405	72.68300615	69.03089735
190821A00017	8/21/2019	1.8	8/21/2024	8/21/2019	100.05899	99.26261644	98.47888604	97.70749539	96.9481547	96.20058322	95.46450887	94.73966788	94.02580452
190821A00030	8/21/2019	1.8	8/21/2024	8/21/2019	100.05899	99.26261644	98.47888604	97.70749539	96.9481547	96.20058322	95.46450887	94.73966788	94.02580452
190823A00005	8/23/2019	1.62	8/23/2024	8/23/2019	100.04794	99.24454678	98.45401	97.67602552	96.91029613	96.15653396	95.41446009	94.68380422	93.96430432
190826A00065	8/26/2019	2.09	8/28/2029	8/26/2019	105.14076	99.57035342	94.3307672	89.40068843	84.76027802	80.39106403	76.27584098	72.39857698	68.7443281
190826A00060	8/26/2019	2.02	8/26/2027	8/26/2019	103.53861	99.84222654	96.29786157	92.89848897	89.63744197	86.508395	83.5053444	80.62259029	77.85471965
190826A00063	8/26/2019	2.05	8/28/2028	8/26/2019	104.68172	100.0289185	95.61035029	91.41304645	87.4248209	83.63421866	80.03046841	76.60343829	73.34359479
190826A00056	8/26/2019	1.72	8/26/2024	8/26/2019	99.996186	99.18694527	98.3907546	97.60730052	96.83627933	96.07739692	95.3303684	94.59491772	93.87077736
190826A00058	8/26/2019	1.91	8/26/2026	8/26/2019	102.03307	99.3002778	96.65440726	94.09222781	91.61064891	89.20671171	86.87758263	84.62054731	82.43300486

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190826A00057	8/26/2019	1.87	8/26/2025	8/26/2019	100.86329	99.09333774	97.36278635	95.67051704	94.01544904	92.39653958	90.81278222	89.26320534	87.74687068
190826A00018	8/26/2019	1.9	8/27/2029	8/26/2019	104.74116	99.15984455	93.91081326	88.97261962	84.32530213	79.95027744	75.83023863	71.9490614	68.29171765
200325A00030	3/25/2020	1.5	3/25/2025	3/25/2020	100.10307	98.73804141	97.39804531	96.08244996	94.79064817	93.52205248	92.27609434	91.05222336	89.84990658
200326A00029	3/26/2020	1.82	3/26/2027	3/26/2020	102.35807	99.07258076	95.90979494	92.86450015	89.93173416	87.10677043	84.38510562	81.76244782	79.23470551
200326A00028	3/26/2020	1.54	3/26/2025	3/26/2020	99.99626	98.63209894	97.29295498	95.97820045	94.68722831	93.4194512	92.1743007	90.95122651	89.74969575
200326A00026	3/26/2020	1.32	3/26/2024	3/26/2020	99.884209	99.48189425	99.08281719	98.68693878	98.29422065	97.90462506	97.51811483	97.1346534	96.75420478
190827A00001	8/27/2019	1.74	8/27/2024	8/27/2019	100.01323	99.20128321	98.40247036	97.6164753	96.84299149	96.08172211	95.33237964	94.59468555	93.86836989
190827A00002	8/27/2019	1.74	8/27/2024	8/27/2019	100.01323	99.20128321	98.40247036	97.6164753	96.84299149	96.08172211	95.33237964	94.59468555	93.86836989
190828A00009	8/28/2019	1.71	8/28/2024	8/28/2019	99.996832	99.18222133	98.38083085	97.59234103	96.8164424	96.05283533	95.30122962	94.56134414	93.83290647
190828A00019	8/28/2019	2	3/28/2028	8/28/2019	104.10352	99.84843009	95.79158356	91.92274625	88.23226094	84.7110148	81.35040595	78.14231222	75.07906199
190828A00020	8/28/2019	1.95	5/28/2027	8/28/2019	102.99366	99.53647952	96.21386942	93.01986362	89.9487942	86.99527543	84.15418799	81.42066421	78.79007417
190828A00015	8/28/2019	2.04	8/28/2029	8/28/2019	104.85533	99.29302132	94.0611972	89.1385553	84.50527309	80.14289427	76.03422807	72.16325645	68.51504854
190828A00031	8/28/2019	1.71	8/28/2024	8/28/2019	99.996832	99.18222133	98.38083085	97.59234103	96.8164424	96.05283533	95.30122962	94.56134414	93.83290647
190829A00050	8/29/2019	1.73	8/29/2024	8/29/2019	100.01399	99.1966679	98.39265475	97.60162374	96.82326256	96.05726881	95.30334967	94.56122149	93.83060945
200327A00074	3/31/2020	1.76	3/29/2024	3/31/2020	100.06359	99.6527286	99.24523049	98.84105763	98.44016946	98.04252609	97.64808827	97.25681736	96.86867536
200327A00075	3/31/2020	1.75	3/29/2024	3/31/2020	100.05944	99.64858866	99.24110081	98.83693814	98.43606011	98.03842682	97.64399901	97.25273805	96.86460596
200330A00045	3/30/2020	1.47	3/30/2027	3/30/2020	101.18458	97.9090308	94.75636547	91.72134558	88.79898453	85.98453336	83.27346807	80.66147781	78.14445363
200330A00041	4/1/2020	1.09	4/1/2025	4/1/2020	99.363923	97.98900777	96.63957277	95.31497288	94.01458408	92.73780283	91.48404517	90.25274597	89.04335816
200331A00060	3/31/2020	1.09	3/31/2025	3/31/2020	99.363575	97.99129245	96.64439359	95.32223702	94.02420224	92.74968901	91.4981166	90.26892293	89.06156384
200402A00021	4/2/2020	0.77	10/2/2024	4/2/2020	99.29267	98.38777095	97.49925375	96.62667691	95.76961493	94.92765733	94.10040798	93.28748451	92.48851766
180918A00041	9/18/2018	3.18	9/18/2024	9/18/2018	101.4588	100.5800803	99.71658866	98.86792672	98.0337145	97.21358488	96.40718313	95.61416633	94.8342029
200403A00006	4/3/2020	1.05	4/3/2025	4/3/2020	99.307552	97.92779653	96.57370718	95.24463189	93.93993982	92.65902088	91.40128489	90.16616074	88.95309569
200406A00006	4/6/2020	1.13	4/7/2025	4/6/2020	99.423514	98.03237652	96.66730878	95.32764284	94.01273332	92.72195625	91.45470816	90.21040529	88.98848272
190513A00013	5/13/2019	2.52	5/13/2024	5/13/2019	100.45073	99.91798095	99.39088761	98.86935666	98.35330024	97.84263232	97.33726867	96.8371268	96.34212595
200407A00002	4/8/2020	1.82	4/8/2024	4/8/2020	100.0906	99.65270047	99.218632	98.78834448	98.36178856	97.93891578	97.51967849	97.10402987	96.6919239
200407A00001	4/8/2020	2.41	4/7/2025	4/8/2020	101.26356	99.85864071	98.48003062	97.12705189	95.79905295	94.49540386	93.21549544	91.95873838	90.72456242
200922A00040	9/24/2020	2	9/23/2024	9/24/2020	100.28598	99.40158233	98.53273816	97.67903665	96.84008455	96.01550209	95.20492247	94.40799126	93.62436592
200408A00021	4/8/2020	0.99	4/4/2025	4/8/2020	99.388602	98.00290582	96.64307403	95.30844662	93.99838593	92.71227536	91.44951851	90.20953837	88.99177649
190514A00021	5/14/2019	2.72	11/14/2025	5/14/2019	102.81875	100.8204507	98.87112652	96.96925929	95.11339204	93.30212313	91.5341036	89.80803485	88.12266631
190514A00073	5/14/2019	2.53	5/14/2024	5/14/2019	100.45794	99.92249536	99.39275869	98.86864032	98.35005103	97.83690351	97.32911228	96.82659363	96.32926561
190514A00024	5/14/2019	2.34	5/14/2024	5/14/2019	100.4396	99.9031861	99.37250441	98.84746435	98.32797609	97.81395171	97.30530514	96.8019521	96.30381008
190514A00020	5/14/2019	2.66	5/14/2025	5/14/2019	101.79456	100.2879878	98.81116297	97.36327347	95.94353741	94.55120061	93.18553545	91.84583968	90.53143528
200922A00041	9/24/2020	2.68	9/23/2024	9/24/2020	100.90039	100.0129903	99.14117954	98.28454773	97.44270088	96.61525851	95.80185312	95.00212961	94.21574475

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200922A00033	9/24/2020	2.37	9/23/2024	9/24/2020	100.62029	99.73426022	98.86380185	98.00850591	97.16797873	96.34184015	95.52972297	94.73127242	93.94614558
200922A00034	9/24/2020	2.24	9/23/2026	9/24/2020	103.06476	100.2442582	97.51557846	94.87524393	92.31993296	89.84646702	87.45180374	85.13303028	82.88735708
200922A00035	9/24/2020	2.94	9/23/2024	9/24/2020	101.13531	100.246764	99.3738189	98.51606667	97.673113	96.84457714	96.03009131	95.22930015	94.44186019
200922A00036	9/24/2020	1.55	9/23/2025	9/24/2020	100.33818	98.49974849	96.70381605	94.9491494	93.23456122	91.55890598	89.9210782	88.3200108	86.75467346
200922A00027	9/24/2020	1.65	9/23/2025	9/24/2020	100.52773	98.68745656	96.88971528	95.13327363	93.41694333	91.73957796	90.10007119	88.49735508	86.93039853
200922A00037	9/24/2020	2.76	9/23/2025	9/24/2020	102.63175	100.7710162	98.95319681	97.17705251	95.4413847	93.74503696	92.08689333	90.4658766	88.88094671
200922A00039	9/24/2020	3	9/23/2025	9/24/2020	103.08668	101.2215156	99.39935497	97.61895065	95.87910175	94.17864972	92.5164765	90.89150287	89.30268686
200925A00008	9/25/2020	0.74	9/25/2025	9/25/2020	98.802608	96.97389508	95.18762842	93.44257502	91.73754569	90.07139324	88.44301068	86.85132953	85.29531825
200925A00003	9/25/2020	0.59	9/25/2024	9/25/2020	99.007386	98.12402524	97.25631879	96.40385391	95.56623216	94.74306887	93.93399255	93.13864435	92.3566775
200925A00002	9/25/2020	0.74	9/25/2025	9/25/2020	98.802608	96.97389508	95.18762842	93.44257502	91.73754569	90.07139324	88.44301068	86.85132953	85.29531825
200928A00003	9/28/2020	0.55	9/26/2025	9/28/2020	98.662178	96.82812398	95.0367713	93.28687577	91.57723785	89.90670048	88.27414727	86.67850081	85.11872104
200414A00016	4/16/2020	1.64	4/15/2024	4/16/2020	100.00879	99.55226147	99.09990528	98.65166098	98.20747257	97.76728507	97.33104446	96.89869773	96.47019279
200415A00035	4/17/2020	2.16	4/16/2025	4/17/2020	100.93346	99.50717553	98.108041	96.73534765	95.38841259	94.06657601	92.76920016	91.49566844	90.24538454
190515A00032	5/15/2019	2.49	5/15/2024	5/15/2019	100.43799	99.8999311	99.36763596	98.84101448	98.31997613	97.80443231	97.29429627	96.78948312	96.28990969
191031A00033	10/31/2019	2.2	5/31/2028	10/31/2019	105.16487	100.7246706	96.49812269	92.47382306	88.64103695	84.9896564	81.51016029	78.19357704	75.03144989
190517A00005	5/17/2019	2.31	5/17/2024	5/17/2019	100.42827	99.88384109	99.34531766	98.81260413	98.28560666	97.76423339	97.24839443	96.73800184	96.23296948
191104A00018	11/5/2019	1.96	11/5/2024	11/5/2019	100.33208	99.33470882	98.35709307	97.3986499	96.45881962	95.53706414	94.63286593	93.74572707	92.87516828
191104A00023	11/4/2019	2.24	8/4/2028	11/4/2019	105.52711	100.9143577	96.53068479	92.36347917	88.40089545	84.63180224	81.04573496	77.63285199	74.38389398
191104A00024	11/4/2019	2.26	8/3/2029	11/4/2019	106.11031	100.5733205	95.36121008	90.45319155	85.82991829	81.47337652	77.36678621	73.49450993	69.84196892
191104A00025	11/4/2019	2.33	8/2/2030	11/4/2019	106.54848	100.1161434	94.11820341	88.52301251	83.30138892	78.4264143	73.87324653	69.61894889	65.64233422
191104A00009	11/4/2019	1.91	11/6/2023	11/4/2019	100.00658	99.98994231	99.97332207	99.95671814	99.94013048	99.92355908	99.9070039	99.89046491	99.8739421
191104A00022	11/4/2019	2.17	8/4/2027	11/4/2019	104.0271	100.3772958	96.87536189	93.51447554	90.28817015	87.19031512	84.21509618	81.35699693	78.61078166
191105A00018	11/5/2019	1.78	11/6/2023	11/5/2019	100.00639	99.98973507	99.97309698	99.95647541	99.93987032	99.9232817	99.90670951	99.89015371	99.87361429
191105A00014	11/5/2019	1.96	11/6/2023	11/5/2019	100.00741	99.99077385	99.97415289	99.95754824	99.94095987	99.92438776	99.90783186	99.89129217	99.87476865
191105A00008	11/5/2019	1.83	11/5/2024	11/5/2019	100.3184	99.31940035	98.34021026	97.38024981	96.43895695	95.51579137	94.6102334	93.72178309	92.84995924
191105A00007	11/5/2019	1.98	11/5/2026	11/5/2019	102.79551	99.86099013	97.02572036	94.28579402	91.6374854	89.07723613	86.60164671	84.20746836	81.89159543
191106A00022	11/6/2019	2.34	1/2/2030	11/6/2019	106.58298	100.6621909	95.11059383	89.90322012	85.0169158	80.430203	76.12314985	72.07725123	68.27531932
191106A00012	11/6/2019	2.02	10/11/2024	11/6/2019	100.34954	99.41742611	98.5025807	97.60452316	96.72279447	95.85695226	95.00656998	94.17123626	93.3505542
191108A00014	11/8/2019	2.25	11/8/2029	11/8/2019	106.75841	100.9402773	95.47830513	90.34883789	85.52990886	81.00111175	76.7434821	72.7393883	68.97243137
191108A00013	11/8/2019	2.25	11/8/2029	11/8/2019	106.75841	100.9402773	95.47830513	90.34883789	85.52990886	81.00111175	76.7434821	72.7393883	68.97243137
191108A00011	11/8/2019	2.08	10/18/2024	11/8/2019	100.41819	99.46742065	98.53460704	97.61924097	96.72083625	95.83892462	94.97305493	94.12279234	93.28771761
190829A00045	8/29/2019	1.9	8/28/2026	8/29/2019	102.01053	99.27295896	96.62261559	94.0562599	91.57079227	89.16324465	86.83077417	84.57065717	82.38028351
190829A00028	8/29/2019	1.78	8/29/2024	8/29/2019	100.05574	99.23823478	98.43403388	97.64281726	96.86427255	96.09809733	95.34399874	94.60169309	93.87090551

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190829A00031	8/29/2019	1.54	8/29/2024	8/29/2019	99.984821	99.16588501	98.36030647	97.56776082	96.78793392	96.02052164	95.26522949	94.52177221	93.78987345
190830A00002	8/30/2019	1.93	8/28/2026	8/30/2019	102.0948	99.35603247	96.70452172	94.13702639	91.65044598	89.24181157	86.9082795	84.64712531	82.45573811
190520A00048	5/20/2019	2.53	5/20/2024	5/20/2019	100.45802	99.90664655	99.3613241	98.82195384	98.28843856	97.76068317	97.23859464	96.72208192	96.21105592
190520A00007	5/20/2019	2.52	5/20/2024	5/20/2019	100.45244	99.9010834	99.35577867	98.81642599	98.28292815	97.75519007	97.23311871	96.71662304	96.20561395
191113A00016	11/15/2019	2.02	8/15/2024	11/15/2019	100.23026	99.44893913	98.67977191	97.92247644	97.1767793	96.44241541	95.71912774	95.00666696	94.30479119
190830A00012	8/30/2019	1.76	8/30/2024	8/30/2019	100.03963	99.21956432	98.41289044	97.61928075	96.83842006	96.07000322	95.31373478	94.56932853	93.83650723
190904A00019	9/4/2019	1.69	9/4/2024	9/4/2019	99.984104	99.15115628	98.33203242	97.52639043	96.73389966	95.95424021	95.18710244	94.43218663	93.68920257
191115A00028	11/15/2019	2.34	9/28/2029	11/15/2019	106.57668	100.8888279	95.54260778	90.51574755	85.78753666	81.33870824	77.15133142	73.20871234	69.49530295
191115A00014	11/18/2019	2.45	11/18/2024	11/18/2019	100.85937	99.82532047	98.81243098	97.82005495	96.84757371	95.8943933	94.95994316	94.04367507	93.14506201
191115A00016	11/18/2019	2.48	11/18/2024	11/18/2019	100.89107	99.8568406	98.84377498	97.8512253	96.87857286	95.92522362	94.99060698	94.07417466	93.17539958
191115A00015	11/18/2019	2.61	11/18/2024	11/18/2019	101.02843	99.99342783	98.97959895	97.98629683	97.0129025	96.05882168	95.12348352	94.20633952	93.30686237
191115A00030	11/15/2019	2.35	11/9/2029	11/15/2019	106.63523	100.8444245	95.40747786	90.30091756	85.50294735	80.99331739	76.75320679	72.76511576	69.01276641
190904A00001	9/4/2019	1.5	9/4/2024	9/4/2019	99.954367	99.11976305	98.29903698	97.49184543	96.69785582	95.91674642	95.14820584	94.39193269	93.64763512
190906A00012	9/6/2019	1.76	9/6/2024	9/6/2019	100.05377	99.2151336	98.39050423	97.57953443	96.78188699	95.99723568	95.22526489	94.46566914	93.71815267
190522A00019	5/23/2019	2.55	5/15/2024	5/23/2019	100.47066	99.93249185	99.40009511	98.87337281	98.35223442	97.8365913	97.32635673	96.82144578	96.32177529
190522A00003	5/22/2019	2.55	5/22/2024	5/22/2019	100.47284	99.91607326	99.36547083	98.82093426	98.28236362	97.74966114	97.2227312	96.70148023	96.18581668
190523A00020	5/23/2019	2.5	2/9/2024	5/23/2019	100.26177	99.98348656	99.70676072	99.43157446	99.15791489	98.88576925	98.61512493	98.34596947	98.07829053
190523A00014	5/23/2019	2.5	11/15/2023	5/23/2019	100.04101	99.99941886	99.95787843	99.91638909	99.87495073	99.83356325	99.79222656	99.75094056	99.70970515
190523A00017	5/23/2019	2.51	3/15/2024	5/23/2019	100.34398	99.97033475	99.59948567	99.23139714	98.8660383	98.50337874	98.14338847	97.786038	97.43129824
190523A00015	5/23/2019	2.51	4/1/2024	5/23/2019	100.38137	99.96159748	99.54533282	99.13252769	98.72313911	98.31712484	97.91444332	97.51505365	97.11891563
190523A00018	5/23/2019	2.51	3/15/2024	5/23/2019	100.34398	99.97033475	99.59948567	99.23139714	98.8660383	98.50337873	98.14338847	97.786038	97.43129824
190909A00025	9/9/2019	1.88	9/9/2024	9/9/2019	100.16031	99.3132894	98.48055112	97.66173505	96.85649423	96.0644931	95.28540712	94.51892227	93.76473464
190910A00017	9/16/2019	1.86	9/16/2024	9/16/2019	100.15124	99.28587407	98.43541836	97.59948799	96.77771313	95.96973646	95.17521255	94.39380746	93.62519822
190910A00004	9/11/2019	1.86	9/11/2024	9/11/2019	100.14536	99.29315149	98.45540646	97.63175471	96.82184277	96.02532896	95.24188279	94.47118462	93.71292513
190524A00040	5/24/2019	2.47	5/24/2024	5/24/2019	100.42543	99.86353754	99.3079235	98.75848633	98.21512339	97.67773426	97.14622078	96.62048688	96.10043863
191119A00027	11/19/2019	1.8	11/19/2024	11/19/2019	100.29645	99.26118908	98.24721532	97.2538739	96.28054004	95.326614	94.39151977	93.47470394	92.57563462
191120A00005	11/20/2019	2.63	11/20/2034	11/20/2019	110.42179	100.2710998	91.17232415	83.00997267	75.68181112	69.09728124	63.17611331	57.84710968	53.04707763
191120A00006	11/20/2019	2.67	11/20/2035	11/20/2019	110.67248	99.74583516	90.0393096	81.40879201	73.72792438	66.88583324	60.78516073	55.34035452	50.47618175
191120A00024	11/20/2019	2.23	11/16/2029	11/20/2019	105.92815	100.1406671	94.70813628	89.60694617	84.8151708	80.31244435	76.07984228	72.09977224	68.35587374
191121A00010	11/21/2019	2.59	11/20/2037	11/21/2019	111.0012	98.50478383	87.6052579	78.08742693	69.76621613	62.48231552	56.09847441	50.49634471	45.57378974
191121A00034	11/21/2019	2.28	11/2/2029	11/21/2019	106.22097	100.4597767	95.04991452	89.96813065	85.19282886	80.70394139	76.48281323	72.51209574	68.77564886
191121A00004	11/21/2019	1.77	11/21/2024	11/21/2019	100.26573	99.22545212	98.20667148	97.20872312	96.23097318	95.27281333	94.3336594	93.4129503	92.51014679
191121A00009	11/21/2019	2.55	11/21/2036	11/21/2019	110.48504	98.73870616	88.40293717	79.29901882	71.2717937	64.18644521	57.92573756	52.38764229	47.48329552

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190910A00030	9/10/2019	1.86	9/10/2024	9/10/2019	100.14418	99.2946083	98.45940664	97.6382122	96.83067477	96.03645574	95.25522762	94.48667358	93.73048702
191122A00020	11/26/2019	3.2	11/23/2037	11/26/2019	117.27605	104.4745101	93.28839517	83.50154917	74.92792883	67.40726447	60.80136636	54.99097671	49.87308451
191122A00021	11/26/2019	3.4	11/22/2038	11/26/2019	120.76749	107.0150629	95.09245071	84.74101979	75.74017975	67.90160476	61.06435658	55.0907666	49.86295536
191122A00018	11/26/2019	3.11	11/22/2039	11/26/2019	117.9966	103.7364479	91.48642019	80.94606694	71.86158456	64.01835157	57.23468845	51.35663886	46.25360082
191125A00036	11/25/2019	2.29	11/23/2029	11/25/2019	106.28474	100.469334	95.01135197	89.8869602	85.07403454	80.55202883	76.30185446	72.3057697	68.54727798
191126A00026	11/26/2019	1.91	11/25/2026	11/26/2019	102.6546	99.66927632	96.78626468	94.00148241	91.31103666	88.71121245	86.19846339	83.76940296	81.42079623
191126A00023	11/26/2019	1.81	5/27/2025	11/26/2019	100.70292	99.16823641	97.66428325	96.19020416	94.74517545	93.32840343	91.939123	90.57659638	89.24011185
191129A00012	11/29/2019	1.99	11/29/2024	11/29/2019	100.38232	99.32248194	98.28492885	97.2689659	96.27392488	95.2991649	94.34407097	93.40805276	92.49054335
190913A00014	9/13/2019	2.08	9/13/2024	9/13/2019	100.34047	99.48208616	98.63834961	97.80888957	96.99334587	96.19137037	95.40262644	94.62678854	93.86354172
190919A00025	9/19/2019	1.8	9/19/2024	9/19/2019	100.23131	99.35589556	98.49572053	97.65039167	96.81952706	96.00275781	95.19972748	94.41009155	93.63351695
190919A00007	9/19/2019	2.04	9/19/2024	9/19/2019	100.31544	99.44140516	98.58256028	97.73851068	96.90887644	96.09329054	95.29139833	94.50285701	93.72733517
190923A00017	9/23/2019	1.74	9/23/2024	9/23/2019	100.18274	99.29703505	98.4269301	97.5720188	96.73190584	95.90620956	95.0945613	94.29660491	93.51199615
190923A00020	9/23/2019	2.05	9/24/2029	9/23/2019	105.59534	99.92030782	94.58682812	89.57261644	84.85694978	80.42055023	76.24547726	72.31502859	68.61364886
190923A00078	9/23/2019	1.96	6/28/2024	9/23/2019	100.12529	99.47152969	98.82627567	98.1893667	97.56064175	96.93994395	96.32712038	95.72202199	95.12450349
190923A00081	9/23/2019	1.96	9/20/2024	9/23/2019	100.24548	99.36916008	98.50811428	97.66194681	96.83027448	96.01272718	95.20894731	94.41858923	93.64131883
200417A00016	4/21/2020	2.18	4/21/2025	4/21/2020	100.97924	99.5393742	98.12715759	96.74186518	95.3827956	94.04927139	92.74063795	91.4562626	90.19553361
200417A00009	4/17/2020	1.35	4/16/2027	4/17/2020	100.80495	97.49250719	94.30602128	91.24004943	88.28941415	85.44918821	82.71468116	80.08142658	77.54517018
050923A00096	9/23/2005	4.86	9/22/2025	9/23/2005	106.83088	104.9278273	103.0685113	101.2516669	99.47607316	97.74055213	96.0439672	94.38522124	92.76325502
200428A00011	4/30/2020	1.95	4/29/2025	4/30/2020	100.66134	99.20278459	97.77263841	96.37014535	94.99457534	93.64522355	92.32140925	91.02247481	89.74778469
200428A00013	4/30/2020	1.49	4/29/2024	4/30/2020	99.929459	99.43553088	98.9464689	98.46220138	97.98265815	97.5077704	97.03747065	96.57169272	96.11037168
200429A00009	4/29/2020	0.78	4/29/2025	4/29/2020	99.083921	97.63474095	96.21385818	94.82051867	93.45399442	92.11358257	90.7986044	89.5084042	88.24234833
200429A00051	5/1/2020	2.54	4/30/2025	5/1/2020	101.54901	100.0809031	98.64143021	97.22982482	95.84534986	94.48729381	93.15496955	91.84771331	90.56488366
200429A00043	5/1/2020	1.56	4/30/2025	5/1/2020	100.07903	98.62237439	97.19415155	95.79360294	94.41999675	93.07262649	91.75080984	90.4538877	89.18122312
200429A00050	5/1/2020	2.61	4/30/2025	5/1/2020	101.65401	100.1850837	98.74480726	97.3324121	95.94716079	94.58834147	93.25526667	91.94727228	90.66371656
200429A00035	5/1/2020	1.41	4/30/2024	5/1/2020	99.888493	99.39200325	98.90042943	98.41369906	97.93174093	97.4544852	96.98186339	96.51380836	96.05025423
200429A00053	5/1/2020	2.18	4/30/2025	5/1/2020	101.00902	99.54511702	98.10977683	96.70223311	95.32175076	93.9676201	92.63915578	91.33569574	90.0566002
200429A00058	5/1/2020	1.83	4/30/2025	5/1/2020	100.48402	99.02421392	97.59289159	96.18929672	94.81269608	93.46238177	92.13767017	90.83790088	89.56243572
200429A00046	5/1/2020	2.07	4/30/2025	5/1/2020	100.84402	99.38140462	97.94732718	96.54102453	95.16176214	93.80883091	92.48154602	91.17924592	89.90129136
200429A00047	5/1/2020	2.7	4/30/2025	5/1/2020	101.789	100.3190302	98.87772061	97.46431002	96.07806057	94.7182599	93.38422011	92.07527667	90.79078743
200429A00052	5/1/2020	1.43	4/30/2024	5/1/2020	99.898557	99.40203778	98.91043483	98.42367554	97.94168869	97.46440444	96.99175432	96.52367117	96.06008913
200429A00045	5/1/2020	1.54	4/30/2025	5/1/2020	100.04903	98.5926085	97.16461525	95.76429229	94.39090792	93.04375572	91.72215352	90.42544228	89.15298515
200429A00056	5/1/2020	1.54	4/30/2025	5/1/2020	100.04903	98.5926085	97.16461525	95.76429229	94.39090792	93.04375572	91.72215352	90.42544228	89.15298515
200429A00015	4/29/2020	0.66	4/29/2024	4/29/2020	99.572505	99.0789166	98.59020312	98.10629227	97.62711359	97.15259795	96.6826776	96.21728607	95.75635818

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200429A00010	4/29/2020	0.78	4/29/2025	4/29/2020	99.083921	97.63474095	96.21385818	94.82051867	93.45399442	92.11358257	90.7986044	89.5084042	88.24234833
200429A00044	5/1/2020	1.86	4/30/2025	5/1/2020	100.52902	99.06886276	97.63719604	96.2332627	94.85632934	93.50568791	92.18065465	90.88056901	89.60479267
200430A00016	4/30/2020	0.82	4/30/2024	4/30/2020	99.591609	99.09598485	98.60527032	98.11939312	97.6382821	97.1618675	96.69008091	96.22285526	95.76012474
200430A00017	4/30/2020	0.94	4/30/2025	4/30/2020	99.149044	97.69963176	96.27852627	94.88497277	93.51824275	92.17763288	90.8624639	89.57207966	88.30584604
200430A00009	4/30/2020	1.16	4/30/2026	4/30/2020	99.820176	97.41891362	95.08742047	92.82327288	90.62414667	88.48781232	86.4121304	84.39504741	82.4345917
200430A00008	4/30/2020	0.94	4/30/2025	4/30/2020	99.149044	97.69963176	96.27852627	94.88497277	93.51824275	92.17763288	90.8624639	89.57207966	88.30584604
200504A00004	5/4/2020	0.75	5/5/2025	5/4/2020	99.037773	97.57341935	96.13783925	94.73025824	93.3499291	91.99613073	90.66816702	89.36536577	88.08707764
200505A00005	5/5/2020	0.77	5/5/2025	5/5/2020	99.068072	97.6034802	96.1676658	94.75985454	93.37929908	92.0252782	90.69709571	89.3940793	88.11557954
200505A00004	5/5/2020	0.77	5/5/2025	5/5/2020	99.068072	97.6034802	96.1676658	94.75985454	93.37929908	92.0252782	90.69709571	89.3940793	88.11557954
200506A00005	5/6/2020	0.97	5/6/2025	5/6/2020	99.194627	97.72940204	96.29294625	94.88448498	93.50327091	92.14858285	90.81972463	89.51602394	88.2368314
200506A00002	5/8/2020	0.97	5/5/2025	5/8/2020	99.19453	97.73188112	96.29792547	94.89189125	93.51303428	92.16063631	90.83400399	89.53246769	88.25538055
200506A00010	5/6/2020	0.94	5/6/2026	5/6/2020	99.568823	97.1492451	94.80041406	92.51985511	90.30519615	88.15416243	86.06457192	84.03433088	82.06142969
200511A00028	5/13/2020	1.02	5/13/2024	5/13/2020	99.642398	99.11216423	98.58756334	98.06850591	97.5549043	97.04667272	96.54372718	96.04598542	95.55336689
200511A00020	5/11/2020	1.4	2/1/2028	5/11/2020	101.42186	97.36768794	93.49696621	89.80039833	86.26921228	82.89512922	79.67033257	76.58743933	73.63947332
200511A00018	5/11/2020	0.98	2/2/2026	5/11/2020	99.312535	97.14599537	95.03676458	92.98291664	90.98260669	89.03406699	87.13560296	85.28558944	83.4824672
200511A00019	5/11/2020	1.18	2/1/2027	5/11/2020	100.12714	97.01877621	94.02215118	91.13258261	88.34562071	85.65703053	83.06277997	80.55902852	78.14211678
200511A00017	5/11/2020	0.83	2/3/2025	5/11/2020	98.978745	97.75791561	96.56579097	95.40136364	94.26367338	93.15180402	92.06488092	91.00206864	89.96256876
200511A00023	5/11/2020	1.7	2/3/2031	5/11/2020	102.21998	95.50329409	89.27318393	83.49190597	78.124831	73.14017255	68.50873942	64.20371088	60.20043254
200511A00021	5/11/2020	1.53	2/1/2029	5/11/2020	102.20347	97.22450236	92.51646005	88.06318497	83.84956897	79.8614813	76.08569984	72.50984754	69.12233371
200511A00016	5/11/2020	0.71	2/1/2024	5/11/2020	99.782278	99.52665795	99.27234401	99.01932596	98.76759393	98.51713815	98.26794897	98.02001681	97.77333221
200511A00022	5/11/2020	1.6	2/1/2030	5/11/2020	102.05598	96.20127972	90.71831692	85.58157503	80.76742434	76.25396888	72.02091005	68.04942171	64.32203575
200513A00002	5/13/2020	0.56	5/13/2024	5/13/2020	99.478191	98.94745274	98.42236725	97.90284483	97.38879728	96.88013825	96.3767832	95.87864936	95.38565569
200513A00003	5/13/2020	0.68	5/13/2025	5/13/2020	98.928709	97.44458264	95.98983188	94.56365583	93.16528241	91.79396698	90.44899107	89.12966126	87.83530805
190528A00007	5/28/2019	2.44	11/15/2023	5/28/2019	100.03851	99.99692426	99.95538598	99.91389877	99.87246254	99.8310772	99.78974264	99.74845877	99.70722549
190528A00009	5/28/2019	2.45	5/15/2024	5/28/2019	100.41622	99.87822393	99.34599652	98.81944225	98.2984706	97.78299297	97.27292263	96.76817468	96.26866596
190529A00023	5/29/2019	2.38	5/29/2024	5/29/2019	100.36956	99.79463411	99.22627716	98.66437893	98.10882986	97.55952283	97.01635315	96.47921841	95.94801851
190529A00013	5/29/2019	2.38	5/29/2024	5/29/2019	100.36956	99.79463411	99.22627716	98.66437893	98.10882986	97.55952283	97.01635315	96.47921841	95.94801851
190529A00032	5/29/2019	2.38	5/29/2024	5/29/2019	100.36956	99.79463411	99.22627716	98.66437893	98.10882986	97.55952283	97.01635315	96.47921841	95.94801851
190529A00028	5/29/2019	2.38	5/29/2024	5/29/2019	100.36956	99.79463411	99.22627716	98.66437893	98.10882986	97.55952283	97.01635315	96.47921841	95.94801851
190529A00089	5/29/2019	2.38	5/29/2024	5/29/2019	100.36956	99.79463411	99.22627716	98.66437893	98.10882986	97.55952283	97.01635315	96.47921841	95.94801851
190530A00045	5/30/2019	2.44	5/30/2024	5/30/2019	100.40598	99.82826411	99.25717786	98.69260901	98.13444656	97.58258201	97.03690928	96.49732467	95.9637268
190530A00024	5/30/2019	2.25	5/30/2024	5/30/2019	100.41448	99.83525831	99.26270033	98.69669573	98.13713249	97.58390114	97.03689469	96.49600853	95.96114038
190530A00006	5/30/2019	2.25	5/30/2024	5/30/2019	100.41448	99.83525831	99.26270033	98.69669573	98.13713249	97.58390114	97.03689469	96.49600853	95.96114038

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190530A00008	5/30/2019	2.38	5/30/2025	5/30/2019	101.61326	100.0633192	98.54448296	97.05587985	95.59667285	94.16605557	92.76325082	91.3875093	90.03810832
190530A00029	5/30/2019	2.25	5/30/2024	5/30/2019	100.41448	99.83525831	99.26270033	98.69669573	98.13713249	97.58390114	97.03689469	96.49600853	95.96114038
190531A00037	5/31/2019	2.61	5/31/2029	5/31/2019	108.67798	103.2051338	98.04459845	93.17690039	88.58387731	84.2485867	80.15521752	76.28900881	72.63617461
190531A00038	5/31/2019	2.82	5/31/2034	5/31/2019	113.57652	103.5706809	94.56161095	86.44386202	79.12367827	72.5176415	66.5514829	61.15903674	56.28131843
190603A00003	6/3/2019	2.05	6/3/2024	6/3/2019	100.30069	99.71115547	99.1285399	98.55271952	97.98357595	97.42099352	96.86485922	96.31506265	95.77149589
190603A00005	6/3/2019	2.25	6/3/2024	6/3/2019	100.29806	99.71004978	99.128918	98.55454443	97.98681172	97.4256052	96.87081285	96.32232521	95.78003526
190603A00033	6/3/2019	2.05	6/3/2024	6/3/2019	100.30069	99.71115547	99.1285399	98.55271952	97.98357595	97.42099352	96.86485922	96.31506265	95.77149589
210429A00005	4/29/2021	2.08	4/29/2031	4/29/2021	104.93016	97.91706369	91.42509904	85.41281966	79.8422741	74.67869623	69.89022291	65.44763801	61.3241402
191202A00005	12/2/2019	2.03	12/2/2024	12/2/2019	100.42815	99.36030378	98.31507586	97.2917545	96.28965678	95.30812787	94.34653964	93.40428929	92.48079812
191203A00004	12/4/2019	1.87	12/4/2024	12/4/2019	100.25354	99.18155253	98.13239423	97.10533889	96.09969389	95.11479531	94.15000639	93.20471621	92.27833838
191204A00013	12/4/2019	1.72	12/4/2024	12/4/2019	100.21683	99.14317201	98.0924099	97.06381498	96.05669182	95.07037377	94.10422156	93.15762185	92.22998594
210507A00009	5/7/2021	2.02	5/7/2032	5/7/2021	104.59562	96.74435652	89.54635873	82.94379543	76.88423207	71.32010273	66.20823558	61.50942668	57.18805707
210507A00008	5/7/2021	1.94	5/7/2031	5/7/2021	103.91443	96.91968398	90.44677634	84.45407539	78.90346889	73.76005246	68.99184452	64.56952781	60.46621501
191206A00009	12/6/2019	2.87	12/4/2037	12/6/2019	113.05962	100.5094131	89.55543982	79.98303385	71.60754294	64.26999522	57.83340721	52.17963872	47.20671148
191206A00013	12/6/2019	3.05	12/6/2044	12/6/2019	122.65438	104.6658445	89.82800339	77.55312281	67.36719084	58.88730927	51.80368488	45.86526303	40.86825177
191206A00008	12/6/2019	2.44	12/6/2030	12/6/2019	107.37281	100.6135444	94.33091177	88.48876567	83.05387851	77.99569385	73.28609859	68.89921575	64.81121572
191206A00019	12/6/2019	1.96	11/15/2023	12/6/2019	100.01854	99.97696746	99.93544631	99.89397622	99.85255708	99.81118881	99.7698713	99.72860446	99.68738818
191206A00021	12/6/2019	2.02	12/6/2024	12/6/2019	100.41995	99.34183828	98.28678827	97.25406688	96.24297108	95.2528271	94.28298889	93.33283672	92.40177586
191206A00044	12/10/2019	2.01	10/31/2024	12/10/2019	100.3788	99.39415188	98.42874844	97.48202615	96.55344708	95.64249376	94.74866824	93.87149115	93.01050087
210514A00033	5/18/2021	2.8	5/18/2028	5/18/2021	107.81837	103.351351	99.09718041	95.0445856	91.18295011	87.50227285	83.99312904	80.6466339	77.45440882
190923A00012	9/23/2019	2.43	9/25/2034	9/23/2019	109.62934	99.56708869	90.53961649	82.43435067	75.15151489	68.60261813	62.70912711	57.40130076	52.61716612
190924A00035	9/24/2019	1.88	9/13/2024	9/24/2019	100.16523	99.30767983	98.46476693	97.63612075	96.82138131	96.02020065	95.23224233	94.45718099	93.69470185
190925A00011	9/25/2019	1.89	9/25/2024	9/25/2019	100.18911	99.29993898	98.42649759	97.56836833	96.72515132	95.89646048	95.08192294	94.28117854	93.49387921
190925A00004	9/25/2019	1.7	9/24/2024	9/25/2019	100.14772	99.2595552	98.38708053	97.52988527	96.68757081	95.85975227	95.04605797	94.24612884	93.45961786
190926A00015	9/26/2019	2.32	11/26/2030	9/26/2019	106.53773	99.83073411	93.59573549	87.79702814	82.40178159	77.37979734	72.70328506	68.34665895	64.28635226
190926A00016	9/26/2019	2.28	5/24/2030	9/26/2019	106.21496	99.96007405	94.11754901	88.65804442	83.55445071	78.7817112	74.31665662	70.13785361	66.22546629
190926A00017	9/26/2019	2.23	9/26/2029	9/26/2019	105.93989	100.2753005	94.9509678	89.94471918	85.23593444	80.80542984	76.63535117	72.70907528	69.01111936
190927A00036	9/27/2019	1.94	9/6/2024	9/27/2019	100.20804	99.36868503	98.54334521	97.73167324	96.93333173	96.14799433	95.37534525	94.61507887	93.86689929
191217A00012	12/20/2019	2.03	12/20/2024	12/20/2019	100.44104	99.32674525	98.23708614	97.17125063	96.1284639	95.10798445	94.10910227	93.13113722	92.17343743
191218A00014	12/18/2019	2.04	12/18/2024	12/18/2019	100.45099	99.34178024	98.25698319	97.19579603	96.15745432	95.14122632	94.14641124	93.17233764	92.2183619
191219A00036	12/20/2019	2.1	12/20/2024	12/20/2019	100.52111	99.40632949	98.31619264	97.24988667	96.20663658	95.18570068	94.18636881	93.20796064	92.24982415
190927A00012	10/1/2019	1.96	10/1/2024	10/1/2019	100.27026	99.36483786	98.47570594	97.60242697	96.74458007	95.90175911	95.07357212	94.25964066	93.4595992
190930A00035	9/30/2019	1.93	9/30/2024	9/30/2019	100.24129	99.33863309	98.45216458	97.58145534	96.72608822	95.88566071	95.05978425	94.24808364	93.45019648

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190930A00070	9/30/2019	1.93	9/27/2024	9/30/2019	100.23709	99.34232108	98.46346345	97.6001004	96.75182505	95.91824465	95.09897998	94.29366477	93.50194514
190930A00077	9/30/2019	2.23	9/28/2029	9/30/2019	105.93991	100.270387	94.94171458	89.93165773	85.21954435	80.78614362	76.61355869	72.6851277	68.98533275
190930A00012	9/30/2019	1.93	9/30/2024	9/30/2019	100.24129	99.33863309	98.45216458	97.58145534	96.72608822	95.88566071	95.05978425	94.24808364	93.45019648
190930A00071	9/30/2019	2.05	9/29/2025	9/30/2019	101.30659	99.44289916	97.62258006	95.84437141	94.10705254	92.40944615	90.75041641	89.12886726	87.54374073
190930A00075	9/30/2019	2.19	9/29/2027	9/30/2019	104.30854	100.5097811	96.87059389	93.38346262	90.04126233	86.83723843	83.76498558	80.81842779	77.99179979
191220A00001	12/20/2019	2.62	12/19/2031	12/20/2019	109.25503	101.5382739	94.43338862	87.88847212	81.85628218	76.29379699	71.16181776	66.4246106	62.04958378
191220A00002	12/20/2019	3.02	12/20/2038	12/20/2019	115.68043	102.2245655	90.57950937	80.48723507	71.7279251	64.11412825	57.48583885	51.70634577	46.65872756
191223A00055	12/23/2019	2.46	12/7/2029	12/23/2019	107.30008	101.4203314	95.90332439	90.7247653	85.86211221	81.29443864	77.00230954	72.96766749	69.17372815
191223A00056	12/23/2019	2.46	12/14/2029	12/23/2019	107.30209	101.4053958	95.87343653	90.68171972	85.80752695	81.22977219	76.92887612	72.88665083	69.08619387
191001A00023	10/1/2019	1.85	9/27/2024	10/1/2019	100.16393	99.26952007	98.39101932	97.52800874	96.68008153	95.84684503	95.02792012	94.2229406	93.43155267
191226A00020	12/26/2019	2.44	12/21/2029	12/26/2019	107.18401	101.2739834	95.73052356	90.52895435	85.64638811	81.06158608	76.75483113	72.70781091	68.90351067
191226A00019	12/26/2019	2.4	12/22/2028	12/26/2019	106.63005	101.6383794	96.91170421	92.43454773	88.19242268	84.17175974	80.35984432	76.74475804	73.31532465
200529A00004	5/29/2020	0.56	5/29/2024	5/29/2020	99.427413	98.8541388	98.28744644	97.72722292	97.17335803	96.62574404	96.08427566	95.54884994	95.01936622
200601A00009	6/1/2020	0.84	6/2/2025	6/1/2020	98.991453	97.45827644	95.95596602	94.4836558	93.04051231	91.62573267	90.23854322	88.8781981	87.54397807
200604A00004	6/4/2020	0.76	6/4/2024	6/4/2020	99.405953	98.81830983	98.23758389	97.66365324	97.09639922	96.5357059	95.98146004	95.43355097	94.89187056
200604A00005	6/4/2020	0.89	6/4/2025	6/4/2020	99.071502	97.53237389	96.02429709	94.54639825	93.09783642	91.67780164	90.28551351	88.92021982	87.58119529
200604A00014	6/4/2020	2.42	6/4/2040	6/4/2020	108.59062	94.66889918	82.79198443	72.64340589	63.95740616	56.51057757	50.11491551	44.61204098	39.86839075
200604A00012	6/4/2020	1.59	6/4/2030	6/4/2020	101.78121	95.64162318	89.91105958	84.56020672	79.56199777	74.89142748	70.52538507	66.44250142	62.62300939
200604A00013	6/4/2020	2.21	6/4/2035	6/4/2020	105.78822	95.4745813	86.28260189	78.08360901	70.76432027	64.22493368	58.37746223	53.14428158	48.45686259
200604A00010	6/4/2020	0.89	6/4/2025	6/4/2020	99.071502	97.53237389	96.02429709	94.54639825	93.09783642	91.67780164	90.28551351	88.92021982	87.58119529
200604A00009	6/4/2020	0.7	6/4/2025	6/4/2020	98.954025	97.4127013	95.90252508	94.42261873	92.97213765	91.55026842	90.15622738	88.78925919	87.44863562
200611A00010	6/11/2020	1.08	6/11/2027	6/11/2020	99.928316	96.4899256	93.18708572	90.01372034	86.96406178	84.03263279	81.21423006	78.50390888	75.89696864
200611A00011	6/11/2020	1.2	6/9/2028	6/11/2020	100.64803	96.28705351	92.1382367	88.19017035	84.43211671	80.85396936	77.44621258	74.19988357	71.10653733
200615A00019	6/17/2020	1.34	6/16/2025	6/17/2020	99.807308	98.23024184	96.68539299	95.17183874	93.68869165	92.2350977	90.81023475	89.41331097	88.04356348
200626A00014	6/26/2020	0.62	6/26/2025	6/26/2020	98.823644	97.22511757	95.65967764	94.12636151	92.62424404	91.15243559	89.71008037	88.29635474	86.91046569
200630A00004	6/30/2020	0.66	7/1/2024	6/30/2020	99.250302	98.59188129	97.94214663	97.30092684	96.66805559	96.04337087	95.42671483	94.81793366	94.21687744
200709A00005	7/10/2020	2.23	7/10/2030	7/10/2020	105.89484	99.53741378	93.60630095	88.07066334	82.90205204	78.07420862	73.56288526	69.34568063	65.40188997
200709A00006	7/10/2020	2.58	7/10/2030	7/10/2020	108.17612	101.7447787	95.74326589	90.14054501	84.9079789	80.01913304	75.44959483	71.17680859	67.17992494
200709A00002	7/10/2020	1.66	7/10/2025	7/10/2020	100.38216	98.73737535	97.12709758	95.55030319	94.00601067	92.49327702	91.01119589	89.55889568	88.13553792
200709A00003	7/10/2020	1.63	7/10/2026	7/10/2020	101.1525	98.55125774	96.02961847	93.58464805	91.21353782	88.91360234	86.68227305	84.51709223	82.4157073
200709A00004	7/10/2020	1.4	7/10/2025	7/10/2020	99.94211	98.30117021	96.69466695	95.12157979	93.58092908	92.07177359	90.59320865	89.14436432	87.72440371
200709A00008	7/10/2020	1.88	7/10/2026	7/10/2020	101.82185	99.2115287	96.68103016	94.22740421	91.84783582	89.53963346	87.30022271	85.1271402	83.01802795
200709A00007	7/10/2020	1.67	7/9/2027	7/10/2020	102.10874	98.55956517	95.15227739	91.8804112	88.73783697	85.71873978	82.81760112	80.02918186	77.34850629

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201022A00012	10/26/2020	2.25	10/24/2030	10/26/2020	106.03602	99.4249973	93.27445775	87.54992513	82.21966812	77.2544727	72.62743051	68.31374599	64.29056052
201028A00003	10/30/2020	1.42	2/27/2026	10/30/2020	100.36729	98.11801421	95.92993473	93.80106102	91.72947602	89.71333571	87.75086595	85.84035934	83.98017237
201028A00005	10/30/2020	1.85	10/31/2025	10/30/2020	101.00421	99.06208833	97.16710183	95.31781478	93.51284516	91.75086233	90.03058472	88.35077767	86.71025132
201028A00006	10/30/2020	1.56	2/15/2024	10/30/2020	99.996947	99.70281703	99.41042647	99.11975945	98.8308007	98.54353509	98.2579477	97.97402377	97.69174872
201028A00004	10/30/2020	1.55	12/29/2023	10/30/2020	100.00312	99.84021982	99.67785425	99.5160183	99.35470939	99.19392496	99.03366247	98.87391939	98.7146932
201030A00003	11/2/2020	2.58	10/29/2040	11/2/2020	111.37498	96.98283034	84.73783004	74.30175296	65.39156247	57.77014789	51.23865371	45.63012322	40.80422565
201030A00004	11/2/2020	2.56	10/29/2040	11/2/2020	111.07467	96.7055231	84.48106869	74.06338159	65.16968801	57.56310493	51.0449745	45.44851176	40.63353548
201030A00005	11/2/2020	2.49	10/29/2040	11/2/2020	110.02357	95.73494775	83.58240397	73.22908182	64.39312736	56.83845459	50.36709727	44.81287164	40.03611988
201030A00001	11/2/2020	2.54	10/29/2040	11/2/2020	110.77436	96.42821586	84.22430734	73.82501023	64.94781354	57.35606198	50.8512953	45.2669003	40.46284531
201030A00002	11/2/2020	2.8	10/29/2040	11/2/2020	114.67842	100.03321	87.56220488	76.92383795	67.83218164	60.0476204	53.36912501	47.62784931	42.68181755
200716A00015	7/20/2020	1.54	7/19/2024	7/20/2020	99.84265	99.13432758	98.43602652	97.74753486	97.0686469	96.39916268	95.73888776	95.08763302	94.44521449
200720A00034	7/20/2020	0.77	7/21/2025	7/20/2020	98.872214	97.21265727	95.58841062	93.99841165	92.44164106	90.91712028	89.42390941	87.96110527	86.52783957
200720A00035	7/20/2020	1.81	7/20/2035	7/20/2020	101.34221	91.17932512	82.13979151	74.09308886	66.92448697	60.53306377	54.82998108	49.73698334	45.18508949
201116A00011	11/16/2020	0.71	11/15/2024	11/16/2020	99.028862	98.01285424	97.01754289	96.04230088	95.08652646	94.14964172	93.2310914	92.33034183	91.44687986
191230A00031	12/30/2019	1.85	12/30/2024	12/30/2019	100.37398	99.23233881	98.11654015	97.02571444	95.95903104	94.91569575	93.89494888	92.89606335	91.91834298
191230A00013	12/30/2019	1.84	12/2/2024	12/30/2019	100.34793	99.27867763	98.23210456	97.20749805	96.20417244	95.22147036	94.25876123	93.31543997	92.39092566
191230A00012	12/30/2019	1.77	12/1/2023	12/30/2019	100.0321	99.9461787	99.86040198	99.77477434	99.68929536	99.60396467	99.51878187	99.43374656	99.34885837
200103A00009	1/3/2020	1.9	1/3/2024	1/3/2020	100.06482	99.88811898	99.71204219	99.53658929	99.36175697	99.1875419	99.01394083	98.84095049	98.66856766
200106A00015	1/6/2020	1.87	2/15/2024	1/6/2020	100.08881	99.79450163	99.50193464	99.21109199	98.92195839	98.63451871	98.34875803	98.06466157	97.78221476
200108A00021	1/13/2020	1.97	1/13/2025	1/13/2020	100.39092	99.21525888	98.06702476	96.94526413	95.84906954	94.7775746	93.7299517	92.70540982	91.70319257
200110A00013	1/10/2020	1.76	1/10/2024	1/10/2020	100.066	99.86985653	99.6744988	99.47991916	99.2861129	99.09307531	98.90080174	98.70928758	98.51852825
200110A00022	1/13/2020	2	1/6/2025	1/13/2020	100.41994	99.26207637	98.13080218	97.02521233	95.94443986	94.88765646	93.8540703	92.84292408	91.85349313
200114A00006	1/15/2020	1.99	1/15/2025	1/15/2020	100.41712	99.23616087	98.08286875	96.95628	95.85547542	94.77957755	93.72774838	92.69918711	91.69312811
200720A00044	7/22/2020	2.22	7/21/2026	7/22/2020	102.77211	100.1209104	97.5513982	95.06053335	92.64540996	90.30325105	88.03140179	85.82732311	83.68858569
200720A00039	7/22/2020	2.48	7/21/2025	7/22/2020	101.81734	100.1316297	98.48170223	96.86648258	95.28493887	93.7360804	92.21895559	90.73265003	89.27628458
200720A00042	7/22/2020	2.04	7/21/2026	7/22/2020	102.28487	99.64033676	97.07734153	94.59284275	92.18393923	89.84785854	87.58195019	85.38367932	83.25062064
200720A00037	7/22/2020	2.1	7/21/2025	7/22/2020	101.16287	99.48296918	97.83874854	96.22913349	94.65309491	93.10964482	91.59783422	90.1167512	88.66551902
200121A00009	1/24/2020	1.94	1/24/2025	1/24/2020	100.36426	99.16056193	97.98560974	96.83838315	95.71790991	94.62326272	93.55355673	92.50794707	91.48562667
200730A00002	7/30/2020	0.67	11/6/2024	7/30/2020	99.011994	98.01925509	97.04627516	96.09246911	95.1572751	94.24015304	93.34058356	92.45806701	91.59212256
200730A00001	7/30/2020	0.46	7/30/2024	7/30/2020	99.159637	98.42334378	97.69791654	96.98311606	96.27871045	95.58447449	94.90018944	94.2256428	93.56062805
200731A00005	7/31/2020	0.45	7/31/2024	7/31/2020	99.148871	98.40998953	97.68204889	96.96480778	96.25803196	95.561494	94.87497299	94.19825435	93.53112956
200122A00034	1/22/2020	1.87	1/22/2024	1/22/2020	100.07381	99.84503117	99.61731357	99.39064492	99.16501793	98.94042538	98.71686011	98.49431504	98.27278315
200122A00035	1/22/2020	1.94	1/22/2025	1/22/2020	100.36251	99.16394883	97.99389206	96.85133162	95.73530717	94.64490259	93.57924354	92.53749504	91.51885932

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200123A00048	1/23/2020	1.7	1/23/2025	1/23/2020	100.21056	99.00822544	97.83458547	96.68862562	95.56937601	94.47591156	93.40734949	92.36284691	91.34159855
200123A00013	1/27/2020	1.89	1/27/2025	1/27/2020	100.30452	99.09353132	97.91164132	96.75781499	95.63106228	94.53043924	93.45504532	92.40402095	91.37654518
200803A00011	8/3/2020	0.72	8/4/2025	8/3/2020	98.779773	97.0854356	95.42777664	93.80569102	92.21811766	90.66403767	89.1424722	87.65248048	86.19315786
200806A00002	8/6/2020	0.43	8/6/2024	8/6/2020	99.117889	98.36335026	97.62023257	96.88827851	96.16723811	95.4568688	94.75693517	94.06720868	93.38746744
200810A00004	8/10/2020	0.43	8/9/2024	8/10/2020	99.109963	98.34756722	97.59683532	96.85750105	96.12930644	95.41200126	94.70534274	94.00909526	93.32303012
200811A00003	8/11/2020	0.57	8/11/2025	8/11/2020	98.716776	97.00143858	95.32365569	93.68231586	92.07635026	90.50473103	88.96646937	87.46061358	85.98624737
200812A00004	8/12/2020	0.59	8/12/2025	8/12/2020	98.751939	97.03371899	95.35316736	93.70917179	92.10066284	90.52661189	88.98602913	87.47796177	86.00149223
200814A00009	8/18/2020	1.36	8/16/2028	8/18/2020	101.39964	96.85406356	92.53699612	88.43579312	84.53857229	80.83416703	77.31207942	73.96243659	70.77595023
200814A00011	8/18/2020	1.58	8/16/2030	8/18/2020	101.59353	95.2908163	89.41913631	83.94685078	78.84479967	74.08609279	69.64592204	65.50139018	61.63135454
200818A00005	8/18/2020	1.05	8/18/2027	8/18/2020	99.867845	96.2608534	92.80220612	89.48503198	86.30281627	83.24938002	80.31886069	77.50569419	74.80459792
200818A00010	8/18/2020	1.88	8/20/2035	8/18/2020	102.03393	91.77245815	82.65106923	74.53660086	67.31207774	60.87467068	55.13392323	50.01020824	45.43338349
200818A00004	8/18/2020	0.92	8/18/2026	8/18/2020	99.256566	96.58322598	93.99462929	91.48761222	89.05914954	86.70634704	84.42643496	82.2167618	80.07478848
200818A00006	8/18/2020	1.18	8/18/2028	8/18/2020	100.5487	96.01829039	91.71615281	87.62964051	83.74687114	80.056678	76.54856309	73.21265354	70.03966113
200818A00007	8/18/2020	1.31	8/20/2029	8/18/2020	100.7073	95.28170678	90.17937516	85.37944806	80.86251793	76.61051741	72.60662007	68.83514913	65.28149326
200818A00008	8/18/2020	1.5	8/18/2031	8/18/2020	100.60395	93.49819036	86.9423753	80.89119831	75.30329641	70.14089175	65.36946417	60.9574551	56.87599991
200818A00009	8/18/2020	1.7	8/18/2033	8/18/2020	101.62106	92.87827111	84.96168705	77.78885905	71.28595715	65.38682683	60.03215647	55.16873873	50.74881504
201204A00016	12/8/2020	1.58	12/8/2023	12/8/2020	100.00618	99.9010798	99.79621218	99.69157689	99.58717314	99.48300011	99.37905701	99.27534303	99.1718574
200127A00030	1/27/2020	1.8	1/27/2025	1/27/2020	100.19227	98.98201401	97.80084794	96.64773356	95.52168119	94.42174716	93.34703126	92.29667418	91.26985527
200127A00023	1/27/2020	1.8	1/27/2025	1/27/2020	100.19227	98.98201401	97.80084794	96.64773356	95.52168119	94.42174716	93.34703126	92.29667418	91.26985527
200127A00016	1/27/2020	1.81	1/27/2025	1/27/2020	100.20474	98.99440482	97.81315831	96.65996483	95.53383464	94.43382406	93.35903282	92.3086016	91.2817097
200128A00028	1/28/2020	1.81	1/28/2025	1/28/2020	100.20527	98.99236436	97.80867626	96.65315621	95.52480845	94.42268366	93.34587628	92.29352201	91.26479548
200130A00005	1/30/2020	1.73	1/30/2024	1/30/2020	100.04455	99.79394537	99.54459084	99.29647961	99.04960241	98.80395008	98.55951356	98.31628384	98.07425204
200130A00006	1/30/2020	1.77	1/30/2025	1/30/2020	100.15609	98.93839949	97.75015531	96.5903041	95.4578382	94.35179715	93.27126489	92.21536728	91.18326968
200130A00016	1/30/2020	1.58	1/30/2025	1/30/2020	100.06354	98.84420632	97.65440653	96.49307761	95.35920801	94.25183354	93.1700347	92.11293404	91.07969386
200131A00048	1/31/2020	1.69	1/31/2024	1/31/2020	100.03473	99.78140194	99.52935569	99.27857763	99.02905826	98.78078816	98.53375799	98.28795853	98.04338062
200131A00015	2/5/2020	1.73	2/5/2025	2/5/2020	100.12657	98.89250678	97.68678495	96.50843137	95.3565159	94.23015033	93.12848605	92.05071187	90.99605192
200131A00016	1/31/2020	1.73	1/31/2025	1/31/2020	100.10618	98.88625901	97.69590284	96.53404951	95.39968552	94.29184485	93.20960628	92.15209077	91.11845913
200131A00031	1/31/2020	1.74	1/31/2024	1/31/2020	100.04747	99.7941247	99.54205696	99.29125751	99.04171683	98.79342549	98.54637417	98.30055364	98.05595475
200131A00032	1/31/2020	2.1	1/31/2030	1/31/2020	105.11219	99.16725697	93.5978983	88.37840616	83.48496583	78.89550735	74.58956829	70.54816824	66.75369361
200131A00038	1/31/2020	1.73	1/30/2025	1/31/2020	100.10588	98.88851381	97.70059529	96.54106431	95.40891339	94.3031822	93.22295482	92.16735724	91.13555496
200203A00006	2/3/2020	1.76	2/3/2025	2/3/2020	100.1564	98.92774367	97.72791874	96.5559193	95.41078156	94.29158596	93.19745455	92.12754877	91.08106715
190826A00029	8/26/2019	1.53	8/26/2024	8/26/2019	99.975335	99.1643516	98.36647428	97.58138698	96.80878408	96.04836967	95.29985711	94.56296869	93.83743529
190826A00030	8/26/2019	1.72	8/26/2026	8/26/2019	101.83279	99.09529931	96.44505302	93.87880681	91.39345342	88.98601825	86.65365284	84.39362879	82.20333195

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
120312A00009	3/12/2012	2.72	3/15/2024	3/12/2012	100.46721	100.0927844	99.72115973	99.35230691	98.98619483	98.62279284	98.26207078	97.90399892	97.54854798
200204A00012	2/4/2020	1.98	2/4/2027	2/4/2020	102.72296	99.56398503	96.51844607	93.58160804	90.74896164	88.01621423	85.37927777	82.8342576	80.37744194
200204A00001	2/4/2020	1.79	2/4/2025	2/4/2020	100.19863	98.96689077	97.76374252	96.58819724	95.43930779	94.31617007	93.21792064	92.14373442	91.09282226
200204A00020	2/4/2020	1.6	2/4/2025	2/4/2020	100.10525	98.87184373	97.66711333	96.49006226	95.33973966	94.21523793	93.11569033	92.0402687	90.98818127
200205A00011	2/7/2020	2.31	2/7/2024	2/7/2020	100.20509	99.93236843	99.66114029	99.39139035	99.12310648	98.85627669	98.59088914	98.3269321	98.06439396
200207A00017	2/7/2020	1.96	2/8/2027	2/7/2020	102.67414	99.50471467	96.44948715	93.50369359	90.66279541	87.92247093	85.27860346	82.72727017	80.26473161
200207A00016	2/7/2020	1.74	2/7/2024	2/7/2020	100.04878	99.77634279	99.50539668	99.23592757	98.96792337	98.70137208	98.43626186	98.17258101	97.91031791
200207A00018	2/7/2020	2.14	2/7/2030	2/7/2020	105.35864	99.38773458	93.79506859	88.55470017	83.64260371	79.03651418	74.71578899	70.66128145	66.85522475
200207A00009	2/7/2020	1.58	2/7/2025	2/7/2020	100.09193	98.85018638	97.63638496	96.44958021	95.288872	94.15340013	93.04234214	91.9549112	90.89035426
200210A00005	2/10/2020	1.77	2/10/2027	2/10/2020	102.45118	99.27019357	96.20426034	93.24857221	90.39854947	87.64983105	84.99826258	82.43988523	79.97092512
200210A00021	2/10/2020	1.76	2/10/2025	2/10/2020	100.18552	98.9370578	97.71572252	96.52063137	95.35093875	94.20583542	93.08454661	91.98633011	90.91047463
200210A00009	2/10/2020	1.57	2/10/2025	2/10/2020	100.09114	98.84098423	97.61803328	96.42139992	95.25023518	94.10372669	92.98109668	91.88160016	90.80452314
200212A00003	2/12/2020	1.63	2/12/2025	2/12/2020	100.17665	98.92029754	97.69067514	96.48692839	95.30824244	94.1538368	93.02296353	91.91490551	90.82897486
200214A00005	2/14/2020	1.59	2/14/2025	2/14/2020	100.13308	98.87141308	97.63598066	96.42596862	95.24059681	94.07911723	92.94081231	91.82499338	90.73099923
200214A00002	2/14/2020	1.58	11/15/2024	2/14/2020	100.06315	99.03958329	98.03686182	97.05435107	96.09144485	95.147561	94.22214019	93.31464487	92.42455816
200214A00020	2/18/2020	1.78	1/15/2025	2/18/2020	100.16205	98.98272463	97.83103939	96.70603162	95.6067828	94.53241616	93.48209433	92.45501711	91.4504195
200214A00015	2/18/2020	1.76	8/6/2024	2/18/2020	100.01058	99.25403143	98.50888863	97.77489862	97.0518124	96.33938838	95.63739203	94.94559565	94.26377817
200214A00014	2/18/2020	1.8	2/18/2025	2/18/2020	100.27108	98.99963586	97.75338419	96.53159018	95.33354616	94.15857198	93.00601367	91.87524214	90.76565199
200214A00007	2/14/2020	1.59	2/14/2025	2/14/2020	100.13308	98.87141308	97.63598066	96.42596862	95.24059681	94.07911723	92.94081231	91.82499338	90.73099923
200825A00007	8/27/2020	4.79	8/27/2026	8/27/2020	110.11799	107.2680002	104.5078367	101.8341732	99.24383001	96.73376221	94.30105347	91.9429097	89.65665323
200827A00007	8/27/2020	0.77	8/27/2025	8/27/2020	98.861266	97.10749078	95.39288032	93.71632341	92.07674797	90.47311935	88.90443876	87.36974172	85.86809668
200828A00002	8/28/2020	0.73	8/28/2026	8/28/2020	99.05229	96.34921184	93.73274697	91.19966953	88.74689218	86.37145891	84.07053873	81.84141958	79.68150274
171227A00018	12/27/2017	2.83	12/27/2024	12/27/2017	101.3764	100.238358	99.12582785	98.03796332	96.97395068	95.93301165	94.9144015	93.91740724	92.94134596
170918A00007	9/18/2017	2.8	9/20/2027	9/18/2017	106.6207	102.800663	99.13965125	95.63022558	92.26533459	89.03829101	85.94275105	82.97269491	80.12240862
220106A00019	1/10/2022	3.17	1/7/2033	1/10/2022	114.72174	105.8858562	97.82355341	90.46245526	83.73732787	77.58934031	71.96540507	66.81758967	62.10259123
220106A00018	1/10/2022	3.11	1/8/2032	1/10/2022	113.15163	105.2363126	97.94865082	91.23526226	85.04757745	79.34138213	74.07640524	69.2159479	64.72654915
220112A00004	1/12/2022	1.55	1/12/2026	1/12/2022	100.81299	98.67810931	96.59855328	94.57249688	92.59818754	90.6739448	88.79815668	86.96927618	85.18581812
220112A00005	1/12/2022	1.55	1/12/2026	1/12/2022	100.81299	98.67810931	96.59855328	94.57249688	92.59818754	90.6739448	88.79815668	86.96927618	85.18581812
220118A00008	1/18/2022	1.36	1/18/2024	1/18/2022	99.959139	99.7414929	99.52480745	99.30907652	99.09429374	98.8804528	98.66754744	98.45557147	98.24451874
220118A00009	1/18/2022	1.65	1/17/2025	1/18/2022	100.00432	98.82088321	97.66531034	96.53662624	95.4339011	94.35624754	93.30281822	92.27280359	91.26542983
220125A00010	1/25/2022	1.89	1/25/2027	1/25/2022	102.39996	99.27256042	96.25667788	93.34767	90.54111992	87.83282307	85.21877532	82.69516194	80.25834729
210527A00009	5/27/2021	0.5	5/28/2024	5/27/2021	99.395759	98.82525564	98.26127441	97.70370352	97.15243419	96.6073601	96.06837729	95.53538413	95.00828124
210527A00019	5/27/2021	1	5/27/2026	5/27/2021	99.737119	97.26194372	94.86021405	92.52931544	90.26674419	88.07010162	85.93708893	83.86550228	81.8532282

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210527A00026	6/1/2021	2.78	6/1/2028	6/1/2021	107.79097	103.2889008	99.00277068	94.92106908	91.03296034	87.32824128	83.79730068	80.43108173	77.22104702
210528A00003	5/28/2021	0.63	5/28/2024	5/28/2021	99.358816	98.78982136	98.22731331	97.67118128	97.12131743	96.57761635	96.03997495	95.50829247	94.98247034
210601A00002	6/1/2021	0.9	6/2/2025	6/1/2021	99.086822	97.55286153	96.0497803	94.57671273	93.13282499	91.71731385	90.3294053	88.96835317	87.63343791
210603A00015	6/7/2021	2.71	6/7/2028	6/7/2021	107.50042	102.9892356	98.695164	94.60659024	90.71258776	87.00286986	83.46774865	80.09809688	76.8853124
171005A00006	10/5/2017	2.32	10/7/2024	10/5/2017	100.74556	99.82023807	98.91187174	98.02000047	97.1441779	96.28397367	95.43897269	94.60877446	93.79299245
180829A00008	8/29/2018	3.23	8/30/2027	8/29/2018	108.60311	104.7878859	101.1291998	97.61982372	94.25289973	91.02191983	87.92070644	84.94339381	82.08441075
190814A00005	8/14/2019	1.65	8/14/2024	8/14/2019	100.06619	99.28647136	98.51887364	97.76311148	97.01891259	96.28601299	95.56415669	94.85309537	94.15258813
160113A00030	1/13/2016	2.52	1/13/2025	1/13/2016	101.19751	100.0145574	98.85920212	97.7304833	96.62748753	95.54934275	94.49521592	93.46431091	92.45586643
180619A00021	6/19/2018	3.24	6/19/2028	6/19/2018	110.54177	105.9127041	101.5072797	97.31346611	93.31995045	89.51608673	85.89185284	82.43781045	79.14506769
180619A00020	6/19/2018	3.1	6/19/2025	6/19/2018	102.88485	101.2704596	99.68913814	98.13993286	96.62192861	95.13424497	93.67603457	92.2464815	90.84479986
210608A00005	6/8/2021	0.51	6/7/2024	6/8/2021	99.367757	98.7707667	98.18092312	97.59809843	97.02216788	96.45300963	95.89050475	95.33453703	94.784993
210608A00017	6/10/2021	2.67	6/8/2029	6/10/2021	108.34889	102.8878986	97.73902435	92.88276662	88.30094676	83.9766093	79.89393321	76.03815014	72.39546892
210609A00011	6/11/2021	1.32	6/11/2024	6/11/2021	99.729293	99.12199828	98.52207946	97.92940301	97.34383831	96.76525788	96.19353723	95.62855487	95.07019211
210609A00013	6/11/2021	1.64	6/11/2025	6/11/2021	100.28394	98.71616322	97.18023339	95.67524257	94.20031977	92.75462653	91.33735538	89.94772838	88.5849958
210609A00007	6/11/2021	2.6	6/11/2029	6/11/2021	107.96844	102.510242	97.36455799	92.51183417	87.93384343	83.61358686	79.53520456	75.68389336	72.04583096
190530A00034	5/30/2019	2.44	5/30/2024	5/30/2019	100.40598	99.82826411	99.25717786	98.69260901	98.13444656	97.58258201	97.03690928	96.49732467	95.9637268
190807A00005	8/7/2019	1.77	8/7/2024	8/7/2019	100.01886	99.25964064	98.51190835	97.77540713	97.04988535	96.33509885	95.63081066	94.93679074	94.25281574
190830A00021	8/30/2019	1.76	8/30/2024	8/30/2019	100.03963	99.21956432	98.41289044	97.61928075	96.83842006	96.07000322	95.31373478	94.56932853	93.83650723
190211A00002	2/11/2019	2.88	2/12/2024	2/11/2019	100.37808	100.0914037	99.80637017	99.5229697	99.24118818	98.96101166	98.68242639	98.40541874	98.12997527
200227A00030	2/27/2020	1.59	2/27/2026	2/27/2020	100.76159	98.50766018	96.31502762	94.18169606	92.10574567	90.08532973	88.11867153	86.20406117	84.33985274
200227A00031	2/27/2020	1.43	2/27/2024	2/27/2020	99.950434	99.62375669	99.299211	98.97677567	98.65643018	98.33815428	98.02192798	97.70773155	97.39554551
211022A00008	10/22/2021	1.12	10/22/2024	10/22/2021	99.490691	98.53423136	97.59605703	96.67564772	95.77250281	94.88614027	94.01609591	93.16192251	92.32318905
201208A00029	12/10/2020	1.52	12/9/2025	12/10/2020	100.42705	98.38824611	96.40060568	94.46250496	92.5723803	90.72872942	88.93010853	87.17512949	85.46245726
201208A00031	12/10/2020	1.43	12/9/2024	12/10/2020	99.764822	98.68285289	97.62422184	96.58818084	95.57401308	94.58103181	93.60857874	92.65602262	91.72275783
200220A00015	2/20/2020	1.57	2/20/2025	2/20/2020	100.13113	98.85263786	97.59892657	96.36929003	95.16305307	93.97956594	92.81820314	91.67836223	90.55946276
200221A00003	2/25/2020	1.69	2/25/2025	2/25/2020	100.15509	98.86485352	97.59811146	96.35425537	95.13270156	93.93288608	92.75426387	91.596308	90.45850886
200221A00013	2/21/2020	1.69	2/21/2025	2/21/2020	100.13921	98.86027402	97.60579257	96.37508449	95.1674952	93.98239429	92.81917439	91.67725011	90.55605703
200221A00016	2/21/2020	1.69	2/21/2025	2/21/2020	100.13921	98.86027402	97.60579257	96.37508449	95.1674952	93.98239429	92.81917439	91.67725011	90.55605703
200221A00004	2/21/2020	1.69	2/21/2025	2/21/2020	100.13921	98.86027402	97.60579257	96.37508449	95.1674952	93.98239429	92.81917439	91.67725011	90.55605703
200221A00031	2/21/2020	1.69	2/21/2025	2/21/2020	100.13921	98.86027402	97.60579257	96.37508449	95.1674952	93.98239429	92.81917439	91.67725011	90.55605703
200224A00046	2/24/2020	1.59	2/24/2025	2/24/2020	100.01878	98.73228439	97.46950907	96.22982619	95.01263466	93.81735424	92.64342458	91.49030444	90.35747077
200224A00007	2/24/2020	1.59	2/24/2025	2/24/2020	100.01878	98.73228439	97.46950907	96.22982619	95.01263466	93.81735424	92.64342458	91.49030444	90.35747077
200224A00025	2/24/2020	1.59	1/23/2025	2/24/2020	99.930651	98.73233832	97.5626032	96.42043361	95.30486449	94.21497534	93.14988771	92.10876278	91.09079919

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200224A00024	2/24/2020	1.59	2/24/2025	2/24/2020	100.01878	98.73228439	97.46950907	96.22982619	95.01263466	93.81735424	92.64342458	91.49030444	90.35747077
200224A00001	2/24/2020	1.59	2/24/2025	2/24/2020	100.01878	98.73228439	97.46950907	96.22982619	95.01263466	93.81735424	92.64342458	91.49030444	90.35747077
200224A00019	2/24/2020	1.59	2/18/2025	2/24/2020	99.996591	98.72702705	97.48262534	96.26265051	95.06639574	93.89318169	92.74235515	91.6132878	90.50537494
200225A00012	2/25/2020	1.57	2/25/2025	2/25/2020	99.99595	98.70682257	97.44116723	96.19837976	94.97787697	93.77909538	92.6014904	91.44453552	90.30772156
200225A00015	2/25/2020	1.54	2/26/2024	2/25/2020	99.987037	99.66300297	99.34106662	99.02120795	98.7034069	98.38764367	98.0738987	97.7621527	97.45238661
200225A00050	2/25/2020	1.57	2/25/2025	2/25/2020	99.99595	98.70682257	97.44116723	96.19837976	94.97787697	93.77909538	92.6014904	91.44453552	90.30772156
200225A00018	2/25/2020	1.94	2/25/2030	2/25/2020	104.12909	98.14850025	92.55043462	87.30850289	82.39826358	77.79706911	73.48392561	69.43936447	65.64532436
200225A00017	2/25/2020	1.94	2/25/2030	2/25/2020	104.12909	98.14850025	92.55043462	87.30850289	82.39826358	77.79706911	73.48392561	69.43936447	65.64532436
200226A00006	2/26/2020	1.57	2/26/2025	2/26/2020	99.999593	98.7076457	97.43893023	96.19286133	94.96887366	93.76642048	92.5849729	91.42401916	90.28306391
200226A00009	2/26/2020	1.75	2/26/2030	2/26/2020	103.69007	97.69209444	92.07909497	86.82444476	81.90348838	77.29338352	72.97295916	68.92258547	65.12405452
200226A00016	2/26/2020	1.57	2/26/2025	2/26/2020	99.999593	98.7076457	97.43893023	96.19286133	94.96887366	93.76642048	92.5849729	91.42401916	90.28306391
200226A00015	2/26/2020	1.53	2/26/2024	2/26/2020	99.98377	99.65974252	99.33781288	99.01796089	98.70016649	98.38440987	98.07067149	97.75893204	97.44917247
200226A00008	2/26/2020	1.38	2/26/2025	2/26/2020	99.902425	98.60870388	97.33828186	96.09057191	94.86500636	93.66103626	92.47813063	91.31577574	90.17347433
200226A00025	2/26/2020	1.38	2/26/2025	2/26/2020	99.902425	98.60870388	97.33828186	96.09057191	94.86500636	93.66103626	92.47813063	91.31577574	90.17347433
200227A00027	2/27/2020	1.47	2/27/2025	2/27/2020	99.870078	98.57623971	97.30537707	96.05692474	94.8303357	93.6250804	92.4406461	91.27653618	90.13226953
200227A00009	2/27/2020	1.47	2/27/2025	2/27/2020	99.870078	98.57623971	97.30537707	96.05692474	94.8303357	93.6250804	92.4406461	91.27653618	90.13226953
200227A00013	2/27/2020	1.43	2/27/2024	2/27/2020	99.950434	99.62375669	99.299211	98.97677567	98.65643018	98.33815428	98.02192798	97.70773155	97.39554551
200227A00016	2/27/2020	1.47	2/27/2025	2/27/2020	99.870078	98.57623971	97.30537707	96.05692474	94.8303357	93.6250804	92.4406461	91.27653618	90.13226953
200227A00004	2/27/2020	1.65	2/27/2030	2/27/2020	103.06942	97.08792752	91.49087476	86.25165544	81.34563039	76.74997299	72.44352737	68.40667844	64.62123249
200227A00006	2/27/2020	1.47	2/27/2025	2/27/2020	99.870078	98.57623971	97.30537707	96.05692474	94.8303357	93.6250804	92.4406461	91.27653618	90.13226953
200227A00005	2/27/2020	1.43	2/27/2024	2/27/2020	99.950434	99.62375669	99.299211	98.97677567	98.65643018	98.33815428	98.02192798	97.70773155	97.39554551
200228A00014	2/28/2020	1.4	2/28/2025	2/28/2020	99.78005	98.48405734	97.21079035	95.95970301	94.73026645	93.5219682	92.33431153	91.16681489	90.01901128
200228A00025	2/28/2020	1.57	3/2/2027	2/28/2020	101.46986	98.2592808	95.16667456	92.18711524	89.31590739	86.54857463	83.88084831	81.30865672	78.82811505
200228A00059	2/28/2020	1.79	2/28/2030	2/28/2020	103.20114	97.24124745	91.6635788	86.44172882	81.55123807	76.96944337	72.67533761	68.64944107	64.87368338
200228A00019	2/28/2020	1.21	2/20/2025	2/28/2020	99.658225	98.38299556	97.13248805	95.90600192	94.70286345	93.5224243	92.3640603	91.22717031	90.11117515
200228A00012	3/3/2020	1.4	3/3/2025	3/3/2020	99.782298	98.47859865	97.19788159	95.93959229	94.70319319	93.48816351	92.29399852	91.12020902	89.96632069
200228A00026	2/28/2020	2.14	2/28/2035	2/28/2020	105.19572	95.10732748	86.09559362	78.03935906	70.83167718	64.37808571	58.59509408	53.40886043	48.75403385
200228A00005	2/28/2020	1.35	2/28/2024	2/28/2020	99.923189	99.59385174	99.26667854	98.94164859	98.61874093	98.29793484	97.97920991	97.66254596	97.34792308
200228A00031	2/28/2020	1.35	2/28/2024	2/28/2020	99.923189	99.59385174	99.26667854	98.94164859	98.61874093	98.29793484	97.97920991	97.66254596	97.34792308
200228A00016	2/28/2020	1.35	2/22/2024	2/28/2020	99.928506	99.61546636	99.30439194	98.99526387	98.68806388	98.38277394	98.07937623	97.77785315	97.47818733
200302A00011	3/2/2020	1.31	2/27/2025	3/2/2020	99.657026	98.36467292	97.09527049	95.84825407	94.62307727	93.41921119	92.2361437	91.07337876	89.93043585
200302A00045	3/4/2020	1.31	3/4/2025	3/4/2020	99.661983	98.35656657	97.07420415	95.81433841	94.57642929	93.35995354	92.16440416	90.98928969	89.8341337
200302A00054	3/2/2020	1.31	3/3/2025	3/2/2020	99.661478	98.35862662	97.07874349	95.82127416	94.58568146	93.37144495	92.17806028	91.00503858	89.85190586

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200302A00033	3/2/2020	1.31	3/3/2025	3/2/2020	99.661478	98.35862662	97.07874349	95.82127416	94.58568146	93.37144495	92.17806028	91.00503858	89.85190586
200302A00034	3/2/2020	1.25	3/1/2024	3/2/2020	99.887538	99.55285367	99.22040579	98.89017168	98.56212931	98.23625696	97.91253316	97.59093675	97.27144684
200302A00028	3/2/2020	1.25	2/26/2024	3/2/2020	99.892289	99.56844996	99.24670824	98.92704327	98.60943497	98.29386356	97.98030949	97.66875347	97.35917645
200302A00036	3/2/2020	1.45	3/2/2026	3/2/2020	100.4426	98.18456191	95.98815653	93.85137369	91.77228074	89.74901855	87.77979833	85.86289854	83.99666195
200302A00053	3/2/2020	1.31	3/3/2025	3/2/2020	99.661478	98.35862662	97.07874349	95.82127416	94.58568146	93.37144495	92.17806028	91.00503858	89.85190586
200303A00018	3/3/2020	1.27	3/3/2025	3/3/2020	99.60778	98.30530572	97.02579322	95.76868832	94.53345402	93.31957004	92.12653218	90.95385172	89.80105482
200303A00010	3/3/2020	1.34	3/3/2025	3/3/2020	99.701752	98.3986173	97.11845619	95.86071353	94.62485204	93.41035114	92.21670636	91.04342873	89.89004414
200303A00007	3/3/2020	1.11	3/4/2024	3/3/2020	99.875829	99.53258831	99.19170819	98.85316383	98.51693122	98.18298669	97.85130687	97.52186873	97.19464954
200303A00034	3/3/2020	1.21	3/3/2025	3/3/2020	99.527233	98.22532436	96.94636782	95.68980957	94.45511286	93.24175767	92.04924002	90.87707143	89.72477826
200303A00001	3/3/2020	1.15	3/3/2025	3/3/2020	99.603395	98.29846678	97.01657923	95.75717521	94.51971521	93.30367656	92.1085528	90.93385302	89.7791013
200303A00012	3/3/2020	1.71	3/1/2030	3/3/2020	102.70478	96.75782652	91.19269952	85.98300263	81.10428436	76.53388998	72.25082125	68.23560758	64.47018801
200304A00034	3/4/2020	1.12	3/4/2024	3/4/2020	99.838727	99.49602194	99.15566752	98.81763999	98.48191553	98.14847064	97.81728212	97.4883271	97.16158301
200304A00010	3/4/2020	1.2	3/4/2027	3/4/2020	100.63918	97.4275975	94.33455413	91.35508192	88.48444655	85.71813535	83.05184577	80.48147448	78.0031071
210621A00008	6/21/2021	1.04	6/23/2025	6/21/2021	99.323936	97.73241193	96.17365834	94.64672743	93.15070775	91.68472265	90.24792853	88.83951333	87.45869499
200304A00052	3/6/2020	2.11	3/8/2027	3/6/2020	103.27575	100.0200175	96.88414926	93.86312332	90.95215418	88.14668051	85.44235346	82.83502564	80.32074075
200304A00053	3/6/2020	2.33	3/6/2025	3/6/2020	101.04061	99.72032966	98.42344461	97.14938252	95.89759312	94.6675434	93.45871693	92.27061325	91.10274725
200304A00021	3/4/2020	0.94	3/4/2024	3/4/2020	99.816985	99.47387145	99.13311737	98.79469841	98.45859057	98.12477017	97.79321385	97.46389859	97.13680166
200304A00054	3/6/2020	2.35	3/8/2027	3/6/2020	104.07333	100.8042685	97.65543453	94.62179148	91.69854166	88.88111207	86.1651427	83.54647547	81.02114381
200304A00040	3/4/2020	1.12	3/1/2024	3/4/2020	99.843627	99.50903528	99.17667919	98.84653641	98.51858492	98.19280299	97.86916917	97.5476623	97.22826149
200305A00007	3/5/2020	1.14	3/5/2025	3/5/2020	99.433349	98.126982	96.8437285	95.58302812	94.34433857	93.12713454	91.93090698	90.75516255	89.59942295
200305A00002	3/5/2020	1.14	3/5/2025	3/5/2020	99.433349	98.126982	96.8437285	95.58302812	94.34433857	93.12713454	91.93090698	90.75516255	89.59942295
200305A00012	3/5/2020	1.14	3/5/2025	3/5/2020	99.433349	98.126982	96.8437285	95.58302812	94.34433857	93.12713454	91.93090698	90.75516255	89.59942295
200305A00029	3/5/2020	1.14	3/5/2025	3/5/2020	99.433349	98.126982	96.8437285	95.58302812	94.34433857	93.12713454	91.93090698	90.75516255	89.59942295
200305A00035	3/5/2020	1.25	3/5/2026	3/5/2020	99.980128	97.71999697	95.52178138	93.38345535	91.30307119	89.27875555	87.30870619	85.39118884	83.52453425
200305A00036	3/5/2020	1.36	3/5/2027	3/5/2020	100.77933	97.57277398	94.48441285	91.50930064	88.6427212	85.88017895	83.21738747	80.65025859	78.17489224
200306A00046	3/6/2020	1.01	3/3/2025	3/6/2020	99.258744	97.95871985	96.68161648	95.42688039	94.19397567	92.9823831	91.7915995	90.62113712	89.47052307
200306A00014	3/6/2020	1.38	3/6/2030	3/6/2020	100.65067	94.75542398	89.24061024	84.07983635	79.24866058	74.72444243	70.48620159	66.51448856	62.79126598
210624A00020	6/24/2021	0.78	6/24/2024	6/24/2021	99.353337	98.71300234	98.08088476	97.45682686	96.84067534	96.23228072	95.63149729	95.03818296	94.45219917
210624A00022	6/24/2021	0.87	6/24/2025	6/24/2021	99.236591	97.63983533	96.07604778	94.54427229	93.04358956	91.57311547	90.13199939	88.71942255	87.33459656
200306A00012	3/6/2020	0.95	3/6/2024	3/6/2020	99.775695	99.42771286	99.08215833	98.73900644	98.39823214	98.05981071	97.7237178	97.38992937	97.05842174
200306A00065	3/6/2020	1.38	3/6/2030	3/6/2020	100.65067	94.75542398	89.24061024	84.07983635	79.24866058	74.72444243	70.48620159	66.51448856	62.79126598
200306A00001	3/6/2020	1.11	3/6/2026	3/6/2020	99.65378	97.39500717	95.19820049	93.06133018	90.98244475	88.95966731	86.99119226	85.07528219	83.21026491
210114A00009	1/19/2021	2.66	1/17/2030	1/19/2021	108.52452	102.5094506	96.87052116	91.58218571	86.62076476	81.96430149	77.59242729	73.48623852	69.62818353

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210125A00006	1/27/2021	2.16	1/26/2027	1/27/2021	103.27037	100.1263835	97.09444792	94.16990236	91.34830807	88.62543968	85.99727337	83.45997573	81.00989339
210125A00007	1/27/2021	2.98	1/27/2031	1/27/2021	111.21506	104.2007435	97.68662832	91.63426145	86.00834242	80.77645138	75.90879928	71.37800097	67.15886913
210201A00012	2/3/2021	0.75	11/17/2025	2/3/2021	98.808035	96.84360909	94.92765094	93.05865443	91.23517102	89.45580735	87.71922271	86.02412662	84.36927655
210201A00004	2/3/2021	1.15	2/3/2025	2/3/2021	99.383961	98.1604371	96.96566289	95.7986301	94.65837727	93.54398705	92.45458368	91.38933062	90.34742842
210209A00029	2/12/2021	0.8	12/15/2025	2/12/2021	98.91183	96.87409558	94.8878587	92.9514686	91.06334085	89.22195374	87.42584528	85.67361032	83.96389787
210210A00005	2/10/2021	0.52	2/13/2024	2/10/2021	99.695128	99.40701754	99.12058008	98.83580107	98.55266605	98.27116073	97.991271	97.7129829	97.43628263
210212A00014	2/17/2021	1.38	2/17/2026	2/17/2021	100.25004	98.03037021	95.87040413	93.76817384	91.72179022	89.72943889	87.7893767	85.89992837	84.05948336
210212A00016	2/17/2021	1.32	2/18/2025	2/17/2021	99.643675	98.37653001	97.13450682	95.91687094	94.72291663	93.55196559	92.40336563	91.27648935	90.17073302
210212A00008	2/12/2021	0.95	10/13/2026	2/12/2021	99.353071	96.53637728	93.81344355	91.18065344	88.63455011	86.17182869	83.78932863	81.48402661	79.25302975
210216A00006	2/16/2021	1.44	2/15/2030	2/16/2021	101.78103	95.8705427	90.33868952	85.15933204	80.30826145	75.76304964	71.50290944	67.50856652	63.76214187
210216A00007	2/16/2021	1.3	2/16/2029	2/16/2021	101.62326	96.59814937	91.84946716	87.36062165	83.11610307	79.10140537	75.30295608	71.70805141	68.30479628
210216A00009	2/16/2021	0.92	2/16/2027	2/16/2021	99.689337	96.53693264	93.49955161	90.57237955	87.7508315	85.03053989	82.40734286	79.8772733	77.43654852
210216A00008	2/16/2021	0.71	2/17/2026	2/16/2021	98.981659	96.77133114	94.62064456	92.5276294	90.49039472	88.50712456	86.57607437	84.69556766	82.86399283
210709A00002	7/9/2021	1.36	7/9/2029	7/9/2021	101.74682	96.3676663	91.3036471	86.53468873	82.04210379	77.80848499	73.81761056	70.05435725	66.50462012
210720A00035	7/22/2021	2.27	7/21/2031	7/22/2021	106.38043	99.12244906	92.41640043	86.21734687	80.48423506	75.17954092	70.26894872	65.72106095	61.50713591
210802A00002	8/2/2021	0.7	8/1/2025	8/2/2021	98.949937	97.25809261	95.60277456	93.98287127	92.39731659	90.84508752	89.32520193	87.8367165	86.37872475
210804A00008	8/6/2021	2.28	8/4/2028	8/6/2021	105.71477	101.0976305	96.70972261	92.5384321	88.571907	84.79900966	81.20926956	77.79283943	74.54045456
210816A00003	8/16/2021	0.71	8/16/2024	8/16/2021	99.184173	98.40480036	97.63761286	96.88232667	96.13866655	95.4063657	94.68516541	93.97481479	93.27507047
210817A00013	8/19/2021	2	8/19/2026	8/19/2021	102.26428	99.54608832	96.91380087	94.36421894	91.89428177	89.50106087	87.18175328	84.93367545	82.75425727
210818A00007	8/18/2021	0.81	8/18/2025	8/18/2021	99.145204	97.40798668	95.70915187	94.04758431	92.42220997	90.83199443	89.27594106	87.75308931	86.26251307
210818A00005	8/18/2021	0.6	8/19/2024	8/18/2021	99.220966	98.43179067	97.6551024	96.89060625	96.13801691	95.39705796	94.66746143	93.94896756	93.24132446
210226A00012	2/26/2021	2.31	2/26/2036	2/26/2021	106.50605	95.61727528	85.9755224	77.43028305	69.84995028	63.11936277	57.1376762	51.8165193	47.07839517
210304A00004	3/4/2021	0.58	3/4/2024	3/4/2021	99.65186	99.30955621	98.96960159	98.63197183	98.29664312	97.96359196	97.63279519	97.30422995	96.97787369
210305A00013	3/5/2021	2.41	3/5/2036	3/5/2021	107.64025	96.67033411	86.9565119	78.34709008	70.70944031	63.92752143	57.89973062	52.53704212	47.76139378
210312A00010	3/12/2021	0.63	3/12/2024	3/12/2021	99.645292	99.28137375	98.92011887	98.56149761	98.20548115	97.85204106	97.50114935	97.15277842	96.80690108
210312A00005	3/12/2021	0.53	3/12/2024	3/12/2021	99.651505	99.2870859	98.92533945	98.56623603	98.2097466	97.85584257	97.50449574	97.15567832	96.80936295
210323A00007	3/23/2021	0.51	3/25/2024	3/23/2021	99.605159	99.20568494	98.80941374	98.41630704	98.02632696	97.63943626	97.25559825	96.87477685	96.49693653
210414A00001	4/14/2021	0.7	5/16/2024	4/14/2021	99.45503	98.91745102	98.38566961	97.85959268	97.33912869	96.82418809	96.3146832	95.8105282	95.31163909
220406A00007	4/6/2022	2.87	4/8/2024	4/6/2022	100.55531	100.1161884	99.68090388	99.2494081	98.82165159	98.39758579	97.97716298	97.56033626	97.14705954
220421A00013	4/21/2022	3.33	9/15/2026	4/21/2022	106.14851	103.3044604	100.5519927	97.88767305	95.30821535	92.81047406	90.39143729	88.04822038	85.77805984
220421A00015	4/21/2022	3.12	9/16/2024	4/21/2022	101.26559	100.3948768	99.53913966	98.69799119	97.87106034	97.05798854	96.25842918	95.47204714	94.69851831
220429A00006	4/29/2022	3.06	4/29/2024	4/29/2022	100.71514	100.2189279	99.72759715	99.24107699	98.75929703	98.28218827	97.80968305	97.341715	96.87821902
220429A00007	4/29/2022	3.14	10/29/2024	4/29/2022	101.50817	100.5226834	99.55632367	98.60853481	97.67878507	96.76656291	95.87137595	94.9927501	94.13022875

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220429A00002	4/29/2022	3.63	4/29/2032	4/29/2022	117.72831	109.3615338	101.676333	94.61308627	88.11769478	82.14104132	76.63850768	71.56954115	66.89726467
210916A00007	9/16/2021	0.75	9/16/2024	9/16/2021	99.16955	98.30889543	97.46309246	96.63175898	95.81452631	95.01103819	94.22095028	93.44392965	92.67965433
210917A00008	9/17/2021	1.55	9/15/2028	9/17/2021	102.31484	97.67318871	93.26823086	89.08672857	85.11624867	81.34511016	77.76233503	74.3576025	71.12120656
210924A00003	9/24/2021	2.37	9/24/2036	9/24/2021	106.93766	95.6120601	85.63460962	76.83623015	69.06988499	62.20761057	56.13795669	50.76378129	46.00034897
210924A00005	9/24/2021	2.37	9/24/2036	9/24/2021	106.93766	95.6120601	85.63460962	76.83623015	69.06988499	62.20761057	56.13795669	50.76378129	46.00034897
210924A00011	9/24/2021	2.19	9/25/2034	9/24/2021	105.92785	96.12601528	87.33452999	79.44340789	72.35516344	65.98333687	60.25119781	55.09060692	50.44101559
210924A00004	9/24/2021	2.37	9/24/2036	9/24/2021	106.93766	95.6120601	85.63460962	76.83623015	69.06988499	62.20761057	56.13795669	50.76378129	46.00034897
200228A00067	2/28/2020	1.4	2/28/2025	2/28/2020	99.78005	98.48405734	97.21079035	95.95970301	94.73026645	93.5219682	92.33431153	91.16681489	90.01901128
200228A00066	2/28/2020	1.35	2/28/2024	2/28/2020	99.923189	99.59385174	99.26667854	98.94164859	98.61874093	98.29793484	97.97920991	97.66254596	97.34792308
200224A00020	2/24/2020	1.59	2/24/2025	2/24/2020	100.01878	98.73228439	97.46950907	96.22982619	95.01263466	93.81735424	92.64342458	91.49030444	90.35747077
200224A00021	2/24/2020	1.58	9/24/2024	2/24/2020	99.906899	99.02173816	98.15219511	97.29785979	96.458336	95.63324125	94.82220607	94.02487353	93.2408987
220510A00014	5/13/2022	2.72	11/6/2023	5/13/2022	100.02006	100.0034131	99.98678133	99.97016583	99.95356662	99.93698368	99.92041697	99.90386647	99.88733215
210428A00015	4/28/2021	2.02	4/28/2031	4/28/2021	104.49478	97.49969415	91.02457056	85.02805244	79.47227359	74.32254553	69.54707589	65.11671313	61.00471488
210428A00006	4/28/2021	1.23	4/28/2026	4/28/2021	99.991832	97.59357244	95.26483221	93.00320203	90.80637106	88.67212229	86.59832818	84.58294635	82.62401572
210428A00007	4/28/2021	1.74	10/27/2028	4/28/2021	103.25803	98.49071429	93.9714632	89.68610631	85.621355	81.76474235	78.10456814	74.62984785	71.33026523
210428A00008	4/28/2021	1.93	4/26/2030	4/28/2021	104.00187	97.88326162	92.16543406	86.82008887	81.82106264	77.14415642	72.76697887	68.66880251	64.83043226
210128A00008	1/28/2021	0.54	4/9/2024	1/28/2021	99.520756	99.08167214	98.64645734	98.21506099	97.78743289	97.36352377	96.94328517	96.52666951	96.11363
200224A00015	2/24/2020	1.57	1/10/2024	2/24/2020	100.00573	99.80991569	99.61488314	99.42062471	99.22713575	99.03441161	98.84244771	98.65123948	98.46078241
210128A00010	1/28/2021	0.57	7/9/2024	1/28/2021	99.168817	98.48957221	97.81958759	97.158675	96.50665114	95.86333765	95.22856089	94.60215185	93.98394591
210129A00013	1/29/2021	0.65	1/9/2025	1/29/2021	98.805349	97.64998599	96.52140828	95.41869382	94.34096259	93.28737406	92.25712503	91.24944756	90.26360706
210129A00008	1/29/2021	0.62	10/8/2024	1/29/2021	99.013499	98.09616322	97.19570836	96.31167261	95.44361042	94.59109223	93.75370374	92.93104528	92.12273114
220518A00008	5/18/2022	3.01	5/20/2024	5/18/2022	100.72591	100.1736776	99.62750465	99.08729056	98.55293803	98.02435189	97.50143902	96.98410829	96.47227052
220531A00020	5/31/2022	2.86	5/31/2024	5/31/2022	100.65451	100.0732994	99.49878211	98.93084686	98.36938109	97.81427484	97.26542058	96.72271322	96.18605001
220601A00038	6/3/2022	3.69	5/28/2032	6/3/2022	118.34452	109.8832056	102.1159205	94.9815369	88.42462359	82.39488942	76.84668181	71.73853646	67.03277298
220601A00022	6/1/2022	2.73	12/1/2023	6/1/2022	100.10448	100.0185955	99.93285654	99.84726555	99.76182211	99.67652584	99.59137636	99.50637329	99.42151627
220602A00039	6/2/2022	3.11	6/2/2027	6/2/2022	107.56566	104.0029026	100.5786346	97.2867087	94.12128281	91.07680662	88.14800531	85.32986416	82.61761417
220830A00055	8/30/2022	3.7	8/30/2029	8/30/2022	114.33934	108.5026776	103.0084744	97.83480039	92.96123622	88.36876422	84.03966539	79.95742448	76.1066425
220902A00043	9/2/2022	3.91	3/4/2024	9/2/2022	100.80421	100.4594282	100.1170081	99.77692547	99.43915633	99.10367712	98.77046456	98.43949568	98.11074785
220729A00035	8/3/2022	3.14	8/3/2027	8/3/2022	107.63021	103.9157766	100.3509999	96.92899293	93.64322687	90.48751176	87.45597678	84.54305162	81.74344911
220909A00052	9/9/2022	3.95	3/8/2024	9/9/2022	100.84275	100.4869985	100.1337615	99.78301649	99.43473701	99.08889704	98.74547091	98.40443331	98.06575929
211206A00010	12/6/2021	1.54	12/4/2026	12/6/2021	101.18184	98.20463682	95.33009151	92.55408215	89.87268175	87.28214397	84.77889354	82.35951734	80.02075601
170914A00039	9/14/2017	2.23	9/16/2024	9/14/2017	100.60762	99.73829055	98.88395722	98.04423001	97.21873656	96.4071171	95.60902386	94.82412066	94.05208237
211217A00021	12/21/2021	2.44	12/18/2026	12/21/2021	104.00565	100.9489661	97.99825645	95.14923939	92.39782935	89.74013071	87.17242769	84.69117479	82.29298783

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
211222A00025	12/22/2021	1.2	7/15/2024	12/22/2021	99.596691	98.89997918	98.2129819	97.53549658	96.86732664	96.20828088	95.55817329	94.91682293	94.28405368
211222A00027	12/22/2021	1.26	10/15/2024	12/22/2021	99.622982	98.68418149	97.76298539	96.85890246	95.97145933	95.10019996	94.24468483	93.40449022	92.5792075
211222A00029	12/22/2021	1.26	10/15/2024	12/22/2021	99.622982	98.68418149	97.76298539	96.85890246	95.97145933	95.10019996	94.24468483	93.40449022	92.5792075
211222A00022	12/22/2021	1.06	1/16/2024	12/22/2021	99.896438	99.68436166	99.47319904	99.26294458	99.05359238	98.84513655	98.63757128	98.43089078	98.22508936
211222A00024	12/22/2021	1.13	4/15/2024	12/22/2021	99.773235	99.31735333	98.8656366	98.41802754	97.97447019	97.5349096	97.09929181	96.66756385	96.23967367
211222A00030	12/22/2021	1.33	1/15/2025	12/22/2021	99.615472	98.43964698	97.29140506	96.16978509	95.07387005	94.00278461	92.95569277	91.93179568	90.93032961
211222A00031	12/22/2021	1.33	1/15/2025	12/22/2021	99.615472	98.43964698	97.29140506	96.16978509	95.07387005	94.00278461	92.95569277	91.93179568	90.93032961
211222A00004	12/22/2021	1.26	10/15/2024	12/22/2021	99.622982	98.68418149	97.76298539	96.85890246	95.97145933	95.10019996	94.24468483	93.40449022	92.5792075
211222A00010	12/22/2021	1.06	1/16/2024	12/22/2021	99.896438	99.68436166	99.47319904	99.26294458	99.05359238	98.84513655	98.63757128	98.43089078	98.22508936
211222A00021	12/22/2021	1.06	1/16/2024	12/22/2021	99.896438	99.68436166	99.47319904	99.26294458	99.05359238	98.84513655	98.63757128	98.43089078	98.22508936
211222A00023	12/22/2021	1.13	4/15/2024	12/22/2021	99.773235	99.31735333	98.8656366	98.41802754	97.97447019	97.5349096	97.09929181	96.66756385	96.23967367
211222A00026	12/22/2021	1.2	7/15/2024	12/22/2021	99.596691	98.89997918	98.2129819	97.53549658	96.86732664	96.20828088	95.55817329	94.91682293	94.28405368
211222A00003	12/22/2021	1.33	1/15/2025	12/22/2021	99.615472	98.43964698	97.29140506	96.16978509	95.07387005	94.00278461	92.95569277	91.93179568	90.93032961
211222A00005	12/22/2021	1.2	7/15/2024	12/22/2021	99.596691	98.89997918	98.2129819	97.53549658	96.86732664	96.20828088	95.55817329	94.91682293	94.28405368
211222A00008	12/22/2021	1.13	4/15/2024	12/22/2021	99.773235	99.31735333	98.8656366	98.41802754	97.97447019	97.5349096	97.09929181	96.66756385	96.23967367
220916A00043	9/16/2022	4.07	9/16/2031	9/16/2022	121.092	113.1038663	105.7231633	98.9000968	92.58920655	86.74896857	81.34143562	76.33191217	71.6886604
220916A00042	9/16/2022	4.07	9/16/2030	9/16/2022	119.06067	112.0713557	105.5547378	99.47616554	93.80370228	88.50789965	83.56159198	78.93970844	74.61910151
220815A00004	8/15/2022	3.54	2/15/2024	8/15/2022	100.58368	100.2884154	99.99489802	99.70310921	99.41303368	99.12465629	98.83796206	98.5529362	98.26956409
220815A00006	8/15/2022	3.52	8/15/2024	8/15/2022	101.42542	100.6388764	99.86454513	99.10214185	98.35139212	97.61202985	96.88379703	96.16644339	95.45972613
220819A00037	8/19/2022	3.61	2/20/2024	8/19/2022	100.6312	100.3222	100.0151045	99.70989732	99.40656104	99.10507841	98.8054324	98.5076062	98.21158321
220819A00038	8/19/2022	3.59	8/19/2024	8/19/2022	101.50347	100.705978	99.92103072	99.1483337	98.38760137	97.63855705	96.90093251	96.17446769	95.4589104
220823A00056	8/23/2022	3.5	8/23/2024	8/23/2022	101.5882	100.7779054	99.98054367	99.19581063	98.42340762	97.66304537	96.9144436	96.17733071	95.45144336
220823A00060	8/23/2022	3.5	8/23/2024	8/23/2022	101.5882	100.7779054	99.98054367	99.19581063	98.42340762	97.66304537	96.9144436	96.17733071	95.45144336
221006A00033	10/6/2022	4.56	10/7/2024	10/6/2022	102.7268	101.7932151	100.8766606	99.9766694	99.09279485	98.22460606	97.37168747	96.53363805	95.71007076
221007A00003	10/7/2022	4.67	10/7/2025	10/7/2022	106.39665	104.4620408	102.5727131	100.7273332	98.9246148	97.16331771	95.44224608	93.7602464	92.11620572
180814A00032	8/14/2018	3.1	8/14/2025	8/14/2018	103.24204	101.4773407	99.75128319	98.06273685	96.41061098	94.79385598	93.2114615	91.66245449	90.14589755
180814A00033	8/14/2018	3.25	8/13/2027	8/14/2018	108.56384	104.7937054	101.1765772	97.70539744	94.37347736	91.17447352	88.10236779	85.1514487	82.31629394
200124A00008	1/24/2020	1.92	1/22/2027	1/24/2020	102.86959	99.73281901	96.70780469	93.78989772	90.97467544	88.2579275	85.63564409	83.10400484	80.65936853
200305A00020	3/5/2020	0.95	3/5/2025	3/5/2020	99.334359	98.02619523	96.74121205	95.47884751	94.23855708	93.01981331	91.82210515	90.64493732	89.48782969
220622A00010	6/22/2022	3.43	7/12/2024	6/22/2022	101.17068	100.4757186	99.79031003	99.11425993	98.44737727	97.78947625	97.14037604	96.49990068	95.86787883
220624A00016	6/24/2022	3.34	6/24/2026	6/24/2022	105.94116	103.3100986	100.7582044	98.28260237	95.88053947	93.5493815	91.28660696	89.08980139	86.956652
221011A00036	10/11/2022	4.59	10/6/2026	10/11/2022	109.95903	107.0036871	104.1448048	101.3787038	98.70186924	96.11093931	93.60269764	91.1740662	88.82209853
221011A00037	10/11/2022	4.68	10/7/2024	10/11/2022	102.83982	101.9056646	100.9885439	100.0879938	99.20356733	98.33483354	97.4813767	96.64279565	95.8187032

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221012A00051	10/12/2022	4.7	10/11/2024	10/12/2022	102.90313	101.957917	101.0301409	100.119319	99.22498861	98.34670396	97.48403513	96.63656748	95.80390096
221014A00043	10/14/2022	4.49	10/14/2027	10/14/2022	113.84503	109.8086151	105.9415661	102.2358577	98.68389029	95.27846257	92.01274885	88.88027725	85.87490948
221014A00050	10/14/2022	4.49	10/14/2027	10/14/2022	113.84503	109.8086151	105.9415661	102.2358577	98.68389029	95.27846257	92.01274885	88.88027725	85.87490948
221014A00026	10/14/2022	4.63	10/14/2027	10/14/2022	113.89936	109.8752758	106.0196928	102.3246431	98.78257823	95.38634467	92.12916133	89.00459806	86.00655559
220920A00050	9/20/2022	4.37	9/20/2024	9/20/2022	102.40326	101.5164702	100.6450869	99.78870745	98.94694604	98.11943009	97.30579961	96.50570663	95.71881476
220922A00042	9/22/2022	4.6	3/22/2024	9/22/2022	101.18645	100.7918175	100.4002705	100.0117767	99.62630035	99.24380634	98.86426001	98.48762727	98.11387455
220923A00035	9/23/2022	4.7	3/22/2024	9/23/2022	101.22603	100.8312937	100.439652	100.0510642	99.66549434	99.28290735	98.90326856	98.52654389	98.15269976
220927A00071	9/27/2022	4.7	9/26/2024	9/27/2022	102.76137	101.8567827	100.9681749	100.0951253	99.23722733	98.39408842	97.56532952	96.75058443	95.94949933
220927A00073	9/27/2022	4.72	9/26/2025	9/27/2022	106.37897	104.4736629	102.6123192	100.7936599	99.01645336	97.27951183	95.5816891	93.92187901	92.29901371
220927A00024	9/27/2022	4.7	9/27/2024	9/27/2022	102.77034	101.8630559	100.9718413	100.0962741	99.23594442	98.39045633	97.55942765	96.74248923	95.93928438
220826A00033	8/26/2022	3.73	8/26/2025	8/26/2022	104.24806	102.4464389	100.6848095	98.96203195	97.27700997	95.62868565	94.01603803	92.43808149	90.89386426
190128A00035	1/28/2019	3.04	1/26/2024	1/28/2019	100.35886	100.1186707	99.87963939	99.64175487	99.4050089	99.16939331	98.93489998	98.7015209	98.46924811
200115A00018	1/15/2020	1.9	1/16/2024	1/15/2020	100.07568	99.86333091	99.65189521	99.44136862	99.23174521	99.02301909	98.81518444	98.60823549	98.40216651
180118A00037	1/18/2018	2.88	1/21/2025	1/18/2018	101.51872	100.3152255	99.14024016	97.99275708	96.87181856	95.77651093	94.70596205	93.65933895	92.63584569
180118A00039	1/18/2018	3.09	1/19/2027	1/18/2018	106.21736	103.0436643	99.98210475	97.02804452	94.17707097	91.42498219	88.7677753	86.20163556	83.72292615
220630A00045	6/30/2022	3.39	6/30/2026	6/30/2022	105.79689	103.1586177	100.599976	98.11806311	95.71010038	93.37342943	91.1055062	88.9038951	86.76626355
220711A00020	7/11/2022	3.25	1/11/2024	7/11/2022	100.36414	100.164824	99.96631051	99.76859865	99.57168351	99.37556018	99.18022381	98.98566958	98.7918927
221213A00051	12/13/2022	4.02	12/13/2027	12/13/2022	112.02324	107.8765503	103.909859	100.1143541	96.48170203	93.00402199	89.6738589	86.48415778	83.42823998
221213A00056	12/13/2022	4.02	5/13/2026	12/13/2022	107.35149	104.8144245	102.3512049	99.95924481	97.6360638	95.37928377	93.18662409	91.0558969	88.9850027
230119A00067	1/19/2023	3.84	1/20/2026	1/19/2023	105.91416	103.7011318	101.5455803	99.44559003	97.39933022	95.40504592	93.46105435	91.56574115	89.717557
230120A00099	1/20/2023	3.92	1/20/2026	1/20/2023	106.09175	103.8767173	101.7191979	99.6172799	97.56913127	95.572996	93.62719023	91.73009856	89.88017068
230120A00082	1/20/2023	4.53	1/16/2025	1/20/2023	103.51017	102.306794	101.1315308	99.98340019	98.86146856	97.76484481	96.69267786	95.64415447	94.61849712
230120A00049	1/20/2023	4.53	1/16/2025	1/20/2023	103.51017	102.306794	101.1315308	99.98340019	98.86146856	97.76484481	96.69267786	95.64415447	94.61849712
230123A00016	1/23/2023	4.64	12/2/2024	1/23/2023	103.28562	102.2011552	101.1395541	100.1000991	99.08210145	98.08490063	97.10786309	96.15038077	95.21186987
230124A00014	1/24/2023	4.23	1/26/2026	1/24/2023	106.56573	104.3349308	102.1622595	100.0457705	97.98360419	95.97397874	94.01518583	92.10558704	90.24361031
221110A00086	11/10/2022	4.34	11/8/2027	11/10/2022	112.99622	108.9237617	105.0246153	101.2904579	97.7134089	94.28600663	91.00118446	87.85224735	84.83285037
221110A00084	11/10/2022	4.56	11/6/2025	11/10/2022	106.48187	104.4673141	102.5016196	100.5832903	98.7108868	96.88302333	95.09836583	93.35562942	91.65357625
221110A00039	11/10/2022	4.34	11/10/2027	11/10/2022	113.01538	108.9370807	105.0325285	101.2933641	97.71167935	94.27998751	90.99119837	87.83859506	84.81581233
221116A00028	11/16/2022	4.21	11/16/2027	11/16/2022	112.55314	108.4677487	104.5570615	100.8126482	97.22653056	93.7911575	90.49937918	87.34442359	84.31987451
221116A00026	11/16/2022	4.78	11/15/2024	11/16/2022	103.29602	102.256132	101.2372744	100.2388172	99.26015084	98.30068993	97.35987194	96.43715615	95.53202262
221116A00027	11/16/2022	4.46	11/14/2025	11/16/2022	106.3615	104.3263107	102.3408186	100.4034862	98.51283674	96.66744956	94.86595742	93.10704404	91.38944185
221118A00008	11/18/2022	5.09	11/30/2023	11/18/2022	100.29763	100.2143441	100.1311943	100.0481813	99.96530459	99.88256395	99.79995903	99.71748952	99.63515509
221018A00049	10/18/2022	4.59	10/18/2027	10/18/2022	113.7819	109.7496538	105.8867045	102.1850277	98.6370198	95.23547653	91.97356951	88.84482475	85.84310231

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221018A00048	10/18/2022	4.71	10/19/2026	10/18/2022	110.43904	107.442577	104.5449542	101.7423577	99.03114735	96.40784355	93.86911904	91.41179135	89.03281564
221018A00046	10/18/2022	4.9	4/30/2024	10/18/2022	101.64464	101.1430274	100.6463706	100.1545935	99.6676245	99.18539326	98.70783092	98.23486992	97.76644398
221018A00047	10/18/2022	4.78	10/20/2025	10/18/2022	106.74461	104.7725243	102.8473617	100.9677154	99.13223027	97.33960104	95.58856979	93.87792399	92.20649446
221018A00006	10/18/2022	4.55	10/18/2027	10/18/2022	113.62508	109.595911	105.7359457	102.0371616	98.49195874	95.09313608	91.83386851	88.7076851	85.70844885
221122A00011	11/22/2022	5.14	5/22/2024	11/22/2022	101.93257	101.371089	100.8158156	100.266645	99.72347675	99.18621268	98.65475665	98.12901463	97.60889463
221122A00015	11/22/2022	4.97	11/22/2024	11/22/2022	103.55786	102.4980725	101.4600901	100.4432417	99.44688538	98.47040484	97.51320839	96.57472763	95.65441631
221122A00041	11/22/2022	4.97	11/22/2024	11/22/2022	103.55786	102.4980725	101.4600901	100.4432417	99.44688538	98.47040484	97.51320839	96.57472763	95.65441631
230125A00021	1/25/2023	3.95	1/26/2026	1/25/2023	106.21043	103.9783292	101.8045017	99.68700238	97.62396376	95.61359659	93.6541856	91.74408583	89.88171899
230125A00022	1/25/2023	3.8	1/25/2027	1/25/2023	108.92739	105.6849481	102.5573627	99.5398608	96.62790479	93.81717487	91.10355701	88.48313154	85.9521626
230125A00010	1/25/2023	4.01	1/25/2027	1/25/2023	109.20713	105.969728	102.8467501	99.83345174	96.92532	94.11805823	91.40757408	88.78996827	86.26152402
230125A00062	1/25/2023	4.84	7/25/2024	1/25/2023	102.2776	101.5435229	100.8200155	100.1068494	99.40380362	98.71066354	98.02722053	97.35327179	96.68862015
230125A00065	1/25/2023	4.84	7/25/2024	1/25/2023	102.2776	101.5435229	100.8200155	100.1068494	99.40380362	98.71066354	98.02722053	97.35327179	96.68862015
221213A00070	12/13/2022	4.07	12/13/2027	12/13/2022	112.22671	108.0758773	104.1051747	100.305785	96.66936957	93.18804283	89.85434513	86.66121713	83.60197604
221214A00077	12/14/2022	3.84	12/14/2027	12/14/2022	111.80702	107.647878	103.6697878	99.86386021	96.22169417	92.73534626	89.39730308	86.20045541	83.13807408
221214A00079	12/14/2022	3.84	12/14/2027	12/14/2022	111.80702	107.647878	103.6697878	99.86386021	96.22169417	92.73534626	89.39730308	86.20045541	83.13807408
221214A00046	12/14/2022	4.02	12/14/2027	12/14/2022	112.03152	107.8820401	103.9127797	100.1149043	96.48006647	93.00037234	89.66835481	86.47694775	83.41946214
230126A00009	1/26/2023	4.84	7/26/2024	1/26/2023	102.2932	101.5563032	100.8300509	100.1142162	99.40857572	98.7129126	98.02701596	97.35068085	96.68370805
230126A00011	1/26/2023	4.84	7/26/2024	1/26/2023	102.2932	101.5563032	100.8300509	100.1142162	99.40857572	98.7129126	98.02701596	97.35068085	96.68370805
221214A00002	12/14/2022	4.62	12/13/2024	12/14/2022	103.3492	102.2355713	101.1460525	100.0798647	99.03626259	98.0145327	97.01399118	96.03398252	95.07387801
230127A00059	1/27/2023	4.41	1/27/2025	1/27/2023	103.59542	102.360585	101.1553038	99.9785247	98.82924372	97.70650374	96.60939159	95.53703562	94.48860333
230127A00029	1/27/2023	4.7	7/26/2024	1/27/2023	102.3207	101.5819785	100.85395	100.1363877	99.42906663	98.73176843	98.04428077	97.36639732	96.69791752
230127A00028	1/27/2023	4.7	7/26/2024	1/27/2023	102.3207	101.5819785	100.85395	100.1363877	99.42906663	98.73176843	98.04428077	97.36639732	96.69791752
230127A00044	1/27/2023	4.25	1/27/2026	1/27/2023	106.61954	104.3855217	102.2097581	100.0903057	98.02529874	96.01294966	94.05154469	92.13944029	90.27505953
230127A00045	1/27/2023	4.12	1/27/2027	1/27/2023	109.57775	106.3291448	103.1954639	100.1719361	97.25402354	94.43740624	91.7179699	89.09179461	86.5551442
230127A00046	1/27/2023	4	1/27/2028	1/27/2023	112.30672	108.0370302	103.9571368	100.0575179	96.32918399	92.76364729	89.35289089	86.08933955	82.96583258
230127A00053	1/27/2023	4	1/27/2028	1/27/2023	112.30672	108.0370302	103.9571368	100.0575179	96.32918399	92.76364729	89.35289089	86.08933955	82.96583258
230127A00048	1/27/2023	4	1/27/2028	1/27/2023	112.30672	108.0370302	103.9571368	100.0575179	96.32918399	92.76364729	89.35289089	86.08933955	82.96583258
230127A00060	1/30/2023	4.25	2/3/2026	1/30/2023	106.6867	104.432706	102.237924	100.1003718	98.01815255	95.98944799	94.01251483	92.08568075	90.20734093
230127A00073	1/27/2023	4.24	2/17/2026	1/27/2023	106.80639	104.5102321	102.2753835	100.0998263	97.98162601	95.91892439	93.90993623	91.95294572	90.04630327
230127A00012	1/27/2023	4	1/27/2028	1/27/2023	112.30672	108.0370302	103.9571368	100.0575179	96.32918399	92.76364729	89.35289089	86.08933955	82.96583258
230127A00079	1/27/2023	4.23	7/28/2025	1/27/2023	105.10398	103.3670614	101.6672735	100.0034939	98.37464229	96.77968219	95.21761837	93.68749491	92.18839317
230127A00075	1/27/2023	4.23	7/28/2025	1/27/2023	105.10398	103.3670614	101.6672735	100.0034939	98.37464229	96.77968219	95.21761837	93.68749491	92.18839317
230127A00056	1/27/2023	3.78	1/27/2028	1/27/2023	111.90823	107.6319693	103.5462887	99.64160092	95.90886265	92.33953645	88.92555924	85.65931296	82.53359718

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221216A00023	12/16/2022	4.04	12/13/2027	12/16/2022	112.10463	107.9562811	103.9879853	100.1909265	96.55676905	93.07763033	89.74605339	86.55498152	83.49773441
221216A00013	12/16/2022	4.04	12/16/2027	12/16/2022	112.12961	107.9729044	103.9968961	100.1927214	96.55200278	93.0668184	89.72967524	86.53348303	83.47153036
221219A00009	12/19/2022	4.83	6/19/2024	12/19/2022	101.96324	101.3267131	100.6981521	100.0774126	99.46434891	98.858819	98.26068434	97.66980978	97.08606344
221220A00029	12/20/2022	4.7	12/20/2024	12/20/2022	103.49512	102.3623155	101.254434	100.1706539	99.1101932	98.07230369	97.05626877	96.06140195	95.08704526
221221A00049	12/21/2022	4.15	12/21/2027	12/21/2022	112.62121	108.4413788	104.4436084	100.6189508	96.95894649	93.45559779	90.10134092	86.88901979	83.81186164
221221A00048	12/21/2022	4.22	12/21/2026	12/21/2022	109.56708	106.4154086	103.3724445	100.4338008	97.59529205	94.85292744	92.2029005	89.64157924	87.165497
221221A00046	12/21/2022	4.33	12/19/2025	12/21/2022	106.43234	104.3026926	102.2266254	100.2024179	98.22842016	96.30304801	94.42477946	92.59215198	90.80375957
221221A00038	12/21/2022	4.43	12/20/2024	12/21/2022	103.32183	102.1880695	101.0792884	99.99466654	98.93341907	97.89479502	96.87807523	95.88257081	94.9076215
221222A00027	12/22/2022	4.16	12/15/2027	12/22/2022	112.61025	108.4463597	104.4632701	100.6521199	97.00453323	93.51258984	90.16879774	86.96606734	83.8976876
221222A00024	12/22/2022	4.35	12/15/2025	12/22/2022	106.43704	104.3178741	102.2518325	100.2372225	98.27241452	96.35584344	94.48600547	92.6614552	90.88080283
221222A00026	12/22/2022	4.22	12/15/2026	12/22/2022	109.51309	106.3780143	103.350659	100.42669	97.60197639	94.87257827	92.23473696	89.68486526	87.21953846
221222A00014	12/22/2022	4.65	12/23/2024	12/22/2022	103.46149	102.3210596	101.2058877	100.1151403	99.0480199	98.00376325	96.98163984	95.98094998	95.00102324
221222A00035	12/30/2022	4.34	12/30/2025	12/30/2022	106.55758	104.397643	102.2925693	100.2405748	98.23995199	96.28906225	94.38633225	92.53025092	90.71936642
221222A00012	12/22/2022	4.35	12/16/2025	12/22/2022	106.44652	104.3246153	102.2559533	100.238832	98.27161661	96.35273728	94.48068559	92.65401182	90.87132207
221222A00013	12/22/2022	4.34	12/23/2025	12/22/2022	106.49144	104.3506322	102.2638659	100.229403	98.24557288	96.31077143	94.42345814	92.5821529	90.7854331
221223A00025	12/23/2022	4.25	12/23/2027	12/23/2022	113.04805	108.8542298	104.8431756	101.0058922	97.33388153	93.81910985	90.45397974	87.23130364	84.14427938
221130A00081	11/30/2022	4.15	11/30/2027	11/30/2022	112.94693	108.8015432	104.8350068	101.0386168	97.40413799	93.92377975	90.5901696	87.39632834	84.33564674
221130A00069	11/30/2022	4.15	11/30/2027	11/30/2022	112.94693	108.8015432	104.8350068	101.0386168	97.40413799	93.92377975	90.5901696	87.39632834	84.33564674
221130A00075	11/30/2022	4.15	11/30/2027	11/30/2022	112.94693	108.8015432	104.8350068	101.0386168	97.40413799	93.92377975	90.5901696	87.39632834	84.33564674
221130A00078	11/30/2022	4.15	11/30/2027	11/30/2022	112.94693	108.8015432	104.8350068	101.0386168	97.404138	93.92377975	90.5901696	87.39632834	84.33564674
221201A00009	12/1/2022	4.22	12/1/2025	12/1/2022	106.28572	104.2002383	102.1664958	100.182863	98.24777325	96.35972063	94.51725733	92.7189908	90.96358123
221201A00011	12/1/2022	3.95	12/1/2027	12/1/2022	112.14641	108.0145778	104.0612954	100.2778611	96.65604528	93.18806317	89.86654821	86.68452713	83.63539665
221201A00037	12/1/2022	4.26	12/1/2026	12/1/2022	109.50966	106.4114572	103.418728	100.5272692	97.7330739	95.03231832	92.42135249	89.89669104	87.45500481
221201A00006	12/1/2022	4.77	12/2/2024	12/1/2022	103.42795	102.3426536	101.280237	100.2399784	99.22118873	98.22320732	97.24540027	96.28715927	95.34790026
221201A00048	12/1/2022	4.22	12/1/2027	12/1/2022	112.73148	108.6018859	104.6502528	100.8679262	97.24671966	93.77888873	90.45710402	87.27442673	84.22428561
221028A00056	10/28/2022	4.77	10/28/2024	10/28/2022	103.1325	102.1409503	101.1685389	100.214718	99.27895728	98.36074653	97.4595946	96.57502851	95.70659265
221205A00034	12/5/2022	4.89	6/5/2024	12/5/2022	101.88898	101.2902213	100.6985194	100.1137455	99.5357782	98.96449898	98.3997921	97.84154445	97.2896455
221205A00088	12/5/2022	4.13	12/3/2027	12/5/2022	112.38523	108.257384	104.3076915	100.5274783	96.90853918	93.44311228	90.12385237	86.94380619	83.89638922
220217A00021	2/17/2022	1.85	2/13/2024	2/17/2022	100.0819	99.79304986	99.50588018	99.22037218	98.93651139	98.65428349	98.37367434	98.09466995	97.81725652
230130A00084	1/30/2023	4.29	1/30/2026	1/30/2023	106.73675	104.4935499	102.3090049	100.1811508	98.10810375	96.08805877	94.11928593	92.20012634	90.32898864
221031A00004	10/31/2022	4.79	10/28/2025	10/31/2022	106.84777	104.8537375	102.9076259	101.0079854	99.15341884	97.34258035	95.57417368	93.84694979	92.15970479
221031A00003	10/31/2022	4.89	11/12/2024	10/31/2022	103.38517	102.3526777	101.340909	100.3492436	99.37708546	98.42386188	97.48902235	96.57203757	95.67239842
221031A00045	10/31/2022	4.79	10/31/2025	10/31/2022	106.87904	104.8768596	102.9229796	101.0159334	99.1543073	97.33674012	95.5619208	93.82858631	92.13551943

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221031A00044	10/31/2022	4.89	10/31/2024	10/31/2022	103.28046	102.2801778	101.2993507	100.3374135	99.39382368	98.46805919	97.55961765	96.6680154	95.79278667
220225A00013	2/25/2022	1.92	2/23/2024	2/25/2022	100.10912	99.79299971	99.47887426	99.16672939	98.85654635	98.54830668	98.2419921	97.93758459	97.63506636
221207A00101	12/7/2022	4.87	6/7/2024	12/7/2022	101.89292	101.2887878	100.6918361	100.1019383	99.51896964	98.94280835	98.37333549	97.81043488	97.25399303
230131A00087	2/3/2023	4.26	1/5/2026	2/3/2023	106.43988	104.265501	102.1466667	100.0815651	98.06845636	96.10567134	94.19160809	92.3247285	90.50355516
230131A00041	1/31/2023	5.06	2/28/2024	1/31/2023	101.15582	100.823909	100.494177	100.1666009	99.84115954	99.5178322	99.19659832	98.87743764	98.56033013
221103A00050	11/3/2022	5.14	11/4/2024	11/3/2022	103.56997	102.5575575	101.5650416	100.5918371	99.63738319	98.70114068	97.78259092	96.88123478	95.99659177
221103A00036	10/13/2023	4.87	10/31/2024	10/13/2023	103.26031	102.260136	101.2794159	100.3175844	99.37409885	98.44843721	97.54009717	96.6485951	95.77346524
221228A00075	12/28/2022	4.09	12/28/2027	12/28/2022	112.95089	108.7314561	104.696784	100.8377377	97.14569084	93.61249056	90.23042878	86.99221514	83.89095186
221228A00094	12/28/2022	4.95	6/28/2024	12/28/2022	102.11406	101.4529025	100.8003263	100.1561624	99.5202489	98.89242787	98.27254541	97.6604515	97.05599988
221107A00056	11/7/2022	4.73	11/8/2027	11/7/2022	114.54702	110.4436819	106.5146281	102.7514892	99.14634796	95.69170844	92.38047096	89.20590905	86.16164776
221230A00055	12/30/2022	4.59	12/30/2024	12/30/2022	103.58513	102.423597	101.2882199	100.178121	99.09246193	98.0304407	96.99129028	95.97427649	94.97869632
221230A00059	12/30/2022	4.47	6/30/2025	12/30/2022	105.24157	103.577197	101.9472685	100.3507757	98.78675222	97.25426874	95.75243156	94.28038075	92.83728851
221230A00108	12/30/2022	4.8	12/30/2024	12/30/2022	103.69215	102.532034	101.3980019	100.289181	99.20473597	98.14386803	97.105813	96.08983941	95.09524682
221230A00109	12/30/2022	4.56	12/30/2025	12/30/2022	107.03284	104.8676671	102.7574641	100.7004433	98.69489432	96.73917553	94.83171096	92.9709869	91.15554896
221230A00111	12/30/2022	4.42	12/30/2026	12/30/2022	110.27633	107.0898352	104.0138097	101.0437656	98.17542636	95.40471567	92.72774684	90.14081258	87.64037545
230201A00003	2/1/2023	3.93	1/31/2028	2/1/2023	112.04485	107.7702941	103.6862363	99.78309076	96.05181481	92.48387183	89.07119996	85.80618253	82.68162073
230201A00048	2/1/2023	4.42	2/3/2025	2/1/2023	103.67497	102.4205975	101.1955478	99.99879445	98.82935918	97.68630832	96.56875051	95.47583432	94.40674599
230201A00047	2/1/2023	4.42	2/3/2025	2/1/2023	103.67497	102.4205975	101.1955478	99.99879445	98.82935918	97.68630832	96.56875051	95.47583432	94.40674599
230202A00006	2/2/2023	3.92	2/2/2027	2/2/2023	108.98559	105.7303944	102.5909482	99.5624377	96.6402787	93.82010723	91.09776736	88.46929971	85.93093076
230202A00011	2/2/2023	3.92	2/2/2027	2/2/2023	108.98559	105.7303944	102.5909482	99.5624377	96.64027869	93.82010723	91.09776736	88.46929971	85.93093076
230202A00042	2/2/2023	3.82	2/2/2028	2/2/2023	111.59913	107.3283554	103.2482589	99.34923856	95.62223677	92.05870282	88.65056115	85.39018196	82.27035385
230202A00041	2/2/2023	3.82	2/2/2028	2/2/2023	111.59913	107.3283554	103.2482589	99.34923856	95.62223677	92.05870282	88.65056115	85.39018196	82.27035385
230202A00065	2/2/2023	3.87	5/15/2028	2/2/2023	112.59595	108.0297496	103.6794114	99.53355476	95.5814605	91.81302841	88.21873837	84.78961384	81.51718791
230202A00064	2/2/2023	4.11	5/15/2026	2/2/2023	107.28868	104.7536473	102.2923898	99.90231731	97.58095184	95.3259175	93.13493586	91.00582121	88.93647612
230202A00033	2/2/2023	4.26	2/3/2025	2/2/2023	103.4722	102.2191792	100.9954571	99.80000927	98.63185801	97.49007022	96.37375514	95.28206184	94.21417712
230202A00045	2/2/2023	3.62	2/2/2028	2/2/2023	111.28162	107.0025439	102.9149809	99.00927119	95.27630097	91.70746713	88.29464556	85.03016135	81.90676119
230202A00061	2/2/2023	4.16	2/2/2026	2/2/2023	106.47383	104.2251969	102.0355734	99.90298633	97.82554282	95.80142872	93.82890488	91.90630321	90.03202315
230202A00071	2/2/2023	4.03	2/2/2027	2/2/2023	109.34115	106.0801676	102.9350926	99.9011016	96.97360522	94.14823462	91.42082918	88.78742503	86.24424434
230203A00039	2/3/2023	3.98	2/3/2028	2/3/2023	112.28043	107.9925374	103.8960333	99.98128281	96.23919689	92.6611946	89.23917152	85.96547037	82.83285348
230203A00038	2/3/2023	4.1	2/3/2027	2/3/2023	109.57712	106.3093945	103.1578781	100.1177359	97.18436774	94.35339386	91.62064312	88.98214139	86.43410081
230203A00065	2/3/2023	3.76	2/3/2028	2/3/2023	111.88012	107.5856295	103.483309	99.56346762	95.81696193	92.23516062	88.80991259	85.53351715	82.39869645
230203A00026	2/3/2023	3.98	2/3/2028	2/3/2023	112.28043	107.9925374	103.8960333	99.98128281	96.23919689	92.6611946	89.23917152	85.96547037	82.83285348
200720A00012	7/20/2020	0.77	7/15/2025	7/20/2020	98.87419	97.22986486	95.62028025	94.04439906	92.50122613	90.9898057	89.50921944	88.05858455	86.63705203

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210722A00001	7/22/2021	1.1	7/22/2026	7/22/2021	99.740979	97.12878394	94.59745076	92.14396024	89.76542844	87.45909965	85.22233964	83.05262927	80.94755856
200722A00010	7/22/2020	0.66	7/22/2024	7/22/2020	99.197178	98.48355768	97.78015432	97.08674987	96.40313235	95.72909573	95.06443972	94.4089696	93.762496
201116A00010	11/16/2020	0.57	11/15/2023	11/16/2020	99.960699	99.91917591	99.87770437	99.83628383	99.79491418	99.75359534	99.71232721	99.67110967	99.62994265
220310A00005	3/10/2022	2.06	3/8/2024	3/10/2022	100.16786	99.8135976	99.46184639	99.11257934	98.7657701	98.4213927	98.07942154	97.73983137	97.40259731
221208A00061	12/8/2022	4.11	12/8/2027	12/8/2022	112.34693	108.2067472	104.2457327	100.4551386	96.82669207	93.35256864	90.02536507	86.83807428	83.78406189
221208A00062	12/8/2022	4.24	12/8/2028	12/8/2022	115.84543	110.6578668	105.7405864	101.0780015	96.65550791	92.45941709	88.47689405	84.69589932	81.1051354
221208A00005	12/8/2022	4.88	12/8/2037	12/8/2022	138.87611	124.6434119	112.1613514	101.198758	91.55642219	83.06251105	75.56866336	68.9466605	63.0855851
221208A00006	12/8/2022	4.88	12/8/2037	12/8/2022	138.87611	124.6434119	112.1613514	101.198758	91.55642219	83.06251105	75.56866336	68.9466605	63.0855851
221208A00001	12/8/2022	4.6	12/8/2033	12/8/2022	129.23323	118.9354035	109.5991412	101.1279462	93.43553459	86.44470267	80.08632661	74.2984768	69.02563358
221208A00050	12/8/2022	4.11	12/8/2027	12/8/2022	112.34693	108.2067472	104.2457327	100.4551386	96.82669207	93.35256864	90.02536507	86.83807428	83.78406189
221209A00035	12/9/2022	3.91	12/9/2027	12/9/2022	112.05113	107.9001602	103.9293498	100.1298809	96.49341599	93.01207006	89.67838387	86.4852982	83.42613016
221209A00037	12/9/2022	3.91	12/9/2027	12/9/2022	112.05113	107.9001602	103.9293498	100.1298809	96.49341599	93.01207006	89.67838387	86.4852982	83.42613016
220323A00008	3/23/2022	2.47	3/25/2024	3/23/2022	100.34987	99.94912445	99.55157767	99.15719512	98.76593908	98.3777724	97.99265857	97.6105616	97.2314461
220401A00009	4/1/2022	2.98	4/1/2027	4/1/2022	106.30301	102.9352921	99.69322657	96.57146794	93.5649256	90.66875148	87.87832721	85.18925194	82.59733089
230411A00030	4/11/2023	4.2	4/11/2025	4/11/2023	104.04494	102.6056221	101.193454	99.80773589	98.4477893	97.11295845	95.80260943	94.51612923	93.25292488
230411A00028	4/11/2023	4.2	4/11/2025	4/11/2023	104.04494	102.6056221	101.193454	99.80773589	98.4477893	97.11295845	95.80260943	94.51612923	93.25292488
230411A00054	4/11/2023	3.74	4/11/2028	4/11/2023	112.32259	107.8357663	103.557759	99.47773211	95.58547251	91.87134693	88.32626594	84.94165043	81.70940028
230412A00038	4/12/2023	3.69	4/12/2028	4/12/2023	112.10998	107.6251689	103.3492535	99.27139418	95.38136644	91.66952666	88.12677602	84.74452688	81.51467143
230412A00031	4/12/2023	3.91	4/10/2026	4/12/2023	106.78525	104.3435326	101.970803	99.66472372	97.42304769	95.24361746	93.12436079	91.06328682	89.05848231
230412A00044	4/12/2023	3.91	4/10/2026	4/12/2023	106.78525	104.3435326	101.970803	99.66472372	97.42304769	95.24361746	93.12436079	91.06328682	89.05848231
230412A00037	4/12/2023	4.62	10/15/2024	4/12/2023	102.86122	101.9056261	100.9678619	100.0474262	99.1438409	98.25664552	97.38539612	96.5296647	95.68903849
230413A00069	4/13/2023	4.33	4/14/2025	4/13/2023	104.08764	102.6427341	101.22519	99.83429635	98.46936696	97.12973856	95.81477006	94.5238416	93.25635366
230413A00024	4/13/2023	4.41	4/14/2025	4/13/2023	104.20416	102.7583737	101.3399611	99.94821379	98.58244509	97.24199135	95.92621112	94.63448419	93.36621069
230203A00025	2/3/2023	4.63	2/3/2025	2/3/2023	103.79069	102.5378582	101.31427	100.1189029	98.95078209	97.80897751	96.69260114	95.60080465	94.53277725
230206A00008	2/6/2023	4.58	2/6/2025	2/6/2023	103.91433	102.6497815	101.4138467	100.205555	99.02397772	97.86822778	96.73745717	95.63085493	94.54764515
230206A00009	2/6/2023	4.58	2/6/2025	2/6/2023	103.91433	102.6497815	101.4138467	100.205555	99.02397772	97.86822778	96.73745717	95.63085493	94.54764515
230207A00045	2/7/2023	5.07	8/7/2024	2/7/2023	102.57583	101.8057237	101.0472211	100.3000638	99.56399818	98.83877811	98.12416468	97.41992596	96.72583677
230302A00028	3/2/2023	5.02	3/2/2026	3/2/2023	108.75169	106.3953333	104.1026855	101.87168	99.70032484	97.58670368	95.52897279	93.52535774	91.57415035
230208A00024	2/8/2023	5.08	8/8/2024	2/8/2023	102.5932	101.820346	101.0591803	100.3094394	99.57086712	98.84321467	98.12624069	97.41971086	96.72339772
230209A00037	2/9/2023	4.12	2/9/2028	2/9/2023	112.92291	108.6046857	104.4797533	100.5383769	96.77136966	93.17005677	89.72624402	86.43218823	83.28056978
230209A00024	2/9/2023	4.4	2/5/2026	2/9/2023	107.04608	104.7821255	102.577759	100.4309945	98.33992755	96.30273226	94.31765733	92.38302234	90.49721423
230209A00023	2/9/2023	4.79	2/10/2025	2/9/2023	104.0801	102.8053567	101.5581842	100.3376857	99.14300367	97.97331755	96.82784163	95.70582319	94.60654081
230209A00025	2/9/2023	4.25	2/5/2027	2/9/2023	110.08259	106.8008109	103.6358632	100.5828857	97.6372554	94.79457062	92.05063857	89.40146405	86.84323868

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230209A00027	2/9/2023	4.12	2/7/2028	2/9/2023	112.90509	108.5928519	104.4733989	100.5370301	96.77458591	93.17741799	89.73735732	86.44668488	83.29810406
230209A00015	2/9/2023	4.8	2/5/2025	2/9/2023	104.03082	102.7706757	101.5393177	100.3357546	99.15904439	98.00828762	96.88262478	95.7812342	94.70332993
230210A00035	2/10/2023	4.52	2/10/2026	2/10/2023	107.37186	105.0895477	102.8676372	100.7041303	98.5971072	96.54472602	94.54521887	92.59688821	90.6981035
230210A00055	2/10/2023	4.02	2/10/2028	2/10/2023	113.03996	108.7012804	104.5572853	100.598158	96.81462864	93.19794502	89.73984022	86.43250297	83.26854981
230210A00062	2/10/2023	4.13	2/10/2027	2/10/2023	110.1452	106.8380383	103.6493018	100.5740648	97.60763514	94.74554386	91.98353337	89.31754588	86.74371264
230210A00065	2/10/2023	4.02	2/10/2028	2/10/2023	113.03996	108.7012804	104.5572853	100.598158	96.81462864	93.19794502	89.73984022	86.43250297	83.26854981
230210A00049	2/10/2023	5.07	8/12/2024	2/10/2023	102.63156	101.8477509	101.0759683	100.3159318	99.56737409	98.83003595	98.10366592	97.38802003	96.6828615
230210A00009	2/10/2023	4.93	12/11/2024	2/10/2023	103.68065	102.5702823	101.4838279	100.420518	99.37961699	98.36042039	97.3622529	96.38446702	95.42644163
230213A00020	2/15/2023	4.28	1/25/2028	2/15/2023	113.46205	109.1733739	105.07485	101.1569516	97.41068836	93.82757096	90.39958027	87.11913822	83.97908073
230215A00019	2/15/2023	5.01	2/18/2025	2/15/2023	104.46686	103.1666562	101.8921266	100.6425251	99.41713113	98.21525221	97.03622249	95.87940142	94.74417258
230605A00027	6/5/2023	5.51	6/5/2024	6/5/2023	102.26222	101.6621965	101.069233	100.4832081	99.90400018	99.3314907	98.76556372	98.20610599	97.65300686
230607A00038	6/7/2023	4.58	6/5/2026	6/7/2023	108.691	106.0819596	103.5498878	101.0920409	98.70579163	96.38862381	94.13812641	91.95198855	89.82799462
230607A00037	6/7/2023	4.96	6/6/2025	6/7/2023	105.58546	103.9870869	102.420891	100.8859671	99.381444182	97.90647438	96.46025463	95.04200181	93.65096322
230418A00028	4/18/2023	5.13	4/18/2024	4/18/2023	101.64863	101.1794843	100.7146892	100.2541808	99.79789975	99.34578789	98.89778808	98.45384421	98.01390122
230418A00059	4/18/2023	4.09	4/17/2026	4/18/2023	107.28852	104.8216903	102.4250446	100.0961805	97.83279588	95.63268112	93.49371466	91.41385886	89.39115619
230418A00057	4/18/2023	4.36	4/18/2025	4/18/2023	104.34387	102.8833833	101.4507898	100.0453577	98.6663816	97.31318039	95.98509573	94.6814913	93.40175187
230418A00007	4/18/2023	4.61	4/18/2025	4/18/2023	104.5351	103.0760166	101.6447568	100.2405885	98.86280921	97.51074025	96.18372575	94.8811317	93.60234505
230420A00056	4/20/2023	4.38	4/20/2033	4/20/2023	125.92268	116.3418843	107.6102657	99.64693578	92.37913708	85.74138996	79.6747292	74.1260245	69.04737482
230420A00059	4/20/2023	4.72	4/20/2038	4/20/2023	137.48848	123.0525546	110.4344075	99.38851814	89.7040539	81.19979039	73.71980035	67.1297902	61.31398425
230420A00060	4/20/2023	4.72	4/20/2038	4/20/2023	137.48848	123.0525546	110.4344075	99.38851814	89.7040539	81.19979039	73.71980035	67.1297902	61.31398425
230420A00063	4/20/2023	4.65	4/20/2037	4/20/2023	134.90154	121.4357181	109.5706891	99.10248566	89.85434977	81.67296422	74.42522529	67.99547465	62.28312311
230424A00003	4/24/2023	4.15	4/26/2027	4/24/2023	110.49217	106.9861379	103.6126871	100.3660826	97.24086705	94.23184798	91.33408372	88.5428697	85.85372575
230424A00036	4/24/2023	5.13	4/24/2024	4/24/2023	101.70448	101.2189284	100.7380204	100.2616945	99.78988516	99.32252827	98.85956091	98.40092132	97.9465489
230425A00011	4/25/2023	4.3	9/25/2025	4/25/2023	105.56991	103.6752028	101.8241879	100.0155988	98.24821279	96.52085039	94.83237354	93.1816838	91.56772075
230425A00013	4/25/2023	4.67	10/25/2024	4/25/2023	103.00634	102.0233908	101.0592766	100.1134562	99.18541178	98.27464468	97.38067485	96.50303988	95.64129422
230425A00104	4/25/2023	3.86	7/15/2026	4/25/2023	107.49174	104.7843434	102.1596346	99.61455616	97.14618435	94.75172457	92.42850431	90.17396689	87.98566547
230425A00024	4/25/2023	4.48	4/25/2025	4/25/2023	104.41121	102.9342413	101.4857798	100.0650711	98.67138724	97.30402509	95.96230548	94.64557217	93.35319082
230425A00052	4/25/2023	4.01	4/26/2027	4/25/2023	110.00859	106.5109464	103.1456518	99.90697767	96.7894746	93.78795795	90.89749342	88.1133835	85.43115481
230303A00019	3/3/2023	5.26	3/3/2025	3/3/2023	104.96415	103.6240658	102.3075824	101.0141254	99.74314097	98.49409266	97.26646064	96.05974118	94.87344594
230303A00020	3/3/2023	4.96	3/3/2026	3/3/2023	108.62305	106.2655719	103.9719107	101.7399906	99.56781433	97.45346062	95.39508094	93.39089633	91.43919435
230221A00007	2/21/2023	4.5	10/18/2027	2/21/2023	113.42905	109.4037323	105.5474972	101.852329	98.31063242	94.91521052	91.65924225	88.53626053	85.54013203
230222A00024	2/22/2023	4.74	3/2/2026	2/22/2023	108.1	105.7513512	103.4662519	101.2426364	99.07851746	96.97198327	94.9211944	92.92438055	90.97983753
230307A00026	3/7/2023	4.98	3/6/2026	3/7/2023	108.70283	106.3364872	104.034391	101.7944465	99.61463716	97.49302323	95.42773882	93.41698841	91.45904384

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230307A00020	3/7/2023	4.98	3/9/2026	3/7/2023	108.73601	106.3613539	104.0513662	101.8039307	99.61701152	97.48865094	95.4169658	93.40014426	91.43644265
230307A00092	3/23/2023	5.6	9/6/2024	3/23/2023	103.34487	102.4908975	101.6511118	100.8251623	100.0127083	99.21342021	98.42697926	97.65307675	96.89141387
230307A00038	3/7/2023	5.56	3/7/2024	3/7/2023	101.40705	101.0527725	100.7009844	100.3516559	100.0047613	99.66027496	99.31817188	98.97842727	98.64101668
230223A00010	2/23/2023	4.68	10/3/2025	2/23/2023	106.60842	104.6779033	102.7924053	100.9506012	99.15121712	97.39302463	95.67483913	93.99551777	92.35395772
230223A00012	2/23/2023	4.68	10/3/2025	2/23/2023	106.60842	104.6779033	102.7924053	100.9506012	99.15121712	97.39302463	95.67483913	93.99551777	92.35395772
230308A00019	3/8/2023	5.05	3/9/2026	3/8/2023	108.90026	106.5236386	104.2117335	101.9624209	99.77366391	97.6435036	95.57005572	93.55150737	91.58611386
230308A00029	3/8/2023	5.57	9/9/2024	3/8/2023	103.35312	102.4910905	101.6435168	100.8100399	99.99030912	99.18398577	98.39074199	97.61026062	96.84223468
230308A00030	3/8/2023	5.22	9/8/2025	3/8/2023	107.11444	105.2509211	103.4293792	101.6486231	99.90750273	98.20490775	96.53976586	94.91104131	93.31773342
230309A00041	3/9/2023	4.85	3/9/2026	3/9/2023	108.71912	106.3388131	104.0234386	101.7708699	99.57905952	97.44603902	95.36991487	93.34886544	91.38113773
230309A00038	3/9/2023	4.85	3/9/2026	3/9/2023	108.71912	106.3388131	104.0234386	101.7708699	99.57905952	97.44603902	95.36991487	93.34886544	91.38113773
230224A00020	2/24/2023	5.38	8/26/2024	2/24/2023	103.02259	102.1996956	101.390008	100.5932091	99.80899212	99.03706034	98.27712611	97.52891073	96.79214412
230224A00029	2/24/2023	4.87	2/24/2026	2/24/2023	108.33363	105.9991568	103.7274138	101.5163564	99.36401988	97.26851514	95.2280253	93.24080259	91.30516517
230309A00003	3/9/2023	5.06	3/9/2026	3/9/2023	108.92372	106.5468221	104.2346431	101.9850624	99.79604282	97.66562541	95.59192571	93.57313068	91.60749546
230309A00002	3/9/2023	5.41	3/10/2025	3/9/2023	105.24704	103.8865068	102.5502181	101.2375801	99.94801732	98.68097271	97.4359066	96.21229621	95.00963499
230309A00004	3/9/2023	4.86	3/9/2027	3/9/2023	112.42535	109.0140914	105.7270289	102.5589826	99.50501628	96.56042486	93.72072187	90.98162829	88.33906182
230309A00057	3/9/2023	4.86	3/9/2027	3/9/2023	112.42535	109.0140914	105.7270289	102.5589826	99.50501628	96.56042486	93.72072187	90.98162829	88.33906182
230309A00036	3/9/2023	4.46	3/9/2028	3/9/2023	115.1816	110.7197866	106.460994	102.3949049	98.51178025	94.80242283	91.25814422	87.87073425	84.63243214
230309A00006	3/9/2023	5.72	3/11/2024	3/9/2023	101.50798	101.1425573	100.7797828	100.4196252	100.0620562	99.7070478	99.35457243	99.0046029	98.65711242
230309A00021	3/9/2023	5.41	3/10/2025	3/9/2023	105.24704	103.8865068	102.5502181	101.2375801	99.94801732	98.68097271	97.4359066	96.21229621	95.00963499
230310A00034	3/10/2023	5.48	3/11/2024	3/10/2023	101.42029	101.0550679	100.6924903	100.3325285	99.97515433	99.62033969	99.26805705	98.91827924	98.57097946
230310A00035	3/10/2023	5.21	9/10/2024	3/10/2023	103.05197	102.1886814	101.3399294	100.5053444	99.68457298	98.87727359	98.08311573	97.30177965	96.53295594
230310A00065	3/10/2023	5	9/16/2024	3/10/2023	103.05916	102.1780508	101.3120794	100.4608541	99.62399958	98.80115348	97.99196534	97.19609639	96.41321899
230612A00005	6/12/2023	5.49	6/12/2024	6/12/2023	102.31805	101.6990213	101.0875123	100.4833866	99.88651089	99.29675481	98.7139912	98.13809595	97.56894782
230313A00115	3/13/2023	5.11	3/13/2024	3/13/2023	101.30386	100.9334483	100.5657598	100.2007647	99.83843321	99.47873619	99.12164481	98.76713069	98.41516584
230313A00117	3/13/2023	4.59	3/13/2025	3/13/2023	104.15889	102.7982423	101.4619701	100.1494756	98.86017795	97.59351472	96.34894124	95.12592994	93.92396967
230313A00119	3/13/2023	4.41	3/13/2026	3/13/2023	107.43669	105.0670534	102.7623036	100.5203085	98.33901647	96.21645482	94.15072647	92.14000642	90.18253867
230313A00121	3/13/2023	4.29	3/15/2027	3/13/2023	110.58454	107.1883781	103.9166863	100.7642481	97.72609103	94.79747636	91.97388677	89.25101481	86.62475205
230313A00128	3/13/2023	4.18	12/15/2027	3/13/2023	112.69174	108.5261925	104.5414943	100.7287862	97.07969046	93.58628481	90.24107544	87.03697102	83.96725883
230313A00134	3/13/2023	4.16	4/14/2028	3/13/2023	113.64089	109.1333205	104.8350956	100.7353679	96.82390624	93.09106021	89.52772398	86.12530276	82.87568148
230313A00123	3/13/2023	4.22	9/15/2027	3/13/2023	112.03621	108.1252689	104.3754384	100.7792363	97.32956376	94.0196869	90.84321571	87.79408492	84.86653576
230313A00135	3/13/2023	4.17	6/15/2028	3/13/2023	114.19215	109.5077966	105.0477389	100.7999882	96.75326426	92.89694854	89.22104138	85.71612257	82.37331451
230313A00097	3/13/2023	4.78	9/13/2024	3/13/2023	102.70621	101.8365716	100.9817157	100.1412686	99.31486743	98.50216158	97.70281192	96.91649048	96.14287996
230313A00098	3/13/2023	4.41	3/13/2026	3/13/2023	107.43669	105.0670534	102.7623036	100.5203085	98.33901647	96.21645482	94.15072647	92.14000642	90.18253867

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230313A00144	3/13/2023	4.59	3/13/2025	3/13/2023	104.15889	102.7982423	101.4619701	100.1494756	98.86017795	97.59351472	96.34894124	95.12592994	93.92396967
230313A00061	3/13/2023	4.06	3/13/2028	3/13/2023	112.94718	108.5387482	104.3315319	100.3152889	96.48034874	92.81757983	89.31835647	85.97452839	82.77839214
221230A00087	12/30/2022	4.56	1/2/2026	12/30/2022	107.06285	104.8894476	102.7713776	100.7068345	98.69409117	96.7314905	94.81744171	92.9504172	91.1289494
221230A00086	12/30/2022	4.8	1/2/2025	12/30/2022	103.71772	102.5495961	101.4079185	100.2917917	99.20036358	98.13281932	97.08837972	96.06629917	95.06586386
221230A00072	12/30/2022	4.8	12/31/2024	12/30/2022	103.70042	102.5376374	101.4010611	100.2898067	99.20303352	98.13993765	97.09975011	96.08173493	95.08518738
221230A00088	12/30/2022	4.42	12/30/2026	12/30/2022	110.27633	107.0898352	104.0138097	101.0437656	98.17542636	95.40471567	92.72774684	90.14081258	87.64037545
230103A00066	1/3/2023	4.19	7/15/2026	1/3/2023	108.38117	105.6616371	103.0250798	100.4684266	97.98874528	95.58323293	93.24920917	90.98410971	88.78548041
230103A00068	1/3/2023	4.69	3/13/2025	1/3/2023	104.29585	102.9342241	101.596988	100.2835459	98.99331634	97.72573648	96.48026125	95.2563627	94.0535293
230103A00070	1/3/2023	4.53	10/15/2025	1/3/2023	106.20383	104.2502339	102.3428538	100.480308	98.66127017	96.88446239	95.14865271	93.45265334	91.79531873
230313A00080	3/13/2023	4.59	3/14/2025	3/13/2023	104.16831	102.8049744	101.4661045	100.1510987	98.85937282	97.59036165	96.34351771	95.11831078	93.91422713
230313A00027	3/13/2023	4.81	3/13/2024	3/13/2023	101.1926	100.8224381	100.4550026	100.090259	99.72817779	99.36872966	99.01188584	98.65761794	98.305898
230313A00030	3/13/2023	4.57	9/13/2024	3/13/2023	102.52221	101.653445	100.7994539	99.95986131	99.13430464	98.32243337	97.52390861	96.73840255	95.96559809
230313A00053	3/13/2023	4.57	9/13/2024	3/13/2023	102.52221	101.653445	100.7994539	99.95986131	99.13430464	98.32243337	97.52390861	96.73840255	95.96559809
230314A00054	3/14/2023	4.46	3/15/2027	3/14/2023	111.15267	107.7469643	104.4659867	101.3045134	98.25756311	95.32038874	92.48846492	89.75747646	87.12330753
230314A00015	3/14/2023	4.55	9/14/2026	3/14/2023	109.62436	106.7328591	103.9339862	101.2242806	98.60042708	96.0592521	93.59771657	91.21290968	88.90204261
230314A00070	3/14/2023	4.25	3/12/2027	3/14/2023	110.83807	107.4352427	104.1570555	100.9982849	97.95395483	95.01932306	92.18986867	89.46128068	86.82944715
230426A00024	4/26/2023	4.97	4/26/2024	4/26/2023	101.64436	101.1535601	100.6675098	100.1861394	99.70938142	99.23716984	98.76943971	98.30612736	97.84717034
230426A00042	4/26/2023	4.97	4/26/2024	4/26/2023	101.64436	101.1535601	100.6675098	100.1861394	99.70938142	99.23716984	98.76943971	98.30612736	97.84717034
230427A00028	4/27/2023	4.74	10/28/2024	4/27/2023	103.10252	102.111131	101.1388779	100.1852131	99.24960649	98.33154779	97.43054591	96.54612793	95.67783828
230427A00078	4/27/2023	4.74	10/29/2024	4/27/2023	103.11146	102.1173752	101.1425313	100.1863724	99.24836442	98.3279932	97.42476399	96.53820038	95.66784347
230427A00076	4/27/2023	5.09	4/30/2024	4/27/2023	101.74024	101.2383554	100.7414219	100.24937	99.7621282	99.27962608	98.80179477	98.32856668	97.85987551
230428A00032	4/28/2023	5.11	4/29/2024	4/28/2023	101.74103	101.2418348	100.7475417	100.2580802	99.77337965	99.29337085	98.81798587	98.3471581	97.88082223
230428A00010	4/28/2023	4.31	4/28/2025	4/28/2023	104.36475	102.8771364	101.4184253	99.98785133	98.58467166	97.20816922	95.85765152	94.53244957	93.2319169
230428A00022	4/28/2023	4.78	10/28/2024	4/28/2023	103.1425	102.1508901	101.1784259	100.224553	99.28874088	98.37047945	97.46927749	96.58466203	95.71617743
230501A00012	5/1/2023	3.98	5/1/2028	5/1/2023	112.98179	108.4435914	104.1184258	99.99513198	96.06319756	92.31271286	88.73433337	85.31924448	82.05912863
230501A00033	5/1/2023	5.1	5/1/2024	5/1/2023	101.75427	101.2496379	100.750014	100.2553264	99.76550217	99.28046986	98.80015937	98.32450195	97.85343018
230502A00038	5/2/2023	3.86	5/2/2028	5/2/2023	112.45622	107.9270638	103.6107642	99.49616091	95.57274196	91.83059872	88.260388	84.85329682	81.60100949
230503A00070	5/3/2023	4.73	5/3/2024	5/3/2023	101.64343	101.1329887	100.6276859	100.1274424	99.63218241	99.14183161	98.65631714	98.17556759	97.69951295
230503A00045	5/3/2023	4.96	5/3/2024	5/3/2023	101.69563	101.1858223	100.6811323	100.1814852	99.68680558	99.19701952	98.71205459	98.23183979	97.75630548
230504A00091	5/4/2023	4.66	9/4/2024	5/4/2023	102.51321	101.6685455	100.8378464	100.0207632	99.21696276	98.42612252	97.64793044	96.88208442	96.1282919
230504A00006	5/4/2023	3.79	12/6/2027	5/4/2023	111.03365	106.9253304	102.9949198	99.23373357	95.63355851	92.18662609	88.88558583	85.72348036	82.69372211
230504A00007	5/4/2023	3.82	7/6/2027	5/4/2023	109.93578	106.2510241	102.7117596	99.31140632	96.04372155	92.90278125	89.8829618	86.97892276	84.18559078
230504A00039	5/4/2023	4.97	5/6/2024	5/4/2023	101.72659	101.2085798	100.6958608	100.1883499	99.68596788	99.18863719	98.69628172	98.20882694	97.72619977

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230614A00025	6/14/2023	5.52	6/14/2024	6/14/2023	102.35625	101.7317119	101.1148312	100.5054628	99.90346972	99.30871832	98.72107816	98.14042193	97.56662533
230614A00038	6/14/2023	4.3	6/15/2026	6/14/2023	108.38422	105.7450787	103.1845679	100.6998555	98.2882308	95.94709887	93.6739747	91.46647772	89.32232664
230615A00039	6/15/2023	4.16	6/15/2027	6/15/2023	111.42956	107.7622725	104.2379505	100.8502072	97.59297959	94.46051011	91.44732905	88.5482385	85.75829711
230615A00044	6/15/2023	4.33	6/15/2026	6/15/2023	108.46265	105.8224696	103.2609438	100.7752394	98.36264498	96.0205649	93.74651351	91.53810962	89.39307133
230615A00026	6/15/2023	4.84	6/15/2038	6/15/2023	139.37554	124.6907948	111.8672376	100.6516246	90.82676447	82.2062014	74.62970444	67.95944007	62.07672144
230616A00042	6/16/2023	5.3	12/16/2024	6/16/2023	104.14292	103.0166864	101.9149715	100.8369823	99.78195642	98.74916376	97.73790505	96.74751006	95.77733617
230227A00060	2/27/2023	4.86	2/27/2026	2/27/2023	108.34601	106.0026151	103.7224025	101.503323	99.34340301	97.24074415	95.19351997	93.19997275	91.25841046
230227A00031	2/27/2023	5.44	4/29/2024	2/27/2023	101.90617	101.4064979	100.9117279	100.4217929	99.93662222	99.45614658	98.98029803	98.50900992	98.04221689
230227A00035	2/27/2023	5.41	6/28/2024	2/27/2023	102.42002	101.7577291	101.1040263	100.4587463	99.82172692	99.19281001	98.57184157	97.95867142	97.35315317
230227A00034	2/27/2023	5.42	5/28/2024	2/27/2023	102.13731	101.5591477	100.9875498	100.4224016	99.86359434	99.31102157	98.76457928	98.22416573	97.68968145
230227A00029	2/27/2023	5.46	3/28/2024	2/27/2023	101.58884	101.1769061	100.7683159	100.3630317	99.96101369	99.56222228	99.16661876	98.77416495	98.38482332
230315A00055	3/15/2023	4.2	3/11/2026	3/15/2023	106.92378	104.5655132	102.2717291	100.0403116	97.86922538	95.75651347	93.70029355	91.69875475	89.7501545
230315A00016	3/15/2023	4.08	3/16/2027	3/15/2023	109.89133	106.5042107	103.2414303	100.0977712	97.06826118	94.14816153	91.33295532	88.61833564	86.00019475
230315A00010	3/15/2023	4.2	3/13/2026	3/15/2023	106.9417	104.5779891	102.2790438	100.0427305	97.86700104	95.74988643	93.68949288	91.6839986	89.7316507
230315A00012	3/15/2023	4.24	9/15/2025	3/15/2023	105.36217	103.4964519	101.6732088	99.89122861	98.149337	96.44640062	94.78132534	93.15305467	91.56056819
230315A00084	3/15/2023	4.08	3/24/2027	3/15/2023	109.96013	106.5510285	103.2677849	100.1050875	97.0578763	94.12133025	91.29085527	88.56207212	85.93080523
230315A00086	3/15/2023	4.28	3/11/2025	3/15/2023	103.71716	102.364897	101.0367859	99.73223073	98.45065812	97.19151267	95.95425651	94.73836861	93.54334408
230315A00052	3/15/2023	4.07	3/14/2025	3/15/2023	103.61828	102.2562868	100.9187781	99.60514967	98.31481671	97.0472129	95.80178997	94.57801686	93.37537911
230316A00017	3/16/2023	3.81	3/16/2028	3/16/2023	112.43222	108.0113805	103.7932142	99.76736648	95.92406263	92.25407429	88.74868628	85.39966544	82.19923155
230316A00061	3/16/2023	4.31	9/16/2025	3/16/2023	105.5029	103.6331264	101.8059719	100.020217	98.2746821	96.56822871	94.8997578	93.2682082	91.67255501
230316A00047	3/16/2023	4.07	9/16/2027	3/16/2023	111.47008	107.5673237	103.8255686	100.2373258	96.79549482	93.49334031	90.32447133	87.28282198	84.36263314
230316A00046	3/16/2023	4.18	6/16/2026	3/16/2023	107.76026	105.1335511	102.5850804	100.1120345	97.7117171	95.38154691	93.11905197	90.92186415	88.78771407
230316A00048	3/16/2023	4.05	6/16/2028	3/16/2023	113.65288	108.9781109	104.5274501	100.2889067	96.25120125	92.40371592	88.73645246	85.23999236	81.90546
230316A00042	3/16/2023	4.42	3/14/2025	3/16/2023	103.93501	102.5733499	101.2361248	99.92273614	98.63260066	97.36515376	96.11984868	94.89615585	93.69356221
230105A00028	1/5/2023	4.93	10/18/2024	1/5/2023	103.18826	102.2230216	101.275928	100.346469	99.43415427	98.53851166	97.65908613	96.79543912	95.94714777
230316A00038	3/16/2023	4.42	3/14/2025	3/16/2023	103.93501	102.5733499	101.2361248	99.92273614	98.63260066	97.36515376	96.11984868	94.89615585	93.69356221
230317A00024	3/17/2023	4.54	3/17/2025	3/17/2023	104.12755	102.7566461	101.4104749	100.088419	98.78988536	97.51430011	96.26110761	95.0297698	93.81976544
230317A00010	3/17/2023	4.77	9/17/2024	3/17/2023	102.73399	101.8535737	100.9883082	100.1378025	99.30168048	98.47957873	97.67114604	96.87604283	96.09394074
230106A00032	1/6/2023	4.28	1/6/2026	1/6/2023	106.7569	104.5712082	102.4414774	100.3658785	98.34265485	96.37012101	94.44665969	92.57071818	90.74080528
230320A00045	3/20/2023	5.03	3/20/2024	3/20/2023	101.33829	100.9487345	100.5621846	100.1786088	99.79797253	99.42024211	99.04538417	98.67336591	98.30415502
230320A00021	3/20/2023	4.91	3/20/2024	3/20/2023	101.29147	100.9020225	100.5155834	100.1321177	99.751591	99.37396949	98.99921985	98.62730929	98.25820548
230320A00005	3/20/2023	4.37	3/20/2025	3/20/2023	103.91933	102.5420881	101.189818	99.86189533	98.55771864	97.27670598	96.01829398	94.78193713	93.5671071
230321A00038	3/21/2023	4.87	7/25/2024	3/21/2023	102.29977	101.5656084	100.8420114	100.1287566	99.42562308	98.73239608	98.04886702	97.37483308	96.71009707

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230323A00033	3/23/2023	4.43	3/24/2025	3/23/2023	104.03859	102.650028	101.2868102	99.94829847	98.6338787	97.34295683	96.07495788	94.82932523	93.60551988
230323A00031	3/23/2023	4.6	9/23/2024	3/23/2023	102.6352	101.7393188	100.8591317	99.99422607	99.14420581	98.3086884	97.48730437	96.67969669	95.88552028
230323A00027	3/23/2023	4.43	3/24/2025	3/23/2023	104.03859	102.650028	101.2868102	99.94829847	98.6338787	97.34295683	96.07495788	94.82932523	93.60551988
230621A00048	6/21/2023	4.55	6/22/2026	6/21/2023	108.78894	106.1322656	103.5550043	101.0542785	98.62733953	96.27155703	93.98441249	91.76349387	89.60649027
230621A00031	6/21/2023	5.19	12/20/2024	6/21/2023	104.0556	102.9194051	101.8081795	100.7211061	99.65740194	98.61631733	97.59713453	96.59916589	95.62175231
230623A00031	6/23/2023	4.87	6/23/2025	6/23/2023	105.62976	103.98458	102.3731215	100.7944145	99.24752228	97.73154404	96.24561282	94.78889404	93.36058397
230627A00038	6/27/2023	5.38	6/27/2024	6/27/2023	102.52793	101.8661774	101.2129955	100.5682193	99.9316869	99.30324082	98.68272737	98.06999678	97.46490305
230627A00029	6/27/2023	5.5	6/27/2024	6/27/2023	102.47016	101.8103542	101.1590768	100.5161581	99.88143785	99.25475965	98.63597119	98.02492394	97.4214731
230627A00042	6/27/2023	5.16	1/27/2025	6/27/2023	104.38307	103.1453267	101.9371343	100.75744	99.60524194	98.47958455	97.37955628	96.30428691	95.25294526
230627A00043	6/27/2023	5.12	2/27/2025	6/27/2023	104.73033	103.4026072	102.0984333	100.8172245	99.55841869	98.32147179	97.10585715	95.91106474	94.73660054
230627A00044	6/27/2023	5.08	3/27/2025	6/27/2023	104.98053	103.5772163	102.1996346	100.8471328	99.5190844	98.21488359	96.933944	95.6756981	94.43959645
230627A00048	6/27/2023	4.99	5/27/2025	6/27/2023	105.52107	103.9502408	102.410723	100.9016423	99.42216079	97.97147138	96.54879583	95.15338368	93.78451094
230627A00039	6/27/2023	5.2	12/27/2024	6/27/2023	104.13252	102.9775263	101.848314	100.7440254	99.66384017	98.60697364	97.57267487	96.56022491	95.56893511
230627A00046	6/27/2023	5.03	4/28/2025	6/27/2023	105.26188	103.7702361	102.3075217	100.8729632	99.46581823	98.08537017	96.73092677	95.40181933	94.09740158
230627A00086	6/27/2023	5.35	9/30/2024	6/27/2023	103.39706	102.4786998	101.576732	100.6907167	99.82023284	98.96487397	98.12424775	97.29797529	96.48569061
230628A00063	6/28/2023	4.47	6/29/2026	6/28/2023	108.64934	105.9755006	103.3820314	100.8660072	98.42463035	96.05522389	93.75522587	91.52218333	89.35374685
230629A00034	6/29/2023	5.59	7/1/2024	6/29/2023	102.57003	101.8991504	101.2370772	100.5836336	99.93865151	99.30196729	98.67342132	98.05285812	97.44012614
230629A00068	6/29/2023	5.34	12/30/2024	6/29/2023	104.32454	103.1605108	102.0226282	100.9100168	99.8218397	98.75729659	97.71562186	96.69608264	95.69797715
230505A00012	5/5/2023	4.6	11/5/2024	5/5/2023	103.02795	102.0158564	101.0237237	100.0509626	99.09700895	98.16132027	97.24337473	96.34267028	95.45872365
230505A00071	5/5/2023	3.85	5/5/2028	5/5/2023	112.43362	107.8971307	103.5741489	99.45346448	95.52451953	91.77736301	88.20261261	84.79141921	81.53543377
230508A00012	5/8/2023	4.43	5/8/2025	5/8/2023	104.45984	102.9478705	101.4655495	100.0120731	98.58666885	97.18859135	95.81712121	94.47156384	93.15124844
230508A00016	5/8/2023	4.14	5/8/2026	5/8/2023	107.30155	104.7848154	102.3409559	99.96743138	97.66180738	95.42174919	93.24501711	91.12946196	89.07302079
230508A00017	5/8/2023	4.01	5/10/2027	5/8/2023	110.12962	106.5929013	103.1911594	99.91849755	96.76931157	93.73827212	90.82030977	88.01060074	85.30455358
230508A00018	5/8/2023	3.92	5/8/2028	5/8/2023	112.76759	108.215836	103.8785111	99.74434602	95.80272571	92.04364616	88.45767587	85.03592002	81.76998708
230508A00025	5/8/2023	4.69	11/8/2024	5/8/2023	103.14439	102.1237657	101.1234205	100.142757	99.18119732	98.23818619	97.31318964	96.40569404	95.51520514
230508A00024	5/8/2023	4.99	5/8/2024	5/8/2023	101.74399	101.2206499	100.7027116	100.1900893	99.68270148	99.1804679	98.68331015	98.19115139	97.70391631
230508A00007	5/8/2023	3.92	5/8/2028	5/8/2023	112.76759	108.215836	103.8785111	99.74434602	95.80272571	92.04364616	88.45767587	85.03592002	81.76998708
230510A00037	5/10/2023	3.84	5/10/2028	5/10/2023	112.42536	107.8760114	103.5412745	99.40985994	95.47113224	91.71506856	88.13222035	84.71367732	81.45103387
230511A00043	5/11/2023	3.72	5/16/2028	5/11/2023	111.93124	107.3772996	103.038936	98.90477137	94.9640916	91.20680176	87.62338713	84.2048767	80.94280914
230511A00039	5/11/2023	3.86	11/27/2026	5/11/2023	108.25113	105.1830708	102.2193406	99.35579731	96.58848485	93.91362761	91.32762101	88.8270226	86.40854376
230511A00042	5/11/2023	3.72	5/11/2028	5/11/2023	111.89656	107.3564026	103.0306714	98.90808151	94.97799818	91.23039977	87.65583927	84.2454082	80.99070302
230511A00080	5/11/2023	3.49	5/11/2028	5/11/2023	111.42592	106.8796574	102.5486962	98.42167715	94.48790157	90.73728875	87.16033704	83.74808742	80.49208962
230512A00011	5/12/2023	3.78	5/12/2028	5/12/2023	112.17168	107.6227783	103.2887397	99.15825066	95.22065201	91.46589963	87.88452542	84.46760124	81.20670521

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230512A00022	5/12/2023	4.33	5/12/2025	5/12/2023	104.34452	102.8228887	101.3311981	99.868637	98.43442053	97.02779167	95.64801994	94.29440024	92.96625175
230512A00020	5/12/2023	4.6	11/12/2024	5/12/2023	103.0835	102.0526791	101.0425632	100.0525276	99.08197672	98.13033836	97.19706255	96.28162046	95.38350345
230109A00027	1/9/2023	4.64	12/17/2024	1/9/2023	103.403	102.2785964	101.1787593	100.1026899	99.04962231	98.01882318	97.00959013	96.02125005	95.05315761
230109A00011	1/9/2023	4.61	1/6/2025	1/9/2023	103.5262	102.3488148	101.1983376	100.0738485	98.97447253	97.89937363	96.84775255	95.81884485	94.81191894
230512A00023	5/12/2023	4.6	11/13/2024	5/12/2023	103.09143	102.0579417	101.0452586	100.0527575	99.07983822	98.1259244	97.19046195	96.2729182	95.37278083
230515A00031	5/15/2023	4.41	5/15/2025	5/15/2023	104.49542	102.9646485	101.4640807	99.99288929	98.55027937	97.13548425	95.74776429	94.3864057	93.05071938
230515A00072	5/15/2023	4.42	5/9/2025	5/15/2023	104.45408	102.9395099	101.4546651	99.99873898	98.570956	97.17056777	95.79685204	94.44911154	93.12667287
230515A00074	5/15/2023	4.11	5/15/2026	5/15/2023	107.28868	104.7536473	102.2923898	99.90231731	97.58095184	95.3259175	93.13493586	91.00582121	88.93647612
230515A00078	5/15/2023	3.96	5/17/2027	5/15/2023	110.01461	106.4615199	103.0445943	99.75785646	96.5956307	93.55252118	90.62339639	87.80337459	85.08781025
230515A00080	5/15/2023	3.88	5/15/2028	5/15/2023	112.64073	108.073525	103.72222	99.57542968	95.62243324	91.85312921	88.25799618	84.82805643	81.55484189
230515A00030	5/15/2023	5.06	5/15/2024	5/15/2023	101.83706	101.2946166	100.7579697	100.2270299	99.70170613	99.18190943	98.66755265	98.15855045	97.65481929
230110A00037	1/11/2023	4.66	11/15/2024	1/11/2023	103.17021	102.1310231	101.1128597	100.115087	99.13709558	98.1783003	97.23813885	96.31607072	95.41157615
230110A00074	1/12/2023	4.65	1/10/2025	1/12/2023	103.60678	102.4184412	101.257499	100.12301	99.01407587	97.92983837	96.86947742	95.83220896	94.81728293
230110A00006	1/10/2023	4.06	1/10/2028	1/10/2023	112.41873	108.1908704	104.1491961	100.2844561	96.58790925	93.0512979	89.66681753	86.42708932	83.32513426
230324A00004	3/24/2023	4.46	9/24/2024	3/24/2023	102.51699	101.6190351	100.7368573	99.87004219	99.01819051	98.18091664	97.35784812	96.54862511	95.75289984
230324A00001	3/24/2023	4.04	6/24/2026	3/24/2023	107.46605	104.821586	102.2564091	99.76764651	97.35254744	95.00847948	92.73292266	90.52346374	88.37779091
230324A00036	3/24/2023	3.98	3/24/2027	3/24/2023	109.62353	106.2201226	102.9424181	99.78510952	96.74314198	93.81169963	90.98619319	88.26224808	85.63569316
230324A00037	3/24/2023	3.99	3/24/2028	3/24/2023	112.73034	108.2980851	104.0694415	100.0339794	96.18185613	92.50378044	88.99097925	85.63516598	82.42851108
230112A00054	1/12/2023	5.02	2/5/2024	1/12/2023	100.92974	100.6611898	100.3940733	100.1283799	99.86409815	99.60121688	99.33972489	99.07961116	98.82086476
230327A00017	3/27/2023	4.98	3/27/2024	3/27/2023	101.38193	100.9732262	100.5678211	100.1656776	99.76675634	99.37101865	98.97842649	98.58894241	98.20252955
230328A00061	3/28/2023	4.68	9/27/2024	3/28/2023	102.75205	101.8448556	100.9537302	100.0782512	99.21800854	98.37260642	97.54166269	96.72480819	95.92168626
230516A00037	5/16/2023	3.91	5/16/2028	5/16/2023	112.78249	108.2095115	103.8527595	99.70083388	95.74299362	91.96911852	88.3696698	84.93565353	81.65858661
230516A00036	5/16/2023	4	5/17/2027	5/16/2023	110.15501	106.5994535	103.1801231	99.89104778	96.72654962	93.68123037	90.7499563	87.92784355	85.21024453
230516A00044	5/16/2023	4.72	11/15/2024	5/16/2023	103.23312	102.1935775	101.175067	100.1769521	99.19862321	98.23949512	97.29900539	96.37661343	95.47179939
230112A00059	3/1/2023	4.04	3/2/2026	3/1/2023	106.47077	104.141396	101.8751677	99.67002732	97.52399901	95.43518227	93.40174843	91.42193757	89.49405549
230329A00019	3/29/2023	4.76	10/1/2024	3/29/2023	102.86157	101.9432251	101.0413292	100.1554459	99.28515103	98.43003517	97.58970323	96.76377371	95.95187812
230329A00053	3/29/2023	4.89	3/29/2024	3/29/2023	101.41152	100.9967365	100.585353	100.177326	99.77261468	99.37117861	98.97297809	98.57797409	98.18612816
230330A00080	3/30/2023	4.44	3/31/2025	3/30/2023	104.28524	102.8738517	101.4885615	100.1287058	98.79364491	97.48275987	96.19545208	94.93114228	93.68926975
230330A00083	3/30/2023	4.1	3/30/2027	3/30/2023	110.4989	107.0545645	103.7380948	100.5440587	97.46728805	94.5028606	91.64608706	88.89249871	86.23783582
230330A00055	3/30/2023	5.06	4/1/2024	3/30/2023	101.46078	101.0382839	100.6193106	100.2038134	99.79174909	99.3830753	98.97775029	98.57573302	98.17698311
230330A00052	3/30/2023	4.79	9/30/2024	3/30/2023	102.88032	101.9645369	101.0651069	100.1815979	99.31358928	98.46067531	97.62246425	96.79857782	95.98865064
230331A00048	3/31/2023	4.75	9/30/2024	3/31/2023	102.84341	101.9278109	101.0285623	100.1452323	99.27740045	98.42466112	97.58662257	96.76290658	95.95314778
230331A00033	3/31/2023	4.34	3/31/2026	3/31/2023	107.4397	105.0229595	102.6736117	100.3893952	98.16814246	96.00777101	93.90627954	91.86174427	89.87231543

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230331A00013	3/31/2023	4.75	9/30/2024	3/31/2023	102.84341	101.9278109	101.0285623	100.1452323	99.27740045	98.42466112	97.58662257	96.76290658	95.95314778
230331A00014	3/31/2023	4.34	3/31/2026	3/31/2023	107.4397	105.0229595	102.6736117	100.3893952	98.16814246	96.00777101	93.90627954	91.86174427	89.87231543
230403A00031	4/3/2023	4.98	4/3/2024	4/3/2023	101.4447	101.0168091	100.5925356	100.1718309	99.75464996	99.3409487	98.93068363	98.52381201	98.12029182
230706A00014	7/6/2023	4.99	7/6/2038	7/6/2023	141.48746	126.6144924	113.6280835	102.2710612	92.32295402	83.59456032	75.92334772	69.16955109	63.21286006
230707A00041	7/7/2023	4.44	7/7/2028	7/7/2023	116.20419	111.3971694	106.8226989	102.4682121	98.32189081	94.37261874	90.60993556	87.02399444	83.60552247
230710A00053	7/10/2023	4.98	7/10/2025	7/10/2023	106.20591	104.5067123	102.8430636	101.2139141	99.61825296	98.05510921	96.52354947	95.02267622	93.55162606
230710A00008	7/10/2023	5.56	8/1/2024	7/10/2023	102.88991	102.1345291	101.3902842	100.6569277	99.93422164	99.22193495	98.51984315	97.82772818	97.14537818
230711A00006	7/11/2023	5.55	7/11/2024	7/11/2023	102.65197	101.9538906	101.2653491	100.5861501	99.91610415	99.25502651	98.60273756	97.95906246	97.32383095
230712A00048	7/12/2023	4.95	7/14/2025	7/12/2023	105.99445	104.2900895	102.6215058	100.9876323	99.38744781	97.81997151	96.28426083	94.77940957	93.30454612
230516A00032	5/16/2023	5.03	5/16/2024	5/16/2023	101.82405	101.2790179	100.739837	100.2064177	99.67866757	99.15649638	98.63981575	98.12853916	97.62258191
230517A00019	5/17/2023	4.7	1/17/2025	5/17/2023	103.7255	102.5181323	101.3390221	100.1871817	99.06167101	97.96159275	96.88609006	95.83434423	94.80557261
230518A00015	5/18/2023	4.64	5/16/2025	5/18/2023	104.85983	103.3234962	101.8174967	100.340999	98.89320349	97.47333925	96.08066248	94.71445544	93.37402529
230519A00010	5/19/2023	4.91	12/19/2024	5/19/2023	103.72676	102.5951726	101.4884106	100.4056624	99.34615089	98.30913206	97.29389357	96.29975284	95.32605563
230519A00008	5/19/2023	5.22	5/20/2024	5/19/2023	101.95931	101.403133	100.8530442	100.308945	99.77073767	99.23832662	98.71161835	98.19052136	97.6749461
230519A00012	5/19/2023	4.53	12/19/2025	5/19/2023	106.85845	104.7241744	102.6435665	100.6149087	98.63654858	96.70689934	94.82443667	92.98769572	91.19526828
230519A00030	5/19/2023	4.27	5/19/2027	5/19/2023	111.12144	107.5435721	104.1027683	100.7930185	97.60860659	94.54409868	91.59432729	88.7543767	86.0195692
230519A00002	5/19/2023	4.95	11/19/2024	5/19/2023	103.50983	102.4582084	101.4280665	100.4187485	99.4296262	98.46009659	97.50958039	96.57752099	95.66338339
230523A00049	5/23/2023	4.31	5/24/2027	5/23/2023	111.30929	107.7148985	104.2585698	100.9342242	97.73608944	94.65867894	91.69677602	88.84541897	86.09988707
230523A00024	5/23/2023	4.06	5/24/2027	5/23/2023	110.8657	107.2679331	103.808699	100.4818876	97.28169613	94.20260957	91.23938476	88.3870352	85.640817
230524A00055	5/24/2023	4.7	11/22/2024	5/24/2023	103.39627	102.3355708	101.2967258	100.2790659	99.28194684	98.3047501	97.3468818	96.40777149	95.486871
230525A00004	5/25/2023	4.87	5/27/2025	5/25/2023	105.33228	103.762992	102.2249858	100.7173903	99.23936862	97.79011416	96.36884937	94.97482441	93.60731592
230404A00004	4/4/2023	4.45	4/4/2025	4/4/2023	104.16771	102.749135	101.3569418	99.99045822	98.64903371	97.33203914	96.03886606	94.76892578	93.52164859
230404A00002	4/4/2023	4.1	4/2/2027	4/4/2023	110.10578	106.6706476	103.3631499	100.1778613	97.10961875	94.15350494	91.30483558	88.55914684	85.91218389
230405A00020	4/5/2023	4.17	4/4/2025	4/5/2023	103.76748	102.3518867	100.9626228	99.59901896	98.26042588	96.94621577	95.65578139	94.38853526	93.14390883
230405A00021	4/5/2023	3.96	4/6/2026	4/5/2023	106.57687	104.1545827	101.8003458	99.51186238	97.28692874	95.12342827	93.0193275	90.97267229	88.98158423
230405A00037	4/5/2023	3.71	4/6/2026	4/5/2023	106.26512	103.8405811	101.4842913	99.19394904	96.9673402	94.80233854	92.69690144	90.64906611	88.65694594
230405A00050	4/5/2023	4.38	10/7/2024	4/5/2023	102.55726	101.6245409	100.7088356	99.80968282	98.92663613	98.05926485	97.20715363	96.36990166	95.5471221
230405A00051	4/5/2023	4.17	4/7/2025	4/5/2023	103.79361	102.369754	100.9725232	99.60123934	98.25524244	96.93389434	95.63657795	94.36269637	93.11167202
230405A00046	4/5/2023	3.82	10/5/2027	4/5/2023	110.66316	106.7256552	102.9527689	99.33674975	95.8702491	92.54630125	89.35830123	86.2999843	83.36540653
230405A00045	4/5/2023	4.15	5/5/2025	4/5/2023	104.00759	102.5071227	101.0360032	99.59344429	98.17868464	96.79098942	95.42964929	94.09397924	92.78331756
230405A00026	4/5/2023	4.75	4/5/2024	4/5/2023	101.36259	100.9294804	100.5000805	100.0743416	99.6522169	99.23366039	98.81862689	98.40707197	97.99895196
230406A00052	4/6/2023	4.02	4/6/2026	4/6/2023	106.72217	104.2981022	101.9421172	99.65192337	97.42531577	95.26017676	93.15447183	91.10624583	89.11361941
230406A00088	4/6/2023	4.23	10/7/2024	4/6/2023	102.54578	101.6113022	100.6939045	99.79311683	98.90849052	98.03959281	97.1860063	96.34732825	95.52316996

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230406A00091	4/6/2023	3.99	4/7/2025	4/6/2023	103.70626	102.2802791	100.881008	99.50776287	98.15988065	96.83672056	95.53766293	94.26210841	93.0094771
230406A00006	4/6/2023	4.82	4/8/2024	4/6/2023	101.41835	100.9769516	100.5394088	100.1056691	99.67568292	99.24940152	98.82677704	98.40776242	97.99231144
230410A00023	4/10/2023	4.75	4/10/2024	4/10/2023	101.45671	101.0091707	100.5655923	100.1259255	99.69011845	99.25812025	98.82988094	98.40535143	97.98448347
230801A00042	8/1/2023	5.53	8/1/2024	8/1/2023	102.86716	102.1118715	101.3677205	100.6344569	99.91184283	99.19964716	98.49764544	97.80561965	97.12335793
230803A00029	8/3/2023	5.24	2/3/2025	8/3/2023	104.71416	103.4528666	102.2210126	101.0175685	99.84155268	98.69202854	97.56810181	96.46891826	95.39366145
230713A00017	7/13/2023	5.11	1/14/2025	7/13/2023	104.19723	102.9946799	101.820069	100.6724302	99.55083976	98.45441594	97.38231638	96.333736	95.30790494
230714A00036	7/14/2023	4.37	7/12/2030	7/14/2023	119.85372	113.0389897	106.6727391	100.7228318	95.15960609	89.95567123	85.08572179	80.52636793	76.25598044
230714A00042	7/14/2023	4.58	7/14/2026	7/14/2023	109.09063	106.3712911	103.7346426	101.1776301	98.69733943	96.29098465	93.95590109	91.68953923	89.48945877
230921A00028	9/21/2023	5.07	9/21/2026	9/21/2023	111.18877	108.2556293	105.4168477	102.6688776	100.0083252	97.43194252	94.93662007	92.51938034	90.17737135
230922A00020	9/22/2023	5.35	3/24/2025	9/22/2023	105.32614	103.9281773	102.5557168	101.2081176	99.88476156	98.58505047	97.3084055	96.05426631	94.82209029
230925A00114	9/25/2023	5.09	3/25/2026	9/25/2023	109.17582	106.7536698	104.398526	102.1081548	99.8804149	97.71324843	95.60467724	93.55279932	91.55578541
230925A00034	9/25/2023	5.53	9/25/2024	9/25/2023	103.49792	102.5924974	101.7029982	100.8290087	99.97012498	99.12595698	98.29612806	97.48027428	96.67804399
230926A00019	9/26/2023	5.52	9/26/2024	9/26/2023	103.50904	102.6007707	101.7085249	100.8318822	99.9704351	99.12379011	98.29156731	97.47339968	96.66893257
230825A00005	8/25/2023	5.14	11/21/2025	8/25/2023	107.82982	105.7600972	103.7411288	101.7713377	99.84920557	97.97327206	96.14213236	94.35443447	92.60887686
230828A00060	8/28/2023	5.53	8/30/2024	8/28/2023	103.33075	102.4938942	101.6706541	100.8607006	100.0637133	99.27938224	98.50740707	97.74749702	96.99937036
230829A00010	8/29/2023	5.21	8/25/2025	8/29/2023	106.92957	105.1055243	103.321816	101.5772999	99.87086796	98.20145117	96.56801807	94.96957314	93.40515525
230816A00025	8/16/2023	4.62	4/16/2027	8/16/2023	112.44203	108.9184176	105.5269763	102.2620282	99.1181698	96.09025817	93.17339702	90.36292334	87.65439505
230830A00047	8/30/2023	5.5	8/30/2024	8/30/2023	103.17328	102.3389225	101.5181221	100.710547	99.91587878	99.13380944	98.36404057	97.60628315	96.86025718
230901A00016	9/1/2023	4.6	8/3/2026	9/1/2023	109.68316	106.8955494	104.1941763	101.5758141	99.03738084	96.57593193	94.18865275	91.87285178	89.6259543
230901A00029	9/1/2023	5.04	3/3/2025	9/1/2023	104.82989	103.4882162	102.1702039	100.8752807	99.60289048	98.35249475	97.12357175	95.91561586	94.72813699
230901A00007	9/1/2023	4.55	9/1/2027	9/1/2023	113.16026	109.2656568	105.5297959	101.9453783	98.50547391	95.20350544	92.03322831	88.9887123	86.06432404
230821A00085	8/21/2023	5.04	2/23/2026	8/21/2023	108.71423	106.3782186	104.1048764	101.8921633	99.73811471	97.64084195	95.59852884	93.60942848	91.6718601
230901A00044	9/1/2023	4.55	9/1/2027	9/1/2023	113.16026	109.2656568	105.5297959	101.9453783	98.50547391	95.20350544	92.03322831	88.9887123	86.06432404
230905A00038	9/5/2023	5.16	3/5/2025	9/5/2023	105.01372	103.6654636	102.3410696	101.039955	99.76155726	98.50533153	97.27075014	96.05730175	94.86449079
230905A00037	9/5/2023	5.16	3/5/2025	9/5/2023	105.01372	103.6654636	102.3410696	101.039955	99.76155726	98.50533153	97.27075014	96.05730175	94.86449079
230929A00039	9/29/2023	5.52	9/30/2024	9/29/2023	103.55392	102.634785	101.7320467	100.8452706	99.97403535	99.11793428	98.27657488	97.44957809	96.63657775
231003A00064	10/3/2023	5.56	10/3/2024	10/3/2023	103.62418	102.6967009	101.7859132	100.8913716	100.0126434	99.14931104	98.30097166	97.4672363	96.64772938
230912A00085	9/12/2023	5.56	9/12/2024	9/12/2023	103.37835	102.5081862	101.652751	100.811675	99.98459786	99.17117127	98.37105847	97.58393367	96.80948164
230913A00020	9/13/2023	5.37	3/17/2025	9/13/2023	105.27335	103.8941906	102.5398967	101.2098542	99.90346646	98.62015616	97.35936422	96.12054926	94.90318689
230914A00076	9/14/2023	5.48	9/16/2024	9/14/2023	103.35278	102.4720566	101.6064272	100.7555051	99.91891701	99.09630197	98.28731113	97.49160718	96.70886389
230914A00060	9/14/2023	5.28	3/14/2025	9/14/2023	105.11523	103.7450973	102.3995517	101.0779819	99.779801	98.50444073	97.25135085	96.0199984	94.80986709
230915A00057	9/15/2023	4.75	6/15/2027	9/15/2023	113.099	109.4132196	105.8705446	102.4646006	99.18933435	96.03899675	93.00812554	90.09152931	87.28427227
230918A00010	9/18/2023	4.72	9/18/2029	9/18/2023	120.28973	114.2335541	108.5328282	103.1647002	98.10790183	93.34263263	88.85045115	84.61417516	80.61778951

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230918A00013	9/18/2023	4.74	9/18/2030	9/18/2023	122.70039	115.6185317	109.0125056	102.8475589	97.09165548	91.71524875	86.69107656	81.99397341	77.60069918
231010A00135	10/10/2023	5.44	10/10/2024	10/10/2023	103.59741	102.651293	101.7225628	100.8107378	99.91535824	99.03598096	98.17217869	97.32353924	96.48966488
231010A00025	10/10/2023	4.66	10/10/2028	10/10/2023	118.08964	112.9840109	108.1370061	103.5341052	99.16167814	95.00692634	91.05782776	87.3030858	83.73208191
231010A00026	10/10/2023	4.66	10/10/2028	10/10/2023	118.08964	112.9840109	108.1370061	103.5341052	99.16167814	95.00692634	91.05782776	87.3030858	83.73208191
231010A00066	10/10/2023	5.27	4/10/2025	10/10/2023	105.40999	103.9658974	102.5489352	101.1584078	99.79363878	98.45397455	97.13878309	95.84745318	94.57939356
231010A00129	10/10/2023	4.93	10/13/2026	10/10/2023	111.02399	108.0345816	105.143206	102.3461028	99.6396807	97.02050578	94.48529369	92.03090216	89.65432407
231012A00020	10/12/2023	5.08	2/9/2026	10/12/2023	108.63263	106.3386606	104.1052541	101.9304005	99.81217418	97.74872776	95.7382883	93.77915367	91.86968909
231012A00017	10/12/2023	5.24	7/15/2025	10/12/2023	106.50019	104.7887479	103.1132531	101.472639	99.86587839	98.29198448	96.75000909	95.23904068	93.75820255
231012A00021	10/12/2023	4.85	12/30/2027	10/12/2023	115.57894	111.3146934	107.2363555	103.3347637	99.60125715	96.02764991	92.60620182	89.32959157	86.19089147
231012A00013	10/12/2023	5.07	3/16/2026	10/12/2023	109.0263	106.6296956	104.2988026	102.0314533	99.82556533	97.67913681	95.59024267	93.55703125	91.57772109
231012A00019	10/12/2023	5.39	2/18/2025	10/12/2023	104.96356	103.6599484	102.3820712	101.1291778	99.90054617	98.69548227	97.51331886	96.35341405	95.21515009
231012A00015	10/12/2023	5.33	4/11/2025	10/12/2023	105.5086	104.0610453	102.6407419	101.2469812	99.87908301	98.53638989	97.21826621	95.9240973	94.65328859
231012A00016	10/12/2023	5.14	10/14/2025	10/12/2023	107.38499	105.4221959	103.5057147	101.6341723	99.80624156	98.02064337	96.27614481	94.57155705	92.90573346
231012A00039	10/12/2023	5.33	4/11/2025	10/12/2023	105.5086	104.0610453	102.6407419	101.2469812	99.87908301	98.53638989	97.21826621	95.9240973	94.65328859
181114A00014	11/14/2018	3.17	11/14/2023	11/14/2018	100.06891	100.0300175	99.99117385	99.95237737	99.91362795	99.8749255	99.83626993	99.79766113	99.75909903
231016A00049	10/16/2023	4.95	7/19/2027	10/16/2023	114.19568	110.3985977	106.7518141	103.2484912	99.88214708	96.64663335	93.53611572	90.54505585	87.66819432
231016A00047	10/16/2023	4.98	2/10/2027	10/16/2023	112.50834	109.172311	105.9551674	102.8519811	99.85805521	96.96891605	94.18030082	91.48814628	88.88857806
231016A00004	10/16/2023	5.55	10/16/2024	10/16/2023	103.76863	102.8056787	101.8607115	100.9332281	100.0227451	99.12879691	98.25093493	97.38872656	96.54175466
231017A00009	10/17/2023	5.42	4/17/2025	10/17/2023	105.71158	104.2462308	102.8087512	101.3984168	100.0145246	98.65639577	97.3233739	96.01482462	94.73013448
231020A00060	10/20/2023	5.5	10/21/2024	10/20/2023	103.77522	102.79895	101.8411582	100.9013266	99.97895209	99.07355042	98.18465498	97.31181618	96.45460068
231027A00015	10/27/2023	5.08	2/23/2026	10/27/2023	108.80658	106.4694784	104.1950745	101.9813218	99.82625517	97.72798521	95.68469519	93.69463761	91.75613114
231027A00028	10/27/2023	4.92	10/23/2028	10/27/2023	118.84532	113.7067921	108.8294527	104.1985758	99.80033963	95.62177009	91.65068396	87.87563671	84.28587395
231027A00024	10/27/2023	5.46	10/28/2024	10/27/2023	103.82204	102.8267947	101.8507427	100.8933301	99.95402556	99.03231772	98.12771442	97.2397417	96.36794297
231030A00057	10/30/2023	5.52	10/30/2024	10/30/2023	103.90413	102.9031429	101.9215523	100.9587999	100.014346	99.08767145	98.17827671	97.28568066	96.40941997
051003A00009	10/3/2005	5.15	10/15/2025	10/3/2005	107.41592	105.4501906	103.5309016	101.6566732	99.82617301	98.03811685	96.29126699	94.58443002	92.91645494
091112A00011	11/12/2009	4.77	11/15/2024	11/12/2009	103.4099	102.3675822	101.3463686	100.3456261	99.3647424	98.40312939	97.46022205	96.53547727	95.62837279
160211A00035	2/11/2016	2.25	2/11/2025	2/11/2016	100.82083	99.56527048	98.336668	97.13415452	95.9568996	94.80410816	93.67501858	92.56890093	91.48505533
160211A00036	2/11/2016	2.41	2/11/2026	2/11/2016	102.57989	100.3501748	98.17985244	96.06695442	94.00959122	92.0059497	90.05428942	88.15293903	86.300293
160520A00018	9/20/2017	2.34	9/20/2024	9/20/2017	100.58571	99.70774009	98.84506433	97.99728666	97.16402353	96.34490441	95.53957132	94.74767828	93.9688908
160830A00035	8/30/2016	2.06	8/30/2024	8/30/2016	100.29099	99.46978021	98.66197319	97.86724328	97.08527504	96.31576308	95.55841171	94.81293452	94.07905402
160830A00037	8/30/2016	2.16	8/29/2025	8/30/2016	101.40146	99.61872627	97.87581791	96.17161129	94.50502131	92.87500029	91.28053644	89.72065242	88.19440387
160830A00038	8/30/2016	2.24	8/28/2026	8/30/2016	102.96558	100.2144588	97.55088511	94.97161348	92.47353426	90.05366975	87.70916788	85.4372961	83.23543573
130821A00019	8/21/2013	3.81	8/29/2025	8/21/2013	104.63655	102.8194903	101.0429691	99.30584538	97.60701314	95.94540472	94.31998915	92.7297706	91.17378699

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150105A00026	1/5/2015	2.54	1/5/2024	1/5/2015	100.2049	100.0222928	99.8403623	99.65910187	99.47850776	99.29857626	99.11930366	98.9406863	98.76272055
230531A00085	5/31/2023	5.05	12/2/2024	5/31/2023	103.7345	102.6474193	101.5832461	100.5412567	99.52076134	98.52109865	97.5416342	96.58175913	95.6408888
230118A00020	1/18/2023	3.87	1/16/2026	1/18/2023	105.9469	103.7439829	101.5980614	99.50724483	97.46972488	95.48376798	93.5477114	91.65995972	89.81898148
230118A00053	1/18/2023	3.87	1/16/2026	1/18/2023	105.9469	103.7439829	101.5980614	99.50724483	97.46972488	95.48376798	93.5477114	91.65995972	89.81898148
230118A00056	1/18/2023	3.87	1/16/2026	1/18/2023	105.9469	103.7439829	101.5980614	99.50724483	97.46972488	95.48376798	93.5477114	91.65995972	89.81898148
230919A00044	9/19/2023	4.93	9/21/2026	9/19/2023	110.7865	107.859192	105.0261052	102.2836924	99.62856426	97.05747692	94.56732507	92.15513509	89.81805878
230919A00043	9/19/2023	4.62	9/19/2028	9/19/2023	117.09269	112.0863732	107.3307162	102.8118085	98.51658613	94.43277217	90.54882572	86.85389395	83.33776765
141119A00005	11/19/2014	2.53	11/19/2024	11/19/2019	100.06881	99.83193465	99.3590001	98.80868581	98.25504745	97.70855164	97.16972313	96.63839318	96.11438789
161012A00020	10/11/2016	2.96	10/14/2031	10/11/2023	99.624462	98.12758813	95.3391368	91.38237931	86.7342838	81.92732418	77.30261206	72.98223483	68.96744466
090429A00044	4/29/2009	4.1	4/29/2024	4/29/2014	100.21523	100.1320164	100.0395364	99.85602558	99.57738462	99.29211907	99.00870633	98.72727428	98.44779991
170705A00037	7/5/2017	2.85	7/6/2032	7/6/2027	104.50482	101.1754598	97.74313184	94.19848734	90.59225864	87.03125779	83.61734277	80.391965	77.35105917
130416A00025	4/16/2013	2.27	4/18/2028	4/16/2018	99.896175	99.13687423	97.77744052	96.00517919	94.04765427	92.07427484	90.15196495	88.29175252	86.4919141
170809A00042	8/9/2017	2.35	8/9/2027	8/9/2022	99.958882	99.33396503	98.15843064	96.62011658	94.92095641	93.20540799	91.52899488	89.90035485	88.31827989
171004A00022	10/4/2017	2.74	10/4/2027	10/4/2022	100.02483	99.39903514	98.02656077	95.98153947	93.50890625	90.88971973	88.30312404	85.80797811	83.4078103
171005A00047	10/5/2017	3.29	10/5/2032	10/5/2022	99.945099	98.9844826	96.81122192	93.48336972	89.36420966	84.95840911	80.64357898	76.59032747	72.81997887
170515A00052	5/15/2017	3.78	5/15/2042	5/15/2024	100.45755	98.87532544	96.06507555	91.7457163	86.37091599	80.65917922	75.16552203	70.14352775	65.62085498
180105A00005	1/5/2018	3.07	1/5/2028	1/5/2023	100.11647	99.83585203	98.99034965	97.61237787	95.89463715	94.03970785	92.1850414	90.38082468	88.63230013
180105A00006	1/5/2018	3.07	1/5/2028	1/5/2023	100.11647	99.83585203	98.99034965	97.61237787	95.89463715	94.03970785	92.1850414	90.38082468	88.63230013
180627A00005	6/27/2018	3.63	6/30/2033	6/30/2023	100.14239	99.75473696	98.4691162	96.1540557	93.00610381	89.42640181	85.7937795	82.3201183	79.05197452
170519A00006	5/19/2017	3	5/19/2032	5/19/2022	100.01776	99.227765	97.503849	94.8864378	91.69770367	88.33214873	85.04520271	81.9263457	78.97876571
140508A00011	5/8/2014	2.32	5/8/2024	5/8/2019	100.07228	99.91507909	99.62407648	99.30454031	98.98647741	98.67089041	98.35775197	98.04703069	97.73869568
140723A00038	7/23/2014	2.3	7/23/2024	7/23/2019	100.06455	99.865214	99.49892948	99.09483218	98.69277562	98.29476357	97.90075547	97.51068421	97.12448424
180130A00087	1/30/2018	2.92	1/31/2028	1/30/2023	100.09145	99.74085631	98.80658762	97.35960778	95.60315333	93.7373034	91.88512546	90.0857898	88.34215289
190204A00054	2/4/2019	3.98	2/6/2034	2/2/2024	100.47873	99.4705524	97.43590056	94.07040467	89.59690944	84.54412467	79.43647504	74.60850709	70.16123465
180302A00003	3/2/2018	3.89	3/2/2033	3/2/2023	100.12239	99.53945172	97.82046604	94.75683293	90.59785505	85.82660436	80.94016969	76.28374875	71.96751825
180315A00030	3/15/2018	3.76	3/15/2033	3/17/2025	102.41936	100.2980642	97.56762366	93.97795618	89.57167554	84.7043496	79.82365542	75.21318104	70.9488693
190301A00015	3/1/2019	3.86	3/1/2034	3/2/2026	104.27991	101.1802871	97.50385689	93.13614358	88.09288496	82.6842901	77.31283532	72.27605108	67.65686454
150202A00006	2/2/2015	1.92	2/3/2025	2/3/2020	99.961048	99.52045831	98.88993443	98.22244357	97.56063491	96.90982735	96.26996074	95.64073262	95.02185032
190409A00016	4/9/2019	2.91	4/9/2029	4/9/2024	100.44059	99.37402339	97.68349836	95.21534859	92.17456381	88.91683976	85.70016042	82.62493201	79.6992668
190409A00017	4/9/2019	3.01	4/9/2029	4/9/2024	100.48093	99.38696029	97.62681755	95.00891179	91.7227429	88.15406888	84.6100745	81.22387375	78.01028044
190807A00044	8/7/2019	2.27	8/7/2034	8/7/2024	99.393618	97.19722719	94.07620249	90.2301216	86.14267387	82.1623456	78.41984911	74.92756533	71.66829911
190807A00041	8/7/2019	2.27	8/7/2034	7/7/2024	99.339924	97.18485908	94.07518358	90.23011147	86.14267387	82.1623456	78.41984911	74.92756533	71.66829911
190116A00015	1/16/2019	3.61	1/17/2034	1/16/2024	100.43868	99.62498378	98.03445578	95.42947503	92.02623978	88.2516544	84.47968189	80.89860872	77.5412028

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180504A00024	5/4/2018	3.62	5/4/2028	5/4/2023	100.00289	99.87454931	98.956355	97.11327852	94.49031416	91.36967115	88.08363011	84.86584892	81.78548104
200309A00013	3/9/2020	1.1	3/8/2030	3/9/2025	98.420777	96.18641521	93.57341192	90.82705604	88.1365215	85.55713789	83.09113358	80.73282595	78.47649162
200316A00030	3/16/2020	1.35	3/15/2030	3/16/2025	99.132581	97.06601807	94.58796849	91.87862634	89.16591625	86.55132851	84.05057818	81.65922719	79.37147887
200316A00032	3/16/2020	1.35	3/15/2030	3/16/2025	99.132581	97.06601807	94.58796849	91.87862634	89.16591625	86.55132851	84.05057818	81.65922719	79.37147887
200318A00015	3/18/2020	1.69	3/18/2030	3/18/2023	99.16654	97.56587107	95.22590538	92.4696478	89.62791562	86.86621876	84.22437144	81.70089895	79.28951898
190430A00020	4/30/2019	3.41	4/28/2034	4/28/2026	103.18866	99.71718898	95.61952959	90.77449292	85.34925429	79.73914639	74.33008293	69.32949022	64.76168907
191028A00015	10/28/2019	2.49	10/27/2034	10/28/2024	99.889743	97.76730063	94.77740884	91.0207313	86.91999307	82.87268168	79.05190849	75.48735592	72.16355232
200326A00035	3/26/2020	1.68	3/26/2030	3/26/2025	99.527166	97.55866794	95.17609046	92.51328711	89.80406675	87.17856255	84.66535603	82.26186118	79.96232389
190827A00044	8/27/2019	1.9	8/27/2029	8/27/2024	99.802551	98.34703594	96.39724847	94.04801195	91.55880885	89.1057288	86.74384031	84.47711729	82.30120639
191031A00036	10/31/2019	2.9	10/31/2039	10/31/2024	99.488	96.79950348	92.90222561	87.9850821	82.66742117	77.49705855	72.71932246	68.37155378	64.41788655
191031A00037	10/31/2019	2.59	10/30/2034	10/31/2024	99.800492	97.71575937	94.73799726	90.98398083	86.89192376	82.85722837	79.04944325	75.49666	72.18329407
190520A00018	5/20/2019	3.7	5/20/2044	5/20/2024	100.15785	98.11581686	94.66069459	89.74950581	83.94639159	78.00052276	72.41034097	67.36451684	62.86149235
200423A00008	4/23/2020	1.59	4/23/2030	4/23/2025	98.296085	95.20644513	91.3328266	87.00018626	82.64501996	78.49086011	74.58499718	70.91776371	67.4732237
200423A00009	4/23/2020	1.59	4/23/2030	4/23/2025	98.296085	95.20644513	91.3328266	87.00018626	82.64501996	78.49086011	74.58499718	70.91776371	67.4732237
200423A00010	4/23/2020	1.59	4/23/2030	4/23/2025	98.296085	95.20644513	91.3328266	87.00018626	82.64501996	78.49086011	74.58499718	70.91776371	67.4732237
200430A00021	4/30/2020	1.2	4/30/2030	4/30/2025	98.59105	96.38091862	93.77184256	91.00291108	88.27736197	85.66310927	83.16485208	80.77691081	78.49336439
200505A00010	5/5/2020	0.89	5/6/2030	5/5/2025	98.213423	95.83332978	93.11338972	90.29270411	87.54523807	84.91647454	82.40612373	80.00796645	77.71591291
200512A00023	5/12/2020	1.78	5/11/2035	5/12/2025	97.155521	93.22092988	88.36680745	83.09875768	77.92976438	73.11914672	68.71665412	64.69606228	61.020126
190530A00044	5/30/2019	2.85	5/30/2034	5/30/2024	100.15003	98.61556878	96.19916527	92.86151352	88.99188301	85.03819272	81.25022234	77.70000218	74.38167016
190930A00079	9/30/2019	2.04	10/1/2029	9/30/2024	99.966142	98.5589847	96.66121337	94.33133462	91.8231835	89.33499381	86.93645263	84.63544703	82.42771472
190930A00083	9/30/2019	2.04	10/1/2029	9/30/2024	99.966142	98.5589847	96.66121337	94.33133462	91.8231835	89.33499381	86.93645263	84.63544703	82.42771472
191220A00029	12/20/2019	2.57	12/19/2031	12/20/2024	100.4796	98.70563421	96.38310737	93.47411013	90.24720128	87.0089082	83.90545026	80.96447015	78.17868288
200609A00003	6/9/2020	1.66	6/8/2035	6/9/2025	95.89807	91.30658583	85.77117883	79.879049	74.18736215	68.94091483	64.17618837	59.85593432	55.93429829
200612A00001	6/12/2020	0.75	6/12/2030	6/12/2025	97.889134	95.39868014	92.60133951	89.74577046	86.98048533	84.33840701	81.81674344	79.40897275	77.10885065
201022A00008	10/22/2020	1.02	10/22/2035	10/22/2025	96.012445	91.99421494	87.48995171	82.94403999	78.63701267	74.63911054	70.9386882	67.51067436	64.33124217
201029A00008	10/29/2020	0.92	10/29/2030	10/29/2025	97.964458	95.31576649	92.39538189	89.42485372	86.55078009	83.80939142	81.19791875	78.70908314	76.33590825
201030A00025	10/30/2020	2.02	10/28/2050	10/30/2025	94.509406	88.43545007	81.19045046	73.66690635	66.65370705	60.48746894	55.1656929	50.56905487	46.57950617
200108A00009	1/8/2020	2.4	1/8/2035	1/8/2025	99.746345	97.30488414	94.05186599	90.10901616	85.91208238	81.82234746	77.98759984	74.42474074	71.11450815
201116A00019	11/16/2020	1.32	11/15/2030	11/16/2025	97.288819	93.62029867	89.38536664	84.95136474	80.64305842	76.58447205	72.78389878	69.22511163	65.89096726
201118A00015	11/18/2020	1.66	11/18/2036	11/18/2027	95.550009	89.4261869	82.85908418	76.25467235	70.02378593	64.36773658	59.30074672	54.76634634	50.70287616
201118A00017	11/18/2020	1.66	11/18/2036	11/18/2027	95.550009	89.4261869	82.85908418	76.25467235	70.02378593	64.36773658	59.30074672	54.76634634	50.70287616
201118A00018	11/18/2020	1.85	11/18/2036	11/18/2027	96.039939	89.99141037	83.48384541	76.90964699	70.67881476	65.00895082	59.92496038	55.37325225	51.29254324
201202A00016	12/2/2020	1.32	12/3/2035	12/2/2025	96.66846	92.71772413	88.24657272	83.66965236	79.29957978	75.23673793	71.47791997	67.99823549	64.77307419

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201202A00017	12/2/2020	1.32	12/3/2035	12/2/2025	96.66846	92.71772413	88.24657272	83.66965236	79.29957978	75.23673793	71.47791997	67.99823549	64.77307419
211019A00005	10/19/2021	2.49	10/20/2036	10/19/2026	99.774578	95.01600685	89.51356899	83.4917922	77.40069118	71.64780065	66.41111296	61.69482173	57.44731572
200306A00021	3/6/2020	1.16	3/6/2030	3/6/2025	98.541632	96.33672064	93.74416295	91.00297149	88.30894558	85.72467544	83.25387394	80.89097249	78.63023895
210622A00004	6/22/2021	2.42	6/20/2036	6/22/2026	98.798337	94.1545957	88.70648779	82.73743734	76.75180461	71.13381294	66.02594872	61.41786269	57.25864095
190111A00040	1/11/2019	3.74	1/11/2034	1/11/2024	100.38683	99.38474237	97.40565019	94.20448679	90.03724319	85.4208893	80.81752505	76.48298597	72.47725515
190222A00023	2/22/2019	3.66	2/22/2034	2/22/2026	103.85286	100.6562899	96.87848626	92.39758966	87.28554594	81.86724416	76.54367718	71.57868756	67.03100377
180703A00033	7/3/2018	3.4	7/3/2028	7/3/2023	100.1442	99.91481453	99.14679925	97.7698966	95.96664465	93.95574564	91.91503881	89.92699741	88.0053746
201230A00018	12/30/2020	1.52	12/28/2035	12/28/2027	95.381341	89.33662588	82.90708514	76.47248166	70.40681956	64.88486016	59.91405398	55.44262726	51.41547561
210108A00007	1/8/2021	1.65	1/8/2036	1/8/2026	95.724082	90.73428014	84.92976294	78.86650625	73.05219022	67.72125554	62.90029856	58.54582867	54.60769741
211110A00017	11/10/2021	2.01	11/10/2036	11/10/2026	99.855113	95.81865787	91.3323935	86.57873316	81.86185619	77.41126077	73.29731287	69.50707194	66.01144721
210225A00010	2/25/2021	2.02	2/25/2041	2/25/2026	97.215671	92.57283262	87.13913059	81.37052565	75.79366901	70.67001823	66.04149891	61.86716642	58.09539959
210405A00013	4/5/2021	1.82	4/7/2036	4/5/2026	98.518589	94.70886851	90.35987733	85.74321321	81.21492736	76.96718215	73.03711268	69.40501729	66.04444521
210910A00009	9/10/2021	1.77	9/10/2036	9/10/2026	98.854215	94.79918292	90.27625596	85.52350525	80.87065636	76.51079617	72.4855513	68.7744406	65.34885717
211116A00012	11/16/2021	2.22	12/18/2034	11/16/2026	100.91143	97.31970232	93.38795482	89.20721196	85.00080744	80.97123522	77.2003858	73.68872801	70.41673109
220831A00108	8/31/2022	4.07	8/31/2027	9/2/2025	104.91898	102.9360674	100.9016801	98.74388203	96.38379361	93.80887581	91.10731959	88.42747431	85.83987614
211124A00008	11/24/2021	2.62	11/22/2041	11/24/2026	100.75698	96.18210191	90.93760722	85.20035013	79.37820864	73.86807495	68.85106612	64.33559353	60.27179278
211215A00020	12/15/2021	1.85	12/15/2031	12/15/2026	100.69573	97.61136639	94.36157484	91.0123109	87.69496227	84.51252508	81.49561935	78.63953612	75.93420992
211227A00012	12/27/2021	2.39	12/29/2036	12/27/2028	100.76124	94.49972092	87.93512268	81.26043992	74.77381859	68.74744714	63.30531289	58.43332989	54.07072515
220617A00069	6/17/2022	4.06	6/17/2027	6/17/2025	104.11704	102.4591805	100.7457416	98.90222591	96.84308429	94.55158029	92.11776201	89.69217204	87.34432161
170802A00074	8/2/2017	2.92	8/2/2027	8/2/2022	99.929708	99.45489072	98.15335464	96.17262092	93.76101083	91.19552106	88.65623472	86.20310679	83.84008976
210924A00016	9/24/2021	1.91	9/24/2036	9/24/2026	99.398022	95.42162331	90.97048301	86.24923393	81.58239044	77.18914642	73.1283495	69.38410727	65.92795394
191007A00013	10/7/2019	2	10/5/2029	10/7/2024	99.850447	98.29175829	96.26674511	93.85564067	91.3098798	88.80511359	86.39609378	84.08625056	81.87091796
200108A00040	1/8/2020	2.52	1/8/2030	1/8/2025	100.27932	98.15702659	95.3399192	91.81415859	87.90184891	83.97597507	80.22269157	76.67967809	73.33769584
200115A00023	1/15/2020	2.16	1/15/2030	1/15/2025	100.23987	98.57078618	96.49728138	94.04048773	91.41607458	88.81766835	86.31777907	83.9240853	81.63168456
151223A00007	12/23/2015	3.76	12/23/2030	12/23/2022	100.10225	99.52372686	97.89044136	95.06423228	91.25861224	86.92193625	82.50566437	78.28562336	74.33100283
191007A00012	10/7/2019	2	10/5/2029	10/7/2024	99.850447	98.29175829	96.26674511	93.85564067	91.3098798	88.80511359	86.39609378	84.08625056	81.87091796
200110A00012	1/10/2020	2.57	1/10/2035	1/10/2025	100.01407	97.67145322	94.52426838	90.66355321	86.49600347	82.39994099	78.54208354	74.9477544	71.60009973
200115A00025	1/15/2020	2.1	1/15/2025	1/15/2023	99.858423	99.24299167	98.29411291	97.24561919	96.19400293	95.16147385	94.14927032	93.15680485	92.18348867
201229A00003	12/29/2020	1.28	12/30/2030	12/30/2025	97.098491	93.32850169	89.01349134	84.5271077	80.18304901	76.09675885	72.27395215	68.69757609	65.34991997
221214A00057	12/14/2022	4.65	12/14/2027	12/12/2025	106.81955	104.6104668	102.3778446	100.0590755	97.57560608	94.8660962	91.93546956	88.92700695	85.9986584
221222A00137	12/22/2022	5.4	12/22/2037	12/22/2027	113.80904	109.7520115	105.6372935	101.406261	97.02006157	92.47204629	87.82059676	83.24252291	78.94249679
220217A00024	2/17/2022	2.43	2/17/2027	2/17/2025	100.86962	99.34153938	97.55866424	95.47177353	93.19358882	90.89081913	88.64765162	86.47874848	84.3820892
221212A00004	12/12/2022	4.36	12/10/2032	12/10/2027	110.762	107.1533505	103.5777938	100.0097038	96.42730026	92.8408515	89.28574285	85.84525419	82.58400286

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230804A00039	8/4/2023	5.02	8/4/2028	8/4/2026	109.63341	106.9858632	104.369394	101.7541155	99.10052176	96.3672235	93.52126254	90.59938799	87.72737483
151209A00024	12/9/2015	2.22	12/9/2025	12/9/2015	100.95882	99.84669007	98.75707887	97.68933797	96.64284161	95.61698749	94.61119573	93.62490773	92.65758528
150812A00052	8/14/2015	2.13	8/14/2025	8/14/2015	100.66966	99.72275523	98.79343855	97.88121684	96.98561647	96.10618167	95.24247367	94.39406986	93.56056306
150929A00083	9/29/2015	2.09	9/29/2025	9/29/2015	100.67695	99.68748972	98.71685049	97.76450042	96.82993217	95.91265725	95.0122051	94.12812227	93.25997165
150929A00087	9/29/2015	2.09	9/29/2025	9/29/2015	100.67695	99.68748972	98.71685049	97.76450042	96.82993217	95.91265725	95.0122051	94.12812227	93.25997165
161222A00013	12/22/2016	2.93	12/22/2026	12/22/2016	105.43285	102.5651329	99.7959851	97.12137896	94.53748071	92.0406386	89.62737285	87.29436623	85.0384553
140821A00030	8/21/2014	2.27	8/21/2024	8/21/2014	100.34153	99.88579675	99.43526306	98.98983002	98.54940154	98.1138841	97.68318662	97.25722041	96.83589907
150701A00056	7/1/2015	2.34	7/1/2025	7/1/2015	100.81797	99.91203655	99.02257762	98.14913307	97.29126397	96.44854777	95.6205776	94.8069615	94.00732171
120330A00013	3/30/2012	2.98	4/2/2024	3/30/2012	100.6704	100.1773226	99.68913439	99.20576227	98.72713495	98.2531825	97.78383638	97.31902939	96.85869562
110701A00011	7/1/2011	3.87	7/1/2026	7/1/2011	103.56318	102.1336504	100.7376783	99.37419898	98.04219165	96.74067603	95.46871021	94.22538891	93.00984172
110719A00017	7/19/2011	3.68	7/20/2026	7/19/2011	103.29106	101.8638668	100.4702239	99.10906395	97.77936479	96.4801447	95.21046061	93.96940613	92.75610992
110909A00006	9/9/2011	2.26	9/9/2026	9/9/2011	101.34688	99.86615326	98.42165972	97.01221596	95.63668995	94.29399513	92.98308819	91.70296701	90.45266872
120806A00015	8/6/2012	2.38	8/6/2027	8/6/2012	102.20764	100.26674	98.38409025	96.55746589	94.78474282	93.06389347	91.39298166	89.77015779	88.19365434
120807A00026	8/7/2012	2.42	8/9/2027	8/7/2012	102.28752	100.3450475	98.46087535	96.63277657	94.85862522	93.13639194	91.46413884	89.84001469	88.2622504
150603A00032	6/3/2015	2.21	6/3/2025	6/3/2015	100.65212	99.78822207	98.93975844	98.10630564	97.28745673	96.48281986	95.69201754	94.91468599	94.15047448
150824A00050	8/24/2015	2.03	8/25/2025	8/24/2015	100.57439	99.62720118	98.69763448	97.78519651	96.88941388	96.00983091	95.14600883	94.29752495	93.46397192
150925A00034	9/25/2015	2.36	9/25/2025	9/25/2015	100.83107	99.84207645	98.87184968	97.91986605	96.98562045	96.06862646	95.16841553	94.28453609	93.41655281
151029A00008	10/29/2015	2.28	10/29/2025	10/29/2015	100.79803	99.76848269	98.7589157	97.76876828	96.79749758	95.84458089	94.90951467	93.99181368	93.09101013
160115A00011	1/15/2016	2.18	1/15/2026	1/15/2016	100.82721	99.67712407	98.55080486	97.44755755	96.36671254	95.30762565	94.26967692	93.25226944	92.25482831
160201A00016	2/1/2016	2.1	2/2/2026	2/1/2016	100.77494	99.58622078	98.42256068	97.28321764	96.1674758	95.07464682	94.00406853	92.95510371	91.92713889
160211A00038	2/11/2016	1.83	2/11/2026	2/11/2016	100.44696	99.26108977	98.10025243	96.96370437	95.85073116	94.76064576	93.69278713	92.64651907	91.62122903
160606A00018	6/6/2016	1.74	6/5/2026	6/6/2016	100.62291	99.27164145	97.95151183	96.6615442	95.40080393	94.168393	92.9634482	91.78513954	90.63266863
140618A00019	6/18/2014	3.08	6/18/2024	6/18/2014	100.51386	100.1421178	99.77378059	99.4087969	99.04711611	98.68868865	98.33346601	97.98140065	97.63244608
151118A00037	11/18/2015	2.75	11/18/2025	11/18/2015	102.59607	100.7834869	99.01503577	97.2893243	95.60501234	93.96081257	92.35548794	90.7878493	89.25675309
150224A00010	2/24/2015	2.34	2/24/2025	2/24/2015	100.61939	99.78930351	98.97250593	98.16866737	97.37746885	96.5986022	95.83176958	95.07668305	94.33306414
160212A00047	2/12/2016	1.94	2/12/2026	2/12/2016	100.58129	99.39373295	98.23124667	97.09308732	95.97853944	94.88691493	93.81755181	92.7698129	91.74308472
160427A00004	4/27/2016	2.09	4/27/2026	4/27/2016	100.85634	99.58328312	98.33835304	97.1206931	95.92948209	94.76393034	93.62327825	92.50679483	91.41377645
150617A00030	6/17/2015	2.91	6/16/2025	6/17/2015	102.36435	100.7844635	99.23756512	97.72267067	96.23883942	94.78516779	93.36078747	91.9648637	90.59659357
161014A00019	10/14/2016	2.39	10/15/2031	10/14/2016	104.64383	100.6288941	96.83678913	93.2528166	89.86336887	86.65583854	83.61853797	80.74062574	78.01203947
150729A00028	7/29/2015	2.25	7/29/2025	7/29/2015	100.74005	99.83136491	98.93927041	98.0633011	97.20301288	96.3579784	95.52778621	94.71204002	93.91035801
151125A00037	11/25/2015	2.41	11/25/2025	11/25/2015	100.98899	99.91721742	98.86669295	97.83681354	96.82699571	95.83667775	94.86531862	93.91239705	92.9774106
151228A00013	12/28/2015	2.27	12/29/2025	12/28/2015	101.01885	99.90416788	98.81209941	97.74199259	96.69321754	95.66516805	94.65726054	93.66893292	92.69964367
151229A00026	12/29/2015	2.28	12/29/2025	12/29/2015	101.03043	99.91551712	98.82322837	97.75290797	96.70392574	95.67567524	94.66757261	93.67905556	92.70958233

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160412A00029	4/12/2016	2.48	4/14/2031	4/12/2016	104.79908	101.01624	97.43193412	94.0337368	90.81009471	87.75026374	84.84424671	82.08273624	79.45706244
160421A00016	4/21/2016	2.26	4/21/2026	4/21/2016	102.63745	100.3532734	98.13466221	95.97931889	93.88504584	91.84973659	89.87137134	87.94801273	86.07780188
160523A00086	5/23/2016	2.2	5/26/2026	5/23/2016	102.62479	100.2620593	97.96895045	95.7429543	93.58167053	91.48280204	89.44414962	87.463607	85.53915626
160603A00029	6/3/2016	2.18	6/3/2031	6/3/2016	104.15254	100.3040611	96.66181966	93.21264909	89.94433197	86.84552209	83.90567622	81.11499169	78.46434924
160906A00027	9/6/2016	2.03	9/8/2031	9/6/2016	103.62424	99.6770749	95.94740415	92.42097766	89.08459848	85.92603352	82.93393641	80.09777706	77.40777718
161014A00026	10/14/2016	2.16	10/14/2031	10/14/2016	104.1832	100.1750704	96.38982672	92.81274486	89.43019207	86.22953937	83.19908058	80.32795842	77.60609703
161229A00018	12/29/2016	2.46	12/29/2026	12/29/2016	102.04017	100.4228547	98.84765709	97.31313931	95.81792325	94.36068807	92.94016748	91.55514702	90.20446156
161229A00019	12/29/2016	2.46	12/29/2026	12/29/2016	102.04017	100.4228547	98.84765709	97.31313931	95.81792325	94.36068807	92.94016748	91.55514702	90.20446156
150219A00016	2/19/2015	2.68	2/19/2025	2/19/2015	101.44871	100.1500134	98.87441481	97.62135147	96.39027409	95.18065088	93.99196683	92.82372308	91.67543625
150814A00029	8/14/2015	2.39	8/14/2025	8/14/2015	100.80812	99.86134845	98.93213119	98.01998213	97.12442899	96.24501724	95.3813093	94.53288366	93.69933421
150929A00076	9/29/2015	2.28	9/29/2025	9/29/2015	100.75077	99.76210572	98.79221105	97.84056468	96.90666106	95.99001336	95.09015264	94.20662696	93.33900063
160923A00009	9/23/2016	2.24	9/23/2031	9/23/2016	103.99793	100.046799	96.31299681	92.78230808	89.44156305	86.27855264	83.28195163	80.4412485	77.74668131
161005A00016	10/5/2016	2.32	10/6/2031	10/5/2016	104.3539	100.3502951	96.56887084	92.99497256	89.61503418	86.41648663	83.38767763	80.51779845	77.79681687
160303A00035	3/3/2016	2.14	3/3/2026	3/3/2016	100.90858	99.63934386	98.39784009	97.18323551	95.99472964	94.83155233	93.69296235	92.57824611	91.48671633
140730A00037	7/30/2014	2.83	1/30/2024	7/30/2014	100.23682	100.0688279	99.90149431	99.73481266	99.56877882	99.40338864	99.23863799	99.07452282	98.91103908
140908A00080	9/8/2014	2.51	3/8/2024	9/8/2014	100.43163	100.0090313	99.59007641	99.17471658	98.76290515	98.35459633	97.94974509	97.54830718	97.15023913
140917A00030	9/17/2014	3.23	9/17/2029	9/17/2014	110.3458	105.470184	100.8683096	96.52289003	92.41783029	88.53813912	84.86984737	81.39993285	78.11625101
140924A00057	9/24/2014	3.25	9/25/2028	9/24/2014	110.1961	105.6780154	101.3855022	97.30594498	93.42750075	89.73904988	86.23014783	82.89098067	79.71232364
160713A00015	7/13/2016	1.57	7/13/2026	7/13/2016	100.41767	99.02828924	97.67160672	96.34657975	95.05221136	93.78754411	92.55165827	91.34366991	90.1627293
150617A00017	6/17/2015	2.27	6/17/2025	6/17/2015	100.70818	99.84191515	98.9911587	98.15548156	97.33447395	96.52774134	95.73490371	94.95559485	94.18946177
150617A00018	6/17/2015	2.45	6/17/2025	6/17/2015	100.76389	99.89842963	99.04843635	98.2134872	97.39317386	96.58710319	95.79489646	95.01618874	94.25062819
140717A00027	7/17/2014	3.14	7/17/2026	7/17/2014	104.77276	102.3157942	99.93352913	97.62322246	95.38225353	93.20811441	91.09840422	89.05082385	87.06317085
160603A00014	6/3/2016	1.74	6/3/2026	6/3/2016	100.62261	99.27160135	97.95171076	96.66196974	95.40144433	94.16923712	92.96448549	91.78635999	90.63406276
141017A00022	10/17/2014	2.78	10/17/2024	10/17/2014	101.14948	100.1550439	99.1806074	98.22556377	97.28933409	96.37136235	95.47111431	94.58807649	93.72175512
160126A00004	1/26/2016	2.52	1/26/2026	1/26/2016	103.05517	100.8531352	98.71030115	96.62474353	94.59461066	92.61812185	90.69356418	88.81928953	86.99371169
140428A00015	4/28/2014	2.35	4/29/2024	4/28/2014	100.25783	99.96565603	99.67557061	99.38755071	99.10157187	98.81761002	98.53564148	98.255643	97.97759167
151013A00033	10/13/2015	2.23	10/14/2025	10/13/2015	100.74293	99.71564543	98.70824999	97.72018629	96.75091529	95.79991787	94.86669391	93.95076142	93.05165573
161014A00029	10/14/2016	2.51	10/15/2031	10/14/2016	105.63867	101.5745426	97.73641802	94.10936338	90.67955544	87.43418877	84.36139367	81.45016118	78.69027467
150603A00012	6/3/2015	2.77	6/3/2030	6/3/2015	105.83217	102.4080327	99.14656525	96.03848101	93.07509219	90.24827019	87.55040574	84.97437217	82.51349154
150615A00024	6/15/2015	2.26	6/16/2025	6/15/2015	100.69889	99.83297715	98.98255898	98.14721006	97.32652104	96.52009776	95.72756057	94.94854364	94.18269428
151223A00078	12/23/2015	2.28	12/23/2025	12/23/2015	101.02945	99.91515002	98.82344274	97.75367864	96.70522876	95.67748779	94.66987295	93.68182295	92.71279702
150604A00039	6/4/2015	2.82	6/4/2030	6/4/2015	106.00743	102.5775888	99.31069308	96.19743822	93.22912167	90.397601	87.69525402	85.114942	82.64997566
150427A00014	4/27/2015	2.98	4/27/2035	4/27/2015	109.25126	103.3682216	97.93324024	92.90644798	88.25189714	83.93714486	79.93288455	76.21261839	72.75236628

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150203A00027	2/3/2015	2.26	2/4/2030	2/3/2015	103.89583	100.6948695	97.639445	94.72156964	91.9337574	89.26898702	86.7206699	84.28262052	81.94902897
160801A00002	8/1/2016	1.58	8/3/2026	8/1/2016	100.46182	99.03242359	97.63732575	96.27541811	94.94563954	93.64697154	92.37843622	91.13909429	89.92804324
151223A00036	12/23/2015	2.64	12/23/2025	12/23/2015	102.05916	100.4516916	98.88447753	97.35618571	95.865537	94.41130548	92.99231581	91.60744063	90.25559817
141015A00029	10/15/2014	2.32	10/15/2024	10/15/2014	100.77599	99.82459091	98.89197435	97.97757928	97.08086791	96.20132355	95.33844962	94.49176864	93.6608213
160428A00028	4/28/2016	2	4/28/2026	4/28/2016	100.89222	99.61652992	98.36906839	97.14897695	95.95543015	94.78763428	93.64482589	92.52627039	91.43126067
150414A00037	4/14/2015	2.34	4/14/2025	4/14/2015	100.57971	99.79749281	99.02878377	98.2732193	97.53044678	96.80012671	96.08193198	95.37554735	94.68066888
150729A00041	7/29/2015	2.44	7/29/2025	7/29/2015	100.80776	99.89982678	99.00844291	98.13314802	97.27349955	96.42907161	95.59945415	94.78425219	93.98308513
160711A00004	7/11/2016	1.51	7/13/2026	7/11/2016	100.3318	98.94376085	97.58838354	96.2646265	94.97149406	93.70803004	92.47331587	91.26646878	90.0866401
130206A00009	2/6/2013	2.83	2/7/2028	2/6/2013	105.88822	102.4995867	99.25408635	96.1447298	93.16490946	90.30837645	87.56921912	84.94184306	82.42095231
150410A00021	4/10/2015	2.27	4/10/2025	4/10/2015	100.52297	99.74178069	98.97407312	98.21948147	97.47765416	96.74825262	96.03095069	95.32543401	94.63139949
140703A00026	7/3/2014	3.11	7/3/2024	7/3/2014	100.99212	100.25946	99.53759794	98.82629393	98.12531631	97.43444025	96.75344739	96.08212565	95.420269
151030A00026	10/30/2015	3.29	10/30/2030	10/30/2015	111.2595	105.4550149	100.0301663	94.95733307	90.21107177	85.76792877	81.60627401	77.70614936	74.04913031
161102A00014	11/2/2016	1.99	11/2/2023	11/2/2016	100.04195	99.9535941	99.8653942	99.77735334	99.68947109	99.601747	99.51418065	99.42677161	99.33951946
161202A00001	12/2/2016	2.65	12/1/2023	12/2/2016	100.19181	100.020678	99.8501267	99.68015675	99.51076525	99.34194924	99.17370582	99.00603207	98.83892513
161116A00006	11/16/2016	2.39	11/16/2026	11/16/2016	101.66669	100.0995711	98.57238846	97.08380556	95.63253721	94.217351	92.83706462	91.49054344	90.17669825
161207A00014	12/7/2016	2.75	12/8/2031	12/7/2016	106.7482	102.5607438	98.61033949	94.88105978	91.35818085	88.02807999	84.87814543	81.89669424	79.07289735
170602A00019	6/2/2017	2.42	6/3/2024	6/2/2017	100.43512	99.7731101	99.1198567	98.47518818	97.83893586	97.21093547	96.59102697	95.97905445	95.374866
170615A00006	6/15/2017	2.15	6/17/2024	6/15/2017	100.16569	99.79124934	99.420304	99.05279803	98.68867824	98.32789258	97.97039016	97.61612115	97.26503682
150803A00033	8/3/2015	3.41	8/2/2030	8/3/2015	111.74702	106.0766551	100.7665844	95.79135069	91.12744201	86.75313178	82.64833409	78.79447127	75.17435288
150803A00036	8/3/2015	3.41	8/2/2030	8/3/2015	111.74702	106.0766551	100.7665844	95.79135069	91.12744201	86.75313178	82.64833409	78.79447127	75.17435288
150803A00037	8/3/2015	3.41	8/2/2030	8/3/2015	111.74702	106.0766551	100.7665844	95.79135069	91.12744201	86.75313178	82.64833409	78.79447127	75.17435288
150803A00038	8/3/2015	3.41	8/2/2030	8/3/2015	111.74702	106.0766551	100.7665844	95.79135069	91.12744201	86.75313178	82.64833409	78.79447127	75.17435288
150803A00039	8/3/2015	3.01	8/2/2030	8/3/2015	106.38285	102.8677359	99.52286527	96.33834317	93.3049246	90.41396944	87.65739878	85.02765459	82.51766253
150803A00041	8/3/2015	3.01	8/2/2030	8/3/2015	106.38285	102.8677359	99.52286527	96.33834317	93.3049246	90.41396944	87.65739878	85.02765459	82.51766253
150803A00042	8/3/2015	3.01	8/2/2030	8/3/2015	106.38285	102.8677359	99.52286527	96.33834317	93.3049246	90.41396944	87.65739878	85.02765459	82.51766253
160413A00014	4/13/2016	2.55	4/14/2031	4/13/2016	105.07213	101.2794047	97.68573804	94.2786684	91.0466119	87.97879604	85.06519725	82.29648362	79.66396239
160413A00016	4/13/2016	2.55	4/14/2031	4/13/2016	105.07213	101.2794047	97.68573804	94.2786684	91.0466119	87.97879604	85.06519725	82.29648362	79.66396239
160413A00020	4/13/2016	2.48	4/13/2026	4/13/2016	102.95052	100.6141101	98.34486867	96.14045268	93.99861945	91.91721858	89.89418743	87.92754696	86.01539774
160413A00021	4/13/2016	2.48	4/13/2026	4/13/2016	102.95052	100.6141101	98.34486867	96.14045268	93.99861945	91.91721858	89.89418743	87.92754696	86.01539774
160413A00033	4/13/2016	2.32	4/13/2026	4/13/2016	102.25538	100.1586447	98.12031988	96.13839697	94.21095164	92.33613819	90.5121858	88.73739491	87.01013393
160414A00042	4/13/2016	2.48	4/13/2026	4/13/2016	102.95052	100.6141101	98.34486867	96.14045268	93.99861945	91.91721858	89.89418743	87.92754696	86.01539774
160511A00015	5/11/2016	2.42	5/11/2026	5/11/2016	102.92158	100.5188026	98.18655447	95.92231822	93.72368481	91.58834723	89.51409543	87.49881146	85.540465
160511A00016	5/11/2016	2.48	5/12/2031	5/11/2016	104.83613	101.0122001	97.3908954	93.95941223	90.705862	87.61919564	84.68913859	81.90613111	79.26127361

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160608A00019	6/8/2016	2.36	6/8/2026	6/8/2016	102.87686	100.4124498	98.0218863	95.70247561	93.45163968	91.2669127	89.14593536	87.08644939	85.08629238
160608A00020	6/8/2016	2.36	6/8/2026	6/8/2016	102.87686	100.4124498	98.0218863	95.70247561	93.45163968	91.2669127	89.14593536	87.08644939	85.08629238
160608A00023	6/8/2016	2.36	6/8/2026	6/8/2016	102.87686	100.4124498	98.0218863	95.70247561	93.45163968	91.2669127	89.14593536	87.08644939	85.08629238
160608A00024	6/8/2016	2.36	6/8/2026	6/8/2016	102.87686	100.4124498	98.0218863	95.70247561	93.45163968	91.2669127	89.14593536	87.08644939	85.08629238
160608A00025	6/8/2016	2.36	6/8/2026	6/8/2016	102.87686	100.4124498	98.0218863	95.70247561	93.45163968	91.2669127	89.14593536	87.08644939	85.08629238
160608A00027	6/8/2016	2.36	6/8/2026	6/8/2016	102.87686	100.4124498	98.0218863	95.70247561	93.45163968	91.2669127	89.14593536	87.08644939	85.08629238
160608A00028	6/8/2016	2.36	6/8/2026	6/8/2016	102.87686	100.4124498	98.0218863	95.70247561	93.45163968	91.2669127	89.14593536	87.08644939	85.08629238
160608A00029	6/8/2016	2.36	6/8/2026	6/8/2016	102.87686	100.4124498	98.0218863	95.70247561	93.45163968	91.2669127	89.14593536	87.08644939	85.08629238
160608A00030	6/8/2016	2.36	6/8/2026	6/8/2016	102.87686	100.4124498	98.0218863	95.70247561	93.45163968	91.2669127	89.14593536	87.08644939	85.08629238
160608A00033	6/8/2016	2.44	6/9/2031	6/8/2016	104.71365	100.8545514	97.2018719	93.74245602	90.46409371	87.35544431	84.40596856	81.60586638	78.94601988
160608A00034	6/8/2016	2.44	6/9/2031	6/8/2016	104.71365	100.8545514	97.2018719	93.74245602	90.46409371	87.35544431	84.40596856	81.60586638	78.94601988
160810A00025	8/10/2016	2.17	8/10/2026	8/10/2016	102.59433	99.99139663	97.47069282	95.0291663	92.66389657	90.37208715	88.15105956	85.99824769	83.91119244
160810A00027	8/10/2016	2.13	8/10/2026	8/10/2016	102.38597	99.8701092	97.43293902	95.0715482	92.78315364	90.5650902	88.41480504	86.32985219	84.30788752
160810A00028	8/10/2016	2.19	8/10/2026	8/10/2016	102.70731	100.0558555	97.48860517	95.00242632	92.59432182	90.26142194	88.00097819	85.81035744	83.68703651
160810A00029	8/10/2016	2.17	8/10/2026	8/10/2016	102.59433	99.99139663	97.47069282	95.0291663	92.66389657	90.37208715	88.15105956	85.99824769	83.91119244
160810A00030	8/10/2016	2.24	8/11/2031	8/10/2016	103.9721	100.0615778	96.36415288	92.86600684	89.55433019	86.41724042	83.44370838	80.62349107	77.94707007
160908A00022	9/8/2016	2.21	9/8/2026	9/8/2016	102.79089	100.1207222	97.53690234	95.03615329	92.61533787	90.27145547	88.00163529	85.80312993	83.67330935
160908A00023	9/8/2016	2.21	9/8/2026	9/8/2016	102.79089	100.1207222	97.53690234	95.03615329	92.61533787	90.27145547	88.00163529	85.80312993	83.67330935
160908A00024	9/8/2016	2.21	9/8/2026	9/8/2016	102.79089	100.1207222	97.53690234	95.03615329	92.61533787	90.27145547	88.00163529	85.80312993	83.67330935
160908A00025	9/8/2016	2.21	9/8/2026	9/8/2016	102.79089	100.1207222	97.53690234	95.03615329	92.61533787	90.27145547	88.00163529	85.80312993	83.67330935
160908A00026	9/8/2016	2.21	9/8/2026	9/8/2016	102.79089	100.1207222	97.53690234	95.03615329	92.61533787	90.27145547	88.00163529	85.80312993	83.67330935
160908A00027	9/8/2016	2.21	9/8/2026	9/8/2016	102.79089	100.1207222	97.53690234	95.03615329	92.61533787	90.27145547	88.00163529	85.80312993	83.67330935
160908A00028	9/8/2016	2.21	9/8/2026	9/8/2016	102.79089	100.1207222	97.53690234	95.03615329	92.61533787	90.27145547	88.00163529	85.80312993	83.67330935
160908A00030	9/8/2016	2.21	9/8/2026	9/8/2016	102.79089	100.1207222	97.53690234	95.03615329	92.61533787	90.27145547	88.00163529	85.80312993	83.67330935
160908A00031	9/8/2016	2.21	9/8/2026	9/8/2016	102.79089	100.1207222	97.53690234	95.03615329	92.61533787	90.27145547	88.00163529	85.80312993	83.67330935
160908A00032	9/8/2016	2.17	9/8/2026	9/8/2016	102.57126	99.99205668	97.49540319	95.07817723	92.73739331	90.4701956	88.27385156	86.14574581	84.08337447
160908A00033	9/8/2016	2.17	9/8/2026	9/8/2016	102.57126	99.99205668	97.49540319	95.07817723	92.73739331	90.4701956	88.27385156	86.14574581	84.08337447
160908A00034	9/8/2016	2.17	9/8/2026	9/8/2016	102.57126	99.99205668	97.49540319	95.07817723	92.73739331	90.4701956	88.27385156	86.14574581	84.08337447
160908A00035	9/8/2016	2.3	9/8/2031	9/8/2016	104.24319	100.2831063	96.54080529	93.00204529	89.65363208	86.48333354	83.47980282	80.6325081	77.93166837
160908A00036	9/8/2016	2.3	9/8/2031	9/8/2016	104.24319	100.2831063	96.54080529	93.00204529	89.65363208	86.48333354	83.47980282	80.6325081	77.93166837
150722A00033	7/22/2015	2.47	7/22/2025	7/22/2015	100.83419	99.92688373	99.03609401	98.16136637	97.30225953	96.4583488	95.62922524	94.81449495	94.01377834
150722A00035	7/22/2015	2.92	7/22/2025	7/22/2015	102.56053	100.8939271	99.26371283	97.66884903	96.10833053	94.58118849	93.0864887	91.6233301	90.1908433
160106A00042	1/6/2016	2.43	1/6/2026	1/6/2016	101.12114	99.96855648	98.83977025	97.7340851	96.65083137	95.58936478	94.54906522	93.52933562	92.5296009

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170619A00089	6/16/2017	2.79	6/16/2027	6/16/2017	105.70601	102.3415384	99.10817819	96.00001754	93.01145003	90.1371559	87.37208542	84.71144332	82.15067429
170619A00092	6/16/2017	2.79	6/16/2027	6/16/2017	105.70601	102.3415384	99.10817819	96.00001754	93.01145003	90.1371559	87.37208542	84.71144332	82.15067429
170619A00095	6/16/2017	2.79	6/16/2027	6/16/2017	105.70601	102.3415384	99.10817819	96.00001754	93.01145003	90.1371559	87.37208542	84.71144332	82.15067429
170619A00096	6/16/2017	2.79	6/16/2027	6/16/2017	105.70601	102.3415384	99.10817819	96.00001754	93.01145003	90.1371559	87.37208542	84.71144332	82.15067429
170619A00101	6/16/2017	2.74	6/16/2027	6/16/2017	105.29011	102.0614718	98.95702551	95.97120634	93.09873836	90.33461424	87.67407973	85.11261914	82.64594172
160609A00075	6/9/2016	1.94	6/9/2026	6/9/2016	100.73808	99.38728644	98.06757364	96.77797419	95.51755601	94.28542347	93.08071562	91.9026046	90.75029402
160719A00026	7/19/2016	1.87	7/20/2026	7/19/2016	100.6795	99.2883975	97.92999069	96.60324557	95.30716578	94.04079445	92.80321234	91.593536	90.41091609
160629A00066	6/29/2016	2.61	6/30/2036	6/29/2016	109.83606	100.6193241	92.38566412	85.01971368	78.42048316	72.49948245	67.17909965	62.39119843	58.07590386
160119A00072	1/19/2016	2.77	1/21/2031	1/19/2016	105.77334	101.9352196	98.3030725	94.86373515	91.60499437	88.51550997	85.58474597	82.80290784	80.16088501
170707A00007	7/7/2017	2.65	7/8/2024	7/7/2017	100.68187	99.9253281	99.18022029	98.44628379	97.72326816	97.01093034	96.3090345	95.6173517	94.93565964
170711A00010	7/11/2017	2.38	7/12/2027	7/11/2017	102.37592	100.4685714	98.61760021	96.82088247	95.07638696	93.38217382	91.73638968	90.13726318	88.58310073
170713A00021	7/13/2017	3.25	7/13/2037	7/13/2017	116.50598	106.2111392	97.08136554	88.97137209	81.75509489	75.32303667	69.5799885	64.44307679	59.8400877
170105A00010	1/5/2017	2.61	1/5/2027	1/5/2017	102.16103	100.5055283	98.89382877	97.32442025	95.79585263	94.30673677	92.8557414	91.44159025	90.06305936
170105A00012	1/5/2017	2.68	1/5/2024	1/5/2017	100.30019	100.0335483	99.76833191	99.50452795	99.24212509	98.98111214	98.72147804	98.46321184	98.20630271
170106A00030	1/6/2017	2.39	1/6/2027	1/6/2017	101.98803	100.3323037	98.7204605	97.15098102	95.62241043	94.13335517	92.68247983	91.26850426	89.89020086
170112A00015	1/12/2017	2.32	1/12/2027	1/12/2017	101.86992	100.2157138	98.60537029	97.03736579	95.51024566	94.02261655	92.57314329	91.16054598	89.78359732
170727A00003	7/27/2017	1.97	7/29/2024	7/27/2017	100.18837	99.77303474	99.36201368	98.95523395	98.55262259	98.15410845	97.75962204	97.36909557	96.98246283
170802A00013	8/2/2017	2.5	8/2/2024	8/2/2017	100.64435	99.8234265	99.01595953	98.22162169	97.44009408	96.67106806	95.91424485	95.16933513	94.43605865
170124A00017	1/24/2017	2.82	1/23/2032	1/24/2017	107.10395	102.8616625	98.86169679	95.0876334	91.52430281	88.15767909	84.97478558	81.96360895	79.11302093
170201A00016	2/1/2017	2.49	2/1/2024	2/1/2017	100.34481	100.0100452	99.67752145	99.34721198	99.01909464	98.69314762	98.36934944	98.04767886	97.72811494
170207A00055	2/7/2017	2.36	2/8/2027	2/7/2017	102.00283	100.3059905	98.65497814	97.04818188	95.48406003	93.96113661	92.47799803	91.03328995	89.62571434
170804A00005	8/4/2017	1.94	8/5/2024	8/4/2017	100.18679	99.73626207	99.2907857	98.85026723	98.41461538	97.9837412	97.55755805	97.13598148	96.71892915
170301A00031	3/1/2017	2.11	3/1/2024	3/1/2017	100.15665	99.92142949	99.68750142	99.45485368	99.22347493	98.99335396	98.76447968	98.53684116	98.3104276
170303A00004	3/3/2017	2.8	3/4/2024	3/3/2017	100.51026	100.0843085	99.66197293	99.24321146	98.82797874	98.4162302	98.00792205	97.60301121	97.20145533
170829A00066	8/29/2017	2.11	8/29/2024	8/29/2017	100.52386	99.63269821	98.75741288	97.89758545	97.05280837	96.22268827	95.40684542	94.60491312	93.81653712
170309A00042	3/9/2017	2.18	3/11/2024	3/9/2017	100.17579	99.93616895	99.69790549	99.46098418	99.22539269	98.99111882	98.75815054	98.52647596	98.29608338
170309A00014	3/9/2017	2.58	3/9/2027	3/9/2017	102.46208	100.7165874	99.01912324	97.36798085	95.76152422	94.19818745	92.67647121	91.19493948	89.75221631
170309A00016	3/9/2017	2.39	3/8/2024	3/9/2017	100.22637	99.98663541	99.74825163	99.51121068	99.27550022	99.04110804	98.80802211	98.57623055	98.34572161
170313A00045	3/13/2017	3.22	3/15/2032	3/13/2017	108.45539	104.0902043	99.97819644	96.10196663	92.44545421	88.99382535	85.73337076	82.65141241	79.73621872
170317A00039	3/17/2017	2.73	3/18/2024	3/17/2017	100.51642	100.0541957	99.59625113	99.14252375	98.69295527	98.24748847	97.8060672	97.3686363	96.93514164
170317A00040	3/17/2017	2.74	3/18/2024	3/17/2017	100.52217	100.0589211	99.59996002	99.14522923	98.69467026	98.24822567	97.80583912	97.36745526	96.93301975
170317A00044	3/17/2017	3.11	3/17/2027	3/17/2017	106.05689	102.997102	100.0489091	97.20758542	94.46862968	91.82775581	89.28088162	86.82411785	84.45375799
170322A00033	3/22/2017	3.61	3/24/2042	3/22/2017	118.77589	108.5937693	99.61372745	91.67232393	84.63032179	78.36887759	72.78636271	67.79570451	63.32215889

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171204A00009	12/4/2017	2.23	12/4/2024	12/4/2017	100.44161	99.82423653	99.21647133	98.61806348	98.02877423	97.44837335	96.87663873	96.31335605	95.75831838
170921A00055	9/21/2017	2.82	9/21/2027	9/21/2017	106.24886	102.6592985	99.21820168	95.91857567	92.75379456	89.71757934	86.80397772	84.00734539	81.32232836
170921A00057	9/21/2017	2.79	9/21/2027	9/21/2017	105.85832	102.4186393	99.11923275	95.95353996	92.91534373	89.99875097	87.19817396	84.50831282	81.92413908
170406A00024	4/6/2017	2.61	4/8/2024	4/6/2017	100.50517	99.99022365	99.48058083	98.97616227	98.47688768	97.98267839	97.49345736	97.00914909	96.52967961
170406A00026	4/6/2017	2.61	4/8/2024	4/6/2017	100.50517	99.99022365	99.48058083	98.97616227	98.47688768	97.98267839	97.49345736	97.00914909	96.52967961
170406A00027	4/6/2017	2.61	4/8/2024	4/6/2017	100.50517	99.99022365	99.48058083	98.97616227	98.47688768	97.98267839	97.49345736	97.00914909	96.52967961
170406A00029	4/6/2017	3.01	4/6/2027	4/6/2017	106.09376	102.8770791	99.78071996	96.79948352	93.92842654	91.1628465	88.49826848	85.93043273	83.45528312
170406A00032	4/6/2017	3.01	4/6/2027	4/6/2017	106.09376	102.8770791	99.78071996	96.79948352	93.92842654	91.1628465	88.49826848	85.93043273	83.45528312
170406A00033	4/6/2017	3.01	4/6/2027	4/6/2017	106.09376	102.8770791	99.78071996	96.79948352	93.92842654	91.1628465	88.49826848	85.93043273	83.45528312
170406A00034	4/6/2017	3.01	4/6/2027	4/6/2017	106.09376	102.8770791	99.78071996	96.79948352	93.92842654	91.1628465	88.49826848	85.93043273	83.45528312
170406A00036	4/6/2017	3.07	4/6/2032	4/6/2017	107.84858	103.4675262	99.34274355	95.45647688	91.7923498	88.33524623	85.07120451	81.98732099	79.07166244
170407A00001	4/6/2017	2.97	4/6/2027	4/6/2017	105.71339	102.6207493	99.64236376	96.77332838	94.0089769	91.34486953	88.77678055	86.30068676	83.91275652
160824A00019	8/24/2016	1.98	8/25/2031	8/24/2016	103.40049	99.50067744	95.81382557	92.32610051	89.02467838	85.89766494	82.93402169	80.12349831	77.45657089
180517A00024	5/17/2018	3.46	5/17/2033	5/17/2018	111.20823	106.1371521	101.3961095	96.95982452	92.80517343	88.91098806	85.25787639	81.82806052	78.60523046
180517A00018	5/17/2018	3.46	5/17/2033	5/17/2018	111.20823	106.1371521	101.3961095	96.95982452	92.80517343	88.91098806	85.25787639	81.82806052	78.60523046
171204A00024	12/4/2017	2.71	12/4/2024	12/4/2017	101.23885	100.0993876	98.98578783	97.89717569	96.83271463	95.79160514	94.77308272	93.77641595	92.80090474
171207A00024	12/7/2017	2.93	12/7/2027	12/7/2017	107.21101	103.3378182	99.63273739	96.08747835	92.69421103	89.44553556	86.33445594	83.35435541	80.49897363
171207A00025	12/7/2017	2.91	12/7/2027	12/7/2017	106.94589	103.1668968	99.55065391	96.08917321	92.77490334	89.60070678	86.55983453	83.64590256	80.85286977
171207A00026	12/7/2017	2.93	12/7/2027	12/7/2017	107.21101	103.3378182	99.63273739	96.08747835	92.69421103	89.44553556	86.33445594	83.35435541	80.49897363
170504A00049	5/4/2017	2.63	5/6/2024	5/4/2017	100.57325	99.98047155	99.39470373	98.81582692	98.24371978	97.67826379	97.1193432	96.56684495	96.02065856
170511A00011	5/11/2017	2.41	5/11/2027	5/11/2017	102.29593	100.4715653	98.69928231	96.97717075	95.30340575	93.67624252	92.09401216	90.55511782	89.05803103
180925A00013	9/25/2018	3.41	9/25/2028	9/25/2018	105.67873	103.1288665	100.672594	98.30567624	96.02409618	93.82404683	91.70191893	89.65428932	87.67791006
180925A00116	9/25/2018	3.28	9/25/2028	9/25/2018	105.65211	103.0974752	100.6367747	98.26574206	95.9803397	93.77674169	91.6513211	89.6006383	87.62142996
180605A00031	6/5/2018	3.37	6/5/2030	6/5/2018	107.52077	104.0504644	100.7447292	97.5941787	94.59003708	91.72409255	88.98865712	86.3765297	83.88096187
171219A00009	12/19/2017	2.3	12/19/2024	12/19/2017	100.48747	99.86704287	99.25634499	98.65512399	98.06313545	97.48014379	96.9059219	96.34025066	95.78291866
171219A00067	12/19/2017	2.72	12/20/2027	12/19/2017	106.41265	102.7656787	99.27480103	95.93234133	92.73105358	89.66409063	86.72497962	83.90759909	81.20615768
181003A00032	10/3/2018	3.23	10/3/2025	10/3/2018	101.79668	100.7597203	99.74281236	98.74539025	97.76691141	96.80685333	95.86471261	94.94000405	94.03225989
181003A00019	10/3/2018	3.44	10/3/2025	10/3/2018	104.09052	102.1564419	100.2690034	98.42678217	96.62840993	94.87256946	93.15799234	91.48345672	89.84778529
181010A00025	10/10/2018	3.48	10/10/2030	10/10/2018	108.6988	105.0144708	101.5126798	98.18259502	95.01410947	91.99779011	89.12482819	86.3869937	83.77659334
171109A00016	11/9/2017	2.94	11/9/2032	11/9/2017	111.83612	104.2442854	97.28193622	90.89206457	85.02316133	79.62865812	74.66642729	70.09833503	65.88984163
180104A00023	1/4/2018	2.91	1/4/2028	1/4/2018	106.23987	102.8082044	99.52057824	96.369979	93.34977759	90.45370779	87.67584395	85.01058033	82.45261177
180104A00024	1/4/2018	2.98	1/4/2028	1/4/2018	107.3457	103.494948	99.81248183	96.28992912	92.91938124	89.69336846	86.60483286	83.64710296	80.81387017
180104A00041	1/4/2018	3.08	1/4/2033	1/4/2018	113.08532	105.2778283	98.12597969	91.56959109	85.55436637	80.03128861	74.95607834	70.28871019	65.9929813

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170524A00027	5/24/2017	2.32	5/24/2027	5/24/2017	102.12905	100.306885	98.53677012	96.81679495	95.14513447	93.52004373	91.93985375	90.40296766	88.90785708
180125A00027	1/25/2018	2.69	1/24/2025	1/25/2018	100.92953	100.0818036	99.24893921	98.43053325	97.62619652	96.8355542	96.05824521	95.29392153	94.54224762
180126A00011	1/26/2018	2.72	1/26/2028	1/26/2018	103.54361	101.3670356	99.26153927	97.22420495	95.25226025	93.34306609	91.49410938	89.70299606	87.96744464
181105A00015	11/5/2018	3.57	11/5/2025	11/5/2018	104.58066	102.5586886	100.5867684	98.66331638	96.78681555	94.95580782	93.16889147	91.42471849	89.72199204
160616A00029	6/16/2016	1.58	6/16/2026	6/16/2016	100.40169	99.05257245	97.73456341	96.44669129	95.18802133	93.95765539	92.75473024	91.57841585	90.42791388
151001A00023	10/1/2015	2.02	10/1/2025	10/1/2015	100.64349	99.61690847	98.61020351	97.62281174	96.65419485	95.70383449	94.77123125	93.85590383	92.95738822
181116A00006	11/16/2018	3.18	11/17/2025	11/16/2018	101.83432	100.7545505	99.69616647	98.65856292	97.6411533	96.64337283	95.66467752	94.70454319	93.76246461
181119A00008	11/19/2018	3.23	11/17/2023	11/19/2018	100.22103	100.0914679	99.962254	99.8333904	99.70487564	99.57670828	99.44888685	99.32140991	99.19427604
190118A00006	1/18/2019	3.14	1/18/2034	1/18/2019	110.08195	104.7366368	99.7602659	95.12295976	90.7975253	86.75919384	82.98538693	79.45550634	76.15074558
180713A00031	7/13/2018	3.06	7/14/2025	7/13/2018	101.3801	100.4689946	99.57445353	98.69602165	97.83325711	96.98573457	96.15304447	95.33479226	94.53059771
180716A00062	7/16/2018	2.91	7/16/2025	7/16/2018	101.35059	100.4380108	99.54206049	98.66227497	97.79821007	96.94943828	96.11554798	95.29614268	94.49084028
180717A00021	7/17/2018	3.34	7/17/2028	7/17/2018	109.28448	105.1384246	101.1889211	97.42541316	93.83797279	90.41725885	87.15447905	84.04135457	81.0700872
180717A00026	7/17/2018	3.24	7/16/2025	7/17/2018	103.12725	101.4415721	99.79252278	98.17904022	96.60009868	95.0547107	93.54192526	92.06082607	90.61053004
180718A00008	7/18/2018	3.37	7/18/2028	7/18/2018	110.16521	105.5980832	101.2532498	97.11858975	93.18270929	89.43489521	85.86507045	82.46375285	79.22201669
190605A00007	6/5/2019	2.47	6/5/2026	6/5/2019	103.23438	100.7119788	98.26548563	95.89212291	93.58923948	91.35429942	89.18487623	87.07864717	85.03338804
190605A00023	6/5/2019	2.64	6/5/2029	6/5/2019	107.57302	102.485638	97.68444797	93.1516272	88.87056151	84.82575766	81.00276146	77.38808232	73.96912379
190605A00025	6/5/2019	2.64	6/5/2029	6/5/2019	107.57302	102.485638	97.68444797	93.1516272	88.87056151	84.82575766	81.00276146	77.38808232	73.96912379
190605A00024	6/5/2019	2.64	6/5/2029	6/5/2019	107.57302	102.485638	97.68444797	93.1516272	88.87056151	84.82575766	81.00276146	77.38808232	73.96912379
190605A00027	6/5/2019	2.64	6/5/2029	6/5/2019	107.57302	102.485638	97.68444797	93.1516272	88.87056151	84.82575766	81.00276146	77.38808232	73.96912379
181128A00004	11/28/2018	3.08	11/28/2023	11/28/2018	100.26753	100.1070972	99.94718693	99.78779313	99.62891331	99.47054499	99.31268566	99.15533288	98.99848418
181128A00011	11/28/2018	3.27	11/28/2023	11/28/2018	100.27928	100.1190292	99.95929131	99.8000672	99.6413544	99.48315043	99.32545287	99.16825929	99.01156726
181129A00005	11/29/2018	3.21	11/29/2023	11/29/2018	100.27425	100.1112551	99.94878953	99.78685338	99.62544403	99.46455892	99.30419551	99.14435127	98.98502371
190129A00073	1/29/2019	3.11	1/29/2029	1/29/2019	105.26396	102.5590984	99.9590783	97.4589171	95.05390376	92.73958455	90.51174712	88.36640586	86.29978808
190131A00013	1/31/2019	3.48	1/31/2034	1/31/2019	116.18787	107.5070222	99.62058944	92.44915157	85.92171812	79.97478829	74.55152126	69.60100229	65.07759343
190131A00023	1/31/2019	3.02	1/30/2034	1/31/2019	109.4299	104.1160181	99.16894059	94.55895913	90.25903532	86.24454179	82.49302922	78.98401746	75.69880806
190205A00022	2/5/2019	3.32	2/5/2029	2/5/2019	110.46644	105.6669994	101.1210093	96.81356177	92.73070841	88.85938999	85.18737541	81.70320503	78.3961381
190205A00019	2/5/2019	2.94	2/5/2024	2/5/2019	100.46982	100.1247014	99.78196391	99.44158223	99.10353208	98.76778949	98.43433081	98.10313272	97.77417221
190205A00021	2/5/2019	3.32	2/5/2029	2/5/2019	110.46644	105.6669994	101.1210093	96.81356177	92.73070841	88.85938999	85.18737541	81.70320503	78.3961381
190205A00023	2/5/2019	3.32	2/5/2029	2/5/2019	110.46644	105.6669994	101.1210093	96.81356177	92.73070841	88.85938999	85.18737541	81.70320503	78.3961381
190205A00017	2/5/2019	3.36	2/5/2029	2/5/2019	110.66099	105.8548033	101.302388	96.98881904	92.90013128	89.02324977	85.34592868	81.85669451	78.54479351
190205A00020	2/5/2019	3.32	2/5/2029	2/5/2019	110.46644	105.6669994	101.1210093	96.81356177	92.73070841	88.85938999	85.18737541	81.70320503	78.3961381
190620A00033	6/20/2019	2.1	6/20/2029	6/20/2019	103.05512	100.1999459	97.4629476	94.83816648	92.3199912	89.90313302	87.58260507	85.35370304	83.21198726
180305A00030	3/5/2018	3.12	3/5/2025	3/5/2018	102.22784	100.846659	99.49118613	98.1607642	96.85475778	95.57255245	94.31355405	93.07718776	91.8628974

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180309A00011	3/9/2018	3.19	3/10/2025	3/9/2018	102.35576	100.9605763	99.59159566	98.2481404	96.9295573	95.63521502	94.36450318	93.11683149	91.89162894
161214A00034	12/14/2016	2.65	12/14/2026	12/14/2016	102.15754	100.5422514	98.96892115	97.43612349	95.94248878	94.48670423	93.06751104	91.68370182	90.33411804
190227A00033	2/27/2019	2.65	2/27/2026	2/27/2019	101.59784	100.3948044	99.2172507	98.06442489	96.93559961	95.83007523	94.74717852	93.68626143	92.64669992
190702A00068	7/2/2019	2.69	7/1/2039	7/2/2019	111.49362	100.603866	91.08554344	82.74817262	75.42931133	68.99024823	63.31238207	58.2941732	53.84857423
190702A00071	7/2/2019	2.69	7/1/2039	7/2/2019	111.49362	100.603866	91.08554344	82.74817262	75.42931133	68.99024823	63.31238207	58.2941732	53.84857423
190708A00025	7/8/2019	2.21	7/1/2024	7/8/2019	100.32443	99.58717829	98.86079716	98.14504464	97.43968841	96.74450293	96.05926911	95.38377413	94.71781118
190708A00029	7/8/2019	2.57	7/2/2029	7/8/2019	107.23183	102.0986329	97.25750806	92.69006413	88.379172	84.30887106	80.46428283	76.83153152	73.39767085
190708A00032	7/8/2019	2.58	7/2/2029	7/8/2019	107.2845	102.1493305	97.30633132	92.73710776	88.42452525	84.35261797	80.50650257	76.87229871	73.43705588
190708A00026	7/8/2019	2.21	7/1/2024	7/8/2019	100.32443	99.58717829	98.86079716	98.14504464	97.43968841	96.74450293	96.05926911	95.38377413	94.71781118
190708A00028	7/8/2019	2.57	7/2/2029	7/8/2019	107.23183	102.0986329	97.25750806	92.69006413	88.379172	84.30887106	80.46428283	76.83153152	73.39767085
190708A00030	7/8/2019	2.57	7/2/2029	7/8/2019	107.23183	102.0986329	97.25750806	92.69006413	88.379172	84.30887106	80.46428283	76.83153152	73.39767085
190712A00016	7/12/2019	2.39	7/12/2029	7/12/2019	103.61017	100.7061318	97.92353954	95.25621233	92.69833296	90.24442148	87.88931331	85.62813894	83.45630504
180321A00015	3/21/2018	3.02	3/21/2025	3/21/2018	101.40572	100.4489589	99.5094485	98.58672853	97.68035361	96.78989432	95.91493649	95.0550805	94.20994063
180322A00030	3/22/2018	2.79	3/24/2025	3/22/2018	100.97424	100.2263185	99.49118457	98.7684904	98.05790019	97.35909078	96.67175096	95.99558096	95.33029185
180322A00040	3/22/2018	3.16	3/21/2031	3/22/2018	109.24989	104.5565104	100.1448568	95.99525619	92.08955669	88.41099899	84.9441006	81.67455047	78.58911288
180322A00044	3/22/2018	3.18	3/22/2033	3/22/2018	109.64181	104.7235623	100.1205426	95.80895644	91.7670069	87.97471548	84.41375737	81.06731256	77.91993125
181214A00030	12/14/2018	3.47	12/14/2033	12/14/2018	117.04567	108.3723857	100.4863169	93.30940707	86.77182393	80.81105007	75.37107703	70.40169219	65.85784737
180402A00013	4/2/2018	2.99	4/3/2028	4/2/2018	107.07991	103.5492234	100.1723036	96.94140533	93.84921857	90.88884324	88.0537637	85.33782515	82.73521157
181218A00040	12/18/2018	3.23	6/18/2030	12/18/2018	107.02729	103.5725104	100.281593	97.14519555	94.1545775	91.30156017	88.57848678	85.9781856	83.4939359
180403A00014	4/3/2018	3.11	4/3/2025	4/3/2018	102.37101	100.9170811	99.49149591	98.09349351	96.72234077	95.37733008	94.05777829	92.76302558	91.49243457
190305A00015	3/5/2019	3.32	3/5/2029	3/5/2019	110.55926	105.6922501	101.0857671	96.72428126	92.59327063	88.67915213	84.96921594	81.45156483	78.11505812
190305A00017	3/5/2019	3.12	3/5/2026	3/5/2019	104.23092	101.9812967	99.79392613	97.66672165	95.59767985	93.58487626	91.62646179	89.72065927	87.86576023
190308A00016	3/8/2019	3.18	3/8/2034	3/8/2019	114.08985	105.8789097	98.40865381	91.60534502	85.40307492	79.74288876	74.57201307	69.84317303	65.51398857
190308A00026	3/8/2019	3.18	3/8/2034	3/8/2019	114.08985	105.8789097	98.40865381	91.60534502	85.40307492	79.74288876	74.57201307	69.84317303	65.51398857
190315A00019	3/15/2019	2.88	3/15/2034	3/15/2019	108.77241	103.4107518	98.42441227	93.78259025	89.45728568	85.42302653	81.65662166	78.13693954	74.84470985
190315A00029	3/15/2019	2.88	3/15/2034	3/15/2019	108.77241	103.4107518	98.42441227	93.78259025	89.45728568	85.42302653	81.65662166	78.13693954	74.84470985
190315A00023	3/15/2019	2.88	3/15/2034	3/15/2019	108.77241	103.4107518	98.42441227	93.78259025	89.45728568	85.42302653	81.65662166	78.13693954	74.84470985
190315A00017	3/15/2019	2.88	3/15/2034	3/15/2019	108.77241	103.4107518	98.42441227	93.78259025	89.45728568	85.42302653	81.65662166	78.13693954	74.84470985
190718A00012	7/18/2019	2.55	7/18/2029	7/18/2019	106.58857	101.8301664	97.33620134	93.09022686	89.07691278	85.28196398	81.69204485	78.29470972	75.07833868
190322A00008	3/22/2019	2.64	3/20/2026	3/22/2019	101.50767	100.2675997	99.05431705	97.86701588	96.70492482	95.56730192	94.45343324	93.36263158	92.29423521
180813A00045	8/13/2018	2.89	8/13/2025	8/13/2018	101.40727	100.4535504	99.51753852	98.59874185	97.69668331	96.81090384	95.94096148	95.08643058	94.24690102
180410A00002	4/10/2018	3.14	4/11/2033	4/10/2018	109.50697	104.5542759	99.92144508	95.5841567	91.52014845	87.70902794	84.13210203	80.77222287	77.61364883
190802A00011	8/2/2019	2.01	8/2/2029	8/2/2019	102.86908	99.93949239	97.13410961	94.4465299	91.87073433	89.40105688	87.03216137	84.75901997	82.57689328

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181226A00030	12/26/2018	2.91	12/26/2028	12/26/2018	104.95571	102.2941616	99.73459084	97.27219412	94.90243437	92.62101997	90.42388979	88.30719924	86.2673072
190103A00020	1/3/2019	3.12	1/5/2026	1/3/2019	104.01991	101.8536107	99.74410685	97.68950871	95.68800406	93.73785539	91.83739614	89.98502712	88.17921317
190104A00006	1/4/2019	2.83	1/5/2026	1/4/2019	101.59405	100.4362665	99.30238375	98.19170163	97.10354781	96.03727536	94.99226167	93.96790721	92.96363454
190329A00067	3/29/2019	2.61	3/29/2024	3/29/2019	100.482	99.99498413	99.51272788	99.0351625	98.56221961	98.09383215	97.62993435	97.1704617	96.71535093
160209A00008	2/9/2016	2.45	2/10/2031	2/9/2016	104.6094	100.9130109	97.40688815	94.07932813	90.91944282	87.91709439	85.06283832	82.34787119	79.76398271
150213A00014	2/13/2015	2.41	2/13/2025	2/13/2015	100.63365	99.93137131	99.24125192	98.56294895	97.89612933	97.24047312	96.59567279	95.96143268	95.33746832
190104A00035	1/4/2019	3.1	1/5/2026	1/4/2019	103.92782	101.7855025	99.69920507	97.66706472	95.68729609	93.75818735	91.87809648	90.04544784	88.25872881
190104A00038	1/4/2019	3.25	1/4/2029	1/4/2019	110.01925	105.3008618	100.8282427	96.58706425	92.56391477	88.74623736	85.12227034	81.68099234	78.41207141
190104A00034	1/4/2019	3.18	1/4/2029	1/4/2019	108.25355	104.2225841	100.389397	96.74283961	93.27246059	89.96846009	86.8216452	83.8233886	80.96559038
150227A00011	2/27/2015	2.33	2/27/2025	2/27/2015	101.13774	99.89265323	98.67025555	97.46997286	96.29124759	95.13354074	93.99633102	92.87911418	91.78140229
160307A00024	3/7/2016	2.17	3/6/2026	3/7/2016	100.90991	99.67846431	98.47357454	97.29444607	96.14031534	95.01044788	93.90413692	92.8207021	91.75948826
160209A00006	2/9/2016	1.91	2/9/2026	2/9/2016	100.54426	99.35744504	98.19567622	97.05820989	95.94433112	94.85335236	93.78461218	92.73747396	91.71132478
190402A00005	4/2/2019	2.77	4/2/2032	4/2/2019	108.11466	102.7375391	97.72568371	93.05045535	88.68567805	84.6074125	80.79375053	77.22462978	73.8816662
190403A00013	4/3/2019	3.05	4/3/2029	4/3/2019	109.29823	104.4169986	99.80057398	95.4329623	91.29922043	87.38538439	83.67839996	80.16605865	76.83693845
190403A00014	4/3/2019	3.05	4/3/2029	4/3/2019	109.29823	104.4169986	99.80057398	95.4329623	91.29922043	87.38538439	83.67839996	80.16605865	76.83693845
190403A00010	4/3/2019	3.08	4/3/2029	4/3/2019	109.72612	104.6967121	99.94287109	95.44786218	91.19605669	87.17285336	83.36460539	79.75855314	76.34276186
190404A00015	4/4/2019	2.88	4/3/2026	4/4/2019	103.96147	101.578912	99.26475335	97.01662764	94.83226348	92.70948206	90.64619269	88.64038869	86.69014342
190813A00057	8/13/2019	1.9	8/13/2024	8/13/2019	100.16404	99.31681274	98.48398556	97.66518844	96.86006825	96.06828364	95.28950457	94.5234118	93.7696965
190813A00064	8/13/2019	1.9	8/13/2024	8/13/2019	100.16404	99.31681274	98.48398556	97.66518844	96.86006825	96.06828364	95.28950457	94.5234118	93.7696965
190813A00052	8/13/2019	2.24	8/13/2029	8/13/2019	105.50176	100.3470948	95.49124738	90.91515115	86.60105212	82.53241479	78.69383247	75.07094468	71.65036097
190813A00051	8/13/2019	2.19	8/13/2029	8/13/2019	105.23579	100.0913651	95.24522481	90.67833396	86.37296847	82.3126208	78.48191039	74.86650118	71.45302555
190813A00067	8/13/2019	1.9	8/13/2024	8/13/2019	100.16404	99.31681274	98.48398556	97.66518844	96.86006825	96.06828364	95.28950457	94.5234118	93.7696965
151204A00011	12/4/2015	2.28	12/4/2025	12/4/2015	101.02636	99.91398242	98.82411918	97.75612054	96.70936126	95.68323959	94.67717609	93.69061265	92.72301144
191004A00022	10/4/2019	2.02	10/4/2029	10/4/2019	104.30358	99.0890103	94.18347886	89.5668273	85.22031964	81.12653453	77.26926621	73.63343352	70.20499617
191004A00025	10/4/2019	1.74	10/4/2024	10/4/2019	100.0959	99.11649078	98.15633	97.21485695	96.29152895	95.38582419	94.49724068	93.62529537	92.76952326
191004A00019	10/4/2019	2.02	10/4/2029	10/4/2019	104.30358	99.0890103	94.18347886	89.5668273	85.22031964	81.12653453	77.26926621	73.63343352	70.20499617
191004A00023	10/4/2019	2.02	10/4/2029	10/4/2019	104.30358	99.0890103	94.18347886	89.5668273	85.22031964	81.12653453	77.26926621	73.63343352	70.20499617
191004A00017	10/4/2019	2.02	10/4/2029	10/4/2019	104.30358	99.0890103	94.18347886	89.5668273	85.22031964	81.12653453	77.26926621	73.63343352	70.20499617
191004A00026	10/4/2019	1.74	10/4/2024	10/4/2019	100.0959	99.11649078	98.15633	97.21485695	96.29152895	95.38582419	94.49724068	93.62529537	92.76952326
191008A00007	10/8/2019	1.67	10/9/2029	10/8/2019	101.8895	98.90829226	96.05655289	93.32746531	90.7146269	88.21201754	85.81397416	83.51516718	81.31057854
191008A00014	10/8/2019	1.85	10/8/2026	10/8/2019	101.93912	99.14602796	96.44627189	93.83620029	91.31232637	88.8713197	86.50999818	84.22532052	82.01437915
191009A00009	10/9/2019	1.8	10/9/2026	10/9/2019	100.68423	99.17296865	97.69943847	96.26239552	94.86064406	93.49303681	92.15847261	90.85589418	89.58428605
161227A00073	12/27/2016	2.83	12/28/2026	12/27/2016	104.68195	102.0486033	99.50347608	97.04300727	94.66380348	92.36263161	90.13640996	87.98220003	85.89719876

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180628A00068	6/28/2018	3.12	6/28/2028	6/28/2018	107.86101	104.1656776	100.6373431	97.26726918	94.04723183	90.96948755	88.02674201	85.21212117	82.5191444
180905A00017	9/5/2018	3.43	9/6/2033	9/5/2018	116.7611	108.3728816	100.7276987	93.75358357	87.38597467	81.56691872	76.24435951	71.37150667	66.90627495
180906A00032	9/6/2018	3.24	9/5/2025	9/6/2018	103.52234	101.6667936	99.85445818	98.08406005	96.35437565	94.66422533	93.01247145	91.39801656	89.8198017
200309A00082	3/9/2020	1.18	3/8/2030	3/9/2020	99.455187	94.13064024	89.14177842	84.46544553	80.08020316	75.96619499	72.10502214	68.479629	65.07419857
200309A00084	3/9/2020	1.06	3/9/2027	3/9/2020	99.777883	96.68080198	93.69902417	90.82763152	88.06194247	85.39749956	82.83005743	80.35557158	77.97018773
200309A00081	3/9/2020	1.18	3/8/2030	3/9/2020	99.455187	94.13064024	89.14177842	84.46544552	80.08020316	75.96619499	72.10502214	68.479629	65.07419856
180907A00013	9/7/2018	3.27	9/8/2025	9/7/2018	103.56022	101.7138029	99.9104543	98.14890671	96.42793636	94.74636356	93.1030508	91.49690094	89.9268555
200311A00026	3/11/2020	1.34	3/11/2030	3/11/2020	100.36169	95.15995391	90.28231475	85.7065452	81.41206022	77.3797891	73.59205634	70.03247259	66.68583453
200311A00015	3/11/2020	1.26	3/11/2027	3/11/2020	100.42594	97.30885046	94.30792937	91.41821253	88.63497749	85.95372822	83.37018294	80.88026276	78.48008088
180913A00033	9/13/2018	3.31	9/13/2033	9/13/2018	110.72774	105.514524	100.6508694	96.10923684	91.86449664	87.89370191	84.17588288	80.69186199	77.42408744
180913A00012	9/13/2018	3.31	9/13/2033	9/13/2018	110.72774	105.514524	100.6508694	96.10923684	91.86449664	87.89370191	84.17588288	80.69186199	77.42408744
180914A00049	9/14/2018	3.37	9/14/2033	9/14/2018	111.04565	105.8174422	100.9398081	96.38512397	92.12818736	88.14598507	84.41748677	80.92345951	77.6463008
200317A00043	3/17/2020	1.29	3/15/2030	3/17/2020	100.73225	97.58935115	94.59099273	91.72915726	88.99633758	86.38549678	83.89003557	81.50376203	79.22086371
200317A00009	3/17/2020	1.61	3/16/2035	3/17/2020	101.19063	95.77819349	90.77533803	86.14584301	81.8570288	77.87938324	74.18623037	70.75343601	67.55914586
200323A00090	3/23/2020	1.55	3/23/2027	3/23/2020	100.56696	98.64377284	96.77817647	94.96798517	93.21111617	91.50557997	89.84947549	88.24098553	86.67837245
191011A00027	10/11/2019	1.84	10/11/2029	10/11/2019	102.41497	99.41829373	96.55176076	93.80852318	91.18214423	88.66657175	86.25611256	83.94540875	81.72941565
191015A00025	10/15/2019	2.01	10/15/2029	10/15/2019	102.57479	99.58028825	96.7156098	93.97393748	91.34885924	88.83434564	86.42472431	84.11465648	81.89911504
190501A00015	5/1/2019	2.78	5/1/2029	5/1/2019	104.64243	101.7912931	99.05644996	96.43211699	93.91284112	91.493479	89.16917724	86.93535405	84.7876823
190502A00016	5/2/2019	2.87	5/1/2026	5/2/2019	104.08855	101.6339557	99.25127218	96.93794957	94.69154574	92.50972097	90.39023297	88.33093209	86.32975681
190506A00026	5/6/2019	3.03	5/4/2029	5/6/2019	109.54354	104.4514719	99.64190389	95.09747337	90.80197814	86.74029455	82.89829983	79.26280056	75.82146653
200326A00032	3/26/2020	1.49	3/26/2030	3/26/2020	101.00153	97.85754401	94.85790778	91.99462588	89.26021102	86.64764431	84.15034277	81.76212924	79.47720466
200327A00094	3/27/2020	1.6	3/27/2030	3/27/2020	101.71417	96.70151229	91.9958844	87.57636501	83.42357754	79.51956822	75.84769413	72.39252053	69.13972685
200330A00047	3/30/2020	1.5	3/30/2035	3/30/2020	100.56312	95.18407211	90.21210441	85.61121589	81.34892346	77.39589287	73.72560932	70.31408471	67.13959727
200330A00079	3/30/2020	1.51	3/30/2035	3/30/2020	100.62004	95.23794337	90.26316169	85.65966921	81.39496445	77.43969656	73.76733575	70.35388032	67.17759622
200330A00058	3/30/2020	1.49	3/29/2030	3/30/2020	101.13545	96.14409785	91.45879985	87.0586784	82.92440176	79.03805905	75.38304821	71.94397352	68.70655159
200406A00027	4/6/2020	1.31	4/5/2030	4/6/2020	100.79862	95.79174108	91.09324345	86.68201441	82.53850415	78.64460513	74.98353796	71.53974698	68.29880456
190510A00049	5/10/2019	2.58	5/8/2026	5/10/2019	101.56538	100.242507	98.94949114	97.68541649	96.44939879	95.24058803	94.05816685	92.901349	91.7693779
200406A00029	4/6/2020	1.61	4/5/2030	4/6/2020	101.8455	96.36570073	91.23425477	86.42690858	81.92122472	77.69643794	73.73332208	70.0140683	66.52217337
200406A00036	4/6/2020	1.09	4/4/2025	4/6/2020	99.38596	97.95810611	96.55814808	95.18533664	93.8389492	92.51828839	91.22268094	89.95147667	88.70404746
200406A00030	4/6/2020	1.61	4/5/2030	4/6/2020	101.8455	96.36570073	91.23425477	86.42690858	81.92122472	77.69643794	73.73332208	70.0140683	66.52217337
200406A00033	4/6/2020	1.09	4/4/2025	4/6/2020	99.38596	97.95810611	96.55814808	95.18533664	93.8389492	92.51828839	91.22268094	89.95147667	88.70404746
200406A00035	4/6/2020	1.05	4/4/2025	4/6/2020	99.344546	97.96812745	96.61846633	95.29484412	93.99656745	92.72296717	91.47339733	90.24723418	89.04387518
200406A00032	4/6/2020	1.09	4/4/2025	4/6/2020	99.38596	97.95810611	96.55814808	95.18533664	93.8389492	92.51828839	91.22268094	89.95147667	88.70404746

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200406A00014	4/6/2020	1.33	4/6/2035	4/6/2020	100.23873	94.82290887	89.82044957	85.19451273	80.91188259	76.94258671	73.25955436	69.83831314	66.65671943
200413A00013	4/13/2020	1.19	4/12/2030	4/13/2020	100.01369	96.86233119	93.85722642	90.99020379	88.25360671	85.64026181	83.14344513	80.75685093	78.47456283
200413A00009	4/13/2020	0.77	4/13/2027	4/13/2020	99.258274	97.52749869	95.84524821	94.20976982	92.61938695	91.07249571	89.56756119	88.10311394	86.67774678
200414A00024	4/14/2020	1.37	4/14/2027	4/14/2020	100.82981	97.62837675	94.548847	91.58589322	88.73445362	85.98971515	83.34709976	80.80225153	78.3510246
200414A00009	4/14/2020	0.82	4/14/2025	4/14/2020	99.36902	98.59621545	97.83675948	97.09028984	96.3564582	95.63492909	94.92537938	94.22749761	93.5409835
190515A00035	5/15/2019	2.82	2/15/2029	5/15/2019	108.314	103.4363814	98.8205672	94.45099824	90.31312009	86.39331395	82.6788318	79.15773642	75.81884573
191031A00025	10/31/2019	1.91	10/31/2024	10/31/2019	100.14577	99.60721467	99.07600538	98.55197857	98.03497225	97.52482956	97.02139859	96.52453216	96.0340876
191101A00004	11/1/2019	1.91	11/1/2029	11/1/2019	104.02675	99.15911124	94.57421422	90.25372959	86.18062097	82.33904773	78.71427443	75.29258777	72.06122015
191101A00005	11/1/2019	1.83	11/2/2026	11/1/2019	102.29284	99.42889353	96.66226436	93.98907783	91.40563568	88.90840911	86.49402979	84.15928156	81.90109252
191105A00012	11/5/2019	2.07	11/3/2034	11/5/2019	104.48838	99.03250206	93.97981881	89.29548476	84.94798579	80.90879602	77.15207173	73.65437871	70.39444909
191112A00024	11/12/2019	2.09	11/12/2024	11/12/2019	100.49517	99.41731972	98.36273175	97.33065492	96.32037231	95.33119722	94.36247157	93.4135644	92.48387052
191112A00023	11/12/2019	2.36	11/13/2029	11/12/2019	106.16146	100.792867	95.74651613	91.00111223	86.53688318	82.33546335	78.37978604	74.65398479	71.14330264
191112A00022	11/12/2019	2.36	11/13/2029	11/12/2019	106.16146	100.792867	95.74651613	91.00111223	86.53688318	82.33546335	78.37978604	74.65398479	71.14330264
190829A00039	8/29/2019	1.85	8/29/2034	8/29/2019	103.23452	97.95661532	93.06109303	88.51552506	84.29052728	80.3594525	76.69811486	73.28454379	70.09876425
190829A00032	8/29/2019	1.69	8/28/2026	8/29/2019	100.62577	99.19193239	97.79257843	96.42659466	95.09291442	93.79051379	92.51840941	91.27565663	90.0613476
191113A00013	11/13/2019	2.17	11/13/2026	11/13/2019	102.98253	100.0849582	97.28634628	94.58272588	91.97031538	89.44550769	87.00486102	84.64509014	82.36305823
190905A00023	9/5/2019	2.08	9/5/2029	9/5/2019	104.64477	99.47719685	94.6121396	90.03010993	85.71297504	81.64385846	77.80704672	74.18790335	70.77278978
190905A00025	9/5/2019	2.08	9/5/2029	9/5/2019	104.64477	99.47719685	94.6121396	90.03010993	85.71297504	81.64385846	77.80704672	74.18790335	70.77278978
190905A00024	9/5/2019	2.08	9/5/2029	9/5/2019	104.64477	99.47719685	94.6121396	90.03010993	85.71297504	81.64385846	77.80704672	74.18790335	70.77278978
190905A00021	9/5/2019	2.08	9/5/2029	9/5/2019	104.64477	99.47719685	94.6121396	90.03010993	85.71297504	81.64385846	77.80704672	74.18790335	70.77278978
190905A00019	9/5/2019	2.08	9/5/2029	9/5/2019	104.64477	99.47719685	94.6121396	90.03010993	85.71297504	81.64385846	77.80704672	74.18790335	70.77278978
190910A00044	9/10/2019	2.02	9/10/2026	9/10/2019	102.35061	99.61636516	96.97141645	94.4123484	91.93590035	89.53895403	87.21852655	84.9717637	82.79593363
190911A00016	9/11/2019	1.9	9/11/2029	9/11/2019	102.56955	99.60822363	96.77398787	94.06022526	91.46071341	88.96959815	86.58136925	84.29083784	82.09311551
191122A00003	11/22/2019	2.32	11/22/2039	11/22/2019	106.87624	97.33914646	88.95151938	81.55746032	75.02374591	69.23636046	64.09758169	59.5235267	55.4420831
190913A00018	9/13/2019	2.11	9/11/2026	9/13/2019	101.1193	99.64160155	98.20007126	96.79352986	95.42084687	94.08093723	92.7727591	91.49531178	90.24763376
200421A00026	4/21/2020	1.34	4/19/2030	4/21/2020	100.32096	95.32852205	90.64440004	86.24742085	82.11798947	78.23796071	74.59052414	71.16009873	67.93223652
200424A00022	4/24/2020	1.39	4/24/2030	4/24/2020	100.57622	95.56556686	90.86477386	86.45253261	82.30912428	78.41629114	74.75712049	71.31593834	68.07821212
200428A00009	4/28/2020	1.08	4/29/2030	4/28/2020	99.651284	96.51089555	93.51629614	90.65933206	87.93236867	85.32825337	82.8402819	80.46216718	78.18801048
200429A00030	4/29/2020	1.41	4/29/2030	4/29/2020	100.66459	95.36428776	90.39964734	85.74726185	81.3854899	77.29430899	73.45518591	69.85095826	66.4657259
200501A00009	5/4/2020	0.67	5/1/2025	5/4/2020	99.222426	98.41211312	97.61602175	96.83376572	96.06497327	95.30928634	94.56635996	93.83586157	93.11747052
200512A00001	5/12/2020	1.17	5/12/2027	5/12/2020	100.19609	96.9449011	93.81962845	90.81467831	87.92473551	85.14475129	82.46992829	79.89570641	77.41774965
200512A00010	5/12/2020	1.48	5/10/2030	5/12/2020	101.04419	95.52974663	90.37028785	85.54080313	81.01817551	76.78103177	72.80960183	69.08559023	65.59205856
200512A00021	5/12/2020	0.86	5/12/2025	5/12/2020	99.044244	97.524033	96.03464087	94.57519149	93.14484138	91.74277864	90.36822141	89.02041649	87.69863801

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200512A00011	5/12/2020	1.48	5/10/2030	5/12/2020	101.04419	95.52974663	90.37028785	85.54080313	81.01817551	76.78103177	72.80960183	69.08559023	65.59205856
200512A00013	5/12/2020	1.17	5/12/2027	5/12/2020	100.19609	96.9449011	93.81962845	90.81467831	87.92473551	85.14475129	82.46992829	79.89570641	77.41774965
200512A00017	5/12/2020	0.85	5/12/2025	5/12/2020	99.04161	97.54843385	96.08544669	94.65179015	93.24663864	91.86919744	90.51870126	89.19441282	87.89562162
200512A00020	5/12/2020	0.86	5/12/2025	5/12/2020	99.044244	97.524033	96.03464087	94.57519149	93.14484138	91.74277864	90.36822141	89.02041649	87.69863801
200512A00014	5/12/2020	1.17	5/12/2027	5/12/2020	100.19609	96.9449011	93.81962845	90.81467831	87.92473551	85.14475129	82.46992829	79.89570641	77.41774965
200512A00018	5/12/2020	0.85	5/12/2025	5/12/2020	99.04161	97.54843385	96.08544669	94.65179015	93.24663864	91.86919744	90.51870126	89.19441282	87.89562162
200514A00008	5/14/2020	1.23	5/14/2030	5/14/2020	99.701257	94.6907533	89.99246676	85.58477298	81.447671	77.56265268	73.91258309	70.48159118	67.25496976
200520A00009	5/20/2020	1.63	5/20/2038	5/20/2020	99.848822	90.38802507	82.06604715	74.73253025	68.25811256	62.53137104	57.45622501	52.94972911	48.94019537
190529A00061	5/29/2019	2.46	5/29/2026	5/29/2019	101.40263	100.0819538	98.79108896	97.52911501	96.29514928	95.08834333	93.90788129	92.75297832	91.62287925
191203A00009	12/3/2019	2.21	12/3/2029	12/3/2019	105.32808	99.94970998	94.89683484	90.14777401	85.68241174	81.4820746	77.52942029	73.80833557	70.30384263
191203A00011	12/3/2019	2.21	12/3/2029	12/3/2019	105.32808	99.94970998	94.89683484	90.14777401	85.68241174	81.4820746	77.52942029	73.80833557	70.30384263
191203A00010	12/3/2019	2.21	12/3/2029	12/3/2019	105.32808	99.94970998	94.89683484	90.14777401	85.68241174	81.4820746	77.52942029	73.80833557	70.30384263
210512A00012	5/12/2021	1.16	5/12/2026	5/12/2021	99.843067	97.45437949	95.13633581	92.88640515	90.70216537	88.58129719	86.52157907	84.52088229	82.57716646
210512A00009	5/12/2021	0.66	5/10/2024	5/12/2021	99.367901	98.77062074	98.18054286	97.59753712	97.02147664	96.4522376	95.88969907	95.333743	94.7842541
210512A00011	5/12/2021	1.16	5/12/2026	5/12/2021	99.843067	97.45437949	95.13633581	92.88640515	90.70216537	88.58129719	86.52157907	84.52088229	82.57716646
210512A00008	5/12/2021	0.66	5/10/2024	5/12/2021	99.367901	98.77062074	98.18054286	97.59753712	97.02147664	96.4522376	95.88969907	95.333743	94.7842541
191206A00005	12/6/2019	2.18	12/7/2026	12/6/2019	103.09329	100.1355364	97.28046159	94.5238761	91.86179067	89.29040406	86.80609275	84.40540141	82.08503383
191209A00005	12/9/2019	2.22	12/10/2029	12/9/2019	104.989	100.0284139	95.35927529	90.96246141	86.82021804	82.91605297	79.23463913	75.76172574	72.48405673
190925A00009	9/25/2019	2	9/25/2026	9/25/2019	102.22348	99.55715319	96.97800679	94.48268357	92.06797645	89.73082007	87.46828359	85.27756399	83.1559797
190926A00002	9/30/2019	2.01	9/29/2034	9/30/2019	104.12938	98.76769577	93.79708269	89.18416137	84.89870622	80.91332408	77.20316736	73.74567817	70.52035981
191224A00002	12/24/2019	2.17	12/24/2029	12/24/2019	103.14271	100.0515281	97.09754268	94.27338945	91.57215474	88.98734545	86.51286067	84.14296531	81.87226568
200522A00009	5/22/2020	0.96	5/22/2030	5/22/2020	99.20503	96.03657476	93.0206997	90.14858165	87.41197649	84.80317671	82.31497282	79.94061777	77.67379411
200605A00018	6/5/2020	0.91	6/5/2025	6/5/2020	99.128894	97.55046345	96.00484067	94.49106222	93.00820227	91.55537105	90.13171298	88.73640505	87.36865522
200608A00001	6/8/2020	1.34	6/7/2030	6/8/2020	100.24944	95.17531082	90.41971416	85.96041886	81.77687963	77.85009653	74.16249013	70.69778746	67.44091779
200610A00006	6/10/2020	1.11	6/10/2027	6/10/2020	100.01791	96.70824957	93.52894057	90.47408632	87.53809374	84.71565577	82.0017348	79.39154721	76.88054887
200612A00004	6/12/2020	1.42	6/12/2040	6/12/2020	98.088841	90.42451145	83.58376477	77.46434644	71.97786703	67.04779945	62.60778021	58.6001667	54.97481008
200616A00005	6/16/2020	0.74	6/17/2030	6/16/2020	98.871401	95.67209199	92.62480682	89.72086084	86.95213296	84.31102497	81.79042425	79.38366947	77.08451882
200623A00028	6/23/2020	1.23	6/23/2038	6/23/2020	98.949565	92.75686786	87.10791937	81.94726863	77.22567935	72.89938317	68.92942779	65.28110748	61.92346486
200709A00019	7/9/2020	0.77	7/9/2025	7/9/2020	98.889915	97.2302245	95.60651985	94.01773288	92.46283743	90.94084704	89.450813	87.99182254	86.56299708
201029A00004	10/29/2020	1.49	10/29/2038	10/29/2020	98.216258	88.55799103	80.09995945	72.67902166	66.1554439	60.40940335	55.33803139	50.85291121	46.87795776
201103A00005	11/3/2020	0.89	11/4/2030	11/3/2020	98.856244	95.47638678	92.26537103	89.2130979	86.31015181	83.54774934	80.91769251	78.4123257	76.02449606
200716A00004	7/16/2020	0.97	7/16/2027	7/16/2020	99.547795	96.16950544	92.92736572	89.81512776	86.8268664	83.9569607	81.20007639	78.55114959	76.00537147
201110A00003	11/10/2020	1.12	11/10/2027	11/10/2020	100.15757	96.507075	93.01408263	89.6709112	86.47029527	83.40536306	80.46961275	77.65689043	74.96136941

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200103A00002	1/3/2020	2.07	1/3/2030	1/3/2020	104.82694	99.81442909	95.09958559	90.66268388	86.48542088	82.55080718	78.8430652	75.34753596	72.05059346
200109A00008	1/9/2020	1.95	1/9/2030	1/9/2020	102.84913	99.72006396	96.73168784	93.87635665	91.14690267	88.53659899	86.03912938	83.6485604	81.35931561
200109A00006	1/9/2020	1.95	1/9/2030	1/9/2020	102.84913	99.72006396	96.73168784	93.87635665	91.14690267	88.53659899	86.03912938	83.6485604	81.35931561
200110A00053	1/10/2020	1.99	1/10/2025	1/10/2020	100.4721	99.24323759	98.04095337	96.86438287	95.71269941	94.58511182	93.48086257	92.39922593	91.33950636
200110A00039	1/10/2020	2.32	1/10/2030	1/10/2020	105.94455	100.4633855	95.31857061	90.48741488	85.94888305	81.68346504	77.67305723	73.90085363	70.35124607
200110A00037	1/10/2020	2.32	1/10/2030	1/10/2020	105.94455	100.4633855	95.31857061	90.48741488	85.94888305	81.68346504	77.67305723	73.90085363	70.35124607
200110A00038	1/10/2020	2.32	1/10/2030	1/10/2020	105.94455	100.4633855	95.31857061	90.48741488	85.94888305	81.68346504	77.67305723	73.90085363	70.35124607
200110A00043	1/10/2020	2.32	1/10/2030	1/10/2020	105.94455	100.4633855	95.31857061	90.48741488	85.94888305	81.68346504	77.67305723	73.90085363	70.35124607
200115A00013	1/15/2020	2.18	1/15/2030	1/15/2020	104.34868	99.85326411	95.61284314	91.61096649	87.83234489	84.26276523	80.88900867	77.69877534	74.68061522
200116A00012	1/16/2020	2.16	1/19/2027	1/16/2020	103.18623	100.1232048	97.16992133	94.32182984	91.57460012	88.92410523	86.36641073	83.89776447	81.51458709
200724A00011	7/24/2020	1.41	7/26/2038	7/24/2020	97.43528	87.95038374	79.62947054	72.31642725	65.87723662	60.19672108	55.17578303	50.72906341	46.78295329
200806A00004	8/6/2020	0.3	3/6/2024	8/6/2020	99.725592	99.4886756	99.25308407	99.01880547	98.78582789	98.55413957	98.32372888	98.09458437	97.8666947
200814A00003	8/14/2020	0.96	8/14/2035	8/14/2020	97.987402	92.55170212	87.54139677	82.91764924	78.64553668	74.69362521	71.03359424	67.63990379	64.48949962
200818A00012	8/18/2020	0.97	8/18/2027	8/18/2020	99.5609	96.10931402	92.79978297	89.62570301	86.58081226	83.65917096	80.85514315	78.16337959	75.57880168
201207A00021	12/7/2020	1.85	12/7/2050	12/7/2020	100.67559	89.08932137	79.35272124	71.1268647	64.14014336	58.17413642	53.05257325	48.63268793	44.79842921
201207A00009	12/7/2020	1.01	12/7/2027	12/7/2020	99.744699	96.04566764	92.50861871	89.12552974	85.8888231	82.79133865	79.82630811	76.98733118	74.2683533
200130A00046	1/30/2020	1.81	1/29/2027	1/30/2020	100.8101	99.17487527	97.58298382	96.0329245	94.52326026	93.05261451	91.6196682	90.22315687	88.86186804
211007A00005	10/7/2021	0.86	10/7/2024	10/7/2021	99.199305	98.2215074	97.26307918	96.32344792	95.40206348	94.49839704	93.61194005	92.7422033	91.88871595
190826A00032	8/26/2019	1.72	8/24/2029	8/26/2019	101.99502	99.08949718	96.30721948	93.64183472	91.08736739	88.63819246	86.28901242	84.03483597	81.87095823
200206A00031	2/6/2020	2.15	2/6/2030	2/6/2020	104.98764	99.49361531	94.3402915	89.50450613	84.96479325	80.70124907	76.69541065	72.93014455	69.38954461
200206A00034	2/6/2020	1.84	2/6/2025	2/6/2020	100.36964	99.07846947	97.81015399	96.56413837	95.33988377	94.1368683	92.9545864	91.79254821	90.65027892
200206A00032	2/6/2020	2.15	2/6/2030	2/6/2020	104.98764	99.49361531	94.3402915	89.50450613	84.96479325	80.70124907	76.69541065	72.93014455	69.38954461
200206A00027	2/6/2020	2.15	2/6/2030	2/6/2020	104.98764	99.49361531	94.3402915	89.50450613	84.96479325	80.70124907	76.69541065	72.93014455	69.38954461
200206A00033	2/6/2020	2.15	2/6/2030	2/6/2020	104.98764	99.49361531	94.3402915	89.50450613	84.96479325	80.70124907	76.69541065	72.93014455	69.38954461
200206A00008	2/6/2020	1.64	2/6/2025	2/6/2020	100.25402	98.980979	97.73048642	96.50199456	95.29496998	94.10889614	92.94327276	91.79761516	90.67145368
200212A00013	2/12/2020	1.98	2/12/2027	2/12/2020	102.68538	99.58340338	96.59437255	93.71356792	90.9364958	88.25887303	85.67661589	83.18582982	80.78279957
200910A00006	9/10/2020	0.96	9/10/2027	9/10/2020	99.530793	96.03162695	92.67849736	89.46451871	86.38316727	83.42825983	80.59393409	77.87463025	75.26507385
200309A00034	3/9/2020	0.96	3/9/2035	3/9/2020	98.16736	92.89893386	88.03007898	83.52539598	79.35295179	75.48391347	71.89222346	68.55431104	65.44883567
220104A00006	1/4/2022	1.76	1/4/2029	1/4/2022	103.47325	99.03885513	94.83554963	90.84984396	87.06911775	83.48155579	80.07609196	76.84235736	73.77063238
210611A00012	6/11/2021	1.02	6/11/2026	6/11/2021	99.514008	97.06430426	94.68870632	92.38449224	90.14906005	87.97992171	85.87469717	83.83110882	81.84697623
210611A00007	6/11/2021	0.61	6/11/2024	6/11/2021	99.194217	98.51832705	97.85167737	97.19407936	96.54534922	95.90530805	95.27378178	94.65060096	94.03560061
210611A00008	6/11/2021	0.61	6/11/2024	6/11/2021	99.192093	98.51454297	97.84626524	97.18706997	96.53677263	95.89519365	95.26215826	94.63749637	94.02104235
210611A00010	6/11/2021	1.02	6/11/2026	6/11/2021	99.514008	97.06430426	94.68870632	92.38449224	90.14906005	87.97992171	85.87469717	83.83110882	81.84697623

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210611A00011	6/11/2021	1.02	6/11/2026	6/11/2021	99.514008	97.06430426	94.68870632	92.38449224	90.14906005	87.97992171	85.87469717	83.83110882	81.84697623
210611A00009	6/11/2021	0.61	6/11/2024	6/11/2021	99.194217	98.51832705	97.85167737	97.19407936	96.54534922	95.90530805	95.27378178	94.65060096	94.03560061
200220A00026	2/20/2020	2.22	2/21/2040	2/20/2020	104.68231	96.74743816	89.65103584	83.29072125	77.5777659	72.43515597	67.79594182	63.60183226	59.80199551
200221A00012	2/21/2020	2.14	2/21/2040	2/21/2020	104.02452	96.14275722	89.09387765	82.77617586	77.1015118	71.99338296	67.38528465	63.21931344	59.44497601
200227A00046	2/27/2020	1.52	3/1/2027	2/27/2020	100.34715	98.67947	97.05681587	95.47761065	93.94034105	92.44355809	90.98587382	89.56595828	88.18253667
200303A00028	3/3/2020	1.54	3/4/2030	3/3/2020	101.4293	96.46349071	91.79943162	87.41673033	83.29649161	79.42119552	75.77459015	72.34159327	69.10820208
200306A00050	3/6/2020	0.87	3/6/2030	3/6/2020	99.364842	96.26493593	93.30756086	90.48481738	87.78930426	85.21408374	82.75264936	80.39889619	78.14709333
200318A00012	3/18/2020	1.68	3/18/2033	3/18/2020	102.28931	96.80996049	91.7351468	87.03047807	82.66476246	78.60968763	74.839536	71.33092976	68.06260245
200306A00057	3/6/2020	0.92	3/8/2027	3/6/2020	99.687892	96.7146402	93.85069735	91.09142665	88.43241409	85.86945642	83.39854988	81.0158796	78.71780963
200306A00048	3/6/2020	1.04	3/6/2035	3/6/2020	98.617414	93.32487536	88.43373042	83.90841912	79.71686338	75.83009925	72.22195067	68.86873968	65.74902861
200306A00058	3/6/2020	1.06	3/6/2030	3/6/2020	99.601463	96.50164841	93.54410086	90.7209486	88.02481541	85.44878627	82.98637531	80.63149633	78.37843543
150714A00003	7/14/2015	3.76	7/12/2030	7/14/2015	109.44034	105.8569573	102.4456628	99.19652766	96.10027504	93.14823078	90.3322801	87.6448277	85.0787609
200319A00035	3/19/2020	1.72	3/18/2033	3/19/2020	102.51621	97.02391632	91.93709389	87.22127625	82.84520007	78.78048807	75.00136362	71.48439516	68.20826729
201221A00022	12/21/2020	0.51	12/19/2025	12/21/2020	98.583064	96.58168634	94.63188171	92.73194234	90.88023198	89.07518206	87.31528827	85.59910727	83.92525368
201228A00013	12/28/2020	0.84	12/30/2030	12/28/2020	98.649055	95.23798924	91.99910263	88.9219964	85.99698124	83.21502445	80.56770082	78.04714767	75.64602337
210107A00008	1/7/2021	0.54	1/5/2024	1/7/2021	99.727082	99.46171849	99.19777284	98.93523342	98.67408897	98.41432836	98.15594057	97.8989147	97.64323996
210107A00009	1/7/2021	0.54	1/5/2024	1/7/2021	99.727082	99.46171849	99.19777284	98.93523342	98.67408897	98.41432836	98.15594057	97.8989147	97.64323996
210107A00010	1/7/2021	0.54	1/5/2024	1/7/2021	99.727082	99.46171849	99.19777284	98.93523342	98.67408897	98.41432836	98.15594057	97.8989147	97.64323996
210212A00004	2/12/2021	1.1	2/12/2036	2/12/2021	98.603606	92.9215868	87.70061436	82.89711191	78.47204221	74.3903993	70.62076039	67.13489065	63.90739434
210212A00007	2/12/2021	0.76	2/12/2026	2/12/2021	98.863901	96.70533633	94.60568079	92.56300045	90.57543602	88.64119977	86.75857228	84.92589943	83.14158957
210212A00006	2/12/2021	0.77	2/12/2026	2/12/2021	98.880485	96.70054708	94.58025365	92.51764518	90.51083758	88.55801924	86.6574478	84.8074471	83.00640424
210217A00005	2/17/2021	0.83	2/14/2031	2/17/2021	98.982114	95.47528717	92.14933162	88.99310421	85.99623687	83.14907719	80.44263394	77.86852728	75.41894292
210714A00013	7/14/2021	1.12	7/14/2026	7/14/2021	99.788807	97.25701478	94.8039482	92.42668393	90.12242677	87.88850313	85.72235481	83.62153322	81.58369387
210714A00016	7/14/2021	0.75	7/12/2024	7/14/2021	99.217664	98.46309073	97.72006988	96.98833673	96.26763474	95.5577151	94.85833642	94.16926452	93.49027209
210714A00017	7/14/2021	0.73	7/12/2024	7/14/2021	99.224016	98.48895611	97.76503464	97.05199801	96.34960015	95.65760237	94.9757731	94.30388763	93.64172786
210714A00018	7/14/2021	0.75	7/12/2024	7/14/2021	99.217664	98.46309073	97.72006988	96.98833673	96.26763474	95.5577151	94.85833642	94.16926452	93.49027209
210714A00009	7/14/2021	0.75	7/12/2024	7/14/2021	99.214023	98.45614595	97.70989096	96.974992	96.25119076	95.5382367	94.83588677	94.14390518	93.46206306
210714A00010	7/14/2021	0.75	7/12/2024	7/14/2021	99.214023	98.45614595	97.70989096	96.974992	96.25119076	95.5382367	94.83588677	94.14390518	93.46206306
210714A00011	7/14/2021	0.75	7/12/2024	7/14/2021	99.214023	98.45614595	97.70989096	96.974992	96.25119076	95.5382367	94.83588677	94.14390518	93.46206306
210714A00015	7/14/2021	1.11	7/14/2026	7/14/2021	99.756079	97.26934717	94.85953935	92.52380548	90.25942057	88.06377804	85.93438369	83.86885001	81.8648909
210714A00012	7/14/2021	1.12	7/14/2026	7/14/2021	99.788807	97.25701478	94.8039482	92.42668393	90.12242677	87.88850313	85.72235481	83.62153322	81.58369387
210714A00014	7/14/2021	1.12	7/14/2026	7/14/2021	99.788807	97.25701478	94.8039482	92.42668393	90.12242677	87.88850313	85.72235481	83.62153322	81.58369387
210809A00016	8/9/2021	0.66	8/9/2024	8/9/2021	99.154165	98.37856077	97.61563671	96.86507904	96.1265845	95.39985976	94.68462099	93.98059345	93.2875112

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210809A00015	8/9/2021	1.06	8/7/2026	8/9/2021	99.642805	97.05911463	94.55743616	92.13472521	89.78806736	87.51467175	85.3118651	83.17708615	81.10788029
210809A00012	8/9/2021	1.06	8/7/2026	8/9/2021	99.642805	97.05911463	94.55743616	92.13472521	89.78806736	87.51467175	85.3118651	83.17708615	81.10788029
210809A00013	8/9/2021	1.05	8/7/2026	8/9/2021	99.611906	97.07497498	94.61813958	92.23843354	89.93301675	87.69916941	85.53428623	83.43587096	81.40153119
210809A00014	8/9/2021	1.06	8/7/2026	8/9/2021	99.642805	97.05911463	94.55743616	92.13472521	89.78806736	87.51467175	85.3118651	83.17708615	81.10788029
210319A00009	3/19/2021	1.1	3/19/2026	3/19/2021	99.652193	97.39232202	95.1965323	93.06263566	90.98853193	88.97220523	87.01171998	85.10521722	83.25091106
210319A00008	3/19/2021	0.63	3/19/2024	3/19/2021	99.533978	99.07177416	98.6138774	98.16022802	97.71076695	97.2654362	96.82417887	96.38693909	95.95366201
210331A00007	3/31/2021	1.25	3/31/2031	3/31/2021	100.08811	96.5128783	93.12353324	89.90853331	86.85714821	83.95939329	81.20597259	78.58822655	76.09808409
210408A00007	4/8/2021	1.05	4/8/2031	4/8/2021	99.76081	96.15048628	92.73000019	89.48744659	86.411762	83.49265902	80.7205665	78.0865747	75.582385
210412A00007	4/12/2021	0.66	4/12/2024	4/12/2021	99.477777	98.95536687	98.43846233	97.92697684	97.42082527	96.91992426	96.42419218	95.93354908	95.44791668
210412A00008	4/12/2021	0.66	4/12/2024	4/12/2021	99.477777	98.95536687	98.43846233	97.92697684	97.42082527	96.91992426	96.42419218	95.93354908	95.44791668
220407A00017	4/7/2022	3.16	4/6/2029	4/7/2022	109.48763	104.7609607	100.2874437	96.05188161	92.04007799	88.23876311	84.63552858	81.2187668	77.977615
220407A00014	4/7/2022	3.14	4/6/2029	4/7/2022	108.79276	104.3683017	100.1748645	96.19877395	92.42724914	88.84833608	85.4508495	82.22431921	79.15894043
210913A00015	9/13/2021	1.08	9/14/2026	9/13/2021	99.697841	97.16538552	94.71452374	92.34215197	90.04530263	87.82113779	85.66694271	83.58011976	81.55818262
210913A00014	9/13/2021	1.15	9/13/2028	9/13/2021	99.91793	97.46841704	95.11004332	92.83863096	90.65022439	88.54107705	86.5076389	84.54654478	82.65460351
210915A00023	9/15/2021	0.74	9/16/2024	9/15/2021	99.116886	98.1948012	97.28995256	96.40185923	95.53005794	94.67410238	93.83356245	93.00802349	92.19708562
210915A00024	9/15/2021	1.1	9/15/2026	9/15/2021	99.770824	97.09839154	94.51356056	92.0129706	89.59341	87.25180806	84.98522796	82.79086014	80.66601604
210915A00026	9/15/2021	1.1	9/15/2026	9/15/2021	99.770824	97.09839154	94.51356056	92.0129706	89.59341	87.25180806	84.98522796	82.79086014	80.66601604
210915A00018	9/15/2021	0.74	9/16/2024	9/15/2021	99.116886	98.1948012	97.28995256	96.40185923	95.53005794	94.67410238	93.83356245	93.00802349	92.19708562
210915A00025	9/15/2021	1.09	9/15/2026	9/15/2021	99.736339	97.11377584	94.57669194	92.12181711	89.74602522	87.44632716	85.21986397	83.06390046	80.97581903
210423A00001	4/23/2021	1.72	4/23/2036	4/23/2021	102.38691	96.41367198	90.9308515	85.89156939	81.25388148	76.98022218	73.03691277	69.39372822	66.02351524
210423A00003	4/23/2021	1.31	4/23/2031	4/23/2021	100.74722	97.10081673	93.64618882	90.37130426	87.26498387	84.31683293	81.51718071	78.85702496	76.32798116
220801A00066	8/1/2022	2.93	7/30/2027	8/1/2022	107.00493	103.4248664	99.98937215	96.6918258	93.5259399	90.48574664	87.56557988	84.76005833	82.06406974
160404A00019	4/4/2016	2.48	4/4/2031	4/4/2016	104.79898	101.0163488	97.43222292	94.03417716	90.81066165	87.75093535	84.8450038	82.08356203	79.4579423
120808A00006	8/8/2012	2.06	8/9/2027	8/8/2012	101.8055	99.86843583	97.98961172	96.1667948	94.3978584	92.68077262	91.01359916	89.39448657	87.82166565
211208A00013	12/8/2021	1.63	12/8/2026	12/8/2021	101.43499	98.49849523	95.66426521	92.92812258	90.28608657	87.73436427	85.2693404	82.88756775	80.58575813
190930A00026	9/30/2019	1.95	9/30/2024	9/30/2019	100.28993	99.33254034	98.39363879	97.47269219	96.56918723	95.68263002	94.81254522	93.95847511	93.11997882
200327A00084	3/27/2020	1.1	3/27/2025	3/27/2020	99.405025	98.01762603	96.65704074	95.32255662	94.01348632	92.72916622	91.46895537	90.23223456	89.01840537
200430A00027	4/30/2020	1.31	4/30/2035	4/30/2020	99.459645	94.10383067	89.15592678	84.57963615	80.34223141	76.4141762	72.7687895	69.38194748	66.23181859
170524A00037	5/24/2017	2.46	5/24/2024	5/24/2017	100.45783	99.82459107	99.19940603	98.58212523	97.97259892	97.37068113	96.77622953	96.18910531	95.60917313
160812A00006	8/12/2016	2.16	8/12/2026	8/12/2016	102.77688	100.2440686	97.79070925	95.41385958	93.11070105	90.87853502	88.71477688	86.61695062	84.58268362
190930A00028	9/30/2019	1.95	9/30/2024	9/30/2019	100.28993	99.33254034	98.39363879	97.47269219	96.56918723	95.68263002	94.81254522	93.95847511	93.11997882
221012A00053	10/12/2022	4.66	10/11/2024	10/12/2022	101.63943	101.0970992	100.5620685	100.0341734	99.51325606	98.99916333	98.49174684	97.99086274	97.49637154
221014A00032	10/14/2022	4.67	10/14/2027	10/14/2022	112.77429	109.1006053	105.5780549	102.199487	98.95813343	95.84758351	92.86176305	89.99491474	87.24157975

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170526A00017	5/26/2017	2.16	5/28/2024	5/26/2017	100.15971	99.82662195	99.49627609	99.1686369	98.84366741	98.52133138	98.20159327	97.88441819	97.56977194
210420A00035	4/20/2021	1.92	4/20/2034	4/20/2021	102.95478	96.91654899	91.363359	86.25041018	81.53741735	77.18812649	73.16988362	69.45325228	66.01167408
171013A00024	10/13/2017	2.47	10/15/2024	10/13/2017	100.83882	99.84208716	98.86537283	97.90807866	96.96962654	96.04946114	95.14704885	94.26187667	93.39345126
181115A00044	11/15/2018	3.26	11/15/2023	11/15/2018	100.21198	100.0888531	99.96604133	99.84354821	99.72137242	99.59951268	99.47796771	99.35673625	99.23581703
200501A00002	5/1/2020	1.3	5/1/2035	5/1/2020	99.376744	93.99009414	89.01623658	84.41822562	80.16276865	76.21983709	72.56232121	69.16572384	66.0078882
221018A00007	10/18/2022	4.68	10/18/2027	10/18/2022	107.19191	105.0707137	103.0153906	101.0233584	99.09215109	97.21941694	95.4029123	93.64049588	91.93012339
221201A00043	12/1/2022	4.37	12/3/2029	12/1/2022	110.44392	107.0921094	103.8907066	100.8315566	97.90700935	95.10988446	92.43343909	89.87133833	87.41762774
220211A00010	2/11/2022	1.99	2/11/2025	2/11/2022	100.46046	99.37689883	98.31244056	97.26660054	96.23891308	95.22892803	94.2362101	93.26033826	92.30090512
221228A00129	12/28/2022	4.11	12/28/2027	12/28/2022	112.56224	108.4846894	104.5856627	100.8562602	97.28808256	93.87319781	90.60411241	87.47374409	84.4753967
230301A00047	3/1/2023	4.61	3/1/2028	3/1/2023	114.67305	110.3930538	106.306722	102.4041891	98.67614248	95.11379094	91.70883283	88.45342614	85.34016067
220308A00012	3/8/2022	2.51	3/8/2032	3/8/2022	107.26733	100.8021298	94.8265139	89.29948021	84.1837111	79.44522162	75.05304403	70.97894381	67.19716379
220310A00008	3/10/2022	2.22	3/10/2025	3/10/2022	100.9751	99.59540466	98.24162909	96.91310216	95.60917784	94.32923169	93.07266004	91.83887907	90.62732399
220310A00010	3/10/2022	2.31	3/10/2027	3/10/2022	103.80846	100.6402894	97.58949456	94.65107452	91.82027257	89.09255958	86.46362182	83.9293495	81.48582597
220310A00009	3/10/2022	2.31	3/10/2027	3/10/2022	103.80846	100.6402894	97.58949456	94.65107452	91.82027257	89.09255958	86.46362182	83.9293495	81.48582597
221209A00070	12/9/2022	4.42	12/9/2037	12/9/2022	122.30149	114.3057418	107.0421192	100.4328746	94.40932318	88.91070999	83.88322814	79.27916607	75.05616536
230421A00062	4/21/2023	4.33	4/21/2028	4/21/2023	107.34238	104.9636019	102.6660315	100.4462109	98.30085819	96.22685379	94.22123163	92.2811704	90.40398555
230307A00004	3/7/2023	4.67	3/7/2028	3/7/2023	114.97953	110.6768382	106.5694557	102.6473976	98.90124227	95.32209792	91.90156941	88.63172808	85.50508339
230314A00014	3/14/2023	4.18	3/14/2028	3/14/2023	113.12959	108.9466755	104.9534348	101.1401521	97.49765958	94.01730689	90.69092858	87.51081457	84.46968225
230323A00028	3/23/2023	4.1	3/23/2028	3/23/2023	112.34594	108.1768648	104.1975582	100.3982562	96.76975384	93.30336726	89.99090152	86.82462043	83.79721838
230328A00028	3/28/2023	4.34	3/27/2026	3/28/2023	107.46449	105.0432909	102.6910252	100.4053268	98.18392156	96.02462753	93.92535034	91.88407921	89.89888301
230406A00016	4/6/2023	3.89	4/6/2028	4/6/2023	111.0252	107.0327286	103.2205314	99.5793451	96.10043513	92.77556278	89.59695414	86.55727136	83.64958576
230727A00037	7/27/2023	4.82	7/27/2026	7/27/2023	109.97191	107.1822801	104.4800505	101.8619999	99.32504145	96.86621933	94.48270218	92.17177728	89.9308448
230727A00033	7/27/2023	4.82	7/27/2026	7/27/2023	109.97191	107.1822801	104.4800505	101.8619999	99.32504145	96.86621933	94.48270218	92.17177728	89.9308448
230530A00045	5/30/2023	4.56	5/29/2026	5/30/2023	108.68729	106.0675208	103.5260365	101.059994	98.66667526	96.34347976	94.08791827	91.89760739	89.77026411
230530A00054	5/30/2023	4.56	5/29/2026	5/30/2023	108.68729	106.0675208	103.5260365	101.059994	98.66667526	96.34347976	94.08791827	91.89760739	89.77026411
230530A00055	5/30/2023	4.56	5/29/2026	5/30/2023	108.68729	106.0675208	103.5260365	101.059994	98.66667526	96.34347976	94.08791827	91.89760739	89.77026411
230824A00008	8/24/2023	4.69	8/24/2028	8/24/2023	113.74518	109.7760429	105.9903948	102.3784685	98.93107762	95.63957607	92.49582296	89.49215045	86.62133365
230830A00055	8/30/2023	4.47	8/30/2028	8/30/2023	115.08905	110.4804925	106.0980474	101.9292637	97.96244604	94.18660254	90.59139827	87.16711275	83.90460028
230928A00058	9/28/2023	5.04	9/28/2026	9/28/2023	111.14277	108.2000432	105.3541542	102.6013596	99.93808209	97.360903	94.86655413	92.45191037	90.1139825
230928A00051	9/28/2023	5.04	9/28/2026	9/28/2023	111.14277	108.2000432	105.3541542	102.6013596	99.93808209	97.360903	94.86655413	92.45191037	90.1139825
230928A00059	9/28/2023	4.84	9/28/2028	9/28/2023	117.46354	112.6057799	107.9913806	103.6067038	99.4389499	95.47610189	91.70687321	88.12065961	84.70749424
230928A00060	9/28/2023	4.84	9/28/2028	9/28/2023	117.46354	112.6057799	107.9913806	103.6067038	99.4389499	95.47610189	91.70687321	88.12065961	84.70749424
230928A00061	9/28/2023	4.84	9/28/2028	9/28/2023	117.46354	112.6057799	107.9913806	103.6067038	99.4389499	95.47610189	91.70687321	88.12065961	84.70749424

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230908A00010	9/8/2023	4.73	9/9/2030	9/8/2023	112.82123	109.0493049	105.4620609	102.0486486	98.7989447	95.70349455	92.75346301	89.94058978	87.25714807
230908A00009	9/8/2023	4.55	9/8/2028	9/8/2023	115.93809	111.1729909	106.6445733	102.3396993	98.24602877	94.35196852	90.6466233	87.11975004	83.76171547
231017A00041	10/17/2023	5.12	10/16/2026	10/17/2023	111.58681	108.5872407	105.6876135	102.8840118	100.172696	97.55009471	95.01279658	92.55754174	90.18121426
150824A00033	8/24/2015	2.22	8/25/2025	8/24/2015	100.64512	99.69869845	98.76985697	97.85810589	96.96297345	96.08400555	95.2207649	94.37283021	93.53979544
120517A00021	5/17/2012	1.85	5/17/2024	5/17/2012	100.12024	99.79155028	99.46551344	99.14209061	98.82124711	98.50294888	98.18716249	97.87385515	97.56299464
131018A00006	10/18/2013	3.28	10/20/2025	10/18/2013	103.85167	101.9903421	100.1739262	98.40102818	96.67031214	94.98049328	93.33033548	91.71864904	90.14428859
140318A00003	3/17/2014	3.08	3/18/2024	3/17/2014	100.73532	100.2712615	99.81150621	99.35599357	98.90466475	98.45746205	98.01432884	97.5752095	97.14004944
150311A00003	3/11/2015	2.72	3/31/2025	3/11/2015	101.71276	100.3205257	98.9552461	97.61619901	96.30268992	95.01404849	93.74962748	92.50880173	91.2909672
160328A00038	3/28/2016	2.54	3/30/2026	3/28/2016	102.93283	100.6936914	98.51779147	96.40295753	94.34710675	92.3482407	90.40444137	88.51386735	86.67475029
160329A00017	3/29/2016	2.48	3/30/2026	3/29/2016	102.79509	100.5583407	98.38476185	96.27218897	94.21854119	92.22182198	90.28011513	88.391581	86.55445291
140219A00005	2/19/2014	3.13	2/20/2029	2/19/2014	105.74476	102.9804655	100.3249011	97.77282952	95.31930484	92.95965446	90.68946195	88.50455129	86.40097214
151120A00019	11/20/2015	2.72	11/20/2030	11/20/2015	105.93821	102.3065222	98.85664374	95.57767516	92.45945925	89.4925221	86.66802249	83.97770526	81.41385843
160210A00049	2/10/2016	1.78	2/10/2026	2/10/2016	100.52867	99.34002477	98.17650795	97.03736998	95.92189278	94.82938582	93.75918481	92.71065043	91.68316718
160210A00051	2/10/2016	2.28	2/10/2031	2/10/2016	104.41498	100.7158809	97.20754964	93.87823487	90.71700242	87.71367279	84.85876374	82.14343771	79.55945353
160210A00054	2/10/2016	1.78	2/10/2026	2/10/2016	100.52867	99.34002477	98.17650795	97.03736997	95.92189278	94.82938582	93.75918481	92.71065043	91.68316718
150320A00019	3/20/2015	2.25	3/20/2025	3/20/2015	101.10898	99.81209478	98.53978445	97.29139711	96.06630732	94.86391119	93.68362546	92.52488661	91.38714999
110824A00006	8/24/2011	2.69	8/24/2026	8/24/2011	102.64885	100.8368293	99.07229097	97.35364386	95.67936038	94.04797451	92.4580789	90.90832205	89.39740575
140414A00009	4/14/2014	2.32	4/30/2024	4/14/2014	100.36309	99.89985769	99.44083983	98.98598281	98.53523011	98.08852624	97.6458167	97.20704795	96.77216743
121120A00010	11/20/2012	1.93	11/22/2027	11/20/2012	101.69356	99.6740526	97.72395827	95.8403341	94.02038083	92.26143711	90.56097176	88.91657652	87.32595922
121120A00011	11/20/2012	2.22	11/22/2027	11/20/2012	103.78347	100.6814667	97.70648712	94.85247159	92.11368545	89.48470215	86.96038471	84.53586837	82.20654451
120410A00005	4/10/2012	2.35	4/12/2027	4/10/2012	102.30855	100.378324	98.50519764	96.6870166	94.92172433	93.20735565	91.54203216	89.92395777	88.35141459
120119A00015	1/19/2012	2.27	1/19/2024	1/19/2012	100.24166	99.93011765	99.62049211	99.31276259	99.00691162	98.70292194	98.40077651	98.10045849	97.80195124
120217A00007	2/17/2012	2.25	2/20/2024	2/17/2012	100.2891	99.89476458	99.50349072	99.11524302	98.72998633	98.34768607	97.96830818	97.59181913	97.2181859
050823A00085	8/23/2005	4.78	8/25/2025	8/23/2005	104.92318	103.4910694	102.0882994	100.7140331	99.36746871	98.04783387	96.75438456	95.48640364	94.24319968
050823A00088	8/23/2005	4.78	8/25/2025	8/23/2005	104.92318	103.4910694	102.0882994	100.7140331	99.36746871	98.04783387	96.75438456	95.48640364	94.24319968
160930A00032	9/30/2016	2.15	9/30/2031	9/30/2016	103.53735	99.70668273	96.08410706	92.65611651	89.41018899	86.33471132	83.41890682	80.65276914	78.02700174
160930A00033	9/30/2016	1.8	9/30/2026	9/30/2016	100.64174	99.18207948	97.75808745	96.36860046	95.01250345	93.68872618	92.3962411	91.13406128	89.90123848
140311A00039	3/11/2014	3.06	3/11/2024	3/11/2014	100.63343	100.1758421	99.72233599	99.27285998	98.82736042	98.38578462	97.94808084	97.51419821	97.0840868
120827A00048	8/27/2012	2.01	8/27/2027	8/27/2012	102.07969	99.81291363	97.61960931	95.49682956	93.44176194	91.45172542	89.5241634	87.65663708	85.84681937
120827A00052	8/27/2012	2.01	8/27/2027	8/27/2012	102.07969	99.81291362	97.61960931	95.49682956	93.44176194	91.45172542	89.52416339	87.65663708	85.84681936
970806A00017	8/1/1997	7.02	7/23/2026	8/1/1997	107.87066	106.4383944	105.039354	103.6724899	102.3367963	101.0313071	99.75509396	98.50726464	97.28696119
970806A00018	8/1/1997	6.7	10/23/2026	8/1/1997	108.14273	106.5823888	105.0604915	103.5757795	102.1270413	100.7131146	99.33288362	97.98527695	96.66926547
970806A00059	8/1/1997	8.25	9/22/2025	8/1/1997	106.4496	105.4513633	104.471806	103.5104106	102.5666771	101.6401238	100.7302866	99.83671817	98.95898738

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
130913A00018	9/13/2013	3.72	9/13/2028	9/13/2013	107.19069	104.2775464	101.4770576	98.7839253	96.19313814	93.69995376	91.29988278	88.98867373	86.7622989
150601A00001	6/1/2015	5.43	6/15/2037	6/1/2015	125.96337	118.7426577	112.1305326	106.0663441	100.4961439	95.37189062	90.65075099	86.29448997	82.26893613
150601A00005	6/1/2015	4.84	6/9/2025	6/1/2015	102.69821	101.8807929	101.0777797	100.2887813	99.51341916	98.75132873	98.00215881	97.26557089	96.54123865
150601A00018	6/1/2015	4.91	9/5/2025	6/1/2015	103.1769	102.2446662	101.3297733	100.4317372	99.55009319	98.68439403	97.83420886	96.99912254	96.1787349
150601A00022	6/1/2015	5.43	10/26/2037	6/1/2015	126.54364	119.1158178	112.3277959	106.1144315	100.4179386	95.18698982	90.37593745	85.94413461	81.85534238
150601A00023	6/1/2015	5.46	10/30/2037	6/1/2015	126.77758	119.3299525	112.5240895	106.2946231	100.5835659	95.33941468	90.5163682	86.0736453	81.97488937
150601A00030	6/1/2015	5.28	11/26/2027	6/1/2015	108.40833	106.2959077	104.2492568	102.2657812	100.3430039	98.47856331	96.67020731	94.91578728	93.2132526
150601A00033	6/1/2015	5.96	12/24/2025	6/1/2015	104.98764	103.8682324	102.7712736	101.6961172	100.6421419	99.60874957	98.59536412	97.60143078	96.62641491
150601A00035	6/1/2015	5.73	4/1/2038	6/1/2015	129.06333	121.3534299	114.3229237	107.9010191	102.0251038	96.63972469	91.69570485	87.14937644	82.96191299
150601A00865	6/1/2015	6	4/3/2028	6/1/2015	110.61722	108.3268383	106.1124516	103.9708906	101.8991398	99.89433095	97.9537349	96.07475393	94.25491446
150601A00919	6/1/2015	7.41	6/7/2030	6/1/2015	120.39539	116.8116015	113.3914954	110.1259605	107.0064688	104.0250305	101.1741569	98.44682478	95.83644457
150601A00931	6/1/2015	7.13	9/20/2030	6/1/2015	120.37728	116.6304197	113.0609392	109.6586411	106.4139934	103.3180844	100.362578	97.53967244	94.84206223
150601A00946	6/1/2015	6.28	8/22/2031	6/1/2015	119.61442	115.4163472	111.4396421	107.6702411	104.0950892	100.702063	97.47989735	94.41811892	91.50698437
150601A00950	6/1/2015	6.76	12/18/2031	6/1/2015	122.21011	117.7872198	113.6050283	109.6477676	105.900837	102.3507083	98.98483908	95.79159372	92.76017135
150601A00952	6/1/2015	6.34	2/13/2032	6/1/2015	120.85447	116.3971911	112.1867636	108.2067522	104.4419608	100.8783262	97.50282489	94.30338901	91.26882908
150601A00953	6/1/2015	6.6	6/10/2032	6/1/2015	122.64699	117.9810045	113.5815308	109.4302939	105.510432	101.8063759	98.30374054	94.98922592	91.85052758
150601A00955	6/1/2015	5.84	7/15/2032	6/1/2015	119.69584	115.0580834	110.6887143	106.5691191	102.68214	99.01194752	95.54392838	92.26458284	89.16143168
150601A00960	6/1/2015	6.49	12/16/2032	6/1/2015	123.40841	118.4533523	113.7955672	109.4136955	105.2881056	101.4007385	97.73497031	94.27548702	91.00817176
150601A00964	6/1/2015	5.25	1/6/2033	6/1/2015	117.96134	113.1529092	108.6363262	104.390434	100.3957976	96.63455075	93.09025759	89.74778738	86.59320118
150601A00971	6/1/2015	6.42	6/20/2033	6/1/2015	123.61923	118.4211031	113.548741	108.9777357	104.685733	100.6522422	96.8584664	93.28714978	89.9224393
150601A00976	6/1/2015	6.8	9/22/2033	6/1/2015	126.65481	121.2070775	116.1083356	111.3318694	106.8532581	102.6501591	98.70211501	94.99038035	91.49776474
150601A00978	6/1/2015	6.32	11/24/2033	6/1/2015	124.73776	119.2629587	114.1448875	109.3558159	104.8704251	100.6655825	96.72013543	93.0147266	89.53162782
150601A00993	6/1/2015	5.37	6/9/2034	6/1/2015	120.93834	115.3436899	110.132035	105.272203	100.7358561	96.49721042	92.53278538	88.82117997	85.34287218
150601A01005	6/1/2015	5.82	3/10/2025	6/1/2015	102.94563	102.2467611	101.5596742	100.8840448	100.2195632	99.5659313	98.92286215	98.29007936	97.6673166
150601A01015	6/1/2015	5.61	10/28/2025	6/1/2015	104.27641	103.2338714	102.2114293	101.2085163	100.2245882	99.25912093	98.31160986	97.38156845	96.46852771
150601A01016	6/1/2015	5.73	10/28/2025	6/1/2015	104.39913	103.3557253	102.3324258	101.3286696	100.3439122	99.37762923	98.4293156	97.49848449	96.58466656
150601A01040	6/1/2015	5.4	10/2/2026	6/1/2015	105.95046	104.4690453	103.0237295	101.6133357	100.2367354	98.89284602	97.5806279	96.29908258	95.0472508
150601A01047	6/1/2015	5.35	12/30/2024	6/1/2015	102.34978	101.7229863	101.1060187	100.4986238	99.90055379	99.31156961	98.73144099	98.15994584	97.59686988
150601A01048	6/1/2015	5.27	1/3/2025	6/1/2015	102.18246	101.587992	101.002918	100.4269946	99.85998278	99.30165237	98.75178155	98.21015646	97.67657084
150601A01051	6/1/2015	4.91	2/7/2025	6/1/2015	102.14759	101.5015628	100.8663513	100.2416557	99.627187	99.02266741	98.42782961	97.8424164	97.26618011
161222A00035	12/22/2016	2.29	12/22/2023	12/22/2016	100.12448	99.95882911	99.7938364	99.62949599	99.46580372	99.30275546	99.14034711	98.97857461	98.81743394
150601A00395	6/1/2015	2.86	1/3/2024	6/1/2015	100.11945	100.0272298	99.93527644	99.84359085	99.75217177	99.66101793	99.57012808	99.47950097	99.38913533
150601A00396	6/1/2015	3.61	1/3/2029	6/1/2015	106.11117	103.5320194	101.050424	98.66182894	96.36192468	94.14663376	92.01209658	89.95465823	87.97085629

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00410	6/1/2015	2.68	1/24/2024	6/1/2015	100.16631	100.0161734	99.86658947	99.71755537	99.56906771	99.42112317	99.27371845	99.12685027	98.98051539
150601A00411	6/1/2015	3.38	1/24/2029	6/1/2015	105.65502	103.0287899	100.5028568	98.0724976	95.73324613	93.48087863	91.31139869	89.22102346	87.20617078
150601A00425	6/1/2015	2.64	2/21/2024	6/1/2015	100.19392	100.0097491	99.82644157	99.64399263	99.46239549	99.2816435	99.10173009	98.92264874	98.74439302
150601A00426	6/1/2015	3.37	2/21/2029	6/1/2015	105.70401	103.0448514	100.4884502	98.02991568	95.66462683	93.38821564	91.19655136	89.08572601	87.05204081
150601A00439	6/1/2015	2.57	3/18/2024	6/1/2015	100.21036	99.99327215	99.77741763	99.56278089	99.34935044	99.13711492	98.92606314	98.71618403	98.50746671
150601A00448	6/1/2015	2.61	4/26/2024	6/1/2015	100.27738	99.99694465	99.71848342	99.44196944	99.16737994	98.89469256	98.62388529	98.35493649	98.08782487
150601A00459	6/1/2015	2.42	5/16/2024	6/1/2015	100.2187	99.9247791	99.63313707	99.34374341	99.0565691	98.77158562	98.48876498	98.2080797	97.92950279
150601A00509	6/1/2015	2.52	7/8/2024	6/1/2015	100.27658	99.92238397	99.57158817	99.22414216	98.8799924	98.53908657	98.2013735	97.86680319	97.53532673
150601A00527	6/1/2015	2.5	7/26/2024	6/1/2015	100.31067	99.90760822	99.50867336	99.11379671	98.72290927	98.33594367	97.95283416	97.57351654	97.19792812
150601A00558	6/1/2015	2.51	8/30/2024	6/1/2015	100.36244	99.90778728	99.45834297	99.01400673	98.57468159	98.14027316	97.71068955	97.2858413	96.86564129
150601A00948	6/1/2015	6.04	10/22/2031	6/1/2015	118.53066	114.2943976	110.2852845	106.4886591	102.890931	99.47949359	96.24264597	93.16952106	90.25002032
150601A00739	6/1/2015	2.35	5/6/2025	6/1/2015	100.54272	99.7875188	99.04541033	98.3160368	97.59905601	96.89413844	96.20096661	95.51923454	94.84864722
150601A00261	6/1/2015	3.19	2/11/2033	6/1/2015	108.90196	104.3121291	100.0066926	95.96470801	92.16695682	88.59579221	85.23499896	82.06966671	79.08607523
150601A01041	6/1/2015	5.99	10/2/2036	6/1/2015	128.29567	121.3244988	114.9135421	109.0094474	103.5645101	98.5360271	93.88573028	89.57928756	85.58586399
160928A00029	9/28/2016	2.52	9/29/2036	9/28/2016	106.69479	100.1855475	94.2279701	88.76728901	83.75474329	79.14686883	74.90487898	70.994122	67.38360529
160928A00030	9/28/2016	2.52	9/29/2036	9/28/2016	106.69479	100.1855475	94.2279701	88.76728901	83.75474329	79.14686883	74.90487898	70.994122	67.38360529
160928A00032	9/28/2016	2.52	9/29/2036	9/28/2016	106.69479	100.1855475	94.2279701	88.76728901	83.75474329	79.14686883	74.90487898	70.994122	67.38360529
160928A00033	9/28/2016	2.46	9/29/2036	9/28/2016	106.30175	99.81073388	93.87012083	88.42525563	83.42747353	78.8333973	74.60431897	70.70565808	67.10648674
160928A00041	9/28/2016	3.26	9/29/2036	9/30/2019	111.54219	104.8082481	98.64144449	92.98570063	87.79107034	83.0130177	78.61178581	74.55184361	70.80140071
160928A00042	9/28/2016	3.05	9/29/2036	9/28/2021	110.16657	103.4964007	97.38897203	91.78858382	86.64562618	81.91586735	77.55982576	73.54221991	69.83148579
160928A00044	9/28/2016	2.89	9/29/2036	9/28/2023	109.11849	102.4968978	96.43470729	90.87649482	85.77290682	81.07994327	76.75833239	72.7729828	69.092503
150601A00473	6/1/2015	2.22	5/31/2024	6/1/2015	100.23403	99.90020893	99.56915447	99.24082391	98.91517985	98.59218559	98.27180516	97.95400326	97.63874527
150601A00475	6/1/2015	3.04	6/1/2029	6/1/2015	105.04773	102.2941608	99.65172289	97.11492106	94.67857236	92.3377872	90.08795078	87.92470573	85.84393599
150601A00477	6/1/2015	3.21	6/1/2029	6/1/2015	105.84952	103.0720626	100.406832	97.84827056	95.39113815	93.03049165	90.76166609	88.5802571	86.48210457
150601A00496	6/1/2015	2.27	6/27/2024	6/1/2015	100.26888	99.90318062	99.54086042	99.18186602	98.82614637	98.47365153	98.12433264	97.77814189	97.43503247
150601A00678	6/1/2015	2.12	1/30/2025	6/1/2015	100.29671	99.63981727	98.99392867	98.35874029	97.73395668	97.11929385	96.51447869	95.91924846	95.33335028
150601A00690	6/1/2015	2.34	2/28/2025	6/1/2015	100.47677	99.77726896	99.08956744	98.41333887	97.74827134	97.09406479	96.45043045	95.81709026	95.19377642
150601A00736	6/1/2015	2.87	5/1/2030	6/1/2015	105.26668	102.0783311	99.03613354	96.1319714	93.358245	90.70783218	88.17405502	85.75064906	83.43173487
150601A00832	6/1/2015	7.17	8/28/2025	6/1/2015	105.257	104.2920599	103.3448908	102.4149991	101.5019113	100.6051713	99.7243399	98.85899373	98.00872471
150601A00899	6/1/2015	7.07	6/14/2029	6/1/2015	116.23596	113.2397987	110.3635127	107.6011988	104.9472855	102.3965161	99.94392912	97.58483925	95.31482038
150601A00270	6/1/2015	3.12	3/21/2031	6/1/2015	107.22327	103.5376494	100.0403446	96.71979069	93.56522855	90.56664114	87.71469699	85.0006985	82.41653445
150601A00851	6/1/2015	7.12	4/30/2027	6/1/2015	110.42604	108.5683351	106.7620194	105.0052482	103.2962566	101.6333561	100.0149305	98.43943244	96.90537991
150601A00864	6/1/2015	7.37	3/31/2028	6/1/2015	113.79969	111.4299709	109.138499	106.9220208	104.7774409	102.701815	100.692341	98.74635164	96.8613067

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00868	6/1/2015	7.08	6/5/2028	6/1/2015	113.50496	111.0809908	108.7396831	106.4775043	104.2910965	102.1772693	100.1329905	98.15537705	96.24168655
150601A00871	6/1/2015	6.74	7/31/2028	6/1/2015	113.36789	110.8347571	108.3903632	106.0308254	103.7524577	101.5517617	99.42541632	97.37026703	95.38331662
150601A00872	6/1/2015	7.42	7/31/2028	6/1/2015	114.97824	112.4194328	109.9501066	107.5663438	105.2644315	103.0408461	100.892242	98.81544156	96.80742535
150601A00875	6/1/2015	7.14	9/29/2028	6/1/2015	114.79905	112.1616699	109.619082	107.1670421	104.8015275	102.5187241	100.3150147	98.18696725	96.13132396
150601A00883	6/1/2015	6.21	11/30/2028	6/1/2015	112.97614	110.2805415	107.6848123	105.184359	102.774837	100.4521326	98.21234922	96.05179404	93.96696622
150601A00888	6/1/2015	5.92	3/1/2029	6/1/2015	112.66109	109.8822799	107.210627	104.641029	102.1686646	99.78897667	97.49765629	95.29062717	93.16403164
150601A00889	6/1/2015	6.55	3/2/2029	6/1/2015	114.32121	111.5101452	108.8073138	106.2075649	103.7060326	101.2981177	98.97947105	96.74597837	94.5937459
150601A00893	6/1/2015	6.49	4/6/2029	6/1/2015	114.44389	111.5775434	108.8231577	106.1753346	103.6289791	101.1792789	98.82168612	96.55190128	94.36585792
150601A00897	6/1/2015	6.15	5/28/2029	6/1/2015	114.04259	111.0822253	108.2400953	105.5103907	102.8876295	100.3666388	97.94253512	95.6107065	93.36679521
150601A00900	6/1/2015	6.06	6/28/2024	6/1/2015	101.65808	101.2858228	100.9170082	100.5515842	100.1894987	99.83070064	99.47514011	99.12276827	98.77353734
150601A00905	6/1/2015	6.14	10/29/2029	6/1/2015	115.03422	111.8423738	108.785811	105.8575164	103.0508901	100.3597231	97.77817111	95.30073056	92.9222166
150601A00906	6/1/2015	6.2	11/1/2029	6/1/2015	115.03693	111.8780542	108.8531712	105.9553275	103.1779814	100.5149786	97.96052688	95.50917199	93.15577565
150601A00912	6/1/2015	5.96	11/30/2029	6/1/2015	114.70956	111.478364	108.385865	105.424784	102.588282	99.86992943	97.26367805	94.7638361	92.36504468
150601A00918	6/1/2015	5.62	4/28/2025	6/1/2015	103.18834	102.3987283	101.6226987	100.8598835	100.1099294	99.37249574	98.64725449	97.93388948	97.23209581
150601A00927	6/1/2015	6.08	8/7/2030	6/1/2015	116.4771	112.8950496	109.4808458	106.2249426	103.1184106	100.152895	97.32057528	94.61412712	92.02668724
150601A00928	6/1/2015	5.94	8/21/2030	6/1/2015	116.18762	112.5746721	109.1319071	105.8495954	102.7186439	99.73054767	96.87734758	94.15159155	91.54629866
150601A00929	6/1/2015	5.91	8/30/2030	6/1/2015	116.19611	112.5594482	109.0946186	105.7917747	102.6417108	99.63581802	96.76604137	94.02484041	91.40515267
150601A00935	6/1/2015	6.46	11/21/2030	6/1/2015	118.52437	114.7326299	111.1245339	107.689306	104.4168875	101.2978864	98.32352853	95.48561259	92.77646872
150601A00939	6/1/2015	5.79	1/17/2031	6/1/2015	116.50013	112.6830604	109.054766	105.6039624	102.3201281	99.19345059	96.21477429	93.37555136	90.6677973
150601A00943	6/1/2015	6.44	5/9/2031	6/1/2015	119.46925	115.4350303	111.6069042	107.9721614	104.5189767	101.2363458	98.11402279	95.14246194	92.31276526
170130A00036	1/30/2017	3.11	1/31/2033	1/30/2017	108.2648	103.6021275	99.23235855	95.13360275	91.28580141	87.67056168	84.27100552	81.07163332	78.05820084
170130A00039	1/30/2017	2.74	1/31/2028	1/30/2017	103.37975	101.1603464	99.01566338	96.94251091	94.93786392	92.99884992	91.12273997	89.30694041	87.54898507
170130A00043	1/30/2017	2.64	1/29/2027	1/30/2017	102.29841	100.5740831	98.89763847	97.26731248	95.68142566	94.13837441	92.63662685	91.17471896	89.75125098
170130A00046	1/30/2017	2.52	1/30/2026	1/30/2017	101.32002	100.0881096	98.8836028	97.70561632	96.55330778	95.42587025	94.32253034	93.24254644	92.18520705
170313A00041	3/13/2017	3.21	3/15/2032	3/13/2017	108.12061	103.9056174	99.93334351	96.18710881	92.65152261	89.31237321	86.15652912	83.17184908	80.34710031
110414A00007	4/14/2011	3.95	1/21/2025	4/14/2011	102.28816	101.2963745	100.3220837	99.36481769	98.42412056	97.49955318	96.59069226	95.6971297	94.81847184
150601A00684	6/1/2015	2.25	2/7/2025	6/1/2015	100.37202	99.73549878	99.10964842	98.49417222	97.88878499	97.29321251	96.70719101	96.13046663	95.56279498
180529A00057	5/29/2018	3.09	5/30/2028	5/29/2018	106.24709	103.2253796	100.3276589	97.54784164	94.88017966	92.31924475	89.85990879	87.49732514	85.22691136
171206A00020	12/6/2017	2.62	12/6/2027	12/6/2017	102.81932	100.8021823	98.84851073	96.95577816	95.12157861	93.34361891	91.61971259	89.94777417	88.32581377
140911A00033	9/11/2014	3.02	9/13/2027	9/11/2014	105.41677	102.467239	99.62809427	96.8944328	94.26160456	91.72519334	89.28100364	86.92504832	84.65353703
181029A00097	10/29/2018	3.53	10/27/2028	10/29/2018	110.12389	105.9007763	101.8848588	98.06458507	94.42911458	90.96827124	87.67249877	84.53281944	81.54079581
190628A00007	6/28/2019	2.28	6/28/2034	6/28/2019	105.39943	100.2869139	95.53305106	91.10815683	86.98528099	83.13993295	79.54983844	76.19472191	73.05611167
181211A00042	12/11/2018	3.7	12/11/2028	12/11/2023	110.76519	106.4293566	102.3112475	98.3984462	94.67932288	91.14297712	87.77918788	84.57836706	81.53151661

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00988	6/1/2015	4.57	3/22/2024	6/1/2015	100.67246	100.4435434	100.2159575	99.98968602	99.7647163	99.54103581	99.31863219	99.09749327	98.87760702
190102A00020	1/2/2019	2.97	1/3/2034	1/2/2019	108.65329	103.6796785	99.0396725	94.70677732	90.65684807	86.86786021	83.31970718	79.99401881	76.87399804
190102A00022	1/2/2019	2.97	1/3/2034	1/2/2019	108.65329	103.6796785	99.0396725	94.70677732	90.65684807	86.86786021	83.31970718	79.99401881	76.87399804
190102A00024	1/2/2019	2.97	1/3/2034	1/2/2019	108.65329	103.6796785	99.0396725	94.70677732	90.65684807	86.86786021	83.31970718	79.99401881	76.87399804
190102A00015	1/2/2019	2.97	1/3/2034	1/2/2019	108.65329	103.6796785	99.0396725	94.70677732	90.65684807	86.86786021	83.31970718	79.99401881	76.87399804
190327A00030	3/27/2019	2.9	3/27/2036	3/27/2019	108.73315	102.7817473	97.30200689	92.24993044	87.58606535	83.27500013	79.28491748	75.58720001	72.15608193
111007A00007	10/7/2011	3.92	10/7/2031	10/7/2011	114.90208	108.6875708	102.9148963	97.54894924	92.55763191	87.91158509	83.58393936	79.55008999	75.78749347
120621A00009	6/21/2012	3.18	6/21/2032	6/21/2012	110.59415	104.6623913	99.15957183	94.0503247	89.30246245	84.88666758	80.77621871	76.94674453	73.3760024
200310A00067	3/10/2020	0.94	3/10/2025	3/10/2020	99.517631	98.83726223	98.1683948	97.5107143	96.863918	96.22771458	95.60182356	94.9859748	94.37990798
200311A00028	3/11/2020	1.04	3/12/2024	3/11/2020	99.871109	99.63339812	99.39713726	99.16231163	98.92890658	98.69690771	98.46630078	98.23707178	98.00920689
200316A00008	3/16/2020	1.31	3/15/2030	3/16/2020	100.40536	97.39593438	94.5216024	91.77502506	89.14931517	86.63800971	84.23504074	81.93470862	79.73165703
200317A00024	3/17/2020	1.09	3/17/2025	3/17/2020	99.613898	98.91440674	98.22675544	97.55062125	96.88569363	96.23167372	95.58827367	94.95521622	94.33223413
190823A00009	8/23/2019	1.8	8/23/2029	8/23/2019	102.17489	99.33126867	96.60702043	93.99603218	91.49255458	89.09117374	86.78678931	84.57459422	82.45005573
200326A00037	3/26/2020	1.78	3/26/2035	3/26/2020	102.13286	96.85011362	91.9606523	87.43004632	83.22721152	79.32405493	75.69516358	72.31752777	69.17029483
200331A00056	3/31/2020	0.96	3/29/2030	3/31/2020	99.668867	96.62744354	93.72375624	90.95026338	88.29989423	85.76601642	83.34240568	81.02321799	78.80296371
200402A00050	4/6/2020	0.73	4/5/2024	4/6/2020	99.807448	99.58260439	99.35918183	99.13716529	98.91653997	98.69729131	98.47940496	98.26286676	98.04766278
190520A00020	5/20/2019	2.39	5/20/2026	5/20/2019	101.41345	100.1306212	98.87647078	97.65011943	96.4507226	95.27746836	94.12957582	93.00629371	91.90689902
191114A00014	11/14/2019	1.9	11/14/2023	11/14/2019	100.01497	99.97617127	99.93741695	99.89870922	99.86004799	99.82143317	99.78286466	99.74434239	99.70586627
191115A00029	11/15/2019	2.07	11/15/2029	11/15/2019	102.69295	99.7537616	96.94162931	94.24987734	91.6722285	89.20278082	86.83598245	84.56660857	82.38973985
200428A00018	4/28/2020	1.33	4/27/2035	4/28/2020	99.61612	94.38619764	89.54970229	85.07189402	80.92143065	77.07000945	73.49204865	70.16440457	67.06611999
210514A00007	5/14/2021	0.95	5/15/2028	5/14/2021	99.676906	97.48216908	95.36278827	93.31553836	91.33735564	89.42532908	87.57669168	85.7888123	84.05918809
210514A00010	5/14/2021	1.34	5/14/2031	5/14/2021	100.84102	97.25331121	93.85371083	90.63042112	87.57248042	84.66969694	81.91258934	79.29233219	76.80070608
200521A00005	5/21/2020	0.75	5/21/2030	5/21/2020	98.946588	95.83185973	92.86255333	90.03048354	87.32798935	84.74789666	82.28348389	79.92845043	77.67688732
200130A00027	1/31/2020	1.79	1/31/2025	1/31/2020	100.09819	99.44063388	98.79411558	98.15832658	97.53297015	96.9177611	96.3124252	95.71669862	95.13032744
200203A00046	2/3/2020	1.98	2/3/2040	2/3/2020	103.77357	96.49086767	89.94135017	84.03891142	78.70855374	73.88485727	69.51066936	65.53598333	61.91697782
200210A00007	2/10/2020	1.78	2/10/2025	2/10/2023	100.40221	99.21726416	98.05334398	96.90993093	95.78651978	94.68262169	93.59776358	92.53148746	91.48334986
170929A00046	9/29/2017	2.49	9/30/2027	9/29/2017	102.44456	100.4914895	98.59766861	96.76081346	94.9787427	93.24937473	91.5707224	89.94088805	88.35805882
200225A00049	2/25/2020	1.79	2/24/2040	2/25/2020	102.32632	95.09881419	88.5996348	82.74322904	77.45508044	72.67018717	68.33176066	64.39011207	60.80169822
121217A00009	12/17/2012	2.02	12/17/2027	12/17/2012	101.94723	99.85105422	97.82766482	95.87391894	93.9868364	92.16358669	90.40148034	88.69796093	87.0505975
130206A00004	2/6/2013	2.14	2/7/2028	2/6/2013	102.33664	100.1106019	97.95984003	95.88114469	93.87146924	91.92791982	90.04774648	88.22833489	86.46719868
210409A00010	4/9/2021	1.05	4/9/2031	4/9/2021	99.777615	96.26556027	92.93590234	89.7773095	86.77924506	83.93190576	81.22616565	78.65352454	76.20606075
220610A00068	6/10/2022	3.09	6/10/2025	6/10/2022	101.32889	100.516813	99.71907754	98.93528978	98.16507274	97.40806335	96.66391186	95.9322812	95.21284636
220629A00034	6/29/2022	3.51	6/29/2027	6/29/2022	104.1489	102.293904	100.4922816	98.74205584	97.04134079	95.38833372	93.78131106	92.21862424	90.69869592

	Parallel-Shift Sensitivity Analysis												
10/31/2023					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221206A00040	12/6/2022	5	11/29/2024	12/6/2022	101.88768	101.3281613	100.7769511	100.233843	99.69863805	99.17114405	98.65117544	98.13855293	97.63310323
230412A00059	4/12/2023	4.2	4/12/2028	4/10/2026	110.97001	107.4681948	104.1169328	100.908674	97.83629634	94.89307676	92.07266614	89.36906643	86.77660918
230412A00053	4/12/2023	4.2	4/12/2028	4/10/2026	110.97001	107.4681948	104.1169328	100.908674	97.83629634	94.89307676	92.07266614	89.36906643	86.77660918
230602A00051	6/2/2023	4.33	6/2/2038	6/2/2023	120.17471	112.7904339	106.0700876	99.94335478	94.34815426	89.2296043	84.5391237	80.23365174	76.27497056
230417A00085	4/17/2023	4.68	4/17/2026	4/17/2023	104.06889	102.8138849	101.5861668	100.3849128	99.20933291	98.0586674	96.93218533	95.82918313	94.74898342
230418A00035	4/18/2023	4.13	4/18/2028	4/18/2023	106.81608	104.5425136	102.3452953	100.22121	98.16720218	96.18036666	94.25794008	92.39729305	90.59592272
230613A00015	6/13/2023	4.73	6/13/2033	6/13/2028	116.02787	111.0831411	106.4505732	102.1066826	98.02996518	94.2007138	90.60085474	87.21379987	84.02431331
230426A00142	4/26/2023	4.51	4/27/2026	4/26/2023	103.93593	102.658027	101.4080887	100.1852685	98.98875411	97.81776426	96.67154734	95.54937996	94.4505657
230428A00050	4/28/2023	4.31	4/28/2028	4/28/2023	107.03181	104.7349529	102.5154306	100.3699826	98.29550717	96.28905508	94.34782152	92.46913788	90.65046416
230504A00059	5/4/2023	4.34	5/4/2026	5/4/2023	103.66813	102.4106714	101.1809191	99.97802907	98.8011926	97.64963204	96.52259935	95.4193747	94.33926515
230621A00047	6/21/2023	4.44	6/21/2028	6/21/2023	107.84029	105.4612998	103.1646134	100.9466739	98.8041041	96.73369696	94.7324056	92.79733422	90.92572961
230718A00065	7/18/2023	4.3	7/18/2033	7/18/2023	114.75204	109.772189	105.1108842	100.7438848	96.64901381	92.80596725	89.19614163	85.80247869	82.60932531
230324A00050	3/24/2023	4.13	3/24/2026	3/24/2023	103.45318	102.2229067	101.0189908	99.84064544	98.68711414	97.55766918	96.4516103	95.36826342	94.30697942
230324A00021	3/24/2023	3.72	3/24/2028	3/24/2023	110.85016	106.8488801	103.0282767	99.37908797	95.8925751	92.56049357	89.37506262	86.32893661	83.41517831
230328A00027	3/28/2023	4.22	3/28/2028	3/28/2023	112.69646	108.5595633	104.6107294	100.8402715	97.2390595	93.79848152	90.51041128	87.36717823	84.36153949
230804A00030	8/4/2023	4.88	8/4/2027	8/4/2023	106.77218	104.869155	103.0218355	101.2281248	99.48602528	97.79362882	96.14911226	94.55073288	92.99682425
230830A00101	8/30/2023	5.06	8/31/2026	8/30/2023	105.35159	103.887057	102.4574017	101.061503	99.69828778	98.36672577	97.06582743	95.79464196	94.55225548
130207A00012	2/7/2013	2.9	2/7/2033	2/7/2013	107.22514	102.5444016	98.16520158	94.06450253	90.2212362	86.61611765	83.23148092	80.05113084	77.06020946
130925A00035	9/25/2013	1.53	6/25/2025	9/25/2013	100.23467	98.85688461	97.50688615	96.18386243	94.88703543	93.61565755	92.36901012	91.14640194	89.94716794
230929A00049	9/29/2023	4.87	9/30/2030	9/29/2023	112.62992	109.0484973	105.6383166	102.3894688	99.29269475	96.33934048	93.52131369	90.83104319	88.26144181
230918A00030	9/18/2023	5.01	9/17/2027	9/18/2023	107.33419	105.3455214	103.4164629	101.5447363	99.72816392	97.9646672	96.25226125	94.58905009	92.97322194
050812A00050	8/12/2005	4.97	8/12/2025	8/12/2005	104.47042	103.1862588	101.9275152	100.693483	99.48347904	98.29684539	97.13294775	95.99117455	94.87093589
070518A00023	5/18/2007	5.46	5/18/2027	5/18/2007	108.57152	106.4865899	104.4643579	102.5024071	100.598435	98.75024421	96.95573667	95.2129087	93.51984598