

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												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
050812A00050	8/12/2005	4.97	8/12/2025	8/12/2005	104.41862	103.3474465	102.2950176	101.2608553	100.2444981	99.24550012	98.26343056	97.29787297	96.34842468
050823A00085	8/23/2005	4.78	8/25/2025	8/23/2005	104.46881	103.3769466	102.3044443	101.2508043	100.2155407	99.19818443	98.19828262	97.21539788	96.24910763
050823A00088	8/23/2005	4.78	8/25/2025	8/23/2005	104.46881	103.3769466	102.3044443	101.2508043	100.2155407	99.19818443	98.19828262	97.21539788	96.24910763
070518A00023	5/18/2007	5.46	5/18/2027	5/18/2007	109.32178	107.4193742	105.5712599	103.77545	102.0300421	100.3332169	98.68323348	97.07842592	95.51719911
110414A00007	4/14/2011	3.95	1/21/2025	4/14/2011	101.94885	101.2768551	100.6167537	99.96819037	99.3308266	98.70433741	98.0884107	97.48274663	96.88705699
110824A00006	8/24/2011	2.69	8/24/2026	8/24/2011	103.68259	102.0721631	100.5007401	98.96705253	97.46988678	96.00807805	94.5805078	93.18610162	91.82382711
111007A00007	10/7/2011	3.92	10/7/2031	10/7/2011	122.81493	115.9931742	109.6466972	103.7384202	98.234395	93.10352256	88.31729705	83.84957487	79.67636538
120217A00007	2/17/2012	2.25	2/20/2024	2/17/2012	100.12919	100.012393	99.89589974	99.77971327	99.66383226	99.5482554	99.43298144	99.31800909	99.2033371
120410A00005	4/10/2012	2.35	4/12/2027	4/10/2012	103.65928	101.8905626	100.1740474	98.50773177	96.88970958	95.31816303	93.79135765	92.30763784	90.86542262
120621A00009	6/21/2012	3.18	6/21/2032	6/21/2012	117.1289	110.9357036	105.1852308	99.84153769	94.87184871	90.24626138	85.9374774	81.92056031	78.17271697
120827A00048	8/27/2012	2.01	8/27/2027	8/27/2012	103.77341	101.682233	99.65533151	97.69018688	95.78439795	93.93567502	92.14183381	90.40078983	88.71055311
120827A00052	8/27/2012	2.01	8/27/2027	8/27/2012	103.77341	101.682233	99.65533151	97.69018688	95.78439795	93.93567502	92.14183381	90.40078983	88.71055311
121120A00010	11/20/2012	1.93	11/22/2027	11/20/2012	104.13154	101.7710287	99.48750949	97.27788014	95.1391867	93.06861365	91.0634765	89.12121479	87.23938563
121120A00011	11/20/2012	2.22	11/22/2027	11/20/2012	107.08016	103.7964352	100.6408992	97.60775001	94.69147816	91.88685352	89.18890968	86.59292919	84.09442968
121217A00009	12/17/2012	2.02	12/17/2027	12/17/2012	104.52603	102.0784678	99.71252203	97.4248564	95.21228964	93.07179114	91.00047282	88.9955816	87.05449222
130206A00004	2/6/2013	2.14	2/7/2028	2/6/2013	104.12732	102.0248722	99.99137692	98.02399682	96.12003186	94.27691217	92.4921908	90.76353701	89.08872992
130207A00012	2/7/2013	2.9	2/7/2033	2/7/2013	112.24684	107.4228507	102.90844	98.68018647	94.71664373	90.99816034	87.50671627	84.22577554	81.14015308
130913A00018	9/13/2013	3.72	9/13/2028	9/13/2013	109.34099	106.5436206	103.8502655	101.2561103	98.75660459	96.34744186	94.02454435	91.78404947	89.62229687
130925A00035	9/25/2013	1.53	6/25/2025	9/25/2013	101.00049	99.89607051	98.81113751	97.74519686	96.69777403	95.66841028	94.65666197	93.66209996	92.68430899
140311A00039	3/11/2014	3.06	3/11/2024	3/11/2014	100.32101	100.1359013	99.95148876	99.76777316	99.58475041	99.40241646	99.2207673	99.03979892	98.85950739
140414A00009	4/14/2014	2.32	4/30/2024	4/14/2014	100.21673	100.0080278	99.80019173	99.59321843	99.38710246	99.18183839	98.97742086	98.77384456	98.57110421
140911A00033	9/11/2014	3.02	9/13/2027	9/11/2014	107.53833	104.7671068	102.0936375	99.51371467	97.02334696	94.61874191	92.2962946	90.05257699	87.88432806
150601A00001	6/1/2015	5.43	6/15/2037	6/1/2015	134.36773	126.5055282	119.3092581	112.7125534	106.6563683	101.0881077	95.9608672	91.23276876	86.86637805
150601A00005	6/1/2015	4.84	6/9/2025	6/1/2015	102.93585	102.1809721	101.4389685	100.7094865	99.99218803	99.28674765	98.59285199	97.91019921	97.23849841
150601A00018	6/1/2015	4.91	9/5/2025	6/1/2015	103.57849	102.6954879	101.8282943	100.9764736	100.1396075	99.31729301	98.50914206	97.71478074	96.93384862
150601A00022	6/1/2015	5.43	10/26/2037	6/1/2015	135.06448	126.9923881	119.6182942	112.8712208	106.6881714	101.0131672	95.79640472	90.99352068	86.56494982
150601A00023	6/1/2015	5.46	10/30/2037	6/1/2015	135.27033	127.1889934	119.80632	113.0512675	106.8607871	101.1788527	95.95561815	91.14668195	86.71244424
150601A00030	6/1/2015	5.28	11/26/2027	6/1/2015	109.81176	107.7626875	105.7749537	103.8462099	101.9742168	100.1568369	98.39202948	96.67784511	95.01242112
150601A00033	6/1/2015	5.96	12/24/2025	6/1/2015	105.23987	104.217788	103.2151362	102.2313675	101.2659567	100.3183981	99.38820487	98.47490769	97.57805434
150601A00035	6/1/2015	5.73	4/1/2038	6/1/2015	138.22353	129.7391527	122.0090369	114.9543292	108.505287	102.6001495	97.18415451	92.20868285	87.63051414
150601A00261	6/1/2015	3.19	2/11/2033	6/1/2015	114.04942	109.2085134	104.6657969	100.3994913	96.38959493	92.61772776	89.06698765	85.72182087	82.56790459
150601A00270	6/1/2015	3.12	3/21/2031	6/1/2015	111.00276	107.2182156	103.624018	100.2086688	96.96145641	93.87239653	90.93217766	88.13211106	85.46408475
150601A00396	6/1/2015	3.61	1/3/2029	6/1/2015	108.48992	105.8706067	103.3483317	100.9186473	98.57734569	96.32044152	94.14415865	92.04491776	90.01932469

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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00411	6/1/2015	3.38	1/24/2029	6/1/2015	107.91336	105.3028098	102.7891021	100.3677953	98.03468482	95.7857887	93.61733433	91.52574595	89.50763303
150601A00425	6/1/2015	2.64	2/21/2024	6/1/2015	100.06394	100.0057647	99.94766833	99.88965151	99.83171402	99.7738557	99.71607639	99.65837593	99.60075416
150601A00426	6/1/2015	3.37	2/21/2029	6/1/2015	108.0325	105.3777967	102.822924	100.3632451	97.99437618	95.71216782	93.51269113	91.39222437	89.34724069
150601A00439	6/1/2015	2.57	3/18/2024	6/1/2015	100.10778	100.0026151	99.89769299	99.79301041	99.68856646	99.58436028	99.48039099	99.37665773	99.27315962
150601A00448	6/1/2015	2.61	4/26/2024	6/1/2015	100.17318	100.0120205	99.85145665	99.69148941	99.53211512	99.37333018	99.21513102	99.05751412	98.90047595
150601A00459	6/1/2015	2.42	5/16/2024	6/1/2015	100.17862	99.98202407	99.78633191	99.59153581	99.39762906	99.20460501	99.01245711	98.82117886	98.63076383
150601A00473	6/1/2015	2.22	5/31/2024	6/1/2015	100.17626	99.96912903	99.76303027	99.55795352	99.35389036	99.15083245	98.94877157	98.74769958	98.54760844
150601A00475	6/1/2015	3.04	6/1/2029	6/1/2015	107.70162	104.885487	102.1809976	99.58272588	97.08554877	94.6846286	92.37539538	90.15353008	88.01494916
150601A00477	6/1/2015	3.21	6/1/2029	6/1/2015	108.54243	105.7010597	102.972489	100.3512224	97.8320773	95.41016008	93.08084843	90.83977421	88.68280781
150601A00496	6/1/2015	2.27	6/27/2024	6/1/2015	100.23062	99.98341912	99.73770232	99.4934562	99.25066613	99.00931767	98.76939658	98.53088885	98.29378062
150601A00509	6/1/2015	2.52	7/8/2024	6/1/2015	100.30157	100.0216161	99.74355487	99.46736065	99.1930129	98.92049132	98.64977598	98.38084722	98.11368568
150601A00527	6/1/2015	2.5	7/26/2024	6/1/2015	100.30812	100.0200008	99.73391769	99.44984728	99.16776599	98.88765065	98.60947849	98.3332271	98.05887442
150601A00558	6/1/2015	2.51	8/30/2024	6/1/2015	100.34678	100.0151689	99.68628903	99.36010403	99.036577	98.71567179	98.39735294	98.08158566	97.76833584
150601A00678	6/1/2015	2.12	1/30/2025	6/1/2015	100.49637	99.95658858	99.42419523	98.89902573	98.38091647	97.869709	97.36524992	96.86739061	96.37598706
150601A00684	6/1/2015	2.25	2/7/2025	6/1/2015	100.62446	100.0473827	99.47871129	98.91824211	98.36577876	97.82113138	97.28411641	96.75455636	96.2322795
150601A00690	6/1/2015	2.34	2/28/2025	6/1/2015	100.68362	100.1019544	99.52887507	98.9641699	98.40763474	97.85907245	97.31829257	96.78511105	96.25934997
150601A00736	6/1/2015	2.87	5/1/2030	6/1/2015	108.51518	105.2223103	102.0783598	99.07517752	96.20511733	93.46100779	90.8361192	88.32413336	85.91911559
150601A00739	6/1/2015	2.35	5/6/2025	6/1/2015	100.89329	100.192087	99.5031921	98.82624829	98.16091267	97.50685612	96.86376255	96.23132826	95.6092613
150601A00832	6/1/2015	7.17	8/28/2025	6/1/2015	105.12686	104.2753161	103.438756	102.6167693	101.8089618	101.0149539	100.23438	99.46688766	98.71213737
150601A00851	6/1/2015	7.12	4/30/2027	6/1/2015	111.23588	109.4727557	107.7561348	106.0844015	104.4560127	102.8694906	101.3234192	99.81644146	98.34725628
150601A00864	6/1/2015	7.37	3/31/2028	6/1/2015	115.15355	112.8556894	110.6308816	108.4761818	106.3887884	104.3660327	102.4053718	100.5043818	98.66075114
150601A00865	6/1/2015	6	4/3/2028	6/1/2015	112.51595	110.2135036	107.98555	105.8290498	103.7411077	101.7189675	99.76000451	97.86171804	96.02172488
150601A00868	6/1/2015	7.08	6/5/2028	6/1/2015	115.45441	113.0200189	110.6666092	108.3907925	106.1893484	104.0592144	101.9974767	100.0013623	98.06823073
150601A00871	6/1/2015	6.74	7/31/2028	6/1/2015	114.99715	112.5237106	110.1339349	107.8242742	105.5913549	103.4319705	101.3430725	99.32176138	97.36527809
150601A00872	6/1/2015	7.42	7/31/2028	6/1/2015	116.54518	114.0480112	111.6351703	109.3030779	107.048337	104.867719	102.7581541	100.7167224	98.74064554
150601A00875	6/1/2015	7.14	9/29/2028	6/1/2015	116.52662	113.9401587	111.4436519	109.0331909	106.7050624	104.4557413	102.2818796	100.1802968	98.14796957
150601A00883	6/1/2015	6.21	11/30/2028	6/1/2015	114.8731	112.2241407	109.6701797	107.2069728	104.8305003	102.5369512	100.3227102	98.18434649	96.11860336
150601A00888	6/1/2015	5.92	3/1/2029	6/1/2015	115.1847	112.3547501	109.6319284	107.0112214	104.4878882	102.0574438	99.71564373	97.45846884	95.28211231
150601A00889	6/1/2015	6.55	3/2/2029	6/1/2015	116.8282	113.9694897	111.2187925	108.5710617	106.0215224	103.5656569	101.1991895	98.91807144	96.71846787
150601A00893	6/1/2015	6.49	4/6/2029	6/1/2015	116.9523	114.0464203	111.2518098	108.5632003	105.9756174	103.4843577	101.0849722	98.77325116	96.54520911
150601A00897	6/1/2015	6.15	5/28/2029	6/1/2015	116.32105	113.3807434	110.5546551	107.8373147	105.2235536	102.7084881	100.287502	97.95622959	95.71054053
150601A00899	6/1/2015	7.07	6/14/2029	6/1/2015	118.69371	115.6764827	112.7773476	109.9906097	107.3108878	104.7330993	102.2524417	99.86437468	97.56460441
150601A00900	6/1/2015	6.06	6/28/2024	6/1/2015	101.15879	100.9092526	100.661215	100.4146653	100.1695885	99.92597003	99.68379539	99.44305036	99.20372089

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00905	6/1/2015	6.14	10/29/2029	6/1/2015	117.60245	114.4149322	111.3591305	108.4283776	105.6163912	102.9172528	100.3253843	97.83552611	95.44271658
150601A00906	6/1/2015	6.2	11/1/2029	6/1/2015	118.03223	114.7927888	111.6887041	108.713047	105.8593013	103.1213317	100.4933588	97.9699362	95.54592891
150601A00912	6/1/2015	5.96	11/30/2029	6/1/2015	117.33232	114.1052999	111.0133076	108.0494324	105.2071664	102.4803823	99.86330847	97.35050621	94.93684781
150601A00918	6/1/2015	5.62	4/28/2025	6/1/2015	103.09198	102.4160464	101.751492	101.0979975	100.4552558	99.82297215	99.20086297	98.58865551	97.98608731
150601A00919	6/1/2015	7.41	6/7/2030	6/1/2015	123.75456	120.0788528	116.5686616	113.2149139	110.0091033	106.9432528	104.0098785	101.2019557	98.51288708
150601A00927	6/1/2015	6.08	8/7/2030	6/1/2015	119.95324	116.2692366	112.7555463	109.4026163	106.2015042	103.143836	100.2217656	97.42793784	94.75545468
150601A00928	6/1/2015	5.94	8/21/2030	6/1/2015	119.49139	115.8170115	112.3126281	108.9687022	105.7763027	102.7270664	99.81315762	97.02723151	94.36239968
150601A00929	6/1/2015	5.91	8/30/2030	6/1/2015	119.39348	115.7208975	112.2182742	108.8760698	105.685353	102.6377607	99.72545729	96.94109814	94.27779524
150601A00931	6/1/2015	7.13	9/20/2030	6/1/2015	123.73153	119.9176405	116.2812674	112.8123728	109.501571	106.3400772	103.3196645	100.4326251	97.67173349
150601A00935	6/1/2015	6.46	11/21/2030	6/1/2015	122.00845	118.1420209	114.4597588	110.9510394	107.605935	104.4151655	101.3700512	98.46247054	95.68481936
150601A00939	6/1/2015	5.79	1/17/2031	6/1/2015	120.17046	116.2563858	112.5330536	108.9892316	105.6144414	102.3989003	99.33347065	96.40961227	93.61933963
150601A00943	6/1/2015	6.44	5/9/2031	6/1/2015	123.50124	119.3267903	115.3632817	111.597855	108.0185427	104.6141986	101.3744352	98.28956708	95.35055804
150601A00946	6/1/2015	6.28	8/22/2031	6/1/2015	123.66928	119.3534254	115.2620906	111.3812138	107.6977337	104.1995075	100.8752402	97.71441882	94.70725306
150601A00948	6/1/2015	6.04	10/22/2031	6/1/2015	122.65003	118.2882478	114.1573046	110.2425121	106.530241	103.0078351	99.66353454	96.48640594	93.46627849
150601A00950	6/1/2015	6.76	12/18/2031	6/1/2015	126.58473	122.0103136	117.682103	113.5841733	109.701763	106.0211809	102.5297211	99.21558463	96.06780876
150601A00952	6/1/2015	6.34	2/13/2032	6/1/2015	125.41668	120.7814575	116.4006071	112.2573769	108.336264	104.6229082	101.1039995	97.76719378	94.6010356
150601A00953	6/1/2015	6.6	6/10/2032	6/1/2015	127.52356	122.6466961	118.0463967	113.7038724	109.6017735	105.7240672	102.0559283	98.58363937	95.29449992
150601A00955	6/1/2015	5.84	7/15/2032	6/1/2015	124.53847	119.6993791	115.1380145	110.8353201	106.773707	102.9369338	99.30999351	95.87901062	92.63114767
150601A00960	6/1/2015	6.49	12/16/2032	6/1/2015	128.59806	123.412661	118.5361925	113.9466647	109.6238485	105.5491192	101.7053177	98.07662365	94.6484418
150601A00964	6/1/2015	5.25	1/6/2033	6/1/2015	123.24524	118.1731899	113.4075956	108.9263962	104.7093132	100.7376923	96.99436116	93.46350068	90.1305284
150601A00971	6/1/2015	6.42	6/20/2033	6/1/2015	129.05896	123.6088728	118.4981527	113.7016022	109.1961237	104.9605261	100.9753531	97.22272822	93.68621432
150601A00976	6/1/2015	6.8	9/22/2033	6/1/2015	132.38749	126.6663012	121.309492	116.2894107	111.5807563	107.1603606	103.0069922	99.10117983	95.42505309
150601A00978	6/1/2015	6.32	11/24/2033	6/1/2015	130.54725	124.7918887	119.4093598	114.3709278	109.6503374	105.2235785	101.068677	97.16550637	93.49561855
150601A00988	6/1/2015	4.57	3/22/2024	6/1/2015	100.33156	100.2206689	100.1100476	99.99969447	99.88960844	99.77978848	99.67023355	99.56094262	99.45191466
150601A00993	6/1/2015	5.37	6/9/2034	6/1/2015	127.27604	121.3098707	115.7516704	110.5683812	105.7299359	101.2089616	96.9805165	93.02185608	89.31222181
150601A01005	6/1/2015	5.82	3/10/2025	6/1/2015	102.98465	102.3545889	101.7343703	101.1237356	100.5224387	99.93024215	99.34691723	98.77224312	98.20600674
150601A01015	6/1/2015	5.61	10/28/2025	6/1/2015	104.43124	103.4980297	102.5818715	101.6822911	100.7988304	99.93104844	99.07852104	98.24083952	97.41761018
150601A01016	6/1/2015	5.73	10/28/2025	6/1/2015	104.54018	103.6062739	102.6894345	101.7891837	100.905063	100.0366314	99.18346416	98.34515253	97.52130255
150601A01040	6/1/2015	5.4	10/2/2026	6/1/2015	106.97265	105.5148885	104.0913432	102.7009267	101.3425946	100.0153441	98.71821203	97.45027273	96.21063643
150601A01041	6/1/2015	5.99	10/2/2036	6/1/2015	136.51456	128.9239533	121.9468895	115.5248759	109.6056019	104.1422369	99.09280956	94.41966319	90.08897498
150601A01047	6/1/2015	5.35	12/30/2024	6/1/2015	102.11379	101.6086785	101.1099357	100.6174248	100.1310157	99.6505822	99.17600154	98.70715466	98.2439259
150601A01048	6/1/2015	5.27	1/3/2025	6/1/2015	102.24115	101.6996792	101.1654734	100.6383704	100.1182137	99.60485123	99.09813581	98.59792466	98.10407928
150601A01051	6/1/2015	4.91	2/7/2025	6/1/2015	102.24167	101.6567276	101.0803031	100.5121892	99.95218673	99.40010329	98.85575283	98.31895546	97.78953713

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160928A00029	9/28/2016	2.52	9/29/2036	9/28/2016	114.12433	107.1916203	100.8458021	95.02877089	89.68876507	84.77962322	80.26013226	76.09345592	72.24663329
160928A00030	9/28/2016	2.52	9/29/2036	9/28/2016	114.12433	107.1916203	100.8458021	95.02877089	89.68876507	84.77962322	80.26013226	76.09345592	72.24663329
160928A00032	9/28/2016	2.52	9/29/2036	9/28/2016	114.12433	107.1916203	100.8458021	95.02877089	89.68876507	84.77962322	80.26013226	76.09345592	72.24663329
160928A00033	9/28/2016	2.46	9/29/2036	9/28/2016	113.72445	106.8104865	100.4821256	94.68137171	89.35656208	84.46162468	79.95542735	75.80120714	71.96606968
160928A00041	9/28/2016	3.26	9/29/2036	9/30/2019	119.05619	111.8922704	105.3311455	99.31336073	93.78593522	88.70160517	84.01815953	79.69785756	75.70691773
160928A00042	9/28/2016	3.05	9/29/2036	9/28/2021	117.65661	110.5583021	104.0582778	98.09746361	92.62322477	87.58861029	82.95169233	78.67498683	74.72494512
160928A00044	9/28/2016	2.89	9/29/2036	9/28/2023	116.59026	109.5419453	103.0884738	97.17106581	91.73735014	86.74061419	82.1391459	77.89565674	73.97677551
160930A00032	9/30/2016	2.15	9/30/2031	9/30/2016	107.58109	103.6475378	99.92413375	96.39746927	93.05510044	89.8854715	86.87784523	84.02223923	81.30936754
160930A00033	9/30/2016	1.8	9/30/2026	9/30/2016	101.70393	100.3387208	99.00508361	97.70202839	96.42860259	95.18389112	93.96701461	92.77712769	91.61341741
170130A00036	1/30/2017	3.11	1/31/2033	1/30/2017	113.70896	108.709775	104.0219763	99.62260663	95.49059681	91.60660002	87.95283841	84.51296442	81.27193522
170130A00039	1/30/2017	2.74	1/31/2028	1/30/2017	105.50429	103.2154653	101.0008818	98.85752733	96.78253553	94.77317584	92.82684619	90.94106612	89.11347026
170130A00043	1/30/2017	2.64	1/29/2027	1/30/2017	103.8499	102.0837358	100.3641408	98.68952399	97.05836253	95.46919636	93.920625	92.41130478	90.93994606
170130A00046	1/30/2017	2.52	1/30/2026	1/30/2017	102.30791	101.0543253	99.82648878	98.62366986	97.44516179	96.29028353	95.1583786	94.04881399	92.96097915
170313A00041	3/13/2017	3.21	3/15/2032	3/13/2017	112.54653	108.1922846	104.0843367	100.2060761	96.54215526	93.07838056	89.80161769	86.69970482	83.76137366
170929A00046	9/29/2017	2.49	9/30/2027	9/29/2017	103.97754	102.0934688	100.264156	98.48755616	96.76171961	95.08478349	93.45496722	91.8705683	90.32995826
171206A00020	12/6/2017	2.62	12/6/2027	12/6/2017	104.57086	102.5561197	100.6028966	98.7088082	96.87157864	95.08903649	93.35910927	91.67981824	90.04927347
180529A00057	5/29/2018	3.09	5/30/2028	5/29/2018	108.90564	105.9051023	103.023606	100.2555065	97.59546143	95.03841504	92.57958116	90.21442722	87.93865926
181029A00097	10/29/2018	3.53	10/27/2028	10/29/2018	114.02523	109.7862851	105.7479594	101.8994703	98.23067425	94.73202672	91.39454363	88.20976533	85.16972324
181211A00042	12/11/2018	3.7	12/11/2028	12/11/2023	115.53159	110.9664562	106.6230233	102.4891106	98.55327622	94.80476736	91.23347543	87.82989392	84.58507927
190102A00015	1/2/2019	2.97	1/3/2034	1/2/2019	114.44287	109.1256981	104.1647133	99.53175517	95.20114113	91.14943173	87.35521798	83.79893012	80.46266575
190102A00020	1/2/2019	2.97	1/3/2034	1/2/2019	114.44287	109.1256981	104.1647133	99.53175517	95.20114113	91.14943173	87.35521798	83.79893012	80.46266575
190102A00022	1/2/2019	2.97	1/3/2034	1/2/2019	114.44287	109.1256981	104.1647133	99.53175517	95.20114113	91.14943173	87.35521798	83.79893012	80.46266575
190102A00024	1/2/2019	2.97	1/3/2034	1/2/2019	114.44287	109.1256981	104.1647133	99.53175517	95.20114113	91.14943173	87.35521798	83.79893012	80.46266575
190327A00030	3/27/2019	2.9	3/27/2036	3/27/2019	115.66739	109.2648996	103.3693651	97.9337217	92.91574058	88.2774907	83.98486706	80.00717389	76.31675608
190520A00020	5/20/2019	2.39	5/20/2026	5/20/2019	102.26448	101.0568361	99.87482454	98.71768054	97.58466899	96.475083	95.38824257	94.32349335	93.2802054
190628A00007	6/28/2019	2.28	6/28/2034	6/28/2019	111.31084	105.8907032	100.8485416	96.15335122	91.77695198	87.69371069	83.8802918	80.31543394	76.97974973
190823A00009	8/23/2019	1.8	8/23/2029	8/23/2019	104.92792	102.0689214	99.32697253	96.69622563	94.17116625	91.74659493	89.41760698	87.17957379	85.02812537
191115A00029	11/15/2019	2.07	11/15/2029	11/15/2019	105.57535	102.5909122	99.73283057	96.9945944	94.37007699	91.85351133	89.43946657	87.12282605	84.89876703
200130A00027	1/31/2020	1.79	1/31/2025	1/31/2020	100.33572	99.79633571	99.26434431	98.73957844	98.22187424	97.71107307	97.20702132	96.70957019	96.21857549
200203A00046	2/3/2020	1.98	2/3/2040	2/3/2020	112.58825	104.4430168	97.12648375	90.54087294	84.60104583	79.23275861	74.37117083	69.95956928	65.94827477
200210A00007	2/10/2020	1.78	2/10/2025	2/10/2023	101.02741	100.0170583	99.02792759	98.05934563	97.11066718	96.18127392	95.27057311	94.37799623	93.50299776
200225A00049	2/25/2020	1.79	2/24/2040	2/25/2020	111.02339	102.99595	95.78332562	89.2896627	83.43145701	78.13585607	73.33920575	68.98580615	65.02684494
200310A00067	3/10/2020	0.94	3/10/2025	3/10/2020	99.894965	99.27979743	98.67426385	98.07811346	97.49110497	96.9130058	96.34359163	95.78264608	95.2299603

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200311A00028	3/11/2020	1.04	3/12/2024	3/11/2020	99.950986	99.84026175	99.72979725	99.6195917	99.50964415	99.39995364	99.29051924	99.18134	99.07241499
200316A00008	3/16/2020	1.31	3/15/2030	3/16/2020	103.46544	100.4004608	97.47036541	94.66796349	91.98650226	89.41963746	86.96140575	84.60619932	82.34874218
200317A00024	3/17/2020	1.09	3/17/2025	3/17/2020	99.989245	99.37233615	98.76512413	98.1673554	97.57878591	96.99918047	96.42831229	95.86596265	95.31192049
200326A00037	3/26/2020	1.78	3/26/2035	3/26/2020	108.34848	102.7028475	97.47594884	92.63138625	88.13626626	83.96083515	80.07815508	76.46381578	73.09567769
200331A00056	3/31/2020	0.96	3/29/2030	3/31/2020	102.78652	99.72324892	96.79529176	93.99540973	91.31680967	88.75311049	86.29831528	83.94678559	81.69321754
200402A00050	4/6/2020	0.73	4/5/2024	4/6/2020	99.888833	99.74630051	99.60421533	99.4625755	99.32137881	99.18062306	99.04030606	98.90042565	98.76097966
200428A00018	4/28/2020	1.33	4/27/2035	4/28/2020	105.82885	100.2363203	95.06277805	90.27150028	85.82932174	81.70626658	77.87521702	74.31161883	70.99321899
200521A00005	5/21/2020	0.75	5/21/2030	5/21/2020	102.2255	99.0528103	96.02525721	93.13483338	90.37403344	87.73582048	85.21359351	82.80115747	80.49269551
210409A00010	4/9/2021	1.05	4/9/2031	4/9/2021	103.62518	99.97714912	96.51625973	93.23103611	90.11079778	87.14559847	84.32617053	81.64387392	79.09064932
210514A00007	5/14/2021	0.95	5/15/2028	5/14/2021	101.74163	99.55391003	97.43905577	95.39402933	93.41594077	91.50204134	89.64971547	87.85647344	86.11994437
210514A00010	5/14/2021	1.34	5/14/2031	5/14/2021	104.74788	101.0319255	97.50820246	94.16482896	90.99074887	87.97567217	85.1100165	82.3848535	79.79185971
220610A00068	6/10/2022	3.09	6/10/2025	6/10/2022	101.67979	100.9313103	100.1956202	99.47236573	98.76121067	98.06183158	97.37391701	96.69716696	96.03129236
220629A00034	6/29/2022	3.51	6/29/2027	6/29/2022	105.43879	103.6617807	101.9336135	100.2525501	98.61692352	97.02513871	95.47566855	93.96705056	92.49788371
221206A00040	12/6/2022	5	11/29/2024	12/6/2022	101.87325	101.3760284	100.8849284	100.3998279	99.92060528	99.4471423	98.97932416	98.51703921	98.06017891
230324A00021	3/24/2023	3.72	3/24/2028	3/24/2023	114.30326	110.3347076	106.537657	102.9036078	99.42453215	96.09284798	92.90139128	89.84339026	86.91244138
230324A00050	3/24/2023	4.13	3/24/2026	3/24/2023	104.0226	102.8836016	101.7677407	100.674343	99.60276206	98.55237597	97.52258602	96.51281568	95.52250959
230328A00027	3/28/2023	4.22	3/28/2028	3/28/2023	116.13694	112.0421205	108.1253272	104.3777044	100.7908908	97.35699075	94.06854477	90.91850309	87.90020027
230412A00053	4/12/2023	4.2	4/12/2028	4/10/2026	114.00994	110.5101289	107.1550852	103.9377984	100.8516438	97.89035771	95.04801523	92.31900993	89.69803468
230412A00059	4/12/2023	4.2	4/12/2028	4/10/2026	114.00994	110.5101289	107.1550852	103.9377984	100.8516438	97.89035771	95.04801523	92.31900993	89.69803468
230417A00085	4/17/2023	4.68	4/17/2026	4/17/2023	104.68843	103.5056	102.347237	101.2126212	100.1010612	99.0118914	97.94447176	96.89818596	95.87244054
230418A00035	4/18/2023	4.13	4/18/2028	4/18/2023	108.63155	106.3846132	104.2107467	102.1069556	100.0703913	98.09834191	96.18822552	94.3375825	92.54406901
230426A00142	4/26/2023	4.51	4/27/2026	4/26/2023	104.49366	103.3114227	102.1536729	101.0196854	99.90876706	98.82025145	97.75349718	96.70788689	95.68282614
230428A00050	4/28/2023	4.31	4/28/2028	4/28/2023	108.7292	106.4870188	104.3176168	102.2180145	100.1853782	98.21701079	96.31034362	94.46292983	92.67243756
230504A00059	5/4/2023	4.34	5/4/2026	5/4/2023	104.46659	103.2450877	102.0493706	100.8786657	99.73223461	98.60936711	97.50938023	96.43161678	95.37544416
230602A00051	6/2/2023	4.33	6/2/2038	6/2/2023	129.00188	120.8565719	113.4499796	106.7036091	100.5481696	94.92241231	89.77212708	85.04927129	80.71121312
230613A00015	6/13/2023	4.73	6/13/2033	6/13/2028	121.42905	116.2156763	111.3297266	106.7467651	102.4443935	98.40206962	94.60093908	91.02368449	87.65438845
230621A00047	6/21/2023	4.44	6/21/2028	6/21/2023	109.70997	107.3611514	105.0910275	102.8962942	100.7738082	98.72058086	96.73376904	94.81066741	92.94870059
230718A00065	7/18/2023	4.3	7/18/2033	7/18/2023	120.23456	114.9884409	110.0759049	105.4717824	101.1530287	97.09852683	93.28891242	89.70641471	86.33471367
230804A00030	8/4/2023	4.88	8/4/2027	8/4/2023	108.26385	106.3701905	104.5302711	102.7421271	101.003879	99.3137291	97.66995836	96.07092175	94.51504474
230830A00101	8/30/2023	5.06	8/31/2026	8/30/2023	105.99528	104.6322288	103.2999209	101.997403	100.7237625	99.47812263	98.25964028	97.06750458	95.90093538
230918A00030	9/18/2023	5.01	9/17/2027	9/18/2023	108.72574	106.7826976	104.8957857	103.0629189	101.2821053	99.55144179	97.86910897	96.233367	94.6425515
230929A00049	9/29/2023	4.87	9/30/2030	9/29/2023	115.89895	112.2739698	108.8188229	105.5238753	102.3801166	99.37911407	96.51297203	93.77429375	91.15614646
970806A00017	8/1/1997	7.02	7/23/2026	8/1/1997	108.35774	107.0136155	105.6991308	104.4133857	103.1555123	101.9246766	100.7200763	99.54093929	98.38652282

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
970806A00018	8/1/1997	6.7	10/23/2026	8/1/1997	108.80786	107.3306336	105.8880724	104.4790764	103.1025863	101.7575849	100.4430953	99.15817875	97.90193297
970806A00059	8/1/1997	8.25	9/22/2025	8/1/1997	106.34548	105.4452903	104.5611856	103.6927208	102.8394699	102.001023	101.1769852	100.3669759	99.57062854
110701A00011	7/1/2011	3.87	7/1/2026	7/1/2011	104.29977	102.9763587	101.6822716	100.4166156	99.17853278	97.96719834	96.7818188	95.62163071	94.48589918
110719A00017	7/19/2011	3.68	7/20/2026	7/19/2011	104.05255	102.730652	101.4381049	100.1740089	98.93750385	97.7277624	96.54398898	95.38541811	94.25131303
110909A00006	9/9/2011	2.26	9/9/2026	9/9/2011	102.36422	100.9814438	99.6306782	98.31091714	97.02119581	95.76058734	94.52820093	93.32318016	92.14470139
120330A00013	3/30/2012	2.98	4/2/2024	3/30/2012	100.37998	100.1284624	99.87820817	99.62921122	99.38146212	99.13495149	98.88967004	98.64560856	98.40275797
120517A00021	5/17/2012	1.85	5/17/2024	5/17/2012	100.09991	99.90233555	99.70567408	99.5099215	99.3150709	99.12111547	98.92804847	98.73586323	98.54455313
120806A00015	8/6/2012	2.38	8/6/2027	8/6/2012	103.72142	101.8582039	100.0484364	98.29014755	96.58145767	94.9205697	93.30576503	91.73539949	90.20789956
120807A00026	8/7/2012	2.42	8/9/2027	8/7/2012	103.79738	101.9327365	100.1215849	98.36195372	96.65196156	94.98980985	93.37377848	91.80222188	90.27356519
120808A00006	8/8/2012	2.06	8/9/2027	8/8/2012	103.36199	101.5013418	99.69416584	97.93848919	96.23242803	94.57418162	92.96202794	91.39431973	89.86948062
130206A00009	2/6/2013	2.83	2/7/2028	2/6/2013	108.87095	105.5201631	102.3052434	99.21976696	96.25765437	93.41314964	90.68080088	88.05544232	85.53217757
131018A00006	10/18/2013	3.28	10/20/2025	10/18/2013	104.82892	103.1481254	101.5040533	99.89564118	98.32186686	96.78174558	95.2743283	93.7987001	92.35397862
140219A00005	2/19/2014	3.13	2/20/2029	2/19/2014	108.12249	105.3897868	102.7612088	100.2318813	97.79719563	95.45279107	93.19454008	91.01853406	88.92107027
140318A00003	3/17/2014	3.08	3/18/2024	3/17/2014	100.37084	100.1556039	99.94130285	99.72793451	99.51549269	99.30397126	99.09336417	98.88366542	98.67486903
140428A00015	4/28/2014	2.35	4/29/2024	4/28/2014	100.16102	99.99772108	99.83504109	99.67297765	99.51152692	99.35068509	99.19044837	99.03081302	98.87177533
140618A00019	6/18/2014	3.08	6/18/2024	6/18/2014	100.40007	100.1573946	99.91612872	99.67625917	99.43777262	99.20065593	98.96489612	98.73048042	98.49739618
140703A00026	7/3/2014	3.11	7/3/2024	7/3/2014	100.91225	100.412283	99.91731555	99.4272763	98.94209167	98.46168949	97.98599905	97.51495101	97.0484774
140717A00027	7/17/2014	3.14	7/17/2026	7/17/2014	106.48939	104.1752337	101.9270498	99.7425379	97.61949313	95.55580183	93.54943707	91.59845449	89.70098836
140821A00030	8/21/2014	2.27	8/21/2024	8/21/2014	100.34397	100.0144512	99.68761517	99.36342295	99.041839	98.72282845	98.40635708	98.09239134	97.78089827
140908A00080	9/8/2014	2.51	3/8/2024	9/8/2014	100.21199	100.0263569	99.84142952	99.6572016	99.47366904	99.29082784	99.10867401	98.9272036	98.74641268
140917A00030	9/17/2014	3.23	9/17/2029	9/17/2014	115.40591	110.4255033	105.7165559	101.2623748	97.04739619	93.05710207	89.27794342	85.69727003	82.30326558
140924A00057	9/24/2014	3.25	9/25/2028	9/24/2014	114.41198	109.8873769	105.5798915	101.4777595	97.56992806	93.84600557	90.29621784	86.9113677	83.68279737
141015A00029	10/15/2014	2.32	10/15/2024	10/15/2014	101.02058	100.2742665	99.53937196	98.81563144	98.10278948	97.40059836	96.70881788	96.02721504	95.35556381
141017A00022	10/17/2014	2.78	10/17/2024	10/17/2014	101.27439	100.5006547	99.73894614	98.98898421	98.25049704	97.52322115	96.8069011	96.10128918	95.40614513
150203A00027	2/3/2015	2.26	2/4/2030	2/3/2015	107.0073	103.7892806	100.7139309	97.77360847	94.96113845	92.26978139	89.69320395	87.22545173	84.86092396
150213A00014	2/13/2015	2.41	2/13/2025	2/13/2015	100.83756	100.254831	99.68065412	99.11482319	98.55713672	98.00740001	97.46542489	96.93102946	96.40403775
150219A00016	2/19/2015	2.68	2/19/2025	2/19/2015	101.90328	100.8390238	99.79815143	98.77989627	97.78352369	96.80833065	95.85364389	94.91881847	94.00323619
150224A00010	2/24/2015	2.34	2/24/2025	2/24/2015	100.83091	100.2452082	99.67100695	99.1079497	98.55569417	98.01391204	97.48228826	96.96052035	96.44831779
150227A00011	2/27/2015	2.33	2/27/2025	2/27/2015	101.6704	100.6126402	99.57799428	98.56569751	97.57502065	96.60526605	95.65576599	94.72588107	93.81499873
150311A00003	3/11/2015	2.72	3/31/2025	3/11/2015	102.20491	101.0165321	99.85652251	98.72386456	97.61759164	96.53678241	95.48055811	94.44808014	93.43854778
150320A00019	3/20/2015	2.25	3/20/2025	3/20/2015	101.69078	100.5786104	99.49204422	98.43019375	97.39220936	96.37728024	95.38463221	94.41352564	93.46325354
150410A00021	4/10/2015	2.27	4/10/2025	4/10/2015	100.7987	100.1353311	99.4830773	98.84162894	98.21068909	97.58997229	96.9792039	96.37811964	95.78646504
150414A00037	4/14/2015	2.34	4/14/2025	4/14/2015	100.84711	100.1827086	99.52946	98.8870538	98.2551913	97.63358533	97.02195969	96.42004862	95.82759623

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150427A00014	4/27/2015	2.98	4/27/2035	4/27/2015	116.03163	109.7555755	103.9550471	98.58807679	93.61678543	89.0069538	84.72764104	80.75084563	77.05120358
150603A00012	6/3/2015	2.77	6/3/2030	6/3/2015	109.16862	105.7115955	102.4150026	99.26988562	96.26785611	93.40105446	90.66211271	88.04412049	85.54059353
150603A00032	6/3/2015	2.21	6/3/2025	6/3/2015	101.02175	100.2742028	99.53943585	98.81710403	98.10687116	97.40841368	96.72142006	96.04559022	95.380635
150604A00039	6/4/2015	2.82	6/4/2030	6/4/2015	109.34286	105.8802777	102.5783915	99.42822712	96.42138246	93.54998486	90.80665427	88.18446898	85.67693403
150615A00024	6/15/2015	2.26	6/16/2025	6/15/2015	101.06478	100.3149733	99.57802219	98.85357534	98.14129408	97.44085253	96.75193693	96.07424506	95.40748571
150617A00017	6/17/2015	2.27	6/17/2025	6/17/2015	101.07324	100.3230438	99.58571931	98.86091084	98.14827933	97.44749851	96.75825422	96.0802439	95.41317598
150617A00018	6/17/2015	2.45	6/17/2025	6/17/2015	101.09019	100.3413048	99.60524533	98.88165695	98.17020234	97.4705569	96.7824081	96.10545486	95.43940708
150617A00030	6/17/2015	2.91	6/16/2025	6/17/2015	103.04615	101.6666667	100.3133604	98.98554598	97.68256038	96.40376321	95.14853571	93.9162799	92.70641767
150701A00056	7/1/2015	2.34	7/1/2025	7/1/2015	101.2112	100.4210987	99.64470737	98.88164846	98.13156277	97.39410448	96.66894047	95.95574976	95.25422292
150714A00003	7/14/2015	3.76	7/12/2030	7/14/2015	112.81866	109.2007914	105.7527295	102.464899	99.32833395	96.33463907	93.47594916	90.74489223	88.13455515
150722A00033	7/22/2015	2.47	7/22/2025	7/22/2015	101.19723	100.4056957	99.62792418	98.86354446	98.11219509	97.37352801	96.64720802	95.9329121	95.2303289
150722A00035	7/22/2015	2.92	7/22/2025	7/22/2015	103.33804	101.8679018	100.4268865	99.01419194	97.62904078	96.27068402	94.93839948	93.63149069	92.34928567
150729A00028	7/29/2015	2.25	7/29/2025	7/29/2015	101.14998	100.3562401	99.5763577	98.80995005	98.05665234	97.3161134	96.58799501	95.87197132	95.16772827
150729A00041	7/29/2015	2.44	7/29/2025	7/29/2015	101.17587	100.3834762	99.60488275	98.8397163	98.08761389	97.34822614	96.62121656	95.90626091	95.20304667
150803A00033	8/3/2015	3.41	8/2/2030	8/3/2015	117.95894	112.0806096	106.5668723	101.3925462	96.53433516	91.97067839	87.68161191	83.64864149	79.85462652
150803A00036	8/3/2015	3.41	8/2/2030	8/3/2015	117.95894	112.0806096	106.5668723	101.3925462	96.53433516	91.97067839	87.68161191	83.64864149	79.85462652
150803A00037	8/3/2015	3.41	8/2/2030	8/3/2015	117.95894	112.0806096	106.5668723	101.3925462	96.53433516	91.97067839	87.68161191	83.64864149	79.85462652
150803A00038	8/3/2015	3.41	8/2/2030	8/3/2015	117.95894	112.0806096	106.5668723	101.3925462	96.53433516	91.97067839	87.68161191	83.64864149	79.85462652
150803A00039	8/3/2015	3.01	8/2/2030	8/3/2015	109.79243	106.2378154	102.8515227	99.62397968	96.54623152	93.60989738	90.8071296	88.13057611	85.57334584
150803A00041	8/3/2015	3.01	8/2/2030	8/3/2015	109.79243	106.2378154	102.8515227	99.62397968	96.54623152	93.60989738	90.8071296	88.13057611	85.57334584
150803A00042	8/3/2015	3.01	8/2/2030	8/3/2015	109.79243	106.2378154	102.8515227	99.62397968	96.54623152	93.60989738	90.8071296	88.13057611	85.57334584
150812A00052	8/14/2015	2.13	8/14/2025	8/14/2015	101.1327	100.3000018	99.48204206	98.6784173	97.88873913	97.11263355	96.34974032	95.59971233	94.86221494
150814A00029	8/14/2015	2.39	8/14/2025	8/14/2015	101.22731	100.3953677	99.57812026	98.77516968	97.98612918	97.2106263	96.44830229	95.69881142	94.96182037
150824A00033	8/24/2015	2.22	8/25/2025	8/24/2015	101.08728	100.2550817	99.43760564	98.63444714	97.8452182	97.06954527	96.30706853	95.55744126	94.82032921
150824A00050	8/24/2015	2.03	8/25/2025	8/24/2015	101.05168	100.2182475	99.39957939	98.59527551	97.80494597	97.02821542	96.26472238	95.51411852	94.77606807
150925A00034	9/25/2015	2.36	9/25/2025	9/25/2015	101.29659	100.4211921	99.56154486	98.71721187	97.88777473	97.07283071	96.27199199	95.48488489	94.7111493
150929A00076	9/29/2015	2.28	9/29/2025	9/29/2015	101.22688	100.3515412	99.49195588	98.64769245	97.81833198	97.00347127	96.20272205	95.41571022	94.64207528
150929A00083	9/29/2015	2.09	9/29/2025	9/29/2015	101.18954	100.3128886	99.4520456	98.6065747	97.77605499	96.96008132	96.1582636	95.37022602	94.59560639
150929A00087	9/29/2015	2.09	9/29/2025	9/29/2015	101.18954	100.3128886	99.4520456	98.6065747	97.77605499	96.96008132	96.1582636	95.37022602	94.59560639
151001A00023	10/1/2015	2.02	10/1/2025	10/1/2015	101.20226	100.2879214	99.39030463	98.5089432	97.64338907	96.79321107	95.95799407	95.13733826	94.33085834
151013A00033	10/13/2015	2.23	10/14/2025	10/13/2015	101.27269	100.3578022	99.45964654	98.57775523	97.71167969	96.8609883	96.02526549	95.20411103	94.39713928
151029A00008	10/29/2015	2.28	10/29/2025	10/29/2015	101.32429	100.4069221	99.50636547	98.62215381	97.75383512	96.90097447	96.06315323	95.23996821	94.43103101
151030A00026	10/30/2015	3.29	10/30/2030	10/30/2015	117.70464	111.662808	106.0070615	100.7100016	95.74632984	91.09267634	86.7274431	82.63066033	78.78385532

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
151118A00037	11/18/2015	2.75	11/18/2025	11/18/2015	103.6845	102.0319723	100.4163924	98.8366972	97.29186193	95.78089822	94.30285237	92.85680395	91.44186435
151120A00019	11/20/2015	2.72	11/20/2030	11/20/2015	109.58008	105.8918058	102.3843047	99.0469621	95.86987263	92.84378455	89.96005217	87.21059192	84.58784197
151125A00037	11/25/2015	2.41	11/25/2025	11/25/2015	101.5407	100.5804506	99.63814525	98.71327837	97.80536637	96.91394375	96.03856231	95.17879034	94.33421181
151204A00011	12/4/2015	2.28	12/4/2025	12/4/2015	101.64017	100.6383651	99.6556404	98.69146495	97.7453233	96.81671924	95.9051748	95.01022943	94.1314392
151209A00024	12/9/2015	2.22	12/9/2025	12/9/2015	101.58068	100.5788755	99.59617227	98.63203169	97.68593756	96.75739299	95.84591934	94.95105547	94.07235685
151223A00036	12/23/2015	2.64	12/23/2025	12/23/2015	103.63053	101.9014489	100.2124032	98.56220357	96.94970539	95.37380574	93.83344162	92.32758815	90.85525692
151223A00078	12/23/2015	2.28	12/23/2025	12/23/2015	101.64602	100.6419535	99.65706764	98.69082489	97.74270592	96.81221068	95.89885762	95.00218272	94.12173879
151228A00013	12/28/2015	2.27	12/29/2025	12/28/2015	101.63736	100.6327995	99.64744409	98.68075506	97.73221195	96.80131376	95.887578	94.99053979	94.10975108
151229A00026	12/29/2015	2.28	12/29/2025	12/29/2015	101.64787	100.6430844	99.65751648	98.69062185	97.74187976	96.81078897	95.89686674	94.99964796	94.11868435
160106A00042	1/6/2016	2.43	1/6/2026	1/6/2016	101.75233	100.7095114	99.68697195	98.68414068	97.70046583	96.73541612	95.78847977	94.85916367	93.94699244
160115A00011	1/15/2016	2.18	1/15/2026	1/15/2016	101.50037	100.4590034	99.43792313	98.43655204	97.45433746	96.49074732	95.54526913	94.61740907	93.70669114
160119A00072	1/19/2016	2.77	1/21/2031	1/19/2016	110.64477	106.3610624	102.3037877	98.45879157	94.81291647	91.35392213	88.07041552	84.95178645	81.98814854
160126A00004	1/26/2016	2.52	1/26/2026	1/26/2016	104.51359	102.4968881	100.530112	98.61168589	96.74009835	94.91389681	93.1316846	91.39211841	89.69390573
160201A00016	2/1/2016	2.1	2/2/2026	2/1/2016	101.49889	100.417716	99.35805094	98.31927846	97.30080679	96.30206621	95.32250804	94.36160367	93.41884361
160209A00006	2/9/2016	1.91	2/9/2026	2/9/2016	101.2921	100.2121882	99.15377421	98.11624548	97.09900987	96.10149727	95.12315866	94.16346512	93.22190689
160209A00008	2/9/2016	2.45	2/10/2031	2/9/2016	108.37954	104.6136681	101.0377944	97.64046885	94.41101827	91.33949118	88.41660382	85.63369075	82.98265949
160210A00049	2/10/2016	1.78	2/10/2026	2/10/2016	101.29065	100.2087962	99.14851561	98.10919321	97.09023382	96.09106451	95.11113354	94.14990943	93.20687998
160210A00051	2/10/2016	2.28	2/10/2031	2/10/2016	108.23492	104.4636372	100.8830252	97.48156498	94.24852786	91.1739117	88.24838666	85.46324543	82.81035738
160210A00054	2/10/2016	1.78	2/10/2026	2/10/2016	101.29065	100.2087962	99.14851561	98.10919321	97.09023382	96.09106451	95.11113354	94.14990943	93.20687998
160211A00038	2/11/2016	1.83	2/11/2026	2/11/2016	101.20464	100.1254221	99.06769525	98.03084458	97.01427797	96.01742542	95.03973801	94.08068694	93.13976256
160212A00047	2/12/2016	1.94	2/12/2026	2/12/2016	101.32597	100.2453401	99.18623173	98.148029	97.13013889	96.13199053	95.15303417	94.19274018	93.25059813
160303A00035	3/3/2016	2.14	3/3/2026	3/3/2016	101.71216	100.5489539	99.40968657	98.29366108	97.20020711	96.12867951	95.07845715	94.04894179	93.03955706
160307A00024	3/7/2016	2.17	3/6/2026	3/7/2016	101.66964	100.5445769	99.44239043	98.36241412	97.30401014	96.2665647	95.24948685	94.25220747	93.27417823
160328A00038	3/28/2016	2.54	3/30/2026	3/28/2016	104.50537	102.4259717	100.4004131	98.42688669	96.5036658	94.62909638	92.80159312	91.01963593	89.28176665
160329A00017	3/29/2016	2.48	3/30/2026	3/29/2016	104.37878	102.3013806	100.2777706	98.30614614	96.38478223	94.51202619	92.68629407	90.90606709	89.16988835
160404A00019	4/4/2016	2.48	4/4/2031	4/4/2016	108.68619	104.824238	101.1610848	97.68452536	94.38319813	91.24652297	88.26464188	85.42836476	82.72911952
160412A00029	4/12/2016	2.48	4/14/2031	4/12/2016	108.68664	104.8244199	101.161036	97.6842782	94.38278125	91.2459617	88.26395864	85.42757933	82.72824939
160413A00014	4/13/2016	2.55	4/14/2031	4/13/2016	108.96066	105.0886715	101.4160246	97.9304781	94.62063789	91.47589336	88.48635836	85.64281667	82.93667199
160413A00016	4/13/2016	2.55	4/14/2031	4/13/2016	108.96066	105.0886715	101.4160246	97.9304781	94.62063789	91.47589336	88.48635836	85.64281667	82.93667199
160413A00020	4/13/2016	2.48	4/13/2026	4/13/2016	104.61321	102.4440099	100.3321212	98.2756442	96.27275873	94.32171826	92.42084619	90.56853252	88.76323059
160413A00021	4/13/2016	2.48	4/13/2026	4/13/2016	104.61321	102.4440099	100.3321212	98.2756442	96.27275873	94.32171826	92.42084619	90.56853252	88.76323059
160413A00033	4/13/2016	2.32	4/13/2026	4/13/2016	103.78429	101.8250524	99.91623229	98.05618013	96.24331156	94.4761059	92.75310311	91.0729008	89.43415152
160414A00042	4/13/2016	2.48	4/13/2026	4/13/2016	104.61321	102.4440099	100.3321212	98.2756442	96.27275873	94.32171826	92.42084619	90.56853252	88.76323059

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160421A00016	4/21/2016	2.26	4/21/2026	4/21/2016	104.31853	102.1900489	100.1179336	98.10034009	96.13549339	94.22168845	92.35728698	90.54071425	88.77045618
160427A00004	4/27/2016	2.09	4/27/2026	4/27/2016	101.67222	100.5036721	99.35944687	98.2388269	97.1411223	96.06566952	95.01183012	93.9789896	92.96655625
160428A00028	4/28/2016	2	4/28/2026	4/28/2016	101.71858	100.5473544	99.4005548	98.27745495	97.17736108	96.09960595	95.04354765	94.00856837	92.99407326
160511A00015	5/11/2016	2.42	5/11/2026	5/11/2016	104.67318	102.4333182	100.2543957	98.134409	96.07143263	94.06361547	92.10917736	90.20640594	88.35365369
160511A00016	5/11/2016	2.48	5/12/2031	5/11/2016	108.78222	104.8738628	101.1687176	97.65419302	94.31857439	91.15095961	88.14119723	85.27982949	82.55804019
160523A00086	5/23/2016	2.2	5/26/2026	5/23/2016	104.40941	102.1969012	100.0451411	97.95210351	95.91584288	93.93448993	92.00624836	90.12939152	88.30225919
160603A00014	6/3/2016	1.74	6/3/2026	6/3/2016	101.56561	100.3158124	99.09315029	97.89681149	96.72601088	95.57999346	94.45803288	93.35943011	92.28351213
160603A00029	6/3/2016	2.18	6/3/2031	6/3/2016	108.20579	104.2647133	100.5309842	96.99161567	93.63453529	90.44851613	87.42311175	84.54859653	81.81591095
160606A00018	6/6/2016	1.74	6/5/2026	6/6/2016	101.56624	100.3161499	99.09321106	97.89661007	96.72556112	95.57930853	94.45712531	93.35831183	92.28219451
160608A00019	6/8/2016	2.36	6/8/2026	6/8/2016	104.71285	102.4071722	100.1659847	97.98710799	95.86844862	93.80799641	91.80382057	89.85406605	87.95695011
160608A00020	6/8/2016	2.36	6/8/2026	6/8/2016	104.71285	102.4071722	100.1659847	97.98710799	95.86844862	93.80799641	91.80382057	89.85406605	87.95695011
160608A00023	6/8/2016	2.36	6/8/2026	6/8/2016	104.71285	102.4071722	100.1659847	97.98710799	95.86844862	93.80799641	91.80382057	89.85406605	87.95695011
160608A00024	6/8/2016	2.36	6/8/2026	6/8/2016	104.71285	102.4071722	100.1659847	97.98710799	95.86844862	93.80799641	91.80382057	89.85406605	87.95695011
160608A00025	6/8/2016	2.36	6/8/2026	6/8/2016	104.71285	102.4071722	100.1659847	97.98710799	95.86844862	93.80799641	91.80382057	89.85406605	87.95695011
160608A00027	6/8/2016	2.36	6/8/2026	6/8/2016	104.71285	102.4071722	100.1659847	97.98710799	95.86844862	93.80799641	91.80382057	89.85406605	87.95695011
160608A00028	6/8/2016	2.36	6/8/2026	6/8/2016	104.71285	102.4071722	100.1659847	97.98710799	95.86844862	93.80799641	91.80382057	89.85406605	87.95695011
160608A00029	6/8/2016	2.36	6/8/2026	6/8/2016	104.71285	102.4071722	100.1659847	97.98710799	95.86844862	93.80799641	91.80382057	89.85406605	87.95695011
160608A00030	6/8/2016	2.36	6/8/2026	6/8/2016	104.71285	102.4071722	100.1659847	97.98710799	95.86844862	93.80799641	91.80382057	89.85406605	87.95695011
160608A00033	6/8/2016	2.44	6/9/2031	6/8/2016	108.71728	104.7686047	101.0272615	97.48028637	94.11562734	90.92207501	87.88919804	85.00728367	82.26728333
160608A00034	6/8/2016	2.44	6/9/2031	6/8/2016	108.71728	104.7686047	101.0272615	97.48028637	94.11562734	90.92207501	87.88919804	85.00728367	82.26728333
160609A00075	6/9/2016	1.94	6/9/2026	6/9/2016	101.65758	100.4082994	99.18611697	97.99022131	96.81982906	95.67418681	94.55256973	93.45428022	92.37864664
160616A00029	6/16/2016	1.58	6/16/2026	6/16/2016	101.36465	100.1160941	98.89468757	97.69961472	96.53008898	95.38535394	94.26468191	93.16737263	92.09275195
160629A00066	6/29/2016	2.61	6/30/2036	6/29/2016	121.02733	110.7492639	101.5639511	93.34410095	85.97814142	79.36818839	73.42828748	68.08289059	63.26553483
160711A00004	7/11/2016	1.51	7/13/2026	7/11/2016	101.34672	100.0575965	98.79711206	97.56439547	96.35860662	95.17893778	94.02461209	92.89488213	91.78902853
160713A00015	7/13/2016	1.57	7/13/2026	7/13/2016	101.42594	100.1356298	98.87399395	97.64015725	96.43327838	95.2525485	94.09718973	92.96645362	91.85961986
160719A00026	7/19/2016	1.87	7/20/2026	7/19/2016	101.65235	100.3609499	99.09821817	97.86328132	96.65529886	95.47346268	94.31699552	93.18514957	92.07720505
160801A00002	8/1/2016	1.58	8/3/2026	8/1/2016	101.51251	100.180806	98.87932106	97.60712374	96.36331544	95.14703252	93.95744465	92.79375323	91.65518986
160810A00025	8/10/2016	2.17	8/10/2026	8/10/2016	104.64822	102.1927677	99.80968677	97.4963824	95.25037352	93.06928451	90.9508399	88.89285946	86.89325344
160810A00027	8/10/2016	2.13	8/10/2026	8/10/2016	104.3813	102.0033977	99.69496598	97.45352742	95.27670953	93.16224045	91.1079439	89.11173446	87.17161309
160810A00028	8/10/2016	2.19	8/10/2026	8/10/2016	104.7931	102.2947991	99.87047183	97.51745955	95.23322118	93.01532374	90.86143695	88.76932815	86.73685745
160810A00029	8/10/2016	2.17	8/10/2026	8/10/2016	104.64822	102.1927677	99.80968677	97.4963824	95.25037352	93.06928451	90.9508399	88.89285946	86.89325344
160810A00030	8/10/2016	2.24	8/11/2031	8/10/2016	108.08656	104.07589	100.2799407	96.68503942	93.27849397	90.04851445	86.98414307	84.07518959	81.31217224
160812A00006	8/12/2016	2.16	8/12/2026	8/12/2016	104.78162	102.3869359	100.0624232	97.80556999	95.61397252	93.48532941	91.41743647	89.40818186	87.4555415

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160824A00019	8/24/2016	1.98	8/25/2031	8/24/2016	107.56526	103.562081	99.77370373	96.18642552	92.78752466	89.56518592	86.50842957	83.60704649	80.85153877
160906A00027	9/6/2016	2.03	9/8/2031	9/6/2016	107.84785	103.7921721	99.9561532	96.32565567	92.88756701	89.62971627	86.54079999	83.61031425	80.82849263
160908A00022	9/8/2016	2.21	9/8/2026	9/8/2016	104.92088	102.3935271	99.94227738	97.56433933	95.25704339	93.01783689	90.84427796	88.73402981	86.68485539
160908A00023	9/8/2016	2.21	9/8/2026	9/8/2016	104.92088	102.3935271	99.94227738	97.56433933	95.25704339	93.01783689	90.84427796	88.73402981	86.68485539
160908A00024	9/8/2016	2.21	9/8/2026	9/8/2016	104.92088	102.3935271	99.94227738	97.56433933	95.25704339	93.01783689	90.84427796	88.73402981	86.68485539
160908A00025	9/8/2016	2.21	9/8/2026	9/8/2016	104.92088	102.3935271	99.94227738	97.56433933	95.25704339	93.01783689	90.84427796	88.73402981	86.68485539
160908A00026	9/8/2016	2.21	9/8/2026	9/8/2016	104.92088	102.3935271	99.94227738	97.56433933	95.25704339	93.01783689	90.84427796	88.73402981	86.68485539
160908A00027	9/8/2016	2.21	9/8/2026	9/8/2016	104.92088	102.3935271	99.94227738	97.56433933	95.25704339	93.01783689	90.84427796	88.73402981	86.68485539
160908A00028	9/8/2016	2.21	9/8/2026	9/8/2016	104.92088	102.3935271	99.94227738	97.56433933	95.25704339	93.01783689	90.84427796	88.73402981	86.68485539
160908A00030	9/8/2016	2.21	9/8/2026	9/8/2016	104.92088	102.3935271	99.94227738	97.56433933	95.25704339	93.01783689	90.84427796	88.73402981	86.68485539
160908A00031	9/8/2016	2.21	9/8/2026	9/8/2016	104.92088	102.3935271	99.94227738	97.56433933	95.25704339	93.01783689	90.84427796	88.73402981	86.68485539
160908A00032	9/8/2016	2.17	9/8/2026	9/8/2016	104.63861	102.1927883	99.81995093	97.51743351	95.28268672	93.11327252	91.0068584	88.96121195	86.9741958
160908A00033	9/8/2016	2.17	9/8/2026	9/8/2016	104.63861	102.1927883	99.81995093	97.51743351	95.28268672	93.11327252	91.0068584	88.96121195	86.9741958
160908A00034	9/8/2016	2.17	9/8/2026	9/8/2016	104.63861	102.1927883	99.81995093	97.51743351	95.28268672	93.11327252	91.0068584	88.96121195	86.9741958
160908A00035	9/8/2016	2.3	9/8/2031	9/8/2016	108.41717	104.351752	100.5060635	96.86598943	93.41843482	90.15124354	87.0531244	84.11358353	81.32286262
160908A00036	9/8/2016	2.3	9/8/2031	9/8/2016	108.41717	104.351752	100.5060635	96.86598943	93.41843482	90.15124354	87.0531244	84.11358353	81.32286262
160923A00009	9/23/2016	2.24	9/23/2031	9/23/2016	108.17053	104.1139241	100.2766087	96.64449762	93.20451874	89.94453744	86.85328272	83.92027978	81.13578822
161005A00016	10/5/2016	2.32	10/6/2031	10/5/2016	108.58636	104.4721276	100.5823627	96.90251637	93.41910327	90.11961259	86.99243093	84.02677167	81.21261032
161014A00019	10/14/2016	2.39	10/15/2031	10/14/2016	108.87921	104.7536293	100.8531585	97.16320631	93.67024667	90.36173142	87.22601263	84.2522717	81.4304546
161014A00026	10/14/2016	2.16	10/14/2031	10/14/2016	108.47019	104.3481855	100.4515628	96.76569257	93.27700896	89.97292845	86.84177185	83.87269302	81.05561362
161014A00029	10/14/2016	2.51	10/15/2031	10/14/2016	109.93911	105.76128	101.8118888	98.07610411	94.54017637	91.19135164	88.01779258	85.00850616	82.15327757
161116A00006	11/16/2016	2.39	11/16/2026	11/16/2016	102.76253	101.2903569	99.85370759	98.45143571	97.08243794	95.74565536	94.44007124	93.16470908	91.91863063
161207A00014	12/7/2016	2.75	12/8/2031	12/7/2016	111.1792	106.8669972	102.794984	98.94729932	95.30925541	91.86724476	88.60865329	85.52178086	82.59576867
161214A00034	12/14/2016	2.65	12/14/2026	12/14/2016	103.2706	101.7494481	100.2657548	98.8182941	97.40588894	96.02740981	94.68177247	93.36793565	92.08489912
161222A00013	12/22/2016	2.93	12/22/2026	12/22/2016	107.66544	104.9198203	102.2635134	99.69308062	97.20523768	94.79684552	92.4649032	90.20654087	88.01901328
161227A00073	12/27/2016	2.83	12/28/2026	12/27/2016	106.75561	104.2259623	101.7767655	99.40495176	97.10758561	94.88186135	92.7250965	90.63472555	88.60829417
161229A00018	12/29/2016	2.46	12/29/2026	12/29/2016	103.18065	101.6568035	100.1705914	98.72077763	97.30617636	95.92564966	94.57810537	93.26249479	91.97781063
161229A00019	12/29/2016	2.46	12/29/2026	12/29/2016	103.18065	101.6568035	100.1705914	98.72077763	97.30617636	95.92564966	94.57810537	93.26249479	91.97781063
170105A00010	1/5/2017	2.61	1/5/2027	1/5/2017	103.3243	101.7611402	100.2372349	98.75128416	97.30203787	95.88829685	94.5089103	93.16277354	91.84882574
170106A00030	1/6/2017	2.39	1/6/2027	1/6/2017	103.18111	101.6170718	100.092382	98.60573375	97.15587188	95.74159257	94.36174065	93.01520731	91.70092784
170112A00015	1/12/2017	2.32	1/12/2027	1/12/2017	103.0712	101.5083782	99.98489617	98.499443	97.05076337	95.63765315	94.25895697	92.91356584	91.60041489
170124A00017	1/24/2017	2.82	1/23/2032	1/24/2017	111.59991	107.2270755	103.1001043	99.20261691	95.51945515	92.03658526	88.74100645	85.62066769	82.66439164
170201A00016	2/1/2017	2.49	2/1/2024	2/1/2017	100.09577	100.0127663	99.9299056	99.84718438	99.7646023	99.68215903	99.59985419	99.51768744	99.43565842

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170207A00055	2/7/2017	2.36	2/8/2027	2/7/2017	103.24627	101.6391605	100.0733209	98.54735247	97.0599193	95.60974042	94.19558732	92.81628134	91.47069127
170301A00031	3/1/2017	2.11	3/1/2024	3/1/2017	100.05997	99.9781679	99.89649987	99.81496606	99.73356612	99.65229972	99.57116654	99.49016624	99.4092985
170303A00004	3/3/2017	2.8	3/4/2024	3/3/2017	100.23139	100.0547548	99.87875013	99.70336998	99.52861098	99.35446983	99.18094322	99.00802789	98.83572059
170309A00014	3/9/2017	2.58	3/9/2027	3/9/2017	103.72899	102.0721211	100.4586265	98.88702043	97.35587771	95.8638329	94.40957703	92.99185492	91.60946254
170309A00016	3/9/2017	2.39	3/8/2024	3/9/2017	100.09407	100.0011874	99.9084853	99.81596517	99.72362641	99.63146846	99.53949075	99.44769271	99.35607378
170309A00042	3/9/2017	2.18	3/11/2024	3/9/2017	100.07455	99.9816807	99.88899671	99.79649463	99.70417388	99.61203391	99.52007414	99.42829401	99.33669295
170313A00045	3/13/2017	3.22	3/15/2032	3/13/2017	113.02806	108.524314	104.277831	100.2712102	96.48837263	92.91444843	89.53567732	86.33931816	83.31356625
170317A00039	3/17/2017	2.73	3/18/2024	3/17/2017	100.26749	100.0527985	99.83903741	99.62620328	99.41429007	99.20329173	98.99320229	98.78401582	98.57572644
170317A00040	3/17/2017	2.74	3/18/2024	3/17/2017	100.26988	100.0550018	99.84106004	99.62804643	99.41595489	99.20477938	98.99451389	98.78515251	98.57668933
170317A00044	3/17/2017	3.11	3/17/2027	3/17/2017	108.47183	105.5201305	102.6699106	99.91702258	97.25751879	94.68763885	92.20379944	89.8025846	87.48073672
170322A00033	3/22/2017	3.61	3/24/2042	3/22/2017	130.43765	119.0417389	109.004253	100.1398566	92.29067436	85.32197206	79.11855275	73.58174083	68.62685506
170406A00024	4/6/2017	2.61	4/8/2024	4/6/2017	100.31077	100.041684	99.77405799	99.50787554	99.24312487	98.97979437	98.71787254	98.45734803	98.19820959
170406A00026	4/6/2017	2.61	4/8/2024	4/6/2017	100.31077	100.041684	99.77405799	99.50787554	99.24312487	98.97979437	98.71787254	98.45734803	98.19820959
170406A00027	4/6/2017	2.61	4/8/2024	4/6/2017	100.31077	100.041684	99.77405799	99.50787554	99.24312487	98.97979437	98.71787254	98.45734803	98.19820959
170406A00029	4/6/2017	3.01	4/6/2027	4/6/2017	108.66542	105.5611336	102.5662186	99.67613806	96.88657683	94.19342613	91.59277219	89.08088553	86.65421102
170406A00032	4/6/2017	3.01	4/6/2027	4/6/2017	108.66542	105.5611336	102.5662186	99.67613806	96.88657683	94.19342613	91.59277219	89.08088553	86.65421102
170406A00033	4/6/2017	3.01	4/6/2027	4/6/2017	108.66542	105.5611336	102.5662186	99.67613806	96.88657683	94.19342613	91.59277219	89.08088553	86.65421102
170406A00034	4/6/2017	3.01	4/6/2027	4/6/2017	108.66542	105.5611336	102.5662186	99.67613806	96.88657683	94.19342613	91.59277219	89.08088553	86.65421102
170406A00036	4/6/2017	3.07	4/6/2032	4/6/2017	112.47376	107.9483997	103.6838201	99.66224208	95.86724268	92.28364339	88.89740707	85.69554414	82.666027
170407A00001	4/6/2017	2.97	4/6/2027	4/6/2017	108.19897	105.2099462	102.3250634	99.54002537	96.85074571	94.25333265	91.74407851	89.31944961	86.97607686
170504A00049	5/4/2017	2.63	5/6/2024	5/4/2017	100.42868	100.0805056	99.73475208	99.39139679	99.05041476	98.71178135	98.3754723	98.04146363	97.70973174
170511A00011	5/11/2017	2.41	5/11/2027	5/11/2017	103.67592	101.9355707	100.2425391	98.59515701	96.99182335	95.43100577	93.91123702	92.43111166	90.989283
170524A00027	5/24/2017	2.32	5/24/2027	5/24/2017	103.51947	101.7808624	100.0895682	98.44391404	96.842299	95.28319065	93.76512161	92.28668628	90.84653774
170524A00037	5/24/2017	2.46	5/24/2024	5/24/2017	100.43196	100.0373197	99.6457982	99.25736137	98.87197271	98.48959632	98.11019685	97.73373953	97.36019012
170526A00017	5/26/2017	2.16	5/28/2024	5/26/2017	100.14413	99.93784521	99.73257601	99.52831708	99.32506019	99.12279719	98.92152003	98.72122074	98.52189148
170602A00019	6/2/2017	2.42	6/3/2024	6/2/2017	100.45113	100.0302057	99.61281915	99.19892338	98.78847463	98.3814299	97.97774692	97.5773841	97.18030056
170615A00006	6/15/2017	2.15	6/17/2024	6/15/2017	100.18013	99.93145127	99.6842773	99.43859529	99.19439025	98.95164741	98.71035221	98.47049029	98.23204749
170619A00089	6/16/2017	2.79	6/16/2027	6/16/2017	108.49504	105.2287231	102.0835285	99.0542697	96.13601482	93.32406968	90.6139649	88.00144384	85.48245129
170619A00092	6/16/2017	2.79	6/16/2027	6/16/2017	108.49504	105.2287231	102.0835285	99.0542697	96.13601482	93.32406968	90.6139649	88.00144384	85.48245129
170619A00095	6/16/2017	2.79	6/16/2027	6/16/2017	108.49504	105.2287231	102.0835285	99.0542697	96.13601482	93.32406968	90.6139649	88.00144384	85.48245129
170619A00096	6/16/2017	2.79	6/16/2027	6/16/2017	108.49504	105.2287231	102.0835285	99.0542697	96.13601482	93.32406968	90.6139649	88.00144384	85.48245129
170619A00101	6/16/2017	2.74	6/16/2027	6/16/2017	107.9804	104.8416111	101.817818	98.90412585	96.09587893	93.38864509	90.77820374	88.26053456	85.8318068
170707A00007	7/7/2017	2.65	7/8/2024	7/7/2017	100.71318	100.1950156	99.68220946	99.17467476	98.67233031	98.17509655	97.68289557	97.19565101	96.71328809

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170711A00010	7/11/2017	2.38	7/12/2027	7/11/2017	103.85343	102.0258351	100.2498173	98.52350237	96.84509873	95.2128928	93.62524509	92.08058643	90.57741442
170713A00021	7/13/2017	3.25	7/13/2037	7/13/2017	128.71579	117.1569703	106.905566	97.79940766	89.69763215	82.47776002	76.03318655	70.27102835	65.11027332
170727A00003	7/27/2017	1.97	7/29/2024	7/27/2017	100.20436	99.91520889	99.62811138	99.34304593	99.05998861	98.77891585	98.49980449	98.22263177	97.94737526
170802A00013	8/2/2017	2.5	8/2/2024	8/2/2017	100.73952	100.1547012	99.57669548	99.00538115	98.44064233	97.88236584	97.33044109	96.78475998	96.24521688
170804A00005	8/4/2017	1.94	8/5/2024	8/4/2017	100.22659	99.90405848	99.58405889	99.26656251	98.95153714	98.63895113	98.32877339	98.02097342	97.71552122
170829A00066	8/29/2017	2.11	8/29/2024	8/29/2017	100.6977	100.040501	99.39190611	98.75174964	98.11986748	97.49609973	96.88029062	96.27228832	95.67194488
170921A00055	9/21/2017	2.82	9/21/2027	9/21/2017	109.30948	105.7985597	102.4255039	99.18404973	96.06825857	93.07249805	90.19142396	87.41996358	84.75330006
170921A00057	9/21/2017	2.79	9/21/2027	9/21/2017	108.7997	105.4314419	102.1937479	99.08072839	96.08679564	93.20664866	90.43525655	87.76784287	85.19987105
171013A00024	10/13/2017	2.47	10/15/2024	10/13/2017	101.03793	100.2649155	99.50387449	98.75452949	98.01661109	97.2898582	96.57401761	95.86884377	95.17409845
171109A00016	11/9/2017	2.94	11/9/2032	11/9/2017	121.46635	113.1318252	105.4771822	98.44194478	91.9713651	86.01584934	80.53044637	75.47438947	70.81068547
171204A00009	12/4/2017	2.23	12/4/2024	12/4/2017	100.57629	100.0816397	99.59311051	99.11057518	98.63391195	98.1630025	97.69773184	97.23798819	96.7836629
171204A00024	12/4/2017	2.71	12/4/2024	12/4/2017	101.58906	100.6723557	99.77230155	98.88844444	98.02034897	97.16759528	96.32977833	95.50650724	94.69740467
171207A00024	12/7/2017	2.93	12/7/2027	12/7/2017	110.55185	106.7467177	103.0994716	99.60268014	96.2493019	93.03266285	89.94643541	86.98461854	84.14151911
171207A00025	12/7/2017	2.91	12/7/2027	12/7/2017	110.21293	106.4975944	102.9353168	99.51891402	96.24158358	93.09687747	90.07868162	87.18119681	84.39892078
171207A00026	12/7/2017	2.93	12/7/2027	12/7/2017	110.55185	106.7467177	103.0994716	99.60268014	96.2493019	93.03266285	89.94643541	86.98461854	84.14151911
171219A00009	12/19/2017	2.3	12/19/2024	12/19/2017	100.61959	100.1210219	99.62870457	99.14250576	98.66229902	98.18796154	97.71937405	97.25642069	96.79898887
171219A00067	12/19/2017	2.72	12/20/2027	12/19/2017	109.63024	106.0360733	102.5893926	99.28325677	96.11109332	93.06667423	90.14409612	87.33776146	84.64236101
180104A00023	1/4/2018	2.91	1/4/2028	1/4/2018	109.22513	105.8392725	102.5899546	99.47079137	96.47573125	93.59904002	90.83528229	88.17930415	85.62621699
180104A00024	1/4/2018	2.98	1/4/2028	1/4/2018	110.68498	106.8926253	103.2591397	99.77693896	96.43884552	93.2380628	90.16815272	87.22301475	84.39686633
180104A00041	1/4/2018	3.08	1/4/2033	1/4/2018	122.99095	114.415906	106.5510551	99.3322563	92.70154109	86.60648311	80.99963944	75.83805086	71.08279468
180125A00027	1/25/2018	2.69	1/24/2025	1/25/2018	101.19456	100.4739833	99.76589431	99.06994204	98.38579174	97.71312134	97.05162081	96.40099162	95.7609462
180126A00011	1/26/2018	2.72	1/26/2028	1/26/2018	105.27859	103.1692496	101.1260174	99.14627921	97.22754113	95.3674257	93.56366563	91.81409783	90.11665795
180305A00030	3/5/2018	3.12	3/5/2025	3/5/2018	102.59797	101.4367883	100.3021351	99.19310262	98.10882756	97.04848509	96.01128672	94.99647831	94.00333821
180309A00011	3/9/2018	3.19	3/10/2025	3/9/2018	102.71631	101.5412139	100.3932657	99.27152675	98.17510405	97.10314474	96.05483398	95.02939278	94.02607614
180321A00015	3/21/2018	3.02	3/21/2025	3/21/2018	101.69509	100.8652317	100.0518317	99.25436285	98.47232445	97.70523736	96.95264282	96.21410138	95.48919178
180322A00030	3/22/2018	2.79	3/24/2025	3/22/2018	101.16533	100.5362786	99.91721211	99.30787018	98.70799851	98.11735211	97.53569488	96.96279921	96.3984456
180322A00040	3/22/2018	3.16	3/21/2031	3/22/2018	114.30172	109.4409402	104.866883	100.5598887	96.50179445	92.67580748	89.06639312	85.65917221	82.44082764
180322A00044	3/22/2018	3.18	3/22/2033	3/22/2018	115.03695	109.900085	105.0887377	100.5786558	96.34759584	92.37514595	88.64256182	85.13261849	81.8294762
180402A00013	4/2/2018	2.99	4/3/2028	4/2/2018	110.22772	106.7239823	103.3666638	100.1486276	97.06313552	94.10381906	91.26465685	88.53995338	85.92431923
180403A00014	4/3/2018	3.11	4/3/2025	4/3/2018	102.79006	101.5551416	100.3491657	99.17111952	98.02003393	96.89498412	95.79508738	94.71950068	93.66741841
180410A00002	4/10/2018	3.14	4/11/2033	4/10/2018	114.96017	109.7823191	104.9351816	100.3939309	96.13581608	92.13997284	88.387253	84.86007118	81.54226591
180517A00018	5/17/2018	3.46	5/17/2033	5/17/2018	116.76396	111.4593361	106.4962306	101.8488138	97.49342963	93.40839761	89.57383318	85.97148612	82.58459432
180517A00024	5/17/2018	3.46	5/17/2033	5/17/2018	116.76396	111.4593361	106.4962306	101.8488138	97.49342963	93.40839761	89.57383318	85.97148612	82.58459432

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180605A00031	6/5/2018	3.37	6/5/2030	6/5/2018	110.80114	107.3015328	103.9640141	100.7795546	97.73969282	94.8364998	92.06254177	89.41084584	86.87486838
180628A00068	6/28/2018	3.12	6/28/2028	6/28/2018	111.20443	107.5209844	103.9983278	100.6283396	97.40336258	94.31616959	91.35993683	88.52821908	85.8149265
180713A00031	7/13/2018	3.06	7/14/2025	7/13/2018	101.66721	100.8733159	100.0932069	99.32650344	98.57284423	97.83188138	97.10327983	96.3867167	95.68188075
180716A00062	7/16/2018	2.91	7/16/2025	7/16/2018	101.67518	100.8792436	100.0971593	99.32854888	98.57304834	97.83030735	97.09998846	96.38176653	95.67532816
180717A00021	7/17/2018	3.34	7/17/2028	7/17/2018	113.02029	108.8859234	104.9404038	101.1739257	97.57724946	94.14166559	90.8589609	87.72138758	84.72163426
180717A00026	7/17/2018	3.24	7/16/2025	7/17/2018	103.82661	102.3455839	100.8938035	99.47046734	98.07480075	96.70605706	95.36351607	94.04648294	92.75428708
180718A00008	7/18/2018	3.37	7/18/2028	7/18/2018	114.22205	109.6989234	105.3875237	101.2767095	97.3559851	93.61546211	90.04582067	86.6382737	83.38453353
180813A00045	8/13/2018	2.89	8/13/2025	8/13/2018	101.7752	100.9373533	100.1143344	99.30573752	98.51117193	97.73026145	96.96264369	96.20796948	95.46590221
180905A00017	9/5/2018	3.43	9/6/2033	9/5/2018	126.94036	117.8398286	109.5350833	101.9501531	95.0167815	88.67360302	82.86541021	77.54250255	72.66010735
180906A00032	9/6/2018	3.24	9/5/2025	9/6/2018	104.39012	102.7427761	101.1297654	99.55007741	98.00273913	96.48681534	95.00140704	93.54564958	92.11871102
180907A00013	9/7/2018	3.27	9/8/2025	9/7/2018	104.42531	102.7831815	101.1753537	99.60080882	98.05857144	96.54770447	95.06730716	93.61651338	92.19448988
180913A00012	9/13/2018	3.31	9/13/2033	9/13/2018	116.51973	111.0455499	105.9348912	101.1594451	96.69335345	92.51297715	88.59668962	84.9246908	81.47883951
180913A00033	9/13/2018	3.31	9/13/2033	9/13/2018	116.51973	111.0455499	105.9348912	101.1594451	96.69335345	92.51297715	88.59668962	84.9246908	81.47883951
180914A00049	9/14/2018	3.37	9/14/2033	9/14/2018	116.84627	111.3567238	106.2317228	101.4428778	96.96425744	92.77215596	88.84488572	85.16259082	81.7070789
180925A00013	9/25/2018	3.41	9/25/2028	9/25/2018	107.7418	105.2408874	102.8285979	100.5010358	98.2545079	96.08550884	93.99071079	91.96695297	90.01123216
180925A00116	9/25/2018	3.28	9/25/2028	9/25/2018	107.7469	105.2402199	102.8225288	100.4899105	98.23865005	96.06522244	93.96628114	91.93864797	89.97930346
181003A00019	10/3/2018	3.44	10/3/2025	10/3/2018	104.99813	103.269931	101.578977	99.92413731	98.30433022	96.71851735	95.16570144	93.64492428	92.15526473
181003A00032	10/3/2018	3.23	10/3/2025	10/3/2018	102.19143	101.2696292	100.3646629	99.47605966	98.60336902	97.74615744	96.90400754	96.07651724	95.26329913
181010A00025	10/10/2018	3.48	10/10/2030	10/10/2018	112.27275	108.5387419	104.9857871	101.6033606	98.38163288	95.31141757	92.38412438	89.59171657	86.92667143
181105A00015	11/5/2018	3.57	11/5/2025	11/5/2018	105.56421	103.7452877	101.9672458	100.2289205	98.52919257	96.86698151	95.24124386	93.65097172	92.09519128
181116A00006	11/16/2018	3.18	11/17/2025	11/16/2018	102.28972	101.3235263	100.375357	99.44470724	98.53109008	97.63403685	96.75309642	95.88783433	95.03783198
181214A00030	12/14/2018	3.47	12/14/2033	12/14/2018	128.14518	118.5284096	109.7745243	101.7991621	94.52671877	87.88939233	81.82633648	76.28291061	71.21001398
181218A00040	12/18/2018	3.23	6/18/2030	12/18/2018	110.3117	106.827074	103.5038844	100.3331332	97.30639036	94.41575684	91.65382695	89.01365439	86.48872057
181226A00030	12/26/2018	2.91	12/26/2028	12/26/2018	107.23956	104.6151653	102.088033	99.65372295	97.30802811	95.04696339	92.86675215	90.76381391	88.73475282
190103A00020	1/3/2019	3.12	1/5/2026	1/3/2019	105.29303	103.3198935	101.3946686	99.51588466	97.6821253	95.89202729	94.14427839	92.43761497	90.77081987
190104A00006	1/4/2019	2.83	1/5/2026	1/4/2019	102.18677	101.1395804	100.1127559	99.10571872	98.11791502	97.14881145	96.19789428	95.2646685	94.3486569
190104A00034	1/4/2019	3.18	1/4/2029	1/4/2019	112.07956	108.0221703	104.1578117	100.4759366	96.96663629	93.62060027	90.42907636	87.38383422	84.47713125
190104A00035	1/4/2019	3.1	1/5/2026	1/4/2019	105.19507	103.2417465	101.3357476	99.47562382	97.65997688	95.88746117	94.15678135	92.46669005	90.81598578
190104A00038	1/4/2019	3.25	1/4/2029	1/4/2019	114.54678	109.7957476	105.2839999	100.9980378	96.92520122	93.05360968	89.37210997	85.8702278	82.53812283
190118A00006	1/18/2019	3.14	1/18/2034	1/18/2019	116.10077	110.466618	105.2179988	100.3240327	95.75658029	91.48998234	87.50082301	83.76771721	80.27111942
190129A00073	1/29/2019	3.11	1/29/2029	1/29/2019	107.56339	104.8939037	102.324576	99.85078039	97.46814055	95.17251301	92.95997305	90.82680167	88.76947339
190131A00013	1/31/2019	3.48	1/31/2034	1/31/2019	127.21142	117.5851925	108.830397	100.8610791	93.60028435	86.97907117	80.93563343	75.41452403	70.36596651
190131A00023	1/31/2019	3.02	1/30/2034	1/31/2019	115.42937	109.8275056	104.6090104	99.7431659	95.20198759	90.95995813	86.9937915	83.28222149	79.80581156

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190205A00017	2/5/2019	3.36	2/5/2029	2/5/2019	115.2974	110.4501364	105.8500886	101.4831366	97.33604838	93.39641723	89.65260606	86.09369525	82.70943444
190205A00019	2/5/2019	2.94	2/5/2024	2/5/2019	100.13896	100.0450028	99.95123338	99.85764846	99.76424749	99.67102991	99.57799516	99.48514267	99.39247189
190205A00020	2/5/2019	3.32	2/5/2029	2/5/2019	115.10473	110.2639378	105.6700622	101.3090001	97.16753458	93.23327319	89.49459217	85.94058444	82.56101146
190205A00021	2/5/2019	3.32	2/5/2029	2/5/2019	115.10473	110.2639378	105.6700622	101.3090001	97.16753458	93.23327319	89.49459217	85.94058444	82.56101146
190205A00022	2/5/2019	3.32	2/5/2029	2/5/2019	115.10473	110.2639378	105.6700622	101.3090001	97.16753458	93.23327319	89.49459217	85.94058444	82.56101146
190205A00023	2/5/2019	3.32	2/5/2029	2/5/2019	115.10473	110.2639378	105.6700622	101.3090001	97.16753458	93.23327319	89.49459217	85.94058444	82.56101146
190227A00033	2/27/2019	2.65	2/27/2026	2/27/2019	102.25781	101.1635885	100.0912305	99.04010852	98.00961795	96.999177	96.00822545	95.03622367	94.0826517
190305A00015	3/5/2019	3.32	3/5/2029	3/5/2019	115.31816	110.4000079	105.7360293	101.3115133	97.11268704	93.12664895	89.34130904	85.74533294	82.32809047
190305A00017	3/5/2019	3.12	3/5/2026	3/5/2019	105.64754	103.5719405	101.5490474	99.57714252	97.65457416	95.77975798	93.9511735	92.16736101	90.42691858
190308A00016	3/8/2019	3.18	3/8/2034	3/8/2019	123.95046	115.0829622	107.0079957	99.64763622	92.93213336	86.79900753	81.1922507	76.06161935	71.36200832
190308A00026	3/8/2019	3.18	3/8/2034	3/8/2019	123.95046	115.0829622	107.0079957	99.64763622	92.93213336	86.79900753	81.1922507	76.06161935	71.36200832
190315A00017	3/15/2019	2.88	3/15/2034	3/15/2019	114.87088	109.2078445	103.9380259	99.02948333	94.45315553	90.18257647	86.1936243	82.46429636	78.9745073
190315A00019	3/15/2019	2.88	3/15/2034	3/15/2019	114.87088	109.2078445	103.9380259	99.02948333	94.45315553	90.18257647	86.1936243	82.46429636	78.9745073
190315A00023	3/15/2019	2.88	3/15/2034	3/15/2019	114.87088	109.2078445	103.9380259	99.02948333	94.45315553	90.18257647	86.1936243	82.46429636	78.9745073
190315A00029	3/15/2019	2.88	3/15/2034	3/15/2019	114.87088	109.2078445	103.9380259	99.02948333	94.45315553	90.18257647	86.1936243	82.46429636	78.9745073
190322A00008	3/22/2019	2.64	3/20/2026	3/22/2019	102.21322	101.0805997	99.97104529	98.88388381	97.81847096	96.77418673	95.75043428	94.74663883	93.76224666
190329A00067	3/29/2019	2.61	3/29/2024	3/29/2019	100.2765	100.0327101	99.79010357	99.54867626	99.30841956	99.06932497	98.83138411	98.59458863	98.3589303
190402A00005	4/2/2019	2.77	4/2/2032	4/2/2019	113.96771	108.4250191	103.2545661	98.42758342	93.91774596	89.70094889	85.75510568	82.05996567	78.59694941
190403A00010	4/3/2019	3.08	4/3/2029	4/3/2019	114.7544	109.6623701	104.8394683	100.26985	95.93869297	91.8321274	87.93716897	84.24165729	80.73419886
190403A00013	4/3/2019	3.05	4/3/2029	4/3/2019	114.17575	109.2324546	104.5480248	100.1072936	95.89607151	91.90107746	88.10987588	84.51081764	81.09298587
190403A00014	4/3/2019	3.05	4/3/2029	4/3/2019	114.17575	109.2324546	104.5480248	100.1072936	95.89607151	91.90107746	88.10987588	84.51081764	81.09298587
190404A00015	4/4/2019	2.88	4/3/2026	4/4/2019	105.54855	103.3450305	101.1994019	99.10972534	97.07413987	95.09086218	93.15818273	91.27446195	89.43812673
190501A00015	5/1/2019	2.78	5/1/2029	5/1/2019	107.18099	104.3506111	101.6322242	99.02040675	96.51004268	94.09629956	91.7746111	89.54066055	87.39036545
190502A00016	5/2/2019	2.87	5/1/2026	5/2/2019	105.7583	103.4790083	101.2613837	99.10341675	97.00317579	94.95880271	92.96850989	91.03057709	89.14334847
190506A00026	5/6/2019	3.03	5/4/2029	5/6/2019	114.69518	109.5302696	104.6423118	100.0148643	95.63254393	91.48095557	87.5466236	83.8169287	80.28004915
190510A00049	5/10/2019	2.58	5/8/2026	5/10/2019	102.36795	101.1496022	99.95717778	98.78989963	97.64702522	96.52784037	95.43165797	94.35781667	93.30567974
190515A00035	5/15/2019	2.82	2/15/2029	5/15/2019	113.16092	108.2353543	103.564918	99.13489004	94.93148232	90.94177405	87.15365253	83.55575803	80.13743288
190529A00061	5/29/2019	2.46	5/29/2026	5/29/2019	102.21922	101.0027467	99.81214518	98.64664854	97.5055154	96.3880327	95.29351444	94.22130034	93.1707547
190605A00007	6/5/2019	2.47	6/5/2026	6/5/2019	105.08088	102.7263068	100.4377647	98.21302289	96.04994019	93.94646017	91.90060742	89.91048383	87.97426507
190605A00023	6/5/2019	2.64	6/5/2029	6/5/2019	112.85183	107.6792088	102.7883128	98.16216193	93.78488748	89.64165546	85.71859363	82.00272435	78.48190231
190605A00024	6/5/2019	2.64	6/5/2029	6/5/2019	112.85183	107.6792088	102.7883128	98.16216193	93.78488748	89.64165546	85.71859363	82.00272435	78.48190231
190605A00025	6/5/2019	2.64	6/5/2029	6/5/2019	112.85183	107.6792088	102.7883128	98.16216193	93.78488748	89.64165546	85.71859363	82.00272435	78.48190231
190605A00027	6/5/2019	2.64	6/5/2029	6/5/2019	112.85183	107.6792088	102.7883128	98.16216193	93.78488748	89.64165546	85.71859363	82.00272435	78.48190231

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190620A00033	6/20/2019	2.1	6/20/2029	6/20/2019	105.71841	102.8767332	100.1492425	97.53033927	95.01473917	92.59745438	90.27377491	88.03925118	85.8896779
190702A00068	7/2/2019	2.69	7/1/2039	7/2/2019	124.34819	111.9280976	101.0779326	91.58013379	83.24900957	75.9258766	69.47496234	63.77995116	58.74106977
190702A00071	7/2/2019	2.69	7/1/2039	7/2/2019	124.34819	111.9280976	101.0779326	91.58013379	83.24900957	75.9258766	69.47496234	63.77995116	58.74106977
190708A00025	7/8/2019	2.21	7/1/2024	7/8/2019	100.4584	99.95950326	99.46556656	98.97651749	98.49228376	98.01279446	97.53798007	97.06777246	96.60210476
190708A00026	7/8/2019	2.21	7/1/2024	7/8/2019	100.4584	99.95950326	99.46556656	98.97651749	98.49228376	98.01279446	97.53798007	97.06777246	96.60210476
190708A00028	7/8/2019	2.57	7/2/2029	7/8/2019	112.61623	107.3884523	102.4490371	97.78037991	93.36604324	89.19067559	85.23993394	81.50041222	77.95957533
190708A00029	7/8/2019	2.57	7/2/2029	7/8/2019	112.61623	107.3884523	102.4490371	97.78037991	93.36604324	89.19067559	85.23993394	81.50041222	77.95957533
190708A00030	7/8/2019	2.57	7/2/2029	7/8/2019	112.61623	107.3884523	102.4490371	97.78037991	93.36604324	89.19067559	85.23993394	81.50041222	77.95957533
190708A00032	7/8/2019	2.58	7/2/2029	7/8/2019	112.66878	107.4390864	102.4978508	97.82746245	93.41147902	89.23454417	85.28231039	81.54136743	77.99917624
190712A00016	7/12/2019	2.39	7/12/2029	7/12/2019	106.28254	103.3904998	100.6159304	97.95301816	95.39627772	92.94053394	90.58090228	88.31277049	86.13178159
190718A00012	7/18/2019	2.55	7/18/2029	7/18/2019	111.56305	106.7130093	102.1245844	97.78195216	93.67033706	89.77593619	86.08584981	82.58801736	79.2711583
190802A00011	8/2/2019	2.01	8/2/2029	8/2/2019	105.64677	102.7231277	99.91997004	97.23125654	94.6512918	92.17470635	89.79643574	87.51170121	85.31599154
190813A00051	8/13/2019	2.19	8/13/2029	8/13/2019	110.78279	105.527263	100.566801	95.88308438	91.45903321	87.27871509	83.32726196	79.59079318	76.0563447
190813A00052	8/13/2019	2.24	8/13/2029	8/13/2019	111.04884	105.7833488	100.8134237	96.12071871	91.6881263	87.49968831	83.54051253	79.79669574	76.25525274
190813A00057	8/13/2019	1.9	8/13/2024	8/13/2019	100.40712	99.79428556	99.18895422	98.59099307	98.00026777	97.41664726	96.8400036	96.27021194	95.70715038
190813A00064	8/13/2019	1.9	8/13/2024	8/13/2019	100.40712	99.79428556	99.18895422	98.59099307	98.00026777	97.41664726	96.8400036	96.27021194	95.70715038
190813A00067	8/13/2019	1.9	8/13/2024	8/13/2019	100.40712	99.79428556	99.18895422	98.59099307	98.00026777	97.41664726	96.8400036	96.27021194	95.70715038
190826A00032	8/26/2019	1.72	8/24/2029	8/26/2019	104.78843	101.8875734	99.10632903	96.43869245	93.87900611	91.42193647	89.06245326	86.79581013	84.61752671
190829A00032	8/29/2019	1.69	8/28/2026	8/29/2019	101.66713	100.3309744	99.02520733	97.74888584	96.50110406	95.28099157	94.08771156	92.92045931	91.77846065
190829A00039	8/29/2019	1.85	8/29/2034	8/29/2019	109.43021	103.8246494	98.62242948	93.78966975	89.29563548	85.11242555	81.21469013	77.57937822	74.18551195
190905A00019	9/5/2019	2.08	9/5/2029	9/5/2019	110.27513	104.9880028	100.0004812	95.29379468	90.85045484	86.65415959	82.68970597	78.94290996	75.40053269
190905A00021	9/5/2019	2.08	9/5/2029	9/5/2019	110.27513	104.9880028	100.0004812	95.29379468	90.85045484	86.65415959	82.68970596	78.94290996	75.40053269
190905A00023	9/5/2019	2.08	9/5/2029	9/5/2019	110.27513	104.9880028	100.0004812	95.29379468	90.85045484	86.65415959	82.68970596	78.94290996	75.40053269
190905A00024	9/5/2019	2.08	9/5/2029	9/5/2019	110.27513	104.9880028	100.0004812	95.29379468	90.85045484	86.65415959	82.68970596	78.94290996	75.40053269
190905A00025	9/5/2019	2.08	9/5/2029	9/5/2019	110.27513	104.9880028	100.0004812	95.29379468	90.85045484	86.65415959	82.68970596	78.94290996	75.40053269
190910A00044	9/10/2019	2.02	9/10/2026	9/10/2019	104.57553	101.9901143	99.48322644	97.05196541	94.69356332	92.40537395	90.18486643	88.02961925	85.93731464
190911A00016	9/11/2019	1.9	9/11/2029	9/11/2019	105.40912	102.4494557	99.61333029	96.89447113	94.28697502	91.78528018	89.38414414	87.07862321	84.8640534
190913A00018	9/13/2019	2.11	9/11/2026	9/13/2019	102.15413	100.7738449	99.4255256	98.10816454	96.82079794	95.56249993	94.33238074	93.12958492	91.9532898
190925A00009	9/25/2019	2	9/25/2026	9/25/2019	104.41637	101.8851219	99.43089565	97.05082868	94.7421855	92.50235242	90.32883101	88.21923206	86.17126991
190926A00002	9/30/2019	2.01	9/29/2034	9/30/2019	110.41252	104.7142214	99.42880539	94.52135226	89.96021306	85.71667504	81.76466736	78.08049813	74.64261941
190930A00026	9/30/2019	1.95	9/30/2024	9/30/2019	100.55563	99.8244024	99.10389796	98.39387714	97.69411176	97.00438025	96.32446738	95.65416403	94.99326701
190930A00028	9/30/2019	1.95	9/30/2024	9/30/2019	100.55563	99.8244024	99.10389796	98.39387714	97.69411176	97.00438025	96.32446738	95.65416403	94.99326701
191004A00017	10/4/2019	2.02	10/4/2029	10/4/2019	110.04404	104.699013	99.66058915	94.90933969	90.42717595	86.19724968	82.20386106	78.43237402	74.86913828

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191004A00019	10/4/2019	2.02	10/4/2029	10/4/2019	110.04404	104.699013	99.66058915	94.90933969	90.42717595	86.19724968	82.20386106	78.43237402	74.86913828
191004A00022	10/4/2019	2.02	10/4/2029	10/4/2019	110.04404	104.699013	99.66058915	94.90933969	90.42717595	86.19724968	82.20386106	78.43237402	74.86913828
191004A00023	10/4/2019	2.02	10/4/2029	10/4/2019	110.04404	104.699013	99.66058915	94.90933969	90.42717595	86.19724968	82.20386106	78.43237402	74.86913828
191004A00025	10/4/2019	1.74	10/4/2024	10/4/2019	100.42144	99.67171305	98.93321483	98.20569382	97.48890627	96.78261559	96.08659209	95.40061275	94.724461
191004A00026	10/4/2019	1.74	10/4/2024	10/4/2019	100.42144	99.67171305	98.93321483	98.20569382	97.48890627	96.78261559	96.08659209	95.40061275	94.724461
191008A00007	10/8/2019	1.67	10/9/2029	10/8/2019	104.79492	101.8107014	98.95258238	96.21409285	93.58914392	91.07200237	88.65726747	86.33984936	84.11494912
191008A00014	10/8/2019	1.85	10/8/2026	10/8/2019	104.28231	101.6315906	99.06330209	96.57436439	94.16183128	91.82288671	89.55483807	87.35510976	85.22123726
191009A00009	10/9/2019	1.8	10/9/2026	10/9/2019	101.79906	100.3825954	98.9996041	97.64901645	96.32980819	95.04099585	93.78163475	92.55081714	91.34767046
191011A00027	10/11/2019	1.84	10/11/2029	10/11/2019	105.31334	102.3142404	99.44187952	96.68975189	94.05173732	91.5220732	89.09533114	86.76639527	84.53044216
191015A00025	10/15/2019	2.01	10/15/2029	10/15/2019	105.43277	102.4375685	99.56870085	96.81970009	94.18447466	91.65728831	89.23273697	86.9057272	84.67145625
191031A00025	10/31/2019	1.91	10/31/2024	10/31/2019	100.24596	99.8302892	99.41896175	99.01190627	98.60904865	98.21031659	97.81563956	97.42494872	97.03817688
191101A00004	11/1/2019	1.91	11/1/2029	11/1/2019	109.40488	104.4078032	99.69266141	95.24171887	91.03845469	87.06747191	83.31441524	79.76589521	76.40941829
191101A00005	11/1/2019	1.83	11/2/2026	11/1/2019	104.71848	101.9931752	99.35452963	96.79931998	94.32446275	91.92700531	89.60411961	87.35309619	85.17133857
191105A00012	11/5/2019	2.07	11/3/2034	11/5/2019	110.89425	105.0865912	99.70547938	94.71437799	90.08021106	85.77300856	81.76559145	78.03329066	74.55369634
191112A00022	11/12/2019	2.36	11/13/2029	11/12/2019	112.04368	106.5333297	101.3438057	96.45454956	91.84642824	87.50162698	83.40355207	79.53674106	75.88678007
191112A00023	11/12/2019	2.36	11/13/2029	11/12/2019	112.04368	106.5333297	101.3438057	96.45454956	91.84642824	87.50162698	83.40355207	79.53674106	75.88678007
191112A00024	11/12/2019	2.09	11/12/2024	11/12/2019	100.89481	100.0420173	99.20371324	98.37952603	97.56910042	96.77209305	95.98817191	95.21701589	94.45831432
191113A00013	11/13/2019	2.17	11/13/2026	11/13/2019	105.36435	102.6060817	99.93613924	97.35121785	94.84815195	92.42391139	90.07559484	87.80042365	85.5957359
191122A00003	11/22/2019	2.32	11/22/2039	11/22/2019	118.73904	107.6219402	97.85254296	89.24816458	81.65259416	74.93206971	68.97188918	63.67355343	58.95235494
191203A00009	12/3/2019	2.21	12/3/2029	12/3/2019	111.28018	105.7523967	100.5494167	95.65024171	91.03534072	86.68654057	82.58692468	78.72073995	75.07331085
191203A00010	12/3/2019	2.21	12/3/2029	12/3/2019	111.28018	105.7523967	100.5494167	95.65024171	91.03534072	86.68654057	82.58692468	78.72073995	75.07331085
191203A00011	12/3/2019	2.21	12/3/2029	12/3/2019	111.28018	105.7523967	100.5494167	95.65024171	91.03534072	86.68654057	82.58692468	78.72073995	75.07331085
191206A00005	12/6/2019	2.18	12/7/2026	12/6/2019	105.54061	102.7182671	99.98821658	97.34692888	94.79102833	92.31728696	89.92261719	87.60406484	85.35880264
191209A00005	12/9/2019	2.22	12/10/2029	12/9/2019	110.42074	105.3239098	100.5184471	95.98576867	91.7085796	87.67077857	83.8573692	80.25437839	76.84878118
191224A00002	12/24/2019	2.17	12/24/2029	12/24/2019	106.10701	103.0078017	100.0425617	97.20427283	94.48634077	91.88256336	89.38710457	86.99447048	84.69948681
200103A00002	1/3/2020	2.07	1/3/2030	1/3/2020	110.40234	105.242268	100.38063	95.79817272	91.47699171	87.40043261	83.55299735	79.92025761	76.48877529
200109A00006	1/9/2020	1.95	1/9/2030	1/9/2020	105.91346	102.7703819	99.76502227	96.89008481	94.13871239	91.50446014	88.98126783	86.56343431	84.24559382
200109A00008	1/9/2020	1.95	1/9/2030	1/9/2020	105.91346	102.7703819	99.76502227	96.89008481	94.13871239	91.50446014	88.98126783	86.56343431	84.24559382
200110A00037	1/10/2020	2.32	1/10/2030	1/10/2020	112.03267	106.3893645	101.0826282	96.09036385	91.39204623	86.96859961	82.80228807	78.87661448	75.17622754
200110A00038	1/10/2020	2.32	1/10/2030	1/10/2020	112.03267	106.3893645	101.0826282	96.09036385	91.39204623	86.96859961	82.80228807	78.87661448	75.17622754
200110A00039	1/10/2020	2.32	1/10/2030	1/10/2020	112.03267	106.3893645	101.0826282	96.09036385	91.39204623	86.96859961	82.80228807	78.87661448	75.17622754
200110A00043	1/10/2020	2.32	1/10/2030	1/10/2020	112.03267	106.3893645	101.0826282	96.09036385	91.39204623	86.96859961	82.80228807	78.87661448	75.17622754
200110A00053	1/10/2020	1.99	1/10/2025	1/10/2020	101.08157	100.0704878	99.07973997	98.10871515	97.15682742	96.22351391	95.30823362	94.41046645	93.52971212

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200115A00013	1/15/2020	2.18	1/15/2030	1/15/2020	109.21074	104.5953326	100.2353466	96.11469938	92.2184194	88.53256511	85.04414798	81.74106195	78.61201848
200116A00012	1/16/2020	2.16	1/19/2027	1/16/2020	105.7539	102.8186266	99.98258322	97.24183601	94.59263298	92.03139288	89.55469628	87.15927724	84.84201541
200130A00046	1/30/2020	1.81	1/29/2027	1/30/2020	102.06265	100.5167396	99.00973327	97.54033341	96.10729836	94.70943719	93.34560716	92.01471144	90.71569687
200206A00008	2/6/2020	1.64	2/6/2025	2/6/2020	100.94469	99.88337507	98.84465151	97.82780502	96.83214697	95.85701741	94.9017836	93.96583864	93.0486001
200206A00027	2/6/2020	2.15	2/6/2030	2/6/2020	111.15667	105.49077	100.1661396	95.16016837	90.45186539	86.02173622	81.85166825	77.92482556	74.22555217
200206A00031	2/6/2020	2.15	2/6/2030	2/6/2020	111.15667	105.49077	100.1661396	95.16016837	90.45186539	86.02173622	81.85166825	77.92482556	74.22555217
200206A00032	2/6/2020	2.15	2/6/2030	2/6/2020	111.15667	105.49077	100.1661396	95.16016837	90.45186539	86.02173622	81.85166825	77.92482556	74.22555217
200206A00033	2/6/2020	2.15	2/6/2030	2/6/2020	111.15667	105.49077	100.1661396	95.16016837	90.45186539	86.02173622	81.85166825	77.92482556	74.22555217
200206A00034	2/6/2020	1.84	2/6/2025	2/6/2020	101.00588	99.93325949	98.88353718	97.85598668	96.8499095	95.86463628	94.89952525	93.9539608	93.02735221
200212A00013	2/12/2020	1.98	2/12/2027	2/12/2020	105.34272	102.3630349	99.48552964	96.70609701	94.02081729	91.42595232	88.91793585	86.49336451	84.14898925
200220A00026	2/20/2020	2.22	2/21/2040	2/20/2020	113.94295	105.2244623	97.43403803	90.45826286	84.19882464	78.57037544	73.49870907	68.91920814	64.77551898
200221A00012	2/21/2020	2.14	2/21/2040	2/21/2020	113.23899	104.5788203	96.84053653	89.91147277	83.69396809	78.10324057	73.06557666	68.51678838	64.40089696
200227A00046	2/27/2020	1.52	3/1/2027	2/27/2020	101.67598	100.0947527	98.55411427	97.05268936	95.5891639	94.16227804	92.77082351	91.41364109	90.08961823
200303A00028	3/3/2020	1.54	3/4/2030	3/3/2020	107.08207	101.9520265	97.12524957	92.58175787	88.30300295	84.27175936	80.47202286	76.88891701	73.50860742
200306A00048	3/6/2020	1.04	3/6/2035	3/6/2020	104.99744	99.33803156	94.10560167	89.26262917	84.77523655	80.61280532	76.74763779	73.15465623	69.81113505
200306A00050	3/6/2020	0.87	3/6/2030	3/6/2020	102.57276	99.44708123	96.46160437	93.60874048	90.88136798	88.27280179	85.77676361	83.38735437	81.09902877
200306A00057	3/6/2020	0.92	3/8/2027	3/6/2020	102.48447	99.60982876	96.83472334	94.15508405	91.56703494	89.06688356	86.6511109	84.31636199	82.05943706
200306A00058	3/6/2020	1.06	3/6/2030	3/6/2020	102.76682	99.6432638	96.65953865	93.80808984	91.08182641	88.47409127	85.9786317	83.58957202	81.30138831
200309A00034	3/9/2020	0.96	3/9/2035	3/9/2020	104.52866	98.89447188	93.68536167	88.86397947	84.39659744	80.25273243	76.40480926	72.82786123	69.49926338
200309A00081	3/9/2020	1.18	3/8/2030	3/9/2020	105.68118	100.1697168	94.99554601	90.13600192	85.57006804	81.27824698	77.24244233	73.44585046	69.87286126
200309A00082	3/9/2020	1.18	3/8/2030	3/9/2020	105.68118	100.1697168	94.99554601	90.13600192	85.57006804	81.27824698	77.24244233	73.44585046	69.87286126
200309A00084	3/9/2020	1.06	3/9/2027	3/9/2020	102.66072	99.67280204	96.78949392	94.00649199	91.31970279	88.72522719	86.21934973	83.79852868	81.45938663
200311A00015	3/11/2020	1.26	3/11/2027	3/11/2020	103.28277	100.2760851	97.37476943	94.57448315	91.87109798	89.26068198	86.73948877	84.30394737	81.95065273
200311A00026	3/11/2020	1.34	3/11/2030	3/11/2020	106.3838	101.0017923	95.94556047	91.19333319	86.72491553	82.52156786	78.56589297	74.84173255	71.33407218
200317A00009	3/17/2020	1.61	3/16/2035	3/17/2020	107.59279	101.814171	96.47049189	91.52360958	86.93907455	82.68574555	78.73544695	75.06266373	71.64426993
200317A00043	3/17/2020	1.29	3/15/2030	3/17/2020	103.93001	100.7625799	97.73725723	94.84634424	92.08262092	89.43930995	86.91004654	84.48885049	82.17010032
200318A00012	3/18/2020	1.68	3/18/2033	3/18/2020	108.65958	102.9419177	97.64320692	92.72824578	88.16506847	83.92462742	79.98050729	76.30866876	72.88721879
200319A00035	3/19/2020	1.72	3/18/2033	3/19/2020	108.89267	103.161543	97.85033372	92.92376288	88.34979168	84.0993061	80.14583029	76.46526982	73.03568141
200323A00090	3/23/2020	1.55	3/23/2027	3/23/2020	102.17501	100.32804	98.53374641	96.79020315	95.09556804	93.44807996	91.84605468	90.28788092	88.77201659
200326A00032	3/26/2020	1.49	3/26/2030	3/26/2020	104.15638	100.9898845	97.96519807	95.07465246	92.31105323	89.66764641	87.13808856	84.71641897	82.39703399
200327A00084	3/27/2020	1.1	3/27/2025	3/27/2020	100.26601	99.08299757	97.92827606	96.80083193	95.69970299	94.62397192	93.57276366	92.54524302	91.54061244
200327A00094	3/27/2020	1.6	3/27/2030	3/27/2020	107.4309	102.2469691	97.37191392	92.78521573	88.46784046	84.40212351	80.57166336	76.96122405	73.55664575
200330A00047	3/30/2020	1.5	3/30/2035	3/30/2020	106.94001	101.1962185	95.88478158	90.96777518	86.41095177	82.18335311	78.25696954	74.60643664	71.20876521

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200330A00058	3/30/2020	1.49	3/29/2030	3/30/2020	106.85032	101.686864	96.83138476	92.26340305	87.96392429	83.91532179	80.10123032	76.50644863	73.11685008
200330A00079	3/30/2020	1.51	3/30/2035	3/30/2020	106.99923	101.2522641	95.93788548	91.0181559	86.45880877	82.22886875	78.30031063	74.64775595	71.24820279
200406A00014	4/6/2020	1.33	4/6/2035	4/6/2020	106.73665	100.9427794	95.58891426	90.63615097	86.04938136	81.79689481	77.85002369	74.1828281	70.77181545
200406A00027	4/6/2020	1.31	4/5/2030	4/6/2020	106.60428	101.4187877	96.54406246	91.95936447	87.64546052	83.58450602	79.75993682	76.15637014	72.75951368
200406A00029	4/6/2020	1.61	4/5/2030	4/6/2020	108.18783	102.5123269	97.18711623	92.18845193	87.49433293	83.08436164	78.93961837	75.04254627	71.37684581
200406A00030	4/6/2020	1.61	4/5/2030	4/6/2020	108.18783	102.5123269	97.18711623	92.18845193	87.49433293	83.08436164	78.93961837	75.04254627	71.37684581
200406A00032	4/6/2020	1.09	4/4/2025	4/6/2020	100.28276	99.06569046	97.87695137	96.71555781	95.5805672	94.47108002	93.38623741	92.32521885	91.28724005
200406A00033	4/6/2020	1.09	4/4/2025	4/6/2020	100.28276	99.06569046	97.87695137	96.71555781	95.5805672	94.47108002	93.38623741	92.32521885	91.28724005
200406A00035	4/6/2020	1.05	4/4/2025	4/6/2020	100.21644	99.03673352	97.88421593	96.75794006	95.65700616	94.58055546	93.52776786	92.49785976	91.49008203
200406A00036	4/6/2020	1.09	4/4/2025	4/6/2020	100.28276	99.06569046	97.87695137	96.71555781	95.5805672	94.47108002	93.38623741	92.32521885	91.28724005
200413A00009	4/13/2020	0.77	4/13/2027	4/13/2020	100.76108	99.11039242	97.50376129	95.93965079	94.41659153	92.93317631	91.48805702	90.07994167	88.70759165
200413A00013	4/13/2020	1.19	4/12/2030	4/13/2020	103.23049	100.0515966	97.01667631	94.11786453	91.34778705	88.69952535	86.16658533	83.74286834	81.42264443
200414A00009	4/14/2020	0.82	4/14/2025	4/14/2020	99.827518	99.16983328	98.52318924	97.88727796	97.26180376	96.64648239	96.04104047	95.44521488	94.85875235
200414A00024	4/14/2020	1.37	4/14/2027	4/14/2020	103.75627	100.6597382	97.67425572	94.79519244	92.01814408	89.33891576	86.75351066	84.25811933	81.84910969
200421A00026	4/21/2020	1.34	4/19/2030	4/21/2020	106.07991	100.9093396	96.04962217	91.47997934	87.18113768	83.13521408	79.32560794	75.73690243	72.35477371
200424A00022	4/24/2020	1.39	4/24/2030	4/24/2020	106.35014	101.1600724	96.28252795	91.69659108	87.38286381	83.32334773	79.50133572	75.90131249	72.50886336
200428A00009	4/28/2020	1.08	4/29/2030	4/28/2020	102.87142	99.70305959	96.67823338	93.7891008	91.02830731	88.38895306	85.86456167	83.44905133	81.13670807
200429A00030	4/29/2020	1.41	4/29/2030	4/29/2020	106.82868	101.3326473	96.17515754	91.33326355	86.78569678	82.51273497	78.49608191	74.71875729	71.16499542
200430A00027	4/30/2020	1.31	4/30/2035	4/30/2020	105.84093	100.1160247	94.82489766	89.9292603	85.39455865	81.18957742	77.28609202	73.65855922	70.28384183
200501A00002	5/1/2020	1.3	5/1/2035	5/1/2020	105.8032	100.0407698	94.7177446	89.7951073	85.23766745	81.01365391	77.09435662	73.45380827	70.06850117
200501A00009	5/4/2020	0.67	5/1/2025	5/4/2020	99.730021	99.03389359	98.35005078	97.67813374	97.01779863	96.36871546	95.73056736	95.10304992	94.4858706
200512A00001	5/12/2020	1.17	5/12/2027	5/12/2020	103.2251	100.0719267	97.03427913	94.10731168	91.28640477	88.56715621	85.94536984	83.41704475	80.97836514
200512A00010	5/12/2020	1.48	5/10/2030	5/12/2020	107.48364	101.7612289	96.39703431	91.36651785	86.64695087	82.21727015	78.05794779	74.15087167	70.47923603
200512A00011	5/12/2020	1.48	5/10/2030	5/12/2020	107.48364	101.7612289	96.39703431	91.36651785	86.64695087	82.21727015	78.05794779	74.15087167	70.47923603
200512A00013	5/12/2020	1.17	5/12/2027	5/12/2020	103.2251	100.0719267	97.03427913	94.10731168	91.28640477	88.56715621	85.94536984	83.41704475	80.97836514
200512A00014	5/12/2020	1.17	5/12/2027	5/12/2020	103.2251	100.0719267	97.03427913	94.10731168	91.28640477	88.56715621	85.94536984	83.41704475	80.97836514
200512A00017	5/12/2020	0.85	5/12/2025	5/12/2020	100.10188	98.8105644	97.54241949	96.29687055	95.07336294	93.87135981	92.69034139	91.52980429	90.38926091
200512A00018	5/12/2020	0.85	5/12/2025	5/12/2020	100.10188	98.8105644	97.54241949	96.29687055	95.07336294	93.87135981	92.69034139	91.52980429	90.38926091
200512A00020	5/12/2020	0.86	5/12/2025	5/12/2020	100.12335	98.81203254	97.52426881	96.25947393	95.0170852	93.79655791	92.59736459	91.41899439	90.26095238
200512A00021	5/12/2020	0.86	5/12/2025	5/12/2020	100.12335	98.81203254	97.52426881	96.25947393	95.0170852	93.79655791	92.59736459	91.41899439	90.26095238
200514A00008	5/14/2020	1.23	5/14/2030	5/14/2020	105.51888	100.3226168	95.44190081	90.85546062	86.54357391	82.48795001	78.67161857	75.07882748	71.69494918
200520A00009	5/20/2020	1.63	5/20/2038	5/20/2020	111.20304	100.4705762	91.03099916	82.71438309	75.37437326	68.88477931	63.13667884	58.03595175	53.5011793
200522A00009	5/22/2020	0.96	5/22/2030	5/22/2020	102.6134	99.28596896	96.11459232	93.09050025	90.20548001	87.45183769	84.82236204	82.31029106	79.90928107

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200605A00018	6/5/2020	0.91	6/5/2025	6/5/2020	100.25735	98.88591386	97.54011981	96.21931184	94.92285353	93.65012967	92.40054532	91.17352507	89.96851216
200608A00001	6/8/2020	1.34	6/7/2030	6/8/2020	106.13515	100.8686633	95.92466235	91.28121936	86.91801911	82.81623398	78.95840726	75.32834618	71.91102383
200610A00006	6/10/2020	1.11	6/10/2027	6/10/2020	103.1261	99.9087603	96.81176479	93.82995562	90.95842381	88.19249655	85.52772456	82.95987008	80.48489568
200612A00004	6/12/2020	1.42	6/12/2040	6/12/2020	107.18871	98.73976315	91.20487252	84.47047099	78.43835407	73.02347089	68.15204782	63.75999319	59.7915396
200616A00005	6/16/2020	0.74	6/17/2030	6/16/2020	102.24542	99.00718865	95.91927014	92.97327292	90.16133521	87.4760909	84.91063489	82.45849109	80.11358285
200623A00028	6/23/2020	1.23	6/23/2038	6/23/2020	106.49378	99.74919986	93.59675647	87.97631862	82.83445335	78.12362769	73.80150995	69.83035852	66.1764868
200709A00019	7/9/2020	0.77	7/9/2025	7/9/2020	100.14125	98.68430881	97.2560985	95.85583364	94.48276065	93.13615263	91.81530818	90.51955028	89.24822522
200716A00004	7/16/2020	0.97	7/16/2027	7/16/2020	102.77204	99.47774681	96.30971028	93.26238181	90.33048817	87.50901685	84.79320159	82.17850879	79.6606248
200724A00011	7/24/2020	1.41	7/26/2038	7/24/2020	108.82877	98.03782977	88.57210572	80.25462723	72.93332047	66.4773642	60.77409656	55.72638771	51.25040606
200806A00004	8/6/2020	0.3	3/6/2024	8/6/2020	99.904297	99.81572493	99.72731687	99.639072	99.55098985	99.46306994	99.37531179	99.28771495	99.20027893
200814A00003	8/14/2020	0.96	8/14/2035	8/14/2020	104.58335	98.74702797	93.36557672	88.39777081	83.80650493	79.55834978	75.62315972	71.97372499	68.58546302
200818A00012	8/18/2020	0.97	8/18/2027	8/18/2020	102.87617	99.50153147	96.25871169	93.14180157	90.14519225	87.26355857	84.49184284	81.82523976	79.25918216
200910A00006	9/10/2020	0.96	9/10/2027	9/10/2020	102.90905	99.48181089	96.19021804	93.02810804	89.98963389	87.06924899	84.26168975	81.56195919	78.96531174
201029A00004	10/29/2020	1.49	10/29/2038	10/29/2020	109.79069	98.78291884	89.14482748	80.6910269	73.26255628	66.72296556	60.95499704	55.85777297	51.34440938
201103A00005	11/3/2020	0.89	11/4/2030	11/3/2020	102.45418	99.01562118	95.74520577	92.63308387	89.67006015	86.84754488	84.15750989	81.59244799	79.14533558
201110A00003	11/10/2020	1.12	11/10/2027	11/10/2020	103.67967	100.0894511	96.64677791	93.34480452	90.17703513	87.1373076	84.21977455	81.41888565	78.72937098
201207A00009	12/7/2020	1.01	12/7/2027	12/7/2020	103.35443	99.70892596	96.21593237	92.86824235	89.65902744	86.58181649	83.63047497	80.7991857	78.08243071
201207A00021	12/7/2020	1.85	12/7/2050	12/7/2020	115.06186	101.1290339	89.46825017	79.65829481	71.3621892	64.30943929	58.28217667	53.10431095	48.63301692
201221A00022	12/21/2020	0.51	12/19/2025	12/21/2020	100.31997	98.49054592	96.70468714	94.96108397	93.25847303	91.59563751	89.97140511	88.3846461	86.83427137
201228A00013	12/28/2020	0.84	12/30/2030	12/28/2020	102.30076	98.82621583	95.52343355	92.38225161	89.39318835	86.54739219	83.83659545	81.25307182	78.78959722
210212A00004	2/12/2021	1.1	2/12/2036	2/12/2021	105.51012	99.38227009	93.75022871	88.56742872	83.79211732	79.38682094	75.31787345	71.55499959	68.07094677
210212A00006	2/12/2021	0.77	2/12/2026	2/12/2021	100.75458	98.74851719	96.7928396	94.88593332	93.02625079	91.21230565	89.44266982	87.71597071	86.03088858
210212A00007	2/12/2021	0.76	2/12/2026	2/12/2021	100.72082	98.73270268	96.79441756	94.90436875	93.06102696	91.26292334	89.50864661	87.7968403	86.12620016
210217A00005	2/17/2021	0.83	2/14/2031	2/17/2021	102.78795	99.20623047	95.80561106	92.57515574	89.50467263	86.58466013	83.80625546	81.16118727	78.64173211
210319A00008	3/19/2021	0.63	3/19/2024	3/19/2021	99.812708	99.59594022	99.38012615	99.16525971	98.95133461	98.73834461	98.52628353	98.31514524	98.10492368
210319A00009	3/19/2021	1.1	3/19/2026	3/19/2021	101.54793	99.45472442	97.41582164	95.42941461	93.49377081	91.60722976	89.76819932	87.97515227	86.22662303
210331A00007	3/31/2021	1.25	3/31/2031	3/31/2021	103.90374	100.2518308	96.78610395	93.49522765	90.36864802	87.39653123	84.56970928	81.87963041	79.31831339
210408A00007	4/8/2021	1.05	4/8/2031	4/8/2021	103.67781	99.98339287	96.47955302	93.15456817	89.99752743	86.99827163	84.14733629	81.43589932	78.85573301
210412A00007	4/12/2021	0.66	4/12/2024	4/12/2021	99.777164	99.49818016	99.22077025	98.94492049	98.67061764	98.39784861	98.12660045	97.85686037	97.58861573
210412A00008	4/12/2021	0.66	4/12/2024	4/12/2021	99.777164	99.49818016	99.22077025	98.94492049	98.67061764	98.39784861	98.12660045	97.85686037	97.58861573
210420A00035	4/20/2021	1.92	4/20/2034	4/20/2021	110.03089	103.6492711	97.77758707	92.36918749	87.38207907	82.77842806	78.52411962	74.58836659	70.94336172
210423A00001	4/23/2021	1.72	4/23/2036	4/23/2021	109.57313	103.1264099	97.20769028	91.76680084	86.75881484	82.14346156	77.88460749	73.94979878	70.30985744
210423A00003	4/23/2021	1.31	4/23/2031	4/23/2021	104.66956	100.9393392	97.40158996	94.04446421	90.85694006	87.82875519	84.9503493	82.21281122	79.60783033

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210512A00008	5/12/2021	0.66	5/10/2024	5/12/2021	99.734047	99.37713371	99.02278722	98.67097935	98.32168278	97.97487055	97.63051612	97.28859333	96.94907635
210512A00009	5/12/2021	0.66	5/10/2024	5/12/2021	99.734047	99.37713371	99.02278722	98.67097935	98.32168278	97.97487055	97.63051612	97.28859333	96.94907635
210512A00011	5/12/2021	1.16	5/12/2026	5/12/2021	101.86989	99.64053902	97.47225114	95.36301668	93.3109005	91.3140422	89.37065286	87.47901177	85.63746346
210512A00012	5/12/2021	1.16	5/12/2026	5/12/2021	101.86989	99.64053902	97.47225114	95.36301668	93.3109005	91.3140422	89.37065286	87.47901177	85.63746346
210611A00007	6/11/2021	0.61	6/11/2024	6/11/2021	99.67596	99.23642563	98.80078239	98.36897894	97.9409645	97.51668917	97.09610394	96.67916066	96.265812
210611A00008	6/11/2021	0.61	6/11/2024	6/11/2021	99.67555	99.23535377	98.79905754	98.36660921	97.93795788	97.51305353	97.09184703	96.67429011	96.26033533
210611A00009	6/11/2021	0.61	6/11/2024	6/11/2021	99.67596	99.23642563	98.80078239	98.36897894	97.9409645	97.51668917	97.09610394	96.67916066	96.265812
210611A00010	6/11/2021	1.02	6/11/2026	6/11/2021	101.64377	99.34819122	97.11742119	94.94925709	92.84158373	90.79237037	88.79966683	86.86159976	84.97636911
210611A00011	6/11/2021	1.02	6/11/2026	6/11/2021	101.64377	99.34819122	97.11742119	94.94925709	92.84158373	90.79237037	88.79966683	86.86159976	84.97636911
210611A00012	6/11/2021	1.02	6/11/2026	6/11/2021	101.64377	99.34819122	97.11742119	94.94925709	92.84158373	90.79237037	88.79966683	86.86159976	84.97636911
210714A00009	7/14/2021	0.75	7/12/2024	7/14/2021	99.72053	99.19592439	98.6768585	98.16324469	97.65499714	97.15203182	96.65426646	96.16162049	95.674015
210714A00010	7/14/2021	0.75	7/12/2024	7/14/2021	99.72053	99.19592439	98.6768585	98.16324469	97.65499714	97.15203182	96.65426646	96.16162049	95.674015
210714A00011	7/14/2021	0.75	7/12/2024	7/14/2021	99.72053	99.19592439	98.6768585	98.16324469	97.65499714	97.15203182	96.65426646	96.16162049	95.674015
210714A00012	7/14/2021	1.12	7/14/2026	7/14/2021	101.99314	99.61101817	97.29818463	95.0522099	92.87076154	90.75160374	88.69259262	86.69167179	84.7468682
210714A00013	7/14/2021	1.12	7/14/2026	7/14/2021	101.99314	99.61101817	97.29818463	95.0522099	92.87076154	90.75160374	88.69259262	86.69167179	84.7468682
210714A00014	7/14/2021	1.12	7/14/2026	7/14/2021	101.99314	99.61101817	97.29818463	95.0522099	92.87076154	90.75160374	88.69259262	86.69167179	84.7468682
210714A00015	7/14/2021	1.11	7/14/2026	7/14/2021	101.922	99.57952408	97.30488002	95.09568596	92.94966312	90.86462704	88.83848298	86.86922161	84.95491496
210714A00016	7/14/2021	0.75	7/12/2024	7/14/2021	99.721124	99.19804264	98.68047857	98.16834453	97.6615551	97.16002663	96.66367724	96.17242673	95.68619655
210714A00017	7/14/2021	0.73	7/12/2024	7/14/2021	99.714282	99.2004011	98.69190175	98.18869955	97.69071147	97.19785623	96.71005423	96.2272275	95.74929969
210714A00018	7/14/2021	0.75	7/12/2024	7/14/2021	99.721124	99.19804264	98.68047857	98.16834453	97.6615551	97.16002663	96.66367724	96.17242673	95.68619655
210809A00012	8/9/2021	1.06	8/7/2026	8/9/2021	101.92784	99.48934776	97.1230225	94.82627526	92.59663124	90.43172069	88.3292736	86.28711478	84.3031592
210809A00013	8/9/2021	1.05	8/7/2026	8/9/2021	101.85601	99.45891278	97.13241962	94.874009	92.68126446	90.55187199	88.48361487	86.47436885	84.52209767
210809A00014	8/9/2021	1.06	8/7/2026	8/9/2021	101.92784	99.48934776	97.1230225	94.82627526	92.59663124	90.43172069	88.3292736	86.28711478	84.3031592
210809A00015	8/9/2021	1.06	8/7/2026	8/9/2021	101.92784	99.48934776	97.1230225	94.82627526	92.59663124	90.43172069	88.3292736	86.28711478	84.3031592
210809A00016	8/9/2021	0.66	8/9/2024	8/9/2021	99.658866	99.08866821	98.5252055	97.96835754	97.41800705	96.87403949	96.33634306	95.80480852	95.27932921
210913A00014	9/13/2021	1.15	9/13/2028	9/13/2021	102.20126	99.78854019	97.46252976	95.21937308	93.05541401	90.96718477	88.95139491	87.00492103	85.12479711
210913A00015	9/13/2021	1.08	9/14/2026	9/13/2021	101.95872	99.55090351	97.2153792	94.94949086	92.75069937	90.61657725	88.54480275	86.5331544	84.57950586
210915A00018	9/15/2021	0.74	9/16/2024	9/15/2021	99.656696	98.96219673	98.27741301	97.60214133	96.93618407	96.27934905	95.63144934	94.99230313	94.36173348
210915A00023	9/15/2021	0.74	9/16/2024	9/15/2021	99.656696	98.96219673	98.27741301	97.60214133	96.93618407	96.27934905	95.63144934	94.99230313	94.36173348
210915A00024	9/15/2021	1.1	9/15/2026	9/15/2021	102.15991	99.62600885	97.16934113	94.7870432	92.4763821	90.23474563	88.05963596	85.94866376	83.89954254
210915A00025	9/15/2021	1.09	9/15/2026	9/15/2021	102.08105	99.59168657	97.1778223	94.83666886	92.56556064	90.36194963	88.22339924	86.14757853	84.13225676
210915A00026	9/15/2021	1.1	9/15/2026	9/15/2021	102.15991	99.62600885	97.16934113	94.7870432	92.4763821	90.23474563	88.05963596	85.94866376	83.89954254
211007A00005	10/7/2021	0.86	10/7/2024	10/7/2021	99.75651	99.00406311	98.26300701	97.53308429	96.81404501	96.10564661	95.40765376	94.71983798	94.04197748

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
211208A00013	12/8/2021	1.63	12/8/2026	12/8/2021	103.99192	101.1875244	98.47512146	95.85118714	93.31235052	90.85538843	88.47721804	86.17488995	83.94558161
220104A00006	1/4/2022	1.76	1/4/2029	1/4/2022	108.04571	103.5666083	99.31323506	95.27284675	91.43348882	87.78394376	84.31368168	81.01281442	77.87205304
220211A00010	2/11/2022	1.99	2/11/2025	2/11/2022	100.96615	100.0418799	99.13629497	98.24881873	97.37889413	96.52598702	95.68958506	94.86919659	94.06434958
220308A00012	3/8/2022	2.51	3/8/2032	3/8/2022	114.90569	108.0352181	101.6760634	95.78617338	90.32720951	85.26420157	80.56523299	76.20115732	72.14534253
220310A00008	3/10/2022	2.22	3/10/2025	3/10/2022	101.56463	100.4003759	99.26303937	98.15168938	97.06544006	96.00344551	94.96489751	93.94902345	92.95508437
220310A00009	3/10/2022	2.31	3/10/2027	3/10/2022	106.471	103.4198728	100.4751042	97.63232649	94.88738482	92.23632148	89.67536507	87.20092039	84.80955893
220310A00010	3/10/2022	2.31	3/10/2027	3/10/2022	106.471	103.4198728	100.4751042	97.63232649	94.88738482	92.23632148	89.67536507	87.20092039	84.80955893
220407A00014	4/7/2022	3.14	4/6/2029	4/7/2022	113.1556	108.6762602	104.4232536	100.3835795	96.54506363	92.89630095	89.42660245	86.12594592	82.98493041
220407A00017	4/7/2022	3.16	4/6/2029	4/7/2022	114.17847	109.3914937	104.8522608	100.5463498	96.46026324	92.58136378	88.89781465	85.3985241	82.07309429
220801A00066	8/1/2022	2.93	7/30/2027	8/1/2022	109.98784	106.5032608	103.1524588	99.92951835	96.82882275	93.8450352	90.97308329	88.20814421	85.54563094
221012A00053	10/12/2022	4.66	10/11/2024	10/12/2022	101.37729	100.9627291	100.5523987	100.1462296	99.74415179	99.34609703	98.95199861	98.56179137	98.17541167
221014A00032	10/14/2022	4.67	10/14/2027	10/14/2022	115.5486	111.9562619	108.5046498	105.1873805	101.9984	98.93196383	95.98261928	93.14518877	90.41475421
221018A00007	10/18/2022	4.68	10/18/2027	10/18/2022	108.57053	106.5317054	104.5534765	102.6335497	100.7697318	98.95992866	97.20214004	95.49445448	93.83504486
221201A00043	12/1/2022	4.37	12/3/2029	12/1/2022	113.37681	110.0211458	106.8122069	103.7422325	100.8039308	97.99044736	95.29533603	92.7125319	90.23632618
221209A00070	12/9/2022	4.42	12/9/2037	12/9/2022	131.57305	122.8496383	114.9260348	107.7175671	101.1493836	95.15523279	89.67640445	84.6608097	80.06217905
221228A00129	12/28/2022	4.11	12/28/2027	12/28/2022	115.8466	111.8420711	108.0055678	104.3290733	100.8049993	97.42615918	94.18574521	91.07730596	88.09472583
230301A00047	3/1/2023	4.61	3/1/2028	3/1/2023	118.08023	113.8626814	109.8275814	105.9659442	102.2692815	98.729571	95.33922803	92.09107885	88.97833589
230307A00004	3/7/2023	4.67	3/7/2028	3/7/2023	118.40063	114.1593101	110.1020237	106.2196794	102.503689	98.94593728	95.53875356	92.2748841	89.14746709
230314A00014	3/14/2023	4.18	3/14/2028	3/14/2023	116.59559	112.463219	108.5100504	104.7272099	101.1063168	97.63945406	94.31913982	91.13830056	88.09024627
230323A00028	3/23/2023	4.1	3/23/2028	3/23/2023	115.81216	111.6915451	107.7502402	103.9793366	100.3704207	96.91554615	93.60720508	90.43830099	87.40212361
230328A00028	3/28/2023	4.34	3/27/2026	3/28/2023	108.72485	106.4926785	104.3186667	102.2008594	100.1373891	98.12646658	96.16637701	94.25547602	92.39218623
230406A00016	4/6/2023	3.89	4/6/2028	4/6/2023	114.40694	110.4530399	106.6700785	103.0495775	99.58353405	96.26438912	93.08499948	90.03861243	87.11884198
230421A00062	4/21/2023	4.33	4/21/2028	4/21/2023	109.06379	106.7516616	104.5154425	102.3520089	100.2583877	98.23174913	96.269399	94.36877125	92.52742089
230530A00045	5/30/2023	4.56	5/29/2026	5/30/2023	110.09443	107.6605319	105.2943254	102.9935449	100.7560102	98.57962702	96.4623829	94.40234363	92.39764963
230530A00054	5/30/2023	4.56	5/29/2026	5/30/2023	110.09443	107.6605319	105.2943254	102.9935449	100.7560102	98.57962702	96.4623829	94.40234363	92.39764963
230530A00055	5/30/2023	4.56	5/29/2026	5/30/2023	110.09443	107.6605319	105.2943254	102.9935449	100.7560102	98.57962702	96.4623829	94.40234363	92.39764963
230727A00033	7/27/2023	4.82	7/27/2026	7/27/2023	111.51298	108.9031	106.3695829	103.909724	101.5209313	99.20072109	96.94671326	94.75662581	92.62827025
230727A00037	7/27/2023	4.82	7/27/2026	7/27/2023	111.51298	108.9031	106.3695829	103.909724	101.5209313	99.20072109	96.94671326	94.75662581	92.62827025
230824A00008	8/24/2023	4.69	8/24/2028	8/24/2023	117.10599	113.1476227	109.3657967	105.7513981	102.2958396	98.99102834	95.8293343	92.8035611	89.90691865
230830A00055	8/30/2023	4.47	8/30/2028	8/30/2023	119.06543	114.4685392	110.0885336	105.9138427	101.9335842	98.13751647	94.51599686	91.05994327	87.76079826
230908A00009	9/8/2023	4.55	9/8/2028	9/8/2023	120.04199	115.2893544	110.7635656	106.4524267	102.3444687	98.42890256	94.69557462	91.13492544	87.73795151
230908A00010	9/8/2023	4.73	9/9/2030	9/8/2023	116.26618	112.4549574	108.8262581	105.3695897	102.0751461	98.93375606	95.93683748	93.07635555	90.34478416
230928A00051	9/28/2023	5.04	9/28/2026	9/28/2023	112.84186	110.0670208	107.3771042	104.76894	102.2394999	99.78589117	97.40534897	95.09522988	92.85300547

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230928A00058	9/28/2023	5.04	9/28/2026	9/28/2023	112.84186	110.0670208	107.3771042	104.76894	102.2394999	99.78589117	97.40534897	95.09522988	92.85300547
230928A00059	9/28/2023	4.84	9/28/2028	9/28/2023	121.61958	116.7705766	112.1549563	107.7600548	103.5739732	99.58552524	95.78418981	92.16006772	88.70384094
230928A00060	9/28/2023	4.84	9/28/2028	9/28/2023	121.61958	116.7705766	112.1549563	107.7600548	103.5739732	99.58552524	95.78418981	92.16006772	88.70384094
230928A00061	9/28/2023	4.84	9/28/2028	9/28/2023	121.61958	116.7705766	112.1549563	107.7600548	103.5739732	99.58552524	95.78418981	92.16006772	88.70384094
231017A00041	10/17/2023	5.12	10/16/2026	10/17/2023	113.33029	110.4963793	107.750588	105.0896463	102.5104234	100.0099249	97.58528494	95.2337606	92.9527253
231109A00025	11/9/2023	4.75	11/9/2028	11/9/2023	121.11973	116.2895922	111.6949849	107.3230281	103.1616118	99.19934889	95.42552878	91.83007355	88.40349737
231221A00022	12/21/2023	4.01	12/21/2028	12/21/2023	117.15849	112.5569766	108.1813946	104.0192155	100.0586751	96.28872356	92.69897881	89.27968228	86.02165816
231226A00016	12/26/2023	3.92	12/26/2028	12/26/2023	118.82252	113.8211976	109.0727087	104.562783	100.2780342	96.2058995	92.33458471	88.6530131	85.15077795
050902A00032	9/2/2005	4.69	8/22/2025	9/2/2005	106.59324	105.0090439	103.456483	101.9346818	100.4427942	98.98000478	97.54552749	96.13860417	94.75850341
050923A00096	9/23/2005	4.86	9/22/2025	9/23/2005	107.30828	105.6318158	103.9899028	102.381541	100.8057658	99.2616497	97.74830031	96.26485871	94.8104979
051003A00009	10/3/2005	5.15	10/15/2025	10/3/2005	107.88896	106.1484342	104.4446475	102.7765016	101.1429413	99.54295295	97.97556301	96.4398356	94.93487083
051107A00075	11/7/2005	5.29	11/17/2025	11/7/2005	108.88955	107.04392	105.2389364	103.473413	101.7462079	100.0562216	98.40239528	96.78370842	95.19917753
060308A00014	3/8/2006	5.44	3/16/2026	3/8/2006	110.79196	108.5965663	106.4563762	104.369617	102.3345877	100.349655	98.41324987	96.52386459	94.68004973
060808A00022	8/8/2006	5.57	6/15/2026	8/8/2006	112.53397	110.0635916	107.6610919	105.3242216	103.0508233	100.8388233	98.68622802	96.59111982	94.55165419
090226A00006	2/26/2009	4.55	3/1/2024	2/26/2009	100.26408	100.1807405	100.097537	100.0144736	99.93154991	99.84876559	99.76612026	99.68361359	99.6012452
091112A00011	11/12/2009	4.77	11/15/2024	11/12/2009	103.05161	102.2506428	101.4621739	100.6859117	99.92157395	99.16888666	98.42758439	97.6974097	96.97811282
091210A00005	12/10/2009	5.08	12/16/2024	12/10/2009	103.57854	102.6921303	101.8209627	100.9646468	100.1228044	99.2950698	98.48108983	97.68052287	96.8930386
100809A00029	8/9/2010	4.23	8/15/2025	8/9/2010	105.54769	103.9949263	102.4729413	100.9808921	99.51796424	98.08337276	96.67636034	95.29619628	93.94217531
100824A00009	8/24/2010	3.91	9/2/2025	8/24/2010	105.2541	103.6549725	102.0880683	100.5524804	99.04733555	97.57179275	96.1250417	94.70630135	93.31481863
100930A00008	9/30/2010	3.82	9/30/2025	9/30/2010	105.42471	103.7464775	102.1031125	100.4935941	98.91693943	97.37220405	95.85847954	94.37489202	92.92060038
110505A00022	5/5/2011	4.59	5/15/2026	5/5/2011	109.78056	107.4295236	105.1412067	102.9135349	100.7445142	98.63223035	96.57484581	94.57059544	92.61778332
110805A00014	8/5/2011	4.06	8/17/2026	8/5/2011	109.67692	107.0682394	104.5359229	102.0772741	99.68971246	97.3707645	95.11805892	92.92932154	90.80237066
111006A00023	10/6/2011	3.81	10/15/2026	10/6/2011	109.70533	106.9327029	104.245033	101.6391637	99.11208127	96.66090546	94.28288219	91.97537723	89.73586991
111216A00001	12/16/2011	3.95	12/30/2031	12/16/2011	129.12662	120.487436	112.5110141	105.1425967	98.33222958	92.034316	86.20721629	80.81288539	75.81654547
120113A00012	1/13/2012	3.62	1/15/2027	1/13/2012	110.16017	107.1281299	104.1965798	101.3616395	98.61959796	95.96690778	93.40017734	90.91616287	88.51176117
120113A00013	1/13/2012	3.87	1/15/2032	1/13/2012	128.62464	119.960938	111.965666	104.5833001	97.76321086	91.45920926	85.62913596	80.23449028	75.24009525
120127A00018	1/27/2012	3.64	2/1/2027	1/27/2012	110.39727	107.3152714	104.3368855	101.4580525	98.67489117	95.98369484	93.38092185	90.86318742	88.42725571
120127A00019	1/27/2012	3.87	1/30/2032	1/27/2012	128.75078	120.0409536	112.0062014	104.5901803	97.74154208	91.41346368	85.56322604	80.15183474	75.14367726
120312A00009	3/12/2012	2.72	3/15/2024	3/12/2012	100.16362	100.0417223	99.920136	99.79886268	99.67790106	99.55724989	99.43690789	99.31687384	99.1971465
120411A00013	4/11/2012	3.59	4/15/2027	4/11/2012	111.04394	107.7432859	104.5592452	101.4869907	98.5219288	95.65968562	92.89609467	90.22718553	87.64917319
120709A00016	7/9/2012	3.2	7/15/2027	7/9/2012	110.65323	107.1074003	103.6956593	100.4122166	97.25156462	94.2084626	91.27792173	88.45519181	85.73574852
121116A00006	11/16/2012	2.64	11/13/2025	11/16/2012	103.80588	102.0231745	100.2796024	98.57401341	96.90529768	95.27238753	93.67425537	92.10991183	90.57840397
121116A00021	11/16/2012	2.35	11/17/2025	11/16/2012	103.56773	101.7716514	100.0153053	98.29752612	96.61719683	94.9732418	93.364625	91.79034817	90.24944909

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
121116A00022	11/16/2012	2.78	11/16/2029	11/16/2012	116.34728	110.2733392	104.5583849	99.17928569	94.11452199	89.34406334	84.8492575	80.61272859	76.61828326
130107A00002	1/7/2013	3.22	1/18/2028	1/7/2013	112.51343	108.4176585	104.4958351	100.739644	97.14121394	93.69308971	90.38820766	87.21987315	84.18173926
130211A00017	2/11/2013	3.27	2/15/2028	2/11/2013	112.98994	108.8052172	104.8010891	100.968782	97.29999657	93.78688009	90.42199963	87.19831725	84.10916687
130405A00006	4/5/2013	2.41	4/7/2025	4/5/2013	102.00084	100.81736	99.66126699	98.53161664	97.4275095	96.34808657	95.29252697	94.26004588	93.24989255
130405A00007	4/5/2013	2.91	4/17/2028	4/5/2013	112.64745	108.2792942	104.1066651	100.1197114	96.30913729	92.66616724	89.18251359	85.85034643	82.66226542
130424A00004	4/24/2013	2.46	4/24/2025	4/24/2013	102.16109	100.9308396	99.73013496	98.55792206	97.41319584	96.29499806	95.20241455	94.13457273	93.09063926
130424A00005	4/24/2013	3.07	4/24/2030	4/24/2013	119.11805	112.5141434	106.3253359	100.5232425	95.08156708	89.97594154	85.18377391	80.68410939	76.45750306
130531A00021	5/31/2013	3.22	5/30/2028	5/31/2013	114.38198	109.856886	105.5388878	101.4174379	97.48257771	93.72490367	90.13553308	86.70607287	83.42859008
130821A00019	8/21/2013	3.81	8/29/2025	8/21/2013	105.29091	103.6983563	102.1378257	100.6084236	99.1092858	97.63957952	96.1985023	94.78528058	93.39916833
130904A00039	9/4/2013	4.19	9/15/2028	9/4/2013	119.94017	114.9843661	110.2672767	105.7760633	101.4986541	97.42368918	93.54047512	89.83894162	86.30960185
130926A00009	9/26/2013	4	10/2/2028	9/26/2013	119.24952	114.2603059	109.5136701	104.9964556	100.6962927	96.601548	92.70127709	88.98517907	85.44355526
131217A00024	12/17/2013	4.34	1/2/2029	12/17/2013	121.25582	115.9776539	110.9671869	106.2093932	101.6901644	97.39625201	93.31521113	89.43534728	85.74566747
140313A00030	3/13/2014	3.27	3/15/2024	3/13/2014	100.23076	100.1087934	99.98714379	99.8658073	99.74478263	99.62406853	99.50366375	99.38356703	99.26377715
140423A00036	4/23/2014	4.03	4/23/2029	4/23/2014	120.88339	115.2927079	110.0010703	104.9907865	100.2453101	95.74916058	91.48784811	87.44780465	83.61631996
140521A00019	5/21/2014	3.43	5/22/2028	5/21/2014	115.21989	110.6989452	106.3837536	102.2638493	98.32935906	94.57096098	90.97985104	87.54771138	84.26668091
140626A00036	6/26/2014	3.55	6/26/2029	6/26/2014	119.6657	113.8999401	108.4532903	103.3063846	98.44112704	93.84060507	89.48900637	85.37154179	81.47437414
140815A00032	8/15/2014	3.59	10/15/2029	8/15/2014	120.01471	113.9543171	108.2446878	102.8635573	97.79019811	93.00530249	88.49087766	84.23014888	80.20747047
140827A00038	8/27/2014	3.07	8/30/2024	8/27/2014	101.02613	100.4442924	99.86914695	99.3005776	98.73847214	98.18272084	97.63321647	97.08985418	96.55253147
140911A00027	9/11/2014	3.18	9/16/2024	9/11/2014	101.19961	100.5711773	99.95055349	99.33759298	98.73215433	98.13409951	97.54329386	96.95960597	96.38290762
140922A00026	9/22/2014	3.02	9/30/2024	9/22/2014	101.32111	100.6525408	99.99277866	99.34165531	98.69900189	98.06465393	97.43845122	96.82023763	96.209861
141208A00008	12/8/2014	3.02	12/16/2024	12/8/2014	101.75842	100.8807108	100.018142	99.17032198	98.33687451	97.51743603	96.71165518	95.91919228	95.13971882
141215A00062	12/15/2014	2.65	12/16/2024	12/15/2014	101.57107	100.6923307	99.82878377	98.98003476	98.14570542	97.32543031	96.51885626	95.72564182	94.94545685
150220A00021	2/20/2015	2.72	2/20/2024	2/20/2015	100.06904	100.013582	99.95820182	99.90289592	99.84766413	99.79250628	99.73742224	99.68241184	99.62747495
150220A00022	2/20/2015	2.8	2/20/2025	2/20/2015	102.00188	100.9445814	99.90917141	98.89497737	97.90135188	96.92767369	95.97334635	95.037797	94.12047518
150317A00012	3/17/2015	2.46	3/18/2024	3/17/2015	100.14083	100.0106703	99.88086714	99.75141783	99.62232084	99.49357467	99.36517786	99.23712892	99.10942639
150317A00013	3/17/2015	2.58	3/17/2025	3/17/2015	102.0805	100.9529858	99.85033527	98.77172821	97.71638432	96.68355682	95.67253055	94.68262041	93.71316973
150319A00012	3/19/2015	3.13	3/19/2029	3/19/2015	115.87071	110.5077755	105.4289774	100.6177149	96.05844757	91.7366209	87.63859861	83.75159956	80.06363948
150319A00013	3/19/2015	3.25	3/19/2030	3/19/2015	119.12404	112.653027	106.582071	100.884244	95.5345679	90.50986655	85.7886265	81.35086909	77.17803304
150401A00008	4/1/2015	2.62	4/1/2025	4/1/2015	102.0262	100.8615221	99.72337042	98.61084961	97.52310126	96.4593049	95.41867591	94.40046365	93.40394956
150422A00019	4/22/2015	2.62	4/22/2025	4/22/2015	102.15029	100.9285069	99.73589569	98.5714169	97.43408368	96.32295484	95.23713227	94.17575852	93.13801446
150512A00029	5/12/2015	3.03	5/12/2025	5/12/2015	102.8263	101.5479967	100.2972569	99.07318903	97.8749399	96.70169287	95.5526658	94.42710929	93.3243049
150519A00013	5/19/2015	2.98	5/19/2025	5/19/2015	102.82765	101.5314809	100.2613127	99.01636986	97.79591077	96.59922317	95.42562264	94.2744512	93.14507604
150601A00404	6/1/2015	4.29	1/17/2029	6/1/2015	120.85613	115.5458562	110.5071516	105.7246411	101.1839036	96.87140434	92.7744363	88.88106493	85.18007737

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00405	6/1/2015	4.63	1/17/2034	6/1/2015	141.50495	130.1890767	119.9247849	110.6072	102.1424745	94.44657203	87.44419338	81.06782576	75.25689963
150601A00470	6/1/2015	2.98	5/31/2024	6/1/2015	100.54957	100.2155102	99.88366652	99.55401712	99.22654026	98.90121453	98.5780188	98.25693222	97.93793419
150601A00485	6/1/2015	3.09	6/21/2024	6/1/2015	100.70398	100.3122237	99.92352689	99.53785179	99.15516315	98.77542626	98.39860693	98.02467151	97.65358687
150601A00490	6/1/2015	3.19	7/2/2024	6/1/2015	100.75388	100.3325821	99.91480664	99.50050713	99.08964028	98.68216354	98.27803509	97.87721378	97.47965914
150601A00495	6/1/2015	2.99	6/27/2024	6/1/2015	100.69739	100.2892577	99.88443018	99.48287195	99.08454347	98.68940583	98.29742078	97.90855065	97.52275837
150601A00512	6/1/2015	3.79	7/16/2029	6/1/2015	120.07003	114.2635593	108.7805348	103.6011853	98.70704531	94.08086651	89.70653115	85.56897236	81.65410035
150601A00522	6/1/2015	4.52	7/25/2030	6/1/2015	127.82777	120.7255651	114.080089	107.8593428	102.033734	96.57588452	91.46045383	86.66397745	82.16471869
150601A00523	6/1/2015	4.55	7/25/2031	6/1/2015	131.7382	123.4502037	115.7652486	108.6358419	102.0184765	95.87327837	90.16368479	84.85615359	79.91989872
150601A00530	6/1/2015	3.08	7/24/2024	6/1/2015	100.89337	100.4111243	99.93349088	99.46040748	98.99180912	98.52763211	98.06781397	97.61229337	97.16101014
150601A00531	6/1/2015	3.28	7/24/2024	6/1/2015	100.92666	100.4450561	99.96805057	99.49557956	99.02757854	98.56398421	98.10473443	97.64976826	97.19902587
150601A00664	6/1/2015	3.78	1/16/2032	6/1/2015	127.47787	118.855767	110.9000488	103.5552975	96.77098841	90.50103186	84.70336227	79.33956767	74.37455488
150601A00665	6/1/2015	3.82	1/14/2033	6/1/2015	130.79618	121.018244	112.0767049	103.8948821	96.40351938	89.54003009	83.24782301	77.47569945	72.1773138
150601A00666	6/1/2015	3.88	1/16/2035	6/1/2015	136.27793	124.202243	113.3559413	103.6055584	94.83282392	86.93286251	79.81261229	73.38943779	67.5899118
150601A00667	6/1/2015	3.88	1/16/2036	6/1/2015	137.88576	124.7322446	113.0230747	102.5894524	93.28321291	84.97420757	77.54802689	70.90402147	64.95358071
150601A00668	6/1/2015	3.89	1/16/2037	6/1/2015	139.45002	125.2365524	112.695369	101.6173378	91.82062828	83.14701699	75.45870885	68.63560085	62.57292442
150601A00677	6/1/2015	2.39	1/30/2025	6/1/2015	101.58107	100.5802367	99.59907034	98.63699164	97.69344785	96.76790739	95.85985883	94.96880993	94.09428678
150601A00688	6/1/2015	2.61	2/21/2025	6/1/2015	101.92996	100.867891	99.82791103	98.8093337	97.81150327	96.83379059	95.87559173	94.93632672	94.01543837
150601A00689	6/1/2015	2.81	2/28/2025	6/1/2015	102.01224	100.9333522	99.8772416	98.84319294	97.83052038	96.83856623	95.86669954	94.91431473	93.98083036
150601A00696	6/1/2015	2.83	3/13/2025	6/1/2015	102.10929	100.9950066	99.90501849	98.83853285	97.79479527	96.77308326	95.7727047	94.79299617	93.83332155
150601A00733	6/1/2015	2.72	5/1/2025	6/1/2015	102.47859	101.2275116	100.0065597	98.8146513	97.65075766	96.51389819	95.4031376	94.31758336	93.25638326
150601A00734	6/1/2015	2.92	5/1/2025	6/1/2015	102.52559	101.277304	100.0590215	98.86966672	97.70821666	96.57369595	95.4651743	94.38176387	93.32261687
150601A00737	6/1/2015	2.68	12/31/2024	6/1/2015	101.66414	100.7441666	99.84080663	98.9536133	98.08215558	97.22601769	96.3847984	95.55811037	94.74557955
150601A00830	6/1/2015	6.743	7/31/2025	6/1/2015	109.23307	107.6879989	106.173161	104.6877412	103.2309552	101.8020462	100.4002833	99.02496102	97.6753978
150601A00916	6/1/2015	7.27	4/5/2030	6/1/2015	143.61666	136.3521943	129.5268079	123.1112049	117.0782126	111.4026126	106.0609891	101.0315906	96.29420245
150601A01024	6/1/2015	5.33	2/27/2026	6/1/2015	110.13031	107.9889158	105.9005898	103.863659	101.8765166	99.93761809	98.04547855	96.19866964	94.39581711
150603A00017	6/3/2015	2.84	6/3/2025	6/3/2015	102.99361	101.6540285	100.3381795	99.0454826	97.77537928	96.52732858	95.3008064	94.09530486	92.9103317
150610A00008	6/10/2015	3.58	6/10/2030	6/10/2015	122.70164	115.8544678	109.4437482	103.4392789	97.81309921	92.53931142	87.59391889	82.9546772	78.60095797
150610A00009	6/10/2015	3.03	6/10/2025	6/10/2015	103.31587	101.9547498	100.6180423	99.30515124	98.01549469	96.74850934	95.50364967	94.2803873	93.07821026
150720A00012	7/20/2015	2.99	7/21/2025	7/20/2015	103.63463	102.1602096	100.7142383	99.29596052	97.90465032	96.53960651	95.20015184	93.8856319	92.59541414
150721A00027	7/21/2015	3.74	7/22/2030	7/21/2015	123.13726	116.1931676	109.6977361	103.6194716	97.92925096	92.60013209	87.60717961	82.92730558	78.53912368
150727A00013	7/27/2015	3.04	7/28/2025	7/27/2015	103.5313	102.0430447	100.5837886	99.15276199	97.74921757	96.3724338	95.02171395	93.696385	92.39579666
150817A00099	8/17/2015	3.19	8/17/2027	8/17/2015	110.92983	107.2892657	103.78932	100.4237829	97.18675871	94.07264382	91.07611077	88.19209283	85.41576975
150819A00012	8/19/2015	3.04	8/19/2025	8/19/2015	103.7239	102.1753509	100.6576348	99.16990171	97.71133167	96.28113409	94.8785466	93.50283378	92.15328591

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150819A00013	8/19/2015	3.51	8/19/2030	8/19/2015	121.83806	114.8579912	108.3342374	102.234425	96.52864402	91.18924784	86.1906701	81.50925803	77.12311971
150821A00018	8/21/2015	2.6	8/21/2024	8/21/2015	100.82562	100.2674121	99.71539294	99.1694554	98.62949918	98.0954262	97.56714052	97.04454825	96.52755757
150826A00038	8/26/2015	2.94	8/26/2026	8/26/2015	107.23407	104.6252403	102.093625	99.63647369	97.2511516	94.93513465	92.68600411	90.50144138	88.3792232
150826A00039	8/26/2015	3.22	8/27/2029	8/26/2015	118.32742	112.4249986	106.8588457	101.6079813	96.6528405	91.97517406	87.55795328	83.38528198	79.44231533
150827A00029	8/27/2015	2.74	8/27/2024	8/27/2015	100.93709	100.3622134	99.7938805	99.23198106	98.67640625	98.12704965	97.58380722	97.04657722	96.51526017
151106A00011	11/6/2015	3.1	1/15/2026	11/6/2015	105.219	103.252937	101.333708	99.4599103	97.63019221	95.84325158	94.0978335	92.39272824	90.7267693
151116A00025	11/16/2015	3.04	11/14/2025	11/16/2015	104.53368	102.7414838	100.9886603	99.27405422	97.59655213	95.95508242	94.34861356	92.77615219	91.23674132
151211A00055	12/11/2015	2.62	12/11/2024	12/11/2015	101.50963	100.6447674	99.7946267	98.95883312	98.13702544	97.32885451	96.53398276	95.75208366	94.98284131
151223A00072	12/23/2015	2.81	12/23/2025	12/23/2015	104.71147	102.8070862	100.9468158	99.1293758	97.35352814	95.61807874	93.92187552	92.26380665	90.64279885
151223A00074	12/23/2015	3.01	12/23/2027	12/23/2015	111.98445	107.9551668	104.0946216	100.394866	96.84837126	93.44800009	90.18698445	87.05890439	84.05766833
151223A00077	12/23/2015	3.57	12/24/2035	12/23/2015	136.55589	123.4353776	111.7566157	101.3513007	92.07166873	83.78788863	76.385801	69.76495228	63.83688408
151229A00079	12/29/2015	3	12/30/2025	12/29/2015	104.86459	102.9449705	101.0701259	99.23873947	97.44954642	95.70132693	93.99290445	92.32314384	90.69094956
151229A00080	12/29/2015	3.49	12/30/2030	12/29/2015	122.67486	115.2964837	108.4236674	102.0189665	96.04789647	90.47868477	85.28204464	80.43096868	75.90054065
151229A00081	12/29/2015	3.76	12/31/2035	12/29/2015	137.06646	124.0015981	112.3680716	101.9990619	92.74808142	84.48640292	77.10082116	70.49170743	64.57131626
160113A00030	1/13/2016	2.52	1/13/2025	1/13/2016	101.64097	100.6858924	99.74873868	98.82900355	97.92620448	97.0398766	96.16957198	95.31485877	94.47532056
160119A00019	1/19/2016	2.95	1/19/2027	1/19/2016	108.19951	105.1860606	102.2730839	99.45667631	96.73311081	94.09882581	91.55041664	89.08462771	86.69834512
160119A00025	1/19/2016	3.05	1/19/2028	1/19/2016	111.84317	107.7579948	103.846579	100.10061	96.51221674	93.07394463	89.77873099	86.61988242	83.59105351
160119A00026	1/19/2016	3.14	1/19/2029	1/19/2016	115.43205	110.2501126	105.335309	100.6724515	96.2472918	92.04646074	88.05740889	84.2683524	80.66822235
160119A00027	1/19/2016	3.25	1/18/2030	1/19/2016	118.70023	112.4142205	106.5077819	100.9559407	95.73549655	90.82488394	86.20404854	81.85433408	77.75837802
160119A00028	1/19/2016	3.34	1/21/2031	1/19/2016	121.77771	114.3703259	107.4751694	101.0539703	95.07151065	89.49536628	84.29567132	79.44490404	74.91769165
160119A00029	1/19/2016	3.39	1/20/2032	1/19/2016	124.81896	116.2897608	108.4228201	101.162896	94.45963481	88.26711362	82.54342874	77.25032494	72.35286046
160119A00030	1/19/2016	3.44	1/18/2033	1/19/2016	127.90796	118.2450597	109.4126226	101.334279	93.94107178	87.17069991	80.9668449	75.27856776	70.05976977
160122A00029	1/22/2016	2.48	1/22/2025	1/22/2016	101.65984	100.6802762	99.719553	98.7771308	97.8524902	96.94513131	96.05457285	95.18035124	94.32201987
160129A00066	1/29/2016	3.04	1/29/2031	1/29/2016	120.71263	113.2802364	106.365437	99.92933667	93.93615928	88.35298145	83.14949142	78.29776919	73.77208627
160129A00067	1/29/2016	2.53	1/29/2026	1/29/2016	104.46174	102.4612156	100.5093456	98.6046468	96.74568693	94.9310874	93.15952071	91.42970816	89.74041774
160210A00042	2/10/2016	2.57	2/10/2026	2/10/2016	104.38154	102.3518873	100.3720757	98.4405638	96.55586662	94.71655551	92.9212556	91.16864335	89.45744425
160211A00035	2/11/2016	2.25	2/11/2025	2/11/2016	101.37525	100.3456342	99.33687743	98.34834799	97.37944196	96.42957932	95.49820269	94.58477627	93.6887848
160211A00036	2/11/2016	2.41	2/11/2026	2/11/2016	104.06318	102.0338882	100.054491	98.12344087	96.23924954	94.40048525	92.60577021	90.85377814	89.14323198
160222A00018	2/22/2016	2.59	2/23/2026	2/22/2016	104.53742	102.4675999	100.4491783	98.4805436	96.56014264	94.68648238	92.85812701	91.07369528	89.33185797
160307A00027	3/7/2016	2.71	3/6/2026	3/7/2016	104.88105	102.7767029	100.7251156	98.72460476	96.77355799	94.87042609	93.01372016	91.20200872	89.43391503
160307A00028	3/7/2016	2.91	3/7/2028	3/7/2016	111.71376	107.4948559	103.4604195	99.60137902	95.90915972	92.37565422	88.99319412	85.75452376	82.65277556
160328A00045	3/28/2016	2.49	3/27/2026	3/28/2016	104.85931	102.6935118	100.5831423	98.5263948	96.52153544	94.56690038	92.66089248	90.80197803	88.98868366
160329A00045	3/29/2016	2.12	3/29/2024	3/29/2016	100.1189	99.95841304	99.7984423	99.63898684	99.48004417	99.3216118	99.16368728	99.00626816	98.849352

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160330A00054	3/30/2016	2.9	3/31/2031	3/30/2016	120.13211	112.5445384	105.4969192	98.94784353	92.85929146	87.1963368	81.92687984	77.02140444	72.45275712
160330A00056	3/30/2016	2.26	3/31/2025	3/30/2016	101.78434	100.6210281	99.48421084	98.37298952	97.28650743	96.22394574	95.1845214	94.16748519	93.17211991
160401A00016	4/1/2016	2.42	4/1/2025	4/1/2016	101.79119	100.6279668	99.49125433	98.38015016	97.29379646	96.23137332	95.19209669	94.17521644	93.18001452
160422A00026	4/22/2016	2.62	4/22/2026	4/22/2016	105.06559	102.8318177	100.6565513	98.53783332	96.47378561	94.4626086	92.50257725	90.59203721	88.72940131
160504A00004	5/4/2016	2.3	5/4/2026	5/4/2016	104.73449	102.4657731	100.2573346	98.10713871	96.01324005	93.97377447	91.98695499	90.05106786	88.16446884
160520A00017	9/20/2017	2.34	9/20/2024	9/20/2017	100.68443	100.0470243	99.41767639	98.796237	98.18255757	97.57649334	96.97790309	96.38664912	95.80259705
160520A00018	9/20/2017	2.34	9/20/2024	9/20/2017	100.68443	100.0470243	99.41767639	98.796237	98.18255757	97.57649334	96.97790309	96.38664912	95.80259705
160524A00027	5/24/2016	3.06	5/27/2031	5/24/2016	120.63569	112.915495	105.7535018	99.10629242	92.93403973	87.20019358	81.87119568	76.91622056	72.30694024
160606A00004	6/6/2016	2.43	6/8/2026	6/6/2016	104.98749	102.6277013	100.3328004	98.10065466	95.92921085	93.81649453	91.76060683	89.759721	87.81207926
160606A00005	6/6/2016	2.92	6/6/2031	6/6/2016	119.66457	111.951888	104.7995072	98.16368158	92.00429607	86.28454579	80.97064765	76.03157813	71.43883508
160613A00047	6/15/2016	2.18	6/16/2025	6/15/2016	101.97405	100.6096642	99.26997428	97.95437088	96.6622608	95.3930699	94.14624232	92.92123972	91.71754068
160615A00031	6/15/2016	2.51	6/17/2030	6/15/2016	115.84938	109.1979787	102.9755826	97.15228214	91.70040212	86.59432096	81.8103084	77.32637699	73.12214587
160616A00027	6/16/2016	2.27	6/16/2026	6/16/2016	104.66586	102.2879722	99.97605606	97.7279238	95.54147018	93.41467167	91.34558282	89.33233278	87.37312195
160616A00034	6/16/2016	1.97	6/17/2024	6/16/2016	100.224	99.8448357	99.46854739	99.09510175	98.72446653	98.35661	97.99150089	97.62910839	97.26940218
160628A00038	6/28/2016	1.88	6/27/2025	6/28/2016	101.84751	100.4504311	99.07918866	97.73313265	96.4116301	95.11406881	93.83985649	92.58842	91.35920455
160628A00039	6/28/2016	2.01	6/29/2026	6/28/2016	104.44741	102.0298488	99.68043864	97.39687612	95.17695393	93.01855193	90.91963315	88.87823998	86.8924906
160628A00049	6/28/2016	1.88	6/27/2025	6/28/2016	101.84751	100.4504311	99.07918866	97.73313265	96.4116301	95.11406881	93.83985649	92.58842	91.35920455
160630A00012	6/30/2016	2.11	6/30/2025	6/30/2016	101.96696	100.5644532	99.18796582	97.83683863	96.51043219	95.20812811	93.92932821	92.67345365	91.43994418
160701A00020	7/1/2016	2.13	7/1/2026	7/1/2016	104.4323	102.0161888	99.66820404	97.38604443	95.16750243	93.0104577	90.91287309	88.87279088	86.88832914
160701A00039	7/1/2016	1.92	7/1/2026	7/1/2016	104.24151	101.8210822	99.46904679	97.183088	94.96098591	92.80060843	90.69990731	88.65691428	86.66973743
160705A00104	7/5/2016	2.1	7/6/2026	7/5/2016	104.39078	101.9619769	99.60202821	97.30859687	95.07943963	92.91240242	90.80541621	88.75649309	86.76372261
160706A00010	7/6/2016	1.99	7/7/2025	7/6/2016	101.83643	100.4165201	99.02329916	97.65607827	96.31419351	94.9970031	93.7038865	92.43424352	91.18749347
160706A00026	7/6/2016	2.19	7/6/2027	7/6/2016	107.08274	103.6228214	100.2934647	97.08905946	94.00426698	91.03400553	88.17343628	85.41795048	82.76315716
160706A00027	7/6/2016	2.29	7/6/2028	7/6/2016	109.96712	105.4530271	101.1508336	97.04949972	93.13862027	89.40838219	85.84952764	82.45331974	79.2115106
160706A00028	7/6/2016	2.39	7/6/2029	7/6/2016	112.62348	107.0449445	101.7787606	96.80582733	92.10830664	87.66953369	83.47393421	79.50694763	75.75495623
160706A00029	7/6/2016	2.49	7/8/2030	7/6/2016	114.92277	108.2774801	102.0638226	96.25149596	90.81247711	85.72083682	80.95257323	76.4854593	72.29890318
160706A00030	7/6/2016	2.59	7/7/2031	7/6/2016	117.38452	109.6700417	102.523768	95.9007913	89.75997371	84.06361188	78.77713397	73.8688249	69.30957693
160714A00020	9/6/2016	2.28	9/4/2026	9/6/2016	105.24741	102.6474993	100.1250923	97.67740982	95.30178959	92.99568222	90.7566455	88.58233916	86.47051986
160714A00023	8/10/2016	2.49	8/10/2028	8/10/2016	111.10004	106.4665961	102.0545164	97.85205225	93.84814409	90.03237411	86.39492555	82.9265448	79.61850611
160714A00029	8/10/2016	2.27	8/10/2026	8/10/2016	105.04515	102.5151805	100.0593075	97.67492533	95.35953778	93.11075182	90.92627257	88.80389866	86.74151776
160714A00054	7/14/2016	2.03	7/15/2024	7/14/2016	100.32185	99.86636345	99.41501929	98.96775886	98.52452679	98.08526867	97.64993111	97.21846165	96.79080876
160726A00005	7/26/2016	2.28	7/27/2026	7/26/2016	104.97307	102.4814094	100.0619123	97.71207767	95.42950295	93.21188344	91.05700761	88.96275276	86.92708086
160801A00001	8/1/2016	1.97	8/1/2024	8/1/2016	100.34018	99.83852217	99.34186371	98.85013264	98.36325597	97.88116214	97.40378097	96.93104367	96.46288276

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160802A00003	8/2/2016	2.53	8/1/2031	8/2/2016	118.10733	110.2558179	102.9886052	96.25904248	90.02443566	84.24569151	78.8869967	73.91552695	69.30118342
160804A00014	8/4/2016	1.99	8/5/2024	8/4/2016	100.35749	99.84501641	99.33776915	98.83566813	98.33863528	97.84659411	97.35946964	96.87718843	96.39967844
160811A00011	8/11/2016	2.25	8/11/2026	8/11/2016	105.00129	102.4692039	100.0113345	97.62506753	95.30790097	93.0574361	90.87137279	88.74750465	86.68371465
160815A00005	8/15/2016	2.23	8/17/2026	8/15/2016	104.99182	102.4437843	99.97075009	97.57006219	95.2391802	92.97566947	90.77719594	88.64152126	86.56649824
160815A00006	8/15/2016	2.23	8/17/2026	8/15/2016	104.99182	102.4437843	99.97075009	97.57006219	95.2391802	92.97566947	90.77719594	88.64152126	86.56649824
160815A00007	8/15/2016	2.23	8/17/2026	8/15/2016	104.99182	102.4437843	99.97075009	97.57006219	95.2391802	92.97566947	90.77719594	88.64152126	86.56649824
160819A00015	10/12/2016	2.3	10/13/2026	10/12/2016	105.57984	102.8691927	100.2418741	97.69479033	95.22498359	92.82962678	90.5060168	88.25156797	86.06380611
160830A00035	8/30/2016	2.06	8/30/2024	8/30/2016	100.43421	99.85434003	99.28114545	98.714511	98.15432464	97.60047687	97.05286068	96.51137141	95.97590677
160830A00037	8/30/2016	2.16	8/29/2025	8/30/2016	102.43056	100.86561	99.33212464	97.82922404	96.35605996	94.91181524	93.49570233	92.10696196	90.74486184
160830A00038	8/30/2016	2.24	8/28/2026	8/30/2016	105.09363	102.5147953	100.0124413	97.58384366	95.22638998	92.93757786	90.71500934	88.55638584	86.4595033
160922A00014	9/22/2016	2.06	9/22/2026	9/22/2016	105.14423	102.4884611	99.91316472	97.41540513	94.99237045	92.64137064	90.35983123	88.14528745	85.99537873
160930A00005	9/30/2016	2.03	9/30/2024	9/30/2016	100.51741	99.85361989	99.19856734	98.5520794	97.91398909	97.28413373	96.66235484	96.04849797	95.44241257
161109A00018	11/9/2016	2.63	11/9/2026	11/9/2016	106.69051	103.8914444	101.1802685	98.55367876	96.00852305	93.54178864	91.15059488	88.83218638	86.58392661
161214A00023	12/14/2016	3.3	12/15/2031	12/14/2016	124.98726	116.4996103	108.6653205	101.430399	94.74557975	88.56589048	82.85025826	77.56115312	72.6642658
161222A00030	12/22/2016	3.09	12/22/2026	12/22/2016	108.76032	105.8049248	102.9458151	100.1793393	97.5020044	94.91046871	92.40153418	89.97213947	87.61935329
170111A00009	1/11/2017	3.16	1/11/2028	1/11/2017	112.21009	108.1393356	104.2407423	100.5061217	96.92771569	93.49817459	90.21053279	87.05818689	84.03487489
170111A00011	1/11/2017	3.24	1/11/2029	1/11/2017	115.86837	110.6974808	105.7919045	101.1366218	96.71754118	92.52143618	88.53588806	84.74923222	81.15050868
170111A00012	1/11/2017	3.31	1/11/2030	1/11/2017	119.01498	112.7387224	106.8401566	101.2945133	96.07877636	91.1715457	86.55291638	82.20436667	78.10865513
170111A00013	1/11/2017	3.4	1/10/2031	1/11/2017	122.12364	114.7341897	107.8534556	101.4435928	95.46976103	89.89987207	84.70435879	79.85596517	75.32955453
170111A00014	1/11/2017	3.47	1/12/2032	1/11/2017	125.40163	116.8713701	109.0012841	101.736469	95.02686315	88.82679703	83.09458729	77.7921697	72.88476782
170111A00016	1/11/2017	3.51	1/11/2033	1/11/2017	128.48926	118.8198696	109.9792736	101.8914364	94.48768423	87.70595794	81.49014416	75.7894777	70.55800653
170119A00006	1/19/2017	2.85	1/21/2025	1/19/2017	101.86191	100.8862105	99.92918179	98.99029578	98.06903992	97.16492076	96.27746314	95.40620934	94.55071825
170120A00008	1/20/2017	3.63	1/20/2034	1/20/2017	132.21719	121.3412718	111.4879614	102.554588	94.44932293	87.08998182	80.40296583	74.32232385	68.78892149
170120A00009	1/20/2017	3.67	1/22/2035	1/20/2017	134.61811	122.6145025	111.837029	102.1522488	93.44194803	85.60132855	78.53742187	72.16769718	66.41883971
170120A00010	1/20/2017	3.71	1/22/2036	1/20/2017	136.54817	123.4562642	111.8059884	101.4285039	92.17565044	83.91731624	76.5391526	69.94058882	64.03310581
170120A00011	1/20/2017	3.75	1/20/2037	1/20/2017	138.3935	124.2352713	111.7461603	100.7171317	90.9664694	82.3360778	74.68829824	67.90316847	61.8760619
170123A00039	1/23/2017	2.79	1/23/2026	1/23/2017	104.93432	102.9449416	101.0035573	99.10870654	97.25898793	95.45305177	93.68959809	91.96737431	90.2851732
170130A00010	1/30/2017	2.92	1/30/2025	1/30/2017	101.99499	100.9942192	100.0130565	99.05093391	98.10730128	97.18162932	96.27340882	95.38214964	94.50737988
170130A00031	1/30/2017	2.96	7/30/2025	1/30/2017	103.42816	101.9354086	100.4718496	99.03670149	97.62920978	96.24864599	94.89430681	93.56551294	92.26160806
170203A00012	2/3/2017	3.63	2/2/2035	2/3/2017	134.22732	122.2147733	111.4329045	101.7474093	93.03935274	85.20333301	78.14587713	71.7840338	66.04413866
170203A00013	2/3/2017	3.67	2/1/2036	2/3/2017	136.1056	123.0131559	111.3661036	100.9947674	91.75030112	83.50203033	76.13514725	69.54870791	63.65389132
170215A00043	2/15/2017	2.7	8/28/2024	2/15/2017	100.79969	100.2240233	99.65492309	99.09227578	98.53597209	97.9859052	97.44197069	96.90406644	96.37209259
170216A00043	2/16/2017	3.17	2/16/2027	2/16/2017	109.13199	106.0241086	103.0219783	100.1213999	97.3183676	94.60905791	91.98982001	89.45716689	87.00776697

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170216A00044	2/16/2017	3.52	2/17/2032	2/16/2017	126.08671	117.4281996	109.4467328	102.0854148	95.29241875	89.02051318	83.22663255	77.87148948	72.91922509
170216A00045	2/16/2017	3.73	2/17/2037	2/16/2017	138.25684	124.0310178	111.4915818	100.4262026	90.6504468	82.00398001	74.34730151	67.55893641	61.53301864
170224A00020	2/24/2017	3.08	2/24/2027	2/24/2017	108.93731	105.8083743	102.7865248	99.86748381	97.0471719	94.32169659	91.68734245	89.14056185	86.67796634
170224A00021	2/24/2017	3.4	2/24/2032	2/24/2017	125.17251	116.5293784	108.5643182	101.220196	94.44498232	88.19127219	82.41585152	77.07930632	72.14567022
170224A00039	5/24/2017	3.17	5/24/2027	5/24/2017	110.05686	106.6648053	103.396196	100.2458764	97.20893595	94.28069531	91.45669409	88.73267931	86.10459457
170224A00044	5/24/2017	3.29	5/24/2029	5/24/2017	117.22288	111.6410902	106.3636276	101.3722875	96.65004364	92.18096914	87.95015997	83.94366413	80.14841609
170228A00014	2/28/2017	2.89	3/1/2027	2/28/2017	108.81561	105.6639118	102.6206853	99.68157182	96.8424177	94.09926079	91.44832019	88.88598685	86.40881454
170228A00015	2/28/2017	2.87	5/28/2025	2/28/2017	102.76569	101.446989	100.152275	98.88093019	97.63235979	96.40598925	95.20126316	94.01764452	92.85461393
170313A00032	3/13/2017	3.69	6/14/2032	3/13/2017	128.43428	119.3514553	111.0020585	103.3225226	96.25511445	89.74736762	83.75157721	78.22434529	73.12617179
170313A00033	3/13/2017	3.31	3/15/2027	3/13/2017	109.83578	106.6401088	103.5550987	100.5762743	97.69936667	94.92030549	92.23520863	89.64037204	87.1322604
170313A00034	3/13/2017	3.31	3/15/2027	3/13/2017	109.83578	106.6401088	103.5550987	100.5762743	97.69936667	94.92030549	92.23520863	89.64037204	87.1322604
170313A00035	3/13/2017	3.31	3/15/2027	3/13/2017	109.83578	106.6401088	103.5550987	100.5762743	97.69936667	94.92030549	92.23520863	89.64037204	87.1322604
170316A00018	3/16/2017	2.8	3/18/2024	3/16/2017	100.16825	100.038237	99.90857535	99.77926534	99.65030547	99.52169427	99.39343029	99.26551209	99.13793822
170322A00011	3/22/2017	2.48	3/22/2024	3/22/2017	100.15558	100.0143624	99.87356143	99.73317097	99.59318917	99.4536142	99.31444426	99.17567753	99.03731223
170322A00022	3/22/2017	3.89	9/23/2041	3/22/2017	152.48604	132.9171612	116.3135086	102.1968488	90.169131	79.8986288	71.10854374	63.5676191	57.08240124
170322A00023	3/22/2017	3.82	9/22/2039	3/22/2017	144.91619	127.8113077	113.062788	100.3258593	89.30823219	79.76184907	71.47596983	64.27136977	57.995466
170322A00024	3/22/2017	3.72	9/22/2036	3/22/2017	137.57354	123.7753528	111.5690744	100.7595585	91.17664273	82.67183174	75.11543343	68.39408672	62.40862559
170322A00025	3/22/2017	3.58	3/22/2033	3/22/2017	129.6553	119.7356401	110.6814076	102.4117833	94.85391587	87.94209674	81.61702509	75.8251517	70.51809326
170322A00026	3/22/2017	3.22	3/22/2028	3/22/2017	113.13415	108.8450213	104.7445974	100.8235277	97.07298136	93.48461307	90.05053311	86.76327989	83.61579415
170327A00070	3/29/2017	3.05	3/29/2027	3/29/2017	109.57467	106.3347597	103.2083676	100.1908444	97.27776136	94.4648989	91.74823489	89.12393423	86.58833876
170327A00072	3/29/2017	3.09	3/29/2027	3/29/2017	109.70208	106.4601342	103.3317617	100.3123096	97.39734726	94.58265345	91.86420445	89.2381636	86.70087128
170327A00077	3/27/2019	2.74	3/27/2024	3/27/2019	100.19111	100.0362626	99.8818977	99.72801469	99.57461134	99.42168541	99.26923467	99.11725691	98.96574993
170327A00078	3/27/2019	3.04	3/27/2026	3/27/2019	105.76515	103.5949476	101.480138	99.41891437	97.40954729	95.45037728	93.53981119	91.67631901	89.85843082
170327A00079	3/27/2019	3.19	3/29/2027	3/27/2019	109.58994	106.3601174	103.2432316	100.2346646	97.33001789	94.52510018	91.81591607	89.19865557	86.66968422
170328A00015	3/28/2017	2.75	11/29/2024	3/28/2017	101.4029	100.5729014	99.75646635	98.95326337	98.16297278	97.38528511	96.61990071	95.86652936	95.12488991
170412A00019	4/12/2017	2.56	4/12/2024	4/12/2017	100.21267	100.0138522	99.81583477	99.61861396	99.4221849	99.22654279	99.03168283	98.83760028	98.64429042
170417A00068	4/17/2019	2.59	4/17/2024	4/17/2019	100.23484	100.0222725	99.81061981	99.59987546	99.39003355	99.18108825	98.97303374	98.76586428	98.55957416
170427A00044	4/27/2017	3.02	4/27/2027	4/27/2017	109.31588	106.0096329	102.8214537	99.74640851	96.77980191	93.91716522	91.15424408	88.48698648	85.91153167
170427A00046	4/27/2017	3.1	4/27/2028	4/27/2017	112.96331	108.5769732	104.3875693	100.3851407	96.56029289	92.90415937	89.40836889	86.0650144	82.86662448
170427A00047	4/27/2017	3.18	4/27/2029	4/27/2017	116.43416	110.9475165	105.756587	100.8437879	96.19268338	91.78789997	87.6150521	83.66067275	79.9121496
170502A00028	5/2/2017	2.84	5/3/2027	5/2/2017	109.22285	105.8907786	102.6784783	99.58092122	96.59332712	93.71114688	90.93004974	88.24591111	85.65480132
170508A00010	5/8/2017	2.43	5/8/2024	5/8/2017	100.29812	100.0275394	99.75843365	99.49078654	99.22458614	98.95982065	98.6964784	98.43454781	98.17401748
170515A00010	5/15/2017	2.58	5/15/2024	5/15/2017	100.32991	100.040526	99.75282037	99.46678158	99.18239505	98.8996464	98.6185214	98.339006	98.0610863

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170524A00011	5/24/2017	2.54	5/24/2024	5/24/2017	100.35057	100.0365411	99.72448325	99.41437838	99.1062081	98.79995429	98.49559908	98.19312478	97.89251396
170531A00080	5/31/2017	2.3	5/31/2024	5/31/2017	100.33803	100.0044097	99.67300535	99.34379304	99.0167511	98.69185814	98.36909305	98.04843498	97.72986336
170602A00026	6/2/2017	2.25	6/3/2024	6/2/2017	100.33161	99.98982292	99.65036664	99.31321632	98.97834845	98.64573989	98.31536777	97.98720954	97.66124297
170608A00020	6/8/2017	2.27	6/10/2024	6/8/2017	100.36298	100.0020357	99.6436958	99.28793312	98.93471981	98.58402842	98.23583186	97.89010345	97.54681689
170609A00043	6/9/2017	3.07	6/9/2032	6/9/2017	124.39006	115.4314411	107.2010293	99.63549744	92.6773366	86.27429564	80.37887602	74.94787747	69.9419891
170612A00039	6/12/2017	2.29	6/12/2024	6/12/2017	100.37735	100.0109137	99.64716649	99.28607546	98.92761138	98.57174553	98.21844958	97.86769562	97.51945615
170613A00032	6/13/2017	2.45	6/13/2025	6/13/2017	102.54526	101.1814307	99.84220553	98.52697537	97.23515113	95.96616261	94.71945774	93.49450183	92.29077694
170613A00033	6/13/2017	2.3	6/13/2024	6/13/2017	100.38461	100.0154346	99.64898355	99.28522829	98.92413898	98.56568625	98.20984115	97.85657516	97.50586016
170615A00015	6/15/2017	2.25	6/14/2024	6/15/2017	100.3695	99.99762827	99.62852346	99.26215397	98.89848931	98.53749945	98.17915483	97.82342629	97.47028511
170622A00036	6/22/2017	3.23	6/22/2032	6/22/2017	124.62067	115.6713012	107.4498417	99.89289493	92.94289995	86.54756782	80.65937422	75.23510302	70.23543562
170622A00037	6/22/2017	3.27	6/22/2033	6/22/2017	127.39689	117.3253324	108.1568013	99.8048986	92.19192487	85.24796518	78.91007265	73.12154152	67.83125928
170622A00038	6/22/2017	3.32	6/22/2034	6/22/2017	129.92581	118.7392465	108.6472809	99.53590752	91.30357997	83.85978778	77.12380574	71.02359022	65.49480498
170622A00039	6/22/2017	3.36	6/22/2035	6/22/2017	131.76281	119.5024005	108.5410832	98.73265405	89.94812143	82.07359864	75.00846443	68.66375561	62.96076177
170622A00040	6/22/2017	3.41	6/23/2036	6/22/2017	133.43225	120.1176385	108.3202569	97.85675118	88.56689151	80.31054768	72.96507336	66.42304234	60.59028785
170623A00028	6/23/2017	2.79	6/23/2027	6/23/2017	109.04497	105.5868012	102.2575228	99.05165993	95.96399759	92.98956881	90.12364155	87.36170631	84.69946443
170630A00027	6/30/2017	2.35	6/28/2024	6/30/2017	100.45893	100.0486489	99.64171494	99.23808851	98.83772942	98.44059809	98.0466556	97.65586363	97.26818448
170728A00040	7/28/2017	2.44	1/27/2025	7/28/2017	101.65169	100.6586139	99.68489512	98.72997095	97.79330117	96.8743661	95.97266561	95.08771824	94.21906031
170803A00020	8/3/2017	2.84	8/3/2027	8/3/2017	109.56045	105.9823835	102.5416658	99.23228148	96.04851063	92.98491437	90.03631948	87.19780381	84.46468271
170803A00021	8/3/2017	2.5	8/5/2024	8/3/2017	100.6213	100.1080374	99.60001057	99.09713563	98.59933449	98.10653056	97.61864882	97.13561574	96.65735925
170809A00005	8/9/2017	2.61	8/11/2025	8/9/2017	102.9924	101.4710974	99.97989211	98.51796019	97.08450996	95.67877791	94.30002735	92.94754729	91.62065129
170815A00006	8/15/2017	2.5	8/15/2024	8/15/2017	100.64968	100.1094397	99.57500018	99.04626839	98.52315311	98.00556505	97.49341678	96.98662273	96.4850991
170818A00003	8/18/2017	2.23	8/20/2024	8/18/2017	100.61374	100.0589293	99.51023762	98.96756466	98.43081159	97.89988176	97.3746806	96.85511559	96.3410962
170821A00038	8/23/2017	2.39	8/23/2024	8/23/2017	100.71669	100.153402	99.59641402	99.04562067	98.50091885	97.96220777	97.42938886	96.9023657	96.38104396
170822A00019	8/22/2017	2.44	8/22/2024	8/22/2017	100.63529	100.0762724	99.52346139	98.97675442	98.43605066	97.90125154	97.37226062	96.84898356	96.33132806
170822A00020	8/22/2017	2.59	8/22/2025	8/22/2017	103.06024	101.5087888	99.9883308	98.49800364	97.03697966	95.60446114	94.19967894	92.82189123	91.47038226
170831A00022	8/31/2017	2.27	2/29/2024	8/31/2017	100.06196	99.98163424	99.90143422	99.82136166	99.74141628	99.66159778	99.58190588	99.50234027	99.42290068
170908A00017	9/9/2019	2.32	9/9/2024	9/9/2019	100.6269	100.0193893	99.419208	98.82622111	98.24029977	97.66131815	97.0891534	96.52368556	95.96479746
170914A00039	9/14/2017	2.23	9/16/2024	9/14/2017	100.72878	100.1003743	99.47980055	98.86691734	98.26158213	97.6636559	97.07300307	96.48949133	95.91299157
170915A00001	9/15/2017	2.43	9/16/2024	9/15/2017	100.72494	100.0981869	99.47922975	98.86792141	98.26412054	97.66768933	97.07849332	96.49640131	95.92128526
170918A00007	9/18/2017	2.8	9/20/2027	9/18/2017	109.8314	106.1163155	102.5478704	99.11944947	95.82477851	92.65790211	89.61316525	86.68519624	83.86889074
170919A00073	9/19/2017	2.28	9/19/2024	9/19/2017	100.77404	100.1373409	99.50867868	98.88790497	98.27487175	97.66943473	97.07145319	96.48078987	95.89731088
171005A00006	10/5/2017	2.32	10/7/2024	10/5/2017	100.88635	100.2004565	99.52387841	98.85642592	98.1979152	97.54816731	96.90700805	96.27426784	95.64978152
171011A00013	10/11/2017	2.77	10/13/2026	10/11/2017	106.85703	104.1288774	101.4844649	98.92068346	96.43456292	94.02326423	91.68407279	89.41439194	87.21173686

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171018A00011	10/18/2017	2.68	10/18/2027	10/18/2017	110.12675	106.3161523	102.658831	99.14774077	95.77620228	92.5378829	89.42677644	86.43718408	83.56369658
171025A00026	10/25/2017	2.64	10/25/2024	10/25/2017	101.07659	100.3429912	99.62002564	98.90746472	98.20508494	97.51266916	96.83000639	96.15689155	95.4931253
171026A00008	10/26/2017	2.6	10/25/2024	10/26/2017	101.04698	100.3134989	99.59065292	98.87821033	98.17594768	97.48364786	96.8010999	96.12809874	95.46444503
171026A00009	10/26/2017	2.75	10/27/2025	10/26/2017	103.84628	102.1099418	100.4108703	98.74793265	97.12004058	95.52615008	93.96525886	92.43640436	90.93866163
171026A00010	10/26/2017	2.84	10/26/2026	10/26/2017	107.15663	104.3894545	101.7080731	99.10926573	96.58995695	94.14720914	91.77821507	89.48029101	87.25087034
171026A00011	10/26/2017	2.94	10/26/2027	10/26/2017	110.66191	106.8330689	103.1585616	99.63127128	96.24445454	92.9917194	89.86700455	86.86455994	83.97892875
171030A00023	10/30/2017	2.9	11/1/2027	10/30/2017	110.56338	106.7200155	103.0321661	99.49263702	96.09461235	92.83163225	89.69757201	86.6862234	83.79327098
171129A00020	11/29/2017	2.89	11/30/2026	11/29/2017	107.6016	104.7312038	101.9525224	99.26214527	96.65680889	94.13338793	91.68888856	89.32044222	87.0252997
171206A00038	12/6/2017	2.69	12/6/2027	12/6/2017	110.58478	106.6291535	102.8376741	99.20269057	95.71694742	92.37356253	89.16600598	86.08808019	83.13390132
171206A00041	12/6/2017	2.44	12/6/2024	12/6/2017	101.32052	100.4701141	99.63396025	98.81169936	98.0029872	97.20749084	96.42488818	95.65486751	94.89712711
171206A00048	12/6/2017	3.04	12/6/2032	12/6/2017	125.33588	115.839436	107.1546114	99.20735359	91.93073605	85.26423588	79.15309161	73.54772803	68.40324109
171219A00063	12/19/2017	2.8	12/20/2027	12/19/2017	111.13276	107.1283196	103.2914377	99.61423523	96.08924546	92.70938944	89.46795372	86.35856959	83.37519358
171227A00018	12/27/2017	2.83	12/27/2024	12/27/2017	101.6689	100.7617987	99.87085985	98.99565751	98.13577737	97.29081957	96.46039806	95.64414	94.84168522
171228A00023	12/28/2017	2.69	3/29/2024	12/28/2017	100.18988	100.0295228	99.8696766	99.71034291	99.55151928	99.39320328	99.23539248	99.07808449	98.9212769
180102A00021	1/2/2018	2.82	1/2/2026	1/2/2018	104.54221	102.6178114	100.7384866	98.90290962	97.10980186	95.35793056	93.64610685	91.97318387	90.33805497
180104A00017	1/4/2018	2.77	1/3/2025	1/4/2018	101.66211	100.7360876	99.8269102	98.93412002	98.05727691	97.19595637	96.34974886	95.51825911	94.70110555
180104A00018	1/4/2018	2.97	1/4/2027	1/4/2018	108.13152	105.1592883	102.2848681	99.5045086	96.81462819	94.21180187	91.69275342	89.25434805	86.89358548
180109A00028	1/9/2018	2.6	1/9/2025	1/9/2018	101.69107	100.7465807	99.81960655	98.90966609	98.01629284	97.13903717	96.27746562	95.43116016	94.59971749
180110A00028	1/10/2018	2.85	1/10/2025	1/10/2018	101.78543	100.8398736	99.91186644	99.00092669	98.10658643	97.22839467	96.36591667	95.51873317	94.68643972
180110A00029	1/10/2018	3.13	1/10/2028	1/10/2018	112.08183	108.0163169	104.1226625	100.3926944	96.81867303	93.39326516	90.10952098	86.96085174	83.94100912
180111A00007	1/11/2018	2.66	1/14/2025	1/11/2018	101.78243	100.8239111	99.88342537	98.96046505	98.05454331	97.16519126	96.29195709	95.4344053	94.59211596
180116A00014	1/16/2018	3.01	1/19/2027	1/16/2018	108.37878	105.3626455	102.4470453	99.62807903	96.90201774	94.26529774	91.71451238	89.24640422	86.85785752
180116A00015	1/16/2018	3.06	1/18/2028	1/16/2018	111.87432	107.7912379	103.8817038	100.1374233	96.55053992	93.11361244	89.8195907	86.66179288	83.6338843
180118A00004	1/18/2018	2.88	1/17/2025	1/18/2018	101.86325	100.8983632	99.95173978	99.0228681	98.1112519	97.21641331	96.33789194	95.47524414	94.62804223
180118A00037	1/18/2018	2.88	1/21/2025	1/18/2018	101.89139	100.9155337	99.95835162	99.0193143	98.09790911	97.19364257	96.30603947	95.43464204	94.57900915
180118A00039	1/18/2018	3.09	1/19/2027	1/18/2018	108.61782	105.5980921	102.6789938	99.856616	97.12722698	94.4872603	91.93330671	89.46210623	87.07054073
180126A00029	1/26/2018	2.88	1/27/2025	1/26/2018	101.9336	100.9412763	99.9682516	99.01396541	98.07788015	97.15947864	96.25826313	95.3737544	94.50549091
180130A00070	1/30/2018	3.14	1/29/2027	1/30/2018	108.85708	105.8068497	102.8591158	100.0098653	97.2552651	94.59165377	92.01553263	89.5235576	87.11253144
180130A00085	1/30/2018	2.79	1/30/2025	1/30/2018	102.02335	101.0201319	100.0366076	99.07220302	98.1263647	97.19856035	96.28827784	95.3950243	94.51832517
180131A00022	1/31/2018	2.96	1/30/2025	1/31/2018	102.03529	101.0342967	100.0529193	99.09058504	98.14674352	97.22086547	96.31244159	95.42098171	94.54601385
180201A00022	2/1/2018	2.99	2/3/2025	2/1/2018	102.09256	101.0804852	100.0884515	99.11587263	98.16218021	97.22682794	96.30929039	95.40906201	94.52565626
180205A00019	2/5/2018	2.88	2/5/2025	2/5/2018	102.15532	101.13517	100.1353735	99.15532259	98.19443648	97.25215691	96.32794713	95.42129089	94.53169142
180206A00013	2/6/2018	2.72	2/6/2024	2/6/2018	100.02544	100.0087679	99.99211476	99.97547767	99.95885664	99.94225162	99.9256626	99.90908955	99.89253243

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180207A00002	2/7/2018	3.13	2/6/2026	2/7/2018	105.48371	103.4544568	101.4748114	99.54324142	97.65827617	95.81850033	94.02255156	92.2691181	90.5569365
180207A00003	2/7/2018	3.28	2/7/2028	2/7/2018	112.94799	108.7876196	104.8060189	100.994538	97.34499479	93.84964516	90.50115717	87.29258669	84.21735484
180222A00025	2/22/2018	3.48	2/22/2033	2/22/2018	129.87017	119.9557604	110.902493	102.6303417	95.0671274	88.14771257	81.81327993	76.01068887	70.69190038
180222A00026	2/22/2018	2.98	2/21/2025	2/22/2018	102.37018	101.3056066	100.2631568	99.2421451	98.24191481	97.26183601	96.30130396	95.35973793	94.43658
180222A00027	2/22/2018	3.24	2/22/2028	2/22/2018	113.50326	109.2718124	105.2239519	101.3507136	97.6436187	94.09464693	90.69620933	87.44112247	84.32258454
180313A00026	3/13/2018	3.34	3/13/2028	3/13/2018	113.54771	109.2747488	105.1887727	101.2805689	97.5414287	93.96311976	90.53785663	87.25827404	84.11740179
180323A00013	3/23/2018	3.18	3/23/2028	3/23/2018	113.55199	109.2352241	105.1087887	101.1632377	97.38964612	93.7795806	90.32506931	87.01857393	83.85296348
180328A00010	3/28/2018	3.1	3/28/2025	3/28/2018	102.56303	101.4057576	100.2745854	99.16863829	98.08707913	97.02910747	95.99395758	94.98089653	93.9892225
180329A00003	3/29/2018	3.08	3/29/2028	3/29/2018	113.18951	108.8637009	104.7293241	100.7768444	96.99725592	93.38205096	89.92318894	86.61306816	83.44449912
180403A00006	4/3/2018	3.07	4/3/2028	4/3/2018	113.19475	108.8547989	104.7074371	100.7430454	96.9525399	93.32734014	89.8593386	86.54087152	83.36469198
180403A00041	4/3/2018	2.91	4/3/2025	4/3/2018	102.56859	101.3923142	100.242981	99.11967288	98.02151317	96.94766418	95.8973251	94.86972992	93.86414562
180412A00034	4/12/2018	3.23	4/15/2030	4/12/2018	120.06313	113.4557535	107.261724	101.4528867	96.00315657	90.8883532	86.08605179	81.5754462	77.33722356
180412A00036	4/12/2018	3.54	4/15/2038	4/12/2018	139.57551	124.0391321	110.4920191	98.66432683	88.32431598	79.27278552	71.33834631	64.37340231	58.25073073
180503A00040	5/3/2018	3.3	5/5/2025	5/3/2018	103.10211	101.8398111	100.6066774	99.40170013	98.22391595	97.07240521	95.94628954	94.84472954	93.76692261
180514A00035	5/14/2018	3.07	5/14/2024	5/14/2018	100.50434	100.216966	99.93124906	99.64717616	99.36473303	99.08390555	98.80467973	98.52704178	98.25097806
180521A00025	5/21/2018	3.24	5/21/2025	5/21/2018	103.39797	102.0894804	100.8067202	99.54894851	98.31544997	97.10553675	95.91854726	94.75384481	93.61081645
180529A00042	5/29/2018	3.42	5/30/2028	5/29/2018	114.65081	110.1374108	105.8300475	101.7182421	97.79210666	94.04230303	90.4600095	87.03688964	83.76506316
180529A00044	5/29/2018	3.11	5/29/2024	5/29/2018	100.55634	100.2282242	99.90224346	99.57838158	99.25661801	98.93693241	98.61930472	98.30371513	97.99014407
180530A00024	5/30/2018	3.44	5/30/2029	5/30/2018	118.07472	112.4538775	107.1400091	102.114731	97.36085307	92.86229428	88.60400558	84.57189881	80.75278069
180530A00025	5/30/2018	3.49	5/30/2030	5/30/2018	121.12809	114.3954222	108.089735	102.1816434	96.64392557	91.45135777	86.58055791	82.00984245	77.7190949
180530A00026	5/30/2018	3.55	5/30/2031	5/30/2018	124.26945	116.4105984	109.1178838	102.3473494	96.05866652	90.21482048	84.78182309	79.72845071	75.02600653
180530A00027	5/30/2018	3.61	6/1/2032	5/30/2018	127.65743	118.6429384	110.3541702	102.7284437	95.70880572	89.24348012	83.28537313	77.79162789	72.72322353
180530A00028	5/30/2018	3.67	5/31/2033	5/30/2018	131.00111	120.8270619	111.5557315	103.1014649	95.38716866	88.34341604	81.90764881	76.02346542	70.63998637
180530A00030	5/30/2018	3.68	5/30/2034	5/30/2018	133.53536	122.2314001	112.0224706	102.795423	94.4493854	86.89437254	80.05005997	73.84470121	68.2141714
180530A00072	5/30/2018	3.06	5/30/2024	5/30/2018	100.54489	100.2140533	99.88539239	99.55888356	99.23450571	98.91223807	98.59206013	98.27395162	97.95789257
180604A00050	6/4/2018	3.15	6/4/2024	6/4/2018	100.60237	100.2577796	99.91554923	99.57565675	99.23807825	98.90279012	98.56976908	98.23899215	97.91043668
180619A00020	6/19/2018	3.1	6/19/2025	6/19/2018	103.49808	102.110842	100.7488918	99.41159603	98.09834302	96.80854074	95.54161625	94.29701488	93.07419948
180619A00021	6/19/2018	3.24	6/19/2028	6/19/2018	114.66506	110.07685	105.701038	101.5266846	97.54346871	93.74165079	90.11203661	86.64594424	83.33517283
180620A00014	6/20/2018	3.4	6/20/2028	6/20/2018	114.76948	110.1940509	105.8300485	101.6666002	97.69344555	93.9009011	90.27982528	86.82158508	83.51802529
180620A00038	6/20/2018	3.4	6/20/2028	6/20/2018	114.76948	110.1940509	105.8300485	101.6666002	97.69344555	93.9009011	90.27982528	86.82158508	83.51802529
180621A00017	6/21/2018	3.42	6/21/2028	6/21/2018	114.86777	110.2873518	105.9186876	101.7508827	97.7736557	93.97730397	90.35266782	86.89109753	83.58442233
180621A00068	6/21/2018	3.32	6/23/2025	6/21/2018	103.61993	102.2243941	100.8544181	99.5093629	98.18860698	96.89154904	95.61760722	94.36621825	93.13683679
180622A00004	6/22/2018	3.47	12/22/2028	6/22/2018	116.83892	111.6991619	106.8200818	102.1870877	97.78647552	93.60537319	89.63168613	85.85404641	82.26176545

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180622A00005	6/22/2018	3.5	7/2/2029	6/22/2018	118.67066	112.9404134	107.5278485	102.4136562	97.57979623	93.00940975	88.68673624	84.59703644	80.72652117
180622A00006	6/22/2018	3.53	12/21/2029	6/22/2018	120.1812	113.9283135	108.0477917	102.5154527	97.30880793	92.40693356	87.79035349	83.44093235	79.34177675
180716A00054	7/16/2018	3.59	7/16/2040	7/16/2018	146.19594	128.0589966	112.5414493	99.24216322	87.82381022	78.00240595	69.53860965	62.23048166	55.90744835
180717A00047	7/17/2018	3.3	9/17/2025	7/17/2018	104.42599	102.7923241	101.1921403	99.62447827	98.08841041	96.58304452	95.10752183	93.66101544	92.24272887
180719A00063	7/19/2018	3.21	7/19/2024	7/19/2018	100.8883	100.4204076	99.95686748	99.49761518	99.04259123	98.59173726	98.144996	97.70231122	97.26362769
180719A00064	7/19/2018	3.3	7/21/2025	7/19/2018	103.85578	102.3835623	100.9396869	99.5234044	98.13399269	96.7707543	95.43301547	94.12012509	92.8314538
180719A00065	7/19/2018	3.36	7/20/2026	7/19/2018	107.60721	105.1009909	102.6666057	100.3015866	98.00356213	95.77025633	93.59948459	91.48914932	89.4372359
180727A00028	7/27/2018	3.25	7/27/2026	7/27/2018	107.73498	105.2012942	102.7408877	100.3512199	98.02985002	95.77443711	93.58273487	91.45258734	89.38192468
180727A00038	7/27/2018	3.36	7/25/2025	7/27/2018	103.98261	102.4987921	101.0437394	99.61668366	98.21688723	96.84363791	95.49624784	94.17405245	92.8764095
180727A00039	7/27/2018	3.48	7/27/2028	7/27/2018	115.4812	110.7876799	106.3155471	102.0531664	97.98957862	94.11445468	90.41805614	86.8911983	83.52521578
180730A00023	7/30/2018	3.13	7/30/2024	7/30/2018	100.97941	100.4805491	99.98661105	99.49752553	99.01322129	98.53362846	98.05867853	97.5883043	97.12243988
180730A00081	7/30/2018	3.5	7/28/2028	7/30/2018	115.58126	110.8827627	106.4059787	102.1392567	98.07161561	94.19270612	90.49277112	86.96260858	83.59353702
180814A00010	8/14/2018	3.1	8/14/2025	8/14/2018	104.02149	102.4797765	100.9686855	99.48737674	98.03504007	96.61089415	95.21418541	93.84418674	92.50019633
180814A00032	8/14/2018	3.1	8/14/2025	8/14/2018	104.02149	102.4797765	100.9686855	99.48737674	98.03504007	96.61089415	95.21418541	93.84418674	92.50019633
180814A00033	8/14/2018	3.25	8/13/2027	8/14/2018	111.59058	107.9368166	104.4240289	101.0460031	97.79683305	94.67090514	91.66288198	88.76768717	85.98049101
180816A00038	8/16/2018	3.38	8/16/2028	8/16/2018	115.21715	110.4741923	105.9572301	101.6542748	97.55403582	93.64587871	89.9197833	86.36630489	82.9765381
180820A00055	8/20/2018	3.37	8/21/2028	8/20/2018	115.21849	110.4616182	105.9319398	101.6173715	97.50653901	93.58873081	89.85385542	86.29240233	82.89540537
180823A00035	8/23/2018	3.05	8/22/2025	8/23/2018	104.01811	102.4548943	100.9229465	99.4213986	97.94941425	96.50618739	95.09094096	93.70292553	92.34141811
180823A00053	8/23/2018	3.2	8/23/2028	8/23/2018	115.09379	110.3150698	105.76536	101.4324421	97.30482001	93.37166912	89.62279332	86.04858507	82.63998827
180823A00055	8/23/2018	3.44	8/23/2033	8/23/2018	130.80739	120.3405869	110.8264191	102.1722899	94.29508409	87.12014832	80.58038884	74.6154698	69.17110024
180827A00020	8/27/2018	3.21	8/27/2025	8/27/2018	104.06303	102.490281	100.9490599	99.43848878	97.95772016	96.50593744	95.08235354	93.68620952	92.31677336
180828A00032	8/28/2018	3.49	8/29/2033	8/28/2018	131.33244	120.8243347	111.2734058	102.5865189	94.68008751	87.47904428	80.91593172	74.93009421	69.46695952
180829A00008	8/29/2018	3.23	8/30/2027	8/29/2018	111.69067	107.9880715	104.4296961	101.0091237	97.72025722	94.55730465	91.51476209	88.58739765	85.77023632
180831A00019	8/31/2018	3.21	9/2/2025	8/31/2018	104.13512	102.5452642	100.9874648	99.46082211	97.96446719	96.49756319	95.05930381	93.64891188	92.26563807
180904A00012	9/4/2018	3.35	9/4/2030	9/4/2018	121.83777	114.7767408	108.1811506	102.0177316	96.25576855	90.86688685	85.82486251	81.10544817	76.68621431
180904A00014	9/4/2018	3.37	9/1/2028	9/4/2018	115.32226	110.5324064	105.9724792	101.630188	97.4939687	93.55293434	89.79683153	86.21600023	82.80133609
180910A00028	9/10/2018	3.56	9/9/2033	9/10/2018	132.08933	121.514621	111.9049283	103.1661535	95.21386572	87.97225888	81.37322918	75.35555516	69.86416904
180910A00032	9/10/2018	3.22	9/10/2024	9/10/2018	101.18569	100.5735483	99.96881543	99.3713575	98.7810436	98.19774598	97.62133995	97.05170374	96.48871844
180910A00033	9/10/2018	3.43	9/8/2028	9/10/2018	115.66744	110.8497947	106.264117	101.8979715	97.73965523	93.77815312	90.00309357	86.40470725	82.97378875
180912A00011	9/12/2018	3.41	9/11/2026	9/12/2018	108.26915	105.6098396	103.0299676	100.5266671	98.09719729	95.73893438	93.44936565	91.22608395	89.06678248
180913A00030	9/13/2018	3.33	9/12/2025	9/13/2018	104.42577	102.8059086	101.2190672	99.66430251	98.14070655	96.6474053	95.18355731	93.74835207	92.34100863
180914A00013	9/14/2018	3.48	9/14/2028	9/14/2018	115.95851	111.1170925	106.5094018	102.1228732	97.94568422	93.96670929	90.17547483	86.56211729	83.11734422
180914A00028	9/14/2018	3.37	9/12/2025	9/14/2018	104.49081	102.8704031	101.2830242	99.72773154	98.20361679	96.70980573	95.24545664	93.80975881	92.40193105

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180914A00029	9/14/2018	3.48	9/14/2028	9/14/2018	115.95851	111.1170925	106.5094018	102.1228732	97.94568423	93.96670929	90.17547483	86.56211729	83.11734422
180918A00041	9/18/2018	3.18	9/18/2024	9/18/2018	101.3445	100.7084712	100.0804289	99.46022734	98.84772008	98.24276435	97.64522087	97.0549538	96.47183059
180920A00014	9/20/2018	3.59	9/20/2028	9/20/2018	116.5318	111.6600336	107.0239973	102.6109809	98.40903176	94.40690413	90.59401312	86.96039215	83.49665338
181004A00029	10/4/2018	3.7	10/4/2028	10/4/2018	117.19028	112.2635439	107.5766634	103.1166224	98.87118475	94.82884338	90.9787723	87.31078235	83.81528013
181005A00012	10/5/2018	3.33	10/4/2024	10/5/2018	101.56092	100.8805805	100.209361	99.54707524	98.8935455	98.24859884	97.61206684	96.98378546	96.3635949
181010A00023	10/10/2018	3.41	4/1/2024	10/10/2018	100.32171	100.1529242	99.98470941	99.81705906	99.64997031	99.48344034	99.31746636	99.15204562	98.98717535
181109A00027	11/13/2018	3.48	4/15/2024	11/13/2018	100.41339	100.2060592	99.99959729	99.79399947	99.58926022	99.38537411	99.18233574	98.98013977	98.77878089
181109A00028	11/9/2018	3.72	11/9/2026	11/9/2018	109.73371	106.8918487	104.1388905	101.4715049	98.8865085	96.38085833	93.95164483	91.59608482	89.31151508
181109A00029	11/9/2018	3.72	11/9/2026	11/9/2018	109.73371	106.8918487	104.1388905	101.4715049	98.8865085	96.38085833	93.95164483	91.59608482	89.31151508
181116A00015	11/19/2018	3.29	2/15/2024	11/19/2018	100.07687	100.0352426	99.9936699	99.95214716	99.91067432	99.8692513	99.82787799	99.7865543	99.74528014
181227A00019	12/28/2020	3.1	12/29/2025	12/28/2020	105.04828	103.1295273	101.255458	99.42476695	97.63619333	95.88852107	94.18057716	92.5112298	90.8793867
181227A00027	12/27/2018	3.24	12/26/2025	12/27/2018	105.28965	103.3765457	101.5078147	99.68216612	97.89835238	96.15517009	94.45145829	92.78609668	91.15800389
181227A00028	12/27/2018	3.46	12/27/2028	12/27/2018	116.83433	111.680875	106.789463	102.1453867	97.73483781	93.54484866	89.56323677	85.77855341	82.18003575
190102A00050	1/2/2019	3.38	1/3/2034	1/2/2019	131.09068	120.2397375	110.4095926	101.4978704	93.4129844	86.0729505	79.40433477	73.34132166	67.82488782
190104A00033	1/4/2019	3.37	1/31/2029	1/4/2019	116.68607	111.4402865	106.4661602	101.7481606	97.2717251	93.02319476	88.98975321	85.15937047	81.52075062
190108A00039	1/8/2019	3.04	4/30/2024	1/8/2019	100.38908	100.1405934	99.89333089	99.64728513	99.4024472	99.15880825	98.91635952	98.67509235	98.43499815
190110A00004	1/10/2019	3.09	1/10/2025	1/10/2019	102.014	101.0672676	100.1381047	99.22602404	98.33055742	97.45125354	96.58767736	95.73940931	94.90604467
190110A00005	1/10/2019	3.2	1/9/2026	1/10/2019	105.34125	103.3902963	101.4854402	99.62530796	97.80858011	96.03398485	94.30029618	92.60633182	90.95095143
190111A00026	1/11/2019	3.48	1/11/2034	1/11/2019	132.13984	121.2166072	111.3217053	102.3518681	94.21472918	86.82762134	80.11651205	74.01506088	68.46378382
190114A00040	1/14/2019	2.89	1/14/2025	1/14/2019	102.00418	101.0445163	100.1028958	99.17881545	98.27178813	97.38134463	96.50703286	95.64841702	94.8050769
190122A00043	1/22/2019	2.96	1/22/2025	1/22/2019	102.13322	101.1511448	100.1879483	99.2430858	98.31603704	97.40630145	96.51339708	95.6368597	94.77624203
190122A00045	1/22/2019	3.17	1/22/2027	1/22/2019	109.2878	106.2405694	103.2952601	100.4479024	97.69470163	95.03203216	92.45642876	89.96457862	87.5533137
190122A00046	1/22/2019	3.29	1/22/2029	1/22/2019	116.91023	111.6613435	106.6835786	101.9614792	97.48055063	93.22719472	89.18864965	85.35293426	81.7087963
190131A00019	1/31/2019	3.44	1/30/2034	1/31/2019	131.85285	120.8919508	110.9681962	101.9769143	93.8245399	86.4273814	79.71053135	73.60690285	68.05637592
190208A00008	2/8/2019	2.86	2/8/2024	2/8/2019	100.03316	100.0109646	99.98878771	99.96663325	99.94450113	99.92239131	99.90030377	99.87823846	99.85619535
190208A00009	2/8/2019	2.67	2/8/2024	2/8/2019	100.03148	100.0092529	99.98705322	99.96487616	99.94272172	99.92058986	99.89848054	99.87639372	99.85432935
190211A00002	2/11/2019	2.88	2/12/2024	2/11/2019	100.04841	100.0151223	99.98186749	99.94864995	99.91546958	99.88232632	99.84922009	99.81615084	99.78311849
190211A00016	2/11/2019	3.01	2/11/2025	2/11/2019	102.16594	101.1319368	100.1188484	99.12604777	98.15292973	97.19891282	96.26343835	95.34596926	94.44598903
190211A00017	2/11/2019	3.12	2/11/2026	2/11/2019	105.51493	103.470477	101.4762156	99.53059111	97.63210703	95.77932375	93.9708559	92.20536992	90.48158169
190213A00023	2/13/2019	2.93	2/13/2024	2/13/2019	100.05396	100.0178895	99.98186489	99.94588166	99.9099397	99.87403892	99.83817925	99.80236061	99.76658293
190214A00006	2/14/2019	2.67	2/14/2024	2/14/2019	100.05226	100.0133841	99.97455319	99.93576837	99.89702954	99.8583366	99.81968948	99.78108807	99.74253229
190215A00005	2/15/2019	2.89	2/15/2024	2/15/2019	100.05993	100.0183203	99.97676188	99.9352534	99.89379481	99.85238601	99.81102691	99.76971742	99.72845744
190215A00006	2/15/2019	2.89	2/15/2024	2/15/2019	100.05993	100.0183203	99.97676188	99.9352534	99.89379481	99.85238601	99.81102691	99.76971742	99.72845744

	Parallel-Shift Sensitivity Analysis												
1/31/2024					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	100.05993	100.0183203	99.97676188	99.9352534	99.89379481	99.85238601	99.81102691	99.76971742	99.72845744
190215A00046	2/15/2019	2.7	2/15/2024	2/15/2019	100.057	100.0153435	99.97374116	99.93218939	99.89068804	99.849237	99.80783619	99.76648549	99.72518481
190220A00007	2/20/2019	2.87	2/20/2024	2/20/2019	100.07743	100.0219726	99.96658526	99.91127223	99.85603331	99.80086836	99.74577722	99.69075974	99.63581577
190222A00021	2/22/2019	2.95	8/21/2024	2/22/2019	100.92292	100.3656292	99.81449076	99.2694076	98.73028015	98.19701103	97.66950502	97.14766892	96.63141154
190225A00026	2/25/2019	3.43	2/27/2034	2/25/2019	131.95214	120.9013228	110.9035301	101.8517785	93.65050547	86.21429828	79.46676759	73.33955091	67.77143074
190227A00005	2/27/2019	2.87	2/27/2024	2/27/2019	100.10313	100.0282904	99.95356109	99.87894641	99.80444612	99.73005996	99.65578768	99.58162903	99.50758374
190301A00012	3/1/2019	3.41	3/1/2029	3/1/2019	117.16843	111.8221207	106.7563355	101.9548276	97.40237854	93.08472684	88.98850286	85.10116811	81.41095918
190308A00007	3/8/2019	2.8	3/8/2024	3/8/2019	100.13349	100.0310576	99.92884819	99.82685992	99.72509206	99.62354387	99.52221461	99.42110353	99.3202099
190314A00027	3/22/2019	2.92	3/21/2025	3/22/2019	102.31031	101.1733819	100.0616979	98.97442697	97.91077101	96.86996642	95.8512822	94.85401826	93.87750378
190315A00014	3/15/2019	2.74	3/15/2024	3/15/2019	100.15141	100.0296732	99.90824387	99.78712553	99.66631694	99.5458169	99.42562416	99.30573751	99.18615573
190318A00008	3/18/2019	2.76	3/18/2024	3/18/2019	100.16304	100.0330278	99.90337132	99.77406647	99.64511174	99.51650567	99.38824681	99.26033371	99.13276495
190318A00021	3/18/2019	2.76	3/18/2024	3/18/2019	100.16304	100.0330278	99.90337132	99.77406647	99.64511174	99.51650567	99.38824681	99.26033371	99.13276495
190321A00003	3/21/2019	2.67	3/21/2024	3/21/2019	100.16095	100.0226781	99.884797	99.74730954	99.61021401	99.47350872	99.33719196	99.20126206	99.06571733
190326A00024	3/26/2019	2.59	3/26/2024	3/26/2019	100.16483	100.0127652	99.86117178	99.71004518	99.55938318	99.40918365	99.25944444	99.11016344	98.96133854
190326A00032	3/26/2019	2.4	3/26/2024	3/26/2019	100.15551	100.0032531	99.85147175	99.70015999	99.54931557	99.3989363	99.24902001	99.09956453	98.95056772
190327A00006	3/27/2019	2.53	3/27/2024	3/27/2019	100.1585	100.0036913	99.84936415	99.69551881	99.54215305	99.3892646	99.23685125	99.08491079	98.93344101
190327A00013	3/27/2019	2.53	3/27/2024	3/27/2019	100.1585	100.0036913	99.84936415	99.69551881	99.54215305	99.3892646	99.23685125	99.08491079	98.93344101
190327A00027	3/27/2019	2.66	1/15/2025	3/27/2019	101.63664	100.6783337	99.73807728	98.8153627	97.90970218	97.02062587	96.14768104	95.29043132	94.44845597
190327A00031	3/27/2019	2.53	3/27/2024	3/27/2019	100.1585	100.0036913	99.84936415	99.69551881	99.54215305	99.3892646	99.23685125	99.08491079	98.93344101
190328A00003	3/28/2019	2.64	9/30/2024	3/28/2019	100.92699	100.2616652	99.60509297	98.95709947	98.31751751	97.68618421	97.06294088	96.44763284	95.84010937
190328A00019	3/28/2019	2.56	3/28/2024	3/28/2019	100.16607	100.0084932	99.85141636	99.69483655	99.53875146	99.38315873	99.22805606	99.07344113	98.91931166
190328A00031	4/25/2019	2.56	4/25/2024	4/25/2019	100.25364	100.0190958	99.7856533	99.55330555	99.32204479	99.09186341	98.86275383	98.63470857	98.40772021
190328A00033	4/25/2019	2.56	4/25/2024	4/25/2019	100.25364	100.0190958	99.7856533	99.55330555	99.32204479	99.09186341	98.86275383	98.63470857	98.40772021
190328A00046	3/28/2019	2.7	3/4/2025	3/28/2019	101.9638	100.8744956	99.80841978	98.76483995	97.74304955	96.74237131	95.7621558	94.80177999	93.86064591
190328A00065	3/28/2019	2.56	3/28/2024	3/28/2019	100.16607	100.0084932	99.85141636	99.69483655	99.53875146	99.38315873	99.22805606	99.07344113	98.91931166
190328A00079	3/28/2019	2.37	3/28/2024	3/28/2019	100.15639	99.9986114	99.84133995	99.68456847	99.52829455	99.37251583	99.21722993	99.0624345	98.90812722
190328A00083	3/28/2019	2.37	3/28/2024	3/28/2019	100.15639	99.9986114	99.84133995	99.68456847	99.52829455	99.37251583	99.21722993	99.0624345	98.90812722
190329A00018	3/29/2019	2.6	3/29/2024	3/29/2019	100.17541	100.0150666	99.85523776	99.69592138	99.53711502	99.37881623	99.2210226	99.06373173	98.90694122
190401A00010	4/1/2019	2.62	4/1/2024	4/1/2019	100.1881	100.019484	99.8514359	99.6839518	99.51702884	99.3506642	99.1848551	99.01959878	98.85489249
190402A00004	4/2/2019	2.9	4/2/2029	4/2/2019	115.50299	110.0872653	104.9611019	100.1074388	95.51031528	91.15479198	87.02687994	83.11347476	79.4022958
190403A00006	4/3/2019	2.48	4/3/2024	4/3/2019	100.19275	100.0184075	99.84468039	99.67156158	99.49904783	99.32713595	99.15582276	98.98510511	98.81497986
190404A00003	4/4/2019	2.47	4/4/2024	4/4/2019	100.19426	100.0171764	99.84072147	99.66489564	99.48969548	99.31511761	99.14115868	98.96781537	98.79508436
190409A00019	4/9/2019	2.91	4/9/2029	4/9/2019	115.60782	110.1695399	105.0229404	100.1507792	95.53693118	91.16630674	87.02477939	83.09911892	79.3769295

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190409A00031	4/9/2019	2.64	4/9/2024	4/9/2019	100.21851	100.0279123	99.83805082	99.64892082	99.46051799	99.27283809	99.08587691	98.89963027	98.71409402
190411A00017	4/15/2019	2.65	4/15/2024	4/15/2019	100.24084	100.0337535	99.82753399	99.62217774	99.4176793	99.21403323	99.01123415	98.80927671	98.60815561
190422A00030	4/22/2019	2.93	12/22/2025	4/22/2019	104.66217	102.7658954	100.9134048	99.10343231	97.33475267	95.6061839	93.91658541	92.26485637	90.64993396
190424A00007	4/24/2019	2.66	4/24/2024	4/24/2019	100.27377	100.0419382	99.81118449	99.58150177	99.35288259	99.12531957	98.89880536	98.67333271	98.44889441
190426A00009	4/26/2019	2.63	4/26/2024	4/26/2019	100.27347	100.0361516	99.79995813	99.56488347	99.33091963	99.09805875	98.86629302	98.63561474	98.40601624
190426A00023	4/26/2019	2.91	6/24/2026	4/26/2019	106.26618	103.8467606	101.4949105	99.20837236	96.98497349	94.8226265	92.71932518	90.67314093	88.68221928
190429A00004	4/29/2019	2.65	4/15/2024	4/29/2019	100.24084	100.0337535	99.82753399	99.62217774	99.4176793	99.21403323	99.01123415	98.80927671	98.60815561
190430A00001	4/30/2019	2.47	5/2/2024	4/30/2019	100.28651	100.0323733	99.77952827	99.52796321	99.27766843	99.02863431	98.7808513	98.53430998	98.28900099
190501A00014	5/1/2019	2.62	5/1/2024	5/1/2019	100.28816	100.0371056	99.78730664	99.53875278	99.29143476	99.04534341	98.80046963	98.55680443	98.31433888
190501A00017	5/1/2019	2.61	5/1/2024	5/1/2019	100.28564	100.0345884	99.78479356	99.53624387	99.28893	99.04284279	98.79797313	98.55431203	98.31185057
190501A00028	5/1/2019	2.42	5/1/2024	5/1/2019	100.27015	100.0187811	99.76867027	99.51981014	99.27219128	99.02580443	98.7806404	98.53669009	98.29394449
190507A00027	5/7/2019	2.59	5/7/2024	5/7/2019	100.30299	100.0355126	99.76947229	99.50485433	99.24164724	98.97983971	98.71942053	98.46037861	98.20270299
190513A00013	5/13/2019	2.52	5/13/2024	5/13/2019	100.30539	100.0215154	99.73925793	99.45860513	99.17954326	98.90205872	98.62613806	98.35176801	98.0789354
190514A00020	5/14/2019	2.66	5/14/2025	5/14/2019	102.36686	101.0865756	99.8333561	98.60634242	97.40471456	96.22768685	95.07450622	93.94445043	92.83682655
190514A00021	5/14/2019	2.72	11/14/2025	5/14/2019	103.95783	102.1709657	100.4233733	98.71390277	97.0414431	95.4049253	93.8033203	92.23563709	90.70092097
190514A00024	5/14/2019	2.34	5/14/2024	5/14/2019	100.29398	100.0069828	99.72164728	99.43795418	99.15588924	98.87543833	98.59658751	98.31932298	98.0436311
190514A00073	5/14/2019	2.53	5/14/2024	5/14/2019	100.31181	100.0251867	99.74021579	99.45688056	99.17516681	98.89506055	98.61654795	98.33961533	98.06424919
190515A00032	5/15/2019	2.49	5/15/2024	5/15/2019	100.30373	100.0143957	99.72673782	99.44074658	99.15640741	98.87370591	98.59262786	98.31315921	98.03528607
190517A00005	5/17/2019	2.31	5/17/2024	5/17/2019	100.29523	100.0000209	99.70656629	99.41484801	99.12485054	98.83655856	98.54995692	98.26503067	97.98176501
190520A00007	5/20/2019	2.52	5/20/2024	5/20/2019	100.33013	100.0270733	99.72585934	99.42646966	99.12888757	98.83309667	98.53908073	98.24682372	97.95630982
190520A00048	5/20/2019	2.53	5/20/2024	5/20/2019	100.33318	100.0301144	99.72889467	99.42949923	99.13191141	98.83611481	98.54209319	98.24983054	97.959311
190522A00003	5/22/2019	2.55	5/22/2024	5/22/2019	100.3465	100.0379454	99.73129773	99.42653839	99.12364993	98.82261506	98.52341676	98.22603817	97.93046267
190522A00019	5/23/2019	2.55	5/15/2024	5/23/2019	100.32119	100.0318159	99.74412619	99.45810325	99.1737325	98.89099957	98.60989022	98.3303904	98.05248622
190523A00015	5/23/2019	2.51	4/1/2024	5/23/2019	100.1695	100.0009037	99.83287883	99.66541788	99.498518	99.33217638	99.16639025	99.00115682	98.83647335
190523A00017	5/23/2019	2.51	3/15/2024	5/23/2019	100.12334	100.0016285	99.88022559	99.75913363	99.63835138	99.51787761	99.3977111	99.27785062	99.15829497
190523A00018	5/23/2019	2.51	3/15/2024	5/23/2019	100.12334	100.0016285	99.88022559	99.75913363	99.63835138	99.51787761	99.3977111	99.27785062	99.15829497
190523A00020	5/23/2019	2.5	2/9/2024	5/23/2019	100.02746	100.0024913	99.97755215	99.95263884	99.92775135	99.90288964	99.87805365	99.85324334	99.82845867
190524A00040	5/24/2019	2.47	5/24/2024	5/24/2019	100.32847	100.0144825	99.70246794	99.39240615	99.08427875	98.77806764	98.47375491	98.17132291	97.87075419
190528A00009	5/28/2019	2.45	5/15/2024	5/28/2019	100.2921	100.0027822	99.71514557	99.42917547	99.14485734	98.8621768	98.58111962	98.30167176	98.02381931
190529A00013	5/29/2019	2.38	5/29/2024	5/29/2019	100.31577	99.98814119	99.66265118	99.33927769	99.01800013	98.69879819	98.38165182	98.06654123	97.75344687
190529A00023	5/29/2019	2.38	5/29/2024	5/29/2019	100.31577	99.98814119	99.66265118	99.33927769	99.01800013	98.69879819	98.38165182	98.06654123	97.75344687
190529A00028	5/29/2019	2.38	5/29/2024	5/29/2019	100.31577	99.98814119	99.66265118	99.33927769	99.01800013	98.69879819	98.38165182	98.06654123	97.75344687
190529A00032	5/29/2019	2.38	5/29/2024	5/29/2019	100.31577	99.98814119	99.66265118	99.33927769	99.01800013	98.69879819	98.38165182	98.06654123	97.75344687

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190529A00089	5/29/2019	2.38	5/29/2024	5/29/2019	100.31577	99.98814119	99.66265118	99.33927769	99.01800013	98.69879819	98.38165182	98.06654123	97.75344687
190530A00006	5/30/2019	2.25	5/30/2024	5/30/2019	100.31814	99.9873015	99.65864216	99.3321412	99.0077774	98.68552984	98.36537785	98.04730104	97.73127928
190530A00008	5/30/2019	2.38	5/30/2025	5/30/2019	102.3417	101.0175117	99.71691831	98.43933996	97.18421297	95.95099173	94.73914804	93.54817037	92.37756323
190530A00024	5/30/2019	2.25	5/30/2024	5/30/2019	100.31814	99.9873015	99.65864216	99.3321412	99.0077774	98.68552984	98.36537785	98.04730104	97.73127928
190530A00029	5/30/2019	2.25	5/30/2024	5/30/2019	100.31814	99.9873015	99.65864216	99.3321412	99.0077774	98.68552984	98.36537785	98.04730104	97.73127928
190530A00034	5/30/2019	2.44	5/30/2024	5/30/2019	100.33885	100.0084417	99.68020466	99.35411753	99.03015932	98.70830926	98.38854685	98.07085187	97.75520434
190530A00045	5/30/2019	2.44	5/30/2024	5/30/2019	100.33885	100.0084417	99.68020466	99.35411753	99.03015932	98.70830926	98.38854685	98.07085187	97.75520434
190531A00037	5/31/2019	2.61	5/31/2029	5/31/2019	114.36305	108.8126997	103.5678323	98.61007075	93.92223195	89.4882451	85.29307424	81.32264659	77.56378634
190531A00038	5/31/2019	2.82	5/31/2034	5/31/2019	126.14023	115.1233345	105.187553	96.22031587	88.1213366	80.80121102	74.18018677	68.18707707	62.75830161
190603A00003	6/3/2019	2.05	6/3/2024	6/3/2019	100.26292	99.92127511	99.58196366	99.24495743	98.91023294	98.57776703	98.24753685	97.91951986	97.59369381
190603A00005	6/3/2019	2.25	6/3/2024	6/3/2019	100.28776	99.94655901	99.60767775	99.27109288	98.9367811	98.60471944	98.27488521	97.94725605	97.62180989
190603A00033	6/3/2019	2.05	6/3/2024	6/3/2019	100.26292	99.92127511	99.58196366	99.24495743	98.91023294	98.57776703	98.24753685	97.91951986	97.59369381
190605A00020	6/5/2019	2.19	2/5/2024	6/5/2019	100.01215	99.99828442	99.98442841	99.97058524	99.95675488	99.94293732	99.92913253	99.9153405	99.9015612
190606A00023	6/6/2019	2.23	6/6/2024	6/6/2019	100.28999	99.94061993	99.59368471	99.24916078	98.90702301	98.56724661	98.22980713	97.89468048	97.56184288
190606A00027	6/6/2019	2.51	6/5/2026	6/6/2019	105.15346	102.7999319	100.5108975	98.28424553	96.11794155	94.01002914	91.95862642	89.96192274	88.01817559
190606A00028	6/6/2019	2.74	6/6/2029	6/6/2019	114.35664	108.814554	103.5776478	98.62754212	93.94705704	89.52012583	85.33171739	81.36776453	77.61509754
190606A00029	6/6/2019	2.96	6/6/2034	6/6/2019	126.12498	115.17205	105.2918287	96.37273683	88.31535902	81.03106091	74.44077064	68.4739031	63.06741014
190607A00018	6/7/2019	2.19	6/7/2024	6/7/2019	100.27885	99.92677733	99.57718325	99.23003892	98.88531858	98.54299684	98.20304865	97.86544933	97.53017451
190613A00011	6/13/2019	2.26	6/13/2024	6/13/2019	100.32234	99.95384417	99.58805987	99.22496029	98.86451583	98.50669735	98.1514761	97.79882377	97.44871247
190618A00002	6/18/2019	2.11	6/18/2025	6/18/2019	102.11133	100.7369404	99.38757109	98.06259738	96.76141532	95.48344046	94.22810709	92.99486748	91.78319118
190619A00009	6/19/2019	2.26	6/19/2024	6/19/2019	100.34102	99.95614073	99.57422151	99.19522687	98.81912321	98.44587744	98.07545699	97.70782975	97.34296414
190620A00027	6/20/2019	2.14	6/20/2024	6/20/2019	100.29729	99.90979122	99.52529194	99.14375709	98.76515242	98.38944415	98.01659907	97.64658444	97.27936804
190620A00045	6/20/2019	2.14	6/20/2024	6/20/2019	100.29729	99.90979122	99.52529194	99.14375709	98.76515242	98.38944415	98.01659907	97.64658444	97.27936804
190621A00015	6/21/2019	2.2	6/21/2024	6/21/2019	100.32366	99.93337276	99.54613085	99.1618943	98.78062815	98.40229795	98.02686983	97.65431039	97.28458678
190621A00039	6/21/2019	2.21	6/17/2024	6/21/2019	100.31569	99.93631796	99.55982042	99.1861667	98.81532454	98.4472622	98.0819484	97.71935232	97.35944362
190625A00012	6/25/2019	2.12	6/25/2024	6/25/2019	100.3031	99.90198025	99.50406384	99.10931622	98.71769964	98.32917691	97.94371144	97.56126724	97.18180884
190625A00023	6/25/2019	2.47	6/25/2027	6/25/2019	107.96715	104.5218419	101.2053176	98.01209538	94.93695399	91.97492083	89.12125897	86.37145466	83.7212056
190625A00024	6/25/2019	2.26	6/25/2025	6/25/2019	102.1462	100.7560051	99.39138011	98.05167888	96.73627811	95.44457485	94.17598566	92.9299458	91.70590855
190626A00004	6/26/2019	2.15	6/26/2024	6/26/2019	100.31803	99.91415208	99.51351935	99.11609691	98.72184629	98.33072959	97.94270955	97.55774949	97.1758133
190626A00015	6/26/2019	2.15	6/26/2024	6/26/2019	100.31803	99.91415208	99.51351935	99.11609691	98.72184629	98.33072959	97.94270955	97.55774949	97.1758133
190627A00010	6/27/2019	1.97	6/27/2024	6/27/2019	100.2995	99.89233308	99.48847405	99.08787857	98.69050715	98.29632096	97.90528179	97.51735201	97.13249463
190701A00009	7/3/2019	2.14	7/2/2024	7/3/2019	100.33139	99.91115426	99.49443531	99.08118583	98.67136263	98.26492326	97.86182592	97.46202956	97.06549374
190701A00023	7/1/2019	1.95	7/1/2024	7/1/2019	100.30211	99.88404083	99.46945176	99.05829805	98.65053715	98.24612719	97.84502698	97.44719602	97.05259446

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190702A00002	7/2/2019	2.16	7/2/2024	7/2/2019	100.33986	99.9196022	99.50286208	99.08959155	98.67974743	98.27328726	97.87016926	97.47035234	97.0737961
190703A00017	7/3/2019	2.33	5/4/2026	7/3/2019	104.50336	102.2433266	100.0432457	97.90109521	95.81494306	93.78293771	91.80330411	89.87433987	87.99441154
190708A00011	7/8/2019	2.2	7/8/2024	7/8/2019	100.37671	99.94008077	99.50724991	99.07816989	98.652792	98.23106838	97.81295199	97.39839659	96.98735673
190709A00018	7/9/2019	2.24	7/9/2024	7/9/2019	100.39774	99.95834216	99.52279096	99.09103821	98.66303426	98.23873032	97.81807847	97.40103158	96.98754336
190710A00022	7/10/2019	2.22	7/10/2024	7/10/2019	100.39226	99.9501598	99.51195668	99.07759934	98.64703718	98.22022051	97.79710047	97.37762907	96.96175917
190712A00001	7/12/2019	2.05	7/12/2024	7/12/2019	100.37996	99.93178283	99.48761833	99.04740888	98.61110165	98.17864475	97.74998719	97.32507891	96.90387069
190715A00010	7/15/2019	2.23	7/15/2024	7/15/2019	100.41372	99.95798752	99.50639877	99.05889536	98.61542187	98.1759239	97.74034801	97.30864175	96.88075357
190717A00008	7/17/2019	2.22	7/17/2024	7/17/2019	100.41587	99.95470232	99.49777672	99.04503315	98.59641424	98.15186366	97.71132613	97.27474733	96.84207396
190719A00006	7/19/2019	2.17	7/19/2024	7/19/2019	100.39909	99.93254175	99.47033114	99.01239948	98.55868741	98.10913669	97.66369011	97.22229155	96.78488588
190724A00021	7/24/2019	2.33	7/23/2027	7/24/2019	108.15339	104.6175995	101.2170312	97.94579201	94.7982778	91.769158	88.85336087	86.04605937	83.34265804
190724A00023	7/24/2019	2.13	7/24/2025	7/24/2019	102.3798	100.9071425	99.4630634	98.04680518	96.65763484	95.29484473	93.95775141	92.64569456	91.35803608
190724A00024	7/24/2019	2.49	7/24/2029	7/24/2019	114.02244	108.3320555	102.9631714	97.8959374	93.11182908	88.5935529	84.32495829	80.29095632	76.47744469
190726A00014	7/26/2019	2.23	7/24/2024	7/26/2019	100.44431	99.96405485	99.48839518	99.01726082	98.55058733	98.08831151	97.63037133	97.17670595	96.72725564
190726A00017	7/26/2019	2.44	7/24/2026	7/26/2019	105.35178	102.863285	100.4466105	98.0992699	95.81888013	93.60315466	91.44989916	89.35700711	87.32245575
190730A00007	7/30/2019	2.19	7/30/2024	7/30/2019	100.44466	99.94811186	99.45646433	98.96964138	98.4875723	98.01018777	97.53741982	97.06920175	96.60546817
190730A00016	7/30/2019	2	7/30/2024	7/30/2019	100.41338	99.91615854	99.42385379	98.93638996	98.45369591	97.9757019	97.50233957	97.03354184	96.56924294
190731A00004	7/31/2019	2.18	7/31/2024	7/31/2019	100.44291	99.94365207	99.44934563	98.9599141	98.47528571	97.9953901	97.52015827	97.04952255	96.58341659
190802A00003	8/2/2019	2.01	8/2/2024	8/2/2019	100.35856	99.85420153	99.35489841	98.86057649	98.37116153	97.88658076	97.40676286	96.93163788	96.46113724
190802A00032	8/2/2019	2.01	8/2/2024	8/2/2019	100.35856	99.85420153	99.35489841	98.86057649	98.37116153	97.88658076	97.40676286	96.93163788	96.46113724
190805A00009	8/5/2019	1.91	8/5/2024	8/5/2019	100.31611	99.80375821	99.29663324	98.79465362	98.29774129	97.80581976	97.31881409	96.83665081	96.35925792
190805A00011	8/5/2019	1.91	8/5/2024	8/5/2019	100.31611	99.80375821	99.29663324	98.79465362	98.29774129	97.80581976	97.31881409	96.83665081	96.35925792
190805A00050	8/5/2019	1.91	8/5/2024	8/5/2019	100.31611	99.80375821	99.29663324	98.79465362	98.29774129	97.80581976	97.31881409	96.83665081	96.35925792
190807A00005	8/7/2019	1.77	8/7/2024	8/7/2019	100.24855	99.73099069	99.21877048	98.71180486	98.21001321	97.71331653	97.22163744	96.73490012	96.25303027
190807A00020	8/7/2019	1.57	2/7/2024	8/7/2019	100.00545	99.98601858	99.96661064	99.94722197	99.92785254	99.90850231	99.88917126	99.86985934	99.85056652
190807A00021	8/7/2019	2	8/7/2026	8/7/2019	104.34032	101.8274185	99.38801859	97.01954301	94.71952047	92.48558151	90.31545361	88.20695659	86.15799818
190808A00009	8/8/2019	1.89	8/8/2024	8/8/2019	100.30889	99.78851393	99.27352677	98.76384966	98.2594007	97.76009965	97.26586791	96.77662849	96.29230594
190808A00024	8/8/2019	1.69	2/8/2024	8/8/2019	100.0087	99.98649326	99.96431224	99.94215386	99.92001807	99.89790484	99.87581414	99.85374591	99.83170012
190808A00025	8/8/2019	1.7	8/8/2024	8/8/2019	100.28625	99.76500256	99.24916989	98.73866811	98.23341474	97.73332901	97.23833182	96.74834566	96.26329459
190808A00050	8/8/2019	1.7	8/8/2024	8/8/2019	100.28625	99.76500256	99.24916989	98.73866811	98.23341474	97.73332901	97.23833182	96.74834566	96.26329459
190808A00052	8/8/2019	1.7	8/8/2024	8/8/2019	100.28625	99.76500256	99.24916989	98.73866811	98.23341474	97.73332901	97.23833182	96.74834566	96.26329459
190809A00010	8/9/2019	1.88	8/8/2024	8/9/2019	100.30364	99.7832745	99.26830305	98.75864155	98.25420808	97.75492241	97.26070594	96.77148168	96.28717417
190809A00011	8/9/2019	1.69	8/9/2024	8/9/2019	100.28357	99.75962311	99.24114557	98.72805473	98.22026682	97.71769978	97.22027327	96.72790855	96.24052852
190809A00012	8/9/2019	1.69	8/9/2024	8/9/2019	100.28357	99.75962311	99.24114557	98.72805473	98.22026682	97.71769978	97.22027327	96.72790855	96.24052852

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190809A00020	8/9/2019	2.44	8/9/2034	8/9/2019	122.36154	111.3507615	101.4440935	92.52435199	84.48737144	77.24049585	70.70125405	64.79619322	59.45985121
190809A00021	8/9/2019	2.12	8/9/2029	8/9/2019	112.04162	106.3619264	101.0062133	95.95431135	91.18741235	86.68796765	82.4395973	78.42700633	74.63590739
190809A00022	8/9/2019	1.88	8/9/2024	8/9/2019	100.30634	99.78326674	99.26563978	98.75337852	98.24639973	97.74462191	97.24796521	96.75635143	96.26970396
190812A00003	8/12/2019	1.67	8/12/2024	8/12/2019	100.28058	99.74850562	99.22207939	98.70120828	98.18580452	97.67578219	97.17105714	96.671547	96.17717109
190812A00006	8/12/2019	1.86	8/12/2024	8/12/2019	100.29847	99.76737158	99.24188952	98.72193939	98.20743405	97.69828817	97.1944182	96.69574233	96.20218042
190813A00008	8/13/2019	1.88	8/13/2024	8/13/2019	100.31188	99.77803462	99.24986523	98.72728431	98.21020338	97.6985358	97.19219675	96.6911032	96.1951738
190813A00016	8/13/2019	1.88	8/13/2024	8/13/2019	100.31188	99.77803462	99.24986523	98.72728431	98.21020338	97.6985358	97.19219675	96.6911032	96.1951738
190814A00003	8/14/2019	2.01	8/14/2029	8/14/2019	111.44778	105.7708207	100.4185882	95.370828	90.60864755	86.11442237	81.87170425	77.86513683	74.0803776
190814A00005	8/14/2019	1.65	8/14/2024	8/14/2019	100.27478	99.73730564	99.20559284	98.67954804	98.15908077	97.64410249	97.13452653	96.63026802	96.1312439
190814A00008	8/14/2019	1.84	8/14/2024	8/14/2019	100.28757	99.7511609	99.22048281	98.69544751	98.17596519	97.66194797	97.15330981	96.64996648	96.15183548
190814A00009	8/14/2019	1.84	8/14/2024	8/14/2019	100.28757	99.7511609	99.22048281	98.69544751	98.17596519	97.66194797	97.15330981	96.64996648	96.15183548
190814A00015	8/14/2019	1.84	8/14/2024	8/14/2019	100.28757	99.7511609	99.22048281	98.69544751	98.17596519	97.66194797	97.15330981	96.64996648	96.15183548
190816A00006	8/16/2019	1.77	8/16/2024	8/16/2019	100.25432	99.71260901	99.17674292	98.64663193	98.12218356	97.60330729	97.08991456	96.58191863	96.07923463
190816A00011	8/16/2019	1.77	8/16/2024	8/16/2019	100.25432	99.71260901	99.17674292	98.64663193	98.12218356	97.60330729	97.08991456	96.58191863	96.07923463
190816A00020	8/16/2019	1.79	8/16/2024	8/16/2019	100.26528	99.72352595	99.18762596	98.65748134	98.13299958	97.61409019	97.10066457	96.59263601	96.08991962
190816A00022	8/16/2019	1.77	8/16/2024	8/16/2019	100.25432	99.71260901	99.17674292	98.64663193	98.12218356	97.60330729	97.08991456	96.58191863	96.07923463
190816A00031	8/16/2019	1.77	8/16/2024	8/16/2019	100.25432	99.71260901	99.17674292	98.64663193	98.12218356	97.60330729	97.08991456	96.58191863	96.07923463
190816A00033	8/16/2019	1.77	8/16/2024	8/16/2019	100.25432	99.71260901	99.17674292	98.64663193	98.12218356	97.60330729	97.08991456	96.58191863	96.07923463
190816A00036	8/16/2019	1.77	8/16/2024	8/16/2019	100.25432	99.71260901	99.17674292	98.64663193	98.12218356	97.60330729	97.08991456	96.58191863	96.07923463
190819A00004	8/20/2019	1.81	5/24/2024	8/20/2019	100.12008	99.80650138	99.49489499	99.18523943	98.87751638	98.57170774	98.26779564	97.96576242	97.66559066
190819A00026	8/19/2019	1.62	8/19/2024	8/19/2019	100.27044	99.71942906	99.17447198	98.63546772	98.10231899	97.57493057	97.05320932	96.5370641	96.02640572
190819A00030	8/19/2019	2.01	8/20/2029	8/19/2019	111.4731	105.7791705	100.4117138	95.35031229	90.575933	86.07082319	81.81841775	77.8032536	74.01089087
190820A00008	8/20/2019	1.76	8/20/2024	8/20/2019	100.25266	99.70020765	99.153834	98.61344167	98.07893272	97.55021137	97.02718388	96.50975856	95.99784565
190820A00020	8/20/2019	1.76	8/20/2024	8/20/2019	100.25266	99.70020765	99.153834	98.61344167	98.07893272	97.55021137	97.02718388	96.50975856	95.99784565
190820A00021	8/20/2019	2.13	8/20/2029	8/20/2019	111.38297	105.7179128	100.3769144	95.33974695	90.58755192	86.10273718	81.8688853	77.87066918	74.09377408
190820A00029	8/20/2019	1.76	8/20/2024	8/20/2019	100.25266	99.70020765	99.153834	98.61344167	98.07893272	97.55021137	97.02718388	96.50975856	95.99784565
190820A00038	8/20/2019	1.76	8/20/2024	8/20/2019	100.25266	99.70020765	99.153834	98.61344167	98.07893272	97.55021137	97.02718388	96.50975856	95.99784565
190821A00017	8/21/2019	1.8	8/21/2024	8/21/2019	100.27741	99.72217089	99.1730752	98.63001872	98.09290214	97.5616283	97.03610216	96.51623074	96.00192304
190821A00030	8/21/2019	1.8	8/21/2024	8/21/2019	100.27741	99.72217089	99.1730752	98.63001872	98.09290214	97.5616283	97.03610216	96.51623074	96.00192304
190823A00005	8/23/2019	1.62	8/23/2024	8/23/2019	100.27998	99.71809967	99.16250878	98.61310141	98.06977461	97.53242775	97.00096239	96.47528225	95.95529315
190826A00018	8/26/2019	1.9	8/27/2029	8/26/2019	110.88218	105.1856178	99.81684849	94.75531609	89.98185603	85.47859672	81.22886557	77.21710244	73.42877973
190826A00029	8/26/2019	1.53	8/26/2024	8/26/2019	100.23534	99.66548096	99.10208363	98.54504292	97.99425164	97.44960501	96.91100058	96.37833818	95.85151983
190826A00030	8/26/2019	1.72	8/26/2026	8/26/2019	104.07496	101.5074838	99.01628272	96.59863746	94.25194105	91.97369622	89.76150998	87.61308851	85.52623236

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190826A00056	8/26/2019	1.72	8/26/2024	8/26/2019	100.23217	99.66370285	99.10167081	98.54596202	97.99647021	97.45309152	96.91572434	96.38426934	95.85862935
190826A00057	8/26/2019	1.87	8/26/2025	8/26/2019	101.93772	100.3850499	98.86352382	97.37227127	95.91045611	94.47727264	93.07194421	91.69372195	90.34188343
190826A00058	8/26/2019	1.91	8/26/2026	8/26/2019	104.22673	101.6645797	99.17839266	96.7654612	94.42319363	92.14910709	89.9408222	87.79605802	85.71262725
190826A00060	8/26/2019	2.02	8/26/2027	8/26/2019	106.81201	103.2205811	99.76932566	96.45201169	93.26271847	90.19582098	87.24597326	84.40809289	81.67734642
190826A00063	8/26/2019	2.05	8/28/2028	8/26/2019	109.19647	104.5574318	100.1424767	95.9395988	91.93750343	88.12555733	84.49374655	81.03263691	77.7333373
190826A00065	8/26/2019	2.09	8/28/2029	8/26/2019	111.19145	105.5101751	100.1550015	95.10551353	90.34267844	85.84874535	81.60715246	77.60244127	73.82017748
190827A00001	8/27/2019	1.74	8/27/2024	8/27/2019	100.24585	99.67464037	99.10992215	98.5515856	97.99952306	97.45362923	96.91380119	96.37993828	95.85194205
190827A00002	8/27/2019	1.74	8/27/2024	8/27/2019	100.24585	99.67464037	99.10992215	98.5515856	97.99952306	97.45362923	96.91380119	96.37993828	95.85194205
190828A00009	8/28/2019	1.71	8/28/2024	8/28/2019	100.22494	99.65117077	99.08394748	98.52316185	97.96870482	97.42046976	96.87835244	96.34225095	95.8120656
190828A00015	8/28/2019	2.04	8/28/2029	8/28/2019	110.91033	105.2368142	99.88907921	94.84672697	90.09073963	85.60338054	81.3681013	77.36945602	73.59302233
190828A00019	8/28/2019	2	3/28/2028	8/28/2019	108.08052	103.8799191	99.86596575	96.0293505	92.36128424	88.85346364	85.49804134	82.28759813	79.21511708
190828A00020	8/28/2019	1.95	5/28/2027	8/28/2019	106.01401	102.678699	99.46575181	96.3700535	93.38672584	90.51111946	87.73880185	85.06554601	82.48731987
190828A00031	8/28/2019	1.71	8/28/2024	8/28/2019	100.22494	99.65117077	99.08394748	98.52316185	97.96870482	97.42046976	96.87835244	96.34225095	95.8120656
190829A00031	8/29/2019	1.54	8/29/2024	8/29/2019	100.24759	99.66955788	99.09817257	98.53331967	97.97488767	97.42276759	96.87685288	96.33703939	95.8032253
190829A00045	8/29/2019	1.9	8/28/2026	8/29/2019	104.21286	101.645555	99.15447188	96.73689182	94.39021029	92.11193232	89.89966713	87.75112303	85.66410262
190829A00050	8/29/2019	1.73	8/29/2024	8/29/2019	100.24438	99.66777344	99.09777673	98.53427823	97.97716739	97.42633614	96.88167883	96.34309217	95.81047518
190830A00002	8/30/2019	1.93	8/28/2026	8/30/2019	104.29058	101.7222527	99.23017506	96.81162287	94.46399085	92.18478339	89.97160909	87.82217564	85.73428503
190830A00012	8/30/2019	1.76	8/30/2024	8/30/2019	100.25839	99.67910665	99.10649154	98.54043181	97.98081548	97.42753312	96.88047777	96.33954485	95.80463211
190830A00021	8/30/2019	1.76	8/30/2024	8/30/2019	100.25839	99.67910665	99.10649154	98.54043181	97.98081548	97.42753312	96.88047777	96.33954485	95.80463211
190904A00001	9/4/2019	1.5	9/4/2024	9/4/2019	100.23787	99.6436402	99.05643678	98.47613629	97.90261752	97.33576207	96.7754543	96.22158122	95.67403243
190904A00019	9/4/2019	1.69	9/4/2024	9/4/2019	100.22869	99.63602763	99.05035203	98.47154143	97.8994757	97.33403748	96.77511213	96.22258762	95.67635451
190906A00012	9/6/2019	1.76	9/6/2024	9/6/2019	100.27572	99.67750547	99.08641279	98.50231318	97.92508307	97.35460179	96.79075148	96.233417	95.68248587
190909A00025	9/9/2019	1.88	9/9/2024	9/9/2019	100.35691	99.75033057	99.15107256	98.55900114	97.97398752	97.39590598	96.82463377	96.26005105	95.70204074
190910A00004	9/11/2019	1.86	9/11/2024	9/11/2019	100.35022	99.73827721	99.13378245	98.53660222	97.94660425	97.36365944	96.78764179	96.21842828	95.65589878
190910A00017	9/16/2019	1.86	9/16/2024	9/16/2019	100.36419	99.73871407	99.12102371	98.51097101	97.90841485	97.31321758	96.7252449	96.14436576	95.57045227
190910A00030	9/10/2019	1.86	9/10/2024	9/10/2019	100.34743	99.73818905	99.13633362	98.5417285	97.95424316	97.37375021	96.80012528	96.23324694	95.6729966
190913A00014	9/13/2019	2.08	9/13/2024	9/13/2019	100.49323	99.87539077	99.26514053	98.66233778	98.06684667	97.47853467	96.89727239	96.32293359	95.75539499
190919A00007	9/19/2019	2.04	9/19/2024	9/19/2019	100.48797	99.85396781	99.22795093	98.60977088	97.99928107	97.39633859	96.800804	96.21254133	95.63141789
190919A00025	9/19/2019	1.8	9/19/2024	9/19/2019	100.46606	99.83046159	99.20289591	98.58320894	97.97125284	97.36688347	96.76996026	96.18034608	95.59790716
190923A00012	9/23/2019	2.43	9/25/2034	9/23/2019	122.3695	111.2335379	101.2261213	92.22625469	84.12651828	76.8314794	70.2562989	64.32550591	58.97191975
190923A00017	9/23/2019	1.74	9/23/2024	9/23/2019	100.43972	99.79339645	99.15537251	98.52549009	97.90359402	97.28953305	96.68315973	96.08433028	95.4929045
190923A00020	9/23/2019	2.05	9/24/2029	9/23/2019	111.85128	106.0504601	100.5869169	95.43926957	90.58760287	86.01336089	81.6992468	77.62913084	73.78796539
190923A00078	9/23/2019	1.96	6/28/2024	9/23/2019	100.24529	99.83613786	99.43032262	99.0277996	98.6285289	98.23247123	97.83958795	97.44984104	97.06319307

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190923A00081	9/23/2019	1.96	9/20/2024	9/23/2019	100.43975	99.80321829	99.17474303	98.55416846	97.94134621	97.33613116	96.73838356	96.14796446	95.56474005
190924A00035	9/24/2019	1.88	9/13/2024	9/24/2019	100.3683	99.75090165	99.14108508	98.53871226	97.94364739	97.35575797	96.77491469	96.20099134	95.63386469
190925A00004	9/25/2019	1.7	9/24/2024	9/25/2019	100.41654	99.76759867	99.12702122	98.49465079	97.87033035	97.25390686	96.64523114	96.04415775	95.45054489
190925A00011	9/25/2019	1.89	9/25/2024	9/25/2019	100.40904	99.75914179	99.11763185	98.48435051	97.85914022	97.24184745	96.63232252	96.03041951	95.43599614
190926A00015	9/26/2019	2.32	11/26/2030	9/26/2019	114.38931	107.382275	100.854684	94.77124686	89.09943752	83.80926881	78.87308208	74.26535554	69.96252913
190926A00016	9/26/2019	2.28	5/24/2030	9/26/2019	113.38635	106.9110752	100.849735	95.17372939	89.85657556	84.87374021	80.20248648	75.82173378	71.71192923
190926A00017	9/26/2019	2.23	9/26/2029	9/26/2019	112.10926	106.322921	100.8723485	95.73628365	90.89492583	86.32982432	82.02377902	77.9607491	74.12576871
190927A00012	10/1/2019	1.96	10/1/2024	10/1/2019	100.47394	99.80762123	99.15011026	98.50123324	97.86082108	97.22870907	96.60473675	95.98874777	95.38058977
190927A00036	9/27/2019	1.94	9/6/2024	9/27/2019	100.38468	99.78609641	99.19463516	98.61017009	98.03257759	97.46173693	96.89753021	96.33984225	95.78856055
190930A00012	9/30/2019	1.93	9/30/2024	9/30/2019	100.45026	99.78672721	99.1319238	98.48568267	97.84783689	97.21822382	96.596685	95.98306602	95.37721637
190930A00035	9/30/2019	1.93	9/30/2024	9/30/2019	100.45026	99.78672721	99.1319238	98.48568267	97.84783689	97.21822382	96.596685	95.98306602	95.37721637
190930A00070	9/30/2019	1.93	9/27/2024	9/30/2019	100.44132	99.78590314	99.13901823	98.50049551	97.87017368	97.24789558	96.63350804	96.02686176	95.42781117
190930A00071	9/30/2019	2.05	9/29/2025	9/30/2019	102.45261	100.8028446	99.18739221	97.60524581	96.05543892	94.53704254	93.04916323	91.59094143	90.16154979
190930A00075	9/30/2019	2.19	9/29/2027	9/30/2019	107.66063	103.9602683	100.4071901	96.99470535	93.71646994	90.56646438	87.53897501	84.62857653	81.83011551
190930A00077	9/30/2019	2.23	9/28/2029	9/30/2019	112.11828	106.3261771	100.8704523	95.72979132	90.88434257	86.31560893	82.00634817	77.94048105	74.10300682
191001A00023	10/1/2019	1.85	9/27/2024	10/1/2019	100.38826	99.73304474	99.08635433	98.44802432	97.81789345	97.19580459	96.58160457	95.97514414	95.37627774
191002A00006	10/2/2019	1.84	10/2/2024	10/2/2019	100.40287	99.73404395	99.07409614	98.42285301	97.78014329	97.14580018	96.51966119	95.90156801	95.29136641
191002A00017	10/2/2019	1.84	10/2/2024	10/2/2019	100.40287	99.73404395	99.07409614	98.42285301	97.78014329	97.14580018	96.51966119	95.90156801	95.29136641
191003A00014	10/3/2019	1.71	9/20/2024	10/3/2019	100.27877	99.64281963	99.01491845	98.39491284	97.78265452	97.17799888	96.58080491	95.99093507	95.40825518
191003A00019	10/3/2019	1.71	9/27/2024	10/3/2019	100.29542	99.64054254	98.99419251	98.35619976	97.72640307	97.10464535	96.4907735	95.88463829	95.28609422
191004A00001	10/4/2019	2.47	10/4/2034	10/4/2019	121.31234	110.2903722	100.3852903	91.47732621	83.46014925	76.23929858	69.73080242	63.85996444	58.56029593
191004A00002	10/4/2019	2.08	10/4/2029	10/4/2019	111.28484	105.4999805	100.0523094	94.92039088	90.08426941	85.52535498	81.22632247	77.17101874	73.34437723
191004A00003	10/4/2019	1.89	10/5/2026	10/4/2019	104.41937	101.7458077	99.15402644	96.64100355	94.20385392	91.83981901	89.54626025	87.32065284	85.16057999
191004A00004	10/4/2019	1.54	10/4/2024	10/4/2019	100.33835	99.66266375	98.99604897	98.33832436	97.68931297	97.0488425	96.4167452	95.79285766	95.17702072
191004A00005	10/4/2019	1.54	10/4/2024	10/4/2019	100.33835	99.66266375	98.99604897	98.33832436	97.68931297	97.0488425	96.4167452	95.79285766	95.17702072
191004A00012	10/4/2019	1.78	10/4/2024	10/4/2019	100.36169	99.6877218	99.02277419	98.36666992	97.71923347	97.08029398	96.44968503	95.82724453	95.21281457
191004A00032	10/4/2019	2.01	1/3/2028	10/4/2019	107.59152	103.6332064	99.84244632	96.21128662	92.73219412	89.39803015	86.20202789	83.13777097	80.19917352
191007A00029	10/7/2019	1.88	10/9/2029	10/7/2019	110.93389	105.1181829	99.64317682	94.48711941	89.62976646	85.05226496	80.73704994	76.66774951	72.8290975
191008A00031	10/8/2019	1.52	10/8/2024	10/8/2019	100.33621	99.64973272	98.97262093	98.30468694	97.64574498	96.99561429	96.35411894	95.72108765	95.09635363
191008A00033	10/8/2019	1.71	10/8/2024	10/8/2019	100.33208	99.64737287	98.97198211	98.30572219	97.64840881	96.99986263	96.35990907	95.72837816	95.10510439
191009A00017	10/9/2019	1.76	10/4/2024	10/9/2019	100.34804	99.67412442	99.00922811	98.35317465	97.70578854	97.06689891	96.43633937	95.81394782	95.19956637
191009A00028	10/9/2019	1.76	10/9/2024	10/9/2019	100.36977	99.68221775	99.00406562	98.3351176	97.67518718	97.02409289	96.38165805	95.74771071	95.12208343
191015A00013	10/15/2019	1.72	10/15/2024	10/15/2019	100.49904	99.79301355	99.09688704	98.4104532	97.73351047	97.06586285	96.4073197	95.75769559	95.11681007

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191015A00029	10/15/2019	1.91	10/15/2024	10/15/2019	100.5017	99.79739374	99.10293453	98.41812125	97.74275382	97.07663768	96.41958357	95.77140739	95.13192997
191017A00022	10/17/2019	2.25	7/17/2028	10/17/2019	109.85599	105.3150125	100.9885887	96.86547101	92.93505852	89.18735768	85.61294419	82.20292765	78.94891853
191017A00026	10/17/2019	2.3	7/17/2029	10/17/2019	112.17971	106.5839043	101.3032334	96.31832028	91.61107448	87.16460243	82.96312205	78.9918842	75.2371
191021A00021	10/21/2019	2.22	12/21/2027	10/21/2019	108.33598	104.3978038	100.6247771	97.00912812	93.54349349	90.22089226	87.03470384	83.97864754	81.04676341
191023A00006	10/23/2019	1.95	10/23/2024	10/23/2019	100.55866	99.83256054	99.11692351	98.41152174	97.71613677	97.03055631	96.35457405	95.68798942	95.03060741
191025A00005	10/28/2019	1.98	10/28/2024	10/28/2019	100.60622	99.86635481	99.13733677	98.41893002	97.71090423	97.01303569	96.32510707	95.6469072	94.97823086
191025A00009	10/25/2019	2.26	5/25/2029	10/25/2019	111.70991	106.2706199	101.1302146	96.27074255	91.67541854	87.32854361	83.21542925	79.32232733	75.63636535
191025A00010	10/25/2019	2.24	7/25/2028	10/25/2019	109.85989	105.297478	100.9516274	96.81093216	92.86464512	89.10263773	85.51536124	82.09381038	78.82948969
191025A00013	10/25/2019	1.98	10/25/2024	10/25/2019	100.58798	99.8563687	99.13537563	98.42476715	97.72432011	97.03381771	96.35304927	95.68181004	95.01990097
191031A00033	10/31/2019	2.2	5/31/2028	10/31/2019	109.33453	104.9333145	100.7345387	96.72787423	92.90357185	89.25242509	85.76573751	82.43529183	79.25332125
191104A00018	11/5/2019	1.96	11/5/2024	11/5/2019	100.6309	99.86926076	99.11911755	98.38021097	97.65228999	96.93511098	96.22843751	95.53203999	94.84569553
191104A00022	11/4/2019	2.17	8/4/2027	11/4/2019	107.20241	103.6631949	100.2603414	96.98785984	93.8400604	90.81153333	87.89713345	85.09196569	82.39137148
191104A00023	11/4/2019	2.24	8/4/2028	11/4/2019	109.92171	105.3310785	100.9594937	96.79535636	92.8277421	89.04635891	85.44150715	82.00404228	78.72534023
191104A00024	11/4/2019	2.26	8/3/2029	11/4/2019	112.03393	106.396822	101.0797099	96.06276016	91.32746904	86.85656667	82.63392862	78.64449414	74.87419067
191104A00025	11/4/2019	2.33	8/2/2030	11/4/2019	113.97855	107.2974316	101.0550844	95.22038625	89.76457548	84.66106171	79.88525148	75.41438861	71.22740804
191105A00007	11/5/2019	1.98	11/5/2026	11/5/2019	105.21786	102.4422947	99.75389051	97.14935939	94.62556249	92.17950118	89.80830964	87.50924787	85.27969516
191105A00008	11/5/2019	1.83	11/5/2024	11/5/2019	100.65923	99.89576269	99.1438454	98.40321455	97.67361744	96.95480888	96.24655087	95.5486124	94.86076914
191106A00012	11/6/2019	2.02	10/11/2024	11/6/2019	100.56512	99.87133742	99.18711207	98.51224471	97.8465442	97.18982459	96.54190492	95.90260908	95.27176564
191106A00022	11/6/2019	2.34	1/2/2030	11/6/2019	113.16201	107.0814579	101.3682553	95.99831627	90.94925005	86.20023597	81.73190568	77.52623489	73.56644365
191108A00011	11/8/2019	2.08	10/18/2024	11/8/2019	100.63462	99.92169791	99.21885807	98.52588846	97.84258211	97.16873781	96.50415987	95.84865802	95.20204714
191108A00013	11/8/2019	2.25	11/8/2029	11/8/2019	113.20112	107.239815	101.6310794	96.35219427	91.38202446	86.70089932	82.29050338	78.13377577	74.21481771
191108A00014	11/8/2019	2.25	11/8/2029	11/8/2019	113.20112	107.239815	101.6310794	96.35219427	91.38202446	86.70089932	82.29050338	78.13377577	74.21481771
191113A00016	11/15/2019	2.02	8/15/2024	11/15/2019	100.38818	99.84874882	99.31511516	98.78718312	98.26486155	97.7480612	97.23669474	96.73067666	96.22992324
191115A00014	11/18/2019	2.45	11/18/2024	11/18/2019	101.08172	100.2830348	99.49695662	98.72318461	97.96143129	97.21141809	96.47287499	95.74554018	95.0291598
191115A00015	11/18/2019	2.61	11/18/2024	11/18/2019	101.21075	100.4114992	99.62485931	98.85053174	98.08822892	97.33767218	96.59859137	95.8707246	95.15381789
191115A00016	11/18/2019	2.48	11/18/2024	11/18/2019	101.10591	100.3071219	99.52093838	98.74706219	97.98520585	97.23509073	96.49644681	95.76901226	95.0525332
191115A00028	11/15/2019	2.34	9/28/2029	11/15/2019	112.74616	106.9364707	101.4638964	96.30708096	91.44613793	86.86253728	82.53900573	78.4594348	74.60879613
191115A00030	11/15/2019	2.35	11/9/2029	11/15/2019	112.98982	107.0600841	101.4804318	96.2283363	91.28284264	86.62444528	82.23498018	78.09752543	74.19630985
191119A00027	11/19/2019	1.8	11/19/2024	11/19/2019	100.69648	99.89497772	99.10620099	98.32984692	97.56562367	96.81324849	96.07244735	95.34295464	94.62451281
191120A00005	11/20/2019	2.63	11/20/2034	11/20/2019	123.11818	111.8819574	101.7937904	92.72949818	84.57894689	77.24439761	70.63905441	64.68578878	59.31601842
191120A00006	11/20/2019	2.67	11/20/2035	11/20/2019	124.11755	111.8942696	101.0205511	91.3390076	82.71139624	75.01620015	68.14652791	62.00828619	56.51858874
191120A00024	11/20/2019	2.23	11/16/2029	11/20/2019	112.32058	106.3906882	100.8122898	95.56271913	90.62088975	85.96717411	81.58329504	77.45222595	73.55809901
191121A00004	11/21/2019	1.77	11/21/2024	11/21/2019	100.68064	99.87380255	99.07985381	98.2984912	97.52941714	96.7723434	96.0269907	95.29308835	94.57037398

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191121A00009	11/21/2019	2.55	11/21/2036	11/21/2019	124.74857	111.4640711	99.76105991	89.44129521	80.33237859	72.28426481	65.16626196	58.86444717	53.27943864
191121A00010	11/21/2019	2.59	11/20/2037	11/21/2019	125.85025	111.5984584	99.1566405	88.28302966	78.76937943	70.43616091	63.12847198	56.71254692	51.07277557
191121A00034	11/21/2019	2.28	11/2/2029	11/21/2019	112.55155	106.6536166	101.1030159	95.87743504	90.95611428	86.31973017	81.95028844	77.83102529	73.9463166
191122A00018	11/26/2019	3.11	11/22/2039	11/26/2019	134.50078	118.0149462	103.849461	91.65942409	81.1531134	72.08353684	64.24136142	57.44899064	51.55559928
191122A00020	11/26/2019	3.2	11/23/2037	11/26/2019	132.23434	117.6860152	104.9635958	93.82483294	84.06090906	75.49166589	67.96153676	61.33607416	55.49898268
191122A00021	11/26/2019	3.4	11/22/2038	11/26/2019	136.62046	120.8745553	107.2174549	95.35590015	85.03943029	76.05393057	68.2161842	61.36926494	55.37863698
191125A00036	11/25/2019	2.29	11/23/2029	11/25/2019	112.70193	106.7418208	101.1358928	95.86127949	90.89670016	86.22234591	81.81977066	77.67179065	73.762392
191126A00023	11/26/2019	1.81	5/27/2025	11/26/2019	101.55878	100.2477175	98.96083265	97.69748795	96.4570724	95.23899611	94.04268935	92.86760172	91.71320128
191126A00026	11/26/2019	1.91	11/25/2026	11/26/2019	105.15278	102.3227985	99.58329087	96.93087608	94.36232027	91.87452819	89.46453642	87.12950696	84.86672116
191129A00012	11/29/2019	1.99	11/29/2024	11/29/2019	100.76696	99.93986142	99.12629301	98.32592394	97.53843516	96.76351781	96.00087282	95.25021057	94.51125044
191202A00005	12/2/2019	2.03	12/2/2024	12/2/2019	100.81478	99.97936375	99.15775027	98.34959613	97.5545728	96.77236232	96.00265694	95.24515871	94.49957904
191203A00004	12/4/2019	1.87	12/4/2024	12/4/2019	100.68854	99.84831357	99.02206221	98.20943849	97.41010746	96.62374504	95.85003762	95.08868163	94.33938316
191204A00013	12/4/2019	1.72	12/4/2024	12/4/2019	100.69472	99.85263726	99.02459063	98.21022722	97.40921006	96.62121318	95.84592113	95.0830286	94.33223998
191206A00008	12/6/2019	2.44	12/6/2030	12/6/2019	115.25804	108.1950503	101.616548	95.48677287	89.77277821	84.44419438	79.47301523	74.83340318	70.50151124
191206A00009	12/6/2019	2.87	12/4/2037	12/6/2019	127.77815	113.4955062	101.0190632	90.10800612	80.55487217	72.18077797	64.83135164	58.37326143	52.69125081
191206A00013	12/6/2019	3.05	12/6/2044	12/6/2019	144.93111	123.131813	105.1701462	90.33061954	78.03580127	67.81897765	59.30234906	52.17961723	46.20206133
191206A00021	12/6/2019	2.02	12/6/2024	12/6/2019	100.82591	99.97965148	99.14755742	98.32927378	97.52445889	96.73278225	95.9539241	95.18757499	94.43343536
191206A00044	12/10/2019	2.01	10/31/2024	12/10/2019	100.63992	99.89181907	99.15480432	98.42862683	97.71304907	97.00784044	96.31277694	95.627641	94.95222124
191217A00012	12/20/2019	2.03	12/20/2024	12/20/2019	100.90339	100.0189677	99.15000894	98.29610869	97.45687795	96.63194106	95.82093507	95.02350923	94.2393245
191218A00014	12/18/2019	2.04	12/18/2024	12/18/2019	100.90243	100.0234193	99.1596796	98.31081905	97.47645552	96.65621989	95.8497555	95.05671758	94.27677281
191219A00036	12/20/2019	2.1	12/20/2024	12/20/2019	100.96601	100.0812842	99.21202628	98.35783045	97.51830769	96.69308225	95.88179112	95.0840835	94.29962026
191220A00001	12/20/2019	2.62	12/19/2031	12/20/2019	118.48438	110.2859279	102.722887	95.74256343	89.29688758	83.34198787	77.83780483	72.74774224	68.03835171
191220A00002	12/20/2019	3.02	12/20/2038	12/20/2019	131.2467	115.8100595	102.4441055	90.85576814	80.79502749	72.04838913	64.43337782	57.79388513	51.99623484
191223A00055	12/23/2019	2.46	12/7/2029	12/23/2019	113.76368	107.7349543	102.0661489	96.73392914	91.71658663	86.99391803	82.54711364	78.35865465	74.41221843
191223A00056	12/23/2019	2.46	12/14/2029	12/23/2019	113.79476	107.7464297	102.0602533	96.71268339	91.68181742	86.94727611	82.49009002	78.29259533	74.33833782
191226A00019	12/26/2019	2.4	12/22/2028	12/26/2019	111.56009	106.5487239	101.7933084	97.27946166	92.9936832	88.92329403	85.05638258	81.38175443	77.88888564
191226A00020	12/26/2019	2.44	12/21/2029	12/26/2019	113.70704	107.6425499	101.9423108	96.58256364	91.54121823	86.79772518	82.33296094	78.12912211	74.16962797
191230A00013	12/30/2019	1.84	12/2/2024	12/30/2019	100.78719	99.95009315	99.12685216	98.31712363	97.52057707	96.73689271	95.96576102	95.20688234	94.4599665
191230A00031	12/30/2019	1.85	12/30/2024	12/30/2019	100.93172	100.0181244	99.1209974	98.23989994	97.37440557	96.52410284	95.68859466	94.86749767	94.06044164
200106A00015	1/6/2020	1.87	2/15/2024	1/6/2020	100.01674	99.97516846	99.93364641	99.8921743	99.85075204	99.80937952	99.76805666	99.72678336	99.68555953
200108A00021	1/13/2020	1.97	1/13/2025	1/13/2020	100.96096	100.0115447	99.07993158	98.16562168	97.2681362	96.38701389	95.52181023	94.67209667	93.83745995
200110A00022	1/13/2020	2	1/6/2025	1/13/2020	100.95747	100.0269239	99.11347097	98.21664769	97.33600305	96.47110226	95.621526	94.7868697	93.96674295
200114A00006	1/15/2020	1.99	1/15/2025	1/15/2020	100.98934	100.0343981	99.09745672	98.17801408	97.27558325	96.38969529	95.51989835	94.66575692	93.82685108

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200121A00009	1/24/2020	1.94	1/24/2025	1/24/2020	100.98108	100.0019362	99.04171691	98.09987337	97.17588202	96.26923899	95.3794592	94.50607552	93.64863794
200122A00035	1/22/2020	1.94	1/22/2025	1/22/2020	100.97218	99.99847289	99.04348156	98.10666946	97.18752124	96.28554086	95.40025073	94.53119082	93.67791786
200123A00013	1/27/2020	1.89	1/27/2025	1/27/2020	100.94446	99.9574407	98.98964321	98.04051382	97.10951654	96.19613572	95.29987509	94.42025687	93.55682091
200123A00048	1/23/2020	1.7	1/23/2025	1/23/2020	100.89483	99.91661264	98.95728911	98.01631164	97.09315791	96.18732524	95.29832971	94.42570528	93.56900297
200124A00008	1/24/2020	1.92	1/22/2027	1/24/2020	105.5351	102.5444523	99.65430797	96.86074416	94.16001128	91.54852695	89.02286754	86.57976013	84.21607497
200127A00016	1/27/2020	1.81	1/27/2025	1/27/2020	100.86453	99.87793883	98.91056374	97.96185107	97.03126494	96.11828983	95.22242959	94.34320657	93.48016071
200127A00023	1/27/2020	1.8	1/27/2025	1/27/2020	100.85454	99.8680011	98.90067881	97.95201822	97.02148349	96.10855909	95.21274891	94.33357528	93.47057818
200127A00030	1/27/2020	1.8	1/27/2025	1/27/2020	100.85454	99.8680011	98.90067881	97.95201822	97.02148349	96.10855909	95.21274891	94.33357528	93.47057818
200128A00028	1/28/2020	1.81	1/28/2025	1/28/2020	100.86862	99.87931555	98.90933009	97.95810585	97.0251028	96.10980143	95.21170183	94.33032274	93.46520071
200130A00006	1/30/2020	1.77	1/30/2025	1/30/2020	100.83651	99.84199079	98.86699922	97.910964	96.97333674	96.05359005	95.1512165	94.26572769	93.39665335
200130A00016	1/30/2020	1.58	1/30/2025	1/30/2020	100.80338	99.8067583	98.8297443	97.87176139	96.93225812	96.01070415	95.10658925	94.21942236	93.3487307
200131A00015	2/5/2020	1.73	2/5/2025	2/5/2020	100.81561	99.80515046	98.81485203	97.84411938	96.89237726	95.95907278	95.04367433	94.14567056	93.26456941
200131A00016	1/31/2020	1.73	1/31/2025	1/31/2020	100.80008	99.80307163	98.82568666	97.86735427	96.92752196	96.00565839	95.10125239	94.213812	93.3428636
200131A00032	1/31/2020	2.1	1/31/2030	1/31/2020	111.82357	105.7060705	99.96347248	94.57085554	89.5050819	84.74465808	80.26961002	76.06136813	72.10266177
200131A00038	1/31/2020	1.73	1/30/2025	1/31/2020	100.79621	99.80191328	98.82713636	97.87131287	96.93389449	96.0143539	95.11218372	94.22689562	93.35801939
200203A00006	2/3/2020	1.76	2/3/2025	2/3/2020	100.83995	99.8347045	98.84940701	97.88347188	96.93633295	96.00744594	95.09628738	94.20235366	93.32516009
200204A00001	2/4/2020	1.79	2/4/2025	2/4/2020	100.87378	99.86566832	98.87762225	97.9090436	96.95936159	96.02802756	95.11451391	94.21831309	93.33893666
200204A00012	2/4/2020	1.98	2/4/2027	2/4/2020	105.39905	102.3840733	99.47131508	96.65674557	93.9365173	91.30695618	88.76455259	86.30595295	83.92795186
200204A00020	2/4/2020	1.6	2/4/2025	2/4/2020	100.84038	99.83013164	98.84002596	97.86946456	96.91787343	95.98470088	95.06941639	94.17150967	93.29048964
200205A00011	2/7/2020	2.31	2/7/2024	2/7/2020	100.01824	99.99882441	99.97942723	99.96004908	99.94068995	99.92134979	99.90202858	99.88272628	99.86344287
200207A00009	2/7/2020	1.58	2/7/2025	2/7/2020	100.82944	99.81120781	98.813439	97.83552336	96.87687312	95.9369235	95.01513161	94.1109754	93.22395265
200207A00016	2/7/2020	1.74	2/7/2024	2/7/2020	100.00655	99.98714195	99.96775426	99.94838561	99.92903595	99.90970527	99.89039352	99.87110069	99.85182672
200207A00017	2/7/2020	1.96	2/8/2027	2/7/2020	105.36662	102.3403086	99.41689465	96.59230523	93.86265643	91.22423994	88.67351403	86.20709499	83.82174914
200207A00018	2/7/2020	2.14	2/7/2030	2/7/2020	112.09826	105.9519835	100.1833024	94.76705968	89.679897	84.90012032	80.40757316	76.18352001	72.21053921
200210A00005	2/10/2020	1.77	2/10/2027	2/10/2020	105.20436	102.1651078	99.22955538	96.39359234	93.65329164	91.00490445	88.44485094	85.9697116	83.57621898
200210A00009	2/10/2020	1.57	2/10/2025	2/10/2020	100.82856	99.80228294	98.79679791	97.81147684	96.84571806	95.89894362	94.97059814	94.06014771	93.16707887
200210A00021	2/10/2020	1.76	2/10/2025	2/10/2020	100.86227	99.8381803	98.8347995	97.85150327	96.8876933	95.94279483	95.01625549	94.10754426	93.21615043
200212A00003	2/12/2020	1.63	2/12/2025	2/12/2020	100.89748	99.86545711	98.85444621	97.86381249	96.8929448	95.94125624	95.00818293	94.09318292	93.1957351
200214A00002	2/14/2020	1.58	11/15/2024	2/14/2020	100.50349	99.71365963	98.93620151	98.17083008	97.41726504	96.6752347	95.94447565	95.22473244	94.51575732
200214A00005	2/14/2020	1.59	2/14/2025	2/14/2020	100.86211	99.82491574	98.80895236	97.81357184	96.83815373	95.8821023	94.94484533	94.02583291	93.12453645
200214A00007	2/14/2020	1.59	2/14/2025	2/14/2020	100.86211	99.82491574	98.80895236	97.81357184	96.83815373	95.8821023	94.94484533	94.02583291	93.12453645
200214A00014	2/18/2020	1.8	2/18/2025	2/18/2020	100.93015	99.88428485	98.86000401	97.85664427	96.87356979	95.91017023	94.96585957	94.04007483	93.13227498
200214A00015	2/18/2020	1.76	8/6/2024	2/18/2020	100.23583	99.72107445	99.21159938	98.70732182	98.20816248	97.71404366	97.22488924	96.74062465	96.26117677

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200214A00020	2/18/2020	1.78	1/15/2025	2/18/2020	100.78646	99.83256746	98.89666521	97.97824809	97.07682955	96.19194092	95.32313064	94.46996345	93.6320197
200220A00015	2/20/2020	1.57	2/20/2025	2/20/2020	100.85995	99.80667494	98.77528551	97.7651071	96.77549085	95.80581412	94.8554792	93.92391204	93.01056111
200221A00003	2/25/2020	1.69	2/25/2025	2/25/2020	100.83454	99.77050228	98.72880672	97.70875855	96.70968875	95.73095564	94.77194343	93.83206099	92.9107406
200221A00004	2/21/2020	1.69	2/21/2025	2/21/2020	100.82257	99.76929258	98.73791895	97.72777164	96.73820078	95.76858279	94.81831906	93.88683472	92.97357746
200221A00013	2/21/2020	1.69	2/21/2025	2/21/2020	100.82257	99.76929258	98.73791895	97.72777164	96.73820078	95.76858279	94.81831906	93.88683472	92.97357746
200221A00016	2/21/2020	1.69	2/21/2025	2/21/2020	100.82257	99.76929258	98.73791895	97.72777164	96.73820078	95.76858279	94.81831906	93.88683472	92.97357746
200221A00031	2/21/2020	1.69	2/21/2025	2/21/2020	100.82257	99.76929258	98.73791895	97.72777164	96.73820078	95.76858279	94.81831906	93.88683472	92.97357746
200224A00001	2/24/2020	1.59	2/24/2025	2/24/2020	100.72394	99.6632035	98.62469646	97.60772256	96.61161781	95.63574527	94.67949367	93.74227614	92.823529
200224A00007	2/24/2020	1.59	2/24/2025	2/24/2020	100.72394	99.6632035	98.62469646	97.60772256	96.61161781	95.63574527	94.67949367	93.74227614	92.823529
200224A00019	2/24/2020	1.59	2/18/2025	2/24/2020	100.70762	99.66301779	98.63997639	97.63783847	96.6559686	95.69375686	94.75061761	93.82598825	92.91932811
200224A00020	2/24/2020	1.59	2/24/2025	2/24/2020	100.72394	99.6632035	98.62469646	97.60772256	96.61161781	95.63574527	94.67949367	93.74227614	92.823529
200224A00021	2/24/2020	1.58	9/24/2024	2/24/2020	100.20314	99.55669076	98.91855527	98.28857558	97.66659609	97.05246516	96.44603494	95.84716129	95.25570363
200224A00024	2/24/2020	1.59	2/24/2025	2/24/2020	100.72394	99.6632035	98.62469646	97.60772256	96.61161781	95.63574527	94.67949367	93.74227614	92.823529
200224A00025	2/24/2020	1.59	1/23/2025	2/24/2020	100.63078	99.65619504	98.70039818	97.76285469	96.84304562	95.94047155	95.05465164	94.1851228	93.33143888
200224A00046	2/24/2020	1.59	2/24/2025	2/24/2020	100.72394	99.6632035	98.62469646	97.60772256	96.61161781	95.63574527	94.67949367	93.74227614	92.823529
200225A00012	2/25/2020	1.57	2/25/2025	2/25/2020	100.70508	99.64178008	98.6008179	97.5814925	96.58313511	95.60510429	94.64678451	93.70758486	92.78693783
200225A00015	2/25/2020	1.54	2/26/2024	2/25/2020	100.00323	99.93123431	99.85934897	99.78757193	99.71590295	99.64434178	99.5728882	99.50154196	99.43030283
200225A00017	2/25/2020	1.94	2/25/2030	2/25/2020	110.9578	104.7925947	99.00954712	93.58299144	88.48911769	83.7058253	79.21259175	74.99035203	71.02138786
200225A00018	2/25/2020	1.94	2/25/2030	2/25/2020	110.9578	104.7925947	99.00954712	93.58299144	88.48911769	83.7058253	79.21259175	74.99035203	71.02138786
200225A00050	2/25/2020	1.57	2/25/2025	2/25/2020	100.70508	99.64178008	98.6008179	97.5814925	96.58313511	95.60510429	94.64678451	93.70758486	92.78693783
200226A00006	2/26/2020	1.57	2/26/2025	2/26/2020	100.70774	99.64175581	98.59821695	97.57642036	96.57569249	95.59538733	94.63488504	93.69359063	92.77093271
200226A00008	2/26/2020	1.38	2/26/2025	2/26/2020	100.67308	99.60478949	98.55902987	97.53509872	96.53231873	95.55004034	94.58764032	93.64452048	92.7201064
200226A00009	2/26/2020	1.75	2/26/2030	2/26/2020	110.62699	104.4380606	98.63407228	93.1891108	88.07913321	83.28182678	78.77647578	74.54383921	70.56603841
200226A00015	2/26/2020	1.53	2/26/2024	2/26/2020	100.0025	99.93051136	99.85862664	99.78685022	99.71518185	99.6436213	99.57216833	99.50082271	99.42958419
200226A00016	2/26/2020	1.57	2/26/2025	2/26/2020	100.70774	99.64175581	98.59821695	97.57642036	96.57569249	95.59538733	94.63488504	93.69359063	92.77093271
200226A00025	2/26/2020	1.38	2/26/2025	2/26/2020	100.67308	99.60478949	98.55902987	97.53509872	96.53231873	95.55004034	94.58764032	93.64452048	92.7201064
200227A00004	2/27/2020	1.65	2/27/2030	2/27/2020	110.01585	103.8423323	98.05328711	92.62280585	87.52685666	82.74313832	78.25094682	74.03105299	70.06559012
200227A00005	2/27/2020	1.43	2/27/2024	2/27/2020	99.995012	99.92026003	99.84562314	99.77110075	99.69669261	99.62239847	99.54821806	99.47415113	99.40019743
200227A00006	2/27/2020	1.47	2/27/2025	2/27/2020	100.60196	99.5339193	98.48842108	97.46476179	96.46226327	95.48027516	94.5181735	93.57535938	92.65125776
200227A00009	2/27/2020	1.47	2/27/2025	2/27/2020	100.60196	99.5339193	98.48842108	97.46476179	96.46226327	95.48027516	94.5181735	93.57535938	92.65125776
200227A00013	2/27/2020	1.43	2/27/2024	2/27/2020	99.995012	99.92026003	99.84562314	99.77110075	99.69669261	99.62239847	99.54821806	99.47415113	99.40019743
200227A00016	2/27/2020	1.47	2/27/2025	2/27/2020	100.60196	99.5339193	98.48842108	97.46476179	96.46226327	95.48027516	94.5181735	93.57535938	92.65125776
200227A00027	2/27/2020	1.47	2/27/2025	2/27/2020	100.60196	99.5339193	98.48842108	97.46476179	96.46226327	95.48027516	94.5181735	93.57535938	92.65125776

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200227A00030	2/27/2020	1.59	2/27/2026	2/27/2020	102.48403	100.4242322	98.41587701	96.45733907	94.54705632	92.68352743	90.86530893	89.09101251	87.35930247
200227A00031	2/27/2020	1.43	2/27/2024	2/27/2020	99.995012	99.92026003	99.84562314	99.77110075	99.69669261	99.62239847	99.54821806	99.47415113	99.40019743
200228A00005	2/28/2020	1.35	2/28/2024	2/28/2020	99.988529	99.91101887	99.83362941	99.75636082	99.67921282	99.60218513	99.52527749	99.44848962	99.37182125
200228A00012	3/3/2020	1.4	3/3/2025	3/3/2020	100.53424	99.4559371	98.4006326	97.36759385	96.35612245	95.36554894	94.39523127	93.44455347	92.51292432
200228A00014	2/28/2020	1.4	2/28/2025	2/28/2020	100.52825	99.45796425	98.41032679	97.38462763	96.38018392	95.39634089	94.43247037	93.48796951	92.56225949
200611A00010	6/11/2020	1.08	6/11/2027	6/11/2020	103.15725	99.83206842	96.6306609	93.54779257	90.5784818	87.71798211	84.96176979	82.3055323	79.74515725
200228A00016	2/28/2020	1.35	2/22/2024	2/28/2020	99.991384	99.9304629	99.86962655	99.80887513	99.74820846	99.68762637	99.62712867	99.5667152	99.50638577
200228A00019	2/28/2020	1.21	2/20/2025	2/28/2020	100.47616	99.42506149	98.39582389	97.38776651	96.40024122	95.43262609	94.48432409	93.55476185	92.64338847
200228A00025	2/28/2020	1.57	3/2/2027	2/28/2020	104.30908	101.2347719	98.26673914	95.40070855	92.63260395	89.95853709	87.37479776	84.8778444	82.46429542
200228A00026	2/28/2020	2.14	2/28/2035	2/28/2020	117.89933	106.6804603	96.64256414	87.65455137	79.60052083	72.37792995	65.89599423	60.07428555	54.84150373
200228A00031	2/28/2020	1.35	2/28/2024	2/28/2020	99.988529	99.91101887	99.83362941	99.75636082	99.67921282	99.60218513	99.52527749	99.44848962	99.37182125
200228A00059	2/28/2020	1.79	2/28/2030	2/28/2020	110.05068	103.9038834	98.13905416	92.73049183	87.65435845	82.88853018	78.41246541	74.2070836	70.25465417
200228A00066	2/28/2020	1.35	2/28/2024	2/28/2020	99.988529	99.91101887	99.83362941	99.75636082	99.67921282	99.60218513	99.52527749	99.44848962	99.37182125
200228A00067	2/28/2020	1.4	2/28/2025	2/28/2020	100.52825	99.45796425	98.41032679	97.38462763	96.38018392	95.39634089	94.43247037	93.48796951	92.56225949
200302A00011	3/2/2020	1.31	2/27/2025	3/2/2020	100.42846	99.36142	98.31690939	97.29422335	96.29268405	95.31164148	94.35047201	93.40857704	92.48538181
200302A00028	3/2/2020	1.25	2/26/2024	3/2/2020	99.982245	99.91026881	99.8384014	99.76664226	99.69499115	99.62344783	99.55201207	99.48068362	99.40946226
200302A00033	3/2/2020	1.31	3/3/2025	3/2/2020	100.43565	99.35792719	98.30318883	97.27070792	96.25978626	95.26975457	94.299971	93.34981977	92.41870982
200302A00034	3/2/2020	1.25	3/1/2024	3/2/2020	99.979207	99.89618993	99.81331224	99.73057309	99.64797213	99.56550901	99.48318341	99.40099497	99.31894335
200302A00036	3/2/2020	1.45	3/2/2026	3/2/2020	102.20649	100.1414489	98.1281335	96.1649055	94.25018894	92.3824694	90.56029109	88.78225409	87.04701172
200302A00045	3/4/2020	1.31	3/4/2025	3/4/2020	100.4374	99.3570064	98.29971521	97.26479082	96.25152981	95.25925799	94.28732888	93.33512229	92.40204301
200302A00053	3/2/2020	1.31	3/3/2025	3/2/2020	100.43565	99.35792719	98.30318883	97.27070792	96.25978626	95.26975457	94.299971	93.34981977	92.41870982
200302A00054	3/2/2020	1.31	3/3/2025	3/2/2020	100.43565	99.35792719	98.30318883	97.27070792	96.25978626	95.26975457	94.299971	93.34981977	92.41870982
200303A00001	3/3/2020	1.15	3/3/2025	3/3/2020	100.43324	99.35298157	98.29580107	97.26096911	96.24778355	95.25557134	94.28368711	93.33151169	92.39845082
200303A00007	3/3/2020	1.11	3/4/2024	3/3/2020	99.975458	99.88407133	99.79285898	99.70182092	99.61095661	99.52026552	99.42974715	99.33940096	99.24922644
200303A00010	3/3/2020	1.34	3/3/2025	3/3/2020	100.46851	99.39059716	98.33567009	97.30300323	96.29189832	95.30168602	94.33172442	93.38139767	92.45011466
200303A00012	3/3/2020	1.71	3/1/2030	3/3/2020	109.56262	103.427853	97.67471251	92.27750244	87.21239018	82.45725781	77.99157015	73.79625353	69.85358452
200303A00018	3/3/2020	1.27	3/3/2025	3/3/2020	100.39184	99.31436723	98.25988049	97.22764751	96.21697017	95.22717929	94.2576331	93.30771591	92.37683671
200303A00034	3/3/2020	1.21	3/3/2025	3/3/2020	100.32611	99.24902728	98.19491798	97.16305689	96.15274604	95.16331638	94.19412626	93.2445601	92.31402705
200304A00010	3/4/2020	1.2	3/4/2027	3/4/2020	103.57654	100.4985629	97.52744847	94.65888219	91.88875103	89.21313233	86.62828369	84.13063351	81.71677204
200304A00021	3/4/2020	0.94	3/4/2024	3/4/2020	99.959893	99.86851828	99.77731863	99.68629324	99.59544158	99.50476314	99.41425738	99.32392378	99.23376184
200304A00034	3/4/2020	1.12	3/4/2024	3/4/2020	99.96524	99.87396954	99.7828728	99.69194901	99.60119765	99.51061821	99.42021018	99.32997306	99.23990635
200304A00040	3/4/2020	1.12	3/1/2024	3/4/2020	99.968386	99.88537838	99.80250937	99.71977889	99.63718658	99.55473211	99.47241513	99.39023531	99.30819229
200304A00052	3/6/2020	2.11	3/8/2027	3/6/2020	106.02341	102.906409	99.89736281	96.99191093	94.18589989	91.47536859	88.85653816	86.3258023	83.87971826

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200304A00053	3/6/2020	2.33	3/6/2025	3/6/2020	101.5666	100.4742654	99.40536228	98.35914118	97.33488581	96.33190984	95.34955526	94.38719094	93.4442113
200304A00054	3/6/2020	2.35	3/8/2027	3/6/2020	106.77233	103.6436087	100.623145	97.70656734	94.8897125	92.16860999	89.53947187	86.99868322	84.54279299
200305A00002	3/5/2020	1.14	3/5/2025	3/5/2020	100.252	99.17003096	98.11126646	97.0749623	96.06041027	95.0669316	94.09387553	93.14061783	92.20655946
200305A00007	3/5/2020	1.14	3/5/2025	3/5/2020	100.252	99.17003096	98.11126646	97.0749623	96.06041027	95.0669316	94.09387553	93.14061783	92.20655946
200305A00012	3/5/2020	1.14	3/5/2025	3/5/2020	100.252	99.17003096	98.11126646	97.0749623	96.06041027	95.0669316	94.09387553	93.14061783	92.20655946
200305A00020	3/5/2020	0.95	3/5/2025	3/5/2020	100.21633	99.1320064	98.07097752	97.03249814	96.01585608	95.02036887	94.04538219	93.09026848	92.1544255
200305A00029	3/5/2020	1.14	3/5/2025	3/5/2020	100.252	99.17003096	98.11126646	97.0749623	96.06041027	95.0669316	94.09387553	93.14061783	92.20655946
200305A00035	3/5/2020	1.25	3/5/2026	3/5/2020	101.7992	99.73062755	97.71403353	95.74776465	93.83023194	91.95990873	90.13532769	88.35507804	86.61780291
200305A00036	3/5/2020	1.36	3/5/2027	3/5/2020	103.67015	100.597879	97.63212363	94.76858414	92.00316532	89.3319613	86.75124551	84.25746132	81.84721314
200306A00001	3/6/2020	1.11	3/6/2026	3/6/2020	101.50811	99.44003698	97.42399396	95.45832297	93.54143156	91.67178987	89.84792757	88.06843109	86.33194094
200306A00012	3/6/2020	0.95	3/6/2024	3/6/2020	99.946634	99.84987048	99.75330371	99.65693356	99.56075939	99.46478057	99.36899648	99.2734065	99.17801002
200306A00014	3/6/2020	1.38	3/6/2030	3/6/2020	107.54593	101.4587657	95.75206732	90.40013919	85.37914741	80.66697772	76.24310276	72.08846022	68.18534101
200306A00046	3/6/2020	1.01	3/3/2025	3/6/2020	100.10704	99.03122748	97.97837628	96.94775483	95.93866561	94.95044	93.98243678	93.03404077	92.1046615
200306A00065	3/6/2020	1.38	3/6/2030	3/6/2020	107.54593	101.4587657	95.75206732	90.40013919	85.37914741	80.66697772	76.24310276	72.08846022	68.18534101
200309A00004	3/9/2020	0.71	3/8/2024	3/9/2020	99.931358	99.82897599	99.7268171	99.62488062	99.52316578	99.42167183	99.32039798	99.21934349	99.11850758
200309A00005	3/9/2020	0.77	3/7/2025	3/9/2020	100.01936	98.93086959	97.86588811	96.82365897	95.80345991	94.80459892	93.8264127	92.86826517	91.92954613
200309A00019	3/9/2020	0.89	3/11/2024	3/9/2020	99.932373	99.82185171	99.71158949	99.60158571	99.4918394	99.38234963	99.27311545	99.16413592	99.05541012
200309A00020	3/9/2020	0.96	3/10/2025	3/9/2020	100.05776	98.96366776	97.89333667	96.84599717	95.8209152	94.81738764	93.83474071	92.87232843	91.92953124
200309A00021	3/9/2020	1.05	3/9/2026	3/9/2020	101.39209	99.31739605	97.29504216	95.32335932	93.40074027	91.52564116	89.69657847	87.91212618	86.17091306
200309A00027	3/9/2020	0.97	3/10/2025	3/9/2020	100.0689	98.97474808	97.904352	96.85694849	95.83180344	94.82821373	93.84550553	92.88303288	91.94017617
200309A00033	3/9/2020	1.06	3/9/2026	3/9/2020	101.41326	99.33833113	97.31575341	95.34385119	93.42101708	91.54570709	89.71643761	87.93178251	86.19037042
200309A00046	3/9/2020	0.78	3/11/2025	3/9/2020	100.03329	98.9340746	97.85883247	96.80678469	95.77718778	94.76932972	93.78252832	92.81612965	91.86950662
200310A00025	3/10/2020	0.87	3/11/2024	3/10/2020	99.943508	99.83284316	99.72243968	99.61229637	99.50241223	99.39278631	99.28341763	99.17430525	99.06544821
200310A00042	3/10/2020	1.41	3/11/2030	3/10/2020	107.7377	101.6318178	95.90819096	90.54095603	85.50612974	80.78146245	76.34630401	72.1814807	68.26918229
200310A00065	3/13/2020	1.1	3/13/2025	3/13/2020	100.21731	99.11431482	98.0354374	96.97989573	95.94693952	94.93585032	93.94593986	92.97654849	92.0270437
200310A00073	3/12/2020	2.12	3/11/2027	3/12/2020	106.0738	102.9480112	99.9306922	97.01745395	94.20411461	91.48668654	88.86136597	86.32452331	83.87269396
200311A00006	3/13/2020	1.12	3/10/2025	3/13/2020	100.2361	99.14095296	98.06958205	97.02121822	95.99512703	94.99060499	94.00697795	93.04359961	92.09985006
200311A00040	3/12/2020	1.3	3/11/2025	3/12/2020	100.43845	99.33945	98.26435758	97.21239988	96.18283675	95.17495926	94.18808817	93.22157232	92.27478721
200311A00056	3/13/2020	1.27	4/10/2024	3/13/2020	99.956038	99.7630499	99.57081824	99.37933857	99.18860642	98.99861737	98.809367	98.62085098	98.43306496
200312A00004	3/13/2020	1.23	1/24/2025	3/13/2020	100.27756	99.30215515	98.34562432	97.40742003	96.48701977	95.58392072	94.69763885	93.82770801	92.97367916
200313A00032	3/18/2020	1.46	3/18/2025	3/18/2020	100.63234	99.51356821	98.4195379	97.34943367	96.30247755	95.27792497	94.27506297	93.29320859	92.33170724
200317A00026	3/17/2020	1.22	3/15/2024	3/17/2020	99.965901	99.84433419	99.72307957	99.60213559	99.48150103	99.36117466	99.24115524	99.12144157	99.00203243
200317A00065	3/19/2020	2.05	3/19/2025	3/19/2020	101.30672	100.1812199	99.08063545	98.00414924	96.95097634	95.92036561	94.91159788	93.92398424	92.95686451

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200325A00030	3/25/2020	1.5	3/25/2025	3/25/2020	100.87631	99.73467734	98.61873803	97.52763001	96.46053213	95.41665906	94.39525943	93.39561392	92.41703364
200326A00026	3/26/2020	1.32	3/26/2024	3/26/2020	99.971135	99.81929389	99.66792104	99.5170144	99.36657182	99.21659114	99.06707024	98.918007	98.76939931
200326A00028	3/26/2020	1.54	3/26/2025	3/26/2020	100.74228	99.60156163	98.48652765	97.39632253	96.33012456	95.28714795	94.26664084	93.26788352	92.29018672
200326A00029	3/26/2020	1.82	3/26/2027	3/26/2020	105.21867	102.066457	99.02485461	96.08934231	93.2556096	90.51954881	87.87724412	85.32496127	82.85913792
200327A00074	3/31/2020	1.76	3/29/2024	3/31/2020	100.04032	99.88014213	99.72047526	99.56132043	99.40267518	99.24453708	99.08690371	98.92977267	98.77314157
200327A00075	3/31/2020	1.75	3/29/2024	3/31/2020	100.03872	99.87853588	99.71887094	99.55971803	99.4010747	99.24293851	99.08530705	98.92817792	98.77154872
200330A00041	4/1/2020	1.09	4/1/2025	4/1/2020	100.22832	99.07482403	97.94768235	96.84599883	95.76891954	94.71562837	93.6853449	92.67732251	91.69084655
200330A00045	3/30/2020	1.47	3/30/2027	3/30/2020	104.1275	100.9820517	97.94743363	95.01909648	92.1927068	89.46413591	86.82944867	84.28489308	81.82689045
200331A00060	3/31/2020	1.09	3/31/2025	3/31/2020	100.22661	99.07578631	97.95118934	96.85193394	95.77717213	94.72609338	93.6979225	92.69191784	91.70736939
200402A00021	4/2/2020	0.77	10/2/2024	4/2/2020	99.810817	99.14252452	98.48313729	97.83247867	97.19037632	96.55666245	95.9311736	95.31375054	94.70423813
200403A00006	4/3/2020	1.05	4/3/2025	4/3/2020	100.1845	99.02597085	97.89403047	96.7877772	95.70634534	94.64890768	93.61467339	92.60288604	91.61282175
200406A00006	4/6/2020	1.13	4/7/2025	4/6/2020	100.28621	99.11641154	97.97370872	96.8571708	95.76590788	94.69906999	93.65584489	92.63545597	91.63716036
200407A00001	4/8/2020	2.41	4/7/2025	4/8/2020	101.81143	100.6320241	99.47986771	98.35402635	97.25360611	96.1777532	95.1256517	94.09652146	93.08961619
200407A00002	4/8/2020	1.82	4/8/2024	4/8/2020	100.06055	99.87290682	99.68597458	99.49975174	99.31423421	99.12941796	98.94529895	98.76187319	98.57913674
200408A00021	4/8/2020	0.99	4/4/2025	4/8/2020	100.30148	99.13672911	97.99881714	96.88682723	95.79988249	94.73714517	93.69781453	92.68112473	91.68634304
200414A00016	4/16/2020	1.64	4/15/2024	4/16/2020	100.03087	99.8240804	99.61815576	99.41309347	99.20888806	99.00553409	98.80302619	98.60135901	98.40052726
200415A00035	4/17/2020	2.16	4/16/2025	4/17/2020	101.55534	100.3534764	99.17996176	98.03380162	96.91404802	95.81979628	94.75018266	93.70438203	92.68160577
200417A00009	4/17/2020	1.35	4/16/2027	4/17/2020	103.82345	100.6367215	97.56370418	94.59966805	91.74011115	88.98074747	86.31749503	83.74646463	81.26394935
200417A00016	4/21/2020	2.18	4/21/2025	4/21/2020	101.60316	100.3876126	99.2010484	98.0424397	96.91080743	95.80521775	94.72477951	93.66864178	92.63599166
200428A00011	4/30/2020	1.95	4/29/2025	4/30/2020	101.35278	100.117478	98.91214691	97.73570458	96.58712249	95.46542043	94.36966369	93.29896044	92.25245928
200428A00013	4/30/2020	1.49	4/29/2024	4/30/2020	100.00236	99.75724731	99.51333722	99.27061693	99.02907779	98.78871121	98.5495087	98.31146185	98.07456231
200429A00009	4/29/2020	0.78	4/29/2025	4/29/2020	100.08507	98.85508208	97.65504667	96.48388297	95.34056054	94.2240974	93.13355722	92.06804672	91.02671321
200429A00010	4/29/2020	0.78	4/29/2025	4/29/2020	100.08507	98.85508208	97.65504667	96.48388297	95.34056054	94.2240974	93.13355722	92.06804672	91.02671321
200429A00015	4/29/2020	0.66	4/29/2024	4/29/2020	99.829294	99.58413074	99.34017052	99.09740448	98.85582389	98.61542006	98.37618442	98.13810847	97.90118379
200429A00035	5/1/2020	1.41	4/30/2024	5/1/2020	99.982595	99.73477975	99.4881878	99.24281003	98.99863752	98.75566145	98.51387309	98.27326377	98.03382492
200429A00043	5/1/2020	1.56	4/30/2025	5/1/2020	100.86748	99.63272232	98.42800153	97.25223731	96.10439629	94.98349374	93.88859071	92.81879145	91.77324087
200429A00044	5/1/2020	1.86	4/30/2025	5/1/2020	101.24391	100.0066623	98.79949404	97.62132316	96.47111519	95.34788432	94.25069054	93.17863707	92.1308679
200429A00045	5/1/2020	1.54	4/30/2025	5/1/2020	100.84239	99.60779298	98.40323537	97.22763159	96.07994836	94.95920103	93.86445072	92.79480174	91.74939907
200429A00046	5/1/2020	2.07	4/30/2025	5/1/2020	101.50741	100.2684203	99.05953879	97.87968325	96.72781843	95.60295772	94.50416041	93.43052901	92.38120681
200429A00047	5/1/2020	2.7	4/30/2025	5/1/2020	102.29792	101.0536943	99.83967304	98.65476354	97.49792813	96.36817793	95.26457004	94.18620484	93.13222357
200429A00050	5/1/2020	2.61	4/30/2025	5/1/2020	102.18499	100.9415123	99.72822529	98.54403778	97.38791245	96.25886076	95.15594009	94.07825115	93.02493546
200429A00051	5/1/2020	2.54	4/30/2025	5/1/2020	102.09715	100.8542597	99.64154371	98.45791775	97.30234471	96.17383629	95.07145013	93.99428717	92.94148915
200429A00052	5/1/2020	1.43	4/30/2024	5/1/2020	99.987582	99.73975906	99.49315888	99.24777291	99.00359224	98.76060804	98.51881157	98.27819418	98.03874729

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200429A00053	5/1/2020	2.18	4/30/2025	5/1/2020	101.64544	100.4055317	99.19575271	98.01501473	96.86228203	95.7365676	94.63693035	93.56247241	92.51233672
200429A00056	5/1/2020	1.54	4/30/2025	5/1/2020	100.84239	99.60779298	98.40323537	97.22763159	96.07994836	94.95920103	93.86445072	92.79480174	91.74939907
200429A00058	5/1/2020	1.83	4/30/2025	5/1/2020	101.20627	99.96926832	98.76234479	97.58441458	96.4344433	95.31144526	94.21448055	93.14265251	92.09510519
200430A00008	4/30/2020	0.94	4/30/2025	4/30/2020	100.08953	98.85991298	97.66025036	96.48945989	95.34651055	94.23041987	93.14025108	92.07511048	91.03414502
200430A00009	4/30/2020	1.16	4/30/2026	4/30/2020	101.83158	99.61291826	97.45302966	95.34992591	93.30170172	91.30653241	89.36266971	87.46843782	85.62222967
200430A00016	4/30/2020	0.82	4/30/2024	4/30/2020	99.835462	99.58789015	99.34154092	99.09640493	98.85247328	98.60973715	98.36818781	98.12781661	97.88861498
200430A00017	4/30/2020	0.94	4/30/2025	4/30/2020	100.08953	98.85991298	97.66025036	96.48945989	95.34651055	94.23041987	93.14025108	92.07511048	91.03414502
200504A00004	5/4/2020	0.75	5/5/2025	5/4/2020	100.06716	98.82201624	97.60581661	96.41755604	95.25627509	94.12105803	93.0110303	91.92535629	90.86323708
200505A00004	5/5/2020	0.77	5/5/2025	5/5/2020	100.09256	98.84724345	97.63087682	96.44245205	95.28100965	94.14563379	93.03544986	91.94962215	90.8873517
200505A00005	5/5/2020	0.77	5/5/2025	5/5/2020	100.09256	98.84724345	97.63087682	96.44245205	95.28100965	94.14563379	93.03544986	91.94962215	90.8873517
200506A00002	5/8/2020	0.97	5/5/2025	5/8/2020	100.1465	98.90393286	97.69019823	96.50429386	95.34526549	94.21220227	93.10423424	92.0205301	90.96029506
200506A00005	5/6/2020	0.97	5/6/2025	5/6/2020	100.15036	98.90525788	97.68875781	96.49987934	95.33768373	94.20127459	93.08979548	92.00242774	90.93838837
200506A00010	5/6/2020	0.94	5/6/2026	5/6/2020	101.64876	99.41044988	97.23193618	95.1112047	93.04632678	91.03545391	89.07681369	87.16870592	85.30949909
200511A00016	5/11/2020	0.71	2/1/2024	5/11/2020	99.998776	99.99600501	99.99323641	99.99047008	99.98770599	99.98494416	99.98218458	99.97942724	99.97667215
200511A00017	5/11/2020	0.83	2/3/2025	5/11/2020	99.892857	98.89277277	97.91256847	96.95165668	96.00947283	95.08547418	94.17913876	93.28996442	92.41746786
200511A00018	5/11/2020	0.98	2/2/2026	5/11/2020	101.09951	99.1274375	97.20361772	95.32657224	93.49487471	91.70715226	89.96208312	88.25839432	86.59485951
200511A00019	5/11/2020	1.18	2/1/2027	5/11/2020	102.95867	99.98961978	97.12133761	94.3498573	91.67138879	89.08231241	86.57917022	84.15865773	81.81761621
200511A00020	5/11/2020	1.4	2/1/2028	5/11/2020	105.30366	101.3140464	97.49706309	93.84434201	90.34796826	87.00045033	83.79469516	80.72398471	77.78195411
200511A00021	5/11/2020	1.53	2/1/2029	5/11/2020	107.40915	102.390967	97.636064	93.12928849	88.8564352	84.80418397	80.96004003	77.31227863	73.84989364
200511A00022	5/11/2020	1.6	2/1/2030	5/11/2020	108.8005	102.7696852	97.11018255	91.79724618	86.80790473	82.12082217	77.71617331	73.57552949	69.68175338
200511A00023	5/11/2020	1.7	2/3/2031	5/11/2020	110.28876	103.2407402	96.69008458	90.59916063	84.93336384	79.66086137	74.75235686	70.18087628	65.92157286
200511A00028	5/13/2020	1.02	5/13/2024	5/13/2020	99.877381	99.59427775	99.31278953	99.03290275	98.7546037	98.47787879	98.2027146	97.92909785	97.65701544
200513A00002	5/13/2020	0.56	5/13/2024	5/13/2020	99.782568	99.4992374	99.21752805	98.93742627	98.65891818	98.38199011	98.10662849	97.83281995	97.56055125
200513A00003	5/13/2020	0.68	5/13/2025	5/13/2020	100.0063	98.74139057	97.50361133	96.29209173	95.10599852	93.94453384	92.80693334	91.69246437	90.60042438
200529A00004	5/29/2020	0.56	5/29/2024	5/29/2020	99.757914	99.43096199	99.10615089	98.78345926	98.46286638	98.14435182	97.82789541	97.51347725	97.20107767
200601A00009	6/1/2020	0.84	6/2/2025	6/1/2020	100.07866	98.76579445	97.47610393	96.20903236	94.96403713	93.74059253	92.53818909	91.35633296	90.19454535
200604A00004	6/4/2020	0.76	6/4/2024	6/4/2020	99.775105	99.43227222	99.09179292	98.75364266	98.41779759	98.08423417	97.75292919	97.42385974	97.09700325
200604A00005	6/4/2020	0.89	6/4/2025	6/4/2020	100.15205	98.83326441	97.53784468	96.26522804	95.0148654	93.78622484	92.57879095	91.3920642	90.22556034
200604A00009	6/4/2020	0.7	6/4/2025	6/4/2020	100.10815	98.78629004	97.48790181	96.21241619	94.95928074	93.72796038	92.51793665	91.32870715	90.15978486
200604A00010	6/4/2020	0.89	6/4/2025	6/4/2020	100.15205	98.83326441	97.53784468	96.26522804	95.0148654	93.78622484	92.57879095	91.3920642	90.22556034
200604A00012	6/4/2020	1.59	6/4/2030	6/4/2020	109.01699	102.648773	96.69193297	91.11785961	85.90007166	81.01404463	76.4370571	72.14804981	68.12749639
200604A00013	6/4/2020	2.21	6/4/2035	6/4/2020	118.70772	107.2071705	96.94116082	87.77003986	79.57062254	72.23417704	65.66466446	59.77720068	54.49671098
200604A00014	6/4/2020	2.42	6/4/2040	6/4/2020	124.88438	108.6655614	94.82494201	82.99644314	72.87224929	64.19327326	56.74122131	50.33198368	44.8101237

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200611A00011	6/11/2020	1.2	6/9/2028	6/11/2020	105.00247	100.6705583	96.54016059	92.60091517	88.84304149	85.25730747	81.83499604	78.56787385	75.44816206
200615A00019	6/17/2020	1.34	6/16/2025	6/17/2020	100.81154	99.45555759	98.12413626	96.81666208	95.53254564	94.27121644	93.03212212	91.81472771	90.61851504
200626A00014	6/26/2020	0.62	6/26/2025	6/26/2020	100.06076	98.67961246	97.32398246	95.99322694	94.68672221	93.40386502	92.14407168	90.90677731	89.69143507
200630A00004	6/30/2020	0.66	7/1/2024	6/30/2020	99.705594	99.28964304	98.87714828	98.46806727	98.0623578	97.6599784	97.26088823	96.86504716	96.47241566
200709A00002	7/10/2020	1.66	7/10/2025	7/10/2020	101.37516	99.95086638	98.55349241	97.18234324	95.8367457	94.51604922	93.21962484	91.94686433	90.69717937
200709A00003	7/10/2020	1.63	7/10/2026	7/10/2020	103.26188	100.8365475	98.48036208	96.19096071	93.96608011	91.80354737	89.70127578	87.65726084	85.66957653
200709A00004	7/10/2020	1.4	7/10/2025	7/10/2020	100.99818	99.57673314	98.18215928	96.81376255	95.47087106	94.15283547	92.85902801	91.58884162	90.34168907
200709A00005	7/10/2020	2.23	7/10/2030	7/10/2020	113.24313	106.6458455	100.4784007	94.71056032	89.31436599	84.26395163	79.53537676	75.10647396	70.95670918
200709A00006	7/10/2020	2.58	7/10/2030	7/10/2020	115.51538	108.8460134	102.6098389	96.77643244	91.31766033	86.20749199	81.4218328	76.9383708	72.73643629
200709A00007	7/10/2020	1.67	7/9/2027	7/10/2020	105.30289	101.8657666	98.55894936	95.37681664	92.31402297	89.36548081	86.52634665	83.7920079	81.15807063
200709A00008	7/10/2020	1.88	7/10/2026	7/10/2020	103.87572	101.4427554	99.07910223	96.78239507	94.55036579	92.3808368	90.27171691	88.22099731	86.2267478
200716A00015	7/20/2020	1.54	7/19/2024	7/20/2020	100.10275	99.63700764	99.17560239	98.71847073	98.26555337	97.81679211	97.37212982	96.93151041	96.49487882
200720A00012	7/20/2020	0.77	7/15/2025	7/20/2020	100.09664	98.66899622	97.26860048	95.89473981	94.54672725	93.2238991	91.92561389	90.6512515	89.40021223
200720A00034	7/20/2020	0.77	7/21/2025	7/20/2020	100.11094	98.6675748	97.25205354	95.86363967	94.50162412	93.16532206	91.85407187	90.56723416	89.30419085
200720A00035	7/20/2020	1.81	7/20/2035	7/20/2020	114.14271	102.7805299	92.6582185	83.63363291	75.58159397	68.39178887	61.96693968	56.22120544	51.078787
200720A00037	7/22/2020	2.1	7/21/2025	7/22/2020	102.07957	100.6210386	99.19061177	97.78754761	96.41113013	95.06066786	93.73549281	92.43495943	91.15844371
200720A00039	7/22/2020	2.48	7/21/2025	7/22/2020	102.64204	101.1791711	99.74448555	98.33723559	96.95670327	95.60219523	94.27304165	92.96859522	91.68823024
200720A00042	7/22/2020	2.04	7/21/2026	7/22/2020	104.33584	101.8681009	99.4714428	97.14341501	94.88166488	92.68393496	90.54805851	88.4719552	86.45362717
200720A00044	7/22/2020	2.22	7/21/2026	7/22/2020	104.78327	102.3098968	99.9077322	97.57431829	95.30729881	93.10441282	90.96349021	88.88244744	86.85928354
200722A00010	7/22/2020	0.66	7/22/2024	7/22/2020	99.686006	99.21329377	98.74505765	98.28123403	97.82176067	97.36657652	96.91562167	96.4688373	96.0261657
200730A00001	7/30/2020	0.46	7/30/2024	7/30/2020	99.641965	99.14698907	98.65691027	98.17165653	97.69115689	97.21534182	96.74414311	96.27749388	95.81532853
200730A00002	7/30/2020	0.67	11/6/2024	7/30/2020	99.629929	98.86994049	98.12148229	97.3842932	96.65812037	95.94271841	95.2378492	94.5432816	93.85879117
200731A00005	7/31/2020	0.45	7/31/2024	7/31/2020	99.635787	99.13812154	98.64540456	98.15756283	97.67452435	97.19621853	96.72257616	96.25352936	95.78901157
200803A00011	8/3/2020	0.72	8/4/2025	8/3/2020	100.08393	98.60399524	97.15321873	95.73080915	94.33600725	92.96808039	91.62632137	90.31004732	89.01859867
200806A00002	8/6/2020	0.43	8/6/2024	8/6/2020	99.620327	99.10649297	98.59794544	98.09460292	97.59638573	97.10321582	96.61501672	96.1317135	95.65323273
200810A00004	8/10/2020	0.43	8/9/2024	8/10/2020	99.617633	99.0957023	98.57922846	98.06812644	97.56231264	97.06170518	96.5662239	96.07579024	95.59032727
200811A00003	8/11/2020	0.57	8/11/2025	8/11/2020	100.09742	98.59517439	97.12275893	95.67936101	94.2641945	92.87650124	91.51554983	90.18063437	88.87107341
200812A00004	8/12/2020	0.59	8/12/2025	8/12/2020	100.13069	98.62553883	97.15030175	95.70416197	94.28633003	92.89604463	91.53257138	90.19520154	88.88325096
200814A00009	8/18/2020	1.36	8/16/2028	8/18/2020	105.96783	101.4342386	97.11938277	93.0115862	89.09985568	85.37383908	81.82378453	78.44050235	75.21532972
200814A00011	8/18/2020	1.58	8/16/2030	8/18/2020	109.09055	102.5293373	96.40408095	90.68360418	85.33911541	80.34401136	75.6737001	71.3054392	67.21818777
200818A00004	8/18/2020	0.92	8/18/2026	8/18/2020	101.64129	99.13399278	96.7008501	94.33923187	92.04662018	89.82060213	87.65886467	85.55918978	83.51944991
200818A00005	8/18/2020	1.05	8/18/2027	8/18/2020	103.2974	99.790086	96.41969647	93.18015575	90.06569278	87.07082357	84.19033516	81.41927063	78.75291503
200818A00006	8/18/2020	1.18	8/18/2028	8/18/2020	105.15035	100.6299754	96.32815666	92.23320759	88.33412884	84.62056332	81.08275526	77.71151207	74.4981688

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200818A00007	8/18/2020	1.31	8/20/2029	8/18/2020	106.79074	101.2519223	96.03199105	91.11097598	86.47026202	82.09248651	77.96144857	74.06202546	70.38009542
200818A00008	8/18/2020	1.5	8/18/2031	8/18/2020	109.3188	101.791096	94.8317829	88.39507328	82.43908699	76.92550024	71.81922673	67.08812889	62.70275636
200818A00009	8/18/2020	1.7	8/18/2033	8/18/2020	112.71453	103.169298	94.50988033	86.64939369	79.50988562	73.02137904	67.12101993	61.75231984	56.8644824
200818A00010	8/18/2020	1.88	8/20/2035	8/18/2020	114.91831	103.4387158	93.21844683	84.11231239	75.99255225	68.74666589	62.27552162	56.49170821	51.31809694
200825A00007	8/27/2020	4.79	8/27/2026	8/27/2020	111.68546	109.023088	106.4390161	103.9304662	101.4947745	99.1293889	96.83186365	94.59985406	92.43111161
200827A00007	8/27/2020	0.77	8/27/2025	8/27/2020	100.20318	98.66208266	97.15195843	95.67194088	94.2211972	92.79892496	91.40435072	90.03672867	88.69533945
200828A00002	8/28/2020	0.73	8/28/2026	8/28/2020	101.51767	98.97837612	96.51486598	94.12442666	91.80446082	89.55248066	87.36610256	85.24304191	83.18110833
200922A00027	9/24/2020	1.65	9/23/2025	9/24/2020	101.75191	100.1245577	98.53084796	96.96979975	95.44047309	93.94196403	92.47340287	91.03395256	89.62280714
200922A00033	9/24/2020	2.37	9/23/2024	9/24/2020	100.71634	100.0707112	99.43334966	98.80409476	98.1827925	97.56929277	96.96344922	96.36511913	95.77416331
200922A00034	9/24/2020	2.24	9/23/2026	9/24/2020	105.27888	102.6262248	100.0538445	97.55881375	95.13832995	92.78971185	90.51039333	88.29791753	86.14993138
200922A00035	9/24/2020	2.94	9/23/2024	9/24/2020	101.08808	100.4410956	99.80239268	99.1718085	98.54918889	97.93438354	97.32724593	96.72763317	96.13540592
200922A00036	9/24/2020	1.55	9/23/2025	9/24/2020	101.58628	99.96034564	98.3680285	96.80834822	95.28036547	93.78317693	92.31591355	90.87773887	89.46784751
200922A00037	9/24/2020	2.76	9/23/2025	9/24/2020	103.5904	101.9473118	100.3381439	98.76191174	97.21766775	95.70450079	94.22153428	92.76792449	91.34285901
200922A00039	9/24/2020	3	9/23/2025	9/24/2020	103.98791	102.3414208	100.7289106	99.14939542	97.60192605	96.08558983	94.59950864	93.14283734	91.71476212
200922A00040	9/24/2020	2	9/23/2024	9/24/2020	100.47503	99.83028624	99.19379542	98.56540338	97.94495625	97.33230403	96.72730048	96.12980299	95.53967249
200922A00041	9/24/2020	2.68	9/23/2024	9/24/2020	100.91851	100.2721483	99.63405727	99.00407943	98.38206071	97.76785091	97.16130357	96.56227589	95.97062859
200925A00002	9/25/2020	0.74	9/25/2025	9/25/2020	100.25019	98.63028863	97.04398055	95.49028808	93.96826952	92.47701943	91.01566681	89.58337346	88.17933241
200925A00003	9/25/2020	0.59	9/25/2024	9/25/2020	99.55406	98.90729838	98.26889804	97.638698	97.01654116	96.40227439	95.79574842	95.19681775	94.60534048
200925A00008	9/25/2020	0.74	9/25/2025	9/25/2020	100.25019	98.63028863	97.04398055	95.49028808	93.96826952	92.47701943	91.01566681	89.58337346	88.17933241
200928A00003	9/28/2020	0.55	9/26/2025	9/28/2020	100.18295	98.55663851	96.96416386	95.4045343	93.87679864	92.38004244	90.9133862	89.47598365	88.06702018
201022A00012	10/26/2020	2.25	10/24/2030	10/26/2020	113.77697	106.8796496	100.4489169	94.45071977	88.8536666	83.62880519	78.74942063	74.1908508	69.93031815
201028A00003	10/30/2020	1.42	2/27/2026	10/30/2020	102.12893	100.0729219	98.06827716	96.1133765	94.20665991	92.34662807	90.53183943	88.76090753	87.03249846
201028A00005	10/30/2020	1.85	10/31/2025	10/30/2020	102.31085	100.5774831	98.88154598	97.22188839	95.59741149	94.00706127	92.44982618	90.92473495	89.43085458
201028A00006	10/30/2020	1.56	2/15/2024	10/30/2020	100.00361	99.96205368	99.9205427	99.87908164	99.83767041	99.79630892	99.75499707	99.71373477	99.67252193
201030A00001	11/2/2020	2.54	10/29/2040	11/2/2020	127.61928	110.8517423	96.58550111	84.42826894	74.05140543	65.17929536	57.58054524	51.06067964	45.45607519
201030A00002	11/2/2020	2.8	10/29/2040	11/2/2020	131.8261	114.7291592	100.1689661	87.74884944	77.13637676	68.05264638	60.26341229	53.57171918	47.81178447
201030A00003	11/2/2020	2.58	10/29/2040	11/2/2020	128.26648	111.4482679	97.13680341	84.93912747	74.52601641	65.62134936	57.99329402	51.44699342	45.818492
201030A00004	11/2/2020	2.56	10/29/2040	11/2/2020	127.94288	111.1500051	96.86115226	84.6836982	74.28871092	65.40032236	57.78691963	51.25383653	45.63728359
201030A00005	11/2/2020	2.49	10/29/2040	11/2/2020	126.81028	110.1060851	95.89637322	83.78969576	73.45814172	64.62672785	57.06460927	50.57778742	45.00305417
201116A00011	11/16/2020	0.71	11/15/2024	11/16/2020	99.675968	98.89152698	98.11936846	97.35920587	96.6107614	95.87376575	95.14795783	94.43308443	93.72889995
201208A00029	12/10/2020	1.52	12/9/2025	12/10/2020	101.91802	100.0827063	98.28917721	96.53623628	94.82273293	93.14755643	91.5096343	89.90793068	88.34144489
201208A00031	12/10/2020	1.43	12/9/2024	12/10/2020	100.33067	99.47863357	98.6410124	97.81743902	97.00756232	96.2110428	95.42755213	94.65677264	93.89839692
210114A00009	1/19/2021	2.66	1/17/2030	1/19/2021	115.14555	108.9669525	103.1630377	97.70910927	92.58222165	87.7610478	83.22575693	78.95790219	74.94031742

	Parallel-Shift Sensitivity Analysis												
1/31/2024					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	105.88301	102.8857731	99.98937096	97.1898584	94.48346792	91.8666003	89.33581609	86.88782753	84.51949092
210125A00007	1/27/2021	2.98	1/27/2031	1/27/2021	119.28281	111.9448556	105.1170991	98.76127014	92.84216378	87.32737688	82.18707145	77.3937592	72.92210526
210128A00008	1/28/2021	0.54	4/9/2024	1/28/2021	99.816819	99.62675654	99.43742779	99.24882892	99.06095566	98.87380376	98.68736902	98.50164728	98.31663439
210128A00010	1/28/2021	0.57	7/9/2024	1/28/2021	99.658282	99.22080487	98.78716434	98.35731023	97.93119302	97.50876406	97.08997552	96.67478041	96.26313255
210129A00008	1/29/2021	0.62	10/8/2024	1/29/2021	99.57617	98.89436525	98.22185291	97.55844393	96.90395447	96.2582056	95.62102315	94.99223758	94.37168375
210129A00013	1/29/2021	0.65	1/9/2025	1/29/2021	99.689356	98.75720919	97.84237652	96.94437924	96.06275628	95.19706328	94.34687182	93.5117687	92.69135534
210201A00004	2/3/2021	1.15	2/3/2025	2/3/2021	100.21874	99.21687831	98.23492152	97.27228127	96.32839244	95.40271177	94.49471678	93.60390481	92.72979207
210201A00012	2/3/2021	0.75	11/17/2025	2/3/2021	100.42114	98.65887392	96.93562273	95.25024315	93.60163936	91.98875614	90.41057703	88.86612253	87.35444846
210209A00029	2/12/2021	0.8	12/15/2025	2/12/2021	100.58832	98.75009749	96.95409948	95.19911407	93.48396929	91.80753411	90.16871671	88.56646291	86.99975456
210210A00005	2/10/2021	0.52	2/13/2024	2/10/2021	99.965065	99.92907322	99.89312324	99.8572145	99.82134694	99.78552047	99.74973503	99.71399054	99.67828692
210212A00008	2/12/2021	0.95	10/13/2026	2/12/2021	101.91132	99.25094931	96.67273033	94.17360793	91.75065998	89.4010937	87.12223894	84.9115417	82.76655823
210212A00014	2/17/2021	1.38	2/17/2026	2/17/2021	101.99021	99.96498927	97.98993068	96.06346885	94.18409647	92.35036401	90.56087705	88.81429377	87.10932252
210212A00016	2/17/2021	1.32	2/18/2025	2/17/2021	100.42152	99.37853157	98.35708373	97.35651672	96.37619564	95.4155111	94.47387795	93.55073407	92.64553928
210216A00006	2/16/2021	1.44	2/15/2030	2/16/2021	108.68643	102.5880621	96.86834245	91.50185032	86.46499688	81.7358851	77.29417994	73.12098918	69.198754
210216A00007	2/16/2021	1.3	2/16/2029	2/16/2021	106.98532	101.9115336	97.10665385	92.55505627	88.24210889	84.15409986	80.2781747	76.60227827	73.11510089
210216A00008	2/16/2021	0.71	2/17/2026	2/16/2021	100.87505	98.85645302	96.8880012	94.96812868	93.09532562	91.2681402	89.48517593	87.74508906	86.0465862
210216A00009	2/16/2021	0.92	2/16/2027	2/16/2021	102.63528	99.61779036	96.70404333	93.88989523	91.1713952	88.54477278	86.00642848	83.55292495	81.18097865
210226A00012	2/26/2021	2.31	2/26/2036	2/26/2021	119.9052	107.6791596	96.83821622	87.21713986	78.67122194	71.07363416	64.31313805	58.29209787	52.92475547
210304A00004	3/4/2021	0.58	3/4/2024	3/4/2021	99.9158	99.82457062	99.73351417	99.6426306	99.55191939	99.46138003	99.37101203	99.28081487	99.19078805
210305A00013	3/5/2021	2.41	3/5/2036	3/5/2021	121.10858	108.7929357	97.87246976	88.18064255	79.57161575	71.91758763	65.10648002	59.03993198	53.63155838
210312A00005	3/12/2021	0.53	3/12/2024	3/12/2021	99.903408	99.79002281	99.67691117	99.5640725	99.45150574	99.33920986	99.22718383	99.11542661	99.00393719
210312A00010	3/12/2021	0.63	3/12/2024	3/12/2021	99.901115	99.78786815	99.67489339	99.56218982	99.44975643	99.33759219	99.2256961	99.11406716	99.00270436
210323A00007	3/23/2021	0.51	3/25/2024	3/23/2021	99.869635	99.72046289	99.57174668	99.42348424	99.27567344	99.12831221	98.98139845	98.83493012	98.68890514
210414A00001	4/14/2021	0.7	5/16/2024	4/14/2021	99.781581	99.49047237	99.20107301	98.91336732	98.62734034	98.34297734	98.06026373	97.77918509	97.49972717
210428A00006	4/28/2021	1.23	4/28/2026	4/28/2021	101.98115	99.76619943	97.60979854	95.50997249	93.46482719	91.4725485	89.53139806	87.63970934	85.79588406
210428A00007	4/28/2021	1.74	10/27/2028	4/28/2021	108.05354	103.2785538	98.7415606	94.42942031	90.32978894	86.43106984	82.72236396	79.19342368	75.83461007
210428A00008	4/28/2021	1.93	4/26/2030	4/28/2021	111.08017	104.7505073	98.82231361	93.26801617	88.06207739	83.18083663	78.60236219	74.30631585	70.2738287
210428A00015	4/28/2021	2.02	4/28/2031	4/28/2021	112.87135	105.5054881	98.67255828	92.33118256	86.44340665	80.97439864	75.89217621	71.16735906	66.77294422
210429A00005	4/29/2021	2.08	4/29/2031	4/29/2021	113.31265	105.9284262	99.07831806	92.7208535	86.81799392	81.33483049	76.2393106	71.50198974	67.09580617
210507A00008	5/7/2021	1.94	5/7/2031	5/7/2021	112.31768	104.9479382	98.11345933	91.7725682	85.88704448	80.42181724	75.3446898	70.62608992	66.23884305
210507A00009	5/7/2021	2.02	5/7/2032	5/7/2021	114.25178	105.8469074	98.12565207	91.02876905	84.50243984	78.49774906	72.97021404	67.87936189	63.18834888
210514A00033	5/18/2021	2.8	5/18/2028	5/18/2021	111.85035	107.4301582	103.2111055	99.18296996	95.33610367	91.66139815	88.15025131	84.79453648	81.58657347
210527A00009	5/27/2021	0.5	5/28/2024	5/27/2021	99.739842	99.41565512	99.09357532	98.77358173	98.4556541	98.13977244	97.82591703	97.51406839	97.20420731

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210527A00019	5/27/2021	1	5/27/2026	5/27/2021	101.86309	99.5668005	97.33319793	95.16021941	93.04588543	90.98829311	88.98561275	87.03608451	85.13801533
210527A00026	6/1/2021	2.78	6/1/2028	6/1/2021	111.87464	107.4157079	103.1612986	99.10098755	95.22493511	91.52384957	87.98895368	84.6119537	81.38501033
210528A00003	5/28/2021	0.63	5/28/2024	5/28/2021	99.740736	99.41701066	99.0953839	98.77583496	98.45834378	98.14289052	97.82945562	97.51801976	97.20856387
210601A00002	6/1/2021	0.9	6/2/2025	6/1/2021	100.15939	98.84595306	97.55570281	96.2880809	95.04254448	93.81856757	92.61564048	91.43326914	90.27097452
210603A00015	6/7/2021	2.71	6/7/2028	6/7/2021	111.61628	107.146177	102.8819115	98.81295172	94.92936054	91.22175594	87.68127737	84.29955414	81.06867588
210608A00005	6/8/2021	0.51	6/7/2024	6/8/2021	99.728514	99.37712576	99.02821665	98.68176075	98.33773215	97.9961053	97.65685503	97.31995651	96.98538526
210608A00017	6/10/2021	2.67	6/8/2029	6/10/2021	113.99119	108.4532238	103.220651	98.27506037	93.59924039	89.17709612	84.99357123	81.03457595	77.28692044
210609A00007	6/11/2021	2.6	6/11/2029	6/11/2021	113.63081	108.0940594	102.8632292	97.91984078	93.24662634	88.82744001	84.64717948	80.69171347	76.9478147
210609A00011	6/11/2021	1.32	6/11/2024	6/11/2021	99.972565	99.6102847	99.25063533	98.89358789	98.53911412	98.18718615	97.83777654	97.49085824	97.14640457
210609A00013	6/11/2021	1.64	6/11/2025	6/11/2021	101.20112	99.855898	98.53481795	97.23728425	95.96272231	94.71057579	93.48030589	92.27139065	91.08332429
210621A00008	6/21/2021	1.04	6/23/2025	6/21/2021	100.42065	99.04856451	97.70164267	96.37925194	95.08078135	93.80563977	92.55325509	91.32307348	90.11455865
210624A00020	6/24/2021	0.78	6/24/2024	6/24/2021	99.762531	99.36542649	98.97147941	98.58065255	98.19290891	97.80821208	97.42652622	97.04781606	96.67204687
210624A00022	6/24/2021	0.87	6/24/2025	6/24/2021	100.40713	99.02885378	97.67594939	96.34777943	95.04372573	93.76319028	92.50559445	91.27037816	90.05699915
210709A00002	7/9/2021	1.36	7/9/2029	7/9/2021	107.72241	102.2426658	97.07303127	92.19441012	87.58897797	83.24008927	79.13219355	75.25075804	71.5821961
210720A00035	7/22/2021	2.27	7/21/2031	7/22/2021	115.04702	107.3813514	100.28479	93.71206594	87.62173252	81.97582366	76.73954515	71.88099478	67.3709084
210722A00001	7/22/2021	1.1	7/22/2026	7/22/2021	102.0028	99.56181292	97.19140678	94.88914488	92.65268612	90.47978426	88.36828344	86.31611396	84.32128825
210802A00002	8/2/2021	0.7	8/1/2025	8/2/2021	100.26986	98.79263739	97.34449299	95.92464445	94.53233664	93.16684079	91.82745341	90.51349512	89.22430965
210804A00008	8/6/2021	2.28	8/4/2028	8/6/2021	110.10354	105.5088163	101.1332853	96.96533652	92.99403998	89.20909819	85.6008063	82.16001488	78.87809513
210816A00003	8/16/2021	0.71	8/16/2024	8/16/2021	99.673917	99.13401136	98.59994179	98.07161358	97.54893442	97.03181397	96.52016381	96.01389741	95.51293002
210817A00013	8/19/2021	2	8/19/2026	8/19/2021	104.41551	101.8695966	99.39877513	97.00038673	94.67188311	92.41082233	90.21486355	88.08176211	86.00936493
210818A00005	8/18/2021	0.6	8/19/2024	8/18/2021	99.703195	99.15398215	98.61080743	98.07357166	97.54217772	97.01653056	96.49653723	95.98210675	95.4731501
210818A00007	8/18/2021	0.81	8/18/2025	8/18/2021	100.48854	98.96466001	97.47121985	96.0073806	94.5723322	93.16529379	91.78551237	90.43226153	89.1048403
210916A00007	9/16/2021	0.75	9/16/2024	9/16/2021	99.661672	99.03868814	98.42346457	97.81585707	97.21572483	96.62293051	96.0373401	95.45882286	94.88725117
210917A00008	9/17/2021	1.55	9/15/2028	9/17/2021	106.97069	102.3334268	97.92286089	93.72672566	89.73348201	85.93227404	82.31288467	78.86569452	75.58164359
210924A00003	9/24/2021	2.37	9/24/2036	9/24/2021	120.6706	107.8884005	96.61347994	86.65883413	77.86158655	70.07976591	63.18952767	57.082757	51.66499917
210924A00004	9/24/2021	2.37	9/24/2036	9/24/2021	120.6706	107.8884005	96.61347994	86.65883413	77.86158655	70.07976591	63.18952767	57.082757	51.66499917
210924A00005	9/24/2021	2.37	9/24/2036	9/24/2021	120.6706	107.8884005	96.61347994	86.65883413	77.86158655	70.07976591	63.18952767	57.082757	51.66499917
210924A00011	9/24/2021	2.19	9/25/2034	9/24/2021	118.31565	107.470822	97.72715622	88.96654951	81.08414228	73.98677378	67.59162275	61.82501216	56.62135765
211022A00008	10/22/2021	1.12	10/22/2024	10/22/2021	99.947486	99.22654993	98.51597328	97.8155335	97.12501487	96.44420775	95.77290837	95.11091861	94.45804586
211206A00010	12/6/2021	1.54	12/4/2026	12/6/2021	103.773	100.9469965	98.21203013	95.56470299	93.0017585	90.52007853	88.11667673	85.78869229	83.53338393
211217A00021	12/21/2021	2.44	12/18/2026	12/21/2021	106.44833	103.5464073	100.738788	98.02191233	95.39237221	92.84690621	90.38239245	87.99584187	85.6843918
211222A00003	12/22/2021	1.33	1/15/2025	12/22/2021	100.35171	99.40007336	98.46639767	97.55017812	96.65092878	95.76818157	94.90148555	94.05040601	93.21452389
211222A00004	12/22/2021	1.26	10/15/2024	12/22/2021	100.03838	99.33589821	98.64324547	97.96022097	97.28662495	96.62226311	95.96694648	95.32049121	94.68271841

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
211222A00005	12/22/2021	1.2	7/15/2024	12/22/2021	99.940586	99.48612359	99.03579442	98.5895424	98.1473122	97.7090495	97.27470097	96.84421421	96.41753778
211222A00008	12/22/2021	1.13	4/15/2024	12/22/2021	99.924849	99.71820585	99.51243012	99.30751627	99.10345882	98.90025235	98.69789147	98.49637086	98.29568522
211222A00023	12/22/2021	1.13	4/15/2024	12/22/2021	99.924849	99.71820585	99.51243012	99.30751627	99.10345882	98.90025235	98.69789147	98.49637086	98.29568522
211222A00024	12/22/2021	1.13	4/15/2024	12/22/2021	99.924849	99.71820585	99.51243012	99.30751627	99.10345882	98.90025235	98.69789147	98.49637086	98.29568522
211222A00025	12/22/2021	1.2	7/15/2024	12/22/2021	99.940586	99.48612359	99.03579442	98.5895424	98.1473122	97.7090495	97.27470097	96.84421421	96.41753778
211222A00026	12/22/2021	1.2	7/15/2024	12/22/2021	99.940586	99.48612359	99.03579442	98.5895424	98.1473122	97.7090495	97.27470097	96.84421421	96.41753778
211222A00027	12/22/2021	1.26	10/15/2024	12/22/2021	100.03838	99.33589821	98.64324547	97.96022097	97.28662495	96.62226311	95.96694648	95.32049121	94.68271841
211222A00029	12/22/2021	1.26	10/15/2024	12/22/2021	100.03838	99.33589821	98.64324547	97.96022097	97.28662495	96.62226311	95.96694648	95.32049121	94.68271841
211222A00030	12/22/2021	1.33	1/15/2025	12/22/2021	100.35171	99.40007336	98.46639767	97.55017812	96.65092878	95.76818157	94.90148555	94.05040601	93.21452389
211222A00031	12/22/2021	1.33	1/15/2025	12/22/2021	100.35171	99.40007336	98.46639767	97.55017812	96.65092878	95.76818157	94.90148555	94.05040601	93.21452389
220106A00018	1/10/2022	3.11	1/8/2032	1/10/2022	122.49823	114.0914204	106.3368396	99.18020338	92.57201847	86.46713373	80.82433886	75.60600179	70.77774121
220106A00019	1/10/2022	3.17	1/7/2033	1/10/2022	125.41156	115.8867118	107.1805403	99.21786379	91.93078409	85.25794389	79.14386603	73.53836237	68.39600488
220112A00004	1/12/2022	1.55	1/12/2026	1/12/2022	102.40561	100.4710343	98.58256651	96.73883035	94.93849732	93.18028741	91.46296692	89.7853465	88.14627917
220112A00005	1/12/2022	1.55	1/12/2026	1/12/2022	102.40561	100.4710343	98.58256651	96.73883035	94.93849733	93.18028741	91.46296693	89.7853465	88.14627917
220118A00009	1/18/2022	1.65	1/17/2025	1/18/2022	100.66817	99.70951175	98.76904064	97.84624067	96.94061737	96.05169455	95.1790135	94.32213217	93.48062441
220125A00010	1/25/2022	1.89	1/25/2027	1/25/2022	105.06552	102.0832659	99.20136536	96.41588924	93.72308969	91.11938614	88.6013568	86.16573074	83.80938024
220217A00021	2/17/2022	1.85	2/13/2024	2/17/2022	100.01412	99.97808799	99.94209685	99.906147	99.87023838	99.8343709	99.79854449	99.76275908	99.7270146
220225A00013	2/25/2022	1.92	2/23/2024	2/25/2022	100.02749	99.96376714	99.90013961	99.83660266	99.77315611	99.70979976	99.64653341	99.58335689	99.52026999
220310A00005	3/10/2022	2.06	3/8/2024	3/10/2022	100.05753	99.95516394	99.85301898	99.75109507	99.64939148	99.54790745	99.44664223	99.34559508	99.24476527
220323A00008	3/23/2022	2.47	3/25/2024	3/23/2022	100.14387	99.99458313	99.8457545	99.69737766	99.54945055	99.4019711	99.25493728	99.10834705	98.9621984
220401A00009	4/1/2022	2.98	4/1/2027	4/1/2022	108.94909	105.7212765	102.6066521	99.6005774	96.69863336	93.89660951	91.19049283	88.57645703	86.05085254
220406A00007	4/6/2022	2.87	4/8/2024	4/6/2022	100.25849	100.0705835	99.88339103	99.69690874	99.51113254	99.32605835	99.14168217	98.95799998	98.77500784
220421A00013	4/21/2022	3.33	9/15/2026	4/21/2022	108.09945	105.4312274	102.8429777	100.3318056	97.89494202	95.52973685	93.23365255	91.00425869	88.83922655
220421A00015	4/21/2022	3.12	9/16/2024	4/21/2022	101.16164	100.5333381	99.91284759	99.30001926	98.69471163	98.0967867	97.50610981	96.9225496	96.34597783
220429A00002	4/29/2022	3.63	4/29/2032	4/29/2022	127.56576	118.6459319	110.4372744	102.8788371	95.91521459	89.49601339	83.57537308	78.11153575	73.06645845
220429A00006	4/29/2022	3.06	4/29/2024	4/29/2022	100.38954	100.1437972	99.89925539	99.65590577	99.41373968	99.17274851	98.93292377	98.69425701	98.45673989
220429A00007	4/29/2022	3.14	10/29/2024	4/29/2022	101.47407	100.7280122	99.99291539	99.26853856	98.55464843	97.85101847	97.15742863	96.47366513	95.79952019
220518A00008	5/18/2022	3.01	5/20/2024	5/18/2022	100.47943	100.1760873	99.87459019	99.5749186	99.27705586	98.98098556	98.68669146	98.39415752	98.10336791
220531A00020	5/31/2022	2.86	5/31/2024	5/31/2022	100.48289	100.1494493	99.81821367	99.48916283	99.16227527	98.83752977	98.51490536	98.19438137	97.87593737
220601A00038	6/3/2022	3.69	5/28/2032	6/3/2022	128.29534	119.2660248	110.9621799	103.3212356	96.28633407	89.80578091	83.83255159	78.32384774	73.24069742
220602A00039	6/2/2022	3.11	6/2/2027	6/2/2022	110.3956	106.9618958	103.6541849	100.4671937	97.39589601	94.43550137	91.58144235	88.82936321	86.17510889
220622A00010	6/22/2022	3.43	7/12/2024	6/22/2022	100.9448	100.4958156	100.0508318	99.60979824	99.1726624	98.73937259	98.30987805	97.88412893	97.46207625
220624A00016	6/24/2022	3.34	6/24/2026	6/24/2022	107.62549	105.1827954	102.8083432	100.4998499	98.25511909	96.07204022	93.94858524	91.88280462	89.87282388

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220630A00045	6/30/2022	3.39	6/30/2026	6/30/2022	107.48496	105.0339246	102.6516801	100.3359121	98.08439671	95.89499755	93.76566203	91.69441744	89.67936734
220729A00035	8/3/2022	3.14	8/3/2027	8/3/2022	110.61932	107.0225916	103.5637444	100.2367384	97.03583542	93.95557903	90.99077924	88.13649787	85.38803488
220815A00004	8/15/2022	3.54	2/15/2024	8/15/2022	100.08745	100.0458191	100.0042374	99.96270576	99.92122402	99.8797921	99.83840991	99.79707736	99.75579434
220815A00006	8/15/2022	3.52	8/15/2024	8/15/2022	101.20537	100.6634079	100.1272558	99.59682457	99.07202269	98.55276074	98.03895113	97.53050814	97.02734781
220819A00037	8/19/2022	3.61	2/20/2024	8/19/2022	100.11886	100.063366	100.0079435	99.95259535	99.89732132	99.8421213	99.78699514	99.73194269	99.67696379
220819A00038	8/19/2022	3.59	8/19/2024	8/19/2022	101.2675	100.7145374	100.1676248	99.62666114	99.09154947	98.56219504	98.03850512	97.52038896	97.00775777
220823A00056	8/23/2022	3.5	8/23/2024	8/23/2022	101.34623	100.7809157	100.2219138	99.66912246	99.12243846	98.58176078	98.04699065	97.51803144	96.99478862
220823A00060	8/23/2022	3.5	8/23/2024	8/23/2022	101.34623	100.7809157	100.2219138	99.66912246	99.12243846	98.58176078	98.04699065	97.51803144	96.99478862
220826A00033	8/26/2022	3.73	8/26/2025	8/26/2022	104.87495	103.2982345	101.7530844	100.2386202	98.75399488	97.29839183	95.87102409	94.4711328	93.09798592
220830A00055	8/30/2022	3.7	8/30/2029	8/30/2022	120.26048	114.3233273	108.7231508	103.4389681	98.4512132	93.74163405	89.29319752	85.0900015	81.11719406
220902A00043	9/2/2022	3.91	3/4/2024	9/2/2022	100.22068	100.1291973	100.0378924	99.94676082	99.855802	99.76501544	99.67440063	99.58395707	99.49368425
220909A00052	9/9/2022	3.95	3/8/2024	9/9/2022	100.25153	100.1490006	100.0466909	99.94460257	99.84273485	99.74108696	99.63965818	99.53844775	99.43745493
220916A00042	9/16/2022	4.07	9/16/2030	9/16/2022	126.75697	119.5008239	112.722092	106.3866211	100.4628808	94.92174906	89.73631579	84.88170347	80.33490331
220916A00043	9/16/2022	4.07	9/16/2031	9/16/2022	130.24185	121.8100785	114.0049673	106.7762191	100.0778369	93.86773509	88.10738713	82.76150668	77.79775903
220920A00050	9/20/2022	4.37	9/20/2024	9/20/2022	101.99157	101.3494613	100.715452	100.0893926	99.47113409	98.86053104	98.25744168	97.6617277	97.07325419
220922A00042	9/22/2022	4.6	3/22/2024	9/22/2022	100.43715	100.2958195	100.1549032	100.0143956	99.87429485	99.73459915	99.59530673	99.45641582	99.31792465
220923A00035	9/23/2022	4.7	3/22/2024	9/23/2022	100.45129	100.3099483	100.169017	100.0284944	99.88837868	99.74866807	99.60936077	99.47045502	99.33194905
220927A00024	9/27/2022	4.7	9/27/2024	9/27/2022	102.27834	101.6161254	100.9625058	100.3173102	99.68037636	99.05154622	98.43066569	97.81758456	97.21215642
220927A00073	9/27/2022	4.72	9/26/2025	9/27/2022	106.87788	105.1982521	103.5533388	101.942125	100.363638	98.8169426	97.30113907	95.81536171	94.35877708
221006A00033	10/6/2022	4.56	10/7/2024	10/6/2022	102.291	101.6015611	100.9214387	100.2504436	99.5883929	98.93510823	98.29041606	97.65414741	97.0261377
221007A00003	10/7/2022	4.67	10/7/2025	10/7/2022	106.94149	105.2312493	103.5567942	101.9170674	100.3110514	98.73776825	97.19627831	95.68567779	94.20509724
221011A00036	10/11/2022	4.59	10/6/2026	10/11/2022	111.71004	108.9345952	106.24338	103.633299	101.1013895	98.64481876	96.26087683	93.94697057	91.70061759
221011A00037	10/11/2022	4.68	10/7/2024	10/11/2022	102.37389	101.6841298	101.0036928	100.3323862	99.67002689	99.0164365	98.37144147	97.73487276	97.10656577
221012A00051	10/12/2022	4.7	10/11/2024	10/12/2022	102.44591	101.74482	101.0533602	100.3713282	99.6985316	99.0347835	98.37990182	97.7337094	97.0960338
221014A00026	10/14/2022	4.63	10/14/2027	10/14/2022	116.85875	112.9473687	109.1912841	105.5834143	102.1170473	98.78581718	95.58368359	92.50491321	89.54406198
221014A00043	10/14/2022	4.49	10/14/2027	10/14/2022	116.85875	112.9337381	109.1648933	105.5450806	102.0675387	98.72585553	95.51394769	92.42604134	89.45665453
221014A00050	10/14/2022	4.49	10/14/2027	10/14/2022	116.85875	112.9337381	109.1648933	105.5450806	102.0675387	98.72585553	95.51394769	92.42604134	89.45665453
221018A00006	10/18/2022	4.55	10/18/2027	10/18/2022	116.61316	112.6951747	108.9331747	105.320029	101.8489788	98.51361468	95.30785615	92.22593261	89.26236539
221018A00046	10/18/2022	4.9	4/30/2024	10/18/2022	100.85293	100.6036691	100.3556414	100.1088334	99.86323616	99.61884078	99.37563852	99.13362068	98.89277865
221018A00047	10/18/2022	4.78	10/20/2025	10/18/2022	107.32146	105.5724246	103.8605396	102.1846833	100.5437817	98.9368038	97.36275925	95.82069663	94.30970129
221018A00048	10/18/2022	4.71	10/19/2026	10/18/2022	112.21027	109.3922365	106.6605758	104.0120737	101.4436603	98.95240177	96.53549369	94.19025379	91.91411585
221018A00049	10/18/2022	4.59	10/18/2027	10/18/2022	116.76275	112.8419792	109.0772751	105.4615045	101.9879055	98.65006595	95.44190271	92.35764254	89.39180431
221028A00056	10/28/2022	4.77	10/28/2024	10/28/2022	102.69485	101.9463729	101.2088323	100.4819906	99.76561591	99.05948314	98.3633735	97.67707443	97.00037935

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221031A00003	10/31/2022	4.89	11/12/2024	10/31/2022	102.97539	102.184741	101.4062828	100.6397308	99.88481263	99.14126449	98.40883033	97.6872618	96.97631791
221031A00004	10/31/2022	4.79	10/28/2025	10/31/2022	107.44743	105.6755985	103.9417386	102.2446974	100.5833659	98.95668045	97.36361966	95.80320276	94.27448737
221031A00044	10/31/2022	4.89	10/31/2024	10/31/2022	102.8197	102.0625151	101.31651	100.5814358	99.85705312	99.14312993	98.43944064	97.74576617	97.06189366
221031A00045	10/31/2022	4.79	10/31/2025	10/31/2022	107.48819	105.7078476	103.965796	102.2608607	100.5919197	98.95789679	97.35775893	95.79051427	94.25520989
221103A00036	10/13/2023	4.87	10/31/2024	10/13/2023	102.80456	102.0474408	101.3014982	100.5664857	99.8421642	99.12830153	98.42467214	97.73105697	97.04724316
221103A00050	11/3/2022	5.14	11/4/2024	11/3/2022	103.06095	102.2918618	101.5342899	100.7879789	100.0526785	99.32814605	98.6141459	97.91044922	97.21683379
221107A00056	11/7/2022	4.73	11/8/2027	11/7/2022	117.57568	113.5801144	109.7455563	106.0645828	102.5301626	99.13562903	95.8746585	92.7412509	89.72971086
221110A00039	11/10/2022	4.34	11/10/2027	11/10/2022	116.12024	112.1464376	108.3332643	104.6733089	101.1595491	97.78532641	94.5443247	91.43055075	88.43831554
221110A00084	11/10/2022	4.56	11/6/2025	11/10/2022	107.16278	105.3686261	103.6133816	101.895879	100.2149958	98.56965383	96.95881691	95.38148893	93.83671175
221110A00086	11/10/2022	4.34	11/8/2027	11/10/2022	116.0945	112.1269436	108.3195514	104.664939	101.1561055	97.78641318	94.54956635	91.43959134	88.45081808
221116A00026	11/16/2022	4.78	11/15/2024	11/16/2022	102.92462	102.1260145	101.3398438	100.5658215	99.80366699	99.05310839	98.31388193	97.58573185	96.86841003
221116A00027	11/16/2022	4.46	11/14/2025	11/16/2022	107.08901	105.2731581	103.4971211	101.7597263	100.0598485	98.39640464	96.76835243	95.17468795	93.6144441
221116A00028	11/16/2022	4.21	11/16/2027	11/16/2022	115.70085	111.7177483	107.8963792	104.2292738	100.7093555	97.32991243	94.08457686	90.96730527	87.97236002
221122A00011	11/22/2022	5.14	5/22/2024	11/22/2022	101.14996	100.8398541	100.531658	100.2253573	99.92093444	99.61837219	99.31765341	99.01876121	98.72167889
221122A00015	11/22/2022	4.97	11/22/2024	11/22/2022	103.16424	102.3454559	101.5397234	100.7467269	99.9661656	99.19774817	98.44119223	97.69622416	96.96257869
221122A00041	11/22/2022	4.97	11/22/2024	11/22/2022	103.16424	102.3454559	101.5397234	100.7467269	99.9661656	99.19774817	98.44119223	97.69622416	96.96257869
221130A00069	11/30/2022	4.15	11/30/2027	11/30/2022	116.18309	112.1360857	108.2551837	104.5326944	100.9613267	97.53416245	94.24463558	91.08651222	88.05387225
221130A00075	11/30/2022	4.15	11/30/2027	11/30/2022	116.18309	112.1360857	108.2551837	104.5326944	100.9613267	97.53416245	94.24463558	91.08651222	88.05387225
221130A00078	11/30/2022	4.15	11/30/2027	11/30/2022	116.18309	112.1360857	108.2551837	104.5326944	100.9613267	97.53416245	94.24463558	91.08651222	88.05387225
221130A00081	11/30/2022	4.15	11/30/2027	11/30/2022	116.18309	112.1360857	108.2551837	104.5326944	100.9613267	97.53416245	94.24463558	91.08651222	88.05387225
221201A00009	12/1/2022	4.22	12/1/2025	12/1/2022	107.13097	105.2624622	103.4359383	101.6502075	99.90412415	98.1965818	96.5265119	94.89288211	93.29469486
221201A00011	12/1/2022	3.95	12/1/2027	12/1/2022	115.42118	111.3860517	107.5168011	103.8057426	100.2455872	96.82941921	93.55067509	90.40312371	87.38084786
221201A00037	12/1/2022	4.26	12/1/2026	12/1/2022	111.51816	108.5888404	105.7527585	103.0064527	100.3466088	97.77005279	95.27374419	92.85476985	90.51033779
221201A00048	12/1/2022	4.22	12/1/2027	12/1/2022	115.92673	111.8962687	108.031031	104.3233829	100.7660789	97.3522437	94.07535131	90.92920573	87.90792244
221205A00034	12/5/2022	4.89	6/5/2024	12/5/2022	101.21504	100.8664066	100.5201858	100.1763479	99.83486822	99.49572257	99.158887	98.82433792	98.49205203
221205A00088	12/5/2022	4.13	12/3/2027	12/5/2022	115.603	111.5732113	107.7089046	104.0024172	100.4464825	97.03420526	93.75904159	90.61477867	87.59551649
221207A00101	12/7/2022	4.87	6/7/2024	12/7/2022	101.22871	100.8745897	100.522952	100.1737745	99.82703147	99.48269738	99.1407471	98.80115586	98.46389921
221208A00001	12/8/2022	4.6	12/8/2033	12/8/2022	141.52154	130.3177793	120.1448619	110.9009946	102.494982	94.84506891	87.87791751	81.52770026	75.73529457
221208A00005	12/8/2022	4.88	12/8/2037	12/8/2022	155.16968	139.0760248	124.9551198	112.5483837	101.6326731	92.01524444	83.5294597	76.03111743	69.39531675
221208A00006	12/8/2022	4.88	12/8/2037	12/8/2022	155.16968	139.0760248	124.9551198	112.5483837	101.6326731	92.01524444	83.5294597	76.03111743	69.39531675
221208A00050	12/8/2022	4.11	12/8/2027	12/8/2022	115.58489	111.5415939	107.6648739	103.9469924	100.3806123	96.95877296	93.67486945	90.52263214	87.49610809
221208A00061	12/8/2022	4.11	12/8/2027	12/8/2022	115.58489	111.5415939	107.6648739	103.9469924	100.3806123	96.95877296	93.67486945	90.52263214	87.49610809
221208A00062	12/8/2022	4.24	12/8/2028	12/8/2022	120.48217	115.2931026	110.3641309	105.680827	101.2296384	96.99782818	92.97342231	89.14516009	85.50244809

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221209A00035	12/9/2022	3.91	12/9/2027	12/9/2022	115.35993	111.3037031	107.4150978	103.6863073	100.1099298	96.67894467	93.38669074	90.22684588	87.19340817
221209A00037	12/9/2022	3.91	12/9/2027	12/9/2022	115.35993	111.3037031	107.4150978	103.6863073	100.1099298	96.67894467	93.38669074	90.22684588	87.19340817
221213A00051	12/13/2022	4.02	12/13/2027	12/13/2022	115.2936	111.2420812	107.3580784	103.6337816	100.0617888	96.63507918	93.34699184	90.19120519	87.16171802
221213A00056	12/13/2022	4.02	5/13/2026	12/13/2022	108.75431	106.4145126	104.1371956	101.9202773	99.76176318	97.65973999	95.61237118	93.61789342	91.67461298
221213A00070	12/13/2022	4.07	12/13/2027	12/13/2022	115.48833	111.4330468	107.545387	103.8175438	100.2421106	96.81206297	93.52073591	90.3618042	87.32926308
221214A00002	12/14/2022	4.62	12/13/2024	12/14/2022	103.13595	102.2598498	101.3986843	100.5520763	99.71965801	98.90107428	98.09598158	97.30404773	96.52495138
221214A00046	12/14/2022	4.02	12/14/2027	12/14/2022	115.30519	111.2506853	107.3639174	103.6370689	100.0627231	96.63384576	93.3437634	90.18614267	87.1549714
221214A00077	12/14/2022	3.84	12/14/2027	12/14/2022	115.14491	111.0789298	107.1815598	103.4449219	99.86154745	96.4243534	93.12662054	89.96197292	86.92435847
221214A00079	12/14/2022	3.84	12/14/2027	12/14/2022	115.14491	111.0789298	107.1815598	103.4449219	99.86154745	96.4243534	93.12662054	89.96197292	86.92435847
221216A00013	12/16/2022	4.04	12/16/2027	12/16/2022	115.40645	111.3444382	107.4506703	103.7172931	100.1368595	96.70230648	93.40693357	90.24438248	87.20861769
221216A00023	12/16/2022	4.04	12/13/2027	12/16/2022	115.37149	111.3184674	107.4330019	103.7072865	100.1339175	96.70587269	93.41648947	90.25944479	87.22873604
221219A00009	12/19/2022	4.83	6/19/2024	12/19/2022	101.33709	100.9498958	100.5656754	100.1843924	99.80601309	99.43050424	99.05783318	98.68796771	98.3208761
221220A00029	12/20/2022	4.7	12/20/2024	12/20/2022	103.29187	102.3958988	101.5155275	100.650353	99.7999835	98.96404064	98.14215883	97.33398476	96.5391769
221221A00038	12/21/2022	4.43	12/20/2024	12/21/2022	103.19287	102.2954081	101.4136032	100.547051	99.69535743	98.85814208	98.03503737	97.22568809	96.42975088
221221A00046	12/21/2022	4.33	12/19/2025	12/21/2022	107.29103	105.3771901	103.5072706	101.6800027	99.89416256	98.14856911	96.44208274	94.77360332	93.14206862
221221A00048	12/21/2022	4.22	12/21/2026	12/21/2022	111.64587	108.6599215	105.770643	102.9743841	100.2676518	97.64710355	95.10954025	92.65189897	90.27124651
221221A00049	12/21/2022	4.15	12/21/2027	12/21/2022	115.89558	111.8101816	107.8944347	104.1403964	100.5405368	97.08771579	93.77516082	90.59644624	87.5454736
221222A00012	12/22/2022	4.35	12/16/2025	12/22/2022	107.29188	105.3861358	103.5239587	101.7040952	99.92533566	98.18651274	96.48649979	94.82420906	93.19859013
221222A00013	12/22/2022	4.34	12/23/2025	12/22/2022	107.3593	105.4339865	103.5530769	101.7152841	99.91936461	98.16411879	96.44838924	94.77105888	93.13104934
221222A00014	12/22/2022	4.65	12/23/2024	12/22/2022	103.28354	102.3794055	101.4911549	100.618373	99.7606576	98.91762041	98.08888627	97.27409279	96.47288971
221222A00024	12/22/2022	4.35	12/15/2025	12/22/2022	107.27952	105.3766006	103.517124	101.6998464	99.92356291	98.18711079	96.48936776	94.82925024	93.20571179
221222A00026	12/22/2022	4.22	12/15/2026	12/22/2022	111.57332	108.6048759	105.7320526	102.951258	100.2590536	97.65214858	95.1273921	92.68176702	90.31238327
221222A00027	12/22/2022	4.16	12/15/2027	12/22/2022	115.86283	111.7947382	107.8949371	104.1555794	100.5692219	97.12880567	93.8276335	90.65934997	87.61792206
221222A00035	12/30/2022	4.34	12/30/2025	12/30/2022	107.44561	105.5005068	103.6006649	101.7447537	99.93149507	98.15965663	96.42804962	94.73552714	93.08098235
221223A00025	12/23/2022	4.25	12/23/2027	12/23/2022	116.31174	112.2126681	108.2839432	104.5175827	100.9060185	97.44207464	94.11894538	90.93017367	87.8696317
221228A00075	12/28/2022	4.09	12/28/2027	12/28/2022	116.29266	112.1651722	108.2101388	104.4194318	100.7853534	97.30060659	93.95827268	90.75178929	87.67493029
221228A00094	12/28/2022	4.95	6/28/2024	12/28/2022	101.47842	101.0662385	100.6574063	100.2518844	99.84963245	99.45061119	99.05478175	98.66210593	98.27254614
221230A00055	12/30/2022	4.59	12/30/2024	12/30/2022	103.46023	102.5340131	101.624429	100.7310305	99.85338783	98.9910865	98.1437263	97.31092087	96.4922971
221230A00059	12/30/2022	4.47	6/30/2025	12/30/2022	105.55473	104.1218435	102.7155613	101.3352033	99.98011378	98.64965892	97.34322558	96.06022061	94.80006997
221230A00072	12/30/2022	4.8	12/31/2024	12/30/2022	103.51932	102.5921208	101.6815859	100.7872672	99.90873356	99.04556943	98.19737354	97.36375852	96.54435026
221230A00086	12/30/2022	4.8	1/2/2025	12/30/2022	103.54396	102.6111931	101.6952891	100.7957944	99.91227032	99.04429357	98.19145587	97.35336307	96.52963461
221230A00087	12/30/2022	4.56	1/2/2026	12/30/2022	107.90805	105.9502877	104.0382357	102.1705513	100.3459385	98.56314816	96.82097529	95.11825762	93.45387365
221230A00088	12/30/2022	4.42	12/30/2026	12/30/2022	112.34125	109.3203532	106.3979297	103.5702284	100.8336668	98.1848179	95.62040282	93.13728335	90.73245521

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221230A00108	12/30/2022	4.8	12/30/2024	12/30/2022	103.50677	102.5823793	101.67455	100.7828438	99.90683336	99.04610652	98.20026529	97.36892543	96.55171583
221230A00109	12/30/2022	4.56	12/30/2025	12/30/2022	107.86935	105.9200724	104.0161265	102.1561889	100.3389792	98.563263	96.82784957	95.13159007	93.4733758
221230A00111	12/30/2022	4.42	12/30/2026	12/30/2022	112.34125	109.3203532	106.3979297	103.5702284	100.8336668	98.1848179	95.62040282	93.13728335	90.73245521
230103A00066	1/3/2023	4.19	7/15/2026	1/3/2023	109.94182	107.4128794	104.9559911	102.5686883	100.2486028	97.99346207	95.80108401	93.66937318	91.59631671
230103A00068	1/3/2023	4.69	3/13/2025	1/3/2023	104.24844	103.1214225	102.0188859	100.94004	99.88412563	98.85041575	97.83821386	96.84685234	95.87569098
230103A00070	1/3/2023	4.53	10/15/2025	1/3/2023	106.82444	105.0933367	103.3988051	101.7397481	100.1151151	98.52389675	96.96512378	95.43786436	93.94122254
230105A00028	1/5/2023	4.93	10/18/2024	1/5/2023	102.68964	101.9685389	101.2576037	100.5566188	99.86537587	99.18367246	98.51131163	97.84810185	97.19385682
230106A00032	1/6/2023	4.28	1/6/2026	1/6/2023	107.69411	105.7225442	103.7973586	101.9171788	100.0806808	98.28658828	96.53367098	94.82074232	93.14665768
230109A00011	1/9/2023	4.61	1/6/2025	1/9/2023	103.41439	102.4713791	101.5456271	100.6366612	99.74402708	98.86728682	98.00601794	97.15981284	96.32827815
230109A00027	1/9/2023	4.64	12/17/2024	1/9/2023	103.20188	102.3145412	101.4425148	100.585409	99.74284242	98.9144466	98.09986554	97.29875507	96.51078237
230110A00006	1/10/2023	4.06	1/10/2028	1/10/2023	115.77603	111.6375901	107.6732682	103.874801	100.2343644	96.74454516	93.3983166	90.18901686	87.11032772
230110A00037	1/11/2023	4.66	11/15/2024	1/11/2023	102.82884	102.0306488	101.2448912	100.4712775	99.70952727	98.95936856	98.22053773	97.4927791	96.77584463
230110A00074	1/12/2023	4.65	1/10/2025	1/12/2023	103.49967	102.5453285	101.6086532	100.6891568	99.78636889	98.89983623	98.02912183	97.17380423	96.33347686
230112A00054	1/12/2023	5.02	2/5/2024	1/12/2023	100.05476	100.0408562	100.0269664	100.0130896	99.99922559	99.98537442	99.97153606	99.95771048	99.94389766
230112A00059	3/1/2023	4.04	3/2/2026	3/1/2023	107.63789	105.5147275	103.4444493	101.4253844	99.45592501	97.53452581	95.65970138	93.83002322	92.04411716
230118A00020	1/18/2023	3.87	1/16/2026	1/18/2023	107.00925	105.0175755	103.0734067	101.1753204	99.32194222	97.51194822	95.74406264	94.01705583	92.32974222
230118A00053	1/18/2023	3.87	1/16/2026	1/18/2023	107.00925	105.0175755	103.0734067	101.1753204	99.32194222	97.51194822	95.74406264	94.01705583	92.32974222
230118A00056	1/18/2023	3.87	1/16/2026	1/18/2023	107.00925	105.0175755	103.0734067	101.1753204	99.32194222	97.51194822	95.74406264	94.01705583	92.32974222
230119A00067	1/19/2023	3.84	1/20/2026	1/19/2023	106.99521	104.9928849	103.0385786	101.1308377	99.26826602	97.44951883	95.67330075	93.93836341	92.24350347
230120A00049	1/20/2023	4.53	1/16/2025	1/20/2023	103.45484	102.4843758	101.5321833	100.5977517	99.68058666	98.78021188	97.89616847	97.02801415	96.17532252
230120A00082	1/20/2023	4.53	1/16/2025	1/20/2023	103.45484	102.4843758	101.5321833	100.5977517	99.68058666	98.78021188	97.89616847	97.02801415	96.17532252
230120A00099	1/20/2023	3.92	1/20/2026	1/20/2023	107.15415	105.1502108	103.1943198	101.2850246	99.42092812	97.60068496	95.82299888	94.08662077	92.39034655
230123A00016	1/23/2023	4.64	12/2/2024	1/23/2023	103.02028	102.174723	101.3430828	100.5250175	99.72019611	98.92829869	98.14901534	97.38204605	96.62710028
230124A00014	1/24/2023	4.23	1/26/2026	1/24/2023	107.55707	105.5381772	103.5679508	101.644917	99.76765247	97.93478652	96.1449991	94.39701838	92.68961866
230125A00010	1/25/2023	4.01	1/25/2027	1/25/2023	111.43504	108.3566791	105.3810732	102.5042218	99.72230012	97.03165412	94.42879139	91.91037318	89.47320671
230125A00021	1/25/2023	3.95	1/26/2026	1/25/2023	107.28342	105.2619554	103.2893355	101.3640693	99.48472575	97.64992735	95.85834726	94.1087073	92.39977576
230125A00022	1/25/2023	3.8	1/25/2027	1/25/2023	111.21277	108.1283	105.1470258	102.2649163	99.47812381	96.78297243	94.17594923	91.65369617	89.21300223
230125A00062	1/25/2023	4.84	7/25/2024	1/25/2023	101.71862	101.2320513	100.7501522	100.2728526	99.80008672	99.33179008	98.86789941	98.40835262	97.95308881
230125A00065	1/25/2023	4.84	7/25/2024	1/25/2023	101.71862	101.2320513	100.7501522	100.2728526	99.80008672	99.33179008	98.86789941	98.40835262	97.95308881
230126A00009	1/26/2023	4.84	7/26/2024	1/26/2023	101.72921	101.2398819	100.7552691	100.2753058	99.79992546	99.32906243	98.86265248	98.40063254	97.94294076
230126A00011	1/26/2023	4.84	7/26/2024	1/26/2023	101.72921	101.2398819	100.7552691	100.2753058	99.79992546	99.32906243	98.86265248	98.40063254	97.94294076
230127A00012	1/27/2023	4	1/27/2028	1/27/2023	115.73186	111.5473618	107.5408839	103.7038805	100.0282667	96.50638696	93.1309901	89.89520545	86.79252093
230127A00028	1/27/2023	4.7	7/26/2024	1/27/2023	101.72361	101.2335473	100.7482169	100.2675524	99.79148676	99.31995397	98.85288939	98.39022961	97.93191238

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230127A00029	1/27/2023	4.7	7/26/2024	1/27/2023	101.72361	101.2335473	100.7482169	100.2675524	99.79148676	99.31995397	98.85288939	98.39022961	97.93191238
230127A00044	1/27/2023	4.25	1/27/2026	1/27/2023	107.60911	105.5869879	103.6136715	101.68768	99.80758403	97.97200755	96.1796252	94.42916016	92.71938197
230127A00045	1/27/2023	4.12	1/27/2027	1/27/2023	111.78892	108.6997558	105.7138412	102.8271495	100.0358321	97.33621202	94.7247754	92.19816325	89.75316367
230127A00046	1/27/2023	4	1/27/2028	1/27/2023	115.73186	111.5473618	107.5408839	103.7038805	100.0282667	96.50638696	93.1309901	89.89520545	86.79252093
230127A00048	1/27/2023	4	1/27/2028	1/27/2023	115.73186	111.5473618	107.5408839	103.7038805	100.0282667	96.50638696	93.1309901	89.89520545	86.79252093
230127A00053	1/27/2023	4	1/27/2028	1/27/2023	115.73186	111.5473618	107.5408839	103.7038805	100.0282667	96.50638696	93.1309901	89.89520545	86.79252093
230127A00056	1/27/2023	3.78	1/27/2028	1/27/2023	115.40619	111.2128799	107.1984202	103.3542123	99.67211739	96.14442991	92.7638519	89.52346918	86.41672911
230127A00059	1/27/2023	4.41	1/27/2025	1/27/2023	103.62164	102.6179955	101.6338477	100.6686353	99.72181484	98.7928636	97.8812785	96.98657519	96.1082872
230127A00060	1/30/2023	4.25	2/3/2026	1/30/2023	107.71812	105.6746899	103.6809701	101.7354339	99.83661336	97.98309567	96.17352067	94.40657846	92.68100718
230127A00073	1/27/2023	4.24	2/17/2026	1/27/2023	107.88538	105.7981139	103.7622377	101.7761492	99.83830728	97.94723006	96.10149192	94.29972098	92.54059661
230127A00075	1/27/2023	4.23	7/28/2025	1/27/2023	105.55878	104.0506994	102.572036	101.1220034	99.69984199	98.30481879	96.93622593	95.59337975	94.27561972
230127A00079	1/27/2023	4.23	7/28/2025	1/27/2023	105.55878	104.0506994	102.572036	101.1220034	99.69984199	98.30481879	96.93622593	95.59337975	94.27561972
230130A00084	1/30/2023	4.29	1/30/2026	1/30/2023	107.74628	105.714267	103.7314931	101.7964536	99.90770092	98.06384196	96.26353502	94.50548774	92.78845493
230131A00041	1/31/2023	5.06	2/28/2024	1/31/2023	100.27722	100.1994617	100.1218253	100.0443101	99.96691592	99.88964244	99.81248938	99.73545648	99.65854346
230131A00087	2/3/2023	4.26	1/5/2026	2/3/2023	107.38378	105.4227874	103.5077926	101.6374397	99.81041935	98.02546907	96.28137167	94.57695318	92.91108098
230201A00003	2/1/2023	3.93	1/31/2028	2/1/2023	115.49542	111.3046059	107.292593	103.4507757	99.77101228	96.24559478	92.86722326	89.62898206	86.52431742
230201A00047	2/1/2023	4.42	2/3/2025	2/1/2023	103.71149	102.6882362	101.6852375	100.7018926	99.7376273	98.79188951	97.86414826	96.95389273	96.0606313
230201A00048	2/1/2023	4.42	2/3/2025	2/1/2023	103.71149	102.6882362	101.6852375	100.7018926	99.7376273	98.79188951	97.86414826	96.95389273	96.0606313
230202A00006	2/2/2023	3.92	2/2/2027	2/2/2023	111.25641	108.1583269	105.1643671	102.2704422	99.47265151	96.76726932	94.1507362	91.6196504	89.17075994
230202A00011	2/2/2023	3.92	2/2/2027	2/2/2023	111.25641	108.1583269	105.1643671	102.2704422	99.47265151	96.76726932	94.1507362	91.6196504	89.17075994
230202A00033	2/2/2023	4.26	2/3/2025	2/2/2023	103.5484	102.5260446	101.5239244	100.541446	99.57803543	98.63314081	97.70623146	96.79679682	95.90434548
230202A00041	2/2/2023	3.82	2/2/2028	2/2/2023	115.07573	110.8873905	106.8780392	103.0390494	99.36226069	95.83994771	92.46479469	89.22987146	86.12861097
230202A00042	2/2/2023	3.82	2/2/2028	2/2/2023	115.07573	110.8873905	106.8780392	103.0390494	99.36226069	95.83994771	92.46479469	89.22987146	86.12861097
230202A00045	2/2/2023	3.62	2/2/2028	2/2/2023	114.82792	110.6291483	106.6102571	102.7625585	99.07783571	95.54831086	92.16661929	88.9257852	85.819199
230202A00061	2/2/2023	4.16	2/2/2026	2/2/2023	107.52291	105.4844983	103.4956417	101.5548195	99.66057004	97.81148625	96.00621353	94.24344725	92.52193056
230202A00064	2/2/2023	4.11	5/15/2026	2/2/2023	108.67609	106.3379624	104.0622839	101.8469874	99.69008645	97.58967441	95.54392076	93.55106731	91.60942475
230202A00065	2/2/2023	3.87	5/15/2028	2/2/2023	116.45016	111.9396703	107.6328606	103.5194175	99.58960397	95.83422738	92.2446058	88.81253666	85.53026756
230202A00071	2/2/2023	4.03	2/2/2027	2/2/2023	111.58933	108.4861915	105.4872997	102.5885662	99.78608604	97.07612974	94.45513406	91.91969367	89.46655313
230203A00025	2/3/2023	4.63	2/3/2025	2/3/2023	103.76271	102.7415261	101.7405109	100.7590736	99.79664322	98.85267062	97.92662773	97.01800648	96.12631782
230203A00026	2/3/2023	3.98	2/3/2028	2/3/2023	115.73374	111.5292454	107.50437	103.6504634	99.95933484	96.4232308	93.03480883	89.78711363	86.67355447
230203A00038	2/3/2023	4.1	2/3/2027	2/3/2023	111.81415	108.7045562	105.6994695	102.7947892	99.98659843	97.27115621	94.64488859	92.10438007	89.64636564
230203A00039	2/3/2023	3.98	2/3/2028	2/3/2023	115.73374	111.5292454	107.50437	103.6504634	99.95933484	96.4232308	93.03480883	89.78711363	86.67355447
230203A00065	2/3/2023	3.76	2/3/2028	2/3/2023	115.40655	111.1931687	107.1602587	103.2991034	99.60145735	96.0595162	92.6658901	89.41357961	86.29595288

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230206A00008	2/6/2023	4.58	2/6/2025	2/6/2023	103.90887	102.8763792	101.8644798	100.8725613	99.90003524	98.94633609	98.0109201	97.09326432	96.19286558
230206A00009	2/6/2023	4.58	2/6/2025	2/6/2023	103.90887	102.8763792	101.8644798	100.8725613	99.90003524	98.94633609	98.0109201	97.09326432	96.19286558
230207A00045	2/7/2023	5.07	8/7/2024	2/7/2023	101.97374	101.4510015	100.9336411	100.421573	99.91471616	99.41299119	98.91632023	98.42462702	97.93783683
230208A00024	2/8/2023	5.08	8/8/2024	2/8/2023	101.98533	101.4598935	100.9398911	100.4252358	99.91584514	99.41163852	98.91253689	98.41846282	97.92934043
230209A00015	2/9/2023	4.8	2/5/2025	2/9/2023	103.95894	102.9312577	101.9239777	100.9364974	99.96823626	99.01863617	98.08716047	97.17329294	96.27653682
230209A00023	2/9/2023	4.79	2/10/2025	2/9/2023	104.00632	102.9647984	101.9442339	100.9439935	99.96347328	99.00209318	98.0592956	97.13454447	96.22732419
230209A00024	2/9/2023	4.4	2/5/2026	2/9/2023	108.04918	105.9963146	103.9934565	102.0390695	100.1316737	98.26984484	96.45221202	94.67745502	92.9443022
230209A00025	2/9/2023	4.25	2/5/2027	2/9/2023	112.2953	109.1722966	106.1543348	103.2372888	100.4172171	97.69035543	95.05310794	92.50203845	90.03386239
230209A00027	2/9/2023	4.12	2/7/2028	2/9/2023	116.34979	112.1210123	108.073148	104.1974681	100.4857094	96.93005019	93.52308469	90.25779831	87.12754491
230209A00037	2/9/2023	4.12	2/9/2028	2/9/2023	116.37511	112.1398559	108.0859875	104.2047417	100.4878254	96.9273893	93.51600193	90.24662476	87.11258944
230210A00009	2/10/2023	4.93	12/11/2024	2/10/2023	103.38149	102.5096849	101.6526492	100.8100056	99.98139293	99.16646216	98.36487573	97.5763071	96.80044035
230210A00035	2/10/2023	4.52	2/10/2026	2/10/2023	108.36338	106.292186	104.2716563	102.3002195	100.3763685	98.49865284	96.66567712	94.87609777	93.12862102
230210A00049	2/10/2023	5.07	8/12/2024	2/10/2023	102.02078	101.4843943	100.9536724	100.4285218	99.90885485	99.39458572	98.88563041	98.38190664	97.8833338
230210A00055	2/10/2023	4.02	2/10/2028	2/10/2023	116.54917	112.2917963	108.217218	104.3165775	100.5814995	97.00405777	93.57674916	90.2924681	87.14448353
230210A00062	2/10/2023	4.13	2/10/2027	2/10/2023	112.41376	109.263978	106.2207032	103.2797291	100.4370387	97.68879678	95.03134053	92.46117089	89.97494408
230210A00065	2/10/2023	4.02	2/10/2028	2/10/2023	116.54917	112.2917963	108.217218	104.3165775	100.5814995	97.00405777	93.57674916	90.2924681	87.14448353
230213A00020	2/15/2023	4.28	1/25/2028	2/15/2023	116.83287	112.631947	108.6092606	104.7562758	101.064913	97.52752099	94.13685194	90.88603768	87.76856788
230215A00019	2/15/2023	5.01	2/18/2025	2/15/2023	104.3316	103.2665099	102.2232834	101.2012473	100.1997594	99.21820319	98.2559867	97.31254116	96.38731996
230221A00007	2/21/2023	4.5	10/18/2027	2/21/2023	116.42617	112.5116691	108.7530493	105.1431848	101.6753205	98.34305059	95.14029796	92.0612952	89.10056674
230222A00024	2/22/2023	4.74	3/2/2026	2/22/2023	109.10584	106.966965	104.8812914	102.8471355	100.8628807	98.92697348	97.03792037	95.19428515	93.39468619
230223A00010	2/23/2023	4.68	10/3/2025	2/23/2023	107.16371	105.4578554	103.7875988	102.1518887	100.5497168	98.98011414	97.44214913	95.9349258	94.45758205
230223A00012	2/23/2023	4.68	10/3/2025	2/23/2023	107.16371	105.4578554	103.7875988	102.1518887	100.5497168	98.98011414	97.44214913	95.9349258	94.45758205
230224A00020	2/24/2023	5.38	8/26/2024	2/24/2023	102.33689	101.7615554	101.192712	100.6302465	100.0740521	99.52402412	98.98006022	98.4420604	97.9099268
230224A00029	2/24/2023	4.87	2/24/2026	2/24/2023	109.28989	107.1666315	105.0958941	103.0760304	101.1054543	99.18264133	97.30612545	95.4744963	93.68639674
230227A00034	2/27/2023	5.42	5/28/2024	2/27/2023	101.30608	100.9791732	100.6543792	100.3316784	100.0110504	99.69247546	99.3759338	99.061406	98.74887288
230227A00035	2/27/2023	5.41	6/28/2024	2/27/2023	101.66813	101.2554847	100.8461884	100.4402051	100.0374945	99.63801734	99.24173465	98.84860822	98.45860046
230227A00060	2/27/2023	4.86	2/27/2026	2/27/2023	109.31441	107.1817896	105.1020624	103.0735603	101.0946814	99.16388573	97.27969292	95.44067893	93.64547368
230302A00028	3/2/2023	5.02	3/2/2026	3/2/2023	109.69302	107.54786	105.4560282	103.4158359	101.425663	99.48395256	97.58920797	95.73998992	93.93491381
230303A00019	3/3/2023	5.26	3/3/2025	3/3/2023	104.76242	103.6594734	102.5798874	101.5229236	100.4878748	99.47406305	98.4808383	97.50757667	96.55367936
230303A00020	3/3/2023	4.96	3/3/2026	3/3/2023	109.58145	107.43476	105.3414838	103.2999341	101.3084864	99.36557952	97.46971264	95.61944267	93.81338139
230307A00020	3/7/2023	4.98	3/9/2026	3/7/2023	109.70935	107.5448843	105.4345652	103.3766642	101.3695243	99.41155373	97.50122284	95.63706118	93.81765471
230307A00026	3/7/2023	4.98	3/6/2026	3/7/2023	109.6664	107.5105977	105.4085819	103.3586421	101.3591374	99.40849123	97.50518839	95.64777197	93.83484077
230307A00038	3/7/2023	5.56	3/7/2024	3/7/2023	100.40553	100.3056276	100.2059337	100.1064491	100.0071732	99.90810528	99.8092446	99.71059051	99.61214233

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230307A00092	3/23/2023	5.6	9/6/2024	3/23/2023	102.60025	101.9941121	101.3951568	100.8032607	100.2182994	99.64015133	99.06869767	98.50382243	97.94541228
230308A00019	3/8/2023	5.05	3/9/2026	3/8/2023	109.85749	107.6914299	105.579544	103.5201073	101.5114619	99.55201528	97.64023686	95.77465545	93.95385622
230308A00029	3/8/2023	5.57	9/9/2024	3/8/2023	102.62114	102.0067552	101.3997538	100.800005	100.2073789	99.62174897	99.04299157	98.47098594	97.90561417
230308A00030	3/8/2023	5.22	9/8/2025	3/8/2023	107.43867	105.8046554	104.2037429	102.634989	101.0974892	99.59037263	98.11280058	96.66396503	95.24308717
230309A00002	3/9/2023	5.41	3/10/2025	3/9/2023	105.01786	103.8944125	102.7951613	101.7193326	100.6661817	99.63499507	98.62508906	97.63580805	96.66652316
230309A00003	3/9/2023	5.06	3/9/2026	3/9/2023	109.87866	107.712365	105.6002553	103.5405992	101.5317387	99.57208121	97.66009601	95.79431177	93.97331357
230309A00004	3/9/2023	4.86	3/9/2027	3/9/2023	114.61874	111.3644547	108.2217609	105.1861704	102.2534076	99.41939471	96.68024115	94.03223358	91.47182677
230309A00006	3/9/2023	5.72	3/11/2024	3/9/2023	100.46832	100.3573283	100.246592	100.1361151	100.0258964	99.91593519	99.80623043	99.69678118	99.58758653
230309A00021	3/9/2023	5.41	3/10/2025	3/9/2023	105.01786	103.8944125	102.7951613	101.7193326	100.6661817	99.63499507	98.62508906	97.63580805	96.66652316
230309A00036	3/9/2023	4.46	3/9/2028	3/9/2023	118.72522	114.3407582	110.1469169	106.1343372	102.2941717	98.61805517	95.0980758	91.72674744	88.49698448
230309A00038	3/9/2023	4.85	3/9/2026	3/9/2023	109.72006	107.5499839	105.434289	103.3712402	101.3591709	99.39647972	97.48162831	95.61313775	93.78958597
230309A00041	3/9/2023	4.85	3/9/2026	3/9/2023	109.72006	107.5499839	105.434289	103.3712402	101.3591709	99.39647972	97.48162831	95.61313775	93.78958597
230309A00057	3/9/2023	4.86	3/9/2027	3/9/2023	114.61874	111.3644547	108.2217609	105.1861704	102.2534076	99.41939471	96.68024115	94.03223358	91.47182677
230310A00034	3/10/2023	5.48	3/11/2024	3/10/2023	100.44169	100.3307208	100.2200081	100.1095546	99.99935943	99.88942163	99.77974024	99.67031434	99.56114298
230310A00035	3/10/2023	5.21	9/10/2024	3/10/2023	102.41226	101.7958753	101.1869322	100.5852999	99.99084718	99.40344568	98.82297024	98.24929861	97.68231143
230310A00065	3/10/2023	5	9/16/2024	3/10/2023	102.4832	101.8485612	101.2218134	100.6028103	99.99140873	99.38746879	98.79085415	98.20143175	97.61907176
230313A00027	3/13/2023	4.81	3/13/2024	3/13/2023	100.3857	100.2692613	100.1531047	100.0372331	99.92164548	99.80634065	99.69131756	99.57657514	99.46211232
230313A00030	3/13/2023	4.57	9/13/2024	3/13/2023	102.04856	101.4252803	100.8096308	100.2014755	99.6006778	99.00710459	98.42062584	97.84111464	97.26844711
230313A00053	3/13/2023	4.57	9/13/2024	3/13/2023	102.04856	101.4252803	100.8096308	100.2014755	99.6006778	99.00710459	98.42062584	97.84111464	97.26844711
230313A00061	3/13/2023	4.06	3/13/2028	3/13/2023	116.53334	112.1989469	108.0535119	104.0877367	100.2928373	96.66050925	93.1828987	89.85257503	86.66250576
230313A00080	3/13/2023	4.59	3/14/2025	3/13/2023	104.14692	103.0177948	101.9132647	100.8325283	99.7748212	98.73941156	97.72559827	96.73270939	95.7601006
230313A00097	3/13/2023	4.78	9/13/2024	3/13/2023	102.17974	101.5559939	100.939889	100.3312823	99.73003705	99.13602013	98.54910143	97.96915401	97.39605392
230313A00098	3/13/2023	4.41	3/13/2026	3/13/2023	108.55401	106.3911436	104.2826331	102.2267424	100.2218001	98.26620113	96.35840329	94.49692447	92.68033969
230313A00115	3/13/2023	5.11	3/13/2024	3/13/2023	100.42066	100.3041813	100.1879928	100.0720894	99.95647002	99.84113349	99.72607877	99.61130479	99.49681046
230313A00117	3/13/2023	4.59	3/13/2025	3/13/2023	104.13616	103.0098039	101.9079264	100.8297296	99.77445471	98.74137493	97.72979397	96.73904444	95.76848632
230313A00119	3/13/2023	4.41	3/13/2026	3/13/2023	108.55401	106.3911436	104.2826331	102.2267424	100.2218001	98.26620113	96.35840329	94.49692447	92.68033969
230313A00121	3/13/2023	4.29	3/15/2027	3/13/2023	112.91282	109.6687092	106.5365165	103.5117205	100.5900114	97.76727985	95.03960618	92.40325031	89.85464235
230313A00123	3/13/2023	4.22	9/15/2027	3/13/2023	114.96866	111.1741189	107.5279175	104.023412	100.6542938	97.41457299	94.29856007	91.30084903	88.4163015
230313A00128	3/13/2023	4.18	12/15/2027	3/13/2023	115.94084	111.8712309	107.969963	104.2291828	100.6414456	97.19969058	93.89721913	90.72767432	87.68502171
230313A00134	3/13/2023	4.16	4/14/2028	3/13/2023	117.33301	112.8915656	108.6469752	104.5893832	100.7094893	96.99851129	93.44815219	90.05057089	86.79835407
230313A00135	3/13/2023	4.17	6/15/2028	3/13/2023	118.11387	113.4796524	109.0580484	104.8381716	100.8097534	96.96310015	93.28905844	89.7789819	86.42470073
230314A00015	3/14/2023	4.55	9/14/2026	3/14/2023	111.30692	108.598776	105.9714339	103.4219787	100.9476196	98.54568531	96.21361767	93.94896642	91.74938361
230314A00054	3/14/2023	4.46	3/15/2027	3/14/2023	113.44659	110.1940787	107.0537012	104.0209305	101.0914497	98.26114275	95.52608331	92.88252511	90.32689228

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230314A00070	3/14/2023	4.25	3/12/2027	3/14/2023	113.18132	109.9310589	106.7928934	103.7622933	100.8349445	98.00673308	95.27373489	92.63220554	90.07857084
230315A00010	3/15/2023	4.2	3/13/2026	3/15/2023	108.10727	105.9492413	103.8454787	101.7942412	99.79386035	97.84273349	95.93932103	94.08214324	92.26977745
230315A00012	3/15/2023	4.24	9/15/2025	3/15/2023	105.94263	104.3016613	102.6942223	101.1193487	99.576115	98.06363035	96.58103736	95.1275103	93.70225371
230315A00016	3/15/2023	4.08	3/16/2027	3/15/2023	112.26527	109.028598	105.9037547	102.8862132	99.97166291	97.15599373	94.4352856	91.80579826	89.26396183
230315A00052	3/15/2023	4.07	3/14/2025	3/15/2023	103.74226	102.6128744	101.5081433	100.4272678	99.3694799	98.33404472	97.32025806	96.3274451	95.35495885
230315A00055	3/15/2023	4.2	3/11/2026	3/15/2023	108.08293	105.9305954	103.8322847	101.786272	99.7908994	97.84457455	95.94576739	94.09300726	92.28488006
230315A00084	3/15/2023	4.08	3/24/2027	3/15/2023	112.35976	109.0995796	105.9526337	102.9143119	99.98022605	97.14619357	94.4082264	91.76252068	89.20544686
230315A00086	3/15/2023	4.28	3/11/2025	3/15/2023	103.76824	102.6494868	101.5549372	100.483813	99.4353667	98.40888241	97.40367416	96.41908429	95.45448203
230316A00017	3/16/2023	3.81	3/16/2028	3/16/2023	116.10941	111.7591662	107.5993865	103.6206711	99.81413431	96.17137719	92.68445821	89.3458655	86.14849104
230316A00038	3/16/2023	4.42	3/14/2025	3/16/2023	103.95556	102.8275812	101.7241767	100.644549	99.58793401	98.55360044	97.54084752	96.54900368	95.577425
230316A00042	3/16/2023	4.42	3/14/2025	3/16/2023	103.95556	102.8275812	101.7241767	100.644549	99.58793401	98.55360044	97.54084752	96.54900368	95.577425
230316A00046	3/16/2023	4.18	6/16/2026	3/16/2023	109.22922	106.7960408	104.4300213	102.1289388	99.89065378	97.71310985	95.5943299	93.53241257	91.52552894
230316A00047	3/16/2023	4.07	9/16/2027	3/16/2023	114.43362	110.6459494	107.0065444	103.5087536	100.1462659	96.91308935	93.80353283	90.81218905	87.93391866
230316A00048	3/16/2023	4.05	6/16/2028	3/16/2023	117.59663	112.9708286	108.5575127	104.3457979	100.3254125	96.48666079	92.82038754	89.31794518	85.97116311
230316A00061	3/16/2023	4.31	9/16/2025	3/16/2023	106.06961	104.4247844	102.8136015	101.2350924	99.68832694	98.17241022	96.68648087	95.22970943	93.80129688
230317A00010	3/17/2023	4.77	9/17/2024	3/17/2023	102.21672	101.5819643	100.9551148	100.3360254	99.72455223	99.12055512	98.52389729	97.93444526	97.35206881
230317A00024	3/17/2023	4.54	3/17/2025	3/17/2023	104.12251	102.985409	101.8732551	100.7852292	99.72055074	98.6784727	97.65827955	96.65928572	95.68083409
230320A00005	3/20/2023	4.37	3/20/2025	3/20/2023	103.96021	102.8159757	101.6970213	100.6025179	99.53166904	98.4837125	97.4579186	96.45358841	95.47005213
230320A00021	3/20/2023	4.91	3/20/2024	3/20/2023	100.46215	100.3263232	100.1908753	100.0558076	99.92111845	99.7868062	99.65286926	99.519306	99.38611485
230320A00045	3/20/2023	5.03	3/20/2024	3/20/2023	100.47846	100.3426144	100.2071498	100.0720654	99.93735955	99.8030307	99.66907718	99.53549739	99.40228973
230321A00038	3/21/2023	4.87	7/25/2024	3/21/2023	101.73323	101.2466183	100.7646782	100.2873379	99.81453158	99.3461948	98.88226426	98.42267788	97.96737473
230323A00027	3/23/2023	4.43	3/24/2025	3/23/2023	104.07001	102.9142815	101.7843176	100.6792667	99.59831011	98.54066482	97.50558132	96.49234202	95.50025946
230323A00031	3/23/2023	4.6	9/23/2024	3/23/2023	102.17068	101.5197589	100.8771496	100.2426942	99.61623801	98.99763033	98.38672406	97.78337583	97.1874458
230323A00033	3/23/2023	4.43	3/24/2025	3/23/2023	104.07001	102.9142815	101.7843176	100.6792667	99.59831011	98.54066482	97.50558132	96.49234202	95.50025946
230324A00001	3/24/2023	4.04	6/24/2026	3/24/2023	108.9909	106.5381672	104.1537287	101.8353007	99.58068992	97.38778891	95.25457222	93.17909271	91.15947807
230324A00004	3/24/2023	4.46	9/24/2024	3/24/2023	102.08933	101.4359795	100.791011	100.1542602	99.52557057	98.90478954	98.29176838	97.68636207	97.08842917
230324A00036	3/24/2023	3.98	3/24/2027	3/24/2023	112.04329	108.7881297	105.6460729	102.6125141	99.68306923	96.85355988	94.12000194	91.47859529	88.92571402
230324A00037	3/24/2023	3.99	3/24/2028	3/24/2023	116.36924	112.0075999	107.8372627	103.8487622	100.0331548	96.38198828	92.88727207	89.54144901	86.33736934
230327A00017	3/27/2023	4.98	3/27/2024	3/27/2023	100.53894	100.3836901	100.2289223	100.0746373	99.92083311	99.76750734	99.61465778	99.46228222	99.31037846
230328A00061	3/28/2023	4.68	9/27/2024	3/28/2023	102.26507	101.6029108	100.9493398	100.3041924	99.6673063	99.03852348	98.41768982	97.80465516	97.19927306
230329A00019	3/29/2023	4.76	10/1/2024	3/29/2023	102.36169	101.6882766	101.0237392	100.3679013	99.72059284	99.08164804	98.45090551	97.82820793	97.213402
230329A00053	3/29/2023	4.89	3/29/2024	3/29/2023	100.56444	100.4034116	100.242906	100.0829171	99.92344235	99.76447937	99.60602565	99.44807873	99.29063618
230330A00052	3/30/2023	4.79	9/30/2024	3/30/2023	102.37059	101.6998578	101.0379292	100.3846292	99.73978982	99.10324739	98.47484248	97.8544197	97.24182762

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230330A00055	3/30/2023	5.06	4/1/2024	3/30/2023	100.60076	100.4316284	100.2630655	100.0950679	99.92763286	99.76075758	99.59443925	99.42867509	99.26346235
230330A00080	3/30/2023	4.44	3/31/2025	3/30/2023	104.34257	103.1633424	102.0108615	100.8842222	99.78256147	98.70505427	97.65091158	96.61937844	95.60973211
230330A00083	3/30/2023	4.1	3/30/2027	3/30/2023	112.9314	109.6351348	106.4539662	103.3831834	100.4183021	97.55504931	94.78935211	92.11732684	89.53526896
230331A00013	3/31/2023	4.75	9/30/2024	3/31/2023	102.34373	101.6731007	101.0112718	100.3580705	99.71332894	99.07688342	98.44857454	97.82824693	97.21574914
230331A00014	3/31/2023	4.34	3/31/2026	3/31/2023	108.6311	106.4183731	104.262158	102.1606067	100.1119501	98.11449074	96.16659951	94.266712	92.41332552
230331A00033	3/31/2023	4.34	3/31/2026	3/31/2023	108.6311	106.4183731	104.262158	102.1606067	100.1119501	98.11449074	96.16659951	94.266712	92.41332552
230331A00048	3/31/2023	4.75	9/30/2024	3/31/2023	102.34373	101.6731007	101.0112718	100.3580705	99.71332894	99.07688342	98.44857454	97.82824693	97.21574914
230403A00031	4/3/2023	4.98	4/3/2024	4/3/2023	100.60695	100.4323236	100.2583022	100.0848871	99.91207527	99.73986351	99.56824868	99.39722767	99.22679739
230404A00002	4/4/2023	4.1	4/2/2027	4/4/2023	112.53049	109.2426528	106.0696805	103.0068741	100.0497549	97.19405569	94.43570929	91.77083761	89.19574163
230404A00004	4/4/2023	4.45	4/4/2025	4/4/2023	104.20943	103.023046	101.8637758	100.7307009	99.62293915	98.53964794	97.48002162	96.44328956	95.42871436
230405A00020	4/5/2023	4.17	4/4/2025	4/5/2023	103.8781	102.6937869	101.536558	100.4054921	99.29970802	98.21836394	97.16065497	96.12581127	95.11309613
230405A00021	4/5/2023	3.96	4/6/2026	4/5/2023	107.87478	105.653707	103.4897368	101.3809917	99.32567177	97.32205063	95.36847188	93.46334559	91.605145
230405A00026	4/5/2023	4.75	4/5/2024	4/5/2023	100.58523	100.4051326	100.2256876	100.0468906	99.86873803	99.69122628	99.51435193	99.33811149	99.16250156
230405A00037	4/5/2023	3.71	4/6/2026	4/5/2023	107.61954	105.395555	103.228871	101.117597	99.05992407	97.05411716	95.09851177	93.1915103	91.33157873
230405A00045	4/5/2023	4.15	5/5/2025	4/5/2023	104.18034	102.9108396	101.670629	100.4586938	99.27406741	98.11582689	96.98309083	95.87501688	94.79079961
230405A00046	4/5/2023	3.82	10/5/2027	4/5/2023	113.73809	109.9094423	106.2325543	102.7005335	99.30684356	96.04528354	92.90996803	89.89530917	86.99599965
230405A00050	4/5/2023	4.38	10/7/2024	4/5/2023	102.16667	101.4777081	100.7980574	100.1275297	99.46594192	98.81311582	98.16887794	97.53305937	96.9054956
230405A00051	4/5/2023	4.17	4/7/2025	4/5/2023	103.90861	102.7159913	101.5508363	100.4122027	99.29919117	98.21094261	97.14663606	96.10548651	95.08674295
230406A00006	4/6/2023	4.82	4/8/2024	4/6/2023	100.62609	100.4376973	100.2500216	100.0630575	99.87680085	99.69124765	99.50639385	99.32223545	99.13876847
230406A00052	4/6/2023	4.02	4/6/2026	4/6/2023	108.00639	105.7838469	103.6184369	101.5082812	99.45157899	97.44660308	95.49169629	93.58526795	91.72579059
230406A00088	4/6/2023	4.23	10/7/2024	4/6/2023	102.20668	101.515713	100.8341132	100.1616869	99.49824945	98.84362128	98.19762743	97.56009758	96.9308659
230406A00091	4/6/2023	3.99	4/7/2025	4/6/2023	103.88542	102.6900505	101.5222553	100.3810888	99.26564672	98.17506532	97.10851915	96.06521898	95.04440982
230410A00023	4/10/2023	4.75	4/10/2024	4/10/2023	100.65635	100.4621639	100.268737	100.0760688	99.88415478	99.6929904	99.50257121	99.31289277	99.12395069
230411A00028	4/11/2023	4.2	4/11/2025	4/11/2023	104.17874	102.9706503	101.790667	100.6378198	99.51117898	98.40985707	97.3330062	96.27981604	95.24951172
230411A00030	4/11/2023	4.2	4/11/2025	4/11/2023	104.17874	102.9706503	101.790667	100.6378198	99.51117898	98.40985707	97.3330062	96.27981604	95.24951172
230411A00054	4/11/2023	3.74	4/11/2028	4/11/2023	116.11107	111.6871611	107.4597267	103.4189249	99.55546512	95.86057383	92.32596295	88.94379976	85.7066791
230412A00031	4/12/2023	3.91	4/10/2026	4/12/2023	108.10719	105.8665373	103.6838053	101.5570825	99.48453252	97.46439482	95.4949805	93.57466897	91.70190446
230412A00037	4/12/2023	4.62	10/15/2024	4/12/2023	102.43339	101.7214751	101.0194843	100.3272132	99.64446035	98.97103012	98.30673208	97.651381	97.00479663
230412A00038	4/12/2023	3.69	4/12/2028	4/12/2023	115.9104	111.4878297	107.2618369	103.2225664	99.36071646	95.66750367	92.13463085	88.754257	85.51896943
230412A00044	4/12/2023	3.91	4/10/2026	4/12/2023	108.10719	105.8665373	103.6838053	101.5570825	99.48453252	97.46439482	95.4949805	93.57466897	91.70190446
230413A00024	4/13/2023	4.41	4/14/2025	4/13/2023	104.27038	103.056513	101.8710259	100.7129309	99.58128485	98.47518747	97.39377904	96.33623807	95.30177917
230413A00069	4/13/2023	4.33	4/14/2025	4/13/2023	104.17352	102.960267	101.775389	100.6178933	99.48683687	98.38131987	97.30048278	96.24350432	95.20959935
230418A00007	4/18/2023	4.61	4/18/2025	4/18/2023	104.55804	103.3314776	102.1338283	100.9640809	99.82126668	98.70446129	97.61278238	96.54538713	95.50147009

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230418A00028	4/18/2023	5.13	4/18/2024	4/18/2023	100.7872	100.5710879	100.3559145	100.1416749	99.92836286	99.71597239	99.50449745	99.29393206	99.0842703
230418A00057	4/18/2023	4.36	4/18/2025	4/18/2023	104.44939	103.2205206	102.0206742	100.8488341	99.70402667	98.58532263	97.49183507	96.42271687	95.37715851
230418A00059	4/18/2023	4.09	4/17/2026	4/18/2023	108.59264	106.3268349	104.1199786	101.9701061	99.87533535	97.83386243	95.84395772	93.90396209	92.0122834
230420A00056	4/20/2023	4.38	4/20/2033	4/20/2023	137.26604	126.9248479	117.4845005	108.8606629	100.9773479	93.7660505	87.16497303	81.11833519	75.57575784
230420A00059	4/20/2023	4.72	4/20/2038	4/20/2023	153.97756	137.5978393	123.2747188	110.7323128	99.73340849	90.07384752	81.57775037	74.09345313	67.49004708
230420A00060	4/20/2023	4.72	4/20/2038	4/20/2023	153.97756	137.5978393	123.2747188	110.7323128	99.73340849	90.07384752	81.57775037	74.09345313	67.49004708
230420A00063	4/20/2023	4.65	4/20/2037	4/20/2023	150.51591	135.3553724	121.9873881	110.1855214	99.75326447	90.51993081	82.33713155	75.07574903	68.62333536
230424A00003	4/24/2023	4.15	4/26/2027	4/24/2023	112.98582	109.6225363	106.3787291	103.2494187	100.2298673	97.31556539	94.50221945	91.78573957	89.16222846
230424A00036	4/24/2023	5.13	4/24/2024	4/24/2023	100.84876	100.6160356	100.3843937	100.153826	99.92432503	99.6958833	99.46849349	99.24214832	99.01684058
230425A00011	4/25/2023	4.3	9/25/2025	4/25/2023	106.16621	104.4954955	102.8592865	101.2565792	99.6864075	98.14784286	96.63999185	95.1619947	93.71302366
230425A00013	4/25/2023	4.67	10/25/2024	4/25/2023	102.57945	101.839724	101.1106916	100.3921255	99.68380102	98.98550015	98.29701087	97.61812712	96.94864861
230425A00024	4/25/2023	4.48	4/25/2025	4/25/2023	104.47633	103.2312785	102.0160336	100.8295283	99.67075018	98.53873396	97.43255867	96.35134521	95.29425402
230425A00052	4/25/2023	4.01	4/26/2027	4/25/2023	112.53	109.1741441	105.9375703	102.8153026	99.80260979	96.89498875	94.08815188	91.37801507	88.76068658
230425A00104	4/25/2023	3.86	7/15/2026	4/25/2023	109.12566	106.6069419	104.1600523	101.7825302	99.47201401	97.22623738	95.04302438	92.9202854	90.85601315
230426A00024	4/26/2023	4.97	4/26/2024	4/26/2023	100.83114	100.5929359	100.355862	100.1199102	99.88507235	99.65134064	99.41870726	99.18716445	98.95670455
230426A00042	4/26/2023	4.97	4/26/2024	4/26/2023	100.83114	100.5929359	100.355862	100.1199102	99.88507235	99.65134064	99.41870726	99.18716445	98.95670455
230427A00028	4/27/2023	4.74	10/28/2024	4/27/2023	102.67239	101.9240071	101.1865581	100.4598071	99.74352223	99.03747833	98.34145666	97.65524468	96.97863582
230427A00076	4/27/2023	5.09	4/30/2024	4/27/2023	100.90031	100.6509725	100.4028667	100.1559808	99.910306	99.66583336	99.42255412	99.18045959	98.93954118
230427A00078	4/27/2023	4.74	10/29/2024	4/27/2023	102.6762	101.9251727	101.1851537	100.4559054	99.73719371	99.02879128	98.3304772	97.64203688	96.96326174
230428A00010	4/28/2023	4.31	4/28/2025	4/28/2023	104.49834	103.2418995	102.0157746	100.8188776	99.65017116	98.50866647	97.39342061	96.30353382	95.23814702
230428A00022	4/28/2023	4.78	10/28/2024	4/28/2023	102.70234	101.9538282	101.216257	100.4893851	99.77298047	99.06681808	98.37067912	97.68435102	97.00762719
230428A00032	4/28/2023	5.11	4/29/2024	4/28/2023	100.8951	100.648528	100.4031613	100.1589899	99.9160052	99.67419849	99.43356127	99.19408509	98.95576158
230501A00012	5/1/2023	3.98	5/1/2028	5/1/2023	116.76828	112.2899876	108.0122327	103.9248797	100.018368	96.28367453	92.71227994	89.29613738	86.02764322
230501A00033	5/1/2023	5.1	5/1/2024	5/1/2023	100.91348	100.6613859	100.4105495	100.1609623	99.9126149	99.66549812	99.41960283	99.17492001	98.93144074
230502A00038	5/2/2023	3.86	5/2/2028	5/2/2023	116.26528	111.7948902	107.5249209	103.4452432	99.54629707	95.81905996	92.25501295	88.84610948	85.58474619
230503A00045	5/3/2023	4.96	5/3/2024	5/3/2023	100.89876	100.6412148	100.3849852	100.1300631	99.87643861	99.62410177	99.37304278	99.12325193	98.87471961
230503A00070	5/3/2023	4.73	5/3/2024	5/3/2023	100.87274	100.6148776	100.3583402	100.103116	99.84919496	99.59656708	99.34522244	99.09515123	98.84634375
230504A00006	5/4/2023	3.79	12/6/2027	5/4/2023	114.32108	110.3076867	106.4596906	102.76941	99.22956315	95.83324199	92.57389081	89.44528656	86.44152026
230504A00007	5/4/2023	3.82	7/6/2027	5/4/2023	112.70971	109.152749	105.7290409	102.4328824	99.25884252	96.20175095	93.25668417	90.41895227	87.6840866
230504A00039	5/4/2023	4.97	5/6/2024	5/4/2023	100.93229	100.666466	100.4020516	100.1390338	99.87740173	99.61714427	99.35825058	99.10070989	98.84451157
230504A00091	5/4/2023	4.66	9/4/2024	5/4/2023	102.01021	101.4115098	100.8198516	100.2351084	99.65715936	99.08588648	98.52117443	97.96291054	97.4109847
230505A00012	5/5/2023	4.6	11/5/2024	5/5/2023	102.66546	101.8952139	101.1365557	100.3892239	99.65296595	98.92753673	98.21269826	97.50821951	96.81387614
230505A00071	5/5/2023	3.85	5/5/2028	5/5/2023	116.25504	111.7765275	107.4991513	103.4127383	99.50768946	95.77494476	92.20594919	88.79262168	85.5273259

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230508A00007	5/8/2023	3.92	5/8/2028	5/8/2023	116.58878	112.0948116	107.8029383	103.702933	99.78514772	96.0404757	92.46031713	89.03654811	85.76149142
230508A00012	5/8/2023	4.43	5/8/2025	5/8/2023	104.57564	103.2957858	102.0445937	100.8210984	99.62437833	98.45355307	97.3077806	96.18625539	95.08820641
230508A00016	5/8/2023	4.14	5/8/2026	5/8/2023	108.66121	106.3422998	104.0848861	101.886909	99.74639887	97.66146698	95.63030155	93.65116398	91.7223852
230508A00017	5/8/2023	4.01	5/10/2027	5/8/2023	112.69402	109.2965939	106.0211401	102.8625683	99.81603045	96.87691044	94.04081125	91.30354311	88.66111227
230508A00018	5/8/2023	3.92	5/8/2028	5/8/2023	116.58878	112.0948116	107.8029383	103.702933	99.78514772	96.0404757	92.46031713	89.03654811	85.76149142
230508A00024	5/8/2023	4.99	5/8/2024	5/8/2023	100.95835	100.6869994	100.4171202	100.1486979	99.88172074	99.61617694	99.3520549	99.08934315	98.82803034
230508A00025	5/8/2023	4.69	11/8/2024	5/8/2023	102.77021	101.9913523	101.2243342	100.4688889	99.72475518	98.99168009	98.26941797	97.55773044	96.85638609
230510A00018	11/10/2023	3.61	11/10/2026	11/10/2023	109.4374	106.5968988	103.8453669	101.1794741	98.59603512	96.09200533	93.66447304	91.31065288	89.02787934
230510A00037	5/10/2023	3.84	5/10/2028	5/10/2023	116.26632	111.7736631	107.4833575	103.3851564	99.46939457	95.7269481	92.14920093	88.72801351	85.45569364
230511A00039	5/11/2023	3.86	11/27/2026	5/11/2023	110.33151	107.4304236	104.621487	101.9012728	99.26650341	96.71404055	94.2408788	91.84413912	89.52106275
230511A00042	5/11/2023	3.72	5/11/2028	5/11/2023	115.75994	111.2753225	106.9929336	102.9025342	98.99445963	95.25958673	91.68929993	88.27546012	85.01037548
230511A00043	5/11/2023	3.72	5/16/2028	5/11/2023	115.81249	111.3128738	107.0167292	102.9137456	98.99419062	95.2488757	91.66912276	88.24673284	84.97395695
230511A00080	5/11/2023	3.49	5/11/2028	5/11/2023	115.36799	110.8745218	106.5842369	102.4868215	98.57254632	94.83222767	91.2571941	87.83925459	84.57066911
230512A00011	5/12/2023	3.78	5/12/2028	5/12/2023	116.02923	111.5360782	107.2455921	103.1475044	99.2321301	95.49032597	91.9134575	88.49336742	85.22234661
230512A00020	5/12/2023	4.6	11/12/2024	5/12/2023	102.7463	101.956649	101.1791699	100.4135863	99.65962632	98.91702615	98.18552995	97.46488957	96.75486416
230512A00022	5/12/2023	4.33	5/12/2025	5/12/2023	104.50036	103.2107281	101.9488518	100.7138357	99.50482145	98.32098729	97.16154622	96.02574414	94.91285811
230512A00023	5/12/2023	4.6	11/13/2024	5/12/2023	102.75785	101.9654221	101.1852527	100.4170608	99.66057157	98.91551851	98.18164323	97.45869508	96.74643084
230515A00030	5/15/2023	5.06	5/15/2024	5/15/2023	101.05127	100.7605614	100.4715397	100.1841904	99.89849899	99.614451	99.33203218	99.05122843	98.77202583
230515A00031	5/15/2023	4.41	5/15/2025	5/15/2023	104.64334	103.3450177	102.073797	100.8288331	99.60931458	98.41446382	97.24353493	96.09581228	94.97060896
230515A00072	5/15/2023	4.42	5/9/2025	5/15/2023	104.57622	103.2937886	102.0397967	100.8132944	99.61337586	98.43917517	97.28986395	96.1646494	95.06277239
230515A00074	5/15/2023	4.11	5/15/2026	5/15/2023	108.67609	106.3379624	104.0622839	101.8469874	99.69008645	97.58967441	95.54392076	93.55106731	91.60942475
230515A00078	5/15/2023	3.96	5/17/2027	5/15/2023	112.60971	109.1943878	105.9023263	102.7283847	99.66766521	96.71550263	93.86745137	91.11927391	88.46692969
230515A00080	5/15/2023	3.88	5/15/2028	5/15/2023	116.49338	111.9819573	107.6742532	103.559945	99.62929448	95.87310791	92.28270223	88.84987383	85.56686935
230516A00032	5/16/2023	5.03	5/16/2024	5/16/2023	101.05302	100.7595617	100.4678249	100.1777918	99.8894474	99.60277696	99.31776579	99.03439941	98.75266349
230516A00036	5/16/2023	4	5/17/2027	5/16/2023	112.74227	109.3247466	106.0305464	102.8545232	99.7917773	96.83764149	93.9876684	91.23761875	88.58345032
230516A00037	5/16/2023	3.91	5/16/2028	5/16/2023	116.63405	112.1168321	107.8036718	103.684231	99.74875424	95.98803116	92.39336286	88.95653055	85.6697664
230516A00044	5/16/2023	4.72	11/15/2024	5/16/2023	102.87673	102.0783317	101.2923675	100.5185495	99.75659713	99.00623847	98.26720983	97.53925547	96.82212733
230517A00019	5/17/2023	4.7	1/17/2025	5/17/2023	103.63159	102.6574767	101.7017499	100.7638941	99.84341032	98.93981829	98.05265515	97.18147487	96.32584745
230518A00015	5/18/2023	4.64	5/16/2025	5/18/2023	104.95537	103.6523441	102.3762332	101.1262084	99.90147307	98.70126356	97.52484702	96.37152	95.24060695
230519A00002	5/19/2023	4.95	11/19/2024	5/19/2023	103.11036	102.3000148	101.5024589	100.7173886	99.94451166	99.18354516	98.43421471	97.69625435	96.96940618
230519A00008	5/19/2023	5.22	5/20/2024	5/19/2023	101.15279	100.848171	100.5453967	100.2444536	99.94532509	99.64799463	99.35244596	99.05866302	98.76662992
230519A00010	5/19/2023	4.91	12/19/2024	5/19/2023	103.46688	102.5727986	101.6942331	100.8307839	99.98206256	99.14769376	98.32731489	97.52057547	96.72713668
230519A00012	5/19/2023	4.53	12/19/2025	5/19/2023	107.6702	105.7526745	103.8791381	102.0483212	100.2589978	98.50998525	96.80014213	95.12836663	93.4935949

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230519A00030	5/19/2023	4.27	5/19/2027	5/19/2023	113.66172	110.2234098	106.9092163	103.7139623	100.6327197	97.66079346	94.79370919	92.02720137	89.35720233
230523A00024	5/23/2023	4.06	5/24/2027	5/23/2023	113.48276	110.0223069	106.6875047	103.4731095	100.3741241	97.38578629	94.50355716	91.72310888	89.04031383
230523A00049	5/23/2023	4.31	5/24/2027	5/23/2023	113.85678	110.4013632	107.0711063	103.8607924	100.7654533	97.78035447	94.90098251	92.12303378	89.44240326
230524A00055	5/24/2023	4.7	11/22/2024	5/24/2023	103.08184	102.2615666	101.4543929	100.6600061	99.87810345	99.10839187	98.35058731	97.60441453	96.8696067
230525A00004	5/25/2023	4.87	5/27/2025	5/25/2023	105.41454	104.0799259	102.7698329	101.4836198	100.2206669	98.98037625	97.76217004	96.56549018	95.38979727
230531A00085	5/31/2023	5.05	12/2/2024	5/31/2023	103.36674	102.5195879	101.6863726	100.8667503	100.0603898	99.26697068	98.48618275	97.71772568	96.9613086
230605A00027	6/5/2023	5.51	6/5/2024	6/5/2023	101.43135	101.0822624	100.7355813	100.3912853	100.04935	99.70975097	99.37246432	99.03746642	98.70473396
230607A00037	6/7/2023	4.96	6/6/2025	6/7/2023	105.67897	104.3155121	102.9762745	101.6606647	100.3681096	99.09805436	97.84996141	96.62330998	95.41759538
230607A00038	6/7/2023	4.58	6/5/2026	6/7/2023	110.03632	107.6243371	105.2780968	102.9954487	100.7743226	98.61272768	96.50874902	94.46054409	92.46633972
230614A00038	6/14/2023	4.3	6/15/2026	6/14/2023	109.82577	107.3815715	105.0048549	102.693378	100.4449905	98.25762547	96.12929591	94.05809101	92.04217275
230615A00026	6/15/2023	4.84	6/15/2038	6/15/2023	156.09797	139.4230807	124.8568899	112.1143209	100.9505618	91.15517343	82.54708877	74.97036243	68.29055493
230615A00039	6/15/2023	4.16	6/15/2027	6/15/2023	114.09544	110.5622316	107.1593517	103.8813062	100.7228576	97.67901602	94.7450262	91.91635527	89.18868102
230615A00044	6/15/2023	4.33	6/15/2026	6/15/2023	109.89747	107.452409	105.0748417	102.7625323	100.5133298	98.32516689	96.19605607	94.12408601	92.10741824
230616A00042	6/16/2023	5.3	12/16/2024	6/16/2023	103.77292	102.8855829	102.013497	101.1562737	100.3135347	99.48491419	98.67005858	97.86862614	97.08028635
230621A00031	6/21/2023	5.19	12/20/2024	6/21/2023	103.73021	102.8321146	101.9496489	101.0824053	100.2299916	99.39202895	98.56815121	97.75800462	96.96124719
230621A00048	6/21/2023	4.55	6/22/2026	6/21/2023	110.19378	107.73199	105.3385079	103.0110593	100.7474557	98.54559415	96.40345334	94.31908989	92.29063493
230623A00031	6/23/2023	4.87	6/23/2025	6/23/2023	105.79489	104.3834011	102.9977523	101.6372892	100.3013832	98.98942596	97.70082906	96.43502281	95.1914557
230627A00029	6/27/2023	5.5	6/27/2024	6/27/2023	101.6932	101.2832344	100.8765786	100.4731943	100.073042	99.67608309	99.28227929	98.89159309	98.50398755
230627A00038	6/27/2023	5.38	6/27/2024	6/27/2023	101.69688	101.2862937	100.8790335	100.4750569	100.0743244	99.67679681	99.28243581	98.89120358	98.50306292
230627A00039	6/27/2023	5.2	12/27/2024	6/27/2023	103.83467	102.9168767	102.015379	101.1297487	100.2595686	99.40443628	98.56396315	97.7377739	96.92550594
230627A00042	6/27/2023	5.16	1/27/2025	6/27/2023	104.21161	103.2070795	102.2220164	101.2558539	100.3080509	99.37808657	98.46545983	97.56968811	96.69030668
230627A00043	6/27/2023	5.12	2/27/2025	6/27/2023	104.55997	103.4690595	102.4010315	101.3551701	100.3307892	99.32723091	98.34386376	97.3800817	96.43530274
230627A00044	6/27/2023	5.08	3/27/2025	6/27/2023	104.85584	103.6871513	102.5446615	101.427499	100.3348266	99.26584383	98.21978458	97.19591563	96.19353473
230627A00046	6/27/2023	5.03	4/28/2025	6/27/2023	105.19647	103.9385319	102.7108607	101.5123712	100.3420298	99.19885137	98.08189611	96.99026726	95.92310856
230627A00048	6/27/2023	4.99	5/27/2025	6/27/2023	105.57402	104.2382907	102.9271048	101.6398171	100.3758077	99.13447786	97.91524944	96.71756387	95.54088133
230627A00086	6/27/2023	5.35	9/30/2024	6/27/2023	102.74659	102.0744568	101.4111331	100.7564509	100.1102421	99.47234292	98.84259359	98.22083861	97.60692632
230629A00034	6/29/2023	5.59	7/1/2024	6/29/2023	101.77965	101.3585037	100.9408457	100.5266328	100.1158224	99.70837271	99.30424268	98.9033918	98.50578027
230629A00068	6/29/2023	5.34	12/30/2024	6/29/2023	104.0047	103.0778237	102.1675456	101.2734212	100.3950226	99.53193688	98.68376556	97.85012378	97.03063987
230706A00014	7/6/2023	4.99	7/6/2038	7/6/2023	158.38871	141.5004593	126.7503485	113.8486956	102.5468373	92.63111434	83.91776434	76.2485833	69.48723668
230707A00041	7/7/2023	4.44	7/7/2028	7/7/2023	120.21515	115.4533206	110.9126887	106.5817841	102.4497882	98.5064967	94.74228202	91.14805744	87.71524401
230710A00008	7/10/2023	5.56	8/1/2024	7/10/2023	102.15761	101.6506202	101.1486755	100.6516961	100.1596086	99.67234102	99.18982268	98.71198438	98.23875823
230710A00053	7/10/2023	4.98	7/10/2025	7/10/2023	106.4252	104.9589044	103.520315	102.1087142	100.7234071	99.36372238	98.02901105	96.71864568	95.43201944
230712A00048	7/12/2023	4.95	7/14/2025	7/12/2023	106.20094	104.7294413	103.2858927	101.8695633	100.479749	99.11576914	97.77696624	96.46270452	95.17236924

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230713A00017	7/13/2023	5.11	1/14/2025	7/13/2023	103.99044	103.0226542	102.072974	101.1408947	100.2259293	99.32760837	98.44547976	97.57910745	96.72807104
230714A00036	7/14/2023	4.37	7/12/2030	7/14/2023	127.15493	120.1107434	113.5176203	107.3441101	101.5611126	96.14169445	91.06091718	86.29567943	81.82457283
230714A00042	7/14/2023	4.58	7/14/2026	7/14/2023	110.55769	108.030728	105.5754999	103.189559	100.8705547	98.61623056	96.42442003	94.29304218	92.22009781
230801A00042	8/1/2023	5.53	8/1/2024	8/1/2023	102.14242	101.6354774	101.1335768	100.6366413	100.1445973	99.65737295	99.17489754	98.69710187	98.22391805
230803A00029	8/3/2023	5.24	2/3/2025	8/3/2023	104.54728	103.5194684	102.511967	101.5241813	100.5555356	99.60547658	98.67347184	97.75900931	96.8615961
230816A00025	8/16/2023	4.62	4/16/2027	8/16/2023	114.82755	111.4521506	108.1957791	105.0535097	102.0206526	99.09274261	96.26552647	93.53495137	90.89715396
230821A00085	8/21/2023	5.04	2/23/2026	8/21/2023	109.62798	107.5041658	105.4328246	103.412311	101.4410424	99.51749734	97.64021279	95.8077811	94.01884769
230825A00005	8/25/2023	5.14	11/21/2025	8/25/2023	108.41677	106.5689226	104.7619221	102.9945942	101.2658039	99.57445738	97.91950013	96.29991507	94.71472108
230828A00060	8/28/2023	5.53	8/30/2024	8/28/2023	102.58975	102.0012051	101.4194342	100.8443182	100.2757432	99.71359799	99.15777381	98.60816433	98.06466562
230829A00010	8/29/2023	5.21	8/25/2025	8/29/2023	107.21346	105.6200556	104.0584803	102.5278498	101.027311	99.55604162	98.11324915	96.6981693	95.31006479
230830A00047	8/30/2023	5.5	8/30/2024	8/30/2023	102.45025	101.8636829	101.2838436	100.710619	100.1438963	99.58356522	99.02951801	98.48164935	97.93985623
230901A00007	9/1/2023	4.55	9/1/2027	9/1/2023	115.98293	112.2101872	108.5834795	105.0963289	101.7425806	98.51638736	95.41219227	92.42471244	89.54892388
230901A00016	9/1/2023	4.6	8/3/2026	9/1/2023	111.2144	108.6172613	106.0954055	103.6462092	101.2671531	98.95582118	96.70989598	94.52715389	92.40546063
230901A00029	9/1/2023	5.04	3/3/2025	9/1/2023	104.69824	103.5930733	102.5113557	101.4523475	100.4153376	99.39964456	98.4046147	97.42962088	96.47406115
230901A00044	9/1/2023	4.55	9/1/2027	9/1/2023	115.98293	112.2101872	108.5834795	105.0963289	101.7425806	98.51638736	95.41219227	92.42471244	89.54892388
230905A00037	9/5/2023	5.16	3/5/2025	9/5/2023	104.85537	103.743837	102.6560041	101.5911164	100.5484522	99.52731955	98.52705503	97.54702232	96.58661073
230905A00038	9/5/2023	5.16	3/5/2025	9/5/2023	104.85537	103.743837	102.6560041	101.5911164	100.5484522	99.52731955	98.52705503	97.54702232	96.58661073
230912A00085	9/12/2023	5.56	9/12/2024	9/12/2023	102.65397	102.0312881	101.4161965	100.8085524	100.2082207	99.6150696	99.02897061	98.44979815	97.87742965
230913A00020	9/13/2023	5.37	3/17/2025	9/13/2023	105.06362	103.9208636	102.803137	101.7096228	100.6395383	99.59213432	98.56669347	97.56252827	96.57897971
230914A00060	9/14/2023	5.28	3/14/2025	9/14/2023	104.9236	103.7898381	102.6807395	101.5955032	100.5333633	99.4935861	98.47546899	97.47833843	96.50154866
230914A00076	9/14/2023	5.48	9/16/2024	9/14/2023	102.65527	102.0216815	101.3959463	100.7779192	100.167458	99.56442408	98.96868218	98.38010028	97.79854952
230915A00057	9/15/2023	4.75	6/15/2027	9/15/2023	115.62884	112.0812399	108.6639943	105.3716156	102.198879	99.14080595	96.1926518	93.34989303	90.60821597
230918A00010	9/18/2023	4.72	9/18/2029	9/18/2023	126.21726	120.059778	114.2519685	108.77197	103.5994078	98.71528381	94.10187542	89.74264342	85.62214648
230918A00013	9/18/2023	4.74	9/18/2030	9/18/2023	130.28193	122.9419655	116.0819132	109.6675648	103.6673345	98.05204277	92.79472061	87.87043052	83.25610314
230919A00043	9/19/2023	4.62	9/19/2028	9/19/2023	121.33494	116.3551522	111.6147495	107.1008689	102.8014142	98.70500266	94.80091875	91.07907148	87.52995426
230919A00044	9/19/2023	4.93	9/21/2026	9/19/2023	112.41115	109.6683431	107.007728	104.426319	101.9212623	99.48982709	97.12939926	94.83747554	92.61165797
230921A00028	9/21/2023	5.07	9/21/2026	9/21/2023	112.78309	110.0352951	107.3698065	104.7836354	102.2739244	99.83793948	97.47306325	95.17678942	92.94671708
230922A00020	9/22/2023	5.35	3/24/2025	9/22/2023	105.13087	103.9686594	102.8323142	101.7209803	100.6338364	99.57009706	98.52901048	97.50985677	96.51194632
230925A00028	12/22/2023	5.5	12/23/2024	12/22/2023	104.05094	103.1430577	102.2511087	101.3746737	100.5133495	99.66674689	98.8344899	98.01621526	97.21157191
230925A00034	9/25/2023	5.53	9/25/2024	9/25/2023	102.80299	102.1443034	101.4940865	100.8521775	100.2184176	99.59265202	98.97472998	98.36450442	97.76183197
230925A00114	9/25/2023	5.09	3/25/2026	9/25/2023	110.17608	107.9627	105.8054551	103.7025278	101.6521721	99.65271235	97.70253956	95.80010834	93.94393376
230926A00019	9/26/2023	5.52	9/26/2024	9/26/2023	102.80928	102.147838	101.4949351	100.8504072	100.2140935	99.58583746	98.9654866	98.35289213	97.74790903
230929A00039	9/29/2023	5.52	9/30/2024	9/29/2023	102.86074	102.1881743	101.5244271	100.8693254	100.2227009	99.58438977	98.95423233	98.33207292	97.71775986

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
231003A00064	10/3/2023	5.56	10/3/2024	10/3/2023	102.92794	102.2469538	101.5750112	100.911931	100.2575384	99.61166321	98.9741397	98.3448064	97.72350597
231010A00025	10/10/2023	4.66	10/10/2028	10/10/2023	122.47146	117.3842719	112.5444212	107.938464	103.5537658	99.37844679	95.4013326	91.61190788	88.00027376
231010A00026	10/10/2023	4.66	10/10/2028	10/10/2023	122.47146	117.3842719	112.5444212	107.938464	103.5537658	99.37844679	95.4013326	91.61190788	88.00027375
231010A00129	10/10/2023	4.93	10/13/2026	10/10/2023	112.72666	109.9180667	107.1950948	104.5545753	101.9934807	99.50891716	97.09811737	94.75843398	92.48733346
231010A00135	10/10/2023	5.44	10/10/2024	10/10/2023	102.94512	102.2449067	101.5542648	100.872994	100.200904	99.5378096	98.88353076	98.23789207	97.6007228
231012A00013	10/12/2023	5.07	3/16/2026	10/12/2023	110.00177	107.8149833	105.6832216	103.6047225	101.57779	99.60079524	97.67217377	95.79042208	93.95409491
231012A00015	10/12/2023	5.33	4/11/2025	10/12/2023	105.34426	104.1317074	102.947263	101.7899594	100.658869	99.55310613	98.47182477	97.41421618	96.37950695
231012A00016	10/12/2023	5.14	10/14/2025	10/12/2023	107.85725	106.1197123	104.4188143	102.7534572	101.1225899	99.52520315	97.96032706	96.42702947	94.92441398
231012A00017	10/12/2023	5.24	7/15/2025	10/12/2023	106.63928	105.1617582	103.7123423	102.2902983	100.8949165	99.52551148	98.18142087	96.86200437	95.56664285
231012A00019	10/12/2023	5.39	2/18/2025	10/12/2023	104.73426	103.6668979	102.6214286	101.5971816	100.5935139	99.60980834	98.64547215	97.69993592	96.77265239
231012A00020	10/12/2023	5.08	2/9/2026	10/12/2023	109.49117	107.4112462	105.3820942	103.402147	101.4698963	99.58389063	97.74273315	95.94507907	94.18963334
231012A00021	10/12/2023	4.85	12/30/2027	10/12/2023	118.76248	114.5958804	110.6026816	106.7747317	103.1043059	99.58408125	96.20711379	92.9668167	89.85694018
231012A00039	10/12/2023	5.33	4/11/2025	10/12/2023	105.34426	104.1317074	102.947263	101.7899594	100.658869	99.55310613	98.47182477	97.41421618	96.37950695
231016A00004	10/16/2023	5.55	10/16/2024	10/16/2023	103.10265	102.3854593	101.6782949	100.9809468	100.293211	99.61488924	98.94578876	98.28572192	97.63450621
231016A00047	10/16/2023	4.98	2/10/2027	10/16/2023	114.58771	111.4143942	108.3478874	105.3839856	102.5186719	99.74811065	97.0686382	94.47675435	91.96911381
231016A00049	10/16/2023	4.95	7/19/2027	10/16/2023	116.79462	113.1309983	109.6052692	106.2114825	102.943978	99.79736983	96.76653139	93.84658167	91.03287189
231017A00009	10/17/2023	5.42	4/17/2025	10/17/2023	105.5341	104.3039751	103.1027392	101.9293848	100.7829469	99.66250436	98.5671778	97.49612716	96.44854955
231020A00060	10/20/2023	5.5	10/21/2024	10/20/2023	103.14062	102.4095348	101.6888582	100.9783722	100.277861	99.58711534	98.90593146	98.23411135	97.57146247
231027A00015	10/27/2023	5.08	2/23/2026	10/27/2023	109.71109	107.5863955	105.5141902	103.4928296	101.5207305	99.59637106	97.71828766	95.88507229	94.09536997
231027A00024	10/27/2023	5.46	10/28/2024	10/27/2023	103.21139	102.460786	101.7211376	100.9922098	100.2737704	99.5655938	98.8674609	98.1791588	97.50048059
231030A00057	10/30/2023	5.52	10/30/2024	10/30/2023	103.28312	102.5267435	101.7814857	101.0471027	100.3233574	99.61001971	98.90686591	98.21367879	97.53024724
231101A00017	11/1/2023	5.25	5/1/2025	11/1/2023	105.51319	104.2451235	103.007391	101.7989113	100.6186522	99.46562969	98.3389052	97.23758282	96.16080702
231102A00025	11/2/2023	4.9	12/8/2026	11/2/2023	113.44163	110.4653606	107.5841801	104.7945423	102.0930504	99.4764522	96.94163344	94.48561084	92.10552601
231102A00026	11/2/2023	4.9	1/12/2027	11/2/2023	113.92905	110.8489123	107.8701315	104.9888109	102.2012242	99.50380904	96.89315891	94.36601512	91.91925971
231102A00027	11/2/2023	4.89	2/9/2027	11/2/2023	114.29819	111.1323738	108.0730817	105.1161186	102.2574807	99.4933446	96.82005844	94.23413299	91.73223339
231102A00028	11/2/2023	4.88	3/9/2027	11/2/2023	114.6812	111.4259416	108.2822947	105.2457754	102.3121075	99.4772122	96.73719826	94.08835159	91.52712627
231102A00029	11/2/2023	4.88	4/13/2027	11/2/2023	115.17612	111.8144546	108.5707912	105.440267	102.4182513	99.50033417	96.68231415	93.96018681	91.33013414
231102A00030	11/2/2023	4.87	5/11/2027	11/2/2023	115.54136	112.0941878	108.7704447	105.5649815	102.4729007	99.48953872	96.61045273	93.83140893	91.14837119
231103A00005	11/3/2023	5.12	5/5/2025	11/3/2023	105.41079	104.1330722	102.8847856	101.6649102	100.4724755	99.30655515	98.16626407	97.05075656	95.95922395
231103A00007	11/3/2023	5.05	8/4/2025	11/3/2023	106.66027	105.1284159	103.6266236	102.154079	100.7099991	99.29362842	97.90423766	96.54112274	95.20360358
231106A00016	11/6/2023	5.39	11/6/2024	11/6/2023	103.28032	102.5048418	101.7410624	100.9887143	100.2475417	99.5172964	98.79773763	98.08863155	97.38975116
231107A00005	11/7/2023	5.39	11/15/2024	11/7/2023	103.41152	102.6107903	101.8225194	101.0464199	100.2822106	99.5296192	98.78838161	98.05824166	97.33895086
231107A00008	11/7/2023	5.17	5/7/2025	11/7/2023	105.50503	104.2215141	102.9669946	101.7404822	100.5410372	99.36776182	98.21979769	97.09632408	95.99655563

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
231107A00028	11/7/2023	5.4	11/7/2024	11/7/2023	103.30177	102.5234783	101.7569623	101.0019591	100.2582101	99.52546475	98.8034795	98.09201812	97.39085127
231108A00011	11/8/2023	5.06	5/8/2025	11/8/2023	105.58693	104.297077	103.0361272	101.8031048	100.59708	99.41716421	98.26250779	97.13229798	96.02575686
231109A00026	11/9/2023	5.19	5/9/2025	11/9/2023	105.56143	104.2723706	103.0118626	101.7789542	100.5727365	99.39234062	98.23693528	97.10572499	95.99794797
231113A00007	11/13/2023	4.86	11/13/2028	11/13/2023	123.18783	118.0062362	113.0801349	108.3954894	103.9391119	99.69860743	95.66232163	91.81929234	88.15920469
231114A00025	11/14/2023	5.13	5/14/2025	11/14/2023	105.56115	104.2591657	102.9846134	101.736628	100.5143794	99.31707219	98.14394394	96.99426344	95.86732911
231122A00032	11/22/2023	5.2	5/22/2025	11/22/2023	105.77562	104.4514548	103.1529619	101.8794149	100.6301112	99.40437503	98.20155576	97.0210269	95.86218496
231122A00035	11/22/2023	5.2	5/22/2025	11/22/2023	105.77562	104.4514548	103.1529619	101.8794149	100.6301112	99.40437503	98.20155576	97.0210269	95.86218496
231122A00044	11/22/2023	5.38	11/22/2024	11/22/2023	103.49939	102.679121	101.871911	101.0774536	100.2954475	99.52560102	98.76763167	98.02126546	97.28623687
231129A00013	11/29/2023	5.25	11/29/2024	11/29/2023	103.49481	102.6552697	101.829405	101.0168799	100.2173728	99.43057228	98.65617663	97.89389381	97.1434408
231130A00057	11/30/2023	5.27	12/2/2024	11/30/2023	103.55264	102.7046373	101.8705769	101.0501192	100.2429328	99.44869712	98.66710185	97.89784645	97.14063989
231201A00024	12/1/2023	4.36	12/1/2028	12/1/2023	120.98942	115.8078008	110.884801	106.2061364	101.7583798	97.52890913	93.50585553	89.6780545	86.03500067
231201A00026	12/1/2023	4.51	12/1/2026	12/1/2023	112.23133	109.2917644	106.4456891	103.6896296	101.0202638	98.43441026	95.92902155	93.50117766	91.1480801
231201A00027	12/1/2023	5.19	12/2/2024	12/1/2023	103.48504	102.6373466	101.8035935	100.9834396	100.1765535	99.38261478	98.60131308	97.83234799	97.07542851
231204A00006	12/4/2023	4.86	8/4/2025	12/4/2023	106.3717	104.842125	103.3425712	101.8722265	100.4303089	99.01606396	97.62876328	96.26770372	94.93220613
231205A00026	12/5/2023	5.02	12/16/2024	12/5/2023	103.66668	102.777908	101.9044434	101.0458957	100.2018843	99.3720414	98.55601164	97.75345137	96.96402832
231206A00003	12/6/2023	5.18	12/6/2024	12/6/2023	103.53097	102.6721317	101.8276068	100.9970371	100.1800779	99.37639608	98.58566922	97.80758528	97.04184218
231206A00044	12/8/2023	4.71	12/8/2025	12/8/2023	107.86465	105.9750172	104.1281215	102.3227437	100.5577092	98.83188388	97.14417284	95.49351847	93.87889914
231207A00027	12/7/2023	4.15	12/7/2028	12/7/2023	120.72753	115.5138294	110.5618508	105.8570613	101.385807	97.13525674	93.09334902	89.2487416	85.59076521
231211A00032	12/11/2023	4.5	12/11/2028	12/11/2023	121.79029	116.5611735	111.5941366	106.8746304	102.3889901	98.1243746	94.06871264	90.21065268	86.53951657
231213A00044	12/13/2023	5.07	12/13/2024	12/13/2023	103.52984	102.6518664	101.7888557	100.9404243	100.1062041	99.28583956	98.47898666	97.68531283	96.90449636
231215A00004	12/15/2023	4.07	12/15/2028	12/15/2023	119.72455	114.5341876	109.6051717	104.9229444	100.4738366	96.24500495	92.22437854	88.40060815	84.7630197
231218A00046	12/18/2023	4.76	6/18/2025	12/18/2023	105.57204	104.1760687	102.8054278	101.4594869	100.1376348	98.83927979	97.56384908	96.31078821	95.07956018
231219A00017	12/19/2023	4.26	1/15/2027	12/19/2023	112.06538	109.0048426	106.045508	103.1834694	100.4149932	97.73651052	95.14460901	92.63602504	90.20763631
231219A00018	12/19/2023	4.25	2/16/2027	12/19/2023	112.44245	109.2836533	106.2318982	103.2829467	100.4327516	97.67744929	95.01335067	92.43693195	89.94482625
231219A00020	12/19/2023	4.16	2/1/2028	12/19/2023	116.43517	112.2225681	108.1895752	104.3275538	100.6283257	97.08414819	93.68768879	90.43200094	87.31050172
231219A00021	12/19/2023	4.14	3/15/2028	12/19/2023	116.88884	112.541559	108.3839098	104.4065594	100.600685	96.95794633	93.4704557	90.13075121	86.93177106
231219A00022	12/19/2023	4.13	4/14/2028	12/19/2023	117.20595	112.7671735	108.5251642	104.4700699	100.5925938	96.88395685	93.33586516	89.94048052	86.69039241
231219A00023	12/19/2023	4.12	6/15/2028	12/19/2023	117.89351	113.2641052	108.8471471	104.6317614	100.6076859	96.76523319	93.09525555	89.58911223	86.23863871
231220A00034	12/20/2023	4.99	12/20/2024	12/20/2023	103.5513	102.6540674	101.7724565	100.9060574	100.0544781	99.21733985	98.39427677	97.58493529	96.7889736
231221A00103	12/21/2023	4.3	12/30/2025	12/21/2023	107.645	105.6928561	103.7862073	101.9237226	100.104115	98.32614337	96.58861096	94.89036305	93.23028537
231227A00014	12/27/2023	4.29	12/26/2025	12/27/2023	107.57532	105.6347292	103.7391485	101.8872596	100.0777954	98.30953393	96.58129651	94.89194577	93.24038396
231227A00039	12/27/2023	4.6	6/27/2025	12/27/2023	105.46906	104.0488629	102.6548436	101.2863398	99.94271024	98.62333512	97.32761459	96.05496824	94.80483422
231228A00022	12/28/2023	4.61	6/27/2025	12/28/2023	105.4832	104.0629003	102.6687784	101.3001736	99.95644484	98.63697211	97.34115559	96.0684148	94.81818787

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
231228A00023	12/28/2023	4.4	12/26/2025	12/28/2023	107.5112	105.5762773	103.6861497	101.8395076	100.0350922	98.27168939	96.54812781	94.86327715	93.21604638
231228A00024	12/28/2023	4.15	12/28/2026	12/28/2023	111.52561	108.5222331	105.6166807	102.805239	100.0843529	97.45062168	94.90079108	92.43174642	90.04050569
231229A00017	12/29/2023	4.42	12/29/2025	12/29/2023	107.58715	105.6433587	103.7447346	101.8899524	100.0777385	98.30686424	96.57614476	94.88443672	93.2306367
231229A00058	12/29/2023	4.9	1/29/2025	12/29/2023	103.97701	102.9682709	101.9791827	101.009178	100.0577077	99.12424332	98.20827645	97.30931766	96.42689562
231229A00059	12/29/2023	4.9	1/29/2025	12/29/2023	103.97701	102.9682709	101.9791827	101.009178	100.0577077	99.12424332	98.20827645	97.30931766	96.42689562
231229A00060	12/29/2023	4.9	1/29/2025	12/29/2023	103.97701	102.9682709	101.9791827	101.009178	100.0577077	99.12424332	98.20827645	97.30931766	96.42689562
231229A00061	12/29/2023	4.74	4/29/2025	12/29/2023	104.84591	103.587558	102.3595632	101.1608345	99.99033289	98.8470682	97.730096	96.63851516	95.57146535
231229A00062	12/29/2023	4.74	4/29/2025	12/29/2023	104.84591	103.587558	102.3595632	101.1608345	99.99033289	98.8470682	97.730096	96.63851516	95.57146535
231229A00063	12/29/2023	4.74	4/29/2025	12/29/2023	104.84591	103.587558	102.3595632	101.1608345	99.99033289	98.8470682	97.730096	96.63851516	95.57146535
231229A00065	12/29/2023	4.6	7/29/2025	12/29/2023	105.88331	104.3740224	102.8941559	101.4429273	100.019577	98.62337167	97.25360347	95.90958855	94.59066622
231229A00066	12/29/2023	4.6	7/29/2025	12/29/2023	105.88331	104.3740224	102.8941559	101.4429273	100.019577	98.62337167	97.25360347	95.90958855	94.59066622
231229A00067	12/29/2023	4.6	7/29/2025	12/29/2023	105.88331	104.3740224	102.8941559	101.4429273	100.019577	98.62337166	97.25360347	95.90958855	94.59066622
231229A00068	12/29/2023	4.42	12/29/2025	12/29/2023	107.58715	105.6433587	103.7447346	101.8899524	100.0777385	98.30686424	96.57614476	94.88443672	93.2306367
231229A00070	12/29/2023	4.42	12/29/2025	12/29/2023	107.58715	105.6433587	103.7447346	101.8899524	100.0777385	98.30686424	96.57614476	94.88443672	93.2306367
231229A00071	12/29/2023	4.42	12/29/2025	12/29/2023	107.58715	105.6433587	103.7447346	101.8899524	100.0777385	98.30686424	96.57614476	94.88443672	93.2306367
230207A00032	2/7/2023	5.25	2/7/2024	2/7/2023	100.07855	100.0590814	100.0396352	100.0202081	100.0008	99.98141098	99.96204095	99.94268989	99.92335776
230303A00018	3/3/2023	5.53	3/1/2024	3/3/2023	100.33544	100.2521394	100.1689758	100.0859513	100.0030654	99.92031779	99.83770814	99.75523612	99.67290137
230315A00067	3/15/2023	4.61	3/11/2024	3/15/2023	100.34516	100.2342685	100.1236411	100.0132729	99.90316282	99.79330994	99.68371332	99.57437203	99.46528512
230315A00083	3/15/2023	4.61	3/11/2024	3/15/2023	100.34516	100.2342685	100.1236411	100.0132729	99.90316282	99.79330994	99.68371332	99.57437203	99.46528512
230315A00092	3/15/2023	4.61	3/11/2024	3/15/2023	100.34516	100.2342685	100.1236411	100.0132729	99.90316282	99.79330994	99.68371332	99.57437203	99.46528512
230316A00014	3/16/2023	4.86	3/11/2024	3/16/2023	100.3729	100.2619847	100.1513328	100.0409401	99.93080552	99.82092824	99.71130726	99.60194166	99.49283048
230316A00025	3/16/2023	4.86	3/15/2024	3/16/2023	100.41016	100.2881724	100.1664994	100.0451378	99.9240865	99.80334422	99.68290974	99.56278184	99.44295929
230316A00041	3/16/2023	4.86	3/15/2024	3/16/2023	100.41016	100.2881724	100.1664994	100.0451378	99.9240865	99.80334422	99.68290974	99.56278183	99.44295929
230316A00062	3/16/2023	4.86	3/15/2024	3/16/2023	100.41016	100.2881724	100.1664994	100.0451378	99.9240865	99.80334422	99.68290974	99.56278184	99.44295929
230320A00017	3/20/2023	5.15	2/20/2024	3/20/2023	100.20508	100.1495092	100.0940135	100.0385921	99.98324501	99.92797202	99.87277298	99.81764775	99.76259617
230323A00041	3/23/2023	4.99	3/22/2024	3/23/2023	100.49231	100.3509218	100.2099469	100.0693809	99.9292218	99.78946794	99.6501175	99.5111687	99.37261978
230324A00056	3/24/2023	4.83	3/22/2024	3/24/2023	100.46968	100.3283157	100.1873649	100.0468228	99.90668767	99.76695767	99.62763103	99.48870598	99.35018076
230328A00008	3/28/2023	5.08	3/22/2024	3/28/2023	100.50504	100.3636377	100.2226493	100.0820698	99.94189725	99.80212997	99.66276614	99.52380398	99.38524174
230331A00028	3/31/2023	5.05	3/29/2024	3/31/2023	100.56941	100.4085963	100.248295	100.0885075	99.92923121	99.77046376	99.61220271	99.45444565	99.29719019
230420A00030	4/20/2023	5.1	4/19/2024	4/20/2023	100.79089	100.5720237	100.354116	100.1371651	99.92116452	99.70610808	99.49198951	99.27880262	99.06654129
230426A00090	4/26/2023	5.08	4/22/2024	4/26/2023	100.81688	100.5897132	100.3635793	100.1384722	99.91438466	99.6913099	99.46924096	99.24817101	99.02809329
230427A00029	4/27/2023	4.87	4/26/2024	4/27/2023	100.83808	100.5995346	100.3621273	100.1258471	99.89068618	99.65663645	99.42369005	99.19183914	98.96107597
230427A00034	5/2/2023	5.23	2/2/2024	5/2/2023	100.0276	100.0220344	100.0164761	100.0109226	100.0053737	99.99982942	99.99428986	99.98875496	99.98322471

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230428A00046	4/28/2023	5.15	3/28/2024	4/28/2023	100.57542	100.4173588	100.2597995	100.1027385	99.94617342	99.79010201	99.63452189	99.47943076	99.32482632
230503A00046	5/3/2023	4.96	4/29/2024	5/3/2023	100.85811	100.6115965	100.3662901	100.1221789	99.87925406	99.63750703	99.39692926	99.1575123	98.9192478
230504A00014	5/4/2023	4.98	4/29/2024	5/4/2023	100.86304	100.6165207	100.3712063	100.127087	99.88415421	99.64239922	99.40181352	99.16238867	98.9241163
230504A00038	5/4/2023	5.24	2/5/2024	5/4/2023	100.05807	100.0441656	100.0302733	100.0163938	100.0025272	99.98867342	99.97483244	99.96100426	99.94718884
230508A00003	5/8/2023	4.99	5/2/2024	5/8/2023	100.89612	100.6413148	100.3877985	100.1355604	99.88459083	99.63488029	99.3864193	99.13919848	98.89320858
230512A00005	5/12/2023	4.76	5/10/2024	5/12/2023	100.95104	100.6738374	100.398169	100.1240248	99.8513918	99.5802576	99.31060969	99.04243576	98.77572361
230512A00021	5/12/2023	4.99	5/10/2024	5/12/2023	100.97908	100.702217	100.4268808	100.1530623	99.88074893	99.60992818	99.34058772	99.07271534	98.80629896
230516A00060	5/16/2023	5.07	5/9/2024	5/16/2023	100.99066	100.7165127	100.4438668	100.1727084	99.9030251	99.63480493	99.36803586	99.10270606	98.83880381
230517A00028	5/19/2023	4.87	5/17/2024	5/19/2023	101.05419	100.7575705	100.4627079	100.1695879	99.87819469	99.58851309	99.30052786	99.014224	98.72958667
230609A00035	6/9/2023	5.47	6/7/2024	6/9/2023	101.44137	101.0867865	100.7346912	100.3850586	100.0378627	99.6930781	99.35067959	99.0106424	98.67294206
230613A00093	6/13/2023	5.46	4/12/2024	6/13/2023	100.79147	100.5918614	100.3930547	100.1950471	99.99783364	99.80140952	99.60576993	99.41091012	99.21682536
230628A00026	6/28/2023	5.6	2/28/2024	6/28/2023	100.31924	100.2414453	100.1637729	100.0862219	100.0087918	99.93148259	99.85429381	99.77722524	99.70027661
230629A00089	6/29/2023	5.68	3/28/2024	6/29/2023	100.65919	100.5010263	100.3433682	100.1862087	100.0295455	99.87337611	99.7176983	99.56250972	99.40780809
230630A00009	6/30/2023	5.59	6/27/2024	6/30/2023	101.73007	101.3200136	100.9132682	100.5097948	100.109554	99.71250702	99.31861569	98.92784246	98.54015039
230630A00044	6/30/2023	5.69	3/29/2024	6/30/2023	100.67234	100.5113959	100.3509712	100.1910606	100.0316616	99.87277169	99.71438854	99.5565097	99.39913278
230630A00045	6/30/2023	5.7	4/30/2024	6/30/2023	101.05243	100.8028414	100.5544846	100.3073488	100.061425	99.81670424	99.57317788	99.33083716	99.08967349
230703A00040	7/3/2023	5.68	2/5/2024	7/3/2023	100.0647	100.0507845	100.036887	100.0230023	100.0091304	99.99527142	99.98142522	99.96759181	99.95377118
230711A00029	7/11/2023	5.55	7/5/2024	7/11/2023	101.81311	101.3809537	100.9524802	100.527639	100.1063839	99.68866973	99.27445172	98.86368605	98.4563296
230712A00032	10/12/2023	5.23	10/11/2024	10/12/2023	102.81785	102.1153222	101.4224317	100.7389827	100.0647828	99.39964477	98.74338628	98.09582999	97.45680325
230713A00015	7/13/2023	5.44	7/12/2024	7/13/2023	101.85146	101.4000766	100.9527152	100.5093194	100.0698363	99.63421406	99.20240186	98.77434966	98.3500083
230713A00054	7/13/2023	5.64	4/12/2024	7/13/2023	100.8274	100.6277379	100.4288822	100.2308257	100.0335636	99.8370909	99.64140293	99.44649487	99.25236202
230718A00030	7/18/2023	5.67	3/20/2024	7/18/2023	100.56544	100.4295005	100.2939467	100.1587734	100.0239788	99.88956132	99.75551941	99.62185143	99.48855578
230725A00089	7/25/2023	5.65	6/26/2024	7/25/2023	101.74218	101.3348429	100.9307706	100.5299288	100.1322788	99.73778244	99.34640237	98.95810166	98.57284404
230725A00090	7/25/2023	5.6	7/18/2024	7/25/2023	101.99983	101.5316359	101.0677626	100.6081482	100.152734	99.70146248	99.25427701	98.8111221	98.37194326
230728A00008	7/28/2023	5.67	5/28/2024	7/28/2023	101.38778	101.0607057	100.7357464	100.412881	100.0920894	99.7733515	99.45664769	99.14195852	98.82926479
230815A00034	8/15/2023	5.66	3/14/2024	8/15/2023	100.49627	100.3769611	100.2579553	100.139248	100.0208377	99.90272356	99.78490426	99.66737868	99.55014569
230815A00035	8/15/2023	5.67	4/16/2024	8/15/2023	100.88043	100.6696869	100.4598389	100.2508796	100.0428033	99.83560432	99.62927704	99.42381591	99.21921542
230815A00036	8/15/2023	5.68	5/15/2024	8/15/2023	101.23161	100.9405703	100.6512195	100.3635426	100.077525	99.79315215	99.51040987	99.22928404	98.94976071
230817A00055	11/17/2023	5.28	11/15/2024	11/17/2023	103.32372	102.5233717	101.7354796	100.9597546	100.1959158	99.44369102	98.7028161	97.97303497	97.25409923
230821A00067	8/21/2023	5.66	5/22/2024	8/21/2023	101.31128	101.000855	100.692348	100.3857379	100.081007	99.7781381	99.47711405	99.17791795	98.88053312
230824A00017	8/24/2023	5.66	3/22/2024	8/24/2023	100.58707	100.4455846	100.3045091	100.1638427	100.0235835	99.88372972	99.74427959	99.60523134	99.46658321
230830A00010	8/30/2023	5.71	3/29/2024	8/30/2023	100.67555	100.5146084	100.3541799	100.1942654	100.0348625	99.87596881	99.71758184	99.5596992	99.40231849
230830A00023	8/30/2023	5.68	6/28/2024	8/30/2023	101.77949	101.3665641	100.9569953	100.5507412	100.1477614	99.7480166	99.35146787	98.95807696	98.56780626

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230830A00060	8/30/2023	5.67	3/1/2024	8/30/2023	100.34709	100.2637826	100.1806097	100.0975758	100.0146806	99.93192368	99.84930475	99.76682345	99.68447943
230913A00043	9/13/2023	5.59	9/12/2024	9/13/2023	102.67262	102.0498794	101.4347233	100.8270152	100.22662	99.63340609	99.04724475	98.46801047	97.89558067
230918A00045	9/18/2023	5.52	9/12/2024	9/18/2023	102.62909	102.0064998	101.3914942	100.7839354	100.1836882	99.59062095	99.00460508	98.42551505	97.85322829
230918A00059	9/18/2023	5.68	4/19/2024	9/18/2023	100.91789	100.6988331	100.4807395	100.2636033	100.047418	99.83217755	99.61787554	99.40450583	99.19206227
230918A00061	9/18/2023	5.55	8/19/2024	9/18/2023	102.35688	101.8004759	101.2501468	100.705793	100.1673175	99.63462497	99.10762251	98.586219	98.07032532
230919A00045	9/19/2023	5.52	9/13/2024	9/19/2023	102.64197	102.0166037	101.3988942	100.7886967	100.1858744	99.59029392	99.00182494	98.42034034	97.845716
230922A00019	9/22/2023	5.53	9/16/2024	9/22/2023	102.68692	102.0532142	101.4273679	100.8092306	100.1986602	99.59551809	98.99966889	98.41098059	97.82932434
230922A00029	9/22/2023	5.67	5/22/2024	9/22/2023	101.31438	101.0039512	100.6954382	100.3888221	100.0840853	99.78121052	99.4801806	99.18097866	98.88358801
230928A00030	9/28/2023	5.67	6/28/2024	9/28/2023	101.77536	101.36245	100.9528914	100.5466472	100.1436775	99.74394256	99.34740367	98.95402256	98.5637616
230929A00027	9/29/2023	5.52	9/23/2024	9/29/2023	102.77068	102.1175723	101.4727979	100.836197	100.2076146	99.58689963	98.97390472	98.36848622	97.77050405
230929A00037	9/29/2023	5.66	6/28/2024	9/29/2023	101.77124	101.358336	100.9487874	100.5425533	100.1395935	99.73986851	99.34333948	98.94996817	98.55971694
231005A00007	10/5/2023	5.51	10/4/2024	10/5/2023	102.90726	102.2236321	101.5491182	100.8835378	100.2267138	99.57847412	98.93865091	98.30708077	97.68360449
231010A00131	10/10/2023	5.44	10/4/2024	10/10/2023	102.85949	102.1760413	101.501707	100.8363043	100.1796566	99.53159138	98.89194109	98.26054229	97.63723578
231011A00020	10/11/2023	5.65	4/12/2024	10/11/2023	100.82939	100.629731	100.4308726	100.2328134	100.0355486	99.8390732	99.64338254	99.4484718	99.25433627
231012A00014	10/12/2023	5.55	10/11/2024	10/12/2023	103.04242	102.3390216	101.6452673	100.9609628	100.2859157	99.61993837	98.96284859	98.31446884	97.67462631
231017A00082	10/17/2023	5.69	5/17/2024	10/17/2023	101.25911	100.96253	100.6676993	100.3746055	100.0832331	99.79356684	99.50559172	99.21929284	98.93465548
231018A00003	10/18/2023	5.68	4/23/2024	10/18/2023	100.96501	100.7348668	100.5057772	100.2777386	100.0507439	99.82478585	99.59985727	99.37595113	99.15306044
231018A00041	10/18/2023	5.65	7/18/2024	10/18/2023	102.02321	101.5549538	101.0910173	100.6313401	100.1758635	99.72452996	99.27728292	98.83406685	98.39482723
231018A00049	10/18/2023	5.65	7/18/2024	10/18/2023	102.02321	101.5549538	101.0910173	100.6313401	100.1758635	99.72452996	99.27728292	98.83406685	98.39482723
231019A00035	10/19/2023	5.54	10/18/2024	10/19/2023	103.12948	102.4066348	101.6939668	100.9912663	100.2983247	99.61493917	98.94091253	98.27605298	97.62017397
231025A00009	10/25/2023	5.49	10/21/2024	10/25/2023	103.13333	102.402271	101.6816234	100.9711661	100.2706834	99.5799659	98.89880991	98.22701744	97.56439591
231027A00004	10/27/2023	5.61	7/26/2024	10/27/2023	102.10628	101.6158788	101.1302025	100.6491833	100.1727542	99.70084962	99.23340527	98.77035798	98.3116458
231031A00041	10/31/2023	5.51	10/25/2024	10/31/2023	103.20133	102.4590617	101.7275189	101.0064678	100.2956835	99.59494746	98.90404721	98.22277633	97.55093412
231102A00012	11/2/2023	5.65	6/5/2024	11/2/2023	101.4802	101.1310041	100.7842189	100.4398196	100.0977814	99.75807996	99.42069146	99.08559221	98.75275892
200401A00012	4/2/2020	1	4/2/2025	4/2/2020	100.12402	98.96851729	97.83948149	96.73601032	95.65724419	94.60236163	93.57057723	92.56113964	91.5733298
220408A00013	4/8/2022	3.15	1/14/2027	4/8/2022	108.75202	105.7437286	102.8352262	100.0226601	97.30234561	94.67076035	92.12453659	89.66045328	87.2754289
231102A00041	11/2/2023	5.46	11/1/2024	11/2/2023	103.265	102.5032374	101.7527506	101.0132934	100.2846237	99.56650643	98.85871317	98.16102218	97.47321802
231103A00028	11/3/2023	5.53	9/3/2024	11/3/2023	102.51916	101.9214577	101.330747	100.7469019	100.1698032	99.59933432	99.03538127	98.47783278	97.92658006
231114A00023	11/14/2023	5.46	9/13/2024	11/14/2023	102.60449	101.9792569	101.3616775	100.751609	100.1489146	99.55346091	98.96511763	98.38375767	97.80925691
231115A00001	11/15/2023	5.58	6/18/2024	11/15/2023	101.61549	101.2303925	100.848229	100.468966	100.0925704	99.7190096	99.34825159	98.98026476	98.61501798
231115A00002	11/15/2023	5.56	7/18/2024	11/15/2023	101.98112	101.5129816	101.0491589	100.5895948	100.1342305	99.6830085	99.23587228	98.79276631	98.35363608
231117A00024	11/17/2023	5.55	6/3/2024	11/17/2023	101.42089	101.077292	100.7360248	100.397066	100.0603923	99.72598042	99.39380775	99.06385177	98.73609033
231120A00025	11/20/2023	5.49	8/14/2024	11/20/2023	102.26602	101.7234931	101.1867444	100.6556844	100.1302229	99.61027131	99.0957431	98.58655346	98.08261938

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1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
231120A00026	11/20/2023	5.43	9/18/2024	11/20/2023	102.64887	102.0098527	101.3788199	100.7556261	100.1401256	99.53217628	98.93163945	98.33837982	97.75226538
231120A00027	11/20/2023	5.4	10/16/2024	11/20/2023	102.99532	102.2785546	101.5718101	100.8748777	100.1875536	99.50963952	98.8409428	98.18127588	97.53045627
231120A00028	11/20/2023	5.38	11/13/2024	11/20/2023	103.37615	102.5810406	101.7982207	101.0274068	100.2683238	99.52070462	98.78429037	98.05882991	97.34407958
231122A00033	11/22/2023	5.53	7/22/2024	11/22/2023	102.01711	101.5379135	101.0632418	100.5930262	100.1272039	99.66571339	99.20849434	98.75548743	98.30663448
231122A00034	11/22/2023	5.42	9/23/2024	11/22/2023	102.70546	102.0525926	101.4080535	100.7716859	100.1433346	99.52284862	98.91008073	98.30488727	97.70712815
231130A00031	11/30/2023	5.41	8/30/2024	11/30/2023	102.39751	101.8111128	101.2314475	100.6583953	100.0918436	99.5316821	98.97780314	98.43010138	97.88847384
231130A00063	11/30/2023	5.52	7/1/2024	11/30/2023	101.7502	101.3291283	100.9115437	100.4974036	100.0866657	99.67928801	99.27522953	98.87444979	98.47690897
231130A00064	11/30/2023	5.41	8/30/2024	11/30/2023	102.39751	101.8111128	101.2314475	100.6583953	100.0918436	99.5316821	98.97780314	98.43010138	97.88847384
231130A00065	11/30/2023	5.33	10/30/2024	11/30/2023	103.13984	102.3840564	101.6393874	100.9055872	100.1824186	99.46965176	98.76706302	98.07443527	97.39155749
231201A00009	12/1/2023	5.27	11/25/2024	12/1/2023	103.44964	102.6213766	101.8064318	101.0044865	100.2152308	99.43836476	98.67359777	97.92064825	97.1792433
231205A00036	12/5/2023	5.31	10/4/2024	12/5/2023	102.77077	102.0876584	101.4136574	100.7485851	100.0922645	99.44452344	98.80519429	98.17411368	97.55112246
231205A00037	12/5/2023	5.38	9/5/2024	12/5/2023	102.45458	101.8516604	101.2558539	100.6670387	100.0850919	99.50989384	98.94132732	98.37927796	97.82363401
231208A00015	12/8/2023	5.51	6/14/2024	12/8/2023	101.5402	101.1662343	100.795039	100.4265826	100.0608349	99.69776579	99.33734591	98.97954616	98.62433791
231211A00013	12/11/2023	5.42	9/11/2024	12/11/2023	102.5543	101.9346974	101.3226086	100.7178996	100.120437	99.53009091	98.94673439	98.37024356	97.80049743
231213A00015	12/13/2023	5.47	8/13/2024	12/13/2023	102.24797	101.7081617	101.1740767	100.6456248	100.1227169	99.60526592	99.09318645	98.58639493	98.0848095
231218A00019	12/18/2023	5.39	7/18/2024	12/18/2023	101.90163	101.433701	100.9700932	100.5107425	100.0555903	99.60457907	99.15765218	98.71475418	98.27583058
231218A00020	12/18/2023	5.32	8/19/2024	12/18/2023	102.22904	101.6730444	101.1231161	100.5791602	100.0410794	99.5087786	98.98216486	98.46114711	97.94563627
231218A00047	12/18/2023	5.24	9/18/2024	12/18/2023	102.52758	101.888989	101.2583854	100.635617	100.0205382	99.41300691	98.81288446	98.22003565	97.6343285
231218A00048	12/18/2023	5.32	8/19/2024	12/18/2023	102.22904	101.6730444	101.1231161	100.5791602	100.0410794	99.5087786	98.98216486	98.46114711	97.94563627
231219A00006	12/19/2023	5.39	7/19/2024	12/19/2023	101.91374	101.4430494	100.9767225	100.514702	100.0569281	99.60334231	99.15388719	98.70850628	98.26714418
231228A00008	12/28/2023	5.18	9/30/2024	12/28/2023	102.63245	101.9607392	101.297839	100.6435765	99.9977834	99.36029606	98.73095486	98.1096043	97.49609279
231228A00020	12/28/2023	4.93	12/27/2024	12/28/2023	103.58794	102.6713614	101.7710667	100.8866244	100.0176177	99.1636445	98.3243165	97.49925865	96.68810864
231228A00038	12/28/2023	5.18	9/30/2024	12/28/2023	102.63245	101.9607392	101.297839	100.6435765	99.9977834	99.36029606	98.73095486	98.1096043	97.49609279
231229A00002	12/29/2023	4.95	12/23/2024	12/29/2023	103.55439	102.6489298	101.7593739	100.8853026	100.0263136	99.18201799	98.3520405	97.53601837	96.73360108
231102A00064	1/22/2024	5.01	1/22/2026	1/22/2024	109.08147	107.0574577	105.0819209	103.1533971	101.2704758	99.43179914	97.63605858	95.88199338	94.16838823
200605A00014	6/5/2020	1.02	6/5/2025	6/5/2020	100.41206	99.03900677	97.69163207	96.36927188	95.07128903	93.79706757	92.5460119	91.31754594	90.11111228
200605A00016	6/5/2020	1.02	6/5/2025	6/5/2020	100.41206	99.03900677	97.69163207	96.36927188	95.07128903	93.79706757	92.5460119	91.31754594	90.11111228
200605A00017	6/5/2020	1.02	6/5/2025	6/5/2020	100.41206	99.03900677	97.69163207	96.36927188	95.07128903	93.79706757	92.5460119	91.31754594	90.11111228
200709A00021	7/9/2020	0.83	7/9/2025	7/9/2020	100.23108	98.77314102	97.34395115	95.94272509	94.56870875	93.22117475	91.89942124	90.60277075	89.33056915
200709A00025	7/9/2020	1.37	7/9/2030	7/9/2020	106.90526	101.0808745	95.62951735	90.52504328	85.74328227	81.26187685	77.06013688	73.11890677	69.42044392
200813A00019	8/13/2020	1.44	8/13/2030	8/13/2020	107.37525	101.4559868	95.92019233	90.7406857	85.89236363	81.35202709	77.09822684	73.11112236	69.3723529
200813A00020	8/13/2020	1.44	8/13/2030	8/13/2020	107.37525	101.4559868	95.92019233	90.7406857	85.89236363	81.35202709	77.09822684	73.11112236	69.3723529
200813A00023	8/13/2020	0.86	10/14/2025	8/13/2020	100.57507	98.86931575	97.20096721	95.56892095	93.97211971	92.40954614	90.8802209	89.38320086	87.91757745

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200911A00011	9/11/2020	1.18	9/11/2030	9/11/2020	105.82411	99.91498045	94.39278754	89.2298264	84.40053051	79.8812926	75.65030406	71.68740832	67.97396705
200911A00012	9/11/2020	1.18	9/11/2030	9/11/2020	105.82411	99.91498045	94.39278754	89.2298264	84.40053051	79.8812926	75.65030406	71.68740832	67.97396705
200911A00013	9/11/2020	0.69	9/11/2025	9/11/2020	100.18314	98.56707012	96.98498596	95.43587922	93.91877814	92.43274934	90.97689587	89.55035541	88.15229859
201007A00008	10/7/2020	1.22	10/7/2030	10/7/2020	105.8987	100.1173421	94.71333292	89.659614	84.93121509	80.50508569	76.3599371	72.47609839	68.83538478
201007A00010	10/7/2020	1.22	10/7/2030	10/7/2020	105.8987	100.1173421	94.71333292	89.659614	84.93121509	80.50508569	76.3599371	72.47609839	68.83538478
201007A00014	10/7/2020	0.8	10/7/2025	10/7/2020	100.42591	98.75219509	97.11478258	95.51258831	93.94456817	92.40971901	90.90707658	89.43571363	87.99473813
201015A00020	10/15/2020	0.94	10/15/2027	10/15/2020	102.94356	99.43174916	96.06205742	92.82793134	89.72316093	86.74185648	83.8784301	81.1275784	78.48426636
201109A00012	11/9/2020	1.39	11/8/2030	11/9/2020	107.18531	101.0924817	95.40644058	90.09757563	85.13858454	80.50428282	76.17142918	72.11856617	68.32587461
201211A00001	12/11/2020	0.95	12/11/2030	12/11/2020	104.83866	99.27115018	94.06797915	89.20275398	84.65114767	80.3907235	76.4007782	72.66219898	69.15733306
210107A00007	1/7/2021	0.84	1/7/2026	1/7/2021	100.76763	98.8477639	96.97474845	95.1471358	93.3635366	91.62261402	89.9230813	88.26369949	86.64327534
210201A00002	2/1/2021	1.19	2/1/2036	2/1/2021	105.2572	99.16738264	93.56903527	88.41609303	83.66724795	79.28541744	75.23727938	71.49286136	68.0251777
210809A00010	8/9/2021	1.06	8/7/2026	8/9/2021	101.92784	99.48934776	97.1230225	94.82627526	92.59663124	90.43172069	88.3292736	86.28711478	84.3031592
210915A00027	9/15/2021	1.1	9/15/2026	9/15/2021	102.15991	99.62600885	97.16934113	94.7870432	92.4763821	90.23474563	88.05963596	85.94866376	83.89954254
210921A00006	9/21/2021	1.43	9/21/2028	9/21/2021	106.02232	101.6301451	97.45183857	93.47574265	89.6909056	86.0870323	82.65444091	79.38402266	76.26720448
210921A00009	9/21/2021	1.28	9/21/2028	9/21/2021	105.93634	101.5344866	97.34739322	93.36333181	89.57128701	85.96090513	82.52245026	79.24676368	76.12522627
211007A00006	10/7/2021	1.28	10/7/2026	10/7/2021	102.71575	100.1163182	97.59756943	95.15649009	92.79019657	90.4959329	88.27106409	86.11306987	84.01953878
211014A00012	10/14/2021	1.46	10/14/2031	10/14/2021	105.56984	101.5580497	97.76561765	94.17830283	90.78290212	87.56716846	84.51973494	81.63004545	78.88829112
211110A00012	11/10/2021	1.44	11/10/2026	11/10/2021	103.2822	100.5920576	97.98778191	95.46616815	93.02414731	90.65878129	88.36725656	86.1468782	83.99506422
211110A00013	11/10/2021	1.44	11/10/2026	11/10/2021	103.2822	100.5920576	97.98778191	95.46616815	93.02414731	90.65878129	88.36725656	86.1468782	83.99506422
211110A00014	11/10/2021	1.44	11/10/2026	11/10/2021	103.2822	100.5920576	97.98778191	95.46616815	93.02414731	90.65878129	88.36725656	86.1468782	83.99506422
211208A00012	12/8/2021	1.62	12/8/2026	12/8/2021	103.90611	101.1350913	98.45466983	95.86137554	93.35189364	90.92305446	88.5718263	86.29530855	84.09072526
220111A00005	1/11/2022	1.54	1/10/2025	1/11/2022	100.61818	99.61296288	98.62794911	97.6625353	96.71613932	95.78820191	94.87818561	93.98557363	93.10986894
220411A00008	4/11/2022	3.02	4/12/2027	4/11/2022	109.36422	106.1633304	103.0765343	100.0990833	97.22645808	94.45435486	91.77867337	89.19550594	86.70112718
220520A00006	5/20/2022	3.02	5/20/2027	5/20/2022	109.47936	106.2431709	103.1248827	100.1195363	97.22241165	94.42901214	91.73505249	89.13644774	86.62930276
220617A00030	6/17/2022	3.43	6/17/2025	6/17/2022	101.83582	101.0814183	100.3399297	99.61100417	98.8943019	98.1894959	97.49627134	96.81432492	96.1433644
220617A00061	6/17/2022	3.26	6/17/2024	6/17/2022	100.44279	100.2005611	99.95973087	99.72028945	99.48222367	99.24552054	99.01016721	98.77615101	98.54345943
220916A00018	9/16/2022	4.07	9/16/2027	9/16/2022	113.14402	109.6774417	106.3445026	103.1392002	100.055839	97.08901453	94.23359637	91.48471267	88.83773514
220919A00036	9/19/2022	4.11	9/19/2029	9/19/2022	121.73843	115.9320739	110.4552177	105.287145	100.4085637	95.80149638	91.44918302	87.33599169	83.4473364
221017A00055	10/17/2022	4.88	11/18/2024	10/17/2022	101.65773	101.1976746	100.7428598	100.2931868	99.84855874	99.40888172	98.9740641	98.54401664	98.11865243
221123A00016	11/23/2022	4.58	11/23/2029	11/23/2022	125.02344	118.9335508	113.1978307	107.7935586	102.6995885	97.8962348	93.36516457	89.08929737	85.05271363
221201A00068	12/1/2022	4.21	12/1/2027	12/1/2022	114.41011	110.7375328	107.2132363	103.8303453	100.5823462	97.4630615	94.46663098	91.58749348	88.82037006
221222A00053	12/22/2022	4.18	12/22/2027	12/22/2022	115.15234	111.2728188	107.5540632	103.9884737	100.5688515	97.28837666	94.14058537	91.11934978	88.21885857
230110A00035	1/10/2023	4.08	1/10/2028	1/10/2023	115.34383	111.3291279	107.4838459	103.7998579	100.269471	96.88540234	93.64075527	90.52899626	87.54393394

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230113A00057	1/13/2023	3.99	1/13/2028	1/13/2023	114.01155	110.2547767	106.6535595	103.2005016	99.88860122	96.71122806	93.66210162	90.73527062	87.92509388
230125A00031	1/25/2023	3.74	1/25/2028	1/25/2023	113.69028	109.9056903	106.2790872	102.8029028	99.46997233	96.27351454	93.20710889	90.26467422	87.4404488
230302A00047	3/2/2023	4.76	3/2/2028	3/2/2023	117.46618	113.5032352	109.7082306	106.0729818	102.5897547	99.25123705	96.05051304	92.98103903	90.03662134
230328A00037	3/28/2023	4.21	3/28/2028	3/28/2023	116.7309	112.4821215	108.420045	104.5353348	100.8191761	97.2632464	93.85968503	90.60106417	87.48036252
230328A00045	3/28/2023	4.21	3/28/2028	3/28/2023	116.7309	112.4821215	108.420045	104.5353348	100.8191761	97.2632464	93.85968503	90.60106417	87.48036252
230328A00047	3/28/2023	4.21	3/28/2028	3/28/2023	116.7309	112.4821215	108.420045	104.5353348	100.8191761	97.2632464	93.85968503	90.60106417	87.48036252
230328A00051	3/28/2023	4.53	3/28/2033	3/28/2023	134.253	125.1183842	116.7465798	109.0677945	102.0190465	95.54346674	89.58967116	84.11120231	79.06602976
230328A00052	3/28/2023	4.53	3/28/2033	3/28/2023	134.253	125.1183842	116.7465798	109.0677945	102.0190465	95.54346674	89.58967116	84.11120231	79.06602976
230607A00020	6/7/2023	4.28	6/7/2028	6/7/2023	117.79595	113.3415919	109.0906451	105.0326606	101.1577787	97.45669655	93.9206334	90.54129883	87.31086266
230629A00071	6/29/2023	4.41	6/29/2028	6/29/2023	118.90461	114.3021168	109.9132577	105.7268952	101.7325303	97.92026541	94.2807664	90.80522777	87.48533974
230629A00094	6/29/2023	4.41	6/29/2028	6/29/2023	118.90461	114.3021168	109.9132577	105.7268952	101.7325303	97.92026541	94.2807664	90.80522777	87.48533974
230629A00097	6/29/2023	4.41	6/29/2028	6/29/2023	118.90461	114.3021168	109.9132577	105.7268952	101.7325303	97.92026541	94.2807664	90.80522777	87.48533974
160608A00026	6/8/2016	2.36	6/8/2026	6/8/2016	104.71285	102.4071722	100.1659847	97.98710799	95.86844862	93.80799641	91.80382057	89.85406605	87.95695011
160608A00031	6/8/2016	2.36	6/8/2026	6/8/2016	104.71285	102.4071722	100.1659847	97.98710799	95.86844862	93.80799641	91.80382057	89.85406605	87.95695011
160608A00032	6/8/2016	2.36	6/8/2026	6/8/2016	104.71285	102.4071722	100.1659847	97.98710799	95.86844862	93.80799641	91.80382057	89.85406605	87.95695011
170406A00031	4/6/2017	3.01	4/6/2027	4/6/2017	108.66542	105.5611336	102.5662186	99.67613806	96.88657683	94.19342613	91.59277219	89.08088553	86.65421102
170921A00056	9/21/2017	2.82	9/21/2027	9/21/2017	109.30948	105.7985597	102.4255039	99.18404973	96.06825857	93.07249805	90.19142396	87.41996358	84.75330006
180508A00038	5/8/2018	3.57	5/9/2033	5/8/2018	116.62965	111.3484172	106.4064023	101.7780052	97.43977229	93.37020478	89.54958156	85.95979936	82.58422832
231017A00029	10/17/2023	4.99	10/17/2028	10/17/2023	122.57537	117.6454309	112.9550263	108.491098	104.2413731	100.1943123	96.33906116	92.6654065	89.1637344
231017A00032	10/17/2023	4.99	10/17/2028	10/17/2023	122.57537	117.6454309	112.9550263	108.491098	104.2413731	100.1943123	96.33906116	92.6654065	89.1637344
231017A00033	10/17/2023	4.99	10/17/2028	10/17/2023	122.57537	117.6454309	112.9550263	108.491098	104.2413731	100.1943123	96.33906116	92.6654065	89.1637344
231017A00034	10/17/2023	4.99	10/17/2028	10/17/2023	122.57537	117.6454309	112.9550263	108.491098	104.2413731	100.1943123	96.33906116	92.6654065	89.1637344
231017A00035	10/17/2023	4.99	10/17/2028	10/17/2023	122.57537	117.6454309	112.9550263	108.491098	104.2413731	100.1943123	96.33906116	92.6654065	89.1637344
231017A00036	10/17/2023	4.99	10/17/2028	10/17/2023	122.57537	117.6454309	112.9550263	108.491098	104.2413731	100.1943123	96.33906116	92.6654065	89.1637344
231017A00037	10/17/2023	4.99	10/17/2028	10/17/2023	122.57537	117.6454309	112.9550263	108.491098	104.2413731	100.1943123	96.33906116	92.6654065	89.1637344
231017A00039	10/17/2023	5.12	10/16/2026	10/17/2023	113.33029	110.4963793	107.750588	105.0896463	102.5104234	100.0099249	97.58528494	95.2337606	92.9527253
231017A00040	10/17/2023	5.12	10/16/2026	10/17/2023	113.33029	110.4963793	107.750588	105.0896463	102.5104234	100.0099249	97.58528494	95.2337606	92.9527253
210603A00008	6/3/2021	1.74	6/3/2036	6/3/2021	109.47812	103.1647439	97.36629174	92.03375971	87.12328939	82.59558558	78.41540501	74.55110594	70.97425097
220722A00036	7/22/2022	3.34	7/22/2025	7/22/2022	101.87994	101.0892078	100.3121878	99.54850858	98.79781062	98.05974757	97.33398587	96.62020411	95.91809245
220916A00021	9/16/2022	4.17	9/16/2027	9/16/2022	107.14178	105.2187825	103.351428	101.5376496	99.77547123	98.06300468	96.39844487	94.78006572	93.20621605
230428A00055	4/28/2023	4.61	4/28/2026	4/28/2023	104.61195	103.4285575	102.2696795	101.1345896	100.0225939	98.93302485	97.86524037	96.8186223	95.79257542
230622A00019	6/22/2023	4.33	6/22/2028	6/22/2023	117.43711	113.1125113	108.9847042	105.0435445	101.279472	97.68346904	94.24702698	90.96211462	87.82114881
150601A00342	6/1/2015	3.97	8/26/2033	6/1/2015	117.80606	112.6189192	107.7640854	103.2163212	98.95252918	94.95155589	91.19401392	87.66212118	84.33955595

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00440	6/1/2015	3.27	3/16/2029	6/1/2015	107.91519	105.2207182	102.6289386	100.1350325	97.73443894	95.42284398	93.19616504	91.05053715	88.98229979
150601A00450	6/1/2015	3.28	4/27/2029	6/1/2015	108.08226	105.3422007	102.7079865	100.1745853	97.73724206	95.39146173	93.13299328	90.95781475	88.86211935
150601A00460	6/1/2015	3.05	5/16/2029	6/1/2015	107.60192	104.8289119	102.1644765	99.60338787	97.14071455	94.77179755	92.49223336	90.29785815	88.18473311
150601A00506	6/1/2015	3.14	7/6/2029	6/1/2015	108.10631	105.240529	102.4897915	99.84844005	97.3111386	94.87285158	92.52882479	90.27456782	88.10583757
150601A00528	6/1/2015	3.08	7/27/2029	6/1/2015	107.94228	105.0786539	102.3300716	99.69086963	97.15570777	94.71954676	92.37762923	90.12546199	87.95879954
150601A00559	6/1/2015	3.06	8/31/2029	6/1/2015	108.01454	105.1074238	102.3185877	99.64214331	97.07254049	94.60454524	92.23321928	89.95390142	87.76219005
161222A00036	12/22/2016	2.69	12/22/2026	12/22/2016	103.2835	101.7801982	100.3137789	98.88303246	97.48680154	96.12397558	94.79348848	93.49431643	92.22547591
161222A00037	12/22/2016	3.08	12/22/2031	12/22/2016	111.55071	107.3906423	103.4578873	99.73761205	96.21607274	92.8805278	89.7191579	86.72099262	83.87584341
230113A00037	1/26/2024	3.43	1/30/2026	1/26/2024	106.01624	104.0020241	102.0367007	100.1187743	98.24680683	96.41941428	94.63526375	92.89307135	91.19160003
230712A00034	1/12/2024	4.88	1/13/2025	1/12/2024	103.75633	102.7924844	101.846628	100.9182594	100.0068958	99.11207212	98.23334	97.37026731	96.52243724
230712A00035	1/12/2024	4.36	1/12/2026	1/12/2024	107.66459	105.6819481	103.7462381	101.8560603	100.0100662	98.2069568	96.44547966	94.72442745	93.04263576
231019A00031	1/22/2024	5.12	1/30/2026	1/22/2024	109.41597	107.3667805	105.3671649	103.4156092	101.5106569	99.65090588	97.83500612	96.06165705	94.32960559
200218A00026	2/21/2020	1.73	3/25/2024	2/21/2020	100.03305	99.88389599	99.73519135	99.58693818	99.43913444	99.29177806	99.144867	98.99839923	98.85237274
200220A00013	2/20/2020	2.09	12/14/2029	2/20/2020	111.60425	105.6194573	99.99409461	94.70475124	89.72965835	85.04856234	80.64261209	76.49425523	72.5871425
200220A00014	2/20/2020	2.09	12/21/2029	2/20/2020	111.62818	105.6241854	99.98183528	94.67750754	89.68923989	84.99660322	80.58058719	76.42349497	72.50884626
200221A00011	2/21/2020	1.69	8/21/2024	2/21/2020	100.21566	99.66062271	99.1117224	98.56885978	98.03193555	97.50085256	96.9755158	96.4558323	95.94171109
200221A00023	2/21/2020	2.05	12/7/2029	2/21/2020	111.34426	105.3854987	99.78365913	94.51556423	89.55965192	84.89585659	80.5054982	76.37118006	72.47669462
200221A00024	2/21/2020	2.05	12/28/2029	2/21/2020	111.41374	105.3975014	99.74482367	94.4318923	89.43656521	84.73825076	80.31779166	76.15735825	72.24035017
200224A00006	2/24/2020	1.58	11/15/2024	2/24/2020	100.3704	99.58292849	98.80777473	98.0446495	97.29327439	96.55337953	95.82470328	95.10699187	94.39999916
200225A00023	2/25/2020	1.62	2/25/2025	2/25/2020	100.75902	99.69541433	98.65414658	97.63452002	96.63586579	95.65754235	94.69893406	93.75944991	92.83852232
200225A00028	2/25/2020	1.89	12/21/2029	2/25/2020	110.44026	104.4708343	98.86156356	93.58890405	88.63096655	83.96739067	79.57923076	75.44885089	71.55982813
200225A00029	2/25/2020	1.89	12/28/2029	2/25/2020	110.46032	104.4719135	98.84586593	93.55842549	88.58750926	83.91258119	79.51453636	75.37559436	71.47920126
200226A00004	2/26/2020	1.58	2/26/2025	2/26/2020	100.71856	99.65250984	98.60890956	97.58705245	96.58626492	95.60590095	94.64534068	93.70398909	92.78127479
200228A00071	2/28/2020	1.74	12/14/2029	2/28/2020	109.53214	103.6074563	98.03962014	92.80535596	87.88302139	83.25248174	78.89499784	74.7931227	70.93060638
200228A00091	2/28/2020	1.72	12/7/2029	2/28/2020	109.39693	103.4944734	97.94653323	92.73005101	87.82358251	83.20717298	78.86224675	74.7715054	70.91883399
200302A00002	3/2/2020	1.12	3/3/2025	3/2/2020	100.40035	99.32028163	98.26329037	97.22864486	96.21564303	95.22361191	94.25190618	93.29990674	92.36701938
200302A00005	3/2/2020	1.31	3/3/2025	3/2/2020	100.43565	99.35792719	98.30318883	97.27070792	96.25978626	95.26975457	94.299971	93.34981977	92.41870982
200302A00013	3/2/2020	1.25	3/4/2024	3/2/2020	99.977142	99.88586187	99.79475544	99.70382196	99.61306093	99.52247184	99.43205418	99.34180744	99.25173113
200302A00016	3/2/2020	1.36	3/3/2025	3/2/2020	100.49042	99.41237714	98.35732426	97.32453344	96.31330637	95.32297366	94.35289337	93.40244961	92.47105121
200302A00017	3/2/2020	1.3	3/4/2024	3/2/2020	99.981719	99.89043584	99.79932568	99.70838848	99.61762374	99.52703093	99.43660956	99.34635913	99.25627912
200302A00060	3/2/2021	1.44	3/3/2025	3/2/2021	100.57805	99.49949706	98.44394094	97.41065426	96.39893854	95.40812421	94.43756917	93.48665734	92.55479743
200304A00002	3/4/2020	0.98	3/4/2025	3/4/2020	100.24812	99.16627589	98.10761179	97.07139017	96.05690403	95.06347579	94.09045574	93.13722066	92.20317246
200304A00005	3/4/2020	0.98	3/4/2025	3/4/2020	100.24812	99.16627589	98.10761179	97.07139017	96.05690403	95.06347579	94.09045574	93.13722066	92.20317246

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200304A00012	3/4/2020	0.98	3/4/2025	3/4/2020	100.24812	99.16627589	98.10761179	97.07139017	96.05690403	95.06347579	94.09045574	93.13722066	92.20317246
200304A00018	3/4/2020	0.98	3/4/2025	3/4/2020	100.24812	99.16627589	98.10761179	97.07139017	96.05690403	95.06347579	94.09045574	93.13722066	92.20317246
200304A00020	3/4/2020	0.98	3/4/2025	3/4/2020	100.24812	99.16627589	98.10761179	97.07139017	96.05690403	95.06347579	94.09045574	93.13722066	92.20317246
200304A00030	3/4/2020	1.6	12/22/2028	3/4/2020	107.6133	102.6979291	98.0349732	93.61020855	89.41028707	85.4226741	81.63559488	78.03798473	74.61944279
200304A00032	3/4/2020	1.6	12/15/2028	3/4/2020	107.58671	102.6904607	98.04474659	93.63550619	89.44953405	85.47442666	81.69852975	78.11088942	74.70120661
200304A00033	3/4/2020	1.17	3/4/2025	3/4/2020	100.28366	99.20416576	98.14775936	97.11370673	96.1013048	95.10987967	94.13878516	93.18740137	92.25513337
200304A00035	3/4/2020	1.17	3/4/2025	3/4/2020	100.28366	99.20416576	98.14775936	97.11370673	96.1013048	95.10987967	94.13878516	93.18740137	92.25513337
200305A00001	3/5/2020	1.14	3/5/2025	3/5/2020	100.252	99.17003096	98.11126646	97.0749623	96.06041027	95.0669316	94.09387553	93.14061783	92.20655946
200305A00030	3/5/2020	1.58	3/5/2030	3/5/2020	108.7732	102.6517191	96.91203845	91.52840088	86.47691742	81.73542114	77.28333427	73.10154632	69.17230215
200305A00032	3/5/2020	1.58	3/5/2030	3/5/2020	108.7732	102.6517191	96.91203845	91.52840088	86.47691742	81.73542114	77.28333427	73.10154632	69.17230215
200305A00037	3/5/2020	1.43	3/6/2028	3/5/2020	105.59686	101.5059598	97.59531479	93.85602701	90.2796892	86.85835307	83.58450157	80.45102295	77.45118664
200305A00038	3/5/2020	1.51	3/5/2029	3/5/2020	107.44429	102.3328097	97.49356098	92.9106477	88.56918259	84.45522017	80.55569215	76.8583476	73.35169749
200305A00039	3/5/2020	1.58	3/5/2030	3/5/2020	108.7732	102.6517191	96.91203845	91.52840088	86.47691742	81.73542114	77.28333427	73.10154632	69.17230215
200306A00013	3/6/2020	1.01	3/6/2025	3/6/2020	100.1098	99.02601714	97.96553435	96.92760914	95.91152836	94.91660863	93.94219477	92.98765843	92.05239666
200306A00022	3/6/2020	1.2	3/8/2027	3/6/2020	103.18375	100.1111937	97.14543885	94.28217208	91.51727704	88.84682831	86.26708117	83.77446212	81.36555989
200306A00028	3/6/2020	1.01	3/6/2025	3/6/2020	100.1098	99.02601714	97.96553435	96.92760914	95.91152836	94.91660863	93.94219477	92.98765843	92.05239666
200306A00031	3/6/2020	1.01	3/6/2025	3/6/2020	100.1098	99.02601714	97.96553435	96.92760914	95.91152836	94.91660863	93.94219477	92.98765843	92.05239666
200306A00040	3/6/2020	1.01	3/6/2025	3/6/2020	100.1098	99.02601714	97.96553435	96.92760914	95.91152836	94.91660863	93.94219477	92.98765843	92.05239666
200306A00055	3/6/2020	0.82	3/6/2025	3/6/2020	100.0739	98.98775634	97.92500425	96.8848993	95.86672436	94.86979227	93.89344433	92.9370488	91.99999954
200306A00064	3/6/2020	1.2	3/8/2027	3/6/2020	103.18375	100.1111937	97.14543885	94.28217208	91.51727704	88.84682831	86.26708117	83.77446212	81.36555989
200306A00066	3/6/2020	1.2	3/8/2027	3/6/2020	103.18375	100.1111937	97.14543885	94.28217208	91.51727704	88.84682831	86.26708117	83.77446212	81.36555989
200306A00077	3/6/2020	1.06	3/6/2025	3/6/2020	100.16498	99.08087503	98.02007328	96.98183384	95.96544342	94.97021852	93.99550388	93.04067102	92.10511692
200306A00087	3/8/2021	1.26	3/7/2025	3/8/2021	100.38732	99.29924947	98.23462094	97.19268324	96.17271739	95.17403448	94.19597416	93.23790311	92.29921372
200309A00007	3/9/2020	1.11	3/9/2027	3/9/2020	102.90652	99.83566777	96.87167782	94.01022159	91.24717726	88.57861432	86.0007834	83.51010668	81.10316896
200309A00030	3/9/2020	1.11	3/9/2027	3/9/2020	102.90652	99.83566777	96.87167782	94.01022159	91.24717726	88.57861432	86.0007834	83.51010668	81.10316896
200309A00038	3/9/2020	1.26	3/11/2030	3/9/2020	106.81373	100.7356986	95.03868672	89.69689556	84.68640424	79.98502172	75.57215286	71.42867569	67.53682863
200310A00003	3/10/2020	1.1	3/10/2025	3/10/2020	100.21381	99.11879231	98.04755137	96.99931559	95.97335055	94.96895282	93.98544829	93.02219071	92.0785602
200310A00005	3/10/2020	1.41	3/8/2030	3/10/2020	107.73327	101.6352883	95.91863804	90.55754607	85.52811134	80.80815854	76.37710466	72.21583672	68.30659941
200310A00015	3/10/2020	1.37	3/11/2030	3/10/2020	107.49131	101.3928526	95.67632316	90.31587323	85.28753627	80.56907825	76.1398637	71.9807327	68.07388798
200310A00020	3/10/2020	1.1	3/10/2025	3/10/2020	100.21381	99.11879231	98.04755137	96.99931559	95.97335055	94.96895282	93.98544829	93.02219071	92.0785602
200310A00021	3/10/2020	1.1	3/10/2025	3/10/2020	100.21381	99.11879231	98.04755137	96.99931559	95.97335055	94.96895282	93.98544829	93.02219071	92.0785602
200310A00028	3/10/2020	1.1	3/10/2025	3/10/2020	100.21381	99.11879231	98.04755137	96.99931559	95.97335055	94.96895282	93.98544829	93.02219071	92.0785602
200310A00033	3/10/2020	0.91	3/10/2025	3/10/2020	100.17761	99.08020403	98.00666355	96.95621963	95.92813378	94.92169869	93.93623661	92.9710978	92.02565913

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200310A00034	3/10/2020	1.41	3/11/2030	3/10/2020	107.7377	101.6318178	95.90819096	90.54095603	85.50612974	80.78146245	76.34630401	72.1814807	68.26918229
200310A00038	3/10/2020	1.41	3/11/2030	3/10/2020	107.7377	101.6318178	95.90819096	90.54095603	85.50612974	80.78146245	76.34630401	72.1814807	68.26918229
200310A00040	3/10/2020	1.36	3/10/2028	3/10/2020	105.32469	101.2288167	97.31387309	93.57090786	89.99146339	86.56754501	83.29159287	80.15645575	77.15536665
200310A00041	3/10/2020	1.39	3/12/2029	3/10/2020	106.84763	101.7328632	96.89158211	92.30776148	87.96639659	83.85343535	79.95571268	76.26088972	72.75739766
200310A00051	3/10/2020	1.41	3/8/2030	3/10/2020	107.73327	101.6352883	95.91863804	90.55754607	85.52811134	80.80815854	76.37710466	72.21583672	68.30659941
200310A00054	3/10/2020	1.1	3/10/2025	3/10/2020	100.21381	99.11879231	98.04755137	96.99931559	95.97335055	94.96895282	93.98544829	93.02219071	92.0785602
200310A00062	3/10/2020	1.05	3/8/2024	3/10/2020	99.953858	99.85157929	99.74952234	99.64768631	99.54607043	99.44467395	99.34349614	99.24253625	99.14179354
200311A00031	3/11/2020	1.41	12/24/2027	3/11/2020	105.17642	101.2918693	97.57123304	94.00676671	90.59113458	87.31738295	84.17891821	81.16948633	78.28315362
200311A00050	3/2/2021	1.46	3/2/2026	3/2/2021	102.22746	100.1621951	98.14865982	96.18521623	94.27028831	92.40236151	90.57997994	88.80174354	87.06630556
200311A00052	3/2/2021	1.43	2/28/2025	3/2/2021	100.56087	99.49038939	98.44256583	97.41668329	96.41205884	95.42803765	94.46399151	93.51931748	92.5934367
200311A00055	3/11/2020	1.66	12/17/2027	3/11/2020	106.12225	102.2377852	98.51628108	94.95008203	91.53192979	88.25494219	85.11259172	82.09868539	79.2073459
200312A00006	3/12/2020	1.23	3/12/2025	3/12/2020	100.36176	99.26055828	98.18337344	97.12942681	96.09797306	95.08829845	94.09971916	93.13157972	92.18325157
200312A00009	3/12/2020	1.46	3/12/2027	3/12/2020	104.01337	100.9172709	97.92896623	95.04409077	92.25848062	89.56816554	86.96935864	84.4584467	82.03198103
200312A00014	3/12/2020	1.04	3/12/2025	3/12/2020	100.32551	99.22189633	98.14239531	97.08622485	96.05263551	95.04090963	94.05035967	93.08032666	92.1301787
200312A00015	3/12/2020	1.23	3/10/2025	3/12/2020	100.35871	99.26283654	98.19075074	97.14168269	96.11489766	95.10969191	94.12539106	93.16134854	92.21694424
200312A00037	3/12/2020	1.3	3/12/2025	3/12/2020	100.44017	99.33850107	98.26085706	97.20645811	96.17455876	95.16444508	94.1754331	93.20686719	92.25811865
200316A00009	3/16/2020	1.25	3/14/2025	3/16/2020	100.38732	99.28065768	98.1982419	97.13928726	96.10303776	95.08876956	94.09578932	93.12343255	92.17106221
200316A00037	3/16/2020	1.06	3/14/2025	3/16/2020	100.3509	99.24180905	98.1570624	97.09587019	96.05747221	95.04114067	94.04617844	93.07191751	92.11771744
200316A00042	3/16/2020	1.23	3/15/2024	3/16/2020	99.967121	99.84555353	99.72429775	99.60335263	99.48271693	99.36238941	99.24236886	99.12265404	99.00324377
200316A00043	3/16/2020	1.3	3/14/2025	3/16/2020	100.44361	99.33660285	98.25385602	97.1945753	96.15800458	95.14341989	94.15012777	93.17746364	92.22479033
200316A00046	3/16/2020	1.18	3/18/2024	3/16/2020	99.95707	99.82726452	99.69781211	99.56871085	99.43995927	99.31155592	99.18349934	99.05578809	98.92842074
200316A00049	3/16/2020	1.25	3/14/2025	3/16/2020	100.38732	99.28065768	98.1982419	97.13928726	96.10303776	95.08876956	94.09578932	93.12343255	92.17106221
200316A00050	3/16/2020	1.54	3/16/2027	3/16/2020	104.28307	101.1721602	98.16981586	95.27162712	92.47338944	89.77109457	87.16091998	84.639219	82.20251156
200316A00055	3/16/2020	1.06	3/14/2025	3/16/2020	100.3509	99.24180905	98.1570624	97.09587019	96.05747221	95.04114067	94.04617844	93.07191751	92.11771744
200317A00023	3/17/2020	1.1	3/17/2025	3/17/2020	100.40076	99.28336711	98.19068105	97.12188727	96.07620934	95.05290413	94.05126006	93.07059544	92.11025692
200317A00027	3/17/2020	1.29	3/17/2025	3/17/2020	100.43742	99.32248409	98.23215106	97.16561564	96.12210566	95.10088205	94.10123706	93.12249263	92.16399883
200317A00045	3/19/2020	1.43	3/19/2025	3/19/2020	100.60031	99.47907843	98.38269564	97.31034716	96.26124971	95.2346537	94.22984145	93.24612552	92.28284713
200318A00013	3/18/2020	1.5	3/18/2025	3/18/2020	100.6778	99.55875901	98.46445888	97.39408894	96.34687109	95.32206067	94.31894463	93.3368399	92.37509182
200318A00037	3/18/2020	1.35	3/18/2024	3/18/2020	99.979231	99.8494036	99.71992924	99.59080607	99.46203264	99.33360747	99.20552913	99.07779616	98.95040714
200318A00038	3/18/2020	1.48	3/18/2025	3/18/2020	100.65507	99.53616361	98.44199839	97.3717613	96.32467432	95.29999282	94.2970038	93.31502424	92.35339953
200318A00044	3/18/2020	1.17	3/18/2024	3/18/2020	99.972643	99.84265199	99.71301566	99.5837328	99.4548019	99.32622147	99.19799003	99.07010611	98.94256824
200318A00047	3/18/2020	1.29	3/18/2025	3/18/2020	100.61852	99.4971469	98.40061795	97.32811236	96.2788478	95.25207556	94.24707879	93.2631708	92.29969352
200318A00054	3/18/2020	1.56	3/18/2025	3/18/2020	100.746	99.62654522	98.53184037	97.46107184	96.41346139	95.38826421	94.3847671	93.40228686	92.44016869

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200319A00025	3/19/2020	1.39	3/21/2024	3/19/2020	99.983458	99.84536752	99.7076716	99.57036891	99.43345773	99.29693637	99.16080312	99.02505631	98.88969425
200320A00013	3/20/2020	1.25	3/20/2024	3/20/2020	99.982328	99.84681309	99.71168126	99.57693091	99.44256038	99.308568	99.17495213	99.04171114	98.90884341
200320A00049	3/25/2020	1.47	3/25/2025	3/25/2020	100.659	99.52144635	98.40945787	97.32217845	96.25879208	95.2185183	94.20061031	93.20435319	92.22906216
200320A00052	3/25/2020	1.47	3/25/2025	3/25/2020	100.659	99.52144635	98.40945787	97.32217845	96.25879208	95.2185183	94.20061031	93.20435319	92.22906216
200324A00012	3/25/2020	1.78	3/25/2025	3/25/2020	101.01731	99.87756737	98.76341868	97.67401238	96.60853161	95.56619508	94.5462552	93.54799627	92.57073278
200324A00013	3/25/2020	1.78	3/25/2025	3/25/2020	101.01731	99.87756737	98.76341868	97.67401238	96.60853161	95.56619508	94.5462552	93.54799627	92.57073278
200324A00029	3/24/2020	1.86	3/24/2025	3/24/2020	101.10653	99.96889987	98.85676182	97.7692624	96.70558997	95.66496822	94.64665422	93.64993667	92.67413422
200324A00031	3/24/2020	1.64	3/22/2024	3/24/2020	100.01849	99.87760761	99.73713584	99.59707169	99.45741336	99.31815907	99.17930703	99.04085547	98.90280265
200324A00051	3/24/2020	1.73	11/1/2024	3/24/2020	100.43161	99.68169204	98.94292491	98.21506517	97.49787278	96.79111471	96.09456467	95.40800287	94.73121578
200324A00066	3/26/2020	1.81	3/26/2025	3/26/2020	101.05511	99.91246442	98.79554022	97.70347411	96.63544364	95.59066229	94.56837749	93.56786887	92.5884465
200325A00009	3/27/2020	1.67	3/27/2025	3/27/2020	100.89564	99.75130907	98.63280313	97.53925262	96.46982997	95.42374384	94.40023716	93.39858528	92.41809426
200325A00016	3/30/2020	1.67	3/31/2025	3/30/2020	100.90657	99.751521	98.62276833	97.5194223	96.44063324	95.38558897	94.35351275	93.34366138	92.35532341
200325A00042	3/25/2020	1.58	3/25/2024	3/25/2020	100.01059	99.86145941	99.7127799	99.5645518	99.41677307	99.26944163	99.12255546	98.97611252	98.83011078
200325A00043	3/25/2020	1.62	6/25/2024	3/25/2020	100.10103	99.70039798	99.30296647	98.90870094	98.51756364	98.12951742	97.74452574	97.36255259	96.98356257
200325A00044	3/25/2020	1.7	12/23/2024	3/25/2020	100.62022	99.72908335	98.85366814	97.99356471	97.14837403	96.31771085	95.50120308	94.69849125	93.90922796
200325A00046	3/25/2020	1.76	3/25/2025	3/25/2020	100.9942	99.85459182	98.7405825	97.65131342	96.58596777	95.54376432	94.52395553	93.52582575	92.54868952
200325A00047	3/25/2020	1.68	9/25/2024	3/25/2020	100.27093	99.62153632	98.9805287	98.3477451	97.72302807	97.10622411	96.49718363	95.89576076	95.3018133
200326A00009	3/27/2020	1.54	3/27/2025	3/27/2020	100.74466	99.6012623	98.4836707	97.39102035	96.32248405	95.27727082	94.25462392	93.25381902	92.27416251
200326A00011	3/30/2020	1.54	3/31/2025	3/30/2020	100.75417	99.60006322	98.472242	97.36981284	96.29192644	95.237771	94.20657011	93.19758093	92.21009233
200326A00016	3/26/2020	1.54	3/25/2025	3/26/2020	100.73991	99.60186077	98.4893845	97.40162482	96.33776552	95.29702596	94.27865916	93.28195001	92.30621359
200327A00030	3/27/2020	1.01	3/27/2024	3/27/2020	99.922474	99.76793694	99.6138832	99.46031059	99.30721684	99.15459972	99.002457	98.85078647	98.69958593
200327A00031	3/27/2020	1.18	3/27/2025	3/27/2020	100.32657	99.18574817	98.07068859	96.980531	95.91444922	94.87165323	93.85138724	92.85292784	91.87558229
200327A00035	3/27/2020	0.83	3/27/2024	3/27/2020	99.914487	99.75975473	99.60550834	99.4517459	99.29846513	99.14566373	98.99333945	98.84149003	98.69011323
200327A00037	3/27/2020	1.18	3/27/2026	3/27/2020	102.01782	99.88343319	97.80383484	95.77723847	93.80192793	91.87625659	89.99864384	88.16757187	86.38158264
200327A00042	3/27/2020	0.83	3/27/2024	3/27/2020	99.914487	99.75975473	99.60550834	99.4517459	99.29846513	99.14566373	98.99333945	98.84149003	98.69011323
200327A00043	3/27/2020	1.48	3/27/2028	3/27/2020	106.45558	102.2753886	98.28165644	94.46506192	90.81680454	87.32857103	83.99250551	80.80118151	77.74757596
200327A00045	3/27/2020	2.24	3/27/2034	3/27/2020	119.94831	109.411571	99.90117235	91.31131056	83.5476118	76.52584205	70.17077014	64.41516359	59.19890107
200327A00046	3/27/2020	1.23	3/27/2025	3/27/2020	100.38464	99.24345846	98.12804722	97.03754341	95.97112072	94.927989	93.90739233	92.90860717	91.93094065
200327A00047	3/27/2020	0.99	3/27/2025	3/27/2020	100.28883	99.14547578	98.02799423	96.93551388	95.867204	94.82227025	93.79995277	92.79952428	91.82028838
200327A00048	3/27/2020	1.18	3/24/2025	3/27/2020	100.32241	99.1895771	98.08215563	96.99930018	95.94020098	94.90408352	93.89020658	92.89786054	91.92636567
200327A00051	3/27/2020	0.99	3/27/2025	3/27/2020	100.28883	99.14547578	98.02799423	96.93551388	95.867204	94.82227025	93.79995277	92.79952428	91.82028838
200327A00055	3/27/2020	1.01	3/27/2024	3/27/2020	99.922474	99.76793694	99.6138832	99.46031059	99.30721684	99.15459972	99.002457	98.85078647	98.69958593
200327A00056	3/27/2020	1.18	3/27/2025	3/27/2020	100.32657	99.18574817	98.07068859	96.980531	95.91444922	94.87165323	93.85138724	92.85292784	91.87558229

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200327A00059	3/27/2020	1.01	3/27/2024	3/27/2020	99.922474	99.76793694	99.6138832	99.46031059	99.30721684	99.15459972	99.002457	98.85078647	98.69958593
200327A00060	3/27/2020	1.18	3/27/2025	3/27/2020	100.32657	99.18574817	98.07068859	96.980531	95.91444922	94.87165323	93.85138724	92.85292784	91.87558229
200327A00061	3/31/2020	1.18	3/31/2025	3/31/2020	100.33212	99.18064169	98.05539987	96.95550972	95.880123	94.8284289	93.79965203	92.79305046	91.80791397
200327A00073	3/27/2020	0.99	3/27/2025	3/27/2020	100.28883	99.14547578	98.02799423	96.93551388	95.867204	94.82227025	93.79995277	92.79952428	91.82028838
200330A00006	3/30/2020	0.9	3/28/2025	3/30/2020	100.18525	99.03987178	97.92047512	96.82618245	95.75615772	94.70960168	93.68574976	92.68387029	91.70326271
200330A00007	3/30/2020	0.93	4/1/2024	3/30/2020	99.90228	99.73402323	99.56633181	99.39920337	99.23263507	99.06662411	98.90116773	98.73626315	98.57190762
200330A00008	3/30/2020	1.09	3/28/2025	3/30/2020	100.22319	99.0803489	97.96337951	96.87141445	95.80362231	94.75920814	93.7374115	92.73750459	91.75879053
200330A00011	3/30/2020	0.93	4/1/2024	3/30/2020	99.90228	99.73402323	99.56633181	99.39920337	99.23263507	99.06662411	98.90116773	98.73626315	98.57190762
200330A00028	3/30/2020	1.09	3/28/2025	3/30/2020	100.22319	99.0803489	97.96337951	96.87141445	95.80362231	94.75920814	93.7374115	92.73750459	91.75879053
200330A00037	3/30/2020	1.09	3/28/2025	3/30/2020	100.22319	99.0803489	97.96337951	96.87141445	95.80362231	94.75920814	93.7374115	92.73750459	91.75879053
200330A00038	3/30/2020	1.79	3/29/2030	3/30/2020	110.12379	103.898822	98.06488477	92.59539537	87.46571084	82.6529798	78.13600288	73.89510485	69.91201722
200330A00044	3/30/2020	1.09	3/28/2025	3/30/2020	100.22319	99.0803489	97.96337951	96.87141445	95.80362231	94.75920814	93.7374115	92.73750459	91.75879053
200330A00054	3/30/2021	1.19	3/30/2026	3/30/2021	101.76978	99.63578296	97.55662612	95.53051797	93.55573804	91.63063568	89.75362655	87.92318944	86.13786311
200330A00066	3/30/2020	1.08	3/31/2025	3/30/2020	100.21489	99.06413571	97.93961039	96.84042552	95.76573315	94.71472276	93.68661922	92.68068088	91.69619776
200331A00007	3/31/2020	0.72	3/29/2024	3/31/2020	99.893721	99.733504	99.57380361	99.41461777	99.255944	99.09777982	98.94012277	98.7829704	98.62632029
200331A00011	3/31/2020	1.09	3/31/2025	3/31/2020	100.22661	99.07578631	97.95118934	96.85193394	95.77717213	94.72609338	93.6979225	92.69191784	91.70736939
200331A00014	3/31/2020	0.72	3/29/2024	3/31/2020	99.893721	99.733504	99.57380361	99.41461777	99.255944	99.09777982	98.94012277	98.7829704	98.62632029
200331A00016	3/31/2020	1.11	3/31/2026	3/31/2020	101.88205	99.73859284	97.65036529	95.61555531	93.63242599	91.69931114	89.81461173	87.9767926	86.1843793
200331A00017	3/31/2020	0.9	3/31/2025	3/31/2020	100.18838	99.0349971	97.90795172	96.80634894	95.7293361	94.67609823	93.64585597	92.63786371	91.65140771
200331A00022	4/1/2020	1.07	4/1/2025	4/1/2020	100.20482	99.0514685	97.92447074	96.82292888	95.74598906	94.69283521	93.66268698	92.65479779	91.66845304
200401A00001	4/1/2020	1.01	4/1/2025	4/1/2020	100.13431	98.9814019	97.85483592	96.75371905	95.67719762	94.62445574	93.59471321	92.58722363	91.60127253
200401A00013	4/1/2020	1.01	4/1/2025	4/1/2020	100.13431	98.9814019	97.85483592	96.75371905	95.67719762	94.62445574	93.59471321	92.58722363	91.60127253
200401A00023	4/1/2020	0.82	4/1/2025	4/1/2020	100.0959	98.94043209	97.81141168	96.70794188	95.62916428	94.57425854	93.54244027	92.53295906	91.54509672
200402A00009	4/2/2020	1.03	4/2/2025	4/2/2020	100.15935	99.00363208	97.87437946	96.77069488	95.69171865	94.63662924	93.60464113	92.59500291	91.60699541
200402A00010	4/2/2020	0.89	4/2/2024	4/2/2020	99.894047	99.72305998	99.55265913	99.3828416	99.21360441	99.0449446	98.8768592	98.70934529	98.54239996
200402A00013	4/2/2020	0.89	4/2/2024	4/2/2020	99.894047	99.72305998	99.55265913	99.3828416	99.21360441	99.0449446	98.8768592	98.70934529	98.54239996
200402A00014	4/2/2020	0.84	4/2/2025	4/2/2020	100.12089	98.96259583	97.83088076	96.72483572	95.64359628	94.58633641	93.55226636	92.54063073	91.55070657
200402A00036	4/2/2020	0.71	4/2/2024	4/2/2020	99.885152	99.7139476	99.54333317	99.37330533	99.20386102	99.03499722	98.86671095	98.69899921	98.53185905
200402A00038	4/2/2020	0.84	4/2/2025	4/2/2020	100.12089	98.96259583	97.83088076	96.72483572	95.64359628	94.58633641	93.55226636	92.54063073	91.55070657
200402A00041	4/2/2020	1.03	4/2/2025	4/2/2020	100.15935	99.00363208	97.87437946	96.77069488	95.69171865	94.63662924	93.60464113	92.59500291	91.60699541
200402A00044	4/2/2020	1.65	4/2/2030	4/2/2020	109.26348	103.0540563	97.23577115	91.78196959	86.66795357	81.87082417	77.3693412	73.14379443	69.17588559
200402A00048	4/2/2020	0.71	4/2/2024	4/2/2020	99.885152	99.7139476	99.54333317	99.37330533	99.20386102	99.03499722	98.86671095	98.69899921	98.53185905
200403A00018	4/3/2020	0.91	4/3/2024	4/3/2020	99.896072	99.72234218	99.54921932	99.37670035	99.20478208	99.03346138	98.86273513	98.69260023	98.52305359

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200403A00025	4/3/2020	0.91	4/3/2024	4/3/2020	99.896072	99.72234218	99.54921932	99.37670035	99.20478208	99.03346138	98.86273513	98.69260023	98.52305359
200406A00053	4/6/2020	1.13	4/7/2025	4/6/2020	100.28621	99.11641154	97.97370872	96.8571708	95.76590788	94.69906999	93.65584489	92.63545597	91.63716036
200406A00060	4/6/2020	1.03	4/5/2024	4/6/2020	99.914871	99.73563645	99.5570514	99.37911182	99.20181417	99.02515497	98.84913074	98.67373803	98.49897341
200407A00004	4/7/2020	0.99	4/7/2025	4/7/2020	100.3071	99.13430895	97.98873322	96.86943281	95.77551277	94.70611833	93.66043274	92.63767512	91.63709855
200407A00019	4/7/2020	1.06	4/8/2024	4/7/2020	99.917283	99.72982658	99.54308267	99.35704762	99.17171733	98.98708777	98.80315491	98.61991476	98.43736336
200413A00011	4/13/2020	0.94	4/12/2024	4/13/2020	99.889341	99.69096433	99.49338776	99.29660647	99.10061561	98.90541034	98.7109859	98.51733754	98.32446055
200413A00027	4/13/2020	0.94	4/12/2024	4/13/2020	99.889341	99.69096433	99.49338776	99.29660647	99.10061561	98.90541034	98.7109859	98.51733754	98.32446055
200414A00014	4/14/2020	0.76	4/12/2024	4/14/2020	99.879014	99.68038223	99.48255501	99.28552707	99.0892935	98.89384941	98.69918995	98.50531032	98.31220576
200415A00020	4/15/2020	0.86	4/15/2024	4/15/2020	99.868719	99.66215462	99.45645773	99.25162246	99.04764334	98.84451496	98.64223192	98.4407889	98.24018061
200415A00021	4/15/2020	1.37	4/15/2027	4/15/2020	103.88337	100.6983915	97.62697166	94.66439006	91.80615422	89.04798696	86.3858145	83.81575529	81.33410956
200415A00023	4/15/2020	1.71	4/15/2030	4/15/2020	109.66948	103.4127537	97.55194589	92.05994781	86.91164968	82.08378025	77.55476244	73.30458113	69.314662
200415A00024	4/15/2020	2.2	4/16/2035	4/15/2020	118.58283	107.2105228	97.04629563	87.95479857	79.81651392	72.52582838	65.98935112	60.12444285	54.85792863
200415A00027	4/15/2020	0.86	4/15/2024	4/15/2020	99.868719	99.66215462	99.45645773	99.25162246	99.04764334	98.84451496	98.64223192	98.4407889	98.24018061
200415A00031	4/15/2020	0.97	4/15/2025	4/15/2020	100.10656	98.91664913	97.75481161	96.62006248	95.51146382	94.42812053	93.36917798	92.33381966	91.32126515
200415A00036	4/15/2020	0.91	10/15/2024	4/15/2020	99.788905	99.08740062	98.39572058	97.71365928	97.04101709	96.37759988	95.72321881	95.07769019	94.44083527
200415A00037	4/15/2020	0.97	4/15/2025	4/15/2020	100.10656	98.91664913	97.75481161	96.62006248	95.51146382	94.42812053	93.36917798	92.33381966	91.32126515
200415A00038	4/15/2020	1.37	4/15/2027	4/15/2020	103.88337	100.6983915	97.62697166	94.66439006	91.80615422	89.04798696	86.3858145	83.81575529	81.33410956
200417A00002	4/17/2020	0.96	4/17/2025	4/17/2020	100.09712	98.90195873	97.7351206	96.59560639	95.48246596	94.39479274	93.33172128	92.29242495	91.27611377
200417A00004	4/17/2020	0.86	4/17/2024	4/17/2020	99.865615	99.65357884	99.44245543	99.23223864	99.02292259	98.81450142	98.60696936	98.40032066	98.19454962
200417A00008	4/17/2020	0.96	4/17/2025	4/17/2020	100.09712	98.90195873	97.7351206	96.59560639	95.48246596	94.39479274	93.33172128	92.29242495	91.27611377
200417A00014	4/17/2020	0.96	4/17/2025	4/17/2020	100.09712	98.90195873	97.7351206	96.59560639	95.48246596	94.39479274	93.33172128	92.29242495	91.27611377
200417A00019	4/17/2020	0.77	4/17/2025	4/17/2020	100.05735	98.85950014	97.69008732	96.54810788	95.43260644	94.3426715	93.27743296	92.23605979	91.21775786
200421A00020	4/24/2020	0.83	3/15/2024	4/24/2020	99.918302	99.7967801	99.6755703	99.55467107	99.43408116	99.31379935	99.1938244	99.07415511	98.95479026
200421A00031	4/21/2020	0.84	4/19/2024	4/21/2020	99.858132	99.64063084	99.42408855	99.20849845	98.99385421	98.78014957	98.56737831	98.35553426	98.14461133
200421A00032	4/21/2020	1.31	4/21/2027	4/21/2020	103.71672	100.5181303	97.43410195	94.45985038	91.59082342	88.82268824	86.15131914	83.57278612	81.08334417
200423A00006	4/23/2020	0.82	4/23/2025	4/23/2020	100.12678	98.91250378	97.72742094	96.57049429	95.440731	94.33718437	93.25895125	92.2051695	91.17501576
200423A00017	4/23/2020	1.82	4/23/2035	4/23/2020	115.8584	104.5260639	94.40837826	85.36843593	77.28542132	70.05264285	63.57581712	57.77156927	52.56612131
200423A00027	4/28/2020	0.88	4/15/2024	4/28/2020	99.872876	99.66630657	99.46060383	99.25576274	99.05177782	98.84864365	98.64635485	98.44490608	98.24429206
200424A00014	4/28/2020	1.01	4/23/2025	4/28/2020	100.16698	98.9554344	97.77297255	96.61855438	95.49119248	94.38994529	93.31391447	92.26224245	91.23411014
200427A00017	4/27/2020	1.02	4/25/2025	4/27/2020	100.18235	98.96540134	97.77778133	96.61844513	95.48639282	94.38067112	93.30037064	92.24462345	91.2126007
200427A00018	4/27/2020	1.51	4/27/2028	4/27/2020	106.17187	101.9293106	97.87897159	94.01108789	90.31644934	86.78636511	83.41263104	80.1874993	77.10365016
200428A00002	4/28/2020	1.47	4/26/2030	4/28/2020	109.03193	102.7332514	96.83627039	91.31330158	86.13870863	81.28874467	76.7414029	72.47627993	68.47445051
200428A00003	4/29/2020	1.01	4/29/2025	4/29/2020	100.17588	98.94834709	97.75065183	96.58171817	95.44052114	94.32608391	93.23747503	92.1738058	91.13422785

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200429A00021	5/4/2020	0.97	4/29/2025	5/4/2020	100.1258	98.89859684	97.70122651	96.53261237	95.39172959	94.2776015	93.18929679	92.12592688	91.08664353
200429A00049	4/29/2020	1.25	4/29/2026	4/29/2020	102.03059	99.81235702	97.65281502	95.54998158	93.50195619	91.50691863	89.56312481	87.66890282	85.82264926
200429A00054	4/29/2020	1.04	4/29/2025	4/29/2020	100.21344	98.98565978	97.78772082	96.61854752	95.4771148	94.36244571	93.27360871	92.20971499	91.16991609
200429A00057	4/29/2020	1.4	4/29/2027	4/29/2020	104.04634	100.8206209	97.71104854	94.71274164	91.82105974	89.03158752	86.34012219	83.7426616	81.23539321
200429A00061	4/29/2020	1.66	10/29/2029	4/29/2020	108.94247	103.1579094	97.71512386	92.5921341	87.76848818	83.22515039	78.94439543	74.90971097	71.10570809
200430A00030	4/30/2020	0.96	4/30/2025	4/30/2020	100.11463	98.88484232	97.68501653	96.51406561	95.37095848	94.25471258	93.16439107	92.09910019	91.05798682
200504A00006	5/4/2020	0.94	5/5/2025	5/4/2020	100.10844	98.86613186	97.652647	96.4669882	95.30820132	94.17537562	93.06764125	91.98416702	90.92415822
200504A00007	5/4/2020	1.47	5/4/2028	5/4/2020	106.03221	101.7738462	97.70922471	93.828483	90.12231585	86.58194286	83.19907545	79.96588632	76.87498096
200511A00006	5/11/2020	1.65	5/13/2030	5/11/2020	109.35551	103.0342809	97.117661	91.57769359	86.38849231	81.5260788	76.96823237	72.69435238	68.68533207
200518A00019	5/19/2020	0.9	5/19/2025	5/19/2020	100.10913	98.8316175	97.57978417	96.35286577	95.15012941	93.97087116	92.8144146	91.68010943	90.56733028
200521A00013	5/21/2020	2.09	5/21/2035	5/21/2020	117.35335	105.9609773	95.79009674	86.70278118	78.57733753	71.3063257	64.79482521	58.9589201	53.72437391
200521A00015	5/21/2020	2.14	5/21/2036	5/21/2020	117.83587	105.5250473	94.63647862	84.99750999	76.45727526	68.88385306	62.16180332	56.19003469	50.8799571
200521A00016	5/21/2020	2.18	5/21/2037	5/21/2020	118.29008	105.0864945	93.51616053	83.36713605	74.45601117	66.62393976	59.7332405	53.66448281	48.31398629
200521A00017	5/21/2020	2.22	5/21/2038	5/21/2020	119.1511	105.0472155	92.80010237	82.1535541	72.88797804	64.8149982	57.77287905	51.62263937	46.24474937
200527A00012	5/27/2020	1.2	5/27/2027	5/27/2020	103.50191	100.2112572	97.04164339	93.98800094	91.04549732	88.20952712	85.47570013	82.83983007	80.29792401
200527A00013	5/27/2020	1.13	11/25/2026	5/27/2020	102.56597	99.78141801	97.08600205	94.47639487	91.94941148	89.50200326	87.13125126	84.83435991	82.60865107
200527A00014	5/27/2020	1.06	5/27/2026	5/27/2020	101.70009	99.411948	97.18615977	95.02068353	92.91355317	90.86287853	88.86684202	86.9236953	85.03175625
200527A00015	5/27/2020	0.99	11/26/2025	5/27/2020	100.88604	99.0950236	97.34412082	95.63218923	93.9581266	92.32086938	90.719391	89.15270034	87.61984026
200527A00016	5/27/2020	0.92	5/27/2025	5/27/2020	100.1651	98.8670857	97.59296782	96.3421235	95.1139499	93.90786495	92.7233064	91.559731	90.41661371
200529A00022	6/1/2020	0.98	6/1/2026	6/1/2020	101.53007	99.23072405	96.99438159	94.81897981	92.70253733	90.64314839	88.63897944	86.68826608	84.78930997
200605A00005	6/5/2020	0.99	6/5/2025	6/5/2020	100.29048	98.96801118	97.66901647	96.39292906	95.13919629	93.9072828	92.69666992	91.50685496	90.33735065
200611A00019	6/11/2020	0.88	12/11/2025	6/11/2020	100.72789	98.89876996	97.11144191	95.36471226	93.65742699	91.98847212	90.35677211	88.76128827	87.20101722
200611A00020	6/11/2020	0.81	6/11/2025	6/11/2020	100.06385	98.72678091	97.41371575	96.12406208	94.85724899	93.61272365	92.38995067	91.18841133	90.00760303
200611A00021	6/11/2020	0.72	6/11/2024	6/11/2020	99.753277	99.39148203	99.03231535	98.67574805	98.32175188	97.97029902	97.62136204	97.2749139	96.93092796
200629A00020	6/29/2020	1.4	6/28/2030	6/29/2020	107.83983	101.4447293	95.46747343	89.87870333	84.65126065	79.76001428	75.1816995	70.8947706	66.8792659
200629A00021	6/29/2020	1.21	6/29/2028	6/29/2020	105.12134	100.7326649	96.55053017	92.56419147	88.76351436	85.1389395	81.68144719	78.38252409	75.23413234
200629A00023	6/29/2020	0.95	6/29/2026	6/29/2020	101.55763	99.18224796	96.87392438	94.63040076	92.44950594	90.32915432	88.26734197	86.26214296	84.31170577
200708A00011	7/10/2020	2.87	7/10/2031	7/10/2020	119.49617	111.6968478	104.4709426	97.77315681	91.56199365	85.79942141	80.45056742	75.48344078	70.86868063
200730A00011	7/30/2020	1.15	7/28/2028	7/30/2020	104.94462	100.4842362	96.23738787	92.19277055	88.33973553	84.66824938	81.16885519	77.83263637	74.65118308
200730A00013	7/30/2020	0.74	1/30/2025	7/30/2020	99.798909	98.80999492	97.84053057	96.88994746	95.95769893	95.04325923	94.14612251	93.26580193	92.40182872
200818A00016	3/31/2021	0.57	4/1/2024	3/31/2021	99.841396	99.67321502	99.50559958	99.33854689	99.17205414	99.00611853	98.84073728	98.67590762	98.51162682
200818A00018	3/31/2021	0.57	4/1/2024	3/31/2021	99.841396	99.67321502	99.50559958	99.33854689	99.17205414	99.00611853	98.84073728	98.67590762	98.51162682
200824A00020	8/26/2020	1.57	8/26/2025	8/26/2020	101.46397	99.91518141	98.39746567	96.90995692	95.45182082	94.02225341	92.62047972	91.24575245	89.89735077

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200826A00019	8/26/2020	0.98	8/26/2026	8/26/2020	101.82269	99.29195006	96.83646329	94.45354335	92.14061964	89.89522956	87.71501326	85.59770853	83.54114615
200826A00021	8/26/2020	0.83	8/26/2025	8/26/2020	100.29539	98.75617247	97.24785556	95.76958153	94.32052045	92.89987266	91.50686729	90.14076104	88.80083687
200826A00028	8/28/2020	1.08	8/28/2024	8/28/2020	99.859197	99.28662824	98.72059936	98.16099844	97.60771655	97.0606472	96.51968628	95.98473199	95.45568479
200826A00029	8/28/2020	1.16	11/27/2024	8/28/2020	100.06823	99.24970223	98.44449109	97.65227805	96.87275057	96.10560607	95.35055151	94.60730302	93.87558557
200826A00038	8/28/2020	1.11	8/28/2024	8/28/2020	99.876613	99.3039874	98.73790165	98.17824432	97.62490647	97.07778161	96.53676562	96.00175671	95.47265531
200826A00039	8/28/2020	1.03	7/29/2024	8/28/2020	99.863723	99.37157149	98.8842531	98.4016973	97.92383458	97.4505968	96.9819171	96.51772992	96.05797095
200909A00001	9/9/2020	0.98	9/8/2028	9/9/2020	104.90633	100.3166338	95.95167889	91.79930838	87.84808392	84.0872436	80.50665812	77.09679013	73.84865637
200916A00015	9/16/2020	0.72	9/16/2025	9/16/2020	100.19262	98.59754984	97.03523656	95.50473399	94.00513548	92.53556873	91.09519408	89.68320306	88.29881683
200916A00016	9/16/2020	0.6	9/16/2024	9/16/2020	99.566738	98.94409004	98.32919982	97.72192275	97.12211807	96.52964847	95.94437999	95.36618193	94.7949267
200916A00019	9/16/2020	0.42	9/16/2024	9/16/2020	99.582397	98.9580572	98.3415178	97.73263347	97.13126221	96.53726553	95.95050833	95.37085878	94.79818827
200916A00023	9/16/2020	0.42	9/16/2024	9/16/2020	99.582397	98.9580572	98.3415178	97.73263347	97.13126221	96.53726553	95.95050833	95.37085878	94.79818827
200922A00015	9/24/2020	1.09	9/24/2025	9/24/2020	100.8281	99.20594714	97.61738456	96.06143489	94.537158	93.04364984	91.58004072	90.14549365	88.73920275
200928A00009	9/28/2020	1.51	9/28/2032	9/28/2020	110.32686	101.7126785	93.83310561	86.62173088	80.01846401	73.96890546	68.42378081	63.33843381	58.67237216
201001A00011	10/1/2020	0.71	6/17/2025	10/1/2020	99.94221	98.58982452	97.26198079	95.95806957	94.67750106	93.41970437	92.1841268	90.97023308	89.77750473
201001A00012	10/1/2020	0.74	9/16/2025	10/1/2020	100.22536	98.63001354	97.06742801	95.536658	94.03679672	92.56697174	91.12634331	89.71410282	88.32947131
201014A00002	10/14/2020	0.61	10/15/2024	10/14/2020	99.575065	98.87440269	98.1835564	97.50232069	96.83049607	96.16788854	95.51430938	94.86957503	94.23350685
201015A00002	10/15/2020	0.61	10/15/2024	10/15/2020	99.575065	98.87440269	98.1835564	97.50232069	96.83049607	96.16788854	95.51430938	94.86957503	94.23350685
201015A00003	10/15/2020	0.75	10/15/2025	10/15/2020	100.33428	98.66064509	97.02254005	95.4188963	93.8486908	92.31094123	90.80470393	89.32907195	87.88317326
201015A00024	10/19/2020	1.53	10/18/2027	10/19/2020	105.31905	101.6114355	98.05359666	94.6386353	91.36001625	88.21154366	85.18734111	82.28183297	79.48972702
201015A00025	10/19/2020	1.54	10/18/2027	10/19/2020	105.35645	101.6481366	98.08962176	94.67400416	91.39474792	88.24565648	85.22085275	82.31476045	79.52208675
201015A00030	10/19/2020	2.39	10/18/2027	10/19/2020	108.53525	104.7677321	101.1517547	97.6803567	94.34693937	91.145246	88.06934208	85.11359644	82.27266378
201015A00032	10/19/2020	2.33	10/19/2026	10/19/2020	105.7034	102.9750631	100.3309906	97.76803788	95.28319913	92.87360232	90.53650207	88.26927305	86.0694037
201019A00005	10/19/2020	0.79	10/20/2025	10/19/2020	100.41584	98.72841843	97.07702411	95.46056883	93.87800847	92.32834083	90.81060343	89.32387153	87.86725627
201019A00007	10/19/2020	0.64	10/21/2024	10/19/2020	99.596143	98.879307	98.17273954	97.47622141	96.78953943	96.11248641	95.44486095	94.78646723	94.1371148
201021A00011	10/21/2020	1.11	10/21/2027	10/21/2020	103.75932	100.0728981	96.535983	93.14167213	89.88342357	86.75503608	83.75062901	80.86462356	78.09172524
201021A00012	10/21/2020	1.85	10/19/2035	10/21/2020	114.52325	102.920256	92.60660816	83.4318271	75.26371527	67.98605404	61.49659986	55.70534067	50.53297754
201028A00011	10/28/2020	0.91	4/28/2026	10/28/2020	101.25983	99.05314812	96.90484472	94.81294949	92.77557324	90.79090648	88.85721536	86.97283768	85.13617933
201028A00013	10/28/2020	0.68	10/28/2024	10/28/2020	99.633025	98.89717075	98.17212381	97.45764733	96.7535117	96.05949387	95.37537719	94.70095114	94.03601114
201029A00002	10/29/2020	0.59	10/29/2025	10/29/2020	100.33046	98.61597888	96.93855595	95.29705972	93.69040236	92.11754038	90.57747231	89.06923655	87.59190931
201030A00012	10/30/2020	0.63	10/30/2025	10/30/2020	100.40329	98.68552214	97.00492814	95.36036762	93.75074815	92.17502192	90.63218336	89.12126698	87.64134532
201030A00016	10/30/2020	1.14	10/8/2027	10/30/2020	103.82312	100.1695875	96.66304224	93.29674979	90.06432896	86.95972764	83.97720374	81.11130718	78.35686322
201030A00017	10/30/2020	1.14	10/15/2027	10/30/2020	103.84931	100.1769414	96.65294604	93.27049924	90.02313232	86.904712	83.90942071	81.03173824	78.26642458
201030A00018	10/30/2020	1.15	10/22/2027	10/30/2020	103.91301	100.2210987	96.6789742	93.27971985	90.01677821	86.88393346	83.87529134	80.98526029	78.20853394

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201030A00019	10/30/2020	1.15	10/29/2027	10/30/2020	103.93941	100.2286308	96.66905077	93.25364905	89.97577928	86.82914318	83.80776988	80.90599661	78.11845078
201105A00003	11/6/2020	2.24	11/4/2030	11/6/2020	113.75114	106.8253483	100.3699601	94.35052071	88.73527988	83.49496152	78.60255835	74.03314446	69.7637043
201105A00016	11/9/2020	2.18	11/8/2027	11/9/2020	107.89108	104.0786133	100.4216781	96.91306531	93.54594261	90.31383307	87.21059448	84.23039994	81.36771959
201116A00021	11/16/2020	0.53	11/15/2024	11/16/2020	99.664772	98.87860247	98.1047686	97.34298188	96.59296274	95.85444017	95.12715146	94.41084181	93.70526413
201116A00024	11/18/2020	2.36	11/15/2034	11/18/2020	120.19804	109.1268171	99.18988126	90.26441116	82.24148663	75.02445253	68.52748117	62.67430979	57.39713076
201116A00025	11/18/2020	1.96	11/15/2032	11/18/2020	114.39588	105.4859079	97.34160186	89.89308737	83.07720715	76.83684068	71.12029898	65.88078295	61.0758981
201117A00016	11/17/2020	0.52	11/18/2024	11/17/2020	99.659139	98.86491948	98.08328805	97.31394752	96.55660981	95.81099581	95.07683498	94.35386508	93.64183179
201118A00009	11/18/2020	0.61	11/18/2025	11/18/2020	100.42087	98.65138074	96.92118916	95.2291498	93.57415976	91.95515686	90.37111178	88.82105634	87.30402166
201119A00021	11/23/2020	2.22	11/21/2030	11/23/2020	113.68224	106.7125117	100.219245	94.16739625	88.52466706	83.26127982	78.34976869	73.76478903	69.48294358
201119A00023	11/23/2020	2.23	11/21/2030	11/23/2020	113.75083	106.7788069	100.2833568	94.22943007	88.58472221	83.31944989	78.4061419	73.81944864	69.53596818
201123A00009	11/25/2020	1.02	11/25/2024	11/25/2020	99.940339	99.12787137	98.32854353	97.54203938	96.76805242	96.00628585	95.25645218	94.51827289	93.79147806
201123A00010	11/25/2020	1.48	11/24/2025	11/25/2020	101.7744	99.98046669	98.22657829	96.5115839	94.83437815	93.19389492	91.58910566	90.01901776	88.48267302
201123A00011	11/25/2020	1.41	11/24/2025	11/25/2020	101.6465	99.8537744	98.10106465	96.38722719	94.71115726	93.07178932	91.46809536	89.89908332	88.36379552
201203A00005	12/3/2020	0.78	12/3/2026	12/3/2020	101.96766	99.16174791	96.44653569	93.8186273	91.27477264	88.81186	86.42690938	84.11706617	81.87959523
201204A00015	12/8/2020	1.07	12/8/2025	12/8/2020	101.07394	99.24934194	97.46625896	95.72350699	94.01994417	92.35446812	90.72601435	89.13355464	87.57609565
201210A00021	12/10/2020	0.89	12/10/2027	12/10/2020	103.60447	99.77316345	96.10276001	92.58570868	89.21484951	85.9833928	82.8848981	79.91325439	77.06266163
201215A00001	12/15/2020	0.76	12/15/2025	12/15/2020	100.51293	98.67543266	96.8801499	95.12586638	93.41141049	91.73565156	90.09749811	88.49589629	86.92982828
201216A00003	12/16/2020	0.59	7/1/2024	12/16/2020	99.676145	99.26026774	98.84784629	98.43883814	98.03320111	97.63089369	97.23187509	96.83610514	96.44354436
201216A00004	12/16/2020	0.74	9/8/2025	12/16/2020	100.20328	98.62976622	97.08827226	95.57789212	94.09774958	92.64700108	91.22483423	89.83046631	88.46314293
201216A00013	12/16/2020	0.59	12/16/2025	12/16/2020	100.45569	98.61133062	96.8094774	95.04890735	93.32843714	91.64692491	90.00326858	88.39640416	86.82530417
201218A00014	12/18/2020	0.57	12/18/2025	12/18/2020	100.42255	98.57327308	96.76672807	95.00168174	93.27694145	91.59135654	89.94381649	88.3332493	86.75861986
201221A00014	12/21/2020	0.76	12/19/2025	12/21/2020	100.52283	98.67479272	96.86943483	95.10551856	93.3818535	91.69729105	90.05072268	88.44107825	86.86732444
201221A00015	12/21/2020	0.88	12/4/2026	12/21/2020	101.88478	99.085964	96.37752712	93.75609239	91.21842369	88.76142251	86.3821214	84.07767766	81.84536744
201223A00012	12/23/2020	0.91	12/18/2026	12/23/2020	102.01197	99.17473871	96.43023606	93.77494724	91.20551358	88.71872112	86.31149359	83.98088568	81.72407677
201223A00013	12/23/2020	0.9	12/11/2026	12/23/2020	101.96249	99.14426378	96.41759701	93.77903988	91.22529515	88.75320675	86.35975294	84.04203983	81.79729528
210104A00006	11/22/2021	0.88	11/20/2026	11/22/2021	101.8406	99.07994561	96.40735904	93.81953846	91.31333051	88.88571826	86.53381441	84.25485485	82.04619261
210104A00007	11/23/2021	0.88	11/23/2026	11/23/2021	101.85041	99.08148916	96.40113291	93.80602643	91.29300195	88.85902793	86.50120229	84.2167461	82.00299758
210104A00009	12/20/2021	0.89	12/18/2026	12/20/2021	101.95397	99.11759272	96.37391512	93.71943135	91.1507834	88.66475792	86.25827922	83.92840259	81.67230795
210104A00010	11/22/2021	0.88	11/20/2026	11/22/2021	101.8406	99.07994561	96.40735904	93.81953846	91.31333051	88.88571826	86.53381441	84.25485485	82.04619261
210104A00011	11/23/2021	0.88	11/23/2026	11/23/2021	101.85041	99.08148916	96.40113291	93.80602643	91.29300195	88.85902793	86.50120229	84.2167461	82.00299758
210104A00012	12/20/2021	0.89	12/18/2026	12/20/2021	101.95397	99.11759272	96.37391512	93.71943135	91.1507834	88.66475792	86.25827922	83.92840259	81.67230795
210121A00012	1/22/2021	0.64	10/15/2024	1/22/2021	99.596449	98.89570248	98.20477282	97.52345455	96.85154818	96.18885967	95.53520032	94.89038655	94.2542397
210121A00014	1/22/2021	0.64	10/25/2024	1/22/2021	99.595939	98.86837758	98.15138923	97.4447448	96.74822181	96.06160415	95.38468178	94.7172506	94.05911218

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210122A00005	1/26/2021	0.6	7/15/2024	1/26/2021	99.664975	99.21125139	98.76165597	98.31613291	97.87462695	97.43708383	97.00345026	96.5736739	96.14770334
210122A00006	1/25/2021	0.61	8/15/2024	1/25/2021	99.620012	99.08296927	98.55170292	98.02612017	97.50613007	96.99164364	96.48257373	95.97883506	95.48034414
210127A00008	1/27/2021	0.93	1/27/2027	1/27/2021	102.18697	99.24295497	96.39854769	93.64983998	90.99309921	88.42475985	85.94141495	83.53980813	81.21682598
210127A00009	1/27/2021	1.3	7/27/2029	1/27/2021	106.69032	101.2171308	96.05601243	91.18760499	86.59384886	82.25788771	78.16398238	74.29743127	70.64449685
210127A00010	1/27/2021	1.41	7/26/2030	1/27/2021	107.93869	101.4689141	95.42652174	89.78114263	84.50471427	79.57129278	74.9568828	70.63928185	66.59793788
210129A00002	2/3/2021	0.59	7/25/2024	2/3/2021	99.649121	99.16840081	98.6923069	98.22077245	97.75373217	97.29112201	96.83287916	96.37894196	95.92924993
210201A00001	2/1/2021	0.77	12/16/2025	2/1/2021	100.53428	98.69396595	96.89598498	95.139117	93.42218564	91.74405565	90.10363124	88.4998544	86.93170337
210201A00003	2/2/2021	0.74	10/15/2025	2/2/2021	100.31711	98.64362739	97.00567163	95.40217447	93.83211295	92.29450484	90.78840652	89.31291113	87.86714667
210201A00007	2/3/2021	0.57	8/15/2024	2/3/2021	99.59822	99.06124503	98.53004583	98.00452973	97.48460578	96.97018498	96.46118022	95.95750622	95.45907948
210208A00004	2/11/2021	0.76	10/15/2025	2/11/2021	100.35145	98.6776628	97.03940848	95.43561813	93.86526864	92.32737762	90.82100134	89.34523278	87.89919984
210208A00008	2/11/2021	0.78	11/17/2025	2/11/2021	100.47537	98.71260322	96.98885724	95.30299194	93.65391124	92.04055969	90.4619206	88.91701425	87.40489623
210216A00011	2/17/2021	0.83	12/15/2025	2/17/2021	100.64487	98.80609611	97.00956166	95.25404984	93.53838839	91.86144603	90.22213067	88.61938787	87.05219927
210217A00008	2/18/2021	0.63	8/15/2024	2/18/2021	99.630908	99.09383139	98.56253146	98.03691539	97.51689222	97.00237296	96.49327048	95.98949948	95.49097647
210217A00009	2/18/2021	0.68	11/15/2024	2/18/2021	99.652022	98.86768555	98.09563031	97.33556989	96.58722647	95.85033079	95.12462178	94.40984625	93.7057586
210218A00006	2/18/2021	0.5	2/20/2024	2/18/2021	99.94475	99.88940151	99.83412698	99.77892656	99.7238001	99.66874745	99.61376846	99.55886299	99.50403087
210218A00009	2/19/2021	0.62	7/15/2024	2/19/2021	99.674163	99.2204138	98.77079391	98.32524656	97.88371646	97.44614936	97.01249195	96.58269191	96.15669782
210218A00010	2/18/2021	1.72	2/18/2031	2/18/2021	110.48517	103.3871503	96.79256575	90.6631385	84.96368504	79.66185387	74.72788387	70.13438444	65.85613545
210218A00011	2/22/2021	0.85	10/24/2025	2/22/2021	100.53065	98.83174579	97.16927806	95.54214193	93.94927609	92.38966206	90.862322	89.36631663	87.90074333
210219A00004	2/19/2021	0.91	2/19/2026	2/19/2021	101.02987	99.00891764	97.03816361	95.11603402	93.24101677	91.4116579	89.6265589	87.88437412	86.18380841
210219A00008	2/22/2021	0.86	12/1/2025	2/22/2021	100.66292	98.86054699	97.09881797	95.37658755	93.69274787	92.04622898	90.43599728	88.86105407	87.32043414
210224A00002	2/25/2021	0.88	11/3/2025	2/25/2021	100.61211	98.88602873	97.19742174	95.54515193	93.92812733	92.34529981	90.79566284	89.27824936	87.79212987
210224A00003	2/26/2021	0.9	12/3/2025	2/26/2021	100.74249	98.93413692	97.16666692	95.43892597	93.74979674	92.09820023	90.48309423	88.90347181	87.35835993
210224A00004	2/26/2021	0.91	12/18/2025	2/26/2021	100.80432	98.95616107	97.15061683	95.38645408	93.66248574	91.97756633	90.3305903	88.72049034	87.14623582
210224A00006	2/26/2021	0.88	10/21/2025	2/26/2021	100.57443	98.88297819	97.22767697	95.60743325	94.02119806	92.46796459	90.94676603	89.45667349	87.9967942
210224A00007	2/26/2021	0.68	10/21/2024	2/26/2021	99.625316	98.90836237	98.20167879	97.5050457	96.8182499	96.14108418	95.47334713	94.8148429	94.16538104
210225A00003	3/1/2021	0.93	9/24/2025	3/1/2021	100.56265	98.94277507	97.35644794	95.80269406	94.28057437	92.78918587	91.32765988	89.89516035	88.49088236
210225A00006	2/25/2021	0.98	2/25/2026	2/25/2021	101.20103	99.16075242	97.17140896	95.23139394	93.33916322	91.49323254	89.6921747	87.93461692	86.21923831
210225A00007	2/25/2021	1.79	8/23/2030	2/25/2021	110.4934	103.8685835	97.68412586	91.90850246	86.51259793	81.46951355	76.75438753	72.34423083	68.21777699
210225A00012	3/1/2021	0.91	8/25/2025	3/1/2021	100.43435	98.8963647	97.38922872	95.91208741	94.46411324	93.04450879	91.65250534	90.28736158	88.9483624
210225A00013	3/1/2021	0.93	10/6/2025	3/1/2021	100.59995	98.94780336	97.33034402	95.74654758	94.19542712	92.6760344	91.18745794	89.7288212	88.29928092
210225A00015	3/1/2021	0.7	8/26/2024	3/1/2021	99.645606	99.07905543	98.51892164	97.96509584	97.41747197	96.87594636	96.34041762	95.81078658	95.28695629
210225A00016	3/1/2021	0.88	7/15/2025	3/1/2021	100.25764	98.82877336	97.42717131	96.05212492	94.70294667	93.37897233	92.07955992	90.80408882	89.55195885
210226A00002	2/26/2021	0.86	2/26/2025	2/26/2021	99.939778	98.87821975	97.83904167	96.8215426	95.8250505	94.84892085	93.89253523	92.95530003	92.03664521

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210226A00004	3/1/2021	1.04	12/5/2025	3/1/2021	101.00824	99.19211973	97.41716287	95.68219846	93.98609877	92.32777484	90.706175	89.12028326	87.56911792
210302A00005	3/5/2021	0.92	9/10/2025	3/5/2021	100.5005	98.91907934	97.36990913	95.85206963	94.36467585	92.90687598	91.47784973	90.07680694	88.70298611
210303A00006	3/4/2021	0.97	10/10/2025	3/4/2021	100.67981	99.01650186	97.38827732	95.79409529	94.2329522	92.70388411	91.20596467	89.73830332	88.30004348
210304A00002	3/5/2021	0.93	7/10/2025	3/5/2021	100.31671	98.90041537	97.51090326	96.14748208	94.80948228	93.49625675	92.2071799	90.94164672	89.69907199
210304A00006	3/4/2021	1.02	3/4/2026	3/4/2021	101.31157	99.25085498	97.24190398	95.28306914	93.3727695	91.50948604	89.6917587	87.91818361	86.18741048
210305A00006	3/8/2021	1.02	8/11/2025	3/8/2021	100.54712	99.04534312	97.57332186	96.13024163	94.71531977	93.32780138	91.9669581	90.63208696	89.32250924
210308A00009	3/8/2021	0.62	3/8/2024	3/8/2021	99.90972	99.80747889	99.70545942	99.60366079	99.50208225	99.40072306	99.29958246	99.19865972	99.09795409
210309A00002	3/11/2021	0.77	7/25/2024	3/11/2021	99.73677	99.25580247	98.7794627	98.30768408	97.8404013	97.37755031	96.91906825	96.46489347	96.01496546
210309A00004	3/11/2021	0.87	11/25/2024	3/11/2021	99.816482	99.00457118	98.20579454	97.41983537	96.6463873	95.88515365	95.13584704	94.39818906	93.67190987
210310A00003	3/15/2021	0.79	8/26/2024	3/15/2021	99.697361	99.13064197	98.57034068	98.01634874	97.46856005	96.92687094	96.39117998	95.861388	95.33739803
210311A00007	3/11/2021	1.06	3/11/2026	3/11/2021	101.42029	99.34004072	97.31236615	95.33558472	93.40807862	91.52829402	89.69473799	87.90597564	86.16062732
210312A00008	3/12/2021	1.13	3/12/2026	3/12/2021	101.57253	99.48800738	97.45620578	95.47543775	93.54407937	91.660571	89.82341423	88.03116897	86.28245064
210315A00003	3/15/2021	1.13	3/13/2026	3/15/2021	101.57624	99.48905077	97.45469683	95.47148573	93.53778828	91.6520399	89.81273753	88.01843664	86.26774851
210318A00007	3/22/2021	1.41	3/21/2024	3/22/2021	99.986232	99.848138	99.71043918	99.57313361	99.43621955	99.29969531	99.1635592	99.02780952	98.89244462
210319A00003	3/19/2021	0.95	3/19/2025	3/19/2021	100.05342	98.93548505	97.84235514	96.77321008	95.72726781	94.70377996	93.70203001	92.72133167	91.76102722
210324A00002	3/24/2021	2.06	3/24/2031	3/24/2021	113.03097	105.7529388	98.99516963	92.71774341	86.88399982	81.46025876	76.41556331	71.72144608	67.3517169
210324A00003	3/24/2021	1.18	3/24/2026	3/24/2021	101.72495	99.60722016	97.54362953	95.53241548	93.5718899	91.66043265	89.79648821	87.97856252	86.20522004
210330A00021	3/30/2021	2.16	3/28/2031	3/30/2021	113.76571	106.4514258	99.66014717	93.35171286	87.4892453	82.03886768	76.96944478	72.25234758	67.86123916
210330A00022	3/30/2021	1.27	3/30/2026	3/30/2021	101.94372	99.80779306	97.72674882	95.69879132	93.72219902	91.79532018	89.91656948	88.08442471	86.29742371
210330A00024	3/30/2021	0.68	3/29/2024	3/30/2021	99.86664	99.7066678	99.54720919	99.38826206	99.22982395	99.07189245	98.91446513	98.75753959	98.60111345
210407A00012	4/7/2021	0.94	4/7/2025	4/7/2021	100.05981	98.89143781	97.75013825	96.63498131	95.54507768	94.47957795	93.43767044	92.41857906	91.42156145
210407A00013	4/7/2021	1.23	4/7/2026	4/7/2021	101.89084	99.73388091	97.63278749	95.58571216	93.59088736	91.646618	89.7512779	87.90330635	86.10120481
210420A00009	4/20/2021	1.08	12/5/2025	4/20/2021	101.08253	99.26570404	97.49005187	95.75440506	94.0576355	92.39865393	90.77640831	89.18988235	87.63809404
210420A00010	4/20/2021	1.08	12/12/2025	4/20/2021	101.10601	99.27063796	97.47723863	95.7246139	94.01160322	92.33708645	90.69998211	89.09924583	87.53386884
210518A00023	5/18/2021	1.17	5/18/2026	5/18/2021	101.92262	99.65552675	97.44963399	95.30291056	93.21341034	91.17926473	89.19867903	87.26992888	85.391357
210525A00004	5/25/2021	1.02	12/19/2025	5/25/2021	101.01575	99.1629225	97.35286264	95.58433253	93.85613932	92.16713203	90.51619988	88.90227055	87.32430861
210526A00014	5/26/2021	1.01	12/19/2025	5/26/2021	100.99679	99.14414827	97.33426926	95.56591661	93.83789755	92.14906122	90.49829691	88.88453238	87.30673229
210526A00017	5/26/2021	2.13	5/26/2033	5/26/2021	116.57524	107.0674481	98.41810314	90.54502968	83.37430931	76.83941558	70.88044118	65.44340934	60.47965995
210526A00018	5/26/2021	1.11	5/26/2026	5/26/2021	101.81316	99.52630478	97.30170052	95.13730238	93.03114586	90.98134265	88.98607716	87.04360318	85.15224088
210610A00012	6/11/2021	1.9	6/10/2026	6/11/2021	103.74515	101.3948106	99.1093361	96.88658291	94.72449338	92.6210892	90.57446785	88.58279926	86.64432264
210610A00014	6/11/2021	2.03	6/10/2026	6/11/2021	104.05359	101.6995428	99.41043505	97.18412578	95.01855499	92.91174217	90.8617827	88.86684446	86.92516471
210611A00006	6/11/2021	1.85	6/11/2031	6/11/2021	111.76656	104.3250235	97.43090358	91.04114626	85.11629109	79.62015088	74.51952502	69.78393942	65.38541016
210616A00006	2/11/2022	0.86	2/11/2025	2/11/2022	99.929105	98.9075281	97.90669376	96.925976	95.96477355	95.02250885	94.09862695	93.19259437	92.30389811

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210616A00007	3/18/2022	0.9	3/18/2025	3/18/2022	99.99583	98.88089693	97.79064405	96.72425993	95.68096804	94.66002521	93.66071983	92.68237023	91.7243231
210616A00008	5/2/2022	0.95	5/2/2025	5/2/2022	100.1097	98.87491962	97.66964583	96.49282659	95.34346147	94.22059651	93.12332155	92.05076772	91.00210515
210616A00009	2/11/2022	0.86	2/11/2025	2/11/2022	99.929105	98.9075281	97.90669376	96.925976	95.96477355	95.02250885	94.09862695	93.19259437	92.30389811
210616A00011	5/2/2022	0.95	5/2/2025	5/2/2022	100.1097	98.87491962	97.66964583	96.49282659	95.34346147	94.22059651	93.12332155	92.05076772	91.00210515
210616A00012	3/18/2022	0.9	3/18/2025	3/18/2022	99.99583	98.88089693	97.79064405	96.72425993	95.68096804	94.66002521	93.66071983	92.68237023	91.7243231
210623A00026	6/23/2021	0.78	6/24/2024	6/23/2021	99.762531	99.36542649	98.97147941	98.58065255	98.19290891	97.80821208	97.42652622	97.04781606	96.67204687
210623A00028	6/23/2021	1.22	6/23/2026	6/23/2021	102.18692	99.82007928	97.51958502	95.2832176	93.10884249	90.9944087	88.93794504	86.9375565	84.99142084
210624A00003	6/24/2021	0.78	6/24/2024	6/24/2021	99.762531	99.36542649	98.97147941	98.58065255	98.19290891	97.80821208	97.42652622	97.04781606	96.67204687
210624A00004	6/24/2021	1.01	6/24/2025	6/24/2021	100.38194	99.00743681	97.65818338	96.333547	95.03291354	93.75568882	92.50129784	91.26918399	90.05880833
210624A00005	6/24/2021	1.22	6/24/2026	6/24/2021	102.19117	99.82155959	97.51844805	95.27960345	93.10288432	90.98623315	88.92767252	86.92530154	84.9772924
210624A00025	6/24/2021	1.43	6/24/2027	6/24/2021	104.40376	101.0221077	97.76736323	94.63411446	91.61720916	88.7117407	85.91303501	83.21663835	80.61830569
210624A00026	6/24/2021	1.6	6/23/2028	6/24/2021	106.82626	102.4164626	98.21297865	94.20512596	90.38282541	86.73656754	83.25737738	79.93678179	76.76677885
210629A00005	6/29/2021	1.25	6/29/2026	6/29/2021	102.28514	99.90081667	97.58374371	95.33165903	93.14238583	91.01383311	88.94399176	86.93093082	84.97279396
210629A00009	6/29/2021	1.14	12/31/2025	6/29/2021	101.2855	99.39859857	97.55591379	95.75614432	93.99803864	92.28038992	90.60203414	88.96184826	87.35874847
210629A00012	6/29/2021	1.14	12/29/2025	6/29/2021	101.27846	99.39686857	97.55925935	95.76434002	94.01086872	92.29764788	90.62352223	88.9873771	87.38813669
210629A00014	6/29/2021	1.78	12/28/2029	6/29/2021	109.80485	103.8355719	98.22783249	92.95791706	88.00378329	83.34493336	78.96229833	74.83813169	70.95591138
210629A00015	6/29/2021	1.89	6/27/2031	6/29/2021	112.1168	104.6200192	97.67752783	91.245502	85.28379506	79.75560825	74.627196	69.86759854	65.44839918
210701A00007	7/1/2021	1.22	7/1/2026	7/1/2021	102.22049	99.83163271	97.51030504	95.25422798	93.06121114	90.92915068	88.85602532	86.83989261	84.87888535
210706A00006	7/6/2021	1.15	7/6/2026	7/6/2021	102.06866	99.66861217	97.33679586	95.07088845	92.8686649	90.72798868	88.64680757	86.6231499	84.65512081
210706A00014	7/6/2021	1.15	6/26/2026	7/6/2021	102.03048	99.65741892	97.35110064	95.10928635	92.92982201	90.81063821	88.7497463	86.74523474	84.79526565
210706A00015	7/6/2021	1.06	12/31/2025	7/6/2021	101.13119	99.24581335	97.40462515	95.60632396	93.84965904	92.13342432	90.45645652	88.81763328	87.2158715
210707A00002	7/7/2021	1.12	6/26/2026	7/7/2021	101.95798	99.5858042	97.28035499	95.03939111	92.86075907	90.74239001	88.68229577	86.67856533	84.72936128
210707A00008	7/9/2021	2.44	7/7/2031	7/9/2021	116.26238	108.5887627	101.4812009	94.89492045	88.78890882	83.12557911	77.87046786	72.99196089	68.46104441
210709A00005	7/9/2021	1.69	7/9/2031	7/9/2021	110.65657	103.1820181	96.26352826	89.85691637	83.92171537	78.42084912	73.32033251	68.58899945	64.19825613
210709A00006	7/13/2021	2.4	7/11/2031	7/13/2021	115.98067	108.306896	101.2001708	94.61557729	88.51197174	82.85165216	77.60005427	72.72547568	68.19882555
210712A00008	6/27/2022	1.05	6/27/2025	6/27/2022	100.44868	99.06556479	97.70799609	96.37532542	95.06692849	93.7822014	92.52055983	91.28143828	90.06428926
210712A00010	6/27/2022	1.05	6/27/2025	6/27/2022	100.44868	99.06556479	97.70799609	96.37532542	95.06692849	93.7822014	92.52055983	91.28143828	90.06428926
210714A00020	7/14/2021	0.9	3/14/2025	7/14/2021	99.993355	98.88904152	97.8089431	96.75227099	95.71827003	94.70621726	93.71542011	92.74521492	91.79496537
210719A00004	7/19/2021	1	4/20/2026	7/19/2021	101.43337	99.24634387	97.1167218	95.04257654	93.02206613	91.05342554	89.13496273	87.26505493	85.44214515
210719A00009	7/19/2021	1.04	7/17/2026	7/19/2021	101.83671	99.41085035	97.05478528	94.7661128	92.54252994	90.38182647	88.28188059	86.24065482	84.25619209
210721A00009	7/21/2021	1.7	7/21/2031	7/21/2021	110.76117	103.2523405	96.30432891	89.87238586	83.91554935	78.39630396	73.28027472	68.53594955	64.13442761
210722A00008	7/21/2023	1.84	7/22/2030	7/21/2023	110.73968	104.1908044	98.07213447	92.3532124	87.00588544	82.00412027	77.32383315	72.94273465	68.84018741
210722A00009	7/21/2023	1.96	7/22/2032	7/21/2023	114.00692	105.4150135	97.53834669	90.31358953	83.68332663	77.59547415	72.00276004	66.86225735	62.13496491

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210729A00003	7/29/2021	1.11	7/29/2026	7/29/2021	102.05254	99.59264867	97.20440226	94.88530891	92.63297512	90.44510515	88.31949638	86.25403488	84.24669128
210729A00004	7/29/2021	1.74	7/29/2031	7/29/2021	111.08261	103.5416777	96.56523161	90.10811554	84.12900683	78.59006879	73.45664025	68.69695423	64.28188276
210729A00006	7/29/2021	1.87	11/30/2032	7/29/2021	113.6479	104.7304895	96.58351465	89.13638529	82.32531086	76.09261391	70.38611688	65.15859303	60.36727462
210803A00005	8/5/2021	2.06	8/4/2026	8/5/2021	104.47298	101.9663943	99.53295577	97.17010932	94.87540137	92.64647918	90.48108594	88.3770563	86.33231195
210826A00008	8/26/2021	0.89	2/26/2025	8/26/2021	99.972227	98.91048184	97.87111195	96.85343884	95.85676777	94.88046168	93.92390212	92.98649541	92.06767144
210826A00009	8/26/2021	1.18	8/26/2026	8/26/2021	102.33969	99.802193	97.34010402	94.95072999	92.63149576	90.37993441	88.19368185	86.07047186	84.00813133
210826A00013	8/26/2021	1.97	2/28/2033	8/26/2021	114.82853	105.6233836	97.23250365	89.57948479	82.59545767	76.21831307	70.39200692	65.06593984	60.19440318
210907A00004	9/7/2021	2.01	9/7/2033	9/7/2021	115.73628	105.9993063	97.16655395	89.14911376	81.86724611	75.24939567	69.23131339	63.75527679	58.76939697
210907A00006	9/7/2021	2.1	9/7/2034	9/7/2021	117.33747	106.5890859	96.92905788	88.24103563	80.42167189	73.37910957	67.03165159	61.30659068	56.13917912
210907A00007	9/7/2021	2.35	9/4/2037	9/7/2021	120.59853	107.0007887	95.11170034	84.70576324	75.58835968	67.59138357	60.56950933	54.39700187	48.964987
210907A00008	9/7/2021	2.42	9/7/2038	9/7/2021	122.21326	107.6507438	95.03192993	84.08444198	74.57545162	66.30575677	59.10477289	52.82629163	47.34488628
210907A00009	9/7/2021	2.5	9/7/2039	9/7/2021	124.76559	109.1782553	95.78704307	84.26692691	74.34267352	65.78099099	58.38394568	51.98344034	46.43657828
210907A00010	9/7/2021	2.58	9/7/2040	9/7/2021	127.96047	111.2864645	97.08073576	84.9590339	74.59900169	65.72991926	58.12419221	51.59027918	45.96680974
210907A00011	9/7/2021	2.65	9/6/2041	9/7/2021	131.33456	113.5430997	98.50862769	85.78126655	74.98707178	65.81486148	58.00538425	51.34240326	45.64534968
210907A00013	9/9/2021	2.14	9/9/2025	9/9/2021	102.47095	100.875739	99.31297954	97.7817489	96.28115812	94.81035151	93.36850502	91.95482478	90.56854569
210907A00014	9/9/2021	2.45	9/9/2026	9/9/2021	105.72973	103.1096573	100.5679617	98.10181558	95.70851575	93.38547439	91.13021307	88.94035733	86.81363157
210907A00015	9/9/2021	2.21	9/9/2026	9/9/2021	105.10006	102.4883353	99.95479322	97.49661588	95.11110586	92.79568079	90.54786751	88.36529662	86.24569737
210914A00012	9/14/2021	1.18	9/14/2027	9/14/2021	104.35341	100.7419867	97.27391877	93.94273101	90.74228042	87.66673578	84.71055991	81.86849296	79.13553681
210914A00014	9/14/2021	0.97	9/14/2026	9/14/2021	102.20811	99.61363831	97.09756639	94.65704733	92.28935602	89.99188451	87.762136	85.59771932	83.49634362
210914A00015	9/14/2021	0.81	9/15/2025	9/14/2021	100.57917	98.97937167	97.41244268	95.87743839	94.37344886	92.89959862	91.45504501	90.03897663	88.65061186
210914A00017	9/14/2021	1.32	9/14/2028	9/14/2021	106.51499	101.8718343	97.45621527	93.25579583	89.25897552	85.4548417	81.83312488	78.38415717	75.09883372
210914A00018	9/14/2021	1.43	9/14/2029	9/14/2021	108.27918	102.6057246	97.26238743	92.22827788	87.4839306	83.01120509	78.79318851	74.81410624	71.05923934
210916A00003	9/16/2021	0.75	9/16/2024	9/16/2021	99.661672	99.03868814	98.42346457	97.81585707	97.21572483	96.62293051	96.0373401	95.45882286	94.88725117
210916A00008	9/16/2021	1.48	9/15/2028	9/16/2021	106.64435	102.0146036	97.61128927	93.42215273	89.43566582	85.640983	82.02789708	78.58679807	75.30863491
210916A00009	9/16/2021	2.25	9/16/2036	9/16/2021	119.16643	106.494561	95.31775113	85.45058611	76.73155413	69.019858	62.19266462	56.14273175	50.77635855
210917A00003	9/17/2021	0.8	9/17/2024	9/17/2021	99.69319	99.06740771	98.44945348	97.83918107	97.23644788	96.64111481	96.05304617	95.47210959	94.89817588
210917A00004	9/17/2021	1.03	9/17/2025	9/17/2021	100.70366	99.10155253	97.53237033	95.99516197	94.48901491	93.01305126	91.56642604	90.14832567	88.75796649
210917A00012	9/17/2021	1.2	9/11/2026	9/17/2021	102.45878	99.87662089	97.37213429	94.94250929	92.58505788	90.29720695	88.07649257	85.92055449	83.82713099
210920A00014	9/9/2022	1.28	9/9/2026	9/9/2022	102.6601	100.0807125	97.57876523	95.15146702	92.79614254	90.51023062	88.29127849	86.13693635	84.04495235
210920A00015	9/9/2022	1.28	9/9/2026	9/9/2022	102.6601	100.0807125	97.57876523	95.15146702	92.79614254	90.51023062	88.29127849	86.13693635	84.04495235
210928A00007	9/28/2021	0.88	9/27/2024	9/28/2021	99.744973	99.09213661	98.44780455	97.81181124	97.18399576	96.56420129	95.952275	95.34806792	94.75143482
210928A00008	9/28/2021	1.35	9/28/2026	9/28/2021	102.93298	100.2982246	97.74375434	95.26661991	92.86400332	90.53320934	88.27165916	86.07688439	83.94652157
210928A00009	9/28/2021	2.18	9/28/2033	9/28/2021	117.43954	107.5679348	98.61576505	90.49226802	83.11608789	76.4142548	70.32128108	64.77835902	59.73264844

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210928A00010	9/28/2021	1.12	9/26/2025	9/28/2021	100.88548	99.25740808	97.66312068	96.10163341	94.57199809	93.07330307	91.60467144	90.16525939	88.75425457
210929A00011	3/16/2022	1.03	3/14/2025	3/16/2022	100.13969	99.03449895	97.9535398	96.89601989	95.86118376	94.84830811	93.8567001	92.88569576	91.93465848
210929A00012	3/16/2022	1.03	3/14/2025	3/16/2022	100.13969	99.03449895	97.9535398	96.89601989	95.86118376	94.84830811	93.8567001	92.88569576	91.93465848
211014A00018	10/14/2021	0.8	10/11/2024	10/14/2021	99.839198	99.14655038	98.46347687	97.7897798	97.12526704	96.46975168	95.82305185	95.18499056	94.55539553
211015A00029	10/15/2021	0.98	10/15/2024	10/15/2021	99.838801	99.13710014	98.44522556	97.76297162	97.09013866	96.42653252	95.77196434	95.12625039	94.4892119
211015A00031	10/15/2021	1.22	10/15/2025	10/15/2021	101.14125	99.46047711	97.81535607	96.20482232	94.62784937	93.08345157	91.57068206	90.0886308	88.63642277
211019A00009	10/19/2021	1.48	10/9/2026	10/19/2021	103.33291	100.6635953	98.07629678	95.5679789	93.13573639	90.77679202	88.48848992	86.26828924	84.1137583
211019A00011	10/19/2021	1.48	10/16/2026	10/19/2021	103.36554	100.6773307	98.07218779	95.54701182	93.09884335	90.72485427	88.42234097	86.18871776	84.02151082
211026A00012	10/26/2021	1.52	10/26/2026	10/26/2021	103.52228	100.8055456	98.17341544	95.62270729	93.15038214	90.75353729	88.42939907	86.17531602	83.98875249
211026A00013	10/26/2021	1.52	10/26/2026	10/26/2021	103.52228	100.8055456	98.17341544	95.62270729	93.15038214	90.75353729	88.42939907	86.17531602	83.98875249
211028A00012	10/28/2021	1.64	10/15/2027	10/28/2021	105.71505	102.0079989	98.45034751	95.03522822	91.75613565	88.60690143	85.58167447	82.67490249	79.88131482
211028A00013	10/28/2021	1.65	10/22/2027	10/28/2021	105.78843	102.0614856	98.48536471	95.05311156	91.75813124	88.59417224	85.55530617	82.63590888	79.83064282
211028A00019	10/28/2021	1.1	10/28/2024	10/28/2021	99.947442	99.21029175	98.48396184	97.76821559	97.06282313	96.36756123	95.68221299	95.00656771	94.34042059
211028A00020	10/28/2021	2.05	1/28/2031	10/28/2021	112.73687	105.6210723	99.00461333	92.84985803	87.122189	81.78975263	76.8232253	72.19560037	67.88199416
211028A00021	10/28/2021	2.28	10/28/2033	10/28/2021	118.49986	108.5016847	99.44028032	91.22257462	83.76520642	76.99346509	70.84035159	65.2457459	60.15566818
211115A00032	11/15/2021	1.75	11/12/2027	11/15/2021	106.2808	102.4877781	98.85024824	95.36098839	92.01315864	88.80027411	85.71618436	82.75505404	79.91134485
211117A00010	11/17/2021	1.18	11/18/2024	11/17/2021	100.05752	99.26334846	98.48172902	97.71236676	96.95497508	96.20927629	95.4750012	94.75188887	94.03968622
211119A00009	11/19/2021	1.68	11/19/2027	11/19/2021	106.05272	102.2448081	98.59377056	95.09232171	91.73355476	88.51091961	85.41820233	82.44950605	79.5992329
211123A00011	11/23/2021	1.69	11/23/2026	11/23/2021	104.14317	101.3415793	98.62933333	96.00309718	93.45967882	90.99602335	88.60920627	86.29642713	84.05500344
211123A00012	11/23/2021	2.27	11/23/2033	11/23/2021	118.48377	108.4180332	99.301751	91.04004753	83.54798932	76.74949478	70.57637132	64.9674614	59.86788476
211129A00011	11/29/2021	1.53	11/20/2026	11/29/2021	103.67509	100.8883663	98.19033523	95.57767536	93.04721399	90.59591562	88.22087512	85.91931126	83.68856062
211129A00012	11/29/2021	1.53	11/25/2026	11/29/2021	103.70041	100.8996582	98.18843396	95.56339588	93.02134682	90.55922658	88.17410506	85.863176	83.62375098
211206A00008	12/6/2021	1.24	12/6/2024	12/6/2021	100.15821	99.31505195	98.48602624	97.67077525	96.868958	96.08024466	95.30431613	94.54086359	93.7895881
211206A00009	12/6/2021	1.43	12/5/2025	12/6/2021	101.73259	99.9095668	98.1278306	96.38621272	94.68358192	93.01884591	91.39094977	89.7988744	88.24163512
211206A00017	12/6/2021	1.56	12/4/2026	12/6/2021	103.83022	101.0033915	98.26762113	95.61950937	93.05579895	90.57337113	88.16923901	85.84054122	83.58453595
211207A00011	12/7/2021	1.62	12/1/2026	12/7/2021	103.98714	101.1659628	98.43541033	95.79210461	93.23281252	90.75443794	88.35401531	86.02870332	83.77577908
211207A00012	12/7/2021	1.62	12/4/2026	12/7/2021	104.00188	101.1725762	98.43439414	95.78392852	93.2179203	90.73324895	88.32692586	85.996088	83.73799199
211207A00017	12/7/2021	1.3	11/15/2024	12/7/2021	100.1469	99.36040847	98.58621869	97.82404695	97.07361504	96.33465326	95.60690014	94.89010212	94.18401321
211209A00006	12/9/2021	1.61	12/8/2026	12/9/2021	103.99281	101.1530873	98.40513674	95.74552099	93.17094652	90.67826037	88.26444334	85.92660359	83.66197054
211209A00007	12/9/2021	1.61	12/8/2026	12/9/2021	103.99281	101.1530873	98.40513674	95.74552099	93.17094652	90.67826037	88.26444334	85.92660359	83.66197054
211210A00014	12/10/2021	1.54	12/10/2025	12/10/2021	101.96	100.1216619	98.32522309	96.56948947	94.85330567	93.17555638	91.53516469	89.93109056	88.36232931
211210A00015	12/10/2021	1.63	12/10/2026	12/10/2021	104.06014	101.2141576	98.46030863	95.79512886	93.21530664	90.71767198	88.29918958	85.95695243	83.68817564
211210A00016	12/10/2021	1.76	12/10/2027	12/10/2021	106.47543	102.6026773	98.89158256	95.33458967	91.92453034	88.65460594	85.51836652	82.50969117	79.62276952

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
211213A00011	12/13/2021	1.32	12/13/2024	12/13/2021	100.24747	99.38506115	98.53742757	97.70419078	96.88498638	96.07946217	95.28727768	94.50810362	93.7416215
211214A00014	12/14/2021	1.31	12/13/2024	12/14/2021	100.23872	99.37634967	98.52875709	97.69556082	96.87639646	96.07091183	95.27876646	94.49963107	93.73318717
211214A00015	12/14/2021	1.49	12/12/2025	12/14/2021	101.87542	100.0326304	98.23196161	96.47220302	94.75219031	93.07079971	91.42694625	89.81958224	88.24769564
211220A00006	12/20/2021	1.21	12/20/2024	12/20/2021	100.16985	99.28897386	98.42352009	97.57308235	96.73727251	95.91571572	95.10804987	94.31392499	93.53300279
211221A00010	12/21/2021	1.31	12/20/2024	12/21/2021	100.2593	99.3779975	98.51211629	97.66125629	96.82502927	96.00306028	95.19498709	94.40045965	93.61913959
211221A00023	12/21/2021	1.53	6/19/2026	12/21/2021	102.91316	100.5483364	98.24947066	96.01436164	93.84089667	91.72704549	89.67085642	87.6704529	85.72403009
211221A00025	12/21/2021	1.59	12/21/2026	12/21/2021	103.99818	101.1240672	98.34388777	95.65407815	93.05123108	90.53208649	88.09352422	85.73255728	83.44632542
211222A00035	12/22/2021	2.15	12/22/2033	12/22/2021	117.37714	107.2900056	98.16276238	89.89874882	82.41150029	75.62362697	69.46582043	63.87597335	58.79839894
211227A00005	12/27/2021	1.61	12/18/2026	12/27/2021	104.04168	101.1748485	98.40146896	95.71800316	93.12106982	90.60743325	88.17399634	85.81779374	83.53598561
211227A00009	12/27/2021	1.6	12/23/2026	12/27/2021	104.03698	101.1570167	98.37133739	95.67635606	93.0686473	90.54493394	88.10207977	85.73708261	83.4470679
220106A00007	1/6/2022	2.42	1/6/2034	1/6/2022	120.09716	109.8415162	100.5618464	92.15969078	84.54700565	77.64501077	71.38317227	65.69830186	60.53375837
220106A00008	1/6/2022	2.5	1/5/2035	1/6/2022	121.78287	110.4998484	100.383817	91.30714517	83.15679066	75.83256352	69.24560642	63.31706114	57.97689796
220106A00009	1/6/2022	2.57	1/4/2036	1/6/2022	122.97392	110.7044596	99.80434526	90.11230657	81.48687002	73.80383581	66.95409028	60.84170487	55.38228286
220106A00010	1/6/2022	2.64	1/6/2037	1/6/2022	124.14936	110.9051209	99.24618673	88.97260831	79.91066031	71.90928383	64.83702594	58.57940582	53.03664584
220106A00011	1/6/2022	2.7	1/6/2038	1/6/2022	125.52846	111.3167963	98.91786537	88.08822408	78.61836671	70.32784143	63.06108864	56.68389328	51.08035793
220106A00013	1/6/2022	2.75	1/6/2039	1/6/2022	127.38563	112.1813522	99.03222165	87.64578733	77.77274961	69.20039263	61.74704764	55.25741787	49.59862746
220111A00002	1/11/2022	1.75	1/16/2026	1/11/2022	102.54447	100.6031191	98.70819111	96.85829303	95.05208266	93.2882669	91.56559966	89.88287973	88.23894892
220112A00008	1/12/2022	1.47	11/20/2024	1/12/2022	100.30521	99.50445658	98.71643899	97.94085661	97.17741684	96.42583621	95.68584003	94.95716202	94.23954401
220114A00007	1/14/2022	1.7	1/27/2026	1/14/2022	102.50093	100.5311391	98.60913678	96.73346969	94.90273635	93.11558739	91.37072319	89.66689174	88.00288649
220114A00009	1/14/2022	1.74	4/21/2026	1/14/2022	103.09081	100.8822385	98.73158459	96.63690628	94.59634459	92.60811826	90.67051976	88.78191149	86.94072231
220114A00010	1/14/2022	1.86	1/13/2027	1/14/2022	104.90995	101.9617034	99.1116463	96.35597984	93.69107403	91.11345903	88.61981717	86.20697539	83.87189806
220121A00013	1/21/2022	1.78	11/3/2025	1/21/2022	102.20444	100.4638492	98.76099995	97.09474672	95.4639904	93.86767596	92.30479024	90.7743598	89.27544896
220121A00014	1/21/2022	1.78	11/3/2025	1/21/2022	102.20444	100.4638492	98.76099995	97.09474672	95.4639904	93.86767596	92.30479024	90.7743598	89.27544896
220124A00007	1/24/2022	1.88	1/22/2027	1/24/2022	105.01895	102.0453191	99.17149559	96.39358343	93.7078645	91.11078617	88.59895296	86.1691186	83.81817864
220124A00008	1/24/2022	1.88	1/22/2027	1/24/2022	105.01895	102.0453191	99.17149559	96.39358343	93.7078645	91.11078617	88.59895296	86.1691186	83.81817864
220126A00002	1/26/2022	1.9	12/18/2026	1/26/2022	104.88256	102.0034654	99.21812259	96.52298347	93.9146574	91.38989971	88.94560462	86.57879851	84.28663356
220126A00003	1/26/2022	1.9	12/18/2026	1/26/2022	104.88256	102.0034654	99.21812259	96.52298347	93.9146574	91.38989971	88.94560462	86.57879851	84.28663356
220131A00003	1/31/2022	1.98	2/1/2027	1/31/2022	105.37773	102.3719455	99.46785726	96.66146548	93.94895054	91.32666442	88.79112197	86.33899259	83.96709247
220131A00006	1/31/2022	1.83	2/1/2027	1/31/2022	105.32368	102.3093353	99.39718323	96.58319889	93.86353731	91.23452661	88.69265917	86.23458319	83.85709484
220201A00011	2/1/2022	1.86	4/20/2026	2/1/2022	103.35295	101.1441334	98.9931653	96.89811073	94.85711504	92.86840101	90.93026485	89.04107248	87.19925602
220203A00009	2/3/2022	1.99	2/2/2027	2/3/2022	105.4151	102.4057941	99.49836765	96.68881279	93.97330025	91.34817298	88.80993735	86.35525478	83.98093396
220204A00004	2/4/2022	2.08	1/8/2027	2/4/2022	105.53335	102.5890264	99.74225044	96.98926886	94.32649204	91.75048806	89.25797475	86.84581226	84.51099609
220204A00005	2/4/2022	1.83	1/10/2025	2/4/2022	100.81403	99.87344919	98.95035394	98.04426298	97.1547097	96.28124445	95.42343375	94.58085957	93.75311867

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220209A00010	2/9/2022	2.14	1/11/2027	2/9/2022	105.72948	102.7742962	99.91725578	97.1545716	94.4826232	91.89794952	89.39724098	86.97733191	84.63519348
220209A00011	2/9/2022	2.14	1/11/2027	2/9/2022	105.72948	102.7742962	99.91725578	97.1545716	94.4826232	91.89794952	89.39724098	86.97733191	84.63519348
220209A00012	2/9/2022	1.98	7/29/2025	2/9/2022	101.94763	100.4690969	99.01945433	97.59792951	96.20377688	94.83627674	93.49473415	92.17847784	90.8868592
220209A00013	2/9/2022	1.98	7/29/2025	2/9/2022	101.94763	100.4690969	99.01945433	97.59792951	96.20377688	94.83627674	93.49473415	92.17847784	90.8868592
220214A00010	2/14/2022	2.46	12/21/2029	2/14/2022	113.82583	107.757885	102.054338	96.69142399	91.64704556	86.90064643	82.43309659	78.22658652	74.26452978
220214A00012	2/14/2022	2.47	12/28/2029	2/14/2022	113.91647	107.8271696	102.1045877	96.72474266	91.6653371	86.90563337	82.42633683	78.20948846	74.23836608
220216A00002	2/16/2022	2.09	2/14/2025	2/16/2022	101.22107	100.1842761	99.16865372	98.17355836	97.19837241	96.24250285	95.30538001	94.38645642	93.48520576
220216A00003	2/16/2022	2.49	12/14/2029	2/16/2022	113.97237	107.9188869	102.2277797	96.8754887	91.84010059	87.10122588	82.63988552	78.43840669	74.48032663
220217A00011	2/17/2022	2.08	2/14/2025	2/17/2022	101.21058	100.1738484	99.15828385	98.16324554	97.18811583	96.23230174	95.29523361	94.37636399	93.47516658
220217A00012	2/17/2022	2.28	2/16/2027	2/17/2022	106.40392	103.3380023	100.3767666	97.5160511	94.75188449	92.08047613	89.49820678	87.00161976	84.58741257
220217A00013	2/17/2022	2.08	2/14/2025	2/17/2022	101.21058	100.1738484	99.15828385	98.16324554	97.18811583	96.23230174	95.29523361	94.37636399	93.47516658
220217A00015	2/17/2022	2.28	2/16/2027	2/17/2022	106.40392	103.3380023	100.3767666	97.5160511	94.75188449	92.08047613	89.49820678	87.00161976	84.58741257
220217A00016	2/17/2022	2.24	9/15/2026	2/17/2022	105.22167	102.5918153	100.0410496	97.56650895	95.1654507	92.83524999	90.57339368	88.37747474	86.24518699
220217A00017	2/17/2022	2.27	1/29/2027	2/17/2022	106.23356	103.2230619	100.3140597	97.50257522	94.78480719	92.15712471	89.61605842	87.15829241	84.78065646
220217A00018	2/17/2022	2.28	2/17/2027	2/17/2022	106.41186	103.3428468	100.3786949	97.51523042	94.7484726	92.07462189	89.4900507	86.9912945	84.57504343
220217A00020	2/17/2022	2.08	2/13/2025	2/17/2022	101.20652	100.1724828	99.1595105	98.16696014	97.1942188	96.24069792	95.30583203	94.38907769	93.48991237
220218A00003	2/18/2022	2.16	9/4/2026	2/18/2022	104.93423	102.3384509	99.82007956	97.37634159	95.00457755	92.70224075	90.4668916	88.29619229	86.1879019
220222A00018	2/22/2022	2.5	12/19/2031	2/22/2022	117.53286	109.3710799	101.8426783	94.8950961	88.48038714	82.55479451	77.07836509	72.01460125	67.3301462
220224A00010	2/24/2022	2.04	3/10/2025	2/24/2022	101.26156	100.1603429	99.08299297	98.02873925	96.99684504	95.98660472	94.9973421	94.02840888	93.07918322
220224A00018	2/24/2022	2.15	3/16/2026	2/24/2022	103.76572	101.6468147	99.58156882	97.5682581	95.60522427	93.69087512	91.82368126	90.00217309	88.22493793
220224A00023	2/24/2022	2.15	3/16/2026	2/24/2022	103.76572	101.6468147	99.58156882	97.5682581	95.60522427	93.69087512	91.82368126	90.00217309	88.22493793
220225A00014	2/25/2022	2.42	2/23/2029	2/25/2022	112.05455	106.8549562	101.9292682	97.26161451	92.83712379	88.6418594	84.66275552	80.88755813	77.30477037
220225A00015	2/25/2022	2.26	2/25/2027	2/25/2022	106.41357	103.3207535	100.3341986	97.44965156	94.66305599	91.97054141	89.36841369	86.85314585	84.42136942
220301A00013	3/1/2022	2.01	2/16/2027	3/1/2022	105.5763	102.5231161	99.57428661	96.72566439	93.97328849	91.31337828	88.74232411	86.25667849	83.85314775
220301A00014	3/1/2022	1.85	1/10/2025	3/1/2022	100.83308	99.89239868	98.96920713	98.06302109	97.17337395	96.29981602	95.44191381	94.59924925	93.77141908
220301A00015	3/1/2022	2	1/4/2027	3/1/2022	105.27339	102.3434983	99.51036385	96.77027779	94.11969151	91.55521166	89.07359241	86.67172815	84.34664663
220302A00010	3/2/2022	2.14	1/13/2027	3/2/2022	105.74193	102.7812644	99.91909518	97.15161537	94.47518515	91.88632531	89.38170919	86.95815507	84.61261903
220302A00011	3/2/2022	2.14	1/13/2027	3/2/2022	105.74193	102.7812644	99.91909518	97.15161537	94.47518515	91.88632531	89.38170919	86.95815507	84.61261903
220304A00004	3/4/2022	2.12	12/29/2028	3/4/2022	110.21537	105.2180015	100.4772465	95.97862572	91.70854693	87.65424844	83.8037441	80.14577236	76.6697489
220308A00011	3/8/2022	2.07	1/10/2025	3/8/2022	101.0426	100.1008432	99.17659218	98.26936032	97.37868069	96.50410332	95.64519444	94.80153571	93.97272362
220309A00010	3/9/2022	2.27	3/8/2027	3/9/2022	106.52269	103.3978755	100.3812176	97.46834853	94.6551083	91.93752952	89.3118273	86.77438958	84.32176808
220311A00008	3/11/2022	2.07	3/11/2024	3/11/2022	100.06331	99.95267208	99.84229405	99.73217466	99.62231296	99.51270801	99.40335886	99.29426458	99.18542423
220311A00013	3/15/2022	2.35	3/15/2027	3/15/2022	106.82154	103.6733165	100.6345263	97.7007353	94.86771473	92.13143265	89.48804368	86.93387904	84.46543726

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220314A00004	3/14/2022	2.44	3/12/2027	3/14/2022	107.08229	103.9379998	100.9027537	97.97213945	95.14195257	92.40818401	89.76700968	87.21478063	84.74801391
220314A00005	3/14/2022	2.36	3/14/2025	3/14/2022	101.63677	100.5226404	99.43287523	98.36668174	97.32330112	96.30200687	95.30210307	94.32292276	93.36382646
220314A00006	3/14/2022	2.36	3/14/2025	3/14/2022	101.63677	100.5226404	99.43287523	98.36668174	97.32330112	96.30200687	95.30210307	94.32292276	93.36382646
220314A00007	3/14/2022	2.44	3/12/2027	3/14/2022	107.08229	103.9379998	100.9027537	97.97213945	95.14195257	92.40818401	89.76700968	87.21478063	84.74801391
220314A00008	3/14/2022	2.38	7/28/2025	3/14/2022	102.54169	101.0611478	99.60947789	98.18590708	96.78969148	95.42011297	94.07647809	92.75811697	91.46438235
220314A00009	3/14/2022	2.38	7/28/2025	3/14/2022	102.54169	101.0611478	99.60947789	98.18590708	96.78969148	95.42011297	94.07647809	92.75811697	91.46438235
220315A00014	3/15/2022	2.78	3/15/2032	3/15/2022	120.26083	111.7568807	103.9282964	96.71766028	90.07272281	83.94591455	78.29390413	73.07720014	68.25979241
220315A00015	3/15/2022	3.18	3/13/2037	3/15/2022	131.23566	117.3840503	105.1959698	94.46007431	84.99298555	76.63546146	69.24910547	62.713539	56.92397011
220315A00018	3/15/2022	2.43	3/15/2027	3/15/2022	107.07273	103.9205492	100.8779073	97.94036356	95.10368572	92.36383872	89.71697409	87.15942013	84.68767252
220315A00021	3/15/2022	2.15	3/15/2024	3/15/2022	100.07941	99.95773242	99.83637089	99.71532022	99.59457919	99.47414655	99.35402109	99.23420158	99.11468682
220315A00036	3/17/2022	2.63	3/16/2027	3/17/2022	107.7085	104.5436236	101.4887109	98.53930384	95.69115247	92.94020484	90.28259656	87.71464081	85.23281896
220315A00037	3/17/2022	2.63	3/16/2027	3/17/2022	107.7085	104.5436236	101.4887109	98.53930384	95.69115247	92.94020484	90.28259656	87.71464081	85.23281896
220317A00011	3/17/2022	2.48	3/17/2025	3/17/2022	101.78673	100.6636781	99.5653553	98.49095105	97.43969017	96.41083063	95.40366185	94.41750302	93.45170159
220317A00023	5/3/2022	2.52	5/2/2025	5/3/2022	102.08831	100.8403927	99.62220584	98.4326898	97.27083808	96.13569093	95.02633261	93.94188891	92.8815248
220317A00026	5/3/2022	2.59	5/3/2027	5/3/2022	107.96182	104.6612646	101.4792916	98.41093391	95.45146279	92.59637798	89.84139489	87.18243269	84.61560315
220317A00027	5/3/2022	2.59	5/3/2027	5/3/2022	107.96182	104.6612646	101.4792916	98.41093391	95.45146279	92.59637798	89.84139489	87.18243269	84.61560315
220317A00028	5/3/2022	2.59	5/3/2027	5/3/2022	107.96182	104.6612646	101.4792916	98.41093391	95.45146279	92.59637798	89.84139489	87.18243269	84.61560315
220323A00016	6/2/2022	2.78	6/2/2025	6/2/2022	102.68887	101.3575896	100.049801	98.76493522	97.50244133	96.26178562	95.04245096	93.84393613	92.66575522
220323A00017	6/2/2022	2.78	6/2/2025	6/2/2022	102.68887	101.3575896	100.049801	98.76493522	97.50244133	96.26178562	95.04245096	93.84393613	92.66575522
220324A00007	3/24/2022	2.72	3/24/2025	3/24/2022	102.0982	100.954514	99.83641083	98.74303814	97.67358192	96.62726358	95.603338	94.60109176	93.6198415
220324A00015	3/24/2022	2.79	3/3/2026	3/24/2022	105.02484	102.9269692	100.8815385	98.88688799	96.94141993	95.04359903	93.1919495	91.38505223	89.62154215
220325A00010	3/28/2022	2.78	3/21/2025	3/28/2022	102.15003	101.0140735	99.90334707	98.81701911	97.75429187	96.71440209	95.69661913	94.70024323	93.7246039
220325A00011	3/28/2022	2.79	4/25/2025	3/28/2022	102.37898	101.1476564	99.94590457	98.77266974	97.62694557	96.50777263	95.41423561	94.34546088	93.3006141
220325A00012	3/28/2022	2.85	3/23/2026	3/28/2022	105.31982	103.1652457	101.0654952	99.01878712	97.02341645	95.07774666	93.18020632	91.32928602	89.52353531
220325A00015	3/28/2022	2.86	3/23/2027	3/28/2022	108.49038	105.2942846	102.2096487	99.23193495	96.35681675	93.58017052	90.89806458	88.30674887	85.80264535
220325A00017	3/28/2022	2.86	3/23/2027	3/28/2022	108.49038	105.2942846	102.2096487	99.23193495	96.35681675	93.58017052	90.89806458	88.30674887	85.80264535
220325A00018	3/28/2022	2.85	9/10/2026	3/28/2022	106.788	104.1511362	101.5931091	99.11107961	96.70232775	94.36424959	92.09435135	89.89024394	87.74963785
220325A00019	3/28/2022	2.86	3/23/2027	3/28/2022	108.49038	105.2942846	102.2096487	99.23193495	96.35681675	93.58017052	90.89806458	88.30674887	85.80264535
220325A00020	3/28/2022	2.86	3/23/2027	3/28/2022	108.49038	105.2942846	102.2096487	99.23193495	96.35681675	93.58017052	90.89806458	88.30674887	85.80264535
220329A00007	3/29/2022	2.94	3/29/2029	3/29/2022	114.95849	109.5914644	104.5103957	99.69849321	95.14004445	90.82033889	86.72559856	82.84291375	79.16018351
220329A00009	3/29/2022	2.94	3/29/2029	3/29/2022	114.95849	109.5914644	104.5103957	99.69849321	95.14004445	90.82033889	86.72559856	82.84291375	79.16018351
220331A00003	3/31/2022	2.66	5/17/2024	3/31/2022	100.36102	100.0661128	99.77294602	99.48150881	99.19178583	98.90376189	98.61742196	98.33275122	98.04973501
220331A00004	3/31/2022	2.66	5/20/2024	3/31/2022	100.37278	100.0696487	99.76835387	99.46888364	99.17122137	98.87535064	98.58125522	98.28891909	97.99832642

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220331A00010	3/31/2022	2.83	2/18/2026	3/31/2022	104.98853	102.9287823	100.9199382	98.96040888	97.04866473	95.18323484	93.36270428	91.58571154	89.85094608
220331A00011	3/31/2022	2.73	10/15/2024	3/31/2022	101.0862	100.3795881	99.68284997	98.99578006	98.31817794	97.64984867	96.99060268	96.34025549	95.69862763
220331A00012	3/31/2022	2.81	3/17/2025	3/31/2022	102.16091	101.0356059	99.9350674	98.85848104	97.80507075	96.77409368	95.76483847	94.77662355	93.80879563
220404A00010	4/4/2022	2.93	4/2/2027	4/4/2022	108.7987	105.5705097	102.4556212	99.44939036	96.54738979	93.74540151	91.03940547	88.4255688	85.90023587
220404A00014	4/4/2022	2.94	4/5/2027	4/4/2022	108.85755	105.6200601	102.4964447	99.48201736	96.5723191	93.76310237	91.05031944	88.43011159	85.89879895
220408A00012	4/8/2022	3.12	6/29/2026	4/8/2022	106.81997	104.3798949	102.0082842	99.70283555	97.46133713	95.28166426	93.16177542	91.09970846	89.09357704
220408A00014	4/8/2022	3.12	6/29/2026	4/8/2022	106.81997	104.3798949	102.0082842	99.70283555	97.46133713	95.28166426	93.16177542	91.09970846	89.09357704
220411A00002	4/11/2022	3.18	4/9/2027	4/11/2022	109.66361	106.4020327	103.2553857	100.2189332	97.28816385	94.45878064	91.72668951	89.08798815	86.53895568
220412A00010	4/12/2022	3.09	3/15/2027	4/12/2022	109.14502	105.9602189	102.8858009	99.91729665	97.05044644	94.2811888	91.60565	89.02013406	86.52111343
220412A00016	4/12/2022	3.09	3/19/2027	4/12/2022	109.18132	105.9851138	102.8999759	99.9213996	97.04508695	94.26694083	91.58305412	88.98969956	86.48332027
220412A00017	4/12/2022	3.09	3/19/2027	4/12/2022	109.18132	105.9851138	102.8999759	99.9213996	97.04508695	94.26694083	91.58305412	88.98969956	86.48332027
220412A00018	4/12/2022	3.09	3/15/2027	4/12/2022	109.14502	105.9602189	102.8858009	99.91729665	97.05044644	94.2811888	91.60565	89.02013406	86.52111343
220418A00015	4/22/2022	3.03	7/28/2025	4/22/2022	103.51631	102.0281675	100.5690263	99.13811267	97.7346793	96.3580047	95.00739219	93.68216882	92.38168432
220418A00016	4/22/2022	3.11	9/15/2026	4/22/2022	107.51861	104.8581351	102.277451	99.77367231	97.34403551	94.98589546	92.69671957	90.47408211	88.31565893
220419A00013	4/19/2022	2.84	4/19/2024	4/19/2022	100.29605	100.0779045	99.86072116	99.64449217	99.42921117	99.21487188	99.00146807	98.78899359	98.5774423
220419A00014	4/19/2022	3.06	4/18/2025	4/19/2022	102.66425	101.44989	100.264247	99.10631081	97.97511795	96.86974921	95.78932711	94.73301354	93.70000757
220419A00015	4/19/2022	3.14	4/17/2026	4/19/2022	106.18131	103.9486931	101.7741972	99.65589004	97.59191661	95.58049879	93.61993167	91.70857972	89.84487341
220419A00016	4/19/2022	3.21	4/19/2027	4/19/2022	109.85718	106.5644978	103.388656	100.3247973	97.36830288	94.5147757	91.76002803	89.10006994	86.53109856
220420A00032	4/20/2022	3.26	10/16/2026	4/20/2022	108.21728	105.4623913	102.7921266	100.2033415	97.69302918	95.25831583	92.89645399	90.60481582	88.38088699
220420A00033	4/20/2022	3.29	4/20/2027	4/20/2022	110.12605	106.826211	103.6435066	100.5730684	97.61026339	94.750681	91.99012076	89.32458082	86.75024703
220420A00034	6/15/2022	3.3	6/15/2027	6/15/2022	110.70743	107.2433335	103.9072975	100.6939208	97.5980563	94.6148001	91.73947872	88.967637	86.29502671
220420A00037	6/15/2022	3.3	6/15/2027	6/15/2022	110.70743	107.2433335	103.9072975	100.6939208	97.5980563	94.6148001	91.73947872	88.967637	86.29502671
220420A00061	6/15/2022	3.3	6/15/2027	6/15/2022	110.70743	107.2433335	103.9072975	100.6939208	97.5980563	94.6148001	91.73947872	88.967637	86.29502671
220421A00012	4/21/2022	3.31	4/21/2026	4/21/2022	106.5995	104.3510382	102.1613212	100.0283796	97.95033115	95.92537225	93.95177384	92.0278776	90.15209243
220421A00014	4/21/2022	3.24	5/30/2025	4/21/2022	103.27864	101.9512412	100.6474427	99.36666344	98.10834034	96.87192826	95.65689942	94.46274269	93.2889629
220421A00016	4/21/2022	3.31	4/21/2026	4/21/2022	106.5995	104.3510382	102.1613212	100.0283796	97.95033115	95.92537225	93.95177384	92.0278776	90.15209243
220422A00014	4/22/2022	3.36	9/29/2026	4/22/2022	108.32205	105.6117065	102.9834835	100.4343698	97.96148887	95.56208956	93.23353939	90.9733186	88.77901436
220425A00026	4/25/2022	3.13	2/25/2026	4/25/2022	105.6801	103.5921957	101.5561697	99.57039171	97.63329139	95.74335941	93.8991444	92.09925031	90.34233379
220425A00027	4/29/2022	3.15	8/20/2026	4/29/2022	107.37548	104.7884626	102.2775332	99.84000089	97.47328543	95.17491415	92.9425168	90.77382058	88.66664539
220425A00028	4/29/2022	3.16	4/23/2027	4/29/2022	109.73372	106.431849	103.2474947	100.1757598	97.21198507	94.3517358	91.59078905	88.92512205	86.35090127
220426A00004	4/26/2022	3.41	4/26/2032	4/26/2022	125.71987	116.8827333	108.7511778	101.2647141	94.36835176	88.0120739	82.15036271	76.74177212	71.74854327
220427A00011	4/29/2022	3.15	4/29/2027	4/29/2022	109.75864	106.4395649	103.2391227	100.1523457	97.17451085	94.3011234	91.52790457	88.85077941	86.26586553
220428A00016	5/2/2022	3.09	10/15/2024	5/2/2022	101.34281	100.6351856	99.93744699	99.24938637	98.57080316	97.90150228	97.24129399	96.58999368	95.94742173

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220428A00019	4/28/2022	3.27	4/28/2027	4/28/2022	110.14044	106.8179331	103.6140378	100.5237951	97.54248674	94.66562285	91.88892882	89.20833351	86.619958
220502A00025	5/2/2022	3.21	5/2/2025	5/2/2022	102.95789	101.7041993	100.4803373	99.28524115	98.11790169	96.97735662	95.86268779	94.7730186	93.70751178
220502A00030	5/4/2022	3.24	6/20/2025	5/4/2022	103.47912	102.0928529	100.7318488	99.39547462	98.08311918	96.79419112	95.52811806	94.28434584	93.06233782
220506A00016	5/6/2022	3.35	5/6/2027	5/6/2022	110.4804	107.130371	103.9005909	100.7860285	97.78189716	94.88364041	92.08691911	89.38759969	86.78174287
220509A00013	7/15/2022	3.37	7/15/2027	7/15/2022	111.24432	107.6882281	104.2665091	100.9733647	97.80327745	94.75099706	91.81152572	88.98010458	86.25220101
220509A00014	7/15/2022	3.37	7/15/2027	7/15/2022	111.24432	107.6882281	104.2665091	100.9733647	97.80327745	94.75099706	91.81152572	88.98010458	86.25220101
220509A00016	7/15/2022	3.37	7/15/2027	7/15/2022	111.24432	107.6882281	104.2665091	100.9733647	97.80327745	94.75099706	91.81152572	88.98010458	86.25220101
220510A00015	5/13/2022	3.13	11/3/2025	5/13/2022	104.59293	102.8305799	101.1063673	99.41913891	97.76778501	96.15124019	94.56848134	93.01852544	91.5004276
220510A00016	5/13/2022	3.23	5/5/2027	5/13/2022	110.07691	106.7362306	103.515438	100.4095127	97.41368088	94.52339874	91.73433955	89.04238174	86.44359772
220511A00002	5/11/2022	3.18	5/12/2025	5/11/2022	103.01946	101.7398503	100.4878256	99.26249442	98.06300316	96.88853453	95.73830585	94.61156715	93.5075995
220511A00015	5/11/2022	3.29	5/11/2027	5/11/2022	110.33157	106.9703668	103.7302829	100.6062534	97.593458	94.68730705	91.88342858	89.17765664	86.56602022
220512A00007	5/12/2022	2.91	5/13/2024	5/12/2022	100.41667	100.1325972	99.85013972	99.56928775	99.29002754	99.0123455	98.73622817	98.46166225	98.18863459
220512A00013	5/12/2022	3.18	5/12/2027	5/12/2022	109.97819	106.6201037	103.3831618	100.2623035	97.25270655	94.34977921	91.5491473	88.84664262	86.23829178
220518A00009	5/18/2022	3.38	5/18/2028	5/18/2022	114.36147	109.8874247	105.6163004	101.5378041	97.64221712	93.92036419	90.36357939	86.96367533	83.71291395
220519A00010	5/19/2022	3.15	11/19/2026	5/19/2022	108.23766	105.3889016	102.6302143	99.95824014	97.36976314	94.86170658	92.43112597	90.07520249	87.79123679
220525A00020	5/25/2022	2.79	5/24/2024	5/25/2022	100.42951	100.1153218	99.80310937	99.49285062	99.18452718	98.87812092	98.57361395	98.2709886	97.97022742
220526A00010	5/26/2022	3	5/26/2026	5/26/2022	106.21932	103.8803091	101.6046522	99.39027329	97.23517627	95.13744246	93.09522701	91.10675561	89.1703213
220526A00011	5/26/2022	3.29	5/24/2029	5/26/2022	117.22288	111.6410902	106.3636276	101.3722875	96.65004364	92.18096914	87.95015997	83.94366413	80.14841609
220527A00011	5/27/2022	2.75	5/24/2024	5/27/2022	100.41688	100.1027169	99.79052919	99.48029506	99.17199612	98.86561426	98.56113157	98.25853039	97.95779327
220527A00014	5/27/2022	2.99	5/27/2026	5/27/2022	106.20483	103.8632963	101.5852537	99.36862103	97.21139983	95.11166879	93.06758036	91.07735737	89.13928997
220527A00015	5/27/2022	3.03	5/27/2027	5/27/2022	109.61696	106.2240894	102.9550327	99.80461946	96.76792382	93.84025095	91.01712498	88.2942776	85.66763726
220601A00023	6/1/2022	2.9	6/3/2024	6/1/2022	100.51095	100.1692791	99.82992793	99.49287547	99.15809845	98.82557387	98.49527904	98.16719157	97.84128937
220601A00024	6/1/2022	3.09	6/2/2025	6/1/2022	103.10596	101.7717424	100.4610619	99.17335269	97.90806261	96.66465668	95.44261652	94.24143973	93.06063927
220603A00024	6/3/2022	2.94	6/3/2024	6/3/2022	100.52469	100.182985	99.84360486	99.50652363	99.17171798	98.83916491	98.50884174	98.18072606	97.8547958
220609A00034	10/3/2022	3.32	9/30/2024	10/3/2022	101.38357	100.7165354	100.0582691	99.40859725	98.76735247	98.13437164	97.5094958	96.89257008	96.28344351
220609A00038	10/3/2022	3.28	3/29/2024	10/3/2022	100.28477	100.1242912	99.96433121	99.80488405	99.64594727	99.4875184	99.32959504	99.17217478	99.01525522
220614A00011	6/14/2022	3.71	6/14/2024	6/14/2022	100.86742	100.4949692	100.1252813	99.75832428	99.39406781	99.03248205	98.67353757	98.3172054	97.96345697
220615A00010	6/15/2022	3.86	6/15/2027	6/15/2022	112.60811	109.1117663	105.7443666	102.5004788	99.37492574	96.36277477	93.45932487	90.6600945	87.96081015
220617A00027	6/17/2022	3.45	6/17/2024	6/17/2022	100.78944	100.4089763	100.0313977	99.65666894	99.2847576	98.9156319	98.54926052	98.18561259	97.82465771
220622A00006	6/22/2022	3.58	6/22/2027	6/22/2022	111.73301	108.2317687	104.8604791	101.6136344	98.4859884	95.47254393	92.5685399	89.76943874	87.0709147
220623A00005	6/23/2022	3.45	6/23/2027	6/23/2022	111.29966	107.8029908	104.4362774	101.1940024	98.0709144	95.06201188	92.16252963	89.36792639	86.67387309
220624A00003	6/24/2022	3.5	6/24/2027	6/24/2022	111.481	107.9784141	104.6060744	101.3584451	98.23026021	95.21650419	92.31239872	89.51339016	86.81513784
220624A00033	6/24/2022	3.5	6/24/2027	6/24/2022	111.481	107.9784141	104.6060744	101.3584451	98.23026021	95.21650419	92.31239872	89.51339016	86.81513784

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220624A00044	6/24/2022	3.43	6/24/2025	6/24/2022	103.78433	102.3848311	101.0110138	99.66222903	98.33785133	97.0372757	95.75991673	94.50520776	93.2726002
220624A00049	6/24/2022	3.29	6/24/2024	6/24/2022	100.82148	100.4212454	100.0241942	99.63028959	99.23949411	98.85177098	98.46708396	98.0853974	97.70667621
220627A00055	6/27/2022	3.55	6/26/2026	6/27/2022	107.83073	105.3865966	103.0107526	100.7009056	98.45485688	96.27049434	94.14578816	92.07878718	90.06761538
220628A00034	6/28/2022	3.61	6/28/2027	6/28/2022	111.90041	108.3793658	104.9895725	101.7254424	98.58165475	95.55314267	92.63507964	89.8228668	87.11212092
220628A00044	8/15/2022	3.6	8/13/2027	8/15/2022	112.34998	108.6951764	105.1809623	101.8011532	98.54987207	95.42153232	92.41082167	89.51268705	86.72232051
220628A00052	8/15/2022	3.6	8/13/2027	8/15/2022	112.34998	108.6951764	105.1809623	101.8011532	98.54987207	95.42153232	92.41082167	89.51268705	86.72232051
220628A00053	8/15/2022	3.6	8/13/2027	8/15/2022	112.34998	108.6951764	105.1809623	101.8011532	98.54987207	95.42153232	92.41082167	89.51268705	86.72232051
220629A00002	6/29/2022	3.48	6/28/2024	6/29/2022	100.87216	100.4614733	100.0541244	99.6500768	99.24929057	98.85172633	98.45734534	98.06610948	97.67798126
220629A00003	6/29/2022	3.59	6/29/2027	6/29/2022	111.84259	108.3197104	104.9282603	101.6626379	98.51751135	95.48780335	92.56867775	89.75552662	87.04395828
220630A00036	6/30/2022	3.42	6/30/2027	6/30/2022	111.26932	107.7534636	104.3689627	101.1102178	97.97189441	94.94891296	92.03643525	89.22985165	86.52476905
220630A00044	6/30/2022	3.34	6/30/2025	6/30/2022	103.71656	102.3010574	100.9117947	99.54810886	98.2093546	96.89490791	95.60416516	94.3365423	93.09147401
220630A00057	6/30/2022	3.34	6/30/2025	6/30/2022	103.71656	102.3010574	100.9117947	99.54810886	98.2093546	96.89490791	95.60416516	94.3365423	93.09147401
220701A00024	7/1/2022	3.08	7/1/2025	7/1/2022	103.35546	101.9399958	100.5508242	99.18727842	97.84871089	96.53449537	95.24402611	93.97671703	92.73200092
220701A00049	7/1/2022	3.19	7/1/2025	7/1/2022	103.51223	102.0956	100.7052818	99.3406088	98.000933	96.68562763	95.39408646	94.12572294	92.87996939
220701A00050	7/1/2022	3.26	7/1/2027	7/1/2022	110.72912	107.2198284	103.8418429	100.5895534	97.457622	94.44096636	91.53474573	88.7343483	86.03537913
220705A00011	7/5/2022	3.14	7/7/2025	7/5/2022	103.49437	102.061992	100.6565198	99.27725605	97.92353111	96.59469781	95.29013042	94.00922369	92.75139213
220706A00032	7/6/2022	3.15	7/6/2027	7/6/2022	110.86663	107.3296131	103.9256838	100.6491299	97.4945119	94.45665226	91.53062101	88.71172273	85.99548402
220707A00041	7/7/2022	3.41	7/7/2025	7/7/2022	103.88362	102.4483202	101.0399717	99.6578804	98.30137558	96.96980875	95.6625529	94.37900165	93.11856834
220711A00021	7/11/2022	3.27	7/11/2025	7/11/2022	103.95252	102.502288	101.0795367	99.68355585	98.31365535	96.96916849	95.64945083	94.35387932	93.08185139
220712A00006	7/12/2022	3.36	7/12/2024	7/12/2022	100.91323	100.4643239	100.0194229	99.57847164	99.14141754	98.70820895	98.27879513	97.85312622	97.43115324
220712A00016	7/15/2022	3.35	1/15/2026	7/15/2022	105.71159	103.7405633	101.8164629	99.93788672	98.10348071	96.31194016	94.56200774	92.8524714	91.18216239
220714A00035	7/14/2022	3.62	7/15/2024	7/14/2022	101.05222	100.5947748	100.1414862	99.69229402	99.24714269	98.80597769	98.36874548	97.93539347	97.50587003
220715A00001	7/15/2022	3.44	7/15/2027	7/15/2022	111.48771	107.9273925	104.5015649	101.2044257	98.03045332	94.97439361	92.03124501	89.19624513	86.46485791
220715A00027	7/15/2022	3.44	7/15/2027	7/15/2022	111.48771	107.9273925	104.5015649	101.2044257	98.03045332	94.97439361	92.03124501	89.19624513	86.46485791
220715A00047	7/15/2022	3.44	7/15/2027	7/15/2022	111.48771	107.9273925	104.5015649	101.2044257	98.03045332	94.97439361	92.03124501	89.19624513	86.46485791
220719A00004	7/19/2022	3.46	7/19/2027	7/19/2022	111.59739	108.024298	104.586564	101.27833	98.09402343	95.02834194	92.07623913	89.23291062	86.49378108
220722A00044	9/1/2022	3.23	9/1/2027	9/1/2022	111.21806	107.5311085	103.9877268	100.5815274	97.30644262	94.15670824	91.12684675	88.21165125	85.40617045
220722A00049	9/15/2022	3.25	9/15/2025	9/15/2022	104.32468	102.6973865	101.1033803	99.54170245	98.0114338	96.51168977	95.04161891	93.60040128	92.18724695
220722A00050	9/15/2022	3.25	9/15/2025	9/15/2022	104.32468	102.6973865	101.1033803	99.54170245	98.0114338	96.51168977	95.04161891	93.60040128	92.18724695
220722A00051	9/15/2022	3.23	9/15/2027	9/15/2022	111.35667	107.6278285	104.0454214	100.6028778	97.29395642	94.11273182	91.05357616	88.11114242	85.28034865
220727A00004	7/27/2022	3.23	7/27/2027	7/27/2022	110.87033	107.2882318	103.8427704	100.5279911	97.3382337	94.26811464	91.31251181	88.46655039	85.72558945
220727A00009	7/27/2022	3.31	7/28/2025	7/27/2022	103.93615	102.4447298	100.9823702	99.54829354	98.14175097	96.76201959	95.40840134	94.08022192	92.77682978
220727A00010	7/27/2022	3.38	7/24/2024	7/27/2022	101.00111	100.5192999	100.0420866	99.56940924	99.10120332	98.63740547	98.17795355	97.7227866	97.27184478

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220727A00027	7/27/2022	3.23	7/27/2027	7/27/2022	110.87033	107.2882318	103.8427704	100.5279911	97.3382337	94.26811464	91.31251181	88.46655039	85.72558945
220727A00035	10/24/2022	3.33	10/24/2029	10/24/2022	118.58219	112.5375195	106.8446481	101.4811468	96.42613692	91.66017626	87.16515263	82.92418536	78.92153483
220727A00049	7/27/2022	3.31	7/25/2025	7/27/2022	103.90805	102.4248121	100.9703279	99.54383091	98.14458374	96.77187445	95.4250154	94.10334228	92.80621306
220729A00043	7/29/2022	3.04	7/29/2027	7/29/2022	110.22114	106.6450204	103.205624	99.89698253	96.71342195	93.64954593	90.70022071	87.86056077	85.12591548
220729A00045	7/29/2022	3.03	7/29/2027	7/29/2022	110.18598	106.6104803	103.1716836	99.86362515	96.68063142	93.61730668	90.66851771	87.82937954	85.09524203
220729A00047	7/29/2022	3.06	1/29/2027	7/29/2022	108.61584	105.56926	102.6250876	99.77930986	97.02809656	94.36778903	91.79489132	89.30606195	86.89810616
220802A00009	8/2/2022	3	8/2/2027	8/2/2022	110.11613	106.5310016	103.0833153	99.7670577	96.57650997	93.50623408	90.55105737	87.70605803	84.96655151
220804A00023	8/4/2022	3.19	8/4/2027	8/4/2022	110.80537	107.2026263	103.7380394	100.4055548	97.19942027	94.1141662	91.14459027	88.2857427	85.53291257
220804A00037	8/4/2022	3.35	8/4/2025	8/4/2022	104.07833	102.5668651	101.085102	99.63224094	98.20750808	96.81015691	95.43946683	94.09474209	92.77531066
220808A00025	8/8/2022	3.25	8/6/2027	8/8/2022	111.03678	107.4244809	103.9508148	100.6097065	97.39537791	94.30233562	91.32535476	88.45946443	85.6999339
220811A00021	8/11/2022	3.47	8/11/2025	8/11/2022	104.315	102.7831406	101.2815591	99.8094306	98.36595874	96.95037527	95.56193902	94.19993464	92.86367151
220812A00001	8/12/2022	3.17	8/12/2027	8/12/2022	111.29542	107.6496688	104.1445561	100.7738868	97.531771	94.41261032	91.41108176	88.52212244	85.74091541
220812A00002	8/12/2022	3.17	8/12/2027	8/12/2022	111.29542	107.6496688	104.1445561	100.7738868	97.531771	94.41261032	91.41108176	88.52212244	85.74091541
220812A00014	8/12/2022	3.54	8/12/2024	8/12/2022	101.19987	100.6660003	100.1377759	99.61510402	99.09789727	98.58607007	98.07953861	97.57822084	97.08203639
220816A00009	8/16/2022	3.33	8/16/2027	8/16/2022	111.41942	107.772892	104.2670402	100.8956622	97.65286452	94.53304567	91.53087971	88.64130125	85.85949108
220817A00036	10/14/2022	3.41	10/15/2027	10/14/2022	112.31975	108.4899427	104.8131487	101.2823688	97.89096744	94.63265203	91.50145276	88.4917039	85.59802629
220817A00037	10/14/2022	3.41	10/15/2027	10/14/2022	112.31975	108.4899427	104.8131487	101.2823688	97.89096744	94.63265203	91.50145276	88.4917039	85.59802629
220817A00038	10/14/2022	3.41	10/15/2027	10/14/2022	112.31975	108.4899427	104.8131487	101.2823688	97.89096744	94.63265203	91.50145276	88.4917039	85.59802629
220817A00047	8/17/2022	3.29	8/17/2027	8/17/2022	111.7742	108.1060929	104.5798095	101.1890782	97.92794555	94.79075351	91.77212323	88.86693948	86.07033623
220819A00034	8/19/2022	3.73	8/19/2032	8/19/2022	129.30474	120.0031666	111.4664179	103.6269836	96.42366223	89.80093956	83.70843222	78.10038881	72.93524168
220823A00002	8/23/2022	3.38	8/23/2027	8/23/2022	112.15909	108.467477	104.9190082	101.5073371	98.22643638	95.07057924	92.03432233	89.11249011	86.30016005
220823A00006	8/23/2022	3.66	2/23/2024	8/23/2022	100.13914	100.0753289	100.0116062	99.94797425	99.88443279	99.82098167	99.75762068	99.69434966	99.63116839
220823A00009	8/23/2022	3.52	8/23/2027	8/23/2022	112.17028	108.4910824	104.9542499	101.5534814	98.282793	95.13649822	92.10919176	89.19573374	86.39123513
220823A00015	8/23/2022	3.78	8/30/2032	8/23/2022	129.82636	120.4721923	111.8889593	104.0084503	96.7688394	90.11406029	83.99324143	78.36019957	73.17298495
220823A00034	8/23/2022	3.61	8/23/2024	8/23/2022	101.3026	100.7387267	100.1811366	99.62972507	99.08438962	98.54503011	98.01154856	97.48384915	96.9618381
220824A00011	8/24/2022	3.7	8/22/2025	8/24/2022	104.80103	103.2354274	101.7010599	100.1970657	98.72261048	97.27689022	95.85912972	94.46858128	93.1045235
220825A00006	8/25/2022	3.56	8/25/2027	8/25/2022	112.33487	108.6472078	105.1023677	101.6940238	98.41616685	95.26308709	92.22935711	89.30981639	86.49955654
220825A00022	8/25/2022	3.68	8/25/2025	8/25/2022	104.80136	103.2276726	101.6854675	100.1738692	98.69203365	97.23914738	95.81442635	94.41711446	93.04648231
220829A00048	8/29/2022	3.75	2/25/2025	8/29/2022	103.05705	101.9802333	100.9259481	99.89349248	98.88219304	97.89140383	96.92050497	95.96890138	95.03602147
220829A00057	8/29/2022	3.67	8/31/2026	8/29/2022	108.83068	106.1947154	103.6367481	101.1539967	98.74379613	96.40359366	94.1309433	91.92350058	89.77901764
220830A00093	11/16/2022	3.69	11/16/2029	11/16/2022	120.85155	114.6773153	108.8649506	103.3912568	98.2346441	93.37501119	88.79363456	84.4730672	80.39704494
220831A00078	8/31/2022	3.81	8/30/2024	8/31/2022	101.45981	100.8765348	100.2999599	99.72997294	99.16646139	98.60931542	98.05842764	97.51369304	96.97500897
220831A00079	8/31/2022	3.79	8/29/2025	8/31/2022	105.01825	103.432	101.8775942	100.3541391	98.86077655	97.39667992	95.96105246	94.55312602	93.17215978

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220901A00033	9/1/2022	3.72	9/1/2027	9/1/2022	112.98684	109.2680392	105.6937259	102.2574765	98.95319081	95.77507397	92.71761895	89.77559063	86.94401074
220901A00035	9/1/2022	3.82	9/1/2028	9/1/2022	117.4027	112.5653121	107.9595113	103.572936	99.39395365	95.41161212	91.61559635	87.99618758	84.54422567
220906A00046	9/6/2022	3.79	9/7/2027	9/6/2022	113.30822	109.5665967	105.970833	102.5144168	99.19116893	95.99522065	92.92099617	89.96319611	87.11678214
220907A00010	9/7/2022	3.9	9/9/2032	9/7/2022	132.23081	122.6887756	113.9355046	105.900966	98.52171194	91.74022687	85.50434359	79.76671972	74.48436787
220907A00021	3/13/2023	3.92	3/29/2024	3/13/2023	100.38769	100.2270908	100.0670074	99.90743716	99.74837762	99.58982633	99.43178087	99.27423882	99.11719781
220907A00022	4/17/2023	3.87	4/30/2024	4/17/2023	100.59607	100.3472347	100.0996307	99.85324485	99.60806808	99.36409158	99.1213066	98.87970446	98.63927655
220907A00023	9/7/2022	3.76	9/8/2026	9/7/2022	109.15531	106.4926517	103.9092565	101.4022766	98.96898536	96.60677206	94.31313619	92.08568189	89.92211287
220907A00024	5/15/2023	3.81	5/31/2024	5/15/2023	100.80122	100.467112	100.1352162	99.80550842	99.47796724	99.15257134	98.82929973	98.50813171	98.18904683
220907A00025	7/17/2023	3.7	7/31/2024	7/17/2023	101.20821	100.7067179	100.2101942	99.71856114	99.23174693	98.74968099	98.27229412	97.79951849	97.33128756
220907A00027	8/14/2023	3.65	8/30/2024	8/14/2023	101.36604	100.783077	100.2068112	99.6371307	99.07392317	98.51707876	97.96649009	97.4220522	96.88366248
220908A00029	9/8/2022	3.88	3/8/2024	9/8/2022	100.24435	100.1418214	100.0395179	99.93743563	99.83557398	99.73393217	99.63250944	99.53130506	99.43031828
220908A00030	9/8/2022	3.85	9/9/2024	9/8/2022	101.56573	100.95498	100.351588	99.75541782	99.1663401	98.58422866	98.00896029	97.44041466	96.87847425
220909A00017	9/9/2022	3.85	9/9/2024	9/9/2022	101.56573	100.95498	100.351588	99.75541782	99.1663401	98.58422866	98.00896029	97.44041466	96.87847425
220912A00033	9/12/2022	3.9	10/7/2024	9/12/2022	101.83512	101.1474333	100.4690408	99.79975933	99.13940597	98.48780273	97.8447763	97.21015794	96.58378333
220912A00044	11/15/2022	3.85	11/14/2025	11/15/2022	105.9913	104.1856079	102.4195428	100.6919376	99.00167186	97.34766763	95.72888714	94.14433104	92.59303656
220912A00046	11/15/2022	3.85	11/14/2025	11/15/2022	105.9913	104.1856079	102.4195428	100.6919376	99.00167186	97.34766763	95.72888714	94.14433104	92.59303656
220912A00050	11/15/2022	3.76	11/15/2027	11/15/2022	113.97057	110.0232211	106.2363875	102.6026567	99.11499837	95.76674533	92.55157256	89.46347753	86.49676185
220912A00051	11/15/2022	3.76	11/15/2027	11/15/2022	113.97057	110.0232211	106.2363875	102.6026567	99.11499837	95.76674533	92.55157256	89.46347753	86.49676185
220913A00005	9/13/2022	4.09	9/13/2024	9/13/2022	101.74874	101.1265064	100.5118977	99.90477422	99.30499951	98.71244051	98.12696734	97.54845323	96.97677441
220913A00017	9/13/2022	3.98	9/14/2026	9/13/2022	109.8036	107.1154774	104.5076973	101.9773595	99.52168695	97.13802147	94.82381773	92.5766376	90.3941449
220913A00018	9/13/2022	3.91	9/13/2027	9/13/2022	113.81407	110.0462225	106.4257043	102.9459181	99.60060177	96.38380892	93.28989119	90.31348142	87.4494779
220915A00033	9/15/2022	4.3	3/15/2024	9/15/2022	100.34181	100.2198896	100.0982809	99.97698361	99.85599643	99.73531814	99.61494751	99.49488333	99.37512439
220915A00035	9/15/2022	4.2	3/17/2025	9/15/2022	103.73699	102.6022107	101.4923396	100.4065619	99.34409803	98.30420168	97.28615818	96.28928275	95.31291902
220915A00036	9/15/2022	4.23	9/16/2024	9/15/2022	101.86415	101.233364	100.6104067	99.9951332	99.38740165	98.78707377	98.19401462	97.6080925	97.02917892
220915A00039	9/15/2022	4.29	4/15/2024	9/15/2022	100.58178	100.3742129	100.1675145	99.96168091	99.75670666	99.55258629	99.3493144	99.14688565	98.94529472
220915A00040	9/15/2022	4.16	9/15/2025	9/15/2022	105.81188	104.1720229	102.5656694	100.9918622	99.44967611	97.93822101	96.45663991	95.00410755	93.57982892
220915A00041	9/15/2022	4.28	5/15/2024	9/15/2022	100.82439	100.5340987	100.2454909	99.95855376	99.67327275	99.38963342	99.10762153	98.82722299	98.54842388
220916A00045	9/16/2022	4.1	9/16/2032	9/16/2022	134.03827	124.3996864	115.5576884	107.441498	99.98699901	93.13607693	86.83602714	81.03902474	75.70164867
220919A00033	9/19/2022	4	9/17/2027	9/19/2022	114.19006	110.403975	106.7662243	103.2701537	99.90944419	96.67809672	93.57041351	90.58098127	87.70465508
220920A00015	9/20/2022	4.33	10/21/2024	9/20/2022	102.28732	101.5596651	100.8423852	100.1352618	99.43807991	98.7506306	98.07271078	97.40412295	96.74467507
220920A00024	9/20/2022	4.25	9/19/2025	9/20/2022	106.00863	104.3559723	102.7372295	101.1514212	99.59760577	98.07487758	96.58236495	95.11922871	93.68466064
220920A00025	9/20/2022	4.23	9/18/2026	9/20/2022	110.51352	107.8046414	105.1769195	102.6274124	100.1533065	97.7519092	95.42064266	93.15703807	90.95873302
220920A00026	9/20/2022	4.1	9/20/2027	9/20/2022	114.59239	110.7903981	107.1375644	103.6271859	100.252899	97.00866236	93.888739	90.88767881	88.00030247

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220921A00014	9/21/2022	4.08	9/21/2027	9/21/2022	114.5314	110.7276612	107.0732535	103.5614604	100.1859067	96.94054076	93.81961576	90.81767251	87.92952326
220921A00050	9/21/2022	4.51	4/29/2024	9/21/2022	100.74713	100.5008019	100.2556766	100.0117458	99.76900065	99.52743264	99.28703322	99.04779394	98.80970645
220921A00069	9/21/2022	3.98	9/21/2027	9/21/2022	114.67275	110.8532479	107.1839886	103.6581981	100.2694519	97.01165219	93.87900874	90.86602174	87.96746523
220921A00074	9/21/2022	3.98	9/21/2027	9/21/2022	114.67275	110.8532479	107.1839886	103.6581981	100.2694519	97.01165219	93.87900874	90.86602174	87.96746523
220929A00034	9/29/2022	4.67	5/31/2024	9/29/2022	101.08939	100.7546802	100.4221868	100.0918844	99.76375155	99.43776686	99.11390936	98.79215833	98.47249328
220929A00041	9/29/2022	4.38	9/29/2027	9/29/2022	115.73561	111.8868595	108.1897252	104.6373567	101.2232552	97.94125345	94.78549643	91.75042377	88.83075288
220929A00043	9/29/2022	4.44	9/28/2029	9/29/2022	124.73286	118.58753	112.7932832	107.328065	102.1713222	97.30389662	92.70792274	88.36673356	84.26477374
220929A00063	9/29/2022	4.38	9/29/2027	9/29/2022	115.73561	111.8868595	108.1897252	104.6373567	101.2232552	97.94125345	94.78549643	91.75042377	88.83075288
220930A00046	9/30/2022	4.55	8/30/2024	9/30/2022	101.8935	101.3087771	100.7307729	100.1593683	99.59445065	99.03591001	98.48363881	97.9375319	97.39748647
220930A00049	9/30/2022	4.55	6/28/2024	9/30/2022	101.31345	100.9016765	100.493248	100.0881272	99.68627412	99.28764933	98.89221402	98.49993003	98.11075978
221003A00067	10/3/2022	4.48	11/13/2024	10/3/2022	102.66273	101.8707116	101.09095	100.3231615	99.56707123	98.82241295	98.08892829	97.36636664	96.65448488
221005A00041	10/5/2022	4.3	10/5/2027	10/5/2022	115.51592	111.6544586	107.945722	104.3827781	100.9590563	97.66832256	94.50466022	91.46245134	88.53635988
221006A00012	10/6/2022	4.37	10/6/2027	10/6/2022	115.78786	111.9186055	108.2024229	104.6323647	101.2018425	97.90460524	94.73472051	91.68655552	88.75476033
221006A00095	10/6/2022	4.65	4/8/2024	10/6/2022	100.59404	100.4056925	100.2180589	100.0311368	99.84492207	99.65941064	99.47459848	99.29048159	99.10705601
221006A00097	10/6/2022	4.58	10/7/2024	10/6/2022	102.30481	101.6153226	100.9351477	100.2641007	99.60199857	98.94866294	98.30392029	97.66760163	97.03954238
230324A00006	3/24/2023	4.06	3/24/2026	3/24/2023	107.93905	105.7530099	103.6224859	101.5456822	99.52087205	97.54639828	95.62066963	93.74215769	91.90939377
221011A00114	10/11/2022	4.66	8/12/2024	10/11/2022	101.80079	101.2650861	100.7350335	100.2105471	99.69153942	99.17792467	98.66961889	98.16653986	97.66860705
221011A00122	10/11/2022	4.64	12/11/2024	10/11/2022	103.12925	102.2586341	101.4027735	100.5612912	99.73382616	98.92002974	98.11956459	97.33210442	96.55733356
221014A00027	10/14/2022	4.63	10/14/2027	10/14/2022	116.85875	112.9473687	109.1912841	105.5834143	102.1170473	98.78581718	95.58368359	92.50491321	89.54406198
221014A00031	10/14/2022	4.89	4/12/2024	10/14/2022	100.67771	100.4782527	100.2796012	100.0817482	99.88468889	99.68841847	99.49293212	99.29822508	99.10429263
221018A00030	10/18/2022	4.71	10/17/2025	10/18/2022	107.14262	105.4035977	103.7013875	102.0348807	100.4030171	98.80477888	97.23918817	95.70530527	94.20222668
221018A00031	10/18/2022	4.71	10/17/2025	10/18/2022	107.14262	105.4035977	103.7013875	102.0348807	100.4030171	98.80477888	97.23918817	95.70530527	94.20222668
221019A00008	10/19/2022	4.8	10/17/2025	10/19/2022	107.29763	105.5572303	103.8536685	102.1858344	100.5526672	98.95314838	97.38629941	95.85118004	94.34688617
221019A00009	10/19/2022	4.8	10/17/2025	10/19/2022	107.29763	105.5572303	103.8536685	102.1858344	100.5526672	98.95314838	97.38629941	95.85118004	94.34688617
221020A00046	10/20/2022	4.95	1/21/2025	10/20/2022	103.92542	102.9388329	101.9710702	101.0215924	100.0898837	99.17544764	98.27780618	97.3964987	96.53108133
221020A00052	10/20/2022	4.95	10/21/2024	10/20/2022	102.7395	102.0100234	101.2909436	100.5820382	99.88309213	99.19389602	98.51424652	97.84394587	97.18280172
221021A00022	10/21/2022	4.84	10/21/2024	10/21/2022	102.65927	101.9301211	101.2113606	100.5027715	99.80413834	99.11525216	98.43590954	97.76591277	97.10506958
221024A00018	10/24/2022	4.91	10/24/2024	10/24/2022	102.75275	102.0149421	101.2877671	100.5709934	99.86439849	99.16776633	98.48088692	97.80355612	97.1355755
221025A00027	10/25/2022	4.57	10/25/2027	10/25/2022	116.78059	112.8399158	109.0567712	105.423921	101.9345122	98.58204748	95.36036485	92.2636176	89.2862563
221027A00004	10/27/2022	4.76	10/28/2024	10/27/2022	102.68737	101.9389177	101.2014076	100.4745961	99.75825135	99.0521482	98.35606789	97.66979785	96.99313151
221027A00009	10/27/2022	4.68	10/27/2025	10/27/2022	107.22346	105.4566719	103.7277064	102.0354155	100.3786963	98.75649016	97.16778117	95.61159339	94.08698905
221027A00047	10/27/2022	4.88	4/26/2024	10/27/2022	100.80969	100.5715211	100.3344811	100.098563	99.86375878	99.63006057	99.39746056	99.165951	98.93552423
221027A00050	10/27/2022	4.52	10/27/2027	10/27/2022	116.61882	112.6755892	108.8902098	105.2554256	101.7643607	98.41049672	95.18765191	92.08996146	89.11185909

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221027A00056	4/25/2023	4.48	4/25/2030	4/25/2023	127.10001	120.2807264	113.8848383	107.8835904	102.2503373	96.96037745	91.99080131	87.32035118	82.9292934
221027A00060	12/1/2022	4.46	12/1/2027	12/1/2022	116.8535	112.8052326	108.9227287	105.1983328	101.6247794	98.19517431	94.9029736	91.74196404	88.70624466
221027A00061	12/15/2022	4.45	12/15/2027	12/15/2022	116.99392	112.9038829	108.9828129	105.2228296	101.6164651	98.15663681	94.83662509	91.65005303	88.59086706
221027A00062	12/15/2022	4.45	12/15/2027	12/15/2022	116.99392	112.9038829	108.9828129	105.2228296	101.6164651	98.15663681	94.83662509	91.65005303	88.59086706
221027A00063	12/15/2022	4.45	12/15/2027	12/15/2022	116.99392	112.9038829	108.9828129	105.2228296	101.6164651	98.15663681	94.83662509	91.65005303	88.59086706
221028A00027	10/28/2022	4.73	10/28/2024	10/28/2022	102.66491	101.9165519	101.1791334	100.4524126	99.73615768	99.03014339	98.33415104	97.64796809	96.97138797
221031A00033	10/31/2022	4.74	10/31/2025	10/31/2022	107.40014	105.6205965	103.8793292	102.1751639	100.5069791	98.8736989	97.27429069	95.70776292	94.17316303
221031A00035	10/31/2022	4.67	10/30/2026	10/31/2022	112.24902	109.4001426	106.6393434	103.9633169	101.3689045	98.8530891	96.41298814	94.045846	91.74902752
221031A00036	10/31/2022	4.59	10/29/2027	10/31/2022	116.90893	112.9546592	109.1588212	105.5141221	102.0136536	98.65086751	95.41955408	92.31382238	89.32808168
221031A00042	10/31/2022	4.73	10/30/2026	10/31/2022	112.41488	109.5636916	106.8006361	104.1224062	101.5258416	99.00792369	96.56576829	94.19661832	91.8978372
221031A00061	10/31/2022	4.94	4/30/2024	10/31/2022	100.8629	100.6136277	100.3655836	100.1187592	99.8731456	99.62873396	99.38551549	99.1434815	98.9026234
221102A00012	11/2/2022	4.82	11/3/2025	11/2/2022	107.58297	105.7933762	104.0424197	102.3289336	100.6517946	99.00992429	97.40228723	95.82788837	94.28577124
221102A00026	11/2/2022	4.66	11/2/2027	11/2/2022	117.22731	113.2556798	109.4435177	105.7834778	102.2685983	98.89228022	95.64826575	92.53061825	89.53370364
221107A00010	11/7/2022	5.12	11/7/2024	11/7/2022	103.08445	102.3070838	101.5414826	100.7873845	100.0445312	99.31267199	98.59156374	97.88097032	97.18066253
221107A00029	11/7/2022	4.83	11/9/2026	11/7/2022	112.83276	109.9473062	107.1517991	104.4428692	101.817301	99.27202103	96.80409018	94.41069699	92.08915104
221107A00030	11/7/2022	4.7	11/5/2027	11/7/2022	117.42015	113.4362096	109.6125151	105.9416831	102.4167167	99.03098277	95.77819049	92.65237117	89.64785987
221107A00048	11/7/2022	4.96	9/8/2025	11/7/2022	107.01876	105.3882556	103.7907915	102.2254254	100.6912543	99.1874091	97.71305253	96.26737805	94.84960826
221107A00053	11/7/2022	4.95	10/7/2025	11/7/2022	107.41604	105.7016457	104.0231141	102.3793836	100.7694347	99.19228772	97.64700103	96.13266908	94.64842072
221108A00033	11/8/2022	4.7	11/8/2027	11/8/2022	117.46174	113.468332	109.6358636	105.9569179	102.4244659	99.0318432	95.77272833	92.64112324	89.63133449
221108A00036	11/8/2022	4.95	11/7/2025	11/8/2022	107.87035	106.0669199	104.3026287	102.5763088	100.8868343	99.23312321	97.61413569	96.02887175	94.47636941
221108A00041	11/8/2022	5.15	4/8/2024	11/8/2022	100.6883	100.4998242	100.3120668	100.1250211	99.93868318	99.75304892	99.56811429	99.3838753	99.20032796
221110A00023	11/10/2022	4.71	11/8/2024	11/10/2022	102.78579	102.0068643	101.2397805	100.48427	99.74007194	99.00693314	98.28460796	97.57285803	96.87145191
221110A00024	11/10/2022	4.51	11/10/2025	11/10/2022	107.12644	105.3214363	103.5557898	101.8283343	100.1379459	98.48354427	96.86409016	95.27858366	93.72606223
221110A00025	11/10/2022	4.39	11/10/2026	11/10/2022	111.61726	108.7460708	105.9645826	103.2694411	100.6574387	98.1255091	95.67071979	93.29026547	90.98146148
221110A00026	11/10/2022	4.29	11/10/2027	11/10/2022	115.93007	111.9598671	108.1501865	104.4936201	100.9831497	97.61212039	94.37421976	91.26345794	88.27414918
221110A00038	11/10/2022	4.34	11/10/2027	11/10/2022	116.12024	112.1464376	108.3332643	104.6733089	101.1595491	97.78532641	94.5443247	91.43055075	88.43831554
221110A00064	1/17/2023	4.25	1/14/2028	1/17/2023	116.57921	112.4138343	108.4239897	104.6013278	100.9379452	97.42635403	94.05945827	90.83053102	87.73319328
221110A00065	1/17/2023	4.25	1/14/2028	1/17/2023	116.57921	112.4138343	108.4239897	104.6013278	100.9379452	97.42635403	94.05945827	90.83053102	87.73319328
221110A00074	11/10/2022	4.75	11/12/2024	11/10/2022	102.86479	102.0746276	101.2966421	100.5305576	99.776102	99.0330115	98.30103015	97.57990969	96.8694092
221110A00075	11/10/2022	4.56	11/10/2025	11/10/2022	107.21587	105.4100392	103.6435849	101.9153364	100.2241693	98.56900292	96.94879762	95.36255312	93.80930655
221110A00076	11/10/2022	4.45	11/10/2026	11/10/2022	111.78494	108.9113917	106.1275991	103.4302078	100.8160082	98.28193247	95.82504646	93.44254336	91.13173703
221110A00108	11/10/2022	4.48	12/10/2025	11/10/2022	107.46099	105.5698223	103.7215502	101.9149486	100.1488356	98.42207003	96.73355018	95.08221213	93.46702817
221110A00110	11/10/2022	4.47	1/13/2026	11/10/2022	107.89309	105.9054522	103.9649203	102.0700838	100.2195878	98.41212688	96.64644274	94.9213223	93.23559574

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221114A00002	11/14/2022	4.37	11/15/2027	11/14/2022	116.2991	112.3075074	108.4777635	104.8023986	101.274334	97.8868563	94.63359643	91.50850973	88.50585754
221117A00008	11/17/2022	4.82	11/15/2024	11/17/2022	102.95655	102.1578031	101.3714946	100.5973361	99.8350469	99.084355	98.34499666	97.6167161	96.89926517
221117A00012	11/17/2022	4.54	11/14/2025	11/17/2022	107.23297	105.4157876	103.6384428	101.8997642	100.1986257	98.53394392	96.90467574	95.30981672	93.74839918
221117A00013	11/17/2022	4.54	11/14/2025	11/17/2022	107.23297	105.4157876	103.6384428	101.8997642	100.1986257	98.53394392	96.90467574	95.30981672	93.74839918
221117A00014	11/17/2022	4.54	11/14/2025	11/17/2022	107.23297	105.4157876	103.6384428	101.8997642	100.1986257	98.53394392	96.90467574	95.30981672	93.74839918
221117A00025	11/17/2022	4.28	11/17/2027	11/17/2022	115.98095	111.9896502	108.1604621	104.4859047	100.9588847	97.57267446	94.3208909	91.19747575	88.19667717
221118A00018	11/18/2022	4.55	11/18/2025	11/18/2022	107.30395	105.4749067	103.6861752	101.9365818	100.2249984	98.55033832	96.91155459	95.30763819	93.73761624
221118A00019	11/18/2022	4.55	11/18/2025	11/18/2022	107.30395	105.4749067	103.6861752	101.9365818	100.2249984	98.55033832	96.91155459	95.30763819	93.73761624
221118A00023	11/18/2022	4.12	11/18/2027	11/18/2022	115.91479	111.9076947	108.0638245	104.3756279	100.8359498	97.43800385	94.17535199	91.04188406	88.03179935
221118A00045	11/18/2022	4.57	11/18/2025	11/18/2022	107.34016	105.5107802	103.7217179	101.9717998	100.2598975	98.58492429	96.94583302	95.34161451	93.77129574
221118A00046	11/18/2022	4.4	11/18/2026	11/18/2022	111.74909	108.8533196	106.048646	103.3316771	100.6991648	98.148002	95.67521517	93.27795783	90.95350424
221118A00080	11/18/2022	4.61	11/18/2025	11/18/2022	107.41258	105.5825274	103.7928034	102.0422357	100.3296957	98.65409624	97.01438988	95.40956715	93.83865474
221121A00047	11/21/2022	4.89	11/21/2033	11/21/2022	144.21436	132.9317169	122.679576	113.3567489	104.8725331	97.14557342	90.10285237	83.67879492	77.81447328
221121A00052	11/21/2022	4.35	11/22/2027	11/21/2022	116.31303	112.3010013	108.452395	104.7596707	101.2156749	97.81362158	94.54707087	91.40990978	88.39633362
221121A00064	11/21/2022	4.34	11/22/2027	11/21/2022	116.27467	112.2633675	108.4154716	104.7234365	101.1801095	97.77870531	94.51278485	91.3762358	88.36325416
221122A00029	11/22/2022	4.31	11/22/2027	11/22/2022	116.15957	112.1504661	108.3047014	104.6147339	101.0734133	97.6739565	94.40992677	91.27521387	88.2640158
221122A00040	11/22/2022	4.31	11/22/2027	11/22/2022	116.15957	112.1504661	108.3047014	104.6147339	101.0734133	97.6739565	94.40992677	91.27521387	88.2640158
221123A00034	11/23/2022	4.43	11/23/2026	11/23/2022	111.89895	108.9868227	106.1667026	103.4351637	100.7889315	98.22487206	95.73998518	93.33139753	90.99635662
221123A00039	11/23/2022	4.29	11/23/2027	11/23/2022	116.09557	112.0848069	108.2375716	104.5463122	101.0038691	97.60345001	94.33860925	91.20322799	88.19149591
221128A00034	11/28/2022	4.27	11/26/2027	11/28/2022	116.05681	112.0381489	108.1836659	104.4857803	100.9373012	97.53140563	94.26161831	91.12179162	88.10608749
221129A00032	11/29/2022	5.04	5/22/2024	11/29/2022	101.11894	100.8088923	100.500756	100.1945148	99.89015125	99.58764798	99.2869879	98.98815414	98.69113001
221129A00034	11/29/2022	4.38	12/1/2025	11/29/2022	107.42677	105.5554557	103.7261733	101.9377353	100.1889944	98.47884287	96.80621089	95.17006482	93.56940588
221129A00035	11/29/2022	4.09	11/29/2027	11/29/2022	115.93837	111.8989706	108.0253037	104.3096958	100.7448719	97.32392961	94.04031782	90.88781726	87.86052179
221129A00037	11/29/2022	4.56	11/26/2025	11/29/2022	107.42825	105.5756183	103.7642482	101.992965	100.2606357	98.56616681	96.90850325	95.28662627	93.69955216
221129A00038	11/29/2022	4.56	11/26/2025	11/29/2022	107.42825	105.5756183	103.7642482	101.992965	100.2606357	98.56616681	96.90850325	95.28662627	93.69955216
221129A00039	11/29/2022	4.56	11/26/2025	11/29/2022	107.42825	105.5756183	103.7642482	101.992965	100.2606357	98.56616681	96.90850325	95.28662627	93.69955216
221129A00040	11/29/2022	4.56	11/26/2025	11/29/2022	107.42825	105.5756183	103.7642482	101.992965	100.2606357	98.56616681	96.90850325	95.28662627	93.69955216
221129A00041	11/29/2022	4.56	11/28/2025	11/29/2022	107.4548	105.5963074	103.7793142	102.0026461	100.2651684	98.5657862	96.90344208	95.27711483	93.68581791
221129A00042	11/29/2022	4.56	11/28/2025	11/29/2022	107.4548	105.5963074	103.7793142	102.0026461	100.2651684	98.5657862	96.90344208	95.27711483	93.68581791
221129A00043	11/29/2022	4.59	12/1/2025	11/29/2022	107.54967	105.6819686	103.8561305	102.0709782	100.325371	98.61820731	96.94842314	95.3149904	93.71691561
221129A00044	11/29/2022	4.56	11/28/2025	11/29/2022	107.4548	105.5963074	103.7793142	102.0026461	100.2651684	98.5657862	96.90344208	95.27711483	93.68581791
221129A00045	11/29/2022	4.56	11/28/2025	11/29/2022	107.4548	105.5963074	103.7793142	102.0026461	100.2651684	98.5657862	96.90344208	95.27711483	93.68581791
221129A00046	11/29/2022	4.56	12/1/2025	11/29/2022	107.49428	105.6271046	103.8017821	102.0171359	100.2720255	98.56534958	96.89604438	95.26308207	93.66546938

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221129A00047	11/29/2022	4.56	12/1/2025	11/29/2022	107.49428	105.6271046	103.8017821	102.0171359	100.2720255	98.56534958	96.89604438	95.26308207	93.66546938
221129A00048	11/29/2022	4.56	12/1/2025	11/29/2022	107.49428	105.6271046	103.8017821	102.0171359	100.2720255	98.56534958	96.89604438	95.26308207	93.66546938
221129A00049	11/29/2022	4.56	12/1/2025	11/29/2022	107.49428	105.6271046	103.8017821	102.0171359	100.2720255	98.56534958	96.89604438	95.26308207	93.66546938
221129A00050	11/29/2022	4.56	12/2/2025	11/29/2022	107.50722	105.6372141	103.8091867	102.0219484	100.2743541	98.56529791	96.89371189	95.25856414	93.65885753
221129A00051	11/29/2022	4.56	12/2/2025	11/29/2022	107.50722	105.6372141	103.8091867	102.0219484	100.2743541	98.56529791	96.89371189	95.25856414	93.65885753
221129A00052	11/29/2022	4.56	12/2/2025	11/29/2022	107.50722	105.6372141	103.8091867	102.0219484	100.2743541	98.56529791	96.89371189	95.25856414	93.65885753
221129A00053	11/29/2022	4.56	12/2/2025	11/29/2022	107.50722	105.6372141	103.8091867	102.0219484	100.2743541	98.56529791	96.89371189	95.25856414	93.65885753
221129A00054	11/29/2022	4.56	12/3/2025	11/29/2022	107.52015	105.6473231	103.8165903	102.0267597	100.2766812	98.56524479	96.89137803	95.25404504	93.65224481
221129A00055	11/29/2022	4.56	12/3/2025	11/29/2022	107.52015	105.6473231	103.8165903	102.0267597	100.2766812	98.56524479	96.89137803	95.25404504	93.65224481
221129A00056	11/29/2022	4.31	11/29/2027	11/29/2022	116.24908	112.2180891	108.352062	104.6433841	101.0848277	97.66953455	94.39099504	91.2430284	88.21976456
221129A00059	11/29/2022	4.39	11/27/2026	11/29/2022	111.83756	108.9149353	106.0849727	103.3442352	100.6894289	98.1174001	95.62512861	93.20972108	90.86840508
221129A00060	11/29/2022	4.39	11/27/2026	11/29/2022	111.83756	108.9149353	106.0849727	103.3442352	100.6894289	98.1174001	95.62512861	93.20972108	90.86840508
221129A00061	11/29/2022	4.39	11/27/2026	11/29/2022	111.83756	108.9149353	106.0849727	103.3442352	100.6894289	98.1174001	95.62512861	93.20972108	90.86840508
221129A00062	11/29/2022	4.39	11/27/2026	11/29/2022	111.83756	108.9149353	106.0849727	103.3442352	100.6894289	98.1174001	95.62512861	93.20972108	90.86840508
221129A00064	11/29/2022	4.28	11/30/2027	11/29/2022	116.14611	112.1142073	108.2474393	104.538178	100.9791873	97.5636006	94.28489981	91.13689627	88.11371217
221129A00065	11/29/2022	4.28	11/30/2027	11/29/2022	116.14611	112.1142073	108.2474393	104.538178	100.9791873	97.5636006	94.28489981	91.13689627	88.11371217
221129A00066	11/29/2022	4.28	11/29/2027	11/29/2022	116.1334	112.1046284	108.2407536	104.5341634	100.9776327	97.56430553	94.28767451	91.14156102	88.12009705
221129A00067	11/29/2022	4.28	11/29/2027	11/29/2022	116.1334	112.1046284	108.2407536	104.5341634	100.9776327	97.56430553	94.28767451	91.14156102	88.12009705
221129A00068	11/29/2022	4.28	11/29/2027	11/29/2022	116.1334	112.1046284	108.2407536	104.5341634	100.9776327	97.56430553	94.28767451	91.14156102	88.12009705
221129A00069	11/29/2022	4.28	11/26/2027	11/29/2022	116.09529	112.0758892	108.2206918	104.5221132	100.9729616	97.5664134	94.29599246	91.15555049	88.13924874
221129A00070	11/29/2022	4.28	11/26/2027	11/29/2022	116.09529	112.0758892	108.2206918	104.5221132	100.9729616	97.5664134	94.29599246	91.15555049	88.13924874
221129A00071	11/29/2022	4.28	11/26/2027	11/29/2022	116.09529	112.0758892	108.2206918	104.5221132	100.9729616	97.5664134	94.29599246	91.15555049	88.13924874
221129A00072	11/29/2022	4.39	12/2/2026	11/29/2022	111.90157	108.9639989	106.1199717	103.3660084	100.6987817	98.11510539	95.61192746	93.18632375	90.83549188
221129A00073	11/29/2022	4.39	12/2/2026	11/29/2022	111.90157	108.9639989	106.1199717	103.3660084	100.6987817	98.11510539	95.61192746	93.18632375	90.83549188
221129A00075	11/29/2022	4.38	12/1/2026	11/29/2022	111.86048	108.926244	106.0853652	103.3343776	100.6699632	98.08894437	95.58827732	93.1650456	90.8164541
221129A00076	11/29/2022	4.38	12/1/2026	11/29/2022	111.86048	108.926244	106.0853652	103.3343776	100.6699632	98.08894437	95.58827732	93.1650456	90.8164541
221129A00077	11/29/2022	4.38	12/1/2026	11/29/2022	111.86048	108.926244	106.0853652	103.3343776	100.6699632	98.08894437	95.58827732	93.1650456	90.8164541
221129A00078	11/29/2022	4.38	12/1/2026	11/29/2022	111.86048	108.926244	106.0853652	103.3343776	100.6699632	98.08894437	95.58827732	93.1650456	90.8164541
221129A00083	11/29/2022	4.38	11/30/2026	11/29/2022	111.84795	108.9166324	106.0785011	103.3300981	100.6681143	98.08938039	95.59086047	93.16964553	90.82294748
221129A00084	11/29/2022	4.38	11/30/2026	11/29/2022	111.84795	108.9166324	106.0785011	103.3300981	100.6681143	98.08938039	95.59086047	93.16964553	90.82294748
221129A00085	11/29/2022	4.38	11/30/2026	11/29/2022	111.84795	108.9166324	106.0785011	103.3300981	100.6681143	98.08938039	95.59086047	93.16964553	90.82294748
221129A00086	11/29/2022	4.38	11/30/2026	11/29/2022	111.84795	108.9166324	106.0785011	103.3300981	100.6681143	98.08938039	95.59086047	93.16964553	90.82294748
221130A00019	11/30/2022	4.63	11/26/2025	11/30/2022	107.55653	105.7026888	103.890133	102.1176861	100.3842143	98.68862363	97.02985839	95.40689933	93.81876219

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221130A00032	11/30/2022	4.37	11/30/2027	11/30/2022	116.4934	112.454829	108.5815951	104.8660619	101.3009858	97.87949325	94.59505937	91.44148904	88.41289832
221130A00033	11/30/2022	4.37	11/30/2027	11/30/2022	116.4934	112.454829	108.5815951	104.8660619	101.3009858	97.87949325	94.59505937	91.44148904	88.41289832
221130A00041	11/30/2022	4.95	12/2/2024	11/30/2022	103.28224	102.4354745	101.6026434	100.7834008	99.97741574	99.18436776	98.40394679	97.6358526	96.87979437
221130A00044	11/30/2022	5.09	5/30/2024	11/30/2022	101.21949	100.8872652	100.5572167	100.2293272	99.90357537	99.57994049	99.25840197	98.9389395	98.62153304
221130A00076	11/30/2022	4.15	11/30/2027	11/30/2022	116.18309	112.1360857	108.2551837	104.5326944	100.9613267	97.53416245	94.24463558	91.08651222	88.05387225
221130A00085	11/30/2022	4.19	11/30/2027	11/30/2022	115.79882	111.7735857	107.9132835	104.2102942	100.6573888	97.24770795	93.97474026	90.83230349	87.81452601
221130A00110	11/30/2022	4.15	11/30/2027	11/30/2022	115.64447	111.6221983	107.7647698	104.064568	100.5143673	97.10731121	93.83689157	90.69692893	87.68155439
221202A00013	12/2/2022	4.78	12/3/2024	12/2/2022	103.15108	102.3021903	101.4673196	100.6461187	99.83825323	99.04339995	98.26124585	97.49148792	96.73383274
221202A00018	12/2/2022	4.16	12/2/2027	12/2/2022	115.70703	111.6780099	107.814314	104.1082903	100.5526839	97.14061061	93.86553677	90.721259	87.70188606
221202A00025	12/2/2022	4.06	12/2/2026	12/2/2022	111.34822	108.4098607	105.5653057	102.8110662	100.143799	97.56030274	95.05751115	92.63248673	90.28241451
221205A00024	12/5/2022	4.13	12/3/2027	12/5/2022	115.603	111.5732113	107.7089046	104.0024172	100.4464825	97.03420526	93.75904159	90.61477867	87.59551649
221205A00048	12/5/2022	4.4	12/5/2025	12/5/2022	107.24884	105.3732022	103.5398388	101.7475521	99.99518437	98.28161785	96.60577299	94.96660697	93.36311228
221205A00065	12/5/2022	4.13	12/6/2027	12/5/2022	115.6387	111.5999141	107.7272889	104.0131203	100.4500984	97.031288	93.75010755	90.60030935	87.57596083
221206A00011	12/6/2022	4.29	12/7/2026	12/6/2022	111.67744	108.729402	105.8756675	103.112717	100.437182	97.8458372	95.33559384	92.90349312	90.54670002
221206A00025	12/6/2022	4.27	12/4/2026	12/6/2022	111.58337	108.6449038	105.8002017	103.0457741	100.3782798	97.79451933	95.29142832	92.86607098	90.51563398
221206A00036	12/6/2022	4.13	12/6/2027	12/6/2022	115.6387	111.5999141	107.7272889	104.0131203	100.4500984	97.031288	93.75010755	90.60030935	87.57596083
221206A00039	12/6/2022	4.29	12/7/2026	12/6/2022	111.67744	108.729402	105.8756675	103.112717	100.437182	97.8458372	95.33559384	92.90349312	90.54670002
221207A00009	12/7/2022	4.38	12/8/2025	12/7/2022	107.24901	105.3652719	103.5241614	101.7244613	99.96499971	98.24464564	96.56230682	94.91692835	93.30749113
221207A00010	12/7/2022	4.08	12/7/2027	12/7/2022	115.4567	111.4186476	107.5468757	103.833664	100.2716922	96.85401575	93.57404437	90.42552233	87.40250964
221207A00012	12/7/2022	4.21	12/7/2026	12/7/2022	111.4479	108.5031784	105.6526775	102.8928828	100.2204284	97.63209117	95.12478485	92.69555278	90.34156209
221207A00017	12/7/2022	3.86	12/7/2027	12/7/2022	115.14212	111.0956786	107.2162805	103.4961589	99.92794542	96.50465061	93.21964234	90.06662573	87.03962427
221207A00032	12/7/2022	4.52	12/7/2032	12/7/2022	137.21679	127.2665115	118.1519735	109.7976685	102.135306	95.10308618	88.64505221	82.71050958	77.25350626
221207A00035	12/7/2022	4.31	1/7/2026	12/7/2022	107.48542	105.5184011	103.5976369	101.7217578	99.88944367	98.09942217	96.35046655	94.64139372	92.97106242
221207A00074	12/7/2022	4.66	12/6/2024	12/7/2022	103.08583	102.2290653	101.386586	100.558038	99.74307729	98.94137102	98.15259724	97.37644435	96.61261068
221208A00020	12/8/2022	4.11	12/8/2027	12/8/2022	115.58489	111.5415939	107.6648739	103.9469924	100.3806123	96.95877296	93.67486945	90.52263214	87.49610809
221208A00051	2/15/2023	4.27	2/13/2026	2/15/2023	107.89331	105.8179987	103.7936046	101.8185473	99.89130664	98.01042028	96.1744812	94.38213511	92.63207805
221208A00052	2/15/2023	4.01	2/15/2028	2/15/2023	116.00316	111.7575227	107.694401	103.8049462	100.0807863	96.51399896	93.09708495	89.82294316	86.68484718
221208A00054	2/1/2023	4.02	2/1/2028	2/1/2023	115.87053	111.6692373	107.6472014	103.7957967	100.1068583	96.57265627	93.18587027	89.93956533	86.8271696
221208A00110	12/8/2022	4.07	12/8/2027	12/8/2022	115.42965	111.3893541	107.5155396	103.8004761	100.2368298	96.81764327	93.53631464	90.3865772	87.36248077
221212A00011	12/12/2022	3.89	12/10/2027	12/12/2022	115.2937	111.2359734	107.3460493	103.6161101	100.0387411	96.60690993	93.31394409	90.15351121	87.11959977
221212A00040	12/12/2022	4.45	12/12/2025	12/12/2022	107.43012	105.5338439	103.6806933	101.8694318	100.0988678	98.36785151	96.6752728	95.02005971	93.4011769
221212A00041	12/12/2022	4.15	12/10/2027	12/12/2022	115.76404	111.7117382	107.8265597	104.1007336	100.5268905	97.09803966	93.80754797	90.64911945	87.61677655
221212A00063	12/12/2022	4.45	12/12/2025	12/12/2022	107.43012	105.5338439	103.6806933	101.8694318	100.0988678	98.36785151	96.6752728	95.02005971	93.4011769

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221212A00071	12/12/2022	4.15	12/13/2027	12/12/2022	115.79991	111.7385917	107.8450808	104.1115631	100.5306256	97.09523704	93.79872643	90.63476261	87.59733519
221212A00117	6/12/2023	4.11	6/12/2026	6/12/2023	109.01313	106.5937806	104.2409443	101.952427	99.72611839	97.55998958	95.45208974	93.4005424	91.40354227
221213A00004	12/13/2022	3.99	12/13/2027	12/13/2022	115.17675	111.1275018	107.2456933	103.5235244	99.95359568	96.5288889	93.24274539	90.08884579	87.06119098
221213A00017	12/13/2022	4.1	12/14/2026	12/13/2022	111.21461	108.2541114	105.388943	102.6155199	99.93041656	97.33035422	94.81219371	92.37292885	90.00967995
221213A00047	12/13/2022	3.8	12/13/2027	12/13/2022	114.97721	110.9172709	107.0256166	103.2943908	99.71614291	96.28380669	92.99067882	89.83039811	86.79692639
221213A00049	12/13/2022	4.01	12/13/2027	12/13/2022	115.25465	111.2038881	107.3206167	103.5970292	100.0257244	96.59968242	93.31224302	90.15708539	87.12820901
221213A00061	12/13/2022	4.15	12/11/2026	12/13/2022	111.32334	108.369473	105.5104624	102.7427541	100.0629482	97.46778971	94.95416207	92.51908032	90.1596848
221214A00003	12/14/2022	4.26	12/12/2025	12/14/2022	107.07357	105.1807254	103.3309437	101.522988	99.75566891	98.02783805	96.33838697	94.68624528	93.07037912
221214A00020	12/14/2022	4.2	12/12/2025	12/14/2022	106.96097	105.0692143	103.2204964	101.4135848	99.64729031	97.92046538	96.23200197	94.5808302	92.96591666
221214A00022	12/14/2022	4.17	2/13/2026	12/14/2022	107.68829	105.6151226	103.5928329	101.619839	99.6946218	97.81572007	95.98172789	94.191292	92.44310944
221214A00030	12/14/2022	4.02	12/14/2027	12/14/2022	115.30519	111.2506853	107.3639174	103.6370689	100.0627231	96.63384576	93.3437634	90.18614267	87.1549714
221214A00031	12/14/2022	3.97	12/14/2027	12/14/2022	115.11032	111.0595866	107.1764807	103.4531835	99.88228253	96.45674771	93.16990931	90.01543771	86.98732427
221214A00102	12/14/2022	4.33	12/15/2025	12/14/2022	107.24183	105.3392682	103.4801492	101.6632226	99.88728351	98.15116951	96.45375846	94.79396693	93.17074865
221215A00082	12/15/2022	4.27	12/15/2025	12/15/2022	107.12874	105.2272709	103.3692249	101.553351	99.77844531	98.04334568	96.34693055	94.68811701	93.06585923
221215A00115	12/15/2022	4	12/15/2027	12/15/2022	115.23879	111.1827962	107.2947297	103.5667517	99.9914326	96.56172642	93.27094849	90.11275519	87.08112482
221216A00007	12/16/2022	4.27	12/16/2025	12/16/2022	107.14087	105.2365901	103.3758476	101.5573918	99.78001387	98.04254722	96.34386586	94.6828827	93.05854797
221216A00008	12/16/2022	4.27	12/16/2025	12/16/2022	107.14087	105.2365901	103.3758476	101.5573918	99.78001387	98.04254722	96.34386586	94.6828827	93.05854797
221216A00009	12/16/2022	4.27	12/16/2025	12/16/2022	107.14087	105.2365901	103.3758476	101.5573918	99.78001387	98.04254722	96.34386586	94.6828827	93.05854797
221216A00010	12/16/2022	4.27	12/16/2025	12/16/2022	107.14087	105.2365901	103.3758476	101.5573918	99.78001387	98.04254722	96.34386586	94.6828827	93.05854797
221216A00044	12/16/2022	4.43	4/16/2025	12/16/2022	104.31636	103.0967742	101.9058277	100.7425178	99.60588888	98.49502891	97.40906713	96.34717166	95.30854732
221216A00045	12/16/2022	4.38	5/16/2025	12/16/2022	104.6177	103.3169768	102.0431299	100.7953306	99.57278368	98.3747263	97.20042666	96.04918225	94.92031846
221216A00047	12/16/2022	4.34	6/16/2025	12/16/2022	104.96339	103.5773669	102.2164149	100.8799078	99.56724264	98.27783594	97.01112283	95.76655632	94.54360659
221216A00048	12/16/2022	4.32	7/16/2025	12/16/2022	105.30484	103.8348194	102.3928304	100.9781388	99.59003597	98.22783737	96.8908815	95.57852896	94.29016151
221216A00049	12/16/2022	4.29	8/15/2025	12/16/2022	105.64063	104.0871213	102.5644022	101.0716316	99.60799488	98.17270655	96.76500903	95.38417131	94.02948783
221219A00043	12/19/2022	4.07	12/17/2027	12/19/2022	115.53528	111.4679932	107.5692507	103.8311798	100.2463159	96.80758008	93.50825689	90.341974	87.30268277
221220A00024	12/20/2022	4.7	12/20/2024	12/20/2022	103.29187	102.3958988	101.5155275	100.650353	99.7999835	98.96404064	98.14215883	97.33398476	96.5391769
221220A00025	12/20/2022	4.38	12/22/2025	12/20/2022	107.42314	105.4999026	103.6209664	101.785045	99.9908995	98.23733449	96.52319666	94.84737282	93.20878829
221221A00043	12/21/2022	4.26	12/19/2025	12/21/2022	107.15832	105.2457705	103.3771169	101.5510913	99.76647022	98.02207346	96.31676195	94.64943616	93.01903442
221221A00053	12/21/2022	4.15	12/21/2027	12/21/2022	115.89558	111.8101816	107.8944347	104.1403964	100.5405368	97.08771579	93.77516082	90.59644624	87.5454736
221223A00016	12/23/2022	4.73	12/23/2024	12/23/2022	103.35577	102.4512787	101.5626799	100.6895542	99.83149919	98.98812643	98.15906073	97.34393961	96.54241274
221223A00035	12/23/2022	4.44	12/23/2025	12/23/2022	107.54999	105.6228087	103.7400701	101.9004827	100.102802	98.34582752	96.62840091	94.94940427	93.30775838
221228A00044	12/28/2022	4.31	12/28/2027	12/28/2022	116.6091	112.4902782	108.5431091	104.7595217	101.1318687	97.65290037	94.31574186	91.11387185	88.0411025
221229A00043	12/29/2022	4.96	7/1/2024	12/29/2022	101.51461	101.0941259	100.6771278	100.2635706	99.85341208	99.44661036	99.04312436	98.64291368	98.24593855

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
221229A00075	12/29/2022	5.2	12/29/2037	12/29/2022	159.69937	143.2500477	128.8148907	116.1296553	104.9663709	95.12817902	86.44492756	78.7694094	71.97414847
230104A00004	1/4/2023	4.19	1/4/2028	1/4/2023	116.22074	112.0901125	108.1324922	104.3397082	100.7040176	97.21808211	93.87494459	90.6680075	87.59101225
230104A00044	1/4/2023	4.2	1/4/2028	1/4/2023	116.2603	112.1288912	108.1705171	104.3770025	100.7406034	97.25398059	93.91017633	90.70259222	87.62496892
230105A00020	1/5/2023	4.32	1/5/2028	1/5/2023	116.74728	112.6035293	108.6333346	104.8284963	101.1812445	97.68421528	94.33042779	91.1132619	88.02643783
230106A00017	1/6/2023	4.23	1/6/2028	1/6/2023	116.40308	112.2633346	108.297166	104.4963661	100.8531577	97.36017011	94.01041645	90.79727122	87.71444975
230106A00019	1/6/2023	4.23	1/6/2028	1/6/2023	116.40308	112.2633346	108.297166	104.4963661	100.8531577	97.36017011	94.01041645	90.79727122	87.71444975
230109A00042	1/9/2023	4.07	12/20/2027	1/9/2023	115.57049	111.4941985	107.5871401	103.8413963	100.2494586	96.80420703	93.49888828	90.32709448	87.28274396
230109A00083	1/9/2023	4.79	1/11/2038	1/9/2023	154.1846	138.0650079	123.9349368	111.5319352	100.6297354	91.03308651	82.57334611	75.10471802	68.50103979
230110A00023	1/10/2023	4.3	1/12/2026	1/10/2023	107.54686	105.5654037	103.6308534	101.7418132	99.89693526	98.09492102	96.33451875	94.61452163	92.93376579
230110A00040	1/13/2023	4.07	12/13/2027	1/13/2023	115.48833	111.4330468	107.545387	103.8175438	100.2421106	96.81206297	93.52073591	90.3618042	87.32926308
230110A00043	1/10/2023	3.84	1/10/2028	1/10/2023	115.45441	111.3072863	107.3350884	103.5295021	99.88265176	96.38707548	93.03570171	89.82182649	86.73909243
230110A00047	1/10/2023	3.84	1/10/2028	1/10/2023	115.45441	111.3072863	107.3350884	103.5295021	99.88265176	96.38707548	93.03570171	89.82182649	86.73909243
230110A00055	1/10/2023	4.06	1/10/2028	1/10/2023	115.77603	111.6375901	107.6732682	103.874801	100.2343644	96.74454516	93.3983166	90.18901686	87.11032772
230110A00070	1/10/2023	4.27	1/9/2026	1/10/2023	107.43166	105.4598	103.5344339	101.654182	99.8177138	98.02374705	96.27104566	94.55841766	92.88471331
230111A00004	1/11/2023	3.83	1/11/2028	1/11/2023	115.42594	111.2766093	107.3024168	103.4950341	99.84657044	96.34955046	92.99688988	89.78187301	86.69813155
230111A00013	1/11/2023	4.25	1/9/2026	1/11/2023	107.39259	105.4211177	103.496135	101.6162591	99.7801599	97.98655523	96.23420922	94.52193007	92.84856823
230111A00019	1/11/2023	3.83	1/11/2028	1/11/2023	115.42594	111.2766093	107.3024168	103.4950341	99.84657044	96.34955046	92.99688988	89.78187301	86.69813155
230111A00039	1/11/2023	4.6	1/13/2025	1/11/2023	103.48736	102.5249026	101.5804167	100.6534008	99.74337258	98.84986721	97.9724368	97.11064952	96.26408891
230111A00046	1/11/2023	4.28	1/13/2026	1/11/2023	107.51976	105.535882	103.5990324	101.707808	99.86085586	98.05687233	96.29460097	94.57283048	92.8903927
230111A00069	1/11/2023	4.54	1/10/2025	1/11/2023	103.39491	102.4411062	101.5049607	100.5859872	99.68371551	98.79769258	97.92748151	97.07266099	96.23282459
230111A00072	1/11/2023	4.21	1/12/2026	1/11/2023	107.37027	105.3905871	103.4577764	101.5704425	99.72723877	97.92686734	96.16807738	94.4496629	92.77046083
230112A00004	1/12/2023	4	1/12/2028	1/12/2023	115.56053	111.420837	107.4555836	103.656485	100.0156916	96.52576646	93.17966106	89.97069336	86.8925265
230112A00014	1/12/2023	4.09	1/12/2027	1/12/2023	111.52448	108.4802106	105.5364053	102.6891982	99.93489115	97.26994888	94.69099076	92.1947831	89.77823187
230112A00041	1/12/2023	4.2	1/12/2026	1/12/2023	107.35065	105.371163	103.4385456	101.5514014	99.70838361	97.90819471	96.1495839	94.43134527	92.75231583
230112A00042	1/12/2023	4.09	1/12/2027	1/12/2023	111.52448	108.4802106	105.5364053	102.6891982	99.93489115	97.26994888	94.69099076	92.1947831	89.77823187
230112A00044	1/12/2023	4	1/12/2028	1/12/2023	115.56053	111.420837	107.4555836	103.656485	100.0156916	96.52576646	93.17966106	89.97069336	86.8925265
230112A00060	3/15/2023	4.01	3/13/2026	3/15/2023	107.70307	105.549425	103.449958	101.4029306	99.40667674	97.45959611	95.56015137	93.70686498	91.89831638
230112A00061	3/15/2023	4.01	3/13/2026	3/15/2023	107.70307	105.549425	103.449958	101.4029306	99.40667674	97.45959611	95.56015137	93.70686498	91.89831638
230112A00062	3/15/2023	3.83	3/15/2028	3/15/2023	115.60165	111.2808815	107.1488989	103.1963994	99.41459297	95.79517025	92.33027333	89.01246852	85.83472095
230112A00063	3/15/2023	3.83	3/15/2028	3/15/2023	115.60165	111.2808815	107.1488989	103.1963994	99.41459297	95.79517025	92.33027333	89.01246852	85.83472095
230112A00065	1/12/2023	4.09	1/12/2027	1/12/2023	111.52448	108.4802106	105.5364053	102.6891982	99.93489115	97.26994888	94.69099076	92.1947831	89.77823187
230112A00066	1/12/2023	4	1/12/2028	1/12/2023	115.56053	111.420837	107.4555836	103.656485	100.0156916	96.52576646	93.17966106	89.97069336	86.8925265
230113A00055	1/13/2023	3.88	1/13/2028	1/13/2023	115.09429	110.961056	107.002212	103.2094616	99.57495079	96.09123841	92.75127264	89.54836841	86.47618637

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230113A00080	1/13/2023	4.18	1/13/2026	1/13/2023	107.32327	105.3413713	103.4064598	101.5171366	99.67204958	97.86989625	96.1094211	94.38941373	92.70870689
230117A00015	1/17/2023	4.52	1/17/2025	1/17/2023	103.4567	102.4834984	101.528672	100.5917047	99.67209795	98.76937165	97.88306318	97.01272677	96.15793265
230117A00040	1/17/2023	4.07	1/19/2027	1/17/2023	111.54599	108.482313	105.5203626	102.6561938	99.88604018	97.20630175	94.61353724	92.10445588	89.67590998
230117A00048	1/17/2023	3.97	1/14/2028	1/17/2023	115.46388	111.3205781	107.3521245	103.5501959	99.90691426	96.41481636	93.06682943	89.85624877	86.77671662
230117A00087	1/17/2023	3.93	1/18/2028	1/17/2023	115.34945	111.1973998	107.2210425	103.4119981	99.7623299	96.26452009	92.91144542	89.69635437	86.61284568
230118A00019	1/18/2023	3.59	1/18/2028	1/18/2023	114.54427	110.3930654	106.4180788	102.6108842	98.96350337	95.46838003	92.11835534	88.9066448	85.82681664
230118A00023	1/18/2023	3.8	1/18/2028	1/18/2023	114.83018	110.6884331	106.7220609	102.9226938	99.28240726	95.79369481	92.44944414	89.24291414	86.16771352
230118A00029	1/18/2023	3.81	1/18/2028	1/18/2023	114.87012	110.7275844	106.7604441	102.9603326	99.31932439	95.82991214	92.4849827	89.27779416	86.20195445
230118A00033	1/18/2023	3.81	1/18/2028	1/18/2023	114.87012	110.7275844	106.7604441	102.9603326	99.31932439	95.82991214	92.4849827	89.27779416	86.20195445
230118A00034	1/18/2023	3.89	1/18/2028	1/18/2023	115.18968	111.0407947	107.0675097	103.2614429	99.6146614	96.11965077	92.76929118	89.5568343	86.47588194
230118A00039	1/18/2023	3.81	1/18/2028	1/18/2023	114.87012	110.7275844	106.7604441	102.9603326	99.31932439	95.82991214	92.4849827	89.27779416	86.20195445
230118A00058	1/23/2023	4	2/17/2026	1/23/2023	107.39068	105.3086209	103.2778483	101.2967634	99.36382805	97.47756298	95.63654522	93.83940541	92.08482536
230118A00087	1/18/2023	4.02	1/16/2026	1/18/2023	107.02302	105.0364492	103.0971783	101.2037853	99.35490427	97.54921926	95.78546222	94.06241079	92.37888635
230119A00034	1/19/2023	3.82	1/19/2028	1/19/2023	114.92099	110.7746922	106.8040545	103.0006896	99.35665544	95.86442932	92.51688378	89.30726359	86.22916426
230119A00075	1/19/2023	4.44	1/21/2025	1/19/2023	103.42428	102.4403389	101.475183	100.5282775	99.59910732	98.68717683	97.79200859	96.91314271	96.05013601
230119A00105	1/19/2023	3.9	1/19/2027	1/19/2023	111.03804	107.981989	105.027472	102.1705528	99.40747054	96.73463129	94.14859929	91.64608911	89.22395817
230119A00108	1/19/2023	3.81	1/19/2028	1/19/2023	114.88102	110.7355143	106.7656457	102.9630263	99.31971468	95.82818926	92.48132336	89.27236253	86.19490309
230119A00137	1/19/2023	3.9	1/19/2027	1/19/2023	111.03804	107.981989	105.027472	102.1705528	99.40747054	96.73463129	94.14859929	91.64608911	89.22395817
230120A00021	1/20/2023	4.13	1/20/2026	1/20/2023	107.30713	105.3065532	103.353854	101.4475849	99.58635602	97.76882886	95.99371373	94.25976774	92.56579274
230120A00022	1/20/2023	3.9	1/20/2028	1/20/2023	115.25191	111.0962843	107.1167557	103.3049105	99.65278356	96.15283058	92.79790386	89.58122919	86.4963843
230120A00027	1/20/2023	4.13	1/20/2026	1/20/2023	107.30713	105.3065532	103.353854	101.4475849	99.58635602	97.76882886	95.99371373	94.25976774	92.56579274
230120A00029	1/20/2023	3.9	1/20/2028	1/20/2023	115.25191	111.0962843	107.1167557	103.3049105	99.65278356	96.15283058	92.79790386	89.58122919	86.4963843
230120A00063	1/20/2023	4.83	7/22/2024	1/20/2023	101.68204	101.2037793	100.7300326	100.2607357	99.795826	99.33524198	98.87892332	98.42681082	97.97884636
230120A00065	1/20/2023	4.52	1/21/2025	1/20/2023	103.50289	102.518534	101.5529692	100.6056602	99.67609185	98.76376833	97.86821213	96.98896326	96.12557841
230120A00071	1/20/2023	4.31	1/21/2025	1/20/2023	103.45317	102.4668464	101.499386	100.5502521	99.61892679	98.70491141	97.80772585	96.92690761	96.06201103
230120A00079	1/20/2023	3.68	1/20/2028	1/20/2023	114.9266	110.7622549	106.7748327	102.955861	99.29732164	95.79162102	92.43156552	89.21033809	86.12147656
230120A00103	1/20/2023	3.92	1/20/2026	1/20/2023	107.15415	105.1502108	103.1943198	101.2850246	99.42092812	97.60068496	95.82299888	94.08662077	92.39034655
230120A00114	1/20/2023	4.13	1/20/2026	1/20/2023	107.30713	105.3065532	103.353854	101.4475849	99.58635602	97.76882886	95.99371373	94.25976774	92.56579274
230120A00117	1/20/2023	3.9	1/20/2028	1/20/2023	115.25191	111.0962843	107.1167557	103.3049105	99.65278356	96.15283058	92.79790386	89.58122919	86.4963843
230123A00051	1/23/2023	3.75	1/21/2028	1/23/2023	115.21847	111.0455425	107.0499509	103.2231999	99.55724871	96.04448301	92.67768953	89.45003288	86.35503368
230123A00078	1/23/2023	4.41	6/23/2025	1/23/2023	105.14942	103.7426636	102.361666	101.0057756	99.67436572	98.36683023	97.08258258	95.82105501	94.58169783
230124A00004	1/24/2023	3.99	1/24/2028	1/24/2023	115.65748	111.4827539	107.4853014	103.6566328	99.98871154	96.47392704	93.10506974	89.87530775	86.77816506
230124A00015	1/24/2023	4.09	1/25/2027	1/24/2023	111.6754	108.5934117	105.6142698	102.7339702	99.94868542	97.25475858	94.64869458	92.12715214	89.68693601

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230124A00022	1/24/2023	4.39	1/24/2025	1/24/2023	103.56675	102.5716078	101.5956534	100.6383313	99.6991108	98.77748123	97.872951	96.98504667	96.11331219
230124A00024	1/24/2023	4.23	1/23/2026	1/24/2023	107.54155	105.5305147	103.5677799	101.6518844	99.7814207	97.95503334	96.17141671	94.42931269	92.72750861
230124A00025	1/24/2023	4.09	1/25/2027	1/24/2023	111.6754	108.5934117	105.6142698	102.7339702	99.94868542	97.25475858	94.64869458	92.12715214	89.68693601
230124A00035	1/24/2023	4.23	1/26/2026	1/24/2023	107.55707	105.5381772	103.5679508	101.644917	99.76765247	97.93478652	96.1449991	94.39701837	92.68961866
230124A00041	1/24/2023	4.6	1/24/2025	1/24/2023	103.6168	102.6236513	101.6496131	100.6941352	99.75668992	98.83676942	97.93388477	97.04756508	96.17735672
230124A00045	1/24/2023	3.99	1/24/2028	1/24/2023	115.65748	111.4827539	107.4853014	103.6566328	99.98871154	96.47392704	93.10506974	89.87530775	86.77816506
230124A00046	1/24/2023	3.99	1/24/2028	1/24/2023	115.65748	111.4827539	107.4853014	103.6566328	99.98871154	96.47392704	93.10506974	89.87530775	86.77816506
230124A00055	6/15/2023	4.13	6/15/2032	6/15/2023	132.14475	122.9075843	114.4131429	106.5971946	99.40139123	92.77270082	86.662898	81.02810551	75.82838156
230124A00056	3/28/2023	4.19	3/28/2033	3/28/2023	135.30187	125.1145967	115.8113916	107.3098787	99.53579413	92.4221491	85.90848068	79.94018399	74.46791569
230124A00058	6/15/2023	4.21	6/15/2034	6/15/2023	139.12319	127.4949856	116.990139	107.4925481	98.89872825	91.11637901	84.06312218	77.66538745	71.8574285
230125A00023	1/25/2023	3.69	1/25/2028	1/25/2023	115.02155	110.8414762	106.8395433	103.0071979	99.33634149	95.81930621	92.44882927	89.2180294	86.12038471
230125A00030	1/25/2023	3.91	1/25/2028	1/25/2023	115.34777	111.1764603	107.1824615	103.3572768	99.69286123	96.18159679	92.81626714	89.59003426	86.49641663
230126A00015	1/26/2023	4.08	1/26/2027	1/26/2023	111.65694	108.5724979	105.591078	102.7086631	99.92141599	97.22567064	94.61792342	92.094825	89.65317259
230126A00033	1/26/2023	4.84	7/26/2024	1/26/2023	101.72921	101.2398819	100.7552691	100.2753058	99.79992546	99.32906243	98.86265248	98.40063254	97.94294076
230126A00034	1/26/2023	4.56	1/24/2025	1/26/2023	103.57716	102.584227	101.6103966	100.6551237	99.71788078	98.79815994	97.89547235	97.00934719	96.13933088
230126A00036	1/26/2023	4.19	1/26/2026	1/26/2023	107.47706	105.4589776	103.489554	101.5673075	99.69081523	97.85870691	96.06966291	94.32241178	92.61572821
230127A00095	1/27/2023	4.59	1/27/2025	1/27/2023	103.6421	102.6406287	101.6585752	100.6953818	99.7505082	98.82343459	97.91366065	97.02070469	96.14410274
230127A00096	1/27/2023	4.21	1/27/2026	1/27/2023	107.52899	105.5076805	103.535169	101.6099669	99.73064524	97.89582841	96.10419144	94.35445791	92.64539773
230130A00045	1/30/2023	4.02	1/28/2028	1/30/2023	115.82372	111.6346278	107.6238419	103.7828013	100.1034032	96.57797585	93.19925251	89.96034821	86.85473754
230130A00086	1/30/2023	4.16	2/1/2027	1/30/2023	111.96966	108.8637831	105.8621233	102.9605978	100.1553063	97.44252365	94.81869048	92.28040507	89.82441528
230130A00087	1/30/2023	4.04	1/28/2028	1/30/2023	115.90416	111.7134623	107.7011195	103.8585701	100.1777098	96.65086463	93.27076634	90.03052831	86.92362354
230130A00095	2/3/2023	4.25	5/26/2026	2/3/2023	109.13345	106.7599416	104.4505197	102.2030847	100.0156197	97.88618572	95.81291872	93.79402573	91.8277819
230130A00096	1/30/2023	4.67	1/30/2025	1/30/2023	103.75791	102.7476102	101.7570566	100.7856707	99.83289949	98.89821081	97.98109277	97.08105262	96.1976159
230130A00127	1/30/2023	4.02	2/1/2028	1/30/2023	115.87053	111.6692373	107.6472014	103.7957967	100.1068583	96.57265627	93.18587027	89.93956533	86.8271696
230131A00004	1/31/2023	3.76	1/31/2028	1/31/2023	115.37025	111.1665646	107.1426396	103.2898135	99.59988553	96.06509255	92.67808326	89.43189399	86.31992615
230131A00006	1/31/2023	4.23	2/2/2026	1/31/2023	107.6643	105.6244336	103.6341453	101.6919193	99.79629289	97.94585838	96.13926042	94.3751937	92.65240068
230131A00009	1/31/2023	3.98	1/31/2028	1/31/2023	115.69694	111.502091	107.4861701	103.640566	99.9571324	96.42815673	93.04633474	89.80474664	86.69683472
230131A00032	2/3/2023	4.17	7/30/2026	2/3/2023	109.7383	107.1781243	104.6919212	102.277116	99.93124427	97.65194202	95.43694113	93.28406479	91.19122319
230131A00034	2/3/2023	3.99	12/23/2027	2/3/2023	115.29191	111.2127253	107.3032799	103.5556132	99.96217951	96.51582469	93.20976337	90.03755818	86.99310004
230131A00057	1/31/2023	4.1	1/29/2027	1/31/2023	111.752	108.657926	105.6674535	102.7765302	99.98128761	97.27803068	94.66322832	92.13350541	89.68563487
230131A00067	1/31/2023	4.02	2/2/2026	1/31/2023	107.50908	105.4657544	103.472193	101.5268664	99.62830436	97.77509175	95.96586637	94.19931633	92.47417785
230131A00071	1/31/2023	4.22	1/30/2026	1/31/2023	107.60546	105.5748984	103.5935449	101.6598983	99.77251187	97.9299932	96.13100131	94.37424455	92.65847836
230131A00072	1/31/2023	4.99	4/30/2024	1/31/2023	100.87537	100.626076	100.3780113	100.1311664	99.8855324	99.64110042	99.3978617	99.15580753	98.91492932

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230131A00095	1/31/2023	4.22	1/30/2026	1/31/2023	107.60546	105.5748984	103.5935449	101.6598983	99.77251187	97.9299932	96.13100131	94.37424455	92.65847836
230201A00011	2/1/2023	3.93	2/1/2028	2/1/2023	115.50755	111.3135247	107.2985325	103.4539528	99.77162922	96.24384004	92.86327265	89.62299958	86.51645609
230201A00012	2/1/2023	4.08	2/1/2027	2/1/2023	111.72776	108.6255505	105.6274714	102.729437	99.92755013	97.21808845	94.59749531	92.06237159	89.60946765
230201A00022	2/1/2023	5.04	2/1/2024	2/1/2023	100.0167	100.0139222	100.0111433	100.0083667	100.0055923	100.0028202	100.0000503	99.99728269	99.99451733
230202A00008	2/2/2023	3.81	2/2/2028	2/2/2023	115.03537	110.8478403	106.8392726	103.0010422	99.32498937	95.80338983	92.42892864	89.19467644	86.094067
230202A00038	2/2/2023	3.84	2/2/2028	2/2/2023	115.15645	110.966491	106.9555723	103.1150639	99.43680332	95.91306346	92.53652681	89.3002615	86.19769893
230202A00050	2/2/2023	3.82	2/2/2028	2/2/2023	115.07573	110.8873905	106.8780392	103.0390494	99.36226069	95.83994771	92.46479469	89.22987146	86.12861097
230202A00096	2/2/2023	3.81	2/2/2028	2/2/2023	115.03537	110.8478403	106.8392726	103.0010422	99.32498937	95.80338983	92.42892864	89.19467644	86.094067
230203A00021	2/8/2023	4.21	6/17/2026	2/8/2023	109.31339	106.8763771	104.5067003	102.2021232	99.96049858	97.77976299	95.65793248	93.59309926	91.58342828
230203A00043	2/14/2023	4.31	2/13/2026	2/14/2023	107.97532	105.8991491	103.8739133	101.8980306	99.96998057	98.08830036	96.25158252	94.45847235	92.7076655
230203A00045	2/14/2023	4.31	2/13/2026	2/14/2023	107.97532	105.8991491	103.8739133	101.8980306	99.96998057	98.08830036	96.25158252	94.45847235	92.7076655
230203A00046	2/10/2023	4.65	2/10/2025	2/10/2023	103.86105	102.8203342	101.8005636	100.8011061	99.82135803	98.86073946	97.91869309	96.99468307	96.08819405
230203A00048	2/10/2023	4.65	2/10/2025	2/10/2023	103.86105	102.8203342	101.8005636	100.8011061	99.82135803	98.86073946	97.91869309	96.99468307	96.08819405
230203A00050	2/14/2023	4.64	2/14/2025	2/14/2023	103.8951	102.8433442	101.8129688	100.803328	99.81379946	98.84378534	97.89271145	96.96002593	96.04519818
230203A00051	2/14/2023	4.64	2/14/2025	2/14/2023	103.8951	102.8433442	101.8129688	100.803328	99.81379946	98.84378534	97.89271145	96.96002593	96.04519818
230203A00053	2/10/2023	4.32	2/10/2026	2/10/2023	107.95498	105.8880528	103.8716993	101.9043574	99.98452211	98.11074542	96.28163389	94.49584604	92.75209007
230203A00054	2/10/2023	4.32	2/10/2026	2/10/2023	107.95498	105.8880528	103.8716993	101.9043574	99.98452211	98.11074542	96.28163389	94.49584604	92.75209007
230203A00057	2/3/2023	4.34	2/3/2026	2/3/2023	107.90016	105.8548496	103.8592844	101.9119385	100.0113431	98.15608432	96.34480111	94.57618266	92.84896625
230203A00058	2/3/2023	4.34	2/3/2026	2/3/2023	107.90016	105.8548496	103.8592844	101.9119385	100.0113431	98.15608432	96.34480111	94.57618266	92.84896625
230203A00059	2/3/2023	4.67	2/3/2025	2/3/2023	103.80345	102.7820393	101.780805	100.7991517	99.83650817	98.89232532	97.96607498	97.05724902	96.16535834
230207A00025	2/7/2023	4.62	2/7/2025	2/7/2023	103.96152	102.9260123	101.911214	100.916505	99.94129217	98.98500538	98.04709667	97.12703902	96.22432543
230207A00046	2/7/2023	4.83	2/7/2025	2/7/2023	104.01292	102.979516	101.9667331	100.9739618	100.0006123	99.04611753	98.10993257	97.19153319	96.29041506
230208A00029	2/8/2023	4.27	2/8/2027	2/8/2023	112.39629	109.2626032	106.2345248	103.3078976	100.4787505	97.7432917	95.09789945	92.5391131	90.06362513
230208A00036	2/8/2023	4.43	2/6/2026	2/8/2023	108.12394	106.0672896	104.0607794	102.1028666	100.1920658	98.32694745	96.5061357	94.72830561	92.9921811
230208A00038	2/8/2023	4.27	2/8/2027	2/8/2023	112.39629	109.2626032	106.2345248	103.3078976	100.4787505	97.7432917	95.09789945	92.5391131	90.06362513
230208A00039	2/8/2023	4.17	2/8/2028	2/8/2023	116.56508	112.3289835	108.2741679	104.3918789	100.6738333	97.11219123	93.69952955	90.42881752	87.29339387
230208A00040	2/8/2023	4.26	2/8/2029	2/8/2023	121.27205	115.8873899	110.7810042	105.9369766	101.3403819	96.97722229	92.83436569	88.89948696	85.16101444
230208A00041	2/8/2023	4.32	2/8/2030	2/8/2023	125.34535	118.8021524	112.6541919	106.8753521	101.4413828	96.32975255	91.5195187	86.99120689	82.72670092
230208A00055	2/8/2023	4.22	2/6/2026	2/8/2023	107.96864	105.908486	103.898659	101.9376045	100.0238291	98.15589603	96.33242229	94.5520763	92.81357561
230208A00060	2/8/2023	4.06	2/8/2027	2/8/2023	112.17334	109.0333662	105.9994526	103.0674148	100.2332575	97.4931662	94.84349778	92.28077145	89.80166073
230209A00028	2/9/2023	4.9	12/9/2024	2/9/2023	103.32975	102.4636539	101.6121374	100.7748318	99.95138266	99.14144749	98.34469489	97.56080427	96.78946536
230209A00049	2/9/2023	4.17	2/9/2028	2/9/2023	116.57788	112.3385382	108.2807151	104.3956379	100.6750088	97.11097376	93.69609687	90.42333542	87.28601701
230210A00040	2/10/2023	4.29	8/10/2027	2/10/2023	114.7666	111.0772746	107.5291946	104.1161677	100.8323075	97.67201735	94.62997486	91.70111659	88.88062403

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230210A00043	2/10/2023	4.34	2/10/2027	2/10/2023	112.63656	109.4930995	106.4556924	103.5201592	100.682507	97.93892358	95.28576764	92.71956036	90.23697703
230210A00045	2/10/2023	4.43	8/10/2026	2/10/2023	110.5334	107.932902	105.4080752	102.9562687	100.57494	98.26165119	96.01406449	93.82993714	91.707117
230214A00031	2/14/2023	4.31	2/14/2028	2/14/2023	117.21155	112.9444784	108.8604651	104.9506461	101.2066346	97.62049435	94.18471212	90.89217327	87.73613817
230214A00042	2/14/2023	4.96	2/14/2025	2/14/2023	104.23067	103.1770312	102.1448044	101.1333383	100.1420099	99.17022079	98.21739618	97.28298367	96.36645213
230214A00049	2/14/2023	4.38	2/14/2029	2/14/2023	121.95447	116.5340192	111.3942608	106.5190959	101.8934379	97.50314042	93.33493396	89.37636652	85.61574917
230214A00050	2/14/2023	4.31	2/14/2028	2/14/2023	117.21155	112.9444784	108.8604651	104.9506461	101.2066346	97.62049435	94.18471212	90.89217327	87.73613817
230215A00008	2/15/2023	4.49	2/16/2027	2/15/2023	113.17811	110.0079965	106.9452137	103.9855127	101.1248369	98.35931405	95.68524637	93.09910196	90.59750608
230215A00035	2/15/2023	4.47	2/17/2026	2/15/2023	108.63603	106.5356063	104.486955	102.4884559	100.5385546	98.63575648	96.77862375	94.96577291	93.19587228
230215A00045	2/15/2023	4.37	2/15/2028	2/15/2023	117.46905	113.1937794	109.1019581	105.1847018	101.433603	97.84070544	94.39847781	91.0997882	87.93788085
230216A00045	2/16/2023	4.43	5/16/2028	2/16/2023	118.88252	114.317139	109.9574095	105.7929279	101.8138757	98.01098295	94.37549364	90.89913481	87.57408699
230216A00046	2/16/2023	4.42	4/17/2028	2/16/2023	118.4728	113.9987502	109.7230522	105.6357661	101.7275124	97.98943458	94.41316633	90.99080156	87.71486613
230217A00036	2/17/2023	4.44	2/17/2028	2/17/2023	117.78118	113.4935919	109.3901118	105.4618153	101.7002578	98.09744836	94.64582332	91.33822055	88.16785603
230217A00052	2/17/2023	4.55	2/17/2027	2/17/2023	113.37624	110.2000076	107.1313686	104.1660545	101.2999968	98.52931166	95.85029073	93.25939196	90.75323108
230221A00004	2/21/2023	4.47	2/18/2028	2/21/2023	117.91714	113.6237889	109.5148678	105.5814279	101.8150063	98.20759534	94.75161548	91.43988989	88.26562079
230223A00033	2/23/2023	4.5	2/23/2028	2/23/2023	118.10812	113.7958567	109.6692964	105.7194079	101.9376493	98.31593963	94.84663088	91.52248265	88.336638
230224A00014	2/24/2023	4.98	2/24/2025	2/24/2023	104.54549	103.4603041	102.3977613	101.3571527	100.337803	99.33906431	98.36031503	97.40095823	96.46042059
230224A00015	2/24/2023	4.86	3/17/2026	2/24/2023	109.56728	107.3824828	105.2527392	103.176278	101.1514004	99.17647515	97.24993531	95.3702753	93.53604783
230224A00018	2/24/2023	5.19	2/24/2025	2/24/2023	104.59803	103.5150839	102.4546847	101.4161347	100.3987623	99.40192306	98.42499874	97.46739558	96.52854327
230228A00009	2/28/2023	4.69	2/27/2026	2/28/2023	109.24077	107.1035568	105.0194455	102.9867639	101.0039007	99.06930776	97.18149637	95.33903488	93.54054589
230228A00010	2/28/2023	4.5	2/26/2027	2/28/2023	113.77632	110.5562588	107.4461237	104.4415191	101.538256	98.73233749	96.01994912	93.39744883	90.8613583
230301A00029	3/1/2023	4.59	3/1/2028	3/1/2023	118.57352	114.2308809	110.0758641	106.0993089	102.2925571	98.64741977	95.15614841	91.81140903	88.60625751
230301A00036	3/1/2023	4.91	3/2/2026	3/1/2023	109.46234	107.3196512	105.2302388	103.1924179	101.20457	99.26513935	97.3726307	95.52560591	93.72268153
230303A00035	5/15/2023	4.65	5/15/2030	5/15/2023	128.37489	121.4589944	114.9752035	108.894028	103.1881455	97.83223175	92.80280378	88.07807679	83.63783261
230303A00036	5/15/2023	4.53	5/15/2028	5/15/2023	119.30216	114.7306159	110.3647726	106.1942321	102.2091781	98.40034201	94.75896985	91.27679037	87.94598578
230303A00037	5/15/2023	4.81	5/15/2026	5/15/2023	110.28678	107.9298224	105.6357129	103.4023692	101.2277935	99.1100685	97.04735312	95.03787917	93.07994767
230303A00038	4/14/2023	4.56	4/14/2028	4/14/2023	119.02714	114.5501264	110.271122	106.180227	102.268096	98.52590378	94.94531265	91.5184425	88.23784293
230303A00041	4/14/2023	4.56	4/14/2028	4/14/2023	119.02714	114.5501264	110.271122	106.180227	102.268096	98.52590378	94.94531265	91.5184425	88.23784293
230303A00057	3/3/2023	4.77	3/3/2027	3/3/2023	114.25535	111.0234044	107.9018802	104.886359	101.9726263	99.15666187	96.43462876	93.8028642	91.25787038
230303A00059	3/3/2023	4.56	3/3/2027	3/3/2023	114.03226	110.7936831	107.6660075	104.6447841	101.7257728	98.90492891	96.17839265	93.54247976	90.9936722
230306A00019	3/6/2023	5.26	3/6/2025	3/6/2023	104.80024	103.6889375	102.601344	101.5367085	100.494308	99.47344966	98.47346908	97.49372904	96.53361802
230306A00029	3/6/2023	5.26	9/6/2024	3/6/2023	102.52036	101.9129173	101.3127011	100.7195807	100.1334303	99.55412736	98.98155217	98.41558774	97.85611978
230306A00040	3/6/2023	5.05	3/6/2025	3/6/2023	104.74663	103.6330188	102.5432095	101.4764478	100.4320067	99.40918949	98.40732824	97.42578234	96.46393706
230307A00021	3/7/2023	4.63	3/7/2028	3/7/2023	118.8175	114.4530078	110.2776277	106.2821038	102.4576835	98.79608999	95.28949335	91.93048392	88.71204723

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230307A00022	3/7/2023	4.77	3/8/2027	3/7/2023	114.32393	111.0770385	107.9414483	104.9126861	101.9864897	99.15879403	96.42572013	93.78356588	91.22879655
230307A00034	3/7/2023	4.41	3/7/2028	3/7/2023	118.49177	114.1177657	109.933776	105.9304824	102.0990733	98.43121684	94.91903206	91.55506173	88.33224713
230307A00039	3/7/2023	5.29	3/7/2025	3/7/2023	104.84604	103.731753	102.6412971	101.5739144	100.5288765	99.50548525	98.5030716	97.52099375	96.55863586
230307A00056	3/7/2023	5.08	3/7/2025	3/7/2023	104.79233	103.6757255	102.5830464	101.5135305	100.4664452	99.44108894	98.43678881	97.45289965	96.4888024
230307A00057	3/7/2023	5.08	3/7/2025	3/7/2023	104.79233	103.6757255	102.5830464	101.5135305	100.4664452	99.44108894	98.43678881	97.45289965	96.4888024
230307A00058	3/7/2023	5.29	3/7/2025	3/7/2023	104.84604	103.731753	102.6412971	101.5739144	100.5288765	99.50548525	98.5030716	97.52099375	96.55863586
230307A00114	3/7/2023	4.65	3/7/2028	3/7/2023	118.9001	114.5339165	110.3568975	106.3597866	102.5338291	98.87074622	95.36270614	92.00229741	88.78250388
230308A00021	3/8/2023	5.39	3/7/2025	3/8/2023	104.95668	103.8417407	102.7506439	101.6826299	100.6369698	99.61296542	98.60994747	97.62727391	96.66432872
230308A00044	3/8/2023	5.68	3/11/2024	3/8/2023	100.46389	100.3528937	100.2421614	100.1316883	100.0214736	99.91151627	99.8018154	99.69237004	99.58317927
230309A00005	3/9/2023	5.06	3/9/2026	3/9/2023	109.87866	107.712365	105.6002553	103.5405992	101.5317387	99.57208121	97.66009601	95.79431177	93.97331357
230309A00027	3/9/2023	4.68	3/9/2028	3/9/2023	119.05077	114.6758573	110.4906623	106.4858856	102.6527391	98.98291298	95.46854656	92.10220152	88.87683669
230309A00030	3/9/2023	5.01	3/9/2026	3/9/2023	109.77284	107.6076896	105.496699	103.4381398	101.4303547	99.47175154	97.56080028	95.69603015	93.87602679
230309A00031	3/9/2023	5.01	3/9/2026	3/9/2023	109.77284	107.6076896	105.496699	103.4381398	101.4303547	99.47175154	97.56080028	95.69603015	93.87602679
230309A00032	3/9/2023	4.82	3/9/2027	3/9/2023	114.49381	111.241481	108.1006934	105.0669603	102.1360078	99.30375972	96.56632693	93.91999756	91.36122775
230309A00033	3/9/2023	4.82	3/9/2027	3/9/2023	114.49381	111.241481	108.1006934	105.0669603	102.1360078	99.30375972	96.56632693	93.91999756	91.36122775
230309A00034	3/9/2023	4.64	3/9/2028	3/9/2023	118.88534	114.5138271	110.3319183	106.3303238	102.5002595	98.83341959	95.32194715	91.95840746	88.7357628
230309A00035	3/9/2023	4.64	3/9/2028	3/9/2023	118.88534	114.5138271	110.3319183	106.3303238	102.5002595	98.83341959	95.32194715	91.95840746	88.7357628
230309A00068	4/10/2023	5.21	4/9/2025	4/10/2023	105.1739	103.967873	102.7896846	101.6383807	100.5130466	99.4128084	98.33683142	97.2843175	96.25450324
230309A00080	3/9/2023	4.68	3/9/2028	3/9/2023	119.05077	114.6758573	110.4906623	106.4858856	102.6527391	98.98291298	95.46854656	92.10220152	88.87683669
230309A00091	3/9/2023	4.68	3/9/2028	3/9/2023	119.05077	114.6758573	110.4906623	106.4858856	102.6527391	98.98291298	95.46854656	92.10220152	88.87683669
230309A00096	3/9/2023	4.68	3/9/2028	3/9/2023	119.05077	114.6758573	110.4906623	106.4858856	102.6527391	98.98291298	95.46854656	92.10220152	88.87683669
230310A00017	3/10/2023	4.43	3/9/2029	3/10/2023	122.48525	116.9821652	111.7669076	106.8228082	102.1342532	97.68661226	93.46617132	89.46006998	85.65624395
230310A00021	3/10/2023	4.38	3/10/2028	3/10/2023	117.82263	113.4701216	109.3067458	105.3232226	101.5107799	97.86112347	94.36640807	91.01921027	87.81250347
230310A00024	3/10/2023	4.38	3/10/2028	3/10/2023	117.82263	113.4701216	109.3067458	105.3232226	101.5107799	97.86112347	94.36640807	91.01921027	87.81250347
230310A00030	3/10/2023	4.38	3/10/2028	3/10/2023	117.82263	113.4701216	109.3067458	105.3232226	101.5107799	97.86112347	94.36640807	91.01921027	87.81250347
230310A00037	3/10/2023	4.69	3/10/2026	3/10/2023	109.10912	106.9484125	104.841832	102.7876546	100.7842216	98.82993964	96.92327777	95.06276425	93.24698391
230310A00039	3/10/2023	4.33	3/10/2028	3/10/2023	117.61571	113.267451	109.1081883	105.1286478	101.3200627	97.6741437	94.18305021	90.83936334	87.63606081
230310A00040	3/10/2023	4.38	3/10/2028	3/10/2023	117.82263	113.4701216	109.3067458	105.3232226	101.5107799	97.86112347	94.36640807	91.01921027	87.81250347
230310A00047	6/9/2023	4.22	6/9/2028	6/9/2023	118.2617	113.641548	109.2325781	105.0240158	101.0056962	97.16802126	93.5019259	89.9988455	86.65068582
230310A00048	3/10/2023	5.03	3/10/2025	3/10/2023	104.5943	103.4733601	102.3765785	101.3031826	100.2524286	99.22360387	98.21602561	97.229039	96.26201599
230310A00049	3/10/2023	4.7	3/10/2026	3/10/2023	109.13031	106.9693746	104.8625697	102.8081723	100.8045237	98.85003038	96.94316121	95.08244438	93.26646459
230310A00054	9/8/2023	4.09	9/11/2028	9/8/2023	118.7661	113.8687093	109.2065542	104.7670246	100.5382595	96.50909488	92.66901944	89.00813232	85.51710437
230310A00062	3/10/2023	4.38	4/10/2028	3/10/2023	118.21375	113.7653659	109.5134759	105.4482765	101.5605091	97.84142927	94.28277447	90.87673478	87.61592524

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230310A00068	3/10/2023	5.03	3/10/2025	3/10/2023	104.5943	103.4733601	102.3765785	101.3031826	100.2524286	99.22360387	98.21602561	97.229039	96.26201599
230310A00069	3/10/2023	4.7	3/9/2026	3/10/2023	109.11677	106.958702	104.8546501	102.8028919	100.8017738	98.84970754	96.94516675	95.08668414	93.27284869
230310A00071	3/10/2023	4.38	3/10/2028	3/10/2023	117.82263	113.4701216	109.3067458	105.3232226	101.5107799	97.86112347	94.36640807	91.01921027	87.81250347
230310A00073	3/10/2023	4.7	3/6/2026	3/10/2023	109.07613	106.9266812	104.8308856	102.7870428	100.7935153	98.84872989	96.95117469	95.09939589	93.29199531
230310A00088	3/10/2023	5.03	3/10/2025	3/10/2023	104.5943	103.4733601	102.3765785	101.3031826	100.2524286	99.22360387	98.21602561	97.229039	96.26201599
230310A00089	3/10/2023	4.7	3/10/2026	3/10/2023	109.13031	106.9693746	104.8625697	102.8081723	100.8045237	98.85003038	96.94316121	95.08244438	93.26646459
230310A00091	3/10/2023	4.53	3/10/2027	3/10/2023	113.60111	110.3600036	107.2302402	104.2073429	101.2870402	98.46525808	95.73811007	93.10188685	90.55304722
230310A00092	3/10/2023	4.38	3/10/2028	3/10/2023	117.82263	113.4701216	109.3067458	105.3232226	101.5107799	97.86112347	94.36640807	91.01921027	87.81250347
230310A00114	3/10/2023	4.5	3/10/2027	3/10/2023	113.50733	110.267693	107.1393617	104.1178598	101.1989171	98.37846078	95.65260548	93.01764296	90.47003306
230310A00120	3/10/2023	4.33	3/10/2028	3/10/2023	117.61571	113.267451	109.1081883	105.1286478	101.3200627	97.6741437	94.18305021	90.83936334	87.63606081
230313A00032	3/13/2023	4.45	3/13/2025	3/13/2023	103.97895	102.8535379	101.752583	100.675295	99.62091542	98.58871778	97.57800613	96.58811337	95.6183998
230313A00036	3/13/2023	4.06	3/13/2028	3/13/2023	116.53334	112.1989469	108.0535119	104.0877367	100.2928373	96.66050925	93.1828987	89.85257503	86.66250576
230313A00048	3/13/2023	4.25	3/13/2026	3/13/2023	108.21364	106.0544562	103.9495631	101.8972177	99.89575078	97.94355912	96.03910252	94.18090068	92.36753037
230313A00052	3/13/2023	4.17	3/15/2027	3/13/2023	112.53604	109.2978602	106.1714449	103.1522781	100.2360549	97.41867074	94.69621056	92.06493868	89.52128946
230313A00057	3/13/2023	4.06	3/13/2028	3/13/2023	116.53334	112.1989469	108.0535119	104.0877367	100.2928373	96.66050925	93.1828987	89.85257503	86.66250576
230313A00069	3/13/2023	4.71	9/13/2024	3/13/2023	102.13601	101.5124227	100.8964696	100.2880133	99.6869173	99.09304828	98.50627623	97.92647422	97.35351832
230313A00070	3/13/2023	4.71	9/13/2024	3/13/2023	102.13601	101.5124227	100.8964696	100.2880133	99.6869173	99.09304828	98.50627623	97.92647422	97.35351832
230313A00072	3/13/2023	4.06	3/13/2028	3/13/2023	116.53334	112.1989469	108.0535119	104.0877367	100.2928373	96.66050925	93.1828987	89.85257503	86.66250576
230313A00075	3/13/2023	4.71	9/13/2024	3/13/2023	102.13601	101.5124227	100.8964696	100.2880133	99.6869173	99.09304828	98.50627623	97.92647422	97.35351832
230313A00078	3/13/2023	4.41	3/13/2026	3/13/2023	108.55401	106.3911436	104.2826331	102.2267424	100.2218001	98.26620113	96.35840329	94.49692447	92.68033969
230313A00090	3/13/2023	4.41	3/13/2026	3/13/2023	108.55401	106.3911436	104.2826331	102.2267424	100.2218001	98.26620113	96.35840329	94.49692447	92.68033969
230313A00091	3/13/2023	4.15	3/13/2028	3/13/2023	116.90654	112.5644717	108.4116043	104.4386327	100.6367634	96.99768294	93.51352896	90.17686266	86.98064375
230313A00093	3/16/2023	4.65	3/17/2025	3/16/2023	104.24723	103.1093849	101.9964924	100.9077392	99.84234427	98.79956039	97.77867175	96.77899257	95.79986544
230313A00095	3/16/2023	4.65	3/17/2025	3/16/2023	104.24723	103.1093849	101.9964924	100.9077392	99.84234427	98.79956039	97.77867175	96.77899257	95.79986544
230313A00096	3/13/2023	4.36	3/14/2033	3/13/2023	136.73267	126.5213615	117.1915288	108.6613928	100.8572002	93.71239337	87.16687247	81.16633734	75.66169911
230313A00099	3/13/2023	4.59	3/13/2025	3/13/2023	104.13616	103.0098039	101.9079264	100.8297296	99.77445471	98.74137493	97.72979397	96.73904444	95.76848632
230313A00102	3/13/2023	4.15	3/13/2028	3/13/2023	116.90654	112.5644717	108.4116043	104.4386327	100.6367634	96.99768294	93.51352896	90.17686266	86.98064375
230313A00104	3/13/2023	4.58	3/13/2025	3/13/2023	104.12493	102.9986421	101.8968304	100.8186986	99.76348762	98.73047085	97.71895199	96.72826365	95.75776586
230313A00109	3/13/2023	4.58	3/13/2025	3/13/2023	104.12493	102.9986421	101.8968304	100.8186986	99.76348762	98.73047085	97.71895199	96.72826365	95.75776586
230313A00112	3/13/2023	4.15	3/13/2028	3/13/2023	116.90654	112.5644717	108.4116043	104.4386327	100.6367634	96.99768294	93.51352896	90.17686266	86.98064375
230313A00113	3/13/2023	4.58	3/13/2025	3/13/2023	104.12493	102.9986421	101.8968304	100.8186986	99.76348762	98.73047085	97.71895199	96.72826365	95.75776586
230313A00118	3/13/2023	5.02	3/13/2024	3/13/2023	100.41017	100.2937053	100.1775264	100.0616325	99.94602266	99.83069564	99.71565041	99.60088589	99.48640102
230313A00149	3/13/2023	4.15	3/13/2028	3/13/2023	116.90654	112.5644717	108.4116043	104.4386327	100.6367634	96.99768294	93.51352896	90.17686266	86.98064375

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230313A00152	3/13/2023	4.18	3/13/2028	3/13/2023	117.03094	112.6863133	108.5309685	104.555598	100.7514054	97.11007417	93.62373904	90.28495853	87.08668975
230313A00158	3/13/2023	4.41	3/13/2026	3/13/2023	108.55401	106.3911436	104.2826331	102.2267424	100.2218001	98.26620113	96.35840329	94.49692447	92.68033969
230313A00159	3/13/2023	4.41	3/13/2026	3/13/2023	108.55401	106.3911436	104.2826331	102.2267424	100.2218001	98.26620113	96.35840329	94.49692447	92.68033969
230313A00177	3/13/2023	4.41	3/13/2026	3/13/2023	108.55401	106.3911436	104.2826331	102.2267424	100.2218001	98.26620113	96.35840329	94.49692447	92.68033969
230313A00179	3/13/2023	4.29	3/15/2027	3/13/2023	112.91282	109.6687092	106.5365165	103.5117205	100.5900114	97.76727985	95.03960618	92.40325031	89.85464235
230313A00180	3/13/2023	4.15	3/13/2028	3/13/2023	116.90654	112.5644717	108.4116043	104.4386327	100.6367634	96.99768294	93.51352896	90.17686266	86.98064375
230313A00215	3/13/2023	4.13	3/13/2028	3/13/2023	116.82361	112.483244	108.3320282	104.3606558	100.5603353	96.92275545	93.44005557	90.10479874	86.90994642
230314A00003	3/14/2023	4.64	3/16/2026	3/14/2023	109.08345	106.9066571	104.7846905	102.7157911	100.6982683	98.73049879	96.81092316	94.93804295	93.11041768
230314A00006	3/14/2023	4.92	1/13/2025	3/14/2023	103.79475	102.8307104	101.8846582	100.9560964	100.044542	99.14952997	98.27061189	97.40735557	96.55934414
230314A00011	3/14/2023	4.38	3/14/2028	3/14/2023	117.87283	113.5080792	109.3333888	105.3394127	101.5173183	97.85875515	94.35582577	91.0010585	87.78738189
230314A00016	3/14/2023	4.38	3/14/2028	3/14/2023	117.87283	113.5080792	109.3333888	105.3394127	101.5173183	97.85875515	94.35582577	91.0010585	87.78738189
230314A00017	3/14/2023	4.39	1/18/2028	3/14/2023	117.18688	112.998359	108.9866698	105.1433825	101.4605177	97.93051723	94.54621918	91.30083516	88.18792871
230314A00019	3/14/2023	4.39	1/18/2028	3/14/2023	117.18688	112.998359	108.9866698	105.1433825	101.4605177	97.93051723	94.54621918	91.30083516	88.18792871
230314A00021	3/14/2023	4.41	10/13/2027	3/14/2023	116.02564	112.1325215	108.3940328	104.8031289	101.3531269	98.03768846	94.85079934	91.78675083	88.84012214
230314A00024	3/14/2023	4.41	10/13/2027	3/14/2023	116.02564	112.1325215	108.3940328	104.8031289	101.3531269	98.03768846	94.85079934	91.78675083	88.84012214
230314A00028	3/14/2023	4.43	7/14/2027	3/14/2023	114.91724	111.3001255	107.8189612	104.4678962	101.2413642	98.1340678	95.14096383	92.2572498	89.47835107
230314A00030	3/14/2023	4.43	7/14/2027	3/14/2023	114.91724	111.3001255	107.8189612	104.4678962	101.2413642	98.1340678	95.14096383	92.2572498	89.47835107
230314A00032	3/14/2023	4.45	4/14/2027	3/14/2023	113.8047	110.4622968	107.2375018	104.1254562	101.121538	98.22134592	95.42068697	92.71556506	90.1021704
230314A00034	3/14/2023	4.45	4/14/2027	3/14/2023	113.8047	110.4622968	107.2375018	104.1254562	101.121538	98.22134592	95.42068697	92.71556506	90.1021704
230314A00043	3/14/2023	4.84	3/14/2025	3/14/2023	104.42832	103.2975206	102.1913353	101.1089685	100.0496553	99.0126632	97.99729056	97.00286484	96.0287412
230314A00067	3/14/2023	4.16	3/14/2028	3/14/2023	117.54294	113.1687069	108.9854475	104.9837467	101.1547123	97.48993824	93.98147562	90.62180471	87.40380942
230314A00073	3/14/2023	4.84	3/14/2025	3/14/2023	104.42832	103.2975206	102.1913353	101.1089685	100.0496553	99.0126632	97.99729056	97.00286484	96.0287412
230314A00081	3/14/2023	4.16	3/14/2028	3/14/2023	117.54294	113.1687069	108.9854475	104.9837467	101.1547123	97.48993824	93.98147562	90.62180471	87.40380942
230315A00007	3/15/2023	4.2	3/16/2026	3/15/2023	108.14377	105.977207	103.8652634	101.8061869	99.79829266	97.83996288	95.92964347	94.06584105	92.24712006
230315A00013	3/15/2023	4.2	3/16/2026	3/15/2023	108.14377	105.977207	103.8652634	101.8061869	99.79829266	97.83996288	95.92964347	94.06584105	92.24712006
230315A00014	3/15/2023	4.61	3/15/2024	3/15/2023	100.37965	100.257689	100.1360447	100.0147118	99.89368915	99.77297544	99.65256946	99.53247	99.41267585
230315A00023	3/15/2023	4.2	3/16/2026	3/15/2023	108.14377	105.977207	103.8652634	101.8061869	99.79829266	97.83996288	95.92964347	94.06584105	92.24712006
230315A00024	3/15/2023	4.03	3/15/2028	3/15/2023	116.4321	112.0942218	107.9456802	103.9771478	100.1798137	96.54534837	93.06587486	89.73394122	86.54249522
230315A00030	3/15/2023	4.03	3/15/2028	3/15/2023	116.4321	112.0942218	107.9456802	103.9771478	100.1798137	96.54534837	93.06587486	89.73394122	86.54249522
230315A00042	3/15/2023	4.61	3/15/2024	3/15/2023	100.37965	100.257689	100.1360447	100.0147118	99.89368915	99.77297544	99.65256946	99.53247	99.41267585
230315A00043	3/15/2023	4.43	9/16/2024	3/15/2023	101.99073	101.3594948	100.7360931	100.120379	99.51221066	98.91144982	98.31796143	97.73161375	97.15227822
230315A00045	3/15/2023	4.28	3/14/2025	3/15/2023	103.79797	102.6709347	101.5684572	100.4897425	99.43402692	98.40057952	97.38869984	96.39771663	95.42698626
230315A00047	3/15/2023	4.66	3/15/2024	3/15/2023	100.38575	100.2637857	100.1421356	100.020797	99.89976862	99.77904919	99.65863752	99.53853237	99.41873254

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230315A00048	3/15/2023	4.61	3/15/2024	3/15/2023	100.37965	100.257689	100.1360447	100.0147118	99.89368915	99.77297544	99.65256946	99.53247	99.41267585
230315A00049	3/15/2023	4.28	3/14/2025	3/15/2023	103.79797	102.6709347	101.5684572	100.4897425	99.43402692	98.40057952	97.38869984	96.39771663	95.42698626
230315A00063	3/15/2023	4.09	3/15/2028	3/15/2023	116.68123	112.3382239	108.1847145	104.2113723	100.4093799	96.7704018	93.28655532	89.95038303	86.7548275
230315A00068	3/15/2023	4.2	3/16/2026	3/15/2023	108.14377	105.977207	103.8652634	101.8061869	99.79829266	97.83996288	95.92964347	94.06584105	92.24712006
230315A00070	3/15/2023	4.77	3/15/2024	3/15/2023	100.39917	100.2771984	100.1555357	100.0341845	99.91314345	99.79241146	99.67198724	99.55186958	99.43205725
230315A00072	3/15/2023	4.61	3/15/2024	3/15/2023	100.37965	100.257689	100.1360447	100.0147118	99.89368915	99.77297544	99.65256946	99.53247	99.41267585
230315A00074	3/15/2023	4.43	9/16/2024	3/15/2023	101.99073	101.3594948	100.7360931	100.120379	99.51221066	98.91144982	98.31796143	97.73161375	97.15227822
230315A00076	3/15/2023	4.28	3/14/2025	3/15/2023	103.79797	102.6709347	101.5684572	100.4897425	99.43402692	98.40057952	97.38869984	96.39771663	95.42698626
230315A00079	3/15/2023	4.43	9/16/2024	3/15/2023	101.99073	101.3594948	100.7360931	100.120379	99.51221066	98.91144982	98.31796143	97.73161375	97.15227822
230315A00085	3/15/2023	4.43	9/16/2024	3/15/2023	101.99073	101.3594948	100.7360931	100.120379	99.51221066	98.91144982	98.31796143	97.73161375	97.15227822
230315A00097	3/15/2023	4.08	3/15/2027	3/15/2023	112.25346	109.0197234	105.8976412	102.8826963	99.97058751	97.15721391	94.43866385	91.81120497	89.27127479
230315A00098	3/15/2023	4.08	3/15/2027	3/15/2023	112.25346	109.0197234	105.8976412	102.8826963	99.97058751	97.15721391	94.43866385	91.81120497	89.27127479
230315A00112	3/15/2023	4.5	3/14/2025	3/15/2023	104.04561	102.9170935	101.8131593	100.7330098	99.67588092	98.64104097	97.62778905	96.63545342	95.66338999
230315A00116	3/15/2023	4.36	3/16/2026	3/15/2023	108.48547	106.3151889	104.1996005	102.1369521	100.1255565	98.16379412	96.25010881	94.38300538	92.56104647
230315A00117	3/15/2023	4.17	3/15/2027	3/15/2023	112.53604	109.2978602	106.1714449	103.1522781	100.2360549	97.41867074	94.69621056	92.06493868	89.52128946
230315A00125	3/15/2023	4.11	3/15/2027	3/15/2023	112.34765	109.1124357	105.9889091	102.9725569	100.0590766	97.24436619	94.52451275	91.89578287	89.35461301
230315A00128	3/15/2023	4.43	3/14/2025	3/15/2023	103.96682	102.8387702	101.7352995	100.6556066	99.59892738	98.5645305	97.55171521	96.5598099	95.58817062
230315A00130	3/15/2023	4.43	3/14/2025	3/15/2023	103.96682	102.8387702	101.7352995	100.6556066	99.59892738	98.5645305	97.55171521	96.5598099	95.58817062
230315A00131	3/15/2023	4.13	3/15/2027	3/15/2023	112.41045	109.1742438	106.0497544	103.0324639	100.1180694	97.30246771	94.58174536	91.95216814	89.41017183
230315A00133	3/15/2023	3.9	3/15/2028	3/15/2023	116.47276	112.1178045	107.9533378	103.9699583	100.1587859	96.51142668	93.01994362	89.67682867	86.47497721
230316A00001	3/16/2023	3.81	3/16/2028	3/16/2023	116.10941	111.7591662	107.5993865	103.6206711	99.81413431	96.17137719	92.68445821	89.3458655	86.14849104
230316A00021	3/16/2023	4.2	3/16/2026	3/16/2023	108.14377	105.977207	103.8652634	101.8061869	99.79829266	97.83996288	95.92964347	94.06584105	92.24712006
230316A00026	3/16/2023	4.56	9/16/2024	3/16/2023	102.07301	101.4414799	100.8177892	100.2017887	99.59333652	98.99229425	98.39852685	97.81190256	97.23229276
230316A00032	3/16/2023	4.39	3/16/2026	3/16/2023	108.54954	106.3785605	104.2622887	102.1989705	100.1869185	98.22451247	96.31019606	94.44247369	92.61990767
230316A00039	3/16/2023	4.63	3/17/2025	3/16/2023	104.22456	103.0868438	101.9740856	100.8854646	99.82019999	98.77754444	97.75678226	96.75722769	95.77822338
230316A00050	3/16/2023	4.2	3/16/2026	3/16/2023	108.14377	105.977207	103.8652634	101.8061869	99.79829266	97.83996288	95.92964347	94.06584105	92.24712006
230316A00052	3/16/2023	4.56	9/16/2024	3/16/2023	102.07301	101.4414799	100.8177892	100.2017887	99.59333652	98.99229425	98.39852685	97.81190256	97.23229276
230316A00054	3/16/2023	4.62	3/17/2025	3/16/2023	104.21322	103.0755733	101.9628822	100.8743273	99.80912785	98.76653647	97.74583751	96.74634525	95.76740235
230316A00055	3/16/2023	4.03	3/16/2028	3/16/2023	116.44368	112.1027794	107.9514452	103.9803345	100.1806213	96.54396205	93.06246674	89.7286714	86.5355126
230316A00058	3/16/2023	4.1	3/16/2027	3/16/2023	112.32812	109.0904597	105.9646519	102.9461706	100.0307044	97.21414255	94.49256407	91.86222802	89.3195638
230316A00060	3/16/2023	3.89	3/16/2027	3/16/2023	112.09835	108.8540839	105.7221518	102.6980021	99.77729669	96.95589994	94.22986753	91.59543647	89.04901547
230316A00067	3/16/2023	3.89	3/16/2027	3/16/2023	112.09835	108.8540839	105.7221518	102.6980021	99.77729669	96.95589994	94.22986753	91.59543647	89.04901547
230316A00072	3/16/2023	4.1	3/16/2027	3/16/2023	112.32812	109.0904597	105.9646519	102.9461706	100.0307044	97.21414255	94.49256407	91.86222802	89.3195638

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230316A00076	3/16/2023	4.45	3/16/2026	3/16/2023	108.67768	106.5053037	104.3876652	102.3230075	100.3096425	98.34594919	96.43037056	94.56141031	92.73763007
230316A00078	3/16/2023	4.34	3/16/2027	3/16/2023	113.08234	109.8328003	106.6954177	103.6656591	100.7392027	97.91192829	95.1799057	92.53938511	89.98678744
230316A00082	3/16/2023	4.3	3/16/2028	3/16/2023	117.56553	113.2015064	109.0277885	105.0350059	101.2143039	97.55731196	94.05611417	90.70322188	87.49154816
230316A00113	3/16/2023	4.28	3/16/2026	3/16/2023	108.60144	106.4243404	104.302203	102.2332595	100.2158121	98.24823088	96.32895021	94.45646567	92.62933119
230317A00015	3/17/2023	4.13	3/17/2028	3/17/2023	116.87104	112.5185382	108.3561101	104.3743841	100.5645083	96.91811518	93.42729209	90.08455382	86.88281702
230317A00016	3/17/2023	4.22	3/17/2027	3/17/2023	112.71743	109.470879	106.3365107	103.3097829	100.3863692	97.56214514	94.83317668	92.19571049	89.6461643
230317A00025	3/17/2023	4.35	3/17/2026	3/17/2023	108.4767	106.3037905	104.1856936	102.1206465	100.1069569	98.14300016	96.22721543	94.35810306	92.53422148
230317A00026	3/17/2023	4.22	3/17/2027	3/17/2023	112.71743	109.470879	106.3365107	103.3097829	100.3863692	97.56214514	94.83317668	92.19571049	89.6461643
230317A00027	3/17/2023	4.77	9/17/2024	3/17/2023	102.21672	101.5819643	100.9551148	100.3360254	99.72455223	99.12055512	98.52389729	97.93444526	97.35206881
230317A00031	5/18/2023	4.3	5/19/2025	5/18/2023	104.55286	103.2448557	101.963052	100.7066705	99.47496432	98.2672158	97.08273545	95.9208604	94.78095315
230317A00032	5/18/2023	4.27	5/19/2025	5/18/2023	104.51365	103.2059154	101.9243761	100.6682546	99.43680401	98.22930687	97.04507379	95.88344201	94.74377413
230317A00033	3/17/2023	4.77	9/17/2024	3/17/2023	102.21672	101.5819643	100.9551148	100.3360254	99.72455223	99.12055512	98.52389729	97.93444526	97.35206881
230317A00047	3/17/2023	4.1	3/17/2028	3/17/2023	116.7463	112.3963777	108.2364398	104.2571249	100.4495842	96.80545305	93.3168218	89.97620797	86.77653084
230317A00048	3/17/2023	4.1	3/17/2028	3/17/2023	116.7463	112.3963777	108.2364398	104.2571249	100.4495842	96.80545305	93.3168218	89.97620797	86.77653084
230317A00049	3/17/2023	4.1	3/17/2028	3/17/2023	116.7463	112.3963777	108.2364398	104.2571249	100.4495842	96.80545305	93.3168218	89.97620797	86.77653084
230317A00050	3/17/2023	4.1	3/17/2028	3/17/2023	116.7463	112.3963777	108.2364398	104.2571249	100.4495842	96.80545305	93.3168218	89.97620797	86.77653084
230317A00051	3/17/2023	4.35	3/17/2026	3/17/2023	108.4767	106.3037905	104.1856936	102.1206465	100.1069569	98.14300016	96.22721543	94.35810306	92.53422148
230320A00006	3/20/2023	4.25	3/20/2026	3/20/2023	108.29978	106.1206473	103.9966395	101.9259798	99.90696104	97.9379442	96.0173552	94.14368178	92.3154705
230320A00033	3/20/2023	4.35	3/20/2026	3/20/2023	108.51445	106.3329644	104.2066557	102.1337412	100.1125124	98.14132887	96.21861548	94.34285873	92.51260406
230320A00092	3/20/2023	4.31	3/20/2026	3/20/2023	108.42858	106.2480376	104.1226492	102.0506366	100.0302918	98.059975	96.13811137	94.26318795	92.43375064
230321A00001	3/21/2023	4.48	3/23/2026	3/21/2023	108.83234	106.639198	104.5016599	102.4179223	100.3862583	98.4050105	96.47258744	94.58746026	92.74815984
230321A00002	3/21/2023	4.33	3/19/2027	3/21/2023	113.08842	109.8304984	106.6852505	103.648111	100.7147298	97.88095954	95.14284511	92.49661319	89.93866267
230321A00009	3/21/2023	4.27	3/21/2028	3/21/2023	117.50211	113.1253957	108.9400676	104.9366755	101.1062916	97.44047762	93.93125505	90.57107732	87.35280379
230321A00020	3/21/2023	4.73	11/18/2024	3/21/2023	102.92043	102.1136529	101.31957	100.5378812	99.76829756	99.01053881	98.26433343	97.52941813	96.80553757
230321A00025	3/21/2023	4.57	3/21/2025	3/21/2023	104.19934	103.050946	101.9279758	100.8295911	99.75498944	98.70340306	97.67409684	96.66636674	95.67953816
230321A00029	3/21/2023	4.57	3/21/2025	3/21/2023	104.19934	103.050946	101.9279758	100.8295911	99.75498944	98.70340306	97.67409684	96.66636674	95.67953816
230321A00052	3/21/2023	4.62	3/21/2025	3/21/2023	104.25658	103.1078419	101.9845296	100.8858082	99.81087485	98.75896175	97.72933364	96.72128639	95.73414526
230321A00053	3/21/2023	4.27	3/21/2028	3/21/2023	117.50211	113.1253957	108.9400676	104.9366755	101.1062916	97.44047762	93.93125505	90.57107732	87.35280379
230321A00074	3/21/2023	4.23	3/21/2028	3/21/2023	117.33535	112.9620899	108.7800994	104.7799385	100.9526836	97.28990061	93.78361483	90.42628338	87.21076917
230322A00004	3/22/2023	4.3	3/22/2028	3/22/2023	117.6395	113.2571473	109.0664923	105.0580696	101.2229328	97.55262662	94.03915641	90.67496063	87.45288471
230322A00005	3/22/2023	4.42	3/22/2029	3/22/2023	122.57926	117.0369778	111.7862189	106.8100011	102.0924278	97.61860984	93.3745957	89.34730764	85.52448203
230322A00006	3/22/2023	4.53	3/22/2030	3/22/2023	127.06693	120.3471191	114.039069	108.1151705	102.5498173	97.31924645	92.40139588	87.77577386	83.42333894
230322A00007	3/22/2023	4.54	3/21/2031	3/22/2023	130.84335	122.9494032	115.6063391	108.7724313	102.4093362	96.48180011	90.95739523	85.80627825	81.00097145

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230322A00009	3/22/2023	4.59	3/22/2032	3/22/2023	135.1138	126.0008343	117.5997305	109.8504393	102.6983005	96.09352845	89.9907529	84.34860522	79.12934551
230322A00015	3/22/2023	4.24	3/22/2028	3/22/2023	117.38921	113.0120292	108.826387	104.8228172	100.99238	97.32662587	93.81756622	90.45764503	87.23971301
230322A00020	3/22/2023	4.2	3/22/2029	3/22/2023	122.18209	116.6261188	111.3632284	106.3763149	101.6493631	97.16737447	92.91629741	88.88296182	85.05501909
230322A00029	3/22/2023	4.67	3/21/2025	3/22/2023	104.31383	103.1647378	102.0410835	100.9420253	99.86676026	98.81452043	97.78457045	96.77620604	95.78875236
230322A00030	3/22/2023	4.86	9/23/2024	3/22/2023	102.34025	101.6887062	101.045485	100.4104232	99.78336619	99.16416296	98.55266642	97.94873312	97.35222313
230323A00029	3/23/2023	4.39	3/24/2031	3/23/2023	129.79503	121.9292965	114.6137151	107.8065459	101.4694385	95.56713779	90.06721803	84.93984168	80.15753957
230323A00030	3/23/2023	4.72	3/23/2037	3/23/2023	151.24725	136.1177931	122.7667515	110.9706914	100.5355559	91.29265531	83.0952228	75.81545417	69.34196087
230323A00034	3/23/2023	4.23	3/23/2026	3/23/2023	108.29361	106.1063833	103.9746408	101.8965825	99.87048498	97.89469396	95.96762101	94.08774029	92.25358553
230323A00048	3/23/2023	4.07	3/23/2028	3/23/2023	116.69172	112.3261887	108.1519502	104.1595466	100.340041	96.68498725	93.18639998	89.83672678	86.62882212
230323A00051	3/23/2023	3.85	3/23/2028	3/23/2023	116.35653	111.9815654	107.7988094	103.7987385	99.9723552	96.31115716	92.80710683	89.45260323	86.24045565
230323A00054	3/23/2023	3.95	3/23/2028	3/23/2023	116.19079	111.8356337	107.6714338	103.6887485	99.87865362	96.23271536	92.74296001	89.4018463	86.20223929
230323A00056	3/23/2023	4	3/23/2027	3/23/2023	112.09499	108.8417625	105.7014854	102.6695659	99.74162888	96.9135042	94.18121547	91.54096982	88.9891481
230323A00058	3/23/2023	3.96	9/23/2027	3/23/2023	114.11544	110.3135904	106.6612611	103.1517145	99.77855822	96.53572489	93.4174532	90.41827064	87.53297722
230323A00064	3/23/2023	4.25	3/21/2025	3/23/2023	103.83298	102.6868124	101.566031	100.4698017	99.39732284	98.34782747	97.32058127	96.31488097	95.3300527
230323A00065	3/23/2023	3.85	3/23/2028	3/23/2023	116.35653	111.9815654	107.7988094	103.7987385	99.9723552	96.31115716	92.80710683	89.45260323	86.24045565
230323A00081	3/23/2023	3.85	3/23/2028	3/23/2023	116.35653	111.9815654	107.7988094	103.7987385	99.9723552	96.31115716	92.80710683	89.45260323	86.24045565
230324A00009	3/24/2023	4.19	3/24/2025	3/24/2023	103.79327	102.6392264	101.5109272	100.4075153	99.32817282	98.27211728	97.2385998	96.22690338	95.23634115
230324A00023	3/24/2023	3.69	3/24/2028	3/24/2023	115.69784	111.3337491	107.1616525	103.1720272	99.35587758	95.70470361	92.21047022	88.86557919	85.66284274
230324A00029	3/24/2023	4.01	3/24/2025	3/24/2023	103.77073	102.6140557	101.4832277	100.3773877	99.29571284	98.2374165	97.20174571	96.18797959	95.19542762
230324A00031	3/24/2023	4.01	3/24/2025	3/24/2023	103.77073	102.6140557	101.4832277	100.3773877	99.29571284	98.2374165	97.20174571	96.18797959	95.19542762
230324A00032	3/24/2023	3.93	3/24/2028	3/24/2023	116.11861	111.762163	107.5968516	103.6132164	99.80232026	96.15571718	92.66542233	89.32388417	86.12395826
230327A00045	3/27/2023	4.42	3/27/2025	3/27/2023	104.08935	102.9253754	101.7875276	100.6749352	99.58676276	98.52221157	97.48051734	96.46094847	95.46280432
230327A00046	3/27/2023	4.22	3/27/2026	3/27/2023	108.32096	106.122556	103.9801155	101.8918169	99.85591477	97.87073429	95.93466752	94.0461702	92.20375869
230327A00047	3/27/2023	4.08	3/27/2028	3/27/2023	116.78035	112.4018135	108.2155329	104.2119781	100.3821497	96.71754387	93.21012165	89.85228096	86.63683017
230328A00010	3/28/2023	4.68	9/30/2024	3/28/2023	102.29673	101.6262758	100.9646213	100.3115928	99.6670224	99.03074648	98.40260565	97.78244456	97.1701118
230328A00011	3/28/2023	4.53	3/28/2025	3/28/2023	104.22769	103.0601529	101.9188762	100.8029816	99.711628	98.64401098	97.59936101	96.57694154	95.57604723
230328A00019	3/28/2023	4.12	3/27/2026	3/28/2023	108.3949	106.1900218	104.0413645	101.9471008	99.90547456	97.91480067	95.9734614	94.07990326	92.23263379
230328A00020	3/28/2023	3.98	3/28/2028	3/28/2023	116.95998	112.558439	108.3506421	104.3269694	100.478332	96.79614238	93.27228392	89.89908194	86.66927708
230328A00024	3/28/2023	4.2	3/28/2028	3/28/2023	117.29466	112.9026475	108.703461	104.68754	100.8458568	97.16988091	93.65154833	90.28323354	87.05772286
230328A00026	3/28/2023	4.34	3/28/2029	3/28/2023	122.23044	116.6800835	111.4225756	106.4408106	101.7187775	97.24148271	92.99487978	88.96580442	85.14191407
230328A00098	3/28/2023	4.24	3/29/2027	3/28/2023	112.92738	109.64439	106.4757279	103.4167257	100.4629394	97.61013394	94.85427206	92.19150368	89.61815582
230328A00100	3/28/2023	4.19	3/28/2028	3/28/2023	117.25277	112.8616351	108.6632905	104.6481846	100.8072906	97.13207901	93.61448693	90.24688975	87.02207466
230328A00111	3/28/2023	4.36	3/27/2026	3/28/2023	108.62419	106.4224418	104.276723	102.1852121	100.1461618	98.15789529	96.21880302	94.32733899	92.48201793

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230328A00122	3/28/2023	4.58	3/28/2025	3/28/2023	104.2859	103.1179989	101.9763689	100.8601265	99.76843041	98.70047614	97.655494	96.63274731	95.63153061
230329A00020	3/29/2023	4.23	3/29/2028	3/29/2023	117.43244	113.0347679	108.8302365	104.8092688	100.9628184	97.2823373	93.75974548	90.38740228	87.15807996
230329A00043	3/29/2023	4.36	3/27/2026	3/29/2023	108.62419	106.4224418	104.276723	102.1852121	100.1461618	98.15789529	96.21880302	94.32733899	92.48201793
230329A00055	3/29/2023	4.59	3/28/2025	3/29/2023	104.29754	103.1295681	101.9878674	100.8715555	99.77979089	98.71176917	97.6667206	96.64390846	95.64262729
230330A00011	3/30/2023	4.21	3/30/2028	3/30/2023	117.3607	112.9617195	108.7560571	104.7341217	100.8868538	97.20569314	93.68254834	90.30976842	87.08011604
230330A00029	3/30/2023	4.6	4/1/2025	3/30/2023	104.35288	103.1737196	102.0213197	100.8947742	99.79321878	98.71582746	97.66181016	96.630411	95.62090639
230330A00061	3/30/2023	4.65	3/31/2025	3/30/2023	104.40014	103.2233992	102.0732949	100.9489315	99.84945067	98.77403187	97.72189024	96.69227477	95.68446647
230330A00062	3/30/2023	4.42	3/30/2026	3/30/2023	108.79248	106.5806908	104.4253301	102.3245547	100.2765999	98.27977256	96.33244737	94.43306368	92.58012228
230331A00055	3/31/2023	4.5	3/31/2025	3/31/2023	104.22429	103.0486403	101.8996106	100.7763052	99.6778659	98.60347267	97.55234104	96.52372041	95.51689216
230331A00057	3/31/2023	4.08	3/31/2028	3/31/2023	116.82723	112.4365516	108.2390597	104.2251602	100.3857923	96.71239484	93.19687623	89.83158541	86.60928536
230404A00019	4/4/2023	4.45	4/4/2025	4/4/2023	104.20943	103.023046	101.8637758	100.7307009	99.62293915	98.53964794	97.48002162	96.44328956	95.42871436
230404A00040	4/4/2023	4.28	4/4/2025	4/4/2023	104.00827	102.8231387	101.6651079	100.5332527	99.42669168	98.34458266	97.28612044	96.25053488	95.237089
230405A00008	4/5/2023	4.01	10/6/2025	4/5/2023	105.81151	104.1138333	102.4516704	100.8239691	99.22972056	97.66795557	96.13774239	94.63818497	93.16842124
230405A00010	4/5/2023	3.96	4/6/2026	4/5/2023	107.87478	105.653707	103.4897368	101.3809917	99.32567177	97.32205063	95.36847188	93.46334559	91.605145
230405A00012	4/5/2023	3.8	4/5/2028	4/5/2023	115.70794	111.3262991	107.1382698	103.1342009	99.30498083	95.64200224	92.13713154	88.78267961	85.57137489
230405A00022	4/5/2023	3.8	4/5/2028	4/5/2023	115.70794	111.3262991	107.1382698	103.1342009	99.30498083	95.64200224	92.13713154	88.78267961	85.57137489
230405A00028	4/5/2023	3.78	4/5/2028	4/5/2023	115.62373	111.2438492	107.0575211	103.0550988	99.22747278	95.56603792	92.0626626	88.70965961	85.4997592
230405A00044	4/5/2023	3.8	4/5/2028	4/5/2023	115.70794	111.3262991	107.1382698	103.1342009	99.30498083	95.64200224	92.13713154	88.78267961	85.57137489
230405A00049	4/5/2023	3.81	4/5/2028	4/5/2023	115.75004	111.367524	107.1786441	103.173752	99.34373485	95.67998441	92.17436601	88.81918961	85.60718273
230406A00017	4/6/2023	3.99	4/7/2025	4/6/2023	103.88542	102.6900505	101.5222553	100.3810888	99.26564672	98.17506532	97.10851915	96.06521898	95.04440982
230406A00023	4/6/2023	3.84	4/6/2028	4/6/2023	115.88761	111.4993691	107.3050912	103.2951092	99.46029044	95.79200844	92.28211154	88.92289387	85.70706823
230406A00026	4/6/2023	3.92	4/6/2027	4/6/2023	112.00313	108.7124195	105.5370838	102.4723837	99.51380658	96.6570533	93.89802714	91.23282259	88.65771506
230406A00029	4/6/2023	3.84	4/6/2028	4/6/2023	115.88761	111.4993691	107.3050912	103.2951092	99.46029044	95.79200844	92.28211154	88.92289387	85.70706823
230406A00038	4/6/2023	4.24	4/7/2025	4/6/2023	103.99202	102.7988763	101.6332044	100.494062	99.38054967	98.2918081	97.22701612	96.18538853	95.16617413
230406A00042	4/6/2023	3.99	4/7/2025	4/6/2023	103.88542	102.6900505	101.5222553	100.3810888	99.26564672	98.17506532	97.10851915	96.06521898	95.04440982
230406A00050	4/6/2023	3.67	4/6/2027	4/6/2023	111.64008	108.3446809	105.1651029	102.096581	99.13457639	96.27476554	93.51302875	90.845439	88.26825154
230406A00105	4/6/2023	3.84	4/6/2028	4/6/2023	115.88761	111.4993691	107.3050912	103.2951092	99.46029044	95.79200844	92.28211154	88.92289387	85.70706823
230410A00011	4/10/2023	4.08	4/9/2027	4/10/2023	112.55163	109.2436208	106.0517703	102.9712933	99.99763782	97.12646851	94.35365427	91.67525737	89.0875229
230410A00012	4/10/2023	3.98	4/10/2028	4/10/2023	116.52405	112.1110549	107.8934051	103.8613428	100.0056541	96.31763713	92.7890698	89.41218081	86.17962197
230411A00018	4/11/2023	4.96	4/11/2024	4/11/2023	100.68188	100.4851691	100.289239	100.0940856	99.89970418	99.70609011	99.51323879	99.32114566	99.12980619
230411A00045	4/11/2023	4.66	10/11/2024	4/11/2023	102.41783	101.7168576	101.0255058	100.3435806	99.67089	99.0072468	98.35246903	97.70637955	97.06880591
230412A00001	4/12/2023	4.62	10/11/2024	4/12/2023	102.38976	101.6888952	100.9976513	100.3158331	99.6432484	98.9797101	98.32503624	97.67904969	97.04157803
230412A00002	4/12/2023	4.42	4/11/2025	4/12/2023	104.24993	103.0443195	101.8667135	100.7161388	99.59167067	98.49242642	97.41756263	96.36627316	95.33778713

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230412A00005	4/12/2023	4.16	4/10/2026	4/12/2023	108.36297	106.1252601	103.9452743	101.8211103	99.75094105	97.73301458	95.76565033	93.84723549	91.97622168
230412A00006	4/12/2023	4.04	4/12/2027	4/12/2023	112.45934	109.1443182	105.9459647	102.8594627	99.88023052	97.00390442	94.22632716	91.54353647	88.95175457
230412A00007	4/12/2023	3.95	4/12/2028	4/12/2023	116.42046	112.0039022	107.7831005	103.7482584	99.89013245	96.19999335	92.66959396	89.29113974	86.05726106
230412A00028	4/12/2023	3.69	4/12/2028	4/12/2023	115.9104	111.4878297	107.2618369	103.2225664	99.36071646	95.66750367	92.13463085	88.754257	85.51896943
230412A00033	4/12/2023	4.04	4/12/2027	4/12/2023	112.45934	109.1443182	105.9459647	102.8594627	99.88023052	97.00390442	94.22632716	91.54353647	88.95175457
230413A00017	4/13/2023	3.88	4/13/2028	4/13/2023	116.13574	111.7222996	107.5046523	103.4729981	99.61808506	95.93117602	92.40401687	89.02880679	85.79817053
230413A00018	4/13/2023	3.96	4/13/2027	4/13/2023	112.21376	108.8998722	105.7027255	102.6175017	99.63961212	96.76468653	93.98856166	91.30726974	88.71702789
230413A00020	4/13/2023	3.88	4/13/2028	4/13/2023	116.13574	111.7222996	107.5046523	103.4729981	99.61808506	95.93117602	92.40401687	89.02880679	85.79817053
230413A00021	4/13/2023	4.07	4/13/2026	4/13/2023	108.20095	105.9566631	103.770457	101.6404044	99.56466091	97.54145872	95.56910213	93.64596411	91.77048292
230413A00030	4/13/2023	4.33	4/14/2025	4/13/2023	104.17352	102.960267	101.775389	100.6178933	99.48683687	98.38131987	97.30048278	96.24350432	95.20959935
230413A00031	4/13/2023	4.07	4/13/2026	4/13/2023	108.20095	105.9566631	103.770457	101.6404044	99.56466091	97.54145872	95.56910213	93.64596411	91.77048292
230413A00045	4/13/2023	4.33	4/11/2025	4/13/2023	104.14169	102.9367757	101.759846	100.6099367	99.48612358	98.38752403	97.31329494	96.26263044	95.2347599
230413A00082	4/13/2023	4.01	4/13/2027	4/13/2023	112.37476	109.0582734	105.8585986	102.7709129	99.79062512	96.91336303	94.13496125	91.45145002	88.85904453
230414A00009	4/14/2023	5.04	4/12/2024	4/14/2023	100.70765	100.5081497	100.3094574	100.1115637	99.91446383	99.71815296	99.52262628	99.32787904	99.13390651
230417A00023	4/17/2023	3.86	4/7/2028	4/17/2023	116.57276	112.1506855	107.9244456	103.8842557	100.0208779	96.32558743	92.79014065	89.40674577	86.16803519
230417A00034	4/17/2023	4.63	4/17/2025	4/17/2023	104.57105	103.3471157	102.1519726	100.9846124	99.84407248	98.72943437	97.63982115	96.57439516	95.53235577
230417A00036	4/17/2023	4.63	4/17/2025	4/17/2023	104.57105	103.3471157	102.1519726	100.9846124	99.84407248	98.72943437	97.63982115	96.57439516	95.53235577
230417A00037	4/17/2023	4.39	4/16/2026	4/17/2023	108.94806	106.686948	104.484471	102.3386851	100.247723	98.20979508	96.22318491	94.28624591	92.39739777
230417A00042	4/17/2023	4.58	4/17/2025	4/17/2023	104.5101	103.286555	102.0917975	100.9248167	99.78465005	98.6703793	97.58112769	96.51605769	95.47436882
230417A00044	4/17/2023	4.32	4/17/2026	4/17/2023	108.80541	106.5430976	104.3395242	102.1927332	100.1008523	98.06208684	96.07471598	94.13708885	92.24762112
230417A00045	4/17/2023	4.21	4/16/2027	4/17/2023	113.05623	109.7202286	106.5018816	103.3963222	100.3989179	97.50525784	94.71114022	92.01256103	89.40570326
230417A00046	4/17/2023	4.13	4/17/2028	4/17/2023	117.24214	112.793983	108.5433301	104.4802793	100.5954841	96.88011911	93.32584799	89.92479301	86.6695071
230419A00005	4/19/2023	5.1	4/19/2024	4/19/2023	100.79089	100.5720237	100.354116	100.1371651	99.92116452	99.70610808	99.49198951	99.27880262	99.06654129
230419A00016	4/19/2023	4.41	4/18/2025	4/19/2023	104.51055	103.2812786	102.0810438	100.9088217	99.76363827	98.64456428	97.5507126	96.48123595	95.43532467
230419A00024	4/19/2023	4.66	4/18/2025	4/19/2023	104.61913	103.3921739	102.1941374	101.024009	99.88081986	98.76364555	97.67160352	96.6038508	95.55958179
230419A00030	4/19/2023	4.39	4/20/2026	4/19/2023	109.0001	106.7271655	104.5134003	102.3568334	100.2555729	98.2078056	96.21179318	94.26586829	92.36843102
230419A00035	4/19/2023	4.16	4/19/2028	4/19/2023	117.39375	112.9366443	108.6776296	104.6067601	100.7146523	96.99244698	93.43177603	90.02473247	86.76384197
230419A00072	4/19/2023	4.53	10/20/2025	4/19/2023	106.88877	105.1436021	103.4355073	101.7633729	100.1261268	98.5227397	96.95222317	95.41362739	93.90603932
230420A00003	4/20/2023	4.06	4/20/2026	4/20/2023	108.56332	106.2894028	104.074823	101.9175937	99.81581441	97.76766421	95.77139722	93.82533907	91.92788321
230420A00024	4/20/2023	4.31	4/20/2026	4/20/2023	108.82154	106.5506269	104.3388474	102.1842256	100.0848707	98.03897067	96.04478833	94.10065735	92.20497885
230420A00067	4/20/2023	4.57	4/21/2025	4/20/2023	104.54297	103.3083484	102.1030294	100.9259727	99.77619077	98.65274178	97.55472685	96.48128761	95.43160401
230420A00071	4/20/2023	4.31	4/20/2026	4/20/2023	108.82154	106.5506269	104.3388474	102.1842256	100.0848707	98.03897067	96.04478833	94.10065735	92.20497885
230421A00003	4/21/2023	4.72	10/21/2024	4/21/2023	102.57176	101.842955	101.1245429	100.4162986	99.71800695	99.02945885	98.350451	97.68078575	97.02027087

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230421A00006	4/21/2023	4.04	4/21/2028	4/21/2023	116.90748	112.454874	108.2005029	104.1343994	100.2471603	96.52990859	92.97425999	89.57229291	86.31651986
230421A00015	4/21/2023	4.54	4/21/2025	4/21/2023	104.50606	103.2716865	102.0666029	100.8897777	99.74022361	98.6169988	97.5192045	96.44598244	95.39651264
230421A00020	4/21/2023	4.23	4/21/2026	4/21/2023	108.65554	106.3837106	104.1711031	102.0157397	99.91572455	97.86924084	95.87454693	93.92997239	92.03391442
230421A00023	4/21/2023	4.04	4/21/2028	4/21/2023	116.90748	112.454874	108.2005029	104.1343994	100.2471603	96.52990859	92.97425999	89.57229291	86.31651986
230421A00025	4/21/2023	4.04	4/21/2028	4/21/2023	116.90748	112.454874	108.2005029	104.1343994	100.2471603	96.52990859	92.97425999	89.57229291	86.31651986
230421A00036	4/21/2023	4.48	4/21/2025	4/21/2023	104.43226	103.1983625	101.9937498	100.8173878	99.6682893	98.54551284	97.44815979	96.37537208	95.32632991
230421A00041	4/21/2023	4.22	4/21/2027	4/21/2023	113.15112	109.7993657	106.5662314	103.4467916	100.4363595	97.53047319	94.72488355	92.01554211	89.39859025
230421A00043	4/21/2023	4.1	4/21/2028	4/21/2023	117.16276	112.7047734	108.4451943	104.3740515	100.481935	96.75996121	93.19973963	89.79334277	86.53327746
230421A00044	4/21/2023	4.13	10/21/2027	4/21/2023	115.0785	111.1807858	107.4388277	103.8454867	100.3939956	97.07793813	93.89122802	90.82809004	87.8830419
230421A00064	4/21/2023	4.1	4/21/2028	4/21/2023	117.16276	112.7047734	108.4451943	104.3740515	100.481935	96.75996121	93.19973963	89.79334277	86.53327746
230424A00005	4/24/2023	4.08	4/24/2028	4/24/2023	117.11345	112.647876	108.3813977	104.3039894	100.406193	96.67908073	93.11422122	89.70364922	86.43983667
230424A00010	4/24/2023	4.55	4/24/2025	4/24/2023	104.55199	103.3091648	102.096022	100.9115055	99.75460901	98.62437294	97.51988168	96.44026121	95.38467668
230424A00011	4/24/2023	4.55	4/24/2025	4/24/2023	104.55199	103.3091648	102.096022	100.9115055	99.75460901	98.62437294	97.51988168	96.44026121	95.38467668
230424A00012	4/24/2023	4.28	4/24/2026	4/24/2023	108.80541	106.5234505	104.3011465	102.1364942	100.0275781	97.97256326	95.96969064	94.01727347	92.11369355
230424A00026	4/24/2023	4.28	4/24/2026	4/24/2023	108.80541	106.5234505	104.3011465	102.1364942	100.0275781	97.97256326	95.96969064	94.01727347	92.11369355
230424A00037	4/24/2023	4.79	10/24/2024	4/24/2023	102.66423	101.9267894	101.1999705	100.4835493	99.77730332	99.08101662	98.39447925	97.71748712	97.04984185
230424A00064	4/24/2023	4.28	4/24/2026	4/24/2023	108.80541	106.5234505	104.3011465	102.1364942	100.0275781	97.97256326	95.96969064	94.01727347	92.11369355
230425A00006	4/25/2023	3.89	4/24/2026	4/25/2023	108.23141	105.9500307	103.728432	101.5646074	99.4566338	97.40266901	95.40094733	93.44977565	91.54752981
230425A00020	4/25/2023	4.62	10/25/2024	4/25/2023	102.54244	101.8028587	101.0739757	100.3555575	99.64737944	98.94922353	98.26087776	97.5821361	96.91279828
230425A00028	4/25/2023	4.42	4/25/2025	4/25/2023	104.40186	103.1573037	101.9425378	100.7565037	99.59818907	98.46662883	97.36090223	96.28013038	95.2234739
230425A00029	4/25/2023	4.14	4/24/2026	4/25/2023	108.49137	106.2129991	103.9942038	101.8329881	99.72743881	97.67572281	95.6760831	93.72683477	91.82636141
230425A00030	4/25/2023	4.01	4/26/2027	4/25/2023	112.53	109.1741441	105.9375703	102.8153026	99.80260979	96.89498875	94.08815188	91.37801507	88.76068658
230425A00031	4/25/2023	3.69	4/25/2028	4/25/2023	116.05691	111.593842	107.3305752	103.2570181	99.36365133	95.64149009	92.08205107	88.67732103	85.41972787
230425A00032	4/25/2023	3.95	4/25/2028	4/25/2023	116.57082	112.1138466	107.8558305	103.7867464	99.89713458	96.17806585	92.62110823	89.2182961	85.96210149
230425A00037	4/25/2023	4.65	10/25/2024	4/25/2023	102.56465	101.8249779	101.0960052	100.3774983	99.66923238	98.9709895	98.28255763	97.60373072	96.93430848
230425A00040	4/25/2023	3.89	4/24/2026	4/25/2023	108.23141	105.9500307	103.728432	101.5646074	99.4566338	97.40266901	95.40094733	93.44977565	91.54752981
230425A00045	4/25/2023	3.95	4/25/2028	4/25/2023	116.57082	112.1138466	107.8558305	103.7867464	99.89713458	96.17806585	92.62110823	89.2182961	85.96210149
230425A00047	4/25/2023	4.01	4/26/2027	4/25/2023	112.53	109.1741441	105.9375703	102.8153026	99.80260979	96.89498875	94.08815188	91.37801507	88.76068658
230425A00050	4/25/2023	4.14	4/24/2026	4/25/2023	108.49137	106.2129991	103.9942038	101.8329881	99.72743881	97.67572281	95.6760831	93.72683477	91.82636141
230425A00053	4/25/2023	4.14	4/24/2026	4/25/2023	108.49137	106.2129991	103.9942038	101.8329881	99.72743881	97.67572281	95.6760831	93.72683477	91.82636141
230425A00076	4/25/2023	4.95	4/25/2024	4/25/2023	100.81662	100.5811885	100.3468669	100.1136432	99.88150965	99.6504586	99.42048247	99.19157376	98.96372503
230425A00124	4/25/2023	4.42	4/25/2025	4/25/2023	104.40186	103.1573037	101.9425378	100.7565037	99.59818907	98.46662883	97.36090223	96.28013038	95.2234739
230426A00003	4/26/2023	3.89	5/9/2028	4/26/2023	116.4707	111.9764715	107.6844901	103.5845239	99.66691546	95.92254811	92.3428129	88.91957707	85.64515492

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230426A00004	4/26/2023	3.89	5/9/2028	4/26/2023	116.4707	111.9764715	107.6844901	103.5845239	99.66691546	95.92254811	92.3428129	88.91957707	85.64515492
230426A00005	4/26/2023	3.91	6/13/2028	4/26/2023	116.94556	112.3425694	107.9508157	103.7594953	99.75840966	95.93793103	92.28896752	88.80293071	85.47170516
230426A00006	4/26/2023	3.91	6/13/2028	4/26/2023	116.94556	112.3425694	107.9508157	103.7594953	99.75840966	95.93793103	92.28896752	88.80293071	85.47170516
230426A00007	4/26/2023	3.92	7/11/2028	4/26/2023	117.29933	112.6094093	108.1381622	103.8742212	99.80686785	95.92599352	92.22206173	88.68607271	85.30953044
230426A00008	4/26/2023	3.92	7/11/2028	4/26/2023	117.29933	112.6094093	108.1381622	103.8742212	99.80686785	95.92599352	92.22206173	88.68607271	85.30953044
230426A00009	4/26/2023	3.94	8/8/2028	4/26/2023	117.69329	112.9167373	108.3662113	104.0297799	99.8962069	95.95490573	92.19589845	88.60977747	85.18766987
230426A00010	4/26/2023	3.94	8/8/2028	4/26/2023	117.69329	112.9167373	108.3662113	104.0297799	99.8962069	95.95490573	92.19589845	88.60977747	85.18766987
230426A00011	4/26/2023	3.96	9/12/2028	4/26/2023	118.17263	113.2860034	108.6343844	104.2051689	99.98649734	95.96720763	92.13679058	88.48534791	85.00355334
230426A00012	4/26/2023	3.96	9/12/2028	4/26/2023	118.17263	113.2860034	108.6343844	104.2051689	99.98649734	95.96720763	92.13679058	88.48534791	85.00355334
230426A00013	4/26/2023	3.98	10/10/2028	4/26/2023	118.57474	113.5990335	108.865865	104.3620409	100.0751646	95.99357995	92.1063228	88.40307549	84.87412514
230426A00014	4/26/2023	3.98	10/10/2028	4/26/2023	118.57474	113.5990335	108.865865	104.3620409	100.0751646	95.99357995	92.1063228	88.40307549	84.87412514
230426A00025	4/26/2023	3.62	4/26/2028	4/26/2023	115.76854	111.3087073	107.0487156	102.9784646	99.08842604	95.36960751	91.81351858	88.41213973	85.15789322
230426A00026	4/26/2023	4.61	10/25/2024	4/26/2023	102.53503	101.7954856	101.0666325	100.3482439	99.64009512	98.9419682	98.25365113	97.5749379	96.90562821
230426A00030	4/26/2023	3.81	4/27/2026	4/26/2023	108.08712	105.7989591	103.5709433	101.4010441	99.28732078	97.2279146	95.22104415	93.26500161	91.35814894
230426A00033	4/26/2023	3.88	4/26/2028	4/26/2023	116.28359	111.8298224	107.5750558	103.5092523	99.62294358	95.90719262	92.35356047	88.95407524	85.70120337
230426A00036	4/26/2023	4.06	4/27/2026	4/26/2023	108.34823	106.0630854	103.8378786	101.6705928	99.55929698	97.50214168	95.49735426	93.54323517	91.63815418
230426A00037	4/26/2023	3.94	4/26/2027	4/26/2023	112.30209	108.9499479	105.7169908	102.5982445	99.58898104	96.68470043	93.8811181	91.17415283	88.55991564
230426A00040	4/26/2023	3.9	4/26/2028	4/26/2023	116.36896	111.9133877	107.6568741	103.5893803	99.70143574	95.98410117	92.42893555	89.027965	85.77365404
230426A00043	4/26/2023	4.35	4/22/2025	4/26/2023	104.28302	103.0473717	101.841126	100.6632362	99.51270939	98.38859846	97.28999968	96.21605017	95.16592557
230426A00045	4/26/2023	4.34	4/25/2025	4/26/2023	104.30258	103.0586707	101.8445436	100.6591376	99.50144092	98.37048864	97.26536031	96.18517728	95.12910041
230426A00046	4/26/2023	3.95	4/26/2028	4/26/2023	116.58239	112.122301	107.8614198	103.7897003	99.89766613	96.17637255	92.61737327	89.2126894	85.95478071
230426A00049	4/26/2023	4.13	4/27/2026	4/26/2023	108.50583	106.2188768	103.991903	101.8228864	99.70989517	97.65107869	95.64466338	93.68894873	91.78230361
230426A00051	4/26/2023	4.69	10/28/2024	4/26/2023	102.63496	101.8867308	101.1494346	100.4228347	99.70669944	99.00080364	98.30492859	97.61886175	96.9423966
230426A00057	4/26/2023	4.44	4/25/2025	4/26/2023	104.42668	103.181962	101.9670364	100.7808452	99.6223761	98.49066387	97.38478771	96.30386866	95.24706727
230426A00062	4/26/2023	4.13	4/27/2026	4/26/2023	108.50583	106.2188768	103.991903	101.8228864	99.70989517	97.65107869	95.64466338	93.68894873	91.78230361
230426A00063	4/26/2023	4.69	10/25/2024	4/26/2023	102.59426	101.8544702	101.125378	100.4067527	99.69836965	99.0000108	98.31146412	97.63252353	96.96298874
230426A00064	6/15/2023	3.87	6/15/2028	6/15/2023	116.79174	112.1863694	107.7926408	103.5997106	99.59734873	95.77589838	92.12624109	88.63976387	85.30832862
230426A00065	6/15/2023	3.87	6/15/2028	6/15/2023	116.79174	112.1863694	107.7926408	103.5997106	99.59734873	95.77589838	92.12624109	88.63976387	85.30832862
230427A00013	4/27/2023	4.74	10/28/2024	4/27/2023	102.67239	101.9240071	101.1865581	100.4598071	99.74352223	99.03747833	98.34145666	97.65524468	96.97863582
230427A00057	4/27/2023	4.74	10/28/2024	4/27/2023	102.67239	101.9240071	101.1865581	100.4598071	99.74352223	99.03747833	98.34145666	97.65524468	96.97863582
230427A00066	4/27/2023	4.07	4/27/2027	4/27/2023	112.73746	109.3753832	106.1328631	103.0049104	99.98678005	97.07395621	94.26213914	91.54723337	88.92533648
230427A00069	4/27/2023	4.5	4/28/2025	4/27/2023	104.53436	103.2807778	102.0573932	100.8631193	99.6969242	98.55782471	97.44488286	96.35720364	95.29393248
230427A00077	4/27/2023	4.14	10/27/2026	4/27/2023	110.74792	107.9281618	105.1955305	102.5467568	99.97872112	97.48844388	95.07307759	92.72990004	90.45630772

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230428A00017	4/28/2023	4.17	4/28/2026	4/28/2023	108.60829	106.3173584	104.0865618	101.9138712	99.79734786	97.73513457	95.72545163	93.76659274	91.85692129
230428A00018	4/28/2023	3.99	4/28/2028	4/28/2023	116.77649	112.3065517	108.0364361	103.9560563	100.0558975	96.32697957	92.76082322	89.34941905	86.08519841
230428A00026	4/28/2023	4.56	4/28/2025	4/28/2023	104.60931	103.3552405	102.1313707	100.9366195	99.76995503	98.63039376	97.51699757	96.42887122	95.36515996
230428A00029	4/28/2023	4.23	4/28/2026	4/28/2023	108.74353	106.4510555	104.2187407	102.0445631	99.92658298	97.86294245	95.85186089	93.89163118	91.98061593
230428A00040	4/28/2023	4.78	10/28/2024	4/28/2023	102.70234	101.9538282	101.216257	100.4893851	99.77298047	99.06681808	98.37067912	97.68435102	97.00762719
230428A00054	4/28/2023	4.62	3/13/2025	4/28/2023	104.16984	103.0432895	101.9412142	100.8628227	99.80735599	98.77408718	97.76231994	96.77138681	95.80064772
230428A00066	4/28/2023	4.78	10/28/2024	4/28/2023	102.70234	101.9538282	101.216257	100.4893851	99.77298047	99.06681808	98.37067912	97.68435102	97.00762719
230501A00011	5/1/2023	4.09	4/26/2027	5/1/2023	112.79047	109.4303682	106.189661	103.063369	100.0467569	97.13531826	94.32476192	91.6110005	88.99013909
230501A00013	5/1/2023	4.54	5/1/2025	5/1/2023	104.62036	103.3582056	102.126289	100.923528	99.74889317	98.60140301	97.4801214	96.38415488	95.31265024
230501A00022	5/1/2023	4.54	5/1/2025	5/1/2023	104.62036	103.3582056	102.126289	100.923528	99.74889317	98.60140301	97.4801214	96.38415488	95.31265024
230501A00038	5/1/2023	4.33	5/1/2025	5/1/2023	104.55903	103.2941565	102.0596381	100.8543903	99.67737797	98.5276145	97.40415873	96.30611252	95.23261824
230501A00039	5/1/2023	4.33	5/1/2025	5/1/2023	104.55903	103.2941565	102.0596381	100.8543903	99.67737797	98.5276145	97.40415873	96.30611252	95.23261824
230501A00041	5/1/2023	4.58	4/28/2025	5/1/2023	104.6343	103.3800614	102.1560298	100.9611195	99.79429863	98.65458345	97.5410358	96.45276041	95.38890245
230502A00002	5/2/2023	5.05	5/28/2024	5/2/2023	101.18517	100.8585051	100.5339558	100.2114984	99.89111274	99.57277892	99.25647724	98.94218828	98.62989285
230502A00017	5/2/2023	4.26	5/4/2026	5/2/2023	108.88574	106.575119	104.325505	102.1348452	100.0011774	97.92262125	95.89737409	93.92370678	91.99996019
230502A00024	5/2/2023	4.38	5/2/2025	5/2/2023	104.43239	103.1689148	101.9354298	100.7308717	99.55422693	98.4045289	97.28085526	96.18232547	95.1080984
230502A00025	5/2/2023	4.81	11/1/2024	5/2/2023	102.77125	102.0115472	101.2631027	100.5256665	99.7989969	99.08285908	98.37702509	97.68127351	96.99538921
230502A00034	5/2/2023	4.92	5/2/2024	5/2/2023	100.87828	100.6235008	100.3700142	100.1178058	99.86686578	99.61718468	99.368753	99.12156139	98.87560057
230502A00042	5/2/2023	4.64	11/4/2024	5/2/2023	102.67701	101.9095403	101.1535704	100.4088445	99.67511271	98.95213258	98.23966875	97.53749268	96.84538242
230502A00045	5/2/2023	4.38	5/2/2025	5/2/2023	104.43239	103.1689148	101.9354298	100.7308717	99.55422693	98.4045289	97.28085526	96.18232547	95.1080984
230502A00047	5/2/2023	4.1	5/1/2026	5/2/2023	108.4868	106.1889393	103.95158	101.7726822	99.65029302	97.58254221	95.56763716	93.60385925	91.68956
230502A00052	5/2/2023	3.96	5/3/2027	5/2/2023	112.44888	109.074755	105.8211776	102.6831112	99.65576145	96.73456539	93.91517827	91.19346165	88.56547202
230502A00055	5/2/2023	4.08	5/4/2026	5/2/2023	108.47702	106.1711176	103.9261233	101.7399877	99.61075136	97.53653677	95.51554373	93.54604561	91.62638571
230502A00058	5/2/2023	4.39	5/2/2025	5/2/2023	104.44499	103.1814338	101.9478665	100.7432275	99.56650322	98.41672695	97.29297635	96.19437083	95.12006923
230502A00076	5/2/2023	3.95	5/3/2027	5/2/2023	112.41613	109.0425397	105.789485	102.6519274	99.62507314	96.70435964	93.88544263	91.16418406	88.53664086
230502A00079	5/2/2023	3.6	5/2/2028	5/2/2023	115.74818	111.2716967	106.9964858	102.9123508	99.00967097	95.27936777	91.71287026	88.30208372	85.03936016
230502A00081	5/2/2023	3.96	5/3/2027	5/2/2023	112.44888	109.074755	105.8211776	102.6831112	99.65576145	96.73456539	93.91517827	91.19346165	88.56547202
230502A00086	5/2/2023	4.08	5/1/2026	5/2/2023	108.44155	106.1442119	103.9073624	101.7289637	99.60706361	97.53979189	95.52535631	93.56203851	91.6481903
230502A00120	5/2/2023	4.38	5/2/2025	5/2/2023	104.43239	103.1689148	101.9354298	100.7308717	99.55422693	98.4045289	97.28085526	96.18232547	95.1080984
230502A00122	5/2/2023	3.7	5/3/2027	5/2/2023	112.04564	108.6672035	105.409771	102.2682786	99.23790457	96.31406018	93.49237662	90.76869287	88.13904432
230503A00004	5/3/2023	3.94	5/3/2027	5/3/2023	112.38338	109.0103245	105.7577924	102.6207436	99.59438483	96.6741539	93.85570698	91.13490648	88.5078097
230503A00012	5/3/2023	3.82	5/3/2028	5/3/2023	116.10466	111.634903	107.3656955	103.2868979	99.3889417	95.66279585	92.09993335	88.69229987	85.4322846
230503A00014	5/3/2023	3.94	5/3/2027	5/3/2023	112.38338	109.0103245	105.7577924	102.6207436	99.59438483	96.6741539	93.85570698	91.13490648	88.5078097

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230503A00017	5/3/2023	4.41	11/4/2024	5/3/2023	102.63746	101.8683377	101.1107722	100.3645003	99.62927056	98.90483889	98.19096834	97.48742888	96.79399712
230503A00020	5/3/2023	3.84	5/3/2028	5/3/2023	116.19042	111.71884	107.44787	103.3673675	99.46776138	95.74001853	92.17560977	88.76647874	85.50501271
230503A00022	5/3/2023	4.4	5/2/2025	5/3/2023	104.4576	103.1939527	101.9603032	100.7555833	99.5787795	98.428925	97.30509744	96.20641619	95.13204005
230503A00025	5/3/2023	3.84	5/3/2028	5/3/2023	116.19042	111.71884	107.44787	103.3673675	99.46776138	95.74001853	92.17560977	88.76647874	85.50501271
230503A00029	5/3/2023	4.08	5/4/2026	5/3/2023	108.47702	106.1711176	103.9261233	101.7399877	99.61075136	97.53653677	95.51554373	93.54604561	91.62638571
230503A00030	5/3/2023	3.84	5/3/2028	5/3/2023	116.19042	111.71884	107.44787	103.3673675	99.46776138	95.74001853	92.17560977	88.76647874	85.50501271
230503A00031	5/3/2023	4.4	5/2/2025	5/3/2023	104.4576	103.1939527	101.9603032	100.7555833	99.5787795	98.428925	97.30509744	96.20641619	95.13204005
230503A00032	5/3/2023	4.08	5/1/2026	5/3/2023	108.44155	106.1442119	103.9073624	101.7289637	99.60706361	97.53979189	95.52535631	93.56203851	91.6481903
230503A00034	5/3/2023	3.84	5/3/2028	5/3/2023	116.19042	111.71884	107.44787	103.3673675	99.46776138	95.74001853	92.17560977	88.76647874	85.50501271
230503A00036	5/3/2023	4.15	5/2/2025	5/3/2023	104.3455	103.0794624	101.8435359	100.636648	99.45777943	98.30595857	97.18025821	96.07979327	95.0037183
230503A00038	5/3/2023	4.15	5/2/2025	5/3/2023	104.3455	103.0794624	101.8435359	100.636648	99.45777943	98.30595857	97.18025821	96.07979327	95.0037183
230503A00072	5/3/2023	3.83	5/4/2026	5/3/2023	108.21386	105.9049155	103.6570832	101.468309	99.33662352	97.26013975	95.23704855	93.26561488	91.34417404
230504A00011	5/4/2023	3.7	5/4/2026	5/4/2023	107.91823	105.6127008	103.3682156	101.1827193	99.05424453	96.9809061	94.96089681	92.99248344	91.07400301
230504A00018	5/4/2023	4.24	5/5/2025	5/4/2023	104.2945	103.0242426	101.7832827	100.5706108	99.38525991	98.22630683	97.09286979	95.98410613	94.89921012
230504A00019	5/4/2023	3.95	5/4/2026	5/4/2023	108.18183	105.8793389	103.637681	101.4548128	99.32877703	97.25769798	95.23977735	93.27329033	91.35658191
230504A00020	5/4/2023	3.83	5/4/2027	5/4/2023	112.03423	108.6641567	105.4146384	102.2806361	99.25735463	96.34022959	93.52491492	90.80727065	88.18335173
230504A00021	5/4/2023	3.76	5/4/2028	5/4/2023	115.858	111.3907128	107.1240401	103.047838	99.15253151	95.42908354	91.86896107	88.46410406	85.20689621
230504A00034	5/4/2023	3.95	5/4/2026	5/4/2023	108.18183	105.8793389	103.637681	101.4548128	99.32877703	97.25769798	95.23977735	93.27329033	91.35658191
230504A00040	5/4/2023	4.5	11/4/2024	5/4/2023	102.56951	101.8024903	101.046969	100.3026869	99.56939429	98.84684881	98.13481515	97.43306485	96.74137603
230504A00041	5/4/2023	3.95	5/4/2026	5/4/2023	108.18183	105.8793389	103.637681	101.4548128	99.32877703	97.25769798	95.23977735	93.27329033	91.35658191
230504A00042	5/4/2023	3.83	5/4/2027	5/4/2023	112.03423	108.6641567	105.4146384	102.2806361	99.25735463	96.34022959	93.52491492	90.80727065	88.18335173
230504A00043	5/4/2023	3.76	5/4/2028	5/4/2023	115.858	111.3907128	107.1240401	103.047838	99.15253151	95.42908354	91.86896107	88.46410406	85.20689621
230504A00046	5/4/2023	4.24	5/5/2025	5/4/2023	104.2945	103.0242426	101.7832827	100.5706108	99.38525991	98.22630683	97.09286979	95.98410613	94.89921012
230504A00047	5/4/2023	4.5	11/4/2024	5/4/2023	102.56951	101.8024903	101.046969	100.3026869	99.56939429	98.84684881	98.13481515	97.43306485	96.74137603
230504A00049	5/4/2023	3.95	5/4/2026	5/4/2023	108.18183	105.8793389	103.637681	101.4548128	99.32877703	97.25769798	95.23977735	93.27329033	91.35658191
230504A00054	5/4/2023	3.95	5/4/2026	5/4/2023	108.18183	105.8793389	103.637681	101.4548128	99.32877703	97.25769798	95.23977735	93.27329033	91.35658191
230504A00055	5/4/2023	4.24	5/5/2025	5/4/2023	104.2945	103.0242426	101.7832827	100.5706108	99.38525991	98.22630683	97.09286979	95.98410613	94.89921012
230504A00057	5/4/2023	3.86	5/4/2026	5/4/2023	107.97747	105.6773382	103.4379901	101.257384	99.13356403	97.06465575	95.04886217	93.08445975	91.16979467
230504A00058	5/4/2023	3.69	5/4/2028	5/4/2023	115.55765	111.0967474	106.836251	102.7660236	98.87649872	95.15864692	91.60394274	88.20433321	84.95220885
230504A00064	5/4/2023	4.35	11/4/2024	5/4/2023	102.45433	101.6877938	100.9327531	100.1889466	99.45612456	98.73404477	98.02247201	97.32117789	96.62994062
230504A00065	5/4/2023	4.11	5/5/2025	5/4/2023	104.1296	102.8604383	101.6205607	100.408953	99.22464851	98.06672469	96.93430018	95.82653277	94.74261716
230504A00069	5/4/2023	3.82	5/4/2026	5/4/2023	107.88664	105.5875601	103.3492386	101.1696379	99.0468027	96.9788592	94.96401098	93.00053505	91.08677812
230504A00084	5/4/2023	3.5	5/4/2028	5/4/2023	115.33907	110.8657173	106.5938392	102.5132164	98.61421323	94.88773636	91.32520073	87.91849805	84.6599673

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230504A00085	5/4/2023	4.24	5/5/2025	5/4/2023	104.2945	103.0242426	101.7832827	100.5706108	99.38525991	98.22630683	97.09286979	95.98410613	94.89921012
230504A00092	5/4/2023	4.5	11/4/2024	5/4/2023	102.56951	101.8024903	101.046969	100.3026869	99.56939429	98.84684881	98.13481515	97.43306485	96.74137603
230505A00001	5/5/2023	4.33	5/5/2025	5/5/2023	104.40867	103.1376457	101.8959364	100.6825278	99.49645242	98.33678677	97.20264875	96.09319538	95.00762062
230505A00002	5/5/2023	4.01	5/5/2026	5/5/2023	108.3297	106.0227851	103.7768758	101.5899242	99.45996959	97.38513299	95.36361253	93.3936798	91.47367615
230505A00005	5/5/2023	3.99	5/5/2026	5/5/2023	108.28423	105.9778422	103.7324474	101.5459996	99.41653853	97.34218542	95.32113871	93.35167027	91.43212172
230505A00013	5/5/2023	4.33	5/5/2025	5/5/2023	104.40867	103.1376457	101.8959364	100.6825278	99.49645242	98.33678677	97.20264875	96.09319538	95.00762062
230505A00014	5/5/2023	3.59	5/5/2028	5/5/2023	115.73688	111.2522648	106.9696402	102.8787665	98.96998378	95.2341755	91.66273448	88.24753124	84.98088459
230505A00016	5/5/2023	3.85	5/5/2028	5/5/2023	116.25504	111.7765275	107.4991513	103.4127383	99.50768946	95.77494476	92.20594919	88.79262168	85.5273259
230505A00017	5/5/2023	4.01	5/5/2026	5/5/2023	108.3297	106.0227851	103.7768758	101.5899242	99.45996959	97.38513299	95.36361253	93.3936798	91.47367615
230505A00022	5/5/2023	3.85	5/5/2028	5/5/2023	116.25504	111.7765275	107.4991513	103.4127383	99.50768946	95.77494476	92.20594919	88.79262168	85.5273259
230505A00027	5/5/2023	4.01	5/5/2026	5/5/2023	108.3297	106.0227851	103.7768758	101.5899242	99.45996959	97.38513299	95.36361253	93.3936798	91.47367615
230505A00035	5/5/2023	3.9	5/5/2027	5/5/2023	112.27501	108.8982377	105.6423131	102.5021869	99.47305317	96.55033728	93.72968289	91.0069401	88.37815416
230505A00046	5/5/2023	4.33	5/5/2025	5/5/2023	104.40867	103.1376457	101.8959364	100.6825278	99.49645242	98.33678677	97.20264875	96.09319538	95.00762062
230505A00048	5/5/2023	4.01	5/5/2026	5/5/2023	108.3297	106.0227851	103.7768758	101.5899242	99.45996959	97.38513299	95.36361253	93.3936798	91.47367615
230509A00009	5/9/2023	4.45	5/9/2025	5/9/2023	104.6146	103.3319152	102.0776694	100.8509175	99.65075355	98.47631149	97.32676284	96.20131468	95.0992078
230509A00010	5/9/2023	4.14	5/8/2026	5/9/2023	108.66121	106.3422998	104.0848861	101.886909	99.74639887	97.66146698	95.63030155	93.65116398	91.7223852
230509A00019	5/9/2023	4.7	11/8/2024	5/9/2023	102.778	101.9991083	101.2320574	100.4765794	99.73241356	98.99930661	98.27701297	97.56529424	96.863919
230509A00035	5/9/2023	4.14	5/8/2026	5/9/2023	108.66121	106.3422998	104.0848861	101.886909	99.74639887	97.66146698	95.63030155	93.65116398	91.7223852
230509A00036	5/9/2023	4.02	5/10/2027	5/9/2023	112.72697	109.3289964	106.053014	102.8939276	99.84688874	96.90728082	94.07070637	91.3329752	88.69009314
230509A00037	5/9/2023	4.47	11/8/2024	5/9/2023	102.73026	101.9498258	101.1812821	100.4243592	99.67879457	98.94433343	98.22072865	97.50774038	96.80513581
230509A00047	5/9/2023	4.43	5/9/2025	5/9/2023	104.58901	103.3064974	102.0524209	100.8258354	99.62583509	98.45155395	97.30216358	96.17687116	95.07491752
230509A00048	5/9/2023	4.43	5/9/2025	5/9/2023	104.58901	103.3064974	102.0524209	100.8258354	99.62583509	98.45155395	97.30216358	96.17687116	95.07491752
230509A00060	5/9/2023	3.92	5/9/2028	5/9/2023	116.59984	112.1028549	107.80821	103.7056675	99.78556626	96.03878622	92.45671521	89.03121739	85.75460412
230509A00118	5/9/2023	4.12	5/8/2026	5/9/2023	108.61557	106.2971953	104.0402996	101.8428299	99.70281668	97.6183716	95.58768317	93.60901304	91.68069243
230510A00007	5/10/2023	4.39	5/9/2025	5/10/2023	104.53783	103.255662	102.001924	100.7756713	99.57599817	98.40203886	97.25296507	96.12798412	95.02633697
230510A00009	5/10/2023	4.07	5/11/2026	5/10/2023	108.53687	106.2112499	103.9474983	101.7435567	99.5974493	97.50728055	95.47123158	93.48755627	91.55457774
230510A00012	5/10/2023	5.02	5/10/2024	5/10/2023	100.9874	100.7105136	100.4351628	100.1613298	99.88900191	99.61816673	99.34881189	99.08092518	98.81449454
230510A00014	5/10/2023	4.07	5/11/2026	5/10/2023	108.53687	106.2112499	103.9474983	101.7435567	99.5974493	97.50728055	95.47123158	93.48755627	91.55457774
230510A00022	5/10/2023	5.01	5/15/2024	5/10/2023	101.03673	100.7460446	100.4570494	100.1697265	99.88406141	99.60003962	99.31764688	99.03686911	98.75769237
230510A00023	5/10/2023	4.74	9/30/2024	5/10/2023	102.33702	101.6664114	101.0046074	100.3514308	99.70671372	99.07029243	98.44200756	97.82170373	97.20922952
230510A00031	5/10/2023	4.14	5/9/2025	5/10/2023	104.42409	103.139487	101.8834237	100.6549501	99.45315562	98.27716985	97.12616024	95.99933005	94.89591643
230510A00033	5/10/2023	4.39	5/12/2025	5/10/2023	104.57763	103.2874696	102.0250793	100.7895579	99.58004675	98.39572395	97.23580224	96.09952728	94.98617595
230510A00057	5/10/2023	3.98	5/11/2026	5/10/2023	108.33078	106.0075519	103.746148	101.5445055	99.40064973	97.31268671	95.27879886	93.29724132	91.36633843

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230510A00062	8/10/2023	3.78	8/10/2026	8/10/2023	108.88184	106.3025692	103.7984923	101.3669756	99.00549025	96.71161203	94.483016	92.31747186	90.21283945
230511A00011	5/11/2023	4.54	11/5/2024	5/11/2023	102.61922	101.8491696	101.0907048	100.3435645	99.60749604	98.88225433	98.16760142	97.46330634	96.76914476
230511A00015	5/11/2023	4.25	5/12/2025	5/11/2023	104.39734	103.1084062	101.8472152	100.6128728	99.40452105	98.2213384	97.06253819	95.92736661	94.81510099
230511A00023	5/11/2023	3.95	5/19/2026	5/11/2023	108.3538	106.0085583	103.7262424	101.5047722	99.34215392	97.23647274	95.18588925	93.18863588	91.24301355
230511A00029	5/11/2023	4.25	5/9/2025	5/11/2023	104.3587	103.077738	101.8251847	100.6000967	99.40156896	98.22873605	97.08077028	95.95687946	94.85630505
230511A00032	5/11/2023	3.7	5/11/2026	5/11/2023	107.99632	105.670828	103.4073536	101.203827	99.05826429	96.96876211	94.9334943	92.95070786	91.01871943
230511A00034	5/11/2023	4	5/12/2025	5/11/2023	104.28271	102.9913252	101.7277918	100.4912095	99.28071548	98.09548404	96.93472436	95.79767878	94.68362097
230511A00036	5/11/2023	3.79	5/19/2027	5/11/2023	112.06838	108.6565379	105.3680918	102.1978969	99.14104891	96.19287589	93.34892539	90.60495298	87.95691115
230511A00038	5/11/2023	3.95	5/11/2026	5/11/2023	108.26208	105.9396525	103.6790313	101.4781551	99.33504987	97.2478221	95.21465462	93.233803	91.30359199
230511A00044	5/11/2023	3.79	5/11/2027	5/11/2023	111.98024	108.5918292	105.3252708	102.1754711	99.13758544	96.20700061	93.3793223	90.65036306	88.01613128
230511A00046	5/11/2023	3.95	5/11/2026	5/11/2023	108.26208	105.9396525	103.6790313	101.4781551	99.33504987	97.2478221	95.21465462	93.233803	91.30359199
230511A00050	5/11/2023	3.98	5/11/2026	5/11/2023	108.33078	106.0075519	103.746148	101.5445055	99.40064973	97.31268671	95.27879886	93.29724132	91.36633843
230511A00052	5/11/2023	4.25	5/12/2025	5/11/2023	104.39734	103.1084062	101.8472152	100.6128728	99.40452105	98.2213384	97.06253819	95.92736661	94.81510099
230511A00053	5/11/2023	4.53	11/12/2024	5/11/2023	102.69101	101.9015923	101.1243495	100.3589997	99.60527101	98.86289965	98.13162986	97.41121351	96.70140981
230511A00067	5/11/2023	4.58	11/13/2024	5/11/2023	102.742	101.949637	101.1695356	100.4014109	99.64498818	98.90000092	98.16619074	97.443307	96.73110651
230511A00068	5/11/2023	4.31	5/12/2025	5/11/2023	104.47461	103.1851477	101.9234426	100.688595	99.47974635	98.29607506	97.13679421	96.00114975	94.88841883
230511A00069	5/11/2023	3.98	5/12/2026	5/11/2023	108.34232	106.0162473	103.7521311	101.5479133	99.40161701	97.31134551	95.2752785	93.29166827	91.35883624
230512A00007	5/12/2023	4.08	5/12/2025	5/12/2023	104.38584	103.0937564	101.8295357	100.5922776	99.38111924	98.19523443	97.03383209	95.89615425	94.78147433
230512A00008	5/12/2023	3.75	5/12/2026	5/12/2023	108.12229	105.7926017	103.5251015	101.3177141	99.16845215	97.075409	95.03675497	93.05073347	91.11565749
230512A00009	5/12/2023	4.08	5/12/2025	5/12/2023	104.38584	103.0937564	101.8295357	100.5922776	99.38111924	98.19523443	97.03383209	95.89615425	94.78147433
230512A00010	5/12/2023	3.75	5/12/2026	5/12/2023	108.12229	105.7926017	103.5251015	101.3177141	99.16845215	97.075409	95.03675497	93.05073347	91.11565749
230512A00026	5/12/2023	4	5/12/2026	5/12/2023	108.38818	106.0615674	103.7969283	101.5921984	99.44540057	97.35463779	95.31808944	93.33400754	91.40071322
230512A00033	5/12/2023	3.75	5/12/2026	5/12/2023	108.12229	105.7926017	103.5251015	101.3177141	99.16845215	97.075409	95.03675497	93.05073347	91.11565749
230512A00037	5/12/2023	3.86	5/12/2027	5/12/2023	112.22226	108.827111	105.5541055	102.3981434	99.3543694	96.4181597	93.5851096	90.85102159	88.21189422
230512A00042	5/12/2023	4	5/12/2026	5/12/2023	108.38818	106.0615674	103.7969283	101.5921984	99.44540057	97.35463779	95.31808944	93.33400754	91.40071322
230515A00011	5/15/2023	4.11	5/15/2026	5/15/2023	108.67609	106.3379624	104.0622839	101.8469874	99.69008645	97.58967441	95.54392076	93.55106731	91.60942475
230515A00024	5/15/2023	4.69	11/15/2024	5/15/2023	102.85279	102.0544902	101.2686293	100.4949135	99.7330622	98.98280351	98.24387378	97.51601729	96.79898598
230515A00034	5/15/2023	4.69	11/15/2024	5/15/2023	102.85279	102.0544902	101.2686293	100.4949135	99.7330622	98.98280351	98.24387378	97.51601729	96.79898598
230515A00045	5/15/2023	4.08	5/15/2026	5/15/2023	108.60706	106.2697398	103.9948513	101.7803282	99.62418471	97.52451466	95.47948795	93.4873468	91.54640234
230516A00009	5/16/2023	4.46	5/16/2025	5/16/2023	104.7216	103.4201667	102.1456232	100.8971392	99.67391887	98.47519931	97.30024831	96.1483631	95.01886876
230516A00013	5/16/2023	4.11	5/15/2026	5/16/2023	108.67609	106.3379624	104.0622839	101.8469874	99.69008645	97.58967441	95.54392076	93.55106731	91.60942475
230516A00035	5/16/2023	4.11	5/15/2026	5/16/2023	108.67609	106.3379624	104.0622839	101.8469874	99.69008645	97.58967441	95.54392076	93.55106731	91.60942475
230516A00067	5/16/2023	4.44	5/16/2025	5/16/2023	104.69563	103.3943692	102.1199999	100.871687	99.64863507	98.45008105	97.2752929	96.12356789	94.99423119

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230516A00069	5/16/2023	4.1	5/15/2026	5/16/2023	108.65308	106.3152215	104.0398064	101.8247677	99.6681192	97.5679545	95.52244316	93.52982714	91.58841728
230516A00123	5/16/2023	5.01	5/16/2024	5/16/2023	101.04714	100.7536999	100.4619738	100.1719515	99.88361781	99.59695803	99.31195747	99.02860165	98.74687626
230517A00014	5/17/2023	4.14	5/18/2026	5/17/2023	108.78109	106.4335579	104.1489174	101.9250896	99.76008023	97.65197411	95.59893183	93.599186	91.6510379
230517A00020	5/17/2023	4.47	7/17/2025	5/17/2023	105.53736	104.0628885	102.6165799	101.1976949	99.80552049	98.43936775	97.09857107	95.7824871	94.49049382
230517A00046	5/17/2023	4.53	5/16/2025	5/17/2023	104.81251	103.5104579	102.2353049	100.9862216	99.76241217	98.56311318	97.38759225	96.23514634	95.10510028
230517A00048	5/17/2023	4.17	5/15/2026	5/17/2023	108.81415	106.4744075	104.1971493	101.9803059	99.82188991	97.7199939	95.6727864	93.67850832	91.73546958
230518A00017	5/18/2023	4.28	5/18/2026	5/18/2023	109.10438	106.7530611	104.4647085	102.2372462	100.0686775	97.95708499	95.90062724	93.89753482	91.94610703
230518A00019	5/18/2023	3.81	5/18/2028	5/18/2023	116.82934	112.2849547	107.9464899	103.8034956	99.84610703	96.06501127	92.45141293	88.99700265	85.69392751
230519A00011	5/19/2023	4.73	5/19/2025	5/19/2023	105.11486	103.8030006	102.5174064	101.2572988	100.0219287	98.81057703	97.62255249	96.45719067	95.31385251
230519A00013	5/19/2023	4.39	5/19/2026	5/19/2023	109.37108	107.013896	104.7198866	102.4869671	100.3131366	98.19647331	96.1351312	94.1273363	92.17138335
230519A00025	5/19/2023	4.95	11/19/2024	5/19/2023	103.11036	102.3000148	101.5024589	100.7173886	99.94451166	99.18354516	98.43421471	97.69625435	96.96940618
230519A00026	5/19/2023	4.73	5/19/2025	5/19/2023	105.11486	103.8030006	102.5174064	101.2572988	100.0219287	98.81057703	97.62255249	96.45719067	95.31385251
230519A00027	5/19/2023	4.39	5/19/2026	5/19/2023	109.37108	107.013896	104.7198866	102.4869671	100.3131366	98.19647331	96.1351312	94.1273363	92.17138335
230519A00028	5/19/2023	4.73	5/19/2025	5/19/2023	105.11486	103.8030006	102.5174064	101.2572988	100.0219287	98.81057703	97.62255249	96.45719067	95.31385251
230519A00029	5/19/2023	4.39	5/19/2026	5/19/2023	109.37108	107.013896	104.7198866	102.4869671	100.3131366	98.19647331	96.1351312	94.1273363	92.17138335
230519A00038	5/19/2023	3.92	5/19/2028	5/19/2023	117.31843	112.7607117	108.4095144	104.254353	100.2853352	96.49312197	92.86889289	89.40431478	86.09151196
230519A00041	5/19/2023	3.92	5/19/2028	5/19/2023	117.31843	112.7607117	108.4095144	104.254353	100.2853352	96.49312197	92.86889289	89.40431478	86.09151196
230522A00014	5/23/2023	5.14	5/22/2024	5/23/2023	101.14996	100.8398541	100.531658	100.2253573	99.92093444	99.61837219	99.31765341	99.01876121	98.72167889
230522A00026	5/22/2023	4.35	5/22/2026	5/22/2023	109.3163	106.951566	104.6504036	102.4107263	100.2305259	98.10787311	96.04091395	94.02786606	92.06701556
230522A00029	5/22/2023	4.67	5/22/2025	5/22/2023	105.07855	103.7591966	102.4654332	101.1965356	99.95180367	98.73056359	97.53216685	96.35598894	95.20142825
230522A00043	5/22/2023	4.17	5/16/2028	5/22/2023	117.75828	113.2169855	108.8805407	104.7385794	100.781315	96.99950705	93.38442825	89.92783268	86.62192669
230522A00046	5/22/2023	4.17	5/22/2028	5/22/2023	117.82882	113.269197	108.9159342	104.75858	100.7872647	96.99266828	93.36598718	89.89890254	86.58355104
230522A00058	5/22/2023	4.7	5/19/2025	5/22/2023	105.07565	103.7640602	102.4787306	101.2188829	99.98376842	98.77266811	97.58489084	96.41977228	95.27667349
230522A00093	5/22/2023	4.17	5/22/2028	5/22/2023	117.82882	113.269197	108.9159342	104.75858	100.7872647	96.99266828	93.36598718	89.89890254	86.58355104
230523A00008	5/23/2023	4.44	5/26/2026	5/23/2023	109.5764	107.1976457	104.8830916	102.6306321	100.4382471	98.3039947	96.22600786	94.20249079	92.23171591
230523A00011	5/23/2023	5.46	2/26/2024	5/23/2023	100.28687	100.21463	100.1425023	100.0704833	99.99857275	99.92677035	99.85507589	99.78348914	99.71200985
230523A00014	5/23/2023	5.3	5/22/2024	5/23/2023	101.1996	100.8893928	100.5811011	100.2747051	99.97018753	99.66753093	99.36671822	99.06773251	98.77055712
230523A00027	5/23/2023	5.3	5/23/2024	5/23/2023	101.21081	100.8978372	100.5868092	100.2777096	99.9705202	99.66522342	99.3618017	99.06023771	98.76051438
230523A00030	5/23/2023	5.3	5/23/2024	5/23/2023	101.21081	100.8978372	100.5868092	100.2777096	99.9705202	99.66522342	99.3618017	99.06023771	98.76051438
230523A00031	5/23/2023	4.76	11/22/2024	5/23/2023	103.13092	102.310432	101.5030415	100.7084403	99.92632571	99.15640448	98.39839257	97.65201468	96.91700395
230523A00045	5/23/2023	5	11/22/2024	5/23/2023	103.18876	102.3698704	101.5640298	100.7709264	99.9902594	99.2217374	98.46507804	97.72000767	96.986261
230523A00047	5/23/2023	4.77	5/23/2025	5/23/2023	105.22439	103.9014408	102.6038809	101.3309983	100.0821087	98.85655313	97.6536968	96.47292822	95.31365791
230523A00048	5/23/2023	4.44	5/26/2026	5/23/2023	109.5764	107.1976457	104.8830916	102.6306321	100.4382471	98.3039947	96.22600786	94.20249079	92.23171591

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230523A00083	5/23/2023	4.21	5/23/2028	5/23/2023	118.01432	113.4478945	109.088214	104.9247991	100.9477614	97.14776283	93.51598261	90.04408543	86.72419229
230523A00085	5/23/2023	4.39	5/23/2029	5/23/2023	123.10496	117.3710929	111.947376	106.8153259	101.9576582	97.35820234	93.00182369	88.87435217	84.9625158
230523A00086	5/23/2023	4.42	5/23/2030	5/23/2023	126.99392	120.0981464	113.6353028	107.575756	101.8920538	96.55875348	91.55226429	86.85070387	82.4337659
230523A00088	5/23/2023	4.59	5/23/2033	5/23/2023	139.53229	128.9946515	119.3806068	110.6031468	102.5839246	95.252348	88.54477369	82.40378983	76.77757551
230523A00089	5/23/2023	4.65	5/23/2034	5/23/2023	143.4969	131.7158114	121.0608984	111.4166973	102.6802084	94.75949028	87.57241901	81.04559156	75.11335714
230523A00090	5/23/2023	4.71	5/23/2035	5/23/2023	146.88027	133.877573	122.2196392	111.7575284	102.3596275	93.90954587	86.30428026	79.45260889	73.27368563
230523A00091	5/23/2023	4.77	5/23/2036	5/23/2023	149.95259	135.7453571	123.1167276	111.8790607	101.8680912	92.9398995	84.96829071	77.84252355	71.46534046
230524A00006	5/24/2023	5.47	2/26/2024	5/24/2023	100.28759	100.215353	100.1432247	100.0712051	99.99929385	99.92749083	99.85579576	99.78420839	99.71272849
230524A00009	5/24/2023	3.9	5/24/2028	5/24/2023	117.28865	112.7175009	108.3540781	104.1878267	100.2087872	96.40755584	92.77525012	89.30347759	85.98430597
230524A00020	5/24/2023	4.44	5/23/2025	5/24/2023	105.00241	103.6776578	102.378386	101.1038755	99.85343831	98.62641233	97.4221598	96.2400663	95.07953963
230524A00021	5/24/2023	4.44	5/23/2025	5/24/2023	105.00241	103.6776578	102.378386	101.1038755	99.85343831	98.62641233	97.4221598	96.2400663	95.07953963
230524A00028	5/24/2023	4.36	5/26/2026	5/24/2023	109.38989	107.0133493	104.7009561	102.4506122	100.2602987	98.12807513	96.05207559	94.0305055	92.06163843
230524A00036	5/24/2023	5.34	5/24/2024	5/24/2023	101.23465	100.918885	100.6050958	100.2932675	99.9833818	99.67542052	99.36936569	99.0651996	98.76290473
230524A00037	5/24/2023	4.69	5/23/2025	5/24/2023	105.11895	103.796732	102.4998889	101.2277111	99.97951438	98.75464022	97.5524542	96.37234507	95.21372367
230524A00038	5/24/2023	4.36	5/26/2026	5/24/2023	109.38989	107.0133493	104.7009561	102.4506122	100.2602987	98.12807513	96.05207559	94.0305055	92.06163843
230525A00007	5/25/2023	5.53	2/26/2024	5/25/2023	100.29193	100.2196907	100.1475587	100.0755353	100.0036204	99.93181372	99.86011496	99.78852391	99.71704034
230525A00014	5/25/2023	5.22	8/23/2024	5/25/2023	102.21517	101.6483583	101.0878546	100.5335525	99.98534932	99.44314451	98.90683984	98.37633918	97.8515485
230525A00024	5/25/2023	5.06	11/25/2024	5/25/2023	103.27624	102.4487563	101.6345832	100.8334008	100.0448996	99.26877968	98.50475058	97.75253088	97.01184784
230525A00094	5/25/2023	4.31	5/25/2028	5/25/2023	118.47294	113.8910294	109.5166742	105.3393603	101.3491588	97.53669343	93.89310651	90.41002762	87.07954424
230526A00009	5/26/2023	5.33	8/23/2024	5/26/2023	102.27752	101.710507	101.1498043	100.5953047	100.0469056	99.50450636	98.9680088	98.43731676	97.91233616
230526A00013	5/26/2023	4.39	5/26/2026	5/26/2023	109.77479	107.3873275	105.0644033	102.8039002	100.603784	98.46209976	96.37696773	94.34658025	92.36919838
230526A00016	5/26/2023	4.46	5/26/2027	5/26/2023	114.38251	110.9127666	107.5688018	104.3453782	101.2375045	98.24042358	95.34960026	92.56070945	89.86962538
230526A00026	5/26/2023	4.49	5/26/2027	5/26/2023	114.48267	111.0112574	107.6656651	104.4406576	101.3312422	98.33266033	95.44037536	92.65006087	89.95758982
230526A00027	5/26/2023	4.49	5/26/2027	5/26/2023	114.48267	111.0112574	107.6656651	104.4406576	101.3312422	98.33266033	95.44037536	92.65006087	89.95758982
230526A00028	5/26/2023	4.38	5/26/2028	5/26/2023	118.78971	114.1981518	109.8146284	105.6285949	101.6300998	97.80974523	94.15865273	90.66843215	87.33115215
230526A00029	5/26/2023	4.53	5/25/2029	5/26/2023	123.87668	118.1168109	112.6684869	107.5131439	102.6334195	98.01306909	93.63688878	89.49064311	85.56099862
230526A00031	5/26/2023	4.54	5/24/2030	5/26/2023	127.76711	120.8444438	114.3561574	108.2725224	102.566001	97.21107056	92.1840659	87.46303515	83.02760719
230526A00033	5/26/2023	4.63	5/27/2031	5/26/2023	132.2055	124.0701209	116.5145052	109.4938995	102.967235	96.8968058	91.24797753	85.98892201	81.09037651
230526A00034	5/26/2023	4.66	5/26/2032	5/26/2023	136.38868	127.0364657	118.4279177	110.4992638	103.1925303	96.45498951	90.23865899	84.49985201	79.19877213
230530A00018	5/30/2023	5.13	11/25/2024	5/30/2023	103.33404	102.5062964	101.6918661	100.8904294	100.1016767	99.32530804	98.56103298	97.80857	97.06764633
230530A00027	5/30/2023	4.22	5/30/2028	5/30/2023	118.14102	113.5522098	109.1719469	104.9896519	100.9953371	97.1795695	93.53343714	90.04851761	86.71684878
230530A00041	5/30/2023	4.93	5/27/2025	5/30/2023	105.49428	104.1591083	102.8484688	101.5617184	100.2982373	99.05742705	97.83870974	96.64152703	95.4653393
230530A00048	5/30/2023	4.45	5/29/2026	5/30/2023	109.63824	107.2505453	104.9274772	102.6669304	100.4668767	98.32536534	96.24052036	94.2105366	92.23367687

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230530A00058	5/30/2023	5.5	5/30/2024	5/30/2023	101.35574	101.0232341	100.6929054	100.364737	100.0387077	99.71479664	99.39298333	99.0732474	98.7555688
230530A00118	5/30/2023	4.4	5/28/2027	5/30/2023	114.2076	110.7352134	107.3889163	104.1634538	101.0538221	98.0552518	95.16319552	92.3733161	89.68147589
230530A00161	5/30/2023	5.08	11/29/2024	5/30/2023	103.35256	102.5136687	101.6884451	100.876554	100.0776736	99.29149275	98.51770987	97.75603303	97.00617934
230530A00166	5/30/2023	4.81	5/30/2025	5/30/2023	105.37808	104.0359514	102.7176775	101.4226662	100.1503476	98.90017014	97.67159992	96.46411985	95.27722908
230530A00171	5/30/2023	4.43	5/29/2026	5/30/2023	109.59145	107.2043097	104.8817856	102.6217714	100.4222391	98.28123842	96.19689364	94.1673999	92.19102031
230530A00184	5/30/2023	5.5	5/30/2024	5/30/2023	101.35574	101.0232341	100.6929054	100.364737	100.0387077	99.71479664	99.39298333	99.0732474	98.7555688
230531A00006	5/31/2023	5.05	11/25/2024	5/31/2023	103.26798	102.4405363	101.6263999	100.8252539	100.0367886	99.2607042	98.49671024	97.74452529	97.00387663
230531A00036	5/31/2023	4.79	5/30/2025	5/31/2023	105.35133	104.0093945	102.6913051	101.3964751	100.1243348	98.87433267	97.64593494	96.4386246	95.25190085
230531A00037	5/31/2023	4.41	5/29/2026	5/31/2023	109.54466	107.158074	104.836094	102.5766123	100.3776015	98.2371115	96.15326692	94.12426321	92.14836376
230531A00038	5/31/2023	4.01	5/28/2027	5/31/2023	113.36385	109.8942512	106.5510233	103.3288923	100.222832	97.22805242	94.3399867	91.55427972	88.86677708
230531A00042	5/31/2023	4.01	5/28/2027	5/31/2023	113.36385	109.8942512	106.5510233	103.3288923	100.222832	97.22805242	94.3399867	91.55427972	88.86677708
230531A00060	5/31/2023	4.44	2/27/2026	5/31/2023	108.43711	106.3138464	104.2432863	102.2237704	100.253702	98.33154614	96.45582709	94.62512545	92.83807554
230531A00061	5/31/2023	4.42	4/1/2026	5/31/2023	108.81834	106.6007411	104.4398181	102.3337211	100.2806741	98.27897267	96.32698145	94.42313	92.56590993
230531A00062	5/31/2023	4.39	4/30/2026	5/31/2023	109.13022	106.827681	104.5856633	102.4021233	100.2751062	98.20273977	96.18323005	94.21485713	92.29597155
230531A00063	5/31/2023	4.37	5/29/2026	5/31/2023	109.45108	107.0656028	104.7447107	102.4862942	100.2883263	98.14885765	96.06601347	94.03798981	92.06305065
230531A00088	5/31/2023	4.79	5/30/2025	5/31/2023	105.35133	104.0093945	102.6913051	101.3964751	100.1243348	98.87433267	97.64593494	96.4386246	95.25190085
230531A00090	5/31/2023	4.41	6/1/2026	5/31/2023	109.58317	107.1878386	104.8575526	102.5901886	100.3837068	98.23614509	96.14561586	94.11030258	92.12845678
230531A00091	5/31/2023	4.26	6/1/2027	5/31/2023	113.78897	110.3124277	106.9625545	103.7340754	100.6219589	97.6214084	94.72784999	91.93692095	89.24445885
230531A00099	5/31/2023	4.41	5/29/2026	5/31/2023	109.54466	107.158074	104.836094	102.5766123	100.3776015	98.2371115	96.15326692	94.12426321	92.14836376
230601A00006	6/1/2023	4.77	6/2/2025	6/1/2023	105.36635	104.0161835	102.6898305	101.3867119	100.1062683	98.84795791	97.61125567	96.39565279	95.20065607
230601A00007	6/1/2023	5.04	12/2/2024	6/1/2023	103.35829	102.5111765	101.6779997	100.8584154	100.0520924	99.25871039	98.47795915	97.70953837	96.95315717
230601A00012	6/1/2023	4.72	6/2/2025	6/1/2023	105.29908	103.9493847	102.6234981	101.3208381	100.0408455	98.78297871	97.54671284	96.33153931	95.13696509
230601A00018	6/1/2023	4.1	6/1/2026	6/1/2023	109.17157	106.774731	104.4431243	102.1746203	99.96716964	97.8188011	95.72761841	93.69179688	91.70958028
230601A00022	6/1/2023	5.04	12/2/2024	6/1/2023	103.35829	102.5111765	101.6779997	100.8584154	100.0520924	99.25871039	98.47795915	97.70953837	96.95315717
230601A00025	6/1/2023	4.12	6/1/2028	6/1/2023	117.72817	113.1426056	108.7657892	104.5871217	100.596596	96.78476055	93.14268635	89.66193508	86.33452975
230601A00040	6/1/2023	4.35	6/1/2026	6/1/2023	109.4423	107.0486471	104.7200044	102.4542491	100.2493423	98.10332299	96.01430443	93.98047104	92.0000752
230602A00012	6/2/2023	4.39	6/2/2026	6/2/2023	109.54919	107.151461	104.8189106	102.5494132	100.3409223	98.1914697	96.09916207	94.06217731	92.0787617
230602A00020	6/2/2023	3.94	6/2/2028	6/2/2023	117.56721	112.9645408	108.5720333	104.3789888	100.3753075	96.55145239	92.89841461	89.4076817	86.07120775
230602A00027	6/2/2023	4.2	6/2/2026	6/2/2023	109.41958	107.0169607	104.6797857	102.4059146	100.1932894	98.0399308	95.94393469	93.90346902	91.91677053
230602A00030	6/2/2023	4.2	6/2/2026	6/2/2023	109.41958	107.0169607	104.6797857	102.4059146	100.1932894	98.0399308	95.94393469	93.90346902	91.91677053
230605A00022	6/5/2023	4.39	6/4/2027	6/5/2023	114.26413	110.7710553	107.4054776	104.1620687	101.035755	98.02170011	95.11529262	92.31213461	89.60803047
230606A00008	6/6/2023	3.98	6/6/2028	6/6/2023	117.78996	113.1708835	108.7631626	104.5560098	100.5392472	96.70326506	93.03898733	89.53783903	86.19171626
230606A00014	6/6/2023	4.35	6/7/2027	6/6/2023	114.1682	110.6681967	107.296244	104.0469846	100.9153113	97.89635618	94.98547842	92.17825247	89.47045689

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230606A00015	6/6/2023	4.24	6/6/2028	6/6/2023	118.31308	113.7004573	109.298284	105.0958446	101.083026	97.25027845	93.58858153	90.08941186	86.74471334
230606A00029	6/6/2023	4.45	6/5/2026	6/6/2023	109.72967	107.3213551	104.9787074	102.699576	100.4818928	98.32366931	96.22299253	94.17802198	92.18698642
230607A00001	6/7/2023	4.9	6/6/2025	6/7/2023	105.59758	104.2347026	102.8960334	101.5809824	100.2889769	99.01946213	97.77190089	96.5457726	95.34057279
230607A00007	6/7/2023	4.24	6/7/2028	6/7/2023	118.32522	113.7094549	109.3044015	105.0993268	101.0840997	97.24915345	93.58545208	90.0844577	86.73810084
230607A00012	6/7/2023	4.24	6/7/2028	6/7/2023	118.32522	113.7094549	109.3044015	105.0993268	101.0840997	97.24915345	93.58545208	90.0844577	86.73810084
230608A00003	6/8/2023	4.23	6/8/2028	6/8/2023	118.29349	113.6755282	109.2685156	105.0616962	101.0449218	97.20861025	93.54371088	90.04167248	86.6944132
230608A00015	6/8/2023	4.81	6/9/2025	6/8/2023	105.517	104.1463823	102.8002425	101.4779807	100.1790146	98.90278086	97.64873358	96.41634405	95.20509995
230608A00049	6/8/2023	4.47	6/8/2026	6/8/2023	109.81646	107.3986666	105.047008	102.7593075	100.533476	98.36750501	96.25946267	94.20749055	92.20980034
230609A00016	6/9/2023	4.91	6/9/2025	6/9/2023	105.65347	104.2818783	102.9347802	101.6115762	100.3116837	99.03453868	97.77959502	96.54632357	95.33421164
230609A00026	6/9/2023	4.11	6/9/2027	6/9/2023	113.84959	110.3377294	106.9548684	103.6955851	100.5547172	97.52734547	94.60878096	91.7945529	89.08039743
230609A00027	6/9/2023	3.99	6/9/2028	6/9/2023	117.86954	113.240052	108.8227476	104.6067813	100.5819188	96.73849823	93.06739494	89.55998918	86.20813548
230609A00034	6/9/2023	3.99	6/9/2028	6/9/2023	117.86954	113.240052	108.8227476	104.6067813	100.5819188	96.73849823	93.06739494	89.55998918	86.20813548
230609A00036	6/9/2023	4.91	6/6/2025	6/9/2023	105.61115	104.2481708	102.9094069	101.5942628	100.3021657	99.03256084	97.78491097	96.55869549	95.35340989
230609A00038	6/9/2023	4.91	6/10/2025	6/9/2023	105.66758	104.293113	102.9432359	101.6173445	100.3148531	99.03519453	97.77781971	96.54219662	95.32780983
230609A00039	6/9/2023	4.73	12/10/2025	6/9/2023	107.92876	106.0331013	104.1804215	102.3694945	100.5991358	98.86820214	97.17558976	95.52023267	93.9011012
230609A00040	6/9/2023	4.38	5/12/2027	6/9/2023	113.93831	110.5148226	107.2142389	104.0314328	100.9615233	97.99986242	95.14202195	92.38378198	89.72111962
230609A00041	6/9/2023	4.53	7/13/2026	6/9/2023	110.42139	107.8988518	105.4478584	103.0659714	100.7508486	98.5002416	96.31199155	94.18402475	92.11434888
230609A00042	6/9/2023	4.46	11/25/2026	6/9/2023	112.01017	109.0907671	106.2637477	103.5256782	100.8732732	98.3033874	95.81300916	93.39925385	91.05935778
230609A00043	6/9/2023	4.32	9/29/2027	6/9/2023	115.51438	111.6696926	107.9765051	104.427969	101.0175899	97.73920443	94.5869616	91.55530467	88.63895459
230609A00076	7/10/2023	4.19	7/10/2028	7/10/2023	118.49719	113.7835005	109.2891368	105.0027088	100.9134799	97.01132399	93.28668733	89.73055332	86.33440952
230612A00023	6/12/2023	4.32	6/12/2026	6/12/2023	109.83399	107.3981786	105.029395	102.7254275	100.4841463	98.30350435	96.18153318	94.11633965	92.10610251
230612A00024	6/12/2023	4.69	6/12/2025	6/12/2023	105.6164	104.2332167	102.8749169	101.5408883	100.230535	98.9432804	97.67856605	96.43585129	95.2146123
230612A00058	6/12/2023	5.16	12/12/2024	6/12/2023	103.59508	102.7195324	101.8588589	101.0126787	100.1806271	99.36235156	98.5575112	97.76577633	96.986828
230613A00010	6/13/2023	4.9	6/13/2025	6/13/2023	105.69615	104.3131561	102.9550358	101.6211758	100.3109804	99.02387334	97.75929637	96.51670896	95.29558749
230613A00019	6/13/2023	4.49	6/15/2026	6/13/2023	109.95661	107.5174338	105.1454579	102.8384614	100.5943061	98.410937	96.28637806	94.21872901	92.20616183
230613A00021	6/13/2023	4.35	6/14/2027	6/13/2023	114.25833	110.7368404	107.3448603	104.0769419	100.9278939	97.89276985	94.96685514	92.1456551	89.42488341
230613A00034	6/13/2023	4.56	6/12/2026	6/13/2023	110.08331	107.6510455	105.2855763	102.9846946	100.7462819	98.56830202	96.44879657	94.38588204	92.37774631
230613A00055	6/13/2023	5.14	2/13/2025	6/13/2023	104.40694	103.3550389	102.324451	101.3145324	100.3246644	99.35425279	98.40272671	97.46953747	96.55415748
230613A00061	6/13/2023	4.56	6/15/2026	6/13/2023	110.12366	107.6824625	105.3085083	102.9995755	100.7535248	98.56830001	96.44192389	94.37249508	92.35818449
230613A00062	6/13/2023	4.97	6/13/2025	6/13/2023	105.79245	104.4087624	103.049961	101.7154312	100.4045773	99.11682256	97.85160848	96.60839425	95.38665598
230613A00080	6/13/2023	5.22	12/13/2024	6/13/2023	103.66113	102.7825386	101.9189128	101.0698736	100.2350529	99.41409466	98.60665501	97.8124012	97.03101135
230613A00091	6/13/2023	4.58	6/15/2026	6/13/2023	110.17139	107.7296136	105.3550941	103.0456081	100.7990159	98.61326087	96.48636556	94.41642825	92.40161953
230614A00001	6/14/2023	4.55	6/12/2026	6/14/2023	110.05952	107.6275508	105.2623623	102.9617553	100.7236116	98.54589508	96.42664752	94.3639856	92.35609733

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230614A00029	6/14/2023	4.55	6/15/2026	6/14/2023	110.0998	107.658887	105.2852154	102.9765592	100.7307793	98.54581958	96.41970306	94.3505285	92.33646696
230614A00031	6/14/2023	4.94	6/16/2025	6/14/2023	105.79376	104.4017287	103.0348706	101.6925569	100.374182	99.07915984	97.80692297	96.55692204	95.32862491
230614A00047	6/14/2023	4.94	6/16/2025	6/14/2023	105.79376	104.4017287	103.0348706	101.6925569	100.374182	99.07915984	97.80692297	96.55692204	95.32862491
230614A00048	6/14/2023	4.55	6/15/2026	6/14/2023	110.0998	107.658887	105.2852154	102.9765592	100.7307793	98.54581958	96.41970306	94.3505285	92.33646696
230615A00023	6/15/2023	4.58	6/15/2026	6/15/2023	110.17139	107.7296136	105.3550941	103.0456081	100.7990159	98.61326087	96.48636556	94.41642825	92.40161953
230615A00033	6/15/2023	4.58	6/15/2026	6/15/2023	110.17139	107.7296136	105.3550941	103.0456081	100.7990159	98.61326087	96.48636556	94.41642825	92.40161953
230615A00103	6/15/2023	4.99	6/16/2025	6/15/2023	105.86295	104.4704256	103.1030753	101.7602777	100.441427	99.14593683	97.87323965	96.62278585	95.3940431
230615A00105	6/15/2023	5.55	6/10/2024	6/15/2023	101.50634	101.1434047	100.783077	100.4253298	100.0701353	99.71746597	99.36729497	99.01959566	98.67434183
230616A00012	6/16/2023	4.41	6/16/2026	6/16/2023	110.10213	107.6517573	105.2690814	102.9518575	100.6979262	98.50521205	96.37171986	94.29553101	92.2748001
230616A00037	6/16/2023	4.48	6/16/2027	6/16/2023	114.72567	111.19054	107.7855414	104.5051955	101.3442795	98.29781783	95.36106824	92.52951001	89.79883234
230616A00038	6/16/2023	4.32	6/16/2028	6/16/2023	118.78729	114.1354994	109.6970649	105.4610691	101.4172053	97.55574457	93.86750013	90.34379435	86.97642802
230616A00039	6/16/2023	5.07	6/16/2025	6/16/2023	105.97367	104.5803405	103.2122027	101.8686309	100.5490189	99.25278002	97.97934634	96.72816794	95.49871221
230616A00040	6/16/2023	4.66	6/16/2026	6/16/2023	110.37604	107.9289585	105.5493424	103.234953	100.9836423	98.79334563	96.66207785	94.58793	92.56906577
230616A00106	6/16/2023	4.61	6/16/2026	6/16/2023	110.25658	107.8109463	105.4327464	103.1197432	100.8697894	98.68082107	96.55085411	94.47798027	92.46036402
230620A00007	6/20/2023	5.21	12/20/2024	6/20/2023	103.7481	102.8499194	101.9673681	101.1000401	100.247543	99.40949786	98.58553865	97.77531155	96.97847455
230620A00015	6/20/2023	5.46	6/20/2024	6/20/2023	101.59321	101.2026795	100.8151675	100.4306369	100.0490532	99.6703825	99.29459142	98.9216471	98.55151714
230620A00035	6/20/2023	4.36	6/20/2030	6/20/2023	126.88165	119.9086779	113.3784757	107.2604274	101.526192	96.14952022	91.1060904	86.37335734	81.93041405
230620A00042	6/20/2023	5.15	12/20/2024	6/20/2023	103.69443	102.7965052	101.9142104	101.0471357	100.1948889	99.35709113	98.53337632	97.72339075	96.92679247
230620A00065	6/20/2023	4.56	6/18/2026	6/20/2023	110.16402	107.7138757	105.3314322	103.0144455	100.7607553	98.56828527	96.43503933	94.35909809	92.33861541
230620A00089	6/20/2023	4.98	6/20/2025	6/20/2023	105.90633	104.5023664	103.1239696	101.7704964	100.4413275	99.13586404	97.85352618	96.59375269	95.35600009
230620A00091	6/20/2023	4.56	6/22/2026	6/20/2023	110.21784	107.755754	105.3619847	103.0342551	100.7703766	98.56824583	96.42584143	94.34121985	92.31251206
230621A00016	6/21/2023	4.55	6/22/2026	6/21/2023	110.19378	107.73199	105.3385079	103.0110593	100.7474557	98.54559415	96.40345334	94.31908989	92.29063493
230621A00022	6/21/2023	4.24	6/21/2028	6/21/2023	118.49522	113.8353711	109.3899555	105.1479649	101.0990106	97.23328809	93.54154077	90.01502668	86.64548723
230621A00041	6/21/2023	4.24	6/21/2028	6/21/2023	118.49522	113.8353711	109.3899555	105.1479649	101.0990106	97.23328809	93.54154077	90.01502668	86.64548723
230621A00045	6/21/2023	4.95	6/23/2025	6/21/2023	105.90714	104.4948338	103.108376	101.7471177	100.4104297	99.09770348	97.80835019	96.54179982	95.29750054
230622A00004	6/22/2023	4.23	6/22/2027	6/22/2023	114.42431	110.8654025	107.4384166	104.1377596	100.9581043	97.89437725	94.94174446	92.09559927	89.35155026
230622A00005	6/22/2023	4.05	6/22/2028	6/22/2023	118.29034	113.6139564	109.1534363	104.8976645	100.8361576	96.95902294	93.25692235	89.72103796	86.34304073
230622A00027	6/22/2023	4.49	6/22/2026	6/22/2023	110.04944	107.5894064	105.1976469	102.871884	100.6099304	98.40968407	96.26912479	94.18631013	92.15937217
230622A00028	6/22/2023	4.35	6/22/2027	6/22/2023	114.36135	110.815266	107.4003714	104.1111122	100.9422001	97.88859764	94.94550524	92.10834832	89.37276575
230622A00030	6/22/2023	4.17	6/22/2028	6/22/2023	118.19751	113.5412963	109.0995547	104.8612661	100.8160325	96.95404088	93.26602704	89.74324222	86.37742176
230622A00039	6/26/2023	4.49	6/26/2026	6/26/2023	110.10249	107.6305245	105.2274497	102.8909564	100.6188289	98.408938	96.25923789	94.16776189	92.13261902
230622A00045	6/22/2023	4.91	6/23/2025	6/22/2023	105.85101	104.4391174	103.0530642	101.6922034	100.3559064	99.04356472	97.75458962	96.48841132	95.24447812
230622A00047	6/22/2023	4.49	6/22/2026	6/22/2023	110.04944	107.5894064	105.1976469	102.871884	100.6099304	98.40968407	96.26912479	94.18631013	92.15937217

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230622A00049	6/22/2023	4.71	12/17/2025	6/22/2023	107.98476	106.0695983	104.1982466	102.3694443	100.5819738	98.83465986	97.12636832	95.45600428	93.82251043
230622A00056	6/26/2023	4.49	6/26/2026	6/26/2023	110.10249	107.6305245	105.2274497	102.8909564	100.6188289	98.408938	96.25923789	94.16776189	92.13261902
230622A00083	6/22/2023	4.55	6/22/2026	6/22/2023	110.19378	107.73199	105.3385079	103.0110593	100.7474557	98.54559415	96.40345334	94.31908989	92.29063493
230622A00093	6/22/2023	4.55	6/22/2026	6/22/2023	110.19378	107.73199	105.3385079	103.0110593	100.7474557	98.54559415	96.40345334	94.31908989	92.29063493
230622A00095	6/22/2023	4.38	6/22/2027	6/22/2023	114.46375	110.9159218	107.4993282	104.2084165	101.0378966	97.9827296	95.03811428	92.19947467	89.46244826
230622A00096	6/22/2023	4.21	6/22/2028	6/22/2023	118.37457	113.7144764	109.2689864	105.0270746	100.978338	97.11295845	93.42166713	89.89571074	86.52682032
230623A00002	6/23/2023	4.45	6/23/2026	6/23/2023	109.96636	107.5045232	105.1110865	102.7837678	100.5203733	98.31879513	96.17700714	94.09306158	92.06508542
230623A00003	6/23/2023	4.29	6/23/2027	6/23/2023	114.16926	110.6235956	107.2092379	103.9206201	100.7524449	97.69966669	94.75747809	91.9212974	89.18675683
230623A00004	6/23/2023	4.13	6/23/2028	6/23/2023	118.03229	113.3768144	108.9359477	104.6986555	100.6545267	96.79373586	93.10700789	89.58558377	86.22118955
230623A00025	6/23/2023	4.45	6/23/2026	6/23/2023	109.96636	107.5045232	105.1110865	102.7837678	100.5203733	98.31879513	96.17700714	94.09306158	92.06508542
230623A00026	6/23/2023	4.29	6/23/2027	6/23/2023	114.16926	110.6235956	107.2092379	103.9206201	100.7524449	97.69966669	94.75747809	91.9212974	89.18675683
230623A00027	6/23/2023	4.13	6/23/2028	6/23/2023	118.03229	113.3768144	108.9359477	104.6986555	100.6545267	96.79373586	93.10700789	89.58558377	86.22118955
230623A00036	6/23/2023	4.45	6/23/2026	6/23/2023	109.96636	107.5045232	105.1110865	102.7837678	100.5203733	98.31879513	96.17700714	94.09306158	92.06508542
230623A00037	6/23/2023	4.13	6/23/2028	6/23/2023	118.03229	113.3768144	108.9359477	104.6986555	100.6545267	96.79373586	93.10700789	89.58558377	86.22118955
230623A00040	6/23/2023	5.48	6/24/2024	6/23/2023	101.64902	101.247387	100.8489418	100.4536429	100.0614529	99.67233517	99.2862537	98.90317294	98.52305793
230623A00051	6/23/2023	4.18	6/23/2028	6/23/2023	118.25375	113.5934222	109.1478641	104.9060375	100.8575247	96.99249413	93.30166462	89.77627156	86.40803561
230623A00053	6/23/2023	4.4	6/23/2026	6/23/2023	110.17211	107.7010576	105.2987766	102.9629663	100.6914175	98.48200777	96.33269732	94.24152522	92.20660596
230623A00056	6/23/2023	4.18	6/23/2028	6/23/2023	118.25375	113.5934222	109.1478641	104.9060375	100.8575247	96.99249413	93.30166462	89.77627156	86.40803561
230623A00057	6/23/2023	4.52	6/23/2026	6/23/2023	110.13496	107.6710591	105.2756082	102.9463184	100.6809948	98.47752796	96.33389084	94.24813445	92.21838465
230623A00058	6/23/2023	4.38	6/23/2027	6/23/2023	114.47671	110.9258033	107.5063408	104.2127577	101.0397517	97.98227256	95.03550828	92.19487286	89.45599438
230626A00019	6/26/2023	4.91	6/20/2025	6/26/2023	105.80868	104.405432	103.0277349	101.6749495	100.3464571	99.04165881	97.75997528	96.50084552	95.26372632
230626A00020	6/26/2023	4.49	6/26/2026	6/26/2023	110.10249	107.6305245	105.2274497	102.8909564	100.6188289	98.408938	96.25923789	94.16776189	92.13261902
230626A00021	6/26/2023	4.49	6/26/2026	6/26/2023	110.10249	107.6305245	105.2274497	102.8909564	100.6188289	98.408938	96.25923789	94.16776189	92.13261902
230626A00022	6/26/2023	4.34	6/25/2027	6/26/2023	114.36577	110.8110369	107.3881111	104.0913981	100.9155733	97.85556557	94.90654352	92.06390296	89.32325493
230626A00023	6/26/2023	4.18	6/26/2028	6/26/2023	118.28969	113.6199121	109.1657135	104.9159891	100.8602654	96.98865935	93.29184191	89.76100434	86.38782636
230626A00026	6/26/2023	4.84	6/26/2025	6/26/2023	105.79455	104.3747257	102.9810274	101.612792	100.2693805	98.95017524	97.65457849	96.3820118	95.13191521
230627A00004	6/27/2023	4.47	6/29/2026	6/27/2023	110.09378	107.6134541	105.2024712	102.8584977	100.5792966	98.36271883	96.20669945	94.10925381	92.06847391
230627A00005	6/27/2023	4.3	6/28/2027	6/27/2023	114.26712	110.7055073	107.276267	103.973771	100.7926601	97.72783098	94.77442182	91.92780014	89.18355049
230627A00006	6/27/2023	4.12	6/27/2028	6/27/2023	118.03525	113.3681757	108.9167533	104.6698633	100.6170215	96.74833511	93.05446647	89.52659885	86.15640482
230627A00030	6/27/2023	4.17	6/27/2028	6/27/2023	118.25726	113.5853135	109.1291769	104.8777307	100.8204842	96.94753832	93.24954931	89.71769479	86.34364191
230627A00035	6/27/2023	4.21	6/27/2028	6/27/2023	118.43488	113.7590238	109.2991158	105.0440247	100.9832544	97.10690089	93.40561558	89.87057154	86.49343158
230627A00036	6/27/2023	4.38	6/28/2027	6/27/2023	114.54152	110.9752048	107.541391	104.2344467	101.0490086	97.97996876	95.02246149	92.17185038	89.42371623
230627A00037	6/27/2023	4.56	6/26/2026	6/27/2023	110.27166	107.7976255	105.3925228	103.0540453	100.7799757	98.5681838	96.41662245	94.32332383	92.28639588

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230627A00049	6/27/2023	4.95	6/27/2025	6/27/2023	105.96403	104.540174	103.142561	101.7705243	100.4234211	99.10062999	97.80154957	96.52559796	95.27221189
230627A00060	6/27/2023	4.89	6/27/2025	6/27/2023	105.87918	104.4559492	103.0589523	101.6875212	100.3410135	99.01880801	97.72030357	96.44491858	95.19209
230627A00065	6/27/2023	4.95	6/27/2025	6/27/2023	105.96403	104.540174	103.142561	101.7705243	100.4234211	99.10062999	97.80154957	96.52559796	95.27221189
230627A00078	6/27/2023	4.95	6/27/2025	6/27/2023	105.96403	104.540174	103.142561	101.7705243	100.4234211	99.10062999	97.80154957	96.52559796	95.27221189
230627A00087	6/27/2023	4.95	6/30/2025	6/27/2023	106.00669	104.5741736	103.1681886	101.7880642	100.4331474	99.10280667	97.79643142	96.51343069	95.25323258
230627A00089	6/27/2023	4.56	6/30/2026	6/27/2023	110.32549	107.8394903	105.4230466	103.0738161	100.7895528	98.56809921	96.4073824	94.30541007	92.26026693
230627A00090	6/27/2023	4.21	6/27/2028	6/27/2023	118.43488	113.7590238	109.2991158	105.0440247	100.9832544	97.10690089	93.40561558	89.87057154	86.49343158
230627A00102	6/27/2023	4.95	6/27/2025	6/27/2023	105.96403	104.540174	103.142561	101.7705243	100.4234211	99.10062999	97.80154957	96.52559796	95.27221189
230628A00015	6/28/2023	4.98	6/27/2025	6/28/2023	106.00645	104.5822863	103.1843653	101.8120258	100.4646249	99.14154098	97.84217257	96.56593765	95.31227283
230628A00016	6/28/2023	4.58	6/26/2026	6/28/2023	110.32	107.8453686	105.4396866	103.1006422	100.8260177	98.6136826	96.46158946	94.3677701	92.33033213
230628A00017	6/28/2023	4.41	6/28/2027	6/28/2023	114.64442	111.0763414	107.6408125	104.3322001	101.1451393	98.07452042	95.11547637	92.26336922	89.51377839
230628A00018	6/28/2023	4.23	6/28/2028	6/28/2023	118.5358	113.8548401	109.3901593	105.1306071	101.0656659	97.1854119	93.48047824	89.94202086	86.56168672
230628A00028	6/28/2023	4.58	6/24/2026	6/28/2023	110.29298	107.8243261	105.4243143	103.090647	100.8211208	98.61361874	96.4661062	94.37662719	92.34330086
230628A00038	6/28/2023	4.58	6/24/2026	6/28/2023	110.29298	107.8243261	105.4243143	103.090647	100.8211208	98.61361874	96.4661062	94.37662719	92.34330086
230628A00045	6/28/2023	4.18	6/28/2028	6/28/2023	118.31364	113.6375697	109.1776089	104.9226183	100.862087	96.98609752	93.28528896	89.75082298	86.37435198
230628A00053	6/28/2023	5.47	6/28/2024	6/28/2023	101.69288	101.280169	100.8708122	100.4647687	100.0619983	99.66246162	99.26611981	98.87293461	98.48286842
230628A00055	6/28/2023	5.19	12/27/2024	6/28/2023	103.82554	102.9077835	102.0063304	101.1207441	100.2506075	99.39551807	98.55508735	97.72894	96.91671344
230628A00059	6/28/2023	4.87	6/27/2025	6/28/2023	105.85089	104.4278743	103.0310827	101.6598535	100.3135444	98.99153402	97.69322158	96.41802545	95.16538271
230628A00061	6/28/2023	4.47	6/26/2026	6/28/2023	110.05415	107.5827813	105.1802859	102.8443596	100.5727869	98.3634392	96.21427088	94.12331562	92.08868277
230628A00068	6/28/2023	4.29	6/28/2027	6/28/2023	114.23282	110.6717951	107.2431265	103.9411865	100.7606166	97.69631376	94.74341686	91.89729386	89.15352977
230629A00008	6/29/2023	4.34	6/29/2028	6/29/2023	119.03696	114.3420871	109.8641223	105.5918836	101.5148201	97.62297667	93.90695734	90.35789065	86.96739786
230629A00019	6/29/2023	4.51	6/24/2027	6/29/2023	114.93414	111.3725539	107.9428368	104.6393987	101.456918	98.390326	95.43479357	92.58571834	89.83871294
230629A00025	6/29/2023	4.7	6/24/2026	6/29/2023	110.58233	108.1101392	105.7066667	103.3696128	101.0967721	98.88602537	96.73533598	94.64274597	92.60637259
230629A00037	6/29/2023	4.69	6/29/2026	6/29/2023	110.62728	108.1404045	105.7230054	103.3727538	101.0874085	98.86481661	96.70290929	94.59969824	92.55327191
230629A00041	6/29/2023	5.09	6/30/2025	6/29/2023	106.20584	104.7718359	103.3643968	101.9828429	100.6265206	99.29479787	97.98706327	96.70272533	95.44121159
230629A00042	6/29/2023	4.69	6/29/2026	6/29/2023	110.62728	108.1404045	105.7230054	103.3727538	101.0874085	98.86481661	96.70290929	94.59969824	92.55327191
230629A00045	6/29/2023	4.69	6/29/2026	6/29/2023	110.62728	108.1404045	105.7230054	103.3727538	101.0874085	98.86481661	96.70290929	94.59969824	92.55327191
230629A00046	6/29/2023	4.51	6/29/2027	6/29/2023	115.00075	111.4236897	107.9795604	104.6627035	101.4677358	98.38953101	95.42320604	92.56410795	89.807802
230629A00070	6/29/2023	5.09	6/30/2025	6/29/2023	106.20584	104.7718359	103.3643968	101.9828429	100.6265206	99.29479787	97.98706327	96.70272533	95.44121159
230629A00072	6/29/2023	4.69	6/29/2026	6/29/2023	110.62728	108.1404045	105.7230054	103.3727538	101.0874085	98.86481661	96.70290929	94.59969824	92.55327191
230629A00076	6/29/2023	4.51	6/29/2027	6/29/2023	115.00075	111.4236897	107.9795604	104.6627035	101.4677358	98.38953101	95.42320604	92.56410795	89.807802
230629A00108	6/29/2023	5.52	6/28/2024	6/29/2023	101.7135	101.3007393	100.891332	100.4852383	100.0824181	99.68283186	99.28644077	98.8932066	98.50309171
230629A00109	6/29/2023	5.3	12/27/2024	6/29/2023	103.92606	103.0078082	102.1058651	101.2197947	100.34918	99.49361842	98.65272118	97.82611288	97.01343086

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230629A00120	6/29/2023	5.03	6/27/2025	6/29/2023	106.07716	104.6524736	103.2540392	101.881195	100.5332979	99.20972596	97.90987757	96.63317046	95.37904107
230630A00003	6/30/2023	4.54	6/30/2027	6/30/2023	115.11713	111.5352124	108.0864788	104.765264	101.5661707	98.48405949	95.5140349	92.65143237	89.89180622
230630A00011	6/30/2023	5.37	12/27/2024	6/30/2023	103.99002	103.0714603	102.1692053	101.282827	100.4119081	99.55604592	98.71485179	97.88795017	97.07497831
230630A00028	6/30/2023	4.42	6/30/2027	6/30/2023	115.18228	111.5873368	108.1263314	104.7935509	101.5835589	98.49117852	95.51147946	92.63976425	89.87155628
230630A00030	6/30/2023	4.23	6/30/2028	6/30/2023	119.18983	114.4703641	109.9695211	105.6760009	101.5791457	97.66890058	93.93577688	90.37081681	86.96556125
230630A00043	6/30/2023	4.6	6/30/2026	6/30/2023	110.75238	108.2543298	105.8262704	103.465841	101.170778	98.9389076	96.76814103	94.65647104	92.6019681
230630A00046	6/30/2023	4.6	6/30/2026	6/30/2023	110.75238	108.2543298	105.8262704	103.465841	101.170778	98.9389076	96.76814103	94.65647104	92.6019681
230630A00055	6/30/2023	4.35	6/30/2028	6/30/2023	119.09387	114.3948458	109.9130343	105.6372299	101.5568617	97.66195597	93.94309944	90.39140467	86.99847811
230630A00061	6/30/2023	5	7/11/2025	6/30/2023	106.23195	104.7682635	103.332232	101.9231354	100.5402803	99.18299672	97.85063694	96.54257475	95.25820451
230630A00062	6/30/2023	4.6	6/30/2026	6/30/2023	110.75238	108.2543298	105.8262704	103.465841	101.170778	98.9389076	96.76814103	94.65647104	92.6019681
230630A00066	6/30/2023	5.26	2/7/2025	6/30/2023	104.45556	103.4197161	102.4045308	101.4093904	100.4337042	99.47690457	98.53844574	97.61780282	96.7144708
230630A00079	6/30/2023	4.65	6/30/2026	6/30/2023	110.54399	108.055303	105.6362286	103.2844241	100.9976417	98.77372241	96.61059166	94.50625565	92.45879767
230630A00080	6/30/2023	5.02	6/30/2025	6/30/2023	106.10627	104.6730047	103.2662927	101.8854536	100.529834	99.19880227	97.89174735	96.60807801	95.34722208
230630A00081	6/30/2023	5.53	6/28/2024	6/30/2023	101.71763	101.3048533	100.8954359	100.4893322	100.086502	99.6869059	99.29050497	98.897261	98.50713637
230630A00086	6/30/2023	4.72	6/30/2026	6/30/2023	110.71393	108.2231573	105.8020369	103.4482303	101.1594887	98.93365157	96.7686433	94.66246889	92.61321046
230630A00088	6/30/2023	4.54	6/30/2027	6/30/2023	115.11713	111.5352124	108.0864788	104.765264	101.5661707	98.48405949	95.5140349	92.65143237	89.89180622
230630A00094	6/30/2023	4.42	6/30/2027	6/30/2023	115.18228	111.5873368	108.1263314	104.7935509	101.5835589	98.49117852	95.51147946	92.63976425	89.87155628
230703A00013	7/3/2023	4.34	7/3/2028	7/3/2023	119.08516	114.3779681	109.8887476	105.6062344	101.5198028	97.61942881	93.89565232	90.33954291	86.94266723
230703A00015	7/3/2023	4.34	7/3/2028	7/3/2023	119.08516	114.3779681	109.8887476	105.6062344	101.5198028	97.61942881	93.89565232	90.33954291	86.94266723
230703A00018	7/3/2023	4.61	7/3/2026	7/3/2023	110.81747	108.3104089	105.8738125	103.505295	101.2025703	98.96344326	96.78580508	94.66762942	92.60696868
230703A00019	7/3/2023	4.61	7/3/2026	7/3/2023	110.81747	108.3104089	105.8738125	103.505295	101.2025703	98.96344326	96.78580508	94.66762942	92.60696868
230703A00021	7/3/2023	4.99	7/3/2025	7/3/2023	106.33861	104.8918144	103.4720209	102.0785343	100.7106855	99.36782794	98.04933605	96.75460495	95.48304933
230703A00025	7/3/2023	4.73	7/3/2026	7/3/2023	110.7788	108.2790585	105.8494388	103.4875794	101.1912089	98.95814584	96.7862945	94.67364097	92.61824945
230703A00027	7/3/2023	5.45	11/4/2024	7/3/2023	103.299	102.5289011	101.770336	101.0230422	100.2867693	99.56127439	98.84632172	98.14168227	97.44713363
230703A00028	7/3/2023	5.11	7/3/2025	7/3/2023	106.27723	104.8346557	103.4189496	102.0294213	100.6654062	99.32626184	98.01136682	96.72012006	95.45193996
230703A00029	7/3/2023	4.89	2/3/2026	7/3/2023	109.01264	106.9558257	104.9489828	102.9905778	101.0791359	99.21323715	97.39151489	95.61265278	93.87538282
230703A00043	7/3/2023	4.53	7/6/2027	7/3/2023	115.16073	111.5614905	108.0966845	104.7605599	101.5476454	98.45273209	95.47085963	92.59730274	89.82755894
230705A00006	7/5/2023	4.26	7/5/2028	7/5/2023	119.38429	114.6464903	110.1287445	105.8196495	101.7084488	97.78499675	94.03972019	90.46358346	87.04805528
230705A00008	7/5/2023	4.63	7/6/2026	7/5/2023	110.90721	108.3908257	105.9453871	103.568484	101.257808	99.01114193	96.82635676	94.70140677	92.63432608
230705A00019	7/5/2023	4.44	7/6/2027	7/5/2023	115.33005	111.7158914	108.2369752	104.887503	101.6619616	98.55510282	95.56192913	92.67768046	89.89782147
230705A00033	7/5/2023	5.12	7/7/2025	7/5/2023	106.3489	104.8950654	103.4684998	102.0685013	100.6943906	99.34551132	98.02122863	96.72092869	95.44401765
230705A00034	7/5/2023	4.75	7/6/2026	7/5/2023	110.86828	108.3592573	105.9208342	103.5506256	101.2463376	99.00576708	96.82679819	94.70739778	92.64561186
230705A00035	7/5/2023	5.03	8/8/2025	7/5/2023	106.6714	105.1288696	103.6167034	102.1340815	100.6802081	99.2543161	97.85566483	96.48353952	95.13724995

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230705A00036	7/5/2023	5.39	12/13/2024	7/5/2023	103.80993	102.9306338	102.0663109	101.2165829	100.3810814	99.55945043	98.75134582	97.95643468	97.17439501
230705A00040	7/5/2023	4.38	7/5/2028	7/5/2023	119.28751	114.5702768	110.0716765	105.7804004	101.68578	97.77775159	94.04681822	90.48401527	87.08087769
230705A00042	7/5/2023	4.42	7/5/2028	7/5/2023	119.46601	114.7448354	110.2424273	105.9474715	101.8492943	97.93782671	94.20356699	90.63754588	87.23129391
230705A00103	7/5/2023	4.56	7/6/2027	7/5/2023	115.26429	111.6632683	108.1967258	104.8589124	101.6443553	98.54784397	95.56441634	92.68934572	89.91812819
230705A00111	7/5/2023	4.9	1/6/2026	7/5/2023	108.62101	106.6453684	104.71607	102.8317482	100.9910821	99.19279886	97.43567106	95.71851493	94.0401885
230706A00006	7/6/2023	4.59	7/6/2028	7/6/2023	120.23726	115.4962467	110.9748402	106.6616769	102.5460412	98.61782494	94.86748974	91.28603173	87.86494897
230706A00029	7/6/2023	5.53	1/6/2025	7/6/2023	104.28043	103.3330262	102.4029388	101.4896927	100.5928325	99.71191893	98.84652851	97.99625257	97.16069669
230706A00031	7/6/2023	5.72	7/8/2024	7/6/2023	101.92562	101.4849777	101.048164	100.615126	100.1858149	99.76018241	99.33818136	98.91976524	98.50488834
230706A00032	7/6/2023	5.53	1/6/2025	7/6/2023	104.28043	103.3330262	102.4029388	101.4896927	100.5928325	99.71191893	98.84652851	97.99625257	97.16069669
230706A00034	7/6/2023	5.18	7/7/2025	7/6/2023	106.4354	104.9809161	103.5537113	102.1530845	100.7783561	99.4288693	98.10398918	96.80310157	95.52561236
230707A00021	9/1/2023	4.61	8/30/2030	9/1/2023	129.21358	121.9640415	115.18587	108.8456659	102.9125736	97.35807357	92.15579313	87.28133412	82.71211508
230707A00022	9/1/2023	4.61	8/30/2030	9/1/2023	129.21358	121.9640415	115.18587	108.8456659	102.9125736	97.35807357	92.15579313	87.28133412	82.71211508
230707A00023	9/1/2023	4.61	8/30/2030	9/1/2023	129.21358	121.9640415	115.18587	108.8456659	102.9125736	97.35807357	92.15579313	87.28133412	82.71211508
230707A00031	7/7/2023	4.84	7/7/2026	7/7/2023	111.10211	108.5874576	106.1436243	103.7682108	101.4589139	99.21352195	97.02991076	94.90603932	92.8399462
230707A00035	7/7/2023	5.07	7/7/2025	7/7/2023	106.27682	104.8235232	103.3974902	101.9980153	100.6244194	99.27604633	97.9522615	96.65245129	95.37602205
230707A00038	7/7/2023	5.35	1/7/2025	7/7/2023	104.12482	103.1754739	102.2435338	101.3285218	100.4299788	99.54746206	98.68054462	97.82881457	96.99187444
230710A00013	7/10/2023	4.55	7/10/2029	7/10/2023	124.49425	118.5851263	113.0024257	107.726306	102.7382319	98.0208839	93.55807281	89.33465979	85.33648324
230710A00066	7/10/2023	5	7/10/2025	7/10/2023	106.21794	104.7570395	103.3236948	101.9171874	100.5368277	99.18194902	97.85190719	96.54607918	95.26386245
230711A00012	7/11/2023	5.07	7/11/2025	7/11/2023	106.33364	104.8691813	103.4323932	102.0225529	100.6389666	99.28096406	97.94789719	96.63913948	95.35408499
230711A00013	7/11/2023	4.78	7/13/2026	7/11/2023	111.0373	108.5070775	106.0485677	103.6593275	101.3370101	99.0793622	96.88422047	94.74950684	92.67322248
230711A00027	7/11/2023	5.07	7/11/2025	7/11/2023	106.33364	104.8691813	103.4323932	102.0225529	100.6389666	99.28096406	97.94789719	96.63913948	95.35408499
230711A00037	7/11/2023	5.48	7/19/2024	7/11/2023	101.95608	101.4852686	101.0188266	100.5566918	100.0988044	99.64510582	99.19553866	98.75004644	98.30857376
230711A00038	7/11/2023	4.89	10/10/2025	7/11/2023	107.35584	105.6338572	103.9480277	102.2972722	100.6805588	99.09689642	97.54533251	96.02495127	94.53487183
230711A00087	7/11/2023	5.04	6/16/2025	7/11/2023	105.93215	104.5391224	103.1712799	101.8279985	100.5086719	99.21271383	97.93955633	96.68864966	95.45946129
230711A00089	7/11/2023	5.32	12/16/2024	7/11/2023	103.79059	102.9031695	102.0310001	101.1736944	100.3308739	99.50217277	98.68723755	97.88572644	97.09730887
230712A00002	7/12/2023	4.31	7/12/2028	7/12/2023	119.05804	114.3263502	109.8149243	105.5123126	101.4077244	97.49098313	93.75248815	90.18317907	86.7745026
230712A00005	7/12/2023	5.2	12/16/2024	7/12/2023	103.68457	102.7976499	101.9259814	101.0691706	100.2268391	99.39862128	98.58416369	97.78312466	96.99517374
230712A00009	7/12/2023	4.89	6/16/2025	7/12/2023	105.72456	104.3330319	102.966666	101.6248362	100.3069371	99.01238285	97.7406063	96.49105823	95.26320671
230712A00014	7/12/2023	4.62	7/13/2026	7/12/2023	110.64312	108.117813	105.6641137	103.2795796	100.9618667	98.70872501	96.51799396	94.3875983	92.31554421
230712A00015	7/12/2023	4.62	7/13/2026	7/12/2023	110.64312	108.117813	105.6641137	103.2795796	100.9618667	98.70872501	96.51799396	94.3875983	92.31554421
230712A00016	7/12/2023	4.45	7/12/2027	7/12/2023	114.96118	111.3488272	107.8720336	104.5249763	101.3021132	98.19816939	95.20812265	92.32719014	89.55081553
230712A00017	7/12/2023	4.45	7/12/2027	7/12/2023	114.96118	111.3488272	107.8720336	104.5249763	101.3021132	98.19816939	95.20812265	92.32719014	89.55081553
230712A00018	7/12/2023	4.31	7/12/2028	7/12/2023	119.05804	114.3263502	109.8149243	105.5123126	101.4077244	97.49098313	93.75248815	90.18317907	86.7745026

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230712A00019	7/12/2023	4.31	7/12/2028	7/12/2023	119.05804	114.3263502	109.8149243	105.5123126	101.4077244	97.49098313	93.75248815	90.18317907	86.7745026
230712A00020	7/12/2023	4.31	7/12/2028	7/12/2023	119.05804	114.3263502	109.8149243	105.5123126	101.4077244	97.49098313	93.75248815	90.18317907	86.7745026
230712A00021	7/12/2023	4.31	7/12/2028	7/12/2023	119.05804	114.3263502	109.8149243	105.5123126	101.4077244	97.49098313	93.75248815	90.18317907	86.7745026
230712A00027	7/12/2023	4.29	1/12/2028	7/12/2023	116.71409	112.5515948	108.5642458	104.7437305	101.0821727	97.57211019	94.2064706	90.97854888	87.88198632
230712A00039	7/12/2023	4.62	7/13/2026	7/12/2023	110.64312	108.117813	105.6641137	103.2795796	100.9618667	98.70872501	96.51799396	94.3875983	92.31554421
230712A00040	7/12/2023	4.45	7/12/2027	7/12/2023	114.96118	111.3488272	107.8720336	104.5249763	101.3021132	98.19816939	95.20812265	92.32719014	89.55081553
230712A00041	7/12/2023	4.31	7/12/2028	7/12/2023	119.05804	114.3263502	109.8149243	105.5123126	101.4077244	97.49098313	93.75248815	90.18317907	86.7745026
230712A00046	7/12/2023	4.52	7/13/2026	7/12/2023	110.39676	107.8745227	105.42383	103.0422371	100.7274021	98.47707677	96.28910239	94.16140546	92.09199384
230712A00051	7/12/2023	4.62	7/13/2026	7/12/2023	110.64312	108.117813	105.6641137	103.2795796	100.9618667	98.70872501	96.51799396	94.3875983	92.31554421
230712A00056	7/12/2023	4.22	7/12/2028	7/12/2023	118.65466	113.9319233	109.429137	105.134873	101.0383529	97.12941194	93.39846048	89.83644874	86.43483349
230713A00014	7/13/2023	4.2	7/13/2028	7/13/2023	118.57656	113.8527721	109.3491327	105.0541957	100.9571665	97.04786554	93.31668955	89.75457625	86.3529709
230713A00019	7/13/2023	4.51	7/13/2026	7/13/2023	110.37212	107.8501937	105.3998017	103.0185029	100.7039556	98.45391195	96.26621323	94.13878618	92.06963881
230713A00021	7/13/2023	4.44	7/13/2026	7/13/2023	110.19966	107.6798905	105.2316031	102.8523632	100.5398304	98.29175818	96.10598913	93.98045119	91.91315355
230713A00023	7/13/2023	4.2	7/13/2028	7/13/2023	118.57656	113.8527721	109.3491327	105.0541957	100.9571665	97.04786554	93.31668955	89.75457625	86.3529709
230713A00025	7/13/2023	4.82	7/14/2025	7/13/2023	106.01102	104.540966	103.0988378	101.6839047	100.295463	98.9328329	97.59535738	96.28240128	94.99335043
230713A00026	7/13/2023	4.49	7/13/2026	7/13/2023	110.32285	107.8015357	105.3517449	102.9710344	100.6570627	98.4075823	96.22043492	94.09354761	92.02492873
230713A00031	7/13/2023	4.49	7/13/2026	7/13/2023	110.32285	107.8015357	105.3517449	102.9710344	100.6570627	98.4075823	96.22043492	94.09354761	92.02492873
230713A00058	7/13/2023	4.08	7/13/2028	7/13/2023	118.67165	113.9272104	109.4043542	105.0915392	100.9778818	97.05311909	93.30757074	89.73210243	86.3180924
230714A00018	7/14/2023	4.24	7/14/2027	7/14/2023	114.73881	111.1126958	107.6231803	104.2643745	101.0306753	97.91675062	94.91752497	92.02816545	89.24406883
230714A00019	7/14/2023	4.85	7/14/2025	7/14/2023	106.05485	104.5844603	103.1420043	101.726749	100.3379905	98.97504895	97.63726711	96.32400972	95.03466246
230714A00020	7/14/2023	4.52	7/14/2026	7/14/2023	110.40971	107.8845924	105.4311721	103.0469998	100.7297259	98.47709519	96.28694215	94.15718692	92.08583132
230714A00022	7/14/2023	4.36	7/14/2027	7/14/2023	114.67404	111.0611481	107.584086	104.2370097	101.014357	97.91083429	94.92140215	92.04126166	89.26584155
230714A00023	7/14/2023	4.18	7/14/2028	7/14/2023	118.49835	113.7735144	109.2690262	104.9734203	100.8758861	96.96622914	93.23483256	89.67262152	86.27102981
230714A00026	7/14/2023	4.18	7/14/2028	7/14/2023	118.49835	113.7735144	109.2690262	104.9734203	100.8758861	96.96622914	93.23483256	89.67262152	86.27102981
230714A00030	7/14/2023	4.52	7/17/2026	7/14/2023	110.44857	107.9147985	105.4531929	103.0612806	100.7366892	98.47714215	96.28045365	94.14452464	92.0673388
230714A00034	7/14/2023	4.37	7/16/2027	7/14/2023	114.73389	111.1144361	107.6312581	104.2784775	101.0505062	97.94202646	94.94797625	92.06353544	89.28411294
230717A00022	7/17/2023	4.59	7/17/2026	7/17/2023	110.6218	108.0858549	105.6221264	103.2281374	100.9015142	98.63997896	96.44134449	94.30351053	92.22445957
230717A00061	7/17/2023	4.93	7/17/2025	7/17/2023	106.21318	104.7335394	103.2821495	101.8582702	100.4611858	99.09020537	97.74466103	96.42390736	95.12732033
230717A00088	7/17/2023	4.43	7/19/2027	7/17/2023	114.98082	111.3487942	107.8537748	104.4898454	101.2513764	98.1330111	95.12965087	92.23644144	89.44875966
230717A00106	7/17/2023	5.49	7/11/2024	7/17/2023	101.86161	101.4129382	100.9682351	100.5274498	100.0905303	99.6574259	99.22808652	98.80246305	98.38050722
230718A00012	7/18/2023	5.2	12/16/2024	7/18/2023	103.68457	102.7976499	101.9259814	101.0691706	100.2268391	99.39862128	98.58416369	97.78312466	96.99517374
230718A00013	7/18/2023	4.54	7/17/2026	7/18/2023	110.49806	107.9636718	105.5014597	103.1089539	100.7837821	98.52366695	96.32642246	94.18994918	92.11223045
230718A00014	7/18/2023	4.37	7/19/2027	7/18/2023	114.77154	111.1431553	107.6516792	104.291195	101.0560762	97.94096971	94.94078004	92.05065602	89.26597748

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230718A00015	7/18/2023	4.19	7/18/2028	7/18/2023	118.58927	113.8512761	109.3347334	105.0280872	100.9204498	97.00155533	93.26172116	89.69181163	86.28320428
230718A00016	7/18/2023	4.54	7/17/2026	7/18/2023	110.49806	107.9636718	105.5014597	103.1089539	100.7837821	98.52366695	96.32642246	94.18994918	92.11223045
230718A00023	7/18/2023	4.54	7/20/2026	7/18/2023	110.53709	107.994035	105.5236296	103.1233774	100.790883	98.5238477	96.32006501	94.17741624	92.09386649
230718A00038	7/18/2023	4.46	11/13/2026	7/18/2023	111.85234	108.9693172	106.1765802	103.4707585	100.8486275	98.30710377	95.84323779	93.45420722	91.13731046
230718A00070	7/18/2023	4.06	7/18/2028	7/18/2023	118.63953	113.8817846	109.3469027	105.0232331	100.8997993	96.96625313	93.21283509	89.63033809	86.21007312
230718A00093	7/18/2023	4.06	7/18/2028	7/18/2023	118.63953	113.8817846	109.3469027	105.0232331	100.8997993	96.96625313	93.21283509	89.63033809	86.21007312
230719A00006	7/19/2023	4.54	7/20/2026	7/19/2023	110.53709	107.994035	105.5236296	103.1233774	100.790883	98.5238477	96.32006501	94.17741624	92.09386649
230719A00010	7/19/2023	4.92	7/18/2025	7/19/2023	106.21228	104.7299632	103.2759966	101.8496373	100.4501659	99.07688786	97.72913196	96.40624954	95.10761345
230719A00011	7/19/2023	4.92	7/18/2025	7/19/2023	106.21228	104.7299632	103.2759966	101.8496373	100.4501659	99.07688786	97.72913196	96.40624954	95.10761345
230719A00012	7/19/2023	4.92	7/18/2025	7/19/2023	106.21228	104.7299632	103.2759966	101.8496373	100.4501659	99.07688786	97.72913196	96.40624954	95.10761345
230719A00013	7/19/2023	4.54	7/17/2026	7/19/2023	110.49806	107.9636718	105.5014597	103.1089539	100.7837821	98.52366695	96.32642246	94.18994918	92.11223045
230719A00015	7/19/2023	4.37	7/19/2027	7/19/2023	114.77154	111.1431553	107.6516792	104.291195	101.0560762	97.94096971	94.94078004	92.05065602	89.26597748
230719A00027	7/19/2023	4.92	7/18/2025	7/19/2023	106.21228	104.7299632	103.2759966	101.8496373	100.4501659	99.07688786	97.72913196	96.40624954	95.10761345
230719A00034	7/19/2023	4.19	7/19/2028	7/19/2023	118.60078	113.8597456	109.340429	105.0312548	100.921316	97.00032945	93.25859629	89.68696588	86.27680195
230719A00035	7/19/2023	4.92	7/18/2025	7/19/2023	106.21228	104.7299632	103.2759966	101.8496373	100.4501659	99.07688786	97.72913196	96.40624954	95.10761345
230719A00061	7/19/2023	5.18	1/21/2025	7/19/2023	104.15142	103.1636439	102.1947056	101.2440677	100.3112142	99.3956482	98.49689137	97.61448277	96.74797824
230720A00025	7/20/2023	5.18	1/21/2025	7/20/2023	104.30877	103.317923	102.346004	101.3924708	100.4568039	99.53850356	98.63708839	97.75209472	96.88307571
230720A00037	7/20/2023	4.55	7/20/2026	7/20/2023	110.89932	108.3446771	105.8631236	103.4521426	101.1093208	98.83234229	96.61898437	94.46711286	92.37467815
230720A00038	7/20/2023	4.55	7/20/2026	7/20/2023	110.89932	108.3446771	105.8631236	103.4521426	101.1093208	98.83234229	96.61898437	94.46711286	92.37467815
230720A00039	7/20/2023	4.68	7/20/2026	7/20/2023	110.8847	108.3372775	105.8625986	103.4581661	101.1215821	98.85054498	96.64284574	94.49636317	92.40905995
230720A00100	7/20/2023	5.05	7/21/2025	7/20/2023	106.44608	104.9539093	103.4904214	102.0548622	100.6465006	99.26463036	97.90856934	96.57765834	95.27126019
230721A00003	7/21/2023	4.67	7/21/2026	7/21/2023	110.87324	108.3232299	105.8461156	103.4393907	101.1006495	98.8275836	96.61797725	94.46970297	92.38071753
230721A00006	7/21/2023	4.32	7/21/2028	7/21/2023	119.20969	114.4495107	109.9120312	105.585614	101.4592964	97.52274253	93.76620486	90.18048724	86.75691091
230721A00028	7/21/2023	5.03	7/21/2025	7/21/2023	106.41648	104.9245339	103.4612701	102.0259313	100.6177862	99.23612892	97.88027729	96.54957224	95.24337669
230721A00029	7/21/2023	4.67	7/21/2026	7/21/2023	110.87324	108.3232299	105.8461156	103.4393907	101.1006495	98.8275836	96.61797725	94.46970297	92.38071753
230721A00031	7/21/2023	5.03	7/21/2025	7/21/2023	106.41648	104.9245339	103.4612701	102.0259313	100.6177862	99.23612892	97.88027729	96.54957224	95.24337669
230721A00032	7/21/2023	5.03	7/21/2025	7/21/2023	106.41648	104.9245339	103.4612701	102.0259313	100.6177862	99.23612892	97.88027729	96.54957224	95.24337669
230721A00038	7/21/2023	4.67	7/21/2026	7/21/2023	110.87324	108.3232299	105.8461156	103.4393907	101.1006495	98.8275836	96.61797725	94.46970297	92.38071753
230721A00043	7/21/2023	4.98	7/21/2025	7/21/2023	106.34247	104.8510954	103.388392	101.9536039	100.5460003	99.16487532	97.80954718	96.47935701	95.17366794
230724A00037	7/24/2023	4.29	7/24/2028	7/24/2023	119.10984	114.3435164	109.8005873	105.4693626	101.3388264	97.39859399	93.6388727	90.05042487	86.62453349
230724A00063	7/24/2023	5.08	7/24/2025	7/24/2023	106.53319	105.032273	103.5603604	102.1166807	100.700491	99.31107412	97.94773726	96.60981111	95.29664883
230724A00064	7/24/2023	4.53	7/19/2027	7/24/2023	115.32963	111.6915258	108.1906006	104.8209295	101.5768767	98.45308009	95.44443559	92.54608379	89.75339663
230724A00065	7/24/2023	4.37	7/18/2028	7/24/2023	119.399	114.6429916	110.1090456	105.7855858	101.6616995	97.72709728	93.97207396	90.38747244	86.96464988

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230724A00066	7/24/2023	4.71	8/18/2026	7/24/2023	111.35477	108.7216045	106.1654283	103.6835212	101.2732814	98.93221548	96.65793304	94.44814156	92.30064183
230724A00105	7/24/2023	5.56	7/18/2024	7/24/2023	101.98112	101.5129816	101.0491589	100.5895948	100.1342305	99.6830085	99.23587228	98.79276631	98.35363608
230725A00004	7/25/2023	5.06	7/25/2025	7/25/2023	106.5176	105.0141133	103.5397309	102.0936773	100.6752058	99.28359564	97.91815066	96.57819829	95.26308856
230725A00014	7/25/2023	5.32	1/27/2025	7/25/2023	104.37147	103.3660833	102.3801753	101.4131794	100.4645541	99.53377836	98.62035082	97.72378872	96.84362709
230725A00015	7/25/2023	4.4	7/25/2028	7/25/2023	119.6186	114.8381132	110.281672	105.9375472	101.7946882	97.84267801	94.07169362	90.47246904	87.03626072
230725A00016	7/25/2023	4.75	7/31/2026	7/25/2023	111.20799	108.6264045	106.1193585	103.68426	101.3186246	99.02006928	96.78630791	94.61514636	92.50447831
230725A00018	7/25/2023	4.4	7/25/2028	7/25/2023	119.6186	114.8381132	110.281672	105.9375472	101.7946882	97.84267801	94.07169362	90.47246904	87.03626072
230725A00023	7/25/2023	4.57	4/9/2027	7/25/2023	114.12399	110.7907076	107.5742464	104.4698004	101.4727959	98.57887635	95.78389065	93.08388171	90.47507616
230725A00028	7/25/2023	4.46	7/25/2030	7/25/2023	127.86395	120.760753	114.1143311	107.8926817	102.0662101	96.60753601	91.49131693	86.69408649	82.19410618
230725A00071	7/25/2023	4.4	7/25/2028	7/25/2023	119.6186	114.8381132	110.281672	105.9375472	101.7946882	97.84267801	94.07169362	90.47246904	87.03626072
230726A00011	7/26/2023	4.24	7/26/2028	7/26/2023	119.5482	114.747668	110.1727752	105.8116833	101.653236	97.68691885	93.90281803	90.29158337	86.84439311
230726A00012	7/26/2023	4.24	7/26/2028	7/26/2023	119.5482	114.747668	110.1727752	105.8116833	101.653236	97.68691885	93.90281803	90.29158337	86.84439311
230726A00023	7/26/2023	4.24	7/26/2028	7/26/2023	119.5482	114.747668	110.1727752	105.8116833	101.653236	97.68691885	93.90281803	90.29158337	86.84439311
230726A00058	7/26/2023	4.99	7/28/2025	7/26/2023	106.69976	105.1827642	103.6953375	102.2366926	100.8060659	99.40272032	98.02594428	96.67505047	95.34937485
230726A00060	7/26/2023	4.99	7/28/2025	7/26/2023	106.69976	105.1827642	103.6953375	102.2366926	100.8060659	99.40272032	98.02594428	96.67505047	95.34937485
230727A00016	7/27/2023	4.51	7/27/2033	7/27/2023	139.39696	128.6794528	118.9178703	110.0206206	101.9053744	94.49808592	87.73211867	81.54746811	75.89006925
230727A00020	7/27/2023	4.39	7/27/2028	7/27/2023	119.59755	114.8119338	110.2508681	105.9025818	101.7559873	97.80063333	94.02666557	90.42478895	86.98623317
230727A00063	7/27/2023	4.38	7/27/2028	7/27/2023	120.19544	115.3775765	110.7861149	106.4091732	102.2355559	98.25471152	94.45669179	90.83211418	87.37212657
230727A00070	7/27/2023	4.75	7/27/2026	7/27/2023	111.15363	108.5836822	106.0876356	103.6629329	101.3071205	99.01784488	96.79284766	94.62996089	92.52710304
230727A00073	7/27/2023	4.81	7/27/2026	7/27/2023	111.30377	108.7319155	106.2340095	103.807488	101.4498966	99.15888038	96.9321798	94.76762586	92.66313596
230727A00075	7/27/2023	4.5	7/27/2028	7/27/2023	120.09513	115.298382	110.7265662	106.3678958	102.2112674	98.24621537	94.4628711	90.85192629	87.40459791
230728A00004	7/28/2023	4.77	7/28/2026	7/28/2023	111.21732	108.6438284	106.1444115	103.7165028	101.3576406	99.06546373	96.8377064	94.6721938	92.56683787
230728A00005	7/28/2023	4.59	7/28/2027	7/28/2023	115.65735	111.988583	108.4590171	105.0626019	101.7935827	98.64648596	95.61610354	92.69747866	89.88589212
230728A00006	7/28/2023	4.46	7/28/2028	7/28/2023	119.92645	115.1306714	110.5599562	106.2025021	102.0471922	98.08354802	94.30168998	90.69229935	87.24658374
230728A00017	7/28/2023	5.15	7/22/2025	7/28/2023	106.60853	105.11241	103.6451028	102.205843	100.793895	99.40854843	98.04911719	96.71493833	95.40537103
230731A00012	7/31/2023	4.5	7/31/2029	7/31/2023	124.44119	118.4743294	112.8403548	107.5188248	102.4906624	97.7380548	93.24436295	88.99403861	84.97254701
230731A00036	7/31/2023	5.1	7/31/2025	7/31/2023	106.66298	105.1422036	103.6511674	102.1890696	100.75514	99.34863542	97.9688383	96.61505566	95.28661801
230731A00037	7/31/2023	4.74	7/31/2026	7/31/2023	111.18286	108.6015914	106.094858	103.6600653	101.2947289	98.99646613	96.76299104	94.59210967	92.48171588
230801A00001	8/1/2023	5.14	8/1/2025	8/1/2023	106.73783	105.2137591	103.7195127	102.2542897	100.8173166	99.40784678	98.02515974	96.6685595	95.33737377
230801A00021	8/1/2023	4.49	8/1/2028	8/1/2023	120.11178	115.3006025	110.7156462	106.3450295	102.1775562	98.20267478	94.41043779	90.79146385	87.33690255
230801A00022	8/1/2023	4.65	8/2/2027	8/1/2023	115.93533	112.2477404	108.7004917	105.2874591	102.0028233	98.84105004	95.79687469	92.86528736	90.04151921
230801A00024	8/1/2023	4.82	8/3/2026	8/1/2023	111.42604	108.8334027	106.3157609	103.8705035	101.495125	99.18722281	96.94449205	94.76472096	92.6457865
230801A00028	8/1/2023	5.14	8/1/2025	8/1/2023	106.73783	105.2137591	103.7195127	102.2542897	100.8173165	99.40784678	98.02515974	96.6685595	95.33737377

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230802A00007	8/2/2023	5.46	8/2/2024	8/2/2023	102.11458	101.6050539	101.1006235	100.6012113	100.1067425	99.61714393	99.13234388	98.65227196	98.17685918
230802A00017	8/2/2023	4.79	8/3/2026	8/2/2023	111.3504	108.7587213	106.2420233	103.7976888	101.423213	99.11619392	96.87432726	94.69540182	92.5772951
230802A00022	9/8/2023	4.41	9/8/2028	9/8/2023	120.21719	115.2951693	110.6087822	106.1454281	101.8932531	97.84109843	93.97845606	90.29542705	86.78268284
230807A00010	8/7/2023	4.4	8/7/2028	8/7/2023	119.77709	114.9564278	110.3631668	105.98533	101.8116318	97.83143807	94.03472553	90.41204294	86.95447554
230807A00018	8/7/2023	4.65	8/7/2026	8/7/2023	111.05167	108.4527816	105.9293157	103.4786351	101.098212	98.78562257	96.53854208	94.35474008	92.23207595
230807A00023	8/7/2023	5.26	2/7/2025	8/7/2023	104.45556	103.4197161	102.4045308	101.4093904	100.4337042	99.47690457	98.53844574	97.61780282	96.7144708
230807A00024	8/7/2023	5.03	8/7/2025	8/7/2023	106.65716	105.1174497	103.6080283	102.1280731	100.6767917	99.25341999	97.85722027	96.48748056	95.14351327
230807A00025	8/7/2023	4.69	8/7/2026	8/7/2023	111.15297	108.5527871	106.0280523	103.5761309	101.1944941	98.88071753	96.63247549	94.44753681	92.32376015
230807A00033	8/7/2023	4.57	8/7/2026	8/7/2023	111.19361	108.5856548	106.0535119	103.5945301	101.2061644	98.88597475	96.63162088	94.44085768	92.31153063
230808A00008	8/8/2023	4.67	4/24/2026	8/8/2023	109.68022	107.3882792	105.1562012	102.9819753	100.8636805	98.79947596	96.78759736	94.82635272	92.9141188
230808A00010	8/8/2023	4.95	8/8/2025	8/8/2023	106.54903	105.0074689	103.4962581	102.0145749	100.5616244	99.13663947	97.73888008	96.36763181	95.02220483
230808A00014	8/8/2023	4.6	8/7/2026	8/8/2023	110.92504	108.3277748	105.805895	103.3567655	100.9778593	98.66675387	96.42112532	94.23874417	92.11747071
230808A00029	8/8/2023	4.6	8/7/2026	8/8/2023	110.92504	108.3277748	105.805895	103.3567655	100.9778593	98.66675387	96.42112532	94.23874417	92.11747071
230808A00054	8/8/2023	4.19	8/8/2028	8/8/2023	119.47807	114.642246	110.0352502	105.6449988	101.4601082	97.46985351	93.66412724	90.03340016	86.56868529
230808A00057	8/8/2023	4.19	8/8/2028	8/8/2023	119.47807	114.642246	110.0352502	105.6449988	101.4601082	97.46985351	93.66412724	90.03340016	86.56868529
230808A00060	8/8/2023	4.19	8/8/2028	8/8/2023	119.47807	114.642246	110.0352502	105.6449988	101.4601082	97.46985351	93.66412724	90.03340016	86.56868529
230809A00020	8/9/2023	4.51	11/9/2026	8/9/2023	111.93934	109.0664536	106.2832129	103.5862597	100.9723879	98.43853269	95.9817636	93.59927727	91.28839112
230809A00026	8/9/2023	4.59	8/7/2026	8/9/2023	110.89971	108.3027734	105.7812109	103.3323915	100.9537888	98.64298013	96.39764196	94.21554498	92.09454966
230809A00034	8/9/2023	4.59	8/10/2026	8/9/2023	110.93994	108.3342147	105.8042802	103.3474793	100.9612661	98.6431993	96.39093797	94.20223629	92.07493917
230810A00001	8/10/2023	4.22	8/10/2028	8/10/2023	119.63959	114.7944093	110.1786756	105.780256	101.5877279	97.59033017	93.77792181	90.14094252	86.67037646
230810A00010	8/10/2023	4.62	8/10/2026	8/10/2023	111.01617	108.4094609	105.8785686	103.4208313	101.0337022	98.71473957	96.46160175	94.27204238	92.14390583
230810A00013	8/10/2023	4.34	8/10/2028	8/10/2023	119.5402	114.7163703	110.1204889	105.7405229	101.5651439	97.58367857	93.78606749	90.16282629	86.70500976
230810A00024	8/10/2023	4.34	8/7/2028	8/10/2023	119.50386	114.6893443	110.1020235	105.7299237	101.5617677	97.58692987	93.79539463	90.17771818	86.72499286
230810A00025	8/10/2023	4.37	5/8/2028	8/10/2023	118.5246	113.989368	109.6575926	105.5189894	101.563857	97.78303774	94.16788331	90.71022373	87.4023378
230810A00026	8/10/2023	4.4	1/10/2028	8/10/2023	117.12659	112.9614965	108.9713391	105.1478292	101.4831118	97.96974429	94.60067199	91.36920625	88.26900334
230810A00046	8/10/2023	4.88	11/18/2025	8/10/2023	107.90142	106.0668207	104.2726303	102.5176783	100.8008336	99.12100688	97.47714869	95.86824747	94.29332798
230810A00053	8/10/2023	4.82	1/20/2026	8/10/2023	108.67618	106.6617132	104.6953858	102.7757499	100.9014083	99.07101553	97.28327504	95.53693744	93.83079826
230810A00057	8/10/2023	4.62	8/10/2026	8/10/2023	111.01617	108.4094609	105.8785686	103.4208313	101.0337022	98.71473957	96.46160175	94.27204238	92.14390583
230811A00017	8/11/2023	4.78	8/11/2026	8/11/2023	111.43664	108.821764	106.2829597	103.8175546	101.4229918	99.09682008	96.8366888	94.64034299	92.50561884
230811A00018	8/11/2023	5.1	8/11/2025	8/11/2023	106.8218	105.2699201	103.748672	102.2572175	100.7947512	99.36049587	97.95370183	96.57364554	95.21962845
230814A00028	8/14/2023	4.86	8/14/2026	8/14/2023	111.68259	109.0562494	106.5064538	104.0305082	101.6258342	99.28996028	97.02051653	94.81522982	92.67191915
230814A00029	8/14/2023	4.71	2/12/2027	8/14/2023	113.79387	110.6265592	107.5661107	104.6083047	101.7491151	98.984698	96.31138208	93.72566014	91.22418052
230815A00031	8/15/2023	5.14	8/13/2025	8/15/2023	106.92816	105.3697324	103.8421219	102.3444821	100.8760002	99.43589217	98.02340196	96.6377998	95.2783813

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230815A00037	8/15/2023	4.53	8/15/2028	8/15/2023	120.47022	115.6111926	110.9820483	106.5706325	102.3655026	98.35587964	94.53160533	90.8831035	87.40134335
230815A00038	8/15/2023	4.57	8/16/2027	8/15/2023	116.33853	112.5918329	108.9890846	105.5239481	102.1903998	98.98271418	95.89544778	92.92342324	90.06171489
230815A00084	8/15/2023	5.14	8/15/2025	8/15/2023	106.95731	105.3932161	103.8600979	102.3571087	100.883429	99.43826863	98.02086554	96.63048432	95.26641521
230817A00036	8/17/2023	4.91	8/17/2026	8/17/2023	111.85306	109.2162104	106.6563583	104.1707878	101.7568996	99.41220208	97.13430676	94.92092276	92.76985239
230818A00005	8/18/2023	5.01	8/18/2025	8/18/2023	107.03708	105.4601944	103.9146829	102.3996793	100.9143491	99.45788765	98.02951927	96.62849561	95.25409453
230818A00007	8/18/2023	4.73	8/18/2026	8/18/2023	111.75561	109.1098544	106.5415655	104.048004	101.6265483	99.2746861	96.99000882	94.77020689	92.61306484
230818A00024	8/18/2023	4.81	8/18/2026	8/18/2023	111.61106	108.9745758	106.4151534	103.9300724	101.5167289	99.17262744	96.89537548	94.68267855	92.53233555
230818A00025	8/18/2023	4.68	8/18/2027	8/18/2023	116.26023	112.5219585	108.927191	105.4696133	102.143224	98.94231871	95.8614737	92.89553042	90.0395809
230818A00064	8/18/2023	5.09	8/18/2025	8/18/2023	106.9073	105.3357124	103.7953282	102.2852897	100.8047679	99.35296411	97.92910779	96.53245568	95.16229049
230818A00065	8/18/2023	4.82	8/18/2026	8/18/2023	111.63669	108.9998729	106.4401259	103.9547275	101.5410737	99.19666864	96.91911972	94.70613225	92.55550492
230821A00004	8/21/2023	5.38	2/21/2025	8/21/2023	104.76308	103.6873744	102.6338941	101.6019567	100.5909049	99.60010767	98.62895947	97.67687855	96.743306
230821A00006	8/21/2023	4.66	8/21/2028	8/21/2023	121.1431	116.2517317	111.5922279	107.152308	102.920406	98.88562808	95.0377097	91.36697582	87.86430381
230821A00035	8/21/2023	5.36	2/21/2025	8/21/2023	104.74173	103.6661382	102.6127777	101.5809584	100.570023	99.5793406	98.60830559	97.65633631	96.72287387
230821A00074	8/21/2023	5.18	8/21/2025	8/21/2023	107.10741	105.5257664	103.9756126	102.4560749	100.9663137	99.5055197	98.07291258	96.66773971	95.28927489
230821A00087	8/21/2023	5.37	3/3/2025	8/21/2023	104.88291	103.7792633	102.6989853	101.6413397	100.605619	99.59114505	98.59726751	97.62336231	96.66883041
230823A00010	8/23/2023	5.44	8/23/2024	8/23/2023	102.33987	101.7726558	101.211754	100.6570569	100.1084618	99.56586822	99.02917777	98.49829434	97.97312383
230823A00019	8/23/2023	5.44	8/23/2024	8/23/2023	102.33987	101.7726558	101.211754	100.6570569	100.1084618	99.56586822	99.02917777	98.49829434	97.97312383
230823A00036	8/23/2023	4.87	8/24/2026	8/23/2023	111.84993	109.1937238	106.6154595	104.1123763	101.6818288	99.32128231	97.02830741	94.80057474	92.63585023
230823A00066	8/23/2023	4.68	8/23/2027	8/23/2023	116.32871	112.5751468	108.9660707	105.4951065	102.1561953	98.94357965	95.85178591	92.87560897	90.01009731
230824A00031	8/24/2023	4.49	8/24/2028	8/24/2023	121.05645	116.1390351	111.4556066	106.9937278	102.7416907	98.68846973	94.82367847	91.13752883	87.6207934
230824A00043	8/24/2023	4.89	8/24/2026	8/24/2023	111.90152	109.2446406	106.6657188	104.1619929	101.7308169	99.36965584	97.07607976	94.84775894	92.68245892
230824A00061	8/24/2023	4.61	8/24/2028	8/24/2023	120.95205	116.0564559	111.3933123	106.950285	102.7157631	98.67881132	94.82912715	91.15700053	87.65327664
230825A00009	8/25/2023	4.91	8/25/2026	8/25/2023	111.9674	109.3068908	106.7244913	104.2174358	101.7830711	99.41885538	97.12235237	94.89122624	92.72323684
230825A00010	8/25/2023	4.62	8/25/2028	8/25/2023	121.01095	116.111161	111.4441148	106.9974555	102.759553	98.7194547	94.86684154	91.19198843	87.68572655
230825A00019	8/25/2023	5.41	2/25/2025	8/25/2023	104.848	103.7608903	102.6964601	101.6540062	100.6328518	99.63234751	98.6518701	97.6908213	96.74862645
230825A00037	8/25/2023	4.91	8/25/2026	8/25/2023	111.9674	109.3068908	106.7244913	104.2174358	101.7830711	99.41885538	97.12235237	94.89122624	92.72323684
230825A00043	8/25/2023	4.89	8/25/2026	8/25/2023	111.91576	109.2559203	106.6741796	104.1677681	101.7340332	99.37043337	97.07453275	94.84399596	92.67658323
230825A00044	8/25/2023	5.2	8/25/2025	8/25/2023	107.1977	105.6044191	104.0429704	102.5124643	101.0120477	99.54089852	98.09822416	96.68326044	95.29527013
230825A00045	8/25/2023	5.57	8/26/2024	8/25/2023	102.44615	101.8704603	101.3012633	100.7384471	100.1819047	99.63153155	99.0872252	98.54888562	98.01641492
230825A00062	8/25/2023	5.21	8/25/2025	8/25/2023	107.21346	105.6200556	104.0584803	102.5278498	101.027311	99.55604162	98.11324915	96.6981693	95.31006479
230828A00036	8/28/2023	4.8	8/28/2026	8/28/2023	112.07919	109.4013646	106.8024637	104.2796806	101.8303243	99.45181722	97.14168915	94.89757236	92.71719644
230828A00047	8/28/2023	4.92	8/28/2026	8/28/2023	112.03619	109.3664541	106.7752594	104.259817	101.8174534	99.4456074	97.14182442	94.90375147	92.72913215
230828A00055	8/28/2023	5.24	8/28/2025	8/28/2023	107.30532	105.702981	104.1327309	102.5936757	101.0849519	99.60572738	98.15520037	96.73259773	95.33717381

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230828A00056	8/28/2023	4.92	8/28/2026	8/28/2023	112.03619	109.3664541	106.7752594	104.259817	101.8174534	99.4456074	97.14182442	94.90375147	92.72913215
230829A00006	8/29/2023	5.21	8/29/2025	8/29/2023	107.27255	105.6677509	104.0951198	102.5537583	101.0427996	99.56140867	98.10878079	96.68414011	95.28673836
230830A00028	8/30/2023	4.45	8/30/2027	8/30/2023	116.09829	112.3162837	108.6807887	105.1852958	101.8236273	98.58991427	95.47857917	92.48431973	89.60209359
230830A00029	8/30/2023	4.45	8/30/2027	8/30/2023	116.09829	112.3162837	108.6807887	105.1852958	101.8236273	98.58991427	95.47857917	92.48431973	89.60209359
230830A00030	8/30/2023	5.03	8/29/2025	8/30/2023	106.98679	105.3843459	103.814025	102.2749333	100.7662051	99.28700643	97.83653354	96.41401157	95.01869319
230830A00034	8/30/2023	4.44	8/30/2028	8/30/2023	120.24421	115.3476482	110.6844396	106.2421651	102.0091341	97.97433836	94.12740869	90.45857403	86.95862369
230830A00051	8/30/2023	4.45	8/30/2027	8/30/2023	116.09829	112.3162837	108.6807887	105.1852958	101.8236273	98.58991427	95.47857917	92.48431973	89.60209359
230831A00001	8/31/2023	4.77	8/31/2026	8/31/2023	111.68934	109.0158304	106.4211689	103.9025496	101.4572821	99.08278902	96.7766011	94.53635128	92.35977
230831A00006	8/31/2023	4.61	8/31/2027	8/31/2023	116.1858	112.4122788	108.784697	105.2965848	101.941796	98.71449121	95.60912077	92.62040843	89.74333634
230831A00007	8/31/2023	4.48	8/31/2028	8/31/2023	120.44142	115.5375065	110.8673513	106.4185068	102.1792588	98.13857714	94.28607206	90.61195343	87.10699284
230831A00016	8/31/2023	4.65	8/31/2026	8/31/2023	111.73187	109.050244	106.4478548	103.921875	101.4695967	99.08842618	96.77587829	94.52957117	92.34722115
230831A00041	8/31/2023	4.48	8/31/2028	8/31/2023	120.44142	115.5375065	110.8673513	106.4185068	102.1792588	98.13857714	94.28607206	90.61195343	87.10699284
230831A00066	8/31/2023	4.77	8/31/2026	8/31/2023	111.68934	109.0158304	106.4211689	103.9025496	101.4572821	99.08278902	96.7766011	94.53635128	92.35977
230831A00069	8/31/2023	4.61	8/31/2027	8/31/2023	116.1858	112.4122788	108.784697	105.2965848	101.941796	98.71449121	95.60912077	92.62040843	89.74333634
230831A00070	8/31/2023	4.48	8/31/2028	8/31/2023	120.44142	115.5375065	110.8673513	106.4185068	102.1792588	98.13857714	94.28607206	90.61195343	87.10699284
230901A00037	9/1/2023	4.3	9/1/2028	9/1/2023	120.27912	115.3564475	110.6691288	106.2045998	101.9510384	97.89731458	94.03294598	90.34805673	86.8333389
230905A00030	9/5/2023	4.55	9/5/2028	9/5/2023	120.82879	115.901475	111.2095132	106.7403424	102.4821437	98.42379021	94.55480254	90.86530772	87.34600057
230905A00033	9/5/2023	4.71	9/4/2026	9/5/2023	111.94555	109.2497034	106.6337497	104.0948277	101.6301976	99.23723623	96.91343029	94.65637158	92.46375156
230906A00020	9/6/2023	5.19	9/8/2025	9/6/2023	107.39022	105.7566093	104.1560947	102.5877317	101.050616	99.54387684	98.06667581	96.61820499	95.19768575
230907A00012	9/7/2023	5.17	9/8/2025	9/7/2023	107.35791	105.7245785	104.1243292	102.5562268	101.0193671	99.51287965	98.03592596	96.5876983	95.16741814
230907A00047	9/7/2023	5.08	9/5/2025	9/7/2023	107.16847	105.5451078	103.9545213	102.3957886	100.8680177	99.37034965	97.90195701	96.46204244	95.0498373
230907A00050	9/7/2023	5.05	9/5/2025	9/7/2023	107.36675	105.7375585	104.1413308	102.5771292	101.0440553	99.5412443	98.06786312	96.62310904	95.20620829
230907A00051	9/7/2023	4.79	9/8/2026	9/7/2023	112.21307	109.5022639	106.872024	104.3194569	101.8417908	99.43637182	97.10065824	94.83221478	92.62870746
230911A00001	9/11/2023	4.49	9/11/2028	9/11/2023	121.29081	116.3155883	111.5791349	107.0686451	102.7720767	98.67809596	94.7760319	91.05583403	87.50803255
230911A00010	9/11/2023	4.9	9/11/2026	9/11/2023	112.18655	109.4752223	106.8445249	104.2915518	101.8135266	99.40779134	97.07180044	94.80311513	92.5993982
230911A00014	9/11/2023	4.61	9/11/2028	9/11/2023	121.18457	116.2316076	111.5158302	107.0245452	102.7458105	98.66838577	94.78168674	91.07574339	87.54116083
230911A00026	9/11/2023	5.08	9/11/2025	9/11/2023	107.25665	105.6157678	104.0082379	102.4331077	100.8894616	99.37641861	97.89313035	96.43877959	95.01257885
230911A00030	9/11/2023	5.09	9/11/2025	9/11/2023	107.27288	105.6318643	104.0242006	102.4489387	100.9051634	99.39199335	97.90858022	96.45410671	95.02778527
230912A00026	9/12/2023	4.84	9/14/2026	9/12/2023	112.07177	109.3534367	106.716142	104.1569604	101.6730942	99.26186515	96.92070887	94.6471688	92.43889103
230912A00036	9/12/2023	4.57	9/12/2028	9/12/2023	121.01138	116.059479	111.3448845	106.8548871	102.577532	98.50156726	94.61639797	90.91204456	87.37910346
230912A00053	9/12/2023	4.74	9/7/2027	9/12/2023	116.75324	112.9493264	109.2930619	105.7778748	102.3975225	99.14607577	96.01790066	93.00764234	90.11020939
230913A00013	9/13/2023	4.87	9/14/2026	9/13/2023	112.15089	109.431505	106.7931807	104.232993	101.7481433	99.33595272	96.99385624	94.71939664	92.51021938
230913A00014	9/13/2023	5.34	3/13/2025	9/13/2023	104.97831	103.8469434	102.7401231	101.6570578	100.5969866	99.55918108	98.54294314	97.54760374	96.57252127

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230913A00030	9/13/2023	5.16	9/15/2025	9/13/2023	107.44618	105.7925025	104.1725805	102.5854442	101.0301622	99.50583777	98.01160803	96.54664191	95.11013878
230913A00031	9/13/2023	4.91	9/15/2026	9/13/2023	112.2709	109.5470725	106.9044882	104.3402172	101.8514524	99.43550679	97.08980761	94.81189047	92.59939399
230913A00032	9/13/2023	4.74	9/15/2027	9/13/2023	116.86587	113.036817	109.3571073	105.8200562	102.4193195	99.14887341	96.00299606	92.97625048	90.06346866
141117A00011	11/17/2014	3.81	11/17/2034	11/17/2014	135.83278	123.9427743	113.2475629	103.6190922	94.94370931	87.12047569	80.05968334	73.68155137	67.91507974
150731A00016	7/31/2015	3.04	7/31/2025	7/31/2015	103.55718	102.0607664	100.5936663	99.15509193	97.74428452	96.3605115	95.00306567	93.67126397	92.36444653
160212A00037	2/12/2016	3.03	2/12/2031	2/12/2016	119.74541	112.3448505	105.4614756	99.05629564	93.09345487	87.53996604	82.36546698	77.54199894	73.04380466
160222A00005	2/22/2016	2.79	2/22/2028	2/22/2016	111.09827	106.9313812	102.9454561	99.13165763	95.4816305	91.98747093	88.64169975	85.43723718	82.36737921
160222A00019	2/22/2016	3.09	2/21/2031	2/22/2016	120.23732	112.7926805	105.8696418	99.42877049	93.43381689	87.85143964	82.65095788	77.80412595	73.28492824
160225A00024	2/25/2016	2.22	2/26/2024	2/25/2016	100.05243	99.98039479	99.90846741	99.8366484	99.7649375	99.69333449	99.62183912	99.55045116	99.47917037
160303A00020	3/3/2016	2.97	3/3/2031	3/3/2016	120.45959	112.9370934	105.9448017	99.44242121	93.39292599	87.76227578	82.51916038	77.63476724	73.08256996
160307A00029	3/7/2016	3.21	3/7/2031	3/7/2016	121.19154	113.673646	106.6843487	100.183531	94.13432686	88.50283983	83.25788964	78.37078085	73.81509261
160524A00015	11/25/2016	2.71	11/25/2026	11/25/2016	107.047	104.1984666	101.4406081	98.77004884	96.18355608	93.67803537	91.25052377	88.89818346	86.61829569
160712A00019	7/12/2017	2.32	7/12/2027	7/12/2017	107.57281	104.0884631	100.7361102	97.51005443	94.40487639	91.41541861	88.53677139	85.7642595	83.09342973
160714A00018	9/6/2016	2.28	9/4/2026	9/6/2016	105.24741	102.6474993	100.1250923	97.67740982	95.30178959	92.99568222	90.7566455	88.58233916	86.47051986
160714A00024	9/20/2016	2.5	9/20/2028	9/20/2016	111.43513	106.6810838	102.1586166	97.85519844	93.75904907	89.85908636	86.14488084	82.60661359	79.23503705
160729A00017	7/31/2017	2.47	7/31/2029	7/31/2017	113.18478	107.524423	102.1844945	97.14517212	92.38796054	87.89559596	83.65195764	79.64198654	75.85161009
161118A00026	12/20/2016	3.03	12/21/2026	12/20/2016	108.18551	105.2501624	102.4102481	99.66215443	97.00242721	94.42776123	91.93499307	89.52109418	87.18316434
170327A00080	3/27/2019	3.43	3/27/2029	3/27/2019	117.49062	112.0643014	106.925892	102.0585264	97.44642305	93.07480529	88.92983113	84.99852918	81.26873908
170609A00052	6/11/2018	2.9	6/9/2027	6/11/2018	109.2966	105.8731572	102.5759272	99.39960188	96.33912663	93.38968448	90.54668384	87.80574671	85.1626976
170614A00019	6/14/2017	2.48	6/13/2025	6/14/2017	102.36695	101.0079101	99.67333856	98.36263076	97.07520197	95.81048609	94.56793494	93.3470176	92.14721965
170822A00023	8/23/2017	3.95	8/23/2028	8/23/2017	117.90433	113.0808635	108.4871889	104.1110985	99.94109753	95.96636051	92.17668873	88.56247046	85.11464403
171228A00024	12/28/2017	2.71	6/28/2024	12/28/2017	100.5546	100.1446915	99.73811954	99.33484427	98.93482578	98.53802473	98.14440245	97.75392086	97.3665425
180615A00039	6/15/2018	3.49	6/15/2028	6/15/2018	115.11704	110.5482108	106.1897913	102.0309934	98.06163619	94.27210947	90.65333912	87.19675436	83.89425727
180618A00036	6/18/2018	3.89	6/18/2048	6/18/2018	166.86992	139.7603278	117.9618606	100.3624823	86.09183722	74.46732312	64.95245583	57.12467132	50.6503849
181029A00051	2/5/2019	3.69	2/5/2029	2/5/2019	118.35271	113.0501296	108.0222089	103.2532285	98.72844887	94.43404668	90.35705284	86.48529528	82.80734587
181031A00070	3/1/2019	3.77	3/1/2029	3/1/2019	119.01327	113.6204165	108.5098538	103.6652564	99.0713275	94.71373164	90.57902906	86.65461485	82.92866271
181220A00041	12/20/2018	3.36	12/18/2026	12/20/2018	109.11595	106.175123	103.3295512	100.575643	97.90996042	95.32921359	92.83025321	90.4100639	88.0657577
190329A00012	3/29/2019	2.61	3/29/2024	3/29/2019	100.17702	100.0166728	99.85684207	99.69752377	99.53871549	99.38041479	99.22261926	99.06532648	98.90853407
190621A00037	6/21/2019	2.21	5/15/2024	6/21/2019	100.22229	99.93310135	99.64559209	99.35974881	99.07555696	98.79300216	98.51207019	98.232747	97.95501871
190815A00041	8/15/2019	1.86	8/15/2024	8/15/2019	100.30101	99.76185185	99.22848682	98.70082137	98.17876436	97.66222658	97.15112072	96.6453613	96.14486462
200131A00029	1/31/2020	1.78	10/31/2024	1/31/2020	100.46584	99.71846487	98.9821681	98.25670111	97.54182653	96.83731385	96.14293921	95.45848517	94.78374045
221017A00050	9/18/2023	4.59	9/30/2024	9/18/2023	102.2363	101.5660724	100.9046421	100.2518358	99.60748542	98.97142756	98.3435028	97.72355581	97.11143522
221212A00131	12/12/2023	3.77	12/11/2026	12/12/2023	110.22884	107.2908331	104.4472966	101.6946891	99.02962262	96.44885385	93.94927731	91.52791866	89.18192849

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230628A00063	6/28/2023	4.47	6/29/2026	6/28/2023	110.09378	107.6134541	105.2024712	102.8584977	100.5792966	98.36271883	96.20669945	94.10925381	92.06847391
230719A00091	11/13/2023	4.56	11/14/2025	11/13/2023	107.26896	105.451445	103.6737732	101.9347736	100.23332	98.56832874	96.93875657	95.34359892	93.78188795
230719A00096	12/18/2023	4.46	12/19/2025	12/18/2023	107.53749	105.621255	103.7489845	101.9194097	100.1313055	98.3834896	96.67482134	95.00419947	93.3705607
230719A00101	10/16/2023	4.65	10/17/2025	10/16/2023	107.03928	105.301176	103.5998668	101.9342448	100.3032504	98.70586588	97.14111401	95.60805543	94.10578702
230802A00023	10/16/2023	4.37	10/16/2028	10/16/2023	120.49077	115.4534121	110.6617357	106.102352	101.7626839	97.63090734	93.69590168	89.9472037	86.37496483
230807A00087	11/7/2023	4.75	11/7/2025	11/7/2023	107.5143	105.7141302	103.9530416	102.229866	100.5434789	98.89280017	97.2767913	95.69445378	94.144827
230913A00046	9/13/2023	4.91	9/14/2026	9/13/2023	112.25639	109.5355962	106.8958991	104.3343698	101.8482087	99.43473615	97.09138606	94.81570041	92.60532385
230913A00049	9/13/2023	4.74	9/13/2027	9/13/2023	116.83771	113.0149469	109.3411014	105.8095182	102.4138787	99.14818265	96.00673031	92.98410533	90.07515892
230913A00050	9/13/2023	4.6	9/13/2028	9/13/2023	121.16391	116.2055909	111.4849534	106.9892696	102.706561	98.62555357	94.73563208	91.02679806	87.48963035
230914A00021	9/14/2023	5.49	9/13/2024	9/14/2023	102.62323	101.9979303	101.3802858	100.7701528	100.1673945	99.57187741	98.98347129	98.40204901	97.82748645
230914A00027	9/14/2023	4.76	1/8/2027	9/14/2023	113.45961	110.3974763	107.4358085	104.5707594	101.7986472	99.11595157	96.51930531	94.00548707	91.57141402
230914A00031	9/14/2023	5.08	9/15/2025	9/14/2023	107.31544	105.6628641	104.0440276	102.4579577	100.9037233	99.38042843	97.88721058	96.42323916	94.98771399
230914A00050	9/14/2023	4.67	9/14/2027	9/14/2023	116.59659	112.7753211	109.1030478	105.5731056	102.1791678	98.91522699	95.77557668	92.75479438	89.84772567
230914A00051	9/14/2023	4.84	9/14/2026	9/14/2023	112.07177	109.3534367	106.716142	104.1569604	101.6730942	99.26186515	96.92070887	94.6471688	92.43889103
230915A00018	9/15/2023	4.88	9/15/2026	9/15/2023	112.1917	109.4689236	106.8273709	104.2641081	101.7763288	99.3613466	97.01658948	94.73959366	92.5279984
230915A00023	9/15/2023	4.7	9/15/2027	9/15/2023	116.71993	112.8935325	109.2164004	105.6818528	102.2835483	99.01546568	95.8718856	92.84737345	89.93676349
230915A00026	9/15/2023	4.57	9/15/2028	9/15/2023	121.04991	116.0883737	111.3649512	106.8668718	102.5821236	98.49940201	94.60806353	90.89808385	87.36001806
230915A00028	9/15/2023	4.57	9/15/2028	9/15/2023	121.04991	116.0883737	111.3649512	106.8668718	102.5821236	98.49940201	94.60806353	90.89808385	87.36001806
230915A00030	9/15/2023	4.7	9/8/2027	9/15/2023	116.62216	112.8177268	109.1610845	105.6456436	102.2651518	99.01367034	95.88555693	92.87544883	89.97824733
230915A00054	9/15/2023	4.88	9/15/2026	9/15/2023	112.1917	109.4689236	106.8273709	104.2641081	101.7763288	99.3613466	97.01658948	94.73959366	92.5279984
230915A00055	9/15/2023	4.7	9/15/2027	9/15/2023	116.71993	112.8935325	109.2164004	105.6818528	102.2835483	99.01546568	95.8718856	92.84737345	89.93676349
230918A00008	9/18/2023	4.91	9/18/2026	9/18/2023	112.31446	109.5814989	106.9302497	104.3577515	101.8611741	99.43780902	97.08506298	94.80045243	92.58159799
230918A00011	9/18/2023	4.91	9/18/2026	9/18/2023	112.31446	109.5814989	106.9302497	104.3577515	101.8611741	99.43780902	97.08506298	94.80045243	92.58159799
230918A00018	9/18/2023	5.01	3/18/2026	9/18/2023	109.90244	107.7112499	105.5753062	103.4928289	101.4621118	99.48151653	97.54946962	95.66445906	93.82503153
230918A00023	9/18/2023	4.91	9/18/2026	9/18/2023	112.31446	109.5814989	106.9302497	104.3577515	101.8611741	99.43780902	97.08506298	94.80045243	92.58159799
230918A00027	9/18/2023	5.11	9/30/2025	9/18/2023	107.58618	105.8892334	104.2274901	102.5999205	101.0055332	99.44337495	97.91252903	96.4121136	94.94127987
230918A00062	9/18/2023	5.52	9/18/2024	9/18/2023	102.70633	102.067104	101.4358678	100.8124725	100.1967723	99.58862493	98.98789181	98.39443758	97.80813021
230918A00088	9/18/2023	5.53	9/18/2024	9/18/2023	102.71271	102.0734652	101.4422065	100.8187888	100.2030663	99.59489701	98.99414208	98.40066622	97.81433742
230919A00010	9/19/2023	4.76	9/20/2027	9/19/2023	117.00951	113.1633939	109.4677167	105.9157291	102.5010217	99.21750988	96.05941489	93.02124688	90.09778843
230919A00029	9/19/2023	4.63	9/19/2028	9/19/2023	121.38167	116.4008042	111.6593607	107.1444758	102.8440516	98.74670375	94.84171545	91.1189943	87.56903245
230919A00047	9/19/2023	4.98	8/19/2026	9/19/2023	112.06124	109.4161514	106.8483884	104.3552225	101.9340393	99.58233342	97.29770293	95.07784443	92.92054829
230919A00055	9/19/2023	4.65	9/19/2028	9/19/2023	121.47513	116.4921082	111.7485833	107.2316897	102.9293263	98.83010594	94.92330885	91.19883995	87.64718881
230919A00082	9/19/2023	5.17	9/19/2025	9/19/2023	107.5223	105.8567693	104.22538	102.6271489	101.0611283	99.52640678	98.02210692	96.54738415	95.101425

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
230920A00002	9/20/2023	4.47	10/2/2028	9/20/2023	121.46965	116.4286862	111.6321394	107.0667725	102.7201387	98.58053192	94.63693833	90.87899132	87.29692973
230920A00025	9/20/2023	5.14	9/16/2025	9/20/2023	107.42836	105.772028	104.1495466	102.5599385	101.0022681	99.47563542	97.97917392	96.51204935	95.073458
230920A00026	9/20/2023	4.9	9/16/2026	9/20/2023	112.25899	109.5324719	106.8873444	104.3206681	101.8296285	99.41153155	97.06379799	94.78395724	92.56964213
230921A00021	9/21/2023	4.62	9/21/2028	9/21/2023	122.03152	117.0097372	112.2299445	107.6791085	103.3449731	99.21600675	95.28135596	91.53080118	87.95471627
230922A00022	9/22/2023	4.99	9/22/2026	9/22/2023	112.58529	109.8372964	107.1716961	104.5854965	102.0758345	99.63997077	97.27528284	94.97925974	92.74949616
230922A00025	9/22/2023	5.18	9/22/2025	9/22/2023	107.58368	105.9092045	104.2691717	102.6625787	101.0884659	99.54591026	98.03402364	96.55195119	95.09886975
230922A00032	9/22/2023	5.18	9/22/2025	9/22/2023	107.58368	105.9092045	104.2691717	102.6625787	101.0884659	99.54591026	98.03402364	96.55195119	95.09886975
230925A00003	9/25/2023	4.99	9/25/2026	9/25/2023	112.62951	109.8723583	107.1980649	104.6036139	102.086119	99.64281878	97.27107027	94.96834307	92.73221362
230925A00004	9/25/2023	4.74	9/25/2028	9/25/2023	121.9756	116.9634345	112.1927434	107.650518	103.3245272	99.20326359	95.27589638	91.53222773	87.9626521
230925A00056	9/25/2023	5.19	9/25/2025	9/25/2023	107.64522	105.9617972	104.313113	102.6981519	101.115942	99.56554871	98.04607311	96.55665002	95.09644648
230925A00057	9/25/2023	5.19	9/30/2025	9/25/2023	107.72023	106.0221175	104.3592344	102.7305454	101.1350584	99.57181965	98.03991194	96.53845292	95.06659332
230925A00080	9/25/2023	5.07	9/30/2025	9/25/2023	107.77698	106.0739306	104.4062846	102.7729978	101.1730718	99.60554685	98.06949998	96.56404341	95.08832269
230925A00121	9/25/2023	5.2	9/25/2025	9/25/2023	107.66183	105.9782725	104.3294482	102.7143494	101.1320042	99.58147799	98.06187178	96.5723203	95.11199055
230926A00010	9/26/2023	4.74	9/26/2028	9/26/2023	121.98891	116.9735088	112.1998497	107.6549079	103.3264331	99.20290009	95.2734616	91.52790464	87.95660967
230926A00020	9/26/2023	5.2	9/26/2025	9/26/2023	107.67686	105.9903646	104.3387012	102.7208572	101.1358567	99.5827612	98.06066808	96.56870869	95.10604675
230926A00021	9/26/2023	4.73	9/26/2028	9/26/2023	121.94199	116.9276717	112.1550617	107.6111323	103.2836346	99.16104508	95.23251784	91.48784128	87.91739717
230926A00048	9/26/2023	5.2	9/26/2025	9/26/2023	107.67686	105.9903646	104.3387012	102.7208572	101.1358567	99.5827612	98.06066808	96.56870869	95.10604675
230926A00076	9/26/2023	4.73	9/26/2028	9/26/2023	121.94199	116.9276717	112.1550617	107.6111323	103.2836346	99.16104508	95.23251784	91.48784128	87.91739717
230927A00006	9/27/2023	5.36	3/27/2025	9/27/2023	105.18102	104.0103289	102.8658698	101.7467685	100.6521871	99.58132418	98.53341311	97.50771988	96.50354157
230927A00007	9/27/2023	5.19	9/29/2025	9/27/2023	107.70522	106.0100545	104.3500123	102.7240698	101.1312387	99.57056921	98.04114786	96.5420957	95.07256674
230927A00008	9/27/2023	4.98	9/28/2026	9/27/2023	112.64698	109.8810173	107.198379	104.5960182	102.0710255	99.62061767	97.24213122	94.9330165	92.69083185
230927A00020	9/27/2023	5.01	10/16/2026	9/27/2023	112.98726	110.1668049	107.4325158	104.7811937	102.2097849	99.71537074	97.29516062	94.94648527	92.66679052
230927A00021	9/27/2023	4.96	1/29/2027	9/27/2023	114.34536	111.2120151	108.1832561	105.2550008	102.4233495	99.68457665	97.03512237	94.47158365	91.99070668
230927A00031	9/27/2023	5.4	3/28/2025	9/27/2023	105.24046	104.0666731	102.9192489	101.7973024	100.6999899	99.62650472	98.57607499	97.54796193	96.54145808
230927A00032	9/27/2023	5.02	9/23/2026	9/27/2023	112.6799	109.9277779	107.2582318	104.6682576	102.1549836	99.71566224	97.34766375	95.04846996	92.81566887
230927A00033	9/27/2023	4.78	9/25/2028	9/27/2023	122.16318	117.1466771	112.3717944	107.8255242	103.4956292	99.37059575	95.43958746	91.69240095	88.11942548
230927A00034	9/27/2023	4.82	9/27/2028	9/27/2023	122.37785	117.3504909	112.5654605	108.0096943	103.6709096	99.53755104	95.5987435	91.84424777	88.2644199
230928A00001	9/28/2023	4.91	9/28/2026	9/28/2023	112.82673	110.0504017	107.3578487	104.7460074	102.2119479	99.75286747	97.36608459	95.04903225	92.79925238
230928A00014	9/28/2023	4.9	9/28/2027	9/28/2023	117.63843	113.7576169	110.0292323	106.4464029	103.0026062	99.69165197	96.50766299	93.44505727	90.49853136
230928A00016	9/28/2023	4.83	9/28/2028	9/28/2023	122.43836	117.4066656	112.617605	108.0580981	103.7158411	99.57925942	95.63745977	91.88018643	88.29778012
230928A00017	9/28/2023	4.83	9/28/2028	9/28/2023	122.43836	117.4066656	112.617605	108.0580981	103.7158411	99.57925942	95.63745977	91.88018643	88.29778012
230928A00033	9/28/2023	5.03	9/28/2026	9/28/2023	112.78078	110.0130117	107.3286079	104.7245223	102.197844	99.74578858	97.36569144	95.05500179	92.81127689
230928A00047	9/28/2023	5.21	9/29/2025	9/28/2023	107.73868	106.0432214	104.3828953	102.7566737	101.1635686	99.60262989	98.07294394	96.57363171	95.1038471

	Parallel-Shift Sensitivity Analysis												
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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	117.74352	113.8415271	110.0932866	106.4918435	103.0305997	99.7032947	96.50398527	93.42702781	90.46706113
230929A00018	9/29/2023	5.14	9/29/2025	9/29/2023	107.62158	105.9271371	104.267805	102.6425598	101.0504138	99.49041751	97.96165766	96.46325566	94.99436583
230929A00031	9/29/2023	5.14	9/29/2025	9/29/2023	107.62158	105.9271371	104.267805	102.6425598	101.0504138	99.49041751	97.96165766	96.46325566	94.99436583
230929A00033	9/29/2023	4.92	9/29/2026	9/29/2023	112.50096	109.7341211	107.0507059	104.4476675	101.9220902	99.47118477	97.09228233	94.78282802	92.54037531
230929A00046	9/29/2023	4.66	9/29/2027	9/29/2023	117.28535	113.3947172	109.6573788	106.0664048	102.6152189	99.29758086	96.1075667	93.03955089	90.08818926
230929A00059	9/29/2023	5.14	9/29/2025	9/29/2023	107.62158	105.9271371	104.267805	102.6425598	101.0504138	99.49041751	97.96165766	96.46325566	94.99436583
230929A00061	9/29/2023	4.92	9/29/2026	9/29/2023	112.50096	109.7341211	107.0507059	104.4476675	101.9220902	99.47118477	97.09228233	94.78282802	92.54037531
230929A00062	9/29/2023	4.78	9/29/2027	9/29/2023	117.21049	113.3346387	109.6111928	106.0332748	102.5943576	99.28824689	96.10906199	93.05121779	90.10940811
231002A00018	10/2/2023	4.87	10/1/2027	10/2/2023	117.57084	113.6826655	109.9475004	106.3584338	102.9089064	99.59269352	96.40388621	93.33687281	90.38632227
231002A00042	10/2/2023	4.73	10/2/2028	10/2/2023	122.69781	117.6282158	112.8040586	108.2120542	103.8397131	99.67528899	95.70772966	91.92663213	88.32220071
231003A00005	10/3/2023	4.84	10/3/2028	10/3/2023	122.55186	117.5031261	112.6984261	108.1245661	103.7691437	99.62049361	95.66763904	91.90024717	88.30858767
231003A00011	10/3/2023	4.89	10/15/2027	10/3/2023	117.84233	113.9098731	110.1334571	106.5059666	103.0206573	99.67113275	96.45132387	93.35547005	90.37810142
231003A00036	10/3/2023	4.84	10/3/2028	10/3/2023	122.55186	117.5031261	112.6984261	108.1245661	103.7691437	99.62049361	95.66763904	91.90024717	88.30858767
231004A00006	10/4/2023	4.88	10/4/2028	10/4/2023	122.75355	117.6972852	112.8854746	108.3049012	103.9431368	99.78849204	95.82996788	92.05721084	88.46047137
231004A00011	10/5/2023	5.51	10/4/2024	10/5/2023	102.90726	102.2236321	101.5491182	100.8835378	100.2267138	99.57847412	98.93865091	98.30708077	97.68360449
231004A00012	10/5/2023	5.51	10/4/2024	10/5/2023	102.90726	102.2236321	101.5491182	100.8835378	100.2267138	99.57847412	98.93865091	98.30708077	97.68360449
231004A00016	10/4/2023	5.36	4/4/2025	10/4/2023	105.28627	104.0931381	102.9272339	101.7876295	100.6734403	99.58382096	98.51796322	97.47509403	96.45447359
231005A00003	10/5/2023	5.14	10/6/2025	10/5/2023	107.72354	106.0091624	104.3305986	102.6867893	101.0767178	99.49940717	97.95391818	96.43934765	94.95482661
231005A00035	10/5/2023	4.98	10/5/2026	10/5/2023	112.74799	109.9611676	107.2587579	104.6376576	102.094902	99.62765599	97.23320734	94.90896057	92.65243086
231005A00037	10/5/2023	4.88	10/5/2027	10/5/2023	117.66412	113.76302	110.0157996	106.4154903	102.9554799	99.62949471	96.43157995	93.35608146	90.39762849
231005A00039	10/5/2023	5.16	10/6/2025	10/5/2023	107.75738	106.0427081	104.3638539	102.7197596	101.109408	99.53182224	97.98606288	96.47122663	94.9864444
231005A00040	10/5/2023	4.98	10/5/2026	10/5/2023	112.74799	109.9611676	107.2587579	104.6376576	102.094902	99.62765599	97.23320734	94.90896057	92.65243086
231005A00054	10/5/2023	4.98	10/5/2026	10/5/2023	112.74799	109.9611676	107.2587579	104.6376576	102.094902	99.62765599	97.23320734	94.90896057	92.65243086
231006A00009	10/6/2023	4.98	10/15/2027	10/6/2023	118.17816	114.2394634	110.4569894	106.8236178	103.3325979	99.97752685	96.75232955	93.65123962	90.66878166
231006A00010	10/6/2023	4.93	10/16/2028	10/6/2023	123.14958	118.0499037	113.1981298	108.5807761	104.1851722	99.99940519	96.01227055	92.21322515	88.59234461
231006A00015	10/6/2023	5.38	4/7/2025	10/6/2023	105.35042	104.1487187	102.9746272	101.827199	100.7055309	99.60876033	98.53606281	97.48664998	96.4597676
231006A00032	10/6/2023	5.08	10/6/2026	10/6/2023	113.03212	110.2386708	107.529878	104.9026251	102.3539366	99.88096751	97.48099632	95.1514186	92.88974114
231006A00033	10/6/2023	4.98	10/6/2027	10/6/2023	118.04887	114.1378572	110.3811421	106.7717299	103.3029884	99.96862483	96.76266652	93.67944252	90.71356628
231010A00007	10/10/2023	4.83	10/12/2027	10/10/2023	117.57659	113.6574817	109.8936518	106.2780298	102.8039154	99.46495308	96.25511209	93.16866746	90.20018266
231010A00030	10/10/2023	4.88	10/15/2026	10/10/2023	112.61887	109.8062425	107.0795032	104.4354715	101.8711052	99.38349656	96.96986532	94.62755196	92.35401155
231010A00031	10/10/2023	5.08	10/10/2025	10/10/2023	107.67942	105.9545964	104.2659748	102.6124772	100.9930704	99.40676181	97.85259778	96.32966125	94.83707014
231010A00057	10/10/2023	4.66	10/10/2028	10/10/2023	122.47146	117.3842719	112.5444212	107.938464	103.5537658	99.37844679	95.4013326	91.61190788	88.00027376
231010A00067	10/10/2023	4.93	10/9/2026	10/10/2023	112.66994	109.8731539	107.1613622	104.5314294	101.9803604	99.50529115	97.10348276	94.77231442	92.50927756

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
231010A00068	10/10/2023	4.83	10/8/2027	10/10/2023	117.52078	113.6139222	109.8614821	106.2564527	102.7921864	99.46237634	96.2610372	93.18248633	90.22132656
231010A00075	10/10/2023	4.78	10/10/2028	10/10/2023	122.35974	117.2956188	112.4771762	107.8910882	103.5248263	99.36660957	95.40535489	91.63063196	88.03262082
231010A00076	10/10/2023	4.66	10/10/2028	10/10/2023	122.47146	117.3842719	112.5444212	107.938464	103.5537658	99.37844679	95.4013326	91.61190788	88.00027376
231010A00101	10/10/2023	4.78	10/10/2028	10/10/2023	122.35974	117.2956188	112.4771762	107.8910882	103.5248263	99.36660957	95.40535489	91.63063196	88.03262082
231011A00004	10/11/2023	4.81	10/8/2027	10/11/2023	117.44654	113.5410532	109.7899458	106.1862104	102.7232007	99.3946113	96.19445816	93.11705988	90.15702052
231011A00016	10/11/2023	4.75	10/11/2028	10/11/2023	122.23067	117.1667185	112.3486061	107.762984	103.3973094	99.23978795	95.27932467	91.50547823	87.90841873
231011A00028	10/11/2023	4.92	10/9/2026	10/11/2023	112.64288	109.8464596	107.1350287	104.5054484	101.9547238	99.47999115	97.07851177	94.74766507	92.48494273
231011A00029	10/11/2023	4.81	10/8/2027	10/11/2023	117.44654	113.5410532	109.7899458	106.1862104	102.7232007	99.3946113	96.19445816	93.11705988	90.15702052
231011A00030	10/11/2023	4.75	10/11/2028	10/11/2023	122.23067	117.1667185	112.3486061	107.762984	103.3973094	99.23978795	95.27932467	91.50547823	87.90841873
231012A00027	10/12/2023	4.78	10/16/2028	10/12/2023	122.4374	117.3544149	112.5187385	107.9169125	103.5362914	99.36498612	95.3918146	91.60625512	87.9984036
231013A00017	10/13/2023	5.13	10/14/2025	10/13/2023	107.8401	106.1027217	104.4019725	102.7367615	101.1060378	99.50879202	97.94405448	96.41089306	94.9084114
231013A00020	10/13/2023	4.98	10/13/2026	10/13/2023	112.86253	110.0520757	107.3272853	104.6849895	102.1221593	99.63589986	97.22344247	94.88213866	92.60945376
231016A00016	10/16/2023	5.01	10/16/2026	10/16/2023	112.98726	110.1668049	107.4325158	104.7811937	102.2097849	99.71537074	97.29516062	94.94648527	92.66679052
231017A00008	10/17/2023	5.26	10/17/2025	10/17/2023	108.08989	106.3424633	104.6319936	102.9573758	101.3175457	99.71148138	98.13820132	96.59676216	95.08625687
231017A00017	10/17/2023	5.11	10/16/2026	10/17/2023	113.25983	110.4356285	107.6976809	105.0427853	102.4678852	99.97005959	97.54651528	95.19458067	92.91169929
231017A00046	10/17/2023	5.26	10/17/2025	10/17/2023	108.08989	106.3424633	104.6319936	102.9573758	101.3175457	99.71148138	98.13820132	96.59676216	95.08625687
231018A00026	10/18/2023	5.28	1/7/2026	10/18/2023	109.37513	107.389256	105.449999	103.5559784	101.7058644	99.89837511	98.13227479	96.40637158	94.71951578
231019A00006	10/19/2023	5.29	10/20/2025	10/19/2023	108.20413	106.4472223	104.7276054	103.0441566	101.3957979	99.78149455	98.20025286	96.65111789	95.1331717
231019A00007	10/19/2023	5.19	10/19/2026	10/19/2023	113.52258	110.6864564	107.9371308	105.2713751	102.6861062	100.1783781	97.74537436	95.38440117	93.09288133
231019A00009	10/19/2023	5.14	10/19/2027	10/19/2023	118.83443	114.872253	111.0674856	107.412942	103.9018065	100.5276154	97.284237	94.16585176	91.16693462
231019A00036	10/19/2023	5.27	10/20/2025	10/19/2023	108.16952	106.4129165	104.6936029	103.0104518	101.3623855	99.74836942	98.16740997	96.61855235	95.10087875
231019A00041	10/19/2023	5.08	10/19/2028	10/19/2023	123.90308	118.77716	113.9005571	109.2596998	104.8418335	100.6349673	96.62782396	92.8097928	89.17088669
231019A00043	10/19/2023	5.19	10/19/2026	10/19/2023	113.52258	110.6864564	107.9371308	105.2713751	102.6861062	100.1783781	97.74537436	95.38440117	93.09288133
231019A00044	10/19/2023	5.14	10/19/2027	10/19/2023	118.83443	114.872253	111.0674856	107.412942	103.9018065	100.5276154	97.284237	94.16585176	91.16693462
231020A00041	10/20/2023	5.19	10/20/2025	10/20/2023	108.03106	106.2756934	104.5575925	102.8756324	101.2287359	99.61586891	98.03603842	96.48829019	94.97170692
231020A00048	10/20/2023	5.08	10/20/2026	10/20/2023	113.23644	110.4014909	107.6534034	104.9889415	102.405017	99.89867922	97.46710708	95.10760281	92.81758534
231020A00049	10/20/2023	5.03	10/20/2027	10/20/2023	118.43726	114.4796657	110.6794739	107.0294895	103.5228913	100.1532114	96.91431372	93.80037532	90.8058679
231020A00051	10/20/2023	5.02	10/20/2028	10/20/2023	123.63132	118.508918	113.6358718	108.9985941	104.5843204	100.3810514	96.37750198	92.56305485	88.92771683
231020A00061	10/20/2023	5.32	4/21/2025	10/20/2023	105.4655	104.2248973	103.0136929	101.8308471	100.6753696	99.54631627	98.44278563	97.36391706	96.30888822
231020A00067	10/20/2023	5.32	4/15/2025	10/20/2023	105.38555	104.1618258	102.9667281	101.7992558	100.6584564	99.54342105	98.45328166	97.38720889	96.34440991
231020A00069	10/20/2023	5.08	10/15/2026	10/20/2023	113.16346	110.3433527	107.6093107	104.9581459	102.3868106	99.89239209	97.47210515	95.12328556	92.84338382
231020A00070	10/20/2023	5.19	10/15/2025	10/20/2023	107.95764	106.216505	104.5121212	102.8433889	101.2092526	99.60869851	98.04075264	96.50447891	94.99897717
231023A00028	10/23/2023	5.33	4/23/2025	10/23/2023	105.5045	104.258188	103.0415318	101.8534811	100.6930329	99.55923106	98.45116295	97.36795735	96.308782

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
231023A00029	10/23/2023	5.19	10/23/2025	10/23/2023	108.07511	106.3111994	104.5848619	102.8949604	101.2404048	99.62014878	98.03318775	96.47855649	94.95532734
231023A00048	10/23/2023	5.04	10/25/2027	10/23/2023	118.54738	114.573637	110.7583978	107.0943965	103.5747444	100.1929106	96.94270062	93.81823701	90.81394077
231024A00007	10/30/2023	5.5	10/30/2024	10/30/2023	103.26804	102.5117239	101.766528	101.0322063	100.3085218	99.59524414	98.89214982	98.19902158	97.51564832
231024A00008	10/30/2023	5.5	10/30/2024	10/30/2023	103.26804	102.5117239	101.766528	101.0322063	100.3085218	99.59524414	98.89214982	98.19902158	97.51564832
231024A00010	12/18/2023	5.43	12/18/2024	12/18/2023	103.91635	103.0228354	102.1447763	101.2817689	100.4334275	99.5993797	98.77926547	97.97273691	97.17945761
231024A00011	12/18/2023	5.43	12/18/2024	12/18/2023	103.91635	103.0228354	102.1447763	101.2817689	100.4334275	99.5993797	98.77926547	97.97273691	97.17945761
231024A00017	10/24/2023	4.97	10/25/2027	10/24/2023	118.28424	114.3154232	110.5049641	106.8456023	103.3304545	99.95299479	96.70703359	93.58669795	90.58641329
231024A00029	10/24/2023	4.97	10/25/2027	10/24/2023	118.28424	114.3154232	110.5049641	106.8456023	103.3304545	99.95299479	96.70703359	93.58669795	90.58641329
231024A00030	10/24/2023	4.96	10/24/2028	10/24/2023	123.39954	118.2711638	113.3929942	108.7513713	104.3334615	100.1272021	96.12125033	92.3049358	88.66821679
231024A00039	10/24/2023	5.06	10/26/2026	10/24/2023	113.26895	110.4169378	107.6527247	104.9730231	102.3746964	99.85474816	97.41031469	95.03865805	92.73715944
231024A00046	10/24/2023	4.96	10/24/2028	10/24/2023	123.39954	118.2711638	113.3929942	108.7513713	104.3334615	100.1272021	96.12125033	92.3049358	88.66821679
231024A00076	10/24/2023	5.31	4/24/2025	10/24/2023	105.49309	104.2441175	103.024933	101.8344742	100.6717322	99.53574477	98.42559372	97.34040263	96.27933432
231024A00079	10/24/2023	5.18	10/24/2025	10/24/2023	108.07238	106.3057725	104.5768419	102.8844432	101.2274821	99.60490829	98.0157133	96.45892835	94.93362236
231024A00082	10/24/2023	5.05	10/23/2026	10/24/2023	113.19787	110.3551566	107.5997483	104.9283906	102.3379717	99.82551859	97.38818945	95.02326695	92.72815168
231025A00003	10/25/2023	5.07	10/24/2025	10/25/2023	108.13126	106.3597406	104.6260667	102.9290923	101.2677165	99.64088256	98.04757616	96.48682287	94.95768626
231025A00004	10/25/2023	5.07	10/24/2025	10/25/2023	108.13126	106.3597406	104.6260667	102.9290923	101.2677165	99.64088256	98.04757616	96.48682287	94.95768626
231025A00013	10/25/2023	5.08	10/26/2026	10/25/2023	113.32401	110.4712394	107.7062801	105.0258498	102.4268112	99.90616743	97.46105433	95.08873343	92.78658547
231025A00018	10/25/2023	5.19	10/27/2025	10/25/2023	108.11588	106.341041	104.604176	102.9041286	101.2397918	99.61010334	98.01404354	96.45063298	94.91893049
231025A00024	10/25/2023	5	10/25/2028	10/25/2023	123.60389	118.4678458	113.5824409	108.933989	104.5096301	100.2972767	96.28556323	92.463798	88.82191956
231025A00036	10/25/2023	5.08	10/21/2026	10/25/2023	113.25103	110.413117	107.6622188	104.9950964	102.4086535	99.89993153	97.46610246	95.1044617	92.81242185
231025A00068	10/25/2023	5.33	4/25/2025	10/25/2023	105.5312	104.2792541	103.0572227	101.8640429	100.6986992	99.56022339	98.44769156	97.36022194	96.29697232
231027A00019	10/27/2023	4.99	10/27/2026	10/27/2023	113.09056	110.2382633	107.4738549	104.7940478	102.195699	99.67580641	97.23150078	94.86003909	92.55879781
231027A00021	10/27/2023	5.13	10/30/2025	10/27/2023	108.07241	106.2894871	104.5448501	102.8373263	101.1657957	99.52918342	97.92645804	96.35662896	94.81874451
231027A00028	10/27/2023	4.92	10/23/2028	10/27/2023	123.19541	118.0746924	113.203748	108.5689445	104.1574749	99.95730112	95.95710322	92.14623204	88.51466557
231027A00035	10/27/2023	4.99	10/30/2026	10/27/2023	113.13361	110.2724043	107.4995713	104.8117932	102.2059025	99.67887358	97.22781561	94.84996506	92.54267915
231027A00036	10/27/2023	5.13	11/3/2025	10/27/2023	108.13144	106.3368477	104.5809855	102.8626829	101.1808141	99.5342983	97.92209778	96.3432153	94.79669226
231027A00043	10/27/2023	4.99	10/27/2026	10/27/2023	113.09056	110.2382633	107.4738549	104.7940478	102.195699	99.67580641	97.23150078	94.86003909	92.55879781
231030A00007	10/30/2023	5.32	4/30/2025	10/30/2023	105.5854	104.319437	103.0840409	101.8781133	100.7006066	99.55052232	98.42690849	97.32885666	96.2554996
231030A00035	10/30/2023	4.85	10/30/2028	10/30/2023	123.64456	118.47235	113.5537405	108.8748208	104.4225257	100.1845789	96.14944002	92.30625613	88.64481676
231030A00061	10/30/2023	5.32	4/30/2025	10/30/2023	105.5854	104.319437	103.0840409	101.8781133	100.7006066	99.55052232	98.42690849	97.32885666	96.2554996
231031A00021	10/31/2023	5.18	10/30/2025	10/31/2023	108.16032	106.3766031	104.6311842	102.9228928	101.2506083	99.61325555	98.00980274	96.43925894	94.90067212
231031A00022	10/31/2023	5.04	10/30/2026	10/31/2023	113.27183	110.4086952	107.6339819	104.9443676	102.3366834	99.8079024	97.3551324	94.97560866	92.66668722
231031A00033	10/31/2023	5.05	10/30/2026	10/31/2023	113.29947	110.4359534	107.660864	104.9708825	102.3628396	99.83370817	97.38059576	95.00073738	92.69148883

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
231101A00016	11/1/2023	4.99	11/3/2025	11/1/2023	108.13819	106.3390444	104.5788023	102.8562842	101.1703578	99.51993606	97.90397532	96.32147266	94.77146415
231102A00022	11/2/2023	4.91	11/10/2026	11/2/2023	113.0705	110.1788521	107.377393	104.6627524	102.0317078	99.48117829	97.00821762	94.6100072	92.28384957
231102A00024	11/2/2023	4.78	11/2/2028	11/2/2023	122.65771	117.5210134	112.6362831	107.9897083	103.5683119	99.35989876	95.3530042	91.53684564	87.90127806
231102A00031	11/2/2023	5.1	11/3/2025	11/2/2023	108.07837	106.2842537	104.5288662	102.8110297	101.1296186	99.48355243	97.87179353	96.29334495	94.74724829
231102A00032	11/2/2023	4.91	11/2/2026	11/2/2023	112.95537	110.0881769	107.309787	104.616868	102.0062367	99.47485203	97.01980806	94.63832646	92.32775001
231102A00033	11/2/2023	4.83	11/2/2027	11/2/2023	117.87013	113.8863945	110.0624904	106.3910551	102.8651139	99.47805534	96.22360961	93.09582872	90.08906772
231102A00039	11/2/2023	4.91	10/28/2026	11/2/2023	112.88421	110.0320081	107.2677887	104.5882514	101.9902474	99.47076875	97.02694117	94.65601675	92.35536744
231103A00002	11/3/2023	4.67	11/29/2027	11/3/2023	117.63724	113.5796171	109.6877628	105.954032	102.3711674	98.93228278	95.63084144	92.46063695	89.4157747
231103A00008	11/3/2023	4.97	11/3/2025	11/3/2023	107.84836	106.0563462	104.3030161	102.5871994	100.9077717	99.26365365	97.65380846	96.07724011	94.53299109
231103A00029	11/3/2023	4.75	11/3/2026	11/3/2023	112.5257	109.6616639	106.8864555	104.1967433	101.5893437	99.06121515	96.60945079	94.23127135	91.92401849
231103A00034	11/3/2023	4.49	11/3/2028	11/3/2023	121.9667	116.8225333	111.9316376	107.2800903	102.8548152	98.64352555	94.63467199	90.81739359	87.18147284
231106A00007	11/6/2023	4.78	11/5/2027	11/6/2023	117.72332	113.7336563	109.9044128	106.2281958	102.6980024	99.30719353	96.04947264	92.91886569	89.90970257
231106A00020	11/6/2023	5.02	11/6/2025	11/6/2023	107.98044	106.1787987	104.4162101	102.691497	101.0035334	99.35123736	97.73356946	96.14953021	94.5981583
231107A00009	11/7/2023	5.03	11/7/2025	11/7/2023	108.01278	106.2080357	104.4424635	102.714886	101.0241764	99.36925242	97.74907344	96.16263894	94.60898637
231107A00011	11/7/2023	4.84	11/9/2026	11/7/2023	112.86067	109.9748329	107.1789425	104.4696383	101.8437046	99.29806754	96.82978789	94.43605386	92.11417479
231108A00015	11/8/2023	4.83	11/9/2026	11/8/2023	112.83276	109.9473062	107.1517991	104.4428692	101.817301	99.27202103	96.80409018	94.41069699	92.08915104
231108A00026	11/8/2023	5.04	11/7/2025	11/8/2023	108.03058	106.2256752	104.4599429	102.7322081	101.0413442	99.38626858	97.76594066	96.17935984	94.62556349
231108A00028	11/8/2023	4.83	11/9/2026	11/8/2023	112.83276	109.9473062	107.1517991	104.4428692	101.817301	99.27202103	96.80409018	94.41069699	92.08915104
231113A00034	11/13/2023	5.16	11/13/2025	11/13/2023	108.33375	106.5091942	104.7245479	102.9786358	101.2703272	99.59853444	97.96221059	96.36034774	94.79197507
231113A00036	11/13/2023	5.3	5/15/2025	11/13/2023	105.79677	104.4905918	103.211653	101.9591016	100.7321226	99.52993489	98.35178913	97.19696648	96.06477687
231113A00038	11/13/2023	4.97	11/13/2026	11/13/2023	113.28186	110.3786516	107.5662154	104.8411608	102.2002483	99.64038022	97.15859347	94.75205248	92.418043
231114A00026	11/14/2023	4.97	11/14/2025	11/14/2023	108.00676	106.1824214	104.3980471	102.6524677	100.9445535	99.27321755	97.63741357	96.03613389	94.46840777
231114A00027	11/14/2023	4.76	11/13/2026	11/14/2023	112.69323	109.7983375	106.9940127	104.2768775	101.6436985	99.09138404	96.61697642	94.21764561	91.89068254
231114A00028	11/14/2023	4.68	11/15/2027	11/14/2023	117.48244	113.4683742	109.6168235	105.9203002	102.3717013	98.96428974	95.69167414	92.54778838	89.52687338
231114A00032	11/14/2023	5.35	11/14/2024	11/14/2023	103.36598	102.5681828	101.7827575	101.0094195	100.2478907	99.49790146	98.75919028	98.03150354	97.3145952
231114A00046	11/14/2023	4.62	11/14/2028	11/14/2023	122.04238	116.8851266	111.9826625	107.3209721	102.8868919	98.66805018	94.65281436	90.83024317	87.19004158
231114A00072	11/14/2023	4.67	11/15/2027	11/14/2023	117.44427	113.4309269	109.5800796	105.8842389	102.3363023	98.92953383	95.6575426	92.51426327	89.49393739
231114A00074	11/14/2023	4.6	11/14/2028	11/14/2023	121.94581	116.7908625	111.8906155	107.2310626	102.799044	98.58219102	94.56887453	90.74815617	87.1097438
231115A00039	11/15/2023	4.85	11/16/2026	11/15/2023	112.98818	110.0805517	107.2640997	104.5354287	101.8912878	99.32856723	96.8442916	94.43561304	92.09980484
231117A00001	11/17/2023	4.99	11/12/2025	11/17/2023	108.01384	106.1950525	104.4160024	102.6755186	100.9724725	99.3057783	97.67439146	96.07730637	94.51355466
231117A00002	11/17/2023	4.76	11/12/2026	11/17/2023	112.67926	109.7874087	106.9859599	104.2715315	101.6408952	99.09096416	96.61878603	94.22153582	91.89650957
231117A00003	11/17/2023	4.59	11/17/2028	11/17/2023	121.93524	116.771767	111.8638217	107.1973446	102.7591238	98.53674114	94.51852037	90.69347875	87.05128209
231121A00015	11/21/2023	4.75	11/30/2026	11/21/2023	112.90241	109.9559669	107.1030729	104.3402609	101.6642103	99.07174093	96.55980652	94.12548796	91.76598753

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
231122A00029	11/22/2023	5.05	11/24/2025	11/22/2023	108.29695	106.4417733	104.6277739	102.8537759	101.1186435	99.42128088	97.76063113	96.13567423	94.5454256
231127A00024	11/27/2023	4.78	11/27/2026	11/27/2023	112.94579	110.0073118	107.1618773	104.4060377	101.7364872	99.1500609	96.64372752	94.21458329	91.85984565
231127A00025	11/27/2023	4.68	11/29/2027	11/27/2023	117.6758	113.6174373	109.7248656	105.9904388	102.4068991	98.96735912	95.66528162	92.49445941	89.44899721
231127A00026	11/27/2023	4.61	11/27/2028	11/27/2023	122.15824	116.9601321	112.0205557	107.325253	102.860827	98.61468407	94.5749814	90.73057872	87.07099297
231127A00065	11/27/2023	5.03	11/26/2025	11/27/2023	108.28955	106.4288058	104.609475	102.8303781	101.0903778	99.38837684	97.72331634	96.09417394	94.49996241
231128A00002	11/28/2023	4.41	11/30/2028	11/28/2023	121.91948	116.6968657	111.7350909	107.0197343	102.5372429	98.27487716	94.2206586	90.36332016	86.69226064
231128A00003	11/28/2023	4.41	11/30/2028	11/28/2023	121.91948	116.6968657	111.7350909	107.0197343	102.5372429	98.27487716	94.2206586	90.36332016	86.69226064
231128A00009	11/28/2023	4.73	12/14/2026	11/28/2023	113.03439	110.0474521	107.1564863	104.3578895	101.6482159	99.02416741	96.4825864	94.02044883	91.63485791
231129A00006	11/29/2023	4.25	11/29/2028	11/29/2023	121.12531	115.924765	110.9840787	106.2888783	101.8256587	97.58172572	93.54514393	89.70468706	86.04979256
231129A00039	11/29/2023	4.97	5/30/2025	11/29/2023	105.59203	104.2484059	102.9286569	101.6321952	100.3584503	99.10686995	97.87691971	96.66808185	95.47985493
231129A00073	11/29/2023	4.81	5/29/2025	11/29/2023	105.5799	104.2355564	102.9154174	101.6188748	100.3453378	99.09423535	97.86501501	96.65714229	95.47009991
231130A00072	11/30/2023	4.83	12/1/2025	11/30/2023	107.99279	106.1208805	104.2909173	102.5017164	100.7521349	99.04106919	97.36745323	95.73025709	94.12848546
231130A00073	11/30/2023	4.61	11/30/2026	11/30/2023	112.50343	109.5627052	106.7153971	103.9580371	101.2873091	98.70003694	96.19317828	93.76381785	91.40916156
231130A00074	11/30/2023	4.45	11/30/2028	11/30/2023	121.41651	116.2274322	111.2970801	106.6111699	102.1562789	97.91978883	93.88983391	90.055252	86.40553954
231201A00034	12/1/2023	4.62	3/2/2026	12/1/2023	108.85419	106.71801	104.6349756	102.6034068	100.6216883	98.68826817	96.80165426	94.96041168	93.16316007
231205A00025	12/5/2023	4.61	12/15/2025	12/5/2023	108.0407	106.1254855	104.2540523	102.4251412	100.6375362	98.8900638	97.18159146	95.51102579	93.87731096
231206A00012	12/6/2023	4.31	12/6/2028	12/6/2023	120.80219	115.6110179	110.6796765	105.9937696	101.5397739	97.30497901	93.27743522	89.44590363	85.7998107
231206A00016	12/6/2023	4.74	6/6/2025	12/6/2023	105.60045	104.23407	102.8920159	101.5736883	100.278511	99.00592559	97.75539171	96.5263856	95.31839981
231206A00046	12/6/2023	4.39	12/6/2027	12/6/2023	116.6463	112.5880881	108.6966288	104.9641929	101.3834489	97.94744084	94.64956742	91.48356206	88.44347421
231206A00047	12/6/2023	4.31	12/6/2028	12/6/2023	120.80219	115.6110179	110.6796765	105.9937696	101.5397739	97.30497901	93.27743522	89.44590363	85.7998107
231206A00065	12/6/2023	4.58	12/8/2025	12/6/2023	107.8903	105.9955653	104.1437641	102.3336694	100.5640991	98.83391202	97.14200659	95.48731883	93.86882099
231206A00070	12/6/2023	4.58	12/8/2025	12/6/2023	107.8903	105.9955653	104.1437641	102.3336694	100.5640991	98.83391202	97.14200659	95.48731883	93.86882099
231207A00010	12/7/2023	4.38	12/7/2027	12/7/2023	116.62014	112.5596473	108.6661139	104.9317959	101.3493481	97.91180189	94.61254416	91.44529737	88.40410071
231207A00011	12/7/2023	4.28	12/7/2028	12/7/2023	120.66673	115.4760226	110.5452933	105.860136	101.4070118	97.17319612	93.14672631	89.31635177	85.67148826
231207A00014	12/7/2023	4.7	12/8/2025	12/7/2023	107.84599	105.9565401	104.1098197	102.3046139	100.5397483	98.81408878	97.12654053	95.47604605	93.86158374
231207A00016	12/7/2023	4.47	12/7/2026	12/7/2023	112.1939	109.2384052	106.3773949	103.6073439	100.9248777	98.32676576	95.80991408	93.3713589	91.00826038
231207A00018	12/7/2023	4.7	12/8/2025	12/7/2023	107.84599	105.9565401	104.1098197	102.3046139	100.5397483	98.81408878	97.12654053	95.47604605	93.86158374
231207A00034	12/7/2023	4.7	12/5/2025	12/7/2023	107.80604	105.9250846	104.0865062	102.2891015	100.5317099	98.81321098	97.13252281	95.48860016	93.8804332
231207A00035	12/7/2023	4.47	12/7/2026	12/7/2023	112.1939	109.2384052	106.3773949	103.6073439	100.9248777	98.32676576	95.80991408	93.3713589	91.00826038
231211A00057	12/11/2023	4.58	12/11/2029	12/11/2023	126.31498	119.9119635	113.8857231	108.2119885	102.8681787	97.83327308	93.08769613	88.61321078	84.39282061
231211A00071	12/11/2023	5.22	12/16/2024	12/11/2023	103.70224	102.8152365	101.9434845	101.0865912	100.2441782	99.41587986	98.60134267	97.80022495	97.01219626
231212A00007	12/12/2023	5.16	2/5/2025	12/12/2023	104.32754	103.297837	102.2885657	101.2991215	100.3289233	99.37741233	98.44405135	97.52832358	96.6297317
231212A00008	12/12/2023	5.26	12/12/2024	12/12/2023	103.68233	102.8063744	101.9452933	101.0987103	100.2662606	99.44759165	98.64236239	97.85024308	97.07091469

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
231212A00009	12/12/2023	5.01	6/12/2025	12/12/2023	105.8331	104.4518903	103.095484	101.7632637	100.4546367	99.1690291	97.90588542	96.66466752	95.44485411
231212A00016	12/12/2023	4.59	12/7/2026	12/12/2023	112.53821	109.5777407	106.7118799	103.9370951	101.2500082	98.6473848	96.12612758	93.68326941	91.31596729
231212A00018	12/12/2023	4.5	12/6/2027	12/12/2023	117.07259	113.0061617	109.1067341	105.3665698	101.778328	98.33504396	95.03010813	91.85724591	88.8104991
231212A00067	12/12/2023	4.82	12/12/2025	12/12/2023	108.12446	106.2214955	104.3617848	102.5440854	100.7672025	99.02998299	97.33131361	95.6701194	94.04536206
231213A00018	12/13/2023	4.99	6/16/2025	12/13/2023	105.86295	104.4704256	103.1030753	101.7602777	100.441427	99.14593683	97.87323965	96.62278585	95.3940431
231213A00019	12/13/2023	4.97	6/13/2025	12/13/2023	105.79245	104.4087624	103.049961	101.7154312	100.4045773	99.11682256	97.85160848	96.60839425	95.38665598
231213A00049	12/13/2023	4.14	12/13/2028	12/13/2023	120.04687	114.854302	109.9228175	105.2378915	100.785884	96.55397841	92.53012789	88.7030051	85.06195574
231214A00003	12/14/2023	4.7	6/16/2025	12/14/2023	105.46161	104.071984	102.7074883	101.3674973	100.0514063	98.75863028	97.48860292	96.24077575	95.01461758
231214A00029	12/14/2023	4.49	12/15/2025	12/14/2023	107.5434	105.6379275	103.7759475	101.9562133	100.1775187	98.43869973	96.73863287	95.07623341	93.45045376
231214A00036	12/14/2023	4.19	12/14/2026	12/14/2023	111.47457	108.5103029	105.6414492	102.8644298	100.1758165	97.57232753	95.05082124	92.60828884	90.24184823
231214A00058	12/14/2023	4.69	6/13/2025	12/14/2023	105.40725	104.0263373	102.6702605	101.3384095	100.0301897	98.74502569	97.48236005	96.2416531	95.02238201
231214A00074	12/14/2023	4.69	6/13/2025	12/14/2023	105.40725	104.0263373	102.6702605	101.3384095	100.0301897	98.74502569	97.48236005	96.2416531	95.02238201
231214A00075	12/14/2023	4.49	12/15/2025	12/14/2023	107.5434	105.6379275	103.7759475	101.9562133	100.1775187	98.43869973	96.73863287	95.07623341	93.45045376
231215A00018	12/15/2023	4.19	12/15/2027	12/15/2023	115.97984	111.9094773	108.007476	104.2659846	100.6775574	97.23513303	93.93201194	90.7618365	87.71857154
231218A00023	12/18/2023	4.76	6/18/2025	12/18/2023	105.57204	104.1760687	102.8054278	101.4594869	100.1376348	98.83927979	97.56384908	96.31078821	95.07956018
231218A00027	12/18/2023	4.96	2/19/2025	12/18/2023	104.2906	103.2230238	102.1774152	101.1530996	100.1494301	99.16578562	98.20157008	97.25621069	96.32915707
231218A00052	12/18/2023	4.54	12/18/2025	12/18/2023	107.67628	105.7614019	103.8903962	102.0619979	100.2749861	98.52818242	96.82044987	95.15069073	93.51784507
231218A00070	12/18/2023	4.6	6/18/2025	12/18/2023	105.57508	104.1754811	102.8013374	101.4520079	100.1268774	98.8253504	97.54685072	96.29082049	95.05671948
231219A00007	12/19/2023	5.05	12/19/2024	12/19/2023	103.59174	102.69705	101.8178896	100.9538528	100.1045508	99.26960821	98.44866236	97.64136259	96.84736996
231219A00008	12/19/2023	5.05	12/19/2024	12/19/2023	103.59174	102.69705	101.8178896	100.9538528	100.1045508	99.26960821	98.44866236	97.64136259	96.84736996
231219A00009	12/19/2023	4.75	6/19/2025	12/19/2023	105.57182	104.1730716	102.7997521	101.4512241	100.1268729	98.82610365	97.54834068	96.2930266	95.05962161
231219A00011	12/19/2023	4.75	6/19/2025	12/19/2023	105.57182	104.1730716	102.7997521	101.4512241	100.1268729	98.82610365	97.54834068	96.2930266	95.05962161
231219A00012	12/19/2023	4.54	12/19/2025	12/19/2023	107.68916	105.7714488	103.8977315	102.0667371	100.2772396	98.52805605	96.81804509	95.14610479	93.51117122
231219A00013	12/19/2023	4.27	12/18/2026	12/19/2023	111.75458	108.7752658	105.892154	103.1016157	100.4001835	97.78453936	95.25150679	92.79804439	90.42123919
231219A00015	12/19/2023	4.17	12/20/2027	12/19/2023	115.9619	111.8779933	107.9635503	104.2106458	100.6117627	97.1597729	93.8479152	90.66977423	87.61926116
231219A00016	12/19/2023	4.27	12/18/2026	12/19/2023	111.75458	108.7752658	105.892154	103.1016157	100.4001835	97.78453936	95.25150679	92.79804439	90.42123919
231219A00019	12/19/2023	4.17	12/15/2027	12/19/2023	115.90184	111.8329845	107.9324501	104.1923811	100.6053338	97.16424813	93.86242632	90.69351215	87.65147189
231219A00025	12/19/2023	4.06	12/15/2028	12/19/2023	119.6754	114.4862373	109.5583683	104.8772463	100.4292038	96.20139937	92.18176376	88.35894937	84.72228362
231219A00060	12/19/2023	4.22	6/21/2027	12/19/2023	113.90509	110.3696367	106.9649582	103.6855172	100.5260448	97.48152167	94.54716541	91.71841772	88.99093279
231220A00008	12/20/2023	4.99	12/18/2024	12/20/2023	103.52516	102.6335306	101.7573301	100.8961589	100.0496318	99.21737665	98.39903409	97.59425652	96.80270796
231220A00014	12/20/2023	4.99	12/20/2024	12/20/2023	103.5513	102.6540674	101.7724565	100.9060574	100.0544781	99.21733985	98.39427677	97.58493529	96.7889736
231220A00015	12/20/2023	4.48	12/19/2025	12/20/2023	107.57541	105.6588034	103.7861713	101.9562416	100.167789	98.41963121	96.71062728	95.0396758	93.40571333
231220A00027	12/20/2023	4.99	12/16/2024	12/20/2023	103.49902	102.6129906	101.7421987	100.886254	100.0447783	99.21740619	98.40378443	97.60357154	96.81643725

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
231220A00028	12/20/2023	4.13	12/20/2027	12/20/2023	115.80534	111.7244754	107.8129862	104.062946	100.466841	97.01754655	93.70830443	90.53270233	87.48465428
231220A00030	12/20/2023	4.48	12/22/2025	12/20/2023	107.61355	105.6884548	103.8076948	101.9699838	100.174082	98.41879315	96.70296295	95.0254774	93.385261
231220A00031	12/20/2023	4.23	12/21/2026	12/20/2023	111.67495	108.688575	105.7988817	103.002218	100.2950907	97.67415685	95.13621712	92.67820825	90.29719678
231220A00032	12/20/2023	4.57	12/19/2025	12/20/2023	107.74604	105.8277714	103.9535117	102.1219849	100.3319648	98.58226847	96.871754	95.19931929	93.56390016
231220A00036	12/20/2023	4.87	2/27/2025	12/20/2023	104.28887	103.1995294	102.1330445	101.0887037	100.0658217	99.06374079	98.08183018	97.11948428	96.17612158
231221A00003	12/21/2023	4.39	12/22/2025	12/21/2023	107.44218	105.5187578	103.6396392	101.8035389	100.0092178	98.25548036	96.54117329	94.86518328	93.22643556
231221A00006	12/21/2023	4.14	12/21/2026	12/21/2023	111.41324	108.430694	105.5447341	102.7517132	100.0481409	97.43067718	94.89612531	92.4414247	90.06364435
231221A00008	12/21/2023	3.99	12/21/2028	12/21/2023	119.39392	114.1948098	109.2583945	104.5699991	100.1158419	95.88297658	91.85923769	88.03318958	84.39407893
231221A00014	12/21/2023	4.14	6/21/2027	12/21/2023	113.63223	110.1014351	106.7012798	103.4262387	100.271047	97.2306898	94.30038854	91.47558879	88.75194841
231221A00039	12/21/2023	3.99	12/21/2028	12/21/2023	119.39392	114.1948098	109.2583945	104.5699991	100.1158419	95.88297658	91.85923769	88.03318958	84.39407893
231221A00086	12/21/2023	4.48	6/23/2025	12/21/2023	105.47515	104.0623627	102.6754896	101.3138794	99.97690043	98.66394177	97.37441223	96.10773961	94.86337002
231221A00104	12/21/2023	4.3	12/30/2025	12/21/2023	107.645	105.6928561	103.7862073	101.9237226	100.104115	98.32614337	96.58861096	94.89036305	93.23028537
231222A00004	12/22/2023	4	12/22/2028	12/22/2023	119.45367	114.2503134	109.3099788	104.6179679	100.1604755	95.92453389	91.89795798	88.06929383	84.42777133
231222A00014	12/22/2023	4.92	12/20/2024	12/22/2023	103.48868	102.5917508	101.7104391	100.8443357	99.99304838	99.15619866	98.33342071	97.52436102	96.72867784
231222A00019	12/22/2023	4.92	12/23/2024	12/22/2023	103.5273	102.6219774	101.732552	100.8586097	99.99974797	99.15557823	98.32572507	97.50982581	96.70752994
231222A00027	12/22/2023	4.84	2/21/2025	12/22/2023	104.18642	103.1139966	102.0637514	101.0350028	100.0270945	99.03939671	98.07130478	97.12223799	96.19163841
231222A00032	12/22/2023	4.94	12/16/2024	12/22/2023	103.45484	102.5690241	101.6984409	100.8427024	100.0014305	99.17425974	98.36083699	97.56082079	96.77388095
231222A00039	12/22/2023	4.44	12/22/2025	12/22/2023	107.53739	105.6130339	103.7330034	101.8960083	100.100809	98.34620969	96.63105643	94.95423557	93.31467192
231226A00024	12/26/2023	4.03	12/26/2028	12/26/2023	119.64379	114.4246089	109.4697301	104.7643498	100.2945716	96.04734368	92.01040329	88.17222507	84.521973
231226A00027	12/26/2023	4.22	12/28/2026	12/26/2023	111.73052	108.7241207	105.8156267	103.0013152	100.2776287	97.64116429	95.0886656	92.61701586	90.22323108
231226A00043	12/26/2023	4.46	12/26/2025	12/26/2023	107.6261	105.6900565	103.7988222	101.9510942	100.1456132	98.38116453	96.65657624	94.97071752	93.32249685
231226A00095	12/26/2023	4.22	12/28/2026	12/26/2023	111.73052	108.7241207	105.8156267	103.0013152	100.2776287	97.64116429	95.0886656	92.61701586	90.22323108
231226A00098	12/26/2023	4.67	6/26/2025	12/26/2023	105.5546	104.1365495	102.7445901	101.378064	100.0363333	98.71878093	97.42480995	96.1538426	94.90531961
231227A00005	12/27/2023	4.17	12/28/2026	12/27/2023	111.58416	108.5799152	105.6735224	102.8612607	100.1395746	97.50506243	94.95446951	92.48468054	90.09271294
231227A00013	12/27/2023	4.44	6/27/2025	12/27/2023	105.47213	104.048216	102.6506073	101.2786325	99.93164641	98.60902517	97.31016525	96.0344827	94.78141229
231227A00023	12/27/2023	3.98	12/27/2028	12/27/2023	119.40695	114.1907463	109.2389078	104.5366174	100.0699671	95.82589421	91.79212659	87.95713036	84.31006191
231227A00026	12/27/2023	4.6	6/27/2025	12/27/2023	105.46906	104.0488629	102.6548436	101.2863398	99.94271024	98.62333512	97.32761459	96.05496824	94.80483422
231227A00027	12/27/2023	4.42	12/26/2025	12/27/2023	107.5495	105.6142037	103.7237072	101.8767031	100.0719325	98.3081811	96.58427729	94.89909061	93.25152987
231227A00028	12/27/2023	4.85	2/4/2025	12/27/2023	103.99845	102.9732605	101.9683724	100.9831832	100.0171169	99.06961967	98.14015892	97.22822229	96.33331669
231227A00030	12/27/2023	4.44	6/27/2025	12/27/2023	105.47213	104.048216	102.6506073	101.2786325	99.93164641	98.60902517	97.31016525	96.0344827	94.78141229
231228A00025	12/28/2023	4.05	12/28/2027	12/28/2023	115.58567	111.4868757	107.5591189	103.7943524	100.1849518	96.72368894	93.40370997	90.21851337	87.16193025
231228A00026	12/28/2023	3.96	12/28/2028	12/28/2023	119.31833	114.1014989	109.149223	104.4466724	99.97992118	95.7358908	91.70229433	87.86758446	84.22090539
240129A00066	1/29/2024	4.88	1/23/2025	1/29/2024	103.88171	102.8898858	101.9170893	100.9627726	100.0264117	99.10750228	98.20555877	97.32011353	96.45071596

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
240104A00068	1/4/2024	4.76	7/3/2025	1/4/2024	105.77649	104.3376539	102.9256229	101.5397072	100.179244	98.84359237	97.53213261	96.24426508	94.97940965
240126A00004	1/26/2024	4.9	1/21/2025	1/26/2024	103.87629	102.8899609	101.9224538	100.9732282	100.0417683	99.12757795	98.23017897	97.34911086	96.48392983
240122A00016	1/22/2024	4.66	7/22/2025	1/22/2024	105.88189	104.3913859	102.9295902	101.4957474	100.0891244	98.70901349	97.35473085	96.02561578	94.72102968
240131A00033	1/31/2024	4.18	1/30/2026	1/31/2024	107.79317	105.7556466	103.7675818	101.8274618	99.9338305	98.08528647	96.28048014	94.51811168	92.79692874
240112A00022	1/12/2024	4.24	1/12/2026	1/12/2024	107.42914	105.4488593	103.5154687	101.6275661	99.78380427	97.98288523	96.22355784	94.50461581	92.82489581
240112A00036	1/12/2024	4.07	1/12/2027	1/12/2024	111.46511	108.4217241	105.4787825	102.6324177	99.87893231	97.21479184	94.63661624	92.14117244	89.72536699
240125A00068	1/25/2024	4.11	1/25/2028	1/25/2024	116.7118	112.4979514	108.4633009	104.5992518	100.897666	97.35083779	93.95146818	90.69264144	87.56780275
240131A00013	1/31/2024	4.13	2/1/2027	1/31/2024	111.87895	108.7744459	105.7741288	102.8739125	100.0698977	97.35836045	94.73574229	92.19864252	89.74380992
240126A00032	1/26/2024	4.31	1/26/2026	1/26/2024	108.00462	105.9757658	103.9958978	102.0635234	100.1772076	98.3355692	96.53727763	94.78105126	93.06565495
240108A00018	1/8/2024	4.94	1/8/2025	1/8/2024	103.75044	102.8002739	101.8675853	100.9518978	100.0527487	99.16969192	98.30229743	97.45015034	96.61285035
240131A00015	1/31/2024	4.02	1/31/2029	1/31/2024	111.96309	108.7578534	105.6814469	102.727602	99.89039732	97.16424056	94.54384805	92.02422568	89.60065112
240119A00008	1/19/2024	4.89	1/24/2025	1/19/2024	103.90415	102.9094774	101.9339326	100.9769683	100.0380562	99.11668815	98.21237477	97.32464477	96.45304411
240103A00004	1/3/2024	4.48	1/5/2026	1/3/2024	107.81121	105.8459589	103.9267915	102.0523452	100.2213084	98.43241657	96.68445042	94.97623401	93.30663283
240104A00014	1/4/2024	4.72	7/3/2025	1/4/2024	105.71926	104.2808537	102.8692427	101.4837398	100.1236826	98.78843015	97.47736298	96.18988166	94.92540618
240103A00005	1/3/2024	4.28	1/4/2027	1/3/2024	111.99145	108.9620563	106.031879	103.1971296	100.4541819	97.79956804	95.22997087	92.74221616	90.33326578
240105A00011	1/5/2024	5.06	12/5/2024	1/5/2024	103.41498	102.5594152	101.7180629	100.890571	100.0765982	99.27581482	98.48790146	97.71254911	96.9494586
240122A00081	1/22/2024	4.93	1/22/2025	1/22/2024	103.91844	102.9291575	101.9588001	101.0068259	100.0727152	99.15596749	98.25610093	97.3726514	96.50517165
240118A00004	1/18/2024	4.74	1/17/2025	1/18/2024	103.82566	102.84833	101.8894776	100.9485819	100.0251408	99.11867103	98.22870677	97.35479927	96.49651592
240116A00052	1/16/2024	4.65	1/16/2025	1/16/2024	103.72579	102.7517224	101.7960207	100.8581705	99.93767382	99.03405147	98.14684154	97.27559893	96.41989452
240112A00044	1/12/2024	4.24	1/12/2026	1/12/2024	107.42914	105.4488593	103.5154687	101.6275661	99.78380427	97.98288523	96.22355784	94.50461581	92.82489581
240109A00031	1/9/2024	4.73	7/9/2025	1/9/2024	105.81318	104.3580235	102.9302624	101.5291919	100.1541272	98.80440673	97.47939071	96.17846059	94.90101804
240119A00013	1/19/2024	4.88	1/31/2025	1/19/2024	103.98199	102.9677469	101.9733669	100.998271	100.0419015	99.10372202	98.18321635	97.27988779	96.39325807
240104A00064	1/4/2024	5.04	1/3/2025	1/4/2024	103.78022	102.8435427	101.9238408	101.020659	100.1335545	99.26210003	98.40588335	97.56450666	96.7375859
240108A00033	1/8/2024	4.96	1/2/2025	1/8/2024	103.69282	102.7592999	101.8426582	100.942435	100.0581914	99.18950419	98.33596472	97.4971787	96.6727654
240112A00021	1/12/2024	4.8	1/13/2025	1/12/2024	103.67948	102.7160324	101.7705677	100.8425856	99.93160348	99.03715643	98.15879623	97.2960908	96.44862343
240126A00006	1/26/2024	4.89	1/31/2025	1/26/2024	103.99209	102.9777934	101.9833595	101.0082104	100.0517885	99.11355714	98.19300036	97.28962136	96.40294186
240131A00014	1/31/2024	4.04	1/31/2029	1/31/2024	120.06572	114.7359536	109.6809954	104.8851715	100.3337816	96.01303602	91.90999485	88.01251097	84.3091774
240119A00029	1/19/2024	4.3	1/13/2027	1/19/2024	112.16008	109.1035918	106.1479865	103.2893751	100.5240423	97.84843666	95.25916192	92.75296976	90.32675219
240130A00076	1/30/2024	4.94	1/30/2025	1/30/2024	104.0299	103.0181334	102.0261309	101.0533159	100.0991347	99.16305481	98.24456401	97.34316908	96.45839517
240129A00056	1/29/2024	4.72	1/29/2025	1/29/2024	103.95672	102.9457842	101.9545827	100.9825409	100.0291065	99.09374804	98.17595436	97.27523332	96.39111103
240125A00069	1/25/2024	4.11	1/25/2028	1/25/2024	116.7118	112.4979514	108.4633009	104.5992518	100.897666	97.35083779	93.95146818	90.69264144	87.56780275
240105A00006	1/5/2024	4.55	1/5/2026	1/5/2024	107.94721	105.9806043	104.0601093	102.1843606	100.3520459	98.56189987	96.81270275	95.10327791	93.43249023
240119A00024	1/19/2024	4.49	1/20/2026	1/19/2024	108.02142	106.0135932	104.0537837	102.1405405	100.2724703	98.4482306	96.66652833	94.92611715	93.22579562

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
240130A00070	1/30/2024	4.33	1/30/2026	1/30/2024	108.09533	106.0546905	104.0635728	102.1204591	100.2238916	98.37246714	96.56483471	94.79969299	93.07578819
240105A00028	1/5/2024	4.76	7/7/2025	1/5/2024	105.82989	104.3799612	102.9572307	101.5610021	100.190598	98.84536341	97.52466532	96.22789142	94.95444937
240116A00083	1/16/2024	4.53	7/16/2025	1/16/2024	105.61279	104.1404173	102.696117	101.2791536	99.88881731	98.52442265	97.18530712	95.87083037	94.58037322
240129A00009	1/29/2024	4.72	1/29/2025	1/29/2024	103.95672	102.9457842	101.9545827	100.9825409	100.0291065	99.09374804	98.17595436	97.27523332	96.39111103
240112A00015	1/12/2024	4.78	1/17/2025	1/12/2024	103.70932	102.7348004	101.7786734	100.8404227	99.91954915	99.01557236	98.12802936	97.25647402	96.40047625
240105A00017	1/5/2024	4.29	1/5/2027	1/5/2024	112.03308	109.0003355	106.0670042	103.2292823	100.4835334	97.82628029	95.25419679	92.76410026	90.35294463
240112A00027	1/12/2024	4.79	1/15/2025	1/12/2024	103.69446	102.7254725	101.774677	100.8415606	99.92563253	99.02642012	98.14346781	97.27633651	96.42460284
240108A00037	1/8/2024	4.69	7/8/2025	1/8/2024	105.74214	104.2901877	102.8655297	101.4674578	100.0952912	98.748372	97.42606399	96.12775201	94.85284094
240108A00023	1/8/2024	4.27	1/8/2027	1/8/2024	112.01041	108.969812	106.0291505	103.1845914	100.4324696	97.769281	95.19167398	92.69644205	90.28051671
240109A00025	1/9/2024	4.47	1/9/2026	1/9/2024	107.82239	105.8466232	103.9174234	102.0334108	100.1932528	98.39566522	96.63941005	94.92329352	93.24616413
240123A00037	1/23/2024	4.2	1/17/2029	1/23/2024	120.72224	115.4152611	110.3797328	105.6002851	101.0625018	96.75285317	92.65863653	88.76792164	85.06949973
240131A00034	1/31/2024	4	1/29/2027	1/31/2024	111.86189	108.7566219	105.7555222	102.8545087	100.0496857	97.33733192	94.71389192	92.17596742	89.72030948
240119A00044	1/23/2024	4.23	1/23/2029	1/23/2024	120.93743	115.608377	110.5526673	105.7547841	101.2001699	96.87516488	92.766947	88.86347629	85.15344312
240108A00038	1/8/2024	4.13	1/8/2029	1/8/2024	120.27678	115.0058632	110.0034444	105.2543937	100.7445102	96.46046202	92.3897287	88.52054748	84.84186375
240129A00049	1/29/2024	4.48	7/29/2025	1/29/2024	105.94715	104.4333367	102.9490997	101.4936437	100.0662039	98.66604218	97.29244592	95.94472687	94.62222013
240131A00026	1/31/2024	4.31	1/30/2026	1/31/2024	107.78651	105.7540866	103.7709069	101.8354694	99.94632636	98.10208446	96.30140179	94.5429858	92.82559109
240125A00061	1/25/2024	4.64	7/25/2025	1/25/2024	105.89131	104.392681	102.9230742	101.4817142	100.0678565	98.68078256	97.3197982	95.98423284	94.67343844
240102A00055	1/2/2024	4.23	1/4/2027	1/2/2024	111.84413	108.8169125	105.8888633	103.0561899	100.3152676	97.6626304	95.09496257	92.60909143	90.20198028
240125A00007	1/25/2024	4.27	1/25/2027	1/25/2024	112.21621	109.12606	106.1389619	103.2509041	100.4580524	97.75674359	95.14347676	92.6149048	90.16782693
240110A00017	1/10/2024	4.94	1/6/2025	1/10/2024	103.72503	102.7804482	101.8531411	100.9426399	100.0484899	99.17025269	98.30750543	97.45984013	96.62686306
240110A00003	1/10/2024	4.78	1/10/2025	1/10/2024	103.7756	102.8176956	101.8775534	100.9546778	100.0485954	99.15884984	98.28500136	97.42662577	96.58331392
240131A00036	1/31/2024	4.51	7/31/2025	1/31/2024	105.77345	104.259656	102.7754753	101.3201148	99.8928076	98.49281352	97.11941799	95.77193086	94.4496854
240112A00033	1/12/2024	4.46	7/11/2025	1/12/2024	105.4475	103.9897545	102.5595597	101.1562004	99.77898588	98.42724867	97.10034359	95.79764683	94.51855504
240102A00029	1/2/2024	4.66	7/2/2025	1/2/2024	105.62034	104.1853463	102.7770351	101.3947252	100.0377579	98.70549629	97.39732423	96.11264576	94.85088417
240117A00054	1/17/2024	4.22	1/18/2028	1/17/2024	116.50783	112.3327871	108.3341554	104.503523	100.8329266	97.31482264	93.94206366	90.70787486	87.60583281
240111A00031	1/11/2024	4.19	1/11/2027	1/11/2024	111.80946	108.7636638	105.8182641	102.9693969	100.2133708	97.5466564	94.96587852	92.46780863	90.04935744
240130A00003	1/30/2024	4.62	7/30/2025	1/30/2024	105.92633	104.4140152	102.9312374	101.4772015	100.0511441	98.65232792	97.28004152	95.93359758	94.61233209
240103A00026	1/3/2024	4.28	1/4/2027	1/3/2024	111.99145	108.9620563	106.031879	103.1971296	100.4541819	97.79956804	95.22997087	92.74221616	90.33326578
240112A00040	1/12/2024	4.24	1/12/2026	1/12/2024	107.42914	105.4488593	103.5154687	101.6275661	99.78380427	97.98288523	96.22355784	94.50461581	92.82489581
240122A00014	1/22/2024	4.93	1/16/2025	1/22/2024	103.84239	102.8699047	101.9157221	100.9793266	100.0602231	99.15793468	98.27200198	97.4019822	96.54744843
240108A00031	1/8/2024	5.2	9/30/2024	1/8/2024	102.64588	101.9741177	101.3111677	100.6568558	100.0110138	99.37347804	98.74408883	98.12269069	97.50913203
240108A00047	1/11/2024	4.95	1/10/2025	1/11/2024	103.78538	102.829571	101.891451	100.9705285	100.0663326	99.17840983	98.30632269	97.4496494	96.60798305
240131A00080	1/31/2024	4.16	1/29/2027	1/31/2024	111.93293	108.8361182	105.8429746	102.9494467	100.151664	97.44592923	94.8287093	92.29662714	89.84645383

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
240130A00047	1/30/2024	4.01	1/30/2029	1/30/2024	120.62124	115.2578672	110.1713524	105.345888	100.766649	96.41973011	92.29208364	88.37146223	84.64636554
240110A00010	1/10/2024	4.42	1/12/2026	1/10/2024	107.78232	105.7984926	103.8616228	101.9703074	100.1231972	98.31899259	96.55644057	94.83433327	93.15150573
240103A00011	1/3/2024	4.84	1/18/2039	1/3/2024	157.97442	140.5822575	125.4634962	112.3003718	100.8214998	90.79487102	82.0219349	74.33259986	67.58100372
240105A00019	1/5/2024	5.02	12/5/2024	1/5/2024	103.38085	102.5254423	101.6842465	100.8569091	100.0430892	99.24245688	98.45469289	97.67948823	96.91654376
240111A00016	1/11/2024	4.63	7/11/2025	1/11/2024	105.69446	104.2348406	102.8028084	101.3976429	100.0186527	98.66516935	97.33654705	96.03216118	94.75140765
240109A00048	1/9/2024	4.12	1/9/2029	1/9/2024	120.23751	114.9647735	109.9607799	105.2103775	100.6993452	96.41433269	92.34280231	88.47297582	84.79378438
240131A00039	1/31/2024	4.22	7/31/2026	1/31/2024	109.87595	107.3113104	104.8208328	102.4019376	100.0521515	97.76910222	95.55051371	93.39420172	91.29806939
240109A00042	1/9/2024	3.99	1/9/2029	1/9/2024	120.29767	115.0012965	109.9754882	105.2049584	100.6753643	96.37324249	92.28595106	88.40161493	84.7090756
240126A00007	1/26/2024	4.9	1/24/2025	1/26/2024	103.91406	102.9193335	101.9437367	100.9867211	100.0477585	99.12634052	98.22197787	97.33419924	96.46255057
240108A00035	1/8/2024	5.04	12/2/2024	1/8/2024	103.35829	102.5111765	101.6779997	100.8584154	100.0520924	99.25871039	98.47795915	97.70953837	96.95315717
240130A00068	1/30/2024	4.17	1/30/2029	1/30/2024	120.71081	115.3678006	110.2999233	105.4914937	100.9278074	96.59507044	92.48033809	88.57145802	84.85701786
240110A00029	1/10/2024	4.5	7/10/2025	1/10/2024	105.72839	104.2673715	102.8339676	101.4274638	100.0471677	98.69241018	97.3625445	96.05694535	94.77500798
240119A00003	1/19/2024	4.68	7/21/2025	1/19/2024	105.89842	104.4104645	102.9511232	101.5196397	100.1152846	98.73735371	97.38516652	96.05806559	94.75541541
240111A00028	1/11/2024	4.09	1/11/2029	1/11/2024	120.10892	114.8337718	109.8278161	105.0758546	100.5636275	96.277749	92.20564943	88.33552103	84.65626807
240119A00007	1/19/2024	4.23	1/19/2029	1/19/2024	120.89408	115.5772765	110.5326452	105.7447637	101.1991648	96.88227177	92.78133855	88.88439499	85.18019554
240130A00037	1/30/2024	5.03	11/29/2024	1/30/2024	103.31072	102.4720213	101.6469864	100.8352817	100.0365856	99.250587	98.47698435	97.71548574	96.96580833
240122A00002	1/22/2024	4.66	7/22/2025	1/22/2024	105.88189	104.3913859	102.9295902	101.4957474	100.0891244	98.70901349	97.35473085	96.02561578	94.72102968
240108A00040	1/8/2024	4.13	1/8/2029	1/8/2024	120.27678	115.0058632	110.0034444	105.2543937	100.7445102	96.46046202	92.3897287	88.52054748	84.84186375
240108A00034	1/8/2024	5.07	11/4/2024	1/8/2024	103.0072	102.2383368	101.4809892	100.7349001	99.99981927	99.27550416	98.5617191	97.8582353	97.16483059
240109A00006	1/9/2024	4.71	7/9/2025	1/9/2024	105.78424	104.3292982	102.9017518	101.5008922	100.1260349	98.77651837	97.45170293	96.15097011	94.87372167
240108A00020	1/8/2024	4.68	7/8/2025	1/8/2024	105.72769	104.2758522	102.8513011	101.4533343	100.081271	98.73445341	97.41224533	96.11403165	94.83921728
240130A00051	1/30/2024	4.94	1/24/2025	1/30/2024	103.9537	102.9587578	101.9829532	101.0257326	100.0865676	99.16495	98.26039029	97.37241713	96.50057642
240119A00028	1/19/2024	4.48	1/13/2026	1/19/2024	107.91273	105.9249033	103.9841775	102.0891509	100.2384684	98.43082449	96.66496072	94.93966398	93.25376432
240111A00020	1/11/2024	4.93	1/13/2025	1/11/2024	103.80436	102.8402669	101.8941658	100.9655556	100.0539536	99.15889443	98.27992986	97.41662763	96.56857087
240131A00059	1/31/2024	4.57	7/31/2025	1/31/2024	105.86391	104.3494066	102.8645288	101.4084831	99.98050242	98.57984626	97.20579971	95.85767236	94.53479719
240111A00021	1/11/2024	4.47	7/11/2025	1/11/2024	105.69785	104.234379	102.7986169	101.3898473	100.0073741	98.65052477	97.31864939	96.01111953	94.72732744
240123A00017	1/23/2024	5.08	11/22/2024	1/23/2024	103.25416	102.4349758	101.6288469	100.8354584	100.0545095	99.28570869	98.52877354	97.78343036	97.04941381
240118A00020	1/18/2024	4.25	2/18/2027	1/18/2024	112.46921	109.3038963	106.2459905	103.2912342	100.4355604	97.67508744	95.00610907	92.42508543	89.92863451
240105A00015	1/5/2024	4.99	1/6/2025	1/5/2024	103.7721	102.8272768	101.8997341	100.9890003	100.0946206	99.21615661	98.35318535	97.50529881	96.6721032
240130A00089	1/30/2024	4.17	1/30/2029	1/30/2024	120.71081	115.3678006	110.2999233	105.4914937	100.9278074	96.59507044	92.48033809	88.57145802	84.85701786
240103A00025	1/3/2024	4.48	1/2/2026	1/3/2024	107.7533	105.7970704	103.8865231	102.0203149	100.1971506	98.41578184	96.67500433	94.97365653	93.31061762
240103A00010	1/3/2024	4.84	1/18/2039	1/3/2024	157.97442	140.5822575	125.4634962	112.3003718	100.8214998	90.79487102	82.0219349	74.33259986	67.58100372
240130A00044	1/30/2024	4.14	1/30/2029	1/30/2024	120.55956	115.2203124	110.1560505	105.3511019	100.7907684	96.46126167	92.34964261	88.44376413	84.73221882

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
240108A00032	1/8/2024	5.14	10/16/2024	1/8/2024	102.80928	102.0932532	101.3872364	100.6910246	100.004414	99.32720666	98.65920981	98.00023606	97.35010304
240122A00006	1/22/2024	4.25	1/22/2027	1/22/2024	112.11997	109.0394745	106.0614586	103.1819395	100.3971139	97.70334784	95.09716749	92.57525151	90.13442329
240122A00015	1/22/2024	4.93	1/16/2025	1/22/2024	103.84239	102.8699047	101.9157221	100.9793266	100.0602231	99.15793468	98.27200198	97.4019822	96.54744843
240117A00021	1/17/2024	4.06	1/17/2029	1/17/2024	120.73394	115.4043353	110.3479732	105.5493559	100.9939455	96.66809964	92.55901132	88.65465379	84.94372893
240130A00034	1/30/2024	4.43	10/30/2025	1/30/2024	107.09314	105.3146628	103.5744705	101.8713942	100.2043115	98.57214578	96.97386378	95.40847326	93.87502106
240119A00022	1/19/2024	4.9	1/30/2025	1/19/2024	103.9896	102.9780559	101.986268	101.0136647	100.0596924	99.12381866	98.20553124	97.30433702	96.41976121
240111A00025	1/11/2024	4.19	1/11/2027	1/11/2024	111.80946	108.7636638	105.8182641	102.9693969	100.2133708	97.5466564	94.96587852	92.46780863	90.04935744
240125A00046	1/25/2024	5.29	8/26/2024	1/25/2024	102.28513	101.7099688	101.1412929	100.5789936	100.0229641	99.47309955	98.92929786	98.39145898	97.85948506
240103A00003	1/3/2024	4.71	7/3/2025	1/3/2024	105.70495	104.2666537	102.8551476	101.469748	100.1097922	98.77463959	97.46367057	96.1762858	94.91190532
240125A00035	1/25/2024	4.89	1/24/2025	1/25/2024	103.90415	102.9094774	101.9339326	100.9769683	100.0380562	99.11668815	98.21237477	97.32464477	96.45304411
240110A00021	1/10/2024	4.13	1/10/2028	1/10/2024	116.05408	111.9101591	107.9405181	104.136895	100.4914595	96.99679204	93.64586036	90.43199703	87.34887858
240122A00086	1/22/2024	4.25	1/22/2027	1/22/2024	112.11997	109.0394745	106.0614586	103.1819395	100.3971139	97.70334784	95.09716749	92.57525151	90.13442329
240108A00030	1/8/2024	5.29	9/3/2024	1/8/2024	102.37586	101.7786418	101.1884106	100.605041	100.0284139	99.45841271	98.89492352	98.33783512	97.78703875
240116A00008	1/16/2024	4.81	1/17/2025	1/16/2024	103.73847	102.7637967	101.8075197	100.8691209	99.94810121	99.04398013	98.15629469	97.2845987	96.42846205
240116A00006	1/16/2024	4.5	7/16/2025	1/16/2024	105.5688	104.0967604	102.6527903	101.2361515	99.84613426	98.48205332	97.14324632	95.82907302	94.53891441
240112A00052	1/12/2024	4.07	1/12/2027	1/12/2024	111.46511	108.4217241	105.4787825	102.6324177	99.87893231	97.21479184	94.63661624	92.14117244	89.72536699
240125A00019	1/25/2024	4.98	12/18/2024	1/25/2024	103.51627	102.6246828	101.7485246	100.887395	100.0409091	99.20869477	98.39039246	97.5856547	96.79414547
240117A00024	1/17/2024	4.78	1/17/2025	1/17/2024	103.86456	102.8870235	101.9279705	100.9868769	100.0632404	99.15657774	98.26642308	97.39232759	96.53385862
240110A00001	1/10/2024	4.42	1/9/2026	1/10/2024	107.72471	105.7499174	103.8216761	101.9386036	100.0993681	98.30268568	96.54731895	94.83207455	93.15580142
240131A00076	1/31/2024	4.35	1/30/2026	1/31/2024	107.86698	105.8337258	103.8497345	101.913501	100.0235773	98.17856947	96.37713534	94.61798191	92.89986341
240108A00041	1/9/2024	4.13	1/9/2029	1/9/2024	120.28735	115.013383	110.008211	105.2566736	100.7445478	96.45848121	92.38593462	88.51512803	84.83499102
240108A00049	1/11/2024	4.95	1/10/2025	1/11/2024	103.78538	102.829571	101.891451	100.9705285	100.0663326	99.17840983	98.30632269	97.4496494	96.60798305
240129A00054	1/29/2024	4.72	1/29/2025	1/29/2024	103.95672	102.9457842	101.9545827	100.9825409	100.0291065	99.09374804	98.17595436	97.27523332	96.39111103
240109A00030	1/9/2024	4.99	1/9/2025	1/9/2024	103.81063	102.8574229	101.9218035	101.003286	100.1014037	99.21570661	98.34576104	97.49114859	96.65146559
240112A00047	1/12/2024	4.46	7/14/2025	1/12/2024	105.48508	104.0190341	102.5808396	101.1697731	99.78513263	98.42624023	97.09244053	95.7831	94.49760602
240117A00023	1/17/2024	4.13	1/19/2027	1/17/2024	112.13353	109.0516337	106.0721946	103.1912368	100.4049612	97.70973728	95.10209463	92.57871496	90.13642443
240130A00036	1/30/2024	4.94	1/30/2025	1/30/2024	104.0299	103.0181334	102.0261309	101.0533159	100.0991347	99.16305481	98.24456401	97.34316908	96.45839517
240130A00005	1/30/2024	4.62	7/30/2025	1/30/2024	105.92633	104.4140152	102.9312374	101.4772015	100.0511441	98.65232792	97.28004152	95.93359758	94.61233209
240123A00057	1/23/2024	4.48	1/23/2026	1/23/2024	108.03965	106.0235385	104.0558259	102.1350481	100.2597952	98.42870913	96.64048172	94.89385248	93.18760644
240130A00059	1/30/2024	4.33	1/30/2026	1/30/2024	108.09533	106.0546905	104.0635728	102.1204591	100.2238916	98.37246714	96.56483471	94.79969299	93.07578819
240131A00021	1/31/2024	4.8	1/27/2025	1/31/2024	103.85192	102.8493211	101.8661588	100.9018715	99.95591866	99.02778006	98.11695509	97.22296174	96.34533577
240130A00057	1/30/2024	4.15	1/29/2027	1/30/2024	112.31512	109.2029796	106.1951763	103.2876265	100.4764292	97.75785764	95.12835139	92.58450726	90.12307161
240111A00053	1/11/2024	4.93	1/10/2025	1/11/2024	103.76633	102.8106215	101.8725978	100.9517704	100.0476684	99.15983826	98.28784263	97.43125972	96.58968264

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
240122A00005	1/22/2024	4.45	1/22/2026	1/22/2024	107.96727	105.9545953	103.9901791	102.072562	100.20034	98.37216056	96.58672093	94.84276565	93.13908456
240112A00014	1/12/2024	4.8	1/10/2025	1/12/2024	103.64252	102.6874497	101.7500521	100.8298426	99.92635076	99.03912303	98.16772226	97.31172681	96.47072996
240129A00030	1/29/2024	5.03	12/2/2024	1/29/2024	103.34984	102.5027652	101.6696268	100.8500804	100.043795	99.2504501	98.46973556	97.70135106	96.94500575
240112A00034	1/12/2024	4.46	7/11/2025	1/12/2024	105.4475	103.9897545	102.5595597	101.1562004	99.77898588	98.42724867	97.10034359	95.79764683	94.51855504
240131A00028	1/31/2024	4.8	1/27/2025	1/31/2024	103.85192	102.8493211	101.8661588	100.9018715	99.95591866	99.02778006	98.11695509	97.22296174	96.34533577
240125A00040	1/25/2024	4.24	12/15/2026	1/25/2024	111.63115	108.661861	105.7882172	103.006622	100.3136362	97.70596828	95.18046697	92.73411449	90.36402022
240122A00050	1/22/2024	4.25	1/22/2027	1/22/2024	112.11997	109.0394745	106.0614586	103.1819395	100.3971139	97.70334784	95.09716749	92.57525151	90.13442329
240131A00044	1/31/2024	4.8	1/27/2025	1/31/2024	103.85192	102.8493211	101.8661588	100.9018715	99.95591866	99.02778006	98.11695509	97.22296174	96.34533577
240108A00022	1/8/2024	4.46	1/8/2026	1/8/2024	107.79025	105.8174955	103.8911798	102.0099254	100.1724053	98.37734073	96.62349851	94.90968962	93.23476708
240131A00054	1/31/2024	4.8	1/31/2025	1/31/2024	103.90118	102.8873742	101.8934258	100.9187557	99.96280619	99.02504104	98.10494425	97.20201919	96.31578773
240126A00031	1/26/2024	4.31	1/26/2026	1/26/2024	108.00462	105.9757658	103.9958978	102.0635234	100.1772076	98.3355692	96.53727763	94.78105126	93.06565495
240103A00018	1/3/2024	4.28	1/4/2027	1/3/2024	111.99145	108.9620563	106.031879	103.1971296	100.4541819	97.79956804	95.22997087	92.74221616	90.33326578
240112A00050	1/12/2024	4.3	7/11/2025	1/12/2024	105.4506	103.9889994	102.5550806	101.1481227	99.76743058	98.41233263	97.0821796	95.77634383	94.49421833
090429A00044	4/29/2009	4.1	4/29/2024	4/29/2014	100.20838	100.1279396	100.0447928	99.93192148	99.77492608	99.61297235	99.45163026	99.29089609	99.13076598
130416A00025	4/16/2013	2.27	4/18/2028	4/16/2018	100.02137	99.75609868	99.04914581	97.79235252	96.10274566	94.23166758	92.35426079	90.52721646	88.75693114
140508A00011	5/8/2014	2.32	5/8/2024	5/8/2019	100.07306	99.96945343	99.8026725	99.61351549	99.42448466	99.23627989	99.04889731	98.8623313	98.67657584
140723A00038	7/23/2014	2.3	7/23/2024	7/23/2019	100.06641	99.94666055	99.71896411	99.44089208	99.15939916	98.87975497	98.60204263	98.32624041	98.05232624
141119A00005	11/19/2014	2.53	11/19/2024	11/19/2019	100.06658	99.93194075	99.63329892	99.22085193	98.78345769	98.34805897	97.91740248	97.4914803	97.07020558
150202A00006	2/2/2015	1.92	2/3/2025	2/3/2020	100.01081	99.78580554	99.36192178	98.83170624	98.28070883	97.73458177	97.19603571	96.66497361	96.14122331
151223A00007	12/23/2015	3.76	12/23/2030	12/23/2022	100.17738	100.0535971	99.66731384	98.42334119	95.91835328	92.26610889	87.9888601	83.61934101	79.4528052
161012A00020	10/11/2016	2.96	10/14/2031	10/11/2023	100.0604	99.76008215	98.697641	96.31317957	92.55422342	87.9520254	83.15938544	78.56074184	74.26589318
170515A00052	5/15/2017	3.78	5/15/2042	5/15/2024	100.61759	100.2068177	99.30137129	97.01300469	92.81471718	87.25670242	81.35078604	75.77552637	70.72904046
170519A00006	5/19/2017	3	5/19/2032	5/19/2022	100.10161	99.93019286	99.32468346	97.8452797	95.38494608	92.26119685	88.94199237	85.70848593	82.64121091
170705A00037	7/5/2017	2.85	7/6/2032	7/6/2027	107.24418	104.3205517	101.3307261	98.20863557	94.90883311	91.49332414	88.09879249	84.84477343	81.76973676
170802A00074	8/2/2017	2.92	8/2/2027	8/2/2022	100.08468	99.92189596	99.4026238	98.25481688	96.44437282	94.20169232	91.82717005	89.48823486	87.22794116
170809A00042	8/9/2017	2.35	8/9/2027	8/9/2022	100.0384	99.815994	99.20918597	98.12541908	96.6750509	95.06903654	93.45490348	91.87875423	90.34550925
171004A00022	10/4/2017	2.74	10/4/2027	10/4/2022	100.07839	99.90346518	99.33838686	98.10274144	96.1690097	93.78609823	91.27070896	88.79680642	86.40895291
171005A00047	10/5/2017	3.29	10/5/2032	10/5/2022	100.12472	99.95188285	99.28587425	97.52344039	94.42569307	90.35508169	85.94797741	81.64198578	77.60486516
180105A00005	1/5/2018	3.07	1/5/2028	1/5/2023	100.13195	100.0179524	99.69366602	98.90850775	97.62455314	95.99000299	94.22533358	92.46796837	90.75876898
180105A00006	1/5/2018	3.07	1/5/2028	1/5/2023	100.13195	100.0179524	99.69366602	98.90850775	97.62455314	95.99000299	94.22533358	92.46796837	90.75876898
180130A00087	1/30/2018	2.92	1/31/2028	1/30/2023	100.11078	99.99474748	99.60442275	98.74091718	97.38564845	95.71241614	93.9386852	92.18413397	90.47923597
180302A00003	3/2/2018	3.89	3/2/2033	3/2/2023	100.20219	100.0840426	99.74040752	98.48748354	95.82208525	91.80469956	87.02814788	82.11649115	77.45518621
180315A00030	3/15/2018	3.76	3/15/2033	3/17/2025	103.34471	102.0281277	100.4690566	98.31704903	95.17261252	90.97458218	86.19305704	81.38798871	76.86739413

	Parallel-Shift Sensitivity Analysis												
1/31/2024					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	100.00288	99.98600684	99.81319182	99.02777421	97.39861568	94.94315253	91.97632463	88.86079095	85.82209182
180627A00005	6/27/2018	3.63	6/30/2033	6/30/2023	100.18127	100.0694814	99.76895645	98.75913174	96.68745528	93.65321684	90.109416	86.50818102	83.07398836
180703A00033	7/3/2018	3.4	7/3/2028	7/3/2023	100.15206	100.0445421	99.78164328	99.0585908	97.77865881	96.05266933	94.12300653	92.17432045	90.2788192
190111A00040	1/11/2019	3.74	1/11/2034	1/11/2024	100.00339	99.95379586	99.55843784	97.99971813	94.92217926	90.5758237	85.63306633	80.70630094	76.08882777
190116A00015	1/16/2019	3.61	1/17/2034	1/16/2024	100.16456	100.0401412	99.637035	98.40242242	96.03116613	92.70628131	88.95230167	85.20654588	81.66017835
190204A00054	2/4/2019	3.98	2/6/2034	2/2/2024	100.1971	100.0697158	99.65469977	98.19620907	95.20284882	90.82919071	85.736018	80.58083823	75.73566068
190222A00023	2/22/2019	3.66	2/22/2034	2/22/2026	106.22898	103.9163533	101.2620146	98.01634291	93.88157519	88.89778449	83.51385303	78.23337248	73.33220969
190301A00015	3/1/2019	3.86	3/1/2034	3/2/2026	106.59814	104.3158014	101.7003586	98.50315051	94.42014438	89.45076354	83.98286973	78.55649792	73.49622167
190409A00016	4/9/2019	2.91	4/9/2029	4/9/2024	100.46154	100.0503512	99.34340245	97.93455333	95.62493991	92.67028669	89.49024116	86.35764894	83.3622883
190409A00017	4/9/2019	3.01	4/9/2029	4/9/2024	100.49381	100.0858919	99.38075508	97.94550796	95.5188972	92.3351413	88.85200204	85.3997144	82.10123627
190430A00020	4/30/2019	3.41	4/28/2034	4/28/2026	105.95424	103.4460042	100.5317965	96.8911628	92.3212431	86.97432506	81.37194306	75.99649123	71.04482426
190520A00018	5/20/2019	3.7	5/20/2044	5/20/2024	100.7923	100.1393998	98.7349017	95.66298552	90.60738961	84.43677075	78.19069298	72.42861489	67.26882067
190530A00044	5/30/2019	2.85	5/30/2034	5/30/2024	100.52897	99.95382445	98.89143274	96.81540958	93.61508423	89.7699247	85.83163299	82.07124974	78.54830199
190807A00041	8/7/2019	2.27	8/7/2034	7/7/2024	100.37419	99.43272155	97.7221866	94.84141398	91.03930194	86.95803212	82.99881336	79.28272253	75.81229124
190807A00044	8/7/2019	2.27	8/7/2034	8/7/2024	100.49058	99.47820487	97.72977483	94.84163718	91.03930205	86.95803212	82.99881336	79.28272253	75.81229124
190827A00044	8/27/2019	1.9	8/27/2029	8/27/2024	100.37955	99.56967898	98.36948516	96.55976402	94.28821877	91.87901298	89.51281325	87.23420968	85.04430391
190930A00079	9/30/2019	2.04	10/1/2029	9/30/2024	100.48511	99.70000029	98.56104801	96.81915508	94.56982762	92.13932641	89.73664684	87.42114871	85.19678165
190930A00083	9/30/2019	2.04	10/1/2029	9/30/2024	100.48511	99.70000029	98.56104801	96.81915508	94.56982763	92.13932641	89.73664684	87.42114871	85.19678165
191007A00012	10/7/2019	2	10/5/2029	10/7/2024	100.57461	99.62338967	98.31147202	96.42631766	94.09091234	91.62370472	89.20504695	86.87841944	84.64438615
191007A00013	10/7/2019	2	10/5/2029	10/7/2024	100.57461	99.62338967	98.31147202	96.42631766	94.09091234	91.62370472	89.20504695	86.87841944	84.64438615
191028A00015	10/28/2019	2.49	10/27/2034	10/28/2024	100.98733	99.89693982	98.21819384	95.51766466	91.83792113	87.74112119	83.70823963	79.91171138	76.36819985
191031A00036	10/31/2019	2.9	10/31/2039	10/31/2024	100.92398	99.71625848	97.58615373	93.89904889	88.88188164	83.42700607	78.19809154	73.40976471	69.05687212
191031A00037	10/31/2019	2.59	10/30/2034	10/31/2024	100.8058	99.78700819	98.14904608	95.44631202	91.75889581	87.66921331	83.65121629	79.87033701	76.34101501
191220A00029	12/20/2019	2.57	12/19/2031	12/20/2024	101.37132	100.2659664	98.82789509	96.74187951	93.9377527	90.76290497	87.58283896	84.54037161	81.65460842
200108A00009	1/8/2020	2.4	1/8/2035	1/8/2025	101.34452	99.86957695	97.72908145	94.49899628	90.30004184	85.77319984	81.38169507	77.27592075	73.46033948
200108A00040	1/8/2020	2.52	1/8/2030	1/8/2025	101.42812	100.1722106	98.47474702	95.97143067	92.58997167	88.75466354	84.90633373	81.2302865	77.7552401
200110A00012	1/10/2020	2.57	1/10/2035	1/10/2025	101.39162	100.0466478	98.12928587	95.25534838	91.46026482	87.28963371	83.20714541	79.37340054	75.79988116
200115A00023	1/15/2020	2.16	1/15/2030	1/15/2025	101.09328	99.96626755	98.56272652	96.66284502	94.2927297	91.74335337	89.22804215	86.80883852	84.48924963
200115A00025	1/15/2020	2.1	1/15/2025	1/15/2023	99.929404	99.6607858	99.0266395	98.14526573	97.18577029	96.23086586	95.29394666	94.37510413	93.4738218
200306A00021	3/6/2020	1.16	3/6/2030	3/6/2025	100.02792	98.52760004	96.52067096	94.02272277	91.35869117	88.74915907	86.24572548	83.84883327	81.55315297
200309A00013	3/9/2020	1.1	3/8/2030	3/9/2025	99.944949	98.42142453	96.37851173	93.85662802	91.18840974	88.5824968	86.08365962	83.69123203	81.3998325
200316A00030	3/16/2020	1.35	3/15/2030	3/16/2025	100.45686	99.05433777	97.22537425	94.86818982	92.23518588	89.60421636	87.07068918	84.64453977	82.32104542
200316A00032	3/16/2020	1.35	3/15/2030	3/16/2025	100.45686	99.05433777	97.22537425	94.86818982	92.23518588	89.60421636	87.07068918	84.64453977	82.32104542

	Parallel-Shift Sensitivity Analysis												
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200318A00015	3/18/2020	1.69	3/18/2030	3/18/2023	99.790402	99.18977955	97.82156985	95.68549922	93.10821898	90.45330281	87.87872924	85.41392233	83.0559754
200326A00035	3/26/2020	1.68	3/26/2030	3/26/2025	100.72246	99.3750929	97.65675208	95.41075581	92.82433533	90.19493791	87.65179765	85.21523934	82.88157933
200423A00008	4/23/2020	1.59	4/23/2030	4/23/2025	100.57853	98.71838279	96.05997604	92.43308077	88.24332464	84.0217798	79.99889059	76.21131277	72.64792783
200423A00009	4/23/2020	1.59	4/23/2030	4/23/2025	100.57853	98.71838279	96.05997604	92.43308077	88.24332464	84.0217798	79.99889059	76.21131277	72.64792783
200423A00010	4/23/2020	1.59	4/23/2030	4/23/2025	100.57853	98.71838279	96.05997604	92.43308077	88.24332464	84.0217798	79.99889059	76.21131277	72.64792783
200430A00021	4/30/2020	1.2	4/30/2030	4/30/2025	100.07475	98.57701279	96.57080423	94.05836009	91.36524571	88.72310057	86.18890453	83.76377192	81.44222687
200505A00010	5/5/2020	0.89	5/6/2030	5/5/2025	99.974078	98.28056692	96.08273427	93.45340456	90.711255	88.04603339	85.49453665	83.05438412	80.71977004
200512A00023	5/12/2020	1.78	5/11/2035	5/12/2025	100.45257	97.96434534	94.28064579	89.36309509	83.91124993	78.59689694	73.67974989	69.18278499	65.07074449
200609A00003	6/9/2020	1.66	6/8/2035	6/9/2025	99.964332	97.04672889	92.70847295	87.1253421	81.11067425	75.34936605	70.07020916	65.27742435	60.92557106
200612A00001	6/12/2020	0.75	6/12/2030	6/12/2025	99.81133	97.99741705	95.67465252	92.96397222	90.18759818	87.50378199	84.93733907	82.48420361	80.13834559
201022A00008	10/22/2020	1.02	10/22/2035	10/22/2025	99.671817	96.76114278	92.91056989	88.40351737	83.84738546	79.55236891	75.56876364	71.8776137	68.45379332
201029A00008	10/29/2020	0.92	10/29/2030	10/29/2025	100.12223	98.08108792	95.59976715	92.76666309	89.8723053	87.07715352	84.40910219	81.86373617	79.43427148
201030A00025	10/30/2020	2.02	10/28/2050	10/30/2025	100.18804	96.01727452	89.87441363	82.2187474	74.33596138	67.16414801	60.94579298	55.59399315	50.96962759
201116A00019	11/16/2020	1.32	11/15/2030	11/16/2025	100.49204	97.87791445	94.48517245	90.3588828	85.97565308	81.72607139	77.72386353	73.96985942	70.44781908
201118A00015	11/18/2020	1.66	11/18/2036	11/18/2027	102.24915	96.96393117	90.81060014	84.05249769	77.26429056	70.9415495	65.24457621	60.14364065	55.57279232
201118A00017	11/18/2020	1.66	11/18/2036	11/18/2027	102.24915	96.96393117	90.81060014	84.05249769	77.26429056	70.9415495	65.24457621	60.14364065	55.57279232
201118A00018	11/18/2020	1.85	11/18/2036	11/18/2027	102.58981	97.37426714	91.31222519	84.61823049	77.85874881	71.53566177	65.82953337	60.71755115	56.13483709
201202A00016	12/2/2020	1.32	12/3/2035	12/2/2025	100.25498	97.35651196	93.58155547	89.11923779	84.52591581	80.16540989	76.11873151	72.37156033	68.89822313
201202A00017	12/2/2020	1.32	12/3/2035	12/2/2025	100.25498	97.35651196	93.58155547	89.11923779	84.52591581	80.16540989	76.11873151	72.37156033	68.89822313
201229A00003	12/29/2020	1.28	12/30/2030	12/30/2025	100.45178	97.7242804	94.21962704	90.00312863	85.56498082	81.2779623	77.24637889	73.46862598	69.92768199
201230A00018	12/30/2020	1.52	12/28/2035	12/28/2027	102.0833	96.83740577	90.81722871	84.25311212	77.67477173	71.53278878	65.97149408	60.96460903	56.45383532
210108A00007	1/8/2021	1.65	1/8/2036	1/8/2026	100.48934	96.93519866	92.11421195	86.2150522	80.00496493	74.11525454	68.74966099	63.89915165	59.51200921
210225A00010	2/25/2021	2.02	2/25/2041	2/25/2026	101.49717	98.13122957	93.6246452	88.06204246	82.12215591	76.46659835	71.32358891	66.68639626	62.50121702
210405A00013	4/5/2021	1.82	4/7/2036	4/5/2026	101.96617	99.08693858	95.5297896	91.24655035	86.60380629	82.06632876	77.82978499	73.91088113	70.28486946
210622A00004	6/22/2021	2.42	6/20/2036	6/22/2026	103.18518	99.7562989	95.38408534	89.9359474	83.80334373	77.68675331	72.01571989	66.88323617	62.25037283
210910A00009	9/10/2021	1.77	9/10/2036	9/10/2026	102.73365	99.51176395	95.68958446	91.22646945	86.44053034	81.76795052	77.4113939	73.39105307	69.68033246
210924A00016	9/24/2021	1.91	9/24/2036	9/24/2026	103.1692	100.0177817	96.29275828	91.91648963	87.16745904	82.47702575	78.08505763	74.02955811	70.28632312
211019A00005	10/19/2021	2.49	10/20/2036	10/19/2026	104.41513	100.7690801	96.28140517	90.78262239	84.59351381	78.34439607	72.51950179	67.25019312	62.50433599
211110A00017	11/10/2021	2.01	11/10/2036	11/10/2026	103.72948	100.4737338	96.68617197	92.28090987	87.50026055	82.75390719	78.30134826	74.19163886	70.40167859
211116A00012	11/16/2021	2.22	12/18/2034	11/16/2026	104.21532	101.2394591	97.92074387	94.13566445	89.99499127	85.7983739	81.79073461	78.04488301	74.55312896
211124A00008	11/24/2021	2.62	11/22/2041	11/24/2026	105.16772	101.5770817	97.24692322	92.00641855	86.09381387	80.10932397	74.53173086	69.49334269	64.96276211
211215A00020	12/15/2021	1.85	12/15/2031	12/15/2026	103.4662	100.7736142	97.89952245	94.78503523	91.5148841	88.2612669	85.14225788	82.18359372	79.37873861
211227A00012	12/27/2021	2.39	12/29/2036	12/27/2028	107.80606	102.1122343	95.89248713	89.21299155	82.3371482	75.69531211	69.5972155	64.11992606	59.21490726

Parallel-Shift Sensitivity Analysis													
1/31/2024					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220217A00024	2/17/2022	2.43	2/17/2027	2/17/2025	101.5088	100.4232782	99.20606458	97.69642778	95.82089645	93.74321653	91.65275081	89.61931604	87.65048146
220617A00069	6/17/2022	4.06	6/17/2027	6/17/2025	104.69075	103.2893745	101.879325	100.4180733	98.80582732	96.92262368	94.75303401	92.4301954	90.12519231
220831A00108	8/31/2022	4.07	8/31/2027	9/2/2025	105.66105	103.9838039	102.299497	100.5647456	98.68601933	96.55809028	94.17138752	91.64894779	89.15565373
221212A00004	12/12/2022	4.36	12/10/2032	12/10/2027	113.86453	110.43226	107.0539312	103.7006714	100.323294	96.89280317	93.40683904	89.91128033	86.51654458
221214A00057	12/14/2022	4.65	12/14/2027	12/12/2025	108.24606	106.1997684	104.1629186	102.1037907	99.94492873	97.56845962	94.89538862	91.94257947	88.90863312
221222A00137	12/22/2022	5.4	12/22/2037	12/22/2027	118.72814	114.6886821	110.6253714	106.489119	102.180845	97.60872157	92.74015742	87.66128301	82.6687252
230804A00039	8/4/2023	5.02	8/4/2028	8/4/2026	111.19145	108.7498131	106.3366448	103.9513645	101.5580993	99.10289882	96.53540226	93.81115135	90.98095568