

Federal Home Loan Bank of Des Moines Monthly Price Report

The Federal Home Loan Bank of Des Moines (Bank) is providing estimated valuations for specific Convertible, Amortizing and Non-Amortizing advances set forth below for members' information and convenience only. The estimated valuations are generated by models used for the Bank's own asset/liability management purposes. The models use specific assumptions, for example, market volatility and discount curve adjusted for the Bank's spread, to estimate the value of the advance. **The valuations represent theoretical market prices only and should not be construed as a liquidation price for the specific advance.**

It is expressly understood that in providing these valuations to members, the Bank is not performing any advisory service. The valuations are provided without representation or warranty and the member is solely responsible for any decision it makes or actions it takes based on the valuations provided. It is recommended that members maintain independent capabilities to value their asset/liability positions, including Convertible, Amortizing and Non-Amortizing advances. You should consult with your own tax, legal, accounting, credit and financial advisors with respect to the transaction structure and information detailed herein.

The table depicts valuation estimates resulting from immediate parallel interest-rate movements of plus/minus 400 basis points in 100 basis point increments. To identify your advance, locate the appropriate maturity date and verify the advance rate. The advances in report are grouped by advance type and then within each type sorted in ascending order by maturity date. Once the appropriate structure is located, read across to view the sensitivity analysis for that advance.

If you have any questions, contact the Money Desk at 800.544.3452, ext. 2122.

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210824A00006	8/24/2021	0.23	8/24/2022	8/24/2021	100.13953	100.067262	99.99510865	99.92306818	99.85114031	99.77932479	99.70762136	99.63602976	99.56454973
211006A00003	10/6/2021	0.37	10/6/2022	10/6/2021	100.33507	100.1430132	99.9516994	99.76112384	99.57128224	99.38217035	99.19378391	99.00611874	98.81917067
211008A00004	10/8/2021	0.38	10/3/2022	10/8/2021	100.32615	100.1424674	99.959457	99.77711873	99.59544889	99.4144438	99.23409981	99.05441329	98.87538065
211025A00017	10/25/2021	0.28	10/25/2022	10/25/2021	100.39816	100.152887	99.90881289	99.66593057	99.42423132	99.18370652	98.9443476	98.7061461	98.46909363
211116A00007	11/16/2021	0.51	11/14/2022	11/16/2021	100.49976	100.1987901	99.89963343	99.60227137	99.30668771	99.01286642	98.72079172	98.43044798	98.14181977
211117A00008	11/17/2021	0.5	11/17/2022	11/17/2021	100.5089	100.1995233	99.89205655	99.58648379	99.28278751	98.98095037	98.68095528	98.38278535	98.08642389
211202A00024	12/2/2021	0.61	12/2/2022	12/2/2021	100.59124	100.2398979	99.89100096	99.54452629	99.20044871	98.85874341	98.51938595	98.18235221	97.8476184
211222A00002	12/22/2021	0.52	9/22/2022	12/22/2021	100.30189	100.1488555	99.99630087	99.84422017	99.69261114	99.54147159	99.39079932	99.24059217	99.09084796
211231A00003	12/31/2021	0.59	11/30/2022	12/31/2021	100.57902	100.2332724	99.88989212	99.54885445	99.21013557	98.87371192	98.53956032	98.20765785	97.87798191
220112A00011	1/12/2022	0.79	1/12/2023	1/12/2022	100.78588	100.3198389	99.85810363	99.40061495	98.94731437	98.49814445	98.05304883	97.61197215	97.17486007
220114A00003	1/14/2022	0.76	12/14/2022	1/14/2022	100.6808	100.2958245	99.91379596	99.53467993	99.15844311	98.78505269	98.41447638	98.04668236	97.68163932
220114A00004	1/14/2022	0.59	8/12/2022	1/14/2022	100.08568	100.046807	100.0079821	99.96920473	99.9304747	99.89179196	99.85315641	99.81456797	99.77602654
220125A00011	1/25/2022	0.75	10/25/2022	1/25/2022	100.49386	100.248635	100.0046116	99.76177715	99.52012292	99.27964035	99.04032094	98.80215629	98.56513806
220125A00012	1/25/2022	0.92	1/20/2023	1/25/2022	100.87565	100.3870554	99.90318946	99.42397966	98.94935892	98.47926152	98.01362295	97.55237994	97.09547043
220225A00009	2/25/2022	1.11	11/2/2022	2/25/2022	100.6208	100.3530856	100.0867973	99.82192242	99.55844976	99.29636818	99.03566668	98.77633437	98.51836049
220311A00010	3/11/2022	1.17	10/11/2022	3/11/2022	100.51575	100.3095167	100.1041406	99.89961638	99.69593884	99.49310264	99.29110251	99.08993325	98.88958968
220317A00002	3/17/2022	1.49	1/17/2023	3/17/2022	101.13785	100.6568804	100.1804822	99.70859112	99.2411433	98.77807613	98.31932813	97.86483898	97.41454949
220322A00009	3/22/2022	1.87	3/22/2023	3/22/2022	101.73452	101.0726891	100.419447	99.7746273	99.138068	98.50961107	97.88910253	97.27639228	96.67133398
220323A00007	3/23/2022	1.58	12/23/2022	3/23/2022	101.0443	100.6333553	100.2257532	99.82144965	99.42040478	99.02257927	98.62793444	98.23643225	97.84803524
220324A00006	3/24/2022	1.9	3/20/2023	3/24/2022	101.74056	101.0843076	100.4365043	99.79698533	99.16559257	98.54217178	97.92657263	97.31864854	96.7182566
220406A00004	4/6/2022	1.57	11/7/2022	4/6/2022	100.77648	100.4945025	100.2141118	99.93529274	99.65803202	99.38231656	99.10813342	98.83546977	98.56431295
220419A00010	4/19/2022	2.01	2/17/2023	4/19/2022	101.59713	101.0281416	100.4655227	99.90916293	99.35895809	98.81480637	98.2766082	97.74426615	97.21768494
220425A00007	4/25/2022	2.34	4/25/2023	4/25/2022	102.31871	101.5591477	100.8108316	100.0735174	99.34696395	98.63093696	97.9252089	97.22955875	96.5437718
220427A00017	4/27/2022	1.86	12/23/2022	4/27/2022	101.15896	100.7477385	100.3398538	99.93526948	99.53394545	99.13584243	98.74092173	98.34914527	97.96047561
220428A00013	4/28/2022	2.04	2/1/2023	4/28/2022	101.49928	100.9754115	100.4569352	99.94376999	99.43583473	98.93304975	98.43533706	97.9426202	97.45482425
220505A00010	5/5/2022	2.13	2/3/2023	5/5/2022	101.56628	101.0365399	100.5123141	99.99351864	99.48006948	98.97188424	98.46888225	97.97098448	97.4781135
220505A00011	5/5/2022	2.47	5/5/2023	5/5/2022	102.4995	101.711057	100.9347181	100.1702081	99.41725808	98.67560722	97.94500253	97.22519851	96.51595691
220510A00013	5/10/2022	2.03	1/10/2023	5/10/2022	101.34936	100.8873558	100.4295617	99.97592377	99.52638557	99.08089153	98.63938716	98.20181891	97.7681342
220511A00001	5/11/2022	2.38	5/8/2023	5/11/2022	102.44509	101.6485473	100.864372	100.0922736	99.33197456	98.58320571	97.84570616	97.11922279	96.40351002
220512A00011	5/12/2022	1.8	12/12/2022	5/12/2022	101.06865	100.6883391	100.3108966	99.93628861	99.5644832	99.19544889	98.82915469	98.46557008	98.10466498
220516A00023	5/16/2022	1.73	11/17/2022	5/16/2022	100.88914	100.578998	100.2707762	99.96445181	99.66000743	99.35742567	99.05668939	98.75778168	98.46068582
220518A00016	5/18/2022	2.15	2/17/2023	5/18/2022	101.67633	101.1070902	100.5442155	99.98760176	99.43714505	98.89274344	98.35429735	97.82170932	97.29488404
220518A00017	5/18/2022	2.47	5/18/2023	5/18/2022	102.60589	101.7804204	100.9682098	100.1689413	99.38230725	98.6080097	97.84575996	97.09527828	96.35629356

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7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220524A00011	5/24/2022	2.14	2/24/2023	5/24/2022	101.71702	101.1281136	100.5460121	99.97059637	99.40175179	98.83936627	98.28333029	97.73353678	97.18988106
220531A00018	5/31/2022	1.95	12/30/2022	5/31/2022	101.24072	100.8097557	100.382444	99.95874331	99.53860796	99.12199319	98.70885495	98.29914993	97.89283551
220531A00022	5/31/2022	2.12	2/28/2023	5/31/2022	101.7348	101.1346386	100.5415383	99.95537032	99.37601385	98.8033508	98.2372658	97.67764614	97.12438164
220601A00021	6/1/2022	2.48	6/1/2023	6/1/2022	102.72035	101.8551029	101.004402	100.1678784	99.34518011	98.53596639	97.73990778	96.95668544	96.18599077
220601A00027	6/1/2022	2.16	3/1/2023	6/1/2022	101.76623	101.1631583	100.5672143	99.97826982	99.39620215	98.82089148	98.25222077	97.69007565	97.13434437
220602A00050	6/2/2022	2.41	6/2/2023	6/2/2022	102.75504	101.8856185	101.0308774	100.1904448	99.36396372	98.55108879	97.7514861	96.96483252	96.19081537
220608A00010	6/8/2022	2.33	3/8/2023	6/8/2022	101.92444	101.3011824	100.6855322	100.0773539	99.47651226	98.88287487	98.29631267	97.71669966	97.14391281
220614A00010	6/14/2022	3.46	6/14/2023	6/14/2022	103.70121	102.7946062	101.9038673	101.0285766	100.1683341	99.3227537	98.49146251	97.67410009	96.87031807
220615A00001	6/15/2022	2.75	12/16/2022	6/15/2022	101.46306	101.0706431	100.6812698	100.2949033	99.91150854	99.5310514	99.15349808	98.77881531	98.40697036
220616A00037	6/16/2022	3.24	4/14/2023	6/16/2022	102.87961	102.1486933	101.428165	100.7178054	100.0174	99.32674029	98.6456237	97.97385315	97.31123698
220617A00045	6/17/2022	3.13	3/17/2023	6/17/2022	102.51202	101.8613657	101.2189744	100.5846861	99.95834806	99.33981125	98.72893044	98.12556396	97.52957361
220621A00021	6/21/2022	3.31	6/21/2023	6/21/2022	103.64074	102.7146691	101.805144	100.9117283	100.0339964	99.17153758	98.32395547	97.49086724	96.67190311
220624A00026	6/24/2022	2.81	1/17/2023	6/24/2022	101.77049	101.2877243	100.8095479	100.335891	99.86668934	99.40188031	98.94140226	98.48519474	98.0331984
220624A00027	6/24/2022	2.96	2/15/2023	6/24/2022	102.11511	101.5500536	100.9912508	100.4386001	99.89199995	99.35135138	98.81655737	98.28752307	97.76415564
220624A00028	6/24/2022	3.05	3/15/2023	6/24/2022	102.44038	101.7956177	101.1589675	100.5302808	99.9094086	99.29620575	98.69053059	98.09224496	97.50121406
220624A00029	6/24/2022	3.13	4/17/2023	6/24/2022	102.83107	102.091897	101.363349	100.6451999	99.93722793	99.23921757	98.55095942	97.87224992	97.20289114
220624A00030	6/24/2022	2.72	12/27/2022	6/24/2022	101.54533	101.1219658	100.7021278	100.2857692	99.87284712	99.46331906	99.05714336	98.65427903	98.25468572
220715A00023	7/15/2022	3.36	3/31/2023	7/15/2022	102.8131	102.1219328	101.4400466	100.7672596	100.1033907	99.44826322	98.80170548	98.16355005	97.53363389
220725A00012	7/25/2022	3.34	3/24/2023	7/25/2022	102.72333	102.0522046	101.3898489	100.7360882	100.090756	99.45369002	98.82473204	98.20372794	97.59052744
220728A00069	7/28/2022	3.25	7/24/2023	7/28/2022	103.92703	102.9061797	101.9053756	100.9240341	99.96159125	99.01750457	98.09125233	97.18233238	96.29026126
220720A00031	7/20/2022	3.4	3/20/2023	7/20/2022	102.71898	102.0591346	101.4077649	100.7647121	100.1298174	99.50292608	98.88388741	98.27255432	97.66878344
220701A00032	7/1/2022	2.95	3/1/2023	7/1/2022	102.23962	101.6349402	101.0373964	100.4468655	99.86322474	99.28635401	98.71613612	98.15245651	97.59520327
220701A00031	7/1/2022	2.87	2/1/2023	7/1/2022	101.9318	101.4066202	100.8868447	100.3723901	99.86317485	99.35911929	98.86014529	98.36617627	97.87713722
220726A00058	7/26/2022	3.38	7/26/2023	7/26/2022	104.07975	103.0524073	102.0453391	101.057954	100.0896788	99.13996249	98.20827484	97.29410581	96.3969644
220701A00034	7/1/2022	3.04	3/31/2023	7/1/2022	102.59454	101.9042084	101.2231498	100.5511825	99.88812558	99.23380256	98.58804173	97.95067585	97.32154198
220726A00056	7/26/2022	3.37	4/26/2023	7/26/2022	103.1051	102.3394368	101.5851366	100.8419511	100.1096357	99.38795326	98.67667328	97.97557198	97.28443192
220721A00010	7/21/2022	3.42	4/21/2023	7/21/2022	103.08734	102.3358469	101.5953087	100.8654915	100.1461635	99.4370995	98.7380808	98.0488948	97.36933489
150601A00342	6/1/2015	3.97	8/26/2033	6/1/2015	126.76093	120.2825132	114.2806528	108.7141581	103.5457898	98.74184809	94.27180879	90.1079991	86.22530894
150601A00439	6/1/2015	2.57	3/18/2024	6/1/2015	102.7358	101.8902044	101.0599493	100.2446049	99.44375808	98.65701145	97.88398257	97.12430321	96.37761863
150601A00440	6/1/2015	3.27	3/16/2029	6/1/2015	113.97525	110.3479778	106.8931213	103.6007966	100.4617683	97.46739823	94.60960277	91.88081329	89.27393988
150601A00450	6/1/2015	3.28	4/27/2029	6/1/2015	114.24712	110.5524766	107.0359784	103.6872809	100.4967229	97.45527566	94.55449736	91.78649053	89.14386329
150601A00460	6/1/2015	3.05	5/16/2029	6/1/2015	113.55058	109.8456789	106.3206867	102.9650889	99.76907232	96.72347004	93.81971402	91.04979186	88.40620692
150601A00506	6/1/2015	3.14	7/6/2029	6/1/2015	114.15698	110.3594207	106.7495472	103.3162118	100.049021	96.93827545	93.97491906	91.15049168	88.45708579

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00528	6/1/2015	3.08	7/27/2029	6/1/2015	114.05107	110.2268789	106.5929921	103.1380392	99.85141932	96.72324406	93.7442843	90.90592182	88.20010462
150601A00559	6/1/2015	3.06	8/31/2029	6/1/2015	114.17099	110.2913984	106.6071723	103.1065123	99.77842407	96.6126592	93.59965982	90.73050705	87.99687383
150601A00684	6/1/2015	2.25	2/7/2025	6/1/2015	103.83309	102.5265924	101.2496673	100.0013933	98.78088723	97.5873007	96.41981823	95.27765583	94.1600594
160603A00015	6/3/2016	1.95	6/5/2023	6/3/2016	102.2605	101.3993442	100.552794	99.72048058	98.90204625	98.09714522	97.3054431	96.52661646	95.7603524
160608A00026	6/8/2016	2.36	6/8/2026	6/8/2016	111.78122	108.0363535	104.4445226	100.9986203	97.69190403	94.51797878	91.47077738	88.54454196	85.73380653
160608A00031	6/8/2016	2.36	6/8/2026	6/8/2016	111.78122	108.0363536	104.4445226	100.9986203	97.691904	94.5179787	91.47077726	88.5445418	85.73380634
160608A00032	6/8/2016	2.36	6/8/2026	6/8/2016	111.78122	108.0363536	104.4445226	100.9986203	97.69190401	94.51797875	91.47077733	88.5445419	85.73380646
160609A00075	6/9/2016	1.94	6/9/2026	6/9/2016	105.57925	103.518756	101.5223451	99.58748975	97.71178534	95.89293914	94.12876435	92.41717437	90.75617755
160628A00006	6/28/2016	1.44	6/28/2023	6/28/2016	101.06979	100.5947991	100.1259085	99.66299171	99.2059218	98.75457566	98.30883382	97.86858035	97.43370264
161222A00035	12/22/2016	2.29	12/22/2023	12/22/2016	102.19564	101.464124	100.7453465	100.0389515	99.34459814	98.66195849	97.99071704	97.3305701	96.68122521
161222A00036	12/22/2016	2.69	12/22/2026	12/22/2016	107.97548	105.6456263	103.3949713	101.220148	99.11795737	97.08535946	95.11946402	93.21752218	91.37691855
161222A00037	12/22/2016	3.08	12/22/2031	12/22/2016	118.9145	113.6340915	108.6930545	104.0656368	99.72826662	95.65935114	91.83909553	88.2493402	84.87341346
170406A00031	4/6/2017	3.01	4/6/2027	4/6/2017	117.21591	112.5813855	108.169138	103.9671378	99.96407926	96.14933185	92.51289594	89.04536141	85.73786941
170830A00040	8/30/2017	1.84	8/30/2022	8/30/2017	100.16261	100.1153308	100.0681317	100.0210139	99.97397707	99.92702115	99.88014589	99.83335109	99.78663654
170921A00056	9/21/2017	2.82	9/21/2027	9/21/2017	117.82751	112.7711539	107.9771276	103.4302032	99.11612645	95.02154714	91.1339569	87.44163114	83.93357552
180302A00014	3/2/2018	2.69	3/2/2023	3/2/2018	101.11747	100.8113268	100.5077721	100.206773	99.90829362	99.6122989	99.3187543	99.02762602	98.73888092
180321A00015	3/21/2018	3.02	3/21/2025	3/21/2018	106.03248	104.4067913	102.8223764	101.2778561	99.771905	98.30325234	96.87067952	95.47301735	94.1091437
180322A00030	3/22/2018	2.79	3/24/2025	3/22/2018	105.04843	103.6483085	102.2810173	100.9455153	99.64079826	98.3659025	97.11990231	95.90190831	94.71106573
180329A00011	3/29/2018	2.77	3/29/2023	3/29/2018	101.28205	100.9334615	100.5882019	100.246214	99.90744592	99.5718473	99.23936872	98.90996187	98.5835795
180508A00038	5/8/2018	3.57	5/9/2033	5/8/2018	125.82676	119.144307	112.9580842	107.2252355	101.9069902	96.96824387	92.37718374	88.10495546	84.12536571
180612A00012	6/12/2018	2.94	6/12/2023	6/12/2018	101.77093	101.2958862	100.8268674	100.363742	99.90638726	99.45468377	99.00851567	98.56777044	98.13233875
150601A00571	6/1/2015	2.5	9/23/2022	6/1/2015	100.60946	100.4532672	100.2975693	100.1423619	99.98764255	99.83340896	99.67965884	99.52638993	99.37359996
201119A00023	11/23/2020	2.23	11/21/2030	11/23/2020	125.50728	116.2105547	107.6764384	99.83830501	92.63566809	86.0135902	79.92214777	74.31595025	69.15370751
220315A00037	3/17/2022	2.63	3/16/2027	3/17/2022	116.95293	111.9456054	107.1833961	102.6529704	98.34179294	94.23807588	90.33072978	86.60931836	83.06401627
200318A00054	3/18/2020	1.56	3/18/2025	3/18/2020	106.3448	103.633745	101.005471	98.45692627	95.98519581	93.58749205	91.26114818	89.00361201	86.81244015
200327A00054	3/27/2020	0.9	3/27/2023	3/27/2020	101.11667	100.4431659	99.77858297	99.12274925	98.47549299	97.83664692	97.20604814	96.58353788	95.96896145
210706A00014	7/6/2021	1.15	6/26/2026	7/6/2021	108.21128	104.1546422	100.2710983	96.55239085	92.99069627	89.57860256	86.30908541	83.17548593	80.17148977
200325A00044	3/25/2020	1.7	12/23/2024	3/25/2020	106.06582	103.5995227	101.2029531	98.87375152	96.60965364	94.4084845	92.26815466	90.18665627	88.16205934
200327A00068	6/25/2020	0.93	6/26/2023	6/25/2020	101.48913	100.5597633	99.64730781	98.7513058	97.87131583	97.00691206	96.15768364	95.32323405	94.50318045
200421A00020	4/24/2020	0.83	3/15/2024	4/24/2020	102.55984	100.9163102	99.30703901	97.73102154	96.18729345	94.67492755	93.19303203	91.74074876	90.31725168
220512A00007	5/12/2022	2.91	5/13/2024	5/12/2022	106.62952	104.784204	102.9799821	101.2156222	99.48994484	97.80181586	96.15014406	94.53387934	92.95201068
220727A00001	7/27/2022	3.39	7/27/2023	7/27/2022	104.10096	103.0706656	102.0607598	101.0706437	100.0997394	99.14749157	98.213366	97.2968487	96.397445
200611A00021	6/11/2020	0.72	6/11/2024	6/11/2020	102.75182	100.8629743	99.01784114	97.2151554	95.45369452	93.73227896	92.04977038	90.40506991	88.7971166

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210201A00001	2/1/2021	0.77	12/16/2025	2/1/2021	105.61532	102.1511611	98.81770143	95.60934458	92.52076555	89.54689397	86.68290044	83.92418384	81.26635931
211227A00005	12/27/2021	1.61	12/18/2026	12/27/2021	111.43721	106.8133363	102.4067966	98.20627953	94.20112295	90.38126989	86.73723117	83.26005045	79.94127168
200327A00045	3/27/2020	2.24	3/27/2034	3/27/2020	134.56752	121.0429255	109.0175705	98.31654054	88.78618447	80.29143414	72.71347121	65.9476975	59.90196793
210121A00018	1/25/2021	0.5	8/25/2023	1/25/2021	101.2826	100.1861966	99.11332401	98.06323169	97.03520116	96.02854382	95.04259945	94.07673476	93.130342
220525A00020	5/25/2022	2.79	5/24/2024	5/25/2022	106.52417	104.6485352	102.8151933	101.0229202	99.27053801	97.55691076	95.8809429	94.24157739	92.63779411
210929A00012	3/16/2022	1.03	3/14/2025	3/16/2022	104.88723	102.2076724	99.60980187	97.09061814	94.64725285	92.27696242	89.97712166	87.74521772	85.5788445
220601A00023	6/1/2022	2.9	6/3/2024	6/1/2022	106.83416	104.9274846	103.0643185	101.2434147	99.46356948	97.7236207	96.02244651	94.35896357	92.73212551
200331A00018	3/31/2020	0.82	3/31/2023	3/31/2020	101.07828	100.3937454	99.71842817	99.05214784	98.39472419	97.74598171	97.10574948	96.47386107	95.85015433
201216A00004	12/16/2020	0.74	9/8/2025	12/16/2020	104.99479	101.8173345	98.751693	95.79328556	92.93775123	90.18093405	87.51887201	84.94778666	82.46407333
200826A00036	8/28/2020	0.88	7/28/2023	8/28/2020	101.56314	100.5438923	99.5449497	98.56571349	97.60560579	96.66407106	95.7405751	94.83460398	93.94566313
210407A00013	4/7/2021	1.23	4/7/2026	4/7/2021	107.99172	104.1650185	100.4936019	96.97028492	93.58826272	90.34108539	87.2226371	84.2271165	81.3490185
210914A00011	9/16/2021	0.52	9/18/2023	9/16/2021	101.40456	100.2397647	99.10148808	97.98883696	96.90095457	95.837022	94.79625604	93.77790733	92.78125848
210928A00008	9/28/2021	1.35	9/28/2026	9/28/2021	109.68534	105.3324149	101.1753649	97.20430794	93.40992045	89.78340006	86.3164334	83.00116591	79.8301737
220325A00019	3/28/2022	2.86	3/23/2027	3/28/2022	118.1365	113.0796891	108.2709566	103.6967667	99.34439865	95.20189272	91.25800041	87.50213794	83.92434315
200415A00003	4/15/2020	0.77	4/14/2023	4/15/2020	101.096	100.3722699	99.658852	98.95553161	98.26209547	97.5783363	96.90405258	96.23904837	95.58313309
200427A00018	4/27/2020	1.51	4/27/2028	4/27/2020	114.24625	108.1145676	102.3480722	96.92309247	91.81761818	87.01117565	82.48471176	78.22048758	74.20198044
200826A00040	8/28/2020	0.92	10/27/2023	8/28/2020	102.07434	100.7949579	99.54736936	98.3304025	97.14294222	95.98392697	94.85234552	93.74723404	92.66767337
200916A00023	9/16/2020	0.42	9/16/2024	9/16/2020	102.81945	100.6585096	98.55335773	96.50215889	94.50315651	92.55466549	90.65506864	88.80281335	86.9964084
220518A00009	5/18/2022	3.38	5/18/2028	5/18/2022	125.66697	119.1412813	113.0020259	107.2242218	101.7846301	96.66162543	91.83507585	87.2862319	82.99762479
200310A00040	3/10/2020	1.36	3/10/2028	3/10/2020	113.07609	107.1184249	101.5088892	96.22535273	91.24720966	86.55526248	82.13161834	77.95959352	74.02362548
200320A00013	3/20/2020	1.25	3/20/2024	3/20/2020	103.49406	101.8243967	100.1897679	98.58914196	97.02152412	95.48595831	93.98152543	92.50734144	91.06255571
200708A00011	7/10/2020	2.87	7/10/2031	7/10/2020	133.09282	122.7666037	113.3381323	104.7242273	96.84983104	89.64717398	83.0550327	77.01806714	71.48622781
210611A00006	6/11/2021	1.85	6/11/2031	6/11/2021	123.33685	113.5283001	104.5757141	96.39994054	88.92951632	82.09988834	75.85271403	70.1352359	64.89972191
211206A00008	12/6/2021	1.24	12/6/2024	12/6/2021	104.82534	102.4225367	100.086522	97.81508018	95.60607946	93.45747068	91.36728363	89.33362354	87.35466771
200305A00039	3/5/2020	1.58	3/5/2030	3/5/2020	118.48188	110.2359398	102.6192026	95.58043899	89.0728395	83.05361306	77.48362269	72.32705585	67.55112629
210729A00006	7/29/2021	1.87	11/30/2032	7/29/2021	126.18175	114.6586973	104.2875812	94.94708568	86.52923942	78.93788783	72.08734733	65.90121879	60.31134061
211117A00017	11/17/2021	0.49	11/17/2022	11/17/2021	100.50581	100.1964382	99.88897753	99.58341088	99.27972068	98.9778896	98.67790053	98.3797366	98.08338111
211213A00011	12/13/2021	1.32	12/13/2024	12/13/2021	105.06455	102.6390003	100.2813696	97.98938515	95.76086322	93.59370541	91.48589485	89.43549251	87.44063373
220331A00010	3/31/2022	2.83	2/18/2026	3/31/2022	113.5085	109.7223597	106.0841992	102.5874149	99.2257339	95.99319791	92.88414564	89.89319618	87.01523348
220727A00009	7/27/2022	3.31	7/28/2025	7/27/2022	112.69656	109.5162756	106.4437626	103.474766	100.6052204	97.83124426	95.14913027	92.55533633	90.04647731
200324A00029	3/24/2020	1.86	3/24/2025	3/24/2020	107.20762	104.4670752	101.8105455	99.23491585	96.73721341	94.31459616	91.96434602	89.68386249	87.47065658
210309A00004	3/11/2021	0.87	11/25/2024	3/11/2021	103.87526	101.5146257	99.21894529	96.98606375	94.81391362	92.70050817	90.64393767	88.64236589	86.69402686
200220A00013	2/20/2020	2.09	12/14/2029	2/20/2020	121.98665	113.8495926	106.3139651	99.33220573	92.86073776	86.85962076	81.29223047	76.12496806	71.3269963

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201201A00002	12/1/2020	0.54	12/1/2023	12/1/2020	101.67377	100.3265014	99.00332026	97.70363705	96.42688108	95.17249958	93.93995703	92.72873453	91.53832912
201210A00021	12/10/2020	0.89	12/10/2027	12/10/2020	110.7588	105.0978602	99.75622954	94.71435357	89.95396693	85.45800469	81.21051766	77.19659412	73.40228738
210211A00005	2/11/2021	0.45	6/15/2023	2/11/2021	101.01719	100.1208654	99.24034434	98.37520756	97.52505487	96.68949983	95.8681692	95.06070233	94.26675072
220317A00026	5/3/2022	2.59	5/3/2027	5/3/2022	117.31061	112.1505162	107.2491987	102.5922515	98.16615067	93.95819805	89.95646544	86.14974343	82.52749384
200818A00018	3/31/2021	0.57	4/1/2024	3/31/2021	102.20235	100.5132142	98.86000426	97.24163693	95.65707576	94.10532548	92.58543001	91.09647049	89.63756342
210208A00004	2/11/2021	0.76	10/15/2025	2/11/2021	105.2524	101.9675491	98.8013088	95.74868151	92.80491734	89.96549728	87.22612028	84.58269103	82.03130863
210225A00006	2/25/2021	0.98	2/25/2026	2/25/2021	106.77509	103.0907881	99.55235029	96.15321302	92.88714226	89.74821911	86.73082189	83.82960943	81.03950536
210907A00010	9/7/2021	2.58	9/7/2040	9/7/2021	147.00844	125.9184483	108.2295232	93.36746135	80.85805482	70.30922447	61.39642003	53.85067679	47.44883495
220408A00014	4/8/2022	3.12	6/29/2026	4/8/2022	116.18884	111.9654282	107.9207329	104.0462505	100.3339269	96.77613142	93.36563207	90.09557288	86.95945224
220712A00006	7/12/2022	3.36	7/12/2024	7/12/2022	108.16364	106.1343381	104.1537436	102.2203834	100.3328403	98.48974931	96.68979537	94.93171121	93.21427519
210420A00010	4/20/2021	1.08	12/12/2025	4/20/2021	106.66862	103.1977376	99.85722796	96.64152754	93.54534345	90.56363495	87.69160007	84.924663	82.25846225
200415A00020	4/15/2020	0.86	4/15/2024	4/15/2020	102.74599	101.0143451	99.32013001	97.66220056	96.03945615	94.45084102	92.89534193	91.37198599	89.87983862
220601A00024	6/1/2022	3.09	6/2/2025	6/1/2022	111.36873	108.3698245	105.4677776	102.6589481	99.93985193	97.307154	94.75766132	92.28831602	89.89618895
220727A00049	7/27/2022	3.31	7/25/2025	7/27/2022	112.65935	109.4884368	106.4246985	103.4639108	100.6020414	97.83523999	95.15982825	92.57229159	90.06927067
200316A00019	3/16/2020	1.11	3/16/2023	3/16/2020	101.20668	100.5635736	99.92861414	99.30164707	98.68252208	98.0710927	97.46721606	96.87075283	96.28156708
200310A00033	3/10/2020	0.91	3/10/2025	3/10/2020	104.89539	102.2196788	99.62542099	97.10963094	94.6694541	92.30215975	90.00513466	87.77587718	85.61199157
200417A00008	4/17/2020	0.96	4/17/2025	4/17/2020	104.89402	102.1181885	99.42939357	96.82433651	94.29986845	91.85298294	89.48080823	87.18060012	84.94973519
200415A00037	4/15/2020	0.97	4/15/2025	4/15/2020	104.91097	102.1403957	99.45654493	96.8561407	94.3360508	91.89328429	89.52498394	87.22841917	85.00097935
200521A00016	5/21/2020	2.18	5/21/2037	5/21/2020	136.13013	119.2774279	104.728368	92.15365293	81.27266362	71.84604768	63.66946918	56.56833094	50.39331437
220314A00009	3/14/2022	2.38	7/28/2025	3/14/2022	109.83431	106.6979051	103.6681582	100.7408489	97.91194806	95.17760858	92.53415621	89.97808067	87.50602732
200311A00031	3/11/2020	1.41	12/24/2027	3/11/2020	112.92242	107.1901689	101.7816581	96.67699773	91.85761574	87.30616555	83.00643914	78.94328684	75.10254308
201015A00003	10/15/2020	0.75	10/15/2025	10/15/2020	105.21937	101.9350607	98.76934757	95.71723344	92.77396893	89.93503551	87.19613256	84.5531652	82.00223295
210324A00002	3/24/2021	2.06	3/24/2031	3/24/2021	124.81138	115.1726745	106.3549262	98.28379463	90.89203979	84.11880748	77.90899235	72.2126673	66.9845723
220526A00011	5/26/2022	3.29	5/24/2029	5/26/2022	129.12821	121.35307	114.1083426	107.3549433	101.0568591	95.18089598	89.69644461	84.57526658	79.79129943
200324A00031	3/24/2020	1.64	3/22/2024	3/24/2020	103.95987	102.2838535	100.6430193	99.03632871	97.46278113	95.92141524	94.41130681	92.93156699	91.48134055
220426A00004	4/26/2022	3.41	4/26/2032	4/26/2022	141.00224	129.4047575	118.8864791	109.3403109	100.6703498	92.79065653	85.62417114	79.10175202	73.16132333
201223A00013	12/23/2020	0.9	12/11/2026	12/23/2020	108.17593	103.6445413	99.32617098	95.20976275	91.28488537	87.54169793	83.97091339	80.56376472	77.31197314
220224A00018	2/24/2022	2.15	3/16/2026	2/24/2022	111.2743	107.4509619	103.7799623	100.2543693	96.86761153	93.61345455	90.48598088	87.47957212	84.58889183
220420A00037	6/15/2022	3.3	6/15/2027	6/15/2022	121.33531	115.948911	110.8372224	105.9847926	101.3771155	97.00056972	92.84236028	88.89046406	85.13357963
210304A00006	3/4/2021	1.02	3/4/2026	3/4/2021	106.9688	103.2605165	99.69965988	96.27956365	92.99390031	89.83666395	86.80215183	83.88494722	81.07990328
220114A00010	1/14/2022	1.86	1/13/2027	1/14/2022	112.78791	108.0589328	103.555263	99.26500526	95.17695424	91.28055039	87.56583956	84.02343507	80.64448249
200402A00044	4/2/2020	1.65	4/2/2030	4/2/2020	119.20685	110.8478591	103.132026	96.00653905	89.42318305	83.33791853	77.71049938	72.50412753	67.68514078
200415A00027	4/15/2020	0.86	4/15/2024	4/15/2020	102.74599	101.0143451	99.32013001	97.66220056	96.03945615	94.45084102	92.89534193	91.37198599	89.87983862

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200528A00021	5/28/2020	0.63	5/26/2023	5/28/2020	101.11836	100.2773656	99.4502659	98.63672063	97.83639914	97.0489814	96.27415764	95.51162789	94.76110169
210917A00003	9/17/2021	0.8	9/17/2024	9/17/2021	103.3683	101.2041919	99.095862	97.04148473	95.03930493	93.08763879	91.18487033	89.32944801	87.51988166
200406A00053	4/6/2020	1.13	4/7/2025	4/6/2020	105.30876	102.55464	99.88612959	97.30000976	94.79321076	92.3628001	90.00597528	87.7200569	85.50248234
200302A00056	3/2/2020	1.2	3/2/2023	3/2/2020	101.19586	100.5919344	99.99518897	99.40549314	98.82272264	98.24675613	97.67747508	97.11476372	96.55850892
200330A00037	3/30/2020	1.09	3/28/2025	3/30/2020	105.13968	102.4155855	99.77547648	97.21623281	94.73486865	92.32853022	89.99448883	87.73013443	85.53296946
201015A00024	10/19/2020	1.53	10/18/2027	10/19/2020	113.16832	107.6232766	102.381687	97.42533155	92.73718556	88.3013338	84.10289178	80.12793307	76.36342224
210208A00006	2/9/2021	0.46	8/15/2023	2/9/2021	101.20206	100.1342228	99.08873358	98.06489894	97.06205221	96.07955381	95.11678992	94.17317118	93.24813146
220217A00011	2/17/2022	2.08	2/14/2025	2/17/2022	107.4577	104.8250905	102.2707141	99.79178079	97.38561385	95.04964933	92.78143032	90.57860178	88.43890557
220527A00014	5/27/2022	2.99	5/27/2026	5/27/2022	115.27728	111.167317	107.2277863	103.4507398	99.82863726	96.35432729	93.02102545	89.82229342	86.75201955
210305A00006	3/8/2021	1.02	8/11/2025	3/8/2021	105.72889	102.6168415	99.6121767	96.7105944	93.90798817	91.20043989	88.58420983	86.05572739	83.61158243
210624A00025	6/24/2021	1.43	6/24/2027	6/24/2021	111.93958	106.7586091	101.8463377	97.18749112	92.7677372	88.57362503	84.59252639	80.81258132	77.22264766
220510A00015	5/13/2022	3.13	11/3/2025	5/13/2022	113.31089	109.8383329	106.4916074	103.2653858	100.1546062	97.15445356	94.26034575	91.46792041	88.7730229
211214A00014	12/14/2021	1.31	12/13/2024	12/14/2021	105.04022	102.6149678	100.2576292	97.96593065	95.73768846	93.57080447	91.46326195	89.41312206	87.41852031
200325A00032	3/25/2020	1.29	9/26/2022	3/25/2020	100.44774	100.2833893	100.1195827	99.95631363	99.7935795	99.6313777	99.46970565	99.30856076	99.14794047
210224A00002	2/25/2021	0.88	11/3/2025	2/25/2021	105.75705	102.4102866	99.18594847	96.07882987	93.08398412	90.19670631	87.41251969	84.72716294	82.13657819
220603A00024	6/3/2022	2.94	6/3/2024	6/3/2022	106.90969	105.0022826	103.1383993	101.316792	99.53625634	97.79562991	96.09379052	94.42965447	92.80217505
200309A00007	3/9/2020	1.11	3/9/2027	3/9/2020	109.67556	104.8576844	100.2770889	95.92084499	91.77680296	87.83353666	84.08029643	80.50696522	77.10401785
200327A00042	3/27/2020	0.83	3/27/2024	3/27/2020	102.82825	101.1439702	99.49533656	97.88128632	96.30079696	94.75288635	93.23661074	91.75106289	90.29537022
201118A00021	11/20/2020	0.97	11/20/2023	11/20/2020	102.21824	100.8899864	99.58804882	98.31165945	97.06008505	95.83262061	94.62858798	93.4473346	92.28823229
220315A00018	3/15/2022	2.43	3/15/2027	3/15/2022	115.98447	111.0028496	106.2652639	101.7584354	97.46988277	93.38786886	89.50135184	85.79994009	82.27385025
200330A00006	3/30/2020	0.9	3/28/2025	3/30/2020	104.98319	102.253191	99.60754628	97.04310797	94.55687219	92.14596819	89.80765127	87.53929628	85.33839143
211028A00019	10/28/2021	1.1	10/28/2024	10/28/2021	104.26507	101.9761959	99.74867476	97.58039827	95.46934974	93.41359925	91.41129901	89.46067908	87.5600433
220425A00027	4/29/2022	3.15	8/20/2026	4/29/2022	116.95246	112.5599329	108.3591451	104.3406739	100.4956133	96.81554182	93.29249389	89.91893203	86.68772166
200427A00017	4/27/2020	1.02	4/25/2025	4/27/2020	105.1061	102.3053285	99.59293189	96.96553391	94.41991608	91.95300668	89.56187276	87.24371269	84.99584915
220304A00004	3/4/2022	2.12	12/29/2028	3/4/2022	119.72596	112.7067837	106.1463517	100.0123218	94.2747902	88.90609505	83.88063805	79.17472055	74.76639362
210616A00008	5/2/2022	0.95	5/2/2025	5/2/2022	104.94811	102.1300973	99.40152834	96.75898042	94.19919081	91.71904515	89.31556947	86.9859226	84.72738923
200310A00015	3/10/2020	1.37	3/11/2030	3/10/2020	116.84088	108.6387052	101.0650315	94.06852476	87.60229641	81.62349369	76.09293298	70.97476796	66.2361895
201117A00016	11/17/2020	0.52	11/18/2024	11/17/2020	103.32366	100.9823014	98.70511008	96.48994005	94.33472805	92.23749374	90.19633565	88.20942749	86.27501458
210104A00007	11/23/2021	0.88	11/23/2026	11/23/2021	107.98387	103.5079503	99.24031515	95.17023472	91.28758452	87.58281056	84.04689419	80.67131929	77.44804172
220419A00016	4/19/2022	3.21	4/19/2027	4/19/2022	120.19987	115.0121045	110.0817468	105.3945678	100.9372117	96.69713345	92.66254493	88.82236424	85.16616942
200305A00030	3/5/2020	1.58	3/5/2030	3/5/2020	118.48188	110.2359398	102.6192026	95.58043899	89.0728395	83.05361306	77.48362269	72.32705585	67.55112629
200414A00014	4/14/2020	0.76	4/12/2024	4/14/2020	102.78608	101.0581811	99.36756967	97.71310106	96.09368191	94.5082633	92.95583844	91.43544052	89.94614068
201029A00002	10/29/2020	0.59	10/29/2025	10/29/2020	105.20427	101.8693655	98.65636628	95.56007579	92.57555294	89.6981004	86.92325059	84.24675268	81.6645604

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210629A00012	6/29/2021	1.14	12/29/2025	6/29/2021	106.98831	103.4632965	100.0723666	96.80972443	93.66985973	90.64752836	87.73773791	84.93573425	82.23698884
220412A00017	4/12/2022	3.09	3/19/2027	4/12/2022	119.19345	114.1244	109.3031749	104.7162938	100.3510815	96.19561929	92.23869537	88.46975866	84.87887623
220418A00015	4/22/2022	3.03	7/28/2025	4/22/2022	111.83481	108.667734	105.6080968	102.6516512	99.79434268	97.03230019	94.36182626	91.77938839	89.28161064
220425A00026	4/25/2022	3.13	2/25/2026	4/25/2022	114.69466	110.8663203	107.188025	103.6530504	100.255014	96.9878551	93.84581647	90.82342732	87.91548729
210224A00004	2/26/2021	0.91	12/18/2025	2/26/2021	106.11435	102.6358976	99.28879431	96.06741407	92.9663989	89.98064736	87.10530084	84.33573069	81.66752613
220311A00008	3/11/2022	2.07	3/11/2024	3/11/2022	104.57052	102.9216855	101.3070127	99.72550462	98.17620598	96.65819796	95.1705965	93.71255071	92.28324122
200305A00032	3/5/2020	1.58	3/5/2030	3/5/2020	118.48188	110.2359398	102.6192026	95.58043899	89.0728395	83.05361306	77.48362269	72.32705585	67.55112629
200403A00018	4/3/2020	0.91	4/3/2024	4/3/2020	102.79369	101.0938956	99.43032708	97.80188831	96.20753136	94.6462502	93.11707851	91.61908772	90.15138512
200225A00034	10/5/2020	1.5	10/5/2023	10/5/2020	102.66034	101.4394895	100.2475045	99.08336751	97.9461119	96.83481544	95.74859763	94.68661736	93.64807078
200317A00027	3/17/2020	1.29	3/17/2025	3/17/2020	105.60809	102.9099695	100.2942339	97.75785255	95.29792582	92.91168054	90.59646363	88.34973593	86.16906645
220412A00016	4/12/2022	3.09	3/19/2027	4/12/2022	119.19345	114.1244	109.3031749	104.7162938	100.3510815	96.19561929	92.23869537	88.46975866	84.87887623
200429A00054	4/29/2020	1.04	4/29/2025	4/29/2020	105.18494	102.3720757	99.64824222	97.01003261	94.45419354	91.97762062	89.57735032	87.25055231	84.99452234
211213A00010	12/13/2021	1.02	12/13/2023	12/13/2021	102.39365	101.0076201	99.64692038	98.31091997	96.99900524	95.71058241	94.44507669	93.20193156	91.98060805
220421A00016	4/21/2022	3.31	4/21/2026	4/21/2022	116.07545	112.0566648	108.2007056	104.5000105	100.9474178	97.53614199	94.25975173	91.11214855	88.08754746
200406A00060	4/6/2020	1.03	4/5/2024	4/6/2020	103.00994	101.3027936	99.63210797	97.99678088	96.39575466	94.82801404	93.29258396	91.78852758	90.31494436
210907A00015	9/9/2021	2.21	9/9/2026	9/9/2021	113.20447	108.8317833	104.6529543	100.6583248	96.83877724	93.18569714	89.69094249	86.34681488	83.1460328
211209A00007	12/9/2021	1.61	12/8/2026	12/9/2021	111.35877	106.7658711	102.3875873	98.21281367	94.23107972	90.43250546	86.80776541	83.34805462	80.04505706
220112A00008	1/12/2022	1.47	11/20/2024	1/12/2022	105.27116	102.9074291	100.6083403	98.37173917	96.19555725	94.07780832	92.01658456	90.01005284	88.05645133
220706A00032	7/6/2022	3.15	7/6/2027	7/6/2022	121.55433	116.0763841	110.8815148	105.9535893	101.2774799	96.83899364	92.6248097	88.62242135	84.82008205
220711A00021	7/11/2022	3.27	7/11/2025	7/11/2022	112.78198	109.6406555	106.6043659	103.6690161	100.8306964	98.08567099	95.43036966	92.86137889	90.37543434
210330A00021	3/30/2021	2.16	3/28/2031	3/30/2021	125.74933	116.057785	107.1916891	99.07625943	91.64385831	84.8332765	78.58909125	72.86109148	67.6037629
220420A00061	6/15/2022	3.3	6/15/2027	6/15/2022	121.33531	115.948911	110.8372224	105.9847926	101.3771155	97.00056972	92.84236028	88.89046406	85.13357963
220308A00011	3/8/2022	2.07	1/10/2025	3/8/2022	107.12972	104.5997909	102.1426929	99.75591096	97.43703589	95.18375569	92.99385114	90.86519149	88.79573034
220314A00006	3/14/2022	2.36	3/14/2025	3/14/2022	108.46628	105.7384027	103.0933383	100.5280471	98.03962666	95.62530072	93.28241265	91.00841943	88.80088588
200310A00038	3/10/2020	1.41	3/11/2030	3/10/2020	117.16017	108.9458896	101.3607643	94.35342189	87.87693424	81.88841211	76.34863794	71.22173388	66.47486148
200413A00003	4/13/2020	0.64	4/13/2023	4/13/2020	101.06353	100.3418675	99.63046579	98.9291071	98.23757987	97.55567843	96.88320283	96.21995863	95.56575669
210706A00006	7/6/2021	1.15	7/6/2026	7/6/2021	108.27728	104.190775	100.2798036	96.53593558	92.95118597	89.51799275	86.22919234	83.07799644	80.05797039
211014A00018	10/14/2021	0.8	10/11/2024	10/14/2021	103.78381	101.5425419	99.3604806	97.23562224	95.16605264	93.14993826	91.18552198	89.2711192	87.4051142
220614A00011	6/14/2022	3.71	6/14/2024	6/14/2022	108.50302	106.5495127	104.6411664	102.7766674	100.9547485	99.17418735	97.43380455	95.73246184	94.06906044
220711A00009	7/11/2022	3.36	7/11/2023	7/11/2022	103.90401	102.9199712	101.9545798	101.0073065	100.0776442	99.1651047	98.26921758	97.38952963	96.52560393
201028A00013	10/28/2020	0.68	10/28/2024	10/28/2020	103.29781	101.0202098	98.8037232	96.64625049	94.5457818	92.50039379	90.50824502	88.56757162	86.67668329
200318A00037	3/18/2020	1.35	3/18/2024	3/18/2020	103.44491	101.785027	100.1598382	98.5683263	97.0095104	95.48244755	93.98623101	92.51998844	91.08288031
220209A00013	2/9/2022	1.98	7/29/2025	2/9/2022	108.61185	105.4913077	102.4771384	99.56512786	96.75125156	94.031667	91.40270453	88.86085851	86.4027789

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220317A00010	3/17/2022	2.04	9/15/2023	3/17/2022	103.14392	101.9768769	100.8361447	99.72084058	98.63012142	97.56318107	96.5192483	95.49758491	94.49748398
220317A00023	5/3/2022	2.52	5/2/2025	5/3/2022	109.39146	106.5105347	103.7205636	101.0180751	98.39975922	95.86245672	93.40315031	91.01895731	88.7071225
200304A00019	3/4/2020	1.04	3/6/2023	3/4/2020	101.11732	100.5024876	99.8951007	99.29502743	98.70213635	98.11629911	97.53739044	96.96528798	96.39987226
200327A00035	3/27/2020	0.83	3/27/2024	3/27/2020	102.82825	101.1439702	99.49533656	97.88128632	96.30079696	94.75288635	93.23661074	91.75106289	90.29537022
200415A00023	4/15/2020	1.71	4/15/2030	4/15/2020	119.7613	111.3435159	103.5756123	96.4040292	89.77988666	83.6585546	77.99926188	72.76474362	67.92092238
220412A00010	4/12/2022	3.09	3/15/2027	4/12/2022	119.14402	114.0886599	109.2799572	104.7045175	100.34975	96.20381341	92.25556725	88.49452614	84.91081764
201021A00012	10/21/2020	1.85	10/19/2035	10/21/2020	129.46616	114.7114897	101.7933293	90.47262714	80.54258434	71.82416209	64.16223142	57.42227362	51.48755023
200304A00022	3/4/2020	0.86	3/6/2023	3/4/2020	101.06195	100.4466136	99.83873813	99.23819219	98.64484378	98.05856412	97.47922745	96.90671099	96.34089485
210729A00003	7/29/2021	1.11	7/29/2026	7/29/2021	108.26611	104.1134964	100.1420793	96.34300873	92.70791761	89.22888971	85.89843279	82.70945355	79.65523427
220325A00010	3/28/2022	2.78	3/21/2025	3/28/2022	109.67557	106.9103763	104.2294972	101.6298218	99.10837836	96.66232513	94.28894396	91.98563372	89.74990445
200220A00014	2/20/2020	2.09	12/21/2029	2/20/2020	122.03547	113.8755323	106.320178	99.32147666	92.83552742	86.8221018	81.24431934	76.06835344	71.26316441
200302A00002	3/2/2020	1.12	3/3/2025	3/2/2020	105.41016	102.748212	100.1667729	97.6629143	95.23383346	92.87684814	90.58939059	88.36900176	86.21332589
200306A00055	3/6/2020	0.82	3/6/2025	3/6/2020	104.62923	101.9688911	99.38928824	96.88747726	94.46063856	92.10607422	89.82120193	87.60354908	85.4507473
200521A00013	5/21/2020	2.09	5/21/2035	5/21/2020	132.31021	117.8044458	105.0472073	93.81753523	83.9234528	75.19803395	67.49602374	60.69092873	54.67251059
210518A00023	5/18/2021	1.17	5/18/2026	5/18/2021	108.03641	104.0928617	100.3134653	96.6905245	93.21674796	89.88522445	86.68940076	83.62306103	80.68030751
220420A00034	6/15/2022	3.3	6/15/2027	6/15/2022	121.33531	115.948911	110.8372224	105.9847926	101.3771155	97.00056972	92.84236028	88.89046406	85.13357963
200415A00036	4/15/2020	0.91	10/15/2024	4/15/2020	103.75689	101.5105864	99.32375312	97.19437241	95.1205161	93.10033754	91.13206734	89.21400943	87.34453728
200402A00041	4/2/2020	1.03	4/2/2025	4/2/2020	105.00469	102.2685128	99.61706284	97.04717281	94.55581722	92.14010508	89.79727286	87.52467783	85.31979177
200327A00055	3/27/2020	1.01	3/27/2024	3/27/2020	102.92847	101.2468927	99.60084762	97.9892737	96.41115311	94.86550816	93.35139935	91.86792338	90.41421148
200306A00013	3/6/2020	1.01	3/6/2025	3/6/2020	104.78324	102.1285578	99.55427525	97.05746147	94.63531361	92.28514963	90.00440214	87.79061264	85.6414261
201223A00012	12/23/2020	0.91	12/18/2026	12/23/2020	108.26183	103.708363	99.36983348	95.23503078	91.29338958	87.53494492	83.95029507	80.53056692	77.26738356
220106A00010	1/6/2022	2.64	1/6/2037	1/6/2022	142.65775	125.7333908	111.0532512	98.30478664	87.22056521	77.57155486	69.16143553	61.8217779	55.40795328
220714A00034	7/14/2022	3.62	1/16/2024	7/14/2022	106.46009	104.9487362	103.4666889	102.0131709	100.5874292	99.18873674	97.8163916	96.46971543	95.14805274
210201A00003	2/2/2021	0.74	10/15/2025	2/2/2021	105.18634	101.9025723	98.73738634	95.68578537	92.74302052	89.90457373	87.16614483	84.52363937	81.97315726
201117A00017	11/17/2020	0.39	11/17/2023	11/17/2020	101.59558	100.2749551	98.98143638	97.71420497	96.47247098	95.25547641	94.06249354	92.8928234	91.74579435
200429A00066	4/29/2020	0.8	4/28/2023	4/29/2020	101.17072	100.4075571	99.6558422	98.91531542	98.18572876	97.46684146	96.75841979	96.06023678	95.37207196
210224A00003	2/26/2021	0.9	12/3/2025	2/26/2021	105.99137	102.5577614	99.25234007	96.06967433	93.0045925	90.0521675	87.20770396	84.46672611	81.82496636
210624A00026	6/24/2021	1.6	6/23/2028	6/24/2021	115.13162	108.8085742	102.8709347	97.29328253	92.0520005	87.12513468	82.49226924	78.13441142	74.03388554
210916A00008	9/16/2021	1.48	9/15/2028	9/16/2021	114.86299	108.3050497	102.1609303	96.40239854	91.00329009	85.93934869	81.18807711	76.72860061	72.54154161
220707A00041	7/7/2022	3.41	7/7/2025	7/7/2022	112.73787	109.6186511	106.6031475	103.687338	100.8673823	98.13961018	95.50051263	92.94673414	90.47506486
200305A00006	3/5/2020	0.99	3/6/2023	3/5/2020	101.08666	100.4719347	99.86465366	99.26468537	98.67189837	98.08616435	97.50735801	96.93535702	96.37004193
201117A00005	11/17/2020	0.5	11/17/2022	11/17/2020	100.5089	100.1995233	99.89205655	99.58648379	99.28278751	98.98095037	98.68095528	98.38278535	98.08642389
220217A00016	2/17/2022	2.24	9/15/2026	2/17/2022	113.38946	108.9957176	104.7973484	100.7845946	96.94823926	93.27957618	89.7703782	86.41286806	83.19969109

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220425A00028	4/29/2022	3.16	4/23/2027	4/29/2022	120.0025	114.8076398	109.8711149	105.1786204	100.7167252	96.47281515	92.43503905	88.59225727	84.93399497
200402A00030	4/2/2020	0.8	4/3/2023	4/2/2020	101.07599	100.3830749	99.69961297	99.02541271	98.36028693	97.70405343	97.0565349	96.4175587	95.7869567
201105A00016	11/9/2020	2.18	11/8/2027	11/9/2020	116.86586	111.1618877	105.7715665	100.6759806	95.85745555	91.29947126	86.98658023	82.90433198	79.03920323
201119A00021	11/23/2020	2.22	11/21/2030	11/23/2020	125.41995	116.1268309	107.59611	99.76117476	92.56155247	85.94231811	79.85355966	74.24989724	69.09005059
200302A00016	3/2/2020	1.36	3/3/2025	3/2/2020	105.69536	103.0373007	100.4594575	97.95891231	95.53287792	93.17868665	90.89378447	88.67572522	86.52216537
200305A00014	3/10/2020	1	2/15/2023	3/10/2020	101.01716	100.4556478	99.90036384	99.35120399	98.80806728	98.27085496	97.73947041	97.21381911	96.69380858
210211A00007	2/11/2021	0.47	9/15/2023	2/11/2021	101.33422	100.1783212	99.04855497	97.94404669	96.86395767	95.80748598	94.77386449	93.76235892	92.77226618
210624A00002	6/24/2021	0.57	6/23/2023	6/24/2021	101.14726	100.2279785	99.32529299	98.43875429	97.56793256	96.71241313	95.87179578	95.04569414	94.23373509
220214A00010	2/14/2022	2.46	12/21/2029	2/14/2022	124.90188	116.6362745	108.9808487	101.8873224	95.31146706	89.2127496	83.55400616	78.3011464	73.42288504
220325A00015	3/28/2022	2.86	3/23/2027	3/28/2022	118.1365	113.0796891	108.2709566	103.6967667	99.34439865	95.20189272	91.25800041	87.50213794	83.92434315
200318A00047	3/18/2020	1.29	3/18/2025	3/18/2020	105.9753	103.2613323	100.6304289	98.07952347	95.60568547	93.20611279	90.87812495	88.61915691	86.42675315
200421A00024	4/24/2020	0.8	10/16/2023	4/24/2020	101.86807	100.6211887	99.40457687	98.21713953	97.05783813	95.92568295	94.81973014	93.7390792	92.6828704
200327A00027	3/27/2020	0.9	3/27/2023	3/27/2020	101.11667	100.4431659	99.77858297	99.12274925	98.47549299	97.83664692	97.20604814	96.58353788	95.96896145
200417A00013	4/17/2020	0.74	4/17/2023	4/17/2020	101.08521	100.3531328	99.63161464	98.92042427	98.21934112	97.5281509	96.84664535	96.174622	95.51188403
210104A00006	11/22/2021	0.88	11/20/2026	11/22/2021	107.96739	103.5001701	99.24050415	95.17769962	91.30167104	87.60290219	84.07241086	80.70171598	77.482807
210112A00003	1/12/2021	0.53	9/15/2023	1/12/2021	101.40338	100.2470558	99.1168705	98.01194964	96.93145437	95.87458261	94.84056705	93.82867329	92.83819807
211028A00012	10/28/2021	1.64	10/15/2027	10/28/2021	113.74326	108.1919815	102.9438337	97.98064975	93.28545183	88.84236661	84.63654695	80.65409972	76.8820191
220124A00009	1/24/2022	0.86	1/24/2023	1/24/2022	100.86036	100.3606616	99.86590414	99.37600987	98.89090734	98.41052653	97.93479877	97.46365671	96.9970343
220428A00016	5/2/2022	3.09	10/15/2024	5/2/2022	108.69733	106.3943028	104.1519272	101.9681551	99.84102444	97.7686559	95.74924869	93.78107653	91.86248384
220628A00034	6/28/2022	3.61	6/28/2027	6/28/2022	123.06903	117.6012343	112.4135765	107.4902129	102.8162743	98.37780394	94.16169659	90.15564264	86.34807559
200402A00038	4/2/2020	0.84	4/2/2025	4/2/2020	104.84713	102.1050194	99.4480017	96.87288855	94.37663617	91.95633632	89.60920926	87.33259694	85.12395671
200415A00031	4/15/2020	0.97	4/15/2025	4/15/2020	104.91097	102.1403957	99.45654493	96.8561407	94.3360508	91.89328429	89.52498394	87.22841917	85.00097935
220315A00021	3/15/2022	2.15	3/15/2024	3/15/2022	104.75535	103.0929226	101.4650972	99.87085904	98.30923452	96.77928754	95.28011773	93.81085871	92.37067647
200326A00011	3/30/2020	1.54	3/31/2025	3/30/2020	106.39045	103.6407494	100.9759085	98.39276739	95.88830311	93.45962696	91.1039772	88.81871246	86.60130559
200421A00031	4/21/2020	0.84	4/19/2024	4/21/2020	102.72924	100.9868851	99.28237518	97.61454393	95.98227269	94.38448875	92.8201629	91.28830715	89.78797264
210225A00007	2/25/2021	1.79	8/23/2030	2/25/2021	121.15672	112.3032496	104.1607921	96.66854614	89.7712045	83.418432	77.56439482	72.1673367	67.18919702
210319A00003	3/19/2021	0.95	3/19/2025	3/19/2021	104.70246	102.0107318	99.40142458	96.87149425	94.41803349	92.03826217	89.72952083	87.48926449	85.31505683
211117A00009	11/17/2021	0.84	11/17/2023	11/17/2021	102.0342	100.7130287	99.41892778	98.15107832	96.90869256	95.69101451	94.49731833	93.32690681	92.17910991
220629A00003	6/29/2022	3.59	6/29/2027	6/29/2022	122.97992	117.5113441	112.3231276	107.3993987	102.7252688	98.28676369	94.07076216	90.06493998	86.25771733
200527A00013	5/27/2020	1.13	11/25/2026	5/27/2020	109.11229	104.6061361	100.3095804	96.21183	92.30270145	88.57258415	85.01240532	81.61359713	78.36806601
201119A00003	11/19/2020	0.56	11/17/2023	11/19/2020	101.66204	100.3434755	99.05194122	97.78661448	96.54670882	95.33146943	94.1401716	92.9721192	91.82664327
210914A00015	9/14/2021	0.81	9/15/2025	9/14/2021	105.68335	102.4652212	99.3610082	96.36601427	93.4757688	90.68601296	87.99268824	85.39192558	82.88003522
220502A00025	5/2/2022	3.21	5/2/2025	5/2/2022	111.34427	108.435695	105.6187384	102.8899065	100.2458689	97.68344652	95.19960304	92.79143753	90.45617725

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210623A00026	6/23/2021	0.78	6/24/2024	6/23/2021	102.92391	100.9981209	99.11765361	97.28117292	95.48739022	93.73506308	92.02299328	90.35002494	88.71504275
200304A00035	3/4/2020	1.17	3/4/2025	3/4/2020	105.19672	102.5423807	99.96825662	97.47142952	95.0491088	92.69862374	90.41741752	88.2030415	86.05314983
220201A00011	2/1/2022	1.86	4/20/2026	2/1/2022	110.49696	106.5865938	102.8356776	99.23678683	95.78288863	92.46732033	89.28376732	86.2262424	83.28906662
220217A00018	2/17/2022	2.28	2/17/2027	2/17/2022	115.05994	110.1772295	105.5308554	101.1081233	96.89708638	92.88650029	89.0657775	85.42494553	81.95460786
220412A00018	4/12/2022	3.09	3/15/2027	4/12/2022	119.14402	114.0886599	109.2799572	104.7045175	100.34975	96.20381341	92.25556725	88.49452614	84.91081764
200429A00004	5/1/2020	0.74	5/1/2023	5/1/2020	101.13536	100.3639729	99.60427897	98.85601678	98.11893009	97.39277027	96.67729599	95.97227298	95.27747379
220224A00010	2/24/2022	2.04	3/10/2025	2/24/2022	107.56837	104.8645083	102.2425354	99.69946312	97.23243014	94.83869897	92.51564961	90.26077362	88.07166851
210208A00002	2/10/2021	0.45	6/15/2023	2/10/2021	101.01719	100.1208654	99.24034434	98.37520756	97.52505487	96.68949983	95.8681692	95.06070233	94.26675072
220419A00015	4/19/2022	3.14	4/17/2026	4/19/2022	115.37371	111.3797623	107.547374	103.8690559	100.3377164	96.9466357	93.68944338	90.56009811	87.55286827
200114A00021	1/11/2021	1.93	1/11/2024	1/11/2021	103.89185	102.4142215	100.965028	99.54352211	98.14897966	96.78070133	95.43801143	94.12025694	92.82680656
200402A00014	4/2/2020	0.84	4/2/2025	4/2/2020	104.84713	102.1050194	99.4480017	96.87288855	94.37663617	91.95633632	89.60920926	87.33259694	85.12395671
200413A00012	4/13/2020	0.64	4/13/2023	4/13/2020	101.06353	100.3418675	99.63046579	98.9291071	98.23757987	97.55567843	96.88320283	96.21995863	95.56575669
200916A00017	9/16/2020	0.54	9/15/2023	9/16/2020	101.41491	100.2585116	99.12825642	98.0232668	96.94270382	95.88576538	94.85168415	93.83972569	92.84918672
220314A00005	3/14/2022	2.36	3/14/2025	3/14/2022	108.46628	105.7384027	103.0933383	100.5280471	98.03962666	95.62530072	93.28241265	91.00841943	88.80088588
200417A00006	4/17/2020	0.74	4/17/2023	4/17/2020	101.08521	100.3531328	99.63161464	98.92042427	98.21934112	97.5281509	96.84664535	96.174622	95.51188403
211015A00029	10/15/2021	0.98	10/15/2024	10/15/2021	103.91552	101.667403	99.47878623	97.34765901	95.27209205	93.25023767	91.28032546	89.36065837	87.48960896
220131A00011	1/31/2022	1.52	1/31/2024	1/31/2022	103.41077	101.8824409	100.3845263	98.91619902	97.47665913	96.06513489	94.68088164	93.32318055	91.99133754
200218A00026	2/21/2020	1.73	3/25/2024	2/21/2020	104.13472	102.4484168	100.7976304	99.18130722	97.59843287	96.04803294	94.52917088	93.04094612	91.58249237
200330A00064	3/30/2020	0.83	3/30/2023	3/30/2020	101.08124	100.3994872	99.72687724	99.06322972	98.40836661	97.7621146	97.12430491	96.49477314	95.87335913
210225A00013	3/1/2021	0.93	10/6/2025	3/1/2021	105.76059	102.4930603	99.34265426	96.3044789	93.37387648	90.54641379	87.81786958	85.18422288	82.64164209
220308A00016	3/8/2022	2.37	3/8/2029	3/8/2022	121.95292	114.6549727	107.8453319	101.4887215	95.55259221	90.00689836	84.82389267	79.97793886	75.4453405
200316A00072	3/16/2020	1.18	3/16/2023	3/16/2020	101.25156	100.608289	99.97316831	99.34604144	98.72675809	98.11517173	97.51113951	96.91452205	96.32518341
220317A00028	5/3/2022	2.59	5/3/2027	5/3/2022	117.31061	112.1505162	107.2491987	102.5922515	98.16615067	93.95819805	89.95646544	86.14974343	82.52749384
200228A00091	2/28/2020	1.72	12/7/2029	2/28/2020	119.08666	111.0770518	103.6602234	96.78931423	90.42139163	84.51710122	79.04035217	73.95803162	69.23974542
200916A00019	9/16/2020	0.42	9/16/2024	9/16/2020	102.81945	100.6585096	98.55335773	96.50215889	94.50315651	92.55466549	90.65506864	88.80281335	86.9964084
210129A00002	2/3/2021	0.59	7/25/2024	2/3/2021	102.68437	100.6745566	98.71410446	96.80149138	94.93525419	93.11398471	91.33632723	89.60097617	87.90667386
200221A00023	2/21/2020	2.05	12/7/2029	2/21/2020	121.6296	113.5267249	106.0215429	99.06689157	92.61955138	86.63990117	81.09160194	75.94130979	71.15841541
200331A00022	4/1/2020	1.07	4/1/2025	4/1/2020	105.10874	102.3738845	99.72363031	97.15482212	94.66444155	92.24960431	89.90755312	87.6356511	85.43137551
200909A00001	9/9/2020	0.98	9/8/2028	9/9/2020	112.58209	106.0786895	99.98697808	94.27883639	88.92820537	83.91092685	79.20459516	74.78842106	70.64310701
200922A00015	9/24/2020	1.09	9/24/2025	9/24/2020	106.2102	102.9691691	99.84325821	96.82770018	93.91795805	91.1097111	88.39884297	85.78143053	83.25373347
201019A00007	10/19/2020	0.64	10/21/2024	10/19/2020	103.17301	100.9165414	98.72020957	96.58196102	94.49983267	92.47194513	90.49649833	88.57176738	86.69609867
220526A00010	5/26/2022	3	5/26/2026	5/26/2022	115.30466	111.1971333	107.2598286	103.4848067	99.86453704	96.39187782	93.06005397	89.86263631	86.79352208
200317A00045	3/19/2020	1.43	3/19/2025	3/19/2020	106.00095	103.2916124	100.6650992	98.11836044	95.64847619	93.25265434	90.92822391	88.67262884	86.48342218

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210729A00004	7/29/2021	1.74	7/29/2031	7/29/2021	122.55276	112.6375423	103.6006675	95.35972928	87.84044818	80.97582971	74.70541637	68.97461989	63.73412468
200302A00005	3/2/2020	1.31	3/3/2025	3/2/2020	105.56237	102.9060863	100.3299775	97.83112715	95.40674916	93.0541771	90.77085804	88.55434696	86.40230135
200327A00043	3/27/2020	1.48	3/27/2028	3/27/2020	114.7694	108.6807603	102.950733	97.55633404	92.47617224	87.69033183	83.18026259	78.92867896	74.91946701
200330A00028	3/30/2020	1.09	3/28/2025	3/30/2020	105.13968	102.4155855	99.77547648	97.21623281	94.73486865	92.32853022	89.99448883	87.73013443	85.53296946
201123A00010	11/25/2020	1.48	11/24/2025	11/25/2020	107.92226	104.4811001	101.1672666	97.97537875	94.90031689	91.9372042	89.0813938	86.32845662	83.67416993
210311A00007	3/11/2021	1.06	3/11/2026	3/11/2021	107.16531	103.4326195	99.84896805	96.40757956	93.10202958	89.92622195	86.87436992	83.94097849	81.12082788
211221A00023	12/21/2021	1.53	6/19/2026	12/21/2021	109.69071	105.6244077	101.7304921	98.00078268	94.42752793	91.00338195	87.72138113	84.57492231	81.55774221
211222A00035	12/22/2021	2.15	12/22/2033	12/22/2021	131.06998	118.1453768	106.6244179	96.34669643	87.17090405	78.97247174	71.6415121	65.08102345	59.20532144
220106A00007	1/6/2022	2.42	1/6/2034	1/6/2022	134.39733	121.241606	109.5136093	99.04999564	89.70690381	81.35754678	73.89010773	67.20590471	61.21778827
220302A00010	3/2/2022	2.14	1/13/2027	3/2/2022	114.07914	109.3210786	104.7893301	100.4719542	96.35770423	92.43598195	88.69679619	85.13072516	81.728881
220630A00044	6/30/2022	3.34	6/30/2025	6/30/2022	112.4392	109.3450405	106.3531401	103.45956	100.6605371	97.95247364	95.33192905	92.79561206	90.34037338
200316A00067	3/18/2020	1.1	9/15/2022	3/18/2020	100.34407	100.210482	100.0772654	99.94441784	99.81193785	99.67982384	99.54807428	99.41668762	99.28566233
220324A00015	3/24/2022	2.79	3/3/2026	3/24/2022	113.51229	109.6874398	106.0132855	102.4830395	99.09026353	95.82884566	92.69298141	89.67715652	86.7761306
200306A00031	3/6/2020	1.01	3/6/2025	3/6/2020	104.78324	102.1285578	99.55427525	97.05746147	94.63531361	92.28514963	90.00440214	87.79061264	85.6414261
200316A00041	3/16/2020	1.16	3/16/2023	3/16/2020	101.23874	100.5955131	99.96043855	99.33335734	98.71411923	98.10257772	97.49858995	96.90201656	96.3127216
200423A00027	4/28/2020	0.88	4/15/2024	4/28/2020	102.781	101.0490353	99.35451016	97.69627637	96.07323313	94.48432453	92.92853718	91.40489806	89.91247244
200428A00003	4/29/2020	1.01	4/29/2025	4/29/2020	105.1003	102.2886218	99.56595467	96.92888372	94.37415649	91.89866945	89.49945988	87.17369825	84.91868105
210609A00003	6/9/2021	0.47	6/9/2023	6/9/2021	101.0198	100.1401981	99.27581675	98.42625971	97.5911484	96.77011702	95.96281204	95.16889164	94.38802532
211123A00012	11/23/2021	2.27	11/23/2033	11/23/2021	132.37869	119.4671102	107.9464548	97.65889086	88.46525721	80.24277149	72.88302872	66.29025305	60.37976976
200309A00038	3/9/2020	1.26	3/11/2030	3/9/2020	115.96282	107.793948	100.2517661	93.28505767	86.84704239	80.89496805	75.38974434	70.29561169	65.57984155
200326A00009	3/27/2020	1.54	3/27/2025	3/27/2020	106.36074	103.6228852	100.9692501	98.3967079	95.9022692	93.48307649	91.13639739	88.85961811	86.65023735
201021A00011	10/21/2020	1.11	10/21/2027	10/21/2020	110.90913	105.4146558	100.2222118	95.31361149	90.67186254	86.28108278	82.1264212	78.19398505	74.47077262
210908A00006	9/8/2021	0.36	9/8/2022	9/8/2021	100.21457	100.1006053	99.9869107	99.87348766	99.76033518	99.64745227	99.53483794	99.4224912	99.31041105
200228A00070	5/18/2020	1.35	5/18/2023	5/18/2020	101.69073	100.8693773	100.0612341	99.26598731	98.48333023	97.71296567	96.95460576	96.20797157	95.47279275
210217A00009	2/18/2021	0.68	11/15/2024	2/18/2021	103.37817	101.0506667	98.78665386	96.58400355	94.44067032	92.35469165	90.3241839	88.3473385	86.42241836
210219A00004	2/19/2021	0.91	2/19/2026	2/19/2021	106.48075	102.8189131	99.30158776	95.92229049	92.67486619	89.55346956	86.55254758	83.66682316	80.89127977
200306A00077	3/6/2020	1.06	3/6/2025	3/6/2020	104.91665	102.2601867	99.68415886	97.18563976	94.76182529	92.41003221	90.12769198	87.91234499	85.76163516
220106A00011	1/6/2022	2.7	1/6/2038	1/6/2022	145.36263	127.174437	111.5387999	98.07966682	86.47833501	76.46444357	67.80842019	60.31514039	53.81859929
200224A00006	2/24/2020	1.58	11/15/2024	2/24/2020	105.49669	103.1439684	100.8552851	98.62848672	96.46151224	94.35238417	92.29920444	90.30015063	88.35347229
211207A00011	12/7/2021	1.62	12/1/2026	12/7/2021	111.34873	106.7765317	102.4170792	98.25941869	94.29321086	90.50869737	86.89666513	83.44841317	80.15572164
220217A00013	2/17/2022	2.08	2/14/2025	2/17/2022	107.4577	104.8250905	102.2707141	99.79178079	97.38561385	95.04964933	92.78143032	90.57860178	88.43890557
200305A00015	3/5/2020	0.99	3/6/2023	3/5/2020	101.08666	100.4719347	99.86465366	99.26468537	98.67189837	98.08616435	97.50735801	96.93535702	96.37004193
200326A00016	3/26/2020	1.54	3/25/2025	3/26/2020	106.34519	103.6134508	100.96561	98.39855443	95.90931125	93.49503875	91.15301928	88.88065292	86.67545141

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200408A00011	4/8/2020	0.82	9/26/2022	4/8/2020	100.37056	100.2063126	100.0426035	99.8794318	99.71679474	99.55468975	99.39311424	99.23206563	99.07154136
200605A00005	6/5/2020	0.99	6/5/2025	6/5/2020	105.25674	102.3386942	99.51584193	96.78458466	94.1414794	91.58323123	89.10668603	86.70882371	84.38675179
210224A00006	2/26/2021	0.88	10/21/2025	2/26/2021	105.68345	102.3744411	99.18537359	96.11117224	93.14701378	90.28831064	87.53069764	84.87001949	82.30231917
200325A00016	3/30/2020	1.67	3/31/2025	3/30/2020	106.74656	103.9919654	101.3223512	98.73454797	96.22552926	93.79240298	91.43240413	89.14288825	86.92132518
201116A00024	11/18/2020	2.36	11/15/2034	11/18/2020	135.14154	121.0112821	108.5166097	97.45841742	87.66281152	78.97780635	71.27046489	64.42442489	58.33775714
201123A00009	11/25/2020	1.02	11/25/2024	11/25/2020	104.23258	101.8676537	99.56776654	97.33076792	95.15458776	93.03723671	90.97680258	88.97144676	87.01940096
210104A00009	12/20/2021	0.89	12/18/2026	12/20/2021	108.1711	103.6196495	99.2830631	95.15013796	91.21031148	87.45362135	83.87066833	80.45258168	77.19098676
211028A00013	10/28/2021	1.65	10/22/2027	10/28/2021	113.84668	108.2720124	103.0027219	98.02044722	93.30803304	88.84944404	84.62968519	80.63472825	76.85144396
220727A00010	7/27/2022	3.38	7/24/2024	7/27/2022	108.34925	106.2835198	104.268178	102.3016717	100.3825116	98.50926436	96.68054982	94.89503887	93.15145108
200330A00008	3/30/2020	1.09	3/28/2025	3/30/2020	105.13968	102.4155855	99.77547648	97.21623281	94.73486865	92.32853022	89.99448883	87.73013443	85.53296946
210616A00006	2/11/2022	0.86	2/11/2025	2/11/2022	104.25521	101.6730766	99.16779844	96.73662952	94.37694349	92.08622424	89.86206048	87.7021406	85.60424789
200529A00022	6/1/2020	0.98	6/1/2026	6/1/2020	107.3784	103.4077037	99.60388784	95.95911055	92.46594054	89.11733101	85.9065978	82.82739885	79.87371499
201030A00016	10/30/2020	1.14	10/8/2027	10/30/2020	110.99965	105.540711	100.3799637	95.49956683	90.88284107	86.5141895	82.37902113	78.46368038	74.75538188
201203A00005	12/3/2020	0.78	12/3/2026	12/3/2020	108.19681	103.6699409	99.355329	95.24198661	91.31954806	87.57823248	84.00880788	80.60255758	77.35124893
210616A00012	3/18/2022	0.9	3/18/2025	3/18/2022	104.56124	101.8743581	99.26969449	96.74421512	94.29502215	91.91934443	89.61453094	87.37804468	85.20745683
210709A00006	7/13/2021	2.4	7/11/2031	7/13/2021	128.67546	118.54211	109.2947596	100.85106	93.136719	86.08467338	79.63435188	73.73101685	68.32517555
211123A00010	11/23/2021	0.94	11/24/2023	11/23/2021	102.19276	100.8569833	99.54646944	98.26053609	96.99852397	95.75979747	94.54374342	93.34977021	92.17730673
200302A00013	3/2/2020	1.25	3/4/2024	3/2/2020	103.17108	101.5545902	99.97134309	98.42038688	96.90080145	95.41170148	93.95223468	92.52158026	91.11894746
200423A00006	4/23/2020	0.82	4/23/2025	4/23/2020	104.90585	102.1050105	99.39259899	96.76523514	94.21969829	91.75291466	89.36194932	87.04399868	84.79638355
210914A00018	9/14/2021	1.43	9/14/2029	9/14/2021	117.56018	109.8042404	102.608985	95.93102646	89.73055301	83.97101288	78.61883115	73.64315267	69.01560847
220325A00012	3/28/2022	2.85	3/23/2026	3/28/2022	113.97523	110.080641	106.3413933	102.7504036	99.30095211	95.98666467	92.80149292	89.73969537	86.79581987
201030A00018	10/30/2020	1.15	10/22/2027	10/30/2020	111.1318	105.6285477	100.4278655	95.51152288	90.8624924	86.46485964	82.30374381	78.3652247	74.63627521
210330A00015	3/30/2021	0.47	3/30/2023	3/30/2021	100.83637	100.1555452	99.48385871	98.8211259	98.16716891	97.52181457	96.88489423	96.25624362	95.63570272
200401A00001	4/1/2020	1.01	4/1/2025	4/1/2020	104.94422	102.211619	99.56357236	96.99692025	94.50864593	92.09586667	89.75582671	87.48589059	85.28353696
200527A00012	5/27/2020	1.2	5/27/2027	5/27/2020	110.55495	105.4889179	100.6822689	96.1204474	91.78978557	87.67744537	83.77136411	80.06020375	76.53330392
220311A00013	3/15/2022	2.35	3/15/2027	3/15/2022	115.60149	110.628812	105.8998466	101.4013345	97.12080796	93.04654225	89.16750754	85.4733236	81.95421783
200304A00032	3/4/2020	1.6	12/15/2028	3/4/2020	116.16055	109.2972423	102.8820224	96.88340128	91.27225498	86.02163423	81.10659169	76.50402391	72.19252646
200330A00043	3/30/2020	0.86	3/30/2023	3/30/2020	101.10165	100.4198157	99.74712878	99.08340504	98.42846641	97.7821396	97.14425579	96.5146506	95.89316383
210907A00006	9/7/2021	2.1	9/7/2034	9/7/2021	131.50188	117.791858	105.6538723	94.8985956	85.36041795	76.89436861	69.37345062	62.68633119	56.73533901
220126A00003	1/26/2022	1.9	12/18/2026	1/26/2022	112.75272	108.0996824	103.664967	99.43722544	95.40575534	91.56046167	87.89181898	84.39083648	81.04902533
220217A00015	2/17/2022	2.28	2/16/2027	2/17/2022	115.0502	110.170677	105.5272281	101.1071728	96.89858362	92.89023352	89.07155118	85.43257902	81.96393424
220721A00017	7/21/2022	3.51	1/22/2024	7/21/2022	106.36693	104.8397396	103.3424752	101.8743334	100.4345378	99.02233937	97.6370148	96.27786557	94.94421687
200413A00026	4/13/2020	0.82	4/13/2023	4/13/2020	101.12827	100.4071952	99.69636417	98.99555534	98.30455779	97.62316657	96.95118237	96.28841138	95.63466508

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210127A00009	1/27/2021	1.3	7/27/2029	1/27/2021	115.24122	107.7541489	100.799628	94.33711716	88.32936127	82.74210445	77.5438343	72.70554919	68.20054644
210420A00009	4/20/2021	1.08	12/5/2025	4/20/2021	106.62389	103.1737776	99.85256364	96.65477917	93.57521793	90.60892026	87.7511601	84.99743273	82.34344325
220325A00018	3/28/2022	2.85	9/10/2026	3/28/2022	115.93409	111.5016545	107.2651422	103.2148109	99.34145594	95.63638052	92.09136447	88.69863536	85.4508414
210208A00015	2/10/2021	0.46	8/25/2023	2/10/2021	101.23885	100.1426985	99.07007844	98.02023498	96.99244968	95.98603402	95.00032787	94.03469801	93.0885368
210929A00011	3/16/2022	1.03	3/14/2025	3/16/2022	104.88723	102.2076724	99.60980187	97.09061814	94.64725285	92.27696242	89.97712166	87.74521772	85.5788445
220701A00050	7/1/2022	3.26	7/1/2027	7/1/2022	121.32209	115.8884585	110.7342637	105.8436584	101.2017727	96.79465144	92.60919295	88.63309264	84.8547905
200310A00041	3/10/2020	1.39	3/12/2029	3/10/2020	115.21232	108.1248136	101.5164693	95.35246554	89.60068118	84.23147659	79.21748943	74.53344839	70.15600299
200327A00022	3/27/2020	0.9	3/27/2023	3/27/2020	101.11667	100.4431659	99.77858297	99.12274925	98.47549299	97.83664692	97.20604814	96.58353788	95.96896145
200331A00008	3/31/2020	0.64	3/31/2023	3/31/2020	101.01687	100.3317674	99.65590563	98.98909992	98.33116931	97.6819377	97.0412336	96.40889001	95.78474425
210928A00007	9/28/2021	0.88	9/27/2024	9/28/2021	103.59335	101.3994689	99.26263971	97.18096922	95.15264388	93.17592484	91.24914422	89.37070155	87.53906044
200826A00019	8/26/2020	0.98	8/26/2026	8/26/2020	107.89682	103.6737747	99.63784013	95.77973774	92.09070179	88.56244706	85.18713969	81.95737	78.86612707
201015A00032	10/19/2020	2.33	10/19/2026	10/19/2020	114.11338	109.6048775	105.3005384	101.189964	97.26334924	93.51144412	89.9255186	86.49733011	83.2190932
201215A00001	12/15/2020	0.76	12/15/2025	12/15/2020	105.57504	102.1144206	98.78427069	95.5790105	92.49332813	89.52216539	86.66070432	83.9043545	81.24874108
211206A00009	12/6/2021	1.43	12/5/2025	12/6/2021	107.83094	104.3602109	101.0189452	97.80165771	94.70312262	91.71836167	88.84263091	86.07140856	83.40038333
200310A00021	3/10/2020	1.1	3/10/2025	3/10/2020	105.04949	102.379495	99.79060535	97.27985675	94.84441173	92.48155561	90.18869033	87.96332852	85.80308794
220715A00001	7/15/2022	3.44	7/15/2027	7/15/2022	122.35843	116.8579113	111.6420089	106.69447	102.0000519	97.5444564	93.3142662	89.29688623	85.48048903
200310A00062	3/10/2020	1.05	3/8/2024	3/10/2020	102.86805	101.2424941	99.65053573	98.09120088	96.56355399	95.06669505	93.59975792	92.16190875	90.75234441
200311A00050	3/2/2021	1.46	3/2/2026	3/2/2021	108.58227	104.8504743	101.2665356	97.82378266	94.51588391	91.33682893	88.28091002	85.34270512	82.51706178
200331A00024	3/31/2020	0.64	3/31/2023	3/31/2020	101.01687	100.3317674	99.65590563	98.98909992	98.33116931	97.6819377	97.0412336	96.40889001	95.78474425
200824A00020	8/26/2020	1.57	8/26/2025	8/26/2020	107.55289	104.3709361	101.2996049	98.33442216	95.47111848	92.70562263	90.03405104	87.45269793	84.95802599
220121A00013	1/21/2022	1.78	11/3/2025	1/21/2022	108.77858	105.3815051	102.1082121	98.95345223	95.91223294	92.97980521	90.15165012	87.42346593	84.79115607
220728A00070	7/28/2022	3.19	1/29/2024	7/28/2022	105.95954	104.416295	102.9036578	101.4207996	99.96691781	98.5412381	97.14301314	95.77152148	94.42606641
211026A00012	10/26/2021	1.52	10/26/2026	10/26/2021	110.6339	106.1793058	101.9281678	97.87005483	93.99513687	90.29414351	86.75832866	83.37943743	80.14967541
200331A00016	3/31/2020	1.11	3/31/2026	3/31/2020	108.00111	104.1801439	100.513868	96.9951495	93.61722716	90.37369115	87.25846245	84.26577365	81.39015082
200826A00028	8/28/2020	1.08	8/28/2024	8/28/2020	103.86935	101.7542946	99.69274726	97.68299174	95.72338072	93.812332	91.94832525	90.12989918	88.35564868
200327A00040	3/27/2020	0.72	3/27/2023	3/27/2020	101.05627	100.3822034	99.71708447	99.06073329	98.41297749	97.77364924	97.14258505	96.51962565	95.90461581
200417A00019	4/17/2020	0.77	4/17/2025	4/17/2020	104.73372	101.9518339	99.25736438	96.64698844	94.11753814	91.66598905	89.28945246	86.98516823	84.75049791
201218A00014	12/18/2020	0.57	12/18/2025	12/18/2020	105.39257	101.9147424	98.56863566	95.34859486	92.24923524	89.26543042	86.39229853	83.62518928	80.95967166
220317A00027	5/3/2022	2.59	5/3/2027	5/3/2022	117.31061	112.1505162	107.2491987	102.5922515	98.16615067	93.95819805	89.95646544	86.14974343	82.52749384
200218A00025	2/21/2020	1.71	2/24/2023	2/21/2020	101.46535	100.8772856	100.2960195	99.7214324	99.1534096	98.59183917	98.03661167	97.48762012	96.94475994
200312A00009	3/12/2020	1.46	3/12/2027	3/12/2020	111.36838	106.5020306	101.8751809	97.47477703	93.28855068	89.30496496	85.51316672	81.90294215	78.46467551
201221A00014	12/21/2020	0.76	12/19/2025	12/21/2020	105.59694	102.1245735	98.78351743	95.56813974	92.47307866	89.49322935	86.62373016	83.8599498	81.19747515
210225A00003	3/1/2021	0.93	9/24/2025	3/1/2021	105.69131	102.458642	99.34087178	96.33324135	93.43122105	90.63049717	87.92696008	85.31669308	82.79596202

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210302A00005	3/5/2021	0.92	9/10/2025	3/5/2021	105.58139	102.3890952	99.30920258	96.3371058	93.46841611	90.69895147	88.02472529	85.44193594	82.94695697
210826A00013	8/26/2021	1.97	2/28/2033	8/26/2021	127.67931	115.8142503	105.1590524	95.5836927	86.97274763	79.22368579	72.2453693	65.9567358	60.2856388
200312A00037	3/12/2020	1.3	3/12/2025	3/12/2020	105.59961	102.9163292	100.3146392	97.79155379	95.34421424	92.96988563	90.66595085	88.42990451	86.25934734
200730A00013	7/30/2020	0.74	1/30/2025	7/30/2020	103.88149	101.3380196	98.86959259	96.47355615	94.14737274	91.88860976	89.69493453	87.56410953	85.49398784
201028A00011	10/28/2020	0.91	4/28/2026	10/28/2020	106.89658	103.0321081	99.32675312	95.77304613	92.36391907	89.09267863	85.95298369	82.9388243	80.04450209
220203A00009	2/3/2022	1.99	2/2/2027	2/3/2022	113.55961	108.7556611	104.1829573	99.8291586	95.68264573	91.7324773	87.96834642	84.38054056	80.9599041
220420A00032	4/20/2022	3.26	10/16/2026	4/20/2022	118.13239	113.5470736	109.167995	104.9846927	100.9873027	97.16651758	93.51355127	90.02010647	86.67834446
220516A00034	5/16/2022	2.72	11/16/2023	5/16/2022	104.52437	103.1876797	101.8786249	100.5963564	99.34005994	98.10895445	96.9022905	95.71934856	94.55943755
200306A00028	3/6/2020	1.01	3/6/2025	3/6/2020	104.78324	102.1285578	99.55427525	97.05746147	94.63531361	92.28514963	90.00440214	87.79061264	85.6414261
200916A00016	9/16/2020	0.6	9/16/2024	9/16/2020	102.92666	100.7701668	98.66923911	96.6220517	94.62685796	92.68198213	90.78581586	88.93681487	87.13349588
200504A00007	5/4/2020	1.47	5/4/2028	5/4/2020	114.04803	107.9016551	102.1225269	96.68679168	91.57227163	86.75833784	82.22579372	77.95676783	73.93461523
220408A00013	4/8/2022	3.15	1/14/2027	4/8/2022	118.74868	113.8825137	109.2465636	104.8287101	100.617539	96.60229285	92.77283001	89.11958604	85.63353784
200316A00048	3/16/2020	1.11	3/16/2023	3/16/2020	101.20668	100.5635736	99.92861414	99.30164707	98.68252208	98.0710927	97.46721606	96.87075283	96.28156708
200430A00030	4/30/2020	0.96	4/30/2025	4/30/2020	104.96495	102.152354	99.42888489	96.79112577	94.23582163	91.7598662	89.36029385	87.03427196	84.77909386
210730A00009	7/30/2021	0.74	7/31/2024	7/30/2021	103.01746	100.9875477	99.00782154	97.07672774	95.19276747	93.35449868	91.5605335	89.80953584	88.10021905
220502A00030	5/4/2022	3.24	6/20/2025	5/4/2022	112.02028	108.9608228	106.0016539	103.1389483	100.3690449	97.68844196	95.09378934	92.58188097	90.14964791
220726A00032	7/26/2022	3.36	7/26/2023	7/26/2022	104.05956	103.0323189	102.0253591	101.038081	100.0699113	99.12029905	98.18871408	97.27464639	96.377605
210826A00008	8/26/2021	0.89	2/26/2025	8/26/2021	104.41638	101.7898313	99.24233895	96.77104795	94.37322149	92.04623957	89.78759317	87.59487871	85.46579287
220209A00011	2/9/2022	2.14	1/11/2027	2/9/2022	114.0612	109.3092814	104.783125	100.4708329	96.36119845	92.44365987	88.7082599	85.14560794	81.74684497
220314A00008	3/14/2022	2.38	7/28/2025	3/14/2022	109.83431	106.6979051	103.6681582	100.7408489	97.91194806	95.17760858	92.53415621	89.97808067	87.50602732
200421A00029	4/24/2020	0.72	12/15/2022	4/24/2020	100.66839	100.2806561	99.89591388	99.51412573	99.13525762	98.75927606	98.38614808	98.0158412	97.64832344
210624A00003	6/24/2021	0.78	6/24/2024	6/24/2021	102.92391	100.9981209	99.11765361	97.28117292	95.48739022	93.73506308	92.02299328	90.35002494	88.71504275
210916A00003	9/16/2021	0.75	9/16/2024	9/16/2021	103.25431	101.0941828	98.98969501	96.9390198	94.94040846	92.99218321	91.09273375	89.24051391	87.43403862
220301A00014	3/1/2022	1.85	1/10/2025	3/1/2022	106.57699	104.0540556	101.6037953	99.22370062	96.91136668	94.66448597	92.4808435	90.35831261	88.29485081
200319A00025	3/19/2020	1.39	3/21/2024	3/19/2020	103.5323	101.8629121	100.2285424	98.6281533	97.06075044	95.52537832	94.02111829	92.54708677	91.10243357
210225A00016	3/1/2021	0.88	7/15/2025	3/1/2021	105.14647	102.1188095	99.19350477	96.36654446	93.63409631	90.99249933	88.43825513	85.96801968	83.57859562
211220A00006	12/20/2021	1.21	12/20/2024	12/20/2021	104.84087	102.3982655	100.0245875	97.7175159	95.47481789	93.29434877	91.17404777	89.11193436	87.10610455
200521A00015	5/21/2020	2.14	5/21/2036	5/21/2020	134.26324	118.5799573	104.9147925	92.99588541	82.58931166	73.49362039	65.53518278	58.56422653	52.45145228
220331A00004	3/31/2022	2.66	5/20/2024	3/31/2022	106.24232	104.3807413	102.5609614	100.7817539	99.04194202	97.34039205	95.67601165	94.04774787	92.45458537
200310A00051	3/10/2020	1.41	3/8/2030	3/10/2020	117.14403	108.9395372	101.3628373	94.36271438	87.89238279	81.90907958	76.37369913	71.25046286	66.50662029
200327A00031	3/27/2020	1.18	3/27/2025	3/27/2020	105.3787	102.6542664	100.0137439	97.4540097	94.972084	92.56511856	90.23038983	87.96529254	85.76733359
200417A00002	4/17/2020	0.96	4/17/2025	4/17/2020	104.89402	102.1181885	99.42939357	96.82433651	94.29986845	91.85298294	89.48080823	87.18060012	84.94973519
200511A00006	5/11/2020	1.65	5/13/2030	5/11/2020	119.42868	110.941734	103.1161576	95.8970216	89.23422567	83.08205076	77.39875498	72.14620863	67.28956456

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220617A00027	6/17/2022	3.45	6/17/2024	6/17/2022	108.03985	106.0825486	104.1706942	102.3029552	100.4780516	98.69474887	96.95185611	95.24822413	93.58274372
220701A00049	7/1/2022	3.19	7/1/2025	7/1/2022	112.00157	108.9110192	105.9227585	103.03284	100.2374956	97.53312264	94.91627608	92.38366058	89.93212307
200413A00011	4/13/2020	0.94	4/12/2024	4/13/2020	102.88904	101.1639396	99.47600056	97.8240861	96.20710789	94.62402181	93.07382558	91.55555667	90.06829025
200415A00026	4/15/2020	0.77	4/14/2023	4/15/2020	101.096	100.3722699	99.658852	98.95553161	98.26209547	97.5783363	96.90405258	96.23904837	95.58313309
220315A00014	3/15/2022	2.78	3/15/2032	3/15/2022	134.208	123.0675403	112.9607926	103.7858189	95.45124354	87.87511167	80.98387314	74.71148059	68.99858852
200327A00061	3/31/2020	1.18	3/31/2025	3/31/2020	105.40432	102.6681513	100.0165288	97.44629809	94.95444609	92.5380934	90.19448724	87.92099491	85.71509751
200415A00038	4/15/2020	1.37	4/15/2027	4/15/2020	111.17604	106.2144993	101.501519	97.02331227	92.76693343	88.72022378	84.87175918	81.21080121	77.72725198
200428A00002	4/28/2020	1.47	4/26/2030	4/28/2020	119.10598	110.6272004	102.8079307	95.59347871	88.93395845	82.78384659	77.10157894	71.84918642	66.99196635
201116A00009	11/16/2020	0.51	11/14/2022	11/16/2020	100.49976	100.1987901	99.89963343	99.60227137	99.30668771	99.01286642	98.72079172	98.43044798	98.14181977
210526A00014	5/26/2021	1.01	12/19/2025	5/26/2021	106.46913	102.9817018	99.62599989	96.39638061	93.28746769	90.29414244	87.41153001	84.63498641	81.96008641
200310A00020	3/10/2020	1.1	3/10/2025	3/10/2020	105.04949	102.379495	99.79060535	97.27985675	94.84441173	92.48155561	90.18869033	87.96332852	85.80308794
220329A00007	3/29/2022	2.94	3/29/2029	3/29/2022	126.10018	118.5980752	111.5993316	105.0673999	98.96857592	93.27176398	87.94826182	82.97156387	78.31718185
220729A00045	7/29/2022	3.03	7/29/2027	7/29/2022	120.40822	114.9138631	109.7066513	104.7700431	100.0885326	95.64758314	91.43356116	87.43367573	83.635922
200325A00048	3/25/2020	1.34	12/27/2022	3/25/2020	100.96479	100.5428905	100.1245095	99.70959921	99.29811653	98.89001921	98.48526565	98.08381494	97.68562681
200527A00015	5/27/2020	0.99	11/26/2025	5/27/2020	106.25936	102.8408562	99.54927752	96.37926131	93.32570059	90.38373013	87.5487136	84.81623157	82.18207018
210714A00020	7/14/2021	0.9	3/14/2025	7/14/2021	104.5374	101.8625634	99.26930583	96.75462885	94.31566744	91.94968124	89.6540481	87.42625816	85.26390812
220121A00014	1/21/2022	1.78	11/3/2025	1/21/2022	108.77858	105.3815051	102.1082121	98.95345223	95.91223294	92.97980521	90.15165012	87.42346593	84.79115607
200327A00066	6/25/2020	0.93	6/26/2023	6/25/2020	101.48913	100.5597633	99.64730781	98.7513058	97.87131583	97.00691206	96.15768364	95.32323405	94.50318045
211123A00011	11/23/2021	1.69	11/23/2026	11/23/2021	111.59966	107.0447819	102.7008457	98.55700748	94.60303671	90.82927846	87.22661809	83.78644819	80.50063767
200302A00003	3/2/2020	1.2	3/2/2023	3/2/2020	101.19586	100.5919344	99.99518897	99.40549314	98.82272264	98.24675613	97.67747508	97.11476372	96.55850892
210104A00012	12/20/2021	0.89	12/18/2026	12/20/2021	108.1711	103.6196495	99.2830631	95.15013796	91.21031148	87.45362135	83.87066833	80.45258168	77.19098676
210305A00005	3/9/2021	0.54	8/11/2023	3/9/2021	101.27173	100.214729	99.17962323	98.16573391	97.17241449	96.1990445	95.24502818	94.30979327	93.39278989
220217A00020	2/17/2022	2.08	2/13/2025	2/17/2022	107.44879	104.819157	102.2676121	99.79137053	97.38776294	95.05423227	92.78832815	90.58770163	88.45010036
220331A00003	3/31/2022	2.66	5/17/2024	3/31/2022	106.21228	104.3595211	102.5482156	100.7771436	99.04512798	97.35103598	95.69377664	94.07229914	92.48559089
201030A00017	10/30/2020	1.14	10/15/2027	10/30/2020	111.03857	105.5581946	100.3781632	95.48044668	90.84819357	86.46564984	82.31808116	78.39170105	74.67360464
200304A00012	3/4/2020	0.98	3/4/2025	3/4/2020	105.04373	102.3837281	99.80428193	97.30245503	94.87544003	92.52055045	90.23521459	88.01696976	85.86345685
200402A00036	4/2/2020	0.71	4/2/2024	4/2/2020	102.65323	100.9537703	99.29053882	97.6624483	96.06845055	94.50753925	92.97874784	91.48114752	90.01384536
210616A00009	2/11/2022	0.86	2/11/2025	2/11/2022	104.25521	101.6730766	99.16779844	96.73662952	94.37694349	92.08622424	89.86206048	87.7021406	85.60424789
210624A00004	6/24/2021	1.01	6/24/2025	6/24/2021	105.42042	102.4477952	99.57373496	96.7944545	94.10633197	91.50590401	88.9898579	86.55502415	84.19836951
220301A00013	3/1/2022	2.01	2/16/2027	3/1/2022	113.77849	108.92819	104.3129391	99.92010112	95.73779086	91.75482161	87.96066029	84.34538566	80.89964946
220325A00017	3/28/2022	2.86	3/23/2027	3/28/2022	118.1365	113.0796891	108.2709566	103.6967667	99.34439865	95.20189272	91.25800041	87.50213794	83.92434315
220613A00030	6/13/2022	3.08	6/13/2023	6/13/2022	103.3522	102.4501205	101.5637834	100.6927796	99.83671332	98.99520229	98.16787729	97.35438147	96.55436984
200302A00060	3/2/2021	1.44	3/3/2025	3/2/2021	105.90814	103.2472437	100.6666254	98.16336856	95.73468393	93.37790194	91.09046674	88.86993044	86.71394779

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201015A00025	10/19/2020	1.54	10/18/2027	10/19/2020	113.2225	107.6760353	102.4330791	97.47541037	92.78600171	88.34893557	84.14932516	80.17324194	76.40764842
210330A00024	3/30/2021	0.68	3/29/2024	3/30/2021	102.37814	100.6955929	99.04869042	97.43636865	95.85760347	94.31141125	92.79684687	91.31300181	89.85900234
210917A00012	9/17/2021	1.2	9/11/2026	9/17/2021	108.92788	104.6386588	100.5408648	96.62493184	92.8818228	89.30300082	85.88039854	82.60638945	79.47376122
220422A00014	4/22/2022	3.36	9/29/2026	4/22/2022	118.34544	113.8070125	109.4706616	105.3262453	101.3641905	97.57545846	93.95151077	90.48427903	87.16613591
200330A00007	3/30/2020	0.93	4/1/2024	3/30/2020	102.81833	101.1237585	99.46520765	97.84159641	96.25188558	94.6950773	93.17021299	91.67637138	90.21266665
211214A00015	12/14/2021	1.49	12/12/2025	12/14/2021	108.0908	104.5954937	101.2312299	97.99242808	94.8737721	91.87019896	88.97688537	86.18923514	83.50286724
220324A00007	3/24/2022	2.72	3/24/2025	3/24/2022	109.54629	106.7738685	104.0862007	101.4801548	98.95273514	96.50107788	94.12244396	91.81421272	89.57387583
210121A00014	1/22/2021	0.64	10/25/2024	1/22/2021	103.19168	100.923754	98.71650526	96.56785814	94.47582327	92.43849658	90.45405476	88.52075101	86.63691114
211206A00017	12/6/2021	1.56	12/4/2026	12/6/2021	111.1026	106.5270394	102.1648343	98.00497841	94.03708388	90.25134741	86.63851461	83.18984644	79.89708805
200316A00071	3/16/2020	1.18	3/16/2023	3/16/2020	101.25156	100.608289	99.97316831	99.34604144	98.72675809	98.11517173	97.51113951	96.91452205	96.32518341
210907A00007	9/7/2021	2.35	9/4/2037	9/7/2021	139.20231	121.8275022	106.8602996	93.95137447	82.80382955	73.16509673	64.82011918	57.58561087	51.30521903
200414A00015	4/14/2020	0.64	4/14/2023	4/14/2020	101.06712	100.3426445	99.62850986	98.92449516	98.23038642	97.54597564	96.87106063	96.20544477	95.54893685
210122A00005	1/26/2021	0.6	7/15/2024	1/26/2021	102.66172	100.6801622	98.74661182	96.8596113	95.01775634	93.21969464	91.46412356	89.74978795	88.07547806
220124A00007	1/24/2022	1.88	1/22/2027	1/24/2022	112.9541	108.1956949	103.6651421	99.35034969	95.23993021	91.32315613	87.58991825	84.03068684	80.63647532
220125A00008	1/25/2022	1.31	1/26/2024	1/25/2022	103.05837	101.5464387	100.0643941	98.61142548	97.18675325	95.78962503	94.41931461	93.07512075	91.75636612
220506A00016	5/6/2022	3.35	5/6/2027	5/6/2022	121.09541	115.8353199	110.8381742	106.0893565	101.5751504	97.2826747	93.19982749	89.31523448	85.618201
200331A00014	3/31/2020	0.72	3/29/2024	3/31/2020	102.65202	100.9634646	99.31073221	97.6927521	96.10849373	94.55696739	93.03722221	91.5483442	90.08945443
200218A00030	2/21/2020	1.71	2/24/2023	2/21/2020	101.46535	100.8772856	100.2960195	99.7214324	99.1534096	98.59183917	98.03661167	97.48762012	96.94475994
200225A00023	2/25/2020	1.62	2/25/2025	2/25/2020	106.34007	103.6908132	101.1210559	98.62793016	96.20868884	93.86070192	91.58145057	89.36852166	87.21960257
200305A00045	3/5/2020	0.99	3/6/2023	3/5/2020	101.08666	100.4719347	99.86465366	99.26468537	98.67189837	98.08616435	97.50735801	96.93535702	96.37004193
200310A00028	3/10/2020	1.1	3/10/2025	3/10/2020	105.04949	102.379495	99.79060535	97.27985675	94.84441173	92.48155561	90.18869033	87.96332852	85.80308794
210218A00010	2/18/2021	1.72	2/18/2031	2/18/2021	121.52494	112.131263	103.5331051	95.65896223	88.44409864	81.82987677	75.76315441	70.19574408	65.08392815
211015A00031	10/15/2021	1.22	10/15/2025	10/15/2021	106.77178	103.462014	100.2715254	97.19529287	94.22854414	91.36673888	88.60555555	85.94087924	83.36879024
200304A00033	3/4/2020	1.17	3/4/2025	3/4/2020	105.19672	102.5423807	99.96825662	97.47142952	95.0491088	92.69862374	90.41741752	88.2030415	86.05314983
220126A00002	1/26/2022	1.9	12/18/2026	1/26/2022	112.75272	108.0996824	103.664967	99.43722544	95.40575534	91.56046167	87.89181898	84.39083648	81.04902533
220331A00012	3/31/2022	2.81	3/17/2025	3/31/2022	109.71137	106.9576906	104.2876894	101.6982943	99.18656631	96.74969444	94.38498942	92.08987724	89.86189341
220511A00015	5/11/2022	3.29	5/11/2027	5/11/2022	120.86074	115.5910688	110.5855534	105.8295043	101.3091277	97.01146803	92.9243529	89.03634073	85.33667309
200403A00017	4/3/2020	0.81	4/3/2023	4/3/2020	101.0829	100.3899619	99.70647353	99.03224704	98.36709527	97.71083604	97.06329202	96.42429055	95.79366353
210226A00004	3/1/2021	1.04	12/5/2025	3/1/2021	106.48594	103.0381852	99.71926288	96.52370734	93.44631454	90.48212696	87.62642058	84.87469263	82.2226501
200316A00049	3/16/2020	1.25	3/14/2025	3/16/2020	105.47925	102.791703	100.1860259	97.65921541	95.20839739	92.83082289	90.52386152	88.28499545	86.11181375
210121A00012	1/22/2021	0.64	10/15/2024	1/22/2021	103.145	100.9057225	98.72576826	96.60312409	94.53586598	92.52215132	90.56021461	88.6483635	86.78497509
220222A00018	2/22/2022	2.5	12/19/2031	2/22/2022	130.76714	120.0532849	110.3152026	101.4585697	93.39863904	86.05922246	79.37178753	73.27465315	67.71227344
220224A00023	2/24/2022	2.15	3/16/2026	2/24/2022	111.2743	107.4509619	103.7799623	100.2543693	96.86761153	93.61345455	90.48598088	87.47957212	84.58889183

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220225A00015	2/25/2022	2.26	2/25/2027	2/25/2022	115.0432	110.1371149	105.4694532	101.0273508	96.79871151	92.77215311	88.93696119	85.28304636	81.80090432
220428A00019	4/28/2022	3.27	4/28/2027	4/28/2022	120.60219	115.3782274	110.4145088	105.6965889	101.2109104	96.94474329	92.88612895	89.02382868	85.34727606
200225A00029	2/25/2020	1.89	12/28/2029	2/25/2020	120.53076	112.4053597	104.884653	97.92053347	91.46895355	85.48956166	79.94537472	74.80248136	70.02977262
200407A00019	4/7/2020	1.06	4/8/2024	4/7/2020	103.07724	101.3613325	99.68220442	98.03873858	96.42986373	94.85455177	93.31181552	91.80070668	90.32031389
200629A00020	6/29/2020	1.4	6/28/2030	6/29/2020	117.59716	109.0486863	101.1779192	93.92776054	87.24618969	81.08578904	75.40331575	70.15931518	65.31777192
200108A00016	12/18/2020	1.98	12/18/2023	12/18/2020	103.77939	102.3690711	100.9847532	99.62577915	98.2915132	96.98134043	95.69466583	94.43091349	93.18952588
200312A00015	3/12/2020	1.23	3/10/2025	3/12/2020	105.39785	102.7231671	100.1297021	97.61448316	95.17466959	92.80754352	90.51050385	88.28106029	86.11682781
200916A00015	9/16/2020	0.72	9/16/2025	9/16/2020	104.97055	101.7714891	98.68561857	95.70827807	92.83502791	90.06163865	87.38407962	84.79850816	82.3012596
220617A00026	6/17/2022	3.36	12/18/2023	6/17/2022	105.73362	104.3087819	102.9101956	101.537199	100.1891495	98.86542568	97.56542614	96.28856895	95.03429072
220630A00057	6/30/2022	3.34	6/30/2025	6/30/2022	112.4392	109.3450405	106.3531401	103.45956	100.6605371	97.95247364	95.33192905	92.79561206	90.34037338
210721A00009	7/21/2021	1.7	7/21/2031	7/21/2021	122.1339	112.2610959	103.2612921	95.05275632	87.56179537	80.7219277	74.47314474	68.76125122	63.53727557
220106A00009	1/6/2022	2.57	1/4/2036	1/6/2022	139.88903	124.233794	110.5304602	98.52323011	87.99110428	78.7429938	70.61353682	63.45951816	57.15680256
200316A00050	3/16/2020	1.54	3/16/2027	3/16/2020	111.73173	106.8463259	102.2017041	97.78472055	93.58302143	89.58499089	85.77970293	82.15687638	78.70683327
200324A00012	3/25/2020	1.78	3/25/2025	3/25/2020	106.99852	104.2578702	101.6013225	99.02576179	96.52820916	94.10581669	91.75586088	89.47573615	87.26294883
200417A00014	4/17/2020	0.96	4/17/2025	4/17/2020	104.89402	102.1181885	99.42939357	96.82433651	94.29986845	91.85298294	89.48080823	87.18060012	84.94973519
200504A00006	5/4/2020	0.94	5/5/2025	5/4/2020	104.93683	102.110497	99.37408771	96.72417172	94.15747436	91.6708689	89.26136858	86.92611924	84.66239235
210907A00014	9/9/2021	2.45	9/9/2026	9/9/2021	114.22382	109.8299038	105.63053	101.6160145	97.77721292	94.10548563	90.59266643	87.23103394	84.01328474
220527A00011	5/27/2022	2.75	5/24/2024	5/27/2022	106.44977	104.5748428	102.7421976	100.9506081	99.19889683	97.48592817	95.8106069	94.17187631	92.5687166
210826A00009	8/26/2021	1.18	8/26/2026	8/26/2021	108.7382	104.4977915	100.4450494	96.57067431	92.86587913	89.32235817	85.9322581	82.68815067	79.58300727
200225A00035	10/5/2020	1.5	10/5/2023	10/5/2020	102.66034	101.4394895	100.2475045	99.08336751	97.9461119	96.83481544	95.74859763	94.68661736	93.64807078
200324A00066	3/26/2020	1.81	3/26/2025	3/26/2020	107.08873	104.343886	101.6833331	99.103947	96.60273942	94.17685387	91.8235587	89.54024068	87.32439893
200330A00017	3/30/2020	0.86	3/30/2023	3/30/2020	101.10165	100.4198157	99.74712878	99.08340504	98.42846641	97.7821396	97.14425579	96.5146506	95.89316383
200826A00029	8/28/2020	1.16	11/27/2024	8/28/2020	104.5777	102.203157	99.89401588	97.64811488	95.46337747	93.33780755	91.2694858	89.25656628	87.29727316
210104A00010	11/22/2021	0.88	11/20/2026	11/22/2021	107.96739	103.5001701	99.24050415	95.17769962	91.30167104	87.60290219	84.07241086	80.70171598	77.482807
211026A00013	10/26/2021	1.52	10/26/2026	10/26/2021	110.6339	106.1793058	101.9281678	97.87005483	93.99513687	90.29414351	86.75832866	83.37943743	80.14967541
200318A00038	3/18/2020	1.48	3/18/2025	3/18/2020	106.12861	103.420486	100.7950739	98.24932491	95.78032628	93.38529234	91.06155821	88.80657355	86.61789672
211129A00011	11/29/2021	1.53	11/20/2026	11/29/2021	110.86331	106.3329696	102.012302	97.89052583	93.95747125	90.20354155	86.61967801	83.19732672	79.92840783
220106A00013	1/6/2022	2.75	1/6/2039	1/6/2022	147.76445	128.3335247	111.7780412	97.65147443	85.57899365	75.2456257	66.38642181	58.77828122	52.23314592
220323A00017	6/2/2022	2.78	6/2/2025	6/2/2022	110.46406	107.4783407	104.5891582	101.7928806	99.08603381	96.46529259	93.92747333	91.46952714	89.08853349
200226A00004	2/26/2020	1.58	2/26/2025	2/26/2020	106.24186	103.5910569	101.0198745	98.52543295	96.10497862	93.75587541	91.47559882	89.26173038	87.11195245
200304A00018	3/4/2020	0.98	3/4/2025	3/4/2020	105.04373	102.3837281	99.80428193	97.30245503	94.87544003	92.52055045	90.23521459	88.01696976	85.86345685
200327A00041	3/27/2020	0.9	3/27/2023	3/27/2020	101.11667	100.4431659	99.77858297	99.12274925	98.47549299	97.83664692	97.20604814	96.58353788	95.96896145
200928A00009	9/28/2020	1.51	9/28/2032	9/28/2020	122.0429	110.9123032	100.8835049	91.84172047	83.68466939	76.32115254	69.66980075	63.65797044	58.22076831

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220315A00015	3/15/2022	3.18	3/13/2037	3/15/2022	151.3178	133.5826355	118.2028665	104.8486167	93.23797845	83.12981472	74.31766973	66.62461612	59.89889035
200320A00049	3/25/2020	1.47	3/25/2025	3/25/2020	106.15463	103.4254951	100.7801939	98.21561895	95.72879936	93.31689518	90.97719048	88.70708698	86.504098
200424A00014	4/28/2020	1.01	4/23/2025	4/28/2020	105.06685	102.2721209	99.5654388	96.94344368	94.40293438	91.94085544	89.55428915	87.24044816	84.99666857
200826A00021	8/26/2020	0.83	8/26/2025	8/26/2020	105.21424	102.0690562	99.0335425	96.10325677	93.27396076	90.5416131	87.90235889	85.3525198	82.88858486
201019A00005	10/19/2020	0.79	10/20/2025	10/19/2020	105.37911	102.0779634	98.89642977	95.82945381	92.87222795	90.02017939	87.26895684	84.61441808	82.05261837
210304A00002	3/5/2021	0.93	7/10/2025	3/5/2021	105.27037	102.2550258	99.34113826	96.52475167	93.80208464	91.16952394	88.62361597	86.16105881	83.77869462
210610A00012	6/11/2021	1.9	6/10/2026	6/11/2021	111.09783	107.0292186	103.1317753	99.39742799	95.8185288	92.38782744	89.09844852	85.94387023	82.91790435
211210A00016	12/10/2021	1.76	12/10/2027	12/10/2021	114.78765	109.0461645	103.6259378	98.50739168	93.67223291	89.10336626	84.78481018	80.7016189	76.83981035
220314A00007	3/14/2022	2.44	3/12/2027	3/14/2022	116.05242	111.0769274	106.3448054	101.8428338	97.55858232	93.4803605	89.5971694	85.89865675	82.3750753
200316A00009	3/16/2020	1.25	3/14/2025	3/16/2020	105.47925	102.791703	100.1860259	97.65921541	95.20839739	92.83082289	90.52386152	88.28499545	86.11181375
210218A00009	2/19/2021	0.62	7/15/2024	2/19/2021	102.70185	100.7198826	98.78592913	96.89853333	95.0562907	93.25784872	91.50190456	89.78720285	88.11253367
210225A00015	3/1/2021	0.7	8/26/2024	3/1/2021	103.05081	100.9500418	98.90237726	96.90611411	94.95962058	93.06132912	91.20973338	89.40338532	87.64089244
220715A00047	7/15/2022	3.44	7/15/2027	7/15/2022	122.35843	116.8579113	111.6420089	106.69447	102.0000519	97.5444564	93.3142662	89.29688623	85.48048903
200402A00048	4/2/2020	0.71	4/2/2024	4/2/2020	102.65323	100.9537703	99.29053882	97.6624483	96.06845055	94.50753925	92.97874784	91.48114752	90.01384536
201216A00013	12/16/2020	0.59	12/16/2025	12/16/2020	105.45167	101.9785326	98.63672756	95.42062409	92.32486146	89.34433566	86.47418578	83.70978109	81.0467089
220427A00011	4/29/2022	3.15	4/29/2027	4/29/2022	120.02402	114.8109449	109.8578905	105.1504093	100.6749447	96.41876776	92.36992155	88.51716961	84.84994805
220519A00010	5/19/2022	3.15	11/19/2026	5/19/2022	118.06878	113.3842999	108.9145183	104.6484449	100.5757123	96.68653664	92.9716811	89.42242252	86.03051994
220714A00035	7/14/2022	3.62	7/15/2024	7/14/2022	108.72159	106.6779444	104.6835246	102.7368373	100.8364444	98.98096137	97.16905436	95.39943824	93.67087436
200327A00056	3/27/2020	1.18	3/27/2025	3/27/2020	105.3787	102.6542664	100.0137439	97.4540097	94.972084	92.56511856	90.23038983	87.96529254	85.76733359
200330A00036	3/30/2020	0.86	3/30/2023	3/30/2020	101.10165	100.4198157	99.74712878	99.08340504	98.42846641	97.7821396	97.14425579	96.5146506	95.89316383
210526A00017	5/26/2021	2.13	5/26/2033	5/26/2021	129.89908	117.6560638	106.6835608	96.84264124	88.01022636	80.07721194	72.94681912	66.533147	60.7599014
210610A00014	6/11/2021	2.03	6/10/2026	6/11/2021	111.61589	107.5371279	103.6298415	99.88595144	96.29779822	92.85812042	89.56003206	86.39700121	83.36283002
211210A00014	12/10/2021	1.54	12/10/2025	12/10/2021	108.24883	104.7565626	101.3949997	98.15858027	95.04201025	92.04024734	89.14848754	86.36215267	83.6768785
220411A00002	4/11/2022	3.18	4/9/2027	4/11/2022	119.88142	114.7323788	109.8375901	105.1830758	100.755705	96.54314006	92.53378307	88.7167276	85.08171316
200306A00040	3/6/2020	1.01	3/6/2025	3/6/2020	104.78324	102.1285578	99.55427525	97.05746147	94.63531361	92.28514963	90.00440214	87.79061264	85.6414261
200325A00042	3/25/2020	1.58	3/25/2024	3/25/2020	103.88102	102.1969266	100.5483169	98.93413095	97.35335561	95.80501748	94.28818102	92.80194665	91.34544901
200305A00038	3/5/2020	1.51	3/5/2029	3/5/2020	116.00003	108.9079189	102.2934985	96.12216132	90.36197724	84.98347541	79.9594426	75.26473904	70.87613024
201015A00030	10/19/2020	2.39	10/18/2027	10/19/2020	117.8279	112.160524	106.8014116	101.7321096	96.93537488	92.39508591	88.09616306	84.02449546	80.16687315
210119A00007	1/20/2021	0.51	8/25/2023	1/20/2021	101.29354	100.1970712	99.1241354	98.07398086	97.04588903	96.03917127	95.05316735	94.08724394	93.14079331
210629A00005	6/29/2021	1.25	6/29/2026	6/29/2021	108.63444	104.5610376	100.661682	96.92805753	93.35228514	89.92690111	86.64483285	83.49937634	80.48417505
210803A00005	8/5/2021	2.06	8/4/2026	8/5/2021	112.24047	107.9902793	103.9251556	100.0360582	96.31443587	92.75219899	89.34169227	86.0756689	82.9472665
200429A00065	4/29/2020	0.74	10/28/2022	4/29/2020	100.50265	100.2490849	99.99679043	99.74576048	99.49598563	99.24745656	99.000164	98.75409878	98.50925185
200518A00019	5/19/2020	0.9	5/19/2025	5/19/2020	104.90115	102.0357503	99.26255242	96.57807296	93.97897984	91.4620867	89.0243455	86.66283959	84.37477719

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220204A00005	2/4/2022	1.83	1/10/2025	2/4/2022	106.52674	104.0044433	101.5548047	99.17531786	96.86357857	94.61727963	92.43420644	90.31223271	88.24931631
220622A00006	6/22/2022	3.58	6/22/2027	6/22/2022	122.83991	117.3956602	112.229561	107.3259254	102.67003	98.24805163	94.04700853	90.05470442	86.25967721
200327A00051	3/27/2020	0.99	3/27/2025	3/27/2020	105.22277	102.4924437	99.84638309	97.28145155	94.79465117	92.38311675	90.04410878	87.77500693	85.57330389
200330A00011	3/30/2020	0.93	4/1/2024	3/30/2020	102.81833	101.1237585	99.46520765	97.84159641	96.25188558	94.6950773	93.17021299	91.67637138	90.21266665
210407A00012	4/7/2021	0.94	4/7/2025	4/7/2021	104.78452	102.0376492	99.37621428	96.79700438	94.296955	91.87313868	89.52275776	87.24313751	85.03171975
220404A00014	4/4/2022	2.94	4/5/2027	4/4/2022	118.67065	113.562008	108.7054984	104.0872755	99.69433352	95.51445041	91.53613609	87.7485842	84.14162736
200318A00044	3/18/2020	1.17	3/18/2024	3/18/2020	103.34657	101.6840217	100.0562898	98.46234393	96.90119866	95.37190672	93.87355731	92.40527427	90.96621444
200331A00011	3/31/2020	1.09	3/31/2025	3/31/2020	105.15779	102.4250018	99.77668388	97.20968077	94.72098183	92.30771	89.96711476	87.69656552	85.49354549
200408A00013	4/13/2020	0.87	4/14/2023	4/13/2020	101.16822	100.4441899	99.73048411	99.02687873	98.33316043	97.64912189	96.97456153	96.30928338	95.65309681
200421A00028	4/21/2020	0.56	4/21/2023	4/21/2020	101.03289	100.2889739	99.55595462	98.83359531	98.12166476	97.41993847	96.72819832	96.04623238	95.37383468
201216A00003	12/16/2020	0.59	7/1/2024	12/16/2020	102.58187	100.6403456	98.74495594	96.89432537	95.08713033	93.32209516	91.59799003	89.91362901	88.26786819
210310A00015	3/11/2021	0.51	5/15/2023	3/11/2021	100.99625	100.186381	99.38942794	98.60508039	97.8330412	97.0730225	96.32474534	95.58793936	94.86234244
210315A00003	3/15/2021	1.13	3/13/2026	3/15/2021	107.44018	103.6964935	100.1024169	96.65114773	93.33622926	90.1515354	87.09125142	84.14985615	81.32210534
210907A00008	9/7/2021	2.42	9/7/2038	9/7/2021	141.66524	123.0587222	107.1752269	93.59764157	81.97486667	72.01107536	63.45676272	56.10128225	49.76661652
200327A00048	3/27/2020	1.18	3/24/2025	3/27/2020	105.35843	102.6430992	100.0111902	97.45961063	94.98540553	92.58575015	90.257943	87.99939951	85.80764602
200402A00035	4/2/2020	0.62	4/3/2023	4/2/2020	101.01381	100.3203192	99.63630703	98.961576	98.29593826	97.63921102	96.99121634	96.35178102	95.72073638
200403A00025	4/3/2020	0.91	4/3/2024	4/3/2020	102.79369	101.0938956	99.43032708	97.80188831	96.20753136	94.6462502	93.11707851	91.61908772	90.15138512
210707A00008	7/9/2021	2.44	7/7/2031	7/9/2021	129.02337	118.8868266	109.6351337	101.1861653	93.46581922	86.40719403	79.94985619	74.03918477	68.6257857
220131A00003	1/31/2022	1.98	2/1/2027	1/31/2022	113.50404	108.7043089	104.1355214	99.78535925	95.64222341	91.69519109	87.93397263	84.34887141	80.93074655
210629A00014	6/29/2021	1.78	12/28/2029	6/29/2021	119.67632	111.5824967	104.0916909	97.155901	90.73117785	84.77726127	79.2572532	74.13732137	69.38643049
211028A00021	10/28/2021	2.28	10/28/2033	10/28/2021	132.37833	119.5426608	108.0820398	97.84117316	88.68307525	80.48682432	73.14560359	66.56499004	60.66145876
220512A00013	5/12/2022	3.18	5/12/2027	5/12/2022	120.32784	115.0679757	110.0720855	105.3254802	100.8143687	96.52579823	92.44759843	88.56832997	84.87723645
201030A00012	10/30/2020	0.63	10/30/2025	10/30/2020	105.34342	102.0034463	98.78562302	95.68474669	92.69586772	89.81428027	87.0355084	84.355293	81.76957971
210823A00010	8/23/2021	0.36	8/23/2022	8/23/2021	100.13703	100.0676072	99.99828844	99.92907547	99.8599681	99.79096609	99.72206922	99.65327725	99.58458995
211214A00012	12/14/2021	0.64	12/14/2022	12/14/2021	100.63467	100.2498025	99.86788232	99.48887408	99.11274444	98.73946061	98.36899029	98.00130168	97.63636345
220315A00036	3/17/2022	2.63	3/16/2027	3/17/2022	116.95293	111.9456054	107.1833961	102.6529704	98.34179294	94.23807588	90.33072978	86.60931836	83.06401627
220715A00027	7/15/2022	3.44	7/15/2027	7/15/2022	122.35843	116.8579113	111.6420089	106.69447	102.0000519	97.5444564	93.31426621	89.29688623	85.48048903
200306A00066	3/6/2020	1.2	3/8/2027	3/6/2020	110.09803	105.2733463	100.6860138	96.32311419	92.17250312	88.22275907	84.46313618	80.88352056	77.47438951
200527A00014	5/27/2020	1.06	5/27/2026	5/27/2020	107.66375	103.7015819	99.90533673	96.26723768	92.77991147	89.43636614	86.22996934	83.15442796	80.20376902
201119A00002	11/19/2020	0.5	11/18/2022	11/19/2020	100.50887	100.1967376	99.88655236	99.57829367	99.2719436	98.9674844	98.66489854	98.36416871	98.06527781
210719A00009	7/19/2021	1.04	7/17/2026	7/19/2021	107.90079	103.7901199	99.85745043	96.09415844	92.49208631	89.04351218	85.74112435	82.57799721	79.54756884
210914A00012	9/14/2021	1.18	9/14/2027	9/14/2021	111.8683	106.4295917	101.2851271	96.41746622	91.81029427	87.44834436	83.31732447	79.40384985	75.69538049
200228A00047	5/18/2020	1.35	5/18/2023	5/18/2020	101.69073	100.8693773	100.0612341	99.26598731	98.48333023	97.71296567	96.95460576	96.20797157	95.47279275

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210121A00017	1/25/2021	0.48	5/25/2023	1/25/2021	100.98985	100.1522373	99.32842034	98.51806449	97.72084226	96.9364367	96.16454102	95.4048581	94.6571002
220217A00017	2/17/2022	2.27	1/29/2027	2/17/2022	114.8282	110.0072129	105.4174514	101.0466052	96.88308739	92.91598489	89.1350159	85.53048994	82.09327076
201216A00001	12/16/2020	0.49	7/14/2023	12/16/2020	101.12512	100.1474005	99.18844775	98.24772526	97.32471741	96.41892788	95.52987875	94.65710964	93.8001769
220216A00003	2/16/2022	2.49	12/14/2029	2/16/2022	125.07725	116.8265359	109.183268	102.099499	95.53130102	89.43840741	83.78389028	78.53386826	73.65724097
200312A00014	3/12/2020	1.04	3/12/2025	3/12/2020	105.2579	102.5713947	99.96677537	97.44103272	94.99129243	92.61480519	90.30894023	88.07117935	85.89911122
220727A00027	7/27/2022	3.23	7/27/2027	7/27/2022	121.42096	115.9072193	110.6809627	105.7256575	101.0258046	96.56687236	92.33523061	88.31809027	84.50344711
210218A00011	2/22/2021	0.85	10/24/2025	2/22/2021	105.60093	102.2847455	99.0890331	96.00868866	93.03885641	90.17491856	87.41248174	84.74736439	82.17558499
200114A00017	1/11/2021	1.93	1/11/2024	1/11/2021	103.89185	102.4142215	100.965028	99.54352211	98.14897966	96.78070133	95.43801143	94.12025694	92.82680656
210629A00009	6/29/2021	1.14	12/31/2025	6/29/2021	107.00083	103.4700534	100.0737804	96.80619078	93.66174877	90.63518624	87.72148841	84.91588025	82.21381367
220114A00009	1/14/2022	1.74	4/21/2026	1/14/2022	110.0445	106.1398717	102.3946546	98.80141605	95.35311894	92.04309673	88.86503145	85.81293306	82.88112017
220419A00012	4/19/2022	2.21	4/19/2023	4/19/2022	102.17448	101.4323582	100.7009979	99.98016476	99.26963264	98.56918175	97.87859855	97.1976755	96.52621083
200306A00087	3/8/2021	1.26	3/7/2025	3/8/2021	105.4573	102.7906457	100.2047587	97.69669044	95.26362379	92.90286309	90.61182804	88.38804788	86.22915595
200402A00013	4/2/2020	0.89	4/2/2024	4/2/2020	102.75462	101.0578931	99.39727936	97.77169216	96.18008815	94.62146558	93.09486223	91.59935338	90.13404996
200225A00041	10/30/2020	1.48	10/30/2023	10/30/2020	102.80455	101.5126352	100.2526088	99.0233036	97.82360579	96.65245479	95.50884019	94.39179876	93.30041177
200826A00035	8/28/2020	0.78	8/28/2023	8/28/2020	101.6026	100.4958835	99.41307666	98.35341612	97.31616697	96.30062505	95.30611544	94.33199087	93.37763041
210217A00008	2/18/2021	0.63	8/15/2024	2/18/2021	102.85539	100.7865338	98.76949297	96.8026334	94.88438133	93.01322398	91.18770669	89.40643028	87.66804845
220421A00014	4/21/2022	3.24	5/30/2025	4/21/2022	111.77084	108.774582	105.8747972	103.0678696	100.3503384	97.71889046	95.17035328	92.70168829	90.30998441
200316A00042	3/16/2020	1.23	3/15/2024	3/16/2020	103.22514	101.5758898	99.96099604	98.37945715	96.83030589	95.31261239	93.82548224	92.3680548	90.93950162
200108A00015	12/18/2020	1.98	12/18/2023	12/18/2020	103.77939	102.3690711	100.9847532	99.62577915	98.2915132	96.98134043	95.69466583	94.43091349	93.18952588
200429A00061	4/29/2020	1.66	10/29/2029	4/29/2020	118.40946	110.5374583	103.2410031	96.47500904	90.19815514	84.37254836	78.96342166	73.93886023	69.26955298
211207A00017	12/7/2021	1.3	11/15/2024	12/7/2021	104.83759	102.4927189	100.2117109	97.99242529	95.83280587	93.73087983	91.68475361	89.69260908	87.75269996
220421A00012	4/21/2022	3.31	4/21/2026	4/21/2022	116.07545	112.0566648	108.2007056	104.5000105	100.9474178	97.53614199	94.25975173	91.11214855	88.08754746
200325A00046	3/25/2020	1.76	3/25/2025	3/25/2020	106.94408	104.2041686	101.5483464	98.97349451	96.47663433	94.05491853	91.70562408	89.42614588	87.21399071
200325A00009	3/27/2020	1.67	3/27/2025	3/27/2020	106.71537	103.9726642	101.314294	98.7371267	96.23816941	93.8145613	91.46356679	89.18256901	86.96906371
210318A00007	3/22/2021	1.41	3/21/2024	3/22/2021	103.5659	101.8962229	100.2615666	98.66089611	97.09321687	95.55757325	94.05304648	92.57875284	91.13384202
210624A00005	6/24/2021	1.22	6/24/2026	6/24/2021	108.48027	104.4238848	100.5402974	96.82127669	93.25902317	89.84614708	86.57564468	83.44087607	80.43554441
220623A00005	6/23/2022	3.45	6/23/2027	6/23/2022	122.19238	116.7611355	111.6077415	106.7165136	102.0727316	97.66257608	93.47306942	89.49201981	85.70796993
200423A00022	4/28/2020	0.76	2/15/2023	4/28/2020	100.88272	100.321639	99.76678584	99.21805345	98.67534083	98.13854928	97.60758221	97.08234516	96.56274568
201123A00011	11/25/2020	1.41	11/24/2025	11/25/2020	107.68305	104.245942	100.9360486	97.74799364	94.67666141	91.71717867	88.86490199	86.11540564	83.46447006
200306A00080	11/6/2020	1.12	11/6/2023	11/6/2020	102.37356	101.071037	99.79851511	98.55495976	97.33938275	96.15084072	94.98843261	93.85129732	92.7386115
220509A00013	7/15/2022	3.37	7/15/2027	7/15/2022	121.99853	116.5069939	111.2997429	106.3605325	101.674135	97.22626601	93.00352171	88.99331958	85.18384412
200406A00059	4/6/2020	0.92	4/6/2023	4/6/2020	101.17133	100.4696549	99.7776725	99.09518142	98.4219874	97.75790146	97.10273972	96.45632322	95.81847776
220624A00003	6/24/2022	3.5	6/24/2027	6/24/2022	122.45881	117.0180131	111.8556079	106.9558737	102.3040568	97.88630713	93.68961814	89.70177149	85.91128513

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200327A00073	3/27/2020	0.99	3/27/2025	3/27/2020	105.22277	102.4924437	99.84638309	97.28145155	94.79465117	92.38311675	90.04410878	87.77500693	85.57330389
220624A00049	6/24/2022	3.29	6/24/2024	6/24/2022	108.07373	106.0918002	104.1563843	102.2661067	100.4196437	98.6157194	96.8531033	95.13060856	93.44709012
220705A00011	7/5/2022	3.14	7/7/2025	7/5/2022	111.92304	108.8160834	105.8125355	102.9083843	100.0997994	97.38311998	94.75484611	92.21163091	89.7502729
200305A00016	3/5/2020	0.99	3/6/2023	3/5/2020	101.08666	100.4719347	99.86465366	99.26468537	98.67189837	98.08616435	97.50735801	96.93535702	96.37004193
200417A00004	4/17/2020	0.86	4/17/2024	4/17/2020	102.75523	101.0180707	99.31855113	97.65551627	96.02785649	94.43450747	92.87444794	91.34669739	89.85031405
200305A00037	3/5/2020	1.43	3/6/2028	3/5/2020	113.45924	107.5029743	101.8939593	96.61016609	91.63107895	86.93758149	82.51185389	78.33727819	74.39835101
200407A00004	4/7/2020	0.99	4/7/2025	4/7/2020	105.28911	102.5270944	99.85109546	97.25787984	94.74435776	92.30757788	89.94471991	87.65308773	85.43010284
210127A00010	1/27/2021	1.41	7/26/2030	1/27/2021	117.81213	109.1728936	101.2248026	93.9090832	87.17224211	80.96556381	75.24466166	69.96907325	65.10189544
200429A00049	4/29/2020	1.25	4/29/2026	4/29/2020	108.21623	104.3238656	100.5915848	97.01187624	93.5776307	90.2821157	87.11895313	84.08209802	81.16581884
210709A00005	7/9/2021	1.69	7/9/2031	7/9/2021	121.97969	112.1493433	103.1853393	95.00684946	87.54096515	80.72188793	74.49020371	68.79223441	63.57945829
211207A00012	12/7/2021	1.62	12/4/2026	12/7/2021	111.37235	106.7908542	102.4229195	98.25752611	94.28427803	90.49336437	86.87552344	83.4220093	80.12456048
220404A00013	4/4/2022	2.1	4/4/2023	4/4/2022	101.98221	101.2829749	100.5933104	99.91301636	99.24190275	98.5797846	97.92648191	97.28181946	96.64562662
220630A00036	6/30/2022	3.42	6/30/2027	6/30/2022	122.12599	116.6754938	111.504873	106.5982692	101.9408043	97.5185143	93.31828882	89.32781424	85.53552142
200318A00013	3/18/2020	1.5	3/18/2025	3/18/2020	106.18266	103.4738008	100.8476732	98.30122525	95.83154366	93.43584227	91.11145571	88.85583316	86.66653258
200331A00007	3/31/2020	0.72	3/29/2024	3/31/2020	102.65202	100.9634646	99.31073221	97.6927521	96.10849373	94.55696739	93.03722221	91.5483442	90.08945443
211227A00009	12/27/2021	1.6	12/23/2026	12/27/2021	111.43092	106.7925738	102.372886	98.16044925	94.14450626	90.31491217	86.6620966	83.17702818	79.85118152
220615A00010	6/15/2022	3.86	6/15/2027	6/15/2022	124.16644	118.7104484	113.5317559	108.6147886	103.9449283	99.50844776	95.29245116	91.28482015	87.47416291
200304A00002	3/4/2020	0.98	3/4/2025	3/4/2020	105.04373	102.3837281	99.80428193	97.30245503	94.87544003	92.52055045	90.23521459	88.01696976	85.86345685
200327A00047	3/27/2020	0.99	3/27/2025	3/27/2020	105.22277	102.4924437	99.84638309	97.28145155	94.79465117	92.38311675	90.04410878	87.77500693	85.57330389
200310A00003	3/10/2020	1.1	3/10/2025	3/10/2020	105.04949	102.379495	99.79060535	97.27985675	94.84441173	92.48155561	90.18869033	87.96332852	85.80308794
200330A00044	3/30/2020	1.09	3/28/2025	3/30/2020	105.13968	102.4155855	99.77547648	97.21623281	94.73486865	92.32853022	89.99448883	87.73013443	85.53296946
210616A00011	5/2/2022	0.95	5/2/2025	5/2/2022	104.94811	102.1300973	99.40152834	96.75898042	94.19919081	91.71904515	89.31556947	86.9859226	84.72738923
220217A00012	2/17/2022	2.28	2/16/2027	2/17/2022	115.0502	110.170677	105.5272281	101.1071728	96.89858362	92.89023352	89.07155118	85.43257902	81.96393424
220325A00011	3/28/2022	2.79	4/25/2025	3/28/2022	110.08027	107.2095448	104.4288597	101.7347909	99.12406802	96.59356974	94.14031535	91.76145738	89.45427447
220729A00047	7/29/2022	3.06	1/29/2027	7/29/2022	118.50791	113.603264	108.9327513	104.4839381	100.2451178	96.20526382	92.35398663	88.68149323	85.17854995
220701A00024	7/1/2022	3.08	7/1/2025	7/1/2022	111.67148	108.585871	105.6024275	102.717207	99.92644507	97.22654295	94.61405922	92.08570202	89.63832161
200306A00022	3/6/2020	1.2	3/8/2027	3/6/2020	110.09803	105.2733463	100.6860138	96.32311419	92.17250312	88.22275907	84.46313618	80.88352056	77.47438951
200327A00030	3/27/2020	1.01	3/27/2024	3/27/2020	102.92847	101.2468927	99.60084762	97.9892737	96.41115311	94.86550816	93.35139935	91.86792338	90.41421148
200330A00038	3/30/2020	1.79	3/29/2030	3/30/2020	120.31046	111.9209003	104.1750951	97.02029068	90.4083155	84.29516249	78.64060862	73.40787088	68.56329543
210201A00007	2/3/2021	0.57	8/15/2024	2/3/2021	102.72975	100.6622327	98.64650469	96.68093187	94.76394124	92.89402071	91.06971634	89.28962961	87.55241485
210616A00007	3/18/2022	0.9	3/18/2025	3/18/2022	104.56124	101.8743581	99.26969449	96.74421512	94.29502215	91.91934443	89.61453094	87.37804468	85.20745683
200302A00018	3/2/2020	1.25	3/2/2023	3/2/2020	101.22596	100.6219326	100.0250851	99.43528792	98.85241695	98.2763508	97.70697095	97.1441616	96.58780961
200316A00037	3/16/2020	1.06	3/14/2025	3/16/2020	105.32535	102.6320241	100.0209229	97.48901871	95.03342025	92.65136223	90.3401989	88.09739794	85.92053474

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200611A00023	6/11/2020	0.64	6/12/2023	6/11/2020	101.17822	100.2894909	99.41627461	98.55817133	97.71479148	96.8857588	96.07070974	95.26929298	94.48116884
201001A00011	10/1/2020	0.71	6/17/2025	10/1/2020	104.49339	101.5536896	98.71098963	95.96158383	93.30192688	90.72862764	88.23844157	85.82826357	83.49512116
201030A00019	10/30/2020	1.15	10/29/2027	10/30/2020	111.17093	105.6462261	100.4262614	95.49261445	90.82808355	86.41659524	82.2431237	78.2936164	74.55492542
220214A00012	2/14/2022	2.47	12/28/2029	2/14/2022	125.03599	116.7440916	109.0657259	101.952232	95.35904365	89.2453274	83.57365186	78.30968856	73.42194018
210127A00008	1/27/2021	0.93	1/27/2027	1/27/2021	108.57572	103.9024845	99.45498979	95.22119004	91.18974054	87.34995731	83.69177508	80.20570822	76.88281435
211028A00020	10/28/2021	2.05	1/28/2031	10/28/2021	124.3586	114.907755	106.2495956	98.31340732	91.03512912	84.3566933	78.22543694	72.59357367	67.41771958
200826A00038	8/28/2020	1.11	8/28/2024	8/28/2020	103.93327	101.8175228	99.75529699	97.74487656	95.78461386	93.87292627	92.00829313	90.18925279	88.41439979
210312A00008	3/12/2021	1.13	3/12/2026	3/12/2021	107.43307	103.6924902	100.1013012	96.65271464	93.34028753	90.15790632	87.09976797	84.16036224	81.33445503
210330A00022	3/30/2021	1.27	3/30/2026	3/30/2021	108.08932	104.2831378	100.6306096	97.12466619	93.75860787	90.52608238	87.42106447	84.4378369	81.57097266
210907A00009	9/7/2021	2.5	9/7/2039	9/7/2021	144.25257	124.4126047	107.6258841	93.40061363	81.32676743	71.06212468	62.3207491	54.86347435	48.49003805
210914A00017	9/14/2021	1.32	9/14/2028	9/14/2021	114.79041	108.2018383	102.0300714	96.24661216	90.82506186	85.74094997	80.97158355	76.49590895	72.29438504
220131A00006	1/31/2022	1.83	2/1/2027	1/31/2022	113.44973	108.6317281	104.0460958	99.68041262	95.52298648	91.56280826	87.78950815	84.19331511	80.76501912
220630A00019	6/30/2022	3.25	12/29/2023	6/30/2022	105.70447	104.2486129	102.8201009	101.4182315	100.0423233	98.69171774	97.36577793	96.06388796	94.78545193
200316A00055	3/16/2020	1.06	3/14/2025	3/16/2020	105.32535	102.6320241	100.0209229	97.48901871	95.03342025	92.65136223	90.3401989	88.09739794	85.92053474
220719A00004	7/19/2022	3.46	7/19/2027	7/19/2022	122.51136	116.9947389	111.7641368	106.8031802	102.0965218	97.6297674	93.38941175	89.3627788	85.53796672
200423A00017	4/23/2020	1.82	4/23/2035	4/23/2020	130.68304	116.2249954	103.5112639	92.32161123	82.46465732	73.7739688	66.10469488	59.33067178	53.34192826
200429A00057	4/29/2020	1.4	4/29/2027	4/29/2020	111.41582	106.4088771	101.654465	97.13847287	92.84766304	88.76960894	84.89264036	81.20579282	77.69876058
201118A00009	11/18/2020	0.61	11/18/2025	11/18/2020	105.37293	101.9800425	98.71285396	95.56603051	92.53449703	89.61342176	86.79820315	84.08445745	81.46800707
210216A00011	2/17/2021	0.83	12/15/2025	2/17/2021	105.81845	102.3536425	99.01941756	95.81019458	92.7206576	89.74574461	86.88063397	84.12073174	81.46165975
211119A00009	11/19/2021	1.68	11/19/2027	11/19/2021	114.19956	108.5349276	103.1844104	98.12898818	93.35089253	88.83351439	84.56132258	80.51978834	76.69531557
220325A00020	3/28/2022	2.86	3/23/2027	3/28/2022	118.1365	113.0796891	108.2709566	103.6967667	99.34439865	95.20189272	91.25800041	87.50213794	83.92434315
220624A00033	6/24/2022	3.5	6/24/2027	6/24/2022	122.45881	117.0180131	111.8556079	106.9558737	102.3040568	97.88630713	93.68961814	89.70177149	85.91128513
200401A00023	4/1/2020	0.82	4/1/2025	4/1/2020	104.78672	102.0481963	99.39459218	96.8227264	94.32956394	91.91220491	89.56787734	87.29393054	85.08782875
200413A00027	4/13/2020	0.94	4/12/2024	4/13/2020	102.88904	101.1639396	99.47600056	97.8240861	96.20710789	94.62402181	93.07382558	91.55555667	90.06829025
210224A00007	2/26/2021	0.68	10/21/2024	2/26/2021	103.26434	101.006814	98.80944839	96.67018756	94.5870678	92.55820912	90.58181086	88.65614755	86.77956505
211214A00013	12/14/2021	1.02	12/14/2023	12/14/2021	102.39891	101.0100375	99.6465991	98.30795444	96.99348643	95.70259797	94.43471114	93.18926638	91.96572186
220329A00009	3/29/2022	2.94	3/29/2029	3/29/2022	126.10018	118.5980752	111.5993316	105.0673999	98.96857592	93.27176398	87.94826182	82.97156387	78.31718185
220419A00014	4/19/2022	3.06	4/18/2025	4/19/2022	110.75927	107.8987417	105.1273607	102.4417522	99.83869855	97.31512782	94.86810541	92.49482694	90.19261133
220617A00040	6/17/2022	3.23	6/16/2023	6/17/2022	103.51645	102.6051065	101.7098068	100.8301335	99.96567976	99.11605262	98.28087268	97.45977336	96.6524004
210226A00002	2/26/2021	0.86	2/26/2025	2/26/2021	104.33702	101.7115171	99.1650548	96.69477035	94.2979277	91.97190758	89.71420162	87.5224069	85.39422072
210629A00015	6/29/2021	1.89	6/27/2031	6/29/2021	123.79547	113.9203331	104.9103855	96.68528552	89.17253242	82.30666563	76.02854893	70.28473082	65.02687237
210719A00004	7/19/2021	1	4/20/2026	7/19/2021	107.19585	103.3479269	99.65758493	96.11747231	92.72062425	89.46044303	86.33067601	83.32539527	80.43897844
210907A00004	9/7/2021	2.01	9/7/2033	9/7/2021	128.95752	116.4613575	105.2944783	95.30805176	86.37063167	78.36604252	71.19153583	64.7561773	58.97943482

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220216A00002	2/16/2022	2.09	2/14/2025	2/16/2022	107.48382	104.8508636	102.2961524	99.81689167	97.41040471	95.07412726	92.80560222	90.60247433	88.46248524
220418A00016	4/22/2022	3.11	9/15/2026	4/22/2022	117.09968	112.628353	108.3549232	104.2695228	100.3628373	96.6260674	93.05089734	89.62946541	86.35433647
200311A00055	3/11/2020	1.66	12/17/2027	3/11/2020	114.27809	108.5296807	103.104239	97.9820048	93.14452435	88.57455657	84.25598761	80.17375175	76.31375811
210623A00028	6/23/2021	1.22	6/23/2026	6/23/2021	108.47368	104.4202118	100.5393119	96.82276065	93.26277375	89.85197567	86.58337588	83.45034679	80.44660298
200818A00016	3/31/2021	0.57	4/1/2024	3/31/2021	102.20235	100.5132142	98.86000426	97.24163693	95.65707576	94.10532548	92.58543001	91.09647049	89.63756342
220511A00002	5/11/2022	3.18	5/12/2025	5/11/2022	111.37979	108.4415618	105.596623	102.841446	100.1726583	97.58703674	95.08150015	92.65310182	90.29902275
200305A00001	3/5/2020	1.14	3/5/2025	3/5/2020	105.12348	102.467181	99.89123024	97.39270228	94.96879916	92.61684331	90.33427149	88.11862902	85.9675644
200323A00011	3/23/2020	1.37	3/23/2023	3/23/2020	101.41096	100.7475259	100.0927455	99.44644596	98.80846339	98.17863804	97.55681427	96.94284035	96.33656838
210309A00002	3/11/2021	0.77	7/25/2024	3/11/2021	103.05063	101.0370146	99.07283655	97.15657049	95.28675117	93.46196839	91.68086453	89.94213214	88.24451178
220209A00010	2/9/2022	2.14	1/11/2027	2/9/2022	114.0612	109.3092814	104.783125	100.4708329	96.36119845	92.44365987	88.7082599	85.14560794	81.74684497
220419A00013	4/19/2022	2.84	4/19/2024	4/19/2022	106.25235	104.478016	102.7421231	101.0434845	99.38096529	97.75347733	96.15997641	94.59946016	93.07096589
201221A00015	12/21/2020	0.88	12/4/2026	12/21/2020	108.0455	103.537138	99.23986826	95.14277121	91.23555015	87.50848856	83.95241451	80.55866744	77.31906717
211209A00006	12/9/2021	1.61	12/8/2026	12/9/2021	111.35877	106.7658711	102.3875873	98.21281367	94.23107972	90.43250546	86.80776541	83.34805462	80.04505706
220705A00005	7/5/2022	3.15	1/5/2024	7/5/2022	105.63619	104.1615557	102.7149803	101.2957277	99.90309061	98.53638536	97.19495131	95.87814976	94.58536304
200402A00009	4/2/2020	1.03	4/2/2025	4/2/2020	105.00469	102.2685128	99.61706284	97.04717281	94.55581722	92.14010508	89.79727286	87.52467783	85.31979177
201001A00012	10/1/2020	0.74	9/16/2025	10/1/2020	105.03496	101.8348628	98.74798839	95.76967015	92.89546749	90.12115013	87.44268658	84.85623338	82.35812509
220218A00003	2/18/2022	2.16	9/4/2026	2/18/2022	112.94528	108.5923077	104.431859	100.4543672	96.65079964	93.01262047	89.53176064	86.20058947	83.01188828
220408A00012	4/8/2022	3.12	6/29/2026	4/8/2022	116.18884	111.9654282	107.9207329	104.0462505	100.3339269	96.77613142	93.36563207	90.09557288	86.95945224
200316A00043	3/16/2020	1.3	3/14/2025	3/16/2020	105.6138	102.9244372	100.316986	97.78844206	95.33593024	92.95670027	90.64812058	88.4076722	86.23294313
200402A00010	4/2/2020	0.89	4/2/2024	4/2/2020	102.75462	101.0578931	99.39727936	97.77169216	96.18008815	94.62146558	93.09486223	91.59935338	90.13404996
211115A00032	11/15/2021	1.75	11/12/2027	11/15/2021	114.53724	108.8836194	103.5423838	98.49465299	93.722784	89.21028645	84.94174101	80.90272413	77.07973841
220209A00012	2/9/2022	1.98	7/29/2025	2/9/2022	108.61185	105.4913077	102.4771384	99.56512786	96.75125156	94.031667	91.40270453	88.86085851	86.4027789
220317A00011	3/17/2022	2.48	3/17/2025	3/17/2022	108.82053	106.078909	103.4206892	100.8428037	98.34232199	95.91644143	93.56248053	91.27787288	89.06016124
200327A00058	3/27/2020	0.9	3/27/2023	3/27/2020	101.11667	100.4431659	99.77858297	99.12274925	98.47549299	97.83664692	97.20604814	96.58353788	95.96896145
220301A00015	3/1/2022	2	1/4/2027	3/1/2022	113.35644	108.6404068	104.1477119	99.86663401	95.78612514	91.89577037	88.18574844	84.64679487	81.2701675
200310A00054	3/10/2020	1.1	3/10/2025	3/10/2020	105.04949	102.379495	99.79060535	97.27985675	94.84441173	92.48155561	90.18869033	87.96332852	85.80308794
200611A00020	6/11/2020	0.81	6/11/2025	6/11/2020	104.7597	101.8324881	99.00133269	96.26258039	93.61273861	91.04846576	88.56656389	86.1639717	83.83775797
211221A00025	12/21/2021	1.59	12/21/2026	12/21/2021	111.36984	106.7386963	102.3256313	98.11927948	94.10892362	90.28445592	86.63634026	83.15557703	79.83367018
220309A00010	3/9/2022	2.27	3/8/2027	3/9/2022	115.19982	110.2565343	105.5547987	101.0815141	96.82436069	92.77175077	88.91278058	85.23718624	81.73530261
200330A00066	3/30/2020	1.08	3/31/2025	3/30/2020	105.13039	102.3979852	99.75003444	97.18338995	94.69504136	92.28211185	89.94185115	87.67162892	85.46892859
200312A00006	3/12/2020	1.23	3/12/2025	3/12/2020	105.41164	102.7308882	100.1316719	97.61100341	95.16602566	92.7940055	90.49232742	88.25848762	86.09008836
201116A00021	11/16/2020	0.53	11/15/2024	11/16/2020	103.33414	101.0008271	98.73129018	96.52338291	94.37504741	92.28430939	90.24927407	88.26812234	86.33910711
211220A00005	12/20/2021	0.97	12/20/2023	12/20/2021	102.35935	100.9539858	99.57463839	98.22064517	96.89136846	95.58619146	94.30451736	93.0457686	91.80938603

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220420A00033	4/20/2022	3.29	4/20/2027	4/20/2022	120.60322	115.4028961	110.4605982	105.7620647	101.2939042	97.04353899	92.99915009	89.14962713	85.48452153
200225A00040	10/30/2020	1.48	10/30/2023	10/30/2020	102.80455	101.5126352	100.2526088	99.0233036	97.82360579	96.65245479	95.50884019	94.39179876	93.30041177
220509A00014	7/15/2022	3.37	7/15/2027	7/15/2022	121.99853	116.5069939	111.2997429	106.3605325	101.674135	97.22626601	93.00352171	88.99331958	85.18384412
220509A00016	7/15/2022	3.37	7/15/2027	7/15/2022	121.99853	116.5069939	111.2997429	106.3605325	101.674135	97.22626601	93.00352171	88.99331958	85.18384412
210219A00008	2/22/2021	0.86	12/1/2025	2/22/2021	105.84213	102.4167608	99.1190969	95.94373521	92.88553083	89.93958169	87.1012159	84.36597974	81.72962631
200327A00060	3/27/2020	1.18	3/27/2025	3/27/2020	105.3787	102.6542664	100.0137439	97.4540097	94.972084	92.56511856	90.23038983	87.96529254	85.76733359
200320A00052	3/25/2020	1.47	3/25/2025	3/25/2020	106.15463	103.4254951	100.7801939	98.21561895	95.72879936	93.31689518	90.97719048	88.70708698	86.504098
200304A00005	3/4/2020	0.98	3/4/2025	3/4/2020	105.04373	102.3837281	99.80428193	97.30245503	94.87544003	92.52055045	90.23521459	88.01696976	85.86345685
200327A00046	3/27/2020	1.23	3/27/2025	3/27/2020	105.51509	102.7887968	100.1464531	97.58494	95.10127639	92.69261271	90.35622421	88.08950442	85.88995911
210707A00002	7/7/2021	1.12	6/26/2026	7/7/2021	108.09035	104.0361043	100.1548825	96.43842571	92.87891311	89.46893534	86.20147062	83.06986251	80.06779894
210712A00010	6/27/2022	1.05	6/27/2025	6/27/2022	105.55661	102.5737077	99.68995739	96.9015338	94.20478508	91.59621958	89.07249796	86.63042562	84.26694565
210701A00007	7/1/2021	1.22	7/1/2026	7/1/2021	108.52703	104.4499791	100.5474	96.81094057	93.23269174	89.80516189	86.52125259	83.37423593	80.35773319
211210A00015	12/10/2021	1.63	12/10/2026	12/10/2021	111.46472	106.8636347	102.477775	98.29599165	94.30777311	90.50320161	86.87291657	83.40808057	80.10034744
220111A00002	1/11/2022	1.75	1/16/2026	1/11/2022	109.27806	105.6627224	102.1863789	98.84295112	95.62665771	92.53200068	89.55374965	86.68692736	83.92679598
220209A00004	2/9/2022	1.21	2/9/2023	2/9/2022	101.10564	100.560604	100.0214325	99.48803081	98.9603066	98.4381695	97.92153106	97.41030468	96.90440557
200402A00003	4/2/2020	0.8	4/3/2023	4/2/2020	101.07599	100.3830749	99.69961297	99.02541271	98.36028693	97.70405343	97.0565349	96.4175587	95.7869567
200527A00016	5/27/2020	0.92	5/27/2025	5/27/2020	105.00368	102.1141843	99.31825052	96.61236038	93.99314642	91.45738568	89.00199264	86.62401258	84.32061531
220204A00003	2/4/2022	1.15	2/3/2023	2/4/2022	101.05011	100.5219487	99.9992892	99.48204835	98.9701422	98.46348853	97.96200683	97.46561819	96.97424533
220624A00044	6/24/2022	3.43	6/24/2025	6/24/2022	112.63417	109.5542415	106.5755509	103.69422	100.9065423	98.208973	95.59812134	93.07074297	90.62373271
200401A00013	4/1/2020	1.01	4/1/2025	4/1/2020	104.94422	102.211619	99.56357236	96.99692025	94.50864593	92.09586667	89.75582671	87.48589059	85.28353696
200826A00039	8/28/2020	1.03	7/29/2024	8/28/2020	103.60172	101.5711307	99.5906364	97.65868294	95.77377813	93.9344861	92.13942482	90.38726362	88.67672094
210208A00008	2/11/2021	0.78	11/17/2025	2/11/2021	105.49388	102.1130632	98.85713857	95.72081517	92.69905868	89.78707609	86.98030262	84.27438939	81.66519193
210706A00015	7/6/2021	1.06	12/31/2025	7/6/2021	106.71898	103.1931184	99.80162094	96.53867417	93.398747	90.37657587	87.46715039	84.66569968	81.96767968
200305A00019	3/5/2020	0.81	3/6/2023	3/5/2020	101.03128	100.4160512	99.80828183	99.207841	98.61459682	98.02842048	97.44918627	96.87677141	96.31105602
200403A00010	4/6/2020	0.8	4/6/2023	4/6/2020	101.08736	100.3860122	99.69435525	99.0121864	98.3393115	97.67554162	97.02069293	96.37458652	95.73704823
220302A00011	3/2/2022	2.14	1/13/2027	3/2/2022	114.07914	109.3210786	104.7893301	100.4719542	96.35770423	92.43598195	88.69679619	85.13072516	81.728881
200220A00034	2/25/2020	1.71	3/27/2023	2/25/2020	101.66086	100.9852969	100.3186831	99.66083741	99.01158783	98.37076684	97.73821121	97.11376193	96.49726403
200302A00017	3/2/2020	1.3	3/4/2024	3/2/2020	103.25269	101.6355099	100.0515852	98.49996346	96.97972426	95.48998197	94.02988399	92.59860923	91.19536665
200330A00054	3/30/2021	1.19	3/30/2026	3/30/2021	107.78706	103.9865137	100.3394503	96.83881151	93.4779037	90.25038035	87.15022169	84.17171569	81.30944037
200331A00017	3/31/2020	0.9	3/31/2025	3/31/2020	105.00084	102.262133	99.60825456	97.03603434	94.54244348	92.12458776	89.77970052	87.50513595	85.2983629
200325A00047	3/25/2020	1.68	9/25/2024	3/25/2020	105.35113	103.142999	100.9920771	98.89647615	96.85438244	94.86405686	92.92383105	91.03210385	89.18733805
200415A00024	4/15/2020	2.2	4/16/2035	4/15/2020	133.66592	119.1770994	106.4201266	95.17768577	85.26079993	76.50500346	68.76705076	61.92208162	55.86117772
220404A00010	4/4/2022	2.93	4/2/2027	4/4/2022	118.58893	113.4910171	108.6443538	104.0351609	99.65049617	95.4781962	91.50682468	87.72562478	84.12447473

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
220627A00055	6/27/2022	3.55	6/26/2026	6/27/2022	117.88605	113.6376799	109.568363	105.6696017	101.9333491	98.35198028	94.918268	91.62535966	88.46675599
210308A00009	3/8/2021	0.62	3/8/2024	3/8/2021	102.16137	100.5418285	98.95577622	97.40224169	95.8802923	94.38903085	92.92759392	91.49515027	90.09089928
200417A00012	4/22/2020	0.71	12/15/2022	4/22/2020	100.66451	100.2767932	99.89206009	99.51028103	99.13142197	98.75544941	98.38233038	98.0120324	97.64452348
210104A00011	11/23/2021	0.88	11/23/2026	11/23/2021	107.98387	103.5079503	99.24031515	95.17023472	91.28758452	87.58281056	84.04689419	80.67131929	77.44804172
210122A00006	1/25/2021	0.61	8/15/2024	1/25/2021	102.81351	100.7451001	98.72849687	96.76206622	94.84423463	92.97348955	91.14837657	89.36749672	87.62950392
210303A00006	3/4/2021	0.97	10/10/2025	3/4/2021	105.91584	102.6343681	99.47085028	96.42033698	93.47812407	90.63973502	87.90090809	85.2575845	82.70589723
210916A00009	9/16/2021	2.25	9/16/2036	9/16/2021	136.29788	120.14054	106.1005336	93.88722056	83.25128679	73.97868414	65.88548333	58.81350042	52.62657702
220124A00008	1/24/2022	1.88	1/22/2027	1/24/2022	112.9541	108.1956949	103.6651421	99.35034969	95.23993021	91.32315613	87.58991825	84.03068684	80.63647532
200311A00052	3/2/2021	1.43	2/28/2025	3/2/2021	105.85915	103.2077612	100.6361618	98.14146643	95.72091035	93.3718469	91.09174177	88.87816735	86.72879744
220629A00002	6/29/2022	3.48	6/28/2024	6/29/2022	108.22995	106.2401852	104.2972604	102.3997908	100.5464392	98.73591639	96.96697945	95.23842968	93.54911068
200207A00013	2/12/2020	1.73	2/10/2023	2/12/2020	101.39454	100.8457933	100.3029824	99.7660073	99.2347743	98.7091915	98.18916901	97.67461883	97.16545483
200306A00064	3/6/2020	1.2	3/8/2027	3/6/2020	110.09803	105.2733463	100.6860138	96.32311419	92.17250312	88.22275907	84.46313618	80.88352056	77.47438951
200421A00032	4/21/2020	1.31	4/21/2027	4/21/2020	110.92181	105.9493325	101.2268022	96.74031052	92.47680003	88.4240101	84.57042328	80.90521576	77.41821148
200629A00023	6/29/2020	0.95	6/29/2026	6/29/2020	107.42251	103.3731674	99.49712841	95.78610144	92.23223566	88.82809411	85.56662977	82.441163	79.44536053
210928A00009	9/28/2021	2.18	9/28/2033	9/28/2021	131.04872	118.3765849	107.0550814	96.9325357	87.87505167	79.76434177	72.49583528	65.97702459	60.12601823
220727A00004	7/27/2022	3.23	7/27/2027	7/27/2022	121.42096	115.9072193	110.6809627	105.7256575	101.0258046	96.56687236	92.33523061	88.31809027	84.50344711
201204A00015	12/8/2020	1.07	12/8/2025	12/8/2020	106.60848	103.1500651	99.82115695	96.61625295	93.53011041	90.55773554	87.69437035	84.93548022	82.27674225
200327A00088	3/27/2020	1.22	3/27/2025	3/27/2020	105.48781	102.7618907	100.1199112	97.55875394	95.07543791	92.66711388	90.33105733	88.06466204	85.865434
210525A00004	5/25/2021	1.02	12/19/2025	5/25/2021	106.50402	103.0159869	99.65969919	96.42951025	93.32004325	90.32617897	87.443042	84.66598787	81.99059086
210907A00011	9/7/2021	2.65	9/6/2041	9/7/2021	149.91321	127.5579127	108.9681743	93.47962594	80.54874024	69.73030242	60.65917194	53.03550443	46.61276343
211019A00009	10/19/2021	1.48	10/9/2026	10/19/2021	110.32851	105.9300375	101.7305746	97.72002424	93.88885904	90.22808811	86.72922351	83.38424893	80.18559057
220729A00043	7/29/2022	3.04	7/29/2027	7/29/2022	120.46005	114.9643815	109.7559151	104.8180993	100.1354262	95.69335702	91.47825626	87.47733114	83.67857505
200331A00015	3/31/2020	0.64	3/31/2023	3/31/2020	101.01687	100.3317674	99.65590563	98.98909992	98.33116931	97.6819377	97.0412336	96.40889001	95.78474425
210119A00005	1/20/2021	0.52	9/25/2023	1/20/2021	101.43422	100.2494822	99.09216564	97.96132439	96.8560594	95.77551195	94.71886131	93.68532274	92.67414548
200304A00030	3/4/2020	1.6	12/22/2028	3/4/2020	116.20157	109.3162603	102.8817373	96.86623857	91.24038901	85.97701297	81.05095923	76.43894072	72.11938761
200629A00021	6/29/2020	1.21	6/29/2028	6/29/2020	112.76332	106.4933816	100.6078186	95.08117759	89.88981292	85.01175011	80.42655969	76.11524121	72.06011652
200324A00051	3/24/2020	1.73	11/1/2024	3/24/2020	105.74595	103.4287305	101.1737556	98.97889786	96.84211848	94.76146567	92.7350699	90.76113967	88.83795754
210914A00014	9/14/2021	0.97	9/14/2026	9/14/2021	108.54361	104.2374083	100.1242325	96.19439526	92.43875158	88.84866463	85.41597437	82.13296837	78.99235462
220331A00011	3/31/2022	2.73	10/15/2024	3/31/2022	107.88148	105.5878175	103.354614	101.179824	99.06149096	96.99774094	94.98677837	93.02688197	91.11640092
220712A00016	7/15/2022	3.35	1/15/2026	7/15/2022	114.97573	111.2627113	107.6913152	104.2553754	100.9490246	97.7666821	94.70303815	91.75303932	88.9118746
200225A00028	2/25/2020	1.89	12/21/2029	2/25/2020	120.48606	112.3832392	104.8819777	97.93453304	91.49718167	85.52985974	79.99583998	74.86143834	70.09574785
200310A00034	3/10/2020	1.41	3/11/2030	3/10/2020	117.16017	108.9458896	101.3607643	94.35342189	87.87693424	81.88841211	76.34863794	71.22173388	66.47486148
201214A00002	12/14/2020	0.45	12/14/2022	12/14/2020	100.56163	100.1769342	99.79518572	99.41634816	99.04038823	98.66727315	98.29697065	97.92944893	97.56467667

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
211019A00011	10/19/2021	1.48	10/16/2026	10/19/2021	110.38207	105.9620359	101.742791	97.71409776	93.8663069	90.19031495	86.67753002	83.3198398	80.10958172
200316A00046	3/16/2020	1.18	3/18/2024	3/16/2020	103.16072	101.5032955	99.88051937	98.29137679	96.73488795	95.21011109	93.71614057	92.25210515	90.81716632
200611A00019	6/11/2020	0.88	12/11/2025	6/11/2020	105.96905	102.5130354	99.18685106	95.98496069	92.90209515	89.93323615	87.07360298	84.31863994	81.66400458
210310A00003	3/15/2021	0.79	8/26/2024	3/15/2021	103.24206	101.1392291	99.08953924	97.09129132	95.14285239	93.24265377	91.38918805	89.58100612	87.8167145
220225A00014	2/25/2022	2.42	2/23/2029	2/25/2022	122.18735	114.9220005	108.1402745	101.807403	95.89129206	90.36230386	85.19305701	80.35824322	75.83446023
200324A00013	3/25/2020	1.78	3/25/2025	3/25/2020	106.99852	104.2578702	101.6013225	99.02576179	96.52820916	94.10581669	91.75586088	89.47573615	87.26294883
201014A00002	10/14/2020	0.61	10/15/2024	10/14/2020	103.07701	100.8385154	98.65932549	96.53742983	94.47090486	92.45790841	90.49667541	88.58551396	86.72280151
220314A00004	3/14/2022	2.44	3/12/2027	3/14/2022	116.05242	111.0769274	106.3448054	101.8428338	97.55858232	93.4803605	89.5971694	85.89865675	82.3750753
200415A00033	4/15/2020	0.82	10/13/2023	4/15/2020	101.87801	100.6395544	99.43095904	98.25115365	97.09912008	95.97388771	94.87453065	93.80016522	92.74994755
200422A00015	4/27/2020	0.73	12/22/2022	4/27/2020	100.69321	100.2859204	99.88192442	99.48117897	99.08364495	98.68928383	98.29805771	97.90992931	97.52486191
201105A00003	11/6/2020	2.24	11/4/2030	11/6/2020	125.47987	116.2342676	107.7433628	99.94145544	92.76889298	86.17148524	80.09997739	74.50957638	69.35952515
210907A00013	9/9/2021	2.14	9/9/2025	9/9/2021	109.48018	106.228601	103.0908726	100.0623433	97.13858084	94.31536127	91.5886575	88.95462896	86.40961159
200317A00023	3/17/2020	1.1	3/17/2025	3/17/2020	105.45399	102.7500609	100.1288679	97.58736231	95.1226269	92.7318721	90.41242932	88.16174478	85.97737367
201015A00002	10/15/2020	0.61	10/15/2024	10/15/2020	103.07701	100.8385154	98.65932549	96.53742983	94.47090486	92.45790841	90.49667541	88.58551396	86.72280151
220114A00007	1/14/2022	1.7	1/27/2026	1/14/2022	109.18615	105.5416203	102.0383846	98.67021001	95.43117242	92.31564045	89.31825931	86.43393561	83.65782307
220119A00009	1/19/2022	1.35	1/19/2024	1/19/2022	103.07835	101.5852781	100.1213649	98.68582718	97.27791293	95.89689605	94.54207539	93.21277363	91.90833627
200730A00011	7/30/2020	1.15	7/28/2028	7/30/2020	112.53232	106.1845842	100.231237	94.64581419	89.40375405	84.48225458	79.86013861	75.5177301	71.43674047
210928A00010	9/28/2021	1.12	9/26/2025	9/28/2021	106.3197	103.0713754	99.9385665	96.91648677	94.00057752	91.18649775	88.47011209	85.84747963	83.31484338
200228A00071	2/28/2020	1.74	12/14/2029	2/28/2020	119.28239	111.2447671	103.803325	96.91082412	90.52399489	84.60318245	79.11202814	74.01718038	69.28803221
200304A00020	3/4/2020	0.98	3/4/2025	3/4/2020	105.04373	102.3837281	99.80428193	97.30245503	94.87544003	92.52055045	90.23521459	88.01696976	85.86345685
200325A00043	3/25/2020	1.62	6/25/2024	3/25/2020	104.5665	102.6216143	100.7224906	98.86777817	97.05617465	95.28642437	93.55731644	91.86768283	90.21639658
200409A00011	4/9/2020	0.7	4/7/2023	4/9/2020	101.08416	100.3792079	99.68404238	98.99846293	98.3222723	97.65527863	96.99729525	96.34814051	95.70763761
210108A00008	1/11/2021	0.51	8/15/2023	1/11/2021	101.25536	100.1872116	99.14142164	98.11729059	97.11415169	96.13136525	95.16831735	94.22441853	93.29910258
210917A00004	9/17/2021	1.03	9/17/2025	9/17/2021	105.97467	102.756774	99.6526646	96.6576572	93.7672882	90.97730552	88.28365697	85.68247951	83.17008907
200323A00018	3/23/2020	1.37	3/23/2023	3/23/2020	101.41096	100.7475259	100.0927455	99.44644596	98.80846339	98.17863804	97.55681427	96.94284035	96.33656838
200401A00012	4/2/2020	1	4/2/2025	4/2/2020	104.92234	102.1872972	99.53695321	96.96814338	94.47784301	92.06316191	89.72133728	87.44972711	85.24580389
200423A00026	4/28/2020	0.85	12/15/2023	4/28/2020	102.16485	100.7749157	99.41047674	98.07089612	96.75555416	95.46385127	94.19520711	92.94905986	91.72486549
210324A00003	3/24/2021	1.18	3/24/2026	3/24/2021	107.70646	103.9250906	100.2958676	96.81181453	93.46632085	90.2531174	87.16625625	84.20009228	81.34926572
210526A00018	5/26/2021	1.11	5/26/2026	5/26/2021	107.85436	103.8913575	100.0941734	96.45503218	92.96656644	89.62179018	86.41407689	83.33713927	80.38501002
200221A00011	2/21/2020	1.69	8/21/2024	2/21/2020	105.11844	103.0090194	100.952579	98.94743609	96.99197218	95.08463223	93.22392143	91.40840242	89.63669261
200221A00024	2/21/2020	2.05	12/28/2029	2/21/2020	121.77358	113.6022512	106.0380525	99.03272616	92.54208186	86.52563497	80.94627876	75.7699868	70.96554298
200306A00003	3/6/2020	0.7	3/6/2023	3/6/2020	100.96381	100.3488141	99.74127796	99.14106839	98.54805349	97.96210448	97.38309568	96.81090433	96.24541059
200309A00030	3/9/2020	1.11	3/9/2027	3/9/2020	109.67556	104.8576844	100.2770889	95.92084499	91.77680296	87.83353666	84.08029643	80.50696522	77.10401785

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200415A00021	4/15/2020	1.37	4/15/2027	4/15/2020	111.17604	106.2144993	101.501519	97.02331227	92.76693343	88.72022378	84.87175918	81.21080121	77.72725198
200521A00017	5/21/2020	2.22	5/21/2038	5/21/2020	137.9726	119.9551503	104.5425332	91.34122143	80.01908477	70.29553798	61.93331404	54.73158446	48.52020075
210218A00006	2/18/2021	0.5	2/20/2024	2/18/2021	101.8972	100.3273163	98.78931387	97.28229522	95.80539506	94.35777997	92.93864685	91.54722162	90.18275781
201117A00006	11/17/2020	0.57	11/17/2023	11/17/2020	101.67533	100.3566739	99.06504788	97.79963105	96.55963681	95.34431033	94.15292684	92.98479019	91.83923137
210712A00008	6/27/2022	1.05	6/27/2025	6/27/2022	105.55661	102.5737077	99.68995739	96.9015338	94.20478508	91.59621958	89.07249796	86.63042562	84.26694565
211129A00012	11/29/2021	1.53	11/25/2026	11/29/2021	110.90018	106.3549344	102.0206058	97.88634298	93.94190968	90.17764531	86.5844295	83.15364913	79.87716752
220106A00008	1/6/2022	2.5	1/5/2035	1/6/2022	137.20521	122.7990657	110.0736617	98.82262524	88.86594499	80.046482	72.22696018	65.28736561	59.1226977
220323A00016	6/2/2022	2.78	6/2/2025	6/2/2022	110.46406	107.4783407	104.5891582	101.7928806	99.08603381	96.46529259	93.92747333	91.46952714	89.08853349
200327A00059	3/27/2020	1.01	3/27/2024	3/27/2020	102.92847	101.2468927	99.60084762	97.9892737	96.41115311	94.86550816	93.35139935	91.86792338	90.41421148
201116A00025	11/18/2020	1.96	11/15/2032	11/18/2020	127.09685	115.5705335	105.1910797	95.83813115	87.40454116	79.79485958	72.92400271	66.71608026	61.10336031
211221A00010	12/21/2021	1.31	12/20/2024	12/21/2021	105.08617	102.640525	100.2638793	97.95390445	95.70836565	93.52511633	91.40209394	89.3373162	87.32887746
220510A00016	5/13/2022	3.23	5/5/2027	5/13/2022	120.49052	115.2480218	110.2676459	105.5348255	101.0358841	96.75797831	92.68904219	88.81773565	85.13339643
220527A00015	5/27/2022	3.03	5/27/2027	5/27/2022	119.70328	114.4147736	109.3938382	104.625548	100.0958825	95.79166995	91.70053106	87.81082771	84.11161479
200310A00005	3/10/2020	1.41	3/8/2030	3/10/2020	117.14403	108.9395372	101.3628373	94.36271438	87.89238279	81.90907958	76.37369913	71.25046286	66.50662029
200327A00037	3/27/2020	1.18	3/27/2026	3/27/2020	108.23718	104.4234337	100.7636466	97.25073774	93.87799578	90.639057	87.52788516	84.53875241	81.66622158
200406A00049	4/6/2020	0.92	4/6/2023	4/6/2020	101.17133	100.4696549	99.7776725	99.09518142	98.4219874	97.75790146	97.10273972	96.45632322	95.81847776
200429A00021	5/4/2020	0.97	4/29/2025	5/4/2020	104.98743	102.1773499	99.45623793	96.8206852	94.26744042	91.79340122	89.39560597	87.07122617	84.81755932
201019A00006	10/19/2020	0.57	10/19/2023	10/19/2020	101.59572	100.3421586	99.11924238	97.92585775	96.76094647	95.62350032	94.51255817	93.42720326	92.36656065
210225A00012	3/1/2021	0.91	8/25/2025	3/1/2021	105.46166	102.3153295	99.27860371	96.34704596	93.51642406	90.78270222	88.14203065	85.59073576	83.12531096
220204A00004	2/4/2022	2.08	1/8/2027	2/4/2022	113.75846	109.0219563	104.5101692	100.211281	96.11415335	92.20828754	88.48378477	84.93130864	81.54205034
211117A00010	11/17/2021	1.18	11/18/2024	11/17/2021	104.57271	102.2227935	99.93707729	97.71341183	95.54973753	93.44407729	91.39453263	89.39927993	87.45656694
201105A00002	11/5/2020	0.49	11/7/2022	11/5/2020	100.47273	100.1913203	99.91149044	99.63322983	99.3565252	99.08136346	98.80773167	98.53561704	98.26500691
200605A00014	6/5/2020	1.02	6/5/2025	6/5/2020	105.09199	102.3064784	99.61074843	97.00141929	94.47525928	92.02917548	89.66020689	87.36551811	85.1423933
200605A00016	6/5/2020	1.02	6/5/2025	6/5/2020	105.09199	102.3064784	99.61074843	97.00141926	94.47525924	92.02917542	89.66020681	87.36551801	85.14239319
200605A00017	6/5/2020	1.02	6/5/2025	6/5/2020	105.09199	102.3064784	99.61074843	97.00141929	94.4752593	92.0291755	89.66020692	87.36551815	85.14239334
200709A00021	7/9/2020	0.83	7/9/2025	7/9/2020	104.71372	101.8513267	99.08395389	96.40791799	93.81969946	91.31593474	88.89340833	86.54904546	84.27990504
200709A00025	7/9/2020	1.37	7/9/2030	7/9/2020	115.36652	107.8571224	100.9208519	94.51029886	88.58223133	83.0972037	78.0192061	73.31534823	68.95557374
200813A00019	8/13/2020	1.44	8/13/2030	8/13/2020	116.02859	108.4052565	101.3696015	94.87251355	88.86925285	83.31903882	78.18467985	73.4322393	69.03073434
200813A00020	8/13/2020	1.44	8/13/2030	8/13/2020	116.02859	108.4052563	101.3696014	94.87251365	88.86925308	83.31903918	78.18468032	73.43223988	69.03073502
200813A00023	8/13/2020	0.86	10/14/2025	8/13/2020	105.27388	102.1585872	99.15404113	96.25561724	93.45891462	90.75974511	88.15412143	85.63824603	83.20850064
200911A00011	9/11/2020	1.18	9/11/2030	9/11/2020	114.13556	106.5502133	99.55509162	93.10044424	87.1409887	81.63548361	76.54634724	71.83931415	67.48312568
200911A00012	9/11/2020	1.18	9/11/2030	9/11/2020	114.13319	106.5492003	99.55529386	93.10173629	87.14325702	81.63862539	76.55026939	71.84393238	67.48836366
200911A00013	9/11/2020	0.69	9/11/2025	9/11/2020	104.58761	101.5691869	98.65571805	95.84292368	93.12672791	90.50324625	87.96877525	85.51978285	83.1528992

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201007A00008	10/7/2020	1.22	10/7/2030	10/7/2020	114.02118	106.645054	99.83906552	93.55518844	87.7497136	82.38284138	77.41831111	72.82306769	68.56696127
201007A00010	10/7/2020	1.22	10/7/2030	10/7/2020	114.02118	106.645054	99.83906552	93.55518844	87.7497136	82.38284138	77.41831111	72.82306769	68.56696127
201007A00014	10/7/2020	0.8	10/7/2025	10/7/2020	104.98163	101.9287603	98.98350501	96.14140153	93.39820219	90.74986322	88.19253334	85.72254325	83.33639562
201015A00020	10/15/2020	0.94	10/15/2027	10/15/2020	109.09704	104.1032636	99.37649279	94.90089481	90.6616698	86.64497413	82.83785296	79.22817805	75.80459023
201109A00012	11/9/2020	1.39	11/8/2030	11/9/2020	115.9615	108.1467837	100.9495237	94.3168895	88.20085772	82.55775339	77.34783392	72.53491482	68.08603302
201211A00001	12/11/2020	0.95	12/11/2030	12/11/2020	112.52153	105.4796928	98.980365	92.97762918	87.42972738	82.29866031	77.54982931	73.15171415	69.07558304
210107A00007	1/7/2021	0.84	1/7/2026	1/7/2021	105.63651	102.2997448	99.0889514	95.99868708	93.02377338	90.1592829	87.40052573	84.74303664	82.18256305
210201A00002	2/1/2021	1.19	2/1/2036	2/1/2021	112.91431	105.4625536	98.68812629	92.52013832	86.89581898	81.75952128	77.06185646	72.75893965	68.81173164
210809A00010	8/9/2021	1.06	8/7/2026	8/9/2021	107.46986	103.614177	99.92374421	96.39054664	93.00700003	89.76592834	86.66053948	83.68440256	80.83142666
210915A00027	9/15/2021	1.1	9/15/2026	9/15/2021	107.8377	103.8795064	100.0943697	96.47371527	93.00944571	89.69391002	86.51987601	83.48050488	80.56932741
210921A00006	9/21/2021	1.43	9/21/2028	9/21/2021	113.27853	107.3037854	101.6964497	96.43176451	91.48677355	86.8401832	82.47223317	78.36457789	74.50017767
210921A00009	9/21/2021	1.28	9/21/2028	9/21/2021	113.24629	107.2519254	101.6270063	96.34658321	91.38753171	86.7284053	82.34930469	78.23175784	74.35861001
211007A00006	10/7/2021	1.28	10/7/2026	10/7/2021	108.69317	104.6566188	100.7985416	97.10999272	93.58252793	90.20817448	86.97940202	83.88909513	80.9305279
211014A00012	10/14/2021	1.46	10/14/2031	10/14/2021	111.76862	106.6654291	101.8924009	97.42449979	93.23879957	89.31429175	85.63171134	82.17337962	78.923062
211110A00012	11/10/2021	1.44	11/10/2026	11/10/2021	109.56373	105.4188037	101.4604496	97.67918498	94.0660681	90.61266062	87.31099621	84.15355127	81.13321774
211110A00013	11/10/2021	1.44	11/10/2026	11/10/2021	109.56373	105.418804	101.4604497	97.67918487	94.06606776	90.61266007	87.31099546	84.15355034	81.13321663
211110A00014	11/10/2021	1.44	11/10/2026	11/10/2021	109.56372	105.4188028	101.4604493	97.67918528	94.06606893	90.61266195	87.31099801	84.15355352	81.1332204
211208A00012	12/8/2021	1.62	12/8/2026	12/8/2021	110.50471	106.2637289	102.2164082	98.35283922	94.66367581	91.14009571	87.77376852	84.55682578	81.48183301
220111A00005	1/11/2022	1.54	1/10/2025	1/11/2022	105.54508	103.1399791	100.803496	98.53327322	96.32704828	94.18264983	92.0979936	90.0710783	88.09998181
220411A00008	4/11/2022	3.02	4/12/2027	4/11/2022	118.4956	113.6771414	109.0927383	104.7296104	100.5757518	96.61987912	92.85138388	89.26028772	85.8372013
220520A00006	5/20/2022	3.02	5/20/2027	5/20/2022	118.37105	113.5789943	109.0219759	104.6870645	100.5621169	96.63572136	92.89714887	89.33630888	85.94370776
220617A00030	6/17/2022	3.43	6/17/2025	6/17/2022	106.3624	104.8091421	103.2946376	101.8175985	100.376791	98.97103235	97.59918744	96.26016699	94.95292514
220617A00061	6/17/2022	3.26	6/17/2024	6/17/2022	103.94707	102.9427155	101.9578003	100.9917742	100.0441032	99.11427369	98.20179105	97.30617915	96.42697926
210603A00008	6/3/2021	1.74	6/3/2036	6/3/2021	117.9476	110.2242754	103.2080052	96.82386783	91.00564775	85.6947532	80.83927536	76.39317027	72.31554684
220722A00036	7/22/2022	3.34	7/22/2025	7/22/2022	106.47413	104.8604731	103.2876903	101.7544034	100.2592959	98.80110607	97.37862342	95.99068679	94.63618173
190104A00032	1/4/2019	2.33	1/4/2024	10/4/2022	104.6516	103.1140089	101.7274724	100.6073209	99.98164197	99.73879473	99.55498665	99.37256819	99.19067188
190529A00115	5/29/2019	1.92	5/29/2024	8/29/2022	105.26659	103.3333207	101.6243775	100.3694556	99.95720466	99.87160437	99.78614831	99.70083614	99.61566749
190603A00067	6/3/2019	1.72	6/3/2024	9/6/2022	104.98306	103.0351	101.3654928	100.2418525	99.90223507	99.79090046	99.68377442	99.57704266	99.47043636
190606A00032	6/6/2019	1.75	6/6/2024	9/6/2022	105.05764	103.099993	101.4147815	100.2645661	99.90610909	99.79410642	99.68696804	99.58022395	99.47360539
190606A00054	6/6/2019	1.8	6/6/2024	9/6/2022	105.14791	103.1862889	101.4881794	100.303969	99.91317021	99.79950357	99.69235962	99.58560999	99.47898589
190607A00016	6/7/2019	1.75	6/7/2024	9/7/2022	105.06385	103.1040287	101.4161162	100.2638218	99.90386055	99.78914413	99.67927487	99.56980599	99.4604804
190731A00008	7/31/2019	1.53	7/31/2024	8/1/2022	105.35208	103.2317402	101.4327957	100.2403354	99.98185677	99.97367118	99.96549194	99.95731903	99.9491524
190801A00025	8/1/2019	1.68	8/1/2024	8/1/2022	105.38963	103.2693578	101.4633313	100.2497113	99.97251467	99.96443387	99.95635821	99.94828769	99.94022225

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190805A00014	8/5/2019	1.49	8/5/2024	8/5/2022	105.30176	103.1756117	101.3739958	100.2010152	99.97425902	99.95497987	99.93571965	99.91647829	99.89725568
190807A00035	8/7/2019	1.45	8/7/2024	8/8/2022	104.97355	102.8661985	101.1185933	100.0793341	99.95713445	99.92965612	99.90220649	99.87478549	99.84739294
190807A00056	8/7/2019	1.49	8/7/2024	8/8/2022	105.05185	102.9398403	101.1776266	100.1053883	99.95824339	99.93076417	99.90331366	99.87589177	99.84849833
190809A00026	8/9/2019	1.52	8/9/2024	8/9/2022	105.12213	103.0024936	101.2244114	100.1232147	99.95734064	99.92708812	99.89686829	99.86668105	99.83652622
190812A00020	8/12/2019	1.47	8/12/2024	8/12/2022	105.03846	102.9188853	101.1494247	100.0822561	99.95021483	99.91165586	99.87314242	99.83467438	99.79625153
190812A00026	8/12/2019	1.48	8/12/2024	8/12/2022	105.05817	102.937456	101.164385	100.0889632	99.95060291	99.9120436	99.87352983	99.83506147	99.79663828
190814A00019	8/14/2019	1.46	8/14/2024	8/15/2022	105.03056	102.9077164	101.1372433	100.0759014	99.94414895	99.89728785	99.8504865	99.80374473	99.75706228
190820A00068	8/20/2019	1.39	8/20/2024	8/22/2022	104.92232	102.7957886	101.0356056	100.0667909	99.92624822	99.86002919	99.7939084	99.72788558	99.66196042
190821A00046	8/21/2019	1.44	8/21/2024	8/22/2022	105.02836	102.8933338	101.1112219	100.0886963	99.92957308	99.86335049	99.79722613	99.73119977	99.66527106
190823A00023	8/23/2019	1.37	8/23/2024	8/23/2022	104.89948	102.7687318	101.0090958	100.0585544	99.92277446	99.85379095	99.78491178	99.71613669	99.64746535
170130A00010	1/30/2017	2.92	1/30/2025	1/30/2017	109.48203	106.8662201	104.3270753	101.8619017	99.46811318	97.14323042	94.88487593	92.69076903	90.55872135
170203A00013	2/3/2017	3.67	2/1/2036	2/3/2017	155.7205	138.9399329	124.2259432	111.3089198	99.95589354	89.96538517	81.1629978	73.39764595	66.53832653
190328A00033	4/25/2019	2.56	4/25/2024	4/25/2019	105.81552	104.0286306	102.280735	100.570626	98.8971433	97.2591746	95.65565309	94.08555508	92.54789773
190828A00009	8/28/2019	1.71	8/28/2024	8/28/2019	105.21168	103.0820874	101.0062915	98.98257306	97.00927652	95.08481174	93.20765079	91.37632499	89.58942217
200429A00047	5/1/2020	2.7	4/30/2025	5/1/2020	109.87953	106.9974894	104.2062369	101.5023056	98.8823886	96.34333016	93.88211693	91.49587056	89.18184043
201028A00006	10/30/2020	1.56	2/15/2024	10/30/2020	103.55566	101.9856328	100.4472992	98.9397777	97.46221443	96.01378683	94.59370198	93.2011953	91.8355293
180810A00028	8/10/2018	2.91	8/10/2023	8/10/2018	103.87807	102.8074073	101.758799	100.7315639	99.72505316	98.73864376	97.77173759	96.82376004	95.89415889
180905A00015	9/5/2018	2.85	9/1/2022	9/5/2018	100.42691	100.3321422	100.2375542	100.1431495	100.0489275	99.95488757	99.86102925	99.76735197	99.67385521
190712A00009	7/12/2019	2.19	7/12/2023	7/12/2019	102.7792	101.7982446	100.8359582	99.89181583	98.96530773	98.0559432	97.16324961	96.28677152	95.42606998
200130A00028	1/30/2020	1.54	2/7/2023	1/30/2020	101.31623	100.7755986	100.2407274	99.71152556	99.18790326	98.66977248	98.15704706	97.64964266	97.14747665
200925A00002	9/25/2020	0.74	9/25/2025	9/25/2020	105.08015	101.8545821	98.74382563	95.74312284	92.84794264	90.05397022	87.3570951	84.75339999	82.23915036
171005A00006	10/5/2017	2.32	10/7/2024	10/5/2017	107.17723	104.9086286	102.6994988	100.5478434	98.4517512	96.4093906	94.41900603	92.47891392	90.58749906
190108A00039	1/8/2019	3.04	4/30/2024	1/8/2019	106.72326	104.9141434	103.1447125	101.4137335	99.72002337	98.06244848	96.43992131	94.85139834	93.29587774
191001A00023	10/1/2019	1.85	9/27/2024	10/1/2019	105.74228	103.5242546	101.3637751	99.25893841	97.20791681	95.20895785	93.26038054	91.3605718	89.50798312
200207A00018	2/7/2020	2.14	2/7/2030	2/7/2020	122.75386	114.4252854	106.7234285	99.59781293	93.00227607	86.89457919	81.23605534	75.99129022	71.12783314
200601A00006	6/1/2020	0.6	6/1/2023	6/1/2020	101.11071	100.2530013	99.40974854	98.58058586	97.76516278	96.96314039	96.17419078	95.39799672	94.63425111
210312A00010	3/12/2021	0.63	3/12/2024	3/12/2021	102.19649	100.5650614	98.9675275	97.4028959	95.87021693	94.36857731	92.89709839	91.45493453	90.04127149
060308A00014	3/8/2006	5.44	3/16/2026	3/8/2006	123.57238	119.5222249	115.6310513	111.8916827	108.2973095	104.8414694	101.5180276	98.32115751	95.24532401
090226A00006	2/26/2009	4.55	3/1/2024	2/26/2009	108.72897	107.0707355	105.4464291	103.8550801	102.2957533	100.7675486	99.26959935	97.80107087	96.36115888
150601A00930	6/1/2015	7.1	8/30/2030	6/1/2015	165.40501	154.7521827	144.9154047	135.8265846	127.4236969	119.6502084	112.4545631	105.7897187	99.61272778
200302A00051	3/2/2020	1.22	8/8/2023	3/2/2020	101.9715	100.918995	99.88809165	98.87812825	97.88847208	96.91851569	95.96767563	95.0353913	94.12112384
210323A00007	3/23/2021	0.51	3/25/2024	3/23/2021	102.27518	100.601568	98.963309	97.35935148	95.78868403	94.25033511	92.74337103	91.26689407	89.82004071
111024A00027	10/24/2011	3.11	10/30/2023	10/24/2011	105.03231	103.723033	102.4460037	101.2000392	99.98401378	98.79685598	97.63754481	96.505107	95.39861421

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
121116A00021	11/16/2012	2.35	11/17/2025	11/16/2012	111.2923	107.8022793	104.4405002	101.2015401	98.08023749	95.07167846	92.17118293	89.37429222	86.67675717
170530A00064	5/30/2017	2.32	3/27/2023	5/30/2017	102.07067	101.3935685	100.7254252	100.0660643	99.41531359	98.77300529	98.13897599	97.51306646	96.89512152
180622A00006	6/22/2018	3.53	12/21/2029	6/22/2018	133.19124	124.6200424	116.6752205	109.3074707	102.4716168	96.12624461	90.23337074	84.75814223	79.66856363
180808A00009	8/8/2018	3.12	8/7/2023	8/8/2018	103.94833	102.8875476	101.8484098	100.8302559	99.83245451	98.85439955	97.89550862	96.95522206	96.03300188
191121A00009	11/21/2019	2.55	11/21/2036	11/21/2019	143.5572	126.5350205	111.760301	98.92166831	87.75245058	78.02406178	69.54039038	62.13303842	55.657279
120312A00009	3/12/2012	2.72	3/15/2024	3/12/2012	105.90754	104.2316879	102.5907415	100.9836813	99.40952399	97.86732409	96.35617231	94.87519376	93.4235463
160329A00045	3/29/2016	2.12	3/29/2024	3/29/2016	105.03823	103.3286654	101.6553112	100.0170836	98.4129417	96.84188566	95.30295498	93.79522636	92.31781192
160802A00003	8/2/2016	2.53	8/1/2031	8/2/2016	131.56955	121.1699806	111.6851409	103.0294447	95.12573565	87.90441785	81.30267946	75.26379966	69.73652958
171011A00013	10/11/2017	2.77	10/13/2026	10/11/2017	115.96474	111.4346305	107.1084717	102.9759272	99.02724566	95.25322506	91.64517831	88.19490117	84.89464234
190703A00017	7/3/2019	2.33	5/4/2026	7/3/2019	112.44043	108.4529796	104.6291424	100.9612605	97.44208721	94.0647574	90.8227653	87.70994301	84.72044079
190923A00078	9/23/2019	1.96	6/28/2024	9/23/2019	105.2528	103.2928427	101.3791512	99.51035357	97.68512853	95.90220222	94.16034644	92.45837665	90.79515008
191031A00041	10/31/2019	1.72	10/31/2023	10/31/2019	103.25967	101.9604663	100.6930374	99.45622698	98.24893291	97.07010562	95.9187448	94.7938966	93.69465097
200210A00005	2/10/2020	1.77	2/10/2027	2/10/2020	113.24719	108.4071009	103.8015612	99.41797407	95.24448702	91.26994313	87.48383662	83.87627132	80.43792195
200309A00021	3/9/2020	1.05	3/9/2026	3/9/2020	107.11431	103.388503	99.81127524	96.37588287	93.07592914	89.90534366	86.85836368	83.92951653	81.11360325
200424A00006	4/24/2020	0.6	4/24/2023	4/24/2020	101.073	100.3205272	99.57919405	98.84875661	98.12897625	97.41962119	96.72046635	96.03129307	95.35188891
141015A00025	10/15/2014	2.48	10/17/2022	10/15/2014	100.84222	100.6187472	100.3962751	100.1747975	99.95430786	99.73479951	99.51626584	99.29870032	99.08209649
161109A00018	11/9/2016	2.63	11/9/2026	11/9/2016	115.64802	111.045117	106.6526868	102.4599465	98.45673008	94.6334472	90.98104673	87.4909834	84.15518649
170515A00010	5/15/2017	2.58	5/15/2024	5/15/2017	106.04548	104.1999796	102.3956816	100.6313665	98.90585792	97.21802406	95.56677561	93.95106372	92.36987818
180412A00036	4/12/2018	3.54	4/15/2038	4/12/2018	162.64043	142.6390739	125.4510229	110.6583351	97.90751945	86.89928275	77.37995611	69.13431572	61.97956574
180717A00076	7/17/2018	3.03	7/17/2023	7/17/2018	103.64534	102.6456735	101.6652787	100.703603	99.76011371	98.83429814	97.92566274	97.03373218	96.15804854
181016A00084	10/16/2018	3.21	10/17/2022	10/16/2018	101.0048	100.7810719	100.5583446	100.336613	100.1158701	99.89610936	99.67732422	99.4595081	99.24265455
210128A00008	1/28/2021	0.54	4/9/2024	1/28/2021	102.18099	100.4703765	98.7964979	97.15823604	95.55451923	93.984319	92.44664795	90.9405576	89.4651365
211222A00024	12/22/2021	1.13	4/15/2024	12/22/2021	103.21858	101.4826623	99.78426203	98.12222397	96.49544538	94.90286843	93.3434779	91.81629898	90.32039526
150519A00013	5/19/2015	2.98	5/19/2025	5/19/2015	110.8884	107.9368473	105.0795869	102.3130684	99.63389421	97.03881524	94.52472312	92.08864332	89.72772846
160706A00029	7/6/2016	2.49	7/8/2030	7/6/2016	126.72636	117.7879222	109.5521289	101.9599463	94.95758681	88.49602039	82.53053089	77.02031658	71.92812919
180925A00060	9/25/2018	3.23	8/25/2023	9/25/2018	104.26885	103.1549457	102.0648338	100.9977567	99.95298949	98.92983761	97.92763497	96.94574263	95.98354742
190906A00004	9/6/2019	1.78	9/6/2022	9/6/2019	100.3599	100.2513411	100.1430325	100.0349694	99.92715087	99.81957614	99.71224433	99.60515458	99.49830605
200123A00048	1/23/2020	1.7	1/23/2025	1/23/2020	106.63608	104.0692347	101.5774823	99.15819406	96.80884718	94.52702248	92.31039951	90.1567519	88.06394288
160119A00028	1/19/2016	3.34	1/21/2031	1/19/2016	135.8138	125.9010202	116.8063628	108.4575347	100.788999	93.74130857	87.26051132	81.29761586	75.80811195
170313A00035	3/13/2017	3.31	3/15/2027	3/13/2017	120.1972	115.1172633	110.2848549	105.6865449	101.3097057	97.1424616	93.17363905	89.39272148	85.78980677
170322A00025	3/22/2017	3.58	3/22/2033	3/22/2017	145.88589	132.9970655	121.4014256	110.9608798	101.5528094	93.06825888	85.4103469	78.49287013	72.23907466
180329A00003	3/29/2018	3.08	3/29/2028	3/29/2018	124.25225	117.8870457	111.8925511	106.2451282	100.9227777	95.90501342	91.17274926	86.70819638	82.49476781
181119A00018	11/19/2018	3.28	11/17/2023	11/19/2018	105.27735	103.9334205	102.6169536	101.3271203	100.0631222	98.82419306	97.60959702	96.41862734	95.25060484

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190215A00006	2/15/2019	2.89	2/15/2024	2/15/2019	105.65923	104.0719106	102.5165974	100.9923968	99.49844667	98.03391647	96.59800561	95.18994211	93.80898136
201028A00004	10/30/2020	1.55	12/29/2023	10/30/2020	103.24462	101.8073867	100.397175	99.01328917	97.65505656	96.32182702	95.01297179	93.72788274	92.46597149
130606A00013	6/6/2013	2.94	6/15/2023	6/6/2013	103.24655	102.3393388	101.4480654	100.5723078	99.71166316	98.86574235	98.03416962	97.21658186	96.41262815
150601A00531	6/1/2015	3.28	7/24/2024	6/1/2015	108.04965	105.9870692	103.9748057	102.0113173	100.0951164	98.22477134	96.39890354	94.61618542	92.87533804
160129A00068	1/29/2016	1.97	1/30/2023	1/29/2016	101.4899	100.9711536	100.4576986	99.94945045	99.4463303	98.94826088	98.45516647	97.96697287	97.48360734
160701A00020	7/1/2016	2.13	7/1/2026	7/1/2016	112.20848	108.0582219	104.0847192	100.2795256	96.63464636	93.14250826	89.79593496	86.58812423	83.51262643
160712A00023	7/12/2016	1.79	7/12/2023	7/12/2016	102.39088	101.4119588	100.4516863	99.50953114	98.5849843	97.67755563	96.78677302	95.91218158	95.05334289
160830A00035	8/30/2016	2.06	8/30/2024	8/30/2016	105.97404	103.8306745	101.7415112	99.70481055	97.7189016	95.78217949	93.89310234	92.05018826	90.25201248
190919A00025	9/19/2019	1.8	9/19/2024	9/19/2019	105.86219	103.6591339	101.5129281	99.42169878	97.38365267	95.39706957	93.46029888	91.57175611	89.72991964
200305A00035	3/5/2020	1.25	3/5/2026	3/5/2020	107.82808	104.1011054	100.5222302	97.08475578	93.78232513	90.60890435	87.55876434	84.62646342	81.80683118
200709A00007	7/10/2020	1.67	7/9/2027	7/10/2020	113.26853	108.0109807	103.0278243	98.30334338	93.82280389	89.57238492	85.53911741	81.71082736	78.07608313
210312A00004	3/12/2021	0.34	3/10/2023	3/12/2021	100.75402	100.1285784	99.5108694	98.9007496	98.29807973	97.70272396	97.11454974	96.5334277	95.95923156
130904A00036	9/4/2013	3.57	9/15/2023	9/4/2013	105.03663	103.8559647	102.7018734	101.5734615	100.4698781	99.39030938	98.33397679	97.30013521	96.28807107
170111A00013	1/11/2017	3.4	1/10/2031	1/11/2017	136.23837	126.3415833	117.2584794	108.9174145	101.2534176	94.20753325	87.72623687	81.76090823	76.26735903
181210A00015	12/10/2018	3.12	12/11/2023	12/10/2018	105.31573	103.9138567	102.5374909	101.1859994	99.8587654	98.55519197	97.27470124	96.01673374	94.78074762
191007A00027	10/7/2019	1.69	10/7/2022	10/7/2019	100.59586	100.4006386	100.2061885	100.0125002	99.81956919	99.62739095	99.43596106	99.24527511	99.05532874
191104A00022	11/4/2019	2.17	8/4/2027	11/4/2019	116.00219	110.6013819	105.4851845	100.6371105	96.0417117	91.68450954	87.55192931	83.63123896	79.91049247
191126A00026	11/26/2019	1.91	11/25/2026	11/26/2019	113.21648	108.602436	104.2023331	100.0051587	96.00052569	92.17863185	88.53022359	85.04656248	81.71939393
191212A00027	12/13/2019	1.93	10/17/2022	12/13/2019	100.71973	100.4964479	100.2741678	100.0528817	99.83258291	99.61326469	99.39492048	99.17754377	98.96112809
200130A00006	1/30/2020	1.77	1/30/2025	1/30/2020	106.52762	103.9499676	101.448128	99.01942585	96.66130057	94.3712975	92.1470628	89.98633856	87.88695826
200218A00004	2/18/2020	1.73	2/21/2023	2/18/2020	101.45821	100.8785561	100.3055152	99.73897001	99.17881055	98.6249293	98.07722112	97.5355832	96.99991502
171227A00018	12/27/2017	2.83	12/27/2024	12/27/2017	108.8907	106.3778241	103.9360688	101.5630213	99.2563648	97.01387473	94.83341417	92.71292999	90.65044907
180904A00012	9/4/2018	3.35	9/4/2030	9/4/2018	135.87663	126.3343702	117.549753	109.4582305	102.0010866	95.12488024	88.78094623	82.92494443	77.51645445
190529A00089	5/29/2019	2.38	5/29/2024	5/29/2019	105.80766	103.9246854	102.0844347	100.2856881	98.52727137	96.80805055	95.12693072	93.48285426	91.87479933
200306A00065	3/6/2020	1.38	3/6/2030	3/6/2020	116.89423	108.7053228	101.1427993	94.15558995	87.69703331	81.72447772	76.19891739	71.08466331	66.34904546
151223A00066	12/23/2015	2.34	12/23/2022	12/23/2015	101.38413	100.9720158	100.5632483	100.1577911	99.7556042	99.35664802	98.96088371	98.56827304	98.17877835
170822A00017	8/22/2017	2.11	8/22/2022	8/22/2017	100.24838	100.1816309	100.1149848	100.0484386	99.98199213	99.91564511	99.84939735	99.78324864	99.71719874
171206A00040	12/6/2017	2.23	12/6/2022	12/6/2017	101.21372	100.8495421	100.4879914	100.1290365	99.77264967	99.41880319	99.06746993	98.71862312	98.37223635
180308A00011	3/8/2018	2.9	9/15/2022	3/8/2018	100.58449	100.4506264	100.3171305	100.1840044	100.0512464	99.91885515	99.78682897	99.65516636	99.52386576
181114A00012	11/14/2018	3.13	11/14/2022	11/14/2018	101.31174	101.0089146	100.7079136	100.4087191	100.1113148	99.81568464	99.52181255	99.22968283	98.93927989
190529A00028	5/29/2019	2.38	5/29/2024	5/29/2019	105.80766	103.9246854	102.0844347	100.2856881	98.52727137	96.80805055	95.12693072	93.48285426	91.87479933
200818A00006	8/18/2020	1.18	8/18/2028	8/18/2020	112.81685	106.4011055	100.3870276	94.74745233	89.45719111	84.49287424	79.83281035	75.45685752	71.34630494
110824A00004	8/24/2011	3.11	8/30/2023	8/24/2011	104.31715	103.1868387	102.0810018	100.9988466	99.93961819	98.90259356	97.8870798	96.89241256	95.9179546

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160616A00027	6/16/2016	2.27	6/16/2026	6/16/2016	112.63001	108.5142764	104.572024	100.7950513	97.17558515	93.70625824	90.38008535	87.1904418	84.13104287
180702A00012	7/2/2018	3.01	7/3/2023	7/2/2018	103.48461	102.5254177	101.5839899	100.6598345	99.7524795	98.86146955	97.98636579	97.12674492	96.28219855
190110A00004	1/10/2019	3.09	1/10/2025	1/10/2019	109.69237	107.1300184	104.6412177	102.2234316	99.87422948	97.59127893	95.37234109	93.2152663	91.11798998
190514A00021	5/14/2019	2.72	11/14/2025	5/14/2019	112.0524	108.5696244	105.2141849	101.9807055	98.86406994	95.85940746	92.96207979	90.16766835	87.47196243
190812A00003	8/12/2019	1.67	8/12/2024	8/12/2019	105.2883	103.1964135	101.1567558	99.16767985	97.22760326	95.33500492	93.48842206	91.68644749	89.92772713
200331A00060	3/31/2020	1.09	3/31/2025	3/31/2020	105.15779	102.4250018	99.77668388	97.20968077	94.72098183	92.30771	89.96711476	87.69656552	85.49354549
200408A00021	4/8/2020	0.99	4/4/2025	4/8/2020	105.27142	102.5179327	99.84999225	97.26438528	94.75804715	92.32805005	89.97159577	87.68600888	85.46873033
140815A00032	8/15/2014	3.59	10/15/2029	8/15/2014	132.89926	124.5476401	116.7927616	109.5885421	102.8927035	96.66643721	90.8741013	85.48294543	80.46286159
171010A00038	10/10/2017	2.23	10/11/2022	10/10/2017	100.7341	100.527543	100.3218415	100.1169931	99.91299237	99.70983406	99.50751289	99.30602363	99.10536111
180817A00022	8/17/2018	2.87	8/17/2023	8/17/2018	103.91112	102.8202976	101.7523569	100.7065789	99.68227848	98.67879871	97.69550912	96.73180449	95.78710361
180927A00042	9/27/2018	3.02	9/27/2022	9/27/2018	100.75517	100.5875208	100.4204342	100.2539042	100.0879281	99.92250305	99.75762645	99.59329553	99.42950759
190620A00045	6/20/2019	2.14	6/20/2024	6/20/2019	105.53935	103.5984948	101.7029706	99.85145196	98.04265674	96.2753486	94.54833493	92.86046509	91.2106286
190807A00036	8/7/2019	1.75	8/7/2023	8/7/2019	102.51874	101.4659897	100.434763	99.42440845	98.43429746	97.46382629	96.51241509	95.57950658	94.66456507
200310A00065	3/13/2020	1.1	3/13/2025	3/13/2020	105.06907	102.389999	99.79251067	97.27361537	94.83045112	92.4602803	90.16048326	87.92855236	85.76208632
130531A00021	5/31/2013	3.22	5/30/2028	5/31/2013	125.78819	119.1882424	112.9821355	107.1442768	101.6508678	96.47976492	91.6103571	87.02345191	82.70117134
170327A00070	3/29/2017	3.05	3/29/2027	3/29/2017	119.86577	114.7268992	109.8410108	105.1942394	100.7735635	96.56674424	92.56227399	88.74932827	85.11772121
181004A00028	10/4/2018	3.31	10/4/2023	10/4/2018	104.83616	103.6041963	102.4011866	101.2261195	100.0780291	98.95599384	97.85913338	96.78660685	95.73761043
190802A00029	8/2/2019	2	8/2/2022	8/2/2019	100.03973	100.0286137	100.0175122	100.0064213	99.99534073	99.98427062	99.97321091	99.96216159	99.95112264
200407A00002	4/8/2020	1.82	4/8/2024	4/8/2020	104.39262	102.6649681	100.9743108	99.31952589	97.69953623	96.11330804	94.55984872	93.03820473	91.54745968
200508A00004	5/8/2020	0.43	5/8/2023	5/8/2020	100.9851	100.1938578	99.41493961	98.64806097	97.8929445	97.14932132	96.41693068	95.69551968	94.98484295
201030A00001	11/2/2020	2.54	10/29/2040	11/2/2020	146.44798	125.2620607	107.5183218	92.63149084	80.11892296	69.58213661	60.69175086	53.17518218	46.80658386
191115A00030	11/15/2019	2.35	11/9/2029	11/15/2019	123.72976	115.6329768	108.1262523	101.1634195	94.70215811	88.7036536	83.13228905	77.95536595	73.1428507
200304A00052	3/6/2020	2.11	3/8/2027	3/6/2020	114.43694	109.5113847	104.8267561	100.3699776	96.12875582	92.09152771	88.24741319	84.58617081	81.09815673
200310A00019	3/10/2020	0.95	3/10/2023	3/10/2020	101.07892	100.453042	99.83488612	99.22431135	98.62117883	98.02535309	97.43670194	96.85509633	96.28041034
220505A00026	5/9/2022	2.69	8/22/2023	5/9/2022	103.6484	102.5466613	101.4682983	100.4125773	99.37879041	98.36625925	97.37433301	96.40238724	95.44982254
170921A00063	9/21/2017	2.23	9/21/2022	9/21/2017	100.55253	100.4019863	100.2519077	100.1022882	99.95312564	99.80441788	99.65616285	99.50835847	99.36100269
180820A00036	8/20/2018	3	8/21/2023	8/20/2018	103.97411	102.8733202	101.7958167	100.7408693	99.70777487	98.6958592	97.70447555	96.73300331	95.78084667
181227A00026	12/27/2018	3.03	12/27/2023	12/27/2018	105.36435	103.9167343	102.4962201	101.1021115	99.73373545	98.3904414	97.07160015	95.77660311	94.50486142
200226A00014	2/26/2020	1.53	2/27/2023	2/26/2020	101.37717	100.7810193	100.1918502	99.60954181	99.03397495	98.4650332	97.90260279	97.34657255	96.79683381
200720A00044	7/22/2020	2.22	7/21/2026	7/22/2020	112.76799	108.5477151	104.5095063	100.6445531	96.94451413	93.40149437	90.00801848	86.7570063	83.64174982
200922A00038	9/24/2020	2.33	9/25/2023	9/24/2020	103.57125	102.3730728	101.2025287	100.0586697	98.94059128	97.84742937	96.7783581	95.73258773	94.70936274
211217A00021	12/21/2021	2.44	12/18/2026	12/21/2021	115.2023	110.4949475	106.0077672	101.7293316	97.64886394	93.75619807	90.04174111	86.49643806	83.11173902
180207A00003	2/7/2018	3.28	2/7/2028	2/7/2018	123.92232	117.7564994	111.941237	106.4546981	101.2765203	96.38770778	91.77053259	87.40844367	83.28598261

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190528A00005	5/28/2019	2.42	6/15/2023	5/28/2019	102.78098	101.8760431	100.9870152	100.1134756	99.25502207	98.411266	97.58183218	96.76635802	95.96449311
200121A00009	1/24/2020	1.94	1/24/2025	1/24/2020	106.91565	104.3496746	101.8586855	99.44005297	97.09125987	94.80989254	92.5936357	90.44026785	88.34765679
200303A00007	3/3/2020	1.11	3/4/2024	3/3/2020	103.15633	101.536303	99.94965255	98.39541864	96.8726762	95.38053521	93.91813893	92.48466236	91.07931074
200604A00004	6/4/2020	0.76	6/4/2024	6/4/2020	102.79772	100.9274005	99.09996641	97.31418551	95.56886942	93.8628711	92.19508315	90.56443622	88.96989742
150601A00485	6/1/2015	3.09	6/21/2024	6/1/2015	107.56359	105.5951269	103.6727052	101.7949685	99.96061143	98.16837523	96.41704598	94.70545262	93.03246514
151223A00077	12/23/2015	3.57	12/24/2035	12/23/2015	156.46099	139.5978564	124.8042499	111.8113845	100.3868255	90.329404	81.46486239	73.64212657	66.73011051
161214A00023	12/14/2016	3.3	12/15/2031	12/14/2016	140.27635	129.0532465	118.8433456	109.5491419	101.0830064	93.36613656	86.32762588	79.90363594	74.03665885
170809A00005	8/9/2017	2.61	8/11/2025	8/9/2017	110.68586	107.4968624	104.4172275	101.4425832	98.56875873	95.79177464	93.1078322	90.51330426	88.00472639
190529A00032	5/29/2019	2.38	5/29/2024	5/29/2019	105.80766	103.9246854	102.0844347	100.2856881	98.52727137	96.80805055	95.12693072	93.48285426	91.87479933
190613A00011	6/13/2019	2.26	6/13/2024	6/13/2019	105.71157	103.7882519	101.9094445	100.0738563	98.28023956	96.52739055	94.8141478	93.13939029	91.50203574
190805A00050	8/5/2019	1.91	8/5/2024	8/5/2019	105.45721	103.3880462	101.3701403	99.40188739	97.48174944	95.60824697	93.77995655	91.99550827	90.25358326
200501A00003	5/1/2020	0.66	4/14/2023	5/1/2020	101.01657	100.2931579	99.58005668	98.87704979	98.18392402	97.50047215	96.82649273	96.16178986	95.50617299
210609A00013	6/11/2021	1.64	6/11/2025	6/11/2021	107.20314	104.2400063	101.3738173	98.60088777	95.91769717	93.32087704	90.80720367	88.37359104	86.01708418
150601A00495	6/1/2015	2.99	6/27/2024	6/1/2015	107.43758	105.4536911	103.51656	101.6248052	99.77709068	97.97212908	96.20867897	94.48554315	92.80156672
190110A00010	1/10/2019	2.97	1/16/2024	1/10/2019	105.48671	103.9829686	102.5083979	101.062226	99.64370359	98.25210716	96.88673798	95.54692097	94.23200371
200317A00026	3/17/2020	1.22	3/15/2024	3/17/2020	103.20851	101.5594003	99.94464711	98.36324626	96.81423058	95.29667027	93.80967098	92.35237215	90.92394537
210818A00005	8/18/2021	0.6	8/19/2024	8/18/2021	103.08534	100.9978416	98.96288723	96.97880873	95.04400072	93.15692063	91.3160856	89.52006976	87.76750153
180823A00033	8/23/2018	2.85	8/23/2023	8/23/2018	103.95375	102.845577	101.760993	100.6992548	99.6596461	98.64148014	97.64409833	96.66686881	95.70918512
181009A00035	10/9/2018	3.12	10/11/2022	10/9/2018	100.9338	100.7267679	100.5205955	100.3152799	100.1108158	99.9071976	99.70442016	99.50247816	99.30136639
190114A00061	1/14/2019	2.98	1/31/2024	1/14/2019	105.65862	104.112269	102.5966578	101.1109451	99.6543222	98.22600924	96.82525359	95.45132879	94.10353339
191009A00017	10/9/2019	1.76	10/4/2024	10/9/2019	105.59704	103.3609114	101.1832077	99.06198126	96.99536192	94.98155743	93.01884936	91.10558932	89.24019554
191023A00006	10/23/2019	1.95	10/23/2024	10/23/2019	106.18076	103.8838155	101.6480081	99.47125166	97.35154915	95.28698863	93.27573902	91.31604583	89.40622721
200302A00045	3/4/2020	1.31	3/4/2025	3/4/2020	105.56949	102.9101679	100.3311772	97.82959489	95.40262671	93.04759865	90.76195069	88.54323111	86.3890911
151106A00011	11/6/2015	3.1	1/15/2026	11/6/2015	114.08422	110.3869217	106.8308038	103.4097136	100.1177994	96.94949527	93.89950565	90.96279069	88.13455239
191009A00028	10/9/2019	1.76	10/9/2024	10/9/2019	105.63621	103.3854007	101.1937022	99.05912603	96.9797699	94.95381114	92.97950274	91.0551694	89.17920399
210129A00008	1/29/2021	0.62	10/8/2024	1/29/2021	103.06739	100.8486825	98.68833987	96.58440137	94.53498843	92.53830117	90.5926143	88.69627334	86.84769107
211222A00003	12/22/2021	1.33	1/15/2025	12/22/2021	105.30209	102.7815532	100.3341131	97.95723391	95.64848271	93.40552561	91.22612292	89.10812473	87.04946677
211222A00031	12/22/2021	1.33	1/15/2025	12/22/2021	105.30209	102.7815532	100.3341131	97.95723391	95.64848271	93.40552561	91.22612292	89.10812473	87.04946677
170508A00010	5/8/2017	2.43	5/8/2024	5/8/2017	105.94625	104.1172382	102.3288106	100.5797387	98.86883853	97.19497339	95.55705098	93.95402138	92.38487495
180531A00015	5/31/2018	2.95	5/31/2023	5/31/2018	103.11327	102.2490127	101.3992191	100.5635317	99.74160135	98.93309045	98.1376723	97.35503073	96.58485969
190130A00020	1/30/2019	2.97	4/17/2023	1/30/2019	102.71419	101.9754943	101.247417	100.5297338	99.82222296	99.12466917	98.43686308	97.75860119	97.08968564
190327A00032	3/27/2019	2.53	1/26/2024	3/27/2019	104.91957	103.3928504	101.8962735	100.4290274	98.99032548	97.57940856	96.19554396	94.83802418	93.50616586
190528A00009	5/28/2019	2.45	5/15/2024	5/28/2019	105.80697	103.9637132	102.161621	100.3994706	98.67608676	96.99033881	95.34113849	93.727438	92.14822812

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191226A00019	12/26/2019	2.4	12/22/2028	12/26/2019	121.54417	114.4877933	107.8902	101.7191764	95.94492719	90.53988289	85.47852342	80.73721581	76.29406579
200505A00005	5/5/2020	0.77	5/5/2025	5/5/2020	104.83051	101.9971614	99.25414387	96.59800853	94.02546011	91.53335244	89.11868045	86.77857275	84.51028454
181123A00016	11/23/2018	3.19	11/23/2022	11/23/2018	101.40381	101.0758642	100.7500425	100.4263253	100.1046921	99.78512299	99.467598	99.15209757	98.83860235
190530A00029	5/30/2019	2.25	5/30/2024	5/30/2019	105.82231	103.931891	102.0844969	100.2788971	98.51390539	96.78837658	95.10120503	93.4513229	91.83769861
191203A00004	12/4/2019	1.87	12/4/2024	12/4/2019	106.32943	103.9140053	101.5654645	99.28159271	97.06026073	94.8994218	92.79710782	90.75142581	88.7605547
200207A00009	2/7/2020	1.58	2/7/2025	2/7/2020	106.44512	103.8383257	101.3088233	98.85386528	96.47081787	94.15715736	91.91046486	89.72842118	87.60880206
200304A00054	3/6/2020	2.35	3/8/2027	3/6/2020	115.58127	110.6291091	105.91882	101.4372823	97.17216313	93.1118623	89.24546427	85.56269395	82.05387555
200604A00013	6/4/2020	2.21	6/4/2035	6/4/2020	133.9881	119.3365067	106.4521738	95.11146453	85.12011633	76.30925464	68.53196277	61.6603297	55.58290723
210527A00009	5/27/2021	0.5	5/28/2024	5/27/2021	102.52518	100.6720693	98.86114199	97.09119526	95.36106428	93.6696248	92.01579145	90.3985161	88.81678639
210816A00003	8/16/2021	0.71	8/16/2024	8/16/2021	103.02738	100.9539772	98.93254016	96.96142668	95.03905682	93.16391194	91.3345319	89.54951226	87.80750178
180530A00028	5/30/2018	3.67	5/31/2033	5/30/2018	147.54922	134.3489463	122.492216	111.8335721	102.2440584	93.60926928	85.82763929	78.80894219	72.47297152
190308A00007	3/8/2019	2.8	3/8/2024	3/8/2019	105.74407	104.09404	102.4780453	100.8951046	99.34427019	97.82463076	96.33530909	94.87546071	93.44427225
200203A00004	2/3/2020	1.7	2/3/2023	2/3/2020	101.3398	100.8107499	100.2872113	99.769098	99.25632588	98.74881266	98.24647773	97.74924213	97.25702849
200326A00026	3/26/2020	1.32	3/26/2024	3/26/2020	103.4479	101.7646819	100.1169776	98.50372756	96.92391607	95.37656744	93.86074395	92.375544	90.92010037
170622A00036	6/22/2017	3.23	6/22/2032	6/22/2017	139.65306	127.9425352	117.3393638	107.7321419	99.02123483	91.11747786	83.94102715	77.42034199	71.49128273
180706A00013	7/6/2018	3.01	7/6/2023	7/6/2018	103.51483	102.5469885	101.5972304	100.6650523	99.74996897	98.85151322	97.96923458	97.10269878	96.25148695
190530A00024	5/30/2019	2.25	5/30/2024	5/30/2019	105.82231	103.931891	102.0844969	100.2788971	98.51390539	96.78837658	95.10120503	93.4513229	91.83769861
190606A00029	6/6/2019	2.96	6/6/2034	6/6/2019	141.92719	127.880028	115.3935047	104.2843796	94.39185351	85.57471479	77.70886335	70.68515871	64.40754793
190816A00033	8/16/2019	1.77	8/16/2024	8/16/2019	105.25003	103.1528925	101.1082021	99.11429744	97.16958524	95.27253412	93.42167161	91.61558145	89.85290098
200306A00039	3/6/2020	0.88	3/6/2023	3/6/2020	101.01921	100.4047183	99.79767017	99.19793284	98.60537484	98.01986786	97.44128665	96.86950891	96.30444152
200709A00003	7/10/2020	1.63	7/10/2026	7/10/2020	110.25834	106.1206613	102.1607364	98.37001405	94.74039677	91.26421695	87.93421185	84.74350003	81.68555929
170502A00028	5/2/2017	2.84	5/3/2027	5/2/2017	119.24452	114.0162775	109.0501973	104.3316757	99.84700326	95.58330839	91.52850078	87.67121945	84.00078437
190102A00050	1/2/2019	3.38	1/3/2034	1/2/2019	148.02445	133.9961241	121.4716669	110.2800957	100.270754	91.31079781	83.2830061	76.08386987	69.62192369
190809A00010	8/9/2019	1.88	8/8/2024	8/9/2019	105.41853	103.3415493	101.3161444	99.34070367	97.41367398	95.53356167	93.69892996	91.90839624	90.16062968
201006A00007	10/8/2020	1.47	10/10/2023	10/8/2020	102.65793	101.4228925	100.2173932	99.0403813	97.89085666	96.76786554	95.67049785	94.59788469	93.54919607
211222A00019	12/22/2021	0.97	10/16/2023	12/22/2021	102.07879	100.8305224	99.61254623	98.42376721	97.26314618	96.1296928	95.02246265	93.94055465	92.88310857
160401A00016	4/1/2016	2.42	4/1/2025	4/1/2016	108.81058	106.0248577	103.3249341	100.7076142	98.16984301	95.7087011	93.32139743	91.00526264	88.75774284
160630A00011	6/30/2016	1.8	6/30/2023	6/30/2016	102.32031	101.3755304	100.4481235	99.5376105	98.64353337	97.76545039	96.90293558	96.05557797	95.2229809
170215A00040	2/15/2017	2.59	5/15/2023	2/15/2017	102.67839	101.8610273	101.056665	100.2649904	99.48570507	98.71851956	97.96315348	97.21933506	96.48680079
181005A00011	10/5/2018	3.2	10/5/2023	10/5/2018	104.85037	103.6133415	102.4054911	101.2257943	100.0732747	98.94700067	97.84608257	96.76967073	95.71695303
190816A00013	8/16/2019	2.2	8/16/2029	8/16/2019	121.96885	114.1881471	106.9596713	100.2413073	93.99436334	88.18327416	82.77533284	77.74044728	73.05091855
191004A00004	10/4/2019	1.54	10/4/2024	10/4/2019	105.40175	103.1619414	100.98078	98.85630107	96.78662463	94.76994888	92.80454643	90.88876048	89.02100127
191015A00013	10/15/2019	1.72	10/15/2024	10/15/2019	105.89395	103.6170828	101.4004701	99.24206573	97.13991512	95.09214627	93.09696567	91.15265417	89.2575632

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191021A00021	10/21/2019	2.22	12/21/2027	10/21/2019	117.44399	111.5979505	106.0796355	100.8690006	95.94732379	91.29711428	86.90202561	82.74677518	78.81706989
091210A00005	12/10/2009	5.08	12/16/2024	12/10/2009	114.26479	111.7174369	109.2409318	106.8329074	104.491086	102.2132792	99.99738387	97.84137815	95.74331812
160706A00006	7/6/2016	1.47	7/6/2023	7/6/2016	102.14139	101.1792791	100.2352065	99.30866794	98.39917856	97.50627122	96.62949574	95.76841811	94.92261975
180831A00018	8/31/2018	2.95	8/31/2022	8/31/2018	100.4164	100.3245121	100.2327934	100.1412445	100.0498651	99.95865453	99.86761244	99.77673835	99.68603179
191003A00033	10/3/2019	1.54	10/3/2022	10/3/2019	100.55195	100.3678191	100.1843671	100.0015902	99.81948467	99.6380468	99.45727287	99.27715925	99.09770229
200305A00029	3/5/2020	1.14	3/5/2025	3/5/2020	105.12348	102.467181	99.89123024	97.39270228	94.96879916	92.61684331	90.33427149	88.11862902	85.9675644
210720A00035	7/22/2021	2.27	7/21/2031	7/22/2021	127.51817	117.4057832	108.1814473	99.76232307	92.0736974	85.04815221	78.62481815	72.74870823	67.37012228
130314A00027	3/14/2013	2.38	3/15/2023	3/14/2013	102.0704	101.426236	100.7901926	100.1621197	99.54186804	98.92929204	98.32424969	97.72660249	97.13621531
160330A00056	3/30/2016	2.26	3/31/2025	3/30/2016	108.73299	105.9429593	103.2389638	100.6177959	98.0763897	95.6118154	93.22127221	90.90208155	88.65168072
180702A00034	7/2/2018	2.86	7/3/2023	7/2/2018	103.43834	102.4780295	101.5355203	100.610325	99.70196986	98.80999795	97.93396888	97.07345792	96.22805529
190115A00025	1/15/2019	2.96	1/12/2024	1/15/2019	105.43021	103.9379011	102.4743458	101.0387815	99.63047482	98.2487172	96.89282426	95.5621346	94.25600889
190827A00002	8/27/2019	1.74	8/27/2024	8/27/2019	105.26823	103.1407609	101.0669895	99.04519859	97.07373744	95.15102055	93.27552434	91.44578426	89.66039202
191206A00013	12/6/2019	3.05	12/6/2044	12/6/2019	166.30174	139.0129799	116.8973531	98.92227147	84.26772594	72.28148493	62.44392424	54.3403815	47.6393956
210609A00007	6/11/2021	2.6	6/11/2029	6/11/2021	124.36162	116.6950105	109.557984	102.911167	96.71830165	90.94598737	85.56344269	80.54228742	75.85634412
210802A00002	8/2/2021	0.7	8/1/2025	8/2/2021	105.09335	102.0088133	99.03031269	96.1536204	93.37470149	90.68970467	88.09495287	85.58693421	83.16229361
211222A00011	12/22/2021	0.97	10/16/2023	12/22/2021	102.07879	100.8305224	99.61254623	98.42376721	97.26314618	96.1296928	95.02246265	93.94055465	92.88310857
120127A00018	1/27/2012	3.64	2/1/2027	1/27/2012	121.25053	116.2743573	111.5352751	107.0206982	102.7187747	98.61834193	94.70888223	90.9804823	87.42379528
150319A00012	3/19/2015	3.13	3/19/2029	3/19/2015	127.3158	119.8053263	112.7961192	106.2519407	100.1393641	94.42753928	89.08798013	84.09437181	79.42239394
150601A00648	6/1/2015	2.71	12/30/2022	6/1/2015	101.55087	101.1191106	100.6910086	100.2665224	99.84560644	99.42821587	99.01430657	98.60383518	98.19675905
170831A00004	8/31/2017	2	8/31/2023	8/31/2017	103.09532	101.9694061	100.8679816	99.79025108	98.73545656	97.70287213	96.69180222	95.70158002	94.731566
180827A00020	8/27/2018	3.21	8/27/2025	8/27/2018	112.74781	109.4813343	106.327772	103.2825646	100.3413639	97.50002335	94.75458746	92.10128162	89.53650268
190625A00021	6/25/2019	1.88	6/26/2023	6/25/2019	102.46202	101.5264416	100.6078805	99.7058764	98.81998484	97.94977721	97.09483995	96.25477394	95.42919386
190807A00022	8/7/2019	1.76	1/17/2023	8/7/2019	101.26725	100.7859167	100.3091548	99.83690245	99.3690959	98.90567244	98.44657057	97.99172993	97.54109132
190809A00012	8/9/2019	1.69	8/9/2024	8/9/2019	105.30724	103.2234061	101.1914706	99.20979864	97.27682309	95.39103736	93.5509923	91.75529367	90.00259957
190829A00005	8/30/2019	2.06	8/30/2023	8/30/2019	103.0302	101.9093797	100.8128433	99.73980896	98.68952746	97.66128134	96.65438293	95.66817293	94.70201893
190904A00001	9/4/2019	1.5	9/4/2024	9/4/2019	105.09634	102.943207	100.8449243	98.7997152	96.80587616	94.86177183	92.96583161	91.11654655	89.31246641
200511A00015	5/11/2020	0.6	2/1/2023	5/11/2020	100.74889	100.2272905	99.71106798	99.20013996	98.69442536	98.19384477	97.69832038	97.20777592	96.72213669
200928A00003	9/28/2020	0.55	9/26/2025	9/28/2020	104.89855	101.6626133	98.54219665	95.53249852	92.6289485	89.82719494	87.12309283	84.51269253	81.99222911
120112A00013	1/12/2012	2.76	1/16/2024	1/12/2012	105.35548	103.8497461	102.3732743	100.9252842	99.5050234	98.11176524	96.74480807	95.40347408	94.08710822
130528A00028	5/28/2013	2.63	5/30/2023	5/28/2013	102.8316	101.9714716	101.1256995	100.2939262	99.47580619	98.67100558	97.8792011	97.10007993	96.33333917
171130A00005	11/30/2017	2.45	11/30/2022	11/30/2017	101.22143	100.8742974	100.5295425	100.1871373	99.84705777	99.5092804	99.17378191	98.84053933	98.50953001
190925A00011	9/25/2019	1.89	9/25/2024	9/25/2019	105.81518	103.6018437	101.4458263	99.34523407	97.29825017	95.30313259	93.35821013	91.46187894	89.61259919
200124A00008	1/24/2020	1.92	1/22/2027	1/24/2020	113.78231	108.9858218	104.4192876	100.070482	95.9278975	91.98069509	88.21866125	84.63216879	81.21214011

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171026A00011	10/26/2017	2.94	10/26/2027	10/26/2017	120.89431	115.122051	109.6637253	104.500506	99.61480497	94.99018094	90.61125842	86.46365218	82.53389776
190130A00019	1/30/2019	3.01	1/30/2024	1/30/2019	105.69411	104.1502338	102.6370112	101.1536115	99.69922944	98.27308835	96.87443866	95.50255682	94.15674411
190903A00004	9/3/2019	1.77	9/6/2022	9/3/2019	100.35881	100.2502572	100.1419497	100.0338877	99.92607028	99.81849666	99.71116596	99.60407732	99.4972299
190906A00005	9/6/2019	1.77	9/6/2023	9/6/2019	102.76307	101.62394	100.5099452	99.42026208	98.3541015	97.31070831	96.28935932	95.28936168	94.31005133
191115A00016	11/18/2019	2.48	11/18/2024	11/18/2019	107.64381	105.257227	102.9356285	100.6768422	98.47878577	96.3394602	94.25694602	92.22939937	90.25504856
200203A00006	2/3/2020	1.76	2/3/2025	2/3/2020	106.53394	103.9448062	101.4320508	98.99297463	96.62498849	94.32561092	92.09246276	89.92326231	87.81582063
210916A00007	9/16/2021	0.75	9/16/2024	9/16/2021	103.25431	101.0941828	98.98969501	96.9390198	94.94040846	92.99218321	91.09273375	89.24051391	87.43403862
211001A00001	10/1/2021	0.59	10/2/2023	10/1/2021	101.5475	100.34229	99.16541791	98.01589888	96.89278939	95.79518885	94.72223716	93.67311249	92.64702914
170803A00021	8/3/2017	2.5	8/5/2024	8/3/2017	106.67603	104.5940371	102.5635561	100.5829761	98.65075197	96.76539741	94.92548243	93.12963077	91.37651746
180118A00039	1/18/2018	3.09	1/19/2027	1/18/2018	118.53042	113.6545322	109.0100528	104.5847654	100.367163	96.34640308	92.51226578	88.85511454	85.36585993
181213A00031	12/13/2018	2.97	12/13/2023	12/13/2018	105.29924	103.889062	102.5046826	101.1454514	99.81074156	98.49994679	97.21248021	95.94777375	94.70527735
190719A00006	7/19/2019	2.17	7/19/2024	7/19/2019	105.84695	103.8213816	101.845001	99.91630909	98.03386038	96.19626324	94.40217745	92.65031193	90.93942259
200228A00059	2/28/2020	1.79	2/28/2030	2/28/2020	120.12197	111.8294621	104.1672874	97.08426502	90.53361914	84.47258013	78.86202199	73.66613456	68.85212663
200311A00058	3/16/2020	1.1	10/14/2022	3/16/2020	100.5181	100.3035029	100.0898301	99.87707904	99.66524374	99.4543182	99.24429654	99.03517289	98.82694146
200812A00004	8/12/2020	0.59	8/12/2025	8/12/2020	104.8065	101.6961285	98.69349685	95.79427471	92.99433002	90.28972078	87.67668501	85.15163143	82.71113056
211222A00023	12/22/2021	1.13	4/15/2024	12/22/2021	103.21858	101.4826623	99.78426203	98.12222397	96.49544538	94.90286843	93.3434779	91.81629898	90.32039526
170216A00043	2/16/2017	3.17	2/16/2027	2/16/2017	119.24213	114.2662825	109.5298844	105.0201129	100.7249005	96.6328876	92.7333767	89.01629045	85.4721322
180125A00022	1/25/2018	2.69	1/25/2023	1/25/2018	101.78175	101.2765717	100.7763997	100.2811622	99.79078648	99.30520123	98.82433647	98.3481236	97.87649536
180529A00042	5/29/2018	3.42	5/30/2028	5/29/2018	126.04743	119.4736069	113.290867	107.4738568	101.9989962	96.84434191	91.98946554	87.41534203	83.10424649
180904A00004	9/4/2018	2.89	9/5/2023	9/4/2018	104.14039	102.9939192	101.87266	100.7757863	99.70250863	98.65207133	97.62375071	96.61685338	95.63071469
190708A00011	7/8/2019	2.2	7/8/2024	7/8/2019	105.81058	103.8166724	101.8704642	99.97052041	98.11546013	96.30395286	94.53471649	92.80651517	91.11815733
190815A00007	8/15/2019	1.81	7/6/2023	8/15/2019	102.36999	101.408064	100.4641479	99.53773594	98.62834469	97.73550841	96.85877821	95.99772132	95.15192034
200130A00025	1/30/2020	1.54	1/30/2023	1/30/2020	101.26817	100.7500904	100.237295	99.72970163	99.22723143	98.72980723	98.23735338	97.74979573	97.26706159
200605A00007	6/5/2020	0.52	6/5/2023	6/5/2020	101.13969	100.269474	99.41413812	98.57329977	97.74659306	96.93366431	96.13417154	95.34778402	94.57418179
210201A00004	2/3/2021	1.15	2/3/2025	2/3/2021	104.9599	102.3911828	99.89838682	97.47882268	95.12991505	92.84919567	90.63429811	88.48295287	86.39298279
140911A00027	9/11/2014	3.18	9/16/2024	9/11/2014	108.56225	106.343242	104.1810806	102.0739031	100.0199267	98.01744076	96.06480351	94.1604384	92.3028311
170602A00026	6/2/2017	2.25	6/3/2024	6/2/2017	105.85806	103.9562458	102.0979392	100.2818953	98.50690806	96.77181342	95.07548777	93.4168461	91.79484051
180730A00081	7/30/2018	3.5	7/28/2028	7/30/2018	127.21431	120.4252975	114.0501831	108.0614573	102.4335804	97.14283122	92.1671688	87.48610489	83.08058678
190122A00008	1/22/2019	2.98	1/20/2023	1/22/2019	101.88018	101.3887078	100.9019799	100.4199281	99.94248511	99.46958497	99.00116294	98.53715555	98.07750049
190326A00002	3/26/2019	2.56	9/26/2022	3/26/2019	100.65627	100.4916606	100.3275902	100.1640581	100.0010617	99.83859834	99.67666541	99.51526037	99.35438063
190523A00018	5/23/2019	2.51	3/15/2024	5/23/2019	105.35412	103.6865442	102.0536585	100.4544511	98.88794572	97.3532039	95.84932292	94.37543415	92.93070141
190930A00069	9/30/2019	1.9	9/29/2023	9/30/2019	103.09596	101.8894045	100.7109465	99.55961661	98.43448714	97.33467202	96.25932479	95.20763634	94.17883287
200224A00019	2/24/2020	1.59	2/18/2025	2/24/2020	106.20812	103.5805242	101.031371	98.55784664	96.15725654	93.82702014	91.56466512	89.36782214	87.23421981

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200803A00011	8/3/2020	0.72	8/4/2025	8/3/2020	104.75956	101.6817085	98.70970697	95.83933273	93.06655565	90.3875292	87.79858095	85.29620366	82.87704674
200922A00023	9/24/2020	2.5	9/26/2022	9/24/2020	100.64642	100.481821	100.3177631	100.1542434	99.99125941	99.82880839	99.66688779	99.50549503	99.34462755
210527A00008	5/27/2021	0.32	5/30/2023	5/27/2021	100.95171	100.099149	99.26088302	98.43655095	97.62580812	96.82832113	96.04376744	95.27183485	94.51222117
220429A00002	4/29/2022	3.63	4/29/2032	4/29/2022	143.29166	131.5744819	120.9456546	111.2972469	102.5326058	94.56511814	87.31711786	80.7189175	74.70794908
171206A00010	12/6/2017	2.45	12/6/2022	12/6/2017	101.26816	100.9041555	100.5427677	100.1839709	99.82773716	99.47403915	99.12284978	98.77414235	98.42789057
180914A00028	9/14/2018	3.37	9/12/2025	9/14/2018	113.45408	110.130667	106.9232987	103.8272302	100.8379447	97.95113761	95.16270554	92.46873522	89.8654935
190805A00049	8/5/2019	1.88	8/4/2023	8/5/2019	102.63144	101.5865486	100.5628426	99.55968618	98.57646544	97.6125907	96.66749535	95.74063472	94.831485
210414A00001	4/14/2021	0.7	5/16/2024	4/14/2021	102.60069	100.7848594	99.00973369	97.27410663	95.57681875	93.9167542	92.29283878	90.70403796	89.14935505
110825A00016	8/25/2011	3.06	8/31/2022	8/25/2011	100.43466	100.3426724	100.2508544	100.1592074	100.0677308	99.97642417	99.88528709	99.79431907	99.70351961
160628A00039	6/28/2016	2.01	6/29/2026	6/28/2016	112.26065	108.0998859	104.1164473	100.3018619	96.64810557	93.14757724	89.79307457	86.57777075	83.49519296
170317A00059	3/17/2017	2.47	3/17/2023	3/17/2017	102.14529	101.4952238	100.8534293	100.2197452	99.59401813	98.97609888	98.36584179	97.76310483	97.1677495
170622A00039	6/22/2017	3.36	6/22/2035	6/22/2017	149.73192	134.0354946	120.2048802	108.0054707	97.23339555	87.71134605	79.28499055	71.81988886	65.1988347
190514A00024	5/14/2019	2.34	5/14/2024	5/14/2019	105.83971	103.9945999	102.1907165	100.426834	98.70177021	97.01438811	95.36359365	93.74833381	92.16759464
190926A00006	9/26/2019	1.7	9/26/2022	9/26/2019	100.52639	100.3618267	100.1978018	100.0343166	99.87136827	99.70895428	99.54707197	99.38571875	99.22489203
211222A00021	12/22/2021	1.06	1/16/2024	12/22/2021	102.62648	101.1450979	99.69249667	98.26791106	96.87060233	95.49985716	94.15498659	92.83532494	91.54022887
100809A00029	8/9/2010	4.23	8/15/2025	8/9/2010	115.79583	112.515973	109.3482022	106.2880353	103.331198	100.4736119	97.71138445	95.04079911	92.45830644
150601A00515	6/1/2015	2.95	1/16/2024	6/1/2015	105.57937	104.0718809	102.5936891	101.1440091	99.72208757	98.32719709	96.95863525	95.61572348	94.29780604
160624A00011	6/24/2016	1.83	6/26/2023	6/24/2016	102.3226	101.3890382	100.4724444	99.57235631	98.68833139	97.81994272	96.96677841	96.12844093	95.30454646
170120A00009	1/20/2017	3.67	1/22/2035	1/20/2017	152.72368	137.3187843	123.6861867	111.6095968	100.9002794	91.39341201	82.94494099	75.42886496	68.73488603
180529A00044	5/29/2018	3.11	5/29/2024	5/29/2018	107.17578	105.2796613	103.4265139	101.6151133	99.84427827	98.11286842	96.41978247	94.76395667	93.14436332
181005A00005	10/5/2018	3.31	10/5/2023	10/5/2018	104.84809	103.6131749	102.4073525	101.2296024	100.0789522	98.95447368	97.85528072	96.78052681	95.72940288
191003A00020	10/3/2019	1.72	10/3/2022	10/3/2019	100.57231	100.3882919	100.2049461	100.0222734	99.84027016	99.65893265	99.47825723	99.29824028	99.11887817
191101A00002	11/1/2019	1.85	11/1/2022	11/1/2019	100.81447	100.5491759	100.2852782	100.0227649	99.76162519	99.50184834	99.24342369	98.9863407	98.73058896
191206A00008	12/6/2019	2.44	12/6/2030	12/6/2019	127.45291	118.0306875	109.3829763	101.4419287	94.14596871	87.43918206	81.27076917	75.5945541	70.36854256
200127A00023	1/27/2020	1.8	1/27/2025	1/27/2020	106.58129	104.0113195	101.5167171	99.09483032	96.74312115	94.45915622	92.24060169	90.08521857	87.99085819
160119A00027	1/19/2016	3.25	1/18/2030	1/19/2016	131.3056	122.717969	114.7654802	107.3975918	100.5680392	94.23445126	88.35800377	82.90310545	77.83711336
180829A00008	8/29/2018	3.23	8/30/2027	8/29/2018	122.63371	116.9617433	111.5903732	106.5020219	101.6802367	97.10960986	92.77570615	88.66499631	84.76479526
181211A00031	12/11/2018	2.95	12/11/2023	12/11/2018	105.24912	103.8449988	102.4664748	101.1129033	99.78366472	98.47815938	97.19580696	95.93604556	94.69833106
200106A00015	1/6/2020	1.87	2/15/2024	1/6/2020	104.04597	102.4719081	100.9296169	99.41820771	97.93682495	96.48464412	95.06087049	93.66473779	92.29550685
200305A00007	3/5/2020	1.14	3/5/2025	3/5/2020	105.12348	102.467181	99.89123024	97.39270228	94.96879916	92.61684331	90.33427149	88.11862902	85.9675644
200818A00007	8/18/2020	1.31	8/20/2029	8/18/2020	115.42444	107.8625994	100.8428065	94.32349212	88.2664744	82.63666895	77.40182274	72.53227196	68.0007218
081209A00008	12/9/2008	4.87	12/15/2023	12/9/2008	107.82378	106.3920178	104.9864812	103.6065103	102.2514657	100.920729	99.61370164	98.32980437	97.06847635
190603A00002	6/3/2019	2.03	6/2/2023	6/3/2019	102.42847	101.560587	100.7073635	99.86843055	99.0434316	98.23202166	97.4338671	96.64864515	95.87604342

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190814A00015	8/14/2019	1.84	8/14/2024	8/14/2019	105.38149	103.2884418	101.2476354	99.25742715	97.31623333	95.42253151	93.5748577	91.77180361	90.01201412
190826A00029	8/26/2019	1.53	8/26/2024	8/26/2019	105.09614	102.9678174	100.8932744	98.87079161	96.89871474	94.97545488	93.09948523	91.26933819	89.48360254
200131A00047	1/31/2020	1.68	1/31/2023	1/31/2020	101.31067	100.7901022	100.2748699	99.76488818	99.26007716	98.76035858	98.26565573	97.77589342	97.29099798
200303A00012	3/3/2020	1.71	3/1/2030	3/3/2020	119.49224	111.2204255	103.5781068	96.51412799	89.98174317	83.93821259	78.34443974	73.16464346	68.36606091
200309A00027	3/9/2020	0.97	3/10/2025	3/9/2020	104.70114	102.035823	99.45150864	96.94523034	94.51415386	92.1555677	89.86687681	87.64559675	85.48934807
200720A00012	7/20/2020	0.77	7/15/2025	7/20/2020	104.812	101.7894056	98.86904317	96.04690158	93.31915266	90.68213939	88.13236711	85.66649545	83.28133051
201030A00004	11/2/2020	2.56	10/29/2040	11/2/2020	146.83046	125.6110466	107.8377751	92.92483748	80.38913342	69.83179166	60.92309737	53.39018035	47.00694735
120907A00023	9/7/2012	2.05	9/15/2022	9/7/2012	100.4815	100.3476452	100.2141605	100.0810468	99.94830259	99.81592624	99.68391618	99.55227084	99.42098868
130424A00005	4/24/2013	3.07	4/24/2030	4/24/2013	132.14717	123.1704214	114.8801445	107.2199289	100.1382943	93.58823531	87.52680939	81.91476476	76.71620463
160524A00027	5/24/2016	3.06	5/27/2031	5/24/2016	134.49136	124.2382023	114.8637902	106.2877816	98.43757243	91.24752005	84.65824293	78.6159946	73.07210275
160610A00009	6/10/2016	1.89	6/12/2023	6/10/2016	102.2869	101.3927971	100.5142785	99.65093724	98.80238236	97.96823635	97.14813445	96.34172413	95.54866456
191115A00028	11/15/2019	2.34	9/28/2029	11/15/2019	123.32845	115.3728061	107.9889244	101.1326367	94.76341324	88.84404322	83.34034637	78.22091079	73.45685496
210901A00012	9/1/2021	0.51	9/1/2023	9/1/2021	101.32143	100.2050967	99.11314121	98.04477477	96.99924056	95.97581382	94.97380015	93.99253394	93.03137691
170224A00020	2/24/2017	3.08	2/24/2027	2/24/2017	118.91475	113.9222611	109.1710741	104.6482158	100.3414782	96.23937222	92.33108175	88.6064202	85.0557905
171026A00008	10/26/2017	2.6	10/25/2024	10/26/2017	107.68894	105.3687754	103.1103914	100.9116762	98.77060872	96.68525462	94.65376128	92.67435381	90.74533094
181001A00074	10/1/2018	3.03	10/3/2022	10/1/2018	100.82569	100.6411868	100.4573615	100.2742125	100.091736	99.90992816	99.72878543	99.54830409	99.36848051
181107A00008	11/7/2018	3.42	11/7/2023	11/7/2018	105.37055	104.0454594	102.7504672	101.4845446	100.2467114	99.03603152	97.85161056	96.6925933	95.55816166
190507A00027	5/7/2019	2.59	5/7/2024	5/7/2019	105.98533	104.1631148	102.3812232	100.6384233	98.93353761	97.26543552	95.63303082	94.03527958	92.47117808
190812A00006	8/12/2019	1.86	8/12/2024	8/12/2019	105.40789	103.3200476	101.284227	99.2987955	97.36217967	95.47286659	93.62940129	91.83038398	90.0744676
190905A00002	9/5/2019	1.78	9/6/2022	9/5/2019	100.3599	100.2513411	100.1430325	100.0349694	99.92715087	99.81957614	99.71224433	99.60515458	99.49830605
200317A00065	3/19/2020	2.05	3/19/2025	3/19/2020	107.67818	104.946083	102.2973456	99.72889592	97.237798	94.82124423	92.47654872	90.20114113	87.99256076
200420A00047	4/20/2020	0.77	4/20/2023	4/20/2020	101.11824	100.3776468	99.6478532	98.92862072	98.21972139	97.52093379	96.83204282	96.1528394	95.48312035
200429A00056	5/1/2020	1.54	4/30/2025	5/1/2020	106.60314	103.7673991	101.0213356	98.36151903	95.78467729	93.28768752	90.86756821	88.5214715	86.24667605
120824A00023	8/24/2012	2.4	8/30/2022	8/24/2012	100.35588	100.2668316	100.1779414	100.0892089	100.0006337	99.9122154	99.82395354	99.73584775	99.64789763
180216A00004	2/16/2018	2.75	2/16/2023	2/16/2018	102.05167	101.483454	100.9215633	100.3658966	99.81635062	99.27282452	98.73521961	98.20343936	97.67738932
180313A00026	3/13/2018	3.34	3/13/2028	3/13/2018	124.67174	118.3776831	112.44644	106.8550967	101.5823078	96.60818208	91.91417531	87.48299205	83.29849482
190724A00023	7/24/2019	2.13	7/24/2025	7/24/2019	109.44461	106.3159834	103.2936273	100.3733472	97.55113487	94.82316256	92.18577435	89.63547712	87.16893238
200207A00017	2/7/2020	1.96	2/8/2027	2/7/2020	113.47244	108.6527684	104.0658272	99.6991523	95.54101685	91.58038044	87.806845	84.21061398	80.78245438
200922A00029	9/24/2020	2.73	9/25/2023	9/24/2020	104.04352	102.8423746	101.6689072	100.5221714	99.40126131	98.30531168	97.23349551	96.18502199	95.15913452
210212A00014	2/17/2021	1.38	2/17/2026	2/17/2021	108.18906	104.502044	100.9600291	97.55652708	94.28537574	91.14072223	88.11700581	85.20894149	82.41150468
191025A00005	10/28/2019	1.98	10/28/2024	10/28/2019	106.29171	103.9792145	101.7285733	99.53766028	97.40444447	95.3269821	93.30341213	91.33195185	89.41089283
200506A00002	5/8/2020	0.97	5/5/2025	5/8/2020	105.02199	102.1944483	99.45685885	96.8057908	94.23796863	91.75026472	89.33969149	87.00339398	84.73864288
150601A00667	6/1/2015	3.88	1/16/2036	6/1/2015	157.79719	140.9293281	126.1283013	113.1255622	101.6889305	91.61749453	82.73724944	74.89736382	67.96698067

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170111A00012	1/11/2017	3.31	1/11/2030	1/11/2017	131.70397	123.1228377	115.1745346	107.808836	100.9797576	94.64517489	88.76648055	83.30827397	78.2380796
190829A00029	8/29/2019	1.75	7/14/2023	8/29/2019	102.35533	101.3711135	100.4057485	99.45869882	98.52944691	97.61749466	96.72236238	95.84358795	94.98072609
190919A00007	9/19/2019	2.04	9/19/2024	9/19/2019	106.09695	103.8970102	101.7537207	99.66521934	97.62972206	95.64551742	93.71096307	91.82448229	89.98456084
191007A00020	10/7/2019	1.69	10/7/2022	10/7/2019	100.59586	100.4006386	100.2061885	100.0125002	99.81956919	99.62739095	99.43596106	99.24527511	99.05532874
160815A00007	8/15/2016	2.23	8/17/2026	8/15/2016	113.0693	108.7651599	104.6495314	100.7131421	96.94722864	93.34350445	89.89413111	86.59169155	83.42916502
170630A00027	6/30/2017	2.35	6/28/2024	6/30/2017	106.27769	104.3026193	102.374214	100.4910858	98.65189989	96.85536975	95.10025501	93.38535953	91.70952947
200227A00022	2/27/2020	1.41	2/27/2023	2/27/2020	101.30593	100.710022	100.121092	99.5390207	98.96368895	98.39498036	97.8327812	97.27698032	96.72746908
200228A00039	2/28/2020	1.33	4/28/2023	2/28/2020	101.57416	100.8093028	100.0559073	99.31371753	98.5824852	97.86196927	97.1519357	96.45215723	95.76241313
210125A00006	1/27/2021	2.16	1/26/2027	1/27/2021	114.28874	109.4886338	104.9185072	100.5661396	96.42002093	92.46930999	88.70379146	85.11383663	81.69036664
210212A00008	2/12/2021	0.95	10/13/2026	2/12/2021	108.05603	103.6942577	99.53089938	95.55584218	91.75955254	88.1330357	84.66780188	81.35583468	78.18956177
130712A00005	7/12/2013	3.25	7/17/2023	7/12/2013	103.96187	102.9590736	101.9756265	101.010969	100.0645661	99.1359026	98.22448281	97.32982924	96.45148195
170215A00043	2/15/2017	2.7	8/28/2024	2/15/2017	107.32107	105.168619	103.0704325	101.0247723	99.02996992	97.08442278	95.18659091	93.33499411	91.52820908
171016A00021	10/16/2017	2.2	10/17/2022	10/16/2017	100.77986	100.5564857	100.3341114	100.1127313	99.8923388	99.67292724	99.45449002	99.23702063	99.02051258
190327A00006	3/27/2019	2.53	3/27/2024	3/27/2019	105.50792	103.8037324	102.1354928	100.5021262	98.90260338	97.33593611	95.80117446	94.29740519	92.82374991
190627A00010	6/27/2019	1.97	6/27/2024	6/27/2019	105.52427	103.5595155	101.6411515	99.76780313	97.93814494	96.1508992	94.40483399	92.69876123	91.03153478
191021A00034	10/22/2019	1.9	10/17/2022	10/22/2019	100.71305	100.489777	100.2675074	100.0462318	99.82594337	99.60663551	99.38830165	99.17093524	98.95452982
200430A00017	4/30/2020	0.94	4/30/2025	4/30/2020	104.90846	102.0966628	99.3739728	96.73697428	94.18241281	91.70718271	89.30831888	86.98298922	84.72848757
190806A00026	8/6/2019	1.71	8/7/2023	8/6/2019	102.59256	101.537692	100.504417	99.49207945	98.50004793	97.52771626	96.57450219	95.63984619	94.7232104
190917A00028	9/17/2019	2.02	3/1/2023	9/17/2019	101.68233	101.0795514	100.4838909	99.89522754	99.31343865	98.73840445	98.17000793	97.60813474	97.05267317
211222A00029	12/22/2021	1.26	10/15/2024	12/22/2021	104.55008	102.2946693	100.0989187	97.96080541	95.87839588	93.84983819	91.87335793	89.94725415	88.06989567
160926A00004	9/26/2016	1.66	9/26/2023	9/26/2016	102.91868	101.7197463	100.5485872	99.40424839	98.28581724	97.1924222	96.12323038	95.07744545	94.05430567
170804A00020	8/4/2017	2.13	8/1/2022	8/4/2017	100.03071	100.0223813	100.014056	100.0057383	99.99742816	99.9891256	99.9808306	99.97254315	99.96426323
181227A00019	12/28/2020	3.1	12/29/2025	12/28/2020	113.88237	110.2373672	106.7298064	103.3537719	100.1036372	96.9740468	93.95990189	91.05634643	88.25875432
190820A00013	8/20/2019	1.76	8/21/2023	8/20/2019	102.6316	101.5386057	100.4687836	99.42140542	98.39577062	97.39120766	96.40707236	95.4427466	94.49763693
191009A00027	10/9/2019	1.74	10/6/2023	10/9/2019	102.95795	101.7323464	100.5357684	99.36719667	98.22565716	97.11022056	96.01999969	94.95414717	93.91185321
191126A00023	11/26/2019	1.81	5/27/2025	11/26/2019	107.9765	105.0349918	102.1885726	99.43366434	96.76684343	94.1848336	91.68449846	89.26283477	86.91696601
200214A00015	2/18/2020	1.76	8/6/2024	2/18/2020	105.15476	103.0860483	101.0686333	99.10091601	97.18135483	95.30846727	93.48082702	91.69706145	89.95584916
200303A00002	3/3/2020	1.06	3/3/2023	3/3/2020	101.17033	100.5630093	99.96295345	99.37002984	98.78411199	98.20507634	97.63280224	97.06717184	96.50806999
160307A00027	3/7/2016	2.71	3/6/2026	3/7/2016	113.25116	109.4219104	105.7438742	102.2102245	98.81448744	95.55051827	92.41248205	89.39483626	86.49231432
180730A00023	7/30/2018	3.13	7/30/2024	7/30/2018	108.18555	106.099144	104.0641122	102.0788594	100.1418529	98.25161805	96.40673592	94.60584036	92.84761583
200204A00012	2/4/2020	1.98	2/4/2027	2/4/2020	113.53067	108.7214743	104.1440195	99.78592316	95.63553027	91.68186645	87.91459448	84.32397386	80.90082322
181114A00014	11/14/2018	3.17	11/14/2023	11/14/2018	105.26298	103.9224956	102.6103545	101.3256596	100.067554	98.83521669	97.62786059	96.44473098	95.2851037
190327A00013	3/27/2019	2.53	3/27/2024	3/27/2019	105.50792	103.8037324	102.1354928	100.5021262	98.90260338	97.33593611	95.80117446	94.29740519	92.82374991

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190701A00008	7/3/2019	2.1	7/3/2023	7/3/2019	102.62407	101.6692911	100.7322178	99.81236101	98.90924968	98.02242977	97.15146353	96.29592876	95.45541813
190717A00007	7/17/2019	2.18	10/14/2022	7/17/2019	100.7496	100.5346486	100.3206214	100.1075172	99.89532994	99.68405364	99.47368239	99.26421034	99.05563168
200615A00019	6/17/2020	1.34	6/16/2025	6/17/2020	106.35233	103.3879102	100.5209971	97.74787039	95.06497263	92.46890081	89.95639886	87.52435044	85.16977218
200709A00014	7/13/2020	0.57	1/20/2023	7/13/2020	100.70497	100.2168717	99.73349206	99.25476512	98.78062389	98.31100268	97.84583702	97.3850637	96.92862067
200720A00035	7/20/2020	1.81	7/20/2035	7/20/2020	128.67126	114.2243124	101.547287	90.41340487	80.62601109	72.01443874	64.43046094	57.74524224	51.84671699
220106A00019	1/10/2022	3.17	1/7/2033	1/10/2022	140.67468	128.2930871	117.1392987	107.084011	98.01219255	89.82144164	82.42054117	75.72818459	69.67185297
190813A00008	8/13/2019	1.88	8/13/2024	8/13/2019	105.45737	103.3662571	101.3272899	99.33882936	97.39929633	95.50717286	93.6609991	91.85937071	90.10093627
190830A00012	8/30/2019	1.76	8/30/2024	8/30/2019	105.33314	103.1967343	101.1143906	99.08437263	97.10501343	95.17471191	93.29192988	91.45518894	89.66306773
191216A00042	12/16/2019	1.95	12/16/2022	12/16/2019	101.15106	100.7593861	100.3707543	99.98512489	99.60246321	99.22273495	98.84590638	98.47194431	98.10081601
200129A00018	2/3/2020	1.74	12/15/2022	2/3/2020	101.06335	100.6746761	100.2890005	99.90628429	99.52649333	99.14959413	98.77555365	98.40433936	98.03591924
200221A00031	2/21/2020	1.69	2/21/2025	2/21/2020	106.49384	103.853929	101.2929873	98.80817032	96.39675908	94.0561498	91.78384837	89.5774649	87.43470858
200417A00009	4/17/2020	1.35	4/16/2027	4/17/2020	111.085	106.1227914	101.4093314	96.93081575	92.67428196	88.62755608	84.77920002	81.11846267	77.63523456
211015A00028	10/15/2021	0.73	10/16/2023	10/15/2021	101.7813	100.5349924	99.31894243	98.13205754	96.97329952	95.84167889	94.73625205	93.65611871	92.60041939
120411A00013	4/11/2012	3.59	4/15/2027	4/11/2012	122.00592	116.7870582	111.8260514	107.10869	102.6216351	98.35235494	94.28907183	90.42071165	86.73685781
160830A00061	8/30/2018	1.89	8/30/2023	8/30/2018	102.84186	101.7221599	100.6267229	99.55477147	98.50555692	97.47836211	96.47249979	95.48731102	94.52216373
180918A00013	9/18/2018	3.11	9/16/2022	9/18/2018	100.62593	100.4892116	100.3528823	100.2169375	100.0813757	99.94619524	99.81139442	99.67697162	99.54292524
181109A00027	11/13/2018	3.48	4/15/2024	11/13/2018	107.33178	105.5587566	103.8239296	102.1261314	100.4642405	98.83718105	97.24392058	95.68346764	94.15486981
190625A00017	6/25/2019	2.02	12/15/2022	6/25/2019	101.17177	100.7828385	100.3969067	100.0139357	99.63389138	99.25674027	98.8824493	98.51098592	98.14231809
190925A00019	9/27/2019	1.93	9/27/2023	9/27/2019	103.11535	101.9143525	100.7412012	99.59493479	98.47463782	97.37943574	96.30849296	95.26101057	94.23622441
200108A00021	1/13/2020	1.97	1/13/2025	1/13/2020	106.90285	104.3674845	101.9053589	99.5139352	97.19078275	94.93356942	92.74005697	90.60809671	88.5356253
200922A00037	9/24/2020	2.76	9/23/2025	9/24/2020	111.61531	108.2900222	105.0819692	101.9863202	98.99847206	96.11404063	93.32884846	90.63891367	88.04043942
210429A00005	4/29/2021	2.08	4/29/2031	4/29/2021	125.21664	115.4538193	106.5306018	98.37022136	90.9033158	84.06717561	77.80507308	72.06566256	66.80244385
190501A00017	5/1/2019	2.61	5/1/2024	5/1/2019	105.96235	104.1574103	102.3921293	100.6652815	98.97568812	97.32221868	95.7037888	94.11935769	92.56792593
190626A00015	6/26/2019	2.15	6/26/2024	6/26/2019	105.60839	103.6503614	101.7384234	99.87121004	98.04740815	96.26575193	94.52502072	92.82403716	91.16166531
190809A00001	8/9/2019	1.88	8/9/2022	8/9/2019	100.10679	100.0762139	100.0456751	100.0151711	99.98470178	99.95426716	99.92386714	99.89350169	99.86317071
190816A00016	8/16/2019	2.2	8/16/2029	8/16/2019	121.96885	114.1881471	106.9596713	100.2413073	93.99436334	88.18327416	82.77533284	77.74044728	73.05091855
190926A00016	9/26/2019	2.28	5/24/2030	9/26/2019	124.65592	115.9329845	107.8876074	100.4635723	93.60959909	87.27888703	81.42870252	76.02000683	71.01711946
191004A00003	10/4/2019	1.89	10/5/2026	10/4/2019	112.07007	107.6463829	103.4219258	99.3866276	95.53098189	91.84601591	88.32325711	84.95470218	81.73278817
191017A00026	10/17/2019	2.3	7/17/2029	10/17/2019	122.47939	114.7699159	107.6015308	100.9334099	94.72800618	88.95077464	83.56991753	78.55615305	73.88250422
200115A00018	1/15/2020	1.9	1/16/2024	1/15/2020	103.88438	102.3931667	100.9309035	99.49682445	98.09018613	96.71027077	95.35638511	94.02785932	92.72404608
220726A00060	7/26/2022	3.32	7/26/2024	7/26/2022	108.25126	106.1808059	104.160986	102.1902449	100.2670818	98.39005255	96.55776661	94.76888511	93.02211831
050902A00032	9/2/2005	4.69	8/22/2025	9/2/2005	117.79272	114.4509562	111.2238797	108.1068806	105.0955615	102.1857282	99.37337869	96.65469365	94.02602637
180724A00075	7/24/2018	2.98	7/24/2023	7/24/2018	103.76781	102.7461916	101.7446708	100.7626562	99.79958187	98.85490347	97.92809745	97.01865995	96.1261059

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190809A00015	8/9/2019	1.88	8/9/2022	8/9/2019	100.10679	100.0762139	100.0456751	100.0151711	99.98470178	99.95426716	99.92386714	99.89350169	99.86317071
200922A00043	9/24/2020	2.4	9/25/2023	9/24/2020	103.6539	102.4552006	101.2841449	100.1397825	99.02120853	97.92755878	96.85800714	95.81176373	94.7880728
210624A00022	6/24/2021	0.87	6/24/2025	6/24/2021	105.39934	102.4178017	99.53532334	96.74809209	94.05246165	91.4449456	88.92220946	86.48106319	84.11845412
150220A00022	2/20/2015	2.8	2/20/2025	2/20/2015	109.40378	106.7282954	104.1325142	101.6135715	99.16872897	96.79536449	94.49096604	92.25312639	90.07953793
170908A00017	9/9/2019	2.32	9/9/2024	9/9/2019	106.62021	104.4421251	102.3195914	100.2508035	98.23403079	96.26761187	94.34995164	92.47951785	90.65483817
180629A00071	6/29/2018	3.02	6/29/2023	6/29/2018	103.45366	102.5059544	101.5755891	100.6620892	99.76499927	98.88388003	98.01830786	97.16787395	96.33218375
181016A00087	10/16/2018	3.31	10/16/2023	10/16/2018	104.9793	103.7119393	102.4751834	101.2679366	100.0891511	98.93782839	97.81301596	96.71380507	95.63932807
200604A00009	6/4/2020	0.7	6/4/2025	6/4/2020	104.79093	101.8734969	99.05139299	96.32101305	93.67890534	91.12176667	88.64643516	86.24988345	83.92921223
200814A00011	8/18/2020	1.58	8/16/2030	8/18/2020	119.34341	110.5827567	102.5259119	95.11272939	88.28849463	82.00340626	76.21211156	70.87328825	65.94926752
210527A00019	5/27/2021	1	5/27/2026	5/27/2021	107.95905	103.9765445	100.1611035	96.50488574	93.00045532	89.64076148	86.41911678	83.3291764	80.36491886
211222A00012	12/22/2021	0.88	7/17/2023	12/22/2021	101.52802	100.5396268	99.57035397	98.61965156	97.68699015	96.77186029	95.87377153	94.99225158	94.12684545
170427A00046	4/27/2017	3.1	4/27/2028	4/27/2017	123.75213	117.3464398	111.3176169	105.641383	100.2951599	95.25793945	90.51016536	86.03362458	81.81134766
180130A00084	1/30/2018	2.59	1/30/2023	1/30/2018	101.8096	101.2898957	100.7754897	100.2662976	99.7622403	99.26324056	98.76922255	98.280112	97.79583608
181203A00053	12/4/2018	3.23	12/1/2023	12/4/2018	105.35481	103.9810358	102.6318121	101.306533	100.0046151	98.7254937	97.46862186	96.23346955	95.01952318
190530A00045	5/30/2019	2.44	5/30/2024	5/30/2019	105.9292	104.0423042	102.198272	100.3958801	98.63394877	96.91133892	95.22695066	93.57972159	91.96862535
191121A00034	11/21/2019	2.28	11/2/2029	11/21/2019	123.14515	115.0901532	107.6212473	100.6926304	94.26231449	88.29178883	82.74571417	77.59164548	72.79978036
200225A00017	2/25/2020	1.94	2/25/2030	2/25/2020	121.29472	112.9668887	105.2705104	98.1543972	91.57176389	85.47982645	79.83944064	74.61477492	69.77301423
200306A00046	3/6/2020	1.01	3/3/2025	3/6/2020	104.76443	102.1188	99.55309774	97.06441618	94.64997664	92.30711977	90.03329951	87.8260774	85.68311727
200326A00029	3/26/2020	1.82	3/26/2027	3/26/2020	113.15972	108.2104301	103.5058911	99.03268415	94.77820161	90.73059311	86.87871553	83.21208669	79.72084237
200611A00011	6/11/2020	1.2	6/9/2028	6/11/2020	112.6078	106.3990115	100.5676676	95.08897812	89.93990354	85.0990189	80.54639294	76.26347695	72.23300241
200722A00012	7/22/2020	0.41	7/21/2023	7/22/2020	101.1759	100.1767511	99.19717702	98.2366091	97.294499	96.37031926	95.46356237	94.57373976	93.700381
210209A00029	2/12/2021	0.8	12/15/2025	2/12/2021	105.71413	102.2511188	98.91864033	95.71111569	92.62323069	89.64992495	86.7863784	84.02799864	81.37040889
111024A00022	10/24/2011	3.11	10/30/2023	10/24/2011	105.03231	103.723033	102.4460037	101.2000392	99.98401378	98.79685598	97.63754481	96.505107	95.39861421
150601A00916	6/1/2015	7.27	4/5/2030	6/1/2015	163.65366	153.5855703	144.2550888	135.6031907	127.5759128	120.1238895	113.2019372	106.7686771	100.786195
180103A00027	1/3/2018	2.51	1/3/2023	1/3/2018	101.51337	101.0705053	100.6314991	100.1963039	99.76487018	99.33714936	98.9130936	98.49265588	98.07579001
180814A00010	8/14/2018	3.1	8/14/2025	8/14/2018	112.67904	109.440404	106.3130085	103.29239	100.374295	97.5546655	94.82962863	92.19548719	89.64871041
180912A00011	9/12/2018	3.41	9/11/2026	9/12/2018	118.32717	113.841919	109.554446	105.4549217	101.5340629	97.78309873	94.19373857	90.75814335	87.46889812
190326A00004	3/26/2019	2.58	9/26/2023	3/26/2019	103.87643	102.6734762	101.4983188	100.349999	99.22760549	98.13026751	97.05715307	96.00746663	94.98044713
190618A00002	6/18/2019	2.11	6/18/2025	6/18/2019	109.04855	106.0294784	103.1097504	100.2855684	97.55330033	94.90947245	92.35076144	89.87398705	87.47610512
191008A00031	10/8/2019	1.52	10/8/2024	10/8/2019	105.38717	103.1361115	100.9442336	98.80954587	96.73014264	94.70419804	92.72996199	90.80575633	88.92997117
200109A00014	1/14/2020	1.93	8/15/2022	1/14/2020	100.16741	100.120149	100.0729497	100.025812	99.97873584	99.93172103	99.88476747	99.83787505	99.79104364
150319A00013	3/19/2015	3.25	3/19/2030	3/19/2015	131.93407	123.1334199	114.9961086	107.4683598	100.5010335	94.04920408	88.07177755	82.53114558	77.39287267
150824A00040	8/24/2015	2.36	8/24/2022	8/24/2015	100.28716	100.2148326	100.1426167	100.0705131	99.99852144	99.92664155	99.85487315	99.78321601	99.71166987

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160113A00030	1/13/2016	2.52	1/13/2025	1/13/2016	108.62924	106.0648093	103.5744512	101.1555978	98.80578847	96.52266232	94.30395379	92.1474881	90.05117699
170914A00039	9/14/2017	2.23	9/16/2024	9/14/2017	106.77886	104.5739289	102.4256826	100.332266	98.29189696	96.30286578	94.36353164	92.47231919	90.62771528
190211A00002	2/11/2019	2.88	2/12/2024	2/11/2019	105.62857	104.0494726	102.5021292	100.9856563	99.49920238	98.04194696	96.61309898	95.21189554	93.83760059
190328A00003	3/28/2019	2.64	9/30/2024	3/28/2019	107.52272	105.2762553	103.0881354	100.9564226	98.87925947	96.85486528	94.88153228	92.95762193	91.08156149
200302A00028	3/2/2020	1.25	2/26/2024	3/2/2020	103.12827	101.5319156	99.96814338	98.43602979	96.93468269	95.46324315	94.02088386	92.60680767	91.22024623
200303A00018	3/3/2020	1.27	3/3/2025	3/3/2020	105.45597	102.8011148	100.2263935	97.72889902	95.30584616	92.95456945	90.6725169	88.45724436	86.30641014
200511A00018	5/11/2020	0.98	2/2/2026	5/11/2020	106.63059	103.014584	99.53978665	96.19993555	92.98907808	89.90155736	86.93199586	84.07527997	81.32654551
210216A00007	2/16/2021	1.3	2/16/2029	2/16/2021	115.49054	108.4256296	101.8353032	95.68529591	89.94398337	84.58216735	79.5728778	74.89119192	70.51406877
150601A00405	6/1/2015	4.63	1/17/2034	6/1/2015	160.43097	145.774893	132.6682524	120.9361032	110.4242191	100.9965353	92.53292038	84.92723253	78.08562167
180205A00018	2/5/2018	2.66	2/3/2023	2/5/2018	101.88223	101.351072	100.8254458	100.3052675	99.79045271	99.28091875	98.77658458	98.27737082	97.78319972
210106A00007	1/8/2021	0.49	7/25/2023	1/8/2021	101.1581	100.1494505	99.16075301	98.1914203	97.2408885	96.30861546	95.39407969	94.49677937	93.61623146
220531A00020	5/31/2022	2.86	5/31/2024	5/31/2022	106.7278	104.8304516	102.976233	101.1639118	99.39229932	97.66024798	95.96664974	94.31043445	92.69056828
141028A00012	10/28/2014	2.73	10/28/2022	10/28/2014	101.00684	100.7524226	100.499278	100.2474013	99.99678305	99.74741379	99.4992843	99.25238538	99.00670794
180927A00015	9/27/2018	3.02	9/27/2022	9/27/2018	100.75517	100.5875208	100.4204342	100.2539042	100.0879281	99.92250305	99.75762645	99.59329553	99.42950759
190828A00015	8/28/2019	2.04	8/28/2029	8/28/2019	120.8696	113.0926335	105.8705871	99.16095466	92.92469516	87.12593554	81.73169813	76.71165278	72.03789147
200302A00008	3/2/2020	1.2	3/9/2023	3/2/2020	101.23012	100.6064992	99.99053961	99.38209837	98.78103842	98.18722602	97.60053064	97.02082488	96.44798437
200722A00010	7/22/2020	0.66	7/22/2024	7/22/2020	102.8134	100.8106557	98.85689617	96.95061431	95.09036403	93.27475328	91.50244168	89.77213819	88.08259896
200925A00003	9/25/2020	0.59	9/25/2024	9/25/2020	102.94251	100.7613768	98.63690268	96.56720887	94.55049754	92.58504477	90.66919678	88.80136649	86.98003021
210514A00033	5/18/2021	2.8	5/18/2028	5/18/2021	122.1638	115.7400801	109.6984085	104.0140342	98.66393316	93.6266818	88.88233821	84.41233191	80.19936266
170427A00047	4/27/2017	3.18	4/27/2029	4/27/2017	128.06483	120.4095502	113.2720782	106.6144691	100.4017646	94.60173912	89.18467163	84.12313765	79.39181967
180530A00030	5/30/2018	3.68	5/30/2034	5/30/2018	150.89074	136.3437502	123.3946265	111.8570478	101.5673942	92.38187788	84.17404598	76.83260914	70.25955145
180823A00013	8/23/2018	2.97	8/23/2023	8/23/2018	103.96304	102.8566182	101.7737241	100.7136118	99.67556742	98.65890705	97.6629746	96.68714059	95.73080084
200304A00010	3/4/2020	1.2	3/4/2027	3/4/2020	110.72031	105.8732534	101.2644886	96.88105731	92.71077398	88.7421776	84.96448475	81.36754567	77.94180354
190529A00011	5/29/2019	2.36	5/30/2023	5/29/2019	102.60194	101.742878	100.8981618	100.067432	99.25034355	98.44656264	97.65576626	96.87764181	96.11188661
190814A00009	8/14/2019	1.84	8/14/2024	8/14/2019	105.38149	103.2884418	101.2476354	99.25742715	97.31623333	95.42253151	93.5748577	91.77180361	90.01201412
190930A00071	9/30/2019	2.05	9/29/2025	9/30/2019	109.36733	106.0613896	102.8728085	99.79671498	96.82847677	93.96368292	91.19813181	88.52781962	85.94892964
210603A00015	6/7/2021	2.71	6/7/2028	6/7/2021	121.80704	115.3336957	109.2488229	103.5270917	98.14494442	93.080467	88.313266	83.82435603	79.59605581
180102A00020	1/2/2018	2.5	1/3/2023	1/2/2018	101.50897	101.0661148	100.62712	100.1919363	99.76051393	99.3328044	98.90875984	98.48833326	98.07147846
200429A00035	5/1/2020	1.41	4/30/2024	5/1/2020	103.80149	102.0193078	100.2763128	98.57128136	96.90304446	95.27048149	93.67251771	92.10812183	90.57630382
170915A00001	9/15/2017	2.43	9/16/2024	9/15/2017	106.92399	104.723162	102.5788011	100.4890626	98.45217414	96.46643535	94.53021408	92.64194319	90.80011737
171103A00017	11/3/2017	2.09	11/3/2022	11/3/2017	100.9144	100.6431041	100.3732719	100.1048909	99.83794931	99.57243553	99.30833807	99.0456456	98.78434687
181128A00031	11/28/2018	3.29	11/28/2023	11/28/2018	105.40342	104.0369448	102.6950948	101.3772495	100.0828135	98.81121068	97.56188352	96.33429224	95.1279142
190523A00017	5/23/2019	2.51	3/15/2024	5/23/2019	105.35412	103.6865442	102.0536585	100.4544511	98.88794572	97.3532039	95.84932292	94.37543415	92.93070141

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190820A00020	8/20/2019	1.76	8/20/2024	8/20/2019	105.25878	103.1505879	101.0952969	99.09122468	97.13675714	95.23034333	93.37049228	91.55577027	89.78479809
190923A00020	9/23/2019	2.05	9/24/2029	9/23/2019	122.28105	114.3269397	106.9462218	100.0945224	93.73113025	87.81867221	82.32282237	77.21203853	72.45732263
200227A00052	2/27/2020	1.41	2/27/2023	2/27/2020	101.30593	100.710022	100.121092	99.5390207	98.96368895	98.39498036	97.8327812	97.27698032	96.72746908
200403A00006	4/3/2020	1.05	4/3/2025	4/3/2020	105.06528	102.3255172	99.67066094	97.09753032	94.60309098	92.18444368	89.83881712	87.56356125	85.35614101
171205A00014	12/5/2017	2.49	12/5/2022	12/5/2017	101.27475	100.91352	100.554872	100.1987745	99.84520044	99.49412295	99.14551562	98.79935241	98.45560764
190213A00023	2/13/2019	2.93	2/13/2024	2/13/2019	105.70162	104.1194466	102.569114	101.0497351	99.56045501	98.10044988	96.66892545	95.26511577	93.88828192
190214A00008	2/14/2019	2.64	2/14/2023	2/14/2019	101.97157	101.4092285	100.8530892	100.3030515	99.75901509	99.22088208	98.68855655	98.1619447	97.64095473
190805A00048	8/5/2019	1.88	8/5/2022	8/5/2019	100.06795	100.0484994	100.0290658	100.0096523	99.99025865	99.97088498	99.9515312	99.93219727	99.91288318
200611A00013	6/11/2020	0.59	6/12/2023	6/11/2020	101.13388	100.2453586	99.37235445	98.5144607	97.67128785	96.8424597	96.02761276	95.22639573	94.43846901
150317A00013	3/17/2015	2.58	3/17/2025	3/17/2015	109.45643	106.6982097	104.0239894	101.4306817	98.91533092	96.47511051	94.10731631	91.8093604	89.57876514
170913A00003	9/13/2017	2.08	9/13/2022	9/13/2017	100.45663	100.3284789	100.2006714	100.0732047	99.94607741	99.81928824	99.69283577	99.56671862	99.44093542
180828A00032	8/28/2018	3.49	8/29/2033	8/28/2018	148.23728	134.6060087	122.3953133	111.4479187	101.6247866	92.80291269	84.87340022	77.73977488	71.31650798
180910A00028	9/10/2018	3.56	9/9/2033	9/10/2018	149.16417	135.4466902	123.1607514	112.1475919	102.2668898	93.39453579	85.42068185	78.2480336	71.79035534
190603A00003	6/3/2019	2.05	6/3/2024	6/3/2019	105.47994	103.5817876	101.7270771	99.91456123	98.14303595	96.41133909	94.71834878	93.06298172	91.44419166
190815A00008	8/15/2019	1.82	8/15/2022	8/15/2019	100.16221	100.1149518	100.067757	100.0206238	99.97355203	99.92654166	99.87959254	99.83270455	99.78587757
191105A00018	11/5/2019	1.78	11/6/2023	11/5/2019	103.37476	102.063066	100.7815868	99.52927594	98.30513792	97.10822252	95.93762213	94.79246942	93.67193512
200302A00031	3/2/2020	1.02	11/18/2022	3/2/2020	100.69582	100.3830389	100.0722062	99.76330698	99.45632303	99.15123651	98.84802978	98.54668544	98.24718627
200312A00017	3/16/2020	1.09	2/15/2023	3/16/2020	101.06758	100.5059012	99.95045559	99.40113544	98.8578397	98.32046959	97.78892849	97.26312185	96.74295717
200429A00018	5/4/2020	0.73	4/17/2023	5/4/2020	101.0779	100.3458576	99.62436889	98.91320763	98.21215331	97.52099163	96.83951433	96.16751896	95.50480868
220726A00059	7/26/2022	3.34	1/26/2024	7/26/2022	106.15529	104.6187468	103.1125214	101.635796	100.1877792	98.76770746	97.37484377	96.00847645	94.66791815
170120A00008	1/20/2017	3.63	1/20/2034	1/20/2017	149.14281	135.1139114	122.5866899	111.3903762	101.3745181	92.40646839	84.36919256	77.15935729	70.68566097
180914A00029	9/14/2018	3.48	9/14/2028	9/14/2018	127.63388	120.6867656	114.1707851	108.0567816	102.3177218	96.92853266	91.86594925	87.10837458	82.63575151
181010A00020	10/10/2018	3.27	12/1/2022	10/10/2018	101.51471	101.1641533	100.8160102	100.4702598	100.1268774	99.78583887	99.44712025	99.11069795	98.77654869
190620A00056	6/25/2019	2.07	1/17/2023	6/25/2019	101.41583	100.9340694	100.4568899	99.98422286	99.51600444	99.05217191	98.59266373	98.13741954	97.68638007
190805A00029	8/5/2019	1.93	8/5/2022	8/5/2019	100.06893	100.0494721	100.0300377	100.0106233	99.99122888	99.97185438	99.95249976	99.93316501	99.91385009
200228A00067	2/28/2020	1.4	2/28/2025	2/28/2020	105.77962	103.1292813	100.558716	98.06503121	95.64546284	93.29736497	91.01820396	88.80555283	86.65708603
200506A00005	5/6/2020	0.97	5/6/2025	5/6/2020	105.02775	102.1972981	99.45696263	96.80330949	94.23305899	91.74307926	89.33037836	86.99209685	84.72550094
200922A00041	9/24/2020	2.68	9/23/2024	9/24/2020	107.5407	105.3135769	103.1439218	101.029844	98.96952689	96.96122851	95.00327743	93.09406937	91.23206393
180816A00043	8/16/2018	2.83	8/16/2022	8/16/2018	100.22677	100.1766418	100.1265799	100.0765852	100.0266576	99.97679698	99.92700315	99.87727598	99.82761534
181109A00029	11/9/2018	3.72	11/9/2026	11/9/2018	120.46959	115.7623098	111.268983	106.9786852	102.881112	98.96654114	95.22579625	91.65021277	88.23160641
190301A00012	3/1/2019	3.41	3/1/2029	3/1/2019	129.04923	121.5395614	114.526633	107.9748112	101.8512066	96.12544562	90.76946523	85.75732553	81.06503837
190314A00027	3/22/2019	2.92	3/21/2025	3/22/2019	110.05509	107.2847402	104.5988225	101.994225	99.46797235	97.0172193	94.63924429	92.33144294	90.09132216
190430A00001	4/30/2019	2.47	5/2/2024	4/30/2019	105.95973	104.1477026	102.375606	100.6422087	98.94632537	97.28681951	95.66260061	94.07262188	92.51587796

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200224A00007	2/24/2020	1.59	2/24/2025	2/24/2020	106.25326	103.6080023	101.0420693	98.55260407	96.13686773	93.79223792	91.51620306	89.30635684	87.1603931
200228A00020	2/28/2020	1.32	2/24/2023	2/28/2020	101.23709	100.6497904	100.0692821	99.49544647	98.92816901	98.36733784	97.81284361	97.26457943	96.72244078
200305A00008	3/10/2020	1.01	6/19/2023	3/10/2020	101.5348	100.6247725	99.73096402	98.85294725	97.99030666	97.14264124	96.30956377	95.49070034	94.68568967
180226A00015	2/26/2018	2.85	9/28/2022	2/26/2018	100.72657	100.5563022	100.3866036	100.217476	100.0489166	99.88092269	99.71349136	99.54661984	99.38030535
190826A00028	8/26/2019	1.56	8/26/2022	8/26/2019	100.25386	100.175944	100.0981505	100.0204831	99.94294132	99.86552498	99.78823374	99.71106731	99.6340254
200311A00006	3/13/2020	1.12	3/10/2025	3/13/2020	105.10309	102.4323677	99.84277407	97.33133774	94.89522063	92.53170759	90.2382001	88.01221033	85.85135561
200811A00003	8/11/2020	0.57	8/11/2025	8/11/2020	104.73915	101.6325695	98.63354307	95.73774399	92.9410503	90.23952945	87.62942837	85.10716409	82.66931495
220118A00008	1/18/2022	1.36	1/18/2024	1/18/2022	103.08751	101.5970916	100.1357212	98.70262764	97.2970627	95.91830401	94.56565393	93.2384385	91.93600646
150819A00012	8/19/2015	3.04	8/19/2025	8/19/2015	112.11824	108.8843354	105.7617182	102.7459211	99.83268012	97.01792764	94.29778222	91.66853882	89.12665963
170111A00011	1/11/2017	3.24	1/11/2029	1/11/2017	127.36236	120.0587467	113.2303849	106.843755	100.8678736	95.2740858	90.0358789	85.12871171	80.52985842
171016A00005	10/16/2017	2.2	10/17/2022	10/16/2017	100.77986	100.5564857	100.3341114	100.1127313	99.8923388	99.67292724	99.45449002	99.23702063	99.02051258
180222A00027	2/22/2018	3.24	2/22/2028	2/22/2018	124.76481	118.4997248	112.5936189	107.0239578	101.769744	96.81140032	92.13066683	87.7105049	83.53500933
190426A00016	5/1/2019	2.58	4/14/2023	5/1/2019	102.40302	101.6740214	100.9553931	100.2469144	99.54837124	98.85955541	98.18026461	97.51030207	96.84947642
190930A00077	9/30/2019	2.23	9/28/2029	9/30/2019	122.50343	114.5772841	107.2213751	100.3916331	94.04761518	88.15219161	82.67125749	77.57347123	72.83001689
200511A00021	5/11/2020	1.53	2/1/2029	5/11/2020	115.95432	108.9586843	102.4287888	96.33126814	90.63530913	85.31244458	80.33636343	75.682737	71.32906008
150601A00664	6/1/2015	3.78	1/16/2032	6/1/2015	143.18634	131.8062905	121.4555534	112.0346547	103.4542426	95.63401295	88.50174949	81.99247101	76.04767197
150821A00018	8/21/2015	2.6	8/21/2024	8/21/2015	107.32224	105.1837023	103.0988561	101.0659938	99.08347391	97.14971924	95.26321388	93.42250027	91.62617647
170322A00022	3/22/2017	3.89	9/23/2041	3/22/2017	174.81239	150.1303821	129.5109171	112.2460102	97.75551488	85.56339722	75.27851575	66.57903725	59.1997843
190606A00023	6/6/2019	2.23	6/6/2024	6/6/2019	105.59456	103.6916302	101.8323448	100.0154456	98.23972021	96.50399852	94.80715113	93.14808755	91.52575464
150601A00830	6/1/2015	6.743	7/31/2025	6/1/2015	123.47181	120.107043	116.8553738	113.7123396	110.6736805	107.7353295	104.8934026	102.1441891	99.48414296
170313A00033	3/13/2017	3.31	3/15/2027	3/13/2017	120.1972	115.1172633	110.2848549	105.6865449	101.3097057	97.1424616	93.17363906	89.39272148	85.78980677
170322A00023	3/22/2017	3.82	9/22/2039	3/22/2017	168.09094	146.2394575	127.6743389	111.8725895	98.39756032	86.88426482	77.02725993	68.57063081	61.29970549
170728A00031	7/28/2017	2.27	1/27/2023	7/28/2017	101.58594	101.0757403	100.5706556	100.0706064	99.5755178	99.08531636	98.59993	98.11928808	97.64332133
180705A00062	7/5/2018	3.04	7/6/2023	7/5/2018	103.54345	102.5754616	101.6255575	100.6932352	99.77800957	98.87941334	97.99699599	97.13032321	96.27897612
181211A00018	12/11/2018	3.14	12/11/2023	12/11/2018	105.34366	103.9415812	102.565014	101.2133246	99.88589608	98.58213137	97.30145256	96.04330007	94.80713197
190724A00024	7/24/2019	2.49	7/24/2029	7/24/2019	125.06303	117.1962197	109.882872	103.0810873	96.75234609	90.86121999	85.37510867	80.26400049	75.50025457
191105A00014	11/5/2019	1.96	11/6/2023	11/5/2019	103.46423	102.1542074	100.8743212	99.62352736	98.40083398	97.20529431	96.03600401	94.89209884	93.7727524
200228A00026	2/28/2020	2.14	2/28/2035	2/28/2020	132.67252	118.3857974	105.7929606	94.6832392	84.8731089	76.20264876	68.53239928	61.74065241	55.72111222
200506A00010	5/6/2020	0.94	5/6/2026	5/6/2020	107.58404	103.6694056	99.91695745	96.31906855	92.86852108	89.55847831	86.38246191	83.3343308	80.40826137
170613A00032	6/13/2017	2.45	6/13/2025	6/13/2017	110.00806	106.98888	104.0685006	101.2431669	98.50928304	95.86340941	93.30225445	90.82266773	88.421633
171010A00005	10/10/2017	2.06	10/11/2022	10/10/2017	100.71542	100.5087161	100.3028694	100.0978784	99.89373763	99.69044187	99.48798576	99.28636405	99.0855715
171026A00009	10/26/2017	2.75	10/27/2025	10/26/2017	111.95882	108.5288218	105.2227085	102.0352385	98.9614266	95.99653184	93.13604388	90.37566978	87.71132196
180620A00014	6/20/2018	3.4	6/20/2028	6/20/2018	126.15966	119.519334	113.2775864	107.4083483	101.8873899	96.69217832	91.80175037	87.1965956	82.85854854

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190214A00006	2/14/2019	2.67	2/14/2024	2/14/2019	105.51084	103.9239697	102.3691208	100.8454018	99.3519503	97.88793528	96.45255575	95.04503939	93.66464123
150601A00668	6/1/2015	3.89	1/16/2037	6/1/2015	160.94273	142.7025555	126.8379928	113.0212312	100.9715298	90.448234	81.2448576	73.18406459	66.1134105
180111A00007	1/11/2018	2.66	1/14/2025	1/11/2018	108.99323	106.4213613	103.923829	101.4980528	99.14156108	96.85198261	94.62704201	92.46455512	90.3624248
180124A00020	1/24/2018	2.53	1/24/2023	1/24/2018	101.72817	101.2255148	100.7278285	100.2350328	99.7470557	99.26382683	98.78527706	98.31133862	97.84194505
180410A00017	4/10/2018	3.02	10/10/2023	4/10/2018	104.55314	103.3057847	102.0881675	100.8992364	99.73798592	98.60345703	97.49473463	96.41094496	95.35125337
190409A00019	4/9/2019	2.91	4/9/2029	4/9/2019	127.09789	119.4864324	112.3885934	105.7668661	99.58668388	93.81617113	88.42591935	83.38878348	78.67969585
190620A00027	6/20/2019	2.14	6/20/2024	6/20/2019	105.53935	103.5984948	101.7029706	99.85145196	98.04265674	96.2753486	94.54833493	92.86046509	91.2106286
200127A00016	1/27/2020	1.81	1/27/2025	1/27/2020	106.60689	104.0365953	101.5416706	99.11946866	96.76745131	94.48318496	92.26433555	90.10866391	88.01402119
200302A00033	3/2/2020	1.31	3/3/2025	3/2/2020	105.56237	102.9060863	100.3299775	97.83112715	95.40674916	93.0541771	90.77085804	88.55434696	86.40230135
200828A00002	8/28/2020	0.73	8/28/2026	8/28/2020	107.42211	103.1870877	99.14043376	95.27277961	91.57527323	88.03954944	84.65770025	81.42224722	78.32611561
210709A00002	7/9/2021	1.36	7/9/2029	7/9/2021	116.68428	109.1552661	102.1586471	95.65412537	89.60464696	83.97612445	78.73718534	73.85894309	69.31478859
210830A00011	8/30/2021	0.53	8/30/2023	8/30/2021	101.33518	100.2244015	99.13775947	98.07447161	97.03379256	96.01500833	95.01743472	94.04041572	93.08332212
220225A00013	2/25/2022	1.92	2/23/2024	2/25/2022	104.18586	102.5888373	101.0242959	99.49131772	97.98901727	96.51654198	95.07307049	93.65781122	92.27000104
180116A00015	1/16/2018	3.06	1/18/2028	1/16/2018	122.44864	116.3830496	110.659896	105.2580194	100.1576727	95.34042297	90.78905726	86.4874958	82.42071174
191104A00024	11/4/2019	2.26	8/3/2029	11/4/2019	122.3156	114.5608351	107.3538618	100.6530843	94.42027287	88.6202733	83.22074494	78.19192183	73.50639539
140922A00026	9/22/2014	3.02	9/30/2024	9/22/2014	108.66754	106.4022593	104.1958519	102.0463605	99.95190893	97.91069841	95.9210041	93.98117114	92.08961121
181130A00037	11/30/2018	3.05	11/30/2023	11/30/2018	105.2645	103.8915736	102.5431748	101.2186992	99.91756444	98.63920652	97.3830792	96.14865327	94.93541587
190918A00007	9/20/2019	1.95	12/15/2022	9/20/2019	101.14466	100.7557979	100.3699301	99.98702281	99.60704187	99.22995374	98.85572538	98.48432428	98.11571837
200228A00016	2/28/2020	1.35	2/22/2024	2/28/2020	103.26552	101.6788746	100.1244837	98.60143931	97.10886353	95.64591071	94.2117662	92.80564483	91.42678957
200818A00010	8/18/2020	1.88	8/20/2035	8/18/2020	129.71654	115.1158643	102.3119343	91.07340405	81.19981416	72.51732962	64.87508622	58.14205372	52.20434088
140423A00036	4/23/2014	4.03	4/23/2029	4/23/2014	134.00502	126.1619674	118.8449176	112.015526	105.6384522	99.68110743	94.1134262	88.90765696	84.03817193
150601A00512	6/1/2015	3.79	7/16/2029	6/1/2015	132.92341	124.8539705	117.3434487	110.3499714	103.835013	97.76311375	92.10162092	86.82045305	81.89188492
190528A00007	5/28/2019	2.44	11/15/2023	5/28/2019	104.14512	102.8130413	101.5088118	100.2315655	98.98047118	97.75473197	96.5535836	95.37629273	94.22215537
190829A00045	8/29/2019	1.9	8/28/2026	8/29/2019	111.78442	107.4754742	103.356664	99.41857496	95.65231237	92.04946887	88.60209498	85.30267151	82.14408374
200722A00011	7/22/2020	0.59	7/24/2023	7/22/2020	101.25553	100.2491523	99.26262161	98.29535916	97.34680539	96.41642219	95.50369193	94.60811646	93.72921622
220421A00015	4/21/2022	3.12	9/16/2024	4/21/2022	108.43119	106.2136356	104.0528982	101.9471159	99.89450647	97.89336033	95.94203635	94.03895878	92.182614
170822A00019	8/22/2017	2.44	8/22/2024	8/22/2017	106.711	104.5817069	102.5058581	100.4817499	98.50774912	96.58228644	94.70385349	92.87099995	91.0823308
170919A00073	9/19/2017	2.28	9/19/2024	9/19/2017	106.91628	104.7014672	102.5437479	100.4412398	98.39214271	96.39472994	94.4473445	92.54839581	90.69635639
180529A00066	5/29/2018	2.99	5/26/2023	5/29/2018	103.0994	102.2492902	101.4131846	100.5907371	99.78161495	98.98549621	98.20206921	97.43103218	96.67209284
180813A00013	8/13/2018	2.99	12/5/2022	8/13/2018	101.45441	101.0927814	100.7337345	100.3772403	100.0232716	99.6718015	99.32280366	98.97625198	98.63212075
180830A00039	8/30/2018	3.03	8/30/2023	8/30/2018	104.10482	102.9776338	101.8748246	100.7956111	99.73924175	98.7049969	97.69218669	96.70014972	95.72825155
181217A00010	12/17/2018	3.11	12/15/2023	12/17/2018	105.34624	103.932789	102.5452454	101.1829578	99.84529548	98.53164819	97.24142542	95.97405553	94.72898502
190524A00032	5/24/2019	2.45	5/24/2023	5/24/2019	102.62991	101.7875821	100.9590492	100.1439757	99.34203549	98.55291304	97.77630285	97.01190905	96.25944503

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200130A00012	1/30/2020	1.72	1/30/2023	1/30/2020	101.32509	100.8072801	100.294745	99.78740304	99.2851758	98.78798628	98.29575905	97.80842017	97.3258972
200330A00041	4/1/2020	1.09	4/1/2025	4/1/2020	105.16359	102.427973	99.77698296	97.20745608	94.71637342	92.30085018	89.95812859	87.68557127	85.48065502
201130A00005	11/30/2020	0.28	11/30/2022	11/30/2020	100.49588	100.1500391	99.80656777	99.46544329	99.12664173	98.79013946	98.45591319	98.1239399	97.79419693
220711A00020	7/11/2022	3.25	1/11/2024	7/11/2022	106.03221	104.5350069	103.0666338	101.6263308	100.2133621	98.82701752	97.46661084	96.13147895	94.82098088
170803A00032	8/3/2017	2.12	8/3/2023	8/3/2017	102.98612	101.9404059	100.915853	99.91182472	98.92770921	97.96291855	97.01688779	96.08907384	95.17895436
180518A00014	5/18/2018	3.17	5/18/2023	5/18/2018	103.17786	102.3498223	101.5350696	100.7332875	99.94416789	99.16741223	98.40273133	97.64984498	96.90848157
190110A00012	1/10/2019	2.97	1/18/2024	1/10/2019	105.50754	103.9981288	102.5181077	101.0666892	99.64311585	98.24665678	96.87660602	95.53228159	94.21302452
190809A00020	8/9/2019	2.44	8/9/2034	8/9/2019	137.77465	123.6539661	111.1376891	100.0338708	90.17447906	81.41230613	73.61829253	66.67920679	60.49563203
121101A00011	11/1/2012	2.03	11/1/2022	11/1/2012	100.88316	100.6175168	100.3532703	100.0904127	99.82893309	99.56882054	99.31006438	99.052654	98.7965789
150610A00009	6/10/2015	3.03	6/10/2025	6/10/2015	111.6871	108.6516756	105.7151346	102.8737255	100.1238616	97.46211137	94.88519073	92.38995586	89.97339645
150721A00027	7/21/2015	3.74	7/22/2030	7/21/2015	137.30424	127.9031259	119.2351047	111.2387118	103.8579465	97.0417637	90.74361072	84.92101058	79.53518552
170612A00039	6/12/2017	2.29	6/12/2024	6/12/2017	106.01516	104.0869333	102.2033417	100.3630887	98.56492263	96.80763613	95.09006416	93.4110823	91.76960507
170731A00028	7/31/2017	2.16	8/1/2022	7/31/2017	100.03096	100.0226314	100.0143059	100.005988	99.99767764	99.98937486	99.98107965	99.97279198	99.96451185
180130A00085	1/30/2018	2.79	1/30/2025	1/30/2018	109.49583	106.872458	104.326118	101.8540982	99.45379562	97.12271529	94.85846465	92.65874889	90.52136619
181005A00017	10/5/2018	3.27	4/11/2023	10/5/2018	102.86921	102.1467894	101.4345212	100.7321903	100.0395895	99.35651738	98.68277798	98.01818072	97.36254022
190731A00004	7/31/2019	2.18	7/31/2024	7/31/2019	105.9719	103.9110877	101.9010778	99.9402956	98.02722524	96.16040828	94.33844111	92.55997246	90.82370107
200131A00038	1/31/2020	1.73	1/30/2025	1/31/2020	106.42485	103.8485327	101.3479907	98.92055713	96.5636723	94.27488245	92.05183452	89.89227141	87.79402737
200220A00015	2/20/2020	1.57	2/20/2025	2/20/2020	106.52142	103.8764141	101.3106142	98.82116868	96.40534799	94.06053844	91.78423649	89.57404329	87.42765951
200922A00036	9/24/2020	1.55	9/23/2025	9/24/2020	107.69467	104.4325049	101.2859123	98.25011586	95.3205678	92.49293678	89.76309602	87.12711221	84.58123507
050923A00096	9/23/2005	4.86	9/22/2025	9/23/2005	118.86181	115.4118519	112.0826484	108.8692386	105.7668954	102.7711159	99.87760939	97.0822856	94.38124409
170417A00068	4/17/2019	2.59	4/17/2024	4/17/2019	105.79299	104.0283344	102.3018336	100.6123117	98.95864537	97.33975683	95.75461202	94.20221809	92.68162138
180913A00029	9/13/2018	3.11	9/13/2023	9/13/2018	104.3543	103.1855309	102.0429337	100.9256359	99.83280354	98.76363875	97.7173782	96.69329107	95.69067734
181109A00028	11/9/2018	3.72	11/9/2026	11/9/2018	120.46959	115.7623098	111.268983	106.9786852	102.881112	98.96654114	95.22579625	91.65021277	88.23160642
190215A00004	2/15/2019	2.84	2/15/2023	2/15/2019	102.04789	101.4830492	100.9244618	100.3720248	99.82563672	99.28519853	98.75061327	98.22178609	97.69862419
190910A00013	9/10/2019	1.9	9/9/2022	9/10/2019	100.39892	100.28197	100.1653079	100.0489313	99.93283909	99.81703012	99.70150336	99.58625774	99.47129221
191015A00029	10/15/2019	1.91	10/15/2024	10/15/2019	106.02315	103.7508233	101.5385119	99.38418098	97.2858869	95.24176798	93.25004044	91.30899434	89.41698983
191220A00001	12/20/2019	2.62	12/19/2031	12/20/2019	131.95405	121.1850264	111.39538	102.4905147	94.38543018	87.00370687	80.2766002	74.14223457	68.54488564
200110A00014	1/10/2020	1.73	1/10/2023	1/10/2020	101.24349	100.7813875	100.3235061	99.86978723	99.42017422	98.97461137	98.533044	98.09541839	97.66168182
160606A00004	6/6/2016	2.43	6/8/2026	6/6/2016	113.18979	109.0858834	105.1539431	101.3858799	97.77402907	94.31112356	90.99027127	87.80493384	84.74890668
180823A00035	8/23/2018	3.05	8/22/2025	8/23/2018	112.61774	109.3572281	106.2092969	103.1694108	100.2332414	97.39666015	94.65572859	92.0066878	89.44594926
190227A00005	2/27/2019	2.87	2/27/2024	2/27/2019	105.75084	104.129803	102.5418376	100.9859984	99.46137896	97.96710673	96.50234123	95.06627272	93.65812076
190401A00010	4/1/2019	2.62	4/1/2024	4/1/2019	105.71004	103.9899247	102.3063014	100.6580728	99.04418722	97.46363445	95.9154442	94.39868389	92.91245681
190625A00023	6/25/2019	2.47	6/25/2027	6/25/2019	117.2341	111.919445	106.8786626	102.0962254	97.55756638	93.24901333	89.15772872	85.27165487	81.57946262

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200630A00004	6/30/2020	0.66	7/1/2024	6/30/2020	102.71957	100.7766589	98.87991162	97.02794963	95.21944854	93.45313199	91.72776946	90.04217436	88.39520214
150407A00010	4/7/2015	2.21	4/10/2023	4/7/2015	102.16932	101.4516609	100.7440646	100.0463247	99.35823627	98.67959983	98.01022144	97.34991245	96.69848927
180403A00005	4/3/2018	2.72	4/3/2023	4/3/2018	102.46621	101.767095	101.0775128	100.3972653	99.72616375	99.06402455	98.41066895	97.76592292	97.12961702
180813A00059	8/13/2018	3.01	8/11/2023	8/13/2018	103.8768	102.8050296	101.7553641	100.7271228	99.71965408	98.73233277	97.76455848	96.81575447	95.88536653
190701A00009	7/3/2019	2.14	7/2/2024	7/3/2019	105.63953	103.6644187	101.7361729	99.85339324	98.01473401	96.21889833	94.46463603	92.75074161	91.07605241
190826A00056	8/26/2019	1.72	8/26/2024	8/26/2019	105.21836	103.0941646	101.0235464	99.00478913	97.03624771	95.11634186	93.24355294	91.41642108	89.63354243
200709A00004	7/10/2020	1.4	7/10/2025	7/10/2020	106.6928	103.6559846	100.7211708	97.88437949	95.14181195	92.4898384	89.92498937	87.44394767	85.04354085
220601A00038	6/3/2022	3.69	5/28/2032	6/3/2022	144.20712	132.3522573	121.6055696	111.856572	103.0063559	94.96632532	87.65707258	81.00738255	74.9533489
180104A00013	1/4/2018	2.39	1/4/2023	1/4/2018	101.49926	101.0532593	100.6111817	100.1729719	99.73857933	99.30795407	98.88104725	98.45781076	98.03819734
190626A00004	6/26/2019	2.15	6/26/2024	6/26/2019	105.60839	103.6503614	101.7384234	99.87121004	98.04740815	96.26575193	94.52502072	92.82403716	91.16166531
200225A00018	2/25/2020	1.94	2/25/2030	2/25/2020	121.29472	112.9668887	105.2705104	98.1543972	91.57176389	85.47982645	79.83944064	74.61477492	69.77301423
201015A00017	10/15/2020	0.29	10/17/2022	10/15/2020	100.37213	100.1492062	99.92728335	99.7063556	99.48641618	99.26745842	99.04947569	98.83246144	98.61640914
220421A00013	4/21/2022	3.33	9/15/2026	4/21/2022	118.03789	113.5469505	109.2545398	105.150769	101.2262989	97.47230656	93.8804539	90.44285785	87.15206289
160714A00029	8/10/2016	2.27	8/10/2026	8/10/2016	113.16872	108.882521	104.7833239	100.8619719	97.10980269	93.5186232	90.08068167	86.78864129	83.63555568
171018A00011	10/18/2017	2.68	10/18/2027	10/18/2017	120.23188	114.4739516	109.029069	103.8784835	99.00467541	94.39126613	90.02293659	85.88535272	81.96509652
180629A00008	6/29/2018	3.02	6/29/2023	6/29/2018	103.45366	102.5059544	101.5755891	100.6620892	99.76499927	98.88388003	98.01830786	97.16787395	96.33218375
180910A00032	9/10/2018	3.22	9/10/2024	9/10/2018	108.57994	106.377504	104.2311823	102.1391493	100.0996562	98.1110244	96.17164234	94.27996198	92.43449589
190131A00036	1/31/2019	2.69	7/31/2023	1/31/2019	103.5442	102.5039291	101.4845199	100.4853465	99.50581063	98.54533776	97.60337537	96.67939217	95.77287704
200115A00015	1/17/2020	1.88	1/17/2023	1/17/2020	101.32477	100.8432661	100.3663425	99.8939297	99.42596372	98.96238191	98.50312276	98.04812591	97.59733213
200827A00007	8/27/2020	0.77	8/27/2025	8/27/2020	105.02963	101.8846089	98.84935107	95.91940566	93.09052759	90.35866914	87.71996949	85.17074486	82.70747918
171219A00025	12/19/2017	2.33	12/19/2022	12/19/2017	101.34943	100.9485758	100.5509024	100.1563675	99.76493395	99.37656512	98.99122506	98.60887835	98.22949009
180918A00023	9/18/2018	3.17	9/18/2023	9/18/2018	104.48141	103.2975472	102.140504	101.0093794	99.90330908	98.8214667	97.763062	96.72733874	95.71357294
190805A00004	8/5/2019	1.7	8/5/2022	8/5/2019	100.06618	100.0467071	100.0272587	100.0078304	99.98842235	99.9690344	99.94966654	99.93031872	99.91099092
191206A00019	12/6/2019	1.96	11/15/2023	12/6/2019	103.50982	102.1821774	100.8823128	99.60935681	98.36248033	97.14088849	95.94381898	94.77054031	93.62035028
200210A00009	2/10/2020	1.57	2/10/2025	2/10/2020	106.44276	103.8274052	101.2897804	98.82710985	96.4367378	94.11612018	91.86281887	89.67449658	87.54891199
200227A00005	2/27/2020	1.43	2/27/2024	2/27/2020	103.42475	101.8232007	100.2543654	98.71731554	97.21115403	95.73501732	94.28807369	92.8695218	91.4785893
200309A00046	3/9/2020	0.78	3/11/2025	3/9/2020	104.55244	101.8784056	99.28587339	96.77185442	94.33348918	91.96804245	89.67289685	87.44554686	85.28359321
200417A00016	4/21/2020	2.18	4/21/2025	4/21/2020	108.33042	105.4954586	102.7493143	100.0886132	97.51013722	95.01081438	92.58771074	90.23802302	87.95907169
200511A00019	5/11/2020	1.18	2/1/2027	5/11/2020	109.7708	105.0560928	100.5693751	96.29844894	92.23183725	88.35873286	84.66895596	81.15291436	77.80156643
200615A00005	6/15/2020	0.61	6/15/2023	6/15/2020	101.16044	100.2634179	99.38220593	98.51638669	97.66555982	96.82933871	96.00734995	95.19923274	94.40463843
200922A00040	9/24/2020	2	9/23/2024	9/24/2020	106.04191	103.831552	101.6783164	99.58032287	97.53576477	95.54290943	93.60009452	91.70572446	89.85826725
220624A00016	6/24/2022	3.34	6/24/2026	6/24/2022	117.58212	113.3301088	109.2575282	105.3558564	101.6170235	98.03338297	94.5976875	91.30306557	88.14300026
180514A00035	5/14/2018	3.07	5/14/2024	5/14/2018	107.17866	105.3209208	103.5046519	101.7286151	99.99162147	98.2925278	96.63023403	95.00368132	93.41185012

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180522A00019	5/22/2018	3.16	5/22/2023	5/22/2018	103.20177	102.3624568	101.5367929	100.724444	99.92508949	99.13841936	98.36413319	97.60194006	96.85155808
190103A00010	1/3/2019	2.7	1/3/2024	1/3/2019	105.13555	103.667342	102.2270187	100.8138509	99.42713698	98.0661991	96.73038204	95.41905234	94.13159738
190514A00073	5/14/2019	2.53	5/14/2024	5/14/2019	105.9441	104.1023939	102.3017629	100.5409868	98.81888956	97.13433993	95.48624946	93.87357039	92.29529374
191011A00013	10/11/2019	1.88	10/11/2022	10/11/2019	100.66201	100.4555532	100.2499591	100.0452178	99.84132375	99.6382718	99.43605663	99.23467303	99.03411583
200210A00021	2/10/2020	1.76	2/10/2025	2/10/2020	106.58998	103.9801518	101.4477296	98.98995286	96.60418184	94.28788721	92.03864488	89.85413081	87.73211622
160705A00005	7/5/2016	1.49	7/5/2023	7/5/2016	102.15437	101.195009	100.2535813	99.32958667	98.42254465	97.5319921	96.65748266	95.79858594	94.95488685
180802A00006	8/2/2018	2.99	8/2/2023	8/2/2018	103.8737	102.8258979	101.7992163	100.7930167	99.80669044	98.83965286	97.89134202	96.96121764	96.04876003
190926A00015	9/26/2019	2.32	11/26/2030	9/26/2019	126.32819	116.9828068	108.4043495	100.5257754	93.28622482	86.63042229	80.5081386	74.87370683	69.68558716
191002A00016	10/2/2019	1.79	10/2/2023	10/2/2019	102.98786	101.773444	100.5875225	99.42909986	98.29722864	97.19100448	96.10956367	95.05208087	94.01776702
210216A00008	2/16/2021	0.71	2/17/2026	2/16/2021	106.2252	102.5608587	99.04129988	95.66002772	92.41087099	89.28796923	86.28575519	83.39893838	80.62248965
160330A00054	3/30/2016	2.9	3/31/2031	3/30/2016	133.9881	123.8643267	114.5977752	106.1109374	98.33371078	91.20265276	84.66031529	78.65464915	73.13847022
170117A00046	1/17/2017	2.55	1/17/2024	1/17/2017	104.86699	103.3653527	101.892905	100.4488732	99.03250647	97.64307977	96.27989293	94.9422695	93.6295558
170906A00020	9/6/2017	2.14	9/6/2023	9/6/2017	103.18023	102.0385869	100.9221155	99.82999329	98.76143039	97.71567062	96.69198991	95.68969456	94.70811968
190329A00018	3/29/2019	2.6	3/29/2024	3/29/2019	105.64719	103.935904	102.2607921	100.6207722	99.01480597	97.4418961	95.90108428	94.39144929	92.91210518
190816A00006	8/16/2019	1.77	8/16/2024	8/16/2019	105.25003	103.1528925	101.1082021	99.11429744	97.16958524	95.27253412	93.42167161	91.61558145	89.85290098
190927A00019	9/30/2019	1.91	9/30/2022	9/30/2019	100.58359	100.4079254	100.2328715	100.0584259	99.88458553	99.71134728	99.53870803	99.36666472	99.19521427
200429A00045	5/1/2020	1.54	4/30/2025	5/1/2020	106.60314	103.7673991	101.0213356	98.36151903	95.78467729	93.28768752	90.86756821	88.5214715	86.24667605
210106A00006	1/8/2021	0.48	7/17/2023	1/8/2021	101.1341	100.1478042	99.18060053	98.23193966	97.30129274	96.38815092	95.49202433	94.61244124	93.7489472
140521A00019	5/21/2014	3.43	5/22/2028	5/21/2014	126.9726	120.3628888	114.1457018	108.2956025	102.7889349	97.60368768	92.7193716	88.11690649	83.77851749
180720A00068	7/20/2018	2.89	7/20/2023	7/20/2018	103.63724	102.6276731	101.6377527	100.6669111	99.7146003	98.78029331	97.86348281	96.96368043	96.08041585
180727A00039	7/27/2018	3.48	7/27/2028	7/27/2018	127.07775	120.2959541	113.9274981	107.9449223	102.3227295	97.03723748	92.06644083	87.38988365	82.98854281
200428A00013	4/30/2020	1.49	4/29/2024	4/30/2020	103.93817	102.1575464	100.4160223	98.71237682	97.04544007	95.41409074	93.81725369	92.25389753	90.72303228
210129A00013	1/29/2021	0.65	1/9/2025	1/29/2021	103.55772	101.0757125	98.66537203	96.32422684	94.04990494	91.84013009	89.69271733	87.60556872	85.57666931
170609A00026	6/9/2017	2.3	6/9/2023	6/9/2017	102.62755	101.7402345	100.8682303	100.011142	99.16858924	98.34020435	97.52563207	96.72452891	95.93656271
180827A00010	8/27/2018	2.99	8/25/2023	8/27/2018	104.00632	102.8939568	101.8053605	100.7397765	99.69648063	98.67477881	97.67400547	96.69352216	95.73271617
190523A00020	5/23/2019	2.5	2/9/2024	5/23/2019	105.00293	103.4371664	101.9028116	100.398993	98.92487257	97.47964233	96.06252319	94.67276363	93.30963843
190826A00065	8/26/2019	2.09	8/28/2029	8/26/2019	121.24006	113.4499956	106.2155266	99.49409887	93.24663343	87.43722199	82.032854	77.00316864	72.32022926
191004A00002	10/4/2019	2.08	10/4/2029	10/4/2019	121.42069	113.5152126	106.180469	99.37222283	93.04989353	87.17623352	81.71703739	76.64087818	71.91886781
200327A00036	3/27/2020	0.77	9/27/2023	3/27/2020	101.8699	100.6747506	99.50739972	98.36688766	97.25229845	96.16275739	95.09742871	94.05551342	93.03624733
150601A00490	6/1/2015	3.19	7/2/2024	6/1/2015	107.61745	105.6224534	103.6747107	101.7728094	99.915393	98.10115448	96.32883377	94.59721593	92.90512914
160830A00038	8/30/2016	2.24	8/28/2026	8/30/2016	113.21673	108.8781848	104.7307269	100.764903	96.97178145	93.34292019	89.87033644	86.54647929	83.36420382
170518A00034	5/18/2017	2.15	5/18/2023	5/18/2017	102.41847	101.59283	100.7804745	99.98108186	99.19434344	98.41996042	97.65764333	96.90711166	96.16809357
190402A00004	4/2/2019	2.9	4/2/2029	4/2/2019	126.95904	119.3735367	112.2986873	105.6972927	99.53506133	93.78036431	88.40401488	83.379067	78.68063187

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190829A00031	8/29/2019	1.54	8/29/2024	8/29/2019	105.13899	103.0019532	100.9190561	98.88855693	96.90878554	94.97813773	93.09507232	91.25810814	89.46582114
200131A00010	2/3/2020	1.68	2/3/2023	2/3/2020	101.32927	100.800248	100.2767414	99.75865983	99.2459192	98.73843723	98.23613333	97.73892853	97.24674546
200221A00004	2/21/2020	1.69	2/21/2025	2/21/2020	106.49384	103.853929	101.2929873	98.80817032	96.39675908	94.0561498	91.78384837	89.5774649	87.43470858
200224A00021	2/24/2020	1.58	9/24/2024	2/24/2020	105.12318	102.9203427	100.7745478	98.68390601	96.646611	94.66093044	92.72520244	90.83783198	88.99728766
200504A00015	5/4/2020	0.68	5/4/2023	5/4/2020	101.09873	100.3191197	99.55146195	98.79548499	98.05092397	97.31752199	96.59502981	95.88320556	95.1818145
220217A00021	2/17/2022	1.85	2/13/2024	2/17/2022	103.99953	102.4312981	100.8946602	99.38873382	97.91267081	96.46565371	95.04689445	93.65563304	92.29113631
170313A00032	3/13/2017	3.69	6/14/2032	3/13/2017	144.37566	132.459171	121.6612336	111.8698702	102.9848829	94.91656266	87.58454185	80.91677767	74.84865058
171206A00048	12/6/2017	3.04	12/6/2032	12/6/2017	140.7999	128.4165702	117.2559634	107.1899808	98.10458212	89.89817912	82.48021882	75.76993376	69.69523938
190821A00030	8/21/2019	1.8	8/21/2024	8/21/2019	105.35065	103.2387285	101.1798439	99.17230549	97.21449344	95.30485134	93.4418831	91.62415009	89.85026852
200109A00012	1/14/2020	1.94	12/15/2022	1/14/2020	101.14079	100.751935	100.3660763	99.98317812	99.60320622	99.22612709	98.85190768	98.48051547	98.11191841
200304A00034	3/4/2020	1.12	3/4/2024	3/4/2020	102.9589	101.3441987	99.76271355	98.21348776	96.69560215	95.20817222	93.75034648	92.32130494	90.92025757
200430A00009	4/30/2020	1.16	4/30/2026	4/30/2020	107.87522	103.9864701	100.2578302	96.68178327	93.2512175	89.95939779	86.79994328	83.7668062	80.85425217
210428A00007	4/28/2021	1.74	10/27/2028	4/28/2021	116.79249	110.0514525	103.7418164	97.83369616	92.29943761	87.11343639	82.25197501	77.69307365	73.41635358
211222A00025	12/22/2021	1.2	7/15/2024	12/22/2021	103.86567	101.8717745	99.92613092	98.02727209	96.17378708	94.36431717	92.59755352	90.87223503	89.1871462
150601A01024	6/1/2015	5.33	2/27/2026	6/1/2015	122.55172	118.5743741	114.751639	111.0766103	107.5427328	104.1437809	100.8738407	97.72729198	94.69879193
160929A00004	9/29/2016	1.74	9/29/2022	9/29/2016	100.54638	100.3735548	100.2013186	100.0296693	99.85860399	99.68811972	99.51821357	99.34888264	99.18012407
170322A00011	3/22/2017	2.48	3/22/2024	3/22/2017	105.57988	103.8861971	102.2280846	100.6044923	99.01440766	97.45685781	95.93090758	94.43565758	92.97024253
170831A00022	8/31/2017	2.27	2/29/2024	8/31/2017	104.79881	103.1802787	101.5948527	100.0415814	98.51955482	97.02789702	95.56576449	94.13234462	92.72685433
180914A00026	9/14/2018	3.15	9/14/2023	9/14/2018	104.41178	103.2397999	102.0941203	100.9738666	99.87819864	98.80631298	97.75744079	96.73084612	95.72582412
190510A00018	5/10/2019	2.54	5/10/2023	5/10/2019	102.58805	101.7852603	100.9950198	100.2170326	99.45101508	98.69669252	97.95379837	97.22207421	96.50126934
190620A00057	6/25/2019	2.09	5/15/2023	6/25/2019	102.27403	101.4584681	100.6558868	99.86597359	99.0884301	98.32296738	97.56930537	96.82717263	96.09630599
200227A00026	2/27/2020	1.41	2/27/2023	2/27/2020	101.30593	100.710022	100.121092	99.5390207	98.96368895	98.39498036	97.8327812	97.27698032	96.72746908
210917A00008	9/17/2021	1.55	9/15/2028	9/17/2021	115.31037	108.7386878	102.5814477	96.81038054	91.39929048	86.32389162	81.56165896	77.09169162	72.89458751
150317A00012	3/17/2015	2.46	3/18/2024	3/17/2015	105.50531	103.8240681	102.1779815	100.566012	98.98716483	97.44048387	95.92504985	94.43997839	92.98441844
150601A00523	6/1/2015	4.55	7/25/2031	6/1/2015	148.49362	137.4344859	127.3243202	118.0756405	109.6094905	101.854568	94.74644545	88.22687362	82.24315902
150601A00734	6/1/2015	2.92	5/1/2025	6/1/2015	110.39101	107.4988785	104.6978751	101.9845205	99.35549853	96.80764402	94.33793435	91.94348199	89.62152728
150819A00013	8/19/2015	3.51	8/19/2030	8/19/2015	135.67901	126.2553238	117.5741296	109.5725952	102.1935307	95.38485127	89.09909645	83.29299688	77.92708393
170110A00020	1/10/2017	2.4	1/10/2024	1/10/2017	104.76093	103.2763468	101.8203145	100.3920835	98.99092677	97.61614212	96.26705118	94.9429984	93.64335001
170203A00012	2/3/2017	3.63	2/2/2035	2/3/2017	152.28329	136.8708098	123.2362027	111.1619789	100.4584179	90.95989159	82.52168975	75.01727803	68.33592773
200302A00036	3/2/2020	1.45	3/2/2026	3/2/2020	108.54529	104.8141708	101.2308874	97.78877095	94.48149049	91.30303626	88.24770121	85.3100639	82.48497245
200429A00015	4/29/2020	0.66	4/29/2024	4/29/2020	102.6869	100.9136044	99.17935538	97.48293069	95.82315973	94.19892079	92.60913844	91.05278105	89.52885856
200429A00046	5/1/2020	2.07	4/30/2025	5/1/2020	108.10011	105.2432162	102.476506	99.79653357	97.2000109	94.68380011	92.24490513	89.88046417	87.58774253
180503A00040	5/3/2018	3.3	5/5/2025	5/3/2018	111.63613	108.7146685	105.885417	103.1448727	100.4896899	97.91667347	95.42277102	93.00506542	90.66076762

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190329A00017	3/29/2019	2.59	3/29/2023	3/29/2019	102.26962	101.5861511	100.9117964	100.2463715	99.58970019	98.9416106	98.30193547	97.67051182	97.04718087
190605A00020	6/5/2019	2.19	2/5/2024	6/5/2019	104.48426	102.9336496	101.4140346	99.92455813	98.46439837	97.03276289	95.6288873	94.25203404	92.90149117
190816A00031	8/16/2019	1.77	8/16/2024	8/16/2019	105.25003	103.1528925	101.1082021	99.11429744	97.16958524	95.27253412	93.42167161	91.61558145	89.85290098
190826A00058	8/26/2019	1.91	8/26/2026	8/26/2019	111.80924	107.5054529	103.3913631	99.45759279	95.69527642	92.09603372	88.65194029	85.35550011	82.19961999
200227A00016	2/27/2020	1.47	2/27/2025	2/27/2020	105.95802	103.3081531	100.7379596	98.24456119	95.82519966	93.47723443	91.19813685	88.98548463	86.83695659
190806A00007	8/6/2019	1.88	8/5/2022	8/6/2019	100.06795	100.0484994	100.0290658	100.0096523	99.99025865	99.97088498	99.9515312	99.93219727	99.91288318
191122A00018	11/26/2019	3.11	11/22/2039	11/26/2019	155.5999	134.6020318	116.829523	101.7611541	88.9628319	78.07261526	68.78838149	60.85765401	54.06920376
200303A00010	3/3/2020	1.34	3/3/2025	3/3/2020	105.64216	102.9848149	100.4076655	97.90779824	95.48242642	93.12888283	90.8446139	88.62717392	86.47421976
200414A00016	4/16/2020	1.64	4/15/2024	4/16/2020	104.11123	102.3672615	100.6609559	98.99115708	97.35675837	95.75669798	94.18995695	92.65555686	91.15255782
200922A00030	9/24/2020	2.45	9/25/2023	9/24/2020	103.71293	102.5138633	101.3424422	100.1977202	99.07879229	97.98479406	96.91489932	95.86831801	94.84429428
171208A00008	12/8/2017	2.25	12/8/2022	12/8/2017	101.23582	100.8660011	100.4988893	100.1344553	99.77266975	99.41350373	99.05692877	98.70291682	98.35144022
180604A00050	6/4/2018	3.15	6/4/2024	6/4/2018	107.31731	105.4031852	103.5327786	101.7048369	99.91814862	98.17154482	96.46389688	94.79411503	93.16114671
180911A00080	9/11/2018	2.94	9/9/2022	9/11/2018	100.52969	100.4125025	100.2956047	100.1789939	100.0626691	99.94662915	99.83087294	99.71539941	99.60020748
191121A00010	11/21/2019	2.59	11/20/2037	11/21/2019	146.03701	127.7432724	112.0081793	98.45648965	86.76990944	76.67819205	67.95166777	60.3949663	53.84173721
191212A00028	12/13/2019	1.93	1/17/2023	12/13/2019	101.34873	100.8671617	100.3901708	99.91769106	99.44965865	98.98601086	98.52668617	98.07162424	97.6207658
220302A00006	3/2/2022	1.52	4/25/2023	3/2/2022	101.70139	100.9443985	100.1986312	99.46383944	98.73978236	98.02622615	97.32294371	96.62971448	95.94632416
160628A00050	6/28/2016	1.56	6/28/2023	6/28/2016	102.17728	101.2375152	100.3149533	99.40912255	98.51957132	97.64586413	96.78758089	95.94431623	95.11567888
180102A00021	1/2/2018	2.82	1/2/2026	1/2/2018	112.94179	109.3017355	105.7995146	102.4291737	99.18505038	96.0617562	93.05416173	90.15738271	87.36676699
180619A00021	6/19/2018	3.24	6/19/2028	6/19/2018	126.13327	119.462463	113.1930048	107.2986029	101.7548179	96.53892463	91.62978362	87.00772269	82.65442802
190924A00035	9/24/2019	1.88	9/13/2024	9/24/2019	105.69912	103.5201398	101.39699	99.32784563	97.31095936	95.34465428	93.42732063	91.55741249	89.73344472
191122A00020	11/26/2019	3.2	11/23/2037	11/26/2019	153.24142	134.5957873	118.5260789	104.6572307	92.67081757	82.29623405	73.30328835	65.49597566	58.70723775
191212A00019	12/13/2019	1.93	12/19/2022	12/13/2019	101.16227	100.7622029	100.3652991	99.97152465	99.58084258	99.19321647	98.8086105	98.4269894	98.04831846
200515A00001	5/15/2020	0.59	5/15/2023	5/15/2020	101.06094	100.2507904	99.45355244	98.66892309	97.8966052	97.13631085	96.38776104	95.65068535	94.9248216
170828A00031	8/28/2017	2.07	8/1/2022	8/28/2017	100.03021	100.0218811	100.0135562	100.0052389	99.99692921	99.98862708	99.9803325	99.97204548	99.96376599
200313A00032	3/18/2020	1.46	3/18/2025	3/18/2020	106.07456	103.3671712	100.7424746	98.19742458	95.72910889	93.33474241	91.01166072	88.75731393	86.56926086
200511A00028	5/13/2020	1.02	5/13/2024	5/13/2020	103.17252	101.359702	99.58736031	97.85428731	96.15932016	94.50134071	92.87927328	91.29208265	89.73877213
151211A00055	12/11/2015	2.62	12/11/2024	12/11/2015	108.53417	106.0650381	103.6647636	101.3310444	99.06167033	96.85451739	94.7075442	92.61878812	90.58636175
170615A00015	6/15/2017	2.25	6/14/2024	6/15/2017	105.9564	104.0232217	102.1349142	100.2901687	98.4877239	96.72636304	95.00491227	93.32223876	91.67724899
170912A00009	9/12/2017	2.11	12/15/2022	9/12/2017	101.20662	100.817605	100.4315908	100.0485379	99.66841217	99.2911801	98.91680861	98.54526517	98.17651771
171026A00006	10/26/2017	2.32	10/26/2022	10/26/2017	100.88504	100.6364042	100.388994	100.1427999	99.89781307	99.65402461	99.41142577	99.17000789	98.92976237
180130A00091	1/30/2018	2.74	1/25/2023	1/30/2018	101.80683	101.3015776	100.8013326	100.3060226	99.81557495	99.32991826	98.84898257	98.37269927	97.90100108
181004A00029	10/4/2018	3.7	10/4/2028	10/4/2018	129.27983	122.2205881	115.6019789	109.394002	103.5688633	98.10079904	92.96591622	88.14204709	83.60861521
190122A00042	1/22/2019	2.79	1/23/2023	1/22/2019	101.84881	101.348608	100.8533199	100.3628725	99.87719508	99.39621813	98.91987361	98.44809476	97.98081611

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200123A00049	1/23/2020	1.63	1/23/2023	1/23/2020	101.27332	100.774797	100.2811711	99.79237408	99.30833535	98.82898561	98.35425693	97.88408268	97.4183975
200130A00021	1/30/2020	1.54	1/30/2023	1/30/2020	101.26817	100.7500904	100.237295	99.72970163	99.22723143	98.72980723	98.23735338	97.74979573	97.26706159
180205A00050	2/5/2018	2.81	2/6/2023	2/5/2018	101.9525	101.4131549	100.8795136	100.3514871	99.82898705	99.31192688	98.80022186	98.29378901	97.79254705
180731A00004	7/31/2018	2.97	7/31/2023	7/31/2018	103.83106	102.7892117	101.7682417	100.767529	99.78647506	98.8245048	97.88106524	96.95562464	96.04767143
190807A00014	8/7/2019	1.75	8/7/2023	8/7/2019	102.51874	101.4659897	100.434763	99.42440845	98.43429745	97.46382629	96.51241509	95.57950658	94.66456507
190820A00021	8/20/2019	2.13	8/20/2029	8/20/2019	121.48059	113.7053869	106.4830877	99.7714642	93.53172075	87.72820098	82.32811848	77.30131184	72.62002173
200806A00002	8/6/2020	0.43	8/6/2024	8/6/2020	102.67433	100.6265632	98.6297955	96.68243166	94.78293551	92.92982976	91.1216933	89.35715861	87.63490929
211206A00010	12/6/2021	1.54	12/4/2026	12/6/2021	111.01269	106.4391011	102.0788059	97.92079585	93.95468583	90.17067509	86.55951166	83.11245883	79.8212639
220429A00006	4/29/2022	3.06	4/29/2024	4/29/2022	106.74797	104.9414842	103.174576	101.4460151	99.75461819	98.09925142	96.47882741	94.892303	93.33867691
130926A00009	9/26/2013	4	10/2/2028	9/26/2013	132.22817	125.0462886	118.3120323	111.9949385	106.066783	100.5014036	95.27453804	90.36367572	85.74792201
151116A00025	11/16/2015	3.04	11/14/2025	11/16/2015	113.13678	109.6357875	106.2626246	103.0119007	99.87848243	96.85748313	93.944249	91.13434667	88.42355127
170918A00007	9/18/2017	2.8	9/20/2027	9/18/2017	119.75984	114.1259244	108.7937245	103.7454426	98.96442454	94.43508333	90.14282491	86.07397929	82.21573703
171212A00024	12/12/2017	2.29	12/12/2022	12/12/2017	101.2807	100.8995861	100.5213515	100.1459601	99.77337985	99.40357915	99.03652684	98.67219224	98.31054514
191004A00032	10/4/2019	2.01	1/3/2028	10/4/2019	116.36674	110.5116333	104.9872932	99.77334263	94.85076344	90.20179668	85.80985313	81.65943047	77.73603677
200429A00058	5/1/2020	1.83	4/30/2025	5/1/2020	107.42224	104.5749217	101.8175609	99.14671567	96.55910512	94.05159818	91.62120539	89.26507126	86.98046714
200604A00001	6/4/2020	0.65	6/5/2023	6/4/2020	101.16573	100.2965944	99.4423021	98.60247158	97.77673827	96.96474976	96.16616531	95.38065535	94.60790106
160119A00025	1/19/2016	3.05	1/19/2028	1/19/2016	122.40222	116.33494	110.6103733	105.2073336	100.1060483	95.28806163	90.73613973	86.43418397	82.36715033
160504A00004	5/4/2016	2.3	5/4/2026	5/4/2016	112.85938	108.8495371	105.004482	101.3164976	97.77827385	94.38288628	91.12377343	87.99471516	84.98981272
190215A00005	2/15/2019	2.89	2/15/2024	2/15/2019	105.65923	104.0719106	102.5165974	100.9923968	99.49844667	98.03391647	96.59800561	95.18994211	93.80898136
190814A00006	8/14/2019	1.84	8/14/2023	8/14/2019	102.66544	101.5920465	100.541012	99.51163935	98.50326417	97.51524893	96.54698169	95.59787486	94.66736393
190930A00070	9/30/2019	1.93	9/27/2024	9/30/2019	105.91952	103.6994946	101.5370646	99.43031731	97.37742386	95.37663068	93.4262557	91.52468481	89.67036849
200922A00027	9/24/2020	1.65	9/23/2025	9/24/2020	108.01869	104.751308	101.599636	98.55889308	95.62452683	92.79220156	90.0577863	87.41734374	84.86711973
180814A00032	8/14/2018	3.1	8/14/2025	8/14/2018	112.67904	109.440404	106.3130085	103.29239	100.374295	97.5546655	94.82962863	92.19548719	89.64871041
190220A00007	2/20/2019	2.87	2/20/2024	2/20/2019	105.67895	104.0777317	102.5089606	100.9717192	99.46512736	97.98833701	96.54053114	95.12092222	93.72875084
190225A00026	2/25/2019	3.43	2/27/2034	2/25/2019	149.10184	134.8358029	122.1155837	110.7635014	100.6232319	91.55713715	83.44394264	76.17671373	69.66109155
190930A00012	9/30/2019	1.93	9/30/2024	9/30/2019	105.94377	103.7151144	101.5444326	99.42980017	97.36937021	95.36137207	93.40410768	91.49594783	89.63532874
191025A00010	10/25/2019	2.24	7/25/2028	10/25/2019	119.31834	112.775666	106.635304	100.8704145	95.45608261	90.36917086	85.58818359	81.09314236	76.86547143
130702A00018	7/2/2013	3.17	7/17/2023	7/2/2013	103.88304	102.880668	101.8976354	100.933387	99.98738756	99.05912233	98.14809559	97.25383	96.37586573
150720A00011	7/20/2015	2.69	7/20/2023	7/20/2015	103.4385	102.4299964	101.441129	100.4713261	99.52004021	98.58674451	97.67093202	96.77211467	95.88982241
170831A00029	8/31/2017	1.87	8/31/2022	8/31/2017	100.32541	100.2335216	100.1418031	100.0502553	99.9588779	99.86767028	99.776632	99.68576259	99.59506158
190110A00013	1/10/2019	2.97	1/17/2024	1/10/2019	105.49713	103.9905487	102.5132528	101.0644574	99.64340935	98.24938136	96.88167109	95.53960001	94.22251245
191120A00011	11/20/2019	1.88	1/20/2023	11/20/2019	101.34378	100.8538448	100.3686452	99.88811097	99.41217501	98.94077147	98.47383576	98.0113045	97.55311551
200305A00036	3/5/2020	1.36	3/5/2027	3/5/2020	110.83879	106.0059645	101.4102768	97.03884877	92.87957064	88.92105191	85.15257459	81.56404969	78.14597685

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160129A00067	1/29/2016	2.53	1/29/2026	1/29/2016	112.69155	108.9661924	105.3851304	101.9419931	98.6307235	95.44556457	92.38104265	89.43195186	86.5933395
170821A00038	8/23/2017	2.39	8/23/2024	8/23/2017	106.8975	104.7579898	102.6723078	100.6387394	98.65563507	96.72141029	94.83454211	92.99356639	91.19707505
190110A00009	1/10/2019	2.97	1/16/2024	1/10/2019	105.48671	103.9829686	102.5083979	101.062226	99.64370359	98.25210716	96.88673798	95.54692097	94.23200371
190514A00020	5/14/2019	2.66	5/14/2025	5/14/2019	109.91446	106.9913864	104.1614334	101.4210777	98.76695407	96.19584568	93.70467687	91.29050572	88.95051736
190820A00019	8/20/2019	1.76	8/21/2023	8/20/2019	102.6316	101.5386057	100.4687836	99.42140542	98.39577062	97.39120766	96.40707236	95.4427466	94.49763693
210924A00005	9/24/2021	2.37	9/24/2036	9/24/2021	138.12206	121.8160941	107.645191	95.3162381	84.57782272	75.214113	67.03966098	59.89498739	53.64282705
150601A00665	6/1/2015	3.82	1/14/2033	6/1/2015	147.29721	134.5525894	123.0645685	112.7011209	103.3447793	94.89096212	87.24649843	80.32832867	74.06235911
150826A00039	8/26/2015	3.22	8/27/2029	8/26/2015	130.78805	122.6159306	115.0213194	107.9601701	101.3920245	95.27970012	89.58900817	84.28849786	79.34922349
160816A00003	8/16/2016	1.63	8/16/2023	8/16/2016	102.57439	101.4941027	100.4364667	99.40077102	98.38633852	97.39251963	96.41869099	95.46425419	94.52863448
171214A00005	12/14/2017	2.29	12/14/2022	12/14/2017	101.29578	100.9090405	100.5252621	100.1444105	99.76645222	99.39135417	99.01908389	98.64960936	98.28289907
091112A00011	11/12/2009	4.77	11/15/2024	11/12/2009	113.33032	110.8778467	108.4917003	106.169657	103.9095848	101.7094385	99.56725498	97.48114938	95.4493114
111216A00001	12/16/2011	3.95	12/30/2031	12/16/2011	145.23359	133.8115952	123.4156409	113.9471424	105.3174939	97.44701332	90.26400105	83.7039024	77.70856159
150603A00017	6/3/2015	2.84	6/3/2025	6/3/2015	111.0492	108.0430324	105.1342675	102.3192363	99.59442546	96.95647236	94.40215809	91.92840034	89.53224691
180406A00014	4/6/2018	2.95	4/6/2023	4/6/2018	102.59184	101.8846096	101.1871227	100.4991806	99.82058811	99.15115547	98.49069794	97.83903575	97.19599392
190208A00005	2/8/2019	2.63	2/8/2023	2/8/2019	101.91169	101.3663863	100.8269227	100.2932017	99.76513179	99.24262341	98.72558889	98.2139424	97.70759989
190529A00031	5/29/2019	2.36	5/30/2023	5/29/2019	102.60194	101.742878	100.8981618	100.067432	99.25034355	98.44656264	97.65576626	96.87764181	96.11188661
190821A00017	8/21/2019	1.8	8/21/2024	8/21/2019	105.35065	103.2387285	101.1798439	99.17230549	97.21449344	95.30485134	93.4418831	91.62415009	89.85026852
191120A00024	11/20/2019	2.23	11/16/2029	11/20/2019	122.86486	114.7789569	107.2843326	100.3346257	93.88734186	87.90350977	82.34737191	77.18610403	72.38956045
200505A00004	5/5/2020	0.77	5/5/2025	5/5/2020	104.83051	101.9971614	99.25414387	96.59800853	94.02546011	91.53335244	89.11868045	86.77857275	84.51028454
200731A00004	7/31/2020	0.38	7/31/2023	7/31/2020	101.17755	100.1503473	99.14381567	98.15734091	97.19032912	96.24220964	95.31243387	94.40047427	93.50582337
210607A00001	6/7/2021	0.46	6/7/2023	6/7/2021	101.00597	100.1320149	99.27308462	98.42879228	97.59876643	96.78264806	95.98009015	95.19075713	94.4143244
210608A00017	6/10/2021	2.67	6/8/2029	6/10/2021	124.83873	117.1646644	110.0197984	103.3648377	97.16359758	91.3827414	85.99154311	80.96167062	76.26698806
190517A00005	5/17/2019	2.31	5/17/2024	5/17/2019	105.81294	103.9595365	102.1476897	100.3761729	98.64380426	96.94944648	95.29200436	93.67042306	92.0836862
190528A00006	5/28/2019	2.43	9/15/2023	5/28/2019	103.59346	102.4236519	101.2801957	100.1622098	99.06884999	97.99930915	96.95281498	95.92862831	94.92604126
200205A00013	2/5/2020	1.77	2/6/2023	2/5/2020	101.39602	100.8584014	100.3264737	99.80014765	99.27933523	98.76395001	98.2539074	97.74912459	97.24952046
200604A00005	6/4/2020	0.89	6/4/2025	6/4/2020	104.95887	102.0479151	99.23187882	96.50717102	93.87036124	91.31816641	88.84744364	86.45518351	84.13850361
190110A00003	1/10/2019	2.97	1/10/2024	1/10/2019	105.42425	103.9374884	102.4792713	101.0488452	99.6454844	98.26848771	96.9171778	95.59089999	94.2890214
190820A00029	8/20/2019	1.76	8/20/2024	8/20/2019	105.25878	103.1505879	101.0952969	99.09122468	97.13675714	95.23034333	93.37049228	91.55577027	89.78479809
210817A00013	8/19/2021	2	8/19/2026	8/19/2021	112.1255	107.8350454	103.732934	99.80988387	96.05712575	92.46636817	89.02976883	85.7399076	82.58976146
110505A00022	5/5/2011	4.59	5/15/2026	5/5/2011	121.38935	117.1973435	113.1766243	109.3192249	105.6175966	102.0645834	98.65339901	95.37760578	92.23109448
170228A00015	2/28/2017	2.87	5/28/2025	2/28/2017	110.67224	107.6976727	104.818843	102.032162	99.33419495	96.72165377	94.19139023	91.74038912	89.36576194
181109A00023	11/9/2018	3.39	11/9/2022	11/9/2018	101.31052	101.0219554	100.7350454	100.449775	100.1661302	99.884097	99.60366161	99.3248104	99.04752989
190805A00011	8/5/2019	1.91	8/5/2024	8/5/2019	105.45721	103.3880462	101.3701403	99.40188739	97.48174944	95.60824697	93.77995655	91.99550827	90.25358325

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200227A00012	2/27/2020	1.41	2/27/2023	2/27/2020	101.30593	100.710022	100.121092	99.5390207	98.96368895	98.39498036	97.8327812	97.27698032	96.72746908
200305A00002	3/5/2020	1.14	3/5/2025	3/5/2020	105.12348	102.467181	99.89123024	97.39270228	94.96879916	92.61684331	90.33427149	88.11862902	85.9675644
210715A00009	7/15/2021	0.54	7/17/2023	7/15/2021	101.19319	100.2065776	99.23906355	98.29009644	97.35914735	96.44570733	95.54928641	94.66941279	93.80563194
180126A00028	1/26/2018	2.69	1/26/2023	1/26/2018	101.79035	101.2823464	100.7794055	100.2814518	99.78841147	99.30021206	98.81678255	98.3380533	97.863956
190819A00026	8/19/2019	1.62	8/19/2024	8/19/2019	105.23577	103.1251858	101.0676124	99.06136605	97.10482847	95.19644452	93.33471932	91.5182154	89.74555003
190823A00005	8/23/2019	1.62	8/23/2024	8/23/2019	105.26543	103.1435195	101.0750879	99.05842465	97.0918904	95.17391006	93.30296996	91.47761483	89.69644513
190917A00022	9/17/2019	2.02	9/16/2022	9/17/2019	100.4773	100.3407592	100.2046042	100.0688333	99.93344504	99.79843762	99.66380945	99.52955889	99.39568433
171030A00021	10/30/2017	2.29	11/30/2022	10/30/2017	101.16617	100.8191555	100.4745188	100.1322312	99.79226876	99.45460785	99.11922521	98.78609791	98.45520329
180918A00011	9/18/2018	3.17	9/18/2023	9/18/2018	104.48141	103.2975472	102.140504	101.0093794	99.90330908	98.8214667	97.763062	96.72733874	95.71357294
190328A00019	3/28/2019	2.56	3/28/2024	3/28/2019	105.56896	103.8612968	102.1896956	100.5530754	98.95040268	97.38068449	95.84296681	94.33633245	92.85989927
190529A00023	5/29/2019	2.38	5/29/2024	5/29/2019	105.80766	103.9246854	102.0844347	100.2856881	98.52727137	96.80805055	95.12693072	93.48285426	91.87479933
200818A00009	8/18/2020	1.7	8/18/2033	8/18/2020	125.25613	113.0193445	102.0847562	92.30681064	83.55690819	75.72135259	68.69955719	62.40247482	56.75122252
151223A00074	12/23/2015	3.01	12/23/2027	12/23/2015	122.76505	116.7393515	111.0503947	105.6775876	100.6017	95.80476754	91.27000214	86.98170933	82.92521149
160119A00019	1/19/2016	2.95	1/19/2027	1/19/2016	117.88237	113.0211336	108.3907952	103.9791636	99.77475271	95.7667397	91.94492332	88.29968483	84.82195175
160707A00032	7/7/2016	1.52	7/7/2023	7/7/2016	102.19531	101.2301033	100.2830439	99.35362391	98.44135417	97.54576345	96.66639762	95.80281893	94.95460526
190830A00010	9/3/2019	1.75	9/1/2023	9/3/2019	102.70212	101.5775639	100.477509	99.40116468	98.34777113	97.31660064	96.30695598	95.31816881	94.34959818
200402A00011	4/2/2020	0.8	3/31/2023	4/2/2020	101.06462	100.3801377	99.70487212	99.03864303	98.38127013	97.73257792	97.0923955	96.46055643	95.83689858
201208A00031	12/10/2020	1.43	12/9/2024	12/10/2020	105.30458	102.8874279	100.537649	98.25299907	96.03132111	93.87054216	91.76866939	89.72378654	87.73405049
210624A00020	6/24/2021	0.78	6/24/2024	6/24/2021	102.92391	100.9981209	99.11765361	97.28117292	95.48739022	93.73506308	92.02299328	90.35002494	88.71504275
130405A00006	4/5/2013	2.41	4/7/2025	4/5/2013	109.21425	106.3978756	103.6688039	101.0237595	98.45961318	95.97337565	93.56219018	91.22332561	88.95416982
150923A00041	9/23/2015	2.23	9/23/2022	9/23/2015	100.584	100.4277263	100.2719424	100.1166506	99.9618485	99.80753373	99.65370399	99.50035701	99.34749047
160119A00029	1/19/2016	3.39	1/20/2032	1/19/2016	139.8723	128.6352962	118.4195828	109.1261529	100.6661003	92.95954245	85.93466191	79.52685381	73.6779675
170328A00015	3/28/2017	2.75	11/29/2024	3/28/2017	108.39497	105.9688376	103.6093747	101.3143827	99.08175224	96.90945507	94.79554035	92.73813134	90.73542212
180918A00041	9/18/2018	3.18	9/18/2024	9/18/2018	108.8808	106.6468892	104.470396	102.3494336	100.2821945	98.26694538	96.30202249	94.38582873	92.51683026
200226A00015	2/26/2020	1.53	2/26/2024	2/26/2020	103.57978	101.9796475	100.4121676	98.87641234	97.3714878	95.89653326	94.45071972	93.03324841	91.64334941
200304A00040	3/4/2020	1.12	3/1/2024	3/4/2020	102.94076	101.3349308	99.76202251	98.22108921	96.71122429	95.23155512	93.78124148	92.35947399	90.96547274
200604A00012	6/4/2020	1.59	6/4/2030	6/4/2020	119.05475	110.5177282	102.6510086	95.39859812	88.70944373	82.53697301	76.83868067	71.57575498	66.71274017
200626A00014	6/26/2020	0.62	6/26/2025	6/26/2020	104.66226	101.6862097	98.8092959	96.02769784	93.33775882	90.73598286	88.21902665	85.78369199	83.42691866
211222A00004	12/22/2021	1.26	10/15/2024	12/22/2021	104.55008	102.2946693	100.0989187	97.96080541	95.87839588	93.84983819	91.87335793	89.94725415	88.06989567
220112A00004	1/12/2022	1.55	1/12/2026	1/12/2022	109.01594	105.4040673	101.9309779	98.59060253	95.3771751	92.28521138	89.30949384	86.44505713	83.68717445
120127A00019	1/27/2012	3.87	1/30/2032	1/27/2012	144.77263	133.2742438	122.8179273	113.3026942	104.6378684	96.74198338	89.54180295	82.97144998	76.97163165
140626A00036	6/26/2014	3.55	6/26/2029	6/26/2014	132.51489	124.4766642	116.9928958	110.0222511	103.5266863	97.47116881	91.82342421	86.55370614	81.63458602
150827A00029	8/27/2015	2.74	8/27/2024	8/27/2015	107.68169	105.5225866	103.4179517	101.3660374	99.36516819	97.41373496	95.51019144	93.65305137	91.84088569

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180104A00018	1/4/2018	2.97	1/4/2027	1/4/2018	117.80434	112.9886695	108.3997592	104.0257419	99.85543038	95.87827758	92.08433659	88.46422345	85.00908237
180530A00025	5/30/2018	3.49	5/30/2030	5/30/2018	134.64356	125.5131264	117.0846633	109.3002112	102.1068883	95.45641713	89.30470228	83.61144862	78.3398159
180718A00026	7/18/2018	3.03	7/18/2023	7/18/2018	103.64548	102.6431204	101.6601419	100.6959812	99.75010156	98.82198619	97.91113777	97.01707738	96.13934367
181005A00016	10/5/2018	3.26	1/10/2023	10/5/2018	101.91484	101.4512889	100.9919592	100.5367959	100.0857424	99.63874294	99.19574299	98.75668888	98.32152794
181025A00010	10/25/2018	3.07	10/25/2022	10/25/2018	101.08182	100.8354071	100.5901992	100.3461874	100.103363	99.86171734	99.62124176	99.38192781	99.14376706
190819A00004	8/20/2019	1.81	5/24/2024	8/20/2019	104.70131	102.8430707	101.0267976	99.25127342	97.51532905	95.81783731	94.15771097	92.53390103	90.9453951
200122A00034	1/22/2020	1.87	1/22/2024	1/22/2020	103.8834	102.3758202	100.8978226	99.4486104	98.02741668	96.63350126	95.26614947	93.92467107	92.6083992
200922A00035	9/24/2020	2.94	9/23/2024	9/24/2020	108.11377	105.8802334	103.7043004	101.5840726	99.51773006	97.50352699	95.53978854	93.62490713	91.75733913
220630A00045	6/30/2022	3.39	6/30/2026	6/30/2022	117.29272	113.0443807	108.9756875	105.0780945	101.3435054	97.76424954	94.33305746	91.04303763	87.88765488
120709A00016	7/9/2012	3.2	7/15/2027	7/9/2012	121.12446	115.6547659	110.4685254	105.5495415	100.8826224	96.45351792	92.24885651	88.25608629	84.46342076
180618A00026	6/18/2018	3.05	4/13/2023	6/18/2018	102.73234	102.0048286	101.2876247	100.5805065	99.883262	99.19568529	98.51757603	97.84873941	97.18898595
190131A00019	1/31/2019	3.44	1/30/2034	1/31/2019	148.9807	134.8128454	122.1712734	110.8815284	100.790007	91.76136647	83.67626776	76.42940689	69.92779768
190211A00016	2/11/2019	3.01	2/11/2025	2/11/2019	109.85183	107.1964853	104.6196519	102.1185401	99.69047387	97.33288918	95.04332875	92.81943676	90.65895395
190521A00043	5/21/2019	2.54	5/22/2023	5/21/2019	102.68825	101.8512802	101.027925	100.2178584	99.42076052	98.63632177	97.86424221	97.10423136	96.3560078
190808A00052	8/8/2019	1.7	8/8/2024	8/8/2019	105.3204	103.2391802	101.2097487	99.23047616	97.29980073	95.41622051	93.57829087	91.78462183	90.03387549
201208A00029	12/10/2020	1.52	12/9/2025	12/10/2020	108.17192	104.6838507	101.32624	98.09354217	94.98047692	91.98201461	89.09336322	86.30995576	83.62743855
210527A00026	6/1/2021	2.78	6/1/2028	6/1/2021	122.17804	115.7115404	109.6319209	103.9140195	98.53443643	93.47139985	88.70464473	84.21530144	79.98579302
211222A00030	12/22/2021	1.33	1/15/2025	12/22/2021	105.30209	102.7815532	100.3341131	97.95723391	95.64848271	93.40552561	91.22612292	89.10812473	87.04946677
160606A00005	6/6/2016	2.92	6/6/2031	6/6/2016	133.27618	123.0457267	113.6958527	105.1457614	97.32247032	90.16001513	83.59874231	77.58467631	72.06895295
190206A00013	2/6/2019	2.68	2/6/2023	2/6/2019	101.92034	101.3806346	100.8466423	100.3182748	99.79544333	99.27806121	98.76604342	98.2593067	97.75776955
190808A00025	8/8/2019	1.7	8/8/2024	8/8/2019	105.3204	103.2391802	101.2097487	99.23047616	97.29980073	95.41622051	93.57829088	91.78462183	90.03387549
190816A00022	8/16/2019	1.77	8/16/2024	8/16/2019	105.25003	103.1528925	101.1082021	99.11429744	97.16958524	95.27253412	93.42167161	91.61558145	89.85290098
200103A00009	1/3/2020	1.9	1/3/2024	1/3/2020	103.78809	102.3330959	100.9057007	99.50519026	98.13087129	96.78207389	95.45815044	94.15847477	92.88244124
200309A00004	3/9/2020	0.71	3/8/2024	3/9/2020	102.52389	100.8975718	99.30493542	97.74500045	96.21682763	94.7195135	93.25218867	91.8140162	90.40419009
180621A00017	6/21/2018	3.42	6/21/2028	6/21/2018	126.29357	119.6462862	113.398097	107.5228983	101.9964209	96.79609605	91.90092754	87.2913748	82.94924485
180719A00061	7/19/2018	3.07	7/19/2023	7/19/2018	103.69519	102.6897395	101.7037774	100.7367404	99.78808703	98.85729649	97.94386733	97.04731679	96.16717985
180730A00078	7/30/2018	3.14	7/28/2023	7/30/2018	103.85819	102.826391	101.8150712	100.823628	99.85147968	98.89806689	97.96285174	97.04531678	96.144964
191031A00033	10/31/2019	2.2	5/31/2028	10/31/2019	118.6435	112.283457	106.3054716	100.6846559	95.39786002	90.42354635	85.74166928	81.33356487	77.18184913
191106A00022	11/6/2019	2.34	1/2/2030	11/6/2019	124.0633	115.7925087	108.1355137	101.0435124	94.47182281	88.37951319	82.7290694	77.48609377	72.61903157
191218A00014	12/18/2019	2.04	12/18/2024	12/18/2019	106.85955	104.3976831	102.0049852	99.67913028	97.41788424	95.21910079	93.08071749	91.00075198	88.97729836
201116A00010	11/16/2020	0.57	11/15/2023	11/16/2020	101.67008	100.3553008	99.06807612	97.80754416	96.57288182	95.36330009	94.17804227	93.01638226	91.87762304
170427A00044	4/27/2017	3.02	4/27/2027	4/27/2017	119.36179	114.1704596	109.238013	104.5500815	100.0931747	95.85462489	91.82253228	87.98571336	84.33365354
171025A00027	10/25/2017	2.36	10/25/2022	10/25/2017	100.88832	100.6424394	100.3977624	100.1542768	99.91197384	99.67084504	99.43088184	99.19207581	98.9544186

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180920A00014	9/20/2018	3.59	9/20/2028	9/20/2018	128.40649	121.4173717	114.8625905	108.7127168	102.9404734	97.52056518	92.42952453	87.64556975	83.14847504
190807A00021	8/7/2019	2	8/7/2026	8/7/2019	112.01859	107.7643911	103.6957865	99.80368945	96.07951031	92.51512405	89.10284265	85.83538908	82.70587306
191003A00014	10/3/2019	1.71	9/20/2024	10/3/2019	105.38067	103.1859577	101.04785	98.96448758	96.93408527	94.95493072	93.02538078	91.14385812	89.30884794
200306A00001	3/6/2020	1.11	3/6/2026	3/6/2020	107.31623	103.5956421	100.0230977	96.59189178	93.29566355	90.12837612	87.08429778	84.15798464	81.34426447
200327A00075	3/31/2020	1.75	3/29/2024	3/31/2020	104.19996	102.5013913	100.8387679	99.2110102	97.61708611	96.05600437	94.52681251	93.02859493	91.56047111
200730A00001	7/30/2020	0.46	7/30/2024	7/30/2020	102.70756	100.6784661	98.69960415	96.76941591	94.88640033	93.04911331	91.25616508	89.50621771	87.79798283
150401A00008	4/1/2015	2.62	4/1/2025	4/1/2015	109.359	106.5657426	103.8584606	101.2339538	98.68916174	96.22115989	93.82715214	91.50446435	89.250538
160811A00011	8/11/2016	2.25	8/11/2026	8/11/2016	113.09514	108.8075847	104.7072133	100.7848488	97.0318158	93.43990949	90.00136707	86.70884155	83.5553772
180403A00041	4/3/2018	2.91	4/3/2025	4/3/2018	110.55086	107.7273131	104.9908738	102.3382826	99.76643034	97.27234637	94.85319117	92.50624943	90.22892365
180917A00078	9/17/2018	3.05	9/15/2023	9/17/2018	104.43683	103.2598677	102.1094155	100.9845863	99.88453035	98.80843546	97.75552444	96.72505344	95.71631017
181029A00081	10/29/2018	3.27	4/28/2023	10/29/2018	103.05092	102.2798438	101.5202965	100.7720196	100.0347635	99.30828614	98.59235242	97.886734	97.19120913
181116A00015	11/19/2018	3.29	2/15/2024	11/19/2018	106.29188	104.6993626	103.1389428	101.6097259	100.1108473	98.64147426	97.2008037	95.78806146	94.40250078
191004A00001	10/4/2019	2.47	10/4/2034	10/4/2019	136.36927	122.289977	109.824251	98.77736282	88.97905614	80.28035807	72.55082001	65.67612862	59.55603551
200226A00005	2/26/2020	1.53	2/27/2023	2/26/2020	101.37717	100.7810193	100.1918502	99.60954181	99.03397495	98.4650332	97.90260279	97.34657255	96.79683381
211222A00010	12/22/2021	1.06	1/16/2024	12/22/2021	102.62648	101.1450979	99.69249667	98.26791106	96.87060233	95.49985716	94.15498659	92.83532494	91.54022887
160211A00035	2/11/2016	2.25	2/11/2025	2/11/2016	107.87349	105.2440245	102.6924851	100.2160973	97.81220266	95.47825413	93.21181066	91.01053207	88.87217414
180815A00021	8/15/2018	3.01	8/15/2023	8/15/2018	103.92005	102.8366514	101.7758247	100.7368735	99.71912599	98.72193732	97.7446887	96.78678599	95.84765843
180831A00019	8/31/2018	3.21	9/2/2025	8/31/2018	112.82	109.5352736	106.3645418	103.3031823	100.346787	97.49115357	94.73227413	92.06632505	89.48965724
190805A00007	8/5/2019	1.88	8/5/2022	8/5/2019	100.06795	100.0484994	100.0290658	100.0096523	99.99025865	99.97088498	99.9515312	99.93219727	99.91288318
190808A00009	8/8/2019	1.89	8/8/2024	8/8/2019	105.43928	103.3620727	101.336453	99.36080166	97.4335655	95.55325074	93.71842046	91.92769196	90.1797343
191223A00055	12/23/2019	2.46	12/7/2029	12/23/2019	124.78902	116.570258	108.9553035	101.8966089	95.35059834	89.27731929	83.64012438	78.40538268	73.54221751
200511A00016	5/11/2020	0.71	2/1/2024	5/11/2020	102.16791	100.6468382	99.15608949	97.69483569	96.26227803	94.85764603	93.48019627	92.12921115	90.80399782
170120A00011	1/20/2017	3.75	1/20/2037	1/20/2017	159.69305	141.5282349	125.7338454	111.9823304	99.99322386	89.52615316	80.37491414	72.36244778	65.33657789
180619A00023	6/19/2018	3.04	6/19/2023	6/19/2018	103.37501	102.4558948	101.5531138	100.6662355	99.79484207	98.93853029	98.0969108	97.26960755	96.45625724
181023A00025	10/23/2018	3.27	10/23/2023	10/23/2018	105.01244	103.7247595	102.4686549	101.2429772	100.04663	98.87856889	97.73779883	96.62337082	95.53437944
191031A00019	10/31/2019	1.88	10/31/2022	10/31/2019	100.81292	100.5504531	100.289348	100.0295962	99.77118715	99.51411051	99.25835602	99.00391351	98.75077293
200430A00008	4/30/2020	0.94	4/30/2025	4/30/2020	104.90846	102.0966628	99.3739728	96.73697428	94.18241281	91.70718271	89.30831888	86.98298922	84.72848757
211222A00008	12/22/2021	1.13	4/15/2024	12/22/2021	103.21858	101.4826623	99.78426203	98.12222397	96.49544538	94.90286843	93.3434779	91.81629898	90.32039526
160930A00005	9/30/2016	2.03	9/30/2024	9/30/2016	106.16616	103.9349934	101.7618555	99.64481742	97.58203067	95.57172323	93.61219565	91.70181742	89.83902349
170130A00031	1/30/2017	2.96	7/30/2025	1/30/2017	111.64203	108.4721559	105.4100093	102.4513227	99.59202393	96.82822544	94.15621438	91.57244385	89.07352441
200127A00030	1/27/2020	1.8	1/27/2025	1/27/2020	106.58129	104.0113195	101.5167171	99.09483032	96.74312115	94.45915622	92.24060169	90.08521857	87.99085819
200228A00031	2/28/2020	1.35	2/28/2024	2/28/2020	103.30153	101.6982925	100.127844	98.58924629	97.08159927	95.6040363	94.15572281	92.73585478	91.34365732
200302A00053	3/2/2020	1.31	3/3/2025	3/2/2020	105.56237	102.9060863	100.3299775	97.83112715	95.40674916	93.0541771	90.77085804	88.55434696	86.40230135

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210428A00008	4/28/2021	1.93	4/26/2030	4/28/2021	121.60781	113.0870696	105.2248638	97.96679704	91.26324489	85.06890906	79.34241825	74.04596811	69.14499593
160706A00010	7/6/2016	1.99	7/7/2025	7/6/2016	108.45246	105.3977395	102.4451139	99.59061852	96.83046483	94.16103212	91.57885904	89.08063568	86.66319604
190326A00032	3/26/2019	2.4	3/26/2024	3/26/2019	105.48532	103.7806577	102.1119724	100.4781867	98.87827086	97.31123589	95.77613125	94.27204309	92.79809246
190328A00046	3/28/2019	2.7	3/4/2025	3/28/2019	109.27055	106.5617689	103.9344606	101.3856653	98.91255448	96.51242092	94.18267283	91.92082791	89.72450796
191121A00004	11/21/2019	1.77	11/21/2024	11/21/2019	106.30503	103.9197127	101.5997375	99.34292462	97.147183	95.01050459	92.93096044	90.90669705	88.93593288
120306A00004	3/6/2012	2.95	3/15/2023	3/6/2012	102.37655	101.7320158	101.0955942	100.4671339	99.84648614	99.23350575	98.62805111	98.02998407	97.43916987
171026A00010	10/26/2017	2.84	10/26/2026	10/26/2017	116.41945	111.8407076	107.4695306	103.2953231	99.30809211	95.49841267	91.85739141	88.3766333	85.04821043
190523A00023	5/23/2019	2.48	3/22/2023	5/23/2019	102.13582	101.4725022	100.8177871	100.171508	99.53350255	98.90361256	98.28168386	97.66756615	97.06111289
190821A00028	8/21/2019	1.8	8/21/2023	8/21/2019	102.67491	101.581661	100.5115911	99.46396877	98.43809334	97.43329319	96.44892408	95.48436778	94.53903079
200312A00004	3/13/2020	1.23	1/24/2025	3/13/2020	105.10368	102.5609754	100.092728	97.696331	95.36928289	93.10918488	90.91373602	88.78072856	86.70804359
210305A00013	3/5/2021	2.41	3/5/2036	3/5/2021	137.86869	122.1698855	108.4546872	96.46000513	85.95895463	76.75570834	68.68110412	61.58889293	55.35253103
210609A00011	6/11/2021	1.32	6/11/2024	6/11/2021	103.89828	101.9982096	100.1420692	98.32858497	96.5565286	94.82471481	93.1319998	91.47727948	89.85948779
120726A00001	7/26/2012	2.36	8/1/2022	7/26/2012	100.03263	100.0242989	100.0159719	100.0076526	99.99934081	99.99103661	99.98273997	99.97445088	99.96616932
180823A00053	8/23/2018	3.2	8/23/2028	8/23/2018	126.61144	119.7260469	113.2661034	107.2029827	101.5101364	96.16293004	91.13849469	86.41559186	81.97448868
190328A00031	4/25/2019	2.56	4/25/2024	4/25/2019	105.81552	104.0286306	102.280735	100.570626	98.8971433	97.2591746	95.65565309	94.08555508	92.54789773
190528A00028	5/28/2019	2.42	5/30/2023	5/28/2019	102.65297	101.7936766	100.9487258	100.117764	99.30044636	98.49643884	97.70541845	96.9270725	96.16109829
190603A00005	6/3/2019	2.25	6/3/2024	6/3/2019	105.60681	103.7120174	101.8605044	100.0510338	98.28240802	96.55347091	94.86310636	93.21023657	91.59382047
190816A00020	8/16/2019	1.79	8/16/2024	8/16/2019	105.29196	103.1943815	101.1492523	99.15491765	97.20978389	95.31231944	93.4610516	91.65456389	89.89149342
190826A00030	8/26/2019	1.72	8/26/2026	8/26/2019	111.58711	107.271528	103.1466397	99.20299518	95.43166527	91.82421068	88.37265205	85.0694422	81.90744027
191009A00021	10/9/2019	1.71	10/7/2022	10/9/2019	100.59975	100.40453	100.2100744	100.0163805	99.82344392	99.63126016	99.43982476	99.24913333	99.05918149
191119A00027	11/19/2019	1.8	11/19/2024	11/19/2019	106.36027	103.9798221	101.6644591	99.41200579	97.22037452	95.08756107	93.0116408	90.99076483	89.02315653
200131A00032	1/31/2020	2.1	1/31/2030	1/31/2020	122.38895	114.095175	106.4243935	99.3265277	92.755767	86.67018731	81.03140264	75.80424981	70.9565026
220510A00014	5/13/2022	2.72	11/6/2023	5/13/2022	104.45102	103.1342186	101.8476696	100.5903266	99.36119461	98.15932374	96.98380671	95.83377641	94.7084037
180222A00025	2/22/2018	3.48	2/22/2033	2/22/2018	146.38379	133.4616498	121.8315952	111.3562044	101.9133878	93.39460239	85.70328381	78.753467	72.4685721
190906A00012	9/6/2019	1.76	9/6/2024	9/6/2019	105.38558	103.2293279	101.1279923	99.0797902	97.08301557	95.13603041	93.2372617	91.38519821	89.57838757
150825A00007	8/25/2015	2.46	8/25/2022	8/25/2015	100.30572	100.2305998	100.1555997	100.0807182	100.0059551	99.93131017	99.85678306	99.78237353	99.70808132
190429A00004	4/29/2019	2.65	4/15/2024	4/29/2019	105.87903	104.1191148	102.3971534	100.7119854	99.06249584	97.44761532	95.86631742	94.31761658	92.80056603
190808A00024	8/8/2019	1.69	2/8/2024	8/8/2019	103.91798	102.360599	100.8344909	99.33879367	97.87267288	96.43532408	95.02597159	93.64386711	92.28828859
191115A00015	11/18/2019	2.61	11/18/2024	11/18/2019	107.95092	105.5606704	103.2354836	100.9731853	98.77169059	96.62899849	94.54318735	92.51241132	90.53489673
200727A00016	7/27/2020	0.43	7/27/2023	7/27/2020	101.2147	100.1985208	99.20257698	98.22626534	97.26901073	96.33026026	95.40948226	94.50616519	93.61981679
200922A00033	9/24/2020	2.37	9/23/2024	9/24/2020	106.85743	104.6379479	102.4757782	100.3690329	98.31590004	96.31464187	94.3635911	92.46114743	90.60577427
190712A00018	7/12/2019	2.25	7/12/2024	7/12/2019	105.94572	103.9390576	101.9806545	100.0690554	98.20285544	96.38070137	94.60128948	92.86336337	91.16571192
200224A00024	2/24/2020	1.59	2/24/2025	2/24/2020	106.25326	103.6080023	101.0420693	98.55260407	96.13686773	93.79223792	91.51620306	89.30635684	87.1603931

	Parallel-Shift Sensitivity Analysis												
7/29/2022					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	109.03811	105.3068695	101.7231003	98.28015914	94.97174494	91.79187517	88.73486799	85.79532519	82.96811633
150408A00004	4/8/2015	2.17	4/10/2023	4/8/2015	102.14088	101.4233266	100.7158422	100.0182131	99.33023445	98.65170671	97.98243597	97.32223358	96.67091599
150601A00737	6/1/2015	2.68	12/31/2024	6/1/2015	108.79759	106.2675694	103.8096047	101.4212356	99.10010091	96.84393414	94.65055868	92.51788387	90.443901
180622A00018	6/22/2018	2.92	6/22/2023	6/22/2018	103.3869	102.4579642	101.5457029	100.6496727	99.76944282	98.90459793	98.05473702	97.21947297	96.39843186
181211A00009	12/11/2018	3.14	12/11/2023	12/11/2018	105.34366	103.9415812	102.565014	101.2133246	99.88589608	98.58213137	97.30145256	96.04330007	94.80713197
190529A00013	5/29/2019	2.38	5/29/2024	5/29/2019	105.80766	103.9246854	102.0844347	100.2856881	98.52727137	96.80805055	95.12693072	93.48285426	91.87479933
190821A00021	8/21/2019	1.79	8/18/2022	8/21/2019	100.18917	100.1335707	100.0780483	100.022603	99.96723458	99.91194294	99.85672792	99.80158936	99.7465271
210507A00008	5/7/2021	1.94	5/7/2031	5/7/2021	123.97552	114.2425725	105.3498996	97.22047636	89.78471845	82.97972532	76.74860632	71.03987785	65.80692388
130424A00004	4/24/2013	2.46	4/24/2025	4/24/2013	109.52399	106.6553892	103.8769219	101.1851571	98.57681756	96.04877512	93.59804296	91.22176783	88.91722295
131217A00024	12/17/2013	4.34	1/2/2029	12/17/2013	134.65129	127.140368	120.1122263	113.5330897	107.3717229	101.5992229	96.18883352	91.1157749	86.35708837
150601A00666	6/1/2015	3.88	1/16/2035	6/1/2015	154.7102	139.2025136	125.4730825	113.3054026	102.5104963	92.92328271	84.3994411	76.81270029	70.05249424
170907A00059	9/7/2017	1.99	9/7/2022	9/7/2017	100.3905	100.2791428	100.1680425	100.0572007	99.94661654	99.83628905	99.72621731	99.61640042	99.50683745
190826A00057	8/26/2019	1.87	8/26/2025	8/26/2019	108.501	105.3041306	102.2182788	99.23894867	96.3618581	93.58292379	90.89825056	88.3041215	85.79698861
200214A00002	2/14/2020	1.58	11/15/2024	2/14/2020	105.80961	103.4467871	101.1483729	98.91220078	96.73619464	94.61836259	92.55679293	90.54965026	88.59517185
200228A00014	2/28/2020	1.4	2/28/2025	2/28/2020	105.77962	103.1292813	100.558716	98.06503121	95.64546284	93.29736497	91.01820396	88.80555283	86.65708603
201204A00016	12/8/2020	1.58	12/8/2023	12/8/2020	103.14469	101.7671718	100.4145935	99.08634044	97.7818133	96.50043212	95.24163529	94.0048789	92.78963606
211222A00020	12/22/2021	0.97	10/16/2023	12/22/2021	102.07879	100.8305224	99.61254623	98.42376721	97.26314618	96.1296928	95.02246265	93.94055465	92.88310857
170224A00039	5/24/2017	3.17	5/24/2027	5/24/2017	120.36728	115.0717288	110.0434803	105.2676387	100.7302107	96.41805079	92.31880457	88.42085771	84.71328767
190730A00016	7/30/2019	2	7/30/2024	7/30/2019	105.86715	103.8049994	101.7937399	99.83179156	97.91763512	96.04980893	94.22690631	92.4475731	90.71050524
200224A00001	2/24/2020	1.59	2/24/2025	2/24/2020	106.25326	103.6080023	101.0420693	98.55260407	96.13686773	93.79223792	91.51620306	89.30635684	87.1603931
170915A00031	9/15/2017	2.1	9/15/2023	9/15/2017	103.34105	102.1708443	101.0270405	99.90875638	98.81514499	97.74539658	96.69873649	95.67442329	94.67174698
181127A00027	11/27/2018	3.25	11/28/2022	11/27/2018	101.47698	101.1349035	100.7951229	100.4576201	100.1223723	99.78935707	99.45855215	99.12993565	98.80348596
190128A00035	1/28/2019	3.04	1/26/2024	1/28/2019	105.69762	104.1647111	102.6620592	101.1888447	99.74427781	98.32759676	96.93806606	95.57497561	94.23763952
190814A00003	8/14/2019	2.01	8/14/2029	8/14/2019	121.68841	113.8770732	106.6216431	99.87964223	93.61205379	87.78301846	82.35956346	77.31135621	72.61048017
201030A00005	11/2/2020	2.49	10/29/2040	11/2/2020	145.49178	124.3895961	106.7196886	91.89812422	79.44339681	68.95799898	60.1133846	52.63768678	46.30567512
160628A00049	6/28/2016	1.88	6/27/2025	6/28/2016	108.44117	105.4059047	102.4713627	99.63366577	96.88910283	94.23412584	91.6653417	89.17950461	86.77350881
161208A00007	12/8/2016	2.6	12/8/2023	12/8/2016	104.56051	103.1726563	101.8099267	100.4716966	99.15736197	97.86633809	96.59805889	95.35197617	94.12755886
190715A00010	7/15/2019	2.23	7/15/2024	7/15/2019	105.93245	103.9173758	101.9509721	100.0317565	98.15830652	96.32925251	94.54327495	92.79910251	91.09550984
190828A00020	8/28/2019	1.95	5/28/2027	8/28/2019	114.31268	109.1523113	104.2549717	99.60593429	95.19136925	90.99828485	87.01447263	83.22845636	79.62944452
200818A00008	8/18/2020	1.5	8/18/2031	8/18/2020	120.36397	110.4892571	101.4963956	93.30211741	85.83141131	79.01666598	72.79690584	67.11710938	61.92760063
140313A00030	3/13/2014	3.27	3/15/2024	3/13/2014	106.82329	105.1395391	103.4908423	101.8761712	100.2945387	98.7449955	97.22662874	95.73856007	94.27994403
140710A00027	7/10/2014	2.8	7/17/2023	7/10/2014	103.51847	102.5180422	101.5369268	100.5745699	99.63043688	98.70401354	97.79480469	96.90233352	96.02614069
150720A00012	7/20/2015	2.99	7/21/2025	7/20/2015	112.05122	108.891518	105.838515	102.8880155	100.0360109	97.27867295	94.61234431	92.03353009	89.53888951

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170824A00038	8/24/2017	2.23	8/24/2023	8/24/2017	103.16635	102.0617453	100.9807139	99.92251001	98.88641648	97.87174584	96.87783886	95.90406315	94.94981174
190107A00010	1/7/2019	2.66	1/9/2023	1/7/2019	101.66242	101.2019756	100.7457069	100.2935581	99.84547325	99.40139773	98.96127772	98.5250604	98.09269387
170920A00028	9/21/2017	2.16	9/21/2022	9/21/2017	100.54201	100.3914799	100.2414142	100.0918075	99.94265768	99.79396268	99.64572039	99.49792871	99.35058559
190215A00017	2/15/2019	2.89	2/15/2024	2/15/2019	105.65923	104.0719106	102.5165974	100.9923968	99.49844667	98.03391647	96.59800561	95.18994211	93.80898136
180829A00044	8/29/2018	2.98	8/26/2022	8/29/2018	100.35755	100.2796067	100.2017938	100.1241062	100.0465435	99.96910552	99.89179192	99.81460244	99.73753678
190729A00008	7/29/2019	2.18	1/29/2024	7/29/2019	104.4102	102.8793283	101.3788457	99.90792875	98.46578059	97.05163256	95.66474278	94.30439505	92.96989771
190829A00015	8/30/2019	2.06	8/30/2022	8/30/2019	100.32561	100.2365932	100.1477298	100.0590241	99.97047552	99.8820838	99.79384852	99.70576925	99.6178456
200310A00042	3/10/2020	1.41	3/11/2030	3/10/2020	117.16017	108.9458896	101.3607643	94.35342189	87.87693424	81.88841211	76.34863794	71.22173388	66.47486148
200511A00023	5/11/2020	1.7	2/3/2031	5/11/2020	121.26395	111.9259512	103.3756694	95.54257166	88.36277923	81.77840756	75.73697587	70.19087773	65.09690597
150826A00038	8/26/2015	2.94	8/26/2026	8/26/2015	116.73365	112.3116236	108.0837124	104.0403295	100.1724138	96.47140029	92.92918988	89.53812122	86.29094462
160129A00066	1/29/2016	3.04	1/29/2031	1/29/2016	134.65968	124.7046473	115.5770872	107.2034738	99.51718241	92.45781062	85.97056727	80.00572457	74.51812615
160706A00026	7/6/2016	2.19	7/6/2027	7/6/2016	115.90714	110.5928416	105.5544809	100.7763113	96.24356277	91.94237817	87.859752	83.98347393	80.30207613
170224A00021	2/24/2017	3.4	2/24/2032	2/24/2017	140.30133	128.9357492	118.6118283	109.2277427	100.6921476	92.92304596	85.84678759	79.39717896	73.51469278
180716A00054	7/16/2018	3.59	7/16/2040	7/16/2018	169.20543	146.082082	126.5976206	110.1475397	96.23132705	84.4340672	74.41138108	65.87708173	58.59304511
180823A00055	8/23/2018	3.44	8/23/2033	8/23/2018	147.59443	134.0173913	121.8544469	110.9491691	101.1632533	92.37432895	84.47404785	77.36641016	70.96629819
211022A00008	10/22/2021	1.12	10/22/2024	10/22/2021	104.27498	102.0029423	99.79144625	97.63842177	95.5418916	93.49996283	91.51082249	89.57273343	87.68403033
190122A00043	1/22/2019	2.96	1/22/2025	1/22/2019	109.84222	107.2369921	104.7076262	102.2514686	99.86597692	97.54871315	95.29733857	93.1096091	90.98337083
190409A00033	4/9/2019	2.62	6/9/2023	4/9/2019	102.90869	102.0200223	101.1466851	100.2882799	99.44442588	98.61475514	97.79891207	96.99655292	96.20734521
190802A00004	8/2/2019	2	8/2/2022	8/2/2019	100.03973	100.0286137	100.0175122	100.0064213	99.99534073	99.98427062	99.97321091	99.96216159	99.95112264
191120A00031	11/20/2019	1.69	11/21/2022	11/20/2019	100.92454	100.6029132	100.2833438	99.96581079	99.6502947	99.33677628	99.02523656	98.71565678	98.40801843
200731A00005	7/31/2020	0.45	7/31/2024	7/31/2020	102.69115	100.6595055	98.67820442	96.74567855	94.86042199	93.02098597	91.22597633	89.474051	87.76391766
200803A00005	8/3/2020	0.54	6/30/2023	8/3/2020	101.13936	100.200589	99.27910672	98.37444283	97.4861408	96.61376052	95.75687753	94.9150823	94.08797964
111024A00010	10/24/2011	3.11	10/30/2023	10/24/2011	105.03231	103.723033	102.4460037	101.2000392	99.98401378	98.79685598	97.63754481	96.505107	95.39861421
150601A00688	6/1/2015	2.61	2/21/2025	6/1/2015	109.16923	106.4863508	103.8836241	101.3581677	98.90722042	96.52813855	94.21838966	91.97554731	89.79728581
170706A00090	7/6/2017	2.48	7/6/2023	7/6/2017	103.00919	102.0439635	101.0967856	100.1671542	99.25458491	98.35861109	97.47878302	96.61466707	95.76584503
180110A00027	1/10/2018	2.6	1/10/2023	1/10/2018	101.61141	101.1486907	100.6901849	100.2358401	99.7855997	99.33940804	98.89721059	98.45895378	98.02458496
190920A00018	9/20/2019	1.98	9/20/2022	9/20/2019	100.50607	100.358367	100.2111142	100.064305	99.91793744	99.77200946	99.62651908	99.48146433	99.33684322
191126A00022	11/26/2019	1.72	5/26/2023	11/26/2019	102.11774	101.2709853	100.4382191	99.61909464	98.81327903	98.02045004	97.24029578	96.47251428	95.7168131
191230A00013	12/30/2019	1.84	12/2/2024	12/30/2019	106.56153	104.1424013	101.7902179	99.50276725	97.27791933	95.11362638	93.00791937	90.95890442	88.96475955
200218A00024	2/20/2020	1.73	7/17/2023	2/20/2020	102.3651	101.3722499	100.39858	99.44353934	98.50659714	97.58724269	96.68498433	95.79934856	94.92987923
200429A00051	5/1/2020	2.54	4/30/2025	5/1/2020	109.42761	106.5519597	103.7669402	101.0690936	98.45511808	95.92186221	93.46631711	91.08560862	88.77699017
211222A00026	12/22/2021	1.2	7/15/2024	12/22/2021	103.86567	101.8717745	99.92613092	98.02727209	96.17378708	94.36431717	92.59755352	90.87223503	89.1871462
071231A00068	12/31/2007	4.93	12/30/2022	12/31/2007	102.54947	102.1147907	101.6837952	101.2564386	100.832675	100.4124593	99.99574709	99.5824946	99.17265891

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160706A00030	7/6/2016	2.59	7/7/2031	7/6/2016	130.43409	120.2350396	110.9247462	102.4208028	94.64884289	87.54172239	81.03878457	75.0852032	69.63139523
170728A00040	7/28/2017	2.44	1/27/2025	7/28/2017	108.5651	105.9622572	103.4357162	100.9827894	98.60090528	96.28759861	94.04050505	91.85735651	89.73597658
171207A00036	12/7/2017	2.23	12/7/2022	12/7/2017	101.22109	100.8541025	100.4897795	100.1280932	99.76901499	99.41251664	99.05857032	98.70714863	98.35822452
180116A00014	1/16/2018	3.01	1/19/2027	1/16/2018	118.16011	113.2925901	108.6561913	104.2387072	100.0286428	96.01516686	92.18807009	88.53772614	85.05505525
180604A00048	6/4/2018	3.01	6/5/2023	6/4/2018	103.21272	102.3338862	101.4700037	100.6206969	99.78559877	98.96435485	98.15662223	97.36206927	96.58037511
180910A00013	9/10/2018	3.08	9/11/2023	9/10/2018	104.29708	103.1343823	101.9975998	100.8858695	99.7983695	98.73431326	97.69294816	96.67355346	95.67543868
190821A00016	8/21/2019	1.79	8/22/2022	8/21/2019	100.22701	100.1602863	100.0936585	100.0271307	99.96070244	99.89437367	99.82814414	99.76201361	99.69598189
200214A00020	2/18/2020	1.78	1/15/2025	2/18/2020	106.43905	103.9040464	101.4424672	99.05176153	96.72948691	94.4733003	92.28095316	90.15028712	88.07922976
200226A00006	2/26/2020	1.57	2/26/2025	2/26/2020	106.2154	103.5649522	100.9941131	98.50000708	96.07988069	93.73109808	91.45113497	89.23757311	87.08809506
160307A00028	3/7/2016	2.91	3/7/2028	3/7/2016	122.09328	115.8909862	110.0464113	104.5369858	99.3416815	94.4409003	89.81636905	85.4510431	81.32901726
171012A00027	10/12/2017	2.21	10/12/2022	10/12/2017	100.74074	100.5313546	100.3228536	100.1152291	99.90847561	99.70258757	99.4975595	99.29338597	99.09006158
190104A00033	1/4/2019	3.37	1/31/2029	1/4/2019	128.4524	121.0528809	114.1380297	107.673421	101.6272486	95.97011451	90.6748353	85.71626384	81.07112696
190110A00014	1/10/2019	2.97	1/17/2024	1/10/2019	105.49713	103.9905487	102.5132528	101.0644574	99.64340935	98.24938136	96.88167109	95.53960001	94.22251245
190627A00009	6/27/2019	1.93	6/27/2023	6/27/2019	102.51526	101.5765972	100.655059	99.75017726	98.8615036	97.98860574	97.13106662	96.28848375	95.46046862
190628A00004	6/28/2019	2.12	6/28/2023	6/28/2019	102.60548	101.6648841	100.741469	99.83476921	98.94433417	98.06972943	97.21053587	96.36634904	95.53677853
200709A00008	7/10/2020	1.88	7/10/2026	7/10/2020	111.27621	107.1181634	103.1385113	99.3286738	95.6805293	92.18638729	88.83896317	85.63135466	82.55701968
170825A00025	8/25/2017	2.12	8/25/2022	8/25/2017	100.28018	100.2050863	100.1301081	100.0552485	99.98050729	99.90588414	99.8313788	99.75699101	99.68272051
181227A00028	12/27/2018	3.46	12/27/2028	12/27/2018	128.67968	121.3792245	114.5501983	108.1595819	102.1768349	96.57369698	91.32400668	86.40353511	81.78983404
190110A00002	1/10/2019	2.93	1/10/2023	1/10/2019	101.76313	101.2999898	100.8410721	100.386318	99.93567104	99.48907549	99.04647679	98.60782133	98.17305645
190603A00047	6/3/2019	2.22	6/2/2023	6/3/2019	102.50518	101.6381296	100.7857081	99.94754483	99.12328424	98.3125826	97.51510744	96.73053708	95.95856017
190617A00027	6/17/2019	2.21	6/16/2023	6/17/2019	102.60037	101.6935095	100.8026404	99.92734323	99.06721239	98.22185604	97.39089579	96.57396609	95.77071366
190816A00035	8/16/2019	1.77	8/16/2023	8/16/2019	102.60571	101.5270026	100.4708813	99.43664052	98.42360572	97.43112983	96.45859184	95.50539558	94.5709684
200311A00040	3/12/2020	1.3	3/11/2025	3/12/2020	105.59252	102.9122752	100.3134658	97.79311007	95.34835718	92.97647999	90.67486859	88.44102434	86.27255436
210818A00007	8/18/2021	0.81	8/18/2025	8/18/2021	105.52745	102.3892963	99.36017176	96.43567754	93.61161661	90.88398591	88.2489661	85.70291197	83.24234331
150220A00021	2/20/2015	2.72	2/20/2024	2/20/2015	105.4396	103.8403636	102.2735399	100.7382114	99.23349873	97.75855492	96.31256378	94.89473864	93.5043209
190318A00021	3/18/2019	2.76	3/18/2024	3/18/2019	105.80201	104.1217417	102.4765413	100.8653781	99.28726129	97.74123819	96.22639282	94.74184393	93.2867434
200131A00015	2/5/2020	1.73	2/5/2025	2/5/2020	106.47237	103.8783314	101.3609424	98.91748586	96.54535882	94.24206687	92.0052187	89.83252115	87.72177453
210226A00012	2/26/2021	2.31	2/26/2036	2/26/2021	136.39741	120.8201261	107.2116611	95.31101085	84.89305732	75.76347489	67.75437963	60.72061215	54.53655893
210528A00003	5/28/2021	0.63	5/28/2024	5/28/2021	102.52362	100.6749931	98.86838154	97.10258035	95.37643157	93.68881742	92.03865867	90.42491306	88.84657378
220323A00008	3/23/2022	2.47	3/25/2024	3/23/2022	105.38634	103.6891015	102.0275772	100.4007101	98.80748069	97.24690923	95.71805418	94.22001018	92.75190628
150824A00072	8/24/2015	2.14	8/24/2022	8/24/2015	100.27768	100.2052897	100.1330177	100.0608588	99.98881266	99.91687905	99.84505771	99.77334838	99.70175081
160714A00054	7/14/2016	2.03	7/15/2024	7/14/2016	105.53113	103.5201716	101.557799	99.64253618	97.77296294	95.94771167	94.16546497	92.42495348	90.72495379
180614A00038	6/14/2018	3.08	6/14/2023	6/14/2018	103.36205	102.4570963	101.5679888	100.6943093	99.83565869	98.99165109	98.16191396	97.34608726	96.54382298

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190114A00040	1/14/2019	2.89	1/14/2025	1/14/2019	109.57466	106.9953915	104.4906233	102.0577714	99.69435909	97.39801063	95.16644606	92.99747687	90.88900175
190530A00006	5/30/2019	2.25	5/30/2024	5/30/2019	105.82231	103.931891	102.0844969	100.2788971	98.51390539	96.78837658	95.10120503	93.4513229	91.83769861
191108A00014	11/8/2019	2.25	11/8/2029	11/8/2019	124.14474	115.9864831	108.4240774	101.4108146	94.90388738	88.86404125	83.25526133	78.04448904	73.20136482
200504A00004	5/4/2020	0.75	5/5/2025	5/4/2020	104.77363	101.9410903	99.1988625	96.54349801	93.97170219	91.48032944	89.06637526	86.72696879	84.45936575
180126A00029	1/26/2018	2.88	1/27/2025	1/26/2018	109.34669	106.7411091	104.2116942	101.7557713	99.3707785	97.05425966	94.80385891	92.61731609	90.49246219
190131A00053	1/31/2019	2.67	1/31/2023	1/31/2019	101.86001	101.3373489	100.8200414	100.3080069	99.8011648	99.2994366	98.80274515	98.31101489	97.82417177
190411A00017	4/15/2019	2.65	4/15/2024	4/15/2019	105.87903	104.1191148	102.3971534	100.7119854	99.06249584	97.44761532	95.86631742	94.31761658	92.80056603
190717A00008	7/17/2019	2.22	7/17/2024	7/17/2019	105.93011	103.9093754	101.9375746	100.0132198	98.13487685	96.30116497	94.51075409	92.7623628	91.05475622
200203A00011	2/3/2020	1.7	2/15/2023	2/3/2020	101.40929	100.846507	100.2899663	99.73955973	99.19518609	98.65674654	98.12414433	97.59728481	97.07607539
200709A00006	7/10/2020	2.58	7/10/2030	7/10/2020	127.49263	118.5177726	110.2482257	102.6247165	95.59324692	89.10459611	83.11387574	77.58012818	72.46596397
200720A00034	7/20/2020	0.77	7/21/2025	7/20/2020	104.84303	101.8029679	98.86628929	96.02891297	93.28694709	90.6366748	88.07454531	85.59716545	83.20129173
220406A00007	4/6/2022	2.87	4/8/2024	4/6/2022	106.20992	104.4660435	102.7594577	101.0890347	99.45368902	97.8523792	96.28410511	94.74790599	93.24285846
181002A00055	10/2/2018	3.14	10/3/2022	10/2/2018	100.83317	100.6487925	100.4650913	100.2820642	100.0997076	99.91801785	99.73699122	99.55662409	99.37691286
181227A00022	12/27/2019	2.91	12/27/2022	12/27/2019	101.62526	101.2016936	100.7816549	100.365097	99.95197669	99.54225164	99.13588015	98.73282119	98.33303441
190625A00016	6/25/2019	2.13	6/25/2024	6/25/2019	105.5611	103.6062969	101.6974444	99.83318967	98.01222492	96.23328944	94.49516747	92.79668626	91.13671431
200922A00034	9/24/2020	2.24	9/23/2026	9/24/2020	113.46624	109.0479434	104.8269481	100.793354	96.93781542	93.25150703	89.72609145	86.3536894	83.12685171
051003A00009	10/3/2005	5.15	10/15/2025	10/3/2005	119.75256	116.229943	112.8322893	109.5543856	106.3912688	103.338216	100.3907308	97.54453066	94.79553532
150601A00404	6/1/2015	4.29	1/17/2029	6/1/2015	134.09505	126.5556117	119.5040085	112.9059006	106.7295406	100.9455664	95.52681044	90.44812474	85.68622074
160122A00029	1/22/2016	2.48	1/22/2025	1/22/2016	108.61788	106.0283723	103.514369	101.073232	98.70242959	96.39953363	94.16221516	91.98823942	89.87546144
160628A00038	6/28/2016	1.88	6/27/2025	6/28/2016	108.44117	105.4059047	102.4713627	99.63366577	96.88910283	94.23412584	91.6653417	89.17950461	86.77350881
200611A00010	6/11/2020	1.08	6/11/2027	6/11/2020	110.03727	104.9415053	100.1088741	95.52449844	91.1744158	87.0455167	83.12548855	79.40276332	75.86646894
171025A00026	10/25/2017	2.64	10/25/2024	10/25/2017	107.78072	105.4594902	103.2000626	101.0003255	98.85825741	96.77192315	94.73946958	92.75912121	90.82917624
181015A00024	10/15/2018	3.29	10/16/2023	10/15/2018	104.95451	103.6873118	102.4507164	101.2436274	100.0649972	98.91382723	97.78916508	96.69010207	95.61577063
190621A00015	6/21/2019	2.2	6/21/2024	6/21/2019	105.66394	103.7190985	101.8197382	99.96452403	98.15216808	96.38142852	94.65110757	92.96004961	91.30713941
190805A00009	8/5/2019	1.91	8/5/2024	8/5/2019	105.45721	103.3880462	101.3701403	99.40188739	97.48174944	95.60824697	93.77995655	91.99550827	90.25358325
190816A00021	8/16/2019	1.77	8/16/2023	8/16/2019	102.60571	101.5270026	100.4708813	99.43664052	98.42360572	97.43112983	96.45859184	95.50539558	94.5709684
200129A00017	2/3/2020	1.75	8/15/2022	2/3/2020	100.1589	100.1116445	100.0644525	100.0173221	99.97025323	99.9232457	99.87629941	99.82941424	99.78259008
200225A00050	2/25/2020	1.57	2/25/2025	2/25/2020	106.20793	103.5604278	100.9923836	98.50093206	96.08332714	93.73694002	91.45925298	89.24785397	87.10043139
220622A00010	6/22/2022	3.43	7/12/2024	6/22/2022	108.30351	106.2727792	104.2907853	102.3560528	100.4671637	98.62275233	96.82150295	95.06214756	93.34346387
190107A00024	1/7/2019	2.91	1/5/2024	1/7/2019	105.2842	103.8122658	102.3683428	100.9516967	99.5616212	98.19743406	96.85847575	95.54410871	94.25371637
190211A00017	2/11/2019	3.12	2/11/2026	2/11/2019	114.48399	110.7009231	107.0649133	103.5694303	100.2082699	96.97553731	93.86562993	90.87322127	87.99324559
190607A00018	6/7/2019	2.19	6/7/2024	6/7/2019	105.52708	103.6220606	101.7607906	99.94201016	98.16450226	96.42709249	94.72864728	93.06807219	91.44431028
190801A00010	8/1/2019	1.97	8/1/2023	8/1/2019	102.81476	101.7756731	100.7575083	99.75963436	98.78144943	97.82237539	96.88185651	95.95935846	95.0543672

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190816A00011	8/16/2019	1.77	8/16/2024	8/16/2019	105.25003	103.1528925	101.1082021	99.11429744	97.16958524	95.27253412	93.42167161	91.61558145	89.85290098
200326A00028	3/26/2020	1.54	3/26/2025	3/26/2020	106.35296	103.618168	100.96743	98.39763103	95.90578991	93.48905706	91.14470747	88.87013428	86.66284274
200922A00044	9/24/2020	2.61	9/25/2023	9/24/2020	103.90184	102.701584	101.5289936	100.3831209	99.2630603	98.16794699	97.09695429	96.04929171	95.02420298
211005A00019	10/5/2021	0.47	10/5/2023	10/5/2021	101.54828	100.3325172	99.14557916	97.98645503	96.85417765	95.74782416	94.66651354	93.60940428	92.57569216
220106A00018	1/10/2022	3.11	1/8/2032	1/10/2022	136.97447	125.910042	115.8513432	106.7010116	98.3715994	90.78451603	83.86908973	77.56173249	71.80519699
180530A00026	5/30/2018	3.55	5/30/2031	5/30/2018	139.07204	128.6088846	119.0384579	110.2793096	102.2578282	94.90745081	88.16795517	81.98482621	76.30868848
180816A00038	8/16/2018	3.38	8/16/2028	8/16/2018	126.67482	119.8446895	113.4342669	107.4154543	101.762177	96.45023128	91.45714025	86.76202198	82.34546824
190815A00015	8/15/2019	1.82	8/15/2022	8/15/2019	100.16221	100.1149518	100.067757	100.0206238	99.97355203	99.92654166	99.87959254	99.83270455	99.78587757
191003A00019	10/3/2019	1.71	9/27/2024	10/3/2019	105.43213	103.2175845	101.0605184	98.95902533	96.91127948	94.91553041	92.97009901	91.07337403	89.22380871
200228A00005	2/28/2020	1.35	2/28/2024	2/28/2020	103.30153	101.6982925	100.127844	98.58924629	97.08159927	95.6040363	94.15572281	92.73585478	91.34365732
200306A00030	3/6/2020	0.88	3/6/2023	3/6/2020	101.01921	100.4047183	99.79767017	99.19793284	98.60537484	98.01986786	97.44128665	96.86950891	96.3044152
161213A00017	12/13/2016	2.24	12/13/2022	12/13/2016	101.26915	100.8852732	100.5043113	100.126234	99.75100861	99.37860281	99.00898478	98.64212318	98.27798714
170918A00108	9/18/2017	1.97	9/20/2022	9/18/2017	100.51623	100.3683972	100.2210114	100.074071	99.92757396	99.78151827	99.63590188	99.49072279	99.345979
170929A00057	9/29/2017	2.16	9/29/2023	9/29/2017	103.53826	102.3268501	101.1436663	99.98773322	98.85811816	97.75393055	96.67431956	95.61847196	94.58561002
180205A00019	2/5/2018	2.88	2/5/2025	2/5/2018	109.79699	107.152265	104.5855316	102.0940289	99.67510783	97.32622996	95.04496183	92.82897	90.67601629
200309A00005	3/9/2020	0.77	3/7/2025	3/9/2020	104.50158	101.8400053	99.25928847	96.75647375	94.32873458	91.97336667	89.68778165	87.46950129	85.31615198
081205A00033	12/5/2008	4.77	12/7/2023	12/5/2008	107.55681	106.1499653	104.7685237	103.4118563	102.0793521	100.7704199	99.4844872	98.2209997	96.97942038
190828A00031	8/28/2019	1.71	8/28/2024	8/28/2019	105.21168	103.0820874	101.0062915	98.98257306	97.00927652	95.08481174	93.20765079	91.37632499	89.58942217
200227A00009	2/27/2020	1.47	2/27/2025	2/27/2020	105.95802	103.3081531	100.7379596	98.24456119	95.82519966	93.47723443	91.19813685	88.98548463	86.83695659
200511A00017	5/11/2020	0.83	2/3/2025	5/11/2020	104.13417	101.5761672	99.09384177	96.68451346	94.34561423	92.07468276	89.86935927	87.7273807	85.64657605
151229A00080	12/29/2015	3.49	12/30/2030	12/29/2015	136.92449	127.0329265	117.9512566	109.6084385	101.9400223	94.88750425	88.39775032	82.42247759	76.9177887
180717A00047	7/17/2018	3.3	9/17/2025	7/17/2018	113.29108	109.9559628	106.7377181	103.6315496	100.632892	97.73739561	94.9409148	92.23949691	89.62937196
180820A00055	8/20/2018	3.37	8/21/2028	8/20/2018	126.6669	119.8219603	113.3984388	107.3680691	101.7046267	96.38377213	91.38290587	86.68103487	82.25865033
190424A00023	4/24/2019	2.43	4/24/2023	4/24/2019	102.44609	101.6878972	100.9409062	100.2048696	99.4795478	98.76470795	98.06012401	97.3655764	96.68085174
190501A00028	5/1/2019	2.42	5/1/2024	5/1/2019	105.85999	104.0517354	102.2832877	100.5534133	98.86092699	97.20469283	95.58362099	93.99666556	92.4428223
190826A00004	8/26/2019	1.74	8/26/2022	8/26/2019	100.26097	100.1831114	100.1053813	100.0277764	99.95029635	99.87294083	99.79570958	99.7186023	99.64161872
200115A00017	1/15/2020	1.88	1/17/2023	1/15/2020	101.32477	100.8432661	100.3663425	99.8939297	99.42596372	98.96238191	98.50312276	98.04812591	97.59733213
200415A00035	4/17/2020	2.16	4/16/2025	4/17/2020	108.23024	105.4106254	102.6789991	100.0320316	97.46654833	94.9795179	92.56804452	90.2293607	87.9608205
200429A00010	4/29/2020	0.78	4/29/2025	4/29/2020	104.82527	102.0090291	99.282145	96.64118526	94.08287882	91.60410467	89.20188367	86.87337082	84.6158481
200429A00043	5/1/2020	1.56	4/30/2025	5/1/2020	106.65963	103.8230903	101.0762477	98.41567053	95.8380861	93.34037102	90.91954319	88.57275424	86.29728233
200819A00007	8/19/2020	0.38	8/21/2023	8/19/2020	101.2565	100.1697072	99.10604116	98.06476773	97.04518646	96.04662586	95.0684419	94.11001663	93.17075682
060808A00022	8/8/2006	5.57	6/15/2026	8/8/2006	125.81875	121.4464337	117.2553753	113.237073	109.3834701	105.6869284	102.140204	98.73642491	95.46907011
160718A00010	7/18/2016	1.65	7/18/2023	7/18/2016	102.39191	101.3946671	100.4167653	99.45764602	98.51677218	97.59362698	96.687713	95.79855125	94.92568038

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171002A00013	10/2/2017	2.23	11/30/2022	10/2/2017	101.14544	100.7984772	100.4538849	100.1116415	99.77172288	99.43410564	99.09876645	98.76568238	98.43483077
190809A00022	8/9/2019	1.88	8/9/2024	8/9/2019	105.4263	103.3464909	101.3183733	99.34032817	97.4107971	95.5282816	93.69134029	91.89858622	90.14868447
190926A00017	9/26/2019	2.23	9/26/2029	9/26/2019	122.48884	114.5691105	107.218788	100.393895	94.05407062	88.16225827	82.68441827	77.58926724	72.84804122
200306A00012	3/6/2020	0.95	3/6/2024	3/6/2020	102.69256	101.07431	99.48942686	97.93695195	96.41595883	94.92555615	93.46488596	92.03312213	90.62946891
200428A00011	4/30/2020	1.95	4/29/2025	4/30/2020	107.75263	104.9035112	102.1442979	99.471549	96.88198405	94.37247283	91.94002696	89.58179225	87.29504152
200529A00009	5/29/2020	0.42	5/30/2023	5/29/2020	101.0368	100.183852	99.34519437	98.5204752	97.70934973	96.9114845	96.12655687	95.35425458	94.59427533
200720A00042	7/22/2020	2.04	7/21/2026	7/22/2020	112.02943	107.8240342	103.8002424	99.94925623	96.26275212	92.73285192	89.35209645	86.11342095	83.0101321
200730A00002	7/30/2020	0.67	11/6/2024	7/30/2020	103.31487	101.0125453	98.77251298	96.59265838	94.47095203	92.40544941	90.3942867	88.43567663	86.5279047
200925A00004	9/25/2020	0.53	9/25/2023	9/25/2020	101.44602	100.2612147	99.10382511	97.97291193	96.86757615	95.786959	94.73023975	93.69663359	92.68538977
170111A00016	1/11/2017	3.51	1/11/2033	1/11/2017	144.45783	131.868874	120.5241688	110.2928549	101.05851	92.71748743	85.17745438	78.35610315	72.18001545
180620A00038	6/20/2018	3.4	6/20/2028	6/20/2018	126.15966	119.519334	113.2775864	107.4083483	101.8873899	96.69217832	91.80175037	87.1965956	82.85854854
180917A00032	9/17/2018	3.17	9/15/2023	9/17/2018	104.44644	103.2713789	102.1227539	100.9996795	99.90130933	98.82683422	97.77547997	96.74650552	95.73920124
190430A00002	4/30/2019	2.4	11/2/2022	4/30/2019	100.98959	100.7209624	100.4537626	100.1879834	99.92361354	99.66064167	99.39905673	99.13884775	98.88000385
190919A00017	9/19/2019	1.8	9/19/2022	9/19/2019	100.48254	100.3375391	100.1929656	100.0488222	99.90510704	99.76181813	99.61895355	99.47651138	99.33448972
191129A00012	11/29/2019	1.99	11/29/2024	11/29/2019	106.57591	104.1717627	101.8338066	99.55986148	97.34783169	95.1957022	93.10153494	91.06346544	89.07969956
160922A00014	9/22/2016	2.06	9/22/2026	9/22/2016	113.2778	108.8493906	104.6191085	100.5770011	96.71367026	93.02024204	89.48833366	86.11002355	82.8778231
171013A00021	10/13/2017	2	10/17/2022	10/13/2017	100.75302	100.5294929	100.3069721	100.0854485	99.86491531	99.64536588	99.42679356	99.20919176	98.99255398
180801A00015	8/1/2018	3.16	8/1/2023	8/1/2018	103.92267	102.8791295	101.856535	100.8542576	99.87169617	98.90827285	97.96343229	97.03664041	96.12738344
181022A00029	10/22/2018	3.22	10/24/2022	10/22/2018	101.08511	100.8417225	100.5995129	100.3584704	100.1185865	99.87985292	99.64226141	99.40580379	99.17047193
191002A00006	10/2/2019	1.84	10/2/2024	10/2/2019	105.75974	103.527461	101.3533812	99.23556203	97.1721452	95.16134934	93.20146624	91.29085719	89.42794949
191107A00011	11/8/2019	2.02	2/24/2023	11/8/2019	101.64678	101.0581151	100.4762467	99.90106224	99.33244699	98.77028894	98.21447858	97.66490887	97.12147517
200403A00014	4/3/2020	0.63	4/17/2023	4/3/2020	101.07058	100.3376978	99.61539458	98.90344264	98.20162067	97.50971363	96.82751255	96.15481428	95.49142132
150904A00021	9/4/2015	2.52	9/5/2023	9/4/2015	103.72399	102.580027	101.4612373	100.3667955	99.29591324	98.24783573	97.22184017	96.21723402	95.23335347
160616A00028	6/16/2016	1.81	6/16/2023	6/16/2016	102.24112	101.3360205	100.4468888	99.57330782	98.71487224	97.87119071	97.04188524	96.22659068	95.42495415
170609A00043	6/9/2017	3.07	6/9/2032	6/9/2017	139.59053	127.8356488	117.1927807	107.550122	98.8076644	90.87589863	83.6746639	77.13212815	71.18388419
190826A00018	8/26/2019	1.9	8/27/2029	8/26/2019	120.9618	113.1378114	105.8735364	99.12601321	92.85579356	87.02663574	81.60522817	76.56093819	71.86558359
190828A00008	8/28/2019	1.75	8/29/2022	8/28/2019	100.2898	100.2035933	100.1175335	100.0316194	99.9458506	99.86022677	99.77474758	99.68941267	99.60422171
190927A00036	9/27/2019	1.94	9/6/2024	9/27/2019	105.77367	103.6131736	101.5076718	99.45538771	97.45461263	95.50370628	93.60109337	91.74526051	89.93475323
200227A00031	2/27/2020	1.43	2/27/2024	2/27/2020	103.42475	101.8232007	100.2543654	98.71731554	97.21115403	95.73501732	94.28807369	92.8695218	91.4785893
200302A00034	3/2/2020	1.25	3/1/2024	3/2/2020	103.15185	101.544244	99.96959153	98.42694519	96.91539747	95.43407495	93.98213659	92.55877226	91.16320129
200429A00017	5/4/2020	0.66	8/15/2022	5/4/2020	100.10735	100.0601451	100.0129973	99.96591113	99.91888634	99.87192286	99.82502057	99.77817934	99.73139906
200604A00010	6/4/2020	0.89	6/4/2025	6/4/2020	104.95887	102.0479151	99.23187882	96.50717102	93.87036124	91.31816641	88.84744364	86.45518351	84.13850361
220322A00010	3/22/2022	2.34	9/22/2023	3/22/2022	103.55505	102.3655287	101.2032476	100.0672835	98.95675022	97.87080099	96.80862614	95.7694513	94.75253537

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190530A00008	5/30/2019	2.38	5/30/2025	5/30/2019	109.66357	106.6889314	103.8105011	101.0246581	98.32794188	95.71704006	93.18878112	90.74012774	88.36817037
190830A00021	8/30/2019	1.76	8/30/2024	8/30/2019	105.33314	103.1967343	101.1143906	99.08437263	97.10501343	95.17471191	93.29192988	91.45518894	89.66306773
191115A00014	11/18/2019	2.45	11/18/2024	11/18/2019	107.57294	105.1872016	102.8664312	100.6084554	98.41119235	96.27264367	94.19089032	92.16408892	90.19046822
141208A00008	12/8/2014	3.02	12/16/2024	12/8/2014	109.23507	106.7496589	104.3337471	101.9850047	99.70119352	97.48016312	95.31984687	93.2182582	91.17348694
160620A00015	6/20/2016	1.71	6/20/2023	6/20/2016	102.26675	101.3490106	100.4476828	99.56232647	98.69252014	97.83785683	96.9979437	96.1724014	95.36086348
170110A00022	1/10/2017	2.27	1/10/2023	1/10/2017	101.4918	101.0290143	100.5704581	100.116069	99.66579008	99.21956573	98.77734118	98.33906268	97.90467744
171219A00063	12/19/2017	2.8	12/20/2027	12/19/2017	121.55032	115.5668865	109.917858	104.5827941	99.54260967	94.77947478	90.27672586	86.01878372	81.99107769
200228A00025	2/28/2020	1.57	3/2/2027	2/28/2020	111.8143	106.9679527	102.3587226	97.97376017	93.80098239	89.82902224	86.04718241	82.44539208	79.01416675
200228A00030	2/28/2020	1.32	2/28/2023	2/28/2020	101.25764	100.6591034	100.0676083	99.48303213	98.90525422	98.33415668	97.76962433	97.21154462	96.65980756
211222A00017	12/22/2021	0.88	7/17/2023	12/22/2021	101.52802	100.5396268	99.57035397	98.61965156	97.68699015	96.77186029	95.87377153	94.99225158	94.12684545
150316A00043	3/16/2015	2.37	3/16/2023	3/16/2015	102.07245	101.4254602	100.7866689	100.1559168	99.53305264	98.91792903	98.31040217	97.71033182	97.11758116
150819A00011	8/19/2015	2.53	8/19/2022	8/19/2015	100.24186	100.1834391	100.1251032	100.06685	100.0086792	99.95059072	99.8925843	99.8346598	99.77681705
170216A00045	2/16/2017	3.73	2/17/2037	2/16/2017	159.60953	141.362467	125.5079919	111.7139558	99.69617567	89.21127686	80.05063553	72.03524689	65.01137443
190214A00013	2/14/2019	2.64	2/14/2023	2/14/2019	101.97157	101.4092285	100.8530892	100.3030515	99.75901509	99.22088208	98.68855655	98.1619447	97.64095473
191017A00022	10/17/2019	2.25	7/17/2028	10/17/2019	119.31669	112.7981355	106.6789722	100.9326551	95.53453203	90.46170281	85.69288645	81.20829862	76.9895391
200228A00066	2/28/2020	1.35	2/28/2024	2/28/2020	103.30153	101.6982925	100.127844	98.58924629	97.08159927	95.6040363	94.15572281	92.73585478	91.34365732
200312A00042	3/16/2020	1.38	3/16/2023	3/16/2020	101.37978	100.7360473	100.1004659	99.47288252	98.85314668	98.24111184	97.63663507	97.03957695	96.44980148
210507A00009	5/7/2021	2.02	5/7/2032	5/7/2021	126.78455	115.8392514	105.9328744	96.96113873	88.83073761	81.45813336	74.76848847	68.69471897	63.17665501
130513A00007	5/13/2013	2.54	5/15/2023	5/13/2013	102.63795	101.8207714	101.0165871	100.2250887	99.44597758	98.67896434	97.92376867	97.18011882	96.44775131
160706A00028	7/6/2016	2.39	7/6/2029	7/6/2016	123.04764	115.3518189	108.193462	101.5322056	95.33091118	89.55539567	84.17418264	79.15827499	74.48094795
190603A00033	6/3/2019	2.05	6/3/2024	6/3/2019	105.47994	103.5817876	101.7270771	99.91456123	98.14303595	96.41133909	94.71834878	93.06298172	91.44419166
200122A00035	1/22/2020	1.94	1/22/2025	1/22/2020	106.89957	104.3393369	101.8537656	99.44024505	97.09627406	94.81945401	92.60748384	90.45815548	88.36934944
200305A00009	3/10/2020	1.04	10/18/2023	3/10/2020	102.17669	100.9221109	99.69810685	98.50356845	97.33744258	96.19872578	95.08646132	93.99973654	92.93768032
170822A00012	8/22/2017	2.11	8/22/2022	8/22/2017	100.24838	100.1816309	100.1149848	100.0484386	99.98199213	99.91564511	99.84939735	99.78324864	99.71719874
190531A00013	5/31/2019	2.31	12/6/2022	5/31/2019	101.21747	100.8535735	100.492299	100.1336149	99.77749333	99.42390685	99.07282841	98.72423134	98.37808934
190924A00033	9/24/2019	1.84	9/30/2022	9/24/2019	100.57132	100.3956676	100.2206297	100.0462001	99.87237564	99.69915329	99.52652989	99.35450238	99.1830677
190927A00012	10/1/2019	1.96	10/1/2024	10/1/2019	106.01889	103.7865285	101.6122983	99.49426097	97.43056283	95.41942682	93.45914877	91.54809373	89.68469251
200207A00004	2/7/2020	1.53	2/7/2023	2/7/2020	101.31085	100.7702356	100.235381	99.70619569	99.18258979	98.66447529	98.15176603	97.64437766	97.14222757
081215A00091	12/15/2008	4.19	12/15/2023	12/15/2008	107.04031	105.6115622	104.2090283	102.8320508	101.4799898	100.1522266	98.8481624	97.56721757	96.30883108
140113A00012	1/13/2014	3.48	1/17/2023	1/13/2014	102.09159	101.6079253	101.1288464	100.6542931	100.1842014	99.71850819	99.25715201	98.80007228	98.34720959
170728A00032	7/28/2017	2.36	7/27/2023	7/28/2017	103.05787	102.033263	101.0289697	100.0443889	99.07894485	98.13208368	97.20327289	96.2920001	95.39777217
171120A00017	11/20/2017	2.41	11/21/2022	11/20/2017	101.13287	100.8110747	100.4913286	100.1736163	99.85791848	99.54421593	99.23248973	98.92272121	98.61489191
190910A00004	9/11/2019	1.86	9/11/2024	9/11/2019	105.64005	103.4672383	101.3499959	99.28651574	97.27506199	95.31396875	93.40163664	91.53652953	89.71717149

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200115A00022	1/15/2020	1.88	10/14/2022	1/15/2020	100.6853	100.4704414	100.2565127	100.0435066	99.83141711	99.62023824	99.4099641	99.20058883	98.99210662
190424A00007	4/24/2019	2.66	4/24/2024	4/24/2019	105.98368	104.1980072	102.451251	100.7422083	99.06972249	97.43268492	95.83003216	94.26074367	92.72383961
190930A00008	9/30/2019	1.9	10/10/2023	9/30/2019	103.1837	101.9452433	100.7363822	99.55606369	98.40328606	97.27709414	96.17657644	95.1008627	94.04912164
210621A00008	6/21/2021	1.04	6/23/2025	6/21/2021	105.50423	102.5331024	99.66039801	96.88233757	94.19530768	91.59585293	89.08066806	86.64659058	84.29059381
170322A00026	3/22/2017	3.22	3/22/2028	3/22/2017	124.07461	117.7686938	111.8279957	106.2293453	100.9511713	95.97337778	91.27723592	86.84528328	82.66123144
180426A00053	4/26/2018	2.94	4/26/2023	4/26/2018	102.84879	102.0832826	101.3291557	100.5861583	99.85404523	99.13257857	98.42152729	97.72066699	97.02977968
180622A00005	6/22/2018	3.5	7/2/2029	6/22/2018	131.05404	123.0935285	115.6826631	108.7804362	102.349105	96.35391601	90.76285448	85.54641489	80.67739251
190426A00009	4/26/2019	2.63	4/26/2024	4/26/2019	105.94961	104.1587369	102.4069872	100.6931473	99.01605185	97.3745835	95.76767079	94.19428556	92.65344079
190724A00021	7/24/2019	2.33	7/23/2027	7/24/2019	117.50988	112.081269	106.9372317	102.0613557	97.43826335	93.05353752	88.89365693	84.94593574	81.19846769
200203A00001	2/3/2020	1.7	2/3/2023	2/3/2020	101.3398	100.8107499	100.2872113	99.769098	99.25632588	98.74881266	98.24647773	97.74924213	97.25702849
220601A00022	6/1/2022	2.73	12/1/2023	6/1/2022	104.6706	103.3017543	101.9573713	100.6368497	99.33960874	98.06508587	96.8127362	95.58203182	94.37246109
200212A00003	2/12/2020	1.63	2/12/2025	2/12/2020	106.61511	103.9917773	101.446509	98.97651905	96.57913578	94.25179987	91.99205888	89.79756205	87.66605532
200406A00006	4/6/2020	1.13	4/7/2025	4/6/2020	105.30876	102.55464	99.88612959	97.30000976	94.79321076	92.3628001	90.00597528	87.7200569	85.50248234
200511A00020	5/11/2020	1.4	2/1/2028	5/11/2020	113.08809	107.2400058	101.7282754	96.53184867	91.63109841	87.00771724	82.64462214	78.52586644	74.63655856
200922A00025	9/24/2020	2.61	9/26/2022	9/24/2020	100.66448	100.4998603	100.3357795	100.1722371	100.0092303	99.84675663	99.68481344	99.52339815	99.36250819
201028A00003	10/30/2020	1.42	2/27/2026	10/30/2020	108.41093	104.6911198	101.118442	97.68627304	94.38832364	91.21862255	88.17149868	85.24156413	82.42369832
211103A00007	11/3/2021	0.52	1/4/2023	11/3/2021	100.6399	100.1965418	99.75708154	99.321467	98.88964777	98.46157439	98.03719824	97.61647156	97.19934739
130107A00002	1/7/2013	3.22	1/18/2028	1/7/2013	123.35847	117.2678704	111.520731	106.0958402	100.973403	96.13494102	91.56319864	87.24205577	83.15644746
130508A00013	5/8/2013	2.23	5/15/2023	5/8/2013	102.46055	101.6431617	100.8387936	100.0471321	99.2678777	98.50074027	97.74543865	97.00170033	96.26926112
151002A00081	10/2/2015	2.29	10/2/2023	10/2/2015	103.72149	102.5003257	101.3078091	100.1429452	99.00478078	97.89240606	96.80495215	95.7415888	94.70152228
170613A00033	6/13/2017	2.3	6/13/2024	6/13/2017	106.0434	104.1121328	102.225627	100.3825821	98.5817412	96.82189199	95.10186477	93.42053063	91.77679984
171016A00045	10/16/2017	2.2	10/17/2022	10/16/2017	100.77986	100.5564857	100.3341114	100.1127313	99.8923388	99.67292724	99.45449002	99.23702063	99.02051258
171204A00020	12/4/2017	2.48	12/5/2022	12/4/2017	101.27115	100.9099348	100.5512947	100.1952052	99.84163901	99.49056938	99.14196986	98.79581442	98.45207737
210128A00010	1/28/2021	0.57	7/9/2024	1/28/2021	102.57624	100.6123605	98.69567434	96.82475735	94.99824034	93.21480438	91.47317856	89.77213787	88.11050122
220602A00039	6/2/2022	3.11	6/2/2027	6/2/2022	120.94643	115.5855708	110.4970459	105.665609	101.0769392	96.71758513	92.57490742	88.6370257	84.89276939
180511A00035	5/11/2018	2.93	5/11/2023	5/11/2018	102.98796	102.1795108	101.3837504	100.6003793	99.82910965	99.0696623	98.3217667	97.58516051	96.85958926
180627A00027	6/27/2018	2.87	6/27/2023	6/27/2018	103.38883	102.4457628	101.5198715	100.6106917	99.71777397	98.84068492	97.97900637	97.13233475	96.30028051
190328A00083	3/28/2019	2.37	3/28/2024	3/28/2019	105.45437	103.7440896	102.0699824	100.4309678	98.82600761	97.2541044	95.71429995	94.20567307	92.72733786
190910A00030	9/10/2019	1.86	9/10/2024	9/10/2019	105.63228	103.4623058	101.3477816	99.28690307	97.27793994	95.31923168	93.40918394	91.54626534	89.72900446
191126A00015	11/27/2019	1.88	10/14/2022	11/27/2019	100.6853	100.4704414	100.2565127	100.0435066	99.83141711	99.62023824	99.4099641	99.20058883	98.99210662
200330A00045	3/30/2020	1.47	3/30/2027	3/30/2020	111.50287	106.5805571	101.9027063	97.45586842	93.22741323	89.20547121	85.37888333	81.73715439	78.27040966
051107A00075	11/7/2005	5.29	11/17/2025	11/7/2005	121.30259	117.6436353	114.1175449	110.7187283	107.4418668	104.2818957	101.2339911	98.2935562	95.45620974
180327A00024	3/27/2018	2.79	5/26/2023	3/27/2018	103.01633	102.1654402	101.3285845	100.5054176	99.6956057	98.89882577	98.11476503	97.34312068	96.58359945

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200311A00056	3/13/2020	1.27	4/10/2024	3/13/2020	103.4523	101.7275945	100.0399333	98.38819066	96.77128456	95.18817691	93.63787107	92.11940973	90.63187302
180716A00016	7/16/2018	3.03	7/14/2023	7/16/2018	103.60507	102.6142506	101.6423715	100.6888942	99.7532991	98.83508631	97.93377431	97.04889926	96.18001416
190110A00005	1/10/2019	3.2	1/9/2026	1/10/2019	114.36786	110.6827947	107.1377575	103.7266769	100.4437751	97.28355506	94.2407856	91.31048677	88.48791651
191204A00013	12/4/2019	1.72	12/4/2024	12/4/2019	106.28908	103.867529	101.5131636	99.22375163	96.99715075	94.83130173	92.72422463	90.67401528	88.67884193
210924A00003	9/24/2021	2.37	9/24/2036	9/24/2021	138.12206	121.8160941	107.645191	95.3162381	84.57782272	75.214113	67.03966098	59.89498739	53.64282705
170822A00018	8/22/2017	2.25	8/22/2023	8/22/2017	103.1708	102.0718351	100.996211	99.9431887	98.91206143	97.90215166	96.91280951	95.94341144	94.99335888
190318A00008	3/18/2019	2.76	3/18/2024	3/18/2019	105.80201	104.1217417	102.4765413	100.8653781	99.28726129	97.74123819	96.22639282	94.74184393	93.2867434
190531A00038	5/31/2019	2.82	5/31/2034	5/31/2019	142.20256	128.0360339	115.4473977	104.2511204	94.28441214	85.40433382	77.48528555	70.41682433	64.10176567
190604A00031	6/4/2019	2.25	6/5/2023	6/4/2019	102.55352	101.6778092	100.8170151	99.97075991	99.13867759	98.32041423	97.51562763	96.72398682	95.9451716
190712A00001	7/12/2019	2.05	7/12/2024	7/12/2019	105.81183	103.8015415	101.8396971	99.92482931	98.05552545	96.23042514	94.44821782	92.70764063	91.00747628
191230A00031	12/30/2019	1.85	12/30/2024	12/30/2019	106.82303	104.3204979	101.8893175	99.52705506	97.23137333	95.00002833	92.83086516	90.7218139	88.67088569
200128A00028	1/28/2020	1.81	1/28/2025	1/28/2020	106.61456	104.041405	101.5437806	99.11903217	96.7646136	94.47808366	92.25710119	90.09942023	88.00288555
200407A00001	4/8/2020	2.41	4/7/2025	4/8/2020	108.84046	106.0375256	103.3213485	100.6886775	98.13640744	95.66157177	93.26133539	90.93298757	88.67393554
200415A00030	4/15/2020	0.76	3/15/2023	4/15/2020	100.97862	100.3391359	99.70771797	99.08421684	98.46848429	97.86037581	97.25975041	96.66647059	96.08040219
201028A00005	10/30/2020	1.85	10/31/2025	10/30/2020	108.98887	105.5966744	102.3277987	99.17700961	96.13933068	93.21002953	90.38460385	87.65876854	85.02844353
201030A00002	11/2/2020	2.8	10/29/2040	11/2/2020	151.42019	129.7988768	111.6712144	96.44499723	83.63165892	72.82765228	63.69925544	55.9701583	49.41130929
220701A00014	7/1/2022	3.15	7/14/2023	7/1/2022	103.72223	102.7307947	101.758305	100.804225	99.86803524	98.94923552	98.04734418	97.16189719	96.29244742
150105A00026	1/5/2015	2.54	1/5/2024	1/5/2015	104.92067	103.4486045	102.0045978	100.5879165	99.19785206	97.83372016	96.49485936	95.18063027	93.8904146
160705A00104	7/5/2016	2.1	7/6/2026	7/5/2016	112.13423	107.9707668	103.985242	100.1691284	96.51435042	93.01325986	89.65861087	86.44353667	83.3615277
180816A00024	8/16/2018	3.01	8/16/2023	8/16/2018	103.93087	102.8445568	101.7809401	100.7393121	99.71899578	98.71934149	97.7397258	96.77955015	95.83823965
190115A00063	1/15/2019	2.96	1/16/2024	1/15/2019	105.47174	103.9681107	102.493655	101.0475961	99.62918473	98.23769748	96.87243562	95.53272413	94.21791065
190212A00017	2/12/2019	2.86	6/30/2023	2/12/2019	103.3138	102.3639731	101.431582	100.5161484	99.61721283	98.73433234	97.86707966	97.01504257	96.17782324
190709A00018	7/9/2019	2.24	7/9/2024	7/9/2019	105.89898	103.9013247	101.9515243	100.0481336	98.18976532	96.37508297	94.60279882	92.87167162	91.18050467
190930A00014	9/30/2019	1.89	9/30/2022	9/30/2019	100.58008	100.4044232	100.2293738	100.0549328	99.88109699	99.70786328	99.53522856	99.36318976	99.19174382
210201A00012	2/3/2021	0.75	11/17/2025	2/3/2021	105.39196	102.0128616	98.75860668	95.62390777	92.60373216	89.69328839	86.88801312	84.18355889	81.57578253
220118A00009	1/18/2022	1.65	1/17/2025	1/18/2022	106.12503	103.5885058	101.1256317	98.73384341	96.41068576	94.15380342	91.9609364	89.82991552	87.75865816
190520A00007	5/20/2019	2.52	5/20/2024	5/20/2019	105.98348	104.1243656	102.3069962	100.5301541	98.79266381	97.09339283	95.43125001	93.80518354	92.21417917
200326A00030	3/26/2020	1.13	3/24/2023	3/26/2020	101.2571	100.5914437	99.93450623	99.28611384	98.64610068	98.0143052	97.39056998	96.77474159	96.16667047
210428A00015	4/28/2021	2.02	4/28/2031	4/28/2021	124.65862	114.922949	106.0249017	97.88789049	90.44270925	83.62678904	77.38352923	71.6616991	66.41490248
150601A00470	6/1/2015	2.98	5/31/2024	6/1/2015	107.12497	105.2192336	103.3568831	101.5366744	99.75740983	98.01793326	96.31712853	94.65391772	93.02725959
171018A00003	10/18/2017	2.23	10/18/2023	10/18/2017	103.79703	102.5295659	101.2929404	100.0860422	98.90780911	97.75722916	96.6333374	95.53521334	94.46197842
180207A00002	2/7/2018	3.13	2/6/2026	2/7/2018	114.45821	110.6904089	107.068639	103.5864302	100.2376401	97.01643163	93.91725608	90.93483714	88.06415586
180918A00038	9/18/2018	3.11	9/16/2022	9/18/2018	100.62593	100.4892116	100.3528823	100.2169375	100.0813757	99.94619524	99.81139442	99.67697162	99.54292524

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190826A00063	8/26/2019	2.05	8/28/2028	8/26/2019	118.37737	111.7639539	105.5630712	99.74682792	94.28936041	89.16667546	84.35650521	79.83817436	75.59247829
190923A00081	9/23/2019	1.96	9/20/2024	9/23/2019	105.92958	103.7287474	101.5846474	99.49541459	97.45926042	95.47446907	93.53939411	91.65245502	89.81213397
191113A00016	11/15/2019	2.02	8/15/2024	11/15/2019	105.76607	103.6661762	101.6187214	99.62205207	97.67457687	95.77476636	93.92114983	92.1123126	90.34689348
200225A00012	2/25/2020	1.57	2/25/2025	2/25/2020	106.20793	103.5604278	100.9923836	98.50093206	96.08332714	93.73694002	91.45925298	89.24785397	87.10043139
100824A00009	8/24/2010	3.91	9/2/2025	8/24/2010	115.04621	111.7262694	108.5212411	105.4264705	102.4375194	99.55015661	96.76034663	94.06423934	91.45816022
160930A00010	9/30/2016	1.47	9/30/2022	9/30/2016	100.51855	100.342837	100.1677405	99.99325404	99.81937445	99.64609858	99.47342331	99.30134553	99.12986215
170215A00041	2/15/2017	2.6	10/16/2023	2/15/2017	104.09923	102.8376632	101.6066054	100.4049621	99.23168809	98.08578725	96.96630962	95.87234874	94.80303924
180820A00054	8/20/2018	3	8/18/2023	8/20/2018	103.94175	102.8496869	101.7805514	100.7336307	99.70823723	98.70371165	97.71942122	96.75475862	95.80914062
190523A00016	5/23/2019	2.48	2/15/2023	5/23/2019	101.84623	101.2820359	100.7240948	100.172299	99.62654705	99.08674001	98.55278098	98.02457516	97.50202983
190904A00020	9/4/2019	1.69	9/1/2023	9/4/2019	102.63532	101.5111542	100.4114912	99.33553291	98.28251965	97.25172386	96.24244844	95.25402519	94.28581328
200720A00039	7/22/2020	2.48	7/21/2025	7/22/2020	110.07179	106.9520542	103.9377127	101.0246231	98.20882864	95.48655033	92.85417766	90.30826021	87.84549954
200807A00004	8/7/2020	0.29	8/8/2022	8/7/2020	100.05532	100.0275346	99.99978441	99.97206529	99.94437723	99.91672016	99.88909405	99.86149881	99.83393441
160926A00023	9/26/2016	1.74	9/26/2022	9/26/2016	100.52163	100.3571863	100.1932862	100.0299239	99.86709682	99.70480234	99.54303785	99.38180078	99.22108856
170731A00029	7/31/2017	2.34	7/31/2023	7/31/2017	103.07183	102.0358366	101.0206009	100.025508	99.04996292	98.09339416	97.15525213	96.23500834	95.3321543
180920A00028	9/20/2018	3.12	9/20/2023	9/20/2018	104.57675	103.3845655	102.219552	101.0807853	99.96738534	98.87851087	97.81335761	96.77115609	95.7511698
180920A00062	9/20/2018	3.12	9/20/2023	9/20/2018	104.57675	103.3845655	102.219552	101.0807853	99.96738534	98.87851087	97.81335761	96.77115609	95.7511698
180924A00052	9/24/2018	3.22	9/22/2023	9/24/2018	104.58666	103.3906858	102.2220589	101.0798491	99.96316748	98.87116475	97.80302883	96.75798297	95.73528382
190809A00011	8/9/2019	1.69	8/9/2024	8/9/2019	105.30724	103.2234061	101.1914706	99.20979864	97.2768231	95.39103736	93.5509923	91.75529367	90.00259957
191120A00005	11/20/2019	2.63	11/20/2034	11/20/2019	138.67701	124.3188676	111.6173615	100.3711052	90.40419483	81.56287069	73.7126283	66.73571921	60.52898706
191217A00012	12/20/2019	2.03	12/20/2024	12/20/2019	106.85228	104.3847931	101.9867803	99.655902	97.38990953	95.18664281	93.04402637	90.96006546	88.93284247
200204A00020	2/4/2020	1.6	2/4/2025	2/4/2020	106.47319	103.8746199	101.3529154	98.90535418	96.52932391	94.22232098	91.98194545	89.80589597	87.69196504
200226A00009	2/26/2020	1.75	2/26/2030	2/26/2020	121.0084	112.635749	104.9003707	97.75045948	91.13867489	85.02173536	79.36005077	74.11738979	69.26057893
020916A00006	9/16/2002	5.38	9/16/2022	9/16/2002	100.93545	100.798374	100.6616816	100.5253747	100.3894516	100.2539107	100.1187503	99.98396877	99.84956455
150601A00689	6/1/2015	2.81	2/28/2025	6/1/2015	109.40805	106.7094803	104.0917854	101.5520454	99.08746275	96.69535953	94.37317116	92.11844099	89.92881493
160329A00006	3/29/2016	2.12	3/29/2023	3/29/2016	101.95123	101.2689742	100.5958153	99.93157503	99.27607718	98.62915017	97.99062689	97.36034453	96.73814446
160701A00039	7/1/2016	1.92	7/1/2026	7/1/2016	111.91478	107.7549873	103.772806	99.95973249	96.30771754	92.8091371	89.45676756	86.24376257	83.16363134
170728A00033	7/28/2017	2.46	1/29/2024	7/28/2017	104.83972	103.3054181	101.8015659	100.3273385	98.88193744	97.46459251	96.0745603	94.71112317	93.37358804
190327A00031	3/27/2019	2.53	3/27/2024	3/27/2019	105.50792	103.8037324	102.1354928	100.5021262	98.90260338	97.33593611	95.80117446	94.29740519	92.82374991
191004A00012	10/4/2019	1.78	10/4/2024	10/4/2019	105.64175	103.4051083	101.2269085	99.10519609	97.03810075	95.02382989	93.06066476	91.14695675	89.28112382
200127A00013	1/27/2020	1.56	1/27/2023	1/27/2020	101.26114	100.7514758	100.2469227	99.74740812	99.25285684	98.7631952	98.27835101	97.79825348	97.32283319
200205A00011	2/7/2020	2.31	2/7/2024	2/7/2020	104.68815	103.1304186	101.6038817	100.1076739	98.64096565	97.20295684	95.79287599	94.40997875	93.05354673
200214A00007	2/14/2020	1.59	2/14/2025	2/14/2020	106.52654	103.8986431	101.3490755	98.87503554	96.47383777	94.14290985	91.87978719	89.68210756	87.54760613
200226A00025	2/26/2020	1.38	2/26/2025	2/26/2020	106.06508	103.4089726	100.8328164	98.33371258	95.90889125	93.55570099	91.27160284	89.0541647	86.90105607

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200429A00050	5/1/2020	2.61	4/30/2025	5/1/2020	109.62533	106.746879	103.9591325	101.2586239	98.64204893	96.10625444	93.64822953	91.26509822	88.95411216
150821A00017	8/21/2015	2.22	8/23/2022	8/21/2015	100.27256	100.2029524	100.1334557	100.0640658	99.99478246	99.92560541	99.85653442	99.78756924	99.71870965
180118A00004	1/18/2018	2.88	1/17/2025	1/18/2018	109.23967	106.6634503	104.1617625	101.73202	99.37174118	97.07854556	94.85014888	92.68435866	90.57906983
180730A00004	7/30/2018	3.14	7/28/2023	7/30/2018	103.85819	102.826391	101.8150712	100.823628	99.85147968	98.89806689	97.96285174	97.04531678	96.144964
181227A00027	12/27/2018	3.24	12/26/2025	12/27/2018	114.33709	110.6930454	107.1860175	103.8101248	100.5597714	97.4296307	94.41463032	91.50993902	88.71095378
200203A00005	2/3/2020	1.7	5/3/2023	2/3/2020	101.88624	101.1060485	100.3377598	99.58110382	98.83581796	98.10164748	97.37834519	96.66567119	95.96339259
200221A00013	2/21/2020	1.69	2/21/2025	2/21/2020	106.49384	103.853929	101.2929873	98.80817032	96.39675908	94.0561498	91.78384837	89.5774649	87.43470858
200922A00039	9/24/2020	3	9/23/2025	9/24/2020	112.39296	109.0551495	105.8349061	102.7273855	99.72797373	96.8322761	94.03610514	91.33546933	88.7265626
190522A00019	5/23/2019	2.55	5/15/2024	5/23/2019	105.99044	104.1454566	102.3416676	100.5778521	98.85283381	97.16548131	95.5147055	93.89945778	92.31872816
190524A00026	5/28/2019	2.45	6/15/2023	5/28/2019	102.80784	101.9027717	101.0136143	100.1399467	99.28136675	98.43748579	97.60792857	96.79233247	95.99034705
200224A00029	2/24/2020	1.56	2/24/2023	2/24/2020	101.37756	100.7897874	100.2088128	99.63451473	99.06677861	98.50549251	97.95054703	97.40183524	96.85925257
140131A00025	1/31/2014	3.28	1/30/2023	1/31/2014	102.12933	101.6091118	101.0941861	100.5844712	100.0798882	99.58035999	99.08581099	98.59616704	98.11135546
160727A00002	7/27/2016	1.87	7/27/2023	7/27/2016	102.56164	101.5397414	100.538118	99.55617067	98.59332415	97.64902556	96.72274315	95.81396532	94.92219966
161031A00007	10/31/2016	1.91	10/31/2022	10/31/2016	100.82077	100.5582912	100.2971725	100.0374072	99.77898463	99.52189456	99.26612669	99.01167085	98.758517
171030A00023	10/30/2017	2.9	11/1/2027	10/30/2017	120.7394	114.953253	109.4827241	104.3088465	99.41390235	94.78133049	90.39564447	86.24235643	82.30790708
180529A00043	5/29/2018	2.99	5/30/2023	5/29/2018	103.13782	102.2762631	101.4290832	100.5959184	99.77642304	98.97026283	98.17711423	97.39666409	96.62860926
190522A00017	5/23/2019	2.53	3/1/2023	5/23/2019	101.98794	101.3841195	100.7874262	100.1977387	99.61493425	99.03889292	98.46949758	97.90663378	97.35018968
190710A00022	7/10/2019	2.22	7/10/2024	7/10/2019	105.86805	103.8678658	101.9156621	100.0099904	98.14945771	96.33272239	94.55849156	92.82551917	91.13260394
190910A00017	9/16/2019	1.86	9/16/2024	9/16/2019	105.67892	103.4919012	101.3610687	99.28458377	97.26068221	95.28767123	93.36392611	91.48788683	89.65805494
191114A00009	11/18/2019	1.94	8/16/2023	11/18/2019	102.78738	101.7076351	100.6504861	99.61523259	98.60119952	97.60773949	96.63423117	95.68007806	94.7447072
200429A00003	4/29/2020	0.74	4/28/2023	4/29/2020	101.12504	100.3620765	99.61055181	98.8702133	98.14081293	97.42211001	96.71387082	96.01586842	95.32788239
201006A00003	10/6/2020	0.29	10/6/2022	10/6/2020	100.33298	100.1407814	99.9493304	99.75861983	99.56864534	99.37940265	99.19088749	99.00309561	98.81602282
170314A00006	3/14/2017	2.67	3/14/2024	3/14/2017	105.81348	104.1413921	102.5040946	100.9005719	99.32984526	97.79097378	96.28305237	94.80521013	93.35660871
170622A00037	6/22/2017	3.27	6/22/2033	6/22/2017	143.14156	130.1090072	118.4161808	107.9169279	98.48178275	89.99598525	82.35774167	75.47669942	69.27260775
180924A00047	9/24/2018	3.14	9/23/2022	9/24/2018	100.71506	100.5587328	100.4028986	100.2475551	100.0927001	99.93833135	99.78444647	99.6310432	99.47811929
181114A00021	11/14/2018	3.17	11/14/2023	11/14/2018	105.26298	103.9224956	102.6103545	101.3256596	100.067554	98.83521669	97.62786059	96.44473098	95.2851037
190828A00019	8/28/2019	2	3/28/2028	8/28/2019	116.95744	110.8346889	105.070715	99.64259261	94.52898559	89.71002582	85.16720412	80.88326998	76.84213926
191106A00012	11/6/2019	2.02	10/11/2024	11/6/2019	106.23816	103.9747843	101.7709277	99.62458813	97.53384624	95.49686336	93.51187728	91.57719834	89.69120577
211222A00018	12/22/2021	0.88	7/17/2023	12/22/2021	101.52802	100.5396268	99.57035397	98.61965156	97.68699015	96.77186029	95.87377153	94.99225158	94.12684545
190820A00054	8/20/2019	1.76	8/18/2022	8/20/2019	100.1875	100.1319032	100.0763822	100.0209383	99.96557132	99.91028111	99.85506751	99.79993037	99.74486953
190904A00019	9/4/2019	1.69	9/4/2024	9/4/2019	105.22006	103.0711289	100.9768309	98.93540246	96.94514968	95.00444606	93.11172944	91.26549885	89.46431161
200224A00015	2/24/2020	1.57	1/10/2024	2/24/2020	103.35132	101.8806048	100.438147	99.02320612	97.63506396	96.27302671	94.93642398	93.62460786	92.33695194
200604A00014	6/4/2020	2.42	6/4/2040	6/4/2020	143.66603	123.124327	105.866185	91.34296301	79.10051412	68.76249608	60.01669437	52.60380572	46.30822968

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210604A00005	6/4/2021	0.3	12/2/2022	6/4/2021	100.50677	100.1553304	99.80634331	99.45978273	99.11562348	98.77384064	98.43440967	98.09730636	97.76250682
180625A00041	6/25/2018	3.06	6/20/2023	6/25/2018	103.40293	102.4808561	101.5752176	100.6855787	99.81151777	98.95262804	98.10851672	97.27880452	96.46312502
181023A00021	10/23/2018	3.28	10/23/2023	10/23/2018	105.02503	103.737267	102.4810797	101.2553207	100.0588935	98.89075387	97.74990649	96.63540239	95.54633614
190122A00007	1/22/2019	3.03	1/22/2024	1/22/2019	105.64004	104.1185924	102.6269672	101.1643657	99.73001455	98.32316724	96.943103	95.58912572	94.26056292
200303A00034	3/3/2020	1.21	3/3/2025	3/3/2020	105.29639	102.6436575	100.0710176	97.57555682	95.15449166	92.80515799	90.5250052	88.31159044	86.16257332
200810A00004	8/10/2020	0.43	8/9/2024	8/10/2020	102.68647	100.6304219	98.62571086	96.67072398	94.76390974	92.90377637	91.0888891	89.31786747	87.58938288
170123A00039	1/23/2017	2.79	1/23/2026	1/23/2017	113.56294	109.839261	106.259019	102.815907	99.50393308	96.31740063	93.25089204	90.29925343	87.45758032
170913A00027	9/13/2017	2.08	9/13/2022	9/13/2017	100.45663	100.3284789	100.2006714	100.0732047	99.94607741	99.81928824	99.69283577	99.56671862	99.44093542
170928A00020	9/29/2017	2.29	9/29/2022	9/29/2017	100.64129	100.4683378	100.2959794	100.1242084	99.95302168	99.78241634	99.61238947	99.44293817	99.27405955
190626A00010	6/26/2019	2.1	6/26/2023	6/26/2019	102.57264	101.6378206	100.7199853	99.81867146	98.93343606	98.06385192	97.20950684	96.37000299	95.54495627
190808A00023	8/8/2019	1.68	11/8/2023	8/8/2019	103.25697	101.9421905	100.6570856	99.40064858	98.1719204	96.9699847	95.79396561	94.6430254	93.5163625
150601A00650	6/1/2015	2.75	3/31/2023	6/1/2015	102.37075	101.6812646	101.0010534	100.3299255	99.66770005	99.01420072	98.36925591	97.73269849	97.10436567
180110A00028	1/10/2018	2.85	1/10/2025	1/10/2018	109.08939	106.5346708	104.0533295	101.6428385	99.30077217	97.02480287	94.81269639	92.66230752	90.57157595
180719A00063	7/19/2018	3.21	7/19/2024	7/19/2018	107.94552	105.8983391	103.9007706	101.9513035	100.0484807	98.1908993	96.3772081	94.60610558	92.87633753
190606A00026	6/6/2019	2.23	6/6/2023	6/6/2019	102.54364	101.6651657	100.8017027	99.95287102	99.11830113	98.2976357	97.49052933	96.69664796	95.91566842
190711A00022	7/11/2019	2	7/11/2023	7/11/2019	102.68498	101.7059355	100.7454979	99.80314191	98.87836039	97.9706651	97.07958573	96.2046691	95.34547839
190830A00002	8/30/2019	1.93	8/28/2026	8/30/2019	111.9108	107.5992428	103.4779048	99.53736861	95.76873611	92.16359693	88.71399864	85.41241925	82.2517414
190930A00035	9/30/2019	1.93	9/30/2024	9/30/2019	105.94377	103.7151144	101.5444326	99.42980017	97.36937021	95.36137207	93.40410768	91.49594783	89.63532874
191105A00007	11/5/2019	1.98	11/5/2026	11/5/2019	113.3484	108.788919	104.4385516	100.2865566	96.32280566	92.53774631	88.92236599	85.46815803	82.16709012
200709A00002	7/10/2020	1.66	7/10/2025	7/10/2020	107.47967	104.4309831	101.4845931	98.63651403	95.8829377	93.22022513	90.64489806	88.15363087	85.74324302
220317A00012	3/17/2022	1.99	9/15/2023	3/17/2022	103.08629	101.9195981	100.7792151	99.66425479	98.57387416	97.50726721	96.46366283	95.44232294	94.44254073
170608A00020	6/8/2017	2.27	6/10/2024	6/8/2017	105.95885	104.0367005	102.1589343	100.3242628	98.53144447	96.77928184	95.06661924	93.39234116	91.75537063
180223A00022	2/23/2018	2.93	2/23/2023	2/23/2018	102.17559	101.5878816	101.0069288	100.4326149	99.86482646	99.30345269	98.7483853	98.19951842	97.65674852
190702A00002	7/2/2019	2.16	7/2/2024	7/2/2019	105.67893	103.7034207	101.7747859	99.89162472	98.0525913	96.25638849	94.50176594	92.78751797	91.11248171
200304A00053	3/6/2020	2.33	3/6/2025	3/6/2020	108.30541	105.6035604	102.9832025	100.4413683	97.97522191	95.5820497	93.2592539	91.00434677	88.81494521
020920A00012	9/20/2002	5.4	9/20/2022	9/20/2002	101.01049	100.8621756	100.7143105	100.5668907	100.419914	100.2733785	100.1272821	99.98162284	99.83639879
160630A00012	6/30/2016	2.11	6/30/2025	6/30/2016	108.75171	105.7126923	102.7745573	99.93341153	97.18553568	94.52737416	91.95552671	89.46674081	87.05790436
180516A00019	5/16/2018	3.19	5/16/2023	5/16/2018	103.17381	102.3514292	101.5421541	100.7456772	99.96169612	99.18991836	98.43006026	97.68184696	96.945012
190821A00009	8/21/2019	1.79	8/22/2022	8/21/2019	100.22701	100.1602863	100.0936585	100.0271307	99.96070244	99.89437367	99.82814414	99.76201361	99.69598189
200123A00013	1/27/2020	1.89	1/27/2025	1/27/2020	106.81174	104.2388019	101.7412985	99.31657539	96.9620926	94.67541484	92.45420646	90.29622669	88.19932519
200928A00002	9/28/2020	0.35	9/28/2023	9/28/2020	101.37538	100.1805345	99.01356244	97.8735022	96.75943304	95.67047576	94.60579034	93.56457385	92.54605838
160119A00030	1/19/2016	3.44	1/18/2033	1/19/2016	143.74545	131.1715282	119.8434749	109.6299793	100.4142487	92.09233243	84.57164903	77.76968885	71.61287095
170803A00020	8/3/2017	2.84	8/3/2027	8/3/2017	119.4756	113.9900325	108.792129	103.8652683	99.19387645	94.76335531	90.56001637	86.57101926	82.7843148

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190822A00016	8/22/2019	1.84	8/22/2022	8/22/2019	100.23035	100.1636214	100.0969908	100.03046	99.96402895	99.89769734	99.83146495	99.76533158	99.69929702
211222A00022	12/22/2021	1.06	1/16/2024	12/22/2021	102.62648	101.1450979	99.69249667	98.26791106	96.87060233	95.49985716	94.15498659	92.83532494	91.54022887
150814A00004	8/14/2015	2.32	8/15/2022	8/14/2015	100.19005	100.1427301	100.0954704	100.0482729	100.0011374	99.95406375	99.9070519	99.86010169	99.813213
170327A00072	3/29/2017	3.09	3/29/2027	3/29/2017	120.05953	114.9160955	110.0258015	105.3747812	100.950006	96.73923061	92.73094119	88.91430735	85.27913761
180116A00010	1/16/2018	2.58	1/17/2023	1/16/2018	101.66025	101.1778045	100.699938	100.2265887	99.75769268	99.29318716	98.83301056	98.37710245	97.92540352
180719A00065	7/19/2018	3.36	7/20/2026	7/19/2018	117.43253	113.1212409	108.9947313	105.0440839	101.260862	97.63707966	94.16517415	90.83798175	87.64871432
180926A00004	9/26/2018	3.04	9/26/2022	9/26/2018	100.74644	100.5815965	100.4172932	100.2535302	100.0903049	99.92761468	99.76545692	99.603829	99.44272832
190430A00003	4/30/2019	2.43	8/2/2023	4/30/2019	103.29683	102.252229	101.228703	100.2256148	99.24235701	98.27834587	97.3330204	96.40584125	95.49628963
190819A00020	8/19/2019	1.79	8/19/2022	8/19/2019	100.19863	100.1402496	100.0819509	100.0237347	99.96560089	99.90754931	99.84957977	99.7916921	99.73388613
150601A00733	6/1/2015	2.72	5/1/2025	6/1/2015	110.21862	107.3203096	104.5135157	101.7947406	99.16064788	96.60805357	94.13391725	91.73533469	89.40953046
151109A00020	11/9/2015	2.79	11/9/2023	11/9/2015	104.56854	103.24505	101.9510376	100.6855172	99.44754718	98.23622758	97.05069763	95.89013372	94.75374735
190930A00011	9/30/2019	1.89	10/24/2022	9/30/2019	100.76296	100.5201079	100.2784288	100.0379147	99.7985573	99.56034827	99.32327933	99.08734233	98.85252917
191206A00044	12/10/2019	2.01	10/31/2024	12/10/2019	106.38575	104.0637954	101.8041136	99.60457275	97.46313116	95.37783452	93.34681115	91.36826775	89.44048535
200114A00006	1/15/2020	1.99	1/15/2025	1/15/2020	106.96962	104.4278765	101.9596992	99.56254108	97.23395554	94.97159515	92.77320727	90.63662957	88.55978581
200220A00025	2/20/2020	1.72	2/21/2023	2/20/2020	101.45244	100.8728062	100.2997842	99.73325774	99.17311692	98.61925415	98.0715643	97.52994457	96.99429443
200318A00043	3/18/2020	1.06	3/20/2023	3/18/2020	101.25139	100.5961807	99.94942613	99.31095933	98.68062172	98.05825876	97.4437198	96.83685798	96.23753008
200925A00008	9/25/2020	0.74	9/25/2025	9/25/2020	105.08015	101.8545821	98.74382563	95.74312284	92.84794264	90.05397022	87.3570951	84.75339999	82.23915036
210608A00005	6/8/2021	0.51	6/7/2024	6/8/2021	102.58449	100.7035314	98.86596448	97.07053089	95.31602157	93.60126982	91.92514955	90.2865736	88.68449214
120113A00013	1/13/2012	3.87	1/15/2032	1/13/2012	144.61151	133.1679865	122.7575965	113.2806048	104.6474214	96.77752032	89.59847939	83.04512569	77.05877542
170623A00028	6/23/2017	2.79	6/23/2027	6/23/2017	118.84034	113.4918485	108.4181201	103.6036145	99.03374538	94.69482055	90.57398262	86.65915389	82.9389852
180103A00019	1/3/2018	2.51	1/3/2023	1/3/2018	101.51337	101.0705053	100.6314991	100.1963039	99.76487018	99.33714936	98.9130936	98.49265588	98.07579001
180920A00035	9/20/2018	3.16	9/20/2022	9/20/2018	100.68011	100.5321957	100.3847317	100.2377118	100.091134	99.94499642	99.79929695	99.65403364	99.5092045
190122A00045	1/22/2019	3.17	1/22/2027	1/22/2019	119.59682	114.6683836	109.9744782	105.5026852	101.2413094	97.17933307	93.30637322	89.61264148	86.08890696
190326A00024	3/26/2019	2.59	3/26/2024	3/26/2019	105.59952	103.897477	102.2312863	100.5998843	99.00224594	97.43738666	95.90436011	94.40225639	92.93020027
200224A00020	2/24/2020	1.59	2/24/2025	2/24/2020	106.25326	103.6080023	101.0420693	98.55260407	96.13686773	93.79223792	91.51620306	89.30635684	87.1603931
200302A00035	3/2/2020	1.22	7/3/2023	3/2/2020	101.7919	100.8413885	99.90852614	98.99282617	98.09381865	97.21105065	96.34408553	95.49250215	94.65589421
150601A00522	6/1/2015	4.52	7/25/2030	6/1/2015	143.33281	133.6825742	124.7804916	116.5640016	108.9760981	101.9648126	95.48274372	89.48663417	83.93698782
170216A00044	2/16/2017	3.52	2/17/2032	2/16/2017	141.44348	130.0455885	119.6891528	110.2726115	101.7048294	93.90397887	86.79654415	80.31643737	74.40421246
180116A00046	1/16/2018	2.58	1/11/2023	1/16/2018	101.61051	101.14499	100.6837393	100.2266999	99.77381415	99.32502543	98.88027821	98.43951795	98.00269108
180917A00054	9/17/2018	3.17	9/15/2023	9/17/2018	104.44644	103.2713789	102.1227539	100.9996795	99.90130933	98.82683422	97.77547997	96.74650552	95.73920124
190827A00001	8/27/2019	1.74	8/27/2024	8/27/2019	105.26823	103.1407609	101.0669895	99.04519859	97.07373744	95.15102055	93.27552434	91.44578426	89.66039202
190926A00007	9/26/2019	1.88	9/26/2022	9/26/2019	100.54462	100.3801453	100.2162161	100.0528249	99.88996887	99.72764556	99.56585231	99.40458656	99.24384574
191212A00029	12/13/2019	1.94	5/16/2023	12/13/2019	102.15942	101.3415675	100.536774	99.74472873	98.96513032	98.19768705	97.44211618	96.69814372	95.96550404

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200228A00063	2/28/2020	1.32	2/28/2023	2/28/2020	101.25764	100.6591034	100.0676083	99.48303213	98.90525422	98.33415668	97.76962433	97.21154462	96.65980756
150422A00019	4/22/2015	2.62	4/22/2025	4/22/2015	109.57209	106.7169214	103.9511481	101.2713706	98.6743496	96.15699276	93.71634684	91.34959019	89.05402577
160706A00027	7/6/2016	2.29	7/6/2028	7/6/2016	119.47598	112.9857937	106.8912179	101.1660891	95.7861031	90.72867402	85.97280484	81.49896775	77.28899429
170831A00006	8/31/2017	1.87	8/31/2022	8/31/2017	100.32541	100.2335216	100.1418031	100.0502553	99.9588779	99.86767028	99.776632	99.68576259	99.59506158
180206A00013	2/6/2018	2.72	2/6/2024	2/6/2018	105.50806	103.9432496	102.4097722	100.9067666	99.43339937	97.98886692	96.57239426	95.18323372	93.82066373
180412A00034	4/12/2018	3.23	4/15/2030	4/12/2018	133.35787	124.3622855	116.0516738	108.3699437	101.2658934	94.69275686	88.60779693	82.97193757	77.74943182
180622A00004	6/22/2018	3.47	12/22/2028	6/22/2018	128.6899	121.4047186	114.5890188	108.2099808	102.237247	96.64272142	91.40039053	86.48615874	81.87769785
190130A00018	1/30/2019	2.95	10/17/2022	1/30/2019	100.9469	100.7232576	100.5006212	100.2789801	100.0583274	99.83865654	99.61996096	99.4022341	99.18546949
190321A00003	3/21/2019	2.67	3/21/2024	3/21/2019	105.68287	103.9948034	102.3420926	100.7236933	99.13860174	97.58585376	96.06452213	94.57371509	93.11257455
190710A00012	7/10/2019	2.18	7/10/2023	7/10/2019	102.74427	101.7692721	100.8127264	99.87411285	98.95293072	98.04869765	97.16094898	96.28923689	95.43312968
200825A00007	8/27/2020	4.79	8/27/2026	8/27/2020	123.9421	119.3849047	115.0256875	110.854721	106.8628145	103.0412789	99.38189552	95.87688852	92.51889804
170524A00011	5/24/2017	2.54	5/24/2024	5/24/2017	106.05915	104.1879575	102.3589699	100.5709695	98.82278062	97.11326958	95.44134292	93.80594566	92.20605967
191025A00013	10/25/2019	1.98	10/25/2024	10/25/2019	106.26634	103.9626972	101.7204886	99.53761127	97.41205414	95.34189238	93.32528268	91.36045905	89.44572876
120112A00014	1/12/2012	3.43	1/15/2032	1/12/2012	141.8842	130.4868881	120.1253677	110.69922	102.1182759	94.30151895	87.17611296	80.67653707	74.74381656
170814A00084	8/14/2017	1.91	8/15/2022	8/14/2017	100.17066	100.1233573	100.0761143	100.0289334	99.98181447	99.93475743	99.88776214	99.84082848	99.79395631
170822A00020	8/22/2017	2.59	8/22/2025	8/22/2017	110.73566	107.5149125	104.4054121	101.4026723	98.50241913	95.70057596	92.99325336	90.37673915	87.84748921
180619A00020	6/19/2018	3.1	6/19/2025	6/19/2018	112.00036	108.9346852	105.9696213	103.1013229	100.3261138	97.64047824	95.04105258	92.52461817	90.08809409
190806A00027	8/6/2019	1.71	8/7/2023	8/6/2019	102.59256	101.537692	100.504417	99.49207945	98.50004793	97.52771626	96.57450219	95.63984619	94.7232104
140815A00030	8/15/2014	2.96	10/16/2023	8/15/2014	104.54547	103.2809581	102.0470111	100.8425266	99.66645808	98.51780811	97.39562551	96.29900265	95.22707301
170803A00013	8/3/2017	2.14	8/3/2022	8/3/2017	100.05174	100.0378482	100.0239683	100.0101019	99.99624893	99.98240938	99.96858323	99.95477046	99.94097106
170911A00032	9/11/2017	1.85	9/12/2022	9/11/2017	100.42854	100.3031053	100.1779985	100.0532198	99.92876791	99.80464153	99.68083933	99.55735998	99.43420219
180904A00014	9/4/2018	3.37	9/1/2028	9/4/2018	126.7881	119.9063131	113.4499195	107.3902727	101.7008047	96.35686538	91.33557358	86.61568133	82.17744881
190814A00010	8/14/2019	1.84	4/5/2023	8/14/2019	101.80841	101.1070529	100.4153292	99.73304497	99.06000809	98.3960314	97.74093283	97.09453516	96.45666586
190918A00003	9/18/2019	1.95	9/19/2022	9/18/2019	100.49426	100.3493453	100.2048611	100.0608055	99.91717672	99.77397278	99.63119177	99.48883181	99.34689101
200204A00001	2/4/2020	1.79	2/4/2025	2/4/2020	106.61944	104.0263461	101.5097973	99.06708732	96.69561916	94.39290388	92.15655532	89.98428515	87.87389818
200626A00015	6/26/2020	0.43	6/26/2023	6/26/2020	101.11854	100.1897267	99.27784369	98.38243323	97.50305275	96.63927533	95.7906891	94.95689657	94.13751397
170130A00008	1/30/2017	2.58	1/30/2023	1/30/2017	101.76845	101.2493155	100.7354625	100.2268124	99.72328647	99.22480769	98.7313005	98.24269088	97.75890624
171006A00034	10/6/2017	2.27	10/6/2022	10/6/2017	100.69999	100.5074143	100.3155845	100.1244946	99.93414027	99.74451723	99.55562124	99.36744809	99.1799936
191220A00002	12/20/2019	3.02	12/20/2038	12/20/2019	152.35617	132.6101953	115.7642583	101.3704061	89.05230113	78.49344111	69.42736663	61.62951318	54.91042485
200131A00048	1/31/2020	1.69	1/31/2024	1/31/2020	103.67251	102.1420784	100.6421032	99.17175164	97.73022264	96.31674355	94.93056878	93.57097863	92.23727815
201030A00003	11/2/2020	2.58	10/29/2040	11/2/2020	147.21293	125.9600324	108.1572284	93.21818413	80.65934388	70.08144671	61.15444388	53.60517851	47.20731085
160119A00026	1/19/2016	3.14	1/19/2029	1/19/2016	126.76865	119.4601624	112.6291137	106.2417104	100.2667235	94.67527917	89.44066971	84.53818015	79.94493012
160726A00005	7/26/2016	2.28	7/27/2026	7/26/2016	113.07386	108.8297287	104.7693722	100.8838532	97.16472147	93.60398068	90.19406143	86.92779607	83.79839524

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171116A00021	11/16/2017	2.16	11/16/2022	11/16/2017	101.03571	100.7278323	100.4218438	100.1177254	99.81545979	99.51503003	99.21641932	98.91961107	98.6245889
180814A00033	8/14/2018	3.25	8/13/2027	8/14/2018	122.53433	116.9158345	111.5929121	106.5484024	101.7662366	97.23135874	92.92965567	88.84789347	84.97365786
190208A00009	2/8/2019	2.67	2/8/2024	2/8/2019	105.45033	103.8804787	102.3421233	100.8343952	99.35645396	97.90748934	96.48672012	95.09339271	93.72677991
200131A00007	1/31/2020	1.68	1/31/2023	1/31/2020	101.31067	100.7901022	100.2748699	99.76488818	99.26007716	98.76035858	98.26565573	97.77589342	97.29099798
200207A00016	2/7/2020	1.74	2/7/2024	2/7/2020	103.79935	102.2488361	100.7293806	99.24012941	97.78025626	96.34896448	94.94548573	93.56907874	92.21902808
200402A00021	4/2/2020	0.77	10/2/2024	4/2/2020	103.66725	101.4528009	99.2963161	97.19586352	95.1495874	93.1557092	91.21252361	89.31839484	87.47175315
200430A00016	4/30/2020	0.82	4/30/2024	4/30/2020	102.74391	100.9714839	99.23805767	97.54241834	95.88340179	94.25989221	92.67081947	91.11515671	89.59191817
210924A00011	9/24/2021	2.19	9/25/2034	9/24/2021	132.72634	118.8912178	106.6457609	95.79801361	86.18013619	77.64526585	70.06479927	63.32603928	57.3301552
160328A00045	3/28/2016	2.49	3/27/2026	3/28/2016	113.18753	109.2815674	105.5322868	101.9325068	98.47541743	95.15456112	91.96381188	88.89735616	85.94967482
160922A00009	9/22/2016	1.55	9/22/2022	9/22/2016	100.47011	100.3167552	100.1638835	100.0114878	99.85956594	99.70811562	99.55713466	99.40662086	99.25657203
171026A00007	10/26/2017	2.47	10/26/2023	10/26/2017	104.03384	102.7441226	101.4862865	100.2591615	99.06163313	97.89264045	96.75117265	95.63626616	94.54700192
190523A00014	5/23/2019	2.5	11/15/2023	5/23/2019	104.22453	102.8918992	101.5871242	100.3093416	99.05772004	97.8314624	96.62980417	95.45201178	94.297381
190814A00005	8/14/2019	1.65	8/14/2024	8/14/2019	105.26153	103.1644219	101.1197661	99.12590195	97.18123685	95.2842401	93.43343985	91.62742036	89.86481945
190930A00075	9/30/2019	2.19	9/29/2027	9/30/2019	116.5805	111.0027316	105.7261053	100.7327465	96.00593803	91.53004041	87.29041564	83.27335775	79.46602818
160815A00006	8/15/2016	2.23	8/17/2026	8/15/2016	113.0693	108.7651599	104.6495314	100.7131421	96.94722864	93.34350445	89.89413111	86.59169155	83.42916502
171129A00020	11/29/2017	2.89	11/30/2026	11/29/2017	117.03576	112.3417729	107.8644757	103.5927575	99.51612925	95.62468939	91.90908828	88.3604946	84.97056402
190404A00003	4/4/2019	2.47	4/4/2024	4/4/2019	105.69194	103.960023	102.2650383	100.6058724	98.98145465	97.3907575	95.832794	94.30661589	92.81131162
190925A00004	9/25/2019	1.7	9/24/2024	9/25/2019	105.6811	103.4662416	101.3088028	99.20688567	97.15866913	95.16240705	93.21642432	91.31911342	89.46893099
200214A00014	2/18/2020	1.8	2/18/2025	2/18/2020	106.75894	104.1240815	101.5678361	99.0873801	96.680014	94.34315244	92.0743185	89.87113842	87.73133658
200227A00027	2/27/2020	1.47	2/27/2025	2/27/2020	105.95802	103.3081531	100.7379596	98.24456119	95.82519966	93.47723443	91.19813685	88.98548463	86.83695659
210924A00004	9/24/2021	2.37	9/24/2036	9/24/2021	138.12206	121.8160941	107.645191	95.3162381	84.57782272	75.214113	67.03966098	59.89498739	53.64282705
170906A00036	9/6/2017	1.81	9/6/2022	9/6/2017	100.37172	100.2630599	100.154652	100.0464908	99.93857534	99.83090487	99.72347847	99.61629528	99.50935443
180611A00030	6/11/2018	2.91	6/12/2023	6/11/2018	103.28124	102.3810731	101.4965887	100.6273784	99.77304873	98.9332196	98.10752382	97.29560649	96.49712453
181018A00011	10/18/2018	3.35	10/18/2023	10/18/2018	105.05297	103.7793729	102.53667	101.3237448	100.1395354	98.98303008	97.85326401	96.74931686	95.67031007
190531A00037	5/31/2019	2.61	5/31/2029	5/31/2019	125.46135	117.745398	110.5611287	103.8690998	97.63299034	91.81933555	86.39728825	81.33840213	76.61643359
190829A00050	8/29/2019	1.73	8/29/2024	8/29/2019	105.26164	103.1287669	101.0498166	99.02306349	97.04684658	95.11957043	93.23970212	91.40576828	89.6163523
200228A00012	3/3/2020	1.4	3/3/2025	3/3/2020	105.80175	103.1422722	100.5630414	98.06114043	95.63378092	93.2782943	90.9921256	88.77282783	86.61805658
210428A00006	4/28/2021	1.23	4/28/2026	4/28/2021	108.13225	104.2442751	100.5161219	96.94029576	93.50970286	90.21762521	87.05769816	84.02388928	81.11047874
220310A00005	3/10/2022	2.06	3/8/2024	3/10/2022	104.52793	102.8882435	101.2824127	99.70945386	98.16842448	96.65841794	95.17856174	93.72801588	92.30597133
140307A00011	3/7/2014	3.19	3/15/2023	3/7/2014	102.58761	101.9415751	101.3036786	100.6737691	100.0516973	99.43731705	98.83048633	98.23106634	97.63892174
160830A00037	8/30/2016	2.16	8/29/2025	8/30/2016	109.44441	106.2243184	103.1161381	100.1153304	97.21757219	94.41874165	91.71490719	89.10231756	86.57739237
190409A00031	4/9/2019	2.64	4/9/2024	4/9/2019	105.8215	104.0783334	102.3724977	100.7028614	99.06833659	97.46787915	95.90048656	94.36519585	92.86108156
190711A00019	7/11/2019	2.19	7/11/2023	7/11/2019	102.77142	101.7933244	100.833791	99.89229869	98.96834196	98.06143425	97.1711068	96.29690791	95.43840218

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200513A00003	5/13/2020	0.68	5/13/2025	5/13/2020	104.61719	101.7641799	99.00274307	96.3293993	93.7408226	91.23383474	88.80539758	86.45260585	84.1726804
200818A00004	8/18/2020	0.92	8/18/2026	8/18/2020	107.59803	103.4033795	99.3938705	95.56036336	91.89421758	88.38726404	85.03177663	81.8204457	78.7463532
210601A00002	6/1/2021	0.9	6/2/2025	6/1/2021	104.97766	102.0719232	99.26075718	96.54060026	93.90804005	91.35981054	88.89278487	86.50396873	84.19049394
220429A00007	4/29/2022	3.14	10/29/2024	4/29/2022	108.97492	106.6282685	104.3442698	102.1207713	99.95571619	97.84713631	95.7931471	93.79194338	91.84179522
161215A00014	12/15/2016	2.66	12/15/2022	12/15/2016	101.41958	101.0300667	100.6435493	100.2599959	99.87937261	99.50164573	99.1267822	98.75474947	98.38551545
190820A00005	8/21/2019	1.76	2/27/2023	8/21/2019	101.51371	100.9170973	100.32747	99.74470727	99.1686898	98.59930116	98.03642752	97.47995766	96.92978288
190826A00038	8/26/2019	1.74	8/26/2022	8/26/2019	100.26097	100.1831114	100.1053813	100.0277764	99.95029635	99.87294083	99.79570958	99.7186023	99.64161872
210125A00007	1/27/2021	2.98	1/27/2031	1/27/2021	132.65788	122.8598222	113.874921	105.6310518	98.06284804	91.1110361	84.7218381	78.84643649	73.44049303
160815A00005	8/15/2016	2.23	8/17/2026	8/15/2016	113.0693	108.7651599	104.6495314	100.7131421	96.94722864	93.34350445	89.89413111	86.59169155	83.42916502
180130A00070	1/30/2018	3.14	1/29/2027	1/30/2018	118.88054	113.9674211	109.2887311	104.8320224	100.5855765	96.53835536	92.67995835	89.00058217	85.49098329
190215A00046	2/15/2019	2.7	2/15/2024	2/15/2019	105.56843	103.9783269	102.4203453	100.8935848	99.39717894	97.9302931	96.49212279	95.08189238	93.69885379
191114A00008	11/18/2019	1.93	4/17/2023	11/18/2019	101.95449	101.2188773	100.493859	99.77920378	99.07469062	98.3801046	97.69523687	97.01988444	96.35384991
191206A00021	12/6/2019	2.02	12/6/2024	12/6/2019	106.70772	104.2819888	101.9235428	99.63015171	97.39966929	95.23003247	93.11925765	91.06543717	89.06673595
150601A00646	6/1/2015	2.68	9/30/2022	6/1/2015	100.71217	100.5363331	100.3611111	100.1864981	100.0124907	99.8390859	99.66628059	99.49407168	99.32245611
180620A00044	6/20/2018	2.89	6/20/2023	6/20/2018	103.34025	102.4171947	101.5106128	100.6200677	99.74513652	98.88541095	98.0404969	97.21001376	96.39359389
180926A00031	9/26/2018	3.24	9/26/2023	9/26/2018	104.65752	103.4496509	102.2696488	101.1165614	99.98947525	98.88751766	97.80985474	96.75568911	95.72425798
190102A00058	1/2/2019	2.91	1/2/2024	1/2/2019	105.25347	103.7900236	102.3542731	100.9454997	99.56300859	98.20612843	96.87421015	95.56662619	94.28276951
190523A00015	5/23/2019	2.51	4/1/2024	5/23/2019	105.52182	103.8033695	102.1213781	100.4747519	98.86243977	97.28343251	95.73676052	94.22149195	92.73673083
200710A00006	7/10/2020	0.4	7/10/2023	7/10/2020	101.13228	100.1641861	99.21448417	98.2826559	97.3682008	96.47063698	95.58950019	94.72434307	93.87473437
210722A00001	7/22/2021	1.1	7/22/2026	7/22/2021	108.17902	104.048344	100.0970778	96.31649996	92.69836301	89.23486152	85.91860609	82.74259891	79.70021086
080909A00042	9/9/2008	4.74	9/11/2023	9/9/2008	106.32065	105.1436617	103.9928508	102.8673513	101.766333	100.6890019	99.63459796	98.60239331	97.59169076
160422A00026	4/22/2016	2.62	4/22/2026	4/22/2016	113.43559	109.46391	105.6537787	101.9976753	98.48847861	95.11944244	91.88417306	88.77660839	85.79099848
161222A00030	12/22/2016	3.09	12/22/2026	12/22/2016	118.84475	114.025572	109.4318064	105.0517277	100.874282	96.88904405	93.08617793	89.456401	85.99094974
180109A00028	1/9/2018	2.6	1/9/2025	1/9/2018	108.79004	106.2347937	103.7530258	101.3422032	98.99989531	96.72376954	94.51158708	92.36119835	90.27053897
180727A00028	7/27/2018	3.25	7/27/2026	7/27/2018	117.65243	113.2995599	109.1344856	105.1480902	101.3317464	97.67729039	94.17699418	90.82354018	87.60999696
190530A00004	5/30/2019	2.24	5/30/2023	5/30/2019	102.58561	101.7254472	100.879661	100.0478964	99.22980703	98.42505781	97.63332459	96.85429362	96.08766115
191120A00006	11/20/2019	2.67	11/20/2035	11/20/2019	141.08576	125.4856489	111.8115577	99.81332326	89.27453376	80.00782297	71.85083961	64.66279346	58.32149319
200305A00020	3/5/2020	0.95	3/5/2025	3/5/2020	104.97022	102.3082511	99.72697286	97.22344038	94.79483888	92.43847498	90.15177051	87.9322567	85.77756875
110805A00014	8/5/2011	4.06	8/17/2026	8/5/2011	120.72046	116.25933	111.9917239	107.9081703	103.9997134	100.2578834	96.67466726	93.24248156	89.95414679
160307A00026	3/7/2016	2.2	3/7/2023	3/7/2016	101.83632	101.2161697	100.6035628	99.99835792	99.40042158	98.80962331	98.22583579	97.64893473	97.07879876
170228A00014	2/28/2017	2.89	3/1/2027	2/28/2017	118.74673	113.7225595	108.9424441	104.3932016	100.0624323	95.93847025	92.01033567	88.26769096	84.70079937
170322A00024	3/22/2017	3.72	9/22/2036	3/22/2017	158.29379	140.6029763	125.176847	111.7083807	99.93388191	89.62665968	80.59165504	72.66087253	65.68949221
170808A00037	8/8/2017	2.19	12/15/2022	8/8/2017	101.23759	100.8485085	100.4624211	100.0792954	99.69909733	99.32179328	98.94735022	98.57573561	98.20691739

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171127A00016	11/27/2017	2.28	11/27/2023	11/27/2017	104.18741	102.8289819	101.4953707	100.1859404	98.90007798	97.63719104	96.39670668	95.17807083	93.9807475
180110A00029	1/10/2018	3.13	1/10/2028	1/10/2018	122.76126	116.7108579	111.0006071	105.6095728	100.5182129	95.70828063	91.16273208	86.86564092	82.80211959
190606A00027	6/6/2019	2.51	6/5/2026	6/6/2019	113.47722	109.3762731	105.4467667	101.6806566	98.07031669	94.60851568	91.28839468	88.10344608	85.04749378
190820A00012	8/20/2019	1.76	8/19/2022	8/20/2019	100.19688	100.1384987	100.0802014	100.0219868	99.96385447	99.90580439	99.84783634	99.78995017	99.73214569
191105A00008	11/5/2019	1.83	11/5/2024	11/5/2019	106.31818	103.9769569	101.6989365	99.48196511	97.32398058	95.2230076	93.17715314	91.1846023	89.24361434
200303A00001	3/3/2020	1.15	3/3/2025	3/3/2020	105.4901	102.8270774	100.2445939	97.7397149	95.30963675	92.95167657	90.6632659	88.44194504	86.2853576
171030A00022	10/30/2017	2.28	10/31/2022	10/30/2017	100.91761	100.6549611	100.3936747	100.1337424	99.87515354	99.61789782	99.36196495	99.10734478	98.85402724
180831A00016	8/31/2018	2.99	8/31/2023	8/31/2018	104.07166	102.9418066	101.8364538	100.7548129	99.69612684	98.65967048	97.6447489	96.65069592	95.67687256
200130A00016	1/30/2020	1.58	1/30/2025	1/30/2020	106.38198	103.7988972	101.2919456	98.85843231	96.49578163	94.20152454	91.97329359	89.80881804	87.70591927
200226A00016	2/26/2020	1.57	2/26/2025	2/26/2020	106.2154	103.5649522	100.9941131	98.50000708	96.07988069	93.73109808	91.45113497	89.23757311	87.08809506
200227A00013	2/27/2020	1.43	2/27/2024	2/27/2020	103.42475	101.8232007	100.2543654	98.71731554	97.21115403	95.73501732	94.28807369	92.8695218	91.4785893
211222A00005	12/22/2021	1.2	7/15/2024	12/22/2021	103.86567	101.8717745	99.92613092	98.02727209	96.17378708	94.36431717	92.59755352	90.87223503	89.1871462
121031A00004	10/31/2012	2.07	10/31/2022	10/31/2012	100.88612	100.623265	100.3617789	100.101651	99.84287065	99.58542737	99.32931084	99.07451082	98.82101719
160616A00034	6/16/2016	1.97	6/17/2024	6/16/2016	105.1869	103.2577602	101.3735206	99.53287017	97.73454395	95.97732172	94.26002633	92.58152185	90.94071184
170912A00031	9/12/2017	1.89	9/12/2022	9/12/2017	100.43355	100.3081087	100.1829962	100.0582119	99.93375444	99.80962247	99.68581468	99.56232976	99.4391664
190114A00042	1/14/2019	2.92	1/13/2023	1/14/2019	101.78625	101.3146432	100.8474144	100.3845012	99.9258439	99.4713838	99.02106334	98.57482601	98.13261632
190917A00029	9/17/2019	2.02	12/6/2022	9/17/2019	101.11245	100.7487966	100.3877568	100.0293062	99.67341684	99.32006137	98.96921273	98.62084424	98.27492963
191009A00026	10/9/2019	1.74	10/7/2022	10/9/2019	100.6056	100.4103671	100.2159031	100.0222009	99.82925601	99.63706397	99.44562032	99.25492066	99.06496062
200115A00024	1/15/2020	1.88	1/17/2023	1/15/2020	101.32477	100.8432661	100.3663425	99.8939297	99.42596372	98.96238191	98.50312276	98.04812591	97.59733213
110818A00012	8/18/2011	2.86	8/31/2022	8/18/2011	100.4163	100.3243278	100.2325265	100.1408961	100.0494362	99.9581462	99.86702574	99.77607428	99.68529137
130405A00007	4/5/2013	2.91	4/17/2028	4/5/2013	123.44364	117.0442905	111.0210214	105.3496477	100.0076752	94.97416995	90.22964177	85.75593625	81.53613597
170224A00044	5/24/2017	3.29	5/24/2029	5/24/2017	129.12821	121.35307	114.1083426	107.3549433	101.0568591	95.18089598	89.69644461	84.57526658	79.79129943
180103A00011	1/3/2018	2.35	1/3/2023	1/3/2018	101.47369	101.0305636	100.591304	100.1558625	99.72418922	99.29623553	98.87195338	98.45129561	98.03421587
190813A00007	8/13/2019	1.89	8/15/2022	8/13/2019	100.16552	100.1182591	100.0710614	100.0239254	99.97685082	99.92983762	99.88288568	99.83599487	99.78916507
191104A00009	11/4/2019	1.91	11/6/2023	11/4/2019	103.3993	102.0897329	100.8102852	99.55992214	98.33765236	97.14252921	95.97364857	94.83014637	93.7111964
200221A00014	2/21/2020	1.49	2/21/2023	2/21/2020	101.37149	100.7914814	100.2180933	99.65121444	99.09073425	98.53654483	97.98854067	97.44661861	96.91067776
180402A00005	4/2/2018	2.94	4/3/2023	4/2/2018	102.55554	101.8569044	101.1677738	100.4879594	99.81727291	99.15553144	98.5025568	97.85817552	97.22221871
190507A00006	5/7/2019	2.57	5/8/2023	5/7/2019	102.59502	101.797828	101.0130068	100.2402695	99.4793384	98.72994427	97.99182609	97.26473062	96.54841217
190530A00034	5/30/2019	2.44	5/30/2024	5/30/2019	105.9292	104.0423042	102.198272	100.3958801	98.63394877	96.91133892	95.22695066	93.57972159	91.96862535
190809A00008	8/9/2019	1.87	8/3/2023	8/9/2019	102.61347	101.5715052	100.5506131	99.55015893	98.5695339	97.60815305	96.66545425	95.74089709	94.83396181
190819A00030	8/19/2019	2.01	8/20/2029	8/19/2019	121.73098	113.9004179	106.6281968	99.87157856	93.59130879	87.751316	82.31843769	77.26217165	72.55444964
190826A00060	8/26/2019	2.02	8/26/2027	8/26/2019	115.39856	109.9496992	104.7910116	99.90551776	95.27732173	90.89153597	86.73421183	82.79227537	79.05346784
220112A00005	1/12/2022	1.55	1/12/2026	1/12/2022	109.01594	105.4040673	101.9309779	98.59060253	95.3771751	92.28521138	89.30949384	86.44505713	83.68717445

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
140827A00038	8/27/2014	3.07	8/30/2024	8/27/2014	108.13174	105.96494	103.8528173	101.7936182	99.78565844	97.82732032	95.91704965	94.05335265	92.23479314
151229A00079	12/29/2015	3	12/30/2025	12/29/2015	113.54222	109.9002724	106.3958151	103.0229235	99.7759637	96.64957384	93.63864899	90.73832762	87.9439786
190522A00003	5/22/2019	2.55	5/22/2024	5/22/2019	106.05835	104.1928419	102.3693179	100.5865573	98.8433843	97.13866578	95.47130923	93.84026113	92.24450515
191218A00013	12/18/2019	1.94	12/19/2022	12/18/2019	101.16626	100.7661769	100.3692635	99.97547949	99.58478791	99.19715235	98.81253698	98.43090654	98.0522263
191223A00056	12/23/2019	2.46	12/14/2029	12/23/2019	124.84545	116.6032652	108.9680703	101.891952	95.33100878	89.24499841	83.5970158	78.35320075	73.48247262
200225A00015	2/25/2020	1.54	2/26/2024	2/25/2020	103.59591	101.9956379	100.4280256	98.89214029	97.38708799	95.91200791	94.466071	93.04847843	91.65846024
170602A00023	6/2/2017	2.09	6/2/2023	6/2/2017	102.48003	101.6119078	100.7584446	99.91927491	99.09404193	98.28240068	97.48401747	96.69856947	95.92574425
170622A00038	6/22/2017	3.32	6/22/2034	6/22/2017	146.55363	132.1881263	119.4156749	108.0491434	97.92435031	88.89714167	80.84085462	73.64411338	67.20891262
171206A00038	12/6/2017	2.69	12/6/2027	12/6/2017	120.78738	114.8675789	109.2766928	103.9947429	99.0030658	94.28421764	89.82188827	85.60082217	81.60674514
180530A00072	5/30/2018	3.06	5/30/2024	5/30/2018	107.09291	105.1948191	103.3398012	101.5266306	99.75412138	98.02112909	96.32654835	94.6693116	93.04838747
210216A00006	2/16/2021	1.44	2/15/2030	2/16/2021	118.47075	110.227141	102.6108741	95.57103181	89.06107702	83.03845368	77.46422724	72.30275928	67.52141291
130212A00017	2/12/2013	2.29	2/15/2023	2/12/2013	101.73979	101.1759455	100.6183456	100.0668881	99.52147195	98.98199801	98.44836948	97.92049162	97.3982717
161020A00002	10/20/2016	1.96	8/15/2023	10/20/2016	102.80088	101.7238867	100.6693754	99.6366487	98.62503679	97.63389705	96.66261274	95.71059166	94.77726497
180104A00017	1/4/2018	2.77	1/3/2025	1/4/2018	108.81567	106.2839879	103.8244992	101.4347398	99.11234038	96.85502659	94.66061458	92.5270068	90.45218805
180530A00024	5/30/2018	3.44	5/30/2029	5/30/2018	130.26369	122.431182	115.1334398	108.3310218	101.9875908	96.06965469	90.54632957	85.38912481	80.57174612
190403A00006	4/3/2019	2.48	4/3/2024	4/3/2019	105.6996	103.9703796	102.2779908	100.6213233	98.99931116	97.41093081	95.85519928	94.33117204	92.83794107
190701A00023	7/1/2019	1.95	7/1/2024	7/1/2019	105.51828	103.5423708	101.6133645	99.72986545	97.89052643	96.09404901	94.33918161	92.62471743	90.94949253
190816A00015	8/16/2019	2.2	8/16/2029	8/16/2019	121.96885	114.1881471	106.9596713	100.2413073	93.99436334	88.18327416	82.77533284	77.74044728	73.05091855
200221A00016	2/21/2020	1.69	2/21/2025	2/21/2020	106.49384	103.853929	101.2929873	98.80817032	96.39675908	94.0561498	91.78384837	89.5774649	87.43470858
160921A00020	9/21/2016	1.97	9/21/2023	9/21/2016	103.11301	101.9290953	100.7722491	99.64155544	98.53613524	97.45514846	96.39779191	95.36329727	94.35092922
170622A00040	6/22/2017	3.41	6/23/2036	6/22/2017	153.02488	135.976737	121.0886365	108.0713386	96.6758858	86.6878021	77.92215488	70.21934549	63.44151804
180719A00064	7/19/2018	3.3	7/21/2025	7/19/2018	112.57915	109.4212067	106.3696233	103.4202267	100.5690292	97.81222164	95.14616511	92.56738168	90.07254656
181218A00072	12/18/2018	3.04	12/19/2022	12/18/2018	101.60446	101.2033198	100.8053482	100.4105122	100.0187746	99.63009914	99.24444981	98.86179132	98.4820889
190326A00003	3/26/2019	2.57	3/27/2023	3/26/2019	102.23863	101.5608929	100.8921228	100.2321409	99.58077496	98.93785711	98.30322385	97.67671586	97.05817787
190730A00007	7/30/2019	2.19	7/30/2024	7/30/2019	105.98378	103.9255921	101.9181034	99.95973922	98.04898856	96.18439769	94.36456743	92.58815071	90.85385023
200309A00019	3/9/2020	0.89	3/11/2024	3/9/2020	102.6213	100.9891416	99.39083704	97.82540374	96.29189445	94.78939819	93.31703845	91.87397159	90.45938523
201116A00011	11/16/2020	0.71	11/15/2024	11/16/2020	103.44879	101.1204434	98.85560823	96.65215299	94.50803172	92.4212814	90.39001792	88.41243224	86.48678683
160615A00031	6/15/2016	2.51	6/17/2030	6/15/2016	128.03463	119.0507036	110.7692813	103.1316459	96.0842747	89.57835414	83.56934351	78.01658114	72.8829286
170531A00080	5/31/2017	2.3	5/31/2024	5/31/2017	105.92536	104.0311786	102.1801647	100.3710788	98.60272921	96.87396574	95.18367777	93.53079274	91.91427461
200226A00008	2/26/2020	1.38	2/26/2025	2/26/2020	106.06508	103.4089726	100.8328164	98.33371258	95.90889125	93.55570099	91.27160284	89.0541647	86.90105607
200304A00021	3/4/2020	0.94	3/4/2024	3/4/2020	102.87855	101.2608757	99.67653557	98.12457056	96.60405684	95.11410545	93.65386074	92.22249872	90.81922562
200325A00029	3/25/2020	1.15	3/24/2023	3/25/2020	101.33019	100.6634937	100.0055358	99.35614557	98.71515662	98.08240675	97.45773793	96.84099614	96.23203125
180914A00013	9/14/2018	3.48	9/14/2028	9/14/2018	127.63388	120.6867656	114.1707851	108.0567816	102.3177218	96.92853266	91.86594925	87.10837458	82.63575151

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190328A00079	3/28/2019	2.37	3/28/2024	3/28/2019	105.45437	103.7440896	102.0699824	100.4309678	98.82600761	97.2541044	95.71429995	94.20567307	92.72733786
190523A00022	5/23/2019	2.47	10/12/2022	5/23/2019	100.79502	100.5855563	100.3769736	100.1692677	99.96243312	99.75646425	99.55135562	99.34710179	99.14369737
190523A00024	5/23/2019	2.47	10/31/2022	5/23/2019	100.96734	100.7046023	100.4432299	100.1832118	99.92453757	99.66719678	99.41117919	99.15647463	98.90307303
190524A00040	5/24/2019	2.47	5/24/2024	5/24/2019	105.92895	104.0589958	102.2312274	100.4444233	98.69740856	96.98905004	95.31825492	93.68396878	92.08517403
190820A00038	8/20/2019	1.76	8/20/2024	8/20/2019	105.25878	103.1505879	101.0952969	99.09122468	97.13675714	95.23034333	93.37049228	91.55577027	89.78479809
160714A00023	8/10/2016	2.49	8/10/2028	8/10/2016	121.01424	114.3732902	108.1423961	102.2940589	96.80276661	91.64483785	86.79828097	82.24266511	77.95900165
190111A00026	1/11/2019	3.48	1/11/2034	1/11/2019	149.31012	135.1838549	122.5725107	111.3036814	101.2254784	92.20399361	84.12108636	76.87245185	70.36593545
190913A00014	9/13/2019	2.08	9/13/2024	9/13/2019	106.13429	103.9505033	101.822642	99.74888168	97.72747215	95.75673385	93.83505445	91.96088557	90.13273967
191125A00036	11/25/2019	2.29	11/23/2029	11/25/2019	123.37467	115.2496556	107.7197604	100.7382684	94.26235834	88.25275994	82.67344275	77.49133363	72.67606013
200221A00003	2/25/2020	1.69	2/25/2025	2/25/2020	106.52507	103.8733529	101.3011971	98.8057275	96.38419521	94.03396857	91.7525272	89.53745644	87.38644224
200309A00033	3/9/2020	1.06	3/9/2026	3/9/2020	107.15149	103.4250002	99.8471101	96.4110746	93.11049621	89.93930384	86.89173409	83.96231369	81.14584307
200327A00074	3/31/2020	1.76	3/29/2024	3/31/2020	104.21698	102.5182679	100.8554976	99.22759563	97.63352988	96.07230898	94.54298041	93.04462851	91.57637268
081219A00069	12/19/2008	4.26	12/22/2023	12/19/2008	107.0655	105.6193296	104.1999843	102.8067798	101.439055	100.0961704	98.77750756	97.48246805	96.21047273
170120A00010	1/20/2017	3.71	1/22/2036	1/20/2017	156.21407	139.4319511	124.7117984	111.7851569	100.4199876	90.41555441	81.59805101	73.81685839	66.94133898
180727A00037	7/27/2018	3.13	7/27/2023	7/27/2018	103.83766	102.808797	101.800308	100.8115891	99.84206311	98.89117502	97.95839104	97.0431976	96.1451004
190625A00012	6/25/2019	2.12	6/25/2024	6/25/2019	105.5416	103.5869894	101.6783277	99.81426003	97.99347884	96.21472346	94.47677823	92.77847051	91.11866886
190819A00005	8/19/2019	1.62	8/21/2023	8/19/2019	102.59986	101.5052609	100.4338989	99.38504203	98.35798728	97.35206047	96.36661499	95.40103039	94.45471106
200430A00007	4/30/2020	0.72	4/28/2023	4/30/2020	101.10982	100.3469163	99.59545502	98.85517926	98.12584099	97.40719952	96.69902116	96.00107897	95.31315254
210304A00004	3/4/2021	0.58	3/4/2024	3/4/2021	102.07751	100.470265	98.89609853	97.35406065	95.8432358	94.36274294	92.91173396	91.48939206	90.09493035
150817A00077	8/17/2015	2.49	8/17/2023	8/17/2015	103.5037	102.415227	101.3495991	100.3061003	99.28404642	98.28278121	97.30167499	96.3401233	95.39754563
170818A00003	8/18/2017	2.23	8/20/2024	8/18/2017	106.53095	104.4036946	102.3298448	100.3077029	98.33563755	96.41208115	94.5355269	92.70452594	90.91768465
170818A00037	8/18/2017	2.08	8/18/2022	8/18/2017	100.2053	100.1496904	100.0941541	100.0386949	99.98331272	99.9280073	99.87277851	99.8176262	99.76255021
210114A00009	1/19/2021	2.66	1/17/2030	1/19/2021	126.67797	118.2656356	110.4787953	103.2675416	96.58619959	90.39294406	84.64945647	79.32061437	74.37420967
210623A00011	6/23/2021	0.56	6/23/2023	6/23/2021	101.13808	100.2188474	99.31620712	98.42971307	97.55893545	96.70345957	95.86288525	95.03682611	94.22490905
130821A00019	8/21/2013	3.81	8/29/2025	8/21/2013	115.11456	111.7946332	108.5895318	105.4946039	102.5054198	99.61775636	96.82758524	94.13106289	91.52452081
150512A00029	5/12/2015	3.03	5/12/2025	5/12/2015	110.95101	108.0189036	105.1799463	102.4306076	99.76751953	97.18746335	94.68736214	92.26427328	89.91538171
180116A00031	1/16/2018	2.58	1/17/2023	1/16/2018	101.66025	101.1778045	100.699938	100.2265887	99.75769268	99.29318716	98.83301056	98.37710245	97.92540352
180118A00037	1/18/2018	2.88	1/21/2025	1/18/2018	109.28248	106.6945138	104.1817341	101.7415168	99.37134819	97.06881775	94.83161271	92.65751363	90.54438999
180813A00026	8/13/2018	2.87	8/11/2023	8/13/2018	103.8467	102.7733661	101.7221972	100.6925111	99.68365362	98.6949972	97.72593915	96.77590058	95.84432521
190222A00021	2/22/2019	2.95	8/21/2024	2/22/2019	107.77823	105.6402329	103.555795	101.5232128	99.54085203	97.60714209	95.72057329	93.87969393	92.08310762
191202A00005	12/2/2019	2.03	12/2/2024	12/2/2019	106.69745	104.2832665	101.9357583	99.65272403	97.43204599	95.27168815	93.16969254	91.12417579	89.13332587
210210A00005	2/10/2021	0.52	2/13/2024	2/10/2021	101.90343	100.3523746	98.83260135	97.34324153	95.88345509	94.4524325	93.04939331	91.67358486	90.32428106
150610A00017	6/10/2015	2.9	6/15/2023	6/10/2015	103.21073	102.3037007	101.4126	100.537013	99.67653692	98.83078263	97.99937443	97.18194925	96.37815623

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180730A00041	7/30/2018	3.14	7/31/2023	7/30/2018	103.89096	102.8504437	101.8307566	100.8312739	99.85139939	98.89056007	97.94820507	97.02380457	96.11684886
180910A00007	9/10/2018	2.96	9/8/2023	9/10/2018	104.25332	103.0975653	101.9674094	100.8620108	99.78056204	98.7222905	97.68645658	96.67235181	95.6792973
180914A00008	9/14/2018	3.15	9/14/2023	9/14/2018	104.41178	103.2397999	102.0941203	100.9738666	99.87819864	98.80631298	97.75744079	96.73084612	95.72582412
190802A00032	8/2/2019	2.01	8/2/2024	8/2/2019	105.63938	103.5765491	101.5646731	99.60216912	97.68751321	95.81923923	93.99593633	92.21624646	90.47886193
190830A00023	8/30/2019	1.78	9/15/2022	8/30/2019	100.4349	100.3012032	100.1678811	100.0349283	99.90234331	99.77012456	99.6382705	99.50677959	99.3756503
191007A00029	10/7/2019	1.88	10/9/2029	10/7/2019	121.10489	113.1476149	105.7677995	98.920498	92.56449123	86.66195875	81.17818137	76.08127114	71.34192631
200429A00044	5/1/2020	1.86	4/30/2025	5/1/2020	107.50697	104.6584585	101.8999291	99.2279429	96.63921834	94.13062342	91.69916786	89.34199538	87.05637656
161212A00040	12/12/2016	2.45	12/12/2023	12/12/2016	104.55989	103.1580005	101.7817157	100.4303923	99.10340938	97.80016647	96.52008223	95.26259388	94.02715645
180719A00004	7/19/2018	3.07	7/19/2023	7/19/2018	103.69519	102.6897395	101.7037774	100.7367404	99.78808703	98.85729649	97.94386733	97.04731679	96.16717985
190909A00025	9/9/2019	1.88	9/9/2024	9/9/2019	105.6678	103.5001885	101.3879163	99.32918257	97.32226256	95.36550079	93.45730769	91.59615637	89.78057966
200302A00054	3/2/2020	1.31	3/3/2025	3/2/2020	105.56237	102.9060863	100.3299775	97.83112715	95.40674916	93.0541771	90.77085804	88.55434696	86.40230135
201022A00012	10/26/2020	2.25	10/24/2030	10/26/2020	125.4901	116.2769506	107.8133782	100.0343062	92.88063952	86.29868233	80.23961838	74.65904327	69.51654404
150601A00696	6/1/2015	2.83	3/13/2025	6/1/2015	109.60753	106.8673007	104.2100721	101.6328107	99.13261122	96.70669485	94.35240219	92.06718741	89.84861255
160628A00040	6/28/2016	1.56	6/28/2023	6/28/2016	102.17728	101.2375152	100.3149533	99.40912255	98.51957132	97.64586413	96.78758089	95.94431623	95.11567888
170313A00034	3/13/2017	3.31	3/15/2027	3/13/2017	120.1972	115.1172633	110.2848549	105.6865449	101.3097057	97.1424616	93.17363906	89.39272148	85.78980677
181120A00024	11/20/2018	3.25	11/20/2023	11/20/2018	105.2679	103.9181278	102.5950414	101.297865	100.025855	98.7782967	97.55450261	96.35381115	95.17558546
190620A00055	6/25/2019	2.08	4/17/2023	6/25/2019	102.06406	101.3280047	100.6025452	99.8874533	99.18250779	98.48749372	97.80220219	97.12643013	96.45998006
191104A00023	11/4/2019	2.24	8/4/2028	11/4/2019	119.39653	112.8219741	106.653298	100.8633132	95.42679299	90.32031748	85.52213546	81.01203706	76.77123693
151223A00070	12/23/2015	2.57	12/26/2023	12/23/2015	104.86739	103.4235094	102.00666	100.6161481	99.251303	97.91147591	96.5960396	95.30438733	94.03593203
160804A00014	8/4/2016	1.99	8/5/2024	8/4/2016	105.62247	103.5515704	101.5319593	99.56203501	97.64025826	95.76514872	93.9352821	92.14928759	90.40584552
180222A00026	2/22/2018	2.98	2/21/2025	2/22/2018	110.24608	107.5488982	104.9321958	102.3930815	99.92878452	97.53665142	95.21414071	92.95881718	90.76834672
180713A00013	7/13/2018	2.88	7/13/2023	7/13/2018	103.55729	102.5679925	101.5975815	100.6455177	99.71128404	98.7943828	97.89433459	97.01067756	96.14296662
190513A00013	5/13/2019	2.52	5/13/2024	5/13/2019	105.91617	104.0775608	102.2799173	100.5220134	98.80267308	97.12076543	95.47520247	93.86493717	92.28896145
191003A00022	10/3/2019	1.72	2/3/2023	10/3/2019	101.35033	100.8212517	100.2976812	99.77953617	99.26673256	98.75918808	98.25682213	97.75955573	97.26731151
200224A00025	2/24/2020	1.59	1/23/2025	2/24/2020	106.01538	103.4637196	100.9866263	98.58148784	96.24580265	93.97717193	91.77329457	89.63196254	87.55105652
171005A00003	10/5/2017	2.02	10/5/2022	10/5/2017	100.6569	100.4670348	100.2778966	100.0894779	99.90177469	99.71478284	99.52849826	99.34291692	99.15803478
190208A00008	2/8/2019	2.86	2/8/2024	2/8/2019	105.55602	103.9885073	102.4523931	100.9468116	99.47092597	98.0239297	96.60504493	95.21352125	93.8486345
190328A00065	3/28/2019	2.56	3/28/2024	3/28/2019	105.56896	103.8612968	102.1896956	100.5530754	98.95040268	97.38068449	95.84296681	94.33633245	92.85989927
200224A00002	2/24/2020	1.56	2/24/2023	2/24/2020	101.37756	100.7897874	100.2088128	99.63451473	99.06677861	98.50549251	97.95054703	97.40183524	96.85925257
200309A00020	3/9/2020	0.96	3/10/2025	3/9/2020	104.67434	102.0093867	99.42542428	96.91948985	94.48874941	92.1304917	89.84212193	87.62115584	85.46521424
121116A00006	11/16/2012	2.64	11/13/2025	11/16/2012	111.77081	108.2955914	104.9473948	101.7208515	98.61085606	95.61254898	92.72130268	89.93270912	87.24256789
131217A00023	12/17/2013	3.74	1/2/2024	12/17/2013	106.46378	104.9910981	103.5462766	102.1285895	100.7373375	99.37184517	98.03145945	96.71554885	95.42350264
150727A00013	7/27/2015	3.04	7/28/2025	7/27/2015	111.86559	108.698039	105.637942	102.6810481	99.8233026	97.0608339	94.38994426	91.80710082	89.30892731

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181108A00025	11/8/2018	3.44	7/31/2023	11/8/2018	104.19813	103.1559214	102.134565	101.1334361	100.1519381	99.18949729	98.24556242	97.31960315	96.41110931
190115A00034	1/15/2019	2.91	1/17/2023	1/15/2019	101.81841	101.3355155	100.8572044	100.3834137	99.91407919	99.4491382	98.98852909	98.53219138	98.08006575
200325A00030	3/25/2020	1.5	3/25/2025	3/25/2020	106.60036	103.8571026	101.1982343	98.62061858	96.12126091	93.69729875	91.34599483	89.06473064	86.85100033
211001A00006	10/1/2021	0.36	10/3/2022	10/1/2021	100.32248	100.1387984	99.95579298	99.7734597	99.59179484	99.41079471	99.23045567	99.05077408	98.87174636
170111A00014	1/11/2017	3.47	1/12/2032	1/11/2017	140.59465	129.3485762	119.1215789	109.8151183	101.3406863	93.61873632	86.57773326	80.15330904	74.2875106
181010A00021	10/10/2018	3.29	3/15/2023	10/10/2018	102.59358	101.948262	101.3110635	100.6818333	100.0604225	99.44668574	98.84048135	98.2416711	97.65012011
190807A00020	8/7/2019	1.57	2/7/2024	8/7/2019	103.72336	102.1702903	100.6483834	99.15677853	97.69464564	96.26118441	94.85562306	93.47721706	92.12524787
191008A00018	10/8/2019	1.74	10/11/2022	10/8/2019	100.63317	100.4267573	100.2212062	100.0165076	99.81265631	99.60964689	99.40747413	99.2061328	99.00561772
200130A00005	1/30/2020	1.73	1/30/2024	1/30/2020	103.727	102.1988554	100.701092	99.23287985	97.79342122	96.3819466	94.99771337	93.64000461	92.30812807
120113A00012	1/13/2012	3.62	1/15/2027	1/13/2012	120.93071	116.0124131	111.3262992	106.8601598	102.6024912	98.54245192	94.66982071	90.974958	87.44876968
171122A00009	11/22/2017	2.2	11/22/2022	11/22/2017	101.0959	100.7711246	100.448445	100.1278375	99.80928198	99.49275884	99.17824859	98.86573202	98.55519015
180920A00027	9/20/2018	3.04	9/20/2022	9/20/2018	100.67406	100.5260364	100.3784589	100.2313273	100.0846396	99.93839362	99.79258747	99.64721911	99.50228652
200310A00073	3/12/2020	2.12	3/11/2027	3/12/2020	114.51336	109.5768018	104.8820667	100.4160089	96.16627152	92.12123326	88.26996025	84.6021615	81.1081475
200511A00022	5/11/2020	1.6	2/1/2030	5/11/2020	118.46072	110.3109297	102.7766653	95.8083009	89.36044954	83.39158222	77.86368179	72.74192947	67.99442077
160830A00034	8/30/2016	1.9	8/30/2023	8/30/2016	102.85294	101.7331728	100.6376712	99.56565603	98.51637871	97.48912207	96.4831988	95.49794995	94.53274345
190429A00003	4/29/2019	2.62	10/13/2023	4/29/2019	104.09404	102.8410839	101.6182293	100.4244001	99.25857165	98.11976705	97.00705445	95.91954439	94.85638746
190724A00025	7/24/2019	1.96	7/24/2023	7/24/2019	102.74279	101.7267339	100.7306965	99.75409049	98.79635163	97.85693731	96.93532556	96.03101406	95.14351923
190917A00035	9/19/2019	2.02	10/16/2023	9/19/2019	103.3803	102.1234659	100.8970629	99.69999705	98.53122533	97.38975364	96.27463401	95.18496189	94.11987373
200818A00005	8/18/2020	1.05	8/18/2027	8/18/2020	110.25119	104.9562617	99.94425494	95.19861829	90.7038514	86.44543555	82.40976632	78.58409119	74.95645178
150601A00616	6/1/2015	2.72	9/30/2022	6/1/2015	100.71908	100.5432416	100.3680107	100.1933886	100.0193722	99.84595844	99.6731442	99.50092638	99.32930193
170906A00037	9/6/2017	1.99	9/6/2022	9/6/2017	100.38268	100.2741042	100.165772	100.0576854	99.9498434	99.84224526	99.73489007	99.62777701	99.52090521
190807A00012	8/7/2019	1.76	2/7/2023	8/7/2019	101.39174	100.8513999	100.3168109	99.78788086	99.26452007	98.74664087	98.23415738	97.72698552	97.22504296
190923A00017	9/23/2019	1.74	9/23/2024	9/23/2019	105.76169	103.5486939	101.3930124	99.29275329	97.24610074	95.25131356	93.3067213	91.41072079	89.56177279
200224A00046	2/24/2020	1.59	2/24/2025	2/24/2020	106.25326	103.6080023	101.0420693	98.55260407	96.13686773	93.79223792	91.51620306	89.30635684	87.1603931
081211A00029	12/11/2008	4.57	12/15/2023	12/11/2008	107.40147	105.9728311	104.5703615	103.1934048	101.8413231	100.5134993	99.20933637	97.92825627	96.66969942
100930A00008	9/30/2010	3.82	9/30/2025	9/30/2010	115.14695	111.7445192	108.4621135	105.2947676	102.2377556	99.28657742	96.43694604	93.6847762	91.02617329
111006A00023	10/6/2011	3.81	10/15/2026	10/6/2011	120.51277	115.8797436	111.4543707	107.2261415	103.185144	99.32202432	95.62795184	92.09458642	88.7140481
121116A00022	11/16/2012	2.78	11/16/2029	11/16/2012	128.27895	119.9459067	112.21996	105.0535659	98.40314413	92.22872715	86.49364267	81.16422597	76.20955866
130904A00039	9/4/2013	4.19	9/15/2028	9/4/2013	133.21995	126.0609144	119.3446485	113.0412268	107.1229113	101.5639762	96.3405509	91.43047659	86.81317441
180323A00013	3/23/2018	3.18	3/23/2028	3/23/2018	124.77193	118.4112679	112.4198287	106.7741456	101.4523662	96.43413649	91.70048968	87.2337444	83.01741055
190802A00003	8/2/2019	2.01	8/2/2024	8/2/2019	105.63938	103.5765491	101.5646731	99.60216912	97.68751321	95.81923923	93.99593633	92.21624646	90.47886193
191104A00018	11/5/2019	1.96	11/5/2024	11/5/2019	106.31051	103.975651	101.7037098	99.49254248	97.34009957	95.24441774	93.2036153	91.21588807	89.27950546
191104A00025	11/4/2019	2.33	8/2/2030	11/4/2019	125.57801	116.6091941	108.3522144	100.7467342	93.7378241	87.27545486	81.31403727	75.81200696	70.73145022

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200305A00040	3/10/2020	0.99	3/10/2023	3/10/2020	101.1039	100.4779281	99.85968451	99.24902282	98.64580414	98.04989299	97.46115714	96.87946758	96.30469833
200310A00025	3/10/2020	0.87	3/11/2024	3/10/2020	102.80435	101.1669004	99.5634728	97.9930749	96.45475354	94.94759209	93.47070869	92.02325461	90.60441264
200403A00016	4/3/2020	0.63	4/17/2023	4/3/2020	101.07058	100.3376978	99.61539458	98.90344264	98.20162067	97.50971363	96.82751255	96.15481428	95.49142132
150601A00530	6/1/2015	3.08	7/24/2024	6/1/2015	107.92231	105.8558892	103.839979	101.8730264	99.95353557	98.08006709	96.25123513	94.46570521	92.7221918
151002A00075	10/2/2015	2.04	10/3/2022	10/2/2015	100.64381	100.4595532	100.275976	100.0930742	99.91084416	99.72928215	99.54838447	99.36814745	99.18856746
160212A00044	2/12/2016	1.93	2/13/2023	2/12/2016	101.52439	100.9668365	100.4154024	99.86998576	99.33048828	98.79681389	98.26886856	97.74656028	97.22979902
181010A00023	10/10/2018	3.41	4/1/2024	10/10/2018	107.06178	105.3297302	103.6343866	101.9746506	100.3494643	98.75781205	97.19871797	95.67124418	94.1744889
190122A00046	1/22/2019	3.29	1/22/2029	1/22/2019	128.89069	121.4636534	114.5225264	108.0328446	101.9627636	96.28284659	90.96587046	85.98664808	81.3218663
190729A00007	7/29/2019	2.17	7/28/2023	7/29/2019	102.87315	101.8467345	100.840727	99.8545231	98.88754266	97.93922797	97.00904274	96.09647102	95.20101628
210312A00005	3/12/2021	0.53	3/12/2024	3/12/2021	102.24687	100.6112861	99.00974063	97.44123622	95.90481773	94.39956677	92.92459984	91.47906668	90.0621487
220518A00008	5/18/2022	3.01	5/20/2024	5/18/2022	106.8894	105.0216803	103.1958743	101.4107534	99.66513757	97.95789012	96.28791576	94.65415869	93.05560089
190814A00008	8/14/2019	1.84	8/14/2024	8/14/2019	105.38149	103.2884418	101.2476354	99.25742715	97.31623333	95.42253151	93.5748577	91.77180361	90.01201412
190820A00008	8/20/2019	1.76	8/20/2024	8/20/2019	105.25878	103.1505879	101.0952969	99.09122468	97.13675714	95.23034333	93.37049228	91.55577027	89.78479809
200115A00014	1/17/2020	1.88	9/15/2022	1/17/2020	100.44825	100.3145446	100.1812069	100.0482387	99.91563823	99.78340408	99.65153465	99.52002841	99.38888382
200302A00011	3/2/2020	1.31	2/27/2025	3/2/2020	105.53427	102.8900356	100.3253465	97.83732729	95.42322335	93.0803979	90.80632593	88.59858859	86.45486805
200312A00016	3/16/2020	1.09	2/15/2023	3/16/2020	101.06758	100.5059012	99.95045559	99.40113544	98.8578397	98.32046959	97.78892849	97.26312185	96.74295717
200429A00053	5/1/2020	2.18	4/30/2025	5/1/2020	108.4108	105.5495179	102.7785225	100.0943668	97.49375939	94.97355932	92.53076751	90.16251926	87.86607708
160830A00032	8/30/2016	1.82	8/30/2022	8/30/2016	100.30425	100.2152485	100.126404	100.0377171	99.94918737	99.86081444	99.77259791	99.68453736	99.5966324
170111A00009	1/11/2017	3.16	1/11/2028	1/11/2017	122.94192	116.8835943	111.1659519	105.7680166	100.6702094	95.85424923	91.30306098	87.00068951	82.93222073
171206A00041	12/6/2017	2.44	12/6/2024	12/6/2017	108.04569	105.5969828	103.2162294	100.9011715	98.64963888	96.45954559	94.32888628	92.25573252	90.23822937
180530A00014	5/30/2018	2.93	5/30/2023	5/30/2018	103.08678	102.2254645	101.3785192	100.5455863	99.72632023	98.92038662	98.12746204	97.3472334	96.57939757
200110A00022	1/13/2020	2	1/6/2025	1/13/2020	106.92102	104.4048095	101.960744	99.58634267	97.27922882	95.03712122	92.85782981	90.73925137	88.67936561
210212A00016	2/17/2021	1.32	2/18/2025	2/17/2021	105.49993	102.8816648	100.3416302	97.8770179	95.48513981	93.16342148	90.9093965	88.72070121	86.59506969
210903A00002	9/8/2021	1.22	9/8/2023	9/8/2021	102.15536	101.0142244	99.89842352	98.80711817	97.73950897	96.69483103	95.67235209	94.67137074	93.69121484
080910A00065	9/10/2008	5.03	9/15/2023	9/10/2008	106.59041	105.402152	104.2405354	103.104671	101.9937072	100.9068297	99.84325952	98.80225096	97.78308984
170119A00006	1/19/2017	2.85	1/21/2025	1/19/2017	109.20617	106.6191837	104.1073588	101.668075	99.29881948	96.99718218	94.76085094	92.5876069	90.4753201
180703A00015	7/3/2018	3.06	7/3/2023	7/3/2018	103.53189	102.5724577	101.6307905	100.706399	99.79881081	98.90757064	98.03223954	97.17239416	96.32762605
190905A00015	9/5/2019	1.78	9/6/2022	9/5/2019	100.3599	100.2513411	100.1430325	100.0349694	99.92715087	99.81957614	99.71224433	99.60515458	99.49830605
200228A00015	3/3/2020	1.34	10/16/2023	3/3/2020	102.53742	101.286131	100.0651854	98.8734863	97.70999312	96.57371424	95.46370399	94.37906006	93.31892106
200601A00009	6/1/2020	0.84	6/2/2025	6/1/2020	104.80257	101.8993779	99.09070183	96.37297429	93.74278494	91.19686962	88.73210333	86.34549346	84.03417353
200911A00006	9/11/2020	0.37	9/11/2023	9/11/2020	101.3291	100.1825965	99.06180154	97.96585592	96.8939414	95.84527532	94.81910867	93.81472431	92.83143527
170316A00018	3/16/2017	2.8	3/18/2024	3/16/2017	105.86888	104.1880315	102.5422633	100.9305427	99.35187834	97.80531736	96.28994351	94.80487529	93.34926434
170803A00019	8/3/2017	2.14	8/3/2022	8/3/2017	100.05174	100.0378482	100.0239683	100.0101019	99.99624893	99.98240938	99.96858323	99.95477046	99.94097106

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180214A00004	2/14/2018	2.71	2/14/2023	2/14/2018	102.0106	101.44813	100.8918661	100.3417047	99.79754558	99.25929082	98.72684449	98.20011278	97.67900387
180328A00010	3/28/2018	3.1	3/28/2025	3/28/2018	110.62848	107.8292613	105.1157951	102.4848995	99.93353474	97.4587954	95.05790316	92.72820027	90.46714333
180927A00008	9/27/2018	3.14	9/27/2022	9/27/2018	100.76366	100.5961246	100.4291483	100.2627269	100.0968576	99.93153776	99.7667646	99.60253546	99.43884766
190923A00012	9/23/2019	2.43	9/25/2034	9/23/2019	137.88993	123.6207067	110.9877176	99.7934719	89.86529559	81.05210041	73.22158588	66.25781639	60.05912161
190926A00034	9/26/2019	1.88	9/26/2022	9/26/2019	100.54462	100.3801453	100.2162161	100.0528249	99.88996887	99.72764556	99.56585231	99.40458656	99.24384574
191206A00009	12/6/2019	2.87	12/4/2037	12/6/2019	147.96465	129.6789454	113.9384043	100.3706498	88.65973247	78.53732513	69.77532682	62.17964643	55.58497366
191219A00036	12/20/2019	2.1	12/20/2024	12/20/2019	107.02399	104.5543747	102.1542846	99.82137398	97.55339296	95.34818011	93.20365869	91.11783275	89.08878351
200305A00012	3/5/2020	1.14	3/5/2025	3/5/2020	105.12348	102.467181	99.89123024	97.39270228	94.96879916	92.61684331	90.33427149	88.11862902	85.9675644
180705A00003	7/5/2018	3.04	7/5/2023	7/5/2018	103.52368	102.5587572	101.6118119	100.6823407	99.7698629	98.87391543	97.99405184	97.12984163	96.2808696
200110A00013	1/10/2020	1.76	1/10/2024	1/10/2020	103.81243	102.3351936	100.8863827	99.46524724	98.07106379	96.70313347	95.36078113	94.0433543	92.7502222
200214A00005	2/14/2020	1.59	2/14/2025	2/14/2020	106.52654	103.8986431	101.3490755	98.87503554	96.47383777	94.14290985	91.87978719	89.68210756	87.54760613
220401A00009	4/1/2022	2.98	4/1/2027	4/1/2022	118.81967	113.7192583	108.8700148	104.2581781	99.87081807	95.69578203	91.72164334	87.9376538	84.33369938
150610A00008	6/10/2015	3.58	6/10/2030	6/10/2015	136.85524	127.5461877	118.9558192	111.0245267	103.6979483	96.92647777	90.6648262	84.87162587	79.50907222
161003A00004	10/3/2016	1.91	10/3/2023	10/3/2016	103.1399	101.9216634	100.7320725	99.5701234	98.43486153	97.3253759	96.24079654	95.18029222	94.14306836
190620A00026	6/20/2019	2.09	6/20/2023	6/20/2019	102.52091	101.6032	100.7018736	99.8164932	98.94663846	98.09190358	97.25189685	96.42623998	95.61456755
200513A00002	5/13/2020	0.56	5/13/2024	5/13/2020	102.57041	100.7589248	98.98797801	97.25635824	95.56289894	93.90647849	92.28601797	90.70047912	89.14886241
130211A00017	2/11/2013	3.27	2/15/2028	2/11/2013	123.95386	117.7632887	111.9258168	106.4193832	101.2234179	96.31873636	91.68743864	87.31281688	83.17926969
160628A00031	6/28/2016	1.77	6/28/2023	6/28/2016	102.2794	101.3404498	100.4186618	99.51356849	98.62471974	97.7516815	96.89403507	96.05137641	95.22331549
160801A00001	8/1/2016	1.97	8/1/2024	8/1/2016	105.54907	103.4899284	101.4816164	99.52255255	97.61121832	95.74615285	93.9259503	92.14925732	90.41477073
180521A00025	5/21/2018	3.24	5/21/2025	5/21/2018	112.05739	109.0742262	106.1865756	103.3908398	100.683577	98.06149494	95.52144381	93.06040908	90.67550475
200131A00016	1/31/2020	1.73	1/31/2025	1/31/2020	106.43277	103.853499	101.3501487	98.92004369	96.56061729	94.26940892	92.04405919	89.88230499	87.78197493
200228A00019	2/28/2020	1.21	2/20/2025	2/28/2020	105.57347	102.9410079	100.3874597	97.90998766	95.50587077	93.17250369	90.90739086	88.70814107	86.57246242
200429A00052	5/1/2020	1.43	4/30/2024	5/1/2020	103.83734	102.0548273	100.3115079	98.60615807	96.93760862	95.30473876	93.70647358	92.14178166	90.60967283
211222A00027	12/22/2021	1.26	10/15/2024	12/22/2021	104.55008	102.2946693	100.0989187	97.96080541	95.87839588	93.84983819	91.87335793	89.94725415	88.06989567
170802A00027	8/2/2017	2.16	8/2/2022	8/2/2017	100.04151	100.0303923	100.0192894	100.0081969	99.99711481	99.98604318	99.97498194	99.9639311	99.95289064
180627A00026	6/27/2018	2.87	6/27/2023	6/27/2018	103.38883	102.4457628	101.5198715	100.6106917	99.71777397	98.84068492	97.97900637	97.13233475	96.30028051
190315A00014	3/15/2019	2.74	3/15/2024	3/15/2019	105.73667	104.0658024	102.4296838	100.8273016	99.25767787	97.71987268	96.21298179	94.73613512	93.28849512
190816A00036	8/16/2019	1.77	8/16/2024	8/16/2019	105.25003	103.1528925	101.1082021	99.11429744	97.16958524	95.27253412	93.42167161	91.61558145	89.85290098
191108A00013	11/8/2019	2.25	11/8/2029	11/8/2019	124.14474	115.9864831	108.4240774	101.4108146	94.90388738	88.86404125	83.25526133	78.04448904	73.20136482
191210A00011	12/10/2019	1.92	12/12/2022	12/10/2019	101.11411	100.7336946	100.3561465	99.98143355	99.60952373	99.24038558	98.87398811	98.5103008	98.14929356
151223A00072	12/23/2015	2.81	12/23/2025	12/23/2015	113.27775	109.6487457	106.1563422	102.7946738	99.55816107	96.44149226	93.43960963	90.54769567	87.76116041
170417A00057	4/17/2017	2.32	4/17/2023	4/17/2017	102.23938	101.5026087	100.7764432	100.0606525	99.35501525	98.65931631	97.9733467	97.29690322	96.62978831
180913A00030	9/13/2018	3.33	9/12/2025	9/13/2018	113.32572	110.0043618	106.7989875	103.7048613	100.717468	97.83250486	95.04586997	92.35365168	89.75211833

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181219A00006	12/19/2018	3.06	12/19/2023	12/19/2018	105.31977	103.8951659	102.4968644	101.1241957	99.77651523	98.45319957	97.15364555	95.87726943	94.62350614
190625A00024	6/25/2019	2.26	6/25/2025	6/25/2019	109.15562	106.1246408	103.1937868	100.3592164	97.61725435	94.96438614	92.39725022	89.91263035	87.50744855
190813A00016	8/13/2019	1.88	8/13/2024	8/13/2019	105.45737	103.3662571	101.3272899	99.33882936	97.39929633	95.50717286	93.6609991	91.85937071	90.10093627
160613A00047	6/15/2016	2.18	6/16/2025	6/15/2016	108.83716	105.8360407	102.9333402	100.1253039	97.40834544	94.77903431	92.23408799	89.77036475	87.38485682
200429A00009	4/29/2020	0.78	4/29/2025	4/29/2020	104.82527	102.0090291	99.282145	96.64118526	94.08287882	91.60410467	89.20188367	86.87337082	84.6158481
220125A00010	1/25/2022	1.89	1/25/2027	1/25/2022	113.02522	108.25664	103.7167788	99.39347531	95.27528041	91.3514098	87.61170185	84.04657842	80.64700824
170815A00006	8/15/2017	2.5	8/15/2024	8/15/2017	106.7712	104.660585	102.6026277	100.5956643	98.63809763	96.72839251	94.86507263	93.046718	91.27196227
170829A00023	8/29/2017	1.83	8/29/2022	8/29/2017	100.30436	100.2180609	100.131911	100.0459078	99.9600509	99.87433998	99.78877467	99.70335461	99.61807946
180426A00011	4/26/2018	2.94	4/26/2023	4/26/2018	102.84879	102.0832826	101.3291557	100.5861583	99.85404523	99.13257857	98.42152729	97.72066699	97.02977968
190807A00005	8/7/2019	1.77	8/7/2024	8/7/2019	105.18291	103.1111541	101.0908188	99.12029321	97.19803047	95.32254313	93.49240019	91.70622459	89.96269074
191002A00013	10/2/2019	1.78	10/3/2022	10/2/2019	100.58334	100.399299	100.2159381	100.0332505	99.8512323	99.66987991	99.48918965	99.3091579	99.12978105
200709A00005	7/10/2020	2.23	7/10/2030	7/10/2020	124.57416	115.7146725	107.5539868	100.0332633	93.09890564	86.70206554	80.79819946	75.34666938	70.31038224
220406A00006	4/6/2022	2.65	10/6/2023	4/6/2022	104.06042	102.8277123	101.6241458	100.4486993	99.30039546	98.17830213	97.08152924	96.00922667	94.960582
180111A00016	1/11/2018	2.57	1/11/2023	1/11/2018	101.60589	101.1403774	100.6791394	100.2221125	99.76923919	99.32046285	98.87572792	98.43497988	97.99816514
191025A00009	10/25/2019	2.26	5/25/2029	10/25/2019	121.79496	114.2665589	107.2566398	100.7268046	94.64168481	88.96868844	83.67776918	78.74121546	74.13345804
191122A00021	11/26/2019	3.4	11/22/2038	11/26/2019	158.74888	138.5811687	121.3432326	106.5860765	93.93202954	83.06307864	73.71115896	65.65006742	58.6887206
191226A00020	12/26/2019	2.44	12/21/2029	12/26/2019	124.74694	116.4870452	108.8370286	101.748628	95.17763248	89.0835254	83.42915822	78.18045489	73.30614339
081217A00076	12/17/2008	3.86	12/22/2023	12/17/2008	106.67046	105.2244162	103.8052385	102.4122428	101.0447658	99.70216645	98.38382464	97.08914038	95.81753307
180727A00038	7/27/2018	3.36	7/25/2025	7/27/2018	112.81281	109.6395476	106.5735222	103.610505	100.7464618	97.97754026	95.30006052	92.7105062	90.20551635
190606A00028	6/6/2019	2.74	6/6/2029	6/6/2019	125.3233	117.6385945	110.4831062	103.8175851	97.60587952	91.8146809	86.41328656	81.37338379	76.66885256
190816A00007	8/16/2019	1.77	8/16/2023	8/16/2019	102.60571	101.5270026	100.4708813	99.43664052	98.42360572	97.43112983	96.45859184	95.50539558	94.5709684
200204A00016	2/4/2020	1.72	2/6/2023	2/4/2020	101.36927	100.8317306	100.2998852	99.77364095	99.25290966	98.73760497	98.22764228	97.7229388	97.22341341
200227A00004	2/27/2020	1.65	2/27/2030	2/27/2020	120.21584	111.8701823	104.160606	97.03535435	90.44713909	84.35272897	78.71258224	73.49051402	68.65339534
200306A00014	3/6/2020	1.38	3/6/2030	3/6/2020	116.89423	108.7053228	101.1427993	94.15558995	87.69703331	81.72447772	76.19891739	71.08466331	66.34904546
200529A00004	5/29/2020	0.56	5/29/2024	5/29/2020	102.64209	100.7850417	98.97031895	97.19670944	95.46304779	93.76820892	92.11110636	90.49069073	88.90594818
180910A00033	9/10/2018	3.43	9/8/2028	9/10/2018	127.24738	120.3303282	113.8417607	107.7527559	102.0364959	96.66810302	91.6244898	86.88422059	82.42738491
190805A00008	8/5/2019	1.88	8/4/2023	8/5/2019	102.63144	101.5865486	100.5628426	99.55968619	98.57646544	97.6125907	96.66749535	95.74063472	94.831485
150817A00099	8/17/2015	3.19	8/17/2027	8/17/2015	121.45436	115.8774279	110.5940385	105.5871449	100.8407846	96.34000108	92.07077485	88.01995999	84.17522498
180223A00026	2/23/2018	2.92	12/15/2022	2/23/2018	101.52026	101.1305032	100.7437478	100.3599579	99.97909936	99.60113857	99.22604244	98.85377841	98.48431438
190808A00050	8/8/2019	1.7	8/8/2024	8/8/2019	105.3204	103.2391802	101.2097487	99.23047616	97.29980073	95.41622051	93.57829088	91.78462183	90.03387549
200720A00037	7/22/2020	2.1	7/21/2025	7/22/2020	108.90984	105.8078128	102.8107297	99.91446527	97.11507718	94.40880021	91.79203714	89.26135027	86.81345336
170629A00073	6/29/2017	2.2	6/29/2023	6/29/2017	102.78151	101.8358723	100.9075772	99.99614799	99.10112847	98.22207873	97.35857442	96.51020614	95.67657873
181009A00008	10/9/2018	3.24	10/7/2022	10/9/2018	100.89787	100.7022216	100.5073396	100.3132208	100.1198606	99.92725457	99.73539822	99.54428714	99.35391698

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190809A00021	8/9/2019	2.12	8/9/2029	8/9/2019	122.46591	114.6419914	107.3734038	100.617803	94.33628718	88.49309691	83.05534564	77.99277516	73.27753285
190916A00009	9/16/2019	2.04	9/16/2022	9/16/2019	100.48003	100.3434831	100.2073249	100.0715508	99.93615936	99.80114877	99.66651743	99.53226371	99.398386
191108A00011	11/8/2019	2.08	10/18/2024	11/8/2019	106.43462	104.1490097	101.9239137	99.75728112	97.64714572	95.5916248	93.58891466	91.63728654	89.73508283
191230A00012	12/30/2019	1.77	12/1/2023	12/30/2019	103.52272	102.1595097	100.8207004	99.5056955	98.21391514	96.94479784	95.69779977	94.47239401	93.26806998
200227A00006	2/27/2020	1.47	2/27/2025	2/27/2020	105.95802	103.3081531	100.7379596	98.24456119	95.82519966	93.47723443	91.19813685	88.98548463	86.83695659
200814A00009	8/18/2020	1.36	8/16/2028	8/18/2020	113.94221	107.4980123	101.4563374	95.79001049	90.47382442	85.48438984	80.7999951	76.40047756	72.26710542
131106A00003	11/6/2013	3.57	11/15/2023	11/6/2013	105.64074	104.2981999	102.9836948	101.6963485	100.4353246	99.19982181	97.98907114	96.80233489	95.63890485
151229A00081	12/29/2015	3.76	12/31/2035	12/29/2015	156.7537	140.0044435	125.3036287	112.3857252	101.0210655	91.01083414	82.18277574	74.38751914	67.49542665
170919A00076	9/19/2017	1.97	9/19/2022	9/19/2017	100.50715	100.3621119	100.2175088	100.0733359	99.92959119	99.78627286	99.64337893	99.50090748	99.35885662
180530A00027	5/30/2018	3.61	6/1/2032	5/30/2018	143.41696	131.5878944	120.8666991	111.1427573	102.3170597	94.30093242	87.01490901	80.38773176	74.35546522
181218A00077	12/18/2018	3.09	12/18/2023	12/18/2018	105.35127	103.9292732	102.5334786	101.1632256	99.81787286	98.49680031	97.19940782	95.92511462	94.67335847
190107A00023	1/7/2019	2.87	1/6/2023	1/7/2019	101.69915	101.2473854	100.7996403	100.3558577	99.9159851	99.47997096	99.04776453	98.61931601	98.19457645
210804A00008	8/6/2021	2.28	8/4/2028	8/6/2021	119.64725	113.0651405	106.8892402	101.0923483	95.64922121	90.53642331	85.73218849	81.2162929	76.96993804
160714A00020	9/6/2016	2.28	9/4/2026	9/6/2016	113.45322	109.0897072	104.9190535	100.931683	97.11854991	93.47110591	89.98126999	86.6414001	83.44426674
180713A00027	7/13/2018	3.23	7/13/2028	7/13/2018	126.34224	119.5910106	113.250194	107.2926221	101.6930615	96.42806807	91.47585054	86.8161462	82.43010602
181026A00002	10/26/2018	3.28	10/26/2023	10/26/2018	105.06057	103.7639537	102.4993369	101.2655461	100.0614637	98.88602572	97.73821825	96.61707486	95.52167371
190726A00017	7/26/2019	2.44	7/24/2026	7/26/2019	113.70191	109.4539356	105.3893831	101.4993536	97.77543273	94.20965688	90.79448659	87.5227817	84.38777797
191004A00005	10/4/2019	1.54	10/4/2024	10/4/2019	105.40175	103.1619414	100.98078	98.85630107	96.78662463	94.76994888	92.80454643	90.88876048	89.02100127
191008A00033	10/8/2019	1.71	10/8/2024	10/8/2019	105.51605	103.2694581	101.0818109	98.9511309	96.87552301	94.8531714	92.88233548	90.96134605	89.08860169
120517A00007	5/17/2012	2.42	5/31/2023	5/17/2012	102.74707	101.8833324	101.0340774	100.1989452	99.37758562	98.56966025	97.77484151	96.99281243	96.22326621
160701A00019	7/1/2016	1.73	7/3/2023	7/1/2016	102.27418	101.3211957	100.3858929	99.46778386	98.566398	97.68128173	96.81199778	95.95812439	95.11925467
180403A00006	4/3/2018	3.07	4/3/2028	4/3/2018	124.24738	117.8672051	111.8593944	106.2001622	100.8673674	95.84039488	91.10004189	86.62841354	82.40882658
180529A00056	5/29/2018	3	5/26/2023	5/29/2018	103.10779	102.2576458	101.4215021	100.5990168	99.78985739	98.99370178	98.21023833	97.43916525	96.68019026
180827A00032	8/27/2018	2.96	8/29/2022	8/27/2018	100.39414	100.3078428	100.2216935	100.13569	100.0498319	99.96411902	99.87855089	99.79312721	99.70784762
181005A00012	10/5/2018	3.33	10/4/2024	10/5/2018	109.40867	107.1233773	104.8976718	102.7295666	100.6171544	98.55860764	96.55217397	94.59617259	92.68899065
190619A00009	6/19/2019	2.26	6/19/2024	6/19/2019	105.7631	103.8227731	101.9277014	100.0765595	98.26806916	96.50099764	94.77415589	93.08639659	91.4366124
191002A00017	10/2/2019	1.84	10/2/2024	10/2/2019	105.75974	103.527461	101.3533812	99.23556203	97.1721452	95.16134934	93.20146624	91.29085719	89.42794949
200716A00015	7/20/2020	1.54	7/19/2024	7/20/2020	104.5757	102.5632246	100.5996791	98.68357209	96.81346536	94.98797409	93.20576465	91.46555232	89.76609912
210216A00009	2/16/2021	0.92	2/16/2027	2/16/2021	109.28358	104.5169745	99.98327883	95.66991129	91.56503993	87.65753069	83.93690238	80.3932849	77.01738025
090429A00044	4/29/2009	4.1	4/29/2024	4/29/2014	100.00953	100.0041884	99.99885261	99.99351923	99.95892896	99.66603702	99.01998775	98.24779384	97.44622821
130416A00025	4/16/2013	2.27	4/18/2028	4/16/2018	99.96513	99.94741235	99.79370431	98.99265635	97.39838595	95.26658319	92.89573467	90.49639547	88.16370358
140508A00011	5/8/2014	2.32	5/8/2024	5/8/2019	100.01019	100.0047479	99.98190588	99.79407403	99.19206767	98.3896071	97.53890204	96.68981473	95.85439543
140723A00038	7/23/2014	2.3	7/23/2024	7/23/2019	100.01003	100.004593	99.97453804	99.7529606	99.09749552	98.22875152	97.30547352	96.38320835	95.4762598

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
141119A00005	11/19/2014	2.53	11/19/2024	11/19/2019	100.00055	99.99522557	99.96377112	99.73884717	99.03523688	98.06260302	97.00470456	95.93947396	94.89139505
150202A00006	2/2/2015	1.92	2/3/2025	2/3/2020	99.998008	99.98341573	99.9124925	99.37701759	98.42033422	97.28193468	96.10009328	94.92979662	93.78346758
151223A00007	12/23/2015	3.76	12/23/2030	12/23/2022	101.55299	101.1944896	100.6768441	99.75441817	97.97749677	94.95324905	90.82107229	86.09552007	81.28890647
161012A00020	10/11/2016	2.96	10/14/2031	10/11/2023	103.79714	102.5008912	100.9444046	98.76278582	95.58343607	91.23850088	86.14526045	80.90354968	75.9055438
170411A00031	4/11/2017	3.39	4/12/2032	4/11/2022	99.994072	99.99184461	99.92660982	99.51360187	98.05350991	95.48965813	92.16626074	88.52122741	84.90505132
170515A00052	5/15/2017	3.78	5/15/2042	5/15/2024	107.5029	105.6099646	103.5288931	100.9344998	97.34243227	92.33480691	86.16451747	79.84984519	74.0753247
170519A00006	5/19/2017	3	5/19/2032	5/19/2022	99.986245	99.97840056	99.89099351	99.22840647	97.44283595	94.58667916	91.06762723	87.34255523	83.71784088
170705A00037	7/5/2017	2.85	7/6/2032	7/6/2027	114.43904	110.2983268	106.2874153	102.325223	98.37460557	94.43883995	90.55393541	86.78979532	83.21220894
170802A00074	8/2/2017	2.92	8/2/2027	8/2/2022	99.990229	99.97914737	99.89392295	99.27010018	97.73786753	95.39203038	92.55644079	89.54216238	86.55312137
170809A00042	8/9/2017	2.35	8/9/2027	8/9/2022	100.06672	100.0345288	99.88716961	99.21987953	97.82957161	95.94148354	93.8240483	91.66796459	89.56104705
171004A00022	10/4/2017	2.74	10/4/2027	10/4/2022	100.55135	100.3872507	100.0508002	99.24196147	97.6186142	95.19122303	92.27237226	89.18167458	86.1257713
171005A00047	10/5/2017	3.29	10/5/2032	10/5/2022	100.66749	100.4986134	100.1398958	99.19957255	97.04989934	93.50931965	89.01875498	84.22060361	79.57605936
180105A00005	1/5/2018	3.07	1/5/2028	1/5/2023	101.48852	101.1140528	100.6392822	99.94431622	98.83248799	97.17570206	95.10173896	92.84124829	90.56381803
180105A00006	1/5/2018	3.07	1/5/2028	1/5/2023	101.48852	101.1140528	100.6392822	99.94431623	98.83248798	97.17570203	95.10173891	92.84124822	90.56381794
180130A00087	1/30/2018	2.92	1/31/2028	1/30/2023	101.85454	101.3386352	100.7182586	99.87197333	98.62627121	96.87425889	94.74793903	92.46910861	90.19355494
180302A00003	3/2/2018	3.89	3/2/2033	3/2/2023	102.43375	101.887135	101.1898695	100.1132944	98.23486501	95.01074809	90.49955043	85.27322672	79.99689437
180315A00030	3/15/2018	3.76	3/15/2033	3/17/2025	111.34531	108.5036118	105.5914762	102.3835774	98.66464221	94.20815995	89.05114685	83.52189301	78.09253913
180504A00024	5/4/2018	3.62	5/4/2028	5/4/2023	103.03015	102.297587	101.4478664	100.3344095	98.72294855	96.33074833	93.13000874	89.40116125	85.49094159
180627A00005	6/27/2018	3.63	6/30/2033	6/30/2023	103.56608	102.698247	101.7196181	100.4741722	98.70744188	96.11938923	92.68635665	88.76185039	84.78874531
180703A00033	7/3/2018	3.4	7/3/2028	7/3/2023	103.22841	102.3961943	101.4967054	100.4430674	99.10853053	97.35668015	95.19370429	92.79681995	90.35127803
180712A00016	7/12/2018	3.66	7/12/2033	7/12/2028	123.22803	117.4822006	111.9585923	106.5283932	101.1460004	95.78867812	90.48843686	85.32964907	80.43167392
190111A00040	1/11/2019	3.74	1/11/2034	1/11/2024	105.97097	104.4669951	102.8165671	100.7806908	98.03412191	94.23643886	89.43079202	84.14990124	78.98575588
190116A00015	1/16/2019	3.61	1/17/2034	1/16/2024	105.54298	104.1175021	102.5887385	100.771891	98.4567502	95.38859475	91.61975398	87.48110651	83.37975682
190204A00054	2/4/2019	3.98	2/6/2034	2/2/2024	107.07763	105.3575452	103.5053391	101.2772595	98.37237384	94.41647165	89.4178245	83.85647005	78.37415869
190222A00023	2/22/2019	3.66	2/22/2034	2/22/2026	115.60419	111.5540827	107.4494039	103.0387304	98.13522575	92.60884466	86.57672677	80.40678599	74.5286376
190301A00015	3/1/2019	3.86	3/1/2034	3/2/2026	115.39414	111.5351405	107.6373071	103.4693954	98.82650842	93.59134171	87.81212312	81.83008954	76.07711119
190409A00016	4/9/2019	2.91	4/9/2029	4/9/2024	105.52474	103.8659164	102.1076403	100.0770026	97.60374658	94.57270331	91.08801565	87.41723229	83.80940652
190409A00017	4/9/2019	3.01	4/9/2029	4/9/2024	105.77349	104.0693517	102.2549097	100.1382713	97.5261864	94.27753024	90.48975606	86.4576682	82.47557608
190430A00020	4/30/2019	3.41	4/28/2034	4/28/2026	114.94715	110.7828106	106.5273181	101.916038	96.76749032	90.97641662	84.74962204	78.53072521	72.70265276
190520A00018	5/20/2019	3.7	5/20/2044	5/20/2024	107.10351	105.1311722	102.8679393	99.85896608	95.51797326	89.49871028	82.55652866	75.9173258	70.00644074
190530A00044	5/30/2019	2.85	5/30/2034	5/30/2024	106.08196	104.150468	102.0667681	99.5859162	96.50013076	92.6885202	88.41039985	84.08960197	79.99741065
190807A00041	8/7/2019	2.27	8/7/2034	7/7/2024	104.94545	102.9082808	100.6077833	97.74067784	94.1025228	89.80616457	85.31308108	80.9961373	76.9796873
190807A00044	8/7/2019	2.27	8/7/2034	8/7/2024	105.18605	103.0683707	100.6966908	97.77703263	94.11107969	89.80695863	85.31309594	80.99613742	76.97968744

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190827A00044	8/27/2019	1.9	8/27/2029	8/27/2024	104.59133	102.6956239	100.7037181	98.47720599	95.93811211	93.12922441	90.2236408	87.37620948	84.65078611
190930A00079	9/30/2019	2.04	10/1/2029	9/30/2024	105.0789	103.1136976	101.0729155	98.8250211	96.28713493	93.47825908	90.55273333	87.66942093	84.90556065
190930A00083	9/30/2019	2.04	10/1/2029	9/30/2024	105.0789	103.1136977	101.0729154	98.82502056	96.28713388	93.4782574	90.55273096	87.66941791	84.90555702
191007A00012	10/7/2019	2	10/5/2029	10/7/2024	104.75754	102.7677389	100.6849563	98.37182114	95.75362228	92.87875599	89.919803	87.02794532	84.26375664
191007A00013	10/7/2019	2	10/5/2029	10/7/2024	104.75754	102.7677392	100.6849563	98.3718208	95.75362151	92.87875473	89.91980123	87.02794306	84.2637539
191028A00015	10/28/2019	2.49	10/27/2034	10/28/2024	106.34277	104.0386802	101.5317458	98.5834343	94.96159046	90.71309897	86.19200222	81.79666529	77.69552741
191031A00036	10/31/2019	2.9	10/31/2039	10/31/2024	106.93834	104.4617848	101.6543308	98.09878705	93.46268897	87.85261777	81.98450921	76.48600235	71.51203522
191031A00037	10/31/2019	2.59	10/30/2034	10/31/2024	106.25451	103.9458537	101.4321686	98.47250714	94.83849918	90.58467629	86.0746498	81.70022815	77.62057371
191220A00029	12/20/2019	2.57	12/19/2031	12/20/2024	106.59663	104.3190947	101.955126	99.33028101	96.32893016	92.92252116	89.29787031	85.69910493	82.27207344
200102A00020	1/2/2020	2.78	1/3/2040	1/2/2025	107.57127	104.9004255	101.9050042	98.17173476	93.38432239	87.65319658	81.69269439	76.122543	71.09313431
200108A00009	1/8/2020	2.4	1/8/2035	1/8/2025	106.74043	104.1513398	101.3352444	98.00604896	93.97640233	89.33703816	84.51997714	79.90848488	75.6367477
200108A00040	1/8/2020	2.52	1/8/2030	1/8/2025	106.88441	104.3525475	101.6822448	98.6419399	95.07840361	90.97861475	86.59654433	82.24562035	78.11236468
200110A00012	1/10/2020	2.57	1/10/2035	1/10/2025	106.78215	104.2754202	101.5720691	98.4305701	94.6427201	90.2669379	85.67541855	81.24300067	77.11886722
200115A00023	1/15/2020	2.16	1/15/2030	1/15/2025	105.7402	103.5310463	101.2635191	98.81093067	96.10181933	93.15391035	90.11324923	87.13020217	84.27745756
200115A00025	1/15/2020	2.1	1/15/2025	1/15/2023	101.05701	100.6003594	99.95661361	98.94855951	97.49038959	95.71606786	93.83671699	91.96726613	90.14157676
200306A00021	3/6/2020	1.16	3/6/2030	3/6/2025	103.68596	101.3010309	98.75726747	95.92842491	92.83737896	89.66477047	86.57713838	83.63602624	80.84473256
200309A00013	3/9/2020	1.1	3/8/2030	3/9/2025	103.55752	101.1612767	98.59705894	95.7447035	92.63762843	89.46182058	86.37898413	83.44453026	80.65975208
200316A00030	3/16/2020	1.35	3/15/2030	3/16/2025	104.5339	102.1506153	99.65032551	96.9058717	93.89354236	90.74011669	87.62336818	84.63911664	81.80519456
200316A00032	3/16/2020	1.35	3/15/2030	3/16/2025	104.5339	102.1506153	99.65032542	96.90587149	93.89354199	90.74011614	87.62336745	84.63911574	81.80519351
200318A00015	3/18/2020	1.69	3/18/2030	3/18/2023	101.03131	100.3012091	99.18900375	97.36053321	94.73741628	91.64280148	88.45876187	85.37909156	82.45250262
200326A00035	3/26/2020	1.68	3/26/2030	3/26/2025	105.04317	102.6583404	100.1787678	97.48885369	94.53644674	91.41725801	88.30373855	85.30771347	82.45970665
200423A00008	4/23/2020	1.59	4/23/2030	4/23/2025	105.55514	102.4641644	99.06940753	95.09568928	90.47938241	85.49515126	80.5458745	75.8616534	71.49576942
200423A00009	4/23/2020	1.59	4/23/2030	4/23/2025	105.55514	102.4641643	99.06940764	95.09568952	90.47938284	85.49515189	80.54587533	75.86165442	71.49577061
200423A00010	4/23/2020	1.59	4/23/2030	4/23/2025	105.55514	102.4641644	99.06940777	95.09568973	90.47938316	85.49515234	80.54587592	75.86165513	71.49577143
200430A00021	4/30/2020	1.2	4/30/2030	4/30/2025	104.02246	101.5312114	98.90507952	96.02065204	92.89363077	89.68990361	86.5712176	83.60086912	80.78313447
200505A00010	5/5/2020	0.89	5/6/2030	5/5/2025	103.62326	101.0909228	98.38952904	95.41212702	92.20490461	88.95497232	85.81604424	82.83410168	80.00760801
200512A00023	5/12/2020	1.78	5/11/2035	5/12/2025	105.71801	102.3905106	98.49841084	93.68712639	88.00829208	82.03589158	76.3527222	71.16397039	66.46254316
200609A00003	6/9/2020	1.66	6/8/2035	6/9/2025	105.2995	101.6955823	97.32914319	91.90073635	85.57566013	79.0850122	73.01399802	67.52493204	62.59027522
200612A00001	6/12/2020	0.75	6/12/2030	6/12/2025	103.41277	100.7901543	97.985847	94.9109051	91.63404304	88.352705	85.20126124	82.2122068	79.38061787
201022A00008	10/22/2020	1.02	10/22/2035	10/22/2025	104.29838	100.7441898	96.68228604	91.99416085	86.93533037	81.96638628	77.34299538	73.09455941	69.1910683
201029A00008	10/29/2020	0.92	10/29/2030	10/29/2025	103.9984	101.1076901	98.07834131	94.83136283	91.42384908	88.03234588	84.78184595	81.7042953	78.79420509
201030A00025	10/30/2020	2.02	10/28/2050	10/30/2025	107.12905	102.5964067	96.7094915	89.02582396	80.30225764	72.04773136	64.87942407	58.75284099	53.51081903
201116A00019	11/16/2020	1.32	11/15/2030	11/16/2025	105.27139	101.7171905	97.86072806	93.49963638	88.6962996	83.77915744	79.05678109	74.64527296	70.54898807

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
201118A00015	11/18/2020	1.66	11/18/2036	11/18/2027	109.98925	103.8868077	97.31274609	90.1570811	82.6916722	75.46406053	68.87900042	63.01803355	57.81974844
201118A00017	11/18/2020	1.66	11/18/2036	11/18/2027	109.98925	103.8868087	97.312748	90.15708418	82.69167655	75.46406608	68.87900699	63.01804095	57.8197565
201118A00018	11/18/2020	1.85	11/18/2036	11/18/2027	110.30066	104.2391099	97.73619588	90.65446006	83.24714341	76.04391266	69.46175047	63.5961298	58.39047098
201202A00016	12/2/2020	1.32	12/3/2035	12/2/2025	105.01516	101.4186301	97.37755736	92.74992792	87.70257595	82.68872648	77.99976589	73.68987707	69.73229529
201202A00017	12/2/2020	1.32	12/3/2035	12/2/2025	105.01516	101.4186303	97.377558	92.74992914	87.70257789	82.68872917	77.99976931	73.68988113	69.73229993
201229A00003	12/29/2020	1.28	12/30/2030	12/30/2025	105.48243	101.735554	97.7061511	93.19546807	88.28501081	83.30389939	78.54114557	74.10131311	69.9842749
201230A00018	12/30/2020	1.52	12/28/2035	12/28/2027	109.55734	103.4272036	96.90709081	89.88525596	82.6210947	75.60327484	69.18904179	63.45138002	58.33566401
210108A00007	1/8/2021	1.65	1/8/2036	1/8/2026	106.46004	102.2295198	97.29946229	91.40263488	84.77227699	78.10254971	71.92341953	66.36560098	61.38892545
210225A00010	2/25/2021	2.02	2/25/2041	2/25/2026	107.92744	103.7383864	98.97360275	93.35432547	87.01030658	80.60493442	74.69117339	69.39170739	64.65222411
210405A00013	4/5/2021	1.82	4/7/2036	4/5/2026	107.47151	103.6843654	99.63682232	95.10671263	90.1224183	85.00329897	80.1118945	75.59713032	71.45658928
210622A00004	6/22/2021	2.42	6/20/2036	6/22/2026	110.21635	105.7830838	100.9453177	95.37069348	89.02563061	82.31443699	75.85096203	69.96554346	64.69257627
210910A00009	9/10/2021	1.77	9/10/2036	9/10/2026	108.70767	104.5453735	100.1708181	95.37585318	90.19494119	84.91752746	79.8874651	75.25387039	71.01471973
210924A00016	9/24/2021	1.91	9/24/2036	9/24/2026	109.3776	105.2078311	100.85111	96.1077462	90.98310796	85.71649292	80.65570702	75.9791063	71.6987658
211019A00005	10/19/2021	2.49	10/20/2036	10/19/2026	112.06368	107.3312855	102.2732016	96.55668284	90.14012738	83.32621519	76.70202599	70.64762664	65.22867795
211110A00017	11/10/2021	2.01	11/10/2036	11/10/2026	110.07753	105.8055572	101.3675199	96.57364967	91.41219809	86.10172751	80.97925428	76.24050026	71.90575587
211116A00012	11/16/2021	2.22	12/18/2034	11/16/2026	110.38129	106.3358834	102.2355897	97.91720274	93.34918492	88.6446171	84.03051412	79.68693526	75.66389991
211124A00008	11/24/2021	2.62	11/22/2041	11/24/2026	113.04647	108.3149419	103.2876	97.66186991	91.34076593	84.6250628	78.14462469	72.27316041	67.03713778
211215A00020	12/15/2021	1.85	12/15/2031	12/15/2026	108.85942	105.1628523	101.4981992	97.77015407	93.96666667	90.15284614	86.44272781	82.91752208	79.60035985
211227A00012	12/27/2021	2.39	12/29/2036	12/27/2028	117.22488	110.2617569	103.2103799	95.9175862	88.40438338	80.95840024	73.96653631	67.65792208	62.0498282
220217A00024	2/17/2022	2.43	2/17/2027	2/17/2025	107.47659	104.9664248	102.460565	99.87310014	97.1508834	94.27560103	91.30819633	88.34705516	85.47130486
220413A00002	4/13/2022	3.16	4/13/2032	4/13/2027	115.30464	111.2679806	107.3574132	103.4883314	99.62953811	95.75374707	91.89473999	88.1123128	84.48468006
220617A00069	6/17/2022	4.06	6/17/2027	6/17/2025	112.29545	109.628945	107.0226002	104.4259355	101.8120381	99.13981119	96.37928925	93.52963296	90.61853524
210611A00010	6/11/2021	1.02	6/11/2026	6/11/2021	107.00871	103.3033192	99.7512331	96.34528192	93.07866581	89.94493716	86.93798048	84.05199354	81.28146965
160608A00029	6/8/2016	2.36	6/8/2026	6/8/2016	111.78119	108.0363517	104.4445496	100.9986749	97.69198515	94.51808532	91.47090836	88.54469646	85.73398371
170921A00053	9/21/2017	2.22	9/21/2022	9/21/2017	100.5486	100.3987597	100.2493741	100.1004449	99.95197005	99.80394752	99.65637521	99.50925104	99.36257297
180924A00033	9/24/2018	3.08	9/22/2023	9/24/2018	104.34742	103.2052795	102.0888949	100.9973985	99.92995839	98.88577961	97.86410193	96.86419805	95.88537182
210915A00018	9/15/2021	0.74	9/16/2024	9/15/2021	103.09524	101.0254319	99.00845759	97.04258754	95.12616718	93.25760899	91.43538917	89.65804454	87.92416956
160212A00047	2/12/2016	1.94	2/12/2026	2/12/2016	105.06502	103.1869241	101.3633617	99.5923013	97.87180254	96.2000116	94.57515653	92.99554304	91.45955056
170711A00010	7/11/2017	2.38	7/12/2027	7/11/2017	108.83531	106.1238997	103.5155001	101.0053013	98.58875465	96.26155574	94.01962999	91.85911864	89.77636581
200514A00008	5/14/2020	1.23	5/14/2030	5/14/2020	112.88186	106.2519838	100.1020187	94.39368078	89.09196358	84.16484334	79.58300869	75.31961634	71.35006998
170504A00049	5/4/2017	2.63	5/6/2024	5/4/2017	105.8867	104.1152462	102.3827697	100.688086	99.0300549	97.40758212	95.81961646	94.26514788	92.74320538
171207A00025	12/7/2017	2.91	12/7/2027	12/7/2017	118.95316	113.6712544	108.6726175	103.9403628	99.45870355	95.21287261	91.18905092	87.37430207	83.75651136
200421A00026	4/21/2020	1.34	4/19/2030	4/21/2020	113.53635	106.9230235	100.7847122	95.08376153	89.78573159	84.85910294	80.27501267	76.00701566	72.03086865

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
120807A00026	8/7/2012	2.42	8/9/2027	8/7/2012	108.7087	105.9629474	103.322739	100.7831014	98.33932785	95.9869671	93.72180737	91.53986197	89.4373557
190205A00020	2/5/2019	3.32	2/5/2029	2/5/2019	125.00478	118.4612917	112.3316991	106.5871252	101.2008687	96.14822887	91.40634483	86.95404914	82.77173345
190305A00017	3/5/2019	3.12	3/5/2026	3/5/2019	113.44549	109.9331189	106.5555889	103.3069029	100.1813671	97.17357422	94.27838752	91.49092522	88.8065464
151120A00019	11/20/2015	2.72	11/20/2030	11/20/2015	116.57055	111.7627278	107.2385147	102.9781773	98.9635193	95.17774897	91.60536064	88.23202712	85.04450176
180402A00013	4/2/2018	2.99	4/3/2028	4/2/2018	118.00366	113.2096157	108.6704681	104.3707575	100.2960575	96.43290267	92.76871902	89.29175955	85.99104485
180713A00031	7/13/2018	3.06	7/14/2025	7/13/2018	105.96138	104.3710606	102.8212165	101.3104827	99.83755349	98.40117683	97.00015209	95.63332735	94.2995971
160908A00025	9/8/2016	2.21	9/8/2026	9/8/2016	111.96427	107.9955739	104.1979508	100.5629996	97.0827854	93.74980742	90.55697229	87.49756964	84.56524908
170407A00001	4/6/2017	2.97	4/6/2027	4/6/2017	116.22744	111.8173003	107.6154813	103.6107976	99.79273633	96.15140928	92.67751194	89.36228544	86.19748118
181003A00019	10/3/2018	3.44	10/3/2025	10/3/2018	113.38631	110.1306873	106.9891179	103.9568923	101.0295291	98.20276119	95.47252336	92.83494174	90.28632322
220308A00012	3/8/2022	2.51	3/8/2032	3/8/2022	125.26023	116.6162703	108.7134497	101.4819245	94.85888108	88.78778534	83.21772019	78.10279624	73.40162738
150320A00019	3/20/2015	2.25	3/20/2025	3/20/2015	107.15999	104.8599448	102.6268958	100.4584271	98.35222533	96.3060773	94.3178648	92.38555976	90.50721972
150803A00038	8/3/2015	3.41	8/2/2030	8/3/2015	128.63795	121.0291146	113.9799423	107.4449542	101.3826377	95.75508351	90.52765324	85.66867929	81.14919428
160608A00019	6/8/2016	2.36	6/8/2026	6/8/2016	111.78119	108.0363516	104.4445496	100.9986749	97.69198517	94.51808538	91.47090845	88.54469658	85.73398386
190826A00032	8/26/2019	1.72	8/24/2029	8/26/2019	110.14554	106.2754477	102.6033566	99.11719105	95.80570485	92.65842035	89.66557064	86.8180464	84.10734714
191008A00007	10/8/2019	1.67	10/9/2029	10/8/2019	110.18182	106.2213896	102.4676877	98.90786627	95.52998156	92.32291982	89.2763341	86.38058595	83.626692
200319A00035	3/19/2020	1.72	3/18/2033	3/19/2020	117.60868	110.2025244	103.4142377	97.18504607	91.46225826	86.19859288	81.35158554	76.88306484	72.75868846
200910A00006	9/10/2020	0.96	9/10/2027	9/10/2020	109.05112	104.1424402	99.49217253	95.08523484	90.90751035	86.94577906	83.18765569	79.62153233	76.23652544
190227A00033	2/27/2019	2.65	2/27/2026	2/27/2019	106.67311	104.7603765	102.9033238	101.0998703	99.34802998	97.64590556	95.99168381	94.38363121	92.82008989
190403A00010	4/3/2019	3.08	4/3/2029	4/3/2019	124.76837	117.8980359	111.4762599	105.4709184	99.85236644	94.59323538	89.66824557	85.05403563	80.72900661
160524A00028	5/24/2016	2.06	5/24/2023	5/24/2016	102.27315	101.4445693	100.6295015	99.82762141	99.03861037	98.26215977	97.49797087	96.74575431	96.0052298
160908A00035	9/8/2016	2.3	9/8/2031	9/8/2016	115.23544	110.0367446	105.1708586	100.6127883	96.33962818	92.330371	88.56573724	85.02802047	81.7009477
161229A00018	12/29/2016	2.46	12/29/2026	12/29/2016	107.91399	105.5350026	103.2376783	101.0185237	98.87421996	96.80161414	94.79770931	92.85965589	90.98474333
181129A00005	11/29/2018	3.21	11/29/2023	11/29/2018	105.18318	103.8469212	102.5344359	101.245139	99.97846583	98.73386974	97.51082113	96.30880694	95.12733005
191112A00024	11/12/2019	2.09	11/12/2024	11/12/2019	106.45233	104.1708288	101.9507266	99.78995855	97.68654766	95.63859803	93.64429056	91.70187927	89.80968774
180716A00062	7/16/2018	2.91	7/16/2025	7/16/2018	105.93305	104.3400162	102.7875998	101.2744324	99.79920104	98.36064723	96.95756404	95.5887937	94.25322511
160824A00019	8/24/2016	1.98	8/25/2031	8/24/2016	114.2139	109.0895496	104.2914496	99.79523015	95.57854489	91.62089074	87.90344247	84.40890338	81.12137015
170713A00021	7/13/2017	3.25	7/13/2037	7/13/2017	145.20819	130.7874221	118.1561536	107.0717886	97.32646662	88.7418796	81.16488973	74.46382058	68.5253142
181115A00044	11/15/2018	3.26	11/15/2023	11/15/2018	105.10669	103.7917958	102.504145	101.2428896	100.0072207	98.79636274	97.60957185	96.44613406	95.30536388
200317A00043	3/17/2020	1.29	3/15/2030	3/17/2020	109.15763	105.0127526	101.0950981	97.38989477	93.88345232	90.56307241	87.41696987	84.43420061	81.60459579
190708A00032	7/8/2019	2.58	7/2/2029	7/8/2019	122.09024	115.1186141	108.6174983	102.5522137	96.89082095	91.60389145	86.6642972	82.04701955	77.72897469
210217A00005	2/17/2021	0.83	2/14/2031	2/17/2021	108.02653	103.4441858	99.13933131	95.09218357	91.28453584	87.69961865	84.32197617	81.13735393	78.13259695
210212A00006	2/12/2021	0.77	2/12/2026	2/12/2021	105.57245	102.1486167	98.85724194	95.69245011	92.6486638	89.72058361	86.90317272	84.19164222	81.58143746
160705A00010	7/5/2016	1.68	7/5/2023	7/5/2016	102.19437	101.2525221	100.3281591	99.42079759	98.52997063	97.65522836	96.79613713	95.95227876	95.12324987

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190708A00026	7/8/2019	2.21	7/1/2024	7/8/2019	105.6103	103.6907149	101.8163754	99.98593136	98.19808664	96.45159221	94.745244	93.07788094	91.44838317
210423A00003	4/23/2021	1.31	4/23/2031	4/23/2021	110.46029	105.6841354	101.2021758	96.99309837	93.03731562	89.31680975	85.81499564	82.51659668	79.4075322
151113A00035	11/13/2015	1.8	11/14/2022	11/13/2015	100.52907	100.3612495	100.1942224	100.027986	99.86253415	99.69786087	99.53396015	99.37082605	99.20845272
160307A00024	3/7/2016	2.17	3/6/2026	3/7/2016	105.63787	103.7064873	101.8321555	100.012718	98.24611773	96.53039052	94.86365984	93.24413238	91.67009374
200501A00009	5/4/2020	0.67	5/1/2025	5/4/2020	102.06057	100.6161259	99.20696195	97.83191552	96.48987622	95.17977919	93.90060273	92.65136621	91.43112807
151223A00036	12/23/2015	2.64	12/23/2025	12/23/2015	108.01674	105.6210458	103.3029107	101.05925	98.88712306	96.78372434	94.74637608	92.77252192	90.85972062
190605A00023	6/5/2019	2.64	6/5/2029	6/5/2019	122.30696	115.3909516	108.9372036	102.9119747	97.28416071	92.02507864	87.10826661	82.50930076	78.20562835
141015A00029	10/15/2014	2.32	10/15/2024	10/15/2014	106.18744	104.2305058	102.3234137	100.4645086	98.65220126	96.88496896	95.16135207	93.4799508	91.83942217
200406A00029	4/6/2020	1.61	4/5/2030	4/6/2020	116.78398	109.4142288	102.5904399	96.26865598	90.40870264	84.97384238	79.93046242	75.24779256	70.89765006
170921A00052	9/21/2017	2.21	9/21/2022	9/21/2017	100.54613	100.3965635	100.247451	100.0987939	99.95059022	99.80283784	99.65553469	99.50867871	99.36226785
210809A00013	8/9/2021	1.05	8/7/2026	8/9/2021	107.24057	103.48039	99.88014604	96.43211023	93.12896917	89.96380227	86.93005837	84.02153389	81.23235242
150414A00037	4/14/2015	2.34	4/14/2025	4/14/2015	104.39428	102.9569625	101.5540781	100.1845108	98.84719218	97.54109679	96.26524042	95.0186779	93.80050124
180717A00021	7/17/2018	3.34	7/17/2028	7/17/2018	122.05495	116.4006727	111.0720926	106.0482617	101.3096984	96.83827783	92.61712949	88.63054411	84.8638874
150604A00039	6/4/2015	2.82	6/4/2030	6/4/2015	116.19344	111.6369791	107.3373714	103.2774852	99.44147142	95.81465673	92.3834484	89.13524701	86.058367
200406A00032	4/6/2020	1.09	4/4/2025	4/6/2020	104.95204	102.3259648	99.78044331	97.312473	94.91918692	92.59784545	90.34582969	88.16063504	86.03986537
131018A00006	10/18/2013	3.28	10/20/2025	10/18/2013	112.30348	109.2869797	106.3748389	103.5627459	100.8465965	98.22248445	95.6866898	93.23566911	90.86604547
140821A00030	8/21/2014	2.27	8/21/2024	8/21/2014	103.3603	102.2748988	101.2114939	100.1694431	99.14812946	98.14695936	97.16536166	96.20278654	95.25870447
170201A00016	2/1/2017	2.49	2/1/2024	2/1/2017	104.98273	103.4712221	101.9897607	100.5375262	99.11372556	97.71759386	96.34839319	95.00541143	93.6879611
150617A00018	6/17/2015	2.45	6/17/2025	6/17/2015	104.8461	103.3159388	101.8239557	100.3688817	98.94950157	97.5646499	96.21320852	94.89410427	93.60630682
170322A00033	3/22/2017	3.61	3/24/2042	3/22/2017	144.5644	130.8485975	118.8797233	108.4047587	99.21033589	91.11616187	83.96958357	77.64108733	72.02056646
190315A00017	3/15/2019	2.88	3/15/2034	3/15/2019	123.9461	116.8468759	110.3124186	104.2906783	98.73488552	93.60297302	88.8570671	84.46303735	80.39009775
150617A00030	6/17/2015	2.91	6/16/2025	6/17/2015	109.91688	107.1800012	104.5302679	101.9643988	99.47925664	97.07183951	94.73927454	92.47881139	90.28781637
160413A00021	4/13/2016	2.48	4/13/2026	4/13/2016	111.73121	108.1229626	104.6573074	101.3277187	98.12801599	95.05233989	92.09513279	89.2511214	86.51530019
170619A00096	6/16/2017	2.79	6/16/2027	6/16/2017	116.8931	112.0981664	107.541294	103.2092737	99.08969633	95.17090352	91.44193856	87.89250046	84.51290138
191004A00023	10/4/2019	2.02	10/4/2029	10/4/2019	118.8094	111.7676503	105.217189	99.12062797	93.44362952	88.15464337	83.22466572	78.6270202	74.33715886
210611A00007	6/11/2021	0.61	6/11/2024	6/11/2021	102.44526	100.6293608	98.85520818	97.12159099	95.42734256	93.77133735	92.1524892	90.56974974	89.02210677
160608A00024	6/8/2016	2.36	6/8/2026	6/8/2016	111.78119	108.036352	104.4445497	100.998675	97.6919851	94.5180852	91.47090816	88.54469619	85.73398337
170317A00044	3/17/2017	3.11	3/17/2027	3/17/2017	116.6433	112.2675413	108.0963983	104.119003	100.3251261	96.70513955	93.24997738	89.95109969	86.80045894
191101A00004	11/1/2019	1.91	11/1/2029	11/1/2019	117.54936	111.049291	104.9926525	99.34596644	94.0784884	89.16196486	84.57041746	80.27994701	76.26855541
160810A00029	8/10/2016	2.17	8/10/2026	8/10/2016	111.57577	107.6861614	103.9617787	100.3946374	96.97718156	93.70226135	90.56310897	87.55331603	84.66681235
180925A00116	9/25/2018	3.28	9/25/2028	9/25/2018	114.12859	110.6279598	107.2861939	104.0946028	101.0450388	98.12985837	95.34188791	92.67439109	90.1210395
190529A00061	5/29/2019	2.46	5/29/2026	5/29/2019	106.51431	104.4774492	102.5029315	100.5883315	98.7313372	96.92974329	95.18144544	93.48443492	91.83679352
150825A00008	8/25/2015	2.82	8/25/2025	8/25/2015	110.29855	107.3919797	104.582997	101.8677123	99.24242056	96.70358733	94.24783934	91.87195623	89.57286256

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180206A00048	2/6/2018	2.72	2/6/2023	2/6/2018	101.88499	101.3516678	100.8239658	100.3017987	99.7850796	99.27372336	98.76764656	98.26676751	97.77100623
200330A00047	3/30/2020	1.5	3/30/2035	3/30/2020	114.54203	107.4717377	101.0052896	95.08312779	89.65214188	84.66491732	80.07908011	75.85672115	71.96389028
210913A00014	9/13/2021	1.15	9/13/2028	9/13/2021	106.44551	103.1939179	100.0895594	97.12439721	94.29089549	91.58198387	88.99102541	86.511787	84.13841214
110701A00011	7/1/2011	3.87	7/1/2026	7/1/2011	109.85869	107.6677386	105.5460343	103.4908164	101.4994532	99.56943701	97.69837694	95.88399295	94.12410974
190131A00023	1/31/2019	3.02	1/30/2034	1/31/2019	124.59007	117.5520012	111.0667352	105.0839346	99.55831184	94.4490805	89.71947423	85.33631953	81.26965711
210714A00012	7/14/2021	1.12	7/14/2026	7/14/2021	107.56881	103.7685325	100.1287906	96.64190844	93.3006208	90.09804739	87.02767025	84.08331268	81.25911953
151124A00007	11/24/2015	1.98	11/23/2022	11/24/2015	100.56061	100.3877871	100.2158232	100.0447086	99.87443656	99.70500016	99.53639266	99.36860738	99.20163774
160104A00020	1/4/2016	2.47	1/4/2023	1/4/2016	101.49257	101.0504984	100.6122938	100.1779098	99.74729658	99.320405	98.89718689	98.47759486	98.06158237
180702A00022	7/2/2018	2.84	6/30/2023	7/2/2018	103.26368	102.3491858	101.4512856	100.5695308	99.70348646	98.85273284	98.01686522	97.19549306	96.38823942
191009A00009	10/9/2019	1.8	10/9/2026	10/9/2019	105.78467	103.5467437	101.383095	99.2906388	97.26643728	95.30769563	93.41175433	91.57608157	89.79826619
151229A00026	12/29/2015	2.28	12/29/2025	12/29/2015	105.66788	103.860666	102.1041784	100.3965799	98.73611034	97.12108647	95.54989803	94.02100398	92.53292902
160412A00029	4/12/2016	2.48	4/14/2031	4/12/2016	115.46227	110.4843927	105.8123419	101.4240194	97.29910465	93.41890198	89.76619921	86.32513928	83.08110393
160923A00009	9/23/2016	2.24	9/23/2031	9/23/2016	114.92614	109.7410844	104.8880171	100.3419983	96.08017505	92.08158905	88.32700604	84.79876147	81.48062115
191112A00022	11/12/2019	2.36	11/13/2029	11/12/2019	121.45339	114.1892466	107.4376506	101.1591747	95.31764293	89.87984314	84.81526839	80.09588282	75.69590876
171204A00024	12/4/2017	2.71	12/4/2024	12/4/2017	108.06676	105.7096205	103.4171012	101.1870726	99.01748384	96.9063634	94.85181548	92.85201671	90.90521289
200309A00081	3/9/2020	1.18	3/8/2030	3/9/2020	113.52836	106.3929154	99.78254476	93.65529178	87.97277973	82.69988842	77.8044611	73.25703929	69.03062258
150803A00033	8/3/2015	3.41	8/2/2030	8/3/2015	128.63795	121.0291145	113.9799423	107.4449541	101.3826377	95.75508353	90.52765327	85.66867935	81.14919435
151125A00037	11/25/2015	2.41	11/25/2025	11/25/2015	105.51621	103.7587435	102.0496158	100.3870951	98.76952922	97.19533742	95.66300676	94.17108863	92.71819552
160328A00038	3/28/2016	2.54	3/30/2026	3/28/2016	111.32814	107.8985237	104.6016009	101.4313935	98.38223409	95.44874531	92.62582299	89.90862042	87.29253359
181010A00025	10/10/2018	3.48	10/10/2030	10/10/2018	120.00853	115.1063189	110.4906821	106.1418462	102.0415668	98.17299706	94.52057009	91.06989304	87.80765013
190905A00021	9/5/2019	2.08	9/5/2029	9/5/2019	119.06289	112.0773686	105.5746306	99.51826875	93.87482326	88.61352484	83.70606459	79.12638444	74.85048661
200612A00004	6/12/2020	1.42	6/12/2040	6/12/2020	117.87964	107.2811817	97.94233235	89.69266101	82.38672592	75.90019125	70.12657631	64.9745294	60.36553833
160126A00004	1/26/2016	2.52	1/26/2026	1/26/2016	111.90982	108.4023418	105.0283268	101.7819387	98.65762711	95.65011467	92.75438226	89.96565468	87.27938742
181119A00008	11/19/2018	3.23	11/17/2023	11/19/2018	104.95048	103.6748392	102.4250725	101.2003931	100.0000506	98.82332457	97.66952342	96.53798279	95.4280642
190708A00029	7/8/2019	2.57	7/2/2029	7/8/2019	122.02185	115.0533675	108.555205	102.4926957	96.83391243	91.54943793	86.6121547	81.99705379	77.68106037
160713A00015	7/13/2016	1.57	7/13/2026	7/13/2016	105.20404	103.1034369	101.0693904	99.09924129	97.19045395	95.34061254	93.5474142	91.80866301	90.12226425
220211A00010	2/11/2022	1.99	2/11/2025	2/11/2022	105.20478	103.3007217	101.4481179	99.64521339	97.89032105	96.18182339	94.5181689	92.89786898	91.31949486
180322A00044	3/22/2018	3.18	3/22/2033	3/22/2018	123.92418	117.4168537	111.3874086	105.7950172	100.6027029	95.77694923	91.28735089	87.10630144	83.20871471
200605A00018	6/5/2020	0.91	6/5/2025	6/5/2020	104.78117	102.002102	99.31262587	96.70936771	94.18910242	91.74874336	89.38533557	87.09604943	84.87817462
210512A00011	5/12/2021	1.16	5/12/2026	5/12/2021	107.36286	103.7203067	100.2256874	96.87213695	93.65314926	90.56255714	87.59451256	84.74346805	82.00415943
171204A00009	12/4/2017	2.23	12/4/2024	12/4/2017	103.73118	102.5126879	101.3205366	100.1539296	99.01210016	97.8943111	96.79985377	95.72804654	94.67823352
181226A00030	12/26/2018	2.91	12/26/2028	12/26/2018	113.39755	109.7808813	106.3340475	103.0474692	99.91217999	96.91978428	94.06241669	91.33270504	88.72373603
200103A00002	1/3/2020	2.07	1/3/2030	1/3/2020	118.91832	112.2223711	105.9920535	100.1916094	94.78823462	89.75181955	85.05471355	80.67151122	76.5788583

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170707A00007	7/7/2017	2.65	7/8/2024	7/7/2017	106.51054	104.565471	102.6666315	100.8126355	99.00214641	97.23387642	95.50658467	93.8190751	92.17019454
180925A00013	9/25/2018	3.41	9/25/2028	9/25/2018	114.07311	110.5838413	107.2525792	104.0707018	101.0301198	98.12324383	95.34294982	92.68254736	90.13575038
190829A00039	8/29/2019	1.85	8/29/2034	8/29/2019	117.44143	110.4844958	104.0987542	98.22996119	92.82953583	87.85392247	83.26403215	79.02474986	75.10449945
200430A00027	4/30/2020	1.31	4/30/2035	4/30/2020	113.25242	106.218007	99.78791198	93.90219993	88.5074547	83.55601955	79.00533099	74.81733415	70.95796929
200512A00013	5/12/2020	1.17	5/12/2027	5/12/2020	109.54891	104.9121288	100.5056744	96.31679697	92.33352352	88.54460643	84.93947547	81.50819316	78.24141328
200716A00004	7/16/2020	0.97	7/16/2027	7/16/2020	108.85949	104.0907976	99.56692652	95.2739482	91.19879821	87.32921991	83.65371029	80.16146975	76.84235545
191206A00005	12/6/2019	2.18	12/7/2026	12/6/2019	113.04109	108.6830247	104.5241637	100.5543174	96.7638695	93.14374307	89.68536698	86.38064537	83.22192884
181218A00040	12/18/2018	3.23	6/18/2030	12/18/2018	117.38037	112.7907966	108.4593878	104.3689578	100.5036027	96.84859651	93.39029603	90.11605341	87.01413667
190905A00025	9/5/2019	2.08	9/5/2029	9/5/2019	119.06288	112.0773658	105.5746293	99.51826884	93.87482462	88.61352737	83.70606819	79.12638902	74.85049209
200327A00084	3/27/2020	1.1	3/27/2025	3/27/2020	104.78541	102.2565758	99.80421388	97.42551031	95.11777134	92.87842157	90.70499783	88.59514336	86.54660235
150729A00028	7/29/2015	2.25	7/29/2025	7/29/2015	104.8869	103.3091942	101.7717656	100.2732493	98.81234183	97.38779401	95.9984078	94.64303403	93.32056996
150911A00007	9/10/2015	2.51	9/9/2022	9/10/2015	100.46873	100.3521029	100.2357585	100.1196986	100.0039219	99.88842756	99.77321441	99.6582814	99.54362749
180305A00030	3/5/2018	3.12	3/5/2025	3/5/2018	110.03275	107.4020992	104.849855	102.3731803	99.96936207	97.63580366	95.37001881	93.16962625	91.03234445
200413A00009	4/13/2020	0.77	4/13/2027	4/13/2020	104.27276	101.8058343	99.42874651	97.13745034	94.92811371	92.79710435	90.74097796	88.75646715	86.84047116
160523A00086	5/23/2016	2.2	5/26/2026	5/23/2016	111.07612	107.5159831	104.0985547	100.81728	97.66593864	94.63862871	91.72974922	88.93398284	86.24628007
170921A00055	9/21/2017	2.82	9/21/2027	9/21/2017	117.82748	112.7711634	107.9771709	103.4302786	99.11623216	95.02168168	91.13411888	87.44181927	83.93378861
180104A00041	1/4/2018	3.08	1/4/2033	1/4/2018	135.78574	125.0642519	115.3541464	106.5517997	98.56482549	91.31080174	84.71614373	78.71511001	73.24892507
160210A00054	2/10/2016	1.78	2/10/2026	2/10/2016	105.01051	103.1297857	101.3037632	99.53040094	97.80774985	96.13394775	94.50721485	92.92584956	91.38822438
151013A00033	10/13/2015	2.23	10/14/2025	10/13/2015	105.05651	103.3509498	101.6913991	100.0762336	98.50390242	96.97292124	95.48186868	94.02938321	92.61416021
160603A00029	6/3/2016	2.18	6/3/2031	6/3/2016	114.97033	109.9049769	105.1567872	100.7024395	96.52051946	92.5913534	88.89685394	85.42038092	82.14661524
190813A00057	8/13/2019	1.9	8/13/2024	8/13/2019	105.33202	103.3036315	101.3255139	99.39608253	97.51381865	95.67726205	93.88500843	92.13570686	90.4280573
200406A00014	4/6/2020	1.33	4/6/2035	4/6/2020	114.43139	107.2937701	100.77096	94.80185885	89.33202113	84.31288222	79.70107734	75.45784362	71.5484951
191203A00010	12/3/2019	2.21	12/3/2029	12/3/2019	120.50372	113.237487	106.4875653	100.2140326	94.38026599	88.95265102	83.90032011	79.1949145	74.81036808
160115A00011	1/15/2016	2.18	1/15/2026	1/15/2016	105.38259	103.5417062	101.7533174	100.0154995	98.32641036	96.68428904	95.0874515	93.53428666	92.02325274
170124A00017	1/24/2017	2.82	1/23/2032	1/24/2017	119.38883	113.7900874	108.5622361	103.6765213	99.10666099	94.82861809	90.82039209	87.0618319	83.53446687
151201A00004	12/1/2015	2.44	12/1/2022	12/1/2015	101.21816	100.8705103	100.525259	100.1823773	99.8418411	99.50362628	99.1677092	98.83406649	98.50267514
160608A00034	6/8/2016	2.44	6/9/2031	6/8/2016	115.54424	110.4702811	105.7132839	101.2499833	97.05901804	93.12075997	89.41716069	85.93161331	82.64882691
190131A00013	1/31/2019	3.48	1/31/2034	1/31/2019	140.918	128.9597171	118.22071	108.565941	99.87617904	92.04606709	84.98243288	78.60281367	72.83416694
200406A00035	4/6/2020	1.05	4/4/2025	4/6/2020	104.54047	102.076918	99.68768246	97.37001694	95.12129681	92.93901345	90.8207682	88.76426663	86.76731316
160203A00017	2/3/2016	2.07	2/3/2023	2/3/2016	101.52097	100.9964573	100.477394	99.96369259	99.45527032	98.95204592	98.45393987	97.96087423	97.47277264
161116A00006	11/16/2016	2.39	11/16/2026	11/16/2016	107.27684	104.9620512	102.7253282	100.5633785	98.47307432	96.45144231	94.49565452	92.60302038	90.77097902
171219A00009	12/19/2017	2.3	12/19/2024	12/19/2017	103.95462	102.6917419	101.4567263	100.2487161	99.0668925	97.91046858	96.77868775	95.67082237	94.58617234
180717A00026	7/17/2018	3.24	7/16/2025	7/17/2018	111.39323	108.4926626	105.6873808	102.9736959	100.3480822	97.80717111	95.34774258	92.96671797	90.66115288

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200110A00037	1/10/2020	2.32	1/10/2030	1/10/2020	121.53082	114.1237956	107.249435	100.866041	94.93540215	89.4224864	84.29516033	79.52393489	75.08173464
161014A00026	10/14/2016	2.16	10/14/2031	10/14/2016	115.39946	110.1288606	105.1992328	100.5847226	96.26165394	92.20833138	88.40485988	84.83298248	81.47593355
170804A00005	8/4/2017	1.94	8/5/2024	8/4/2017	102.99577	101.9161771	100.8584244	99.82187804	98.80592652	97.80998161	96.83347718	95.87586822	94.93662976
191004A00019	10/4/2019	2.02	10/4/2029	10/4/2019	118.8094	111.7676513	105.2171894	99.12062787	93.44362898	88.15464244	83.22466442	78.62701857	74.33715694
170309A00042	3/9/2017	2.18	3/11/2024	3/9/2017	102.59719	101.732689	100.8839985	100.0506729	99.23228547	98.42842544	97.63869763	96.86272156	96.10013071
200512A00021	5/12/2020	0.86	5/12/2025	5/12/2020	104.52258	101.8096552	99.18252778	96.6379578	94.17284882	91.78424157	89.46930694	87.2253392	85.04974976
121114A00020	11/14/2012	1.74	11/14/2022	11/14/2012	100.87988	100.5828145	100.2875322	99.99401533	99.70224808	99.41221467	99.12389954	98.83728732	98.55236284
140730A00037	7/30/2014	2.83	1/30/2024	7/30/2014	102.85647	102.071005	101.2994893	100.5415344	99.79676635	99.06482572	98.34536643	97.63805533	96.94257147
141017A00022	10/17/2014	2.78	10/17/2024	10/17/2014	107.37166	105.2550017	103.1932163	101.1844597	99.22696712	97.31904843	95.45908376	93.64552008	91.8768678
170619A00095	6/16/2017	2.79	6/16/2027	6/16/2017	116.89311	112.098171	107.5412969	103.209275	99.08969616	95.17090195	91.44193568	87.89249636	84.51289614
191004A00022	10/4/2019	2.02	10/4/2029	10/4/2019	118.80941	111.7676551	105.2171909	99.12062738	93.44362663	88.1546384	83.22465887	78.62701166	74.3371488
210611A00012	6/11/2021	1.02	6/11/2026	6/11/2021	107.00871	103.3033197	99.75123311	96.34528141	93.07866481	89.9449357	86.93797858	84.05199121	81.28146693
170406A00024	4/6/2017	2.61	4/8/2024	4/6/2017	105.56106	103.8812975	102.2372817	100.6279338	99.05221541	97.50913021	95.99772127	94.51706933	93.06629082
200323A00090	3/23/2020	1.55	3/23/2027	3/23/2020	106.27376	103.6141327	101.0553971	98.59286085	96.2220876	93.93887824	91.73925655	89.61945581	87.57590635
170524A00037	5/24/2017	2.46	5/24/2024	5/24/2017	105.59425	103.8243298	102.09397	100.4020243	98.74739157	97.1290104	95.54585698	93.99694369	92.48131749
200303A00028	3/3/2020	1.54	3/4/2030	3/3/2020	114.70734	108.1228267	102.004611	96.31624337	91.02434151	86.09831392	81.51011144	77.23400212	73.24636737
160414A00042	4/13/2016	2.48	4/13/2026	4/13/2016	111.73121	108.1229627	104.6573075	101.3277187	98.12801598	95.05233986	92.09513275	89.25112134	86.51530012
190802A00011	8/2/2019	2.01	8/2/2029	8/2/2019	111.27412	107.3646018	103.6550351	100.1332272	96.78782603	93.60825488	90.58465404	87.70782737	84.96919301
160629A00066	6/29/2016	2.61	6/30/2036	6/29/2016	135.116	122.3728745	111.1251373	101.1812469	92.37558386	84.56479364	77.6246618	71.44744441	65.93958445
200206A00027	2/6/2020	2.15	2/6/2030	2/6/2020	120.448	113.0307787	106.1519791	99.76906652	93.84309619	88.33839316	83.22226108	78.46471839	74.03825927
140703A00026	7/3/2014	3.11	7/3/2024	7/3/2014	107.0327	105.1751083	103.3609647	101.5889761	99.85789691	98.16652704	96.51370969	94.89832961	93.31931129
160608A00023	6/8/2016	2.36	6/8/2026	6/8/2016	111.78119	108.0363517	104.4445496	100.9986749	97.69198516	94.51808534	91.4709084	88.54469651	85.73398377
170224A00009	2/24/2017	2.39	2/24/2023	2/24/2017	101.8408	101.2590534	100.6840045	100.1155335	99.55352774	98.99787715	98.44847423	97.90521383	97.3679932
180913A00033	9/13/2018	3.31	9/13/2033	9/13/2018	125.85591	118.9461608	112.5649868	106.6654516	101.2052123	96.14603591	91.45336953	87.09595833	83.04550553
150729A00041	7/29/2015	2.44	7/29/2025	7/29/2015	104.97989	103.4037036	101.8676782	100.3704628	98.91075967	97.48732464	96.09896464	94.74453511	93.42293765
180907A00013	9/7/2018	3.27	9/8/2025	9/7/2018	112.36664	109.2414337	106.2235176	103.3085506	100.4923952	97.77110713	95.14092494	92.5982603	90.13968881
160908A00016	9/8/2016	1.87	9/8/2023	9/8/2016	102.81984	101.7039201	100.6125377	99.54488856	98.50020192	97.47774018	96.47679705	95.49669596	94.53678848
190620A00033	6/20/2019	2.1	6/20/2029	6/20/2019	111.3528	107.5304115	103.8995557	100.4487681	97.16736273	94.04537095	91.07348871	88.24302748	85.54586934
200309A00082	3/9/2020	1.18	3/8/2030	3/9/2020	113.52836	106.3929149	99.78254482	93.65529235	87.97278077	82.69988988	77.80446294	73.25704148	69.03062508
200309A00084	3/9/2020	1.06	3/9/2027	3/9/2020	108.70328	104.2513696	100.0138568	95.97919456	92.1365228	88.47562405	84.9868815	81.6612403	78.49017148
210212A00007	2/12/2021	0.76	2/12/2026	2/12/2021	105.45439	102.0804541	98.83650153	95.71677828	92.71582179	89.82844155	87.04970392	84.37491781	81.79962133
210512A00012	5/12/2021	1.16	5/12/2026	5/12/2021	107.36286	103.7203062	100.2256873	96.87213725	93.65314989	90.56255809	87.59451381	84.74346959	82.00416124
160908A00023	9/8/2016	2.21	9/8/2026	9/8/2016	111.96427	107.9955736	104.1979506	100.5629995	97.08278549	93.74980761	90.55697259	87.49757004	84.56524957

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190403A00014	4/3/2019	3.05	4/3/2029	4/3/2019	123.77365	117.1433479	110.941257	105.1368923	99.70211351	94.61093248	89.83933689	85.36512914	81.1677794
120820A00009	8/20/2012	2.4	8/22/2022	8/20/2012	100.26596	100.1996397	100.1334196	100.0672987	100.0012768	99.93535375	99.86952928	99.8038032	99.73817529
190712A00016	7/12/2019	2.39	7/12/2029	7/12/2019	112.05175	108.171198	104.486663	100.9863284	97.65918223	94.4949567	91.48407302	88.61759032	85.8871588
200512A00001	5/12/2020	1.17	5/12/2027	5/12/2020	109.54891	104.9121289	100.5056744	96.31679688	92.33352333	88.54460614	84.93947509	81.50819269	78.24141274
201110A00003	11/10/2020	1.12	11/10/2027	11/10/2020	110.12961	105.0353742	100.2164882	95.65648868	91.33999095	87.25260909	83.38088547	79.7122257	76.23483854
120806A00015	8/6/2012	2.38	8/6/2027	8/6/2012	108.59817	105.8554148	103.2180823	100.6812032	98.24007693	95.89025766	93.62753897	91.44793914	89.34768765
160606A00018	6/6/2016	1.74	6/5/2026	6/6/2016	105.43661	103.3749833	101.3775707	99.44184351	97.56538842	95.74590473	93.98119816	92.26917516	90.60783754
191113A00013	11/13/2019	2.17	11/13/2026	11/13/2019	112.79804	108.5076545	104.4108937	100.4979097	96.75941441	93.18664243	89.77131794	86.50562471	83.38217784
150603A00032	6/3/2015	2.21	6/3/2025	6/3/2015	104.67497	103.1456956	101.6545974	100.2004088	98.78191409	97.39794745	96.04739041	94.72916951	93.44225417
160511A00016	5/11/2016	2.48	5/12/2031	5/11/2016	115.60429	110.5739538	105.855256	101.425503	97.26383941	93.35109002	89.6696121	86.20316207	82.93677453
190910A00044	9/10/2019	2.02	9/10/2026	9/10/2019	111.64193	107.5464454	103.6296599	99.88273844	96.29733851	92.86557608	89.5799975	86.43355343	83.4195745
151102A00024	11/2/2015	2.37	11/2/2022	11/2/2015	100.95267	100.6858066	100.4203583	100.1563163	99.89366949	99.63240685	99.37251742	99.11399038	98.85681503
160211A00038	2/11/2016	1.83	2/11/2026	2/11/2016	104.85652	102.9823502	101.1625965	99.39523273	97.67832284	96.01001705	94.38854729	92.81222298	91.27942708
200318A00012	3/18/2020	1.68	3/18/2033	3/18/2020	117.3151	109.9276747	103.1565855	96.94320034	91.23495764	85.98469211	81.15004382	76.69293541	72.57910927
220310A00008	3/10/2022	2.22	3/10/2025	3/10/2022	107.70962	105.1128715	102.5939087	100.1499077	97.77816363	95.47608818	93.24120389	91.07113849	88.96361964
160908A00030	9/8/2016	2.21	9/8/2026	9/8/2016	111.96427	107.9955736	104.1979506	100.5629995	97.08278548	93.74980761	90.55697258	87.49757003	84.56524955
160908A00028	9/8/2016	2.21	9/8/2026	9/8/2016	111.96427	107.9955739	104.1979508	100.5629996	97.08278539	93.7498074	90.55697226	87.49756961	84.56524903
210331A00007	3/31/2021	1.25	3/31/2031	3/31/2021	109.40147	104.7310312	100.3451945	96.22355193	92.3473248	88.6992254	85.26332806	82.02495213	78.9705558
210915A00025	9/15/2021	1.09	9/15/2026	9/15/2021	107.59412	103.7359859	100.0452298	96.51358904	93.13326204	89.89687616	86.79746138	83.82842584	80.98353306
200221A00012	2/21/2020	2.14	2/21/2040	2/21/2020	125.02266	114.0979792	104.4500252	95.90863844	88.32825271	81.58412493	75.56917148	70.19130846	65.37121249
190905A00024	9/5/2019	2.08	9/5/2029	9/5/2019	119.06288	112.0773641	105.5746285	99.51826898	93.87482557	88.61352905	83.70607053	79.12639195	74.85049555
130206A00009	2/6/2013	2.83	2/7/2028	2/6/2013	116.1752	111.572414	107.208732	103.0699841	99.14292504	95.41517078	91.87513771	88.51198622	85.31556873
160401A00005	4/1/2016	2.02	4/3/2023	4/1/2016	101.89734	101.2097619	100.5315217	99.86242533	99.20228861	98.55093208	97.90818113	97.27386571	96.64782027
170106A00030	1/6/2017	2.39	1/6/2027	1/6/2017	107.90223	105.4804797	103.1430657	100.8863381	98.70683047	96.60125099	94.56647244	92.59952281	90.6975765
200406A00027	4/6/2020	1.31	4/5/2030	4/6/2020	114.26521	107.6131835	101.4380676	95.70214056	90.37089334	85.41273605	80.79873494	76.50237442	72.49934154
200206A00008	2/6/2020	1.64	2/6/2025	2/6/2020	106.16037	103.7230483	101.3567486	99.05896526	96.82729653	94.65944048	92.55319045	90.50643034	88.51713029
150714A00003	7/14/2015	3.76	7/12/2030	7/14/2015	120.74123	115.9455425	111.422954	107.1550873	103.1249461	99.31680593	95.71611018	92.30937488	89.08410229
170619A00089	6/16/2017	2.79	6/16/2027	6/16/2017	116.89311	112.0981695	107.541296	103.2092746	99.08969621	95.17090246	91.44193661	87.89249769	84.51289783
200206A00038	2/6/2020	1.78	2/6/2023	2/6/2020	101.3906	100.8574913	100.3300117	99.80807334	99.291589	98.78047337	98.27464288	97.77401571	97.27851172
151001A00023	10/1/2015	2.02	10/1/2025	10/1/2015	104.91832	103.2127757	101.5532757	99.93820054	98.36599717	96.83517902	95.34432269	93.89206473	92.47709868
170105A00012	1/5/2017	2.68	1/5/2024	1/5/2017	104.83921	103.4019973	101.9920883	100.6087663	99.25134204	97.9191497	96.61154575	95.32790816	94.06763542
201221A00022	12/21/2020	0.51	12/19/2025	12/21/2020	104.6961	101.5333305	98.48733617	95.5531557	92.72606721	90.00157424	87.37539366	84.84344442	82.40183686
150929A00076	9/29/2015	2.28	9/29/2025	9/29/2015	105.00582	103.3430194	101.7242723	100.1480492	98.6128851	97.11737694	95.66018064	94.240008	92.85562403

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
151029A00008	10/29/2015	2.28	10/29/2025	10/29/2015	105.14624	103.4380344	101.775955	100.1583707	98.58372507	97.05052815	95.55735352	94.10283488	92.68566308
200414A00009	4/14/2020	0.82	4/14/2025	4/14/2020	102.21012	100.8043041	99.43216542	98.09261499	96.78460761	95.50714037	94.25925053	93.04001359	91.8485414
210714A00016	7/14/2021	0.75	7/12/2024	7/14/2021	102.80091	100.9226816	99.0892988	97.29941231	95.55171869	93.84496256	92.1779345	90.54946903	88.95844265
210809A00015	8/9/2021	1.06	8/7/2026	8/9/2021	107.46986	103.6141767	99.92374418	96.39054689	93.00700053	89.76592908	86.66054045	83.68440375	80.83142805
200110A00043	1/10/2020	2.32	1/10/2030	1/10/2020	121.53082	114.1237937	107.2494341	100.866041	94.93540295	89.42248793	84.29516251	79.52393765	75.08173792
170802A00013	8/2/2017	2.5	8/2/2024	8/2/2017	106.44498	104.4345546	102.4734351	100.5600896	98.69304654	96.87089048	95.09225921	93.3558415	91.66037478
160329A00017	3/29/2016	2.48	3/30/2026	3/29/2016	111.12267	107.6982938	104.406426	101.241095	98.19664112	95.26769426	92.44915712	89.73618952	87.12419368
170901A00030	9/1/2017	1.82	9/1/2022	9/1/2017	100.32712	100.2331247	100.1393106	100.0456781	99.95222674	99.8589559	99.76586506	99.67295371	99.58022213
171207A00026	12/7/2017	2.93	12/7/2027	12/7/2017	119.63152	114.1849564	109.0331944	104.1585785	99.54460266	95.17582991	91.03781745	87.11704775	83.40086468
200311A00015	3/11/2020	1.26	3/11/2027	3/11/2020	109.61935	105.1326466	100.8621009	96.79606128	92.92357159	89.23432439	85.71861883	82.36732139	79.17182948
161102A00014	11/2/2016	1.99	11/2/2023	11/2/2016	103.40336	102.129047	100.8850628	99.67032209	98.48379427	97.3244968	96.19149255	95.08388717	94.00082664
170309A00014	3/9/2017	2.58	3/9/2027	3/9/2017	108.70163	106.1721987	103.7335255	101.3815778	99.11253212	96.92276186	94.80882593	92.76745792	90.79555601
190506A00026	5/6/2019	3.03	5/4/2029	5/6/2019	124.69264	117.7488078	111.2632414	105.2027879	99.53687681	94.2373072	89.27805148	84.63507599	80.28617758
190913A00018	9/13/2019	2.11	9/11/2026	9/13/2019	106.3479	104.1411035	102.0064104	99.94086478	97.94165118	96.00608991	94.13162933	92.31583889	90.5564025
170727A00003	7/27/2017	1.97	7/29/2024	7/27/2017	102.91212	101.8732016	100.8549055	99.85663999	98.87783219	97.91793085	96.9764055	96.05274536	95.14645847
160210A00051	2/10/2016	2.28	2/10/2031	2/10/2016	114.91573	110.0379342	105.4554709	101.1472868	97.09400689	93.27778556	89.68217493	86.29200544	83.09327744
200724A00011	7/24/2020	1.41	7/26/2038	7/24/2020	122.28613	108.9437229	97.39007894	87.36538766	78.64948663	71.0555788	64.42497926	58.62271583	53.5338408
200109A00008	1/9/2020	1.95	1/9/2030	1/9/2020	111.6854	107.5340385	103.6058879	99.88669513	96.36323345	93.02321875	89.85523572	86.84867033	83.99364809
200220A00026	2/20/2020	2.22	2/21/2040	2/20/2020	125.88218	114.8802634	105.1640845	96.56228379	88.92826877	82.13641675	76.0788889	70.66295181	65.80872249
160908A00019	9/8/2016	1.87	9/8/2023	9/8/2016	102.81984	101.7039201	100.6125377	99.54488855	98.50020191	97.47774016	96.47679702	95.49669592	94.53678844
181116A00006	11/16/2018	3.18	11/17/2025	11/16/2018	106.88115	105.1006835	103.3691588	101.6848278	100.0460176	98.45112774	96.89862642	95.38704704	93.91498491
160812A00006	8/12/2016	2.16	8/12/2026	8/12/2016	111.54343	107.7949457	104.2039023	100.7627252	97.46424631	94.30168217	91.26861124	88.35895246	85.56694513
210408A00007	4/8/2021	1.05	4/8/2031	4/8/2021	109.212	104.4908467	100.0604572	95.89977644	91.98944842	88.31166785	84.85004489	81.58948252	78.5160653
220310A00010	3/10/2022	2.31	3/10/2027	3/10/2022	114.24908	109.6639052	105.2980396	101.1397104	97.17784364	93.40201972	89.80243029	86.36983911	83.09554536
150929A00087	9/29/2015	2.09	9/29/2025	9/29/2015	104.90767	103.2432987	101.6230972	100.0455317	98.50913073	97.01248554	95.55424644	94.13312006	92.74786651
170313A00045	3/13/2017	3.22	3/15/2032	3/13/2017	121.13125	115.3735611	110.0022371	104.9869499	100.3000134	95.91613353	91.81218451	87.96700692	84.36122631
160802A00026	8/2/2016	1.84	8/2/2023	8/2/2016	102.53117	101.5109306	100.5111527	99.53122397	98.57055623	97.62858452	96.70476579	95.79857785	94.90951838
170317A00040	3/17/2017	2.74	3/18/2024	3/17/2017	105.62742	103.9886214	102.3839097	100.8122864	99.27278932	97.76449336	96.28650899	94.83798044	93.41808405
190205A00021	2/5/2019	3.32	2/5/2029	2/5/2019	125.00478	118.46129	112.3316979	106.5871246	101.2008686	96.14822922	91.40634562	86.95405035	82.77173503
180206A00046	2/6/2018	2.72	2/6/2023	2/6/2018	101.88499	101.3516678	100.8239658	100.3017987	99.78507961	99.27372338	98.76764658	98.26676754	97.77100627
210809A00016	8/9/2021	0.66	8/9/2024	8/9/2021	102.40047	100.6913388	99.02306559	97.39438312	95.80407509	94.25097188	92.73394834	91.25192169	89.80384966
150701A00056	7/1/2015	2.34	7/1/2025	7/1/2015	105.02184	103.4443053	101.9069435	100.4084036	98.94738902	97.52265652	96.13301393	94.77731751	93.45446958
180202A00027	2/2/2018	3.02	2/3/2025	2/2/2018	109.44496	106.9048003	104.4386746	102.0439728	99.71819768	97.45895544	95.26395092	93.13098275	91.05793885

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190813A00064	8/13/2019	1.9	8/13/2024	8/13/2019	105.33202	103.3036314	101.3255138	99.39608255	97.51381876	95.67726223	93.88500868	92.13570719	90.4280577
201029A00004	10/29/2020	1.49	10/29/2038	10/29/2020	123.43795	109.8403313	98.08662504	87.90577721	79.06860421	71.38107938	64.67872885	58.82194981	53.69209505
210714A00009	7/14/2021	0.75	7/12/2024	7/14/2021	102.83379	100.933769	99.07922323	97.26878096	95.50111977	93.77496605	92.08909278	90.44231752	88.83350042
120807A00025	8/7/2012	1.82	8/8/2022	8/7/2012	100.05729	100.0405983	100.0239215	100.0072627	99.99062179	99.97399874	99.95739352	99.94080611	99.92423648
190329A00067	3/29/2019	2.61	3/29/2024	3/29/2019	105.30094	103.6993072	102.1312088	100.5956467	99.09166163	97.61833215	96.17477289	94.76013264	93.3735927
120820A00011	8/20/2012	2.4	8/22/2022	8/20/2012	100.26596	100.1996397	100.1334196	100.0672987	100.0012768	99.93535375	99.86952928	99.8038032	99.73817529
160201A00016	2/1/2016	2.1	2/2/2026	2/1/2016	105.36625	103.4832673	101.6549317	99.87920917	98.15415665	96.47791747	94.84871691	93.26485801	91.72471755
160908A00024	9/8/2016	2.21	9/8/2026	9/8/2016	111.96427	107.9955736	104.1979506	100.5629995	97.0827855	93.74980764	90.55697262	87.49757009	84.56524963
181218A00089	12/18/2018	3.05	6/19/2023	12/18/2018	103.26938	102.3828662	101.5119284	100.6561591	99.81516203	98.98855483	98.17596815	97.37704527	96.5914415
200522A00009	5/22/2020	0.96	5/22/2030	5/22/2020	107.63482	103.3003387	99.21237311	95.35438176	91.71105955	88.26824107	85.01280804	81.93260484	79.01636133
200512A00018	5/12/2020	0.85	5/12/2025	5/12/2020	104.35416	101.7238363	99.17602284	96.70761522	94.31564624	91.99727994	89.74980478	87.57062729	85.45726604
150219A00016	2/19/2015	2.68	2/19/2025	2/19/2015	108.40153	105.9057979	103.4826014	101.1293614	98.84361148	96.62298881	94.46522944	92.36816331	90.3297097
161229A00019	12/29/2016	2.46	12/29/2026	12/29/2016	107.91399	105.5350027	103.2376784	101.0185237	98.87421994	96.80161409	94.79770922	92.85965577	90.98474317
190205A00022	2/5/2019	3.32	2/5/2029	2/5/2019	125.00478	118.4612932	112.3317	106.5871257	101.2008688	96.1482286	91.40634423	86.95404826	82.7717323
110719A00017	7/19/2011	3.68	7/20/2026	7/19/2011	109.45114	107.2672898	105.1525271	103.1040954	101.1193662	99.19583456	97.33111283	95.52292391	93.76909559
160908A00032	9/8/2016	2.17	9/8/2026	9/8/2016	111.28014	107.4891209	103.8592494	100.3826763	97.05197889	93.86013835	90.8005156	87.86682835	85.05312974
200512A00020	5/12/2020	0.86	5/12/2025	5/12/2020	104.52258	101.8096556	99.18252766	96.63795721	94.17284776	91.78424008	89.46930502	87.22533687	85.04974704
201103A00005	11/3/2020	0.89	11/4/2030	11/3/2020	107.44524	103.0327033	98.87984011	94.96862518	91.28243058	87.80590913	84.52488673	81.4262644	78.49792912
190104A00034	1/4/2019	3.18	1/4/2029	1/4/2019	120.16143	114.7742979	109.7032027	104.9271383	100.4266283	96.18360325	92.18129155	88.40411849	84.83761437
191112A00023	11/12/2019	2.36	11/13/2029	11/12/2019	121.45339	114.1892493	107.437652	101.1591748	95.31764198	89.87984122	84.8152656	80.09587923	75.69590446
160106A00042	1/6/2016	2.43	1/6/2026	1/6/2016	105.84473	103.9961025	102.2001626	100.4549794	98.75870523	97.10957386	95.50589608	93.94605584	92.42850654
180906A00032	9/6/2018	3.24	9/5/2025	9/6/2018	112.42663	109.2645054	106.2111716	103.2622239	100.4134675	97.6609036	95.00071827	92.42927287	89.94309479
191008A00014	10/8/2019	1.85	10/8/2026	10/8/2019	111.15889	107.0072134	103.039486	99.24647682	95.61947088	92.15024067	88.83101562	85.65445385	82.61361584
110909A00006	9/9/2011	2.26	9/9/2026	9/9/2011	106.68115	104.4673578	102.325891	100.2537851	98.24821655	96.30649745	94.42606858	92.60449208	90.8394449
150824A00050	8/24/2015	2.03	8/25/2025	8/24/2015	104.67149	103.0544034	101.4793998	99.94504177	98.44994826	96.99279587	95.57231618	94.18729302	92.83655986
200115A00013	1/15/2020	2.18	1/15/2030	1/15/2020	116.71738	110.7944645	105.2640501	100.0968267	95.26585918	90.74638523	86.51562772	82.5526242	78.83807196
141203A00039	12/3/2014	3.6	12/4/2034	12/3/2014	129.93613	121.9628854	114.6620533	107.9681178	101.8225676	96.17309357	90.97288317	86.17999986	81.75683673
160301A00012	3/1/2016	2.02	3/1/2023	3/1/2016	101.66539	101.0691571	100.4799517	99.89764541	99.32211747	98.75324996	98.19092768	97.63503807	97.08547115
161214A00034	12/14/2016	2.65	12/14/2026	12/14/2016	108.04685	105.6709349	103.3763823	101.1597156	99.01763647	96.94701063	94.94485868	93.00834728	91.13478095
210512A00008	5/12/2021	0.66	5/10/2024	5/12/2021	102.41097	100.6771571	98.9817174	97.32349396	95.70137669	94.1142989	92.56123512	91.04119916	89.55324212
120517A00021	5/17/2012	1.85	5/17/2024	5/17/2012	102.54737	101.5981078	100.6668855	99.7531829	98.85650385	97.97637142	97.1123268	96.26392844	95.43075121
120806A00014	8/6/2012	1.77	8/8/2022	8/6/2012	100.05646	100.0397632	100.0230878	100.0064303	99.98979065	99.97316889	99.95656497	99.93997884	99.92341049
180322A00040	3/22/2018	3.16	3/21/2031	3/22/2018	123.00142	116.8041274	111.0353866	105.6610943	100.6501228	95.97404481	91.60688103	87.52487333	83.70627991

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
210714A00011	7/14/2021	0.75	7/12/2024	7/14/2021	102.83379	100.933769	99.07922323	97.26878094	95.50111974	93.774966	92.08909272	90.44231745	88.83350033
160908A00027	9/8/2016	2.21	9/8/2026	9/8/2016	111.96427	107.9955741	104.1979509	100.5629996	97.08278533	93.74980725	90.55697203	87.4975693	84.56524866
190605A00024	6/5/2019	2.64	6/5/2029	6/5/2019	122.30696	115.3909482	108.9372016	102.9119741	97.28416127	92.02508034	87.10826936	82.50930448	78.20563296
150227A00011	2/27/2015	2.33	2/27/2025	2/27/2015	107.18039	104.9265972	102.7373942	100.6104933	98.54370283	96.53492376	94.58214516	92.68343988	90.83696038
190308A00016	3/8/2019	3.18	3/8/2034	3/8/2019	137.54816	126.2636188	116.1132429	106.972094	98.72984808	91.28900387	84.56331905	78.47644505	72.9607345
190813A00052	8/13/2019	2.24	8/13/2029	8/13/2019	120.03108	113.0544945	106.5562675	100.5005993	94.85456047	89.58784981	84.67257132	80.08303093	75.79555151
220104A00006	1/4/2022	1.76	1/4/2029	1/4/2022	115.70563	109.7182593	104.1056155	98.84183193	93.9029681	89.26685789	84.91296892	80.82227373	76.97713178
190515A00035	5/15/2019	2.82	2/15/2029	5/15/2019	122.67788	116.0135351	109.7778013	103.940459	98.47358176	93.35135215	88.54989182	84.04710567	79.82253949
200330A00058	3/30/2020	1.49	3/29/2030	3/30/2020	114.46077	107.8435997	101.6985055	95.98831257	90.67899654	85.73939913	81.14097108	76.85753933	72.86509624
210107A00008	1/7/2021	0.54	1/5/2024	1/7/2021	101.75558	100.3533226	98.97771354	97.62806051	96.30369093	95.00395503	93.72822484	92.47589329	91.24637336
191209A00005	12/9/2019	2.22	12/10/2029	12/9/2019	118.80549	112.1913917	106.032579	100.294428	94.94515152	89.95554787	85.29877701	80.95015735	76.88698096
180104A00024	1/4/2018	2.98	1/4/2028	1/4/2018	119.5516	114.1830316	109.1059323	104.3027086	99.75692482	95.45322027	91.37723351	87.51553206	83.85554761
200309A00034	3/9/2020	0.96	3/9/2035	3/9/2020	111.7384	104.8136562	98.48192961	92.68461243	87.36944539	82.48978443	78.00395338	73.87467569	70.068575
191004A00025	10/4/2019	1.74	10/4/2024	10/4/2019	105.36881	103.2063568	101.1000092	99.04789972	97.04823816	95.09930853	93.1994654	91.34713037	89.54078864
200406A00037	4/6/2020	0.9	4/6/2023	4/6/2020	101.14488	100.4517223	99.7681011	99.09382227	98.42869499	97.77253361	97.12515744	96.48639065	95.85606208
150311A00003	3/11/2015	2.72	3/31/2025	3/11/2015	108.71778	106.1846659	103.727535	101.3435888	99.03015589	96.78468269	94.60472683	92.4879516	90.43212046
190605A00007	6/5/2019	2.47	6/5/2026	6/5/2019	112.59148	108.7144515	104.9970937	101.431963	98.01200581	94.73053251	91.58119648	88.55797491	85.65515057
200110A00039	1/10/2020	2.32	1/10/2030	1/10/2020	121.53082	114.1237929	107.2494338	100.866041	94.93540323	89.42248848	84.29516331	79.52393867	75.08173914
210714A00013	7/14/2021	1.12	7/14/2026	7/14/2021	107.56881	103.7685339	100.1287908	96.64190741	93.30061864	90.09804416	87.027666	84.08330748	81.25911343
210809A00012	8/9/2021	1.06	8/7/2026	8/9/2021	107.46986	103.614177	99.92374421	96.39054665	93.00700005	89.76592836	86.66053951	83.6844026	80.83142671
150224A00010	2/24/2015	2.34	2/24/2025	2/24/2015	105.06024	103.3936368	101.7680962	100.182267	98.63485175	97.12460611	95.6503358	94.21089441	92.80518104
180718A00008	7/18/2018	3.37	7/18/2028	7/18/2018	124.08239	117.8609699	112.0095332	106.5038735	101.3214969	96.44149313	91.84441551	87.51217121	83.42792005
190103A00020	1/3/2019	3.12	1/5/2026	1/3/2019	113.40377	109.9005469	106.5284854	103.2819438	100.1555548	97.14421062	94.24304874	91.44743883	88.75297033
200818A00012	8/18/2020	0.97	8/18/2027	8/18/2020	109.00325	104.1508473	99.5513744	95.19022092	91.0536953	87.12896651	83.40400528	79.86752964	76.50895451
180813A00045	8/13/2018	2.89	8/13/2025	8/13/2018	106.07392	104.4352029	102.8390989	101.2841538	99.76897024	98.29220941	96.85258795	95.4488753	94.07989114
160209A00006	2/9/2016	1.91	2/9/2026	2/9/2016	105.00755	103.1307255	101.3083855	99.53850446	97.81914419	96.14845262	94.52465955	92.94607236	91.41107204
190205A00023	2/5/2019	3.32	2/5/2029	2/5/2019	125.00478	118.4612902	112.3316981	106.5871247	101.2008686	96.14822918	91.40634552	86.95405019	82.77173482
150617A00017	6/17/2015	2.27	6/17/2025	6/17/2015	104.7711	103.239231	101.7456464	100.2890738	98.86829253	97.4821322	96.12946988	94.80922791	93.52037175
191203A00011	12/3/2019	2.21	12/3/2029	12/3/2019	120.50372	113.2374878	106.4875657	100.2140326	94.38026561	88.95265029	83.90031907	79.19491317	74.8103665
160413A00020	4/13/2016	2.48	4/13/2026	4/13/2016	111.73121	108.1229628	104.6573075	101.3277187	98.12801596	95.0523398	92.09513265	89.25112121	86.51529996
210611A00008	6/11/2021	0.61	6/11/2024	6/11/2021	102.46311	100.6340831	98.84715551	97.10111051	95.39477121	93.72700226	92.09670802	90.50283094	88.94434998
170309A00016	3/9/2017	2.39	3/8/2024	3/9/2017	102.77782	101.9120991	101.0622071	100.2276952	99.40813636	98.60311982	97.81225015	97.03514665	96.27144261
180905A00017	9/5/2018	3.43	9/6/2033	9/5/2018	140.84501	129.373926	119.0384543	109.7164153	101.29954	93.69181417	86.80802543	80.57248859	74.91792856

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171013A00024	10/13/2017	2.47	10/15/2024	10/13/2017	106.83145	104.6882661	102.6008082	100.5672061	98.58566727	96.65447467	94.77198271	92.93661364	91.14685405
190702A00071	7/2/2019	2.69	7/1/2039	7/2/2019	140.42966	125.0020235	111.6959807	100.1931095	90.22536015	81.56677098	74.02659187	67.44356847	61.68118523
190702A00068	7/2/2019	2.69	7/1/2039	7/2/2019	140.42968	125.0020381	111.6959859	100.193107	90.22535125	81.56675681	74.02657338	67.44354645	61.68116036
151209A00024	12/9/2015	2.22	12/9/2025	12/9/2015	105.55398	103.7502334	101.9970522	100.2926069	98.63514546	97.0229924	95.45454473	93.92826828	92.4426942
160603A00014	6/3/2016	1.74	6/3/2026	6/3/2016	105.43625	103.374747	101.3774538	99.44183632	97.56548218	95.74609124	93.98146977	92.26952476	90.60825851
160608A00025	6/8/2016	2.36	6/8/2026	6/8/2016	111.78119	108.0363514	104.4445495	100.9986749	97.69198522	94.51808549	91.47090863	88.54469683	85.73398416
160908A00031	9/8/2016	2.21	9/8/2026	9/8/2016	111.96427	107.9955737	104.1979507	100.5629995	97.08278545	93.74980753	90.55697246	87.49756987	84.56524936
191105A00012	11/5/2019	2.07	11/3/2034	11/5/2019	119.30043	112.0920944	105.486421	99.42518991	93.85635387	88.73333816	84.01442272	79.66219815	75.64308641
120330A00013	3/30/2012	2.98	4/2/2024	3/30/2012	105.83825	104.2459112	102.6869795	101.1604506	99.66536491	98.20080111	96.76587399	95.35973275	93.98155926
140730A00035	7/30/2014	2.67	1/30/2023	7/30/2014	100.9964	100.7329076	100.4713614	100.2117356	99.95400679	99.69815178	99.44414786	99.1919727	98.94160432
190813A00067	8/13/2019	1.9	8/13/2024	8/13/2019	105.33202	103.3036315	101.3255138	99.39608253	97.51381869	95.67726211	93.88500852	92.13570698	90.42805745
191015A00025	10/15/2019	2.01	10/15/2029	10/15/2019	110.96199	106.984839	103.2148392	99.6391422	96.2458004	93.02369523	89.96247384	87.05249104	84.28475607
220310A00009	3/10/2022	2.31	3/10/2027	3/10/2022	114.24908	109.6639064	105.2980403	101.1397105	97.17784333	93.40201897	89.80242912	86.36983755	83.09554342
150410A00021	4/10/2015	2.27	4/10/2025	4/10/2015	104.29189	102.8563861	101.4552625	100.0874037	98.75174325	97.44725788	96.17296523	94.92792193	93.7112217
150803A00041	8/3/2015	3.01	8/2/2030	8/3/2015	116.73215	112.0747232	107.6840817	103.542162	99.63227207	95.93897572	92.44798935	89.14608777	86.02101835
190308A00026	3/8/2019	3.18	3/8/2034	3/8/2019	137.54816	126.2636186	116.1132427	106.972094	98.72984809	91.28900393	84.56331916	78.4764452	72.96073469
170406A00026	4/6/2017	2.61	4/8/2024	4/6/2017	105.56106	103.8812975	102.2372817	100.6279337	99.05221541	97.50913023	95.99772131	94.51706938	93.06629088
170615A00006	6/15/2017	2.15	6/17/2024	6/15/2017	102.71465	101.7635238	100.8304804	99.91500041	99.01658901	98.13476999	97.26908517	96.41909342	95.58436991
181214A00030	12/14/2018	3.47	12/14/2033	12/14/2018	142.18387	130.2005575	119.4296923	109.7381075	101.0080892	93.13550437	86.02816148	79.60437758	73.79172382
190708A00028	7/8/2019	2.57	7/2/2029	7/8/2019	122.02185	115.0533652	108.5552038	102.4926953	96.83391288	91.54943917	86.61215666	81.99705641	77.68106361
200130A00046	1/30/2020	1.81	1/29/2027	1/30/2020	106.18718	103.8089222	101.5134074	99.29705904	97.15647778	95.08843553	93.08986551	91.15785308	89.28962716
160801A00002	8/1/2016	1.58	8/3/2026	8/1/2016	105.34366	103.1974208	101.1202906	99.10947202	97.16229823	95.27622956	93.44884648	91.6778431	89.96102094
170406A00034	4/6/2017	3.01	4/6/2027	4/6/2017	117.21588	112.5813878	108.1691706	103.9671994	99.96416847	96.14944752	92.51303696	89.04552678	85.73805819
210412A00008	4/12/2021	0.66	4/12/2024	4/12/2021	102.31852	100.656975	99.03104831	97.43965158	95.88174395	94.35632674	92.86244124	91.3991667	89.96561836
140924A00057	9/24/2014	3.25	9/25/2028	9/24/2014	124.29157	118.0791712	112.241617	106.7538656	101.5926952	96.73655867	92.16545304	87.86080051	83.805339
170511A00011	5/11/2017	2.41	5/11/2027	5/11/2017	108.59473	105.9785717	103.4590424	101.0317371	98.69248525	96.43733636	94.26254655	92.16456634	90.14002918
191224A00002	12/24/2019	2.17	12/24/2029	12/24/2019	111.86692	107.766099	103.8831688	100.2043711	96.7169225	93.40894143	90.26937844	87.28795212	84.45509033
151030A00026	10/30/2015	3.29	10/30/2030	10/30/2015	128.39406	120.6136245	113.4194545	106.7627504	100.5990768	94.88794991	89.59246326	84.67895176	80.1166887
160908A00026	9/8/2016	2.21	9/8/2026	9/8/2016	111.96427	107.9955739	104.1979508	100.5629996	97.0827854	93.74980743	90.5569723	87.49756966	84.5652491
180410A00002	4/10/2018	3.14	4/11/2033	4/10/2018	123.84683	117.294521	111.226713	105.6017452	100.3819091	95.53304723	91.02419185	86.82724322	82.91668239
161012A00011	10/12/2016	1.53	10/12/2023	10/12/2016	101.81918	101.0540491	100.3033579	99.5666587	98.84351954	98.13352689	97.43628478	96.75141383	96.07855034
170619A00092	6/16/2017	2.79	6/16/2027	6/16/2017	116.89311	112.098168	107.541295	103.2092742	99.08969629	95.17090301	91.44193761	87.89249911	84.51289964
180628A00068	6/28/2018	3.12	6/28/2028	6/28/2018	119.20928	114.2157936	109.4962976	105.033707	100.8121051	96.81665863	93.03353794	89.44984352	86.05353832

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190718A00012	7/18/2019	2.55	7/18/2029	7/18/2019	120.08922	113.7179168	107.7652734	102.2008056	96.99642515	92.12623952	87.56636806	83.2947752	79.29111816
210714A00018	7/14/2021	0.75	7/12/2024	7/14/2021	102.80091	100.9226816	99.08929879	97.29941229	95.55171865	93.8449625	92.17793443	90.54946894	88.95844255
170105A00010	1/5/2017	2.61	1/5/2027	1/5/2017	108.11336	105.6921523	103.3551008	101.0985719	98.91911238	96.81344262	94.77844666	92.81116291	90.90877542
200306A00058	3/6/2020	1.06	3/6/2030	3/6/2020	107.605	103.5327699	99.68325042	96.04199445	92.59561036	89.33167472	86.2386556	83.30584243	80.52328174
160608A00033	6/8/2016	2.44	6/9/2031	6/8/2016	115.54424	110.470283	105.7132849	101.2499834	97.05901744	93.12075869	89.41715881	85.93161087	82.64882399
161202A00001	12/2/2016	2.65	12/1/2023	12/2/2016	104.46795	103.1280168	101.8120102	100.5193438	99.24944768	98.0017701	96.7757767	95.57094982	94.38678788
170207A00055	2/7/2017	2.36	2/8/2027	2/7/2017	107.98819	105.5199591	103.1390076	100.8415015	98.623808	96.48247972	94.4142435	92.41599053	90.4847669
200317A00009	3/17/2020	1.61	3/16/2035	3/17/2020	115.32788	108.2090953	101.6982374	95.73535851	90.26699351	85.24541044	80.62795099	76.37645119	72.45673218
150925A00034	9/25/2015	2.36	9/25/2025	9/25/2015	105.13881	103.474121	101.8535216	100.2754843	98.73854311	97.24129429	95.78239287	94.36054988	92.9745295
161004A00070	10/4/2016	1.92	10/4/2023	10/4/2016	103.09693	101.9007946	100.7326633	99.59156025	98.47655319	97.38675216	96.32130735	95.27940682	94.26027439
140618A00019	6/18/2014	3.08	6/18/2024	6/18/2014	103.76657	102.7639551	101.7807556	100.8164152	99.87040067	98.94219911	98.03131671	97.13727798	96.25962488
191122A00003	11/22/2019	2.32	11/22/2039	11/22/2019	132.2954	118.7870192	107.0628131	96.86075426	87.95980659	80.17321419	73.34293087	67.33498905	62.03564443
171207A00024	12/7/2017	2.93	12/7/2027	12/7/2017	119.63152	114.1849565	109.0331945	104.1585785	99.54460265	95.17582985	91.03781734	87.1170476	83.40086448
180104A00023	1/4/2018	2.91	1/4/2028	1/4/2018	116.79118	112.111476	107.6742491	103.4652339	99.47109129	95.67934035	92.07829868	88.65702681	85.40527695
200327A00094	3/27/2020	1.6	3/27/2030	3/27/2020	115.1874	108.537135	102.3608515	96.62125557	91.28421067	86.31845363	81.69533717	77.38859655	73.37413844
200206A00034	2/6/2020	1.84	2/6/2025	2/6/2020	106.51276	104.0077707	101.5761677	99.21535282	96.92284129	94.69625185	92.53330163	90.4318014	88.38965112
150929A00083	9/29/2015	2.09	9/29/2025	9/29/2015	104.90767	103.2432987	101.6230972	100.0455317	98.50913073	97.01248554	95.55424644	94.13312006	92.74786651
160608A00030	6/8/2016	2.36	6/8/2026	6/8/2016	111.78119	108.0363517	104.4445496	100.9986749	97.69198516	94.51808536	91.47090842	88.54469654	85.73398381
180628A00078	6/28/2018	2.73	6/28/2023	6/28/2018	101.73111	101.2519937	100.7790466	100.3121328	99.85112414	99.39589599	98.94632759	98.50230169	98.06370445
181128A00011	11/28/2018	3.27	11/28/2023	11/28/2018	105.25414	103.9190535	102.6079999	101.3203768	100.0556012	98.8131092	97.59235517	96.39281097	95.21396525
151228A00013	12/28/2015	2.27	12/29/2025	12/28/2015	105.64973	103.8428296	102.0866549	100.3793605	98.71918676	97.10445061	95.53354208	94.00492042	92.5171106
160908A00036	9/8/2016	2.3	9/8/2031	9/8/2016	115.23544	110.0367446	105.1708585	100.6127883	96.3396282	92.33037104	88.56573729	85.02802054	81.70094778
201207A00009	12/7/2020	1.01	12/7/2027	12/7/2020	109.6735	104.5320216	99.67185448	95.07605916	90.72880026	86.61527129	82.72162274	79.0348955	75.54295924
190605A00027	6/5/2019	2.64	6/5/2029	6/5/2019	122.30697	115.3909568	108.9372065	102.9119756	97.2841597	92.02507593	87.10826235	82.50929509	78.20562139
210611A00011	6/11/2021	1.02	6/11/2026	6/11/2021	107.00872	103.3033198	99.75123311	96.34528132	93.07866462	89.94493542	86.93797822	84.05199077	81.28146642
160810A00025	8/10/2016	2.17	8/10/2026	8/10/2016	111.57577	107.6861613	103.9617786	100.3946374	96.97718159	93.70226141	90.56310906	87.55331615	84.6668125
200109A00006	1/9/2020	1.95	1/9/2030	1/9/2020	111.6854	107.5340429	103.60589	99.88669509	96.36323143	93.0232149	89.85523019	86.84866325	83.99363957
150722A00033	7/22/2015	2.47	7/22/2025	7/22/2015	105.02552	103.4491806	101.9129905	100.4155922	98.95568937	97.53203944	96.14345059	94.78877951	93.46692896
160810A00030	8/10/2016	2.24	8/11/2031	8/10/2016	114.79685	109.6640068	104.8571227	100.3519006	96.12606068	92.15915668	88.43241201	84.92857143	81.63176682
160908A00017	9/8/2016	1.87	9/8/2023	9/8/2016	102.81984	101.7039201	100.6125377	99.54488854	98.50020188	97.47774011	96.47679695	95.49669584	94.53678834
171109A00016	11/9/2017	2.94	11/9/2032	11/9/2017	133.87225	123.4522164	114.0032736	105.4270984	97.63591909	90.55132607	84.10322318	78.22890198	72.87222356
180215A00034	2/15/2018	2.9	2/15/2023	2/15/2018	102.05977	101.5011257	100.9486473	100.4022314	99.86177836	99.32719061	98.79837277	98.2752315	97.75767547
180517A00024	5/17/2018	3.46	5/17/2033	5/17/2018	126.09178	119.3695293	113.147785	107.3832272	102.0366722	97.07264889	92.45901912	88.16663943	84.16905951

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150803A00042	8/3/2015	3.01	8/2/2030	8/3/2015	116.73215	112.0747235	107.6840819	103.5421621	99.63227207	95.93897564	92.4479892	89.14608755	86.02101806
160428A00028	4/28/2016	2	4/28/2026	4/28/2016	105.70602	103.7244077	101.8025287	99.93808589	98.12888851	96.37284617	94.66796345	93.01233488	91.4041402
170619A00101	6/16/2017	2.74	6/16/2027	6/16/2017	115.84708	111.2920888	106.9596903	102.8376317	98.91440339	95.17918836	91.62181741	88.23272669	85.00291859
170406A00032	4/6/2017	3.01	4/6/2027	4/6/2017	117.21588	112.5813882	108.1691708	103.9671995	99.96416847	96.14944743	92.51303678	89.04552652	85.73805785
200414A00024	4/14/2020	1.37	4/14/2027	4/14/2020	110.32589	105.7314451	101.362019	97.20527422	93.24962335	89.484178	85.89870257	82.48357102	79.22972698
200623A00028	6/23/2020	1.23	6/23/2038	6/23/2020	115.74104	106.8590865	98.90560742	91.76955149	85.35432015	79.57576934	74.36049835	69.64438604	65.37133705
160608A00020	6/8/2016	2.36	6/8/2026	6/8/2016	111.78119	108.0363512	104.4445493	100.9986749	97.69198528	94.51808566	91.4709089	88.54469719	85.73398461
161014A00029	10/14/2016	2.51	10/15/2031	10/14/2016	117.24305	111.8874257	106.8782679	102.1893046	97.79647834	93.6777444	89.81288732	86.18335612	82.77211519
200330A00079	3/30/2020	1.51	3/30/2035	3/30/2020	114.61335	107.5386346	101.0681328	95.14225801	89.70786648	84.71751406	80.12880027	75.90379228	72.00851874
180420A00011	4/20/2018	2.74	4/20/2023	4/20/2018	101.43985	101.0499945	100.664246	100.2825373	99.904798	99.53095961	99.16095516	98.79471936	98.43218843
180605A00031	6/5/2018	3.37	6/5/2030	6/5/2018	118.01252	113.3984209	109.0438204	104.9314463	101.0453159	97.37063017	93.89367786	90.60174775	87.48304885
181128A00004	11/28/2018	3.08	11/28/2023	11/28/2018	105.16149	103.8251633	102.5129316	101.2241874	99.95834551	98.71483992	97.49312298	96.29266464	95.11295179
190104A00038	1/4/2019	3.25	1/4/2029	1/4/2019	124.28789	117.8510584	111.8167632	106.157244	100.8468109	95.86167531	91.17979978	86.7807599	82.6456181
200309A00083	3/9/2020	0.82	3/9/2023	3/9/2020	100.98433	100.3683998	99.76000762	99.15901972	98.5653013	97.97872085	97.39915001	96.8264635	96.26053899
130614A00018	6/14/2013	2.83	6/14/2023	6/14/2013	101.72038	101.2451836	100.7760199	100.3127616	99.85528515	99.40347082	98.95720224	98.51636642	98.08085362
150803A00037	8/3/2015	3.41	8/2/2030	8/3/2015	128.63795	121.0291145	113.9799423	107.4449541	101.3826377	95.75508352	90.52765325	85.66867932	81.14919432
180809A00034	8/9/2018	3.08	8/9/2023	8/9/2018	103.85744	102.8111624	101.7862216	100.7819654	99.79777022	98.83303711	97.88719088	96.95967886	96.04996977
201203A00007	12/3/2020	0.58	12/1/2023	12/3/2020	101.68196	100.3716951	99.08483753	97.82080829	96.57905052	95.35902507	94.16020973	92.98209861	91.82420151
170526A00017	5/26/2017	2.16	5/28/2024	5/26/2017	102.59949	101.6915878	100.800613	99.92608545	99.06754182	98.22453681	97.39664204	96.58344526	95.78454959
190905A00019	9/5/2019	2.08	9/5/2029	9/5/2019	119.06288	112.0773658	105.5746292	99.51826884	93.87482464	88.61352741	83.70606825	79.12638911	74.85049219
181218A00086	12/18/2018	3.06	10/18/2023	12/18/2018	104.47135	103.2611774	102.0799184	100.9265381	99.80005019	98.6995145	97.62403441	96.5727543	95.54485729
190403A00013	4/3/2019	3.05	4/3/2029	4/3/2019	123.77365	117.1433471	110.9412565	105.1368921	99.70211354	94.61093274	89.83933734	85.36512978	81.1677802
151005A00084	10/5/2015	2.25	10/5/2022	10/5/2015	100.6826	100.4936866	100.305489	100.1180049	99.93123007	99.74516058	99.55979238	99.37512149	99.19114395
220407A00017	4/7/2022	3.16	4/6/2029	4/7/2022	123.5067	117.1220071	111.1438839	105.5435989	100.2946232	95.37244795	90.754419	86.41958607	82.34856521
160907A00041	9/7/2016	1.83	9/7/2023	9/7/2016	102.78516	101.6651338	100.5697321	99.49814351	98.4495959	97.42335008	96.41869824	95.43496229	94.47149232
180809A00032	8/9/2018	3.08	8/9/2023	8/9/2018	103.85744	102.8111625	101.7862216	100.7819654	99.79777021	98.83303708	97.88719084	96.9596788	96.0499697
151223A00078	12/23/2015	2.28	12/23/2025	12/23/2015	105.66636	103.8596083	102.1035504	100.3963511	98.73625207	97.12157194	95.5507021	94.02210311	92.53430115
200413A00013	4/13/2020	1.19	4/12/2030	4/13/2020	108.22722	104.0871794	100.1757341	96.47792191	92.97988331	89.66876939	86.53266095	83.56049484	80.74199644
150213A00014	2/13/2015	2.41	2/13/2025	2/13/2015	104.38801	103.0340466	101.7112588	100.4186675	99.15533216	97.92034913	96.71285025	95.53200104	94.3769991
151006A00050	10/6/2015	2.21	10/6/2022	10/6/2015	100.42459	100.3080277	100.191844	100.0760418	99.96061891	99.84557351	99.7309036	99.61660724	99.50268249
200709A00018	7/9/2020	0.59	7/7/2023	7/9/2020	101.19157	100.2487964	99.32366553	98.41568318	97.52437515	96.64928462	95.78997136	94.94601092	94.11699401
201228A00013	12/28/2020	0.84	12/30/2030	12/28/2020	107.28497	102.8352237	98.64972863	94.70998095	90.99892726	87.50083804	84.20119553	81.08659176	78.1446359
160511A00015	5/11/2016	2.42	5/11/2026	5/11/2016	111.76024	108.0836861	104.5548639	101.166951	97.91348204	94.78832756	91.78567462	88.90000834	86.12609475

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
161207A00014	12/7/2016	2.75	12/8/2031	12/7/2016	118.8414	113.3167765	108.1552261	103.3288113	98.81198071	94.58134996	90.61550185	86.89480685	83.40126082
200512A00017	5/12/2020	0.85	5/12/2025	5/12/2020	104.35416	101.723836	99.17602297	96.70761576	94.31564719	91.99728127	89.74980648	87.57062935	85.45726845
150722A00035	7/22/2015	2.92	7/22/2025	7/22/2015	110.27655	107.4483419	104.7129425	102.0667484	99.50631816	97.0283636	94.62974257	92.30745135	90.05861773
150814A00029	8/14/2015	2.39	8/14/2025	8/14/2015	105.04112	103.4219996	101.8449212	100.3084443	98.81119272	97.35184767	95.92914493	94.54187222	93.18886662
160413A00016	4/13/2016	2.55	4/14/2031	4/13/2016	115.80877	110.8158029	106.1295877	101.7279593	97.59053567	93.69856478	90.03478235	86.58328342	83.32940551
200306A00048	3/6/2020	1.04	3/6/2035	3/6/2020	112.30252	105.3426535	98.97880399	93.15206147	87.80990434	82.9054542	78.39682532	74.2465536	70.42109466
200306A00050	3/6/2020	0.87	3/6/2030	3/6/2020	107.40959	103.3322846	99.47847701	95.83364018	92.38431002	89.11799781	86.02311273	83.08889106	80.30533138
190205A00019	2/5/2019	2.94	2/5/2024	2/5/2019	105.49962	103.9811226	102.4928618	101.0340044	99.60374832	98.20132038	96.8259747	95.47699163	94.15367659
210412A00007	4/12/2021	0.66	4/12/2024	4/12/2021	102.31852	100.656975	99.03104831	97.43965157	95.88174394	94.35632672	92.86244122	91.39916667	89.96561833
190708A00025	7/8/2019	2.21	7/1/2024	7/8/2019	105.6103	103.6907149	101.8163754	99.98593136	98.19808663	96.4515922	94.74524398	93.07788092	91.44838315
191031A00025	10/31/2019	1.91	10/31/2024	10/31/2019	103.06296	101.8970994	100.755872	99.63854259	98.54440147	97.47276634	96.42298123	95.39441516	94.38646093
200206A00033	2/6/2020	2.15	2/6/2030	2/6/2020	120.448	113.030775	106.1519775	99.76906678	93.84309817	88.3383967	83.22226601	78.46472458	74.03826658
190104A00006	1/4/2019	2.83	1/5/2026	1/4/2019	106.58994	104.7279101	102.9189461	101.161103	99.4525201	97.79141863	96.17609738	94.60492883	93.07635537
190501A00015	5/1/2019	2.78	5/1/2029	5/1/2019	113.2392	109.4091456	105.768505	102.30608	99.0114189	95.87476451	92.88700302	90.03961721	87.32464324
170921A00057	9/21/2017	2.79	9/21/2027	9/21/2017	116.79741	111.9987685	107.444978	103.1219587	99.01651994	95.11630293	91.40972365	87.88591962	84.53470081
200311A00026	3/11/2020	1.34	3/11/2030	3/11/2020	114.19592	107.254425	100.8172447	94.84434252	89.29909009	84.14795488	79.36022229	74.90774406	70.76471043
151118A00037	11/18/2015	2.75	11/18/2025	11/18/2015	109.89698	107.0546121	104.3103006	101.6600292	99.09997058	96.62647722	94.23607203	91.92543921	89.69141572
150812A00052	8/14/2015	2.13	8/14/2025	8/14/2015	104.83158	103.2127534	101.6360306	100.0999703	98.60319188	97.14437261	95.7222445	94.33559174	92.98324814
190404A00015	4/4/2019	2.88	4/3/2026	4/4/2019	113.51464	109.7758198	106.1851048	102.7357349	99.42130256	96.2357312	93.17325603	90.22840583	87.39598606
210714A00015	7/14/2021	1.11	7/14/2026	7/14/2021	107.33984	103.6327695	100.0811308	96.67751881	93.41492438	90.28670903	87.2865831	84.40858553	81.64706486
161222A00013	12/22/2016	2.93	12/22/2026	12/22/2016	115.69724	111.5331695	107.5560444	103.7563396	100.1250691	96.65375152	93.33437939	90.15938988	87.12163776
170406A00029	4/6/2017	3.01	4/6/2027	4/6/2017	117.21588	112.5813904	108.1691723	103.9672002	99.96416854	96.14944685	92.5130356	89.04552478	85.73805558
190930A00026	9/30/2019	1.95	9/30/2024	9/30/2019	105.65203	103.5469927	101.4960429	99.49739208	97.54932625	95.650202	93.79844303	91.99253677	90.23103123
140821A00040	8/21/2014	3.41	8/21/2031	8/21/2014	134.15999	125.0624172	116.7187688	109.0606633	102.0263331	95.55995044	89.61102477	84.13386344	79.08709026
150603A00012	6/3/2015	2.77	6/3/2030	6/3/2015	115.96855	111.4210422	107.1298799	103.0779662	99.24948343	95.62978749	92.20531257	88.96348427	85.89264015
190930A00028	9/30/2019	1.95	9/30/2024	9/30/2019	105.65203	103.5469922	101.4960427	99.49739214	97.54932654	95.65020252	93.79844376	91.99253771	90.23103237
210107A00010	1/7/2021	0.54	1/5/2024	1/7/2021	101.75558	100.3533225	98.97771365	97.62806074	96.30369129	95.00395551	93.72822544	92.47589401	91.24637419
121016A00013	10/16/2012	1.64	10/14/2022	10/16/2012	100.37124	100.2491974	100.1275849	100.0063991	99.88563771	99.76529825	99.64537836	99.52587569	99.40678791
160421A00016	4/21/2016	2.26	4/21/2026	4/21/2016	111.00608	107.5266234	104.1838309	100.9714532	97.88356677	94.91455678	92.05909849	89.31214033	86.668888
160810A00028	8/10/2016	2.19	8/10/2026	8/10/2016	111.95195	107.9623486	104.1434834	100.4870663	96.98526147	93.63065523	90.41623097	87.33534547	84.381707
190402A00005	4/2/2019	2.77	4/2/2032	4/2/2019	123.86013	116.5992726	109.8993961	103.7109511	97.98916657	92.69355405	87.78746886	83.2377193	79.01421777
160608A00027	6/8/2016	2.36	6/8/2026	6/8/2016	111.78119	108.0363515	104.4445495	100.9986749	97.6919852	94.51808546	91.47090858	88.54469675	85.73398407
160908A00037	9/8/2016	1.4	9/8/2023	9/8/2016	101.68154	100.923298	100.1792499	99.44896867	98.73204717	98.02809465	97.33673598	96.6576109	95.9903732

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181003A00032	10/3/2018	3.23	10/3/2025	10/3/2018	106.78035	105.0465769	103.3595392	101.7175891	100.1191527	98.56272346	97.04685868	95.57017635	94.13135214
190829A00032	8/29/2019	1.69	8/28/2026	8/29/2019	105.58638	103.4335713	101.3501574	99.33331998	97.38037817	95.4887792	93.65609122	91.87999675	90.15828646
150805A00015	8/5/2015	2.29	8/5/2022	8/5/2015	100.07751	100.0580728	100.0386524	100.0192522	99.99987205	99.98051202	99.96117206	99.94185211	99.92255214
160616A00029	6/16/2016	1.58	6/16/2026	6/16/2016	105.10642	103.0507786	101.0592029	99.12916461	97.25825476	95.44417671	93.68474014	91.97785537	90.32152798
180517A00018	5/17/2018	3.46	5/17/2033	5/17/2018	126.09179	119.3695336	113.1477877	107.3832285	102.0366722	97.07264785	92.4590171	88.16663657	84.1690559
191004A00017	10/4/2019	2.02	10/4/2029	10/4/2019	118.80942	111.7676584	105.2171923	99.12062699	93.44362465	88.15463499	83.22465417	78.62700579	74.33714189
191101A00005	11/1/2019	1.83	11/2/2026	11/1/2019	111.83482	107.5881899	103.5326061	99.6583426	95.95622865	92.41761289	89.03433086	85.79867433	82.70336297
200610A00006	6/10/2020	1.11	6/10/2027	6/10/2020	109.36471	104.6648496	100.2017983	95.96233473	91.93404208	88.10525672	84.46501857	81.00302518	77.70958898
150203A00027	2/3/2015	2.26	2/4/2030	2/3/2015	113.12066	108.8694961	104.8491126	101.0446484	97.44231445	94.02931243	90.79375668	87.72460273	84.81158191
160906A00027	9/6/2016	2.03	9/8/2031	9/6/2016	114.59409	109.406875	104.5525491	100.0060562	95.74444154	91.74665677	87.99338786	84.46689975	81.15089585
190315A00029	3/15/2019	2.88	3/15/2034	3/15/2019	123.94611	116.8468877	110.3124258	104.2906813	98.73488469	93.60296867	88.85705951	84.46302678	80.39008445
220407A00014	4/7/2022	3.14	4/6/2029	4/7/2022	121.79095	115.8659111	110.3081625	105.0921564	100.1942774	95.59268958	91.2671919	87.19908638	83.37105759
180615A00021	6/15/2018	3.02	6/15/2023	6/15/2018	103.20087	102.3269503	101.4681991	100.6242195	99.79463032	98.97906343	98.17716315	97.38858579	96.61299913
190104A00035	1/4/2019	3.1	1/5/2026	1/4/2019	113.11762	109.6726699	106.3561224	103.1624684	100.0864642	97.12311918	94.26768227	91.51562893	88.86264915
170602A00019	6/2/2017	2.42	6/3/2024	6/2/2017	105.75899	103.9150433	102.1129989	100.3516551	98.62985271	96.94647296	95.30043585	93.69069853	92.11625378
190305A00015	3/5/2019	3.32	3/5/2029	3/5/2019	125.25836	118.6350177	112.4346553	106.6274792	101.1859658	96.08467342	91.30007403	86.81039887	82.59549759
210913A00015	9/13/2021	1.08	9/14/2026	9/13/2021	107.20526	103.5189383	99.99016719	96.61123925	93.37486698	90.27416136	87.3026076	84.45404252	81.72263339
150803A00036	8/3/2015	3.41	8/2/2030	8/3/2015	128.63795	121.0291146	113.9799423	107.4449542	101.3826377	95.75508352	90.52765324	85.6686793	81.14919429
160210A00049	2/10/2016	1.78	2/10/2026	2/10/2016	105.0105	103.1297827	101.3037619	99.53040124	97.80775173	96.13395113	94.50721969	92.92585579	91.38823195
140917A00030	9/17/2014	3.23	9/17/2029	9/17/2014	124.95994	118.4167227	112.305599	106.5947487	101.2548884	96.25905778	91.58242181	87.20209161	83.09696081
160711A00004	7/11/2016	1.51	7/13/2026	7/11/2016	105.07693	102.9789359	100.9474225	98.97972695	97.07331697	95.22577966	93.43481502	91.69822986	90.01393207
200608A00001	6/8/2020	1.34	6/7/2030	6/8/2020	113.7022	106.9815826	100.7507429	94.97037901	89.60457016	84.62046916	79.9880233	75.67972209	71.67036897
210423A00001	4/23/2021	1.72	4/23/2036	4/23/2021	118.27773	110.3430743	103.1396405	96.58991587	90.6253708	85.18534783	80.21609392	75.66991847	71.50445991
160427A00004	4/27/2016	2.09	4/27/2026	4/27/2016	105.62258	103.6466908	101.7302535	99.87098559	98.06671017	96.31535002	94.6149221	92.9635326	91.35937222
180309A00011	3/9/2018	3.19	3/10/2025	3/9/2018	110.27531	107.6263221	105.0565989	102.5632587	100.1435466	97.79482671	95.51457581	93.30037786	91.14991854
200110A00053	1/10/2020	1.99	1/10/2025	1/10/2020	106.68252	104.2439476	101.8749961	99.57327493	97.33648762	95.1624305	93.04898823	90.99412971	88.99590414
160908A00033	9/8/2016	2.17	9/8/2026	9/8/2016	111.28014	107.4891208	103.8592493	100.3826763	97.05197891	93.86013841	90.80051569	87.86682847	85.05312989
210319A00009	3/19/2021	1.1	3/19/2026	3/19/2021	106.83461	103.3377408	99.97835356	96.75023204	93.64747734	90.66449212	87.79596316	85.03684507	82.38234506
201207A00021	12/7/2020	1.85	12/7/2050	12/7/2020	130.44313	113.1728238	98.92228687	87.09639584	77.22592292	68.93956044	61.94240114	55.99933636	50.92221244
200806A00004	8/6/2020	0.3	3/6/2024	8/6/2020	100.9762	100.1271672	99.29364999	98.4752128	97.67143709	96.88192017	96.1062745	95.34412691	94.59511796
200227A00046	2/27/2020	1.52	3/1/2027	2/27/2020	105.60536	103.1972564	100.8742009	98.63246914	96.46852404	94.37900838	92.3607347	90.41067538	88.52595362
140318A00003	3/17/2014	3.08	3/18/2024	3/17/2014	106.3593	104.7166041	103.1080954	101.5327731	99.98967077	98.47785995	96.99644762	95.54457476	94.12141465
170829A00066	8/29/2017	2.11	8/29/2024	8/29/2017	106.14527	104.0661786	102.0393322	100.0630536	98.13573574	96.25583515	94.4218689	92.63241172	90.88609324

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190911A00016	9/11/2019	1.9	9/11/2029	9/11/2019	110.97255	107.0283051	103.2878839	99.73873758	96.36919071	93.16837258	90.12615602	87.23310144	84.48040537
180126A00011	1/26/2018	2.72	1/26/2028	1/26/2018	110.8152	107.7802161	104.8701882	102.0788508	99.40030147	96.82897599	94.35962606	91.98729941	89.70732104
200512A00014	5/12/2020	1.17	5/12/2027	5/12/2020	109.54891	104.9121292	100.5056744	96.31679672	92.33352297	88.5446056	84.93947439	81.50819183	78.24141172
210915A00023	9/15/2021	0.74	9/16/2024	9/15/2021	103.09524	101.025432	99.00845748	97.0425872	95.12616662	93.25760821	91.43538819	89.65804336	87.92416818
151204A00011	12/4/2015	2.28	12/4/2025	12/4/2015	105.66155	103.8562556	102.1015585	100.3956241	98.73670012	97.12311085	95.55325291	94.02559178	92.53865826
200709A00019	7/9/2020	0.77	7/9/2025	7/9/2020	104.53911	101.6804642	98.91672581	96.244215	93.65941623	91.15896977	88.73966385	86.39842721	84.13232216
150824A00033	8/24/2015	2.22	8/25/2025	8/24/2015	104.76707	103.1515182	101.5779364	100.0448937	98.5510147	97.09498155	95.67553105	94.29145189	92.94158216
210512A00009	5/12/2021	0.66	5/10/2024	5/12/2021	102.41097	100.6771571	98.98171737	97.3234939	95.70137659	94.11429876	92.56123495	91.04119896	89.55324188
161014A00019	10/14/2016	2.39	10/15/2031	10/14/2016	115.83806	110.5653851	105.6329912	101.0151265	96.68820822	92.63062221	88.82254476	85.24578122	81.88362036
190708A00030	7/8/2019	2.57	7/2/2029	7/8/2019	122.02185	115.0533674	108.555205	102.4926957	96.83391245	91.549438	86.6121548	81.99705393	77.68106054
190510A00049	5/10/2019	2.58	5/8/2026	5/10/2019	106.60193	104.6069179	102.671939	100.7946903	98.97297321	97.2046899	95.4878376	93.82050368	92.20086087
200424A00022	4/24/2020	1.39	4/24/2030	4/24/2020	113.88403	107.2446368	101.0826982	95.36031512	90.04283019	85.09852904	80.4983739	76.21576275	72.22631147
160608A00021	6/8/2016	1.91	6/8/2023	6/8/2016	102.23441	101.3697352	100.5198491	99.68436948	98.86293123	98.05518142	97.26077892	96.47939384	95.71070711
190605A00025	6/5/2019	2.64	6/5/2029	6/5/2019	122.30696	115.3909517	108.9372037	102.9119747	97.28416067	92.02507856	87.1082665	82.50930062	78.20562818
180125A00027	1/25/2018	2.69	1/24/2025	1/25/2018	104.95886	103.4971333	102.0703644	100.67743	99.31725655	97.98881294	96.69110876	95.42319219	94.18414822
210714A00010	7/14/2021	0.75	7/12/2024	7/14/2021	102.83379	100.9337691	99.07922317	97.26878074	95.5011194	93.77496554	92.08909213	90.44231673	88.8334995
190118A00006	1/18/2019	3.14	1/18/2034	1/18/2019	125.41287	118.3283624	111.8002537	105.7778867	100.2156833	95.0725953	90.31161952	85.89936845	81.80568912
160504A00022	5/4/2016	2	5/4/2023	5/4/2016	102.09824	101.325005	100.5635555	99.81362407	99.07495032	98.34728168	97.6303731	96.92398675	96.22789178
190813A00051	8/13/2019	2.19	8/13/2029	8/13/2019	119.6865	112.726136	106.2431252	100.2017383	94.56911141	89.31500368	84.41157499	79.83318288	75.55619796
191004A00026	10/4/2019	1.74	10/4/2024	10/4/2019	105.36881	103.2063571	101.1000093	99.04789966	97.04823795	95.09930818	93.19946492	91.34712976	89.5407879
210107A00009	1/7/2021	0.54	1/5/2024	1/7/2021	101.75558	100.3533225	98.97771361	97.62806067	96.30369118	95.00395536	93.72822526	92.47589379	91.24637394
170406A00036	4/6/2017	3.07	4/6/2032	4/6/2017	120.45646	114.6832927	109.300474	104.2771428	99.58514644	95.19878115	91.09456114	87.25101097	83.64847878
200406A00030	4/6/2020	1.61	4/5/2030	4/6/2020	116.78398	109.4142298	102.5904402	96.26865553	90.40870157	84.97384075	79.93046027	75.24778997	70.89764706
200406A00036	4/6/2020	1.09	4/4/2025	4/6/2020	104.95204	102.3259645	99.78044332	97.31247332	94.91918754	92.59784636	90.34583087	88.16063649	86.03986707
140428A00015	4/28/2014	2.35	4/29/2024	4/28/2014	102.8915	101.9794724	101.0844716	100.206016	99.34363886	98.49689145	97.66534217	96.84857569	96.04619221
151210A00011	12/10/2015	2.16	12/12/2022	12/10/2015	100.71788	100.5067272	100.2968161	100.0881318	99.8806623	99.67439617	99.46932193	99.26542829	99.0627041
160413A00033	4/13/2016	2.32	4/13/2026	4/13/2016	109.6928	106.5631423	103.5517939	100.653473	97.86316682	95.17611897	92.58781433	90.09396527	87.69049849
171207A00022	12/7/2017	2.45	12/7/2022	12/7/2017	101.26615	100.9023475	100.5411753	100.1826073	99.82661526	99.47317141	99.12224838	98.77381916	98.42785716
200206A00032	2/6/2020	2.15	2/6/2030	2/6/2020	120.448	113.0307803	106.1519798	99.76906645	93.8430954	88.33839174	83.22225907	78.46471586	74.03825627
210714A00014	7/14/2021	1.12	7/14/2026	7/14/2021	107.56881	103.7685325	100.1287906	96.64190851	93.30062092	90.09804757	87.02767048	84.08331296	81.25911987
161227A00073	12/27/2016	2.83	12/28/2026	12/27/2016	113.7966	110.0468924	106.4600473	103.0279004	99.74274517	96.59730459	93.58470447	90.69844905	87.93239799
190926A00002	9/30/2019	2.01	9/29/2034	9/30/2019	118.66096	111.5844952	105.0926069	99.12945617	93.64506543	88.59465562	83.93806529	79.63923849	75.66577291
200406A00033	4/6/2020	1.09	4/4/2025	4/6/2020	104.95204	102.3259645	99.78044332	97.31247333	94.91918754	92.59784637	90.34583088	88.1606365	86.03986708

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200110A00038	1/10/2020	2.32	1/10/2030	1/10/2020	121.53082	114.1237931	107.2494339	100.866041	94.93540314	89.42248832	84.29516308	79.52393837	75.08173878
200116A00012	1/16/2020	2.16	1/19/2027	1/16/2020	113.30558	108.8313898	104.5667489	100.5006685	96.62279493	92.92337025	89.39319439	86.02359044	82.80637204
171219A00067	12/19/2017	2.72	12/20/2027	12/19/2017	117.88073	112.8287965	108.045325	103.5143359	99.22089063	95.15101714	91.29164249	87.6305302	84.15622237
180913A00062	9/13/2018	3.05	9/13/2023	9/13/2018	104.16441	103.0300499	101.9208626	100.8360099	99.77469305	98.73614841	97.71964495	96.72448276	95.74999133
190322A00008	3/22/2019	2.64	3/20/2026	3/22/2019	106.55862	104.6088488	102.7167127	100.880031	99.09672389	97.36480536	95.68237821	94.04762946	92.458826
150615A00024	6/15/2015	2.26	6/16/2025	6/15/2015	104.75543	103.2238802	101.7306036	100.2743284	98.8538345	97.46795186	96.11555796	94.79557558	93.50697052
160209A00008	2/9/2016	2.45	2/10/2031	2/9/2016	115.03131	110.1646143	105.591882	101.2921997	97.24631865	93.43650663	89.84641752	86.46097325	83.26625639
190315A00019	3/15/2019	2.88	3/15/2034	3/15/2019	123.9461	116.8468761	110.3124188	104.2906784	98.73488554	93.602973	88.85706704	84.46303725	80.39009762
191011A00027	10/11/2019	1.84	10/11/2029	10/11/2019	110.85957	106.8743702	103.0971898	99.51510601	96.11609952	92.88898664	89.82335524	86.90950622	84.1383997
200616A00005	6/16/2020	0.74	6/17/2030	6/16/2020	107.07837	102.8831608	98.92452259	95.18666869	91.65499712	88.31598972	85.15712411	82.16679332	79.33423253
210611A00009	6/11/2021	0.61	6/11/2024	6/11/2021	102.44526	100.6293608	98.85520821	97.12159106	95.42734268	93.77133752	92.15248941	90.56974998	89.02210706
140717A00027	7/17/2014	3.14	7/17/2026	7/17/2014	114.0579	110.4042835	106.8999603	103.5379019	100.3114549	97.21431519	94.24050807	91.38436892	88.64052539
200512A00011	5/12/2020	1.48	5/10/2030	5/12/2020	115.96442	108.5585459	101.7074017	95.36587945	89.49278703	84.05048687	79.00457073	74.32356603	69.97867035
150804A00022	8/4/2015	2.37	8/4/2022	8/4/2015	100.06614	100.0494896	100.032857	100.016241	99.99964161	99.9830588	99.96649255	99.94994282	99.93340958
200428A00009	4/28/2020	1.08	4/29/2030	4/28/2020	107.7669	103.6441775	99.74913846	96.0668836	92.58360441	89.28649958	86.16369443	83.20416743	80.39768287
160303A00035	3/3/2016	2.14	3/3/2026	3/3/2016	105.82839	103.8108717	101.853755	99.95473395	98.1116094	96.32228215	94.5847475	92.89709026	91.25748016
160810A00027	8/10/2016	2.13	8/10/2026	8/10/2016	110.91715	107.1997179	103.6380445	100.2246518	96.9524651	93.81478862	90.80528278	87.91794318	85.14708094
180206A00045	2/6/2018	2.71	2/6/2023	2/6/2018	101.87159	101.3407363	100.8154757	100.295717	99.78137391	99.27236172	98.76859761	98.27000047	97.77649082
181105A00015	11/5/2018	3.57	11/5/2025	11/5/2018	114.21485	110.85328	107.6121611	104.4864321	101.4712777	98.56211602	95.75458515	93.04453128	90.42799719
151118A00025	11/18/2015	2.4	11/18/2022	11/18/2015	101.08883	100.7793305	100.4717548	100.1660814	99.86229252	99.56037076	99.26029881	98.96205963	98.66563636
160119A00072	1/19/2016	2.77	1/21/2031	1/19/2016	117.39761	112.1454075	107.221473	102.6016971	98.26393767	94.18784777	90.35471768	86.7473317	83.34983836
160908A00034	9/8/2016	2.17	9/8/2026	9/8/2016	111.28014	107.4891207	103.8592493	100.3826763	97.05197895	93.86013849	90.80051581	87.86682863	85.05313008
210319A00008	3/19/2021	0.63	3/19/2024	3/19/2021	102.17135	100.5739734	99.00989767	97.4781433	95.97776857	94.50786835	93.06757226	91.65604302	90.27247486
200212A00013	2/12/2020	1.98	2/12/2027	2/12/2020	112.6891	108.1733933	103.871908	99.77326667	95.86675741	92.14229293	88.59037057	85.20203518	81.96884457
140908A00080	9/8/2014	2.51	3/8/2024	9/8/2014	104.73556	103.3100656	101.9134391	100.5448466	99.20348738	97.88859125	96.59941714	95.33525157	94.09540742
170524A00027	5/24/2017	2.32	5/24/2027	5/24/2017	108.36157	105.7504635	103.2358368	100.8132938	98.47866933	96.22801756	94.05759913	91.96386882	89.94346414
160404A00019	4/4/2016	2.48	4/4/2031	4/4/2016	115.46151	110.4839755	105.8122169	101.4241404	97.29943129	93.41939938	89.76683713	86.32589156	83.081948
160608A00022	6/8/2016	1.91	6/8/2023	6/8/2016	102.23441	101.3697352	100.5198491	99.68436949	98.86293128	98.0551815	97.26077903	96.47939398	95.71070728
160908A00022	9/8/2016	2.21	9/8/2026	9/8/2016	111.96427	107.9955738	104.1979507	100.5629995	97.08278542	93.74980747	90.55697236	87.49756974	84.56524921
150427A00014	4/27/2015	2.98	4/27/2035	4/27/2015	125.55338	117.7505398	110.6178955	104.088987	98.10458254	92.61183633	87.56354973	82.91752318	78.63598685
150803A00039	8/3/2015	3.01	8/2/2030	8/3/2015	116.73214	112.074719	107.6840791	103.5421608	99.63227212	95.938977	92.44799176	89.14609123	86.02102279
190129A00073	1/29/2019	3.11	1/29/2029	1/29/2019	113.77539	110.1103256	106.6189369	103.2913442	100.1183072	97.09117779	94.20185826	91.4427624	88.80677974
211007A00005	10/7/2021	0.86	10/7/2024	10/7/2021	103.44695	101.3184535	99.24534522	97.22577071	95.25795697	93.34020492	91.47088566	89.64843685	87.87135942

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160719A00026	7/19/2016	1.87	7/20/2026	7/19/2016	105.56233	103.4583362	101.4209082	99.44739022	97.53524943	95.68207238	93.88555834	92.14351331	90.45384426
210212A00004	2/12/2021	1.1	2/12/2036	2/12/2021	113.32536	105.8131865	98.9858233	92.77143034	87.10640992	81.93439732	77.20538025	72.87493161	68.9035402
120808A00006	8/8/2012	2.06	8/9/2027	8/8/2012	108.11306	105.3758183	102.7440183	100.2126734	97.77707361	95.43276473	93.17553281	91.00138952	88.90655852
160608A00028	6/8/2016	2.36	6/8/2026	6/8/2016	111.78119	108.0363516	104.4445496	100.9986749	97.69198517	94.51808538	91.47090844	88.54469657	85.73398385
180403A00014	4/3/2018	3.11	4/3/2025	4/3/2018	110.33579	107.6201536	104.9873681	102.4343571	99.95818044	97.55602841	95.22521464	92.96316984	90.76743567
190502A00016	5/2/2019	2.87	5/1/2026	5/2/2019	113.76933	109.952307	106.2890486	102.7724201	99.39566513	96.15238241	93.0365047	90.04227893	87.16424782
210915A00026	9/15/2021	1.1	9/15/2026	9/15/2021	107.8377	103.8795059	100.0943697	96.47371566	93.00944652	89.69391123	86.51987759	83.48050681	80.56932968
180913A00012	9/13/2018	3.31	9/13/2033	9/13/2018	125.85591	118.9461574	112.5649848	106.6654508	101.2052124	96.1460369	91.4533713	87.09596077	83.04550855
160413A00014	4/13/2016	2.55	4/14/2031	4/13/2016	115.80877	110.8158033	106.1295879	101.7279593	97.5905356	93.69856459	90.03478205	86.58328302	83.32940502
170301A00031	3/1/2017	2.11	3/1/2024	3/1/2017	102.41847	101.5948109	100.7860046	99.9916376	99.21131049	98.44463913	97.69125375	96.95079835	96.22293
170317A00039	3/17/2017	2.73	3/18/2024	3/17/2017	105.56151	103.9373493	102.3469335	100.7892713	99.26341053	97.76843587	96.30346713	94.86765749	93.46019193
170406A00033	4/6/2017	3.01	4/6/2027	4/6/2017	117.21588	112.5813865	108.1691698	103.9671989	99.96416843	96.14944784	92.51303763	89.04552777	85.73805948
190905A00023	9/5/2019	2.08	9/5/2029	9/5/2019	119.06288	112.0773653	105.574629	99.51826887	93.8748249	88.61352788	83.70606892	79.12638995	74.85049319
191203A00009	12/3/2019	2.21	12/3/2029	12/3/2019	120.50372	113.2374891	106.4875663	100.2140326	94.38026499	88.95264917	83.9003175	79.19491121	74.81036419
170112A00015	1/12/2017	2.32	1/12/2027	1/12/2017	107.73362	105.3154183	102.9814486	100.728065	98.5518042	96.44937766	94.41766121	92.45368578	90.55462866
200326A00032	3/26/2020	1.49	3/26/2030	3/26/2020	109.3942	105.2526483	101.3376518	97.63451095	94.12959839	90.81027255	87.6647994	84.68228098	81.85259
160212A00006	2/12/2016	1.57	2/13/2023	2/12/2016	100.76768	100.4680984	100.1709782	99.87628905	99.58399793	99.29407261	99.00648141	98.72119326	98.43817766
161005A00016	10/5/2016	2.32	10/6/2031	10/5/2016	115.471	110.2154599	105.2990691	100.6961627	96.38323884	92.33875731	88.54296196	84.97771988	81.62637639
200306A00057	3/6/2020	0.92	3/8/2027	3/6/2020	108.18826	103.9634461	99.93889921	96.10391462	92.44842341	88.96294972	85.63857232	82.46688891	79.43998291
190205A00017	2/5/2019	3.36	2/5/2029	2/5/2019	125.25893	118.7045111	112.5646192	106.8103321	101.4149102	96.35361708	91.60355897	87.14353771	82.95391646
190925A00009	9/25/2019	2	9/25/2026	9/25/2019	111.0877	107.1588195	103.4000814	99.80307433	96.35985563	93.06292108	89.90517774	86.87991882	83.98080031
200512A00010	5/12/2020	1.48	5/10/2030	5/12/2020	115.96442	108.5585444	101.7074015	95.36588043	89.49278906	84.05048985	79.00457455	74.32357061	69.97867561
210915A00024	9/15/2021	1.1	9/15/2026	9/15/2021	107.8377	103.8795057	100.0943697	96.47371577	93.00944677	89.69391161	86.51987809	83.48050742	80.56933039
140219A00005	2/19/2014	3.13	2/20/2029	2/19/2014	114.57029	110.8223946	107.2544292	103.8560368	100.6175379	97.5298802	94.58459392	91.77374994	89.08992182
190315A00023	3/15/2019	2.88	3/15/2034	3/15/2019	123.94608	116.8468678	110.3124141	104.290677	98.73488694	93.60297688	88.8570731	84.46304522	80.39010727
200520A00009	5/20/2020	1.63	5/20/2038	5/20/2020	124.88489	111.595334	100.0556142	90.01535928	81.26189745	73.6143591	66.91873053	61.04370238	55.87718161
210714A00017	7/14/2021	0.73	7/12/2024	7/14/2021	102.59047	100.8284561	99.10795162	97.42770839	95.7865238	94.1832397	92.61674035	91.08595063	89.58983418
200206A00031	2/6/2020	2.15	2/6/2030	2/6/2020	120.448	113.030781	106.1519801	99.76906641	93.84309507	88.33839113	83.22225821	78.46471478	74.03825498
170303A00004	3/3/2017	2.8	3/4/2024	3/3/2017	105.56615	103.9670826	102.4007472	100.8662075	99.36255849	97.88892919	96.44448127	95.02840736	93.63992963
200501A00002	5/1/2020	1.3	5/1/2035	5/1/2020	113.24005	106.1628246	99.69705255	93.7817664	88.36266318	83.3913246	78.82453311	74.62367212	70.75419938
210420A00035	4/20/2021	1.92	4/20/2034	4/20/2021	119.25609	111.1115502	103.700682	96.94825914	90.78742976	85.1587229	80.00918089	75.29159909	70.96385911
180914A00049	9/14/2018	3.37	9/14/2033	9/14/2018	126.25784	119.3258585	112.9241552	107.0056406	101.5278351	96.45238271	91.74461921	87.37318912	83.30970455
200814A00003	8/14/2020	0.96	8/14/2035	8/14/2020	111.98396	104.8239776	98.29519238	92.33346911	86.88181271	81.88951543	77.31141354	73.10723701	69.24103992

	Parallel-Shift Sensitivity Analysis												
7/29/2022					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	110.7322	106.4176441	102.3010943	98.37240062	94.6219837	91.04080211	87.62031924	84.35247253	81.22964474
170406A00027	4/6/2017	2.61	4/8/2024	4/6/2017	105.56106	103.8812974	102.2372817	100.6279337	99.05221543	97.50913027	95.99772138	94.51706948	93.066291
210809A00014	8/9/2021	1.06	8/7/2026	8/9/2021	107.46986	103.614177	99.9237442	96.39054668	93.00700011	89.76592846	86.66053963	83.68440275	80.83142688
200429A00030	4/29/2020	1.41	4/29/2030	4/29/2020	114.8648	107.7861948	101.2292509	95.15195353	89.51591562	84.28604336	79.43023585	74.91911364	70.72577328
150601A00396	6/1/2015	3.61	1/3/2029	6/1/2015	114.65407	111.1239882	107.7570331	104.5440944	101.476639	98.54667299	95.74670423	93.06970696	90.50908976
150601A00739	6/1/2015	2.35	5/6/2025	6/1/2015	104.35033	102.9169891	101.5180602	100.152427	98.81901836	97.51680679	96.24480592	95.00206872	93.78768551
150601A01051	6/1/2015	4.91	2/7/2025	6/1/2015	114.02091	111.4657155	108.9844627	106.5745499	104.2334822	101.9588684	99.74841638	97.5992791	95.51129437
150601A00477	6/1/2015	3.21	6/1/2029	6/1/2015	116.75731	112.4565178	108.3764895	104.5038678	100.8262071	97.33190179	94.01012403	90.85076609	87.84438785
160928A00033	9/28/2016	2.46	9/29/2036	9/28/2016	122.53379	114.3369714	106.9162452	100.1864685	94.07274768	88.50911501	83.43738847	78.80618587	74.57007083
150601A00919	6/1/2015	7.41	6/7/2030	6/1/2015	137.82909	132.3793112	127.2363894	122.3799226	117.7910305	113.4522281	109.3473132	105.4612632	101.7801411
220610A00068	6/10/2022	3.09	6/10/2025	6/10/2022	105.94216	104.4158588	102.9274944	101.4758081	100.059594	98.67769537	97.32900255	96.01245053	94.72701676
150601A00871	6/1/2015	6.74	7/31/2028	6/1/2015	125.83384	122.0175365	118.3705341	114.8837911	111.5488181	108.3576389	105.3027559	102.3771185	99.57409309
200225A00049	2/25/2020	1.79	2/24/2040	2/25/2020	121.42119	111.5857487	102.8538797	95.08317645	88.15126078	81.95278409	76.3969022	71.40514373	66.9096081
150601A00950	6/1/2015	6.76	12/18/2031	6/1/2015	141.44815	134.852394	128.6889491	122.9246706	117.5292377	112.4748901	107.7361941	103.2898299	99.1144015
150601A00966	6/1/2015	4.84	2/3/2023	6/1/2015	101.59655	101.322653	101.0508258	100.7810456	100.5132866	100.2475235	99.9837316	99.7218864	99.46196398
080423A00066	4/23/2008	4.41	4/24/2023	4/23/2008	103.93173	103.1673466	102.4142341	101.6721395	100.9408219	100.2200477	99.50958969	98.80922722	98.11874596
150601A00864	6/1/2015	7.37	3/31/2028	6/1/2015	126.48866	122.8491148	119.3644402	116.026661	112.8282695	109.7621985	106.8217915	104.0007765	101.2932413
970806A00018	8/1/1997	6.7	10/23/2026	8/1/1997	116.46537	114.0996479	111.8110844	109.5964963	107.4528601	105.3772987	103.3670735	101.4195769	99.53232464
200401A00011	4/1/2020	0.68	4/3/2023	4/1/2020	100.60113	100.2205897	99.843975	99.47121621	99.10224818	98.73700727	98.37543133	98.01745966	97.66303295
150601A00953	6/1/2015	6.6	6/10/2032	6/1/2015	143.72924	136.5571187	129.8814169	123.6621863	117.863034	112.4507798	107.3951495	102.6684994	98.24556894
150601A00964	6/1/2015	5.25	1/6/2033	6/1/2015	133.14868	126.7739114	120.842424	115.3178276	110.1670599	105.360054	100.8694442	96.67030237	92.73990182
110414A00007	4/14/2011	3.95	1/21/2025	4/14/2011	108.00318	106.2232198	104.4867103	102.7922412	101.1384581	99.5240614	97.9478031	96.40848467	94.90495455
191231A00027	12/31/2019	1.9	4/28/2023	12/31/2019	100.66296	100.4436756	100.2257632	100.0092072	99.79399365	99.58010866	99.36753858	99.15626993	98.94628944
200210A00007	2/10/2020	1.78	2/10/2025	2/10/2023	105.77731	103.6039359	101.4919928	99.43933612	97.44391016	95.50374485	93.61695142	91.7817184	89.99630798
191114A00013	11/14/2019	1.9	11/14/2022	11/14/2019	100.53186	100.3643774	100.1976844	100.0317785	99.8666536	99.70230378	99.53872307	99.3759056	99.21384556
150601A00906	6/1/2015	6.2	11/1/2029	6/1/2015	129.41643	124.667641	120.1688903	115.9045528	111.8601055	108.0220389	104.3777794	100.9156183	97.62464568
150601A00261	6/1/2015	3.19	2/11/2033	6/1/2015	132.24885	122.967597	114.5136675	106.8050814	99.76856636	93.33858477	87.45647072	82.06966779	77.13105559
150601A00459	6/1/2015	2.42	5/16/2024	6/1/2015	102.86473	101.9372175	101.0271354	100.133986	99.2572916	98.3965931	97.5514487	96.72143324	95.90613735
190102A00015	1/2/2019	2.97	1/3/2034	1/2/2019	122.96852	116.3530233	110.2450083	104.5989392	99.3737965	94.53259662	90.04196302	85.8717462	81.99468612
160928A00042	9/28/2016	3.05	9/29/2036	9/28/2021	126.98941	118.5577547	110.9202771	103.9901432	97.69094116	91.95534435	86.72395351	81.94429435	77.56994944
150601A00736	6/1/2015	2.87	5/1/2030	6/1/2015	114.73176	110.472702	106.445704	102.6356944	99.02869961	95.61176039	92.37285124	89.3008063	86.38525188
200130A00027	1/31/2020	1.79	1/31/2025	1/31/2020	103.23485	101.949692	100.6934309	99.46517261	98.26405745	97.08925961	95.93998528	94.81547117	93.71498311
150601A01013	6/1/2015	5.21	9/29/2023	6/1/2015	106.87103	105.6761585	104.5087008	103.3677116	102.2522921	101.1615841	100.0947673	99.05105771	98.02970516

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00897	6/1/2015	6.15	5/28/2029	6/1/2015	127.05786	122.7099102	118.5772203	114.647074	110.907608	107.3477455	103.9571386	100.7261152	97.6456304
020918A00047	9/18/2002	4.72	9/19/2022	9/18/2002	100.90513	100.7596142	100.6145315	100.4698802	100.3256583	100.181864	100.0384953	99.89555032	99.75302707
150601A00024	6/1/2015	5.58	11/8/2022	6/1/2015	101.90951	101.6243396	101.3407868	101.0588368	100.778476	100.4996909	100.2224681	99.9467943	99.67265653
150601A01048	6/1/2015	5.27	1/3/2025	6/1/2015	114.32774	111.8603909	109.4620882	107.1304875	104.8633359	102.6584709	100.5138159	98.42737639	96.39723625
160928A00032	9/28/2016	2.52	9/29/2036	9/28/2016	122.9869	114.7662036	107.3234349	100.5732829	94.44069956	88.85957901	83.77161542	79.12531555	74.87514323
170130A00043	1/30/2017	2.64	1/29/2027	1/30/2017	108.04973	105.6561879	103.3485362	101.1229713	98.97588413	96.90385025	94.90361944	92.9721056	91.10637733
190823A00009	8/23/2019	1.8	8/23/2029	8/23/2019	110.2295	106.4332754	102.8295403	99.40661992	96.15363605	93.06045135	90.1176136	87.31630466	84.64829351
191115A00029	11/15/2019	2.07	11/15/2029	11/15/2019	111.03947	107.1085384	103.3822173	99.84778121	96.49339918	93.30806456	90.28153179	87.40425852	84.66735231
050823A00088	8/23/2005	4.78	8/25/2025	8/23/2005	115.59089	112.7074129	109.9203468	107.2258532	104.6202727	102.1001145	99.66204714	97.30289047	95.01960756
150601A00270	6/1/2015	3.12	3/21/2031	6/1/2015	130.03987	121.5559784	113.7476017	106.555791	99.92709746	93.81302797	88.16955908	82.9567006	78.13810434
110824A00006	8/24/2011	2.69	8/24/2026	8/24/2011	107.85025	105.6113141	103.4507453	101.3651507	99.35131014	97.40616538	95.52681086	93.71048494	91.95456178
070518A00023	5/18/2007	5.46	5/18/2027	5/18/2007	118.35384	115.1994368	112.167082	109.2510138	106.445787	103.7462508	101.1475305	98.64501121	96.23432213
160930A00032	9/30/2016	2.15	9/30/2031	9/30/2016	113.99872	109.0079595	104.3323184	99.9483256	95.83445968	91.9709732	88.33973366	84.9240796	81.70869053
150601A01041	6/1/2015	5.99	10/2/2036	6/1/2015	156.14911	145.3361292	135.5474561	126.6716183	118.6103966	111.2771398	104.5953084	98.4972114	92.92291024
190520A00020	5/20/2019	2.39	5/20/2026	5/20/2019	106.53324	104.5226873	102.5734093	100.6830236	98.84926125	97.06995811	95.34304915	93.66656319	92.03861791
130207A00012	2/7/2013	2.9	2/7/2033	2/7/2013	121.10087	114.7217678	108.8123466	103.3320541	98.24421235	93.51562028	89.11619731	85.01866633	81.19827077
050812A00050	8/12/2005	4.97	8/12/2025	8/12/2005	109.27853	107.589782	105.9492907	104.3552911	102.8060952	101.3000886	99.83572722	98.41153334	97.02609248
120410A00005	4/10/2012	2.35	4/12/2027	4/10/2012	109.44463	106.4979988	103.6647592	100.9395057	98.3171316	95.79281242	93.36198848	91.02034818	88.76381269
150601A00690	6/1/2015	2.34	2/28/2025	6/1/2015	104.01688	102.6871239	101.3877938	100.1179326	98.87662518	97.66299249	96.47618988	95.31540542	94.17985835
170130A00046	1/30/2017	2.52	1/30/2026	1/30/2017	105.94481	104.1059802	102.3218256	100.5902815	98.90937942	97.27723864	95.692062	94.15213134	92.6558036
150601A00448	6/1/2015	2.61	4/26/2024	6/1/2015	102.95699	102.0532513	101.1663115	100.2956904	99.44092925	98.60158666	97.77723818	96.96747528	96.17190466
160928A00041	9/28/2016	3.26	9/29/2036	9/30/2019	128.57532	120.0600674	112.345441	105.3439936	98.97877273	93.18196836	87.89374785	83.06124822	78.63770284
150601A00943	6/1/2015	6.44	5/9/2031	6/1/2015	137.49555	131.3998644	125.6837465	120.3195145	115.2817328	110.547014	106.0938395	101.9023976	97.95443498
050823A00085	8/23/2005	4.78	8/25/2025	8/23/2005	115.59084	112.7073715	109.9203145	107.2258296	104.6202575	102.1001074	99.66204773	97.30289847	95.01962267
170130A00039	1/30/2017	2.74	1/31/2028	1/30/2017	110.19471	107.2315006	104.3928809	101.672489	99.06433581	96.56278038	94.1625072	91.85850526	89.6460486
200310A00067	3/10/2020	0.94	3/10/2025	3/10/2020	102.29243	100.9337554	99.60690885	98.31087945	97.04469541	95.80742363	94.59816786	93.41606695	92.26029314
150601A00905	6/1/2015	6.14	10/29/2029	6/1/2015	128.83689	124.1564225	119.7201717	115.5130106	111.5208641	107.730632	104.1301144	100.707944	97.45352333
150601A00993	6/1/2015	5.37	6/9/2034	6/1/2015	142.5929	134.2002704	126.4887552	119.3944818	112.8601575	106.8343416	101.2708033	96.12795369	91.36834424
150601A01011	6/1/2015	5.05	9/8/2025	6/1/2015	109.15939	107.5000398	105.8836888	104.3088612	102.7741477	101.2781979	99.81971751	98.39746548	97.01025147
181220A00006	12/20/2018	2.93	12/20/2022	12/20/2018	100.87572	100.6610636	100.4476999	100.2356146	100.0247952	99.81522911	99.60690409	99.39980801	99.19392891
150601A00473	6/1/2015	2.22	5/31/2024	6/1/2015	102.87297	101.9201161	100.9854027	100.0683084	99.16833637	98.28500851	97.41786482	96.56646247	95.73037495
150601A00527	6/1/2015	2.5	7/26/2024	6/1/2015	103.25989	102.2293065	101.2190679	100.228588	99.25730333	98.30467197	97.37017221	96.45330168	95.55357647
150601A00893	6/1/2015	6.49	4/6/2029	6/1/2015	128.22857	123.8735997	119.7322889	115.7921344	112.0414597	108.4693555	105.0656243	101.820729	98.72574539

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190327A00030	3/27/2019	2.9	3/27/2036	3/27/2019	124.94012	117.0881821	109.9345145	103.4068748	97.44124161	91.98081102	86.9751227	82.37929819	78.15337607
200317A00024	3/17/2020	1.09	3/17/2025	3/17/2020	102.49885	101.1375909	99.80823081	98.50975751	97.24119632	96.00161146	94.79010414	93.6058108	92.44790137
150601A00030	6/1/2015	5.28	11/26/2027	6/1/2015	130.45301	124.9742592	119.7822127	114.8600223	110.1919246	105.763165	101.5599278	97.5692715	93.77906904
150601A00997	6/1/2015	5.46	9/30/2022	6/1/2015	101.19731	101.0218572	100.8470151	100.6727808	100.4991513	100.3261232	100.1536936	99.98185938	99.81061739
140911A00033	9/11/2014	3.02	9/13/2027	9/11/2014	113.22448	109.6203165	106.1823574	102.9015838	99.76953129	96.77824944	93.92026704	91.18856025	88.57652292
150601A01040	6/1/2015	5.4	10/2/2026	6/1/2015	124.59819	120.3488405	116.2815355	112.3873044	108.6576757	105.0846458	101.6606497	98.37853467	95.23153464
150601A00928	6/1/2015	5.94	8/21/2030	6/1/2015	128.64441	123.8250974	119.2735112	114.9718599	110.9036857	107.0537531	103.40795	99.95319595	96.67736003
130624A00019	6/24/2013	3.4	6/26/2023	6/24/2013	103.78508	102.828158	101.8886717	100.9661504	100.0601383	99.17019633	98.29590041	97.43684146	96.59262451
150601A00931	6/1/2015	7.13	9/20/2030	6/1/2015	137.70091	132.0857945	126.795771	121.8086577	117.1039693	112.6627712	108.4675517	104.5021044	100.7514226
130206A00004	2/6/2013	2.14	2/7/2028	2/6/2013	109.16653	106.1368549	103.2360506	100.4574552	97.79480079	95.2421883	92.79406348	90.44519429	88.19064999
170130A00036	1/30/2017	3.11	1/31/2033	1/30/2017	121.05775	115.0603862	109.4943481	104.3232504	99.51411094	95.0370077	90.86477102	86.97270964	83.3383656
150601A00946	6/1/2015	6.28	8/22/2031	6/1/2015	137.86308	131.5606551	125.6612574	120.1347714	114.9535781	110.0923331	105.5277635	101.238484	97.20482989
160928A00044	9/28/2016	2.89	9/29/2036	9/28/2023	125.78111	117.4131355	109.8344379	102.9586382	96.70973615	91.02077368	85.83268164	81.09328188	76.75642303
210514A00010	5/14/2021	1.34	5/14/2031	5/14/2021	110.48857	105.7554246	101.3137539	97.14239562	93.22189904	89.53437773	86.06337263	82.79372783	79.71147797
150601A00875	6/1/2015	7.14	9/29/2028	6/1/2015	127.88937	123.9289941	120.1480243	116.5366893	113.085824	109.7868276	106.6316249	103.612631	100.7227179
150601A00900	6/1/2015	6.06	6/28/2024	6/1/2015	106.65786	105.649978	104.6613904	103.6915422	102.7399039	101.8059659	100.8892379	99.98924795	99.10554157
181211A00042	12/11/2018	3.7	12/11/2028	12/11/2023	124.39368	118.4536126	112.8693349	107.616967	102.6743702	98.02101088	93.63783544	89.50715592	85.61254501
970806A00059	8/1/1997	8.25	9/22/2025	8/1/1997	114.81134	113.0210618	111.277408	109.5787806	107.9236493	106.3105483	104.7380722	103.2048737	101.7096604
150601A00883	6/1/2015	6.21	11/30/2028	6/1/2015	125.09661	121.1331448	117.353187	113.7465394	110.3036464	107.015552	103.8738583	100.8706866	97.99864181
150601A00899	6/1/2015	7.07	6/14/2029	6/1/2015	127.8299	123.7491484	119.8652537	116.1667269	112.6428424	109.2835819	106.0795823	103.0220882	100.1029084
150601A00976	6/1/2015	6.8	9/22/2033	6/1/2015	149.16202	141.0502239	133.5551337	126.6222232	120.2022843	114.2508688	108.727793	103.5966951	98.82464315
200331A00056	3/31/2020	0.96	3/29/2030	3/31/2020	107.68613	103.6453538	99.82497578	96.21070851	92.78930908	89.54849238	86.47685511	83.5638063	80.79950373
150601A00939	6/1/2015	5.79	1/17/2031	6/1/2015	132.009	126.4492927	121.2221029	116.3040257	111.6734959	107.3106302	103.1970835	99.31591955	95.65149254
171206A00020	12/6/2017	2.62	12/6/2027	12/6/2017	109.66987	106.7857541	104.0174388	101.3592348	98.80577324	96.35198739	93.99309366	91.72457378	89.54215833
150601A00929	6/1/2015	5.91	8/30/2030	6/1/2015	131.66111	126.2753027	121.201758	116.4191567	111.9078087	107.649515	103.6274446	99.82602172	96.23082378
210409A00010	4/9/2021	1.05	4/9/2031	4/9/2021	109.07225	104.425249	100.062557	95.96366517	92.1097179	88.48336603	85.06863582	81.85081004	78.81632005
150601A00019	6/1/2015	5.64	10/3/2022	6/1/2015	101.28471	101.1004874	100.9169383	100.7340633	100.5518586	100.3703205	100.1894454	100.0092296	99.82966949
150601A00678	6/1/2015	2.12	1/30/2025	6/1/2015	103.64838	102.34973	101.0803846	99.83943627	98.62601167	97.43927148	96.27840904	95.14264874	94.03124454
181029A00097	10/29/2018	3.53	10/27/2028	10/29/2018	122.90598	117.2289863	111.8862076	106.8555124	102.1163716	97.64973467	93.43791397	89.46447942	85.71416163
150601A00011	6/1/2015	5.17	8/3/2022	6/1/2015	100.09442	100.0804915	100.0665783	100.0526787	100.0387927	100.0249204	100.0110617	99.9972166	99.98338503
190102A00020	1/2/2019	2.97	1/3/2034	1/2/2019	122.96835	116.3529117	110.2449498	104.5989265	99.3738232	94.5326571	90.0420524	85.87186021	81.99482103
200428A00018	4/28/2020	1.33	4/27/2035	4/28/2020	113.06249	106.2190606	99.95631546	94.21709817	88.95043454	84.11081782	79.65757872	75.55433234	71.76849206
120827A00052	8/27/2012	2.01	8/27/2027	8/27/2012	108.00463	105.2612556	102.6309028	100.1079165	97.68697077	95.3630434	93.13139681	90.98755978	88.92731069

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
970806A00017	8/1/1997	7.02	7/23/2026	8/1/1997	116.083	113.8641845	111.7142716	109.6305399	107.610394	105.6513599	103.7510785	101.9072997	100.117876
120907A00026	9/7/2012	1.71	9/7/2022	9/7/2012	100.36922	100.2577818	100.1466033	100.0356846	99.92502488	99.8146231	99.70447835	99.59458969	99.48495619
150601A00038	6/1/2015	5.77	6/2/2023	6/1/2015	105.48004	104.6128211	103.7601037	102.9215201	102.0967194	101.2853623	100.4871205	99.70167622	98.92872209
191114A00014	11/14/2019	1.9	11/14/2023	11/14/2019	101.80144	101.1140027	100.4386975	99.77517446	99.12309525	98.48213513	97.85198219	97.23233677	96.62291079
150601A00018	6/1/2015	4.91	9/5/2025	6/1/2015	117.21731	114.0610354	111.0119749	108.0658102	105.218429	102.4659102	99.80451403	97.23067189	94.74097775
200402A00050	4/6/2020	0.73	4/5/2024	4/6/2020	101.30229	100.4117782	99.53780292	98.67989522	97.83760438	97.01049698	96.19815606	95.40018026	94.61618312
150601A01016	6/1/2015	5.73	10/28/2025	6/1/2015	120.17146	116.8826559	113.7086842	110.6447592	107.6863314	104.8290725	102.0688625	99.4017783	96.82408265
150601A00971	6/1/2015	6.42	6/20/2033	6/1/2015	145.87707	137.9187355	130.560275	123.7493123	117.4385082	111.5850392	106.1501331	101.0986559	96.3987433
150601A00888	6/1/2015	5.92	3/1/2029	6/1/2015	125.32737	121.1580246	117.1902708	113.4124499	109.8136708	106.3837507	103.1131638	99.99299487	97.01489532
121120A00010	11/20/2012	1.93	11/22/2027	11/20/2012	108.58358	105.5515938	102.6472252	99.86395147	97.19562609	94.636459	92.1809936	89.82408541	87.56088221
150601A00023	6/1/2015	5.46	10/30/2037	6/1/2015	155.5624	143.9093199	133.4402756	124.0176651	115.5212981	107.8460476	100.8998373	94.60191184	88.88134866
120217A00007	2/17/2012	2.25	2/20/2024	2/17/2012	104.30791	102.8918609	101.5034952	100.1420445	98.80677221	97.49696844	96.21194886	94.95105357	93.71364595
130925A00035	9/25/2013	1.53	6/25/2025	9/25/2013	104.75324	102.7640437	100.829969	98.94909322	97.11957595	95.33965259	93.60763104	91.92188815	90.28086647
180529A00057	5/29/2018	3.09	5/30/2028	5/29/2018	115.42007	111.4155026	107.609488	103.9904432	100.5475445	97.27066963	94.15034815	91.17771536	88.34446993
210514A00007	5/14/2021	0.95	5/15/2028	5/14/2021	105.84719	102.8059025	99.89570547	97.10974205	94.44156915	91.88512692	89.43471328	87.08496028	84.83081224
150601A01005	6/1/2015	5.82	3/10/2025	6/1/2015	116.50331	113.8703372	111.3148494	108.8340513	106.4252675	104.0859376	101.8136105	99.60593896	97.46067417
191231A00021	12/31/2019	1.9	2/28/2023	12/31/2019	100.66296	100.443675	100.2257646	100.0092107	99.79399915	99.58011617	99.36754807	99.15628139	98.94630286
150601A00948	6/1/2015	6.04	10/22/2031	6/1/2015	132.3939	126.7975825	121.5491643	116.6229291	111.9952928	107.6446074	103.5509879	99.69615538	96.06329519
150601A00395	6/1/2015	2.86	1/3/2024	6/1/2015	102.61062	101.8688934	101.1401219	100.4239419	99.72000665	99.02798255	98.34754867	97.67839605	97.02022714
121220A00023	12/20/2012	1.82	12/20/2022	12/20/2012	101.15801	100.7492237	100.3437026	99.94140772	99.5423008	99.14634394	98.7534999	98.363732	97.97700417
150601A00001	6/1/2015	5.43	6/15/2037	6/1/2015	153.93622	142.6730583	132.5291466	123.3771635	115.1055704	107.6165238	100.8240815	94.65265621	89.03568086
150601A00425	6/1/2015	2.64	2/21/2024	6/1/2015	102.67855	101.8678905	101.0717445	100.2897042	99.52138087	98.76640075	98.02440393	97.29504385	96.57798667
150601A00426	6/1/2015	3.37	2/21/2029	6/1/2015	114.16487	110.5707803	107.1459504	103.8807619	100.7662188	97.79390252	94.95593079	92.24491975	89.65394902
121120A00011	11/20/2012	2.22	11/22/2027	11/20/2012	113.37632	109.0462895	104.9339117	101.0266684	97.31283434	93.78142487	90.42214507	87.22534256	84.18196379
120621A00009	6/21/2012	3.18	6/21/2032	6/21/2012	127.80507	119.8166888	112.4823674	105.7416683	99.54019059	93.82893016	88.56371107	83.70467984	79.21585553
180126A00018	1/26/2018	2.34	1/26/2023	1/26/2018	100.90305	100.6421176	100.3830917	100.1259465	99.8706592	99.61720756	99.36556958	99.11572366	98.86764857
150601A00927	6/1/2015	6.08	8/7/2030	6/1/2015	129.08969	124.2805196	119.7372878	115.4423923	111.3795472	107.5336724	103.8907946	100.4379592	97.16314763
200316A00008	3/16/2020	1.31	3/15/2030	3/16/2020	108.4959	104.4541445	100.6318724	97.01490944	93.5901092	90.3452731	87.26907553	84.35099532	81.58125289
150601A00872	6/1/2015	7.42	7/31/2028	6/1/2015	127.85079	124.0226369	120.3633448	116.8639253	113.515938	110.3114514	107.2430093	104.3035986	101.4866205
150601A00558	6/1/2015	2.51	8/30/2024	6/1/2015	103.43095	102.3499249	101.2907772	100.2528701	99.23559021	98.23834714	97.26057291	96.30172068	95.36126383
120119A00015	1/19/2012	2.27	1/19/2024	1/19/2012	104.06257	102.7350069	101.4323568	100.1539658	98.89920337	97.6674606	96.45814917	95.27070061	94.10456539
160928A00029	9/28/2016	2.52	9/29/2036	9/28/2016	122.9869	114.7662036	107.3234349	100.5732829	94.44069956	88.85957901	83.77161542	79.12531555	74.87514323
140414A00009	4/14/2014	2.32	4/30/2024	4/14/2014	104.05449	102.7493255	101.4701722	100.2162744	98.98690311	97.78135812	96.59896632	95.4390805	94.30107807

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
030605A00010	6/5/2003	3.97	6/5/2023	6/5/2003	104.13353	103.2491074	102.3797297	101.5250165	100.6845985	99.85811883	99.04523235	98.24560529	97.45891474
150601A00952	6/1/2015	6.34	2/13/2032	6/1/2015	140.54953	133.765932	127.4377677	121.5294256	116.008376	110.8448844	106.0117515	101.4840789	97.23905777
190102A00022	1/2/2019	2.97	1/3/2034	1/2/2019	122.96819	116.3528066	110.2448948	104.5989146	99.37384837	94.53271409	90.04213661	85.87196762	81.99494813
150601A00865	6/1/2015	6	4/3/2028	6/1/2015	120.29251	117.0493121	113.9403647	110.9588574	108.0983813	105.3528992	102.7167215	100.1844835	97.75112514
160928A00030	9/28/2016	2.52	9/29/2036	9/28/2016	122.9869	114.7662036	107.3234349	100.5732829	94.44069956	88.85957901	83.77161542	79.12531555	74.87514323
150601A00035	6/1/2015	5.73	4/1/2038	6/1/2015	151.93521	141.5222529	132.1307793	123.6437681	115.9589491	108.9868107	102.6488927	96.87631949	91.6085399
120827A00048	8/27/2012	2.01	8/27/2027	8/27/2012	108.00462	105.2612529	102.6309014	100.1079163	97.6869717	95.3630454	93.1313998	90.9875637	88.92731548
120907A00005	9/7/2012	1.76	9/7/2022	9/7/2012	100.36491	100.2535727	100.1424993	100.0316844	99.921127	99.81082624	99.70078118	99.59099091	99.4814545
121217A00009	12/17/2012	2.02	12/17/2027	12/17/2012	109.10646	105.9763418	102.979587	100.109297	97.35898016	94.72252484	92.19417523	89.76850812	87.44041164
150601A00033	6/1/2015	5.96	12/24/2025	6/1/2015	122.26072	118.7303197	115.328548	112.0499621	108.8893832	105.8418794	102.9027528	100.067527	97.33193554
200311A00028	3/11/2020	1.04	3/12/2024	3/11/2020	101.6378	100.7069517	99.79326434	98.89626012	98.01547483	97.1504619	96.30079152	95.46604983	94.64583817
200326A00037	3/26/2020	1.78	3/26/2035	3/26/2020	115.99417	109.0703543	102.728368	96.91139023	91.56870952	86.65501562	82.12978125	77.95671865	74.10330169
150601A00509	6/1/2015	2.52	7/8/2024	6/1/2015	103.19238	102.1893619	101.2058667	100.2413374	99.29523662	98.36704693	97.45627048	96.56242782	95.68505708
150601A00832	6/1/2015	7.17	8/28/2025	6/1/2015	112.37222	110.6941201	109.0590553	107.4655639	105.9122443	104.3977538	102.9208049	101.4801629	100.0746432
150601A00475	6/1/2015	3.04	6/1/2029	6/1/2015	113.60685	109.8757868	106.3269542	102.9496532	99.7338943	96.67034883	93.7503005	90.96560098	88.30862892
150601A01012	6/1/2015	5.43	9/15/2023	6/1/2015	106.88249	105.725933	104.5950646	103.4890315	102.4070161	101.3482364	100.3119444	99.29742374	98.30398844
170929A00046	9/29/2017	2.49	9/30/2027	9/29/2017	108.85964	106.1211463	103.4885081	100.9566945	98.52095058	96.17678124	93.9199355	91.74639139	89.65234209
150601A00955	6/1/2015	5.84	7/15/2032	6/1/2015	134.74003	128.5972988	122.8635975	117.5066755	112.4971197	107.8080833	103.4150422	99.29557679	95.42917477
160930A00033	9/30/2016	1.8	9/30/2026	9/30/2016	105.5893	103.4242415	101.3296455	99.30262467	97.34043227	95.44045366	93.60019921	91.81729736	90.08948818
150601A00851	6/1/2015	7.12	4/30/2027	6/1/2015	121.02739	118.1155038	115.3103076	112.6069777	110.0009448	107.4878784	105.063673	102.724435	100.4664697
150601A01047	6/1/2015	5.35	12/30/2024	6/1/2015	114.4503	111.9916578	109.6015372	107.2776172	105.0176709	102.8195606	100.6812333	98.60071656	96.57611519
220629A00034	6/29/2022	3.51	6/29/2027	6/29/2022	111.01861	108.3748056	105.8288084	103.3761388	101.0125582	98.73405229	96.53681766	94.41724926	92.37192859
150601A00868	6/1/2015	7.08	6/5/2028	6/1/2015	126.40982	122.6567582	119.0676065	115.6337225	112.3469877	109.1997692	106.1848872	103.2955849	100.5255009
111007A00007	10/7/2011	3.92	10/7/2031	10/7/2011	133.68895	125.2733084	117.5360441	110.4162955	103.8590715	97.814652	92.23805202	87.08854259	82.32922331
150601A00005	6/1/2015	4.84	6/9/2025	6/1/2015	115.69822	112.7953383	109.9847855	107.2630993	104.6269644	102.0732084	99.59879456	97.20081527	94.87648576
130624A00017	6/24/2013	3.4	6/26/2023	6/24/2013	103.78508	102.828158	101.8886717	100.9661504	100.0601383	99.17019633	98.29590041	97.43684146	96.59262451
150601A00410	6/1/2015	2.68	1/24/2024	6/1/2015	102.57409	101.8045684	101.048617	100.3058557	99.57592181	98.85846658	98.15315428	97.45966167	96.77767735
150601A00988	6/1/2015	4.57	3/22/2024	6/1/2015	104.42794	103.5652053	102.7181423	101.8863097	101.0692853	100.2666628	99.47805127	98.70307429	97.94136926
170313A00041	3/13/2017	3.21	3/15/2032	3/13/2017	120.0362	114.5822187	109.4865055	104.721299	100.2612363	96.08312603	92.16574693	88.48966549	85.03707213
150601A00889	6/1/2015	6.55	3/2/2029	6/1/2015	128.34384	124.006137	119.8796522	115.9521181	112.2120772	108.6488194	105.2523275	102.0132282	98.92274588
200203A00046	2/3/2020	1.98	2/3/2040	2/3/2020	123.19272	113.2550642	104.4299718	96.57408097	89.56417306	83.29415793	77.67253599	72.62025581	68.06890259
150601A01015	6/1/2015	5.61	10/28/2025	6/1/2015	119.81021	116.5272169	113.3588979	110.300476	107.3474071	104.4953677	101.7402427	99.0781136	96.50524739
150601A00935	6/1/2015	6.46	11/21/2030	6/1/2015	135.09092	129.4658825	124.1726042	119.1880648	114.491026	110.0618828	105.8825271	101.9362223	98.20749011

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00022	6/1/2015	5.43	10/26/2037	6/1/2015	148.27739	138.3221496	129.3227455	121.1720229	113.7760472	107.0523568	100.9284584	95.34053251	90.23231522
150601A00918	6/1/2015	5.62	4/28/2025	6/1/2015	109.15181	107.6649369	106.2132843	104.7957267	103.4111797	102.0586026	100.7369959	99.4453996	98.18289139
150601A00496	6/1/2015	2.27	6/27/2024	6/1/2015	103.02977	102.040809	101.070993	100.1197737	99.18662459	98.27103886	97.37252886	96.49062505	95.62487516
200521A00005	5/21/2020	0.75	5/21/2030	5/21/2020	106.98225	102.8731954	98.99274674	95.3258157	91.85843597	88.57766819	85.47151711	82.52885608	79.73935807
140311A00039	3/11/2014	3.06	3/11/2024	3/11/2014	105.70548	104.1568394	102.6394831	101.1525139	99.6950698	98.26632145	96.86547051	95.49174826	94.14441415
190628A00007	6/28/2019	2.28	6/28/2034	6/28/2019	119.36171	112.6562397	106.4842182	100.7961682	95.54767297	90.6988223	86.21372006	82.06004853	78.20868323
130913A00018	9/13/2013	3.72	9/13/2028	9/13/2013	114.99919	111.4512986	108.0712522	104.849496	101.7770921	98.84567714	96.04742189	93.37499302	90.82151827
150601A00912	6/1/2015	5.96	11/30/2029	6/1/2015	128.46482	123.7355224	119.2557205	115.0098077	110.983272	107.1626153	103.5352762	100.0895578	96.81456259
150601A00411	6/1/2015	3.38	1/24/2029	6/1/2015	114.02205	110.4752114	107.0936506	103.868062	100.7897411	97.85053681	95.04281295	92.3594119	89.79362139
190102A00024	1/2/2019	2.97	1/3/2034	1/2/2019	122.96826	116.3528542	110.2449197	104.59892	99.37383697	94.53268827	90.04209846	85.87191895	81.99489054
150601A00960	6/1/2015	6.49	12/16/2032	6/1/2015	139.6427	133.0751853	126.959091	121.2576867	115.9375756	110.9683648	106.3223717	101.9743611	97.90130982
150601A00978	6/1/2015	6.32	11/24/2033	6/1/2015	142.08084	134.8398786	128.1353751	121.9204474	116.1527639	110.7940682	105.8097543	101.1684888	96.84187524
160210A00041	2/10/2016	1.97	2/10/2023	2/10/2016	101.52563	100.9764729	100.4332508	99.89586776	99.36422993	98.83824541	98.31782425	97.80287844	97.29332179
160520A00017	9/20/2017	2.34	9/20/2024	9/20/2017	106.76392	104.5537879	102.4005793	100.3024237	98.25752666	96.26416737	94.32069436	92.4255223	90.57712872
180518A00046	5/25/2018	3.62	5/18/2027	5/25/2018	122.53337	117.2036081	112.1413549	107.3317349	102.7607778	98.41535983	94.28314817	90.35254895	86.612659
191002A00038	1/13/2020	1.76	1/13/2023	1/13/2020	101.24324	100.7731445	100.3074129	99.84598682	99.38880667	98.93581388	98.48695101	98.04216163	97.60139036
191002A00044	2/3/2020	1.75	2/3/2023	2/3/2020	101.36613	100.8370045	100.3133861	99.79519343	99.28234257	98.77475121	98.27233872	97.77502612	97.28273605
190329A00012	3/29/2019	2.61	3/29/2024	3/29/2019	105.66422	103.9527806	102.2775218	100.6373576	99.03124973	97.45820071	95.91725218	94.40748287	92.92800675
130211A00016	2/11/2013	2.27	2/15/2023	2/11/2013	101.72859	101.1647781	100.6072141	100.0557923	99.51041141	98.97097254	98.4373788	97.90953545	97.38734979
190829A00080	8/29/2019	1.8	12/29/2023	8/29/2019	103.60636	102.1663906	100.7534877	99.36695716	98.0061252	96.67034036	95.35897269	94.07141292	92.80707155
141215A00062	12/15/2014	2.65	12/16/2024	12/15/2014	108.66092	106.1757721	103.7602863	101.4121268	99.1290458	96.9088837	94.74956534	92.64909608	90.60555818
160212A00037	2/12/2016	3.03	2/12/2031	2/12/2016	133.2528	123.3797049	114.3291708	106.0279461	98.40967089	91.41419622	84.98697282	79.07850319	73.64384962
160712A00019	7/12/2017	2.32	7/12/2027	7/12/2017	116.62775	111.2775778	106.2058522	101.3966399	96.83499705	92.50690656	88.39921541	84.49957721	80.79639864
180618A00036	6/18/2018	3.89	6/18/2048	6/18/2018	199.58237	164.6372798	136.9789594	114.9909104	97.42787419	83.32846447	71.94876865	62.71180033	55.16895153
180621A00068	6/21/2018	3.32	6/23/2025	6/21/2018	112.29416	109.2221315	106.2510297	103.3769966	100.596339	97.90552506	95.30117633	92.78005991	90.33908157
170412A00019	4/12/2017	2.56	4/12/2024	4/12/2017	105.71111	103.9606575	102.2478339	100.5714894	98.93052296	97.32387824	95.75054119	94.20953792	92.6999327
180726A00046	7/26/2018	3.2	12/26/2023	7/26/2018	105.59801	104.1514688	102.7319594	101.3387891	99.97128764	98.62880702	97.31072055	96.01642203	94.74532485
190829A00078	8/29/2019	1.8	12/15/2023	8/29/2019	103.50216	102.1023403	100.7281893	99.37906365	98.05433923	96.75341192	95.47569711	94.22062884	92.9876591
190515A00032	5/15/2019	2.49	5/15/2024	5/15/2019	105.88036	104.0364106	102.2336396	100.4708232	98.74678558	97.06039581	95.41056529	93.79624591	92.21642814
190501A00014	5/1/2019	2.62	5/1/2024	5/1/2019	105.98031	104.1751977	102.409754	100.6827465	98.99299638	97.33937302	95.72079198	94.13621241	92.58463479
190621A00035	6/21/2019	2.19	12/15/2023	6/21/2019	104.05116	102.6472831	101.2691449	99.91610085	98.58752468	97.28281051	96.00137195	94.74264136	93.50606911
160210A00053	2/10/2016	1.99	2/10/2023	2/10/2016	101.53655	100.9873629	100.4441065	99.90668946	99.3750179	98.8489999	98.32854553	97.81356674	97.30397737
180911A00007	9/11/2018	3.12	9/8/2023	9/11/2018	104.30818	103.1540094	102.0253678	100.9214177	99.84135475	98.78440928	97.74984434	96.73695407	95.745062

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
081219A00006	12/19/2008	3.88	12/22/2023	12/19/2008	106.69903	105.2527744	103.8333863	102.4401838	101.0725036	99.72970455	98.41116631	97.11628888	95.84449157
160830A00068	11/30/2016	1.95	11/30/2023	11/30/2016	103.59537	102.2370853	100.9030296	99.59261268	98.30526068	97.04041774	95.7975454	94.57612186	93.37564142
171110A00019	5/4/2018	2.46	5/4/2023	5/4/2018	102.48354	101.6979751	100.9244298	100.1626284	99.41230482	98.67320117	97.94506711	97.22765972	96.52074322
200131A00031	1/31/2020	1.74	1/31/2024	1/31/2020	103.74949	102.2184424	100.7178612	99.24691418	97.80480014	96.3907461	95.00400618	93.64386042	92.30961362
170822A00023	8/23/2017	3.95	8/23/2028	8/23/2017	130.35673	123.3935867	116.8575618	110.7200496	104.9545118	99.53631653	94.44259134	89.65208843	85.145061
160819A00015	10/12/2016	2.3	10/13/2026	10/12/2016	113.92238	109.435743	105.1516261	101.0597514	97.15042381	93.41449484	89.84332835	86.42876861	83.16311055
170614A00019	6/14/2017	2.48	6/13/2025	6/14/2017	109.69544	106.6900676	103.7828879	100.9701745	98.2483596	95.6140296	93.06391792	90.59489765	88.20397484
160225A00024	2/25/2016	2.22	2/26/2024	2/25/2016	104.69242	103.0829867	101.5063701	99.96164079	98.4479004	96.96428388	95.50995808	94.08412022	92.68599653
180925A00033	9/25/2018	3.26	9/25/2023	9/25/2018	104.66928	103.4641994	102.2868588	101.1363112	100.0116491	98.91200573	97.83655258	96.78449737	95.75508211
180821A00029	8/21/2018	3.01	8/21/2023	8/21/2018	103.98494	102.884084	101.8065186	100.7515101	99.71835555	98.70638058	97.71493848	96.74340861	95.79119513
190829A00075	8/29/2019	1.8	6/15/2023	8/29/2019	102.22587	101.3236522	100.4373015	99.56640649	98.71056539	97.86939036	97.04250677	96.22955268	95.43017825
180328A00042	3/28/2018	2.95	3/28/2023	3/28/2018	102.5037	101.8221603	101.1496632	100.4860339	99.83109781	99.18468508	98.54663016	97.91677178	97.2949528
160223A00012	2/23/2016	1.89	2/23/2023	2/23/2016	101.61629	101.0298683	100.4501966	99.87716269	99.31065312	98.75055687	98.19676548	97.6491729	97.10767546
181206A00018	12/6/2018	3.13	12/6/2023	12/6/2018	105.27383	103.8864492	102.5240869	101.1861247	99.87196298	98.58102111	97.31273699	96.06656616	94.84198117
190830A00020	8/31/2020	1.67	8/31/2023	8/31/2020	102.60559	101.4844465	100.387673	99.3144829	98.26412241	97.23586945	96.22903211	95.24294707	94.27697818
150731A00016	7/31/2015	3.04	7/31/2025	7/31/2015	111.90018	108.7235032	105.6548238	102.6898598	99.82452646	97.05492455	94.37733015	91.78818592	89.28409258
171228A00023	12/28/2017	2.69	3/29/2024	12/28/2017	105.80043	104.0877936	102.4113593	100.7700411	99.16279984	97.58863758	96.04659541	94.53575151	93.05521937
161125A00002	11/25/2016	2.62	11/27/2023	11/25/2016	104.48384	103.1259099	101.7927443	100.4837126	99.19820356	97.93562671	96.69541085	95.47700355	94.27987035
191002A00046	2/14/2020	1.75	2/14/2023	2/14/2020	101.43093	100.8708771	100.3170034	99.76920442	99.22738062	98.69143447	98.1612706	97.6367957	97.11791846
160520A00018	9/20/2017	2.34	9/20/2024	9/20/2017	106.76392	104.5537879	102.4005793	100.3024237	98.25752666	96.26416737	94.32069436	92.4255223	90.57712872
181220A00041	12/20/2018	3.36	12/18/2026	12/20/2018	119.37566	114.5757695	109.9992044	105.6344014	101.4704564	97.49708232	93.7045714	90.08375927	86.62599197
190815A00040	8/15/2019	1.86	8/15/2023	8/15/2019	102.69429	101.6179091	100.5639993	99.53186538	98.52083782	97.53027417	96.55955788	95.60809696	94.67532274
190829A00076	8/29/2019	1.81	6/30/2023	8/29/2019	102.32968	101.3848553	100.4574014	99.54684199	98.65271902	97.77459079	96.91203128	96.06462952	95.23198885
170814A00034	8/14/2017	2.1	8/15/2022	8/14/2017	100.17545	100.128181	100.0809748	100.0338303	99.98674719	99.93972551	99.89276509	99.84586581	99.79902756
160210A00042	2/10/2016	2.57	2/10/2026	2/10/2016	112.46929	108.7254159	105.1273593	101.6686359	98.34309047	95.14487491	92.06843094	89.10847416	86.25997887
180615A00039	6/15/2018	3.49	6/15/2028	6/15/2018	126.65497	120.0150853	113.7726526	107.9017439	102.378252	97.17975414	92.2853859	87.67572548	83.33268693
191002A00043	2/3/2020	1.75	2/3/2023	2/3/2020	101.36613	100.8370045	100.3133861	99.79519343	99.28234257	98.77475121	98.27233872	97.77502612	97.28273605
150601A00356	6/1/2015	3.66	9/22/2023	6/1/2015	105.04369	103.8448572	102.6734189	101.5284421	100.4090366	99.31435206	98.24357523	97.19592835	96.17066708
160210A00036	2/10/2016	1.77	2/10/2023	2/10/2016	101.45992	100.91043	100.3668882	99.82919647	99.29726074	98.77098877	98.25029031	97.73507704	97.22526249
180709A00081	7/9/2018	3.05	7/7/2023	7/9/2018	103.56318	102.5922537	101.6395233	100.7044781	99.78662877	98.88550378	98.00064883	97.13162589	96.27801255
160222A00018	2/22/2016	2.59	2/23/2026	2/22/2016	112.68376	108.8978654	105.2605417	101.7651349	98.40532498	95.17511059	92.06879049	89.08094695	86.20642988
160222A00019	2/22/2016	3.09	2/21/2031	2/22/2016	133.87697	123.9491616	114.8499747	106.5054623	98.84865539	91.81886604	85.36106842	79.4253432	73.96637919
190829A00073	8/29/2019	1.81	3/15/2023	8/29/2019	101.64886	101.0069551	100.3731381	99.74725925	99.12917011	98.51872578	97.91578499	97.32020993	96.73186615

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180131A00022	1/31/2018	2.96	1/30/2025	1/31/2018	109.5848	106.967655	104.4272126	101.9607705	99.56574145	97.23964548	94.98010421	92.78483618	90.65165224
171222A00037	12/22/2017	2.71	12/29/2023	12/22/2017	104.92311	103.4731646	102.0504656	100.6543086	99.28401505	97.93892892	96.61841598	95.32186277	94.04867579
160210A00021	2/10/2016	1.97	2/10/2023	2/10/2016	101.52563	100.9764729	100.4332508	99.89586776	99.36422993	98.83824541	98.31782426	97.80287844	97.29332179
160209A00049	2/9/2016	1.92	2/9/2023	2/9/2016	101.49148	100.9452279	100.4048518	99.87025469	99.34134428	98.81803003	98.30022337	97.78783758	97.28078777
180912A00017	9/12/2018	3.13	9/12/2023	9/12/2018	104.3657	103.1997196	102.0597892	100.9450382	99.85463851	98.787798	97.74375856	96.72179433	95.72120997
181203A00039	12/3/2018	3.27	12/1/2023	12/3/2018	105.40954	104.0353783	102.6857674	101.3601076	100.0578156	98.77832633	97.52109271	96.28558457	95.07128815
160714A00024	9/20/2016	2.5	9/20/2028	9/20/2016	121.42422	114.6500028	108.3004227	102.3465787	96.76168864	91.52092212	86.60124775	81.98129353	77.64121871
180518A00042	5/25/2018	3.42	5/19/2025	5/25/2018	112.15494	109.1851563	106.3101134	103.5262405	100.8301261	98.21850782	95.68826454	93.23640949	90.86008354
190815A00041	8/15/2019	1.86	8/15/2024	8/15/2019	105.43103	103.3347065	101.2907527	99.29751467	97.35340328	95.45689098	93.60650889	91.80084413	90.03853722
181001A00031	10/1/2018	3.23	9/29/2023	10/1/2018	104.68117	103.4645576	102.2762081	101.1151451	99.98043651	98.87119233	97.78656214	96.72573306	95.68792766
190327A00027	3/27/2019	2.66	1/15/2025	3/27/2019	108.66242	106.0991442	103.6099152	101.1921711	98.84345069	96.56139301	94.34373228	92.18829357	90.09298848
161118A00026	12/20/2016	3.03	12/21/2026	12/20/2016	117.91455	113.1380308	108.5845458	104.2425214	100.1010398	96.14980272	92.37909308	88.77973896	85.34308046
180518A00048	5/25/2018	3.65	5/18/2028	5/25/2018	127.29776	120.7245991	114.5399168	108.7186195	103.2373683	98.07444401	93.20962613	88.6240819	84.30026406
180919A00013	9/19/2018	3.14	9/19/2022	9/19/2018	100.66646	100.5213412	100.3766496	100.2323872	100.0885521	99.94514232	99.80215603	99.65959129	99.51744623
171110A00007	11/10/2017	2.38	11/10/2022	11/10/2017	101.0291	100.7382721	100.4491284	100.1616541	99.87583478	99.59165604	99.3091037	99.02816375	98.74882234
170327A00080	3/27/2019	3.43	3/27/2029	3/27/2019	129.4887	121.8801956	114.7797014	108.1504341	101.9584709	96.17250897	90.76364963	85.7052011	80.97249867
171228A00024	12/28/2017	2.71	6/28/2024	12/28/2017	106.72179	104.7471235	102.8190077	100.9360628	99.09695946	97.30041645	95.54519826	93.83011334	92.15401221
160211A00036	2/11/2016	2.41	2/11/2026	2/11/2016	111.89718	108.1606757	104.5698892	101.1183404	97.79987214	94.60863496	91.5390695	88.58589056	85.74407194
140923A00070	9/23/2014	2.88	9/23/2022	9/23/2014	100.67454	100.5182629	100.3624789	100.2071856	100.0523806	99.89806169	99.74422655	99.59087289	99.43799847
190829A00072	8/29/2019	1.81	12/15/2022	8/29/2019	101.09045	100.7017167	100.3159771	99.93319713	99.55334284	99.17638067	98.80227756	98.431001	98.06251895
180316A00031	3/16/2018	2.96	12/16/2022	3/16/2018	101.54496	101.1523481	100.7627802	100.3762201	99.99263294	99.61198447	99.2342409	98.85936895	98.48733587
181029A00051	2/5/2019	3.69	2/5/2029	2/5/2019	130.68705	123.1990352	116.2010622	109.6583074	103.5386038	97.81222219	92.45167455	87.43153389	82.72826942
190726A00014	7/26/2019	2.23	7/24/2024	7/26/2019	106.0125	103.970994	101.979394	100.0361652	98.13983151	96.28897235	94.48221982	92.71825662	90.99581368
161017A00007	10/17/2016	1.99	10/18/2023	10/17/2016	103.35957	102.0971753	100.8654813	99.66338124	98.48981843	97.34378599	96.2243239	95.13051632	94.06148909
190621A00039	6/21/2019	2.21	6/17/2024	6/21/2019	105.64954	103.715834	101.8271163	99.98207315	98.17943708	96.41798558	94.69653927	93.01396006	91.36914944
190422A00030	4/22/2019	2.93	12/22/2025	4/22/2019	113.20263	109.5900583	106.1130971	102.7659386	99.54305715	96.43919169	93.44933196	90.56870508	87.79276302
170327A00079	3/27/2019	3.19	3/29/2027	3/27/2019	119.79983	114.6851748	109.8216989	105.1956692	100.7941813	96.60510524	92.61703417	88.81923719	85.20161521
181016A00019	10/18/2018	3.32	10/16/2023	10/18/2018	104.9917	103.724253	102.4874169	101.2800911	100.1012281	98.94982897	97.82494141	96.72565656	95.65110678
190917A00033	1/10/2020	2.03	1/10/2023	1/10/2020	101.34936	100.8873558	100.4295617	99.97592377	99.52638557	99.08089153	98.63938716	98.20181891	97.7681342
160729A00017	7/31/2017	2.47	7/31/2029	7/31/2017	123.83215	116.0331649	108.7834895	102.0414928	95.76890827	89.93054326	84.49401722	79.42952338	74.70961183
170918A00051	12/18/2017	2.24	12/19/2022	12/18/2017	101.28577	100.8853977	100.4881957	100.0941248	99.70314793	99.31522875	98.93033139	98.54842057	98.16946156
180201A00022	2/1/2018	2.99	2/3/2025	2/1/2018	109.70784	107.0775222	104.5245209	102.0461007	99.63964477	97.30264495	95.03269642	92.82749282	90.68482153
170908A00021	9/8/2017	1.96	9/8/2022	9/8/2017	100.3971	100.2829335	100.1690441	100.0554267	99.94208025	99.82900381	99.71619636	99.6036569	99.49138446

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180518A00071	5/25/2018	3.56	5/18/2026	5/25/2018	117.40273	113.2784827	109.3238734	105.5309976	101.8923613	98.40086024	95.04975679	91.83265907	88.74350118
170327A00078	3/27/2019	3.04	3/27/2026	3/27/2019	114.73964	110.8185896	107.0541907	103.4392829	99.96707571	96.63112926	93.42533352	90.34388931	87.38129047
190530A00049	5/30/2019	2.44	5/30/2023	5/30/2019	102.66999	101.8106095	100.9655804	100.1345414	99.3171473	98.51306425	97.72196918	96.9435494	96.17750218
180403A00024	4/3/2018	2.96	4/3/2023	4/3/2018	102.56937	101.8706785	101.181495	100.501628	99.8308896	99.16909666	98.51607102	97.87163923	97.23563237
180910A00037	9/10/2018	3.03	9/9/2022	9/10/2018	100.53097	100.4138804	100.2970754	100.1805562	100.0643216	99.94837057	99.83270209	99.71731506	99.60220842
180515A00022	5/15/2018	3.19	5/15/2023	5/15/2018	103.16362	102.3440984	101.5375987	100.7438106	99.96243504	99.19318217	98.43577122	97.68992997	96.95539454
190829A00028	8/29/2019	1.78	8/29/2024	8/29/2019	105.36832	103.2342854	101.1542015	99.12633746	97.14903173	95.2206882	93.33977336	91.50481325	89.71439071
190917A00030	1/10/2020	2.03	1/10/2023	1/10/2020	101.34936	100.8873558	100.4295617	99.97592377	99.52638557	99.08089153	98.63938716	98.20181891	97.7681342
180328A00015	3/28/2018	2.93	3/28/2023	3/28/2018	102.49021	101.8087189	101.1362723	100.472693	99.81780653	99.17144292	98.53343667	97.90362652	97.28185532
190621A00034	6/21/2019	2.17	6/15/2023	6/21/2019	102.55714	101.6533049	100.7653565	99.89288324	99.03548308	98.19276776	97.36436226	96.54990425	95.74904357
190520A00048	5/20/2019	2.53	5/20/2024	5/20/2019	106.00197	104.1426782	102.3251366	100.5481256	98.81046939	97.11103563	95.44873299	93.82250956	92.23135104
191002A00042	1/13/2020	1.76	1/13/2023	1/13/2020	101.24324	100.7731445	100.3074129	99.84598682	99.38880667	98.93581388	98.48695101	98.04216163	97.60139036
190426A00023	4/26/2019	2.91	6/24/2026	4/26/2019	115.28319	111.0921714	107.0781258	103.2326585	99.5478136	96.01605222	92.63022829	89.38356615	86.26963935
190904A00043	9/4/2019	1.72	12/15/2022	9/4/2019	101.0556	100.6669502	100.281293	99.8985949	99.51882205	99.14194084	98.76791825	98.39672175	98.02831932
180727A00017	7/27/2018	3.16	7/27/2023	7/27/2018	103.86804	102.8390126	101.8303601	100.84148	99.87179499	98.92075001	97.98781122	97.07246503	96.17421709
180312A00014	3/12/2018	3	3/13/2023	3/12/2018	102.38863	101.7496713	101.1186895	100.4955328	99.88005618	99.27211816	98.67158065	98.07830897	97.49217168
200131A00029	1/31/2020	1.78	10/31/2024	1/31/2020	105.85411	103.5383727	101.2847769	99.09119441	96.95558746	94.87600533	92.85057985	90.87752109	88.95511333
150601A00677	6/1/2015	2.39	1/30/2025	6/1/2015	108.37554	105.76671	103.2345833	100.7764583	98.38974198	96.07194858	93.82069469	91.63369418	89.5087536
160211A00034	2/11/2016	1.82	2/10/2023	2/11/2016	101.4437	100.8947982	100.351833	99.81470497	99.28332016	98.75758671	98.23741473	97.72271619	97.21340494
160714A00018	9/6/2016	2.28	9/4/2026	9/6/2016	113.45322	109.0897072	104.9190535	100.931683	97.11854991	93.47110591	89.98126999	86.6414001	83.44426674
190515A00030	5/15/2019	2.49	5/15/2024	5/15/2019	105.88036	104.0364106	102.2336396	100.4708232	98.74678558	97.06039581	95.41056529	93.79624591	92.21642814
170609A00052	6/11/2018	2.9	6/9/2027	6/11/2018	119.19353	113.8791077	108.8355568	104.0476718	99.50117399	95.18265362	91.07951221	87.17990966	83.47271479
160222A00005	2/22/2016	2.79	2/22/2028	2/22/2016	121.2532	115.1172429	109.3334591	103.8797405	98.73548518	93.88148423	89.29982005	84.97377294	80.88773482
180625A00012	6/25/2018	3.07	6/23/2023	6/25/2018	103.44148	102.5107492	101.5967593	100.6990577	99.81721151	98.95080325	98.09942989	97.26270237	96.44024494
160303A00020	3/3/2016	2.97	3/3/2031	3/3/2016	134.35074	124.3033514	115.099332	106.6630494	98.92603905	91.82628807	85.30759622	79.31900296	73.81427378
190621A00037	6/21/2019	2.21	5/15/2024	6/21/2019	105.36663	103.527529	101.7295091	99.97135507	98.25189385	96.5699968	94.92457766	93.31459053	91.73902801
130211A00026	2/11/2013	2.27	2/15/2023	2/11/2013	101.72859	101.1647781	100.6072141	100.0557923	99.51041141	98.97097254	98.4373788	97.90953545	97.38734979
141117A00011	11/17/2014	3.81	11/17/2034	11/17/2014	154.00942	138.7352551	125.1926848	113.1732589	102.4947458	92.997705	84.54252772	77.00687439	70.28345525
171016A00016	10/16/2017	2.23	10/17/2022	10/16/2017	100.78654	100.5631566	100.3407718	100.1193812	99.89897834	99.67955641	99.46110886	99.24362916	99.02711086
190826A00046	8/26/2019	1.77	8/26/2024	8/26/2019	105.32461	103.1992686	101.1275253	99.10766535	97.13804316	95.21707777	93.34324997	91.51509931	89.73122135
180123A00067	1/23/2018	2.67	1/23/2023	1/23/2018	101.75464	101.255131	100.7605259	100.2707502	99.78573337	99.30540624	98.82970098	98.35855108	97.89189127
191002A00045	2/14/2020	1.75	2/14/2023	2/14/2020	101.43093	100.8708771	100.3170034	99.76920442	99.22738062	98.69143447	98.1612706	97.6367957	97.11791846
170327A00077	3/27/2019	2.74	3/27/2024	3/27/2019	105.86429	104.15698	102.4856741	100.8492966	99.2468169	97.67724523	96.13963023	94.63305728	93.15664666

	Parallel-Shift Sensitivity Analysis												
7/29/2022					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190325A00022	3/25/2019	2.55	11/25/2022	3/25/2019	101.2128	100.8796649	100.5487178	100.2199417	99.89331536	99.56881781	99.24642826	98.92612621	98.60789144
181031A00070	3/1/2019	3.77	3/1/2029	3/1/2019	131.52623	123.9349813	116.8443747	110.2185599	104.0244375	98.23143742	92.81131294	87.73795201	82.9872053
160524A00015	11/25/2016	2.71	11/25/2026	11/25/2016	116.17444	111.5138893	107.0681309	102.8261563	98.77757397	94.91257575	91.22190085	87.69680253	84.32901696
190904A00044	9/4/2019	1.72	12/30/2022	9/4/2019	101.14204	100.7113273	100.2842671	99.86081625	99.44092927	99.02456134	98.61166843	98.20220724	97.79613518
190805A00031	8/5/2020	1.77	8/4/2023	8/5/2020	102.51758	101.4733223	100.4502416	99.44770169	98.46508892	97.50181379	96.55730989	95.63103272	94.72245867
150601A00998	6/1/2015	5.37	10/25/2034	6/1/2015	173.00088	156.6594069	142.1278742	129.1915633	117.6624849	107.3759168	98.18740418	89.97016116	82.61281831
180910A00039	9/10/2018	3.03	9/9/2022	9/10/2018	100.53097	100.4138804	100.2970754	100.1805562	100.0643216	99.94837057	99.83270209	99.71731506	99.60220842
180104A00016	1/4/2018	2.56	1/4/2023	1/4/2018	101.54362	101.0978712	100.6560366	100.218063	99.78389962	99.35349698	98.92680628	98.50377959	98.08436981
160307A00029	3/7/2016	3.21	3/7/2031	3/7/2016	135.09781	125.073127	115.8873352	107.4653447	99.73916799	92.64721619	86.13366539	80.14788925	74.64394991
081028A00036	10/30/2008	4.22	10/30/2023		106.30836	104.9927701	103.7094411	102.4572171	101.2349838	100.0416707	98.87625603	97.73776809	96.62528491
180404A00037	4/6/2018	2.51	4/6/2028	10/6/2022	122.33282	115.9498047	110.1482832	105.2296482	101.5916697	99.93062986	99.60432591	99.41584963	99.22825787
180406A00015	4/10/2018	2.61	4/10/2028	4/10/2023	122.92935	116.5160869	110.667597	105.6615126	101.8027881	99.43600208	98.31626716	97.61967802	96.96698907
180925A00059	9/25/2018	3.01	9/25/2028	9/25/2023	127.20285	120.1438902	113.6634298	108.0130363	103.3610061	99.9788703	97.89634684	96.62646267	95.58391136
190509A00063	5/9/2019	2.11	5/9/2024	8/9/2022	105.49711	103.5721986	101.886598	100.601602	100.014749	99.96801892	99.95994409	99.95187438	99.94380977
190513A00033	5/13/2019	2.35	5/15/2023	8/15/2022	102.55651	101.7164552	100.942826	100.3034565	100.0009942	99.94240834	99.8955351	99.84872189	99.80196844
190516A00018	5/16/2019	2.03	5/16/2024	8/16/2022	105.36046	103.4518544	101.7572012	100.4688212	99.97941697	99.92103908	99.87144966	99.8219249	99.77246451
190516A00028	5/16/2019	2.03	5/16/2024	8/16/2022	105.36046	103.4518544	101.7572012	100.4688212	99.97941697	99.92103908	99.87144966	99.8219249	99.77246451
190522A00029	5/22/2019	2.41	5/22/2024	5/22/2023	105.95842	104.0590994	102.2798136	100.7063504	99.4565294	98.52377749	97.73250352	96.97273166	96.22541975
190523A00048	5/23/2019	2.32	5/23/2024	5/23/2023	105.80445	103.905379	102.1325876	100.5765609	99.35527119	98.44099806	97.65232281	96.89075851	96.14147642
190530A00108	5/30/2019	1.88	5/30/2024	8/30/2022	105.22815	103.2838629	101.5848547	100.3693581	99.93949716	99.840391	99.75237588	99.66471684	99.57706305
190613A00024	6/13/2019	2.18	6/13/2024	6/13/2023	105.74192	103.7876217	101.9709646	100.388249	99.14397944	98.19133493	97.35479595	96.54516769	95.74933242
190725A00018	7/25/2019	1.78	7/25/2024	10/25/2022	105.48242	103.3907678	101.5702403	100.2902274	99.76827298	99.51539666	99.27584362	99.03746248	98.8002028
190812A00027	8/12/2019	1.71	8/12/2024	8/12/2022	105.51299	103.3681542	101.5228877	100.2632098	99.95952876	99.9209618	99.88244038	99.84396438	99.80553357
190821A00024	8/21/2019	1.65	8/21/2024	8/22/2022	105.44829	103.2904776	101.4386972	100.2082798	99.94354423	99.87730978	99.81117358	99.74513539	99.67919488
191008A00020	10/8/2019	1.58	10/8/2024	10/11/2022	105.70734	103.4082897	101.4623327	100.1985457	99.76272621	99.55350786	99.35166239	99.15072872	98.9505095
191121A00031	11/21/2019	1.54	11/21/2024	11/21/2022	106.23963	103.807636	101.7135261	100.257571	99.61853429	99.2859857	98.97456326	98.66512945	98.35761604
191209A00045	12/9/2019	1.56	12/9/2024	12/9/2022	106.4588	103.9618104	101.8153551	100.2877719	99.54160446	99.14639542	98.78763467	98.43174952	98.07838535
191211A00013	12/11/2019	1.57	12/11/2024	12/12/2022	106.47656	103.9812581	101.8257441	100.2865959	99.53064564	99.12709404	98.76048172	98.39687828	98.03591756
200131A00023	1/31/2020	1.56	1/31/2025	1/31/2023	106.58153	103.9466498	101.7008617	100.0847926	99.19502416	98.65031701	98.15552799	97.66670726	97.18267121
200207A00008	2/7/2020	1.35	2/7/2025	2/7/2023	106.43689	103.7930086	101.5532891	99.97241707	99.11273457	98.56093418	98.0480783	97.54113811	97.03938185
200221A00041	2/21/2020	1.53	2/21/2025	2/21/2023	106.62759	103.9551393	101.6614242	100.005905	99.07935262	98.48569523	97.9379596	97.39709105	96.86216649
200227A00025	2/27/2020	1.09	2/27/2025	2/27/2023	105.9069	103.2617578	101.0693857	99.62414988	98.83841878	98.25698023	97.6945454	97.13861564	96.58898439
200303A00035	3/3/2020	0.81	3/3/2025	3/3/2023	105.2738	102.6592649	100.5999114	99.33677831	98.62868188	98.04516685	97.47356514	96.90863569	96.35017811