Federal Home Loan Bank of Des Moines Monthly Price Report

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

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

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

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

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190509A00015	5/9/2019	2.55	5/4/2020	5/9/2019	100.02446	100.024455	100.024455	100.024455	100.0234505	100.0123623	100.0012845	99.99021696	99.97915979
191210A00004	12/10/2019	1.83	8/10/2020	12/10/2019	100.4435	100.4434954	100.4434954	100.4434954	100.4070216	100.124707	99.84398745	99.56484927	99.28727909
191220A00012	12/20/2019	1.85	11/20/2020	12/20/2019	100.90308	100.9030757	100.9030757	100.9030757	100.8097235	100.246164	99.68889542	99.13781289	98.59281371
200117A00005	1/17/2020	1.84	10/19/2020	1/17/2020	100.7569	100.7569018	100.7569018	100.7569018	100.6857615	100.2102703	99.73926886	99.27269383	98.81048291
200309A00025	3/9/2020	0.57	2/9/2021	3/9/2020	100.24116	100.2411615	100.2411615	100.2411615	100.0740591	99.29300185	98.52406496	97.76696812	97.02143966
200313A00021	3/13/2020	0.74	3/12/2021	3/13/2020	100.54518	100.5451847	100.5451847	100.5451847	100.3478567	99.47997313	98.62701507	97.78860016	96.964359
200318A00003	3/18/2020	0.71	2/18/2021	3/18/2020	100.37039	100.370391	100.370391	100.370391	100.1946513	99.38861124	98.59546599	97.81490823	97.0466403
200318A00021	3/18/2020	0.71	2/18/2021	3/18/2020	100.37039	100.370391	100.370391	100.370391	100.1946513	99.38861124	98.59546599	97.81490823	97.0466403
200325A00012	3/25/2020	0.71	2/25/2021	3/25/2020	100.37052	100.3705176	100.3705176	100.3705176	100.1881813	99.36334996	98.55201296	97.7538416	96.96851778
200327A00011	3/27/2020	0.46	12/24/2020	3/27/2020	100.13547	100.1354707	100.1354707	100.1354707	100.0126468	99.35915631	98.71416353	98.07750366	97.44901607
200330A00035	3/30/2020	0.39	10/30/2020	3/30/2020	100.06884	100.068843	100.068843	100.068843	99.99169791	99.48808347	98.98951481	98.49591654	98.00721476
200330A00052	3/30/2020	0.46	12/30/2020	3/30/2020	100.13894	100.1389364	100.1389364	100.1389364	100.0105623	99.34077811	98.67990948	98.02777956	97.38421616
200403A00019	4/3/2020	0.47	10/5/2020	4/3/2020	100.09434	100.0943398	100.0943398	100.0943398	100.0314246	99.59608086	99.16451516	98.73667843	98.31252249
200403A00027	4/3/2020	0.62	3/3/2021	4/3/2020	100.30109	100.3010902	100.3010902	100.3010902	100.1130823	99.27239137	98.44572531	97.63273582	96.83308604
200406A00003	4/6/2020	0.47	10/7/2020	4/6/2020	100.09555	100.0955508	100.0955508	100.0955508	100.0314956	99.59067737	99.15373525	98.72061828	98.29127634
200413A00025	4/13/2020	0.63	1/13/2021	4/13/2020	100.26873	100.2687287	100.2687287	100.2687287	100.1270819	99.41885622	98.72060286	98.0321123	97.35318087
200422A00029	4/22/2020	0.47	4/22/2021	4/22/2020	100.34831	100.3483138	100.3483138	100.3483138	100.1138152	99.1362971	98.17772084	97.23754063	96.31523142
190517A00016	5/17/2019	2.51	5/15/2020	5/17/2019	100.09125	100.0912509	100.0912509	100.0912509	100.0874833	100.045903	100.0043743	99.96289703	99.92147121
190524A00006	5/24/2019	2.52	5/18/2020	5/24/2019	100.11049	100.1104851	100.1104851	100.1104851	100.1059637	100.0560655	100.0062334	99.95646722	99.90676694
190530A00011	5/30/2019	2.41	5/29/2020	5/30/2019	100.18475	100.184749	100.184749	100.184749	100.1774502	100.0969159	100.0165144	99.93624559	99.85610905
190531A00010	5/31/2019	2.49	5/26/2020	5/31/2019	100.15673	100.1567252	100.1567252	100.1567252	100.1501956	100.0781442	100.0062042	99.93437516	99.86265696
190701A00004	7/1/2019	2.24	6/25/2020	7/1/2019	100.30402	100.3040209	100.3040209	100.3040209	100.2871312	100.1319629	99.9772799	99.82307992	99.66936071
190715A00021	7/15/2019	2.25	6/15/2020	7/15/2019	100.24866	100.2486579	100.2486579	100.2486579	100.2354115	100.1079585	99.98084298	99.85406349	99.7276187
190814A00040	8/14/2019	2.11	5/6/2020	8/14/2019	100.02951	100.0295127	100.0295127	100.0295127	100.0280063	100.0113793	99.99476873	99.97817462	99.96159692
191112A00020	11/12/2019	1.85	10/13/2020	11/12/2019	100.73507	100.7350725	100.7350725	100.7350725	100.6673674	100.2083934	99.75360498	99.30294501	98.85635732
200122A00009	1/22/2020	1.86	12/22/2020	1/22/2020	101.05123	101.0512261	101.0512261	101.0512261	100.9297371	100.2783057	99.63526494	99.00045331	98.37371355
200214A00008	2/18/2020	1.81	1/12/2021	2/18/2020	101.10921	101.10921	101.10921	101.10921	100.9679726	100.2591212	99.56019877	98.87099775	98.19131623
200309A00017	3/9/2020	0.55	3/9/2021	3/9/2020	100.37489	100.3748918	100.3748918	100.3748918	100.1806093	99.32164311	98.47731384	97.64725002	96.8310927
200312A00035	3/12/2020	0.72	12/11/2020	3/12/2020	100.29031	100.2903149	100.2903149	100.2903149	100.1794338	99.56069295	98.94956721	98.34591658	97.74960451
200319A00032	3/19/2020	0.6	12/18/2020	3/19/2020	100.22214	100.2221433	100.2221433	100.2221433	100.104821	99.46730304	98.83787312	98.21637801	97.60266834
200320A00032	3/20/2020	0.67	2/19/2021	3/20/2020	100.33885	100.3388465	100.3388465	100.3388465	100.1621851	99.35358557	98.55796499	97.775013	97.00442909

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200323A00006	3/23/2020	0.85	3/23/2021	3/23/2020	100.52961	100.5296056	100.5296056	100.5296056	100.3221237	99.42645463	98.5466821	97.68238603	96.83316107
200324A00010	3/24/2020	0.58	9/25/2020	3/24/2020	100.13359	100.1335935	100.1335935	100.1335935	100.0759062	99.66784602	99.26310491	98.86164255	98.46341925
200325A00027	3/25/2020	0.71	3/25/2021	3/25/2020	100.54028	100.5402805	100.5402805	100.5402805	100.3303878	99.42739841	98.54055727	97.66943454	96.81361556
200330A00025	3/30/2020	0.5	2/26/2021	3/30/2020	100.19573	100.1957322	100.1957322	100.1957322	100.0125903	99.18585932	98.37270014	97.57278111	96.78578133
200402A00051	4/2/2020	0.56	12/15/2020	4/2/2020	100.19382	100.1938249	100.1938249	100.1938249	100.0792937	99.45002666	98.82864234	98.21499323	97.60893554
200417A00003	4/17/2020	0.65	4/16/2021	4/17/2020	100.36403	100.3640257	100.3640257	100.3640257	100.1352513	99.17599251	98.23498565	97.31171399	96.40568017
200417A00022	4/17/2020	0.52	12/30/2020	4/17/2020	100.17956	100.1795636	100.1795636	100.1795636	100.0511657	99.38122803	98.72020737	98.06792684	97.42421424
200424A00019	4/24/2020	0.53	3/24/2021	4/24/2020	100.24007	100.2400658	100.2400658	100.2400658	100.0318819	99.13494518	98.25398162	97.38856783	96.53829531
190607A00010	6/7/2019	2.27	6/1/2020	6/7/2019	100.17331	100.1733099	100.1733099	100.1733099	100.1651619	100.0765052	99.98800478	99.89966029	99.81147131
190620A00013	6/20/2019	2.2	6/15/2020	6/20/2019	100.24227	100.2422712	100.2422712	100.2422712	100.2290255	100.1015798	99.97447139	99.84769907	99.72126143
190821A00014	8/22/2019	2.04	5/21/2020	8/22/2019	100.10091	100.1009068	100.1009068	100.1009068	100.095634	100.037447	99.97934194	99.9213186	99.86337684
190821A00034	8/21/2019	2.03	6/22/2020	8/21/2019	100.25543	100.2554279	100.2554279	100.2554279	100.2396359	100.0928264	99.94645608	99.80052289	99.6550249
200218A00021	2/18/2020	1.82	11/18/2020	2/18/2020	100.87744	100.8774369	100.8774369	100.8774369	100.7856257	100.227618	99.6757806	99.13001146	98.5902108
200309A00051	3/9/2020	0.72	9/10/2020	3/9/2020	100.17197	100.171971	100.171971	100.171971	100.1214501	99.75443185	99.39010498	99.02843991	98.6694075
200318A00046	3/18/2020	0.63	2/18/2021	3/18/2020	100.30513	100.3051328	100.3051328	100.3051328	100.1294437	99.32369532	98.53083855	97.75056605	96.98258021
200320A00028	3/20/2020	0.62	12/18/2020	3/20/2020	100.23502	100.2350202	100.2350202	100.2350202	100.1176908	99.48012614	98.85064994	98.22910896	97.61535383
200326A00008	3/26/2020	0.56	11/25/2020	3/26/2020	100.17684	100.1768433	100.1768433	100.1768433	100.080014	99.50518899	98.9369379	98.37514847	97.81971105
200326A00041	3/26/2020	0.36	10/2/2020	3/26/2020	100.04519	100.0451933	100.0451933	100.0451933	99.98400382	99.5569945	99.13361628	98.71382306	98.29756954
200327A00082	3/27/2020	0.36	10/8/2020	3/27/2020	100.047	100.0469953	100.0469953	100.0469953	99.98238741	99.53896274	99.09946266	98.66383518	98.23202924
200331A00025	3/31/2020	0.56	12/31/2020	3/31/2020	100.2075	100.207503	100.207503	100.207503	100.0781636	99.40540545	98.74163538	98.08667454	97.44034875
200401A00018	4/1/2020	0.7	3/30/2021	4/1/2020	100.40204	100.402043	100.402043	100.402043	100.1879324	99.27404983	98.37671928	97.49549488	96.6299466
200403A00033	4/3/2020	0.73	3/29/2021	4/3/2020	100.42854	100.4285404	100.4285404	100.4285404	100.2153687	99.30404478	98.40917944	97.53033045	96.66707134
200406A00010	4/6/2020	0.74	4/1/2021	4/6/2020	100.44173	100.441732	100.441732	100.441732	100.2257596	99.30629473	98.40357955	97.51716017	96.64659902
200406A00045	4/6/2020	0.53	12/4/2020	4/6/2020	100.16627	100.1662711	100.1662711	100.1662711	100.0619325	99.46265132	98.87051338	98.28539164	97.70716206
200413A00014	4/13/2020	0.56	4/13/2021	4/13/2020	100.42653	100.4265258	100.4265258	100.4265258	100.1997153	99.24603452	98.31037924	97.39224256	96.49113642
190709A00049	7/9/2019	2.29	6/9/2020	7/9/2019	100.22079	100.2207852	100.2207852	100.2207852	100.2097225	100.0988809	99.98829556	99.87796555	99.76788998
191210A00005	12/10/2019	1.85	11/10/2020	12/10/2019	100.85898	100.858979	100.858979	100.858979	100.7732944	100.2372294	99.70685993	99.18209543	98.66284732
191219A00046	12/19/2019	1.77	12/18/2020	12/19/2019	101.06426	101.0642629	101.0642629	101.0642629	100.9462579	100.3045559	99.67099955	99.04543414	98.42770909
191219A00050	12/19/2019	1.84	11/19/2020	12/19/2019	100.89303	100.8930318	100.8930318	100.8930318	100.8004489	100.2396563	99.68509436	99.13665958	98.59425073
191223A00045	12/23/2019	1.84	9/23/2020	12/23/2019	100.6425	100.6424974	100.6424974	100.6424974	100.5856068	100.1817802	99.78119448	99.38381063	98.98959039
200214A00011	2/18/2020	1.81	1/21/2021	2/18/2020	101.14809	101.1480915	101.1480915	101.1480915	100.9983085	100.2648205	99.54195767	98.82949039	98.12719549

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200219A00005	2/19/2020	1.81	1/20/2021	2/19/2020	101.14377	101.1437713	101.1437713	101.1437713	100.9949377	100.2641864	99.54398246	98.83409856	98.134314
200220A00023	2/20/2020	1.81	11/20/2020	2/20/2020	100.88043	100.8804279	100.8804279	100.8804279	100.7870862	100.2236002	99.66640453	99.11539435	98.57046694
200302A00055	3/2/2020	1.24	2/2/2021	3/2/2020	100.76009	100.760095	100.760095	100.760095	100.5992235	99.83477051	99.08187732	98.34028347	97.60973628
200304A00003	3/4/2020	0.98	12/4/2020	3/4/2020	100.43853	100.4385312	100.4385312	100.4385312	100.3340559	99.73384084	99.140777	98.55473721	97.9755973
200306A00026	3/6/2020	0.72	2/5/2021	3/6/2020	100.36265	100.3626471	100.3626471	100.3626471	100.1992175	99.42834079	98.66925673	97.92169659	97.18539969
200309A00024	3/11/2020	0.57	1/7/2021	3/11/2020	100.22048	100.2204784	100.2204784	100.2204784	100.0845244	99.3927451	98.71048011	98.03753424	97.37371764
200313A00012	3/16/2020	0.77	1/5/2021	3/16/2020	100.35746	100.3574646	100.3574646	100.3574646	100.2233146	99.53642506	98.858904	98.1905609	97.53121033
200316A00039	3/16/2020	0.83	2/16/2021	3/16/2020	100.46522	100.465222	100.465222	100.465222	100.2913024	99.49024328	98.70191268	97.92600922	97.16224094
200316A00047	3/16/2020	1.04	3/16/2021	3/16/2020	100.68686	100.6868593	100.6868593	100.6868593	100.4859886	99.6084233	98.74610681	97.89864437	97.06565481
200316A00058	3/16/2020	0.81	11/16/2020	3/16/2020	100.30813	100.3081323	100.3081323	100.3081323	100.2181077	99.66738756	99.12270393	98.58395792	98.05105274
200318A00001	3/18/2020	0.68	11/18/2020	3/18/2020	100.2383	100.2382985	100.2382985	100.2382985	100.1467796	99.59082972	99.04103382	98.49729006	97.95949885
200320A00017	3/20/2020	0.62	12/18/2020	3/20/2020	100.23502	100.2350202	100.2350202	100.2350202	100.1176908	99.48012614	98.85064994	98.22910896	97.61535383
200320A00040	3/20/2020	0.57	9/25/2020	3/20/2020	100.12948	100.129485	100.129485	100.129485	100.0717991	99.663749	99.259018	98.8575657	98.45935238
200324A00014	3/24/2020	0.69	12/24/2020	3/24/2020	100.28738	100.2873816	100.2873816	100.2873816	100.1644714	99.51041814	98.86486784	98.22765555	97.59862059
200324A00048	3/24/2020	0.64	11/2/2020	3/24/2020	100.19901	100.1990145	100.1990145	100.1990145	100.1197211	99.60753144	99.10055756	98.5987202	98.1019417
200326A00044	3/26/2020	0.38	10/9/2020	3/26/2020	100.05629	100.0562895	100.0562895	100.0562895	99.99110874	99.54492465	99.10271473	98.66442599	98.23000638
200330A00051	3/30/2020	0.37	10/1/2020	3/30/2020	100.04917	100.0491679	100.0491679	100.0491679	99.98854685	99.56426303	99.14356197	98.72639854	98.31272837
200403A00020	4/3/2020	0.63	3/5/2021	4/3/2020	100.31165	100.3116501	100.3116501	100.3116501	100.1217061	99.27557682	98.44365634	97.62558935	96.82103234
190621A00038	6/21/2019	2.24	6/15/2020	6/21/2019	100.24738	100.2473805	100.2473805	100.2473805	100.2341343	100.1066828	99.97956866	99.8527906	99.72634724
190709A00002	7/9/2019	2.31	7/3/2020	7/9/2019	100.36159	100.361595	100.361595	100.361595	100.3415918	100.1642399	99.98751644	99.81141807	99.63594149
190710A00011	7/10/2019	2.25	5/11/2020	7/10/2019	100.05868	100.0586791	100.0586791	100.0586791	100.055917	100.0254314	99.99498018	99.96456337	99.93418088
190815A00016	8/15/2019	2.06	8/14/2020	8/15/2019	100.5286	100.5285967	100.5285967	100.5285967	100.4903264	100.1968326	99.90506247	99.61500073	99.32663233
200129A00006	1/29/2020	1.84	1/25/2021	1/29/2020	101.18785	101.1878483	101.1878483	101.1878483	101.0342525	100.2897262	99.55613914	98.83325159	98.12083077
200220A00022	2/20/2020	1.75	2/16/2021	2/20/2020	101.21059	101.2105906	101.2105906	101.2105906	101.0361004	100.2317287	99.44012254	98.66097992	97.89400817
200311A00018	3/11/2020	0.71	12/11/2020	3/11/2020	100.28407	100.2840705	100.2840705	100.2840705	100.1731927	99.55447396	98.94337007	98.33974112	97.74345053
200318A00042	3/18/2020	0.6	12/18/2020	3/18/2020	100.22214	100.2221433	100.2221433	100.2221433	100.104821	99.46730304	98.83787312	98.21637801	97.60266834
200323A00004	3/23/2020	0.67	12/23/2020	3/23/2020	100.27301	100.273012	100.273012	100.273012	100.1510352	99.49975096	98.85690002	98.22231944	97.59585043
200323A00040	3/23/2020	0.67	12/23/2020	3/23/2020	100.27301	100.273012	100.273012	100.273012	100.1510352	99.49975096	98.85690002	98.22231944	97.59585043
200324A00015	3/24/2020	0.58	9/25/2020	3/24/2020	100.13359	100.1335935	100.1335935	100.1335935	100.0759062	99.66784602	99.26310491	98.86164255	98.46341925
200325A00002	3/25/2020	0.87	3/25/2021	3/25/2020	100.55112	100.5511213	100.5511213	100.5511213	100.341692	99.44052949	98.55545377	97.68603736	96.83186782
200327A00015	3/27/2020	0.73	3/26/2021	3/27/2020	100.42464	100.4246447	100.4246447	100.4246447	100.2143667	99.31113685	98.42408055	97.55276683	96.6967799

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200413A00001	4/13/2020	0.56	4/13/2021	4/13/2020	100.42653	100.4265258	100.4265258	100.4265258	100.1997153	99.24603452	98.31037924	97.39224256	96.49113642
200406A00058	4/6/2020	0.53	12/4/2020	4/6/2020	100.16627	100.1662711	100.1662711	100.1662711	100.0619325	99.46265132	98.87051338	98.28539164	97.70716206
200408A00023	4/8/2020	0.71	4/8/2021	4/8/2020	100.4223	100.4222998	100.4222998	100.4222998	100.2003185	99.26212377	98.34137941	97.43760241	96.55032748
200414A00005	4/14/2020	0.63	10/15/2020	4/14/2020	100.17501	100.175009	100.175009	100.175009	100.1063671	99.64345072	99.18481024	98.73038655	98.2801216
190528A00001	5/28/2019	2.51	5/22/2020	5/28/2019	100.13443	100.1344268	100.1344268	100.1344268	100.1289008	100.0679207	100.0070281	99.94622285	99.88550478
190531A00055	5/31/2019	2.49	5/29/2020	5/31/2019	100.17481	100.1748092	100.1748092	100.1748092	100.1675264	100.0871675	100.0069394	99.92684178	99.84687435
190910A00026	9/10/2019	2.06	7/10/2020	9/10/2019	100.35386	100.353865	100.353865	100.353865	100.3308569	100.1341674	99.93825967	99.74312892	99.54877052
191216A00010	12/16/2019	1.84	8/17/2020	12/16/2019	100.47996	100.4799567	100.4799567	100.4799567	100.4403604	100.138666	99.83879279	99.54072444	99.24444455
191223A00049	12/23/2019	1.85	10/23/2020	12/23/2019	100.77941	100.779412	100.779412	100.779412	100.7059788	100.2194566	99.73763021	99.26043175	98.78779478
200311A00011	3/11/2020	0.71	12/11/2020	3/11/2020	100.28407	100.2840705	100.2840705	100.2840705	100.1731927	99.55447396	98.94337007	98.33974112	97.74345053
200316A00014	3/16/2020	1.04	3/16/2021	3/16/2020	100.68686	100.6868593	100.6868593	100.6868593	100.4859886	99.6084233	98.74610681	97.89864437	97.06565481
200331A00003	3/31/2020	0.51	11/2/2020	3/31/2020	100.1319	100.1318993	100.1318993	100.1318993	100.0526334	99.54064447	99.03386985	98.53223028	98.03564813
200406A00043	4/6/2020	0.5	11/6/2020	4/6/2020	100.1294	100.1293978	100.1293978	100.1293978	100.0470814	99.52419126	99.00674619	98.49466145	97.98785406
200408A00016	4/8/2020	0.71	4/5/2021	4/8/2020	100.40934	100.4093413	100.4093413	100.4093413	100.1899885	99.26005805	98.34727107	97.45115731	96.57126361
200413A00020	4/13/2020	0.65	3/12/2021	4/13/2020	100.33633	100.3363328	100.3363328	100.3363328	100.1396225	99.27451909	98.42427177	97.58850057	96.76683839
200414A00018	4/16/2020	0.61	12/21/2020	4/16/2020	100.23156	100.2315623	100.2315623	100.2315623	100.1114593	99.46575911	98.82835301	98.19908194	97.57779091
190621A00011	6/21/2019	2.21	5/21/2020	6/21/2019	100.11082	100.1108209	100.1108209	100.1108209	100.1055474	100.0473522	99.98923885	99.93120731	99.87325735
190718A00016	7/18/2019	2.24	6/18/2020	7/18/2019	100.26479	100.2647894	100.2647894	100.2647894	100.2504496	100.1146769	99.97928445	99.84427063	99.70963382
191206A00012	12/6/2019	1.82	6/8/2020	12/6/2019	100.16439	100.1643874	100.1643874	100.1643874	100.1536939	100.0456746	99.9378985	99.83036468	99.72307235
200214A00023	2/19/2020	1.81	12/15/2020	2/19/2020	100.98823	100.9882316	100.9882316	100.9882316	100.8732713	100.2411548	99.6169465	99.00049841	98.39166639
200219A00002	2/19/2020	1.82	10/19/2020	2/19/2020	100.74735	100.7473531	100.7473531	100.7473531	100.6762164	100.200752	99.72977725	99.26322869	98.80104404
200318A00033	3/18/2020	0.58	2/18/2021	3/18/2020	100.26435	100.2643465	100.2643465	100.2643465	100.0886889	99.28312287	98.4904464	97.71035218	96.94254265
200318A00045	3/18/2020	0.62	1/15/2021	3/18/2020	100.26361	100.2636113	100.2636113	100.2636113	100.1200804	99.40645741	98.70295965	98.00937281	97.32548859
200319A00021	3/19/2020	0.6	12/18/2020	3/19/2020	100.22214	100.2221433	100.2221433	100.2221433	100.104821	99.46730304	98.83787312	98.21637801	97.60266834
200319A00033	3/19/2020	0.63	2/19/2021	3/19/2020	100.30611	100.3061066	100.3061066	100.3061066	100.1294706	99.32101788	98.52554245	97.74273399	96.97229201
200320A00022	3/20/2020	0.57	9/21/2020	3/20/2020	100.12605	100.1260453	100.1260453	100.1260453	100.0702741	99.67319641	99.27926699	98.88844845	98.50070401
200320A00030	3/20/2020	0.64	1/20/2021	3/20/2020	100.28342	100.2834233	100.2834233	100.2834233	100.1351612	99.40791645	98.69118312	97.98473464	97.2883509
200325A00057	3/25/2020	0.71	2/25/2021	3/25/2020	100.37052	100.3705176	100.3705176	100.3705176	100.1881813	99.36334996	98.55201296	97.7538416	96.96851778
200403A00004	4/3/2020	0.47	10/5/2020	4/3/2020	100.09434	100.0943398	100.0943398	100.0943398	100.0314246	99.59608086	99.16451516	98.73667843	98.31252249
200406A00047	4/6/2020	0.63	3/5/2021	4/6/2020	100.31165	100.3116501	100.3116501	100.3116501	100.1217061	99.27557682	98.44365634	97.62558935	96.82103234
200408A00018	4/8/2020	0.5	10/9/2020	4/8/2020	100.11025	100.1102526	100.1102526	100.1102526	100.0450528	99.59872449	99.15637129	98.71794021	98.28337918

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200422A00025	4/22/2020	0.47	4/22/2021	4/22/2020	100.34831	100.3483138	100.3483138	100.3483138	100.1138152	99.1362971	98.17772084	97.23754063	96.31523142
200428A00008	4/28/2020	0.45	4/28/2021	4/28/2020	100.33398	100.3339829	100.3339829	100.3339829	100.0943233	99.10072687	98.1266919	97.17164602	96.23503898
190530A00046	5/30/2019	2.51	5/29/2020	5/30/2019	100.17642	100.1764199	100.1764199	100.1764199	100.169137	100.0887768	100.0085473	99.92844833	99.84847958
190813A00003	8/13/2019	2.04	7/13/2020	8/13/2019	100.36473	100.3647339	100.3647339	100.3647339	100.3404372	100.135452	99.93131644	99.72802517	99.52557288
190910A00025	9/10/2019	2.05	6/10/2020	9/10/2019	100.19896	100.1989577	100.1989577	100.1989577	100.1875338	100.0739512	99.96063803	99.8475932	99.73481576
191216A00011	12/16/2019	1.84	10/16/2020	12/16/2019	100.74368	100.7436832	100.7436832	100.7436832	100.6742613	100.2070343	99.7441443	99.28553106	98.83113536
200108A00011	1/8/2020	1.88	1/4/2021	1/8/2020	101.12302	101.1230178	101.1230178	101.1230178	100.9893487	100.3022213	99.62441554	98.95574276	98.29601932
200121A00001	1/21/2020	1.88	1/15/2021	1/21/2020	101.17267	101.1726739	101.1726739	101.1726739	101.0285551	100.3112875	99.6041818	98.90702296	98.21960209
200203A00020	2/3/2020	1.83	9/3/2020	2/3/2020	100.55132	100.5513229	100.5513229	100.5513229	100.5040511	100.1554195	99.80920165	99.46537259	99.12390769
200218A00016	2/18/2020	1.83	9/18/2020	2/18/2020	100.61666	100.6166638	100.6166638	100.6166638	100.5621786	100.1721528	99.78515556	99.40115153	99.02010602
200218A00022	2/18/2020	1.82	12/18/2020	2/18/2020	101.00763	101.0076333	101.0076333	101.0076333	100.8898792	100.2495122	99.61725901	98.99296593	98.37648325
200309A00053	3/9/2020	0.68	12/9/2020	3/9/2020	100.26296	100.2629623	100.2629623	100.2629623	100.1539468	99.54073913	98.93501122	98.33662684	97.74545303
200319A00010	3/19/2020	0.65	3/19/2021	3/19/2020	100.47659	100.4765949	100.4765949	100.4765949	100.2725591	99.3860893	98.51519655	97.65947326	96.81852594
200319A00017	3/19/2020	0.6	12/15/2020	3/19/2020	100.21925	100.2192459	100.2192459	100.2192459	100.1047009	99.47534276	98.85386807	98.2401294	97.63398292
200323A00012	3/23/2020	0.69	2/23/2021	3/23/2020	100.3516	100.3515951	100.3515951	100.3515951	100.1711656	99.35181877	98.54579236	97.75276389	96.97242119
200323A00019	3/23/2020	0.69	3/23/2021	3/23/2020	100.51883	100.5188299	100.5188299	100.5188299	100.31089	99.41340859	98.53188444	97.66589517	96.81503321
200325A00022	3/25/2020	0.62	10/26/2020	3/25/2020	100.18158	100.1815845	100.1815845	100.1815845	100.1066728	99.61365925	99.12548478	98.64207845	98.1633707
200325A00056	3/25/2020	0.63	11/25/2020	3/25/2020	100.21745	100.2174477	100.2174477	100.2174477	100.120599	99.54563971	98.97725537	98.41533378	97.85976526
200327A00052	3/27/2020	0.73	3/26/2021	3/27/2020	100.42464	100.4246447	100.4246447	100.4246447	100.2143667	99.31113685	98.42408055	97.55276683	96.6967799
200330A00063	3/30/2020	0.64	3/30/2021	3/30/2020	100.34645	100.3464509	100.3464509	100.3464509	100.1323919	99.21878727	98.32173117	97.44077778	96.57549714
200406A00023	4/6/2020	0.53	12/4/2020	4/6/2020	100.16627	100.1662711	100.1662711	100.1662711	100.0619325	99.46265132	98.87051338	98.28539164	97.70716206
160603A00015	6/3/2016	1.95	6/5/2023	6/3/2016	104.93988	104.9398845	104.9398845	104.9398845	103.7376983	100.8134227	97.98915962	95.26089648	92.62480735
160708A00021	7/8/2016	2	7/6/2029	7/8/2016	108.18763	108.1876346	108.1876346	107.8132246	103.9749159	99.38202416	95.07931505	91.04517986	87.25980349
170417A00018	4/17/2017	2.82	4/17/2030	4/17/2017	113.31893	113.3189334	113.3189334	112.6849019	108.2032743	103.0653514	98.27481556	93.80408198	89.62799892
170417A00059	4/17/2017	2.14	4/18/2022	4/17/2017	103.49652	103.4965224	103.4965224	103.4965224	102.9948584	101.1289231	99.30736387	97.52884509	95.79208043
170519A00021	5/19/2017	2.79	5/20/2030	5/19/2017	113.25382	113.253819	113.253819	112.5918596	108.0681114	102.9014997	98.086604	93.5953096	89.4019977
170609A00011	6/9/2017	2.74	6/10/2030	6/9/2017	113.09853	113.0985265	113.0985265	112.4062315	107.8335967	102.6344284	97.7918633	93.27719657	89.06428841
170720A00017	7/20/2017	2.74	7/19/2030	7/20/2017	113.20907	113.2090712	113.2090712	112.4851062	107.8581912	102.618284	97.74035495	93.19506688	88.95572115
170811A00006	8/11/2017	2.67	8/12/2030	8/11/2017	112.92128	112.9212772	112.9212772	112.1681787	107.5038052	102.2419657	97.34617282	92.78656187	88.53597137
170830A00040	8/30/2017	1.84	8/30/2022	8/30/2017	101.89111	101.8911128	101.8911128	101.8911128	101.5841179	100.3799647	99.20144653	98.04779726	96.91828039
180329A00011	3/29/2018	2.77	3/29/2023	3/29/2018	103.80649	103.8064852	103.8064852	103.8064852	103.3605332	101.8359671	100.3490385	98.89851037	97.48319599

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180402A00025	4/2/2018	3.27	4/2/2031	4/2/2018	117.44965	117.4496492	117.4496492	116.3893316	111.1369642	105.3759388	100.038041	95.08691637	90.48966668
150601A00460	6/1/2015	3.05	5/16/2029	6/1/2015	112.28125	112.281248	112.281248	111.9847827	108.3780505	103.9115281	99.71645235	95.77320675	92.0637628
150601A00589	6/1/2015	2.52	7/14/2025	6/1/2015	105.72913	105.7291347	105.7291347	105.7291347	104.5245499	101.9323455	99.43959754	97.0416064	94.73393001
160608A00031	6/8/2016	2.36	6/8/2026	6/8/2016	111.15903	111.1590329	111.1590329	111.1590329	106.7905924	101.5197872	96.5628257	91.89904019	87.50923917
160610A00017	6/10/2016	2.21	6/11/2029	6/10/2016	109.14673	109.146725	109.146725	108.7918249	104.9702369	100.3723658	96.0627269	92.02001438	88.22467858
170324A00011	3/24/2017	3	3/25/2030	3/24/2017	114.19044	114.1904361	114.1904361	113.5806346	109.1153271	103.9741109	99.17799602	94.6997661	90.51459011
170630A00023	6/30/2017	2.77	7/1/2030	6/30/2017	113.26753	113.2675264	113.2675264	112.5735118	107.9936518	102.7864149	97.93638534	93.4148041	89.19548253
170908A00007	9/8/2017	2.52	9/9/2030	9/8/2017	112.17164	112.1716432	112.1716432	111.392082	106.7098349	101.4479069	96.55459716	91.99963187	87.75549435
171020A00012	10/20/2017	2.85	10/21/2030	10/20/2017	114.17703	114.1770338	114.1770338	113.3507185	108.5355681	103.1442796	98.13331856	93.47123939	89.12947882
180126A00015	1/26/2018	3.08	1/27/2031	1/26/2018	115.89857	115.8985678	115.8985678	114.9575044	109.9208581	104.3412845	99.16346698	94.35353196	89.88076923
180302A00012	3/2/2018	3.3	3/4/2031	3/2/2018	117.3604	117.3604007	117.3604007	116.3720604	111.2222245	105.5365511	100.2630333	95.36669692	90.8158538
180607A00028	6/7/2018	2.76	6/7/2021	6/7/2018	101.47379	101.4737925	101.4737925	101.4737925	101.3548868	100.7634367	100.1807652	99.60665505	99.04089653
150601A00439	6/1/2015	2.57	3/18/2024	6/1/2015	104.39553	104.3955273	104.3955273	104.3955273	103.6895577	101.7478869	99.86515936	98.03909702	96.26752705
170428A00034	4/28/2017	2.92	4/29/2030	4/28/2017	113.87104	113.8710417	113.8710417	113.2335394	108.7299593	103.5669141	98.75298431	94.26044425	90.06401432
170505A00007	5/5/2017	2.92	5/6/2030	5/5/2017	113.98813	113.9881299	113.9881299	113.3210106	108.762921	103.5589819	98.70941147	94.18587977	89.96257168
170512A00030	5/12/2017	2.94	5/12/2027	5/12/2017	115.47907	115.4790674	115.4790674	115.3746574	109.8865541	104.1297418	98.74970748	93.71906166	89.01256615
170705A00021	7/5/2017	2.59	7/6/2027	7/5/2017	113.23831	113.2383085	113.2383085	113.0850556	108.3618942	103.1274885	98.2256215	93.63236878	89.32568503
170901A00005	9/1/2017	2.58	9/3/2030	9/1/2017	112.51335	112.5133468	112.5133468	111.7316511	107.0353687	101.7575895	96.84952153	92.28080319	88.02383771
171130A00037	11/10/2017	2.85	11/12/2030	11/10/2017	114.29223	114.2922295	114.2922295	113.4322799	108.5632384	103.1313107	98.08520202	93.39280486	89.02497307
180321A00015	3/21/2018	3.02	3/21/2025	3/21/2018	107.64783	107.6478289	107.6478289	107.6478289	106.3138045	103.5110117	100.8184273	98.23077426	95.74306614
180508A00038	5/8/2018	3.57	5/9/2033	5/8/2018	123.15489	123.1548854	123.1548854	120.9499567	114.2097993	107.2771895	100.9365811	95.12918561	89.80263674
150601A00433	6/1/2015	1.91	3/17/2021	6/1/2015	100.72534	100.7253448	100.7253448	100.7253448	100.6442111	100.1971901	99.75562891	99.31941648	98.88844484
150601A00440	6/1/2015	3.27	3/16/2029	6/1/2015	113.03311	113.0331134	113.0331134	112.7743724	109.2516502	104.8328733	100.6782335	96.76893244	93.08767191
150601A00450	6/1/2015	3.28	4/27/2029	6/1/2015	113.24154	113.2415405	113.2415405	112.9562529	109.3613922	104.888059	100.6849846	96.73273893	93.01345767
160531A00012	5/31/2016	1.43	6/1/2021	5/31/2016	100.68658	100.6865788	100.6865788	100.6865788	100.5678866	99.97837997	99.39764531	98.82546513	98.26162956
160609A00075	6/9/2016	1.94	6/9/2026	6/9/2016	105.25027	105.250274	105.250274	105.250274	103.4942991	100.3740767	97.3929435	94.54340494	91.81842732
161222A00035	12/22/2016	2.29	12/22/2023	12/22/2016	103.78084	103.7808444	103.7808444	103.7808444	103.1319502	101.2641375	99.4506008	97.6893159	95.97834945
170406A00031	4/6/2017	3.01	4/6/2027	4/6/2017	116.608	116.6080037	116.6080037	116.5683607	110.6734411	104.6435177	99.01212208	93.75028263	88.83129283
170831A00026	8/31/2017	1.65	8/31/2020	8/31/2017	100.29745	100.2974526	100.2974526	100.2974526	100.2713733	100.0589489	99.84759698	99.63730858	99.42807485
170915A00019	9/15/2017	2.67	9/16/2030	9/15/2017	113.02835	113.0283503	113.0283503	112.242642	107.524644	102.2225354	97.2918731	92.7021492	88.42563443
180202A00020	2/2/2018	3.41	2/3/2031	2/2/2018	118.02925	118.0292521	118.0292521	117.0361967	111.8577636	106.1402574	100.8371376	95.91324877	91.33673785

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00342	6/1/2015	3.97	8/26/2033	6/1/2015	124.05171	124.0517089	124.0517089	122.035722	115.7260814	109.1120257	103.051056	97.48866345	92.37628864
150601A00434	6/1/2015	1.91	3/17/2021	6/1/2015	100.72534	100.7253444	100.7253444	100.7253444	100.6442108	100.19719	99.75562906	99.31941685	98.88844543
150601A00559	6/1/2015	3.06	8/31/2029	6/1/2015	112.7253	112.7253049	112.7253049	112.3531249	108.5617216	103.9564299	99.63873912	95.58731963	91.78261156
161222A00036	12/22/2016	2.69	12/22/2026	12/22/2016	108.1102	108.1102001	108.1102001	108.1102001	106.0607151	102.7102196	99.5173391	96.47311673	93.56917494
170616A00012	6/16/2017	2.69	6/17/2030	6/16/2017	112.8197	112.8197046	112.8197046	112.1288528	107.5672782	102.380762	97.55000049	93.04635507	88.84374651
170804A00009	8/4/2017	2.71	8/5/2030	8/4/2017	113.14792	113.1479215	113.1479215	112.3935853	107.7200839	102.4478654	97.54239622	92.97375644	88.71473389
170825A00015	8/25/2017	2.68	8/26/2030	8/25/2017	112.97885	112.9788542	112.9788542	112.2248875	107.5578633	102.2931307	97.39468137	92.8326279	88.57978824
170921A00056	9/21/2017	2.82	9/21/2027	9/21/2017	116.31313	116.3131332	116.3131332	115.8989351	109.6605954	103.3563587	97.49189587	92.03355297	86.95043649
170925A00048	9/25/2017	2.75	9/25/2030	9/25/2017	113.48721	113.487206	113.487206	112.6980344	107.9608134	102.6371282	97.68642181	93.07805791	88.78419082
171117A00017	11/17/2017	2.9	11/18/2030	11/17/2017	114.58546	114.5854612	114.5854612	113.7231124	108.8414998	103.3955765	98.33648006	93.63201748	89.25296517
171208A00017	12/8/2017	2.9	12/9/2030	12/8/2017	114.70307	114.7030744	114.7030744	113.806498	108.8709132	103.3842229	98.28989809	93.55507475	89.14993841
171215A00022	12/15/2017	2.91	12/16/2030	12/15/2017	114.76263	114.7626341	114.7626341	113.8653452	108.9270545	103.4374002	98.34034002	93.60298873	89.19551297
180119A00025	1/19/2018	3.08	1/21/2031	1/19/2018	115.89815	115.8981534	115.8981534	114.957299	109.9207768	104.3413011	99.16355875	94.35367969	89.88095689
180209A00010	2/9/2018	3.25	2/10/2031	2/9/2018	117.05505	117.0550456	117.0550456	116.069857	110.9337544	105.2631213	100.0035036	95.12002926	90.58110229
150601A00435	6/1/2015	1.91	3/17/2021	6/1/2015	100.72534	100.7253441	100.7253441	100.7253441	100.6442105	100.1971899	99.75562918	99.31941716	98.88844592
160524A00006	5/24/2016	1.3	5/26/2020	5/24/2016	100.0708	100.0708036	100.0708036	100.0708036	100.0642805	99.99230042	99.92043155	99.84867362	99.7770264
160608A00026	6/8/2016	2.36	6/8/2026	6/8/2016	111.15903	111.1590329	111.1590329	111.1590329	106.7905924	101.5197872	96.5628257	91.89904019	87.50923917
160608A00032	6/8/2016	2.36	6/8/2026	6/8/2016	111.15903	111.1590329	111.1590329	111.1590329	106.7905924	101.5197872	96.5628257	91.89904019	87.50923917
160620A00018	6/20/2016	1.25	6/21/2021	6/20/2016	100.61871	100.6187145	100.6187145	100.6187145	100.4888036	99.86020911	99.24159189	98.63268874	98.03324615
160701A00032	7/1/2016	1.99	7/2/2029	7/1/2016	108.13796	108.1379579	108.1379579	107.7638574	103.9273996	99.33668728	95.03601076	91.00377323	87.22017041
160715A00015	7/15/2016	2.13	7/16/2029	7/15/2016	108.83312	108.833123	108.833123	108.4561553	104.5948267	99.97443659	95.64598772	91.58773799	87.77975026
161222A00037	12/22/2016	3.08	12/22/2031	12/22/2016	116.34009	116.3400876	116.3400876	115.1365541	109.9146898	104.2055363	98.92643255	94.03918338	89.50935892
170317A00022	3/17/2017	3.11	3/18/2030	3/17/2017	114.79424	114.7942428	114.7942428	114.1814993	109.6928649	104.5246867	99.70339718	95.20164131	90.99446118
170407A00012	4/7/2017	2.88	4/8/2030	4/7/2017	113.64894	113.6489384	113.6489384	113.0134021	108.5190127	103.3663528	98.56205047	94.07844646	89.89032108
170602A00010	6/2/2017	2.7	6/3/2030	6/2/2017	112.87471	112.874709	112.874709	112.1840273	107.6205824	102.4318156	97.59892234	93.09325847	88.88873918
170623A00020	6/23/2017	2.67	6/24/2030	6/23/2017	112.70863	112.7086295	112.7086295	112.0182064	107.4609207	102.2793544	97.45322265	92.95391081	88.75536141
171006A00020	10/6/2017	2.88	10/7/2030	10/6/2017	114.35041	114.3504059	114.3504059	113.523344	108.7011962	103.3019662	98.28358759	93.61457564	89.26633113
171013A00004	10/13/2017	2.77	10/15/2030	10/13/2017	113.71303	113.713034	113.713034	112.8902525	108.0946713	102.7252913	97.73468087	93.09152493	88.76737846
171103A00011	11/3/2017	2.83	11/4/2030	11/3/2017	114.17476	114.1747626	114.1747626	113.3159796	108.4521097	103.0258969	97.98507809	93.29758358	88.93430102
171222A00017	12/22/2017	3.04	12/23/2030	12/22/2017	115.53339	115.5333864	115.5333864	114.6298726	109.6584195	104.1319022	99.00062912	94.23149114	89.79445219
180112A00013	1/12/2018	3.05	1/14/2031	1/12/2018	115.71793	115.7179302	115.7179302	114.7787729	109.7501873	104.1794695	99.00983782	94.20747878	89.74173639

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180316A00003	3/16/2018	2.43	3/16/2021	3/16/2018	101.1728	101.1728034	101.1728034	101.1728034	101.0792395	100.5727513	100.0726408	99.57877501	99.09102435
150601A00528	6/1/2015	3.08	7/27/2029	6/1/2015	112.68603	112.6860344	112.6860344	112.3394365	108.6063318	104.0433098	99.76270542	95.74375041	91.96738592
150601A00542	6/1/2015	1.97	8/4/2021	6/1/2015	101.06608	101.0660819	101.0660819	101.0660819	100.9310336	100.2928885	99.6656527	99.04901592	98.44268029
150601A00684	6/1/2015	2.25	2/7/2025	6/1/2015	104.62253	104.622533	104.622533	104.622533	103.6002396	101.2290203	98.94269351	96.73748471	94.60981564
170630A00051	6/30/2017	1.75	6/30/2021	6/30/2017	100.93663	100.9366324	100.9366324	100.9366324	100.8064452	100.1761075	99.55580751	98.94527886	98.34426511
170929A00028	9/29/2017	2.8	9/30/2030	9/29/2017	113.77459	113.7745871	113.7745871	112.9832698	108.2340276	102.8968519	97.93361211	93.31359165	89.0088722
171127A00023	11/27/2017	2.85	11/27/2030	11/27/2017	114.29317	114.2931691	114.2931691	113.4327	108.563311	103.1311042	98.08477487	93.39220648	89.02424501
180322A00030	3/22/2018	2.79	3/24/2025	3/22/2018	106.91693	106.9169273	106.9169273	106.9169273	105.7690204	103.1910822	100.7085213	98.31698468	96.01235033
180323A00008	3/23/2018	3.35	3/24/2031	3/23/2018	117.80549	117.8054889	117.8054889	116.7776696	111.5586085	105.8155737	100.491617	95.55095235	90.96117619
150601A00316	6/1/2015	1.93	6/19/2020	6/1/2015	100.11243	100.1124251	100.1124251	100.1124251	100.1055012	100.0357124	99.96608493	99.89661811	99.82731138
150601A00320	6/1/2015	2.63	6/28/2023	6/1/2015	103.6781	103.6780998	103.6780998	103.6780998	103.1874959	101.6024876	100.0587604	98.55490016	97.08955254
150601A00443	6/1/2015	1.91	4/9/2021	6/1/2015	100.77951	100.7795079	100.7795079	100.7795079	100.6885437	100.2074741	99.73270273	99.26409221	98.80150941
150601A00506	6/1/2015	3.14	7/6/2029	6/1/2015	112.88618	112.8861817	112.8861817	112.5532958	108.8484797	104.3024669	100.0363301	96.02958908	92.26344178
150601A00549	6/1/2015	1.94	8/13/2021	6/1/2015	101.0682	101.0682038	101.0682038	101.0682038	100.9296036	100.2787077	99.63903153	99.01025485	98.39207002
160628A00006	6/28/2016	1.44	6/28/2023	6/28/2016	101.89572	101.895722	101.895722	101.895722	101.3924797	99.77472607	98.19933588	96.66485393	95.16988644
160707A00017	7/7/2016	1.22	7/7/2021	7/7/2016	101.28319	101.283194	101.283194	101.283194	101.0058993	99.85428681	98.72926315	97.62991143	96.55535663
170331A00016	3/31/2017	3.02	4/1/2030	3/31/2017	114.3006	114.3006015	114.3006015	113.6900028	109.2202946	104.0740585	99.27327633	94.79070206	90.60147784
170518A00028	5/18/2017	2.45	5/20/2024	5/18/2017	108.19232	108.1923165	108.1923165	108.1923165	106.2724324	102.5275054	98.94180696	95.50764927	92.21775964
170526A00022	5/26/2017	2.77	5/28/2030	5/26/2017	113.15592	113.1559178	113.1559178	112.4928291	107.9673526	102.8008936	97.98631109	93.49546813	89.30272627
170714A00014	7/14/2017	2.78	7/15/2030	7/14/2017	113.42372	113.4237247	113.4237247	112.6998435	108.0689873	102.8228289	97.93893806	93.38796177	89.14318649
170817A00008	8/17/2017	2.71	8/16/2030	8/17/2017	113.14857	113.1485723	113.1485723	112.3938306	107.7200392	102.4475836	97.54192146	92.97312639	88.71398063
180302A00014	3/2/2018	2.69	3/2/2023	3/2/2018	103.57944	103.5794393	103.5794393	103.5794393	103.1551571	101.6748926	100.2304479	98.82066097	97.44441697
180612A00012	6/12/2018	2.94	6/12/2023	6/12/2018	104.41047	104.4104651	104.4104651	104.4104651	103.895844	102.2395238	100.6265312	99.05537992	97.52464621
180712A00048	7/12/2018	3.05	7/12/2023	7/12/2018	108.57335	108.5733498	108.5733498	108.5733498	107.2617888	104.1601828	101.1672084	98.27838988	95.48946625
150601A00571	6/1/2015	2.5	9/23/2022	6/1/2015	102.55613	102.5561255	102.5561255	102.5561255	102.2455769	101.0802517	99.94006908	98.82427675	97.73215044
200319A00039	3/19/2020	1.12	3/18/2022	3/19/2020	101.56809	101.5680851	101.5680851	101.5680851	101.0764248	99.22290291	97.41220999	95.64310627	93.9143958
200320A00026	3/20/2020	2.11	3/20/2029	3/20/2020	116.04565	116.0456456	116.0456456	113.8003426	104.9665671	96.74759575	89.24115349	82.38171907	76.11010312
200325A00044	3/25/2020	1.7	12/23/2024	3/25/2020	106.53011	106.530106	106.530106	106.530106	103.8298201	99.31219033	95.01625857	90.92998082	87.04203346
200325A00048	3/25/2020	1.34	12/27/2022	3/25/2020	102.80579	102.8057939	102.8057939	102.8057939	101.8743284	99.26526704	96.73577696	94.28293359	91.90394091
200327A00019	3/30/2020	0.85	3/15/2022	3/30/2020	101.06847	101.0684741	101.0684741	101.0684741	100.5807192	98.7394606	96.94060816	95.18293892	93.46527299
200327A00031	3/27/2020	1.18	3/27/2025	3/27/2020	104.31923	104.319232	104.319232	104.319232	101.338838	96.64154132	92.18704075	87.9616031	83.95233906

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200327A00042	3/27/2020	0.83	3/27/2024	3/27/2020	102.81371	102.8137098	102.8137098	102.8137098	100.8691239	97.07867067	93.44950115	89.97395225	86.6447642
200327A00054	3/27/2020	0.9	3/27/2023	3/27/2020	101.7726	101.7725993	101.7725993	101.7725993	100.6625695	97.83252698	95.09583303	92.44892169	89.88838298
200330A00007	3/30/2020	0.93	4/1/2024	3/30/2020	102.50817	102.5081719	102.5081719	102.5081719	100.565655	96.78796329	93.17112545	89.70749207	86.38981672
200330A00008	3/30/2020	1.09	3/28/2025	3/30/2020	103.87684	103.8768387	103.8768387	103.8768387	100.8978416	96.20881134	91.76243141	87.54496555	83.54352217
200330A00046	3/30/2020	0.86	3/30/2023	3/30/2020	101.65994	101.659943	101.659943	101.659943	100.5441431	97.70822671	94.96610532	92.31418642	89.74903513
200331A00018	3/31/2020	0.82	3/31/2023	3/31/2020	101.54371	101.5437083	101.5437083	101.5437083	100.4263228	97.58960352	94.84679966	92.19431085	89.6286948
200402A00026	4/2/2020	1.28	4/2/2026	4/2/2020	105.80036	105.8003561	105.8003561	105.8003561	101.0976664	95.50207897	90.24793087	85.31273358	80.67558689
200402A00035	4/2/2020	0.62	4/3/2023	4/2/2020	101.48501	101.4850077	101.4850077	101.4850077	100.3558485	97.50013625	94.73949318	92.0702551	89.48891962
200402A00036	4/2/2020	0.71	4/2/2024	4/2/2020	102.34901	102.3490077	102.3490077	102.3490077	100.3931126	96.59679407	92.96274974	89.48323655	86.15092075
200402A00041	4/2/2020	1.03	4/2/2025	4/2/2020	103.59023	103.5902346	103.5902346	103.5902346	100.5975103	95.90351542	91.45316592	87.23263017	83.22892949
200402A00048	4/2/2020	0.71	4/2/2024	4/2/2020	102.34901	102.3490077	102.3490077	102.3490077	100.3931126	96.59679407	92.96274974	89.48323655	86.15092075
200406A00049	4/6/2020	0.92	4/6/2023	4/6/2020	101.84845	101.8484549	101.8484549	101.8484549	100.7169716	97.86024148	95.09857201	92.4282987	89.84591895
200406A00053	4/6/2020	1.13	4/7/2025	4/6/2020	104.09704	104.0970378	104.0970378	104.0970378	101.0817479	96.36347092	91.89057789	87.64910537	83.62595321
200407A00004	4/7/2020	0.99	4/7/2025	4/7/2020	104.3517	104.351696	104.351696	104.351696	101.3100632	96.55625884	92.05044212	87.77846406	83.72705277
200414A00019	4/16/2020	0.69	4/20/2021	4/16/2020	100.40751	100.4075107	100.4075107	100.4075107	100.1752514	99.20501946	98.25345075	97.32001122	96.40418701
200320A00013	3/20/2020	1.25	3/20/2024	3/20/2020	104.45262	104.4526187	104.4526187	104.4526187	102.5133997	98.70851084	95.06442482	91.57354357	88.22866692
200324A00029	3/24/2020	1.86	3/24/2025	3/24/2020	107.66529	107.6652853	107.6652853	107.6652853	104.6593144	99.88894299	95.36357948	91.06941923	86.99350343
200325A00038	3/25/2020	1.48	9/25/2023	3/25/2020	104.06777	104.0677677	104.0677677	104.0677677	102.5519149	99.22144307	96.01619416	92.93082064	89.96023164
200325A00043	3/25/2020	1.62	6/25/2024	3/25/2020	105.54511	105.5451101	105.5451101	105.5451101	103.3655452	99.3144339	95.44377285	91.74455576	88.20827756
200326A00012	3/26/2020	0.99	3/25/2022	3/26/2020	101.33426	101.3342563	101.3342563	101.3342563	100.8364665	98.96709948	97.14132729	95.35787638	93.6155187
200327A00032	3/27/2020	0.66	3/28/2022	3/27/2020	101.04713	101.0471303	101.0471303	101.0471303	100.5453472	98.66470573	96.82821078	95.0345646	93.28251618
200327A00055	3/27/2020	1.01	3/27/2024	3/27/2020	102.81464	102.81464	102.81464	102.81464	100.8819978	97.11063253	93.49926412	90.04031015	86.72658622
200327A00056	3/27/2020	1.18	3/27/2025	3/27/2020	104.31923	104.319232	104.319232	104.319232	101.338838	96.64154132	92.18704075	87.9616031	83.95233906
200327A00058	3/27/2020	0.9	3/27/2023	3/27/2020	101.7726	101.7725993	101.7725993	101.7725993	100.6625695	97.83252698	95.09583303	92.44892169	89.88838298
200330A00020	3/30/2020	0.68	3/30/2021	3/30/2020	100.38351	100.3835123	100.3835123	100.3835123	100.1694189	99.25562898	98.35838991	97.47725584	96.61179678
200331A00011	3/31/2020	1.09	3/31/2025	3/31/2020	103.88332	103.8833231	103.8833231	103.8833231	100.8943076	96.19809467	91.74527334	87.52204454	83.515459
200331A00017	3/31/2020	0.9	3/31/2025	3/31/2020	103.88723	103.8872313	103.8872313	103.8872313	100.8748603	96.14938827	91.66966202	87.42170965	83.39242206
200402A00017	4/2/2020	0.76	4/1/2022	4/2/2020	100.90123	100.9012343	100.9012343	100.9012343	100.3976294	98.51435588	96.67541834	94.87950957	93.12536958
200402A00030	4/2/2020	0.8	4/3/2023	4/2/2020	101.48894	101.4889352	101.4889352	101.4889352	100.3653969	97.52172493	94.77246482	92.11398668	89.5428205
200403A00010	4/6/2020	0.8	4/6/2023	4/6/2020	101.49306	101.4930637	101.4930637	101.4930637	100.3631205	97.51163369	94.75507761	92.08979205	89.51227851
200403A00012	4/3/2020	0.55	4/15/2022	4/3/2020	100.85588	100.8558822	100.8558822	100.8558822	100.3348272	98.40818446	96.52790112	94.69257953	92.90087379

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200407A00019	4/7/2020	1.06	4/8/2024	4/7/2020	103.03679	103.0367906	103.0367906	103.0367906	101.0732826	97.26768418	93.62477716	90.1367897	86.7963614
200409A00011	4/9/2020	0.7	4/7/2023	4/9/2020	101.72833	101.7283317	101.7283317	101.7283317	100.5895385	97.71981521	94.94594675	92.26422509	89.67110662
200415A00003	4/15/2020	0.77	4/14/2023	4/15/2020	101.41456	101.414565	101.414565	101.414565	100.2679384	97.39695219	94.62225284	91.94009971	89.34691877
200417A00011	4/22/2020	0.68	7/15/2022	4/22/2020	100.85727	100.8572677	100.8572677	100.8572677	100.2178833	98.0597036	95.95810549	93.91119569	91.91716063
200417A00014	4/17/2020	0.96	4/17/2025	4/17/2020	103.26998	103.2699845	103.2699845	103.2699845	100.2294457	95.50706929	91.03191546	86.7898307	82.76754189
200323A00011	3/23/2020	1.37	3/23/2023	3/23/2020	103.13972	103.1397165	103.1397165	103.1397165	102.0322298	99.19230612	96.44557227	93.78848311	91.21764799
200323A00018	3/23/2020	1.37	3/23/2023	3/23/2020	103.13972	103.1397165	103.1397165	103.1397165	102.0322298	99.19230612	96.44557227	93.78848311	91.21764799
200324A00012	3/25/2020	1.78	3/25/2025	3/25/2020	107.27483	107.2748311	107.2748311	107.2748311	104.2696547	99.5062464	94.98774971	90.70035468	86.63109808
200324A00031	3/24/2020	1.64	3/22/2024	3/24/2020	105.27848	105.2784826	105.2784826	105.2784826	103.3404291	99.53372996	95.88745589	92.39404056	89.04631323
200325A00046	3/25/2020	1.76	3/25/2025	3/25/2020	107.17615	107.1761506	107.1761506	107.1761506	104.1720234	99.41097932	94.89475981	90.60955891	86.54241712
200325A00047	3/25/2020	1.68	9/25/2024	3/25/2020	106.1461	106.1461004	106.1461004	106.1461004	103.7112434	99.41972702	95.32936817	91.42973466	87.71098759
200326A00011	3/30/2020	1.54	3/31/2025	3/30/2020	106.11102	106.1110203	106.1110203	106.1110203	103.0981776	98.34842865	93.84404707	89.57114381	85.5166844
200326A00025	3/26/2020	0.99	3/28/2022	3/26/2020	101.34005	101.3400532	101.3400532	101.3400532	100.8393934	98.96220914	97.12896941	95.33838546	93.58921485
200327A00022	3/27/2020	0.9	3/27/2023	3/27/2020	101.7726	101.7725993	101.7725993	101.7725993	100.6625695	97.83252698	95.09583303	92.44892169	89.88838298
200327A00059	3/27/2020	1.01	3/27/2024	3/27/2020	102.81464	102.81464	102.81464	102.81464	100.8819978	97.11063253	93.49926412	90.04031015	86.72658622
200327A00088	3/27/2020	1.22	3/27/2025	3/27/2020	104.51681	104.5168118	104.5168118	104.5168118	101.5343129	96.83227769	92.37321314	88.14337814	84.12987586
200330A00006	3/30/2020	0.9	3/28/2025	3/30/2020	103.88074	103.880739	103.880739	103.880739	100.8784968	96.16028416	91.68706657	87.44493591	83.42084159
200330A00043	3/30/2020	0.86	3/30/2023	3/30/2020	101.65994	101.659943	101.659943	101.659943	100.5441431	97.70822671	94.96610532	92.31418642	89.74903513
200330A00064	3/30/2020	0.83	3/30/2023	3/30/2020	101.57167	101.5716733	101.5716733	101.5716733	100.4562516	97.62162927	94.88076999	92.23008234	89.66613243
200401A00012	4/2/2020	1	4/2/2025	4/2/2020	103.44156	103.4415574	103.4415574	103.4415574	100.4504266	95.76000852	91.31310371	87.09588654	83.09538405
200402A00013	4/2/2020	0.89	4/2/2024	4/2/2020	102.35163	102.3516312	102.3516312	102.3516312	100.4077828	96.63061944	93.01443297	89.55156191	86.23474878
200406A00060	4/6/2020	1.03	4/5/2024	4/6/2020	102.91158	102.9115845	102.9115845	102.9115845	100.9563507	97.16074872	93.52711013	90.04771333	86.71524462
200413A00003	4/13/2020	0.64	4/13/2023	4/13/2020	101.55862	101.5586203	101.5586203	101.5586203	100.4077028	97.52488092	94.73889952	92.04599097	89.4425557
200415A00031	4/15/2020	0.97	4/15/2025	4/15/2020	103.31634	103.3163439	103.3163439	103.3163439	100.2821316	95.56343938	91.09149515	86.85218843	82.83228544
200415A00038	4/15/2020	1.37	4/15/2027	4/15/2020	107.43114	107.4311365	107.4311365	107.3521282	100.5199006	94.05565785	88.0466152	82.45850436	77.25979767
200421A00021	4/21/2020	0.56	4/21/2023	4/21/2020	101.32924	101.3292385	101.3292385	101.3292385	100.1621955	97.26201057	94.45998451	91.75226943	89.1351905
200320A00025	3/20/2020	0.78	3/19/2021	3/20/2020	100.46036	100.4603576	100.4603576	100.4603576	100.2567932	99.37223761	98.50319819	97.6492696	96.81006055
200324A00066	3/26/2020	1.81	3/26/2025	3/26/2020	107.42698	107.4269827	107.4269827	107.4269827	104.4168345	99.64739284	95.12324485	90.83055353	86.75633061
200327A00043	3/27/2020	1.48	3/27/2028	3/27/2020	110.87017	110.8701662	110.8701662	109.7379263	101.8634942	94.50008137	87.71797629	81.46844249	75.70705423
200327A00047	3/27/2020	0.99	3/27/2025	3/27/2020	104.32523	104.3252347	104.3252347	104.3252347	101.3215909	96.59505118	92.11365345	87.8634927	83.83152065
200327A00060	3/27/2020	1.18	3/27/2025	3/27/2020	104.31923	104.319232	104.319232	104.319232	101.338838	96.64154132	92.18704075	87.9616031	83.95233906

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					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	104.32523	104.3252347	104.3252347	104.3252347	101.3215909	96.59505118	92.11365345	87.8634927	83.83152065
200330A00017	3/30/2020	0.86	3/30/2023	3/30/2020	101.65994	101.659943	101.659943	101.659943	100.5441431	97.70822671	94.96610532	92.31418642	89.74903513
200330A00028	3/30/2020	1.09	3/28/2025	3/30/2020	103.87684	103.8768387	103.8768387	103.8768387	100.8978416	96.20881134	91.76243141	87.54496555	83.54352217
200330A00037	3/30/2020	1.09	3/28/2025	3/30/2020	103.87684	103.8768387	103.8768387	103.8768387	100.8978416	96.20881134	91.76243141	87.54496555	83.54352217
200331A00015	3/31/2020	0.64	3/31/2023	3/31/2020	101.53992	101.5399182	101.5399182	101.5399182	100.4169547	97.56824348	94.8141008	92.1508922	89.57514328
200402A00038	4/2/2020	0.84	4/2/2025	4/2/2020	103.59277	103.5927701	103.5927701	103.5927701	100.576642	95.85339254	91.37614641	87.13089867	83.10451034
200403A00017	4/3/2020	0.81	4/3/2023	4/3/2020	101.51847	101.5184685	101.5184685	101.5184685	100.3948029	97.55069637	94.80101247	92.14212093	89.5705514
200403A00025	4/3/2020	0.91	4/3/2024	4/3/2020	102.43244	102.4324399	102.4324399	102.4324399	100.4855593	96.70431274	93.08430811	89.61786639	86.29771375
200415A00026	4/15/2020	0.77	4/14/2023	4/15/2020	101.41456	101.414565	101.414565	101.414565	100.2679384	97.39695219	94.62225284	91.94009971	89.34691877
200415A00037	4/15/2020	0.97	4/15/2025	4/15/2020	103.31634	103.3163439	103.3163439	103.3163439	100.2821316	95.56343938	91.09149515	86.85218843	82.83228544
200427A00018	4/27/2020	1.51	4/27/2028	4/27/2020	109.64458	109.644584	109.644584	108.4381387	100.6070391	93.28769637	86.5506095	80.34657617	74.6307812
200428A00003	4/29/2020	1.01	4/29/2025	4/29/2020	103.5428	103.5428046	103.5428046	103.5428046	100.4582994	95.7004546	91.19318757	86.92206228	82.8735466
200429A00057	4/29/2020	1.4	4/29/2027	4/29/2020	107.68207	107.6820706	107.6820706	107.5616606	100.6879574	94.18558819	88.1433646	82.5264678	77.30287848
200211A00014	2/11/2020	1.75	8/11/2023	2/11/2020	104.81522	104.815216	104.815216	104.815216	103.3946631	100.1669234	97.05647198	94.05838061	91.16795924
200214A00018	2/18/2020	1.77	1/12/2022	2/18/2020	102.54158	102.541577	102.541577	102.541577	102.1035018	100.4183259	98.76894522	97.15428396	95.57330975
200220A00013	2/20/2020	2.09	12/14/2029	2/20/2020	117.16406	117.1640562	117.1640562	113.9920937	104.469347	95.69119539	87.72933431	80.50343728	73.94146692
200325A00016	3/30/2020	1.67	3/31/2025	3/30/2020	106.75458	106.7545773	106.7545773	106.7545773	103.7348512	98.96963624	94.45035948	90.16310583	86.09481618
200325A00032	3/25/2020	1.29	9/26/2022	3/25/2020	102.4189	102.4188981	102.4188981	102.4188981	101.6578139	99.29198066	96.99278621	94.75798811	92.58543271
200326A00016	3/26/2020	1.54	3/25/2025	3/26/2020	106.09067	106.0906655	106.0906655	106.0906655	103.0980795	98.36304146	93.87187094	89.61080542	85.56692657
200327A00027	3/27/2020	0.9	3/27/2023	3/27/2020	101.7726	101.7725993	101.7725993	101.7725993	100.6625695	97.83252698	95.09583303	92.44892169	89.88838298
200327A00035	3/27/2020	0.83	3/27/2024	3/27/2020	102.81371	102.8137098	102.8137098	102.8137098	100.8691239	97.07867067	93.44950115	89.97395225	86.6447642
200327A00037	3/27/2020	1.18	3/27/2026	3/27/2020	106.33733	106.3373298	106.3373298	106.3373298	101.6163784	95.97966956	90.68702171	85.71577453	81.04486787
200327A00076	3/27/2020	1.18	3/27/2026	3/27/2020	106.33733	106.3373298	106.3373298	106.3373298	101.6163784	95.97966956	90.68702171	85.71577453	81.04486787
200330A00066	3/30/2020	1.08	3/31/2025	3/30/2020	103.83382	103.8338187	103.8338187	103.8338187	100.8453328	96.15030948	91.69863393	87.476509	83.47098732
200331A00008	3/31/2020	0.64	3/31/2023	3/31/2020	101.53992	101.5399182	101.5399182	101.5399182	100.4169547	97.56824348	94.8141008	92.1508922	89.57514328
200402A00002	4/2/2020	0.71	4/4/2022	4/2/2020	100.80756	100.80756	100.80756	100.80756	100.3008219	98.4104932	96.56485742	94.76259113	93.00241889
200402A00009	4/2/2020	1.03	4/2/2025	4/2/2020	103.59023	103.5902346	103.5902346	103.5902346	100.5975103	95.90351542	91.45316592	87.23263017	83.22892949
200403A00015	4/3/2020	0.73	4/4/2022	4/3/2020	100.84655	100.8465536	100.8465536	100.8465536	100.3397233	98.44900739	96.60299187	94.80035309	93.03981537
200406A00059	4/6/2020	0.92	4/6/2023	4/6/2020	101.84845	101.8484549	101.8484549	101.8484549	100.7169716	97.86024148	95.09857201	92.4282987	89.84591895
200408A00013	4/13/2020	0.87	4/14/2023	4/13/2020	101.71293	101.7129265	101.7129265	101.7129265	100.5649906	97.68957092	94.91054857	92.22417923	89.62688535
200414A00014	4/14/2020	0.76	4/12/2024	4/14/2020	102.56524	102.5652434	102.5652434	102.5652434	100.5830433	96.7571634	93.09588358	89.59129619	86.23591467

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200417A00008	4/17/2020	0.96	4/17/2025	4/17/2020	103.26998	103.2699845	103.2699845	103.2699845	100.2294457	95.50706929	91.03191546	86.7898307	82.76754189
200421A00032	4/21/2020	1.31	4/21/2027	4/21/2020	107.02853	107.028531	107.028531	106.9317841	100.0929039	93.62922844	87.62203256	82.03686233	76.84202624
200423A00017	4/23/2020	1.82	4/23/2035	4/23/2020	125.62533	125.6253252	125.6253252	114.0377616	99.72980669	87.32467522	76.62969586	67.39855136	59.4215714
200423A00020	4/28/2020	0.68	4/15/2022	4/28/2020	100.76061	100.7606089	100.7606089	100.7606089	100.2416914	98.32258641	96.44954985	94.62119603	92.83619041
200429A00062	4/29/2020	0.65	10/29/2021	4/29/2020	100.55282	100.5528216	100.5528216	100.5528216	100.1778028	98.70799105	97.26703732	95.85416794	94.4686363
200207A00007	2/7/2020	1.74	2/7/2023	2/7/2020	104.04739	104.04739	104.04739	104.04739	103.0274235	100.2921405	97.64309584	95.07703602	92.59085341
200320A00049	3/25/2020	1.47	3/25/2025	3/25/2020	105.74528	105.7452839	105.7452839	105.7452839	102.75637	98.02960668	93.5464063	89.29302022	85.25654321
200320A00052	3/25/2020	1.47	3/25/2025	3/25/2020	105.74528	105.7452839	105.7452839	105.7452839	102.75637	98.02960668	93.5464063	89.29302022	85.25654321
200327A00030	3/27/2020	1.01	3/27/2024	3/27/2020	102.81464	102.81464	102.81464	102.81464	100.8819978	97.11063253	93.49926412	90.04031015	86.72658622
200327A00041	3/27/2020	0.9	3/27/2023	3/27/2020	101.7726	101.7725993	101.7725993	101.7725993	100.6625695	97.83252698	95.09583303	92.44892169	89.88838298
200327A00053	3/27/2020	0.84	3/25/2022	3/27/2020	101.04595	101.0459469	101.0459469	101.0459469	100.5488272	98.68228472	96.85928319	95.07855054	93.33886022
200330A00011	3/30/2020	0.93	4/1/2024	3/30/2020	102.50817	102.5081719	102.5081719	102.5081719	100.565655	96.78796329	93.17112545	89.70749207	86.38981672
200330A00013	3/30/2020	0.68	3/30/2021	3/30/2020	100.38351	100.3835123	100.3835123	100.3835123	100.1694189	99.25562898	98.35838991	97.47725584	96.61179678
200330A00021	3/30/2020	0.8	3/30/2022	3/30/2020	100.9761	100.9761026	100.9761026	100.9761026	100.4743913	98.59562394	96.76096538	94.96911871	93.2188337
200331A00016	3/31/2020	1.11	3/31/2026	3/31/2020	105.93038	105.9303815	105.9303815	105.9303815	101.1932717	95.55935816	90.27013266	85.30284839	80.63636792
200331A00022	4/1/2020	1.07	4/1/2025	4/1/2020	103.78639	103.7863926	103.7863926	103.7863926	100.7949898	96.09869087	91.64595458	87.42296354	83.41675189
200401A00001	4/1/2020	1.01	4/1/2025	4/1/2020	103.4892	103.4892022	103.4892022	103.4892022	100.5009814	95.81182838	91.36597412	87.1496133	83.14979143
200402A00003	4/2/2020	0.8	4/3/2023	4/2/2020	101.48894	101.4889352	101.4889352	101.4889352	100.3653969	97.52172493	94.77246482	92.11398668	89.5428205
200402A00023	4/2/2020	1.11	4/2/2025	4/2/2020	103.98671	103.9867073	103.9867073	103.9867073	100.9897335	96.28620048	91.82666515	87.59727984	83.58505067
200402A00044	4/2/2020	1.65	4/2/2030	4/2/2020	113.32594	113.3259434	113.3259434	109.7816934	100.1491894	91.34143575	83.38091501	76.18178651	69.66729911
200403A00018	4/3/2020	0.91	4/3/2024	4/3/2020	102.43244	102.4324399	102.4324399	102.4324399	100.4855593	96.70431274	93.08430811	89.61786639	86.29771375
200406A00018	4/6/2020	0.65	4/18/2022	4/6/2020	101.05865	101.0586544	101.0586544	101.0586544	100.533737	98.59702194	96.70708941	94.86252324	93.06195985
200407A00016	4/7/2020	0.8	4/7/2022	4/7/2020	100.98717	100.987172	100.987172	100.987172	100.476654	98.57655486	96.72155922	94.91032569	93.14156183
200409A00019	4/9/2020	0.58	4/8/2022	4/9/2020	100.90647	100.906474	100.906474	100.906474	100.3931624	98.48472431	96.6217661	94.80293014	93.0269085
200413A00011	4/13/2020	0.94	4/12/2024	4/13/2020	102.56703	102.5670312	102.5670312	102.5670312	100.5971035	96.79062254	93.14742052	89.65967338	86.31997266
200415A00027	4/15/2020	0.86	4/15/2024	4/15/2020	102.25291	102.2529068	102.2529068	102.2529068	100.2779093	96.47005261	92.82593807	89.33770157	85.99789762
200415A00036	4/15/2020	0.91	10/15/2024	4/15/2020	102.76152	102.7615189	102.7615189	102.7615189	100.2997373	96.03350493	91.97057215	88.10024557	84.41244835
200325A00009	3/27/2020	1.67	3/27/2025	3/27/2020	106.73958	106.7395843	106.7395843	106.7395843	103.7334054	98.97806183	94.46765262	90.1883474	86.12716481
200325A00013	3/25/2020	1.03	8/16/2021	3/25/2020	100.97629	100.9762866	100.9762866	100.9762866	100.6616088	99.37869934	98.1226014	96.89247975	95.68753413
200325A00042	3/25/2020	1.58	3/25/2024	3/25/2020	105.05351	105.0535115	105.0535115	105.0535115	103.1097814	99.30001301	95.65115738	92.15560957	88.80616305
200327A00045	3/27/2020	2.24	3/27/2034	3/27/2020	129.68068	129.6806789	129.6806789	119.8213801	106.0444758	93.92212552	83.35308038	74.12834491	66.06806853

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200327A00046	3/27/2020	1.23	3/27/2025	3/27/2020	104.56621	104.5662067	104.5662067	104.5662067	101.5831816	96.87996178	92.41975624	88.18882191	84.17426005
200327A00048	3/27/2020	1.18	3/24/2025	3/27/2020	104.31201	104.3120098	104.3120098	104.3120098	101.3416562	96.65158108	92.20356008	87.98392271	83.97983719
200327A00051	3/27/2020	0.99	3/27/2025	3/27/2020	104.32523	104.3252347	104.3252347	104.3252347	101.3215909	96.59505118	92.11365345	87.8634927	83.83152065
200327A00061	3/31/2020	1.18	3/31/2025	3/31/2020	104.32886	104.3288625	104.3288625	104.3288625	101.3350816	96.62816147	92.16502809	87.93186439	83.91570408
200327A00077	3/27/2020	0.83	3/27/2024	3/27/2020	102.81371	102.8137098	102.8137098	102.8137098	100.8691239	97.07867067	93.44950115	89.97395225	86.6447642
200330A00038	3/30/2020	1.79	3/29/2030	3/30/2020	114.69765	114.697649	114.697649	111.1607515	101.4837502	92.62129782	84.60867403	77.35995587	70.79830339
200331A00014	3/31/2020	0.72	3/29/2024	3/31/2020	102.38206	102.3820636	102.3820636	102.3820636	100.4357196	96.64873554	93.02319255	89.55140803	86.22610437
200331A00024	3/31/2020	0.64	3/31/2023	3/31/2020	101.53992	101.5399182	101.5399182	101.5399182	100.4169547	97.56824348	94.8141008	92.1508922	89.57514328
200401A00023	4/1/2020	0.82	4/1/2025	4/1/2020	103.49125	103.4912489	103.4912489	103.4912489	100.4796717	95.76131001	91.28860074	87.04756566	83.02509032
200402A00001	4/2/2020	0.72	4/2/2021	4/2/2020	100.42434	100.4243367	100.4243367	100.4243367	100.2075195	99.28545187	98.38023266	97.49140391	96.61852413
200402A00010	4/2/2020	0.89	4/2/2024	4/2/2020	102.35163	102.3516312	102.3516312	102.3516312	100.4077828	96.63061944	93.01443297	89.55156191	86.23474878
200402A00022	4/2/2020	0.96	4/2/2024	4/2/2020	102.6286	102.6286029	102.6286029	102.6286029	100.682769	96.90022266	93.27881897	89.81088998	86.48917202
200402A00028	4/2/2020	0.71	4/4/2022	4/2/2020	100.80756	100.80756	100.80756	100.80756	100.3008219	98.4104932	96.56485742	94.76259113	93.00241889
200413A00004	4/13/2020	0.89	4/11/2025	4/13/2020	103.86087	103.8608718	103.8608718	103.8608718	100.8107036	96.05901975	91.55592744	87.28720719	83.23952314
200413A00026	4/13/2020	0.82	4/13/2023	4/13/2020	101.56231	101.5623145	101.5623145	101.5623145	100.4171681	97.54656961	94.77213908	92.09014425	89.49701895
200413A00027	4/13/2020	0.94	4/12/2024	4/13/2020	102.56703	102.5670312	102.5670312	102.5670312	100.5971035	96.79062254	93.14742052	89.65967338	86.31997266
200414A00013	4/14/2020	0.55	4/14/2022	4/14/2020	100.85469	100.8546913	100.8546913	100.8546913	100.3347625	98.41080418	96.5330776	94.70019089	92.91080363
200423A00006	4/23/2020	0.82	4/23/2025	4/23/2020	103.53376	103.5337565	103.5337565	103.5337565	100.4456689	95.67272432	91.15121784	86.86666958	82.80550579
200423A00022	4/28/2020	0.76	2/15/2023	4/28/2020	101.31121	101.3112143	101.3112143	101.3112143	100.2858006	97.56646243	94.93378603	92.38451301	89.91552856
200302A00006	3/2/2020	1.2	3/2/2023	3/2/2020	102.5902	102.5902005	102.5902005	102.5902005	101.5289606	98.75004465	96.06074238	93.45770578	90.93772981
200305A00038	3/5/2020	1.51	3/5/2029	3/5/2020	110.66112	110.6611224	110.6611224	108.4792875	99.86063597	91.89043114	84.61389628	77.96724498	71.8928449
200306A00031	3/6/2020	1.01	3/6/2025	3/6/2020	103.43873	103.4387308	103.4387308	103.4387308	100.5373067	95.91029941	91.52019589	87.35373071	83.39844495
200306A00038	3/6/2020	1.2	3/8/2027	3/6/2020	106.15165	106.1516544	106.1516544	106.1427184	99.47970027	93.1368003	87.23515085	81.74196475	76.62704149
200309A00045	3/9/2020	0.97	3/7/2025	3/9/2020	103.24528	103.2452818	103.2452818	103.2452818	100.3425613	95.71780014	91.33001774	87.1659358	83.21308384
200310A00024	3/10/2020	0.91	3/10/2025	3/10/2020	103.89095	103.8909465	103.8909465	103.8909465	100.9489761	96.27320206	91.83798121	87.62978238	83.63590088
200310A00054	3/10/2020	1.1	3/10/2025	3/10/2020	103.88687	103.8868684	103.8868684	103.8868684	100.967489	96.32045223	91.91167929	87.72780546	83.7562801
200310A00062	3/10/2020	1.05	3/8/2024	3/10/2020	102.93263	102.9326281	102.9326281	102.9326281	101.0448468	97.31765075	93.74663287	90.32448207	87.04426619
200311A00055	3/11/2020	1.66	12/17/2027	3/11/2020	110.36144	110.361439	110.361439	109.5498901	102.0288235	94.95215635	88.41437845	82.37173939	76.78425156
200316A00067	3/18/2020	1.1	9/15/2022	3/18/2020	101.93244	101.9324422	101.9324422	101.9324422	101.1914281	98.86058611	96.59467282	94.39152856	92.24907812
200317A00039	3/19/2020	1.11	4/15/2022	3/19/2020	101.61203	101.6120305	101.6120305	101.6120305	101.0910608	99.16337587	97.28192551	95.44531936	93.65221832
200318A00013	3/18/2020	1.5	3/18/2025	3/18/2020	105.87033	105.8703251	105.8703251	105.8703251	102.9034518	98.19028441	93.71906714	89.47619205	85.44888289

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200318A00038	3/18/2020	1.48	3/18/2025	3/18/2020	105.77203	105.7720276	105.7720276	105.7720276	102.8061922	98.09537119	93.62641428	89.38571737	85.36050792
200318A00054	3/18/2020	1.56	3/18/2025	3/18/2020	106.16522	106.1652175	106.1652175	106.1652175	103.1952308	98.47502407	93.99702572	89.74761607	85.71400781
200417A00018	4/21/2020	0.67	7/25/2022	4/21/2020	100.84543	100.8454298	100.8454298	100.8454298	100.1911821	98.00752836	95.88168161	93.81168605	91.79566939
200421A00029	4/24/2020	0.72	12/15/2022	4/24/2020	101.12616	101.1261621	101.1261621	101.1261621	100.223838	97.66776477	95.18909475	92.78500971	90.4528138
200421A00031	4/21/2020	0.84	4/19/2024	4/21/2020	102.17899	102.1789862	102.1789862	102.1789862	100.194732	96.37830341	92.7264448	89.23123019	85.8851567
200428A00002	4/28/2020	1.47	4/26/2030	4/28/2020	113.61259	113.6125904	113.6125904	109.914428	100.0958316	91.14549604	83.06565489	75.76725424	69.17075717
200429A00049	4/29/2020	1.25	4/29/2026	4/29/2020	105.69097	105.6909689	105.6909689	105.6909689	100.8381357	95.18507498	89.88120262	84.90323712	80.22956193
200429A00061	4/29/2020	1.66	10/29/2029	4/29/2020	112.86025	112.8602496	112.8602496	109.8685734	100.614895	92.11043584	84.39280438	77.38516948	71.01855773
200429A00066	4/29/2020	0.8	4/28/2023	4/29/2020	101.52334	101.5233415	101.5233415	101.5233415	100.3464514	97.43771928	94.62775784	91.91268039	89.28877572
200430A00030	4/30/2020	0.96	4/30/2025	4/30/2020	103.2931	103.2930956	103.2930956	103.2930956	100.2079289	95.45377864	90.95023773	86.68285788	82.6380961
180919A00090	3/19/2020	3.24	3/19/2024	3/19/2020	111.53665	111.536655	111.536655	111.536655	109.5617708	105.6419783	101.885673	98.28518949	94.83326135
200218A00025	2/21/2020	1.71	2/24/2023	2/21/2020	104.02835	104.0283451	104.0283451	104.0283451	102.9736026	100.1905093	97.49652414	94.88831901	92.36270916
200220A00014	2/20/2020	2.09	12/21/2029	2/20/2020	117.19783	117.1978325	117.1978325	114.0004543	104.4600548	95.6675921	87.69412428	80.45892691	73.88961933
200228A00091	2/28/2020	1.72	12/7/2029	2/28/2020	113.57843	113.5784279	113.5784279	110.4476143	101.0755307	92.46743259	84.66275545	77.58235081	71.15523802
200304A00012	3/4/2020	0.98	3/4/2025	3/4/2020	104.22075	104.2207531	104.2207531	104.2207531	101.295477	96.62611315	92.19611284	87.99205635	84.00134101
200304A00029	3/4/2020	1.17	3/4/2025	3/4/2020	104.2151	104.2150981	104.2150981	104.2150981	101.3122267	96.67151492	92.26789254	88.08810472	84.11970138
200305A00014	3/10/2020	1	2/15/2023	3/10/2020	101.98895	101.9889522	101.9889522	101.9889522	100.960824	98.23192876	95.58992431	93.03154491	90.55366869
200305A00037	3/5/2020	1.43	3/6/2028	3/5/2020	108.84546	108.8454644	108.8454644	107.7966574	100.115612	92.92979714	86.30673789	80.19964243	74.56582258
200305A00039	3/5/2020	1.58	3/5/2030	3/5/2020	112.53561	112.535608	112.535608	109.0985094	99.55974998	90.83622676	82.94692621	75.80786253	69.34388457
200306A00055	3/6/2020	0.82	3/6/2025	3/6/2020	103.44074	103.4407394	103.4407394	103.4407394	100.5169091	95.86134795	91.44496353	87.25432542	83.27682195
200309A00007	3/9/2020	1.11	3/9/2027	3/9/2020	105.53478	105.5347841	105.5347841	105.524732	98.8701845	92.54536159	86.661112	81.18467147	76.08586229
200309A00043	3/9/2020	0.92	6/7/2024	3/9/2020	102.58344	102.5834365	102.5834365	102.5834365	100.4735348	96.52834241	92.7578801	89.15349706	85.70701896
200309A00054	3/9/2020	0.98	3/9/2028	3/9/2020	106.83548	106.8354793	106.8354793	105.7621777	98.04363992	90.8658801	84.25502942	78.16367884	72.54859677
200415A00033	4/15/2020	0.82	10/13/2023	4/15/2020	101.82688	101.8268789	101.8268789	101.8268789	100.2837277	96.94650904	93.73686986	90.64927831	87.67847224
200421A00028	4/21/2020	0.56	4/21/2023	4/21/2020	101.32924	101.3292385	101.3292385	101.3292385	100.1621955	97.26201057	94.45998451	91.75226943	89.1351905
200422A00015	4/27/2020	0.73	12/22/2022	4/27/2020	101.16117	101.1611732	101.1611732	101.1611732	100.2453388	97.67105652	95.17514548	92.75473485	90.40707943
200218A00026	2/21/2020	1.73	3/25/2024	2/21/2020	105.64373	105.643728	105.643728	105.643728	103.6958079	99.87462855	96.21471181	92.70843911	89.34859093
200225A00023	2/25/2020	1.62	2/25/2025	2/25/2020	106.38454	106.3845359	106.3845359	106.3845359	103.4822057	98.80756935	94.37012217	90.15665915	86.15477542
200225A00028	2/25/2020	1.89	12/21/2029	2/25/2020	115.27036	115.2703643	115.2703643	112.0817291	102.6139039	93.90623259	86.01200027	78.85091073	72.3509748
200227A00055	2/27/2020	1.41	2/27/2023	2/27/2020	103.18273	103.1827304	103.1827304	103.1827304	102.1252926	99.34578179	96.65559982	94.05141438	91.53003564
200302A00003	3/2/2020	1.2	3/2/2023	3/2/2020	102.5902	102.5902005	102.5902005	102.5902005	101.5289606	98.75004465	96.06074238	93.45770578	90.93772981

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200305A00032	3/5/2020	1.58	3/5/2030	3/5/2020	112.53561	112.535608	112.535608	109.0985094	99.55974998	90.83622676	82.94692621	75.80786253	69.34388457
200305A00045	3/5/2020	0.99	3/6/2023	3/5/2020	101.99621	101.9962093	101.9962093	101.9962093	100.9290517	98.14855336	95.45810152	92.854319	90.33397343
200306A00007	3/6/2020	1.01	3/6/2025	3/6/2020	103.43873	103.4387308	103.4387308	103.4387308	100.5373067	95.91029941	91.52019589	87.35373071	83.39844495
200306A00049	3/6/2020	1.01	3/6/2025	3/6/2020	103.43873	103.4387308	103.4387308	103.4387308	100.5373067	95.91029941	91.52019589	87.35373071	83.39844495
200309A00030	3/9/2020	1.11	3/9/2027	3/9/2020	105.53478	105.5347841	105.5347841	105.524732	98.8701845	92.54536159	86.661112	81.18467147	76.08586229
200310A00016	3/10/2020	1.02	3/10/2026	3/10/2020	105.33973	105.3397342	105.3397342	105.3397342	100.729132	95.15849563	89.92591776	85.00927675	80.38800237
200311A00032	3/11/2020	1.11	3/11/2025	3/11/2020	104.87688	104.8768788	104.8768788	104.8768788	101.9211756	97.21950191	92.75949034	88.52754986	84.51091969
200312A00019	3/17/2020	1.06	5/16/2022	3/17/2020	101.5785	101.5784951	101.5784951	101.5784951	101.0203414	99.01150925	97.05249324	95.14173587	93.27773978
200316A00071	3/16/2020	1.18	3/16/2023	3/16/2020	102.56719	102.5671901	102.5671901	102.5671901	101.476763	98.66283247	95.94075465	93.30705535	90.75841076
200317A00027	3/17/2020	1.29	3/17/2025	3/17/2020	104.83549	104.8354935	104.8354935	104.8354935	101.8828743	97.19676781	92.75146047	88.53340601	84.52988609
200221A00011	2/21/2020	1.69	8/21/2024	2/21/2020	106.05687	106.0568673	106.0568673	106.0568673	103.7202827	99.51812328	95.509004	91.6830715	88.03102727
200221A00024	2/21/2020	2.05	12/28/2029	2/21/2020	116.84536	116.8453607	116.8453607	113.6243493	104.0808954	95.2911607	87.3220113	80.09240986	73.5297104
200224A00006	2/24/2020	1.58	11/15/2024	2/24/2020	105.83547	105.8354669	105.8354669	105.8354669	103.2564712	98.847819	94.65177075	90.65698184	86.85277269
200225A00008	2/25/2020	1.52	6/3/2024	2/25/2020	105.05276	105.0527627	105.0527627	105.0527627	102.9340686	98.94897731	95.13937532	91.49660868	88.0124984
200226A00004	2/26/2020	1.58	2/26/2025	2/26/2020	106.19365	106.1936537	106.1936537	106.1936537	103.2900534	98.61727419	94.18178538	89.97037197	85.97061947
200228A00045	2/28/2020	1.45	2/28/2025	2/28/2020	105.56796	105.5679551	105.5679551	105.5679551	102.6643644	98.00109225	93.5751021	89.37316826	85.38286589
200302A00002	3/2/2020	1.12	3/3/2025	3/2/2020	104.90389	104.903894	104.903894	104.903894	101.9748483	97.29163394	92.84813003	88.63091083	84.62736727
200302A00013	3/2/2020	1.25	3/4/2024	3/2/2020	103.69971	103.6997119	103.6997119	103.6997119	101.8162519	98.0842254	94.50800655	91.0803242	87.79428292
200304A00019	3/4/2020	1.04	3/6/2023	3/4/2020	102.14002	102.1400211	102.1400211	102.1400211	101.07227	98.28970825	95.59724305	92.99149562	90.46923204
200304A00030	3/4/2020	1.6	12/22/2028	3/4/2020	111.20371	111.2037078	111.2037078	109.2514429	100.7938833	92.9452398	85.76483664	79.19240567	73.17339917
200304A00033	3/4/2020	1.17	3/4/2025	3/4/2020	104.2151	104.2150981	104.2150981	104.2150981	101.3122267	96.67151492	92.26789254	88.08810472	84.11970138
200305A00001	3/5/2020	1.14	3/5/2025	3/5/2020	104.0711	104.0710988	104.0710988	104.0710988	101.1664027	96.52674935	92.12430388	87.9457967	83.97876429
200305A00006	3/5/2020	0.99	3/6/2023	3/5/2020	101.99621	101.9962093	101.9962093	101.9962093	100.9290517	98.14855336	95.45810152	92.854319	90.33397343
200305A00030	3/5/2020	1.58	3/5/2030	3/5/2020	112.53561	112.535608	112.535608	109.0985094	99.55974998	90.83622676	82.94692621	75.80786253	69.34388457
200306A00028	3/6/2020	1.01	3/6/2025	3/6/2020	103.43873	103.4387308	103.4387308	103.4387308	100.5373067	95.91029941	91.52019589	87.35373071	83.39844495
200306A00064	3/6/2020	1.2	3/8/2027	3/6/2020	106.15165	106.1516544	106.1516544	106.1427184	99.47970027	93.1368003	87.23515085	81.74196475	76.62704149
200309A00044	3/9/2020	0.94	9/9/2024	3/9/2020	102.83281	102.8328055	102.8328055	102.8328055	100.4714676	96.29137291	92.30629817	88.50620133	84.8816066
200310A00014	3/10/2020	0.91	3/10/2025	3/10/2020	103.89095	103.8909465	103.8909465	103.8909465	100.9489761	96.27320206	91.83798121	87.62978238	83.63590088
200310A00021	3/10/2020	1.1	3/10/2025	3/10/2020	103.88687	103.8868684	103.8868684	103.8868684	100.967489	96.32045223	91.91167929	87.72780546	83.7562801
200310A00028	3/10/2020	1.1	3/10/2025	3/10/2020	103.88687	103.8868684	103.8868684	103.8868684	100.967489	96.32045223	91.91167929	87.72780546	83.7562801
200310A00033	3/10/2020	0.91	3/10/2025	3/10/2020	103.89095	103.8909465	103.8909465	103.8909465	100.9489761	96.27320206	91.83798121	87.62978238	83.63590088

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200211A00017	2/11/2020	1.77	8/12/2024	2/11/2020	106.36784	106.3678387	106.3678387	106.3678387	104.0532501	99.86660472	95.87124566	92.05742124	88.41593151
200228A00071	2/28/2020	1.74	12/14/2029	2/28/2020	113.79759	113.7975913	113.7975913	110.6407159	101.244375	92.61406894	84.79038269	77.69373396	71.25276579
200302A00014	3/2/2020	1.2	3/2/2022	3/2/2020	101.69858	101.6985822	101.6985822	101.6985822	101.2217976	99.40819824	97.63563758	95.90295264	94.20902068
200302A00016	3/2/2020	1.36	3/3/2025	3/2/2020	105.13875	105.1387473	105.1387473	105.1387473	102.2295983	97.56936927	93.14678352	88.94857078	84.9622657
200304A00005	3/4/2020	0.98	3/4/2025	3/4/2020	104.22075	104.2207531	104.2207531	104.2207531	101.295477	96.62611315	92.19611284	87.99205635	84.00134101
200304A00025	3/4/2020	1.04	3/6/2023	3/4/2020	102.14002	102.1400211	102.1400211	102.1400211	101.07227	98.28970825	95.59724305	92.99149562	90.46923204
200305A00016	3/5/2020	0.99	3/6/2023	3/5/2020	101.99621	101.9962093	101.9962093	101.9962093	100.9290517	98.14855336	95.45810152	92.854319	90.33397343
200306A00010	3/6/2020	0.88	3/6/2023	3/6/2020	101.67982	101.6798233	101.6798233	101.6798233	100.6139713	97.8380126	95.15199016	92.55253043	90.03640447
200310A00041	3/10/2020	1.39	3/12/2029	3/10/2020	109.6195	109.6195038	109.6195038	107.4172047	98.81693037	90.87637756	83.62940285	77.01205139	70.96655371
200311A00023	3/11/2020	1.41	3/10/2028	3/11/2020	110.25079	110.250788	110.250788	109.1719013	101.3568054	94.05062321	87.31864979	81.11297732	75.38991404
200312A00006	3/12/2020	1.23	3/12/2025	3/12/2020	104.52804	104.5280448	104.5280448	104.5280448	101.5952977	96.92830594	92.5006229	88.29881759	84.31027783
200312A00014	3/12/2020	1.04	3/12/2025	3/12/2020	104.53512	104.5351202	104.5351202	104.5351202	101.5796511	96.8837503	92.42945978	88.20318111	84.19214717
200313A00019	3/13/2020	1.55	3/13/2026	3/13/2020	107.33948	107.3394801	107.3394801	107.3394801	102.7243916	97.12905665	91.87144792	86.92953491	82.28282864
200316A00042	3/16/2020	1.23	3/15/2024	3/16/2020	103.65054	103.6505439	103.6505439	103.6505439	101.740885	97.98277425	94.38269005	90.93320475	87.6272774
200316A00046	3/16/2020	1.18	3/18/2024	3/16/2020	103.4625	103.4625045	103.4625045	103.4625045	101.5469345	97.78507919	94.18175525	90.72949592	87.42122405
200316A00055	3/16/2020	1.06	3/14/2025	3/16/2020	104.63876	104.6387611	104.6387611	104.6387611	101.6754727	96.97233225	92.51138742	88.27899391	84.26234236
200316A00072	3/16/2020	1.18	3/16/2023	3/16/2020	102.56719	102.5671901	102.5671901	102.5671901	101.476763	98.66283247	95.94075465	93.30705535	90.75841076
200317A00023	3/17/2020	1.1	3/17/2025	3/17/2020	104.84399	104.8439894	104.8439894	104.8439894	101.8684382	97.15323949	92.68115974	88.43848361	84.41233629
200318A00049	3/18/2020	0.84	3/18/2021	3/18/2020	100.51252	100.5125176	100.5125176	100.5125176	100.309871	99.42775643	98.56106742	97.70940223	96.87237295
200319A00037	3/19/2020	0.99	6/18/2021	3/19/2020	100.81967	100.8196749	100.8196749	100.8196749	100.5456694	99.41471053	98.30901294	97.2277383	96.17008497
200415A00023	4/15/2020	1.71	4/15/2030	4/15/2020	113.96968	113.9696819	113.9696819	110.3745414	100.6865473	91.82642248	83.82062737	76.58235114	70.03400396
200415A00024	4/15/2020	2.2	4/16/2035	4/15/2020	128.0924	128.0923973	128.0923973	116.7236493	102.4826598	90.08262773	79.37140363	70.10763	62.08564476
200417A00004	4/17/2020	0.86	4/17/2024	4/17/2020	102.25598	102.2559805	102.2559805	102.2559805	100.2760614	96.46313139	92.81438169	89.3219163	85.97826015
200417A00006	4/17/2020	0.74	4/17/2023	4/17/2020	101.32869	101.3286897	101.3286897	101.3286897	100.1760596	97.29861063	94.51793793	91.83027119	89.23200849
200417A00012	4/22/2020	0.71	12/15/2022	4/22/2020	101.09963	101.0996311	101.0996311	101.0996311	100.1974031	97.64168247	95.16335695	92.75960855	90.42774168
200417A00019	4/17/2020	0.77	4/17/2025	4/17/2020	103.27112	103.2711199	103.2711199	103.2711199	100.206635	95.45467113	90.95233432	86.68529299	82.64010943
200421A00020	4/24/2020	0.83	3/15/2024	4/24/2020	102.08761	102.0876144	102.0876144	102.0876144	100.1889166	96.46082353	92.88984188	89.46857944	86.19002904
200421A00024	4/24/2020	0.8	10/16/2023	4/24/2020	101.7614	101.7613958	101.7613958	101.7613958	100.2119641	96.86848472	93.65312278	90.56031009	87.58475056
200423A00027	4/28/2020	0.88	4/15/2024	4/28/2020	102.33276	102.3327552	102.3327552	102.3327552	100.357176	96.54775403	92.90212273	89.4124161	86.07118683
200427A00017	4/27/2020	1.02	4/25/2025	4/27/2020	103.58533	103.5853345	103.5853345	103.5853345	100.5140248	95.76475597	91.26506554	87.00060643	82.95792791
200207A00013	2/12/2020	1.73	2/10/2023	2/12/2020	104.03101	104.031009	104.031009	104.031009	103.0049542	100.2614086	97.60460041	95.03126326	92.53827644

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200221A00023	2/21/2020	2.05	12/7/2029	2/21/2020	116.7463	116.7462963	116.7462963	113.6014589	104.1107578	95.36377153	87.42927528	80.22742392	73.68659964
200225A00029	2/25/2020	1.89	12/28/2029	2/25/2020	115.30037	115.3003669	115.3003669	112.0864475	102.6013267	93.87967148	85.97413294	78.80401874	72.29699823
200302A00056	3/2/2020	1.2	3/2/2023	3/2/2020	102.5902	102.5902005	102.5902005	102.5902005	101.5289606	98.75004465	96.06074238	93.45770578	90.93772981
200304A00011	3/4/2020	0.83	3/4/2022	3/4/2020	101.32841	101.3284084	101.3284084	101.3284084	100.8489441	99.02797419	97.24842859	95.50912759	93.80893249
200304A00018	3/4/2020	0.98	3/4/2025	3/4/2020	104.22075	104.2207531	104.2207531	104.2207531	101.295477	96.62611315	92.19611284	87.99205635	84.00134101
200304A00020	3/4/2020	0.98	3/4/2025	3/4/2020	104.22075	104.2207531	104.2207531	104.2207531	101.295477	96.62611315	92.19611284	87.99205635	84.00134101
200304A00035	3/4/2020	1.17	3/4/2025	3/4/2020	104.2151	104.2150981	104.2150981	104.2150981	101.3122267	96.67151492	92.26789254	88.08810472	84.11970138
200305A00017	3/5/2020	1.19	3/5/2025	3/5/2020	104.31506	104.3150642	104.3150642	104.3150642	101.4078265	96.76238957	92.35437141	88.17049293	84.1982816
200305A00019	3/5/2020	0.81	3/6/2023	3/5/2020	101.99393	101.993928	101.993928	101.993928	100.9215381	98.1294304	95.42798911	92.81380533	90.28361678
200306A00003	3/6/2020	0.7	3/6/2023	3/6/2020	101.67671	101.6767089	101.6767089	101.6767089	100.6056317	97.81808733	95.12109828	92.51125933	89.98531168
200310A00005	3/10/2020	1.41	3/8/2030	3/10/2020	110.87233	110.8723281	110.8723281	107.4327612	97.95179478	89.29757251	81.47373068	74.39649677	67.99092411
200312A00037	3/12/2020	1.3	3/12/2025	3/12/2020	104.87094	104.8709369	104.8709369	104.8709369	101.9345917	97.25944067	92.82389688	88.61451581	84.61867251
200316A00050	3/16/2020	1.54	3/16/2027	3/16/2020	108.51734	108.5173411	108.5173411	108.4994664	101.7505155	95.31374384	89.32445442	83.74936072	78.55780716
200317A00011	3/17/2020	1.04	3/17/2022	3/17/2020	101.4138	101.4137964	101.4137964	101.4137964	100.9234433	99.07400865	97.26725945	95.50196169	93.77692491
200317A00033	3/19/2020	1.1	2/15/2022	3/19/2020	101.47983	101.4798346	101.4798346	101.4798346	101.0163826	99.24749648	97.51786097	95.82632224	94.17177015
200317A00045	3/19/2020	1.43	3/19/2025	3/19/2020	105.52938	105.5293752	105.5293752	105.5293752	102.562766	97.85537025	93.38987165	89.152655	85.13093785
200317A00064	3/19/2020	1.12	5/16/2022	3/19/2020	101.70243	101.7024332	101.7024332	101.7024332	101.1439647	99.13383277	97.17354276	95.26153638	93.39631556
200318A00037	3/18/2020	1.35	3/18/2024	3/18/2020	104.12815	104.1281497	104.1281497	104.1281497	102.207894	98.43322879	94.81748605	91.35318392	88.0332308
200319A00009	3/19/2020	0.94	3/18/2022	3/19/2020	101.56577	101.5657672	101.5657672	101.5657672	101.0723509	99.2126327	97.39599268	95.62118083	93.88699158
200319A00038	3/19/2020	1.18	9/17/2021	3/19/2020	101.25215	101.2521541	101.2521541	101.2521541	100.9113808	99.54681976	98.20712378	96.89167272	95.59986651
200310A00051	3/10/2020	1.41	3/8/2030	3/10/2020	110.87233	110.8723281	110.8723281	107.4327612	97.95179478	89.29757251	81.47373068	74.39649677	67.99092411
200311A00031	3/11/2020	1.41	12/24/2027	3/11/2020	108.47005	108.4700503	108.4700503	107.6381201	100.1491692	93.12640733	86.64113173	80.64955114	75.11165191
200312A00009	3/12/2020	1.46	3/12/2027	3/12/2020	107.9527	107.9526999	107.9526999	107.939294	101.2203675	94.81038287	88.84574549	83.29336134	78.12274893
200316A00040	3/16/2020	1.04	3/16/2022	3/16/2020	101.41173	101.4117261	101.4117261	101.4117261	100.9223306	99.07550588	97.27125132	95.50833782	93.78557964
200316A00043	3/16/2020	1.3	3/14/2025	3/16/2020	104.87641	104.8764081	104.8764081	104.8764081	101.9333455	97.25334269	92.81344073	88.60015371	84.60081862
200319A00005	3/19/2020	0.81	3/19/2021	3/19/2020	100.48724	100.4872393	100.4872393	100.4872393	100.283651	99.39896478	98.52979631	97.67574025	96.83640526
200417A00002	4/17/2020	0.96	4/17/2025	4/17/2020	103.26998	103.2699845	103.2699845	103.2699845	100.2294457	95.50706929	91.03191546	86.7898307	82.76754189
200423A00026	4/28/2020	0.85	12/15/2023	4/28/2020	102.0275	102.027496	102.027496	102.027496	100.3415648	96.84270504	93.48303967	90.25627588	87.15644276
200424A00014	4/28/2020	1.01	4/23/2025	4/28/2020	103.53132	103.5313175	103.5313175	103.5313175	100.4674326	95.72428704	91.23015239	86.97072908	82.93260993
200429A00054	4/29/2020	1.04	4/29/2025	4/29/2020	103.6937	103.6936973	103.6936973	103.6936973	100.6075302	95.84600426	91.33519374	87.06065627	83.00885374
200429A00064	4/29/2020	0.69	4/29/2022	4/29/2020	100.79548	100.7954836	100.7954836	100.7954836	100.2608446	98.30420092	96.39541813	94.53302887	92.71562101

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200429A00065	4/29/2020	0.74	10/28/2022	4/29/2020	101.12054	101.1205426	101.1205426	101.1205426	100.3074581	97.87601018	95.51550758	93.22347722	90.99754767
200218A00030	2/21/2020	1.71	2/24/2023	2/21/2020	104.02835	104.0283451	104.0283451	104.0283451	102.9736026	100.1905093	97.49652414	94.88831901	92.36270916
200220A00034	2/25/2020	1.71	3/27/2023	2/25/2020	104.14919	104.1491888	104.1491888	104.1491888	103.0290225	100.1642287	97.39363902	94.71365931	92.12085271
200302A00005	3/2/2020	1.31	3/3/2025	3/2/2020	104.89506	104.8950554	104.8950554	104.8950554	101.98844	97.33398178	92.91695668	88.72410382	84.74296681
200302A00018	3/2/2020	1.25	3/2/2023	3/2/2020	102.73346	102.7334616	102.7334616	102.7334616	101.6716344	98.89067054	96.19936998	93.59438305	91.07250317
200304A00002	3/4/2020	0.98	3/4/2025	3/4/2020	104.22075	104.2207531	104.2207531	104.2207531	101.295477	96.62611315	92.19611284	87.99205635	84.00134101
200304A00015	3/4/2020	0.83	3/4/2022	3/4/2020	101.32841	101.3284084	101.3284084	101.3284084	100.8489441	99.02797419	97.24842859	95.50912759	93.80893249
200304A00022	3/4/2020	0.86	3/6/2023	3/4/2020	102.13812	102.1381185	102.1381185	102.1381185	101.0651319	98.27094998	95.56748494	92.95132623	90.41921
200305A00015	3/5/2020	0.99	3/6/2023	3/5/2020	101.99621	101.9962093	101.9962093	101.9962093	100.9290517	98.14855336	95.45810152	92.854319	90.33397343
200306A00013	3/6/2020	1.01	3/6/2025	3/6/2020	103.43873	103.4387308	103.4387308	103.4387308	100.5373067	95.91029941	91.52019589	87.35373071	83.39844495
200306A00054	3/6/2020	1.01	3/6/2025	3/6/2020	103.43873	103.4387308	103.4387308	103.4387308	100.5373067	95.91029941	91.52019589	87.35373071	83.39844495
200309A00038	3/9/2020	1.26	3/11/2030	3/9/2020	109.40336	109.4033593	109.4033593	105.9604026	96.52983401	87.93631057	80.16989357	73.14697951	66.79278578
200310A00023	3/10/2020	1.02	3/10/2026	3/10/2020	105.33973	105.3397342	105.3397342	105.3397342	100.729132	95.15849563	89.92591776	85.00927675	80.38800237
200310A00038	3/10/2020	1.41	3/11/2030	3/10/2020	110.8813	110.8812973	110.8812973	107.4306848	97.94272053	89.28293865	81.45469028	74.37402435	67.96584099
200311A00043	3/11/2020	1.3	3/11/2025	3/11/2020	104.8682	104.8682014	104.8682014	104.8682014	101.935215	97.26249035	92.82912622	88.62169884	84.62760224
200324A00013	3/25/2020	1.78	3/25/2025	3/25/2020	107.27483	107.2748311	107.2748311	107.2748311	104.2696547	99.5062464	94.98774971	90.70035468	86.63109808
200324A00051	3/24/2020	1.73	11/1/2024	3/24/2020	106.46776	106.4677578	106.4677578	106.4677578	103.9244761	99.53697017	95.35941526	91.38068955	87.59031806
200326A00009	3/27/2020	1.54	3/27/2025	3/27/2020	106.09745	106.09745	106.09745	106.09745	103.098112	98.35816863	93.86259232	89.59757851	85.55017022
200327A00013	3/27/2020	0.72	3/27/2023	3/27/2020	101.76948	101.7694752	101.7694752	101.7694752	100.6539195	97.81193496	95.06394709	92.40635628	89.83572076
200327A00025	3/30/2020	0.86	3/30/2022	3/30/2020	101.09225	101.0922549	101.0922549	101.0922549	100.5902714	98.71035878	96.87457687	95.08162815	93.3302618
200327A00039	3/27/2020	0.84	3/28/2022	3/27/2020	101.0505	101.0505011	101.0505011	101.0505011	100.5505175	98.67618107	96.84573471	95.05789121	93.31140961
200327A00040	3/27/2020	0.72	3/27/2023	3/27/2020	101.76948	101.7694752	101.7694752	101.7694752	100.6539195	97.81193496	95.06394709	92.40635628	89.83572076
200327A00079	3/27/2020	0.99	3/27/2025	3/27/2020	104.32523	104.3252347	104.3252347	104.3252347	101.3215909	96.59505118	92.11365345	87.8634927	83.83152065
200330A00036	3/30/2020	0.86	3/30/2023	3/30/2020	101.65994	101.659943	101.659943	101.659943	100.5441431	97.70822671	94.96610532	92.31418642	89.74903513
200330A00044	3/30/2020	1.09	3/28/2025	3/30/2020	103.87684	103.8768387	103.8768387	103.8768387	100.8978416	96.20881134	91.76243141	87.54496555	83.54352217
200331A00007	3/31/2020	0.72	3/29/2024	3/31/2020	102.38206	102.3820636	102.3820636	102.3820636	100.4357196	96.64873554	93.02319255	89.55140803	86.22610437
200401A00013	4/1/2020	1.01	4/1/2025	4/1/2020	103.4892	103.4892022	103.4892022	103.4892022	100.5009814	95.81182838	91.36597412	87.1496133	83.14979143
200402A00014	4/2/2020	0.84	4/2/2025	4/2/2020	103.59277	103.5927701	103.5927701	103.5927701	100.576642	95.85339254	91.37614641	87.13089867	83.10451034
200402A00018	4/2/2020	0.85	4/3/2023	4/2/2020	101.6366	101.6366019	101.6366019	101.6366019	100.5124268	97.66658213	94.91520305	92.2546579	89.68147498
200408A00004	4/8/2020	0.76	4/8/2022	4/8/2020	100.91012	100.9101235	100.9101235	100.9101235	100.3986705	98.49667877	96.63990131	94.82699158	93.05665216
200408A00011	4/8/2020	0.82	9/26/2022	4/8/2020	101.27559	101.2755865	101.2755865	101.2755865	100.5181314	98.16629134	95.88078584	93.65938166	91.49993399

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200413A00012	4/13/2020	0.64	4/13/2023	4/13/2020	101.55862	101.5586203	101.5586203	101.5586203	100.4077028	97.52488092	94.73889952	92.04599097	89.4425557
200414A00015	4/14/2020	0.64	4/14/2023	4/14/2020	101.56006	101.5600589	101.5600589	101.5600589	100.4069915	97.52154721	94.73311903	92.03792901	89.43236787
200415A00020	4/15/2020	0.86	4/15/2024	4/15/2020	102.25291	102.2529068	102.2529068	102.2529068	100.2779093	96.47005261	92.82593807	89.33770157	85.99789762
200415A00021	4/15/2020	1.37	4/15/2027	4/15/2020	107.43114	107.4311365	107.4311365	107.3521282	100.5199006	94.05565785	88.0466152	82.45850436	77.25979767
200417A00013	4/17/2020	0.74	4/17/2023	4/17/2020	101.32869	101.3286897	101.3286897	101.3286897	100.1760596	97.29861063	94.51793793	91.83027119	89.23200849
200311A00044	3/11/2020	1.73	3/11/2030	3/11/2020	114.03423	114.0342316	114.0342316	110.5672869	100.9568784	92.1557452	84.19558993	76.99172	70.46835876
200312A00015	3/12/2020	1.23	3/10/2025	3/12/2020	104.52296	104.5229567	104.5229567	104.5229567	101.5969162	96.9347596	92.51141941	88.31350598	84.32844502
200316A00009	3/16/2020	1.25	3/14/2025	3/16/2020	104.63121	104.6312116	104.6312116	104.6312116	101.6907272	97.01656514	92.58229002	88.37442567	84.38031822
200316A00041	3/16/2020	1.16	3/16/2023	3/16/2020	102.50911	102.5091147	102.5091147	102.5091147	101.4189311	98.60584151	95.88458409	93.25168531	90.703822
200316A00048	3/16/2020	1.11	3/16/2023	3/16/2020	102.36393	102.3639261	102.3639261	102.3639261	101.2743514	98.46336411	95.74415768	93.11326019	90.5673501
200317A00025	3/17/2020	1.66	3/15/2030	3/17/2020	115.34865	115.3486477	115.3486477	111.7982441	102.0099616	93.05719484	84.96345905	77.64193449	71.01497223
200318A00039	3/18/2020	1.08	3/18/2022	3/18/2020	101.49198	101.4919759	101.4919759	101.4919759	101.0004905	99.14770725	97.33773903	95.56934637	93.84133371
200318A00047	3/18/2020	1.29	3/18/2025	3/18/2020	105.78493	105.7849321	105.7849321	105.7849321	102.7960415	98.05592363	93.56000151	89.29450124	85.2464931
200306A00022	3/6/2020	1.2	3/8/2027	3/6/2020	106.15165	106.1516544	106.1516544	106.1427184	99.47970027	93.1368003	87.23515085	81.74196475	76.62704149
200306A00066	3/6/2020	1.2	3/8/2027	3/6/2020	106.15165	106.1516544	106.1516544	106.1427184	99.47970027	93.1368003	87.23515085	81.74196475	76.62704149
200309A00009	3/9/2020	0.92	3/9/2027	3/9/2020	105.55152	105.5515245	105.5515245	105.5413229	98.81563113	92.44140586	86.51298664	80.99711807	75.86317734
200309A00029	3/9/2020	1.02	3/7/2025	3/9/2020	103.48952	103.4895208	103.4895208	103.4895208	100.5842505	95.9536931	91.56032596	87.3908613	83.43281959
200309A00040	3/9/2020	0.91	3/8/2024	3/9/2020	102.38829	102.3882932	102.3882932	102.3882932	100.5042962	96.78750548	93.22657693	89.81421165	86.54348912
200309A00048	3/9/2020	1.11	3/9/2027	3/9/2020	105.53478	105.5347841	105.5347841	105.524732	98.8701845	92.54536159	86.661112	81.18467147	76.08586229
200310A00003	3/10/2020	1.1	3/10/2025	3/10/2020	103.88687	103.8868684	103.8868684	103.8868684	100.967489	96.32045223	91.91167929	87.72780546	83.7562801
200310A00020	3/10/2020	1.1	3/10/2025	3/10/2020	103.88687	103.8868684	103.8868684	103.8868684	100.967489	96.32045223	91.91167929	87.72780546	83.7562801
200311A00024	3/11/2020	1.54	3/11/2030	3/11/2020	114.13818	114.1381798	114.1381798	110.6092152	100.8775242	91.98646102	83.94921411	76.67949564	70.10012848
200312A00036	3/12/2020	1.04	3/11/2022	3/12/2020	101.42006	101.4200638	101.4200638	101.4200638	100.9353187	99.10102699	97.30874766	95.55727557	93.84544781
200316A00019	3/16/2020	1.11	3/16/2023	3/16/2020	102.36393	102.3639261	102.3639261	102.3639261	101.2743514	98.4633641	95.74415768	93.11326019	90.5673501
200316A00049	3/16/2020	1.25	3/14/2025	3/16/2020	104.63121	104.6312116	104.6312116	104.6312116	101.6907272	97.01656514	92.58229002	88.37442567	84.38031822
200316A00068	3/16/2020	1.05	3/16/2022	3/16/2020	101.4307	101.4306981	101.4306981	101.4306981	100.9412592	99.09425087	97.28981615	95.52672587	93.80379421
200316A00070	3/16/2020	1.05	3/16/2022	3/16/2020	101.4307	101.4306981	101.4306981	101.4306981	100.9412592	99.09425087	97.28981615	95.52672587	93.80379421
200318A00044	3/18/2020	1.17	3/18/2024	3/18/2020	104.13199	104.1319887	104.1319887	104.1319887	102.1999121	98.40618047	94.77264609	91.2917477	87.95631945
200421A00022	4/21/2020	0.74	4/21/2023	4/21/2020	101.33353	101.3335342	101.3335342	101.3335342	100.1723767	97.28454052	94.49417915	91.797481	89.19080539
200302A00017	3/2/2020	1.3	3/4/2024	3/2/2020	103.89357	103.8935681	103.8935681	103.8935681	102.0087673	98.27304515	94.6932427	91.26208441	87.97267074
200302A00025	3/2/2020	1.02	3/2/2022	3/2/2020	101.67818	101.6781839	101.6781839	101.6781839	101.1998526	99.38076412	97.60293468	95.8651925	94.16640644

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200303A00009	3/3/2020	1.3	3/3/2025	3/3/2020	104.84632	104.8463171	104.8463171	104.8463171	101.9402083	97.28690428	92.87099131	88.67921042	84.69910704
200304A00013	3/4/2020	1.01	3/4/2022	3/4/2020	101.34945	101.3494549	101.3494549	101.3494549	100.8715428	99.05607199	97.28180405	95.54756817	93.85223413
200304A00032	3/4/2020	1.6	12/15/2028	3/4/2020	111.1791	111.1791015	111.1791015	109.2494042	100.8092213	92.97490832	85.80636006	79.24364131	73.23249526
200306A00006	3/6/2020	0.88	3/6/2023	3/6/2020	101.67982	101.6798233	101.6798233	101.6798233	100.6139713	97.8380126	95.15199016	92.55253043	90.03640447
200306A00036	3/6/2020	1.01	3/6/2025	3/6/2020	103.43873	103.4387308	103.4387308	103.4387308	100.5373067	95.91029941	91.52019589	87.35373071	83.39844495
200306A00040	3/6/2020	1.01	3/6/2025	3/6/2020	103.43873	103.4387308	103.4387308	103.4387308	100.5373067	95.91029941	91.52019589	87.35373071	83.39844495
200306A00077	3/6/2020	1.06	3/6/2025	3/6/2020	103.68283	103.682833	103.682833	103.682833	100.7788632	96.146066	91.75038377	87.57854157	83.61807147
200310A00015	3/10/2020	1.37	3/11/2030	3/10/2020	110.48718	110.4871805	110.4871805	107.0386096	97.56595079	88.92383783	81.11207782	74.04681239	67.65302626
200310A00034	3/10/2020	1.41	3/11/2030	3/10/2020	110.8813	110.8812973	110.8812973	107.4306848	97.94272053	89.28293865	81.45469028	74.37402435	67.96584099
200310A00040	3/10/2020	1.36	3/10/2028	3/10/2020	108.30628	108.3062808	108.3062808	107.2456432	99.56970515	92.39589604	85.78508799	79.69039013	74.06903016
200311A00012	3/11/2020	0.87	3/11/2022	3/11/2020	101.09986	101.0998555	101.0998555	101.0998555	100.6158369	98.78462381	96.9953649	95.24685667	93.53793781
200316A00015	3/16/2020	0.99	3/14/2022	3/16/2020	101.33176	101.3317628	101.3317628	101.3317628	100.8443591	99.00314509	97.20427078	95.44651676	93.72870653
200316A00037	3/16/2020	1.06	3/14/2025	3/16/2020	104.63876	104.6387611	104.6387611	104.6387611	101.6754727	96.97233225	92.51138742	88.27899391	84.26234236
200318A00026	3/20/2020	1.08	3/16/2022	3/20/2020	101.48761	101.4876143	101.4876143	101.4876143	100.9980451	99.15048584	97.34551063	95.58189003	93.8584379
200319A00025	3/19/2020	1.39	3/21/2024	3/19/2020	104.29383	104.2938285	104.2938285	104.2938285	102.3651564	98.57991771	94.95431646	91.48082351	88.15230317
010824A00019	8/24/2001	6.24	8/24/2021	8/24/2001	107.93992	107.9399215	107.9399215	107.9399215	107.6086366	106.2590972	104.9353003	103.6365321	102.3621051
011029A00020	10/29/2001	5.73	10/29/2021	10/29/2001	108.51865	108.5186535	108.5186535	108.5186535	108.1285171	106.5918407	105.0852683	103.6079905	102.1592261
050308A00058	3/8/2005	5.32	3/11/2025	3/8/2005	124.54901	124.549007	124.549007	124.549007	121.4097117	116.2689245	111.3846125	106.7425787	102.3294847
050523A00034	5/23/2005	4.81	6/5/2020	5/23/2005	100.46926	100.4692584	100.4692584	100.4692584	100.4596085	100.3593956	100.2593909	100.1595937	100.0600033
050525A00028	5/25/2005	4.82	6/5/2020	5/25/2005	100.45075	100.450748	100.450748	100.450748	100.4411191	100.3411233	100.2413331	100.1417477	100.0423665
050912A00098	9/12/2005	4.74	9/21/2020	9/12/2005	101.84838	101.8483827	101.8483827	101.8483827	101.7919841	101.390083	100.9913677	100.5958004	100.2033437
100713A00024	7/13/2010	3.95	7/15/2020	7/13/2010	100.77767	100.7776689	100.7776689	100.7776689	100.752445	100.541317	100.3310867	100.1217483	99.9132961
110201A00004	2/1/2011	4.25	2/16/2021	2/1/2011	103.23605	103.2360488	103.2360488	103.2360488	103.0600079	102.2466346	101.4461276	100.6581829	99.88250608
110505A00022	5/5/2011	4.59	5/15/2026	5/5/2011	126.00619	126.0061894	126.0061894	126.0061894	120.7375288	114.4585716	108.5589898	103.0137037	97.79942272
110601A00013	6/1/2011	3.49	6/15/2021	6/1/2011	103.84638	103.8463795	103.8463795	103.8463795	103.5697936	102.425839	101.3071769	100.2129744	99.14243487
110919A00026	9/19/2011	2.66	9/30/2021	9/19/2011	103.65384	103.6538422	103.6538422	103.6538422	103.2973038	101.8757724	100.4807784	99.11164302	97.76771017
111006A00021	10/6/2011	2.93	10/15/2020	10/6/2011	101.24758	101.2475845	101.2475845	101.2475845	101.1785487	100.7126755	100.2510981	99.79375707	99.34059423
111024A00022	10/24/2011	3.11	10/30/2023	10/24/2011	110.59723	110.597234	110.597234	110.597234	108.9556824	105.4072357	101.9949407	98.71283474	95.55524988
120127A00018	1/27/2012	3.64	2/1/2027	1/27/2012	122.61986	122.6198618	122.6198618	122.6198618	115.8108697	109.0163229	102.6771656	96.76029438	91.23518825
120330A00009	3/30/2012	2.98	3/30/2022	3/30/2012	105.1963	105.196303	105.196303	105.196303	104.6847031	102.7643233	100.8888493	99.05696162	97.26738833
120411A00012	4/11/2012	2.87	4/15/2022	4/11/2012	105.09692	105.0969188	105.0969188	105.0969188	104.5675497	102.6047467	100.6888585	98.8184753	96.99223953

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
120601A00012	6/1/2012	1.93	6/15/2021	6/1/2012	102.06667	102.0666705	102.0666705	102.0666705	101.7922863	100.6591203	99.55108014	98.46733726	97.40709922
120718A00011	7/18/2012	2.29	7/30/2021	7/18/2012	102.53397	102.5339703	102.5339703	102.5339703	102.230126	100.9755648	99.75168689	98.55737725	97.39157445
120928A00018	9/28/2012	1.87	9/30/2020	9/28/2012	100.68593	100.6859264	100.6859264	100.6859264	100.6256666	100.2025056	99.78288899	99.36677257	98.95411274
131113A00036	11/13/2013	3.14	11/15/2021	11/13/2013	104.46161	104.4616121	104.4616121	104.4616121	104.065645	102.5185515	101.0023088	99.51606536	98.05900085
131113A00040	11/13/2013	2.8	11/16/2020	11/13/2013	101.41278	101.4127825	101.4127825	101.4127825	101.322259	100.7680114	100.2198283	99.6776101	99.14125987
140113A00011	1/13/2014	2.88	1/15/2021	1/13/2014	101.89415	101.8941522	101.8941522	101.8941522	101.7495668	101.0294067	100.3194375	99.6194437	98.92921598
140204A00007	2/4/2014	2.68	2/16/2021	2/4/2014	101.96406	101.9640611	101.9640611	101.9640611	101.788994	100.9812737	100.1863564	99.40393943	98.63372939
140626A00036	6/26/2014	3.55	6/26/2029	6/26/2014	131.69857	131.6985679	131.6985679	129.0318769	119.3015736	110.1539018	101.8071686	94.18637099	87.22391596
000829A00072	8/29/2000	7.19	8/31/2020	8/29/2000	102.36859	102.3685946	102.3685946	102.3685946	102.3222884	101.9780537	101.6361335	101.2965047	100.9591441
020619A00062	6/19/2002	5.86	6/20/2022	6/19/2002	112.43921	112.4392073	112.4392073	112.4392073	111.8023805	109.5745992	107.4033117	105.2866851	103.2229606
020916A00006	9/16/2002	5.38	9/16/2022	9/16/2002	112.22805	112.2280524	112.2280524	112.2280524	111.4532002	108.9950431	106.6046486	104.2797692	102.018245
050916A00047	9/16/2005	4.98	9/21/2020	9/16/2005	101.88895	101.8889491	101.8889491	101.8889491	101.8326303	101.431272	101.033087	100.6380377	100.2460871
051107A00074	11/7/2005	5.24	11/16/2020	11/7/2005	102.84458	102.8445807	102.8445807	102.8445807	102.7532486	102.1934783	101.6398314	101.0922076	100.5505086
051230A00040	12/30/2005	5.16	12/30/2020	12/30/2005	103.3214	103.3214008	103.3214008	103.3214008	103.1911618	102.5093549	101.8365772	101.17265	100.5173993
081219A00069	12/19/2008	4.26	12/22/2023	12/19/2008	114.57558	114.5755843	114.5755843	114.5755843	112.7946135	109.0510404	105.4545467	101.9985082	98.67663933
110104A00019	1/4/2011	3.78	1/15/2021	1/4/2011	102.64375	102.643746	102.643746	102.643746	102.4983949	101.7739193	101.0597019	100.3555256	99.66117935
110505A00021	5/5/2011	4.08	5/17/2021	5/5/2011	104.03009	104.0300859	104.0300859	104.0300859	103.7733854	102.7101782	101.6688146	100.6486253	99.64896842
110824A00004	8/24/2011	3.11	8/30/2023	8/24/2011	110.0924	110.0924004	110.0924004	110.0924004	108.5934738	105.2146692	101.9597946	98.82366209	95.80132865
111006A00022	10/6/2011	3.08	10/15/2021	10/6/2011	104.12825	104.1282476	104.1282476	104.1282476	103.7590377	102.29816	100.8652264	99.45950458	98.0802872
111024A00010	10/24/2011	3.11	10/30/2023	10/24/2011	110.59723	110.597234	110.597234	110.597234	108.9556824	105.4072357	101.9949407	98.71283474	95.55524988
111201A00005	12/1/2011	3.16	12/15/2021	12/1/2011	104.7313	104.7312967	104.7312967	104.7312967	104.310713	102.6802413	101.0832837	99.51887265	97.98607745
111216A00001	12/16/2011	3.95	12/30/2031	12/16/2011	142.3602	142.3602044	142.3602044	136.0566094	123.6369311	112.2767164	102.1306624	93.06031152	84.94374788
120127A00019	1/27/2012	3.87	1/30/2032	1/27/2012	141.72677	141.7267689	141.7267689	135.2979318	122.8339069	111.4510323	101.2934737	92.22056781	84.10856624
120202A00020	2/2/2012	2.7	2/15/2022	2/2/2012	104.38747	104.3874696	104.3874696	104.3874696	103.9176929	102.1217722	100.365605	98.64802341	96.96790375
120307A00002	3/7/2012	2.21	3/15/2021	3/7/2012	101.85221	101.8522129	101.8522129	101.8522129	101.6508449	100.7685584	99.90155411	99.04943733	98.21182686
120411A00013	4/11/2012	3.59	4/15/2027	4/11/2012	122.93092	122.9309236	122.9309236	122.8517356	115.6833983	108.7064875	102.2101108	96.15849997	90.51872786
120515A00020	5/15/2012	2.28	5/16/2022	5/15/2012	104.47335	104.4733452	104.4733452	104.4733452	103.905709	101.8594261	99.86386219	97.91742934	96.01860126
121031A00004	10/31/2012	2.07	10/31/2022	10/31/2012	104.94727	104.9472664	104.9472664	104.9472664	104.1123614	101.6151188	99.19081652	96.83690232	94.55092955
121227A00024	12/27/2012	2.2	12/30/2021	12/27/2012	103.21394	103.2139401	103.2139401	103.2139401	102.7847247	101.1278426	99.50559551	97.91696204	96.36096115
130212A00015	2/12/2013	1.91	2/16/2021	2/12/2013	101.34022	101.3402199	101.3402199	101.3402199	101.1656305	100.3606826	99.56850687	98.78880091	98.02127203
130212A00017	2/12/2013	2.29	2/15/2023	2/12/2013	105.63179	105.6317938	105.6317938	105.6317938	104.5890752	101.8088103	99.11666756	96.50934141	93.98367188

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
130314A00027	3/14/2013	2.38	3/15/2023	3/14/2013	106.5779	106.5779037	106.5779037	106.5779037	105.4673513	102.585956	99.79830998	97.10086898	94.49024233
001003A00016	10/3/2000	7.13	10/5/2020	10/3/2000	103.01538	103.0153845	103.0153845	103.0153845	102.9514716	102.5084968	102.0693484	101.6339769	101.2023336
011107A00022	11/7/2001	5.56	11/5/2021	11/7/2001	108.09831	108.0983091	108.0983091	108.0983091	107.7041248	106.1556456	104.6376864	103.1494186	101.6900432
050927A00012	9/27/2005	5.06	9/21/2020	9/27/2005	101.92093	101.9209292	101.9209292	101.9209292	101.8646005	101.4631645	101.0649023	100.6697763	100.2777494
080909A00042	9/9/2008	4.74	9/11/2023	9/9/2008	115.74479	115.7447893	115.7447893	115.7447893	114.1874298	110.6811698	107.3037782	104.0498327	100.9141683
081215A00091	12/15/2008	4.19	12/15/2023	12/15/2008	114.94094	114.9409427	114.9409427	114.9409427	113.164221	109.4148688	105.8125707	102.3507166	99.02303386
100629A00001	6/29/2010	3.85	6/30/2020	6/29/2010	100.60547	100.6054693	100.6054693	100.6054693	100.586722	100.4173502	100.2485443	100.0803016	99.91261933
100809A00028	8/9/2010	3.61	8/17/2020	8/9/2010	101.01561	101.0156054	101.0156054	101.0156054	100.9758833	100.6731412	100.3722252	100.0731189	99.77580571
100826A00013	8/26/2010	3.32	8/31/2020	8/26/2010	101.04706	101.047062	101.047062	101.047062	101.0011005	100.6596713	100.3205425	99.98369087	99.64909363
101208A00006	12/8/2010	4.12	12/15/2020	12/8/2010	102.4563	102.4562951	102.4562951	102.4562951	102.3405419	101.7031597	101.0737326	100.452112	99.83815302
110222A00011	2/22/2011	4.35	3/2/2021	2/22/2011	103.46668	103.4666752	103.4666752	103.4666752	103.2770485	102.424417	101.5858896	100.7611181	99.94976573
111024A00009	10/24/2011	2.65	10/30/2020	10/24/2011	101.28685	101.2868478	101.2868478	101.2868478	101.2090805	100.7010321	100.198075	99.70013315	99.20713172
111024A00026	10/24/2011	2.65	10/30/2020	10/24/2011	101.28685	101.2868478	101.2868478	101.2868478	101.2090805	100.7010321	100.198075	99.70013315	99.20713172
120112A00013	1/12/2012	2.76	1/16/2024	1/12/2012	109.92737	109.9273666	109.9273666	109.9273666	108.1058508	104.3645317	100.773794	97.32670857	94.01670919
120320A00005	3/20/2012	3.18	3/30/2022	3/20/2012	105.58348	105.5834774	105.5834774	105.5834774	105.0709702	103.1467728	101.2675543	99.43199308	97.63881536
120514A00018	5/14/2012	2.26	5/15/2020	5/14/2012	100.08084	100.080837	100.080837	100.080837	100.0770702	100.0354985	99.99397841	99.95250982	99.91109262
120801A00007	8/1/2012	2.08	8/17/2020	8/1/2012	100.55259	100.552587	100.552587	100.552587	100.5129737	100.2111372	99.91112262	99.61291352	99.31649352
121116A00007	11/16/2012	1.99	11/16/2021	11/16/2012	102.66889	102.6688853	102.6688853	102.6688853	102.2753596	100.7400296	99.23537861	97.76055867	96.31475264
121116A00021	11/16/2012	2.35	11/17/2025	11/16/2012	112.52249	112.5224901	112.5224901	112.5224901	108.4173438	102.9150894	97.72765002	92.83537152	88.21992723
121116A00022	11/16/2012	2.78	11/16/2029	11/16/2012	125.63134	125.6313396	125.6313396	122.4689893	112.5839273	103.4052547	95.0681844	87.4906773	80.59909662
130211A00025	2/11/2013	1.88	2/16/2021	2/11/2013	101.31591	101.3159145	101.3159145	101.3159145	101.1413436	100.3365038	99.5444348	98.76483447	97.99741006
130212A00016	2/12/2013	2.13	2/15/2022	2/12/2013	103.35162	103.3516246	103.3516246	103.3516246	102.8841011	101.0978115	99.35109617	97.64279237	95.97178116
130405A00007	4/5/2013	2.91	4/17/2028	4/5/2013	122.44826	122.4482638	122.4482638	121.2417241	112.9872717	105.1468385	97.91934293	91.25348248	85.1025004
130424A00005	4/24/2013	3.07	4/24/2030	4/24/2013	129.712	129.7120025	129.7120025	125.9311063	115.47772	105.7984953	97.03858825	89.10512694	81.91508612
130509A00004	5/9/2013	2.4	5/15/2023	5/9/2013	106.45744	106.4574448	106.4574448	106.4574448	105.2213462	102.1944753	99.27089625	96.44650461	93.71738399
011107A00031	11/7/2001	5.56	11/5/2021	11/7/2001	108.09831	108.0983091	108.0983091	108.0983091	107.7041248	106.1556456	104.6376864	103.1494186	101.6900432
051003A00008	10/3/2005	5.08	10/15/2020	10/3/2005	102.25021	102.2502094	102.2502094	102.2502094	102.1808054	101.7121682	101.2478454	100.7877773	100.3319056
051107A00075	11/7/2005	5.29	11/17/2025	11/7/2005	129.02042	129.0204236	129.0204236	129.0204236	124.6926072	118.7449212	113.130276	107.828108	102.8192337
060308A00014	3/8/2006	5.44	3/16/2026	3/8/2006	130.32564	130.3256397	130.3256397	130.3256397	125.3471903	119.0933127	113.2059	107.6613898	102.4378552
060613A00029	6/13/2006	5.47	6/15/2021	6/13/2006	106.10524	106.105241	106.105241	106.105241	105.8258604	104.6682127	103.5360689	102.4285907	101.3449763
060808A00022	8/8/2006	5.57	6/15/2026	8/8/2006	132.39965	132.399651	132.399651	132.399651	126.8383067	120.2950343	114.1486507	108.3727277	102.9427404

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
061220A00034	12/20/2006	5.07	12/30/2021	12/20/2006	108.36792	108.3679172	108.3679172	108.3679172	107.9269724	106.2200817	104.5488308	102.9121679	101.3090829
081211A00029	12/11/2008	4.57	12/15/2023	12/11/2008	115.63304	115.633037	115.633037	115.633037	113.8621444	110.1178864	106.5199312	103.061722	99.73703556
100505A00024	5/5/2010	4.31	5/15/2020	5/5/2010	100.16623	100.1662309	100.1662309	100.1662309	100.1624577	100.1208151	100.0792243	100.0376849	99.99619712
100930A00008	9/30/2010	3.82	9/30/2025	9/30/2010	119.15621	119.1562084	119.1562084	119.1562084	115.2390371	109.7122405	104.4910122	99.55682049	94.89235086
110113A00008	1/13/2011	4.15	1/15/2021	1/13/2011	102.81043	102.8104296	102.8104296	102.8104296	102.6652516	101.941418	101.2278122	100.5242181	99.83042562
110527A00007	5/27/2011	3.98	6/1/2021	5/27/2011	104.07819	104.0781858	104.0781858	104.0781858	103.8109084	102.70649	101.6256143	100.5675337	99.53153207
110818A00012	8/18/2011	2.86	8/31/2022	8/18/2011	106.48667	106.4866748	106.4866748	106.4866748	105.7540675	103.3999943	101.1102789	98.88281386	96.71557303
120112A00014	1/12/2012	3.43	1/15/2032	1/12/2012	139.06537	139.065371	139.065371	132.611183	120.1562069	108.8231869	98.7176778	89.6983638	81.64094605
120306A00004	3/6/2012	2.95	3/15/2023	3/6/2012	107.69954	107.6995429	107.6995429	107.6995429	106.5897188	103.7040604	100.9119066	98.20973306	95.5941678
120907A00023	9/7/2012	2.05	9/15/2022	9/7/2012	104.65038	104.6503829	104.6503829	104.6503829	103.8977259	101.5251205	99.21856966	96.97587322	94.79491731
121116A00006	11/16/2012	2.64	11/13/2025	11/16/2012	113.00525	113.0052457	113.0052457	113.0052457	108.9490367	103.4795583	98.32115929	93.4545127	88.86159116
130107A00002	1/7/2013	3.22	1/18/2028	1/7/2013	122.54863	122.5486324	122.5486324	121.6331978	113.7099351	106.1265351	99.11627849	92.63260137	86.63296251
130213A00039	2/13/2013	1.92	2/16/2021	2/13/2013	101.34832	101.3483218	101.3483218	101.3483218	101.1737261	100.3687423	99.57653089	98.79678972	98.02922602
130405A00006	4/5/2013	2.41	4/7/2025	4/5/2013	111.44212	111.4421248	111.4421248	111.4421248	108.3237944	103.3983916	98.72734673	94.29621921	90.09146101
130424A00004	4/24/2013	2.46	4/24/2025	4/24/2013	111.80161	111.8016146	111.8016146	111.8016146	108.6190946	103.6418539	98.92386628	94.45028088	90.20717348
130528A00027	5/28/2013	1.94	5/28/2020	5/28/2013	100.12601	100.1260148	100.1260148	100.1260148	100.1189863	100.0414319	99.96400162	99.88669513	99.80951217
130529A00006	5/29/2013	2.05	6/1/2020	5/29/2013	100.15376	100.1537599	100.1537599	100.1537599	100.1456135	100.056974	99.96849086	99.88016358	99.79199178
130712A00005	7/12/2013	3.25	7/17/2023	7/12/2013	110.18322	110.1832247	110.1832247	110.1832247	108.782922	105.5177326	102.3686394	99.33080833	96.39963973
140827A00038	8/27/2014	3.07	8/30/2024	8/27/2014	112.11956	112.1195594	112.1195594	112.1195594	109.7066314	105.3529912	101.1986829	97.23356117	93.44804816
140908A00061	9/8/2014	2.39	2/26/2021	9/8/2014	101.77929	101.7792924	101.7792924	101.7792924	101.5948802	100.7609066	99.9405883	99.13359213	98.33959562
140908A00065	9/8/2014	2.63	2/28/2022	9/8/2014	104.34357	104.3435687	104.3435687	104.3435687	103.8628113	102.0293748	100.2372206	98.48518201	96.77213278
141009A00029	10/9/2014	3.5	10/9/2029	10/9/2014	130.15741	130.157408	130.157408	127.1671146	117.3269518	108.110769	99.72202227	92.08137325	85.11749091
141017A00020	10/17/2014	2.28	10/18/2021	10/17/2014	103.21554	103.2155446	103.2155446	103.2155446	102.8441939	101.3783078	99.94068391	98.53057638	97.14726506
150331A00004	3/31/2015	2.08	3/31/2022	3/31/2015	103.80945	103.8094512	103.8094512	103.8094512	103.2983001	101.3825321	99.51178751	97.6847385	95.90010511
150407A00009	4/7/2015	2.03	4/7/2022	4/7/2015	103.74939	103.7493907	103.7493907	103.7493907	103.2304288	101.2962555	99.40798401	97.56424672	95.76372617
150413A00034	4/13/2015	2.25	4/13/2022	4/13/2015	103.85852	103.8585196	103.8585196	103.8585196	103.3343951	101.3894691	99.49096063	97.63747857	95.82768278
150601A00531	6/1/2015	3.28	7/24/2024	6/1/2015	112.53085	112.530854	112.530854	112.530854	110.2173108	105.9487144	101.8714922	97.97597959	94.25305852
150601A00594	6/1/2015	3.2	10/20/2026	6/1/2015	118.51591	118.5159112	118.5159112	118.5159112	112.4161685	105.9891393	99.97929655	94.35731519	89.09607728
150601A00632	6/1/2015	2.33	12/31/2020	6/1/2015	101.38494	101.3849431	101.3849431	101.3849431	101.2549095	100.5776851	99.90949121	99.25014817	98.5994812
150601A00634	6/1/2015	2.39	3/31/2021	6/1/2015	101.93896	101.9389619	101.9389619	101.9389619	101.7224549	100.7981664	99.8906233	98.99937383	98.12398238
150601A00646	6/1/2015	2.68	9/30/2022	6/1/2015	105.7318	105.7317959	105.7317959	105.7317959	104.9533734	102.536209	100.1871518	97.90390335	95.68425666

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00648	6/1/2015	2.71	12/30/2022	6/1/2015	106.40084	106.4008388	106.4008388	106.4008388	105.4502567	102.785016	100.2008904	97.69489695	95.26418411
150601A00689	6/1/2015	2.81	2/28/2025	6/1/2015	111.98515	111.9851509	111.9851509	111.9851509	109.0150948	104.2001256	99.62795483	95.28510888	91.15892781
150601A00696	6/1/2015	2.83	3/13/2025	6/1/2015	112.16964	112.1696365	112.1696365	112.1696365	109.153332	104.302074	99.69702416	95.32443013	91.17137583
150610A00009	6/10/2015	3.03	6/10/2025	6/10/2015	115.05243	115.0524309	115.0524309	115.0524309	111.6548022	106.4794657	101.5782763	96.93523343	92.5353565
150617A00005	6/17/2015	1.88	6/17/2020	6/17/2015	100.23494	100.2349393	100.2349393	100.2349393	100.2209408	100.0877233	99.95487497	99.8223943	99.69027969
150618A00011	6/18/2015	1.84	6/18/2020	6/18/2015	100.23438	100.2343829	100.2343829	100.2343829	100.2200204	100.0840358	99.94843484	99.81321588	99.67837724
150720A00011	7/20/2015	2.69	7/20/2023	7/20/2015	108.38353	108.3835284	108.3835284	108.3835284	106.9856751	103.741722	100.6136168	97.59651944	94.68582548
150730A00055	7/30/2015	2.1	6/30/2020	7/30/2015	100.30904	100.3090448	100.3090448	100.3090448	100.2903363	100.1213396	99.95290773	99.78503801	99.61772764
150803A00049	8/3/2015	2.01	8/3/2020	8/3/2015	100.4605	100.4605001	100.4605001	100.4605001	100.4271335	100.1640782	99.90239969	99.64208732	99.38313038
150817A00005	8/17/2015	1.83	8/17/2020	8/17/2015	100.51841	100.5184145	100.5184145	100.5184145	100.4787473	100.1765151	99.87611298	99.57752424	99.28073237
150817A00007	8/17/2015	1.83	8/17/2020	8/17/2015	100.51841	100.5184145	100.5184145	100.5184145	100.4787473	100.1765151	99.87611298	99.57752424	99.28073237
130513A00007	5/13/2013	2.54	5/15/2023	5/13/2013	106.8871	106.8870971	106.8870971	106.8870971	105.6490206	102.6155917	99.68562125	96.85499941	94.11980435
130530A00008	5/30/2013	2.29	6/1/2021	5/30/2013	102.21753	102.2175328	102.2175328	102.2175328	101.9524496	100.8589259	99.78878251	98.74127588	97.71569372
130531A00020	5/31/2013	2.5	5/30/2023	5/31/2013	107.42802	107.4280249	107.4280249	107.4280249	106.1480373	103.0542525	100.0672234	97.18265495	94.39645172
130612A00037	6/12/2013	2.16	6/15/2020	6/12/2013	100.26094	100.2609377	100.2609377	100.2609377	100.2476644	100.1199537	99.9925838	99.86555336	99.73886095
130712A00004	7/12/2013	2.82	7/15/2021	7/12/2013	103.30683	103.3068342	103.3068342	103.3068342	103.0112284	101.7889165	100.5955736	99.43017854	98.29175755
130904A00036	9/4/2013	3.57	9/15/2023	9/4/2013	111.79698	111.7969757	111.7969757	111.7969757	110.2521747	106.8016296	103.4789134	100.2786192	97.1955979
131011A00006	10/11/2013	3.28	10/15/2021	10/11/2013	104.4237	104.4236982	104.4236982	104.4236982	104.0539867	102.5908421	101.155681	99.74776999	98.36640068
131210A00003	12/10/2013	2.67	12/15/2020	12/10/2013	101.62275	101.6227496	101.6227496	101.6227496	101.5072326	100.8717256	100.2441763	99.62443565	99.01235836
131217A00024	12/17/2013	4.34	1/2/2029	12/17/2013	135.03752	135.0375177	135.0375177	132.9990144	123.7468706	114.919423	106.8212915	99.38763895	92.55973509
140131A00024	1/31/2014	2.71	2/1/2021	1/31/2014	101.88728	101.8872836	101.8872836	101.8872836	101.7265653	100.9600528	100.2050674	99.46135054	98.72865142
140307A00011	3/7/2014	3.19	3/15/2023	3/7/2014	108.93397	108.9339692	108.9339692	108.9339692	107.8135244	104.8979555	102.0769723	99.34700324	96.70463134
140411A00009	4/11/2014	3.1	4/11/2024	4/11/2014	111.91381	111.91381	111.91381	111.91381	109.8660882	105.8594314	102.0228406	98.34820093	94.82782768
140416A00014	4/16/2014	2.66	4/30/2021	4/16/2014	102.41321	102.4132137	102.4132137	102.4132137	102.1702419	101.1622876	100.1741764	99.20532673	98.25517961
140929A00098	9/29/2014	2.62	9/29/2021	9/29/2014	103.34522	103.3452183	103.3452183	103.3452183	102.9910745	101.5785031	100.1922015	98.83150042	97.49575256
141009A00027	10/9/2014	2.69	10/11/2022	10/9/2014	105.92365	105.9236451	105.9236451	105.9236451	105.1249139	102.6768107	100.2984799	97.9875385	95.74169946
141016A00022	10/16/2014	2.13	10/18/2021	10/16/2014	102.99242	102.992419	102.992419	102.992419	102.6214506	101.1572887	99.72135906	98.31291651	96.93124172
141016A00024	10/16/2014	1.85	10/16/2020	10/16/2014	100.81294	100.8129431	100.8129431	100.8129431	100.7433777	100.2751895	99.81135672	99.3518186	98.89651555
141028A00012	10/28/2014	2.73	10/28/2022	10/28/2014	106.13695	106.1369463	106.1369463	106.1369463	105.3070742	102.8121272	100.3895379	98.03678994	95.75147039
150105A00027	1/5/2015	2.23	1/5/2022	1/5/2015	103.60378	103.6037789	103.6037789	103.6037789	103.1675911	101.4861807	99.84024406	98.22872412	96.65060581
150206A00017	2/6/2015	2.05	2/7/2022	2/6/2015	103.47324	103.4732382	103.4732382	103.4732382	103.0107406	101.241197	99.51052693	97.81755668	96.16115926

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150310A00019	3/10/2015	2.24	3/10/2021	3/10/2015	101.71925	101.7192538	101.7192538	101.7192538	101.5232957	100.6570272	99.80550797	98.96836346	98.14523185
150316A00043	3/16/2015	2.37	3/16/2023	3/16/2015	106.55505	106.5550547	106.5550547	106.5550547	105.4424667	102.5588109	99.76906124	97.06966429	94.45722091
150317A00012	3/17/2015	2.46	3/18/2024	3/17/2015	109.20107	109.2010686	109.2010686	109.2010686	107.2331906	103.3416277	99.61325688	96.04040049	92.61578168
150406A00003	4/6/2015	1.9	4/6/2021	4/6/2015	101.53613	101.5361279	101.5361279	101.5361279	101.3148359	100.376468	99.45541829	98.55121064	97.6633864
130501A00013	5/1/2013	1.82	5/3/2021	5/1/2013	101.5757	101.5757006	101.5757006	101.5757006	101.3315169	100.319996	99.32858172	98.3566793	97.40371731
130513A00006	5/13/2013	1.8	5/15/2020	5/13/2013	100.06168	100.0616754	100.0616754	100.0616754	100.0579101	100.0163543	99.97485008	99.93339735	99.89199599
130523A00038	5/28/2013	2.58	5/23/2023	5/28/2013	107.06027	107.0602668	107.0602668	107.0602668	105.8038973	102.7471846	99.79523748	96.94387108	94.18909329
130529A00014	5/29/2013	2.05	6/1/2020	5/29/2013	100.15376	100.1537599	100.1537599	100.1537599	100.1456135	100.056974	99.96849086	99.88016358	99.79199178
130530A00007	5/30/2013	2.04	6/1/2020	5/30/2013	100.15287	100.1528713	100.1528713	100.1528713	100.1447249	100.0560862	99.96760386	99.87927736	99.79110635
130531A00010	5/31/2013	2.04	6/1/2020	5/31/2013	100.15287	100.1528713	100.1528713	100.1528713	100.1447249	100.0560862	99.96760386	99.87927736	99.79110635
130531A00021	5/31/2013	3.22	5/30/2028	5/31/2013	125.30816	125.3081645	125.3081645	123.9628773	115.5100582	107.4680943	100.0605342	93.23372072	86.93880525
130702A00018	7/2/2013	3.17	7/17/2023	7/2/2013	109.92307	109.9230733	109.9230733	109.9230733	108.5240909	105.263097	102.1180879	99.08423356	96.15693799
131029A00011	10/29/2013	2.47	10/30/2020	10/29/2013	101.19538	101.1953797	101.1953797	101.1953797	101.1176491	100.6098703	100.1071809	99.60950476	99.11676715
131106A00003	11/6/2013	3.57	11/15/2023	11/6/2013	111.70569	111.7056862	111.7056862	111.7056862	110.0296181	106.4353371	102.9797065	99.65661212	96.46024442
131107A00008	11/7/2013	2.52	11/9/2020	11/7/2013	101.28741	101.287412	101.287412	101.287412	101.202158	100.6665996	100.1367097	99.61239848	99.09357802
140131A00025	1/31/2014	3.28	1/30/2023	1/31/2014	108.297	108.2970047	108.2970047	108.2970047	107.2768154	104.5049014	101.8193052	99.21676608	96.69417193
140701A00002	7/1/2014	2.84	7/1/2022	7/1/2014	105.57822	105.5782236	105.5782236	105.5782236	104.946753	102.7721	100.6534015	98.58881877	96.57658898
140701A00004	7/1/2014	2.3	7/1/2020	7/1/2014	100.34855	100.3485539	100.3485539	100.3485539	100.3294109	100.1576012	99.98637748	99.8157368	99.64567621
140908A00064	9/8/2014	2.57	11/30/2021	9/8/2014	103.66528	103.6652763	103.6652763	103.6652763	103.2584418	101.6767319	100.12704	98.6084616	97.12012611
141009A00028	10/9/2014	3.02	10/9/2024	10/9/2014	112.19963	112.1996339	112.1996339	112.1996339	109.6707409	105.212504	100.9631947	96.91193266	93.04846011
141128A00003	11/28/2014	2.62	11/30/2023	11/28/2014	109.07582	109.0758166	109.0758166	109.0758166	107.3712245	103.7666676	100.3032842	96.97476467	93.77511844
141202A00012	12/2/2014	2.32	12/2/2021	12/2/2014	103.54966	103.5496623	103.5496623	103.5496623	103.1402142	101.549541	99.99121126	98.46430685	96.96794401
141208A00008	12/8/2014	3.02	12/16/2024	12/8/2014	112.65855	112.6585516	112.6585516	112.6585516	109.9208309	105.2809541	100.8660877	96.66410041	92.66358204
150123A00010	1/23/2015	2.02	1/31/2022	1/23/2015	103.38261	103.3826065	103.3826065	103.3826065	102.9262798	101.1780454	99.46785925	97.79454578	96.15697848
150317A00013	3/17/2015	2.58	3/17/2025	3/17/2015	112.14819	112.1481921	112.1481921	112.1481921	109.0952928	104.2052517	99.56475769	95.15980369	90.97723851
150401A00008	4/1/2015	2.62	4/1/2025	4/1/2015	111.46381	111.4638113	111.4638113	111.4638113	108.3902061	103.5093054	98.87878311	94.4845115	90.31323057
150407A00008	4/7/2015	1.78	4/7/2021	4/7/2015	101.5775	101.577497	101.577497	101.577497	101.3547578	100.4113552	99.48544613	98.57654762	97.68419422
150601A00147	6/1/2015	3.45	7/30/2021	6/1/2015	104.15052	104.1505158	104.1505158	104.1505158	103.8435373	102.5748688	101.3372053	100.1294202	98.95044045
010824A00028	8/24/2001	6.24	8/24/2021	8/24/2001	107.93992	107.9399215	107.9399215	107.9399215	107.6086366	106.2590972	104.9353003	103.6365321	102.3621051
020627A00001	6/27/2002	6.07	6/27/2022	6/27/2002	112.59658	112.5965838	112.5965838	112.5965838	111.9517135	109.7103521	107.5260411	105.3969196	103.321203
050902A00032	9/2/2005	4.69	8/22/2025	9/2/2005	124.55595	124.5559458	124.5559458	124.5559458	120.7254742	115.1223753	109.8223713	104.8073873	100.0605207

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
061221A00005	12/21/2006	5.28	12/30/2021	12/21/2006	108.41064	108.4106424	108.4106424	108.4106424	107.9710822	106.2691453	104.6026583	102.9705772	101.3718991
071231A00068	12/31/2007	4.93	12/30/2022	12/31/2007	112.99665	112.9966548	112.9966548	112.9966548	112.0171503	109.2521629	106.5709046	103.9702999	101.4474088
100824A00009	8/24/2010	3.91	9/2/2025	8/24/2010	119.37143	119.3714308	119.3714308	119.3714308	115.5851745	110.1234392	104.9595628	100.075722	95.45524869
101006A00011	10/6/2010	2.9	10/15/2020	10/6/2010	101.29797	101.2979703	101.2979703	101.2979703	101.228799	100.762021	100.2995566	99.84134615	99.38733088
101130A00010	11/30/2010	3.25	11/30/2020	11/30/2010	101.86107	101.8610722	101.8610722	101.8610722	101.7594247	101.164279	100.5760859	99.99472404	99.42007507
110805A00013	8/5/2011	3.43	8/16/2021	8/5/2011	104.12333	104.1233346	104.1233346	104.1233346	103.8040339	102.4994708	101.2220881	99.97104043	98.74551748
110805A00014	8/5/2011	4.06	8/17/2026	8/5/2011	123.75131	123.7513141	123.7513141	123.7513141	117.9482035	111.510008	105.4763483	99.81954364	94.51395057
120312A00009	3/12/2012	2.72	3/15/2024	3/12/2012	110.20115	110.2011484	110.2011484	110.2011484	108.2336749	104.3304886	100.5904495	97.00590155	93.56958758
120503A00014	5/3/2012	2.4	5/16/2022	5/3/2012	104.72169	104.7216948	104.7216948	104.7216948	104.1534261	102.1045327	100.1064099	98.15746865	96.25618103
120824A00023	8/24/2012	2.4	8/30/2022	8/24/2012	104.96268	104.9626765	104.9626765	104.9626765	104.2393424	101.9147144	99.65352284	97.45369201	95.31322638
120907A00022	9/7/2012	1.88	9/15/2021	9/7/2012	102.45932	102.4593192	102.4593192	102.4593192	102.1172952	100.7456047	99.39886572	98.07645647	96.77777531
130117A00011	1/17/2013	2.18	1/30/2023	1/17/2013	105.74577	105.7457666	105.7457666	105.7457666	104.7307366	101.98313	99.32157752	96.74281586	94.2437309
130211A00015	2/11/2013	1.88	2/16/2021	2/11/2013	101.31591	101.3159145	101.3159145	101.3159145	101.1413436	100.3365038	99.5444348	98.76483447	97.99741006
130531A00019	5/31/2013	2.09	6/1/2021	5/31/2013	102.17271	102.1727098	102.1727098	102.1727098	101.9070041	100.811156	99.73878148	98.689133	97.66149426
130606A00013	6/6/2013	2.94	6/15/2023	6/6/2013	108.34031	108.3403079	108.3403079	108.3403079	107.0273644	103.8900932	100.8618551	97.93822363	95.11498085
130614A00008	6/14/2013	2.39	6/15/2020	6/14/2013	100.26654	100.2665406	100.2665406	100.2665406	100.2532922	100.1258191	99.99868342	99.87188385	99.74541903
130821A00019	8/21/2013	3.81	8/29/2025	8/21/2013	119.90042	119.9004242	119.9004242	119.9004242	116.0953865	110.5954302	105.3957183	100.4782641	95.82624867
130904A00039	9/4/2013	4.19	9/15/2028	9/4/2013	134.43279	134.4327867	134.4327867	132.7263837	123.6997034	115.0655667	107.126553	99.82249055	93.09872182
131024A00018	10/24/2013	2.8	11/1/2021	10/24/2013	104.09321	104.0932115	104.0932115	104.0932115	103.7082802	102.1983544	100.7182088	99.26703904	97.84406919
131107A00010	11/7/2013	2.84	11/8/2021	11/7/2013	104.20705	104.2070483	104.2070483	104.2070483	103.8161205	102.2859628	100.7861853	99.31595787	97.87447977
140908A00059	9/8/2014	2.28	8/31/2020	9/8/2014	100.69192	100.6919214	100.6919214	100.6919214	100.6460525	100.3053774	99.96699866	99.63089337	99.29703872
020920A00012	9/20/2002	5.4	9/20/2022	9/20/2002	112.33241	112.3324087	112.3324087	112.3324087	111.5502786	109.0797525	106.6776094	104.3415716	102.0694506
060908A00017	9/8/2006	5.27	9/15/2021	9/8/2006	107.19175	107.191753	107.191753	107.191753	106.842222	105.4360231	104.0553694	102.6996226	101.3681653
080508A00054	5/8/2008	5.01	5/8/2020	5/8/2008	100.10399	100.1039921	100.1039921	100.1039921	100.1019786	100.0797547	100.057554	100.0353765	100.0132222
081205A00033	12/5/2008	4.77	12/7/2023	12/5/2008	116.26606	116.2660604	116.2660604	116.2660604	114.5104082	110.7759549	107.1866144	103.7359176	100.4177229
091112A00011	11/12/2009	4.77	11/15/2024	11/12/2009	121.38947	121.3894701	121.3894701	121.3894701	118.6466813	113.8638764	109.3077191	104.9662064	100.8280368
100809A00029	8/9/2010	4.23	8/15/2025	8/9/2010	120.89794	120.8979405	120.8979405	120.8979405	117.1753742	111.7189595	106.557086	101.672224	97.04798129
100817A00002	8/17/2010	3.03	8/31/2020	8/17/2010	100.99493	100.9949271	100.9949271	100.9949271	100.9489058	100.6070543	100.2675127	99.93025773	99.59526627
110103A00009	1/3/2011	3.99	1/3/2022	1/3/2011	106.58578	106.5857848	106.5857848	106.5857848	106.1451854	104.4430013	102.7765677	101.144823	99.54674797
110302A00006	3/2/2011	4.26	3/15/2021	3/2/2011	103.53431	103.5343074	103.5343074	103.5343074	103.3319246	102.4433697	101.5701363	100.71183	99.86806975
110302A00007	3/2/2011	4.86	3/16/2026	3/2/2011	126.89992	126.8999222	126.8999222	126.8999222	121.9731433	115.8164236	110.0220103	104.566557	99.42833995

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
110524A00009	5/24/2011	3.64	6/1/2021	5/24/2011	103.88082	103.8808172	103.8808172	103.8808172	103.6130933	102.5072252	101.4249804	100.3656075	99.32838675
110818A00006	8/18/2011	3.09	8/30/2021	8/18/2011	103.78633	103.7863328	103.7863328	103.7863328	103.4565839	102.1223508	100.8119506	99.52479319	98.2603076
111024A00027	10/24/2011	3.11	10/30/2023	10/24/2011	110.59723	110.597234	110.597234	110.597234	108.9556824	105.4072357	101.9949407	98.71283474	95.55524988
111031A00013	10/31/2011	2.82	11/1/2021	10/31/2011	104.12374	104.123738	104.123738	104.123738	103.7387527	102.2285855	100.7482027	99.29679989	97.87360098
111223A00006	12/23/2011	2.98	12/30/2021	12/23/2011	104.52999	104.5299881	104.5299881	104.5299881	104.0981529	102.4298608	100.7964101	99.19677366	97.62996492
120113A00012	1/13/2012	3.62	1/15/2027	1/13/2012	122.33075	122.330752	122.330752	122.330752	115.6301587	108.8836513	102.5867288	96.70689578	91.21417695
120126A00006	1/26/2012	2.93	1/31/2022	1/26/2012	104.67903	104.6790305	104.6790305	104.6790305	104.2215275	102.4671269	100.7507775	99.07130652	97.42759001
120209A00012	2/9/2012	2.27	2/16/2021	2/9/2012	101.74441	101.7444096	101.7444096	101.7444096	101.5691576	100.7609012	99.96548319	99.18259924	98.41195472
120228A00010	2/28/2012	2.34	3/2/2022	2/28/2012	104.13568	104.1356848	104.1356848	104.1356848	103.6518548	101.8093893	100.008623	98.24837177	96.5274925
120517A00006	5/17/2012	1.88	6/1/2020	5/17/2012	100.15674	100.1567427	100.1567427	100.1567427	100.1485789	100.0597519	99.97108352	99.88257341	99.79422111
120517A00007	5/17/2012	2.42	5/31/2023	5/17/2012	107.18487	107.1848744	107.1848744	107.1848744	105.9038305	102.8112142	99.82541455	96.94213042	94.15726086
120801A00015	8/1/2012	2.08	8/17/2020	8/1/2012	100.55259	100.552587	100.552587	100.552587	100.5129737	100.2111372	99.91112262	99.61291352	99.31649352
121101A00011	11/1/2012	2.03	11/1/2022	11/1/2012	104.85116	104.8511568	104.8511568	104.8511568	104.0147001	101.5159804	99.09030746	96.73512282	94.447974
130117A00010	1/17/2013	1.98	1/31/2022	1/17/2013	103.31146	103.3114628	103.3114628	103.3114628	102.8552869	101.1077009	99.39815105	97.72546232	96.08850845
130904A00035	9/4/2013	2.85	9/15/2020	9/4/2013	101.04713	101.0471263	101.0471263	101.0471263	100.9938649	100.6104655	100.2299869	99.85239593	99.47765953
131011A00005	10/11/2013	2.97	10/15/2020	10/11/2013	101.26624	101.266238	101.266238	101.266238	101.1971953	100.7312707	100.2696422	99.81225047	99.35903723
131217A00023	12/17/2013	3.74	1/2/2024	12/17/2013	112.76798	112.7679824	112.7679824	112.7679824	110.9722898	107.2328836	103.6417004	100.1920113	96.87743438
140402A00010	4/2/2014	2.62	4/2/2021	4/2/2014	102.34033	102.3403322	102.3403322	102.3403322	102.1212167	101.1875279	100.2708766	99.37079961	98.4868505
140701A00001	7/1/2014	3.22	7/1/2024	7/1/2014	112.29277	112.2927698	112.2927698	112.2927698	110.0437672	105.8385818	101.8196088	97.97756529	94.30368571
140815A00032	8/15/2014	3.59	10/15/2029	8/15/2014	131.06029	131.0602926	131.0602926	128.0445184	118.1559087	108.8887761	100.4539867	92.77165514	85.76996809
140827A00037	8/27/2014	2.55	8/30/2021	8/27/2014	103.05733	103.0573278	103.0573278	103.0573278	102.7286871	101.3995997	100.0942573	98.81207222	97.55247574
140911A00027	9/11/2014	3.18	9/16/2024	9/11/2014	112.7343	112.7342963	112.7342963	112.7342963	110.2673625	105.8563966	101.649247	97.63544482	93.80511191
140922A00026	9/22/2014	3.02	9/30/2024	9/22/2014	112.97357	112.9735746	112.9735746	112.9735746	110.4476405	105.9712332	101.703948	97.63492905	93.75393963
141009A00026	10/9/2014	2.23	10/9/2020	10/9/2014	100.88822	100.8882198	100.8882198	100.8882198	100.822746	100.3743387	99.92992008	99.48943687	99.05283694
141024A00008	10/24/2014	2.52	10/24/2022	10/24/2014	106.0414	106.0413969	106.0413969	106.0413969	105.2154087	102.7225188	100.301825	97.95082097	95.66710321
150105A00026	1/5/2015	2.54	1/5/2024	1/5/2015	109.02686	109.0268639	109.0268639	109.0268639	107.2375332	103.541112	99.99262803	96.58531877	93.31277292
150112A00014	1/12/2015	1.86	1/15/2021	1/12/2015	101.25774	101.2577398	101.2577398	101.2577398	101.1132865	100.394376	99.68566785	98.98694572	98.29799951
150116A00040	1/16/2015	2.07	1/18/2022	1/16/2015	103.08803	103.0880311	103.0880311	103.0880311	102.6441178	100.9383325	99.26902568	97.635092	96.03547107
150319A00013	3/19/2015	3.25	3/19/2030	3/19/2015	129.07424	129.0742374	129.0742374	125.4988612	115.2845185	105.7938557	97.19243523	89.39153167	82.31171438
150422A00019	4/22/2015	2.62	4/22/2025	4/22/2015	111.59648	111.5964826	111.5964826	111.5964826	108.4478016	103.5110005	98.83025986	94.39096708	90.17941785
150424A00035	4/24/2015	1.8	4/23/2021	4/24/2015	101.67105	101.6710525	101.6710525	101.6710525	101.4343314	100.4470542	99.47891784	98.5293698	97.59787881

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150506A00014	5/6/2015	2.21	5/6/2022	5/6/2015	104.27046	104.270463	104.270463	104.270463	103.7163168	101.6985881	99.73047003	97.81042693	95.93698166
150601A00515	6/1/2015	2.95	1/16/2024	6/1/2015	110.48378	110.4837761	110.4837761	110.4837761	108.6585973	104.9069106	101.306112	97.84926091	94.52978013
150601A00606	6/1/2015	2.39	3/31/2021	6/1/2015	101.93896	101.9389619	101.9389619	101.9389619	101.7224549	100.7981664	99.8906233	98.99937383	98.12398238
150601A00629	6/1/2015	2.22	6/30/2020	6/1/2015	100.32321	100.3232065	100.3232065	100.3232065	100.3044962	100.1354815	99.96703182	99.79914428	99.63181614
150601A00630	6/1/2015	2.27	9/30/2020	6/1/2015	100.84001	100.8400108	100.8400108	100.8400108	100.7797006	100.3561492	99.93614473	99.51964275	99.10659972
150601A00704	6/1/2015	2.3	3/25/2022	6/1/2015	103.78737	103.7873689	103.7873689	103.7873689	103.2838709	101.3904457	99.54107451	97.73447087	95.96939427
150601A00756	6/1/2015	1.98	5/12/2020	6/1/2015	100.05393	100.0539344	100.0539344	100.0539344	100.0509219	100.0176741	99.9844648	99.95129386	99.91816125
150817A00073	8/17/2015	2.06	8/17/2021	8/17/2015	102.55445	102.5544469	102.5544469	102.5544469	102.2357651	100.9362542	99.66362833	98.41705975	97.19575494
150821A00016	8/21/2015	1.74	8/21/2020	8/21/2015	100.5092	100.5092043	100.5092043	100.5092043	100.4677591	100.1545117	99.84322694	99.53388629	99.22647151
150824A00040	8/24/2015	2.36	8/24/2022	8/24/2015	104.8341	104.8340974	104.8340974	104.8340974	104.1207963	101.813324	99.56846697	97.38416196	95.25842703
150824A00049	8/24/2015	1.99	5/24/2021	8/24/2015	101.84918	101.8491825	101.8491825	101.8491825	101.5900436	100.5202726	99.47294691	98.44736578	97.44285746
150827A00004	8/27/2015	1.82	8/27/2020	8/27/2015	100.56269	100.5626926	100.5626926	100.5626926	100.5185643	100.1886627	99.86092763	99.53533788	99.21187236
150915A00048	9/15/2015	1.79	9/15/2020	9/15/2015	100.64091	100.6409059	100.6409059	100.6409059	100.5877658	100.2053225	99.82579477	99.44914921	99.07535294
150930A00011	9/30/2015	2.06	9/30/2021	9/30/2015	102.54763	102.5476348	102.5476348	102.5476348	102.1939619	100.7846224	99.40154606	98.04406261	96.71152423
151005A00012	10/5/2015	1.53	10/5/2020	10/5/2015	100.6196	100.6196009	100.6196009	100.6196009	100.5564007	100.1189744	99.68534991	99.2554779	98.82930971
151013A00099	10/15/2015	2.44	10/15/2020	10/15/2015	101.08337	101.0833737	101.0833737	101.0833737	101.0142813	100.5480958	100.0862199	99.62859392	99.17515927
151211A00055	12/11/2015	2.62	12/11/2024	12/11/2015	111.68276	111.6827555	111.6827555	111.6827555	108.9501389	104.3179594	99.91092065	95.71687178	91.72438447
151223A00070	12/23/2015	2.57	12/26/2023	12/23/2015	109.07084	109.0708398	109.0708398	109.0708398	107.3049704	103.633459	100.1079892	96.72192774	93.46898318
160111A00037	1/11/2016	1.99	1/11/2021	1/11/2016	101.23276	101.2327598	101.2327598	101.2327598	101.0923912	100.3857724	99.68901098	99.00190162	98.32424468
160119A00029	1/19/2016	3.39	1/20/2032	1/19/2016	136.02502	136.0250223	136.0250223	129.7067882	117.5425114	106.4720245	96.59955475	87.78730056	79.91403931
160122A00022	1/22/2016	1.9	1/22/2021	1/22/2016	101.21909	101.2190913	101.2190913	101.2190913	101.0683141	100.3318161	99.60602411	98.89070597	98.1856361
160201A00011	2/1/2016	1.65	6/22/2020	2/1/2016	100.1995	100.1995032	100.1995032	100.1995032	100.1837182	100.0369759	99.89067255	99.74480622	99.59937492
160203A00014	2/3/2016	1.88	2/3/2022	2/3/2016	102.8275	102.8274983	102.8274983	102.8274983	102.3713688	100.6250925	98.91690019	97.24562892	95.61016328
160211A00035	2/11/2016	2.25	2/11/2025	2/11/2016	109.37124	109.3712396	109.3712396	109.3712396	106.4839337	101.7764785	97.30503945	93.05653999	89.01869874
160212A00043	2/12/2016	1.8	2/14/2022	2/12/2016	102.74781	102.7478103	102.7478103	102.7478103	102.2824468	100.5046708	98.76624819	97.06601889	95.4028669
160216A00002	2/16/2016	1.88	2/16/2022	2/16/2016	102.90164	102.9016423	102.9016423	102.9016423	102.4342505	100.6492434	98.90384963	97.19690855	95.52730328
160328A00013	3/28/2016	2.17	3/28/2024	3/28/2016	108.11829	108.1182861	108.1182861	108.1182861	106.1333552	102.2373889	98.50608632	94.93164589	91.50667603
160330A00042	3/30/2016	1.53	3/30/2021	3/30/2016	101.30884	101.3088406	101.3088406	101.3088406	101.0934013	100.1730597	99.26939174	98.38194787	97.51029452
160401A00055	4/1/2016	1.66	4/1/2021	4/1/2016	101.29924	101.2992413	101.2992413	101.2992413	101.0824666	100.1586884	99.25171485	98.36109086	97.48637774
160407A00007	4/7/2016	1.6	3/25/2021	4/7/2016	101.21738	101.2173776	101.2173776	101.2173776	101.0073429	100.1028905	99.21456598	98.34194096	97.48460222
160420A00005	4/20/2016	1.48	4/20/2021	4/20/2016	101.34172	101.3417152	101.3417152	101.3417152	101.1079325	100.1305331	99.17194064	98.23161647	97.3090423

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150428A00012	4/28/2015	1.76	6/15/2020	4/28/2015	100.18607	100.1860682	100.1860682	100.1860682	100.172829	100.0454466	99.91840144	99.79169221	99.66531752
150512A00029	5/12/2015	3.03	5/12/2025	5/12/2015	113.79992	113.7999234	113.7999234	113.7999234	110.5541652	105.5139666	100.7368804	96.2077723	91.91245773
150515A00057	5/15/2015	1.77	8/14/2020	5/15/2015	100.48648	100.4864771	100.4864771	100.4864771	100.4481525	100.1542594	99.8620982	99.57165348	99.28291002
150519A00012	5/19/2015	2.44	5/19/2022	5/19/2015	104.44687	104.4468739	104.4468739	104.4468739	103.8775611	101.8307624	99.83469557	97.88777086	95.98845999
150601A00148	6/1/2015	3.45	7/30/2021	6/1/2015	104.15052	104.1505158	104.1505158	104.1505158	103.8435373	102.5748688	101.3372053	100.1294202	98.95044045
150601A00603	6/1/2015	2.26	9/30/2020	6/1/2015	100.83583	100.8358332	100.8358332	100.8358332	100.7755243	100.3519836	99.93198958	99.51549806	99.10246542
150601A00666	6/1/2015	3.88	1/16/2035	6/1/2015	151.34014	151.3401407	151.3401407	139.7749857	124.266489	110.5525575	98.62149416	88.2264555	79.1562162
150601A00694	6/1/2015	3.56	3/6/2030	6/1/2015	131.51564	131.515645	131.515645	127.9773456	117.7006253	108.1254019	99.44149915	91.56042395	84.40291411
150601A00729	6/1/2015	1.92	5/1/2020	6/1/2015	100.00425	100.00425	100.00425	100.00425	100.003999	100.0012285	99.99846042	99.99569466	99.99293125
150601A00930	6/1/2015	7.1	8/30/2030	6/1/2015	169.0366	169.0365977	169.0365977	164.5621351	152.2892031	140.6230737	130.0423791	120.4374997	111.710528
150623A00025	6/23/2015	2.65	6/30/2022	6/23/2015	105.15512	105.1551202	105.1551202	105.1551202	104.5263222	102.3589862	100.2473864	98.18969323	96.18415217
150708A00003	7/8/2015	1.95	7/8/2020	7/8/2015	100.3228	100.322804	100.322804	100.322804	100.3006587	100.1095342	99.91914674	99.72949211	99.54056603
150722A00014	7/22/2015	2.32	7/22/2021	7/22/2015	102.52674	102.5267427	102.5267427	102.5267427	102.2282943	100.9953281	99.79201385	98.61729145	97.47015086
150812A00039	8/12/2015	1.95	8/12/2020	8/12/2015	100.48685	100.4868514	100.4868514	100.4868514	100.4494793	100.1615743	99.87532828	99.59072687	99.30775584
150817A00097	8/17/2015	3.1	8/17/2026	8/17/2015	117.67822	117.6782227	117.6782227	117.6782227	111.9811934	105.7265424	99.86809616	94.37863046	89.23292963
150817A00099	8/17/2015	3.19	8/17/2027	8/17/2015	121.1105	121.110495	121.110495	120.6609889	113.1915528	105.9972001	99.32088077	93.12243913	87.36503342
150821A00018	8/21/2015	2.6	8/21/2024	8/21/2015	110.82147	110.8214719	110.8214719	110.8214719	108.4290109	104.1028565	99.97474757	96.03458097	92.272823
150824A00039	8/24/2015	1.93	1/25/2021	8/24/2015	101.25528	101.2552765	101.2552765	101.2552765	101.1016348	100.3568293	99.62296604	98.89980511	98.18711372
150824A00093	8/24/2015	1.87	8/24/2021	8/24/2015	102.33853	102.3385319	102.3385319	102.3385319	102.0147122	100.7007626	99.41200814	98.1477491	96.90731171
150824A00095	8/24/2015	2.34	8/24/2023	8/24/2015	107.45779	107.457792	107.457792	107.457792	105.9865249	102.6671678	99.46945994	96.388297	93.4188173
150825A00007	8/25/2015	2.46	8/25/2022	8/25/2015	105.07424	105.074239	105.074239	105.074239	104.3586079	102.0456917	99.79558219	97.60621248	95.47559679
150826A00039	8/26/2015	3.22	8/27/2029	8/26/2015	129.17874	129.1787365	129.1787365	126.2966457	116.4924612	107.3241748	98.9746074	91.365813	84.4276527
150904A00021	9/4/2015	2.52	9/5/2023	9/4/2015	108.1418	108.141802	108.141802	108.141802	106.639859	103.2777181	100.0397661	96.92077914	93.9157805
150914A00018	9/14/2015	3.05	9/15/2025	9/14/2015	114.84696	114.8469569	114.8469569	114.8469569	111.0557521	105.6793276	100.5997391	95.79905979	91.26053382
150601A00149	6/1/2015	3.45	7/30/2021	6/1/2015	104.15052	104.1505158	104.1505158	104.1505158	103.8435373	102.5748688	101.3372053	100.1294202	98.95044045
150601A00485	6/1/2015	3.09	6/21/2024	6/1/2015	112.26993	112.2699255	112.2699255	112.2699255	110.0335796	105.8334965	101.8189475	97.98071091	94.3100771
150601A00490	6/1/2015	3.19	7/2/2024	6/1/2015	111.98061	111.9806101	111.9806101	111.9806101	109.731383	105.5300584	101.514954	97.67677936	94.006762
150601A00532	6/1/2015	2.48	9/24/2020	6/1/2015	100.89146	100.8914591	100.8914591	100.8914591	100.8340103	100.4268231	100.0229232	99.62227086	99.22482711
150601A00547	6/1/2015	2.29	8/13/2020	6/1/2015	100.57971	100.5797105	100.5797105	100.5797105	100.541873	100.2510369	99.96189257	99.6744253	99.38862042
150601A00601	6/1/2015	2.2	6/30/2020	6/1/2015	100.31987	100.3198744	100.3198744	100.3198744	100.3011645	100.132154	99.9637085	99.79582516	99.6285012
150601A00604	6/1/2015	2.33	12/31/2020	6/1/2015	101.38494	101.3849431	101.3849431	101.3849431	101.2549095	100.5776851	99.90949121	99.25014817	98.5994812

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00642	6/1/2015	2.6	3/31/2022	6/1/2015	104.39322	104.3932199	104.3932199	104.3932199	103.8825282	101.9674077	100.0971601	98.27046498	96.48604969
150601A00650	6/1/2015	2.75	3/31/2023	6/1/2015	107.1117	107.1117013	107.1117013	107.1117013	105.9704032	103.0519279	100.2293864	97.49911185	94.85759836
150601A00664	6/1/2015	3.78	1/16/2032	6/1/2015	139.91082	139.9108208	139.9108208	133.5632112	121.2203231	109.9558624	99.9032868	90.92369103	82.89483935
150601A00688	6/1/2015	2.61	2/21/2025	6/1/2015	111.94522	111.9452188	111.9452188	111.9452188	108.9764113	104.1526001	99.57193859	95.22091423	91.08683489
150601A00825	6/1/2015	2.87	5/29/2025	6/1/2015	112.89493	112.8949274	112.8949274	112.8949274	109.5961356	104.5365588	99.743388	95.2011795	90.89546627
150601A00833	6/1/2015	7.14	8/28/2020	6/1/2015	102.30131	102.3013128	102.3013128	102.3013128	102.2562952	101.9200067	101.5859372	101.254065	100.9243682
150610A00008	6/10/2015	3.58	6/10/2030	6/10/2015	135.29263	135.2926311	135.2926311	131.2932666	120.4948904	110.4669513	101.3951637	93.18226948	85.74140781
150720A00012	7/20/2015	2.99	7/21/2025	7/20/2015	115.17065	115.170653	115.170653	115.170653	111.5999077	106.3186036	101.3223016	96.59405584	92.11802263
150727A00013	7/27/2015	3.04	7/28/2025	7/27/2015	114.42647	114.4264715	114.4264715	114.4264715	110.8634869	105.6172176	100.6542433	95.95770604	91.51184499
150804A00002	8/4/2015	2.84	8/5/2024	8/4/2015	110.9401	110.9400965	110.9400965	110.9400965	108.6067115	104.3411251	100.2684603	96.37891986	92.66326218
150807A00027	8/7/2015	2.06	6/30/2020	8/7/2015	100.30227	100.3022694	100.3022694	100.3022694	100.2835618	100.1145736	99.94615032	99.77828912	99.61098726
150817A00012	8/17/2015	2.01	8/17/2020	8/17/2015	100.5314	100.5314032	100.5314032	100.5314032	100.4917948	100.1899997	99.89002642	99.59185837	99.29547924
150825A00011	8/25/2015	1.9	8/25/2020	8/25/2015	100.53471	100.5347115	100.5347115	100.5347115	100.4915485	100.1677208	99.84598156	99.52631071	99.20868833
150902A00002	9/2/2015	2.25	9/2/2021	9/2/2015	102.66862	102.6686167	102.6686167	102.6686167	102.3381173	101.004049	99.69362706	98.40627699	97.14144243
150910A00039	9/10/2015	1.81	9/10/2020	9/10/2015	100.62511	100.6251131	100.6251131	100.6251131	100.5743805	100.2057481	99.83982415	99.47657886	99.11598274
150921A00031	9/21/2015	1.92	9/21/2020	9/21/2015	100.66571	100.6657097	100.6657097	100.6657097	100.6097709	100.2113828	99.81615066	99.424037	99.03500496
150923A00041	9/23/2015	2.23	9/23/2022	9/23/2015	105.13049	105.1304903	105.1304903	105.1304903	104.3626447	101.962636	99.62997665	97.36240459	95.15774716
141015A00020	10/15/2014	2.13	10/15/2021	10/15/2014	102.97567	102.9756687	102.9756687	102.9756687	102.6073135	101.1512041	99.72302494	98.32204266	96.94754909
141024A00010	10/24/2014	2.81	10/24/2024	10/24/2014	112.21322	112.2132244	112.2132244	112.2132244	109.6226662	105.1022473	100.7961697	96.69314346	92.78253212
150115A00002	1/15/2015	1.72	1/15/2021	1/15/2015	101.15668	101.1566769	101.1566769	101.1566769	101.012289	100.2937843	99.58547787	98.88715344	98.19860097
150202A00018	2/2/2015	1.89	2/2/2021	2/2/2015	101.26149	101.2614915	101.2614915	101.2614915	101.1002641	100.333682	99.57868245	98.83500454	98.10239522
150213A00025	2/13/2015	2.37	2/14/2022	2/13/2015	103.78208	103.7820803	103.7820803	103.7820803	103.3144712	101.5270925	99.77924571	98.06976578	96.39753186
150220A00020	2/20/2015	2.42	2/18/2022	2/20/2015	103.89612	103.8961166	103.8961166	103.8961166	103.4248558	101.6247613	99.8646871	98.14346806	96.45998234
150319A00012	3/19/2015	3.13	3/19/2029	3/19/2015	125.10832	125.1083232	125.1083232	122.8429217	113.7085171	105.119689	97.26571067	90.07947774	83.50034251
150407A00010	4/7/2015	2.21	4/10/2023	4/7/2015	106.23399	106.2339869	106.2339869	106.2339869	105.069052	102.1246276	99.27824763	96.52611806	93.86461354
150506A00010	5/6/2015	1.92	5/6/2020	5/6/2015	100.02635	100.0263469	100.0263469	100.0263469	100.0248408	100.0082164	99.99160845	99.97501696	99.95844188
150511A00026	5/13/2015	3.34	5/14/2020	5/13/2015	100.11744	100.1174366	100.1174366	100.1174366	100.1139177	100.0750817	100.0362927	99.99755082	99.95885586
150511A00060	5/11/2015	1.91	5/11/2020	5/11/2015	100.04829	100.048293	100.048293	100.048293	100.0455317	100.0150547	99.98461215	99.95420395	99.92383005
150515A00003	5/15/2015	2.17	5/17/2021	5/15/2015	102.00656	102.0065583	102.0065583	102.0065583	101.7521281	100.7003712	99.67029314	98.66122873	97.67253977
150518A00014	5/18/2016	2.38	5/18/2021	5/18/2016	102.23488	102.2348809	102.2348809	102.2348809	101.979495	100.9237395	99.88979242	98.87698318	97.88466825
150518A00026	5/18/2015	2.08	11/18/2021	5/18/2015	103.08663	103.0866282	103.0866282	103.0866282	102.689482	101.1408557	99.62329559	98.13593842	96.67795268

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150519A00013	5/19/2015	2.98	5/19/2025	5/19/2015	113.59795	113.5979533	113.5979533	113.5979533	110.3283742	105.275921	100.4880957	95.94962968	91.6462152
150601A00470	6/1/2015	2.98	5/31/2024	6/1/2015	111.6523	111.6523015	111.6523015	111.6523015	109.4770016	105.3452544	101.3940646	97.61455967	93.998353
150601A00512	6/1/2015	3.79	7/16/2029	6/1/2015	131.58996	131.58996	131.58996	128.8972428	119.2279326	110.1236534	101.8169144	94.23290369	87.30421742
150601A00514	6/1/2015	3.07	11/15/2024	6/1/2015	113.36601	113.3660118	113.3660118	113.3660118	110.6980676	106.0949623	101.7122657	97.53824441	93.56185271
150601A00522	6/1/2015	4.52	7/25/2030	6/1/2015	142.40202	142.4020188	142.4020188	138.250488	127.1730289	116.8205974	107.4518486	98.96653448	91.2751702
150601A00615	6/1/2015	2.67	6/30/2022	6/1/2015	105.11391	105.1139118	105.1139118	105.1139118	104.4852161	102.3183009	100.2071135	98.14982456	96.14467981
150601A00638	6/1/2015	2.51	9/30/2021	6/1/2015	103.13975	103.1397462	103.1397462	103.1397462	102.7850985	101.3713196	99.98388053	98.62210909	97.28535537
150601A00667	6/1/2015	3.88	1/16/2036	6/1/2015	154.74478	154.7447816	154.7447816	141.2314604	124.726061	110.2760228	97.80889372	87.03479392	77.70796616
150601A00670	6/1/2015	2.23	6/5/2020	6/1/2015	100.18817	100.188172	100.188172	100.188172	100.1785676	100.0788272	99.97929181	99.87996082	99.78083359
150601A00768	6/1/2015	2.34	5/13/2022	6/1/2015	104.13528	104.1352825	104.1352825	104.1352825	103.5744939	101.5466967	99.56892866	97.63963219	95.75730965
051003A00009	10/3/2005	5.15	10/15/2025	10/3/2005	126.60421	126.6042076	126.6042076	126.6042076	122.5154292	116.7548082	111.3118946	106.1673774	101.3032198
080910A00065	9/10/2008	5.03	9/15/2023	9/10/2008	116.13123	116.1312297	116.1312297	116.1312297	114.5709522	111.0629093	107.6837641	104.4280916	101.2907242
081209A00008	12/9/2008	4.87	12/15/2023	12/9/2008	116.73026	116.7302581	116.7302581	116.7302581	114.9525138	111.1884656	107.5712934	104.0944192	100.7515995
090226A00006	2/26/2009	4.55	3/1/2024	2/26/2009	117.20538	117.2053808	117.2053808	117.2053808	115.2243572	111.2234179	107.3867258	103.7066745	100.1760495
100712A00003	7/12/2010	3.91	7/15/2020	7/12/2010	100.76923	100.7692278	100.7692278	100.7692278	100.7440054	100.5328902	100.3226726	100.1133468	99.90490725
100923A00051	9/23/2010	3.4	9/30/2021	9/23/2010	104.47156	104.471563	104.471563	104.471563	104.1147382	102.6910286	101.2938303	99.9224662	98.57628195
100930A00007	9/30/2010	3.27	9/30/2020	9/30/2010	101.28054	101.2805405	101.2805405	101.2805405	101.220086	100.7954187	100.3743052	99.95670088	99.54256228
110810A00020	8/10/2011	2.86	8/16/2021	8/10/2011	103.5993	103.5992986	103.5992986	103.5992986	103.2798591	101.975424	100.6982352	99.44744342	98.22223505
110825A00016	8/25/2011	3.06	8/31/2022	8/25/2011	106.95988	106.9598763	106.9598763	106.9598763	106.2258273	103.8661116	101.5708743	99.33800459	97.16547266
111024A00021	10/24/2011	2.65	10/30/2020	10/24/2011	101.28685	101.2868478	101.2868478	101.2868478	101.2090805	100.7010321	100.198075	99.70013315	99.20713172
120130A00009	1/30/2012	2.79	1/31/2022	1/30/2012	104.43044	104.4304374	104.4304374	104.4304374	103.9734602	102.22132	100.5071893	98.82989655	97.1883189
120315A00021	3/15/2012	3.12	3/15/2022	3/15/2012	105.36928	105.36928	105.36928	105.36928	104.8716973	102.9888599	101.1492166	99.35152232	97.59457573
120726A00001	7/26/2012	2.36	8/1/2022	7/26/2012	104.70279	104.7027946	104.7027946	104.7027946	104.0268734	101.7809425	99.59461508	97.46586829	95.39276593
130107A00001	1/7/2013	2.53	1/17/2023	1/7/2013	106.13191	106.1319119	106.1319119	106.1319119	105.1462537	102.4380261	99.81346801	97.26945114	94.80298785
130516A00014	5/16/2013	1.64	6/1/2020	5/16/2013	100.13541	100.1354115	100.1354115	100.1354115	100.1272495	100.0384414	99.94979186	99.86130056	99.77296705
130911A00009	9/11/2013	2.87	9/15/2020	9/11/2013	101.05479	101.0547908	101.0547908	101.0547908	101.0015272	100.6181097	100.2376132	99.86000436	99.48525022
130920A00020	9/20/2013	2.71	9/30/2020	9/20/2013	101.10133	101.1013282	101.1013282	101.1013282	101.0408319	100.615932	100.1945974	99.77678342	99.36244618
130926A00009	9/26/2013	4	10/2/2028	9/26/2013	133.00736	133.0073589	133.0073589	131.2478546	122.216334	113.5996561	105.6815662	98.40122368	91.7033952
131024A00019	10/24/2013	3.23	10/30/2023	10/24/2013	111.02232	111.0223186	111.0223186	111.0223186	109.3782641	105.8223832	102.4028641	99.11373661	95.94932541
140113A00012	1/13/2014	3.48	1/17/2023	1/13/2014	108.73874	108.7387366	108.7387366	108.7387366	107.7431133	104.9991155	102.3396281	99.76149604	97.26170592
140423A00036	4/23/2014	4.03	4/23/2029	4/23/2014	133.46118	133.4611818	133.4611818	131.0549212	121.545632	112.5394921	104.3030964	96.76586348	89.86404684

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
140820A00026	8/20/2014	2.94	8/19/2024	8/20/2014	112.28851	112.2885055	112.2885055	112.2885055	109.8892321	105.536938	101.3832748	97.41812207	93.63192955
140908A00060	9/8/2014	2.34	11/30/2020	9/8/2014	101.2382	101.238199	101.238199	101.238199	101.1370395	100.5450207	99.95991103	99.38159021	98.80994072
140908A00062	9/8/2014	2.45	5/28/2021	9/8/2014	102.36958	102.3695792	102.3695792	102.3695792	102.1070441	101.0234578	99.96280941	98.92437659	97.90746688
130501A00006	5/1/2013	1.61	5/15/2020	5/1/2013	100.05376	100.0537608	100.0537608	100.0537608	100.0499961	100.0084469	99.96694925	99.92550307	99.88410826
130508A00013	5/8/2013	2.23	5/15/2023	5/8/2013	106.49813	106.4981322	106.4981322	106.4981322	105.2555069	102.2149706	99.27847173	96.44186622	93.70120019
130517A00013	5/17/2013	2.07	5/17/2022	5/17/2013	104.04415	104.0441468	104.0441468	104.0441468	103.4763077	101.4318989	99.43822682	97.49370094	95.59679261
130702A00017	7/2/2013	2.5	7/15/2020	7/2/2013	100.5028	100.5028037	100.5028037	100.5028037	100.4775856	100.2665413	100.0563984	99.84715131	99.63879409
130926A00008	9/26/2013	2.91	9/30/2021	9/26/2013	104.01324	104.0132407	104.0132407	104.0132407	103.6561122	102.2318909	100.8342535	99.46252009	98.11603317
131003A00005	10/3/2013	2.65	10/15/2020	10/3/2013	101.18134	101.1813417	101.1813417	101.1813417	101.1122133	100.6457573	100.1836127	99.72571994	99.27202022
131107A00012	11/7/2013	3.14	11/7/2022	11/7/2013	107.7182	107.7182	107.7182	107.7182	106.8607068	104.309028	101.8320266	99.42707627	97.0916602
140307A00010	3/7/2014	2.63	3/15/2021	3/7/2014	102.22417	102.2241663	102.2241663	102.2241663	102.0224741	101.1383967	100.2696233	99.41575876	98.57642141
140313A00030	3/13/2014	3.27	3/15/2024	3/13/2014	112.35782	112.3578223	112.3578223	112.3578223	110.375173	106.4304469	102.6501376	99.02653963	95.5523489
140423A00035	4/23/2014	2.71	4/23/2021	4/23/2014	102.42662	102.4266225	102.4266225	102.4266225	102.189674	101.2004778	100.230403	99.27889903	98.3454362
140710A00026	7/10/2014	2.36	7/15/2021	7/10/2014	102.74377	102.7437704	102.7437704	102.7437704	102.4489254	101.2302548	100.040493	98.87862065	97.74366553
140815A00029	8/15/2014	2.56	10/15/2021	8/15/2014	103.36008	103.3600759	103.3600759	103.3600759	102.9921703	101.5371865	100.1100444	98.71001453	97.33639216
140815A00030	8/15/2014	2.96	10/16/2023	8/15/2014	109.30524	109.305237	109.305237	109.305237	107.7123538	104.2386486	100.8967025	97.68081583	94.58556675
140820A00025	8/20/2014	2.59	8/19/2022	8/20/2014	105.76563	105.7656285	105.7656285	105.7656285	105.0546761	102.7407961	100.4894988	98.29870521	96.16642024
140905A00017	9/5/2014	2.19	9/8/2020	9/5/2014	100.75397	100.7539711	100.7539711	100.7539711	100.7041635	100.3407519	99.97996864	99.62178523	99.26617353
140908A00063	9/8/2014	2.5	8/31/2021	9/8/2014	102.99597	102.995967	102.995967	102.995967	102.6666401	101.3357069	100.0282758	98.74377792	97.48166208
141015A00025	10/15/2014	2.48	10/17/2022	10/15/2014	105.44034	105.4403393	105.4403393	105.4403393	104.6324538	102.1748071	99.78768651	97.46866715	95.21542241
141017A00029	10/17/2014	2.02	10/19/2020	10/17/2014	100.90858	100.9085768	100.9085768	100.9085768	100.837258	100.3605546	99.88836158	99.42061499	98.95725209
150220A00021	2/20/2015	2.72	2/20/2024	2/20/2015	109.31285	109.3128513	109.3128513	109.3128513	107.4221213	103.6176008	99.96936416	96.47016481	93.11313187
150408A00004	4/8/2015	2.17	4/10/2023	4/8/2015	106.11476	106.1147593	106.1147593	106.1147593	104.9503459	102.0076915	99.16303736	96.41259106	93.75272858
150518A00021	5/18/2015	1.88	5/18/2020	5/18/2015	100.07849	100.0784934	100.0784934	100.0784934	100.0739743	100.0241027	99.9742971	99.92455745	99.87488362
150601A00360	6/1/2015	2.82	10/2/2020	6/1/2015	101.08377	101.0837729	101.0837729	101.0837729	101.0222374	100.5925636	100.1665375	99.74411282	99.32524407
150601A00404	6/1/2015	4.29	1/17/2029	6/1/2015	134.22141	134.2214072	134.2214072	132.1337857	122.8673053	114.0405903	105.9469107	98.52079709	91.70297414
150601A00513	6/1/2015	2.87	7/15/2022	6/1/2015	105.65064	105.6506446	105.6506446	105.6506446	104.9977762	102.7854895	100.630902	98.53208738	96.4872006
150601A01022	6/1/2015	5.28	2/22/2021	6/1/2015	104.07588	104.0758767	104.0758767	104.0758767	103.8934573	103.059959	102.2398872	101.4329185	100.6387403
150601A01053	6/1/2015	5.28	2/26/2027	6/1/2015	135.07233	135.0723295	135.0723295	135.0723295	127.7813131	120.4668224	113.6416674	107.2702276	101.319658
150603A00017	6/3/2015	2.84	6/3/2025	6/3/2015	114.01758	114.0175821	114.0175821	114.0175821	110.6602208	105.5286479	100.6684103	96.06371075	91.69975576
150610A00037	6/10/2015	2.48	6/10/2022	6/10/2015	105.05088	105.0508793	105.0508793	105.0508793	104.4481398	102.3287354	100.2629803	98.24914775	96.28558037

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150702A00009	7/2/2015	1.89	7/2/2020	7/2/2015	100.31002	100.3100192	100.3100192	100.3100192	100.2904195	100.1156082	99.94140823	99.76781631	99.59482925
150710A00029	7/10/2015	2.07	7/10/2020	7/10/2015	100.35584	100.3558364	100.3558364	100.3558364	100.3328281	100.1361358	99.94022515	99.74509158	99.55073037
150721A00027	7/21/2015	3.74	7/22/2030	7/21/2015	135.06873	135.0687313	135.0687313	130.9756982	120.205177	110.1977457	101.1493548	92.9618457	85.54762467
150722A00031	7/22/2015	2.09	7/22/2020	7/22/2015	100.41843	100.4184315	100.4184315	100.4184315	100.3902687	100.1603966	99.93158564	99.70382842	99.47711766
150814A00004	8/14/2015	2.32	8/15/2022	8/14/2015	105.11136	105.1113648	105.1113648	105.1113648	104.408843	102.1131708	99.87939275	97.70544221	95.58933683
150817A00003	8/17/2015	1.83	8/17/2020	8/17/2015	100.51841	100.5184145	100.5184145	100.5184145	100.4787473	100.1765151	99.87611298	99.57752424	99.28073237
150817A00015	8/17/2015	2.01	8/17/2020	8/17/2015	100.5314	100.5314032	100.5314032	100.5314032	100.4917948	100.1899997	99.89002642	99.59185837	99.29547924
150817A00077	8/17/2015	2.49	8/17/2023	8/17/2015	107.91538	107.9153766	107.9153766	107.9153766	106.4573347	103.1484681	99.9601984	96.88746096	93.92543419
150821A00017	8/21/2015	2.22	8/23/2022	8/21/2015	104.92581	104.9258132	104.9258132	104.9258132	104.2108996	101.8964109	99.6448219	97.45405267	95.32210574
150826A00038	8/26/2015	2.94	8/26/2026	8/26/2015	118.02759	118.0275889	118.0275889	118.0275889	112.2141075	105.8838158	99.95729852	94.40667441	89.20612485
150831A00002	8/31/2015	1.97	8/31/2020	8/31/2015	100.58606	100.5860622	100.5860622	100.5860622	100.540221	100.1997705	99.8616154	99.52573257	99.19209927
150909A00018	9/9/2015	2.28	9/9/2021	9/9/2015	102.7479	102.7478997	102.7478997	102.7478997	102.411429	101.0577238	99.72832251	98.42262692	97.14005808
150923A00012	9/23/2015	1.86	9/23/2020	9/23/2015	100.6506	100.6506034	100.6506034	100.6506034	100.5937103	100.1898638	99.7892583	99.39185481	98.99761504
150925A00023	9/25/2015	3.03	9/25/2025	9/25/2015	114.81306	114.8130588	114.8130588	114.8130588	110.9751224	105.5749072	100.4742889	95.65508741	91.10031614
151001A00048	10/1/2015	1.74	10/1/2020	10/1/2015	100.63484	100.6348409	100.6348409	100.6348409	100.5740264	100.1482494	99.72606448	99.30742629	98.8922904
151001A00051	10/1/2015	1.75	10/1/2020	10/1/2015	100.63912	100.6391159	100.6391159	100.6391159	100.5783	100.1525121	99.73031632	99.31166737	98.89652078
151002A00048	10/2/2015	1.68	11/2/2020	10/2/2015	100.73594	100.7359361	100.7359361	100.7359361	100.6564226	100.1426272	99.63405926	99.13063955	98.63229022
151008A00049	10/8/2015	1.75	10/8/2020	10/8/2015	100.66821	100.6682112	100.6682112	100.6682112	100.6033861	100.1583104	99.71717005	99.27991281	98.84648755
151014A00024	10/14/2015	1.51	10/14/2020	10/14/2015	100.64565	100.6456464	100.6456464	100.6456464	100.5772871	100.1150572	99.6570783	99.20329172	98.75363996
151116A00015	11/16/2015	2.02	11/16/2020	11/16/2015	100.9798	100.9798041	100.9798041	100.9798041	100.8894761	100.3366111	99.78979963	99.24894241	98.7139425
160422A00021	4/22/2016	2.17	4/21/2023	4/22/2016	105.62766	105.6276606	105.6276606	105.6276606	104.4474535	101.4954184	98.64246496	95.88472814	93.21851616
160502A00002	5/2/2016	1.68	5/3/2021	5/2/2016	101.43281	101.4328072	101.4328072	101.4328072	101.1887756	100.1780356	99.18739132	98.21624831	97.26403538
160509A00020	5/9/2016	2.01	5/9/2023	5/9/2016	105.23216	105.2321601	105.2321601	105.2321601	104.0147535	101.0219382	98.1310208	95.33796679	92.63892543
160526A00010	5/26/2016	1.58	5/26/2021	5/26/2016	101.58634	101.5863361	101.5863361	101.5863361	101.3254452	100.2492651	99.19582599	98.16441322	97.15434191
160527A00024	5/27/2016	1.57	5/14/2020	5/27/2016	100.04862	100.0486216	100.0486216	100.0486216	100.0451079	100.006329	99.96759707	99.92891214	99.8902741
160606A00040	6/8/2016	1.98	12/15/2020	6/8/2016	101.09627	101.0962709	101.0962709	101.0962709	100.9812522	100.3487483	99.72415587	99.10732711	98.49811779
160609A00010	6/9/2016	1.58	6/9/2022	6/9/2016	103.12187	103.1218721	103.1218721	103.1218721	102.5256615	100.4298776	98.38720262	96.3959278	94.45441297
160614A00064	6/14/2016	1.21	6/15/2020	6/14/2016	100.13956	100.139565	100.139565	100.139565	100.1263055	99.99873187	99.87149882	99.74460488	99.61804865
160615A00043	6/15/2016	1.59	6/15/2021	6/15/2016	101.49762	101.4976222	101.4976222	101.4976222	101.2246445	100.0976298	98.99558339	97.9176828	96.86314137
160615A00045	6/15/2016	1.59	6/15/2021	6/15/2016	101.49762	101.4976222	101.4976222	101.4976222	101.2246445	100.0976298	98.99558339	97.9176828	96.86314137
160616A00044	6/20/2016	2.31	6/18/2021	6/20/2016	102.3351	102.3350958	102.3350958	102.3350958	102.0592019	100.9190127	99.80422812	98.714006	97.64754115

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160624A00005	6/24/2016	1.52	6/24/2021	6/24/2016	101.44874	101.4487373	101.4487373	101.4487373	101.170205	100.019278	98.89438951	97.79466404	96.71926502
160624A00011	6/24/2016	1.83	6/26/2023	6/24/2016	104.88539	104.8853933	104.8853933	104.8853933	103.5651838	100.453159	97.45060086	94.55301969	91.75613946
160627A00023	6/27/2016	1.49	6/28/2021	6/27/2016	101.4272	101.4271974	101.4271974	101.4271974	101.1461983	99.98465236	98.8496239	97.74021359	96.65556234
160627A00025	6/27/2016	1.65	6/27/2022	6/27/2016	102.95411	102.9541066	102.9541066	102.9541066	102.3355188	100.2006102	98.1205807	96.0936328	94.11804273
160627A00040	6/27/2016	1.28	6/28/2021	6/27/2016	101.36695	101.3669473	101.3669473	101.3669473	101.085296	99.92130705	98.78394082	97.67229299	96.58549979
160628A00049	6/28/2016	1.88	6/27/2025	6/28/2016	109.18956	109.1895648	109.1895648	109.1895648	105.7917565	100.7207193	95.92260301	91.38129066	87.08170342
160629A00004	6/29/2016	1.36	6/29/2020	6/29/2016	100.1807	100.1807011	100.1807011	100.1807011	100.1623725	99.99629809	99.83077197	99.66579146	99.50135391
160630A00012	6/30/2016	2.11	6/30/2025	6/30/2016	109.38149	109.3814916	109.3814916	109.3814916	105.996807	100.9454945	96.16538771	91.64049725	87.3558623
160701A00020	7/1/2016	2.13	7/1/2026	7/1/2016	111.30757	111.3075678	111.3075678	111.3075678	105.9997466	100.0412763	94.45675959	89.22078003	84.30977918
160701A00039	7/1/2016	1.92	7/1/2026	7/1/2016	111.23208	111.2320803	111.2320803	111.2320803	105.8745053	99.87600588	94.25545773	88.98709417	84.04703741
160706A00010	7/6/2016	1.99	7/7/2025	7/6/2016	108.78991	108.7899086	108.7899086	108.7899086	105.3827861	100.3298292	95.54926443	91.02497351	86.74187905
160706A00028	7/6/2016	2.39	7/6/2029	7/6/2016	119.14351	119.1435114	119.1435114	116.5273759	107.3212165	98.76258064	90.96463579	83.85556572	77.37068658
160714A00023	8/10/2016	2.49	8/10/2028	8/10/2016	118.11399	118.113992	118.113992	116.5730833	108.2337859	100.3802646	93.16313015	86.52735992	80.42295962
151002A00075	10/2/2015	2.04	10/3/2022	10/2/2015	104.72205	104.7220489	104.7220489	104.7220489	103.9381526	101.5165049	99.16356704	96.87700597	94.65458195
151008A00024	10/8/2015	1.58	10/8/2020	10/8/2015	100.65373	100.6537284	100.6537284	100.6537284	100.5887995	100.1430362	99.70122355	99.26330918	98.82924151
151022A00011	10/22/2015	1.57	10/22/2020	10/22/2015	100.70575	100.7057549	100.7057549	100.7057549	100.6327964	100.1484239	99.6687122	99.19359421	98.72300406
151211A00002	12/11/2015	2.05	12/15/2021	12/11/2015	103.18404	103.1840364	103.1840364	103.1840364	102.7651317	101.1430168	99.55435436	97.9981764	96.47355203
151223A00066	12/23/2015	2.34	12/23/2022	12/23/2015	105.95772	105.9577236	105.9577236	105.9577236	105.0180699	102.3665007	99.79545573	97.30198358	94.88326224
151229A00081	12/29/2015	3.76	12/31/2035	12/29/2015	153.59696	153.5969643	153.5969643	140.2039515	123.8072434	109.4528973	97.06631697	86.3602957	77.09126102
160107A00042	1/7/2016	2.05	1/7/2021	1/7/2016	101.25544	101.2554412	101.2554412	101.2554412	101.1188485	100.4230358	99.73677666	99.05987532	98.39214128
160114A00015	1/14/2016	1.92	1/14/2021	1/14/2016	101.19691	101.196908	101.196908	101.196908	101.0537205	100.3390773	99.6345199	98.93983591	98.25481869
160119A00019	1/19/2016	2.95	1/19/2027	1/19/2016	117.84569	117.8456896	117.8456896	117.8456896	111.2112255	104.599462	98.43163293	92.67550395	87.30134932
160126A00053	1/26/2016	1.75	7/20/2020	1/26/2016	100.33187	100.3318663	100.3318663	100.3318663	100.3045764	100.0803561	99.85714833	99.63494627	99.41374307
160209A00047	2/9/2016	1.5	8/10/2020	2/9/2016	100.35004	100.3500416	100.3500416	100.3500416	100.3135883	100.0314475	99.75090083	99.47193487	99.19453616
160307A00028	3/7/2016	2.91	3/7/2028	3/7/2016	120.49538	120.4953791	120.4953791	119.4352359	111.4330234	103.8160797	96.7857602	90.293696	84.29573933
160331A00023	3/31/2016	1.68	3/31/2021	3/31/2016	101.31398	101.3139771	101.3139771	101.3139771	101.0980536	100.1769049	99.27246169	98.38427302	97.51190412
160510A00012	5/10/2016	1.49	10/12/2021	5/10/2016	102.01756	102.0175633	102.0175633	102.0175633	101.6534122	100.2125566	98.79920524	97.41263993	96.05216687
160601A00016	6/1/2016	1.74	6/1/2021	6/1/2016	101.61199	101.6119948	101.6119948	101.6119948	101.3476257	100.2576477	99.19099701	98.14693161	97.12474041
160606A00023	6/6/2016	1.51	6/10/2020	6/6/2016	100.13748	100.1374774	100.1374774	100.1374774	100.12606	100.0125426	99.89929439	99.78631443	99.67360174
160614A00025	6/14/2016	1.83	6/14/2023	6/14/2016	104.83488	104.8348778	104.8348778	104.8348778	103.5410257	100.4613035	97.48902389	94.61981922	91.84952729
160614A00067	6/14/2016	1.51	2/16/2021	6/14/2016	101.01615	101.0161466	101.0161466	101.0161466	100.8418053	100.0382977	99.24754606	98.46924843	97.70311237

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160615A00031	6/15/2016	2.51	6/17/2030	6/15/2016	124.42909	124.4290865	124.4290865	120.4680577	110.0911574	100.5493066	91.93225766	84.14505366	77.10295406
160616A00006	6/16/2016	1.51	6/16/2021	6/16/2016	101.40985	101.4098483	101.4098483	101.4098483	101.136355	100.0071812	98.90308636	97.82324237	96.76685728
160616A00034	6/16/2016	1.97	6/17/2024	6/16/2016	106.97399	106.9739927	106.9739927	106.9739927	104.8039543	100.7440471	96.86383016	93.15438364	89.60728149
160624A00026	6/24/2016	1.52	6/24/2021	6/24/2016	101.44874	101.4487373	101.4487373	101.4487373	101.170205	100.019278	98.89438951	97.79466404	96.71926502
160628A00050	6/28/2016	1.56	6/28/2023	6/28/2016	104.61165	104.6116508	104.6116508	104.6116508	103.2814298	100.154712	97.13847421	94.22816679	91.41945728
160629A00052	6/29/2016	1.29	6/29/2021	6/29/2016	101.38196	101.3819612	101.3819612	101.3819612	101.0996652	99.9328869	98.79285392	97.67865587	96.58942322
150930A00083	9/30/2015	2.06	9/30/2021	9/30/2015	102.54763	102.5476348	102.5476348	102.5476348	102.1939619	100.7846224	99.40154606	98.04406261	96.71152423
151015A00063	10/15/2015	1.68	10/15/2020	10/15/2015	100.66466	100.6646631	100.6646631	100.6646631	100.5958413	100.1315751	99.67159381	99.21583831	98.76425041
151020A00008	10/20/2015	1.76	10/20/2020	10/20/2015	100.72289	100.7228914	100.7228914	100.7228914	100.6511929	100.1730556	99.69945865	99.23033751	98.76562886
151120A00017	11/20/2015	2.11	11/20/2020	11/20/2015	101.05029	101.0502864	101.0502864	101.0502864	100.956866	100.3928287	99.83508616	99.28353342	98.73806777
160114A00007	1/14/2016	1.92	1/14/2021	1/14/2016	101.19691	101.196908	101.196908	101.196908	101.0537205	100.3390773	99.6345199	98.93983591	98.25481869
160119A00030	1/19/2016	3.44	1/18/2033	1/19/2016	139.6606	139.6606034	139.6606034	131.734639	118.5339516	106.6475726	96.1384327	86.83701558	78.59558503
160122A00029	1/22/2016	2.48	1/22/2025	1/22/2016	111.30314	111.3031394	111.3031394	111.3031394	108.4401311	103.7115888	99.21779281	94.94580337	90.88346849
160328A00012	3/28/2016	1.85	3/28/2022	3/28/2016	103.34835	103.3483512	103.3483512	103.3483512	102.8411805	100.9378536	99.07910797	97.2636336	95.49016766
160328A00045	3/28/2016	2.49	3/27/2026	3/28/2016	114.15824	114.1582376	114.1582376	114.1582376	109.3175353	103.4571708	97.95050913	92.77438602	87.90726741
160329A00004	3/29/2016	1.78	3/25/2021	3/29/2016	101.38166	101.38166	101.38166	101.38166	101.1714761	100.2662124	99.3770868	98.50367062	97.64555043
160329A00006	3/29/2016	2.12	3/29/2023	3/29/2016	105.36223	105.3622307	105.3622307	105.3622307	104.2326758	101.345037	98.55236749	95.85104018	93.23758682
160420A00002	4/20/2016	1.96	11/16/2022	4/20/2016	104.28294	104.2829395	104.2829395	104.2829395	103.4241682	100.902188	98.45462492	96.07884239	93.77231471
160519A00026	5/19/2016	1.66	5/19/2020	5/19/2016	100.07125	100.0712461	100.0712461	100.0712461	100.0664769	100.0138456	99.96128537	99.90879624	99.856378
160606A00043	6/8/2016	2.23	12/15/2021	6/8/2016	103.20059	103.2005892	103.2005892	103.2005892	102.7829663	101.1654723	99.58125977	98.0293675	96.50887103
160609A00009	6/9/2016	1.49	6/9/2020	6/9/2016	100.13192	100.1319245	100.1319245	100.1319245	100.1208709	100.010122	99.89962927	99.78939165	99.67940828
160609A00011	6/9/2016	1.58	6/9/2022	6/9/2016	103.12187	103.1218721	103.1218721	103.1218721	102.5256615	100.4298776	98.38720262	96.3959278	94.45441297
160610A00036	6/10/2016	1.42	6/10/2021	6/10/2016	101.46682	101.4668154	101.4668154	101.4668154	101.1963048	100.080278	98.98872573	97.92085017	96.87588777
160614A00009	6/14/2016	1.55	6/14/2021	6/14/2016	101.44852	101.4485166	101.4485166	101.4485166	101.1762236	100.052197	98.9530154	97.87786223	96.82595643
160617A00045	6/17/2016	1.55	6/17/2021	6/17/2016	101.45906	101.4590647	101.4590647	101.4590647	101.1848864	100.0527235	98.94576316	97.86317134	96.80415045
160620A00015	6/20/2016	1.71	6/20/2023	6/20/2016	105.05635	105.0563546	105.0563546	105.0563546	103.7414831	100.6288713	97.62557175	94.72711041	91.92922547
160627A00070	6/27/2016	1.52	9/27/2021	6/27/2016	101.76211	101.7621123	101.7621123	101.7621123	101.412218	100.016862	98.64738119	97.30311881	95.98343986
160628A00054	6/28/2016	1.28	6/28/2021	6/28/2016	101.36695	101.3669473	101.3669473	101.3669473	101.085296	99.92130705	98.78394082	97.67229299	96.58549979
160629A00050	6/29/2016	1.16	6/29/2020	6/29/2016	100.1736	100.1736049	100.1736049	100.1736049	100.1552465	99.98890681	99.82311935	99.65788143	99.49319035
160630A00011	6/30/2016	1.8	6/30/2023	6/30/2016	104.80637	104.806368	104.806368	104.806368	103.4778494	100.3565885	97.34543331	94.43985435	91.63553851
151223A00065	12/23/2015	2.15	12/23/2021	12/23/2015	103.39397	103.3939693	103.3939693	103.3939693	102.9684117	101.3232935	99.71238769	98.134693	96.58924725

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
151223A00074	12/23/2015	3.01	12/23/2027	12/23/2015	122.3296	122.3295983	122.3295983	121.4812301	113.5485349	105.9690587	98.96045616	92.47655684	86.47515834
151229A00079	12/29/2015	3	12/30/2025	12/29/2015	115.35665	115.3566515	115.3566515	115.3566515	111.0238447	105.3785665	100.0595686	95.04622923	90.31933971
160107A00039	1/7/2016	2.06	2/10/2021	1/7/2016	101.42428	101.4242821	101.4242821	101.4242821	101.2553556	100.466438	99.68978166	98.92510244	98.17212479
160108A00020	1/8/2016	2.04	1/8/2021	1/8/2016	101.25341	101.253406	101.253406	101.253406	101.1158669	100.4173377	99.72843803	99.04896965	98.3787398
160203A00001	2/3/2016	1.44	8/3/2020	2/3/2016	100.3489	100.3489034	100.3489034	100.3489034	100.3155045	100.0522193	99.79031735	99.5297879	99.27062011
160216A00028	2/16/2016	1.69	2/16/2022	2/16/2016	102.8649	102.8649034	102.8649034	102.8649034	102.3960516	100.6058707	98.85551076	97.14380287	95.469622
160328A00014	3/28/2016	2.49	3/27/2026	3/28/2016	114.15824	114.1582376	114.1582376	114.1582376	109.3175353	103.4571708	97.95050913	92.77438602	87.90726741
160330A00054	3/30/2016	2.9	3/31/2031	3/30/2016	130.60238	130.602381	130.602381	125.4539017	114.1063235	103.7320982	94.42476564	86.06803341	78.55886311
160415A00014	4/15/2016	2.05	4/14/2023	4/15/2016	105.23359	105.233593	105.233593	105.233593	104.0702064	101.142472	98.31243819	95.57631749	92.930491
160419A00005	4/19/2016	1.66	4/19/2021	4/19/2016	101.35881	101.3588074	101.3588074	101.3588074	101.1264472	100.1538784	99.19993781	98.26409417	97.34583633
160422A00026	4/22/2016	2.62	4/22/2026	4/22/2016	113.90303	113.9030333	113.9030333	113.9030333	108.9611729	103.0871899	97.57062006	92.38785014	87.51694409
160516A00027	5/16/2016	2.01	5/16/2023	5/16/2016	105.26529	105.2652889	105.2652889	105.2652889	104.0325036	101.0212712	98.11302158	95.30365684	92.58926702
160524A00027	5/24/2016	3.06	5/27/2031	5/24/2016	130.41216	130.4121632	130.4121632	125.1309474	113.794132	103.4283913	94.1366804	85.80089186	78.31650623
160606A00004	6/6/2016	2.43	6/8/2026	6/6/2016	113.03409	113.0340935	113.0340935	113.0340935	107.8326452	101.8762486	96.28941571	91.04727836	86.12676834
160610A00008	6/10/2016	1.75	6/10/2022	6/10/2016	103.10424	103.1042367	103.1042367	103.1042367	102.5089687	100.418083	98.38009922	96.39331719	94.45610488
160614A00066	6/14/2016	1.35	6/14/2021	6/14/2016	101.40157	101.4015725	101.4015725	101.4015725	101.1286372	100.0022022	98.90071157	97.82334416	96.76931463
160616A00027	6/16/2016	2.27	6/16/2026	6/16/2016	112.09515	112.0951547	112.0951547	112.0951547	106.8621256	100.9148103	95.33814905	90.10710722	85.19846871
160624A00065	6/28/2016	2.08	6/28/2021	6/28/2016	102.12088	102.1208799	102.1208799	102.1208799	101.8389909	100.67313	99.53385497	98.42026478	97.33149857
160630A00021	6/30/2016	1.59	6/30/2023	6/30/2016	104.71577	104.7157654	104.7157654	104.7157654	103.3806521	100.2470044	97.2242192	94.30772446	91.49316703
160630A00100	6/30/2016	1.18	6/30/2020	6/30/2016	100.17988	100.179881	100.179881	100.179881	100.1611581	99.9920454	99.82350125	99.65552281	99.48810726
160706A00029	7/6/2016	2.49	7/8/2030	7/6/2016	122.22249	122.2224944	122.2224944	118.2646415	108.0505228	98.66185931	90.18581761	82.52842298	75.60584027
160706A00067	7/6/2016	1.29	7/6/2020	7/6/2016	100.18881	100.1888129	100.1888129	100.1888129	100.1675478	99.98214833	99.79744129	99.61342272	99.43008878
160707A00001	7/7/2016	1.34	7/7/2020	7/7/2016	100.20108	100.2010821	100.2010821	100.2010821	100.1793865	99.99121168	99.80375116	99.61700081	99.43095659
150601A00548	6/1/2015	2.55	8/13/2021	6/1/2015	102.90037	102.900374	102.900374	102.900374	102.5852027	101.2958684	100.0342847	98.79955633	97.59082705
150601A00608	6/1/2015	2.45	6/30/2021	6/1/2015	102.52377	102.5237656	102.5237656	102.5237656	102.2401022	101.066322	99.91940996	98.79845179	97.70257426
150601A00611	6/1/2015	2.58	12/31/2021	6/1/2015	103.79694	103.7969443	103.7969443	103.7969443	103.3657827	101.701175	100.0713864	98.47538893	96.91219523
150601A00665	6/1/2015	3.82	1/14/2033	6/1/2015	143.7319	143.7318991	143.7318991	135.7580024	122.350476	110.2464185	99.53646743	90.04964448	81.63688393
150601A00731	6/1/2015	2.4	4/29/2022	6/1/2015	104.17669	104.1766886	104.1766886	104.1766886	103.633701	101.642342	99.69952342	97.80375859	95.95361672
150601A00773	6/1/2015	1.84	5/15/2020	6/1/2015	100.06209	100.0620851	100.0620851	100.0620851	100.0583198	100.0167636	99.9752591	99.93380603	99.89240433
150601A01470	6/1/2015	1.88	6/1/2020	6/1/2015	100.13865	100.1386531	100.1386531	100.1386531	100.1305079	100.0418818	99.95341193	99.86509794	99.77693942
150603A00015	6/3/2015	2.02	6/3/2020	6/3/2015	100.16048	100.1604774	100.1604774	100.1604774	100.1516034	100.0574282	99.96343326	99.8696181	99.77598218

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150603A00039	6/9/2015	2.02	6/15/2020	6/9/2015	100.21928	100.219279	100.219279	100.219279	100.206036	100.0786162	99.95153369	99.82478718	99.69837529
150630A00008	6/30/2015	2.41	6/30/2022	6/30/2015	105.02804	105.0280394	105.0280394	105.0280394	104.39712	102.2234331	100.1057946	98.0423605	96.03136253
150710A00039	7/10/2015	2.07	7/10/2020	7/10/2015	100.35584	100.3558364	100.3558364	100.3558364	100.3328281	100.1361358	99.94022515	99.74509158	99.55073037
150710A00040	7/10/2015	2.63	7/11/2022	7/10/2015	105.18233	105.1823301	105.1823301	105.1823301	104.536832	102.3403463	100.2009543	98.11675815	96.08593939
150717A00009	7/17/2015	2.18	7/19/2021	7/17/2015	102.54634	102.5463363	102.5463363	102.5463363	102.2490529	101.0208344	99.82201667	98.65155384	97.50844891
150807A00003	8/7/2015	1.9	8/7/2020	8/7/2015	100.49008	100.4900778	100.4900778	100.4900778	100.4548687	100.1802898	99.90721952	99.63564543	99.36555515
150819A00013	8/19/2015	3.51	8/19/2030	8/19/2015	132.96202	132.9620161	132.9620161	128.771856	118.0174241	108.053976	99.05437803	90.91925105	83.55997195
150825A00016	8/25/2015	1.9	8/25/2020	8/25/2015	100.53471	100.5347115	100.5347115	100.5347115	100.4915485	100.1677208	99.84598156	99.52631071	99.20868833
150828A00010	8/28/2015	1.96	8/28/2020	8/28/2015	100.56842	100.5684249	100.5684249	100.5684249	100.523921	100.1917672	99.8618048	99.53401212	99.20836785
150901A00002	9/1/2015	1.98	9/1/2020	9/1/2015	100.59425	100.5942493	100.5942493	100.5942493	100.5479259	100.2047054	99.86381977	99.52524537	99.18895879
150914A00052	9/14/2015	1.77	9/14/2020	9/14/2015	100.62866	100.628661	100.628661	100.628661	100.576005	100.1963448	99.81955838	99.44561299	99.07447648
150921A00051	9/21/2015	1.92	9/21/2020	9/21/2015	100.66571	100.6657097	100.6657097	100.6657097	100.6097709	100.2113828	99.81615066	99.424037	99.03500496
150930A00052	9/30/2015	1.79	9/30/2020	9/30/2015	100.65195	100.6519485	100.6519485	100.6519485	100.5916997	100.1686248	99.74909379	99.33306238	98.92048705
151005A00053	10/5/2015	1.99	10/5/2021	10/5/2015	102.47077	102.4707677	102.4707677	102.4707677	102.1129364	100.6910322	99.29586792	97.92675507	96.58302831
151007A00013	10/7/2015	1.74	10/7/2020	10/7/2015	100.65961	100.6596133	100.6596133	100.6596133	100.5953624	100.1530535	99.71463022	99.2800416	98.84923739
151109A00020	11/9/2015	2.79	11/9/2023	11/9/2015	108.87615	108.8761541	108.8761541	108.8761541	107.2308881	103.7024459	100.3101313	97.0479532	93.91021809
160727A00002	7/27/2016	1.87	7/27/2023	7/27/2016	105.14738	105.1473757	105.1473757	105.1473757	103.7580772	100.5629087	97.48256765	94.51223338	91.64732115
160727A00017	7/27/2016	2.03	7/29/2024	7/27/2016	107.42397	107.4239658	107.4239658	107.4239658	105.1388668	100.9645568	96.97921185	93.17322881	89.53755036
160802A00003	8/2/2016	2.53	8/1/2031	8/2/2016	127.34467	127.3446685	127.3446685	121.7235189	110.2276761	99.79241807	90.46496726	82.12103617	74.65090108
160816A00003	8/16/2016	1.63	8/16/2023	8/16/2016	105.0408	105.0407986	105.0407986	105.0407986	103.6002387	100.3414397	97.20177561	94.17623359	91.26004194
160921A00020	9/21/2016	1.97	9/21/2023	9/21/2016	105.73245	105.7324497	105.7324497	105.7324497	104.2161848	100.867847	97.6447442	94.54154981	91.55319199
160923A00002	9/23/2016	1.5	9/23/2020	9/23/2016	100.5047	100.504695	100.504695	100.504695	100.4478478	100.0443592	99.64410945	99.2470596	98.85317139
160926A00016	9/26/2016	1.47	9/28/2020	9/26/2016	100.50932	100.5093221	100.5093221	100.5093221	100.450078	100.0328529	99.61908223	99.20872335	98.80173422
160930A00005	9/30/2016	2.03	9/30/2024	9/30/2016	107.72364	107.7236375	107.7236375	107.7236375	105.2608204	100.9224471	96.78757109	92.84561942	89.08662189
161003A00004	10/3/2016	1.91	10/3/2023	10/3/2016	105.58022	105.5802175	105.5802175	105.5802175	104.0380373	100.6613175	97.41206617	94.28481147	91.27434597
161208A00017	12/8/2016	2.6	12/8/2023	12/8/2016	108.38353	108.3835346	108.3835346	108.3835346	106.6742489	103.0785997	99.62417165	96.30463442	93.11397909
161215A00001	12/15/2016	2.5	12/15/2021	12/15/2016	103.64499	103.6449882	103.6449882	103.6449882	103.2265057	101.6052439	100.0173312	98.46180448	96.93773741
161215A00014	12/15/2016	2.66	12/15/2022	12/15/2016	106.27318	106.273179	106.273179	106.273179	105.352207	102.7277294	100.1822275	97.71283391	95.31680548
161223A00028	12/23/2016	2.23	12/23/2021	12/23/2016	103.52761	103.5276082	103.5276082	103.5276082	103.1017874	101.4555199	99.84348544	98.26468232	96.71814774
170110A00021	1/10/2017	1.89	1/11/2021	1/10/2017	101.25971	101.2597065	101.2597065	101.2597065	101.1190501	100.4110478	99.71293981	99.02451972	98.34558673
170111A00009	1/11/2017	3.16	1/11/2028	1/11/2017	122.03014	122.0301449	122.0301449	121.1365286	113.245602	105.6960112	98.71616496	92.25985789	86.28486837

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170111A00011	1/11/2017	3.24	1/11/2029	1/11/2017	125.55625	125.5562532	125.5562532	123.5078205	114.538147	106.0733183	98.31833777	91.20952621	84.68924197
170111A00013	1/11/2017	3.4	1/10/2031	1/11/2017	133.02903	133.0290311	133.0290311	128.2689047	117.1531221	106.9139575	97.69917135	89.39965713	81.91849639
170120A00008	1/20/2017	3.63	1/20/2034	1/20/2017	145.317	145.3169963	145.3169963	135.6247848	121.2761502	108.4756523	97.25115619	87.39632687	78.7329997
170120A00011	1/20/2017	3.75	1/20/2037	1/20/2017	156.95456	156.9545644	156.9545644	141.3990885	123.995756	108.9167928	96.01808111	84.96382173	75.47200892
170130A00011	1/30/2017	2.15	2/1/2021	1/30/2017	101.45686	101.4568634	101.4568634	101.4568634	101.2964488	100.5317576	99.77857412	99.03664015	98.30570524
170206A00012	2/6/2017	2.04	2/5/2021	2/6/2017	101.39184	101.3918437	101.3918437	101.3918437	101.2276708	100.4523784	99.68892623	98.93704479	98.19647253
170217A00035	2/17/2017	1.9	2/17/2021	2/17/2017	101.44937	101.4493722	101.4493722	101.4493722	101.2733937	100.4637281	99.66697214	98.88281888	98.11097101
170307A00033	3/7/2017	2.2	3/7/2022	3/7/2017	103.90391	103.9039138	103.9039138	103.9039138	103.4157607	101.5623031	99.75107879	97.98088029	96.25054234
170316A00018	3/16/2017	2.8	3/18/2024	3/16/2017	109.80571	109.8057111	109.8057111	109.8057111	107.8454906	103.9615637	100.2398958	96.67287572	93.25328843
141024A00009	10/24/2014	2.05	10/26/2020	10/24/2014	100.96048	100.9604818	100.9604818	100.9604818	100.8851352	100.3890405	99.89781976	99.41140139	98.92971516
150121A00004	1/21/2015	1.97	1/24/2022	1/21/2015	103.25771	103.2577093	103.2577093	103.2577093	102.8071835	101.0785747	99.38728179	97.73216263	96.11212201
150123A00012	1/23/2015	2	1/29/2021	1/23/2015	101.32711	101.3271085	101.3271085	101.3271085	101.1696306	100.4136496	99.66892852	98.93521749	98.21227379
150130A00050	1/30/2015	1.87	1/31/2022	1/30/2015	103.11582	103.1158175	103.1158175	103.1158175	102.6600563	100.9142533	99.20645352	97.53548281	95.90021585
150220A00022	2/20/2015	2.8	2/20/2025	2/20/2015	112.08252	112.0825248	112.0825248	112.0825248	109.1378371	104.3423081	99.78750685	95.46009706	91.34755004
150422A00017	4/22/2015	2.16	4/22/2022	4/22/2015	103.72703	103.7270322	103.7270322	103.7270322	103.1930616	101.2251953	99.30487403	97.43065508	95.60114938
150518A00016	5/18/2015	1.84	11/18/2020	5/18/2015	100.96595	100.9659546	100.9659546	100.9659546	100.8739393	100.3146932	99.761643	99.21468596	98.67372166
150518A00020	5/18/2015	1.99	5/18/2021	5/18/2015	101.98975	101.989751	101.989751	101.989751	101.7339976	100.6771689	99.64221897	98.62847384	97.63528678
150601A00182	6/1/2015	3.85	7/18/2022	6/1/2015	107.83451	107.8345138	107.8345138	107.8345138	107.1709352	104.9260415	102.7397321	100.610047	98.53510875
150601A00222	6/1/2015	2.2	9/27/2022	6/1/2015	104.56034	104.5603432	104.5603432	104.5603432	103.7907541	101.3960055	99.06861209	96.80630697	94.606913
150601A00405	6/1/2015	4.63	1/17/2034	6/1/2015	158.00396	158.0039592	158.0039592	148.0593079	132.9858102	119.4488826	107.5525162	97.08384858	87.85890734
150601A00494	6/1/2015	2.37	6/25/2021	6/1/2015	102.58874	102.5887449	102.5887449	102.5887449	102.3074097	101.1439316	100.0068334	98.89522583	97.80825898
150601A00530	6/1/2015	3.08	7/24/2024	6/1/2015	112.4942	112.4942005	112.4942005	112.4942005	110.1660197	105.8758978	101.7787137	97.86469849	94.12463673
150601A00636	6/1/2015	2.45	6/30/2021	6/1/2015	102.52377	102.5237656	102.5237656	102.5237656	102.2401022	101.066322	99.91940996	98.79845179	97.70257426
150601A00640	6/1/2015	2.57	12/31/2021	6/1/2015	103.78029	103.7802942	103.7802942	103.7802942	103.3491658	101.6847028	100.0550562	98.45919827	96.8961416
150601A00644	6/1/2015	2.64	6/30/2022	6/1/2015	105.04917	105.0491719	105.0491719	105.0491719	104.4206536	102.2544559	100.1439715	98.08737116	96.08290126
150601A00717	6/1/2015	2.13	4/1/2022	6/1/2015	103.50038	103.5003804	103.5003804	103.5003804	102.9906566	101.0816591	99.21749114	97.39683145	95.61840666
150601A00737	6/1/2015	2.68	12/31/2024	6/1/2015	111.91889	111.9188946	111.9188946	111.9188946	109.1212186	104.4334341	99.9756326	95.73528362	91.70060978
150601A00789	6/1/2015	1.9	5/21/2020	6/1/2015	100.09093	100.0909258	100.0909258	100.0909258	100.0856537	100.027475	99.96937821	99.91136314	99.85342963
150601A00830	6/1/2015	6.743	7/31/2025	6/1/2015	134.65984	134.6598351	134.6598351	134.6598351	130.8096921	125.0040591	119.5055787	114.2961358	109.3587899
150601A00839	6/1/2015	6.93	10/30/2020	6/1/2015	103.33313	103.3331293	103.3331293	103.3331293	103.2546769	102.7414544	102.2333474	101.7302795	101.2321761
150609A00006	6/9/2015	1.95	6/15/2020	6/9/2015	100.23411	100.234108	100.234108	100.234108	100.2208377	100.0931573	99.96581765	99.83881738	99.71215507

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150707A00053	7/7/2015	1.92	7/7/2020	7/7/2015	100.3106	100.3105957	100.3105957	100.3105957	100.2888835	100.1005561	99.91294342	99.72604138	99.53984593
150803A00053	8/3/2015	2.49	8/3/2022	8/3/2015	105.01109	105.0110857	105.0110857	105.0110857	104.3310519	102.0763431	99.88156839	97.74469972	95.66379506
160630A00034	6/30/2016	1.51	6/28/2021	6/30/2016	101.45071	101.450712	101.450712	101.450712	101.1696828	100.0079906	98.87281818	97.76326618	96.67847544
160705A00009	7/5/2016	1.21	7/6/2021	7/5/2016	101.30881	101.3088106	101.3088106	101.3088106	101.0219512	99.8367791	98.67922125	97.54832216	96.44316992
160705A00104	7/5/2016	2.1	7/6/2026	7/5/2016	111.14614	111.1461436	111.1461436	111.1461436	105.8114927	99.84675786	94.25718511	89.01722347	84.10319386
160706A00011	7/6/2016	1.41	7/6/2021	7/6/2016	101.35831	101.3583119	101.3583119	101.3583119	101.0721346	99.88953771	98.73444457	97.60590494	96.50301191
160706A00026	7/6/2016	2.19	7/6/2027	7/6/2016	113.57617	113.5761654	113.5761654	113.2542206	106.0727093	99.22705159	92.87261667	86.97158249	81.48922843
160706A00027	7/6/2016	2.29	7/6/2028	7/6/2016	116.26701	116.2670098	116.2670098	114.8389249	106.6422886	98.93041199	91.83867698	85.31389714	79.30770979
160706A00030	7/6/2016	2.59	7/7/2031	7/6/2016	125.47385	125.4738508	125.4738508	120.0763953	108.8670063	98.67300302	89.55211243	81.38486661	74.06569199
160708A00002	7/8/2016	1.46	7/8/2021	7/8/2016	101.42479	101.424788	101.424788	101.424788	101.137183	99.94879643	98.78817213	97.65434656	96.54640028
160712A00016	7/12/2016	1.32	7/12/2021	7/12/2016	101.46074	101.4607413	101.4607413	101.4607413	101.1696469	99.96735058	98.7934444	97.64693261	96.52686555
160727A00018	7/27/2016	2.27	7/27/2026	7/27/2016	112.31484	112.3148435	112.3148435	112.3148435	106.8363369	100.7903024	95.1270026	89.82018217	84.84552492
160808A00012	8/8/2016	1.6	8/9/2021	8/8/2016	101.69816	101.6981568	101.6981568	101.6981568	101.3878402	100.1157884	98.8723005	97.65641443	96.46721141
160811A00014	8/11/2016	1.18	8/11/2020	8/11/2016	100.30393	100.3039339	100.3039339	100.3039339	100.2669854	99.98171355	99.69807552	99.4160572	99.13564461
160815A00006	8/15/2016	2.23	8/17/2026	8/15/2016	112.17448	112.1744835	112.1744835	112.1744835	106.5735905	100.4852767	94.78561768	89.44780289	84.4470044
160826A00008	8/26/2016	1.48	8/26/2020	8/26/2016	100.40169	100.4016921	100.4016921	100.4016921	100.3581185	100.031813	99.70762877	99.38554507	99.06554158
160830A00007	8/30/2016	1.65	8/30/2021	8/30/2016	101.84232	101.8423196	101.8423196	101.8423196	101.5155256	100.1950146	98.89810193	97.62420394	96.37275597
160916A00014	9/16/2016	1.66	9/16/2021	9/16/2016	101.92027	101.9202704	101.9202704	101.9202704	101.5792663	100.2125362	98.87066125	97.55302223	96.25902017
160916A00016	9/16/2016	1.66	9/16/2021	9/16/2016	101.92027	101.9202704	101.9202704	101.9202704	101.5792663	100.2125362	98.87066125	97.55302223	96.25902017
160921A00021	9/21/2016	1.45	9/21/2021	9/21/2016	101.88117	101.8811653	101.8811653	101.8811653	101.5350487	100.151252	98.79290202	97.45935814	96.15000076
160922A00009	9/22/2016	1.55	9/22/2022	9/22/2016	103.47433	103.4743271	103.4743271	103.4743271	102.7134292	100.3363511	98.02603624	95.78024299	93.59681844
160922A00050	9/22/2016	2.24	9/22/2025	9/22/2016	110.50204	110.502037	110.502037	110.502037	106.7330895	101.453281	96.46772515	91.75853803	87.30901015
160930A00010	9/30/2016	1.47	9/30/2022	9/30/2016	103.31008	103.3100803	103.3100803	103.3100803	102.5360944	100.1396491	97.81109305	95.54812719	93.34854434
161014A00024	10/18/2016	2.34	10/16/2020	10/18/2016	100.97824	100.9782389	100.9782389	100.9782389	100.9087302	100.4408535	99.97731812	99.51806384	99.06303138
161212A00040	12/12/2016	2.45	12/12/2023	12/12/2016	108.53648	108.5364836	108.5364836	108.5364836	106.806945	103.181145	99.69847419	96.35248527	93.13705982
170110A00020	1/10/2017	2.4	1/10/2024	1/10/2017	108.53656	108.5365646	108.5365646	108.5365646	106.7384528	103.0382228	99.48664	96.07688487	92.80249355
150601A00819	6/1/2015	1.71	5/28/2020	6/1/2015	100.12176	100.1217591	100.1217591	100.1217591	100.1147162	100.0370044	99.95941878	99.88195896	99.80462465
150601A01412	6/1/2015	1.88	6/1/2020	6/1/2015	100.13865	100.1386531	100.1386531	100.1386531	100.1305079	100.0418818	99.95341193	99.86509794	99.77693942
150601A01457	6/1/2015	1.88	6/1/2020	6/1/2015	100.13865	100.1386531	100.1386531	100.1386531	100.1305079	100.0418818	99.95341193	99.86509794	99.77693942
150618A00041	6/18/2015	2.02	6/18/2020	6/18/2015	100.23486	100.2348552	100.2348552	100.2348552	100.2205189	100.084781	99.94942327	99.81444406	99.67984179
150626A00039	6/26/2015	3.23	6/26/2025	6/26/2015	115.17273	115.1727342	115.1727342	115.1727342	111.7362448	106.5492806	101.638085	96.98649391	92.57937904

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150813A00008	8/13/2015	3.03	8/13/2025	8/13/2015	114.49306	114.4930616	114.4930616	114.4930616	110.8579991	105.5713023	100.5721541	95.84337434	91.36890058
150819A00011	8/19/2015	2.53	8/19/2022	8/19/2015	105.20128	105.2012751	105.2012751	105.2012751	104.4949184	102.1961696	99.95947367	97.7827738	95.66409569
150824A00048	8/24/2015	1.93	2/24/2021	8/24/2015	101.38478	101.3847817	101.3847817	101.3847817	101.2025849	100.3758396	99.56255493	98.76240439	97.97507182
150921A00037	9/21/2015	1.92	9/21/2020	9/21/2015	100.66571	100.6657097	100.6657097	100.6657097	100.6097709	100.2113828	99.81615066	99.424037	99.03500496
151001A00028	10/1/2015	1.74	10/1/2020	10/1/2015	100.63484	100.6348409	100.6348409	100.6348409	100.5740264	100.1482494	99.72606448	99.30742629	98.8922904
151001A00038	10/1/2015	1.75	10/1/2020	10/1/2015	100.63912	100.6391159	100.6391159	100.6391159	100.5783	100.1525121	99.73031632	99.31166737	98.89652078
151102A00009	11/2/2015	1.89	11/2/2020	11/2/2015	100.84435	100.8443529	100.8443529	100.8443529	100.7647951	100.2506753	99.74178556	99.23804634	98.73937982
151116A00025	11/16/2015	3.04	11/14/2025	11/16/2015	115.24101	115.2410088	115.2410088	115.2410088	111.1497629	105.6177815	100.3995949	95.47573035	90.82802341
151119A00030	11/19/2015	2.1	11/19/2020	11/19/2015	101.03952	101.0395213	101.0395213	101.0395213	100.946871	100.3856049	99.83057314	99.28167229	98.73880105
151211A00004	12/11/2015	2.48	12/15/2023	12/11/2015	108.66593	108.6659331	108.6659331	108.6659331	106.9285231	103.2926673	99.8005699	96.44574358	93.22203285
151211A00007	12/11/2015	2.73	12/15/2025	12/11/2015	114.85665	114.8566512	114.8566512	114.8566512	110.5728336	104.939529	99.6312321	94.62745692	89.90911642
160119A00027	1/19/2016	3.25	1/18/2030	1/19/2016	128.59978	128.5997787	128.5997787	125.2462887	115.2066114	105.8582777	97.37274918	89.66512695	82.65930146
160129A00066	1/29/2016	3.04	1/29/2031	1/29/2016	131.65467	131.6546684	131.6546684	126.7406393	115.5022563	105.19445	95.92992305	87.59655489	80.09484968
160129A00067	1/29/2016	2.53	1/29/2026	1/29/2016	114.01853	114.018532	114.018532	114.018532	109.5023708	103.7858727	98.40579605	93.34052668	88.56995645
160204A00024	2/4/2016	1.68	2/4/2021	2/4/2016	101.10727	101.1072698	101.1072698	101.1072698	100.9442522	100.1728951	99.41328125	98.66514401	97.92822491
160307A00026	3/7/2016	2.2	3/7/2023	3/7/2016	105.48171	105.4817133	105.4817133	105.4817133	104.3980607	101.5649873	98.82333619	96.16968163	93.60074485
160330A00034	3/30/2016	1.95	3/30/2022	3/30/2016	103.20236	103.2023551	103.2023551	103.2023551	102.6954273	100.7947085	98.93851884	97.12554961	95.35453912
160427A00019	4/27/2016	1.78	4/27/2021	4/27/2016	101.50987	101.5098726	101.5098726	101.5098726	101.2704437	100.2754806	99.29998157	98.34337995	97.40513099
160505A00007	5/5/2016	1.45	5/5/2021	5/5/2016	101.36754	101.3675436	101.3675436	101.3675436	101.1215743	100.1034459	99.10571021	98.12775955	97.16901026
151123A00014	11/23/2015	2.13	11/23/2020	11/23/2015	101.07717	101.0771692	101.0771692	101.0771692	100.9814413	100.4091082	99.84325186	99.28376275	98.73053382
151208A00019	12/8/2015	2.1	12/8/2020	12/8/2015	101.13666	101.1366572	101.1366572	101.1366572	101.0281161	100.4145788	99.80848065	99.20968689	98.61806597
151217A00014	12/17/2015	3	12/17/2025	12/17/2015	115.26085	115.2608487	115.2608487	115.2608487	110.9979094	105.3858986	100.0965708	95.10963555	90.40618517
151229A00080	12/29/2015	3.49	12/30/2030	12/29/2015	133.89537	133.8953665	133.8953665	129.1728128	118.0464545	107.7860842	98.54850279	90.2251033	82.7193771
160113A00005	1/13/2016	1.95	1/13/2021	1/13/2016	101.21376	101.2137608	101.2137608	101.2137608	101.0715097	100.3595212	99.65754235	98.96536322	98.28277948
160113A00006	1/13/2016	1.95	1/11/2021	1/13/2016	101.20434	101.2043443	101.2043443	101.2043443	101.0639936	100.3574872	99.660837	98.97383779	98.29628992
160129A00005	1/29/2016	1.96	1/28/2022	1/29/2016	102.9428	102.9427954	102.9427954	102.9427954	102.4913222	100.7605828	99.06730019	97.41032386	95.78855083
160129A00068	1/29/2016	1.97	1/30/2023	1/29/2016	105.16051	105.1605133	105.1605133	105.1605133	104.1477731	101.4083154	98.75471804	96.18372406	93.69222526
160211A00033	2/11/2016	1.67	2/11/2022	2/11/2016	102.48267	102.4826694	102.4826694	102.4826694	102.0205077	100.2542024	98.52684411	96.83727393	95.18437782
160307A00027	3/7/2016	2.71	3/6/2026	3/7/2016	114.13542	114.1354167	114.1354167	114.1354167	109.457705	103.6859335	98.25812387	93.15201423	88.34689109
160330A00035	3/30/2016	2.32	4/1/2024	3/30/2016	108.00422	108.0042232	108.0042232	108.0042232	106.022357	102.1379209	98.4176238	94.85368807	91.43874502
160330A00056	3/30/2016	2.26	3/31/2025	3/30/2016	110.65178	110.6517788	110.6517788	110.6517788	107.5667624	102.6781845	98.04138819	93.64212602	89.46702795

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160331A00024	3/31/2016	1.91	3/31/2022	3/31/2016	103.12939	103.1293926	103.1293926	103.1293926	102.6216758	100.7190635	98.86108415	97.04642417	95.27381742
160429A00007	4/29/2016	1.52	4/29/2021	4/29/2016	101.41609	101.4160872	101.4160872	101.4160872	101.174428	100.1722769	99.18987185	98.22663417	97.28200758
160510A00011	5/10/2016	1.59	4/5/2021	5/10/2016	101.23928	101.2392771	101.2392771	101.2392771	101.0191335	100.0849807	99.16802585	98.2677974	97.38384111
160523A00018	5/23/2016	1.77	5/24/2021	5/23/2016	101.61184	101.6118412	101.6118412	101.6118412	101.3529749	100.2845688	99.23858786	98.21433207	97.21113009
160524A00011	5/24/2016	1.78	5/19/2021	5/24/2016	101.60174	101.601735	101.601735	101.601735	101.3463649	100.2915026	99.25850789	98.24670634	97.25545086
160524A00035	5/24/2016	1.79	5/24/2021	5/24/2016	101.63342	101.6334177	101.6334177	101.6334177	101.3745266	100.3059964	99.25989323	98.23551696	97.23219621
160527A00026	5/27/2016	1.72	4/29/2021	5/27/2016	101.45761	101.4576071	101.4576071	101.4576071	101.2165047	100.2164281	99.23601924	98.27470279	97.33192558
160603A00004	6/3/2016	1.65	6/3/2021	6/3/2016	101.52049	101.5204924	101.5204924	101.5204924	101.2549814	100.1601488	99.08886988	98.04039132	97.01399159
160620A00003	6/20/2016	1.59	6/21/2021	6/20/2016	101.51938	101.5193829	101.5193829	101.5193829	101.2426331	100.0993402	98.98173313	97.88895404	96.820183
160628A00031	6/28/2016	1.77	6/28/2023	6/28/2016	104.70241	104.7024113	104.7024113	104.7024113	103.3787515	100.2643772	97.25972941	94.36030082	91.56179879
160628A00038	6/28/2016	1.88	6/27/2025	6/28/2016	109.18956	109.1895648	109.1895648	109.1895648	105.7917565	100.7207193	95.92260301	91.38129066	87.08170342
160701A00018	7/1/2016	1.42	7/1/2021	7/1/2016	101.35439	101.3543891	101.3543891	101.3543891	101.0715672	99.90241643	98.7601422	97.6438268	96.55259391
160714A00020	9/6/2016	2.28	9/4/2026	9/6/2016	112.58775	112.5877501	112.5877501	112.5877501	106.8724671	100.7316188	94.98532887	89.60625327	84.5690732
160718A00010	7/18/2016	1.65	7/18/2023	7/18/2016	104.98444	104.9844403	104.9844403	104.9844403	103.6083204	100.4244185	97.35456096	94.39398021	91.53814048
160727A00016	7/27/2016	1.78	7/27/2022	7/27/2016	103.36093	103.3609324	103.3609324	103.3609324	102.6964958	100.478957	98.3200715	96.21785306	94.17040053
160728A00021	7/28/2016	1.23	7/28/2020	7/28/2016	100.27494	100.274944	100.274944	100.274944	100.2441828	99.99758599	99.75220426	99.50802859	99.2650501
160729A00040	7/29/2016	1.19	7/29/2020	7/29/2016	100.26804	100.2680386	100.2680386	100.2680386	100.2368494	99.98750414	99.73939911	99.49252511	99.24687298
160829A00039	8/29/2016	1.61	3/26/2021	8/29/2016	101.23024	101.2302414	101.2302414	101.2302414	101.0192285	100.1120104	99.22101588	98.34581283	97.48598446
160830A00031	8/30/2016	1.65	8/31/2021	8/30/2016	101.84611	101.8461077	101.8461077	101.8461077	101.518533	100.1957325	98.89629513	97.61965568	96.36526679
160830A00061	8/30/2018	1.89	8/30/2023	8/30/2018	105.36235	105.362349	105.362349	105.362349	103.8970517	100.6122016	97.44823609	94.40009405	91.46295249
160913A00021	9/13/2016	1.52	9/14/2020	9/13/2016	100.48134	100.4813377	100.4813377	100.4813377	100.4288108	100.0500958	99.67424068	99.30121289	98.93098056
160920A00004	9/20/2016	1.68	9/20/2021	9/20/2016	101.96359	101.9635914	101.9635914	101.9635914	101.6191908	100.2413022	98.88865043	97.56060255	96.25654623
160922A00014	9/22/2016	2.06	9/22/2026	9/22/2016	112.54945	112.5494545	112.5494545	112.5494545	106.6696946	100.4444831	94.62379495	89.17930544	84.08480883
160926A00018	9/26/2016	1.47	9/28/2020	9/26/2016	100.50932	100.5093221	100.5093221	100.5093221	100.450078	100.0328529	99.61908223	99.20872335	98.80173422
160926A00023	9/26/2016	1.74	9/26/2022	9/26/2016	103.51356	103.5135582	103.5135582	103.5135582	102.7489992	100.3697683	98.05746743	95.80984536	93.62474
161006A00012	10/6/2016	1.98	10/7/2024	10/6/2016	108.35954	108.3595386	108.3595386	108.3595386	105.8539557	101.4608182	97.2750474	93.28580064	89.48285766
161020A00002	10/20/2016	1.96	8/15/2023	10/20/2016	105.5289	105.5289037	105.5289037	105.5289037	104.0957805	100.8461777	97.71488111	94.69692558	91.78758465
161031A00006	10/31/2016	1.76	11/1/2021	10/31/2016	102.2478	102.2477986	102.2477986	102.2477986	101.867286	100.3762014	98.91449153	97.48136464	96.07605701
161115A00011	11/15/2016	2.46	11/15/2023	11/15/2016	107.73747	107.7374681	107.7374681	107.7374681	106.0852098	102.5609679	99.17338266	95.91641276	92.78431857
161117A00014	11/17/2016	1.88	11/17/2020	11/17/2016	100.90658	100.9065829	100.9065829	100.9065829	100.8155231	100.2601567	99.71090142	99.16765686	98.63032459
161213A00016	12/13/2016	2.06	12/14/2020	12/13/2016	101.1421	101.1420986	101.1420986	101.1420986	101.0279835	100.3980445	99.7759505	99.16155537	98.55471674

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
161214A00004	12/14/2016	1.91	5/14/2020	12/14/2016	100.06184	100.0618403	100.0618403	100.0618403	100.0583256	100.0195357	99.98079285	99.94209697	99.903448
170110A00023	1/10/2017	2.08	1/10/2022	1/10/2017	103.37502	103.3750161	103.3750161	103.3750161	102.9353291	101.2426884	99.58597991	97.96412493	96.37608819
170117A00037	1/17/2017	2	1/18/2022	1/17/2017	103.27916	103.2791566	103.2791566	103.2791566	102.8333329	101.1203851	99.44415241	97.8035202	96.19741925
170123A00039	1/23/2017	2.79	1/23/2026	1/23/2017	115.48564	115.4856417	115.4856417	115.4856417	110.9811738	105.2379248	99.8311459	94.73929592	89.94232961
170130A00031	1/30/2017	2.96	7/30/2025	1/30/2017	114.01895	114.0189502	114.0189502	114.0189502	110.4523795	105.2116867	100.2544012	95.56363781	91.12361213
170321A00013	3/21/2017	2.18	3/21/2022	3/21/2017	103.94647	103.9464705	103.9464705	103.9464705	103.4446705	101.5538856	99.7069708	97.90264865	96.13968714
170323A00009	3/23/2017	2.1	3/23/2022	3/23/2017	103.80431	103.8043135	103.8043135	103.8043135	103.3009087	101.4062465	99.55566269	97.74787032	95.98162851
170330A00012	3/30/2017	2.11	3/30/2021	3/30/2017	101.70846	101.7084569	101.7084569	101.7084569	101.4931353	100.5727202	99.66893984	98.78134665	97.90950887
170331A00004	3/31/2017	2.12	3/31/2021	3/31/2017	101.72287	101.7228713	101.7228713	101.7228713	101.5065671	100.5833676	99.67689971	98.78671184	97.91236869
170405A00013	4/5/2017	2.07	4/5/2022	4/5/2017	103.81705	103.8170451	103.8170451	103.8170451	103.3001943	101.3707737	99.48701305	97.6475558	95.85109501
170417A00068	4/17/2019	2.59	4/17/2024	4/17/2019	109.17236	109.1723602	109.1723602	109.1723602	107.1419386	103.1932465	99.41294932	95.79298546	92.32572199
170419A00022	4/19/2017	1.75	4/19/2021	4/19/2017	101.60328	101.603275	101.603275	101.603275	101.3700943	100.3940179	99.43666408	98.49749796	97.57600506
170419A00025	4/19/2017	2.72	4/19/2027	4/19/2017	118.31332	118.3133232	118.3133232	118.2209712	111.0673306	104.1824267	97.77740984	91.81627625	86.26590023
170427A00044	4/27/2017	3.02	4/27/2027	4/27/2017	119.03964	119.0396392	119.0396392	118.9249454	111.8076469	104.9322814	98.53513122	92.58034056	87.03491975
170427A00046	4/27/2017	3.1	4/27/2028	4/27/2017	122.37684	122.3768371	122.3768371	121.1588785	112.9686127	105.1729085	97.98598501	91.35688552	85.23917091
170502A00028	5/2/2017	2.84	5/3/2027	5/2/2017	119.26299	119.2629863	119.2629863	119.1283977	111.9147564	104.9662951	98.50400529	92.49125018	86.89433556
170509A00005	5/9/2017	1.9	5/11/2020	5/9/2017	100.04799	100.0479876	100.0479876	100.0479876	100.0452262	100.0147495	99.98430721	99.95389926	99.92352561
170515A00005	5/15/2017	2.04	5/16/2022	5/15/2017	103.97665	103.9766461	103.9766461	103.9766461	103.4102749	101.3692131	99.37876669	97.43735071	95.54344173
170515A00007	5/15/2017	2.04	5/14/2021	5/15/2017	101.85413	101.8541347	101.8541347	101.8541347	101.6019701	100.559182	99.53772846	98.53695968	97.55625206
170515A00019	5/15/2017	1.84	5/15/2020	5/15/2017	100.06334	100.0633416	100.0633416	100.0633416	100.0595762	100.018019	99.97651341	99.9350593	99.89365657
170519A00002	5/19/2017	2.15	5/19/2022	5/19/2017	103.84544	103.845438	103.845438	103.845438	103.2776609	101.2371931	99.24733161	97.30649022	95.41314413
170530A00006	5/30/2017	2.15	5/31/2022	5/30/2017	103.90704	103.9070397	103.9070397	103.9070397	103.3236503	101.2511015	99.23046201	97.26008322	95.33838169
170530A00025	5/30/2017	1.63	6/1/2020	5/30/2017	100.13452	100.1345227	100.1345227	100.1345227	100.1263608	100.0375534	99.94890471	99.86041419	99.77208146
170531A00018	5/31/2017	1.97	5/28/2021	5/31/2017	101.84643	101.8464264	101.8464264	101.8464264	101.5845002	100.5039487	99.44629046	98.41080403	97.39679806
170606A00017	6/6/2017	1.9	6/6/2022	6/6/2017	103.79062	103.7906239	103.7906239	103.7906239	103.1968622	101.1019787	99.0599965	97.0692198	95.1280206
170608A00003	6/8/2017	1.97	6/8/2021	6/8/2017	101.89797	101.8979715	101.8979715	101.8979715	101.628881	100.5183293	99.43195328	98.36897027	97.32863091
170615A00004	6/15/2017	2.01	6/11/2021	6/15/2017	101.95715	101.9571546	101.9571546	101.9571546	101.6861138	100.5671118	99.47264583	98.40191562	97.3541554
170626A00016	6/26/2017	1.64	6/26/2020	6/26/2017	100.24093	100.2409306	100.2409306	100.2409306	100.2236553	100.0655282	99.90790568	99.75078544	99.59416501
170629A00014	6/29/2017	1.89	8/25/2020	6/29/2017	100.53146	100.5314632	100.5314632	100.5314632	100.488301	100.16448	99.84274737	99.52308313	99.20546731
150817A00016	8/17/2015	2.24	8/17/2021	8/17/2015	102.56834	102.5683448	102.5683448	102.5683448	102.2505507	100.9544157	99.68504143	98.44160531	97.22331883
150824A00071	8/24/2015	2.86	8/25/2025	8/24/2015	113.67268	113.672678	113.672678	113.672678	109.9938256	104.6993801	99.69481037	94.96274358	90.48693503

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150827A00005	8/27/2015	2.07	8/27/2021	8/27/2015	102.62178	102.6217842	102.6217842	102.6217842	102.2951984	100.972432	99.67418373	98.39980786	97.14868136
150827A00029	8/27/2015	2.74	8/27/2024	8/27/2015	111.47547	111.4754707	111.4754707	111.4754707	109.0606128	104.7052786	100.5498118	96.58401283	92.79825516
150923A00045	9/23/2015	1.97	9/23/2021	9/23/2015	102.626	102.6259953	102.6259953	102.6259953	102.2770052	100.8822609	99.51324877	98.16931851	96.84984129
151002A00041	10/2/2015	1.76	10/4/2021	10/2/2015	102.37824	102.3782376	102.3782376	102.3782376	102.0203538	100.5978221	99.20205384	97.83235984	96.48807406
151002A00047	10/2/2015	1.64	9/2/2020	10/2/2015	100.48103	100.481031	100.481031	100.481031	100.4342578	100.0885291	99.74517365	99.40416712	99.06548551
151002A00081	10/2/2015	2.29	10/2/2023	10/2/2015	107.52414	107.5241364	107.5241364	107.5241364	105.9645706	102.5414377	99.24746093	96.07709283	93.02505431
151014A00030	10/14/2015	1.68	10/14/2020	10/14/2015	100.6607	100.6607007	100.6607007	100.6607007	100.5924515	100.1309382	99.6736594	99.22055693	98.77157365
151015A00006	10/15/2015	1.68	10/15/2020	10/15/2015	100.66466	100.6646631	100.6646631	100.6646631	100.5958413	100.1315751	99.67159381	99.21583831	98.76425041
151102A00012	11/2/2015	2.4	11/2/2022	11/2/2015	105.33411	105.3341054	105.3341054	105.3341054	104.497827	101.9999022	99.57482343	97.22004379	94.93312156
151116A00027	11/16/2015	2.02	11/16/2020	11/16/2015	100.9798	100.9798041	100.9798041	100.9798041	100.8894761	100.3366111	99.78979963	99.24894241	98.7139425
151211A00012	12/11/2015	1.89	12/11/2020	12/11/2015	101.1071	101.1071026	101.1071026	101.1071026	100.9955858	100.3728722	99.75782736	99.15031002	98.55018247
151221A00014	12/21/2015	2.94	12/22/2025	12/21/2015	114.95706	114.9570607	114.9570607	114.9570607	110.6719779	105.0564727	99.76464662	94.77610164	90.07183291
160113A00030	1/13/2016	2.52	1/13/2025	1/13/2016	111.43484	111.434836	111.434836	111.434836	108.5996791	103.8905127	99.41404242	95.15750123	91.10889516
160119A00028	1/19/2016	3.34	1/21/2031	1/19/2016	132.47846	132.4784633	132.4784633	127.6784349	116.5598761	106.3270022	97.12116761	88.83267405	81.36411027
160128A00058	1/28/2016	1.83	1/28/2021	1/28/2016	101.19348	101.1934833	101.1934833	101.1934833	101.0370444	100.2843407	99.54281214	98.81221152	98.09229868
160129A00016	1/29/2016	1.76	1/29/2021	1/29/2016	101.14464	101.1446385	101.1446385	101.1446385	100.9872873	100.2320707	99.48810597	98.75514337	98.03294032
160212A00029	2/12/2016	1.8	2/11/2022	2/12/2016	102.71746	102.7174561	102.7174561	102.7174561	102.2547875	100.486312	98.75682381	97.06516285	95.41021401
160212A00044	2/12/2016	1.93	2/13/2023	2/12/2016	104.60633	104.6063267	104.6063267	104.6063267	103.5718232	100.8116913	98.13899644	95.55045294	93.04292068
160223A00014	2/23/2016	1.75	2/23/2021	2/23/2016	101.23092	101.2309161	101.2309161	101.2309161	101.0497907	100.2264556	99.4164865	98.6195601	97.83536336
160329A00044	3/29/2016	1.79	3/29/2022	3/29/2016	103.23696	103.2369618	103.2369618	103.2369618	102.7290876	100.8242359	98.96406238	97.14725253	95.37253917
160401A00016	4/1/2016	2.42	4/1/2025	4/1/2016	110.47318	110.4731766	110.4731766	110.4731766	107.4101782	102.553097	97.94551492	93.57334402	89.42336235
160407A00004	4/7/2016	1.41	4/7/2021	4/7/2016	101.22621	101.2262117	101.2262117	101.2262117	101.0038109	100.0622087	99.13807665	98.23093232	97.3403107
170111A00014	1/11/2017	3.47	1/12/2032	1/11/2017	136.89145	136.8914549	136.8914549	130.5966937	118.4093033	107.3079282	97.40457687	88.56175302	80.65846938
170120A00009	1/20/2017	3.67	1/22/2035	1/20/2017	149.14349	149.1434925	149.1434925	137.6062164	122.2214957	108.6343441	96.82009052	86.53266845	77.56158501
170120A00010	1/20/2017	3.71	1/22/2036	1/20/2017	153.01964	153.0196415	153.0196415	139.5299682	123.1270114	108.7806361	96.40886153	85.7224271	76.47617208
170130A00008	1/30/2017	2.58	1/30/2023	1/30/2017	106.35112	106.3511162	106.3511162	106.3511162	105.3385187	102.5936297	99.93441756	97.35764214	94.860211
170130A00010	1/30/2017	2.92	1/30/2025	1/30/2017	112.51498	112.5149796	112.5149796	112.5149796	109.6353299	104.8868088	100.3737773	96.08324981	92.00303189
170207A00013	2/7/2017	2.05	2/7/2022	2/7/2017	103.47324	103.4732382	103.4732382	103.4732382	103.0107406	101.241197	99.51052693	97.81755668	96.16115926
170207A00023	2/7/2017	2.26	2/7/2022	2/7/2017	103.52682	103.52682	103.52682	103.52682	103.0658029	101.3014898	99.57583945	97.88768686	96.23591336
170215A00034	2/15/2017	2.69	12/18/2020	2/15/2017	101.56778	101.5677778	101.5677778	101.5677778	101.4497158	100.8073171	100.1730506	99.54676224	98.92830208
170216A00043	2/16/2017	3.17	2/16/2027	2/16/2017	119.54742	119.5474197	119.5474197	119.5474197	112.712062	105.9793826	99.70253297	93.84817638	88.38558161

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170223A00003	2/23/2017	2.05	2/23/2022	2/23/2017	103.55844	103.5584357	103.5584357	103.5584357	103.0820944	101.2649848	99.48864553	97.75190488	96.0536332
170224A00019	2/24/2017	2.21	2/24/2022	2/24/2017	103.54423	103.5442339	103.5442339	103.5442339	103.0686468	101.2543902	99.48079968	97.74671241	96.05100696
170322A00022	3/22/2017	3.89	9/23/2041	3/22/2017	175.28739	175.2873948	172.4949165	148.7020366	126.8789804	108.740703	93.78172075	81.40489254	71.12963808
170404A00049	4/6/2017	2.42	4/6/2022	4/6/2017	104.15322	104.1532156	104.1532156	104.1532156	103.6363036	101.7073441	99.82396922	97.98482599	96.18861083
170417A00014	4/17/2017	1.95	4/18/2022	4/17/2017	103.64825	103.6482453	103.6482453	103.6482453	103.1170391	101.1540647	99.23838375	97.36856543	95.54323221
170509A00006	5/9/2017	2.3	5/9/2022	5/9/2017	104.10105	104.1010507	104.1010507	104.1010507	103.5455159	101.5286097	99.56130191	97.64205531	95.76939153
170515A00006	5/15/2017	1.84	5/15/2020	5/15/2017	100.06334	100.0633416	100.0633416	100.0633416	100.0595762	100.018019	99.97651341	99.9350593	99.89365657
170515A00041	5/15/2017	3.02	5/17/2027	5/15/2017	119.18739	119.1873924	119.1873924	119.0127889	111.8380516	104.9133746	98.47346623	92.4817495	86.90459008
170516A00006	5/16/2017	1.85	5/18/2020	5/16/2017	100.07699	100.0769938	100.0769938	100.0769938	100.0724748	100.0226044	99.97280008	99.92306168	99.87338909
170602A00007	6/2/2017	1.94	6/2/2021	6/2/2017	101.83679	101.8367862	101.8367862	101.8367862	101.5715258	100.4775316	99.40700172	98.35918772	97.33337276
170608A00017	6/8/2017	1.95	6/8/2022	6/8/2017	103.90715	103.9071511	103.9071511	103.9071511	103.3102659	101.2086934	99.16028327	97.16332763	95.21618692
170609A00009	6/9/2017	1.82	6/9/2021	6/9/2017	101.91289	101.9128883	101.9128883	101.9128883	101.6424627	100.5264697	99.43487331	98.36688038	97.32173185
170615A00017	6/15/2017	1.67	6/15/2020	6/15/2017	100.19833	100.198335	100.198335	100.198335	100.1850687	100.0574288	99.93012944	99.80316941	99.67654724
170623A00001	6/23/2017	1.64	6/23/2020	6/23/2017	100.22827	100.2282683	100.2282683	100.2282683	100.2120864	100.0622738	99.91291921	99.76402064	99.61557593
170630A00083	6/30/2017	1.86	6/30/2020	6/30/2017	100.26839	100.2683923	100.2683923	100.2683923	100.2496892	100.0807438	99.91236328	99.74454471	99.57728535
160705A00005	7/5/2016	1.49	7/5/2023	7/5/2016	104.41428	104.4142841	104.4142841	104.4142841	103.0696583	99.92805989	96.89804515	93.97499371	91.15450732
160706A00006	7/6/2016	1.47	7/6/2023	7/6/2016	104.35366	104.3536558	104.3536558	104.3536558	103.0071323	99.86395477	96.83250519	93.90815344	91.08649224
160706A00014	7/6/2016	1.41	7/6/2021	7/6/2016	101.35831	101.3583119	101.3583119	101.3583119	101.0721346	99.88953771	98.73444457	97.60590494	96.50301191
160707A00032	7/7/2016	1.52	7/7/2023	7/7/2016	104.51861	104.5186124	104.5186124	104.5186124	103.1690642	100.0207012	96.98430547	94.05523398	91.22906725
160808A00011	8/8/2016	1.6	8/9/2021	8/8/2016	101.69816	101.6981568	101.6981568	101.6981568	101.3878402	100.1157884	98.8723005	97.65641443	96.46721141
160830A00037	8/30/2016	2.16	8/29/2025	8/30/2016	109.9464	109.9464036	109.9464036	109.9464036	106.295922	101.0884502	96.16809836	91.51759943	87.12080872
160830A00038	8/30/2016	2.24	8/28/2026	8/30/2016	112.29587	112.2958684	112.2958684	112.2958684	106.6274757	100.5111956	94.78696037	89.42765771	84.40818035
160909A00024	9/9/2016	1.7	9/9/2021	9/9/2016	101.94885	101.9488493	101.9488493	101.9488493	101.613625	100.2656704	98.94192122	97.64178194	96.36467622
161004A00034	10/4/2016	1.67	10/4/2021	10/4/2016	102.00305	102.0030547	102.0030547	102.0030547	101.646854	100.2310963	98.84192011	97.47864227	96.14060264
161006A00010	10/6/2016	1.35	10/6/2020	10/6/2016	100.54405	100.5440501	100.5440501	100.5440501	100.4803037	100.0403272	99.60420058	99.17187343	98.74329615
161213A00014	12/13/2016	2.07	12/13/2021	12/13/2016	103.20617	103.2061706	103.2061706	103.2061706	102.7887836	101.1717833	99.58805851	98.03664894	96.51663121
170111A00020	1/11/2017	2.27	1/11/2022	1/11/2017	103.39769	103.3976885	103.3976885	103.3976885	102.9586532	101.2685379	99.61425697	97.99473527	96.40894091
170117A00045	1/17/2017	2.21	1/18/2022	1/17/2017	103.3316	103.331595	103.331595	103.331595	102.8871786	101.1792194	99.50777836	97.8717491	96.27007016
170130A00054	3/30/2017	2.33	4/29/2022	3/30/2017	104.10616	104.1061621	104.1061621	104.1061621	103.5633567	101.5727497	99.63066821	97.73562602	95.88619273
170215A00038	2/15/2017	2.71	8/22/2022	2/15/2017	105.6403	105.6402979	105.6402979	105.6402979	104.9277975	102.6160412	100.3668398	98.1781276	96.04792114
170215A00039	2/15/2017	2.72	11/7/2022	2/15/2017	106.17852	106.1785241	106.1785241	106.1785241	105.3300386	102.8078662	100.359449	97.98219754	95.67362989

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170215A00041	2/15/2017	2.6	10/16/2023	2/15/2017	108.04793	108.0479301	108.0479301	108.0479301	106.4622889	103.0102879	99.6894392	96.49406488	93.41876405
170224A00020	2/24/2017	3.08	2/24/2027	2/24/2017	118.99302	118.9930223	118.9930223	118.9930223	112.1218291	105.3874254	99.11076484	93.25828739	87.79905764
170224A00021	2/24/2017	3.4	2/24/2032	2/24/2017	136.43103	136.4310341	136.4310341	129.9642606	117.6945601	106.5395425	96.60017147	87.73569782	79.82240066
170224A00039	5/24/2017	3.17	5/24/2027	5/24/2017	120.30231	120.3023125	120.3023125	120.10667	112.8881308	105.9106207	99.42193946	93.38515327	87.76630474
170303A00023	3/3/2017	2	3/3/2021	3/3/2017	101.60352	101.6035167	101.6035167	101.6035167	101.4140238	100.5655634	99.73125301	98.91074099	98.10368724
170313A00034	3/13/2017	3.31	3/15/2027	3/13/2017	120.72274	120.7227443	120.7227443	120.7059635	113.7037331	106.8697766	100.5025171	94.56755846	89.03320737
170314A00006	3/14/2017	2.67	3/14/2024	3/14/2017	109.99803	109.998027	109.998027	109.998027	108.0344707	104.1377541	100.4038537	96.82513279	93.39435244
170317A00060	3/17/2017	2.04	3/17/2021	3/17/2017	101.71234	101.7123356	101.7123356	101.7123356	101.5091463	100.6220963	99.75050857	98.89398129	98.0521265
170215A00032	2/15/2017	2.33	7/30/2020	2/15/2017	100.52194	100.5219415	100.5219415	100.5219415	100.4903261	100.2382009	99.9873362	99.73772259	99.48935081
170215A00043	2/15/2017	2.7	8/28/2024	2/15/2017	110.4901	110.4901	110.4901	110.4901	108.0966274	103.7827783	99.66665464	95.73818492	91.98786178
170216A00045	2/16/2017	3.73	2/17/2037	2/16/2017	156.87566	156.8756568	156.8756568	141.1733495	123.7182261	108.6080266	95.69197175	84.63074189	75.1395801
170224A00044	5/24/2017	3.29	5/24/2029	5/24/2017	127.06293	127.0629257	127.0629257	124.5682444	115.1961535	106.3916936	98.35236998	91.0071497	84.29195236
170228A00014	2/28/2017	2.89	3/1/2027	2/28/2017	119.13587	119.1358704	119.1358704	119.1347351	112.1605212	105.359121	99.02271497	93.11706027	87.61060081
170309A00024	3/9/2017	2.27	3/9/2021	3/9/2017	101.73982	101.7398216	101.7398216	101.7398216	101.5448155	100.6811632	99.83216836	98.99746007	98.17667987
170310A00032	3/10/2017	2.27	3/10/2022	3/10/2017	104.05311	104.0531116	104.0531116	104.0531116	103.5617156	101.6989079	99.87870765	98.0998917	96.36127998
170313A00027	3/13/2017	2.27	3/14/2022	3/13/2017	104.07699	104.0769861	104.0769861	104.0769861	103.5816616	101.7080664	99.87754761	98.0888621	96.34081075
170313A00032	3/13/2017	3.69	6/14/2032	3/13/2017	140.85082	140.8508221	140.8508221	133.8560306	121.1027827	109.5215224	99.22405586	90.05887606	81.8931735
170322A00015	3/22/2017	2.31	3/22/2022	3/22/2017	103.85464	103.8546444	103.8546444	103.8546444	103.3538835	101.4676842	99.62520062	97.82516097	96.06633887
170412A00045	4/12/2017	2.01	4/12/2022	4/12/2017	103.73634	103.7363443	103.7363443	103.7363443	103.2117355	101.2641314	99.36306612	97.50714332	95.69501824
170424A00009	4/24/2017	2.04	4/25/2022	4/24/2017	103.86476	103.8647641	103.8647641	103.8647641	103.3250846	101.340942	99.4050429	97.51591381	95.6721368
170427A00047	4/27/2017	3.18	4/27/2029	4/27/2017	125.85551	125.8555138	125.8555138	123.4572463	114.195887	105.4963868	97.54881748	90.28378126	83.63863118
170504A00039	5/4/2017	1.7	5/4/2020	5/4/2017	100.01759	100.0175945	100.0175945	100.0175945	100.0165882	100.0054811	99.9943847	99.9832989	99.97222371
170515A00043	5/15/2017	3.1	5/15/2028	5/15/2017	122.5133	122.5132978	122.5132978	121.2390718	112.9974016	105.1582948	97.93449804	91.2742503	85.13040263
170517A00027	5/17/2017	1.99	5/17/2022	5/17/2017	103.87836	103.8783587	103.8783587	103.8783587	103.3109426	101.2682787	99.27631685	97.33346755	95.43820312
170518A00023	5/18/2017	1.78	5/18/2020	5/18/2017	100.07349	100.0734947	100.0734947	100.0734947	100.068976	100.0191085	99.96930706	99.91957155	99.86990185
170518A00034	5/18/2017	2.15	5/18/2023	5/18/2017	106.26881	106.268812	106.268812	106.268812	105.0206535	101.975861	99.03548331	96.19535196	93.45149028
170524A00064	5/24/2017	1.65	5/26/2020	5/24/2017	100.11075	100.1107534	100.1107534	100.1107534	100.1042137	100.0320519	99.9600032	99.88806734	99.81624407
170530A00003	5/30/2017	1.99	5/28/2021	5/30/2017	101.86822	101.8682244	101.8682244	101.8682244	101.6062729	100.5255949	99.46781209	98.43220289	97.41807593
170531A00039	5/31/2017	1.61	5/29/2020	5/31/2017	100.12031	100.1203108	100.1203108	100.1203108	100.1130169	100.0325361	99.95218815	99.87197273	99.79188951
170608A00020	6/8/2017	2.27	6/10/2024	6/8/2017	108.95412	108.954118	108.954118	108.954118	106.7731402	102.6698774	98.74757915	94.99728654	91.4105351
170613A00032	6/13/2017	2.45	6/13/2025	6/13/2017	112.07315	112.0731497	112.0731497	112.0731497	108.6978105	103.5893901	98.75304783	94.17284972	89.83388015

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170614A00012	6/14/2017	1.9	6/14/2022	6/14/2017	103.83007	103.8300715	103.8300715	103.8300715	103.224946	101.1079252	99.04476066	97.03371032	95.0731024
170726A00034	7/26/2017	2.05	7/26/2021	7/26/2017	102.21097	102.2109669	102.2109669	102.2109669	101.9102636	100.668605	99.45707735	98.27459433	97.12012125
170728A00031	7/28/2017	2.27	1/27/2023	7/28/2017	105.473	105.4730031	105.4730031	105.4730031	104.4698371	101.7448692	99.10484159	96.54654877	94.06693101
170728A00033	7/28/2017	2.46	1/29/2024	7/28/2017	108.18411	108.1841087	108.1841087	108.1841087	106.3538957	102.6298049	99.05671517	95.62762939	92.33591969
170728A00040	7/28/2017	2.44	1/27/2025	7/28/2017	111.14378	111.1437829	111.1437829	111.1437829	108.2661891	103.52892	99.02746669	94.74879646	90.68067199
170731A00004	7/31/2017	2.16	7/29/2022	7/31/2017	104.2317	104.2316959	104.2316959	104.2316959	103.561754	101.3290544	99.15546588	97.03898358	94.97768835
170731A00006	7/31/2017	2.16	8/1/2022	7/31/2017	104.24717	104.2471694	104.2471694	104.2471694	103.572565	101.3318741	99.15067714	97.02695454	94.95877322
170804A00020	8/4/2017	2.13	8/1/2022	8/4/2017	104.17883	104.1788256	104.1788256	104.1788256	103.5044187	101.2645138	99.08408645	96.96111748	94.89367431
170818A00037	8/18/2017	2.08	8/18/2022	8/18/2017	104.14884	104.1488388	104.1488388	104.1488388	103.4472234	101.1634298	98.94129761	96.77877952	94.67391074
170821A00038	8/23/2017	2.39	8/23/2024	8/23/2017	109.91829	109.91829	109.91829	109.91829	107.5279035	103.2159408	99.10183398	95.17548109	91.42734911
170822A00017	8/22/2017	2.11	8/22/2022	8/22/2017	104.23867	104.2386665	104.2386665	104.2386665	103.5303638	101.2351181	99.00207716	96.82918576	94.7144704
170822A00019	8/22/2017	2.44	8/22/2024	8/22/2017	109.32042	109.3204228	109.3204228	109.3204228	106.9534862	102.6795285	98.6011315	94.70833375	90.99173384
170831A00021	8/31/2017	1.99	2/25/2022	8/31/2017	103.1436	103.143603	103.143603	103.143603	102.6680537	100.8546677	99.08199533	97.34887593	95.65418972
170906A00037	9/6/2017	1.99	9/6/2022	9/6/2017	104.0285	104.0284962	104.0284962	104.0284962	103.2962106	100.9640473	98.69606923	96.49016415	94.34430138
170908A00016	9/10/2018	1.94	9/10/2021	9/10/2018	102.28406	102.2840551	102.2840551	102.2840551	101.9474743	100.5943901	99.26564542	97.96064055	96.67879473
170913A00024	9/13/2017	1.8	8/17/2020	9/13/2017	100.46785	100.4678516	100.4678516	100.4678516	100.4282582	100.1265874	99.82673782	99.52869293	99.23243639
170915A00009	9/15/2017	1.86	9/15/2020	9/15/2017	100.61509	100.6150886	100.6150886	100.6150886	100.5620425	100.180266	99.8013925	99.42538895	99.05222272
170926A00036	9/26/2017	1.7	9/25/2020	9/26/2017	100.65028	100.6502764	100.6502764	100.6502764	100.5923291	100.1823312	99.77567368	99.37231587	98.97221765
170928A00025	9/28/2017	1.73	9/28/2020	9/28/2017	100.67601	100.6760142	100.6760142	100.6760142	100.6166178	100.1982998	99.78345301	99.37203425	98.96400119
171010A00037	10/10/2017	2.09	10/12/2021	10/10/2017	102.65075	102.6507549	102.6507549	102.6507549	102.2866245	100.8449641	99.43075441	98.04327985	96.68184923
171016A00045	10/16/2017	2.2	10/17/2022	10/16/2017	104.74301	104.7430053	104.7430053	104.7430053	103.9374125	101.4884939	99.10990883	96.79923827	94.55416125
171018A00001	10/18/2017	1.96	10/18/2021	10/18/2017	102.73954	102.7395433	102.7395433	102.7395433	102.3690081	100.9068005	99.4727909	98.06623532	96.68641527
171018A00011	10/18/2017	2.68	10/18/2027	10/18/2017	119.31579	119.3157931	119.3157931	118.6711831	110.9962431	103.6709521	96.88815776	90.60477318	84.78134381
171026A00009	10/26/2017	2.75	10/27/2025	10/26/2017	113.50467	113.5046725	113.5046725	113.5046725	109.5275427	104.0857969	98.95109663	94.10450754	89.52835864
171030A00022	10/30/2017	2.28	10/31/2022	10/30/2017	105.01904	105.0190402	105.0190402	105.0190402	104.1875556	101.6990123	99.28296002	96.93686846	94.65831166
160516A00017	5/16/2016	1.29	5/15/2020	5/16/2016	100.0489	100.0488976	100.0488976	100.0488976	100.0451256	100.0034973	99.96192154	99.92039827	99.87892736
160523A00013	5/23/2016	2.11	5/23/2023	5/23/2016	105.60751	105.6075144	105.6075144	105.6075144	104.357914	101.323526	98.3933331	95.56316962	92.82906192
160606A00005	6/6/2016	2.92	6/6/2031	6/6/2016	128.93653	128.9365256	128.9365256	123.629093	112.3351389	102.0243125	92.78632209	84.50281761	77.06910205
160610A00009	6/10/2016	1.89	6/12/2023	6/10/2016	105.01522	105.0152186	105.0152186	105.0152186	103.7248538	100.6475687	97.67746712	94.81019888	92.04161814
160610A00035	6/10/2016	1.26	6/10/2020	6/10/2016	100.13013	100.1301259	100.1301259	100.1301259	100.1186874	100.004962	99.89150882	99.77832671	99.6654147
160620A00026	6/20/2016	1.39	6/21/2021	6/20/2016	101.47175	101.4717507	101.4717507	101.4717507	101.1943459	100.0485897	98.9286223	97.83358098	96.76264128

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160624A00010	6/24/2016	1.66	6/24/2022	6/24/2016	102.96466	102.9646626	102.9646626	102.9646626	102.3502301	100.2232545	98.15080271	96.13109483	94.1624235
160628A00068	6/28/2016	1.28	6/28/2021	6/28/2016	101.36695	101.3669473	101.3669473	101.3669473	101.085296	99.92130705	98.78394082	97.67229299	96.58549978
160701A00026	7/1/2016	1.43	7/1/2021	7/1/2016	101.36623	101.3662295	101.3662295	101.3662295	101.0833922	99.91416738	98.77182021	97.65543302	96.56412947
160706A00018	7/6/2016	1.29	7/6/2020	7/6/2016	100.18881	100.1888129	100.1888129	100.1888129	100.1675478	99.98214833	99.79744129	99.61342272	99.43008878
160706A00019	7/6/2016	1.41	7/6/2021	7/6/2016	101.35831	101.3583119	101.3583119	101.3583119	101.0721346	99.88953771	98.73444457	97.60590494	96.50301191
160707A00034	7/7/2016	1.25	7/7/2021	7/7/2016	101.35992	101.3599185	101.3599185	101.3599185	101.0723197	99.88413078	98.72368778	97.59002838	96.48223434
160714A00029	8/10/2016	2.27	8/10/2026	8/10/2016	112.38997	112.3899698	112.3899698	112.3899698	106.8269692	100.7476468	95.05522813	89.72307103	84.72650372
160714A00054	7/14/2016	2.03	7/15/2024	7/14/2016	107.35717	107.3571703	107.3571703	107.3571703	105.1100575	100.971772	97.01940013	93.24356805	89.63543006
160726A00005	7/26/2016	2.28	7/27/2026	7/26/2016	112.37753	112.3775328	112.3775328	112.3775328	106.8979527	100.8500395	95.18494548	89.87641089	84.90011518
160728A00035	7/28/2016	1.23	7/28/2020	7/28/2016	100.27494	100.274944	100.274944	100.274944	100.2441828	99.99758599	99.75220426	99.50802859	99.2650501
160804A00014	8/4/2016	1.99	8/5/2024	8/4/2016	107.28537	107.2853698	107.2853698	107.2853698	104.9823273	100.7936073	96.79528009	92.9776531	89.33158386
160815A00074	8/15/2016	1.57	8/13/2021	8/15/2016	101.67367	101.6736698	101.6736698	101.6736698	101.3602905	100.0793624	98.82604135	97.59943648	96.39869523
160830A00035	8/30/2016	2.06	8/30/2024	8/30/2016	107.70765	107.7076509	107.7076509	107.7076509	105.3323898	101.0729374	97.0096788	93.13259955	89.43224614
160922A00049	9/22/2016	1.79	9/22/2022	9/22/2016	103.61875	103.6187517	103.6187517	103.6187517	102.8606288	100.4907525	98.18725454	95.94791167	93.77058843
160923A00033	9/23/2016	2.04	9/23/2026	9/23/2016	112.42547	112.4254723	112.4254723	112.4254723	106.5419216	100.3182365	94.49921219	89.05650041	83.96387468
160926A00046	9/26/2016	1.66	9/26/2023	9/26/2016	105.31566	105.3156575	105.3156575	105.3156575	103.7820893	100.4123107	97.16947435	94.04814564	91.04315156
161004A00040	10/4/2016	1.45	10/4/2021	10/4/2016	101.92915	101.9291452	101.9291452	101.9291452	101.572006	100.1528605	98.76041976	97.39399619	96.05292533
161027A00013	10/28/2016	1.66	3/15/2021	10/28/2016	101.23338	101.2333836	101.2333836	101.2333836	101.0330024	100.1555076	99.29320004	98.44568808	97.61259329
160429A00041	4/29/2016	1.71	4/29/2021	4/29/2016	101.44751	101.4475112	101.4475112	101.4475112	101.2064194	100.2063974	99.22604239	98.26477906	97.32205425
160503A00016	5/3/2016	1.48	5/5/2020	5/3/2016	100.01585	100.0158463	100.0158463	100.0158463	100.0145917	100.0007427	99.98690712	99.97308482	99.95927581
160504A00004	5/4/2016	2.3	5/4/2026	5/4/2016	113.25243	113.2524281	113.2524281	113.2524281	108.2048724	102.2810603	96.72122112	91.50110429	86.59819582
160510A00010	5/10/2016	1.6	5/3/2021	5/10/2016	101.35115	101.3511538	101.3511538	101.3511538	101.1072092	100.0969154	99.10671109	98.13600202	97.18421714
160526A00011	5/26/2016	1.58	5/26/2021	5/26/2016	101.58634	101.5863361	101.5863361	101.5863361	101.3254452	100.2492651	99.19582599	98.16441322	97.15434191
160603A00021	6/3/2016	1.66	6/3/2021	6/3/2016	101.53156	101.5315576	101.5315576	101.5315576	101.2660335	100.1711357	99.09979266	98.05125092	97.02478893
160613A00047	6/15/2016	2.18	6/16/2025	6/15/2016	109.67387	109.6738727	109.6738727	109.6738727	106.341015	101.3168526	96.5606097	92.05659315	87.79011232
160615A00023	6/15/2016	1.38	6/15/2021	6/15/2016	101.43921	101.439209	101.439209	101.439209	101.1656011	100.0362387	98.93194347	97.85188828	96.79528217
160616A00028	6/16/2016	1.81	6/16/2023	6/16/2016	104.78016	104.7801569	104.7801569	104.7801569	103.4822161	100.3980979	97.42173251	94.54873305	91.7749193
160617A00002	6/17/2016	1.2	6/17/2020	6/17/2016	100.14428	100.144285	100.144285	100.144285	100.130297	99.99718403	99.86444003	99.73206341	99.60005259
160624A00006	6/24/2016	1.52	6/24/2021	6/24/2016	101.44874	101.4487373	101.4487373	101.4487373	101.170205	100.019278	98.89438951	97.79466404	96.71926502
160624A00063	6/24/2016	1.52	6/24/2022	6/24/2016	103.05188	103.0518798	103.0518798	103.0518798	102.4348024	100.2992508	98.21857617	96.19098287	94.21474894
160628A00030	6/28/2016	1.48	6/28/2021	6/28/2016	101.41544	101.41544	101.41544	101.41544	101.134456	99.97298325	98.83802677	97.7286873	96.6441058

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160628A00039	6/28/2016	2.01	6/29/2026	6/28/2016	111.78279	111.7827876	111.7827876	111.7827876	106.4278892	100.4175687	94.78534989	89.50548587	84.55411532
160701A00019	7/1/2016	1.73	7/3/2023	7/1/2016	104.59456	104.5945612	104.5945612	104.5945612	103.2605281	100.1350252	97.1200435	94.21102548	91.40363167
160712A00023	7/12/2016	1.79	7/12/2023	7/12/2016	104.82391	104.8239139	104.8239139	104.8239139	103.4690589	100.317096	97.27726861	94.34492107	91.51562252
160713A00007	7/13/2016	1.32	7/13/2021	7/13/2016	101.46408	101.4640798	101.4640798	101.4640798	101.1723085	99.96729806	98.79080526	97.64182769	96.5194094
160725A00010	7/25/2016	1.61	7/26/2021	7/25/2016	101.65958	101.6595771	101.6595771	101.6595771	101.3596395	100.1216191	98.91366839	97.73470267	96.58368895
160726A00024	7/26/2016	1.61	7/26/2021	7/26/2016	101.65958	101.6595771	101.6595771	101.6595771	101.3596395	100.1216191	98.91366839	97.73470267	96.58368895
160728A00022	7/28/2016	1.37	7/28/2021	7/28/2016	101.57716	101.5771625	101.5771625	101.5771625	101.2751513	100.0290259	98.81335445	97.62703215	96.46900715
160811A00011	8/11/2016	2.25	8/11/2026	8/11/2016	112.26914	112.2691395	112.2691395	112.2691395	106.7022847	100.624389	94.93352406	89.60303057	84.60822076
160825A00054	8/29/2016	2.49	8/30/2021	8/29/2016	102.97633	102.9763273	102.9763273	102.9763273	102.6478096	101.3192941	100.0145137	98.732881	97.47382775
160829A00037	8/31/2016	2.35	8/31/2021	8/31/2016	102.79305	102.7930507	102.7930507	102.7930507	102.464033	101.1345349	99.82851451	98.54540341	97.28465115
160906A00017	9/6/2016	1.65	9/7/2021	9/6/2016	101.87244	101.8724416	101.8724416	101.8724416	101.5390006	100.1970203	98.87905052	97.58450288	96.31280767
001003A00018	10/3/2000	7.13	10/5/2020	10/3/2000	103.01538	103.0153845	103.0153845	103.0153845	102.9514716	102.5084968	102.0693484	101.6339769	101.2023336
050923A00095	9/23/2005	4.77	9/21/2020	9/23/2005	101.86038	101.8603792	101.8603792	101.8603792	101.803977	101.4020466	101.0033024	100.6077062	100.2152209
050923A00096	9/23/2005	4.86	9/22/2025	9/23/2005	125.8747	125.8746998	125.8746998	125.8746998	121.8776371	116.1591171	110.753987	105.6433403	100.8095076
060613A00028	6/13/2006	5.47	6/15/2021	6/13/2006	106.10524	106.105241	106.105241	106.105241	105.8258604	104.6682127	103.5360689	102.4285907	101.3449763
081217A00076	12/17/2008	3.86	12/22/2023	12/17/2008	113.80245	113.8024491	113.8024491	113.8024491	112.0160887	108.2688673	104.6694406	101.2111317	97.88760688
091210A00005	12/10/2009	5.08	12/16/2024	12/10/2009	122.26451	122.2645125	122.2645125	122.2645125	119.434588	114.5765253	109.9511387	105.5459624	101.3492688
101101A00006	11/1/2010	3.34	11/16/2020	11/1/2010	101.71254	101.7125369	101.7125369	101.7125369	101.6218779	101.0666732	100.5175404	99.97438005	99.43709497
110802A00008	8/2/2011	3.34	8/16/2021	8/2/2011	104.22944	104.2294438	104.2294438	104.2294438	103.9090768	102.6002971	101.3188379	100.0638479	98.83451136
110822A00010	8/22/2011	2.8	8/30/2021	8/22/2011	103.62473	103.6247283	103.6247283	103.6247283	103.2942743	101.9575822	100.6448198	99.35539357	98.08872922
111006A00023	10/6/2011	3.81	10/15/2026	10/6/2011	122.73287	122.732873	122.732873	122.732873	116.5857191	110.0395722	103.9151032	98.18281638	92.81542781
120113A00013	1/13/2012	3.87	1/15/2032	1/13/2012	141.58334	141.5833382	141.5833382	135.2203288	122.7993373	111.4505226	101.319827	92.26781985	84.17178784
120119A00010	1/18/2012	2.43	1/31/2022	1/18/2012	104.11183	104.11183	104.11183	104.11183	103.6539573	101.8990773	100.1823682	98.5026512	96.85879635
120709A00015	7/9/2012	2.5	7/15/2022	7/9/2012	104.91809	104.9180921	104.9180921	104.9180921	104.2672942	102.0633098	99.91685285	97.82600226	95.78891771
120709A00016	7/9/2012	3.2	7/15/2027	7/9/2012	120.9238	120.9237966	120.9237966	120.5740088	113.1980823	106.0825939	99.47395402	93.33322988	87.62468078
120907A00024	9/7/2012	2.31	9/16/2024	9/7/2012	109.71429	109.7142942	109.7142942	109.7142942	107.2573916	102.8882132	98.72237425	94.74938216	90.95933867
121121A00003	11/21/2012	2.3	11/30/2022	11/21/2012	105.235	105.2349965	105.2349965	105.2349965	104.346846	101.7750422	99.27983511	96.85847876	94.50834416
130211A00017	2/11/2013	3.27	2/15/2028	2/11/2013	123.1601	123.1601026	123.1601026	122.160587	114.1437707	106.475704	99.39198491	92.84479476	86.79046789
130503A00007	5/3/2013	1.48	5/4/2020	5/3/2013	100.01515	100.0151502	100.0151502	100.0151502	100.0141442	100.0030391	99.99194474	99.98086097	99.96978781
130515A00037	5/15/2013	1.64	5/15/2020	5/15/2013	100.06348	100.0634795	100.0634795	100.0634795	100.0597064	100.018066	99.97647812	99.93494275	99.89345976
130523A00042	5/28/2013	2.38	5/23/2022	5/28/2013	104.34551	104.3455123	104.3455123	104.3455123	103.7712986	101.7150624	99.70996565	97.7543985	95.84681398

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
130528A00028	5/28/2013	2.63	5/30/2023	5/28/2013	107.25989	107.2598905	107.2598905	107.2598905	105.9872812	102.9094469	99.9375488	97.06733496	94.29475053
130606A00012	6/6/2013	2.26	6/15/2020	6/6/2013	100.24994	100.2499352	100.2499352	100.2499352	100.2366887	100.1092343	99.9821173	99.85533637	99.72889015
130821A00017	8/21/2013	2.8	8/28/2020	8/21/2013	100.89401	100.8940093	100.8940093	100.8940093	100.8493514	100.516001	100.1848551	99.85589189	99.52908974
130821A00018	8/21/2013	3.37	8/30/2022	8/21/2013	107.68433	107.6843264	107.6843264	107.6843264	106.9497031	104.5840111	102.2828481	100.0440996	97.86573283
170322A00025	3/22/2017	3.58	3/22/2033	3/22/2017	141.98118	141.9811776	141.9811776	133.7417904	120.2676701	108.1452801	97.44082558	87.97800224	79.60337837
170417A00043	4/17/2017	2.14	4/18/2022	4/17/2017	103.66672	103.6667232	103.6667232	103.6667232	103.1374144	101.180938	99.27148106	97.40762446	95.58800162
170417A00094	4/17/2017	1.95	4/19/2022	4/17/2017	103.65332	103.6533158	103.6533158	103.6533158	103.1209626	101.1552283	99.23691758	97.3645937	95.53687353
170419A00023	4/19/2017	2.11	4/19/2023	4/19/2017	105.98548	105.9854831	105.9854831	105.9854831	104.8020701	101.8374046	98.97229178	96.20284677	93.52535862
170505A00003	5/5/2017	2.09	5/5/2021	5/5/2017	101.86136	101.8613553	101.8613553	101.8613553	101.6154696	100.5969767	99.59883016	98.62042511	97.66118027
170505A00009	5/5/2017	1.9	5/15/2020	5/5/2017	100.06584	100.065841	100.065841	100.065841	100.0620753	100.0205161	99.97900841	99.93755223	99.89614743
170512A00027	5/12/2017	1.85	5/12/2020	5/12/2017	100.05068	100.0506839	100.0506839	100.0506839	100.0476717	100.0144266	99.98121996	99.94805172	99.9149218
170515A00054	5/15/2017	3.2	5/17/2032	5/15/2017	137.38976	137.3897575	137.3897575	130.4281029	117.7536314	106.2864024	96.09661297	87.03333001	78.96423899
170524A00011	5/24/2017	2.54	5/24/2024	5/24/2017	109.20054	109.2005359	109.2005359	109.2005359	107.0756629	103.0321047	99.16466084	95.46471723	91.9241287
170530A00027	5/30/2017	1.97	5/31/2022	5/30/2017	103.90882	103.9088182	103.9088182	103.9088182	103.3231948	101.2433394	99.21570676	97.23863462	95.31052649
170601A00018	6/1/2017	1.96	6/1/2022	6/1/2017	103.8928	103.892804	103.892804	103.892804	103.3058139	101.2234122	99.19334678	97.21394988	95.28361972
170602A00033	6/2/2017	2.09	6/2/2022	6/2/2017	103.7905	103.7904965	103.7904965	103.7904965	103.2046097	101.1279021	99.10331112	97.12917773	95.20390854
170605A00022	6/5/2017	1.62	6/5/2020	6/5/2017	100.15029	100.1502948	100.1502948	100.1502948	100.1406746	100.0407726	99.94107807	99.8415905	99.74230918
170609A00043	6/9/2017	3.07	6/9/2032	6/9/2017	135.99828	135.9982776	135.9982776	128.9555797	116.2963542	104.8627822	94.71108655	85.68899631	77.66311619
170612A00013	6/12/2017	1.83	6/14/2021	6/12/2017	101.94784	101.9478439	101.9478439	101.9478439	101.6742348	100.5444957	99.4397519	98.3591809	97.30199612
170613A00021	6/13/2017	1.68	6/12/2020	6/13/2017	100.18662	100.186617	100.186617	100.186617	100.1744443	100.0551217	99.93609828	99.81737284	99.69894422
170615A00015	6/15/2017	2.25	6/14/2024	6/15/2017	108.89443	108.8944294	108.8944294	108.8944294	106.703323	102.590818	98.66010127	94.90215244	91.30845036
170615A00037	6/15/2017	1.85	6/15/2020	6/15/2017	100.19756	100.1975643	100.1975643	100.1975643	100.1843237	100.0569284	99.9298703	99.80314816	99.67676059
170616A00016	6/16/2017	1.82	6/16/2021	6/16/2017	101.94589	101.9458932	101.9458932	101.9458932	101.6710304	100.5358902	99.42598413	98.34047808	97.27857433
170622A00030	6/22/2017	1.66	6/22/2020	6/22/2017	100.22699	100.2269915	100.2269915	100.2269915	100.2111738	100.0641293	99.91752775	99.77136705	99.62564519
170622A00040	6/22/2017	3.41	6/23/2036	6/22/2017	149.60244	149.6024393	149.6024393	135.4346778	118.9509638	104.6251265	92.32628067	81.74993069	72.63910773
170623A00007	6/23/2017	1.64	6/23/2020	6/23/2017	100.22827	100.2282683	100.2282683	100.2282683	100.2120864	100.0622738	99.91291921	99.76402064	99.61557593
170629A00016	6/29/2017	1.94	12/21/2020	6/29/2017	101.09894	101.0989394	101.0989394	101.0989394	100.9783514	100.3294712	99.6889142	99.05652079	98.43213561
170629A00020	6/29/2017	2.03	6/29/2021	6/29/2017	102.06694	102.0669386	102.0669386	102.0669386	101.7844931	100.6162726	99.47475354	98.35902897	97.26823248
170621A00014	6/21/2017	1.82	6/21/2021	6/21/2017	101.96947	101.9694681	101.9694681	101.9694681	101.6914363	100.5426232	99.41964678	98.32164303	97.2477863
170622A00014	6/22/2017	1.84	6/22/2020	6/22/2017	100.22747	100.2274656	100.2274656	100.2274656	100.211677	100.0649012	99.91856432	99.77266455	99.62719991
170622A00039	6/22/2017	3.36	6/22/2035	6/22/2017	145.83694	145.8369414	145.8369414	133.6506795	118.1521274	104.5533828	92.7813381	82.57565916	73.71459026

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170626A00017	6/26/2017	1.8	6/28/2021	6/26/2017	101.97894	101.9789351	101.9789351	101.9789351	101.6964971	100.5286942	99.38757467	98.27223258	97.18180259
170628A00056	6/28/2017	1.97	6/28/2022	6/28/2017	104.05232	104.0523153	104.0523153	104.0523153	103.4268882	101.2694562	99.1676088	97.11952006	95.12343939
170629A00017	6/29/2017	2	4/26/2021	6/29/2017	101.726	101.7259991	101.7259991	101.7259991	101.4872103	100.4937851	99.51973616	98.56450093	97.62753849
170629A00022	6/29/2017	2.2	6/29/2023	6/29/2017	106.66497	106.6649709	106.6649709	106.6649709	105.3224168	102.160435	99.10995844	96.1663975	93.32538194
170630A00008	6/30/2017	2.35	7/1/2024	6/30/2017	109.41649	109.416487	109.416487	109.416487	107.1761386	103.0085656	99.02681574	95.22158383	91.58408496
170724A00016	7/24/2017	2.5	7/24/2024	7/24/2017	109.40549	109.4054918	109.4054918	109.4054918	107.1175324	102.9142096	98.90012844	95.06571184	91.40192489
170731A00028	7/31/2017	2.16	8/1/2022	7/31/2017	104.24717	104.2471694	104.2471694	104.2471694	103.572565	101.3318741	99.15067714	97.02695454	94.95877322
170802A00027	8/2/2017	2.16	8/2/2022	8/2/2017	104.25233	104.2523265	104.2523265	104.2523265	103.5761002	101.3327439	99.14901076	97.02287949	94.95241518
170811A00018	8/11/2017	1.63	8/11/2020	8/11/2017	100.43266	100.4326554	100.4326554	100.4326554	100.3956782	100.1101649	99.82628637	99.54402863	99.26337767
170818A00003	8/18/2017	2.23	8/20/2024	8/18/2017	109.20217	109.2021709	109.2021709	109.2021709	106.8262352	102.5370854	98.44461002	94.53876645	90.81007863
170818A00025	8/18/2017	1.77	8/18/2021	8/18/2017	102.17752	102.177516	102.177516	102.177516	101.8586115	100.5594299	99.28685075	98.04006548	96.81829871
170822A00012	8/22/2017	2.11	8/22/2022	8/22/2017	104.23867	104.2386665	104.2386665	104.2386665	103.5303638	101.2351181	99.00207716	96.82918576	94.7144704
170828A00030	8/28/2017	1.96	9/1/2021	8/28/2017	102.27009	102.2700877	102.2700877	102.2700877	101.9410328	100.6125139	99.30750099	98.02542435	96.76573203
170829A00021	8/29/2017	1.58	8/31/2020	8/29/2017	100.49963	100.4996347	100.4996347	100.4996347	100.4537428	100.1129443	99.77445037	99.4382377	99.10428333
170830A00033	8/30/2017	1.93	8/30/2021	8/30/2017	102.22032	102.2203222	102.2203222	102.2203222	101.8929536	100.5697745	99.27023917	97.99376296	96.73977989
170831A00009	8/31/2017	1.93	8/30/2021	8/31/2017	102.22032	102.2203222	102.2203222	102.2203222	101.8929536	100.5697745	99.27023917	97.99376296	96.73977989
170831A00052	8/31/2017	1.78	11/30/2021	8/31/2017	102.66981	102.6698129	102.6698129	102.6698129	102.2635825	100.685525	99.13950368	97.62461178	96.13997638
170831A00053	8/31/2017	1.81	3/1/2022	8/31/2017	103.14427	103.1442672	103.1442672	103.1442672	102.6636209	100.833216	99.04421832	97.29545354	95.585788
170906A00006	9/6/2017	1.81	9/6/2022	9/6/2017	104.03045	104.0304484	104.0304484	104.0304484	103.2950838	100.9541693	98.67784656	96.46398484	94.31053585
170906A00034	9/6/2017	1.87	9/7/2021	9/6/2017	102.17431	102.1743125	102.1743125	102.1743125	101.840403	100.4962584	99.17616134	97.87952248	96.60577111
170907A00059	9/7/2017	1.99	9/7/2022	9/7/2017	104.03316	104.0331564	104.0331564	104.0331564	103.2991602	100.9642692	98.69370764	96.48535596	94.33717687
171121A00013	11/21/2017	1.98	11/23/2020	11/21/2017	101.07029	101.0702923	101.0702923	101.0702923	100.9743958	100.4011023	99.83430978	99.27390795	98.71978912
171129A00020	11/29/2017	2.89	11/30/2026	11/29/2017	117.08849	117.0884873	117.0884873	117.0884873	110.768118	104.2915778	98.24268563	92.59090676	87.30804088
171205A00014	12/5/2017	2.49	12/5/2022	12/5/2017	105.76154	105.7615386	105.7615386	105.7615386	104.8618217	102.270122	99.7558613	97.31625183	94.94862523
171206A00038	12/6/2017	2.69	12/6/2027	12/6/2017	119.73801	119.7380105	119.7380105	118.9438203	111.1244934	103.6754924	96.78659063	90.41263431	84.51233452
171207A00036	12/7/2017	2.23	12/7/2022	12/7/2017	105.5691	105.5690958	105.5690958	105.5690958	104.6620825	102.057484	99.53105347	97.07996473	94.70151344
171208A00006	12/8/2017	2.67	12/8/2026	12/8/2017	117.03382	117.0338231	117.0338231	117.0338231	110.6019767	104.0617965	97.95645251	92.25471441	86.92775307
171220A00004	12/20/2017	2.52	12/20/2021	12/20/2017	103.69223	103.6922309	103.6922309	103.6922309	103.2698424	101.6352365	100.034428	98.46643398	96.93030949
180111A00044	1/11/2018	2.34	1/11/2021	1/11/2018	101.4814	101.4813959	101.4813959	101.4813959	101.3408701	100.6332682	99.93553335	99.24746016	98.56884879
180112A00025	1/12/2018	2.39	1/12/2021	1/12/2018	101.52284	101.5228435	101.5228435	101.5228435	101.3813431	100.6708503	99.97030292	99.27949293	98.5982182
180116A00009	1/16/2018	2.49	1/14/2022	1/16/2018	103.79441	103.7944107	103.7944107	103.7944107	103.3521969	101.6506594	99.98531741	98.35508044	96.75890215

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180116A00012	1/16/2018	2.4	1/15/2021	1/16/2018	101.64755	101.647554	101.647554	101.647554	101.5028482	100.7823726	100.0721149	99.37185881	98.68139384
180116A00014	1/16/2018	3.01	1/19/2027	1/16/2018	118.25057	118.250572	118.250572	118.250572	111.6079582	104.9832121	98.80302325	93.03512157	87.6497477
180116A00046	1/16/2018	2.58	1/11/2023	1/16/2018	106.23127	106.2312665	106.2312665	106.2312665	105.2572793	102.5632345	99.95200473	97.42051073	94.96581057
180118A00037	1/18/2018	2.88	1/21/2025	1/18/2018	112.25997	112.2599705	112.2599705	112.2599705	109.4118077	104.6914914	100.2043042	95.93744642	91.87889466
180130A00091	1/30/2018	2.74	1/25/2023	1/30/2018	106.76215	106.7621463	106.7621463	106.7621463	105.7579937	103.020357	100.367784	97.7970729	95.30516672
180207A00012	2/7/2018	2.53	2/7/2022	2/7/2018	104.33628	104.3362759	104.3362759	104.3362759	103.8719241	102.094432	100.3559609	98.65533282	96.99141691
180212A00042	2/12/2018	2.57	2/11/2022	2/12/2018	104.43526	104.43526	104.43526	104.43526	103.9672651	102.1771111	100.426463	98.7141431	97.03901983
180215A00043	2/15/2018	2.63	1/7/2021	2/15/2018	101.66103	101.6610347	101.6610347	101.6610347	101.5241918	100.8267984	100.138974	99.4605225	98.79125325
180226A00015	2/26/2018	2.85	9/28/2022	2/26/2018	106.22778	106.2277837	106.2277837	106.2277837	105.4511985	103.0333619	100.6834706	98.39923711	96.17846439
180308A00015	3/8/2018	2.82	12/15/2021	3/8/2018	104.17168	104.1716832	104.1716832	104.1716832	103.752182	102.1264547	100.5341567	98.97432238	97.44602349
180314A00005	3/14/2018	2.74	3/15/2021	3/14/2018	102.18915	102.189152	102.189152	102.189152	101.9879393	101.1058503	100.2390043	99.38700857	98.54948351
180315A00017	3/15/2018	2.72	3/15/2021	3/15/2018	102.17145	102.1714526	102.1714526	102.1714526	101.9702553	101.0882513	100.2214894	99.36957671	98.5321337
180326A00012	3/26/2018	2.74	12/28/2020	3/26/2018	101.66897	101.6689701	101.6689701	101.6689701	101.5415576	100.8714563	100.2101847	99.55756902	98.91344019
180328A00014	3/28/2018	2.55	3/29/2021	3/28/2018	102.24786	102.2478564	102.2478564	102.2478564	102.032518	101.1101943	100.2045079	99.3150116	98.44127426
170720A00009	7/20/2017	2.14	7/20/2022	7/20/2017	104.14037	104.1403685	104.1403685	104.1403685	103.4842304	101.275996	99.12572754	97.0314779	94.99138231
170721A00007	7/21/2017	1.8	7/21/2021	7/21/2017	102.08632	102.0863204	102.0863204	102.0863204	101.7883166	100.557699	99.35668915	98.18422896	97.03931
170726A00033	7/26/2017	1.89	7/27/2020	7/26/2017	100.39721	100.3972058	100.3972058	100.3972058	100.3669003	100.1232526	99.88078902	99.63950107	99.39938021
170822A00018	8/22/2017	2.25	8/22/2023	8/22/2017	106.53002	106.5300236	106.5300236	106.5300236	105.0761254	101.7921998	98.62826363	95.57929048	92.64049292
170824A00037	8/24/2017	1.98	8/24/2021	8/24/2017	102.25961	102.2596096	102.2596096	102.2596096	101.9368366	100.6269671	99.34216284	98.08172904	96.84499651
170830A00029	8/30/2017	1.87	3/30/2021	8/30/2017	101.48609	101.4860886	101.4860886	101.4860886	101.2709731	100.3516699	99.4489874	98.56247826	97.69171104
170831A00004	8/31/2017	2	8/31/2023	8/31/2017	106.35288	106.3528824	106.3528824	106.3528824	104.8719488	101.5530174	98.35649467	95.27724629	92.31037992
170831A00006	8/31/2017	1.87	8/31/2022	8/31/2017	104.14433	104.1443278	104.1443278	104.1443278	103.4188565	101.0927139	98.83033145	96.62961978	94.48856989
170831A00020	8/31/2017	1.86	2/26/2021	8/31/2017	101.33523	101.3352253	101.3352253	101.3352253	101.1511693	100.3192267	99.50091596	98.69590439	97.90386992
170906A00020	9/6/2017	2.14	9/6/2023	9/6/2017	106.23861	106.2386135	106.2386135	106.2386135	104.7529884	101.4352923	98.24019649	95.1625473	92.19743461
170906A00036	9/6/2017	1.81	9/6/2022	9/6/2017	104.03045	104.0304484	104.0304484	104.0304484	103.2950838	100.9541693	98.67784656	96.46398484	94.31053585
170907A00002	9/7/2017	1.69	9/7/2021	9/7/2017	102.15926	102.159255	102.159255	102.159255	101.8243975	100.4767011	99.15316896	97.85320761	96.5762425
170908A00017	9/9/2019	2.32	9/9/2024	9/9/2019	108.89879	108.8987866	108.8987866	108.8987866	106.4850703	102.1746946	98.06370114	94.14186531	90.39953759
170914A00054	9/14/2017	1.99	9/14/2021	9/14/2017	102.37189	102.3718875	102.3718875	102.3718875	102.0318341	100.6672455	99.32738086	98.01162642	96.71938821
170919A00076	9/19/2017	1.97	9/19/2022	9/19/2017	104.47827	104.4782721	104.4782721	104.4782721	103.719322	101.3380443	99.02335822	96.77303605	94.58493776
170920A00028	9/21/2017	2.16	9/21/2022	9/21/2017	104.50959	104.509595	104.509595	104.509595	103.7503597	101.3722991	99.060707	96.8133605	94.62812409
171010A00038	10/10/2017	2.23	10/11/2022	10/10/2017	104.78563	104.7856343	104.7856343	104.7856343	103.9906076	101.5566583	99.19217043	96.89477049	94.66218046

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171016A00021	10/16/2017	2.2	10/17/2022	10/16/2017	104.74301	104.7430053	104.7430053	104.7430053	103.9374125	101.4884939	99.10990883	96.79923827	94.55416125
171030A00021	10/30/2017	2.29	11/30/2022	10/30/2017	105.20888	105.2088788	105.2088788	105.2088788	104.3208206	101.7493586	99.25448571	96.83345593	94.48364059
171030A00023	10/30/2017	2.9	11/1/2027	10/30/2017	119.52358	119.5235841	119.5235841	118.8462086	111.2104907	103.9053866	97.14137344	90.87541706	85.06811799
171103A00017	11/3/2017	2.09	11/3/2022	11/3/2017	105.01433	105.0143292	105.0143292	105.0143292	104.1735683	101.6673653	99.23452357	96.87246918	94.57873497
171127A00016	11/27/2017	2.28	11/27/2023	11/27/2017	107.82434	107.8243365	107.8243365	107.8243365	106.1343596	102.5601386	99.12588632	95.82535362	92.65260678
171128A00002	11/28/2017	2.06	11/29/2021	11/28/2017	103.11432	103.1143176	103.1143176	103.1143176	102.7080738	101.1290699	99.5820811	98.06620264	96.5805635
171205A00013	12/5/2017	2.4	12/6/2021	12/5/2017	103.42767	103.4276695	103.4276695	103.4276695	103.0166094	101.420987	99.85787713	98.32635311	96.82552309
161031A00007	10/31/2016	1.91	10/31/2022	10/31/2016	104.08328	104.0832817	104.0832817	104.0832817	103.2549438	100.7782817	98.37384573	96.03911378	93.77166767
161123A00008	11/23/2016	2.2	11/23/2021	11/23/2016	103.03466	103.0346591	103.0346591	103.0346591	102.6347352	101.0773363	99.55126219	98.05563726	96.5896183
161214A00023	12/14/2016	3.3	12/15/2031	12/14/2016	137.26148	137.2614762	137.2614762	130.9627702	118.6701965	107.4860971	97.50849011	88.59916176	80.6364528
170111A00016	1/11/2017	3.51	1/11/2033	1/11/2017	140.48631	140.4863065	140.4863065	132.5781377	119.3494549	107.4289897	96.88641489	87.55245181	79.27953537
170119A00006	1/19/2017	2.85	1/21/2025	1/19/2017	112.11712	112.1171214	112.1171214	112.1171214	109.2703825	104.5533755	100.0693794	95.80559961	91.75001781
170203A00013	2/3/2017	3.67	2/1/2036	2/3/2017	152.4858	152.4858016	152.4858016	138.9611803	122.5734426	108.248312	95.89914651	85.2359495	76.01301122
170203A00031	2/3/2017	2.09	2/3/2022	2/3/2017	103.52342	103.5234152	103.5234152	103.5234152	103.0642267	101.3059266	99.58604465	97.90340573	96.2568827
170215A00009	2/15/2017	2.21	2/16/2021	2/15/2017	101.58327	101.5832749	101.5832749	101.5832749	101.4084994	100.6024714	99.80922747	99.02846527	98.25989178
170215A00036	2/15/2017	2.61	7/30/2021	2/15/2017	102.93852	102.9385238	102.9385238	102.9385238	102.634112	101.376861	100.150339	98.95342962	97.7850703
170215A00037	2/15/2017	2.71	5/23/2022	2/15/2017	105.03355	105.0335487	105.0335487	105.0335487	104.4575666	102.3940521	100.3818219	98.41926187	96.50482121
170224A00011	2/24/2017	1.83	2/24/2021	2/24/2017	101.42548	101.4254756	101.4254756	101.4254756	101.2428482	100.4142416	99.59914998	98.79724467	98.00820779
170228A00018	2/28/2017	2.25	2/28/2022	2/28/2017	103.63936	103.6393556	103.6393556	103.6393556	103.1601644	101.3333929	99.54777845	97.80215816	96.09540903
170303A00020	3/3/2017	2	3/3/2021	3/3/2017	101.60352	101.6035167	101.6035167	101.6035167	101.4140238	100.5655634	99.73125301	98.91074099	98.10368724
170317A00059	3/17/2017	2.47	3/17/2023	3/17/2017	106.85272	106.8527188	106.8527188	106.8527188	105.7367457	102.8461732	100.0497777	97.34399318	94.72540838
170320A00014	3/20/2017	2.22	3/21/2022	3/20/2017	104.02305	104.0230465	104.0230465	104.0230465	103.5210692	101.6295364	99.78188791	97.97684591	96.21317803
170322A00023	3/22/2017	3.82	9/22/2039	3/22/2017	167.10946	167.1094585	166.6114395	145.5095326	125.5489955	108.671005	94.53743227	82.67156424	72.68273096
170327A00072	3/29/2017	3.09	3/29/2027	3/29/2017	120.74616	120.7461586	120.7461586	120.7132344	113.570261	106.6530639	100.2125918	94.21342273	88.62294035
170327A00075	3/27/2019	2.47	3/28/2022	3/27/2019	104.19697	104.1969677	104.1969677	104.1969677	103.6896357	101.7843528	99.92355178	98.10592871	96.33022656
170501A00007	5/1/2017	2.04	5/3/2021	5/1/2017	101.80025	101.8002474	101.8002474	101.8002474	101.5558245	100.5430766	99.55045235	98.57735658	97.62321749
170508A00010	5/8/2017	2.43	5/8/2024	5/8/2017	109.40906	109.4090607	109.4090607	109.4090607	107.3106689	103.2829566	99.42969181	95.74239275	92.21303621
170515A00056	5/15/2017	3.2	5/17/2032	5/15/2017	137.38976	137.3897575	137.3897575	130.4281029	117.7536314	106.2864024	96.09661297	87.03333001	78.96423899
170519A00034	5/19/2017	1.97	5/19/2022	5/19/2017	103.84718	103.8471841	103.8471841	103.8471841	103.2772575	101.2296529	99.23295851	97.2855748	95.38596451
170524A00047	5/24/2017	2.22	5/24/2023	5/24/2017	106.51975	106.5197534	106.5197534	106.5197534	105.2572403	102.1930563	99.2343233	96.37681436	93.61649793
170530A00060	5/30/2017	2.12	3/25/2022	5/30/2017	103.50619	103.5061864	103.5061864	103.5061864	103.0033492	101.112704	99.26605958	97.46213104	95.6996793

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160629A00056	6/29/2016	1.36	6/29/2020	6/29/2016	100.1807	100.1807011	100.1807011	100.1807011	100.1623725	99.99629809	99.83077197	99.66579146	99.50135391
160630A00019	6/30/2016	1.52	7/1/2021	6/30/2016	101.47279	101.472793	101.472793	101.472793	101.1898178	100.0199259	98.87692229	97.75988904	96.66794951
160630A00042	6/30/2016	1.52	6/30/2021	6/30/2016	101.46934	101.4693359	101.4693359	101.4693359	101.1870358	100.0198522	98.87943148	97.76486225	96.67527394
160630A00049	6/30/2016	1.51	6/30/2021	6/30/2016	101.45752	101.4575232	101.4575232	101.4575232	101.1752384	100.0081285	98.86778039	97.75328262	96.66376465
160630A00091	6/30/2016	1.51	6/30/2021	6/30/2016	101.45752	101.4575232	101.4575232	101.4575232	101.1752384	100.0081285	98.86778039	97.75328262	96.66376465
160701A00034	7/1/2016	1.43	7/21/2021	7/1/2016	101.4181	101.4181037	101.4181037	101.4181037	101.1218483	99.89882025	98.70519509	97.53992288	96.4020032
160705A00006	7/5/2016	1.38	7/5/2022	7/5/2016	102.78546	102.7854563	102.7854563	102.7854563	102.1531521	99.99134205	97.88568207	95.834312	93.83544907
160727A00015	7/27/2016	1.48	7/27/2020	7/27/2016	100.29703	100.2970275	100.2970275	100.2970275	100.2667408	100.0232582	99.78095909	99.539835	99.29987737
160810A00032	8/10/2016	1.32	8/10/2021	8/10/2016	101.55755	101.5575537	101.5575537	101.5575537	101.2457811	99.96902548	98.72070952	97.49988349	96.30563997
160812A00005	8/12/2016	1.69	8/12/2022	8/12/2016	103.21892	103.2189173	103.2189173	103.2189173	102.5296713	100.2723109	98.07560617	95.93752715	93.85612733
160815A00005	8/15/2016	2.23	8/17/2026	8/15/2016	112.17448	112.1744835	112.1744835	112.1744835	106.5735905	100.4852767	94.78561768	89.44780289	84.4470044
160815A00007	8/15/2016	2.23	8/17/2026	8/15/2016	112.17448	112.1744835	112.1744835	112.1744835	106.5735905	100.4852767	94.78561768	89.44780289	84.4470044
160825A00055	8/29/2016	2.32	8/30/2021	8/29/2016	102.74683	102.7468257	102.7468257	102.7468257	102.4186569	101.0917613	99.78857318	98.50850588	97.2509918
160830A00010	8/30/2016	1.65	8/30/2021	8/30/2016	101.84232	101.8423196	101.8423196	101.8423196	101.5155256	100.1950146	98.89810193	97.62420394	96.37275597
160830A00030	8/30/2016	1.52	8/28/2020	8/30/2016	100.42184	100.4218364	100.4218364	100.4218364	100.3773699	100.0455217	99.7158634	99.3883733	99.06303013
160830A00032	8/30/2016	1.82	8/30/2022	8/30/2016	103.59497	103.5949669	103.5949669	103.5949669	102.8757817	100.5674045	98.32211693	96.13785391	94.01262978
160926A00002	9/26/2016	1.6	9/27/2021	9/26/2016	101.87631	101.8763098	101.8763098	101.8763098	101.5262296	100.1300249	98.75971003	97.41462785	96.09414294
160926A00004	9/26/2016	1.66	9/26/2023	9/26/2016	105.31566	105.3156575	105.3156575	105.3156575	103.7820893	100.4123107	97.16947435	94.04814564	91.04315156
160926A00022	9/26/2016	1.6	9/24/2021	9/26/2016	101.86544	101.8654383	101.8654383	101.8654383	101.5178694	100.129868	98.76746956	97.4300276	96.1169168
160926A00074	9/26/2016	1.38	9/27/2021	9/26/2016	101.80324	101.8032414	101.8032414	101.8032414	101.4522436	100.0527137	98.67919323	97.3310208	96.00755683
160929A00004	9/29/2016	1.74	9/29/2022	9/29/2016	103.52547	103.5254715	103.5254715	103.5254715	102.7557998	100.3684493	98.04846808	95.793583	93.60161116
161006A00011	10/6/2016	1.64	10/6/2022	10/6/2016	103.75175	103.7517451	103.7517451	103.7517451	102.9656015	100.5481825	98.19965112	95.91765942	93.69995387
161006A00013	10/6/2016	2.07	10/6/2025	10/6/2016	110.72503	110.7250252	110.7250252	110.7250252	106.8541923	101.5005267	96.44821361	91.67876469	87.17491698
161115A00010	11/15/2016	2.09	11/15/2021	11/15/2016	102.82048	102.820483	102.820483	102.820483	102.4274994	100.8936701	99.39045748	97.91701653	96.47253306
160928A00014	9/28/2016	1.37	9/28/2021	9/28/2016	101.79241	101.7924143	101.7924143	101.7924143	101.4406	100.0384337	98.66237142	97.31174821	95.98592112
161013A00038	10/13/2016	1.52	10/13/2021	10/13/2016	102.06558	102.0655814	102.0655814	102.0655814	101.7004909	100.256638	98.84039492	97.4510393	96.08787358
161014A00006	10/14/2016	1.74	10/14/2021	10/14/2016	102.14469	102.1446923	102.1446923	102.1446923	101.7797051	100.3366666	98.92120901	97.53261097	96.17017579
161031A00042	10/31/2016	1.51	7/17/2020	10/31/2016	100.26757	100.2675722	100.2675722	100.2675722	100.2415794	100.0257301	99.81082217	99.59684928	99.38380534
161102A00026	11/2/2016	1.54	10/30/2020	11/2/2016	100.65299	100.6529854	100.6529854	100.6529854	100.5756064	100.0702726	99.56999708	99.07470423	98.58432003
161109A00018	11/9/2016	2.63	11/9/2026	11/9/2016	115.23677	115.2367671	115.2367671	115.2367671	109.0778208	102.7076056	96.75594272	91.19312157	85.99168805
161208A00007	12/8/2016	2.6	12/8/2023	12/8/2016	108.38353	108.3835346	108.3835346	108.3835346	106.6742489	103.0785997	99.62417165	96.30463442	93.11397909

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
161208A00016	12/8/2016	2.24	12/8/2021	12/8/2016	103.17914	103.179135	103.179135	103.179135	102.7669924	101.1681635	99.60198756	98.06753103	96.56389565
161213A00017	12/13/2016	2.24	12/13/2022	12/13/2016	105.63075	105.6307508	105.6307508	105.6307508	104.7118069	102.090721	99.54865643	97.08274114	94.69022777
170110A00022	1/10/2017	2.27	1/10/2023	1/10/2017	105.87734	105.8773362	105.8773362	105.8773362	104.902163	102.2047361	99.59041622	97.05610794	94.59885434
170111A00012	1/11/2017	3.31	1/11/2030	1/11/2017	129.12576	129.1257645	129.1257645	125.7960092	115.7538092	106.3957403	97.89926183	90.1797707	83.1614053
170117A00046	1/17/2017	2.55	1/17/2024	1/17/2017	108.44992	108.449921	108.449921	108.449921	106.6463224	102.9476948	99.39787878	95.99003308	92.71767413
170215A00017	2/15/2017	3.26	2/16/2027	2/15/2017	120.1616	120.1615972	120.1615972	120.1615972	113.313567	106.5609912	100.2652091	94.39282786	88.91306402
170216A00028	2/16/2017	1.97	2/16/2021	2/16/2017	101.5012	101.5012049	101.5012049	101.5012049	101.3261395	100.5189656	99.72461798	98.94279252	98.17319479
170217A00014	2/17/2017	2.27	2/14/2022	2/17/2017	103.60063	103.6006294	103.6006294	103.6006294	103.1334143	101.3477202	99.60152685	97.89366983	96.22302924
170310A00026	3/10/2017	2.15	9/8/2020	3/10/2017	100.68948	100.6894805	100.6894805	100.6894805	100.6397712	100.277076	99.91699725	99.55950655	99.20457606
170313A00033	3/13/2017	3.31	3/15/2027	3/13/2017	120.72274	120.7227443	120.7227443	120.7059635	113.7037331	106.8697766	100.5025171	94.56755846	89.03320737
170329A00015	3/29/2017	2.11	3/29/2021	3/29/2017	101.70333	101.7033343	101.7033343	101.7033343	101.4889855	100.571303	99.67015927	98.78511056	97.9157287
170404A00007	4/4/2017	2.22	4/4/2022	4/4/2017	103.75157	103.7515733	103.7515733	103.7515733	103.2378746	101.3183144	99.44400883	97.61361868	95.82585314
170410A00007	4/10/2017	2.1	4/11/2022	4/10/2017	103.90864	103.9086411	103.9086411	103.9086411	103.3847543	101.4381308	99.53795136	97.68282459	95.87141027
170417A00057	4/17/2017	2.32	4/17/2023	4/17/2017	106.05585	106.055851	106.055851	106.055851	104.8823786	101.9345019	99.08515953	96.33052282	93.66693401
170417A00069	4/17/2018	2.07	4/16/2021	4/17/2018	101.74651	101.7465077	101.7465077	101.7465077	101.5163529	100.5498497	99.60169472	98.67136898	97.75837309
170419A00024	4/19/2017	2.45	4/21/2025	4/19/2017	111.73191	111.7319142	111.7319142	111.7319142	108.5607941	103.5928557	98.88329778	94.41734253	90.18113285
170501A00003	5/1/2017	1.85	5/1/2020	5/1/2017	100.00414	100.004143	100.004143	100.004143	100.003892	100.0011216	99.99835362	99.99558795	99.99282463
170629A00073	6/29/2017	2.2	6/29/2023	6/29/2017	106.66497	106.6649709	106.6649709	106.6649709	105.3224168	102.160435	99.10995844	96.1663975	93.32538194
170706A00090	7/6/2017	2.48	7/6/2023	7/6/2017	107.01546	107.0154644	107.0154644	107.0154644	105.6628224	102.4911328	99.43148316	96.47924943	93.63002944
170719A00006	7/19/2017	1.93	1/19/2021	7/19/2017	101.22736	101.2273593	101.2273593	101.2273593	101.079417	100.3510455	99.63314717	98.92549716	98.22787711
170724A00014	7/24/2017	2.14	7/25/2022	7/24/2017	104.16589	104.165885	104.165885	104.165885	103.5021502	101.2806105	99.11766556	97.01133651	94.95972862
170725A00002	7/25/2017	2.03	7/26/2021	7/25/2017	102.1859	102.1859037	102.1859037	102.1859037	101.8852352	100.643742	99.43237694	98.2500538	97.09573796
170725A00047	7/25/2017	2.19	7/25/2022	7/25/2017	104.27883	104.2788257	104.2788257	104.2788257	103.6147682	101.3919398	99.22773304	97.12016815	95.06734968
170731A00026	7/31/2017	1.85	7/30/2020	7/31/2017	100.40066	100.4006622	100.4006622	100.4006622	100.3690701	100.1171483	99.86648608	99.61707423	99.36890342
170803A00018	8/3/2017	1.85	8/3/2020	8/3/2017	100.4183	100.4182974	100.4182974	100.4182974	100.3849394	100.1219579	99.86035284	99.60011364	99.34122957
170803A00021	8/3/2017	2.5	8/5/2024	8/3/2017	109.47821	109.4782058	109.4782058	109.4782058	107.1569578	102.922118	98.8791882	95.01841315	91.33059085
170814A00084	8/14/2017	1.91	8/15/2022	8/14/2017	104.15947	104.1594731	104.1594731	104.1594731	103.4597767	101.1752573	98.95239622	96.78913376	94.68349438
170818A00035	8/18/2017	1.77	8/18/2021	8/18/2017	102.17752	102.177516	102.177516	102.177516	101.8586115	100.5594299	99.28685075	98.04006548	96.81829871
170829A00023	8/29/2017	1.83	8/29/2022	8/29/2017	104.04019	104.040194	104.040194	104.040194	103.3182668	100.9985871	98.74237618	96.54754915	94.41210222
170830A00009	8/30/2017	1.94	3/2/2023	8/30/2017	105.23244	105.2324419	105.2324419	105.2324419	104.1551465	101.3267654	98.58953324	95.94004068	93.37502436
170831A00048	8/31/2017	1.64	11/16/2020	8/31/2017	100.84534	100.8453379	100.8453379	100.8453379	100.7549103	100.2015334	99.65422952	99.11289881	98.57744376

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170905A00071	9/5/2017	1.78	9/8/2020	9/5/2017	100.55492	100.5549191	100.5549191	100.5549191	100.5052477	100.1428554	99.78307788	99.42588682	99.07125436
170906A00039	9/6/2017	1.99	9/6/2022	9/6/2017	104.0285	104.0284962	104.0284962	104.0284962	103.2962106	100.9640473	98.69606923	96.49016415	94.34430138
170907A00050	9/7/2017	1.69	9/7/2021	9/7/2017	102.15926	102.159255	102.159255	102.159255	101.8243975	100.4767011	99.15316896	97.85320761	96.5762425
170911A00032	9/11/2017	1.85	9/12/2022	9/11/2017	104.1545	104.1544994	104.1544994	104.1544994	103.4085118	101.0499794	98.75693679	96.52720931	94.35870725
170922A00006	9/22/2017	2.09	9/22/2021	9/22/2017	102.55087	102.5508723	102.5508723	102.5508723	102.2038631	100.8162275	99.4540923	98.1168155	96.80377617
170926A00031	9/26/2017	1.94	9/28/2020	9/26/2017	100.70633	100.7063343	100.7063343	100.7063343	100.6470263	100.2293065	99.81504419	99.40419663	98.99672177
170928A00044	9/28/2017	1.9	9/28/2021	9/28/2017	102.5514	102.5513997	102.5513997	102.5513997	102.1983446	100.7905166	99.40889064	98.05279888	96.72159583
171003A00008	10/3/2017	2.88	10/4/2027	10/3/2017	119.17706	119.17706	119.17706	118.5849217	111.0318934	103.7988181	97.09667849	90.88363776	85.12135941
171006A00034	10/6/2017	2.27	10/6/2022	10/6/2017	104.8573	104.8573028	104.8573028	104.8573028	104.0709698	101.6490626	99.29590315	97.00915505	94.78657557
171012A00027	10/12/2017	2.21	10/12/2022	10/12/2017	104.74145	104.741448	104.741448	104.741448	103.9447806	101.5087968	99.14240935	96.84323745	94.60899628
180403A00009	4/3/2018	2.91	4/3/2025	4/3/2018	113.90794	113.9079432	113.9079432	113.9079432	110.7772342	105.8024316	101.0831238	96.60486131	92.35408507
180425A00019	4/25/2018	3.02	10/25/2021	4/25/2018	104.11537	104.1153739	104.1153739	104.1153739	103.7375648	102.2503451	100.792069	99.36196526	97.95928938
180426A00018	4/26/2018	2.94	4/26/2023	4/26/2018	108.53476	108.5347621	108.5347621	108.5347621	107.3247113	104.3030765	101.3832123	98.56112756	95.83301083
180427A00010	4/27/2018	2.95	4/27/2023	4/27/2018	108.57284	108.572844	108.572844	108.572844	107.3604329	104.3355369	101.4126069	98.58764039	95.85681548
180430A00070	4/30/2018	2.91	3/30/2023	4/30/2018	108.23552	108.2355225	108.2355225	108.2355225	107.0858865	104.1412866	101.2935244	98.538895	95.87385584
180503A00040	5/3/2018	3.3	5/5/2025	5/3/2018	115.11014	115.1101355	115.1101355	115.1101355	111.8759685	106.8209643	102.0285765	97.48375797	93.17240181
180507A00025	5/7/2018	2.92	5/7/2021	5/7/2018	102.72778	102.7277781	102.7277781	102.7277781	102.4795576	101.4508708	100.4428163	99.45477766	98.4861628
180514A00036	5/14/2018	2.64	5/14/2020	5/14/2018	100.09813	100.0981326	100.0981326	100.0981326	100.0946082	100.0557106	100.0168612	99.97805965	99.93930599
180518A00012	5/18/2018	3.1	5/18/2022	5/18/2018	105.8079	105.8079031	105.8079031	105.8079031	105.2364117	103.1779322	101.1703616	99.21210692	97.30163688
180518A00014	5/18/2018	3.17	5/18/2023	5/18/2018	108.84431	108.8443083	108.8443083	108.8443083	107.5906218	104.5195059	101.5530752	98.68716688	95.91780906
180521A00005	5/21/2018	3.02	5/22/2023	5/21/2018	108.98565	108.9856538	108.9856538	108.9856538	107.7160302	104.6190631	101.6282058	98.73921678	95.94805035
180521A00022	5/21/2018	2.99	5/21/2021	5/21/2018	102.90542	102.9054172	102.9054172	102.9054172	102.6471702	101.579467	100.5339618	99.50996742	98.50682451
180522A00022	5/22/2018	2.69	5/22/2020	5/22/2018	100.15726	100.1572638	100.1572638	100.1572638	100.1517253	100.0906077	100.0295791	99.96863929	99.90778816
180523A00014	5/23/2018	2.79	5/24/2021	5/23/2018	102.88479	102.8847876	102.8847876	102.8847876	102.6238	101.5455492	100.4899244	99.45621872	98.44375445
180524A00005	5/24/2018	2.86	5/24/2022	5/24/2018	105.73452	105.7345192	105.7345192	105.7345192	105.153248	103.0724402	101.0434814	99.06473502	97.13462818
180530A00005	5/30/2018	2.78	5/30/2023	5/30/2018	108.30136	108.3013646	108.3013646	108.3013646	107.0172532	103.9099344	100.9097195	98.01230173	95.21357436
180530A00014	5/30/2018	2.93	5/30/2023	5/30/2018	108.19296	108.1929591	108.1929591	108.1929591	106.915957	103.8237011	100.8377518	97.95384432	95.16791201
180530A00016	5/30/2018	2.76	5/28/2021	5/30/2018	102.70745	102.7074487	102.7074487	102.7074487	102.4445204	101.358974	100.2963946	99.25605887	98.23727382
180530A00030	5/30/2018	3.68	5/30/2034	5/30/2018	147.16428	147.1642757	147.1642757	136.8235486	122.0736947	108.9599565	97.49474351	87.45761847	78.6588666
180530A00057	5/30/2018	2.76	5/28/2021	5/30/2018	102.70745	102.7074487	102.7074487	102.7074487	102.4445204	101.358974	100.2963946	99.25605887	98.23727382
180530A00072	5/30/2018	3.06	5/30/2024	5/30/2018	111.37785	111.3778467	111.3778467	111.3778467	109.2208556	105.118253	101.1943683	97.44044492	93.8482047

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180531A00014	5/31/2018	2.8	5/31/2023	5/31/2018	108.37117	108.3711727	108.3711727	108.3711727	107.0845187	103.9735027	100.9697772	98.06902485	95.26712941
180531A00065	5/31/2018	2.65	6/1/2021	5/31/2018	102.78983	102.7898325	102.7898325	102.7898325	102.5233977	101.4239294	100.3479888	99.29482703	98.26372638
180601A00003	6/1/2018	2.65	12/1/2020	6/1/2018	101.51158	101.5115804	101.5115804	101.5115804	101.4091712	100.8124594	100.2227568	99.63994039	99.06389012
161117A00015	11/17/2016	2.08	11/17/2021	11/17/2016	102.81475	102.8147516	102.8147516	102.8147516	102.420142	100.8809034	99.37244896	97.89392643	96.44451458
170213A00011	2/13/2017	2.13	2/16/2021	2/13/2017	101.51846	101.5184603	101.5184603	101.5184603	101.3437343	100.5379944	99.74503531	98.96455477	98.19625985
170215A00031	2/15/2017	2.13	7/24/2020	2/15/2017	100.44029	100.4402853	100.4402853	100.4402853	100.4112579	100.1758109	99.94147413	99.70823989	99.47610033
170215A00033	2/15/2017	2.24	11/9/2020	2/15/2017	101.06349	101.0634868	101.0634868	101.0634868	100.9784789	100.4445175	99.91619774	99.39343051	98.8761285
170215A00040	2/15/2017	2.59	5/15/2023	2/15/2017	107.04054	107.0405444	107.0405444	107.0405444	105.8017614	102.7659904	99.83373733	97.00089041	94.2635259
170216A00010	2/16/2017	2.37	2/16/2022	2/16/2017	103.79346	103.7934594	103.7934594	103.7934594	103.3241242	101.5308134	99.7772704	98.06233039	96.38487226
170216A00044	2/16/2017	3.52	2/17/2032	2/16/2017	137.78385	137.7838478	137.7838478	131.3289067	119.0107847	107.7984629	97.80399723	88.88670751	80.9229057
170228A00015	2/28/2017	2.87	5/28/2025	2/28/2017	113.10191	113.1019088	113.1019088	113.1019088	109.804455	104.7421856	99.94627477	95.40129034	91.09277545
170322A00026	3/22/2017	3.22	3/22/2028	3/22/2017	123.05363	123.0536349	123.0536349	121.9450853	113.8330811	106.089992	98.94397662	92.34566362	86.25000556
170323A00013	3/23/2017	2.1	3/23/2022	3/23/2017	103.80431	103.8043135	103.8043135	103.8043135	103.3009087	101.4062465	99.55566269	97.74787032	95.98162851
170328A00015	3/28/2017	2.75	11/29/2024	3/28/2017	111.28551	111.2855124	111.2855124	111.2855124	108.6136915	104.047352	99.70104655	95.56299894	91.62212674
170425A00069	4/25/2017	2.06	4/26/2021	4/25/2017	101.78608	101.7860758	101.7860758	101.7860758	101.5472247	100.5534769	99.57910966	98.62356047	97.68628828
170504A00038	5/4/2017	2.09	5/4/2022	5/4/2017	104.0145	104.0145011	104.0145011	104.0145011	103.463589	101.4537976	99.49335322	97.5807316	95.7144666
170517A00098	5/19/2017	2.32	5/19/2022	5/19/2017	104.198	104.1980039	104.1980039	104.1980039	103.6293265	101.5851475	99.59164842	97.64724094	95.75039826
170518A00005	5/18/2017	1.6	5/18/2020	5/18/2017	100.07418	100.0741756	100.0741756	100.0741756	100.0696482	100.0196842	99.96978753	99.91995796	99.87019536
170518A00011	5/18/2017	1.94	5/18/2022	5/18/2017	103.77979	103.7797942	103.7797942	103.7797942	103.2113348	101.1670747	99.17360315	97.22932634	95.33271222
170525A00059	5/25/2017	1.81	5/26/2020	5/25/2017	100.10763	100.1076272	100.1076272	100.1076272	100.1011013	100.0290906	99.95719124	99.88540285	99.81372521
170530A00002	5/30/2017	2.15	5/31/2022	5/30/2017	103.90704	103.9070397	103.9070397	103.9070397	103.3236503	101.2511015	99.23046201	97.26008322	95.33838169
170530A00004	5/30/2017	1.81	5/29/2020	5/30/2017	100.12005	100.120046	100.120046	100.120046	100.1127673	100.0324539	99.95227113	99.8722188	99.79229659
170602A00026	6/2/2017	2.25	6/3/2024	6/2/2017	108.82968	108.8296784	108.8296784	108.8296784	106.6682172	102.585802	98.68276559	94.9502619	91.37993088
170608A00021	6/8/2017	1.8	6/8/2021	6/8/2017	101.88574	101.8857449	101.8857449	101.8857449	101.6159803	100.502857	99.41400908	98.34864937	97.3060243
170612A00003	6/12/2017	1.97	6/13/2022	6/12/2017	103.97544	103.9754417	103.9754417	103.9754417	103.3713352	101.2554452	99.19332477	97.18323657	95.22351347
170612A00039	6/12/2017	2.29	6/12/2024	6/12/2017	109.04935	109.0493465	109.0493465	109.0493465	106.862324	102.7518866	98.82290707	95.06639276	91.47384764
170613A00007	6/13/2017	2.01	6/11/2021	6/13/2017	101.95715	101.9571546	101.9571546	101.9571546	101.6861138	100.5671118	99.47264583	98.40191562	97.3541554
170501A00008	5/1/2017	2.23	5/2/2022	5/1/2017	103.92033	103.9203295	103.9203295	103.9203295	103.3742745	101.3776259	99.42980412	97.52930794	95.67469302
170512A00035	5/15/2017	1.85	5/15/2020	5/15/2017	100.06376	100.0637582	100.0637582	100.0637582	100.0599927	100.0184352	99.97692925	99.93547479	99.89407171
170515A00038	5/15/2017	2.43	5/15/2023	5/15/2017	106.54951	106.5495132	106.5495132	106.5495132	105.3129907	102.2847145	99.35976589	96.53403921	93.80361693
170515A00039	5/15/2017	2.58	5/15/2024	5/15/2017	109.30797	109.3079702	109.3079702	109.3079702	107.2053821	103.182381	99.33375808	95.651025	92.12615294

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170516A00015	5/16/2017	1.88	5/17/2021	5/16/2017	101.86791	101.86791	101.86791	101.86791	101.6129943	100.5595682	99.52789956	98.51731958	97.52718669
170517A00026	5/17/2017	1.63	5/18/2020	5/17/2017	100.07568	100.0756755	100.0756755	100.0756755	100.0711479	100.0211827	99.97128478	99.92145396	99.87169012
170522A00044	5/22/2017	1.99	5/24/2021	5/22/2017	101.84918	101.8491825	101.8491825	101.8491825	101.5900436	100.5202726	99.47294691	98.44736578	97.44285746
170525A00028	5/25/2017	1.97	5/25/2022	5/25/2017	103.878	103.8780011	103.8780011	103.8780011	103.3002265	101.236495	99.22432752	97.26209329	95.34822561
170530A00005	5/30/2017	1.99	5/28/2021	5/30/2017	101.86822	101.8682244	101.8682244	101.8682244	101.6062729	100.5255949	99.46781209	98.43220289	97.41807593
170530A00026	5/30/2017	1.81	6/1/2021	5/30/2017	101.86415	101.8641484	101.8641484	101.8641484	101.5988074	100.5047693	99.43417781	98.38628599	97.36037819
170530A00064	5/30/2017	2.32	3/27/2023	5/30/2017	105.93897	105.9389661	105.9389661	105.9389661	104.8111661	101.9202017	99.1240855	96.41920246	93.80209534
170601A00008	6/1/2017	1.81	6/1/2020	6/1/2017	100.13243	100.1324326	100.1324326	100.1324326	100.1242879	100.0356673	99.94720295	99.85889444	99.77074139
170606A00014	6/6/2017	1.9	6/6/2022	6/6/2017	103.79062	103.7906239	103.7906239	103.7906239	103.1968622	101.1019787	99.0599965	97.0692198	95.1280206
170609A00006	6/9/2017	1.89	12/9/2021	6/9/2017	102.89081	102.8908053	102.8908053	102.8908053	102.4771439	100.8734066	99.30253778	97.76359457	96.25566981
170609A00007	6/9/2017	1.96	6/9/2022	6/9/2017	103.93358	103.9335814	103.9335814	103.9335814	103.3352181	101.2306439	99.17935601	97.17964058	95.22985247
170609A00025	6/9/2017	2.13	6/9/2022	6/9/2017	103.91035	103.9103498	103.9103498	103.9103498	103.3143458	101.2174409	99.1734961	97.18081208	95.23775721
170623A00028	6/23/2017	2.79	6/23/2027	6/23/2017	117.81124	117.811242	117.811242	117.5274791	110.2829713	103.3218812	96.85511644	90.8448961	85.25651772
170629A00015	6/29/2017	1.92	10/26/2020	6/29/2017	100.82749	100.8274937	100.8274937	100.8274937	100.7523287	100.2574441	99.76741195	99.28216107	98.80162175
170630A00009	6/30/2017	2.53	6/30/2025	6/30/2017	112.6005	112.6005002	112.6005002	112.6005002	109.1506234	103.9859954	99.09838416	94.47144802	90.08989785
170630A00036	6/30/2017	2.01	6/30/2022	6/30/2017	104.15034	104.1503359	104.1503359	104.1503359	103.5218263	101.3578856	99.2497937	97.19571229	95.19387885
170713A00033	7/13/2017	1.72	7/13/2020	7/13/2017	100.32926	100.3292598	100.3292598	100.3292598	100.3049302	100.0996757	99.89527573	99.69172486	99.48901771
170714A00006	7/14/2017	1.67	7/14/2020	7/14/2017	100.3233	100.3232983	100.3232983	100.3232983	100.29854	100.0905308	99.88339904	99.67713915	99.47174552
170725A00001	7/25/2017	1.88	7/27/2020	7/25/2017	100.39476	100.3947625	100.3947625	100.3947625	100.3644574	100.1208137	99.87835415	99.63707019	99.39695331
170728A00030	7/28/2017	2.18	7/27/2022	7/28/2017	104.26666	104.2666649	104.2666649	104.2666649	103.5996322	101.3717359	99.2027085	97.09055757	95.03337577
171206A00048	12/6/2017	3.04	12/6/2032	12/6/2017	137.07173	137.0717317	137.0717317	129.2231587	116.0849795	104.2856263	93.8555243	84.62645146	76.45172814
171208A00021	12/8/2017	2.24	12/8/2020	12/8/2017	101.22291	101.2229133	101.2229133	101.2229133	101.1143276	100.5004893	99.89409286	99.29500334	98.70308919
171215A00004	12/15/2017	2.29	12/15/2020	12/15/2017	101.29328	101.2932837	101.2932837	101.2932837	101.1781587	100.5449481	99.9196553	99.3021324	98.69223504
171219A00025	12/19/2017	2.33	12/19/2022	12/19/2017	105.90639	105.906389	105.906389	105.906389	104.9747318	102.3342992	99.77381228	97.29035075	94.88112187
180103A00019	1/3/2018	2.51	1/3/2023	1/3/2018	105.99142	105.9914227	105.9914227	105.9914227	105.0344077	102.3643594	99.77587573	97.26594546	94.83169078
180103A00027	1/3/2018	2.51	1/3/2023	1/3/2018	105.99142	105.9914227	105.9914227	105.9914227	105.0344077	102.3643594	99.77587573	97.26594546	94.83169078
180108A00006	1/8/2018	2.18	1/8/2021	1/8/2018	101.44865	101.4486502	101.4486502	101.4486502	101.3107254	100.6101729	99.91929246	99.23788473	98.56575573
180109A00006	1/9/2018	2.18	1/8/2021	1/9/2018	101.44865	101.4486502	101.4486502	101.4486502	101.3107254	100.6101729	99.91929246	99.23788473	98.56575573
180110A00048	1/10/2018	2.37	1/7/2021	1/10/2018	101.47922	101.4792169	101.4792169	101.4792169	101.3424862	100.6458014	99.95867862	99.28092204	98.61234099
180116A00008	1/16/2018	2.37	1/15/2021	1/16/2018	101.5262	101.5261983	101.5261983	101.5261983	101.3818508	100.6631659	99.95465708	99.25610912	98.5673129
180116A00015	1/16/2018	3.06	1/18/2028	1/16/2018	121.31077	121.3107693	121.3107693	120.3960086	112.5055952	104.9671082	97.99933785	91.55587645	85.59432748

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180116A00045	1/16/2018	2.49	1/11/2022	1/16/2018	103.77618	103.7761765	103.7761765	103.7761765	103.3363696	101.6429111	99.98534771	98.36260275	96.77364268
180119A00026	1/19/2018	2.87	1/21/2025	1/19/2018	112.21235	112.2123542	112.2123542	112.2123542	109.364666	104.6454528	100.1593293	95.89349748	91.83593571
180125A00026	1/26/2018	2.46	1/25/2021	1/26/2018	101.65235	101.6523536	101.6523536	101.6523536	101.4984414	100.7519922	100.0165022	99.29173139	98.57744661
180130A00070	1/30/2018	3.14	1/29/2027	1/30/2018	119.20507	119.2050725	119.2050725	119.2050725	112.4834861	105.805873	99.57738107	93.76531565	88.33953455
180201A00033	2/1/2018	2.53	2/1/2022	2/1/2018	104.29634	104.2963445	104.2963445	104.2963445	103.8372231	102.0777229	100.3565404	98.67249587	97.02445879
180206A00013	2/6/2018	2.72	2/6/2024	2/6/2018	109.9281	109.9281024	109.9281024	109.9281024	108.05598	104.2595429	100.6179436	97.12398815	93.77086141
180214A00004	2/14/2018	2.71	2/14/2023	2/14/2018	107.33005	107.3300519	107.3300519	107.3300519	106.2775829	103.464777	100.7410972	98.10319321	95.54786309
180215A00016	2/15/2018	2.51	5/15/2020	2/15/2018	100.09125	100.0912509	100.0912509	100.0912509	100.0874833	100.045903	100.0043743	99.96289703	99.92147121
180215A00018	2/15/2018	2.57	9/15/2020	2/15/2018	100.88709	100.8870916	100.8870916	100.8870916	100.8339644	100.4515486	100.0720394	99.69540366	99.3216088
180306A00010	3/6/2018	2.8	2/15/2022	3/6/2018	104.5692	104.5691968	104.5691968	104.5691968	104.0990248	102.3014144	100.543589	98.82437973	97.1426621
180313A00026	3/13/2018	3.34	3/13/2028	3/13/2018	123.9287	123.9286981	123.9286981	122.8474543	114.7352824	106.9790247	99.81844437	93.20445391	87.09225146
180320A00007	3/20/2018	2.92	3/21/2022	3/20/2018	105.01479	105.0147854	105.0147854	105.0147854	104.5123087	102.6174241	100.7663538	98.95782507	97.1906104
180323A00013	3/23/2018	3.18	3/23/2028	3/23/2018	124.40895	124.4089536	124.4089536	123.2786495	115.0380216	107.1794096	99.92854719	93.23504739	87.05294756
170531A00005	5/31/2017	1.94	5/31/2022	5/31/2017	103.84548	103.8454839	103.8454839	103.8454839	103.2600259	101.1808486	99.1538804	97.17745953	95.24998986
170602A00023	6/2/2017	2.09	6/2/2023	6/2/2017	106.16557	106.1655695	106.1655695	106.1655695	104.8849378	101.8027944	98.82739405	95.95442948	93.17979425
170612A00012	6/12/2017	1.67	6/12/2020	6/12/2017	100.18542	100.1854227	100.1854227	100.1854227	100.1732501	100.0539289	99.93490672	99.81618258	99.69775525
170615A00033	6/15/2017	2.01	6/15/2021	6/15/2017	101.97631	101.976313	101.976313	101.976313	101.7027442	100.5728331	99.46793488	98.38722598	97.32991863
170616A00018	6/16/2017	2.4	6/16/2025	6/16/2017	111.83312	111.8331181	111.8331181	111.8331181	108.4484969	103.3385169	98.50116302	93.92044493	89.58139577
170616A00019	6/16/2017	2.64	6/16/2027	6/16/2017	118.15301	118.1530074	118.1530074	117.8856785	110.5760041	103.565647	97.05376765	91.00224414	85.37606191
170619A00067	6/19/2017	1.84	9/20/2021	6/19/2017	102.42732	102.4273245	102.4273245	102.4273245	102.081166	100.6960708	99.3363965	98.0015042	96.69077574
170619A00084	6/19/2017	1.95	6/20/2022	6/19/2017	103.96798	103.9679849	103.9679849	103.9679849	103.3540451	101.2192396	99.1390369	97.11165899	95.13540026
170621A00013	6/21/2017	1.68	6/22/2020	6/21/2017	100.22994	100.2299356	100.2299356	100.2299356	100.2141175	100.0670695	99.92046434	99.7743001	99.62857473
170622A00015	6/22/2017	1.99	6/22/2021	6/22/2017	101.98666	101.9866581	101.9866581	101.9866581	101.708695	100.5598412	99.43683782	98.33882005	97.26496116
170622A00036	6/22/2017	3.23	6/22/2032	6/22/2017	135.36101	135.3610074	135.3610074	128.4072997	115.9112746	104.6075381	94.56787881	85.64230355	77.69940334
170629A00067	6/29/2017	2.19	6/29/2022	6/29/2017	104.14258	104.142579	104.142579	104.142579	103.5179526	101.3645295	99.26649323	97.22202662	95.22938731
170630A00010	6/30/2017	2.63	6/30/2026	6/30/2017	115.65192	115.6519181	115.6519181	115.6519181	110.226209	104.0984471	98.3542281	92.9674973	87.91410538
170630A00027	6/30/2017	2.35	6/28/2024	6/30/2017	109.39799	109.3979873	109.3979873	109.3979873	107.1658068	103.0063685	99.03208877	95.23371141	91.60249658
170706A00027	7/6/2017	1.75	7/6/2020	7/6/2017	100.30367	100.3036693	100.3036693	100.3036693	100.2823513	100.0964852	99.9113166	99.7268416	99.54305624
170706A00073	7/6/2017	1.93	7/6/2020	7/6/2017	100.30788	100.3078789	100.3078789	100.3078789	100.2865961	100.1010327	99.91616223	99.73198071	99.54848429
170719A00004	7/19/2017	1.67	7/20/2020	7/19/2017	100.34918	100.3491849	100.3491849	100.3491849	100.321845	100.097218	99.87360985	99.65101352	99.4294221
170724A00025	7/24/2017	1.66	7/24/2020	7/24/2017	100.36408	100.364082	100.364082	100.364082	100.3350215	100.0993222	99.864739	99.63126386	99.39888894

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170728A00027	7/28/2017	1.87	7/28/2020	7/28/2017	100.39678	100.3967845	100.3967845	100.3967845	100.3660505	100.1196471	99.8744529	99.63045908	99.38765683
170731A00069	7/31/2017	1.75	1/29/2021	7/31/2017	101.24181	101.2418074	101.2418074	101.2418074	101.0840777	100.3270628	99.58134496	98.84667285	98.12280256
170803A00013	8/3/2017	2.14	8/3/2022	8/3/2017	104.21181	104.2118107	104.2118107	104.2118107	103.534095	101.2886001	99.10284658	96.97481189	94.90255958
170803A00032	8/3/2017	2.12	8/3/2023	8/3/2017	106.60283	106.602833	106.602833	106.602833	105.1830013	101.9318383	98.79819725	95.77712552	92.86391282
170808A00014	8/8/2017	1.67	8/10/2020	8/8/2017	100.43978	100.4397833	100.4397833	100.4397833	100.4032496	100.1204823	99.83931801	99.55974307	99.2817439
170815A00006	8/15/2017	2.5	8/15/2024	8/15/2017	109.53879	109.5387905	109.5387905	109.5387905	107.1893643	102.9282454	98.86128777	94.97861121	91.27089267
171013A00020	10/13/2017	1.9	10/15/2020	10/13/2017	100.76726	100.7672572	100.7672572	100.7672572	100.6983978	100.2338488	99.77358656	99.31755201	98.86568692
171026A00005	10/26/2017	2.16	10/26/2021	10/26/2017	102.82635	102.8263484	102.8263484	102.8263484	102.44992	100.9701314	99.51921121	98.09638904	96.70092131
171027A00049	10/27/2017	2.04	10/27/2020	10/27/2017	100.89208	100.8920771	100.8920771	100.8920771	100.8163157	100.3185022	99.82559456	99.33752064	98.85420958
171031A00060	10/31/2017	1.98	10/30/2020	10/31/2017	100.87648	100.8764834	100.8764834	100.8764834	100.7990149	100.2930233	99.79209465	99.29615344	98.80512552
171101A00021	11/1/2017	2.51	11/1/2023	11/1/2017	107.8312	107.8311955	107.8311955	107.8311955	106.2105239	102.7215549	99.366737	96.14019188	93.03633172
171116A00009	11/16/2017	2.17	10/20/2020	11/16/2017	100.91978	100.9197767	100.9197767	100.9197767	100.8480036	100.3693106	99.89516174	99.4254925	98.96023949
171116A00022	11/16/2017	1.92	11/16/2020	11/16/2017	101.00083	101.0008345	101.0008345	101.0008345	100.9103366	100.3564625	99.80866522	99.26684505	98.73090436
171206A00029	12/6/2017	2.21	9/16/2020	12/6/2017	100.75459	100.7545851	100.7545851	100.7545851	100.7010175	100.3161625	99.93425407	99.55525835	99.17914204
171211A00033	12/11/2017	2.26	12/12/2022	12/11/2017	105.6779	105.6778957	105.6778957	105.6778957	104.7607326	102.1416317	99.60142703	97.13725373	94.74637112
171211A00045	12/11/2017	2.32	6/11/2021	12/11/2017	102.30704	102.3070408	102.3070408	102.3070408	102.0355734	100.9144734	99.81794139	98.74517641	97.69541185
171227A00018	12/27/2017	2.83	12/27/2024	12/27/2017	111.84876	111.8487587	111.8487587	111.8487587	109.0846152	104.4357688	100.0138173	95.80645624	91.80211682
180104A00017	1/4/2018	2.77	1/3/2025	1/4/2018	111.6145	111.6144995	111.6144995	111.6144995	108.8305671	104.169717	99.73720205	95.52059452	91.50821298
180109A00025	1/9/2018	2.33	1/11/2021	1/9/2018	101.47429	101.474292	101.474292	101.474292	101.3337707	100.6261969	99.92848985	99.2404442	98.5618601
180116A00048	1/16/2018	2.37	1/19/2021	1/16/2018	101.54969	101.5496891	101.5496891	101.5496891	101.4015338	100.6718529	99.95265836	99.24372531	98.5448351
180117A00017	1/17/2018	2.45	6/17/2021	1/17/2018	102.48981	102.4898143	102.4898143	102.4898143	102.2143555	101.0759281	99.96280033	98.87413555	97.80913376
180123A00024	1/23/2018	2.44	2/16/2021	1/23/2018	101.76962	101.7696171	101.7696171	101.7696171	101.5946989	100.7878427	99.99377994	99.21220794	98.44283359
180124A00020	1/24/2018	2.53	1/24/2023	1/24/2018	106.68109	106.6810934	106.6810934	106.6810934	105.6745395	102.9295587	100.2700366	97.69275133	95.19462744
180124A00038	1/24/2018	2.51	9/1/2021	1/24/2018	103.01564	103.0156358	103.0156358	103.0156358	102.6854418	101.3516393	100.0414332	98.75425123	97.48953901
180125A00023	1/25/2018	2.57	1/25/2022	1/25/2018	104.002	104.0019967	104.0019967	104.0019967	103.5506646	101.8182479	100.1231614	98.46426336	96.84045925
180202A00011	2/2/2018	2.45	2/2/2021	2/2/2018	101.80015	101.8001549	101.8001549	101.8001549	101.6382245	100.8679346	100.1092937	99.36203907	98.6259158
180226A00034	2/26/2018	2.82	6/27/2022	2/26/2018	105.50653	105.506527	105.506527	105.506527	104.8809821	102.7178948	100.6102614	98.55626754	96.55417338
180227A00016	2/27/2018	2.66	2/26/2021	2/27/2018	102.00552	102.0055153	102.0055153	102.0055153	101.8209216	100.9859133	100.1645723	99.35656514	98.56156909
180402A00005	4/2/2018	2.94	4/3/2023	4/2/2018	107.80907	107.8090704	107.8090704	107.8090704	106.6582773	103.7216133	100.8816609	98.13471465	95.47723186
180403A00041	4/3/2018	2.91	4/3/2025	4/3/2018	113.90794	113.9079432	113.9079432	113.9079432	110.7772342	105.8024316	101.0831238	96.60486131	92.35408507
180612A00050	6/12/2018	2.8	6/12/2020	6/12/2018	100.29817	100.2981727	100.2981727	100.2981727	100.2860113	100.1667941	100.0478733	99.92924767	99.81091608

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180614A00038	6/14/2018	3.08	6/14/2023	6/14/2018	108.77425	108.7742543	108.7742543	108.7742543	107.4614221	104.3200307	101.28768	98.3599479	95.53262005
180627A00016	6/27/2018	2.8	6/26/2020	6/27/2018	100.39963	100.3996283	100.3996283	100.3996283	100.3823613	100.2242973	100.0667347	99.90967112	99.75310427
180627A00027	6/27/2018	2.87	6/27/2023	6/27/2018	108.79515	108.7951503	108.7951503	108.7951503	107.4465103	104.2560625	101.1776638	98.20671513	95.3388364
180627A00030	6/27/2018	3.02	6/27/2023	6/27/2018	108.68245	108.6824548	108.6824548	108.6824548	107.3414215	104.1666947	101.1031722	98.14630039	95.29174207
180629A00008	6/29/2018	3.02	6/29/2023	6/29/2018	108.69742	108.6974238	108.6974238	108.6974238	107.3519131	104.1716089	101.1028557	98.14107887	95.28192192
180702A00012	7/2/2018	3.01	7/3/2023	7/2/2018	108.6954	108.6953974	108.6953974	108.6953974	107.3410439	104.1503383	101.0718641	98.10100481	95.2333647
180706A00010	7/6/2018	2.92	7/6/2021	7/6/2018	103.16711	103.1671098	103.1671098	103.1671098	102.8785559	101.6845075	100.5181477	99.37852139	98.26471685
180712A00002	7/12/2018	3.06	7/12/2023	7/12/2018	108.92415	108.9241541	108.9241541	108.9241541	107.548704	104.3310613	101.2272863	98.23266346	95.34270469
180713A00027	7/13/2018	3.23	7/13/2028	7/13/2018	125.76627	125.7662728	125.7662728	124.280894	115.6933793	107.5366876	100.0315515	93.12217676	86.75783298
180713A00035	7/13/2018	3.02	7/13/2022	7/13/2018	106.06327	106.0632651	106.0632651	106.0632651	105.4122779	103.2006385	101.0465446	98.94807993	96.90340836
180719A00004	7/19/2018	3.07	7/19/2023	7/19/2018	109.00996	109.009963	109.009963	109.009963	107.6185616	104.3814389	101.2594256	98.24772992	95.34179235
180719A00065	7/19/2018	3.36	7/20/2026	7/19/2018	119.08963	119.0896252	119.0896252	119.0896252	113.5372404	107.3042289	101.4610365	95.98112192	90.839893
180727A00002	7/27/2018	2.93	7/28/2020	7/27/2018	100.65872	100.6587247	100.6587247	100.6587247	100.627941	100.3811034	100.1354766	99.89105185	99.64782031
180727A00028	7/27/2018	3.25	7/27/2026	7/27/2018	119.7491	119.7491009	119.7491009	119.7491009	114.0895439	107.7767798	101.8610682	96.31523361	91.11410674
180727A00038	7/27/2018	3.36	7/25/2025	7/27/2018	116.08963	116.0896348	116.0896348	116.0896348	112.519439	107.238052	102.2408313	97.51090916	93.03251377
180803A00009	8/3/2018	2.93	10/30/2020	8/3/2018	101.35904	101.3590359	101.3590359	101.3590359	101.2813741	100.7739621	100.2716235	99.7742824	99.28186465
180807A00016	8/7/2018	2.86	8/6/2021	8/7/2018	103.52321	103.5232078	103.5232078	103.5232078	103.2117255	101.930754	100.6794073	99.45665872	98.26152853
180813A00026	8/13/2018	2.87	8/11/2023	8/13/2018	109.13798	109.1379778	109.1379778	109.1379778	107.6869459	104.3734904	101.1800992	98.10172843	95.13357797
180817A00013	8/17/2018	2.94	2/15/2022	8/17/2018	104.82361	104.8236148	104.8236148	104.8236148	104.3528895	102.5529135	100.7927666	99.07127858	97.38732379
180820A00054	8/20/2018	3	8/18/2023	8/20/2018	109.00619	109.0061944	109.0061944	109.0061944	107.5480208	104.2334356	101.0392333	97.96037486	94.99206213
180823A00044	8/23/2018	2.69	8/21/2020	8/23/2018	100.80733	100.8073281	100.8073281	100.8073281	100.7658104	100.4519642	100.1400835	99.83014973	99.52214463
180829A00008	8/29/2018	3.23	8/30/2027	8/29/2018	123.04349	123.0434938	123.0434938	122.5468773	114.9157642	107.5695037	100.7553854	94.4319576	88.56119942
180830A00005	8/30/2018	2.88	8/28/2020	8/30/2018	100.87493	100.8749282	100.8749282	100.8749282	100.830346	100.4975533	100.166955	99.83852964	99.51225582
170615A00031	6/15/2017	1.85	6/15/2020	6/15/2017	100.19756	100.1975643	100.1975643	100.1975643	100.1843237	100.0569284	99.9298703	99.80314816	99.67676059
170628A00008	6/28/2017	2.04	9/15/2021	6/28/2017	102.4463	102.4463037	102.4463037	102.4463037	102.1052989	100.7374517	99.39443148	98.07562083	96.78042226
170630A00039	6/30/2017	1.86	6/29/2020	6/30/2017	100.26401	100.2640055	100.2640055	100.2640055	100.2456661	100.0794869	99.9138562	99.74877146	99.58422997
170705A00034	7/5/2017	1.75	7/6/2020	7/5/2017	100.30367	100.3036693	100.3036693	100.3036693	100.2823513	100.0964852	99.9113166	99.7268416	99.54305624
170706A00013	7/6/2017	2.27	7/6/2022	7/6/2017	104.35575	104.3557538	104.3557538	104.3557538	103.7200988	101.5459445	99.42807851	97.36463952	95.35384354
170714A00018	7/14/2017	1.67	7/14/2020	7/14/2017	100.3233	100.3232983	100.3232983	100.3232983	100.29854	100.0905308	99.88339904	99.67713915	99.47174552
170721A00017	7/21/2017	1.8	7/21/2021	7/21/2017	102.08632	102.0863204	102.0863204	102.0863204	101.7883166	100.557699	99.35668915	98.18422896	97.03931
170724A00015	7/24/2017	2.32	7/24/2023	7/24/2017	106.60204	106.6020352	106.6020352	106.6020352	105.2118622	102.0007652	98.90460746	95.9185791	93.03810459

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170803A00020	8/3/2017	2.84	8/3/2027	8/3/2017	118.45238	118.4523759	118.4523759	118.04552	110.6767862	103.6045502	97.04102307	90.94682616	85.28583115
170803A00027	8/3/2017	1.67	8/3/2020	8/3/2017	100.40959	100.4095853	100.4095853	100.4095853	100.3761741	100.1127826	99.85077491	99.59014011	99.33086739
170810A00001	8/11/2017	1.66	8/11/2020	8/11/2017	100.44124	100.4412368	100.4412368	100.4412368	100.4042577	100.1187283	99.83483376	99.55256006	99.27189321
170818A00004	8/18/2017	1.95	8/18/2021	8/18/2017	102.19189	102.1918931	102.1918931	102.1918931	101.8738772	100.5780714	99.30874464	98.06509355	96.84634762
170824A00038	8/24/2017	2.23	8/24/2023	8/24/2017	106.47387	106.473866	106.473866	106.473866	105.0158436	101.7277538	98.55998345	95.50749378	92.56548495
170825A00025	8/25/2017	2.12	8/25/2022	8/25/2017	104.27717	104.2771676	104.2771676	104.2771676	103.5639352	101.260439	99.01954929	96.83920511	94.71742649
170829A00022	8/29/2017	1.72	8/30/2021	8/29/2017	102.16497	102.1649686	102.1649686	102.1649686	101.8367382	100.5103709	99.20775643	97.92830622	96.67145065
170829A00035	8/29/2017	1.58	8/31/2020	8/29/2017	100.49963	100.4996347	100.4996347	100.4996347	100.4537428	100.1129443	99.77445037	99.4382377	99.10428333
170830A00044	8/30/2017	1.94	8/30/2021	8/30/2017	102.23382	102.2338222	102.2338222	102.2338222	101.9064332	100.5831587	99.28352978	98.0069615	96.75288789
170831A00010	8/31/2017	2.05	8/30/2022	8/31/2017	104.13733	104.1373345	104.1373345	104.1373345	103.416504	101.1016826	98.85008824	96.65965178	94.5283836
170906A00033	9/6/2017	1.75	9/8/2020	9/6/2017	100.54401	100.5440087	100.5440087	100.5440087	100.4943404	100.1319727	99.77221956	99.41505279	99.06044449
170929A00057	9/29/2017	2.16	9/29/2023	9/29/2017	107.05675	107.0567474	107.0567474	107.0567474	105.5066409	102.0992603	98.82023075	95.66405048	92.62548332
171011A00013	10/11/2017	2.77	10/13/2026	10/11/2017	115.97316	115.9731558	115.9731558	115.9731558	109.9627831	103.6301299	97.70884372	92.17003691	86.98699222
171012A00020	10/12/2017	1.93	10/13/2020	10/12/2017	100.77194	100.7719356	100.7719356	100.7719356	100.7042171	100.2451425	99.79025418	99.33949493	98.89280861
171012A00026	10/12/2017	2.09	10/12/2021	10/12/2017	102.65075	102.6507549	102.6507549	102.6507549	102.2866245	100.8449641	99.43075441	98.04327985	96.68184923
171017A00024	10/17/2017	2.04	4/19/2021	10/17/2017	101.73193	101.7319252	101.7319252	101.7319252	101.499188	100.5246491	99.56876477	98.63100321	97.71085265
170912A00031	9/12/2017	1.89	9/12/2022	9/12/2017	104.25047	104.2504691	104.2504691	104.2504691	103.504183	101.1444908	98.85031326	96.61947517	94.44988605
170914A00039	9/14/2017	2.23	9/16/2024	9/14/2017	109.35969	109.3596905	109.3596905	109.3596905	106.9058848	102.544377	98.38595019	94.42012273	90.6370067
170915A00005	9/15/2017	1.81	9/15/2021	9/15/2017	102.3616	102.3615994	102.3615994	102.3615994	102.0197303	100.6487524	99.30271373	97.98099287	96.6829885
170915A00031	9/15/2017	2.1	9/15/2023	9/15/2017	106.77267	106.7726742	106.7726742	106.7726742	105.2556771	101.8900816	98.64997789	95.53004241	92.52520578
170918A00007	9/18/2017	2.8	9/20/2027	9/18/2017	118.4864	118.4863986	118.4863986	117.9360861	110.4378006	103.2595089	96.60608434	90.43634658	84.71254499
170919A00073	9/19/2017	2.28	9/19/2024	9/19/2017	109.59922	109.5992206	109.5992206	109.5992206	107.1347226	102.760283	98.5898193	94.61278676	90.8192391
170921A00062	9/21/2017	1.95	9/21/2020	9/21/2017	100.6777	100.6777023	100.6777023	100.6777023	100.6217597	100.2233425	99.82808141	99.43593897	99.04687831
170928A00026	9/28/2017	1.73	9/28/2020	9/28/2017	100.67601	100.6760142	100.6760142	100.6760142	100.6166178	100.1982998	99.78345301	99.37203425	98.96400119
171005A00006	10/5/2017	2.32	10/7/2024	10/5/2017	109.88633	109.8863319	109.8863319	109.8863319	107.3671044	102.9405333	98.72246711	94.70201479	90.86891015
171010A00005	10/10/2017	2.06	10/11/2022	10/10/2017	104.81426	104.8142598	104.8142598	104.8142598	104.015698	101.572096	99.19840966	96.89224402	94.65130102
171016A00060	10/16/2017	1.93	10/16/2020	10/16/2017	100.7859	100.7859032	100.7859032	100.7859032	100.7164657	100.2491217	99.78611559	99.32738696	98.87287664
171017A00023	10/17/2017	1.97	10/19/2020	10/17/2017	100.81897	100.8189682	100.8189682	100.8189682	100.7478045	100.2721389	99.80096431	99.33421727	98.8718355
171026A00007	10/26/2017	2.47	10/26/2023	10/26/2017	107.65382	107.6538153	107.6538153	107.6538153	106.0478015	102.5772381	99.23958072	96.02903053	92.94007386
171026A00011	10/26/2017	2.94	10/26/2027	10/26/2017	119.78162	119.7816237	119.7816237	119.1223575	111.496079	104.1947245	97.43290124	91.16779282	85.36019159
171026A00023	10/26/2017	2	10/26/2020	10/26/2017	100.86724	100.8672419	100.8672419	100.8672419	100.7920614	100.2970617	99.80691516	99.32155076	98.84089873

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171027A00029	10/27/2017	2.04	10/27/2020	10/27/2017	100.89208	100.8920771	100.8920771	100.8920771	100.8163157	100.3185022	99.82559456	99.33752064	98.85420958
171030A00019	10/30/2017	2.04	3/16/2021	10/30/2017	101.5746	101.5746009	101.5746009	101.5746009	101.3729544	100.49111	99.62456637	98.77292789	97.93581227
171031A00006	10/31/2017	2.02	1/25/2021	10/31/2017	101.3227	101.3227047	101.3227047	101.3227047	101.169017	100.4239325	99.68979293	98.96635863	98.25339666
171031A00028	10/31/2017	2.13	10/29/2021	10/31/2017	102.79646	102.7964625	102.7964625	102.7964625	102.4175162	100.9300869	99.47182408	98.04194558	96.6396966
171101A00023	11/1/2017	2.78	11/3/2025	11/1/2017	113.71772	113.7177238	113.7177238	113.7177238	109.7028997	104.2387304	99.08374303	94.2188155	89.62610525
171130A00005	11/30/2017	2.45	11/30/2022	11/30/2017	105.62676	105.6267615	105.6267615	105.6267615	104.7372269	102.1602948	99.66007614	97.23382126	94.87889775
171205A00018	12/5/2017	2.2	5/11/2020	12/5/2017	100.05715	100.0571517	100.0571517	100.0571517	100.0543897	100.0239054	99.99345547	99.96303993	99.9326587
171207A00029	12/7/2017	2.04	12/7/2020	12/7/2017	101.17946	101.1794564	101.1794564	101.1794564	101.0716245	100.4596048	99.85498577	99.25763375	98.66741818
171208A00008	12/8/2017	2.25	12/8/2022	12/8/2017	105.62775	105.6277518	105.6277518	105.6277518	104.7185763	102.1105896	99.58092748	97.12675558	94.74536204
180329A00033	4/2/2018	2.79	4/1/2021	4/2/2018	102.35249	102.3524864	102.3524864	102.3524864	102.1347263	101.2056502	100.2934463	99.39765791	98.51784508
180403A00006	4/3/2018	3.07	4/3/2028	4/3/2018	123.62131	123.6213059	123.6213059	122.4570572	114.2084043	106.3551402	99.11200811	92.42821849	86.25745864
180406A00009	4/6/2018	2.58	4/6/2021	4/6/2018	102.33021	102.3302083	102.3302083	102.3302083	102.1076156	101.163079	100.2359845	99.32585208	98.43221933
180411A00001	4/11/2018	2.84	1/25/2022	4/11/2018	104.47695	104.4769498	104.4769498	104.4769498	104.0246239	102.2879252	100.5886352	98.9256101	97.29775325
180412A00016	4/12/2018	2.79	4/12/2021	4/12/2018	102.42927	102.429275	102.429275	102.429275	102.2018786	101.2425207	100.301154	99.37727562	98.47040121
180416A00027	4/16/2018	2.86	4/16/2021	4/16/2018	102.51563	102.515635	102.515635	102.515635	102.2847122	101.3141788	100.362047	99.42779676	98.51092761
180425A00008	4/25/2018	2.89	4/25/2022	4/25/2018	105.57445	105.5744462	105.5744462	105.5744462	105.0305662	103.0289309	101.0758811	99.16993357	97.3096611
180426A00017	4/26/2018	2.85	4/26/2022	4/26/2018	105.50156	105.501555	105.501555	105.501555	104.9567126	102.9530927	100.9981746	99.09046954	97.22854488
180426A00053	4/26/2018	2.94	4/26/2023	4/26/2018	108.53476	108.5347621	108.5347621	108.5347621	107.3247113	104.3030765	101.3832123	98.56112756	95.83301083
180507A00019	5/7/2018	2.77	5/7/2020	5/7/2018	100.04745	100.0474494	100.0474494	100.0474494	100.0456909	100.0262806	100.0068901	99.98751931	99.96816824
180511A00035	5/11/2018	2.93	5/11/2023	5/11/2018	108.62128	108.6212753	108.6212753	108.6212753	107.3777054	104.3151599	101.3568536	98.49865121	95.73660651
180514A00011	5/14/2018	2.8	5/14/2020	5/14/2018	100.09644	100.0964422	100.0964422	100.0964422	100.0929249	100.0541063	100.0153347	99.97661021	99.93793261
180516A00002	5/16/2018	2.84	5/17/2021	5/16/2018	102.88589	102.885887	102.885887	102.885887	102.629827	101.5706301	100.5332737	99.51708726	98.52142707
180524A00006	5/24/2018	2.71	2/16/2021	5/24/2018	102.10111	102.1011097	102.1011097	102.1011097	101.9255842	101.1157401	100.3187522	99.53431576	98.76213593
180524A00050	5/24/2018	2.9	5/24/2021	5/24/2018	102.83091	102.8309125	102.8309125	102.8309125	102.5706457	101.4952295	100.4423412	99.41127794	98.40136615
180529A00042	5/29/2018	3.42	5/30/2028	5/29/2018	125.21815	125.2181526	125.2181526	123.8941183	115.5353627	107.5623794	100.2156086	93.44225795	87.19425306
180529A00059	5/29/2018	2.7	5/29/2020	5/29/2018	100.19172	100.1917214	100.1917214	100.1917214	100.1844373	100.1040644	100.0238223	99.94371064	99.86372924
180529A00063	5/29/2018	2.95	5/31/2022	5/29/2018	105.59267	105.5926737	105.5926737	105.5926737	105.0048952	102.9143416	100.8760576	98.88838439	96.94972842
180530A00007	5/30/2018	2.66	11/30/2021	5/30/2018	104.08373	104.0837308	104.0837308	104.0837308	103.674844	102.0850617	100.5275246	99.00132022	97.50557014
180530A00027	5/30/2018	3.61	6/1/2032	5/30/2018	139.77046	139.7704574	139.7704574	132.8455668	120.1780865	108.6772901	98.44979431	89.34559794	81.2331739
180531A00015	5/31/2018	2.95	5/31/2023	5/31/2018	108.26248	108.2624826	108.2624826	108.2624826	106.9829566	103.8870302	100.897595	98.01037626	95.2212976
180531A00032	5/31/2018	2.8	6/1/2021	5/31/2018	102.77903	102.7790316	102.7790316	102.7790316	102.5132863	101.4164748	100.3430927	99.2923951	98.26366861

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180601A00006	6/1/2018	2.59	6/1/2020	6/1/2018	100.21985	100.2198472	100.2198472	100.2198472	100.2116783	100.1227955	100.0340714	99.94550559	99.85709773
180611A00030	6/11/2018	2.91	6/12/2023	6/11/2018	108.80721	108.8072136	108.8072136	108.8072136	107.4918224	104.341623	101.3009162	98.36525702	95.53040997
180417A00005	4/17/2018	2.67	4/19/2021	4/17/2018	102.50737	102.507371	102.507371	102.507371	102.2732749	101.2924163	100.3303442	99.38652263	98.4604356
180420A00012	4/20/2018	2.91	4/20/2021	4/20/2018	102.59345	102.5934534	102.5934534	102.5934534	102.3589767	101.3771741	100.41419	99.46948694	98.54254764
180425A00004	4/25/2018	2.97	4/26/2021	4/25/2018	102.69724	102.6972396	102.6972396	102.6972396	102.4574431	101.4588018	100.4796077	99.51929692	98.57732683
180430A00015	4/30/2018	3.02	4/15/2022	4/30/2018	105.39393	105.3939264	105.3939264	105.3939264	104.8638413	102.8980454	100.9792221	99.10596018	97.27690043
180507A00015	5/7/2018	2.77	5/7/2020	5/7/2018	100.04745	100.0474494	100.0474494	100.0474494	100.0456909	100.0262806	100.0068901	99.98751931	99.96816824
180522A00008	5/22/2018	2.98	5/24/2021	5/22/2018	102.91722	102.9172184	102.9172184	102.9172184	102.6568525	101.58094	100.5275626	99.49601747	98.48563065
180522A00016	5/22/2018	2.83	5/22/2020	5/22/2018	100.15398	100.1539773	100.1539773	100.1539773	100.1484498	100.0874535	100.0265447	99.96572328	99.90498904
180522A00039	5/22/2018	3.43	5/22/2028	5/22/2018	126.94882	126.9488166	126.9488166	125.6274426	117.1490392	109.0623534	101.6107372	94.74065583	88.40335812
180523A00012	5/23/2018	2.8	5/22/2020	5/23/2018	100.15214	100.1521444	100.1521444	100.1521444	100.1466171	100.0856223	100.024715	99.96389511	99.90316239
180524A00029	5/24/2018	2.74	5/24/2021	5/24/2018	102.8308	102.830797	102.830797	102.830797	102.5698715	101.4919318	100.4366135	99.4032098	98.39104321
180525A00005	5/25/2018	3.32	5/25/2028	5/25/2018	126.08009	126.0800876	126.0800876	124.7499951	116.2884363	108.2280813	100.802009	93.95667466	87.64332389
180529A00007	5/29/2018	2.83	6/1/2021	5/29/2018	102.81206	102.812061	102.812061	102.812061	102.5462767	101.4492718	100.3756992	99.32481388	98.29590243
180529A00066	5/29/2018	2.99	5/26/2023	5/29/2018	108.34985	108.3498513	108.3498513	108.3498513	107.080888	103.9965747	101.0180028	98.14094265	95.36135997
180530A00003	5/30/2018	2.49	5/29/2020	5/30/2018	100.19119	100.1911928	100.1911928	100.1911928	100.1838935	100.1033538	100.0229471	99.94267288	99.862531
180530A00012	5/30/2018	2.64	5/29/2020	5/30/2018	100.18689	100.1868894	100.1868894	100.1868894	100.1796056	100.0992367	100.0189986	99.93889096	99.85891356
180530A00118	5/30/2018	2.9	11/30/2022	5/30/2018	106.80206	106.8020566	106.8020566	106.8020566	105.9083699	103.3160527	100.8007992	98.35984877	95.9905585
180604A00027	6/4/2018	2.87	6/4/2021	6/4/2018	102.87761	102.877612	102.877612	102.877612	102.6098592	101.504327	100.422586	99.36387426	98.32746187
180604A00044	6/4/2018	2.74	6/4/2020	6/4/2018	100.23515	100.2351476	100.2351476	100.2351476	100.2259034	100.1288928	100.0320748	99.93544877	99.83901426
180605A00010	6/5/2018	2.87	6/5/2023	6/5/2018	108.62775	108.6277474	108.6277474	108.6277474	107.3287689	104.2002695	101.1800051	98.26360458	95.44690118
180615A00066	6/15/2018	3	6/14/2024	6/15/2018	112.02401	112.0240132	112.0240132	112.0240132	109.8083418	105.6318988	101.6392966	97.82143183	94.16970435
180618A00024	6/18/2018	2.91	4/13/2021	6/18/2018	102.55209	102.552094	102.552094	102.552094	102.3237075	101.3609954	100.4163849	99.48936875	98.57945841
180621A00051	6/25/2018	3.63	6/23/2023	6/25/2018	110.59004	110.5900405	110.5900405	110.5900405	109.2485026	106.0543823	102.9715709	99.99552903	97.12193218
180622A00018	6/22/2018	2.92	6/22/2023	6/22/2018	108.91624	108.9162399	108.9162399	108.9162399	107.5781057	104.3992134	101.331563	98.37060548	95.51200771
180705A00003	7/5/2018	3.04	7/5/2023	7/5/2018	108.80664	108.806638	108.806638	108.806638	107.4472974	104.2496454	101.1646126	98.18755975	95.31406987
171024A00069	10/24/2017	1.99	10/26/2020	10/24/2017	100.86227	100.8622734	100.8622734	100.8622734	100.7870948	100.2921095	99.80197726	99.31662705	98.83598911
171026A00010	10/26/2017	2.84	10/26/2026	10/26/2017	116.51674	116.5167403	116.5167403	116.5167403	110.4179641	104.0396598	98.07751153	92.50215545	87.28644507
171030A00020	10/30/2017	2.16	1/14/2022	10/30/2017	103.22394	103.2239431	103.2239431	103.2239431	102.7828989	101.0864232	99.42605072	97.80069351	96.20930773
171031A00037	10/31/2017	1.98	10/30/2020	10/31/2017	100.87648	100.8764834	100.8764834	100.8764834	100.7990149	100.2930233	99.79209465	99.29615344	98.80512552
171102A00001	11/3/2017	1.84	11/3/2020	11/3/2017	100.89435	100.8943474	100.8943474	100.8943474	100.8138638	100.2959864	99.78341805	99.27607744	98.77388487

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171115A00006	11/15/2017	2.14	11/16/2020	11/15/2017	101.04642	101.0464161	101.0464161	101.0464161	100.956058	100.4029804	99.85595788	99.31489129	98.77968364
171116A00021	11/16/2017	2.16	11/16/2022	11/16/2017	105.26579	105.2657874	105.2657874	105.2657874	104.3997708	101.8552197	99.38585926	96.98902053	94.66214691
171204A00020	12/4/2017	2.48	12/5/2022	12/4/2017	105.73528	105.7352831	105.7352831	105.7352831	104.8356598	102.2443055	99.73038244	97.29110289	94.92379882
171205A00012	12/5/2017	2.28	12/7/2020	12/5/2017	101.24193	101.2419335	101.2419335	101.2419335	101.134267	100.5230954	99.91929901	99.32274484	98.7333031
171219A00051	12/19/2017	2.34	1/21/2021	12/19/2017	101.53929	101.5392911	101.5392911	101.5392911	101.3892469	100.6541594	99.92971355	99.21567931	98.5118333
171221A00003	12/21/2017	2.35	12/21/2020	12/21/2017	101.36633	101.3663264	101.3663264	101.3663264	101.2455888	100.5957283	99.95419997	99.32084405	98.69550503
180103A00018	1/3/2018	2.29	1/4/2021	1/3/2018	101.40632	101.4063204	101.4063204	101.4063204	101.2724798	100.5842607	99.90537384	99.23563026	98.57484621
180110A00005	1/10/2018	2.22	1/11/2021	1/10/2018	101.49426	101.494263	101.494263	101.494263	101.353458	100.6445269	99.94549923	99.25616854	98.57633386
180116A00039	1/16/2018	2.37	1/19/2021	1/16/2018	101.54969	101.5496891	101.5496891	101.5496891	101.4015338	100.6718529	99.95265836	99.24372531	98.5448351
180117A00016	1/17/2018	2.46	7/19/2021	1/17/2018	102.68254	102.6825398	102.6825398	102.6825398	102.3858996	101.1600048	99.96339451	98.79502845	97.65391525
180118A00039	1/18/2018	3.09	1/19/2027	1/18/2018	118.79042	118.7904151	118.7904151	118.7904151	112.1369351	105.4948788	99.29821035	93.51461172	88.11427887
180123A00025	1/23/2018	2.44	3/1/2021	1/23/2018	101.83915	101.8391465	101.8391465	101.8391465	101.651818	100.8094288	99.98096399	99.16608074	98.36444721
180129A00006	1/29/2018	2.49	11/30/2020	1/29/2018	101.32729	101.3272886	101.3272886	101.3272886	101.2260856	100.6337667	100.0483594	99.46974345	98.89780125
180202A00012	2/2/2018	2.57	2/2/2022	2/2/2018	104.37437	104.3743652	104.3743652	104.3743652	103.9142201	102.1510686	100.4263635	98.73892526	97.08762297
180222A00023	2/22/2018	2.84	2/22/2022	2/22/2018	104.6908	104.6908049	104.6908049	104.6908049	104.2143911	102.3951832	100.6166062	98.87749154	97.17671288
180222A00025	2/22/2018	3.48	2/22/2033	2/22/2018	143.3719	143.3719036	143.3719036	135.0707362	121.4099029	109.1273311	98.28016388	88.69027856	80.20260921
180222A00027	2/22/2018	3.24	2/22/2028	2/22/2018	124.62963	124.6296309	124.6296309	123.5926737	115.4287979	107.6284626	100.4253924	93.77051736	87.61904216
180223A00026	2/23/2018	2.92	12/15/2022	2/23/2018	106.96299	106.9629854	106.9629854	106.9629854	106.0395142	103.405869	100.8514102	98.37326396	95.96868066
180227A00005	2/27/2018	2.59	9/22/2020	2/27/2018	100.94001	100.9400081	100.9400081	100.9400081	100.883504	100.4816987	100.0830958	99.68765702	99.29534487
180906A00047	9/6/2018	2.81	9/7/2021	9/6/2018	103.69793	103.6979265	103.6979265	103.6979265	103.360676	102.0019254	100.6675287	99.35688727	98.06942144
180912A00011	9/12/2018	3.41	9/11/2026	9/12/2018	119.85077	119.8507713	119.8507713	119.8507713	113.963822	107.585411	101.6138662	96.02105569	90.78093082
180914A00011	9/14/2018	3.01	4/12/2021	9/14/2018	102.64104	102.6410356	102.6410356	102.6410356	102.4134312	101.4529751	100.5105246	99.58557642	98.6776461
180917A00054	9/17/2018	3.17	9/15/2023	9/17/2018	109.79366	109.7936577	109.7936577	109.7936577	108.2683426	104.8671626	101.5919473	98.43737607	95.39838132
180918A00037	9/18/2018	3.06	9/17/2021	9/18/2018	103.88379	103.8837858	103.8837858	103.8837858	103.5388269	102.1550461	100.7964606	99.46244103	98.1523786
180920A00030	9/20/2018	3.12	9/20/2023	9/20/2018	110.30042	110.3004169	110.3004169	110.3004169	108.7525048	105.3138363	102.003282	98.81539797	95.74500055
180921A00024	9/21/2018	2.99	9/21/2021	9/21/2018	104.05663	104.0566254	104.0566254	104.0566254	103.7070086	102.307178	100.9330707	99.58403814	98.25945353
180925A00060	9/25/2018	3.23	8/25/2023	9/25/2018	109.82875	109.8287548	109.8287548	109.8287548	108.3505598	105.0042706	101.7799869	98.67260987	95.67728225
180927A00008	9/27/2018	3.14	9/27/2022	9/27/2018	106.927	106.926999	106.926999	106.926999	106.1498961	103.7261854	101.3704599	99.08043358	96.85391099
180928A00011	9/28/2018	3.12	7/15/2022	9/28/2018	106.30145	106.3014498	106.3014498	106.3014498	105.6467639	103.4271757	101.2654371	99.15961768	97.10786793
181002A00055	10/2/2018	3.14	10/3/2022	10/2/2018	106.97407	106.9740654	106.9740654	106.9740654	106.1862933	103.7460499	101.3746859	99.06987026	96.82936501
181004A00029	10/4/2018	3.7	10/4/2028	10/4/2018	128.65269	128.6526895	128.6526895	126.9218226	118.1170817	109.7377668	102.0388936	94.96119002	88.45084424

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181005A00012	10/5/2018	3.33	10/4/2024	10/5/2018	114.39517	114.3951701	114.3951701	114.3951701	111.8446389	107.3270009	103.0205029	98.91416867	94.99764895
181010A00017	10/10/2018	3.08	10/1/2020	10/10/2018	101.20769	101.207689	101.207689	101.207689	101.1466853	100.7194478	100.2958115	99.8757308	99.45916129
181010A00019	10/10/2018	3.21	9/15/2021	10/10/2018	104.0776	104.0776012	104.0776012	104.0776012	103.7340142	102.3542959	100.9996085	99.66932873	98.3628538
181015A00024	10/15/2018	3.29	10/16/2023	10/15/2018	110.45777	110.4577683	110.4577683	110.4577683	108.8582467	105.3646458	102.0033605	98.76867088	95.65513589
181023A00020	10/23/2018	3.15	10/22/2021	10/23/2018	104.28721	104.2872051	104.2872051	104.2872051	103.9116852	102.4310599	100.9790998	99.55504466	98.15816072
181102A00007	11/2/2018	3.01	11/2/2020	11/2/2018	101.49386	101.4938594	101.4938594	101.4938594	101.4138967	100.8969683	100.3853044	99.87882479	99.377451
181106A00003	11/6/2018	3.31	11/5/2021	11/6/2018	104.64382	104.643817	104.643817	104.643817	104.2557765	102.734753	101.2437672	99.78200392	98.34867683
181115A00076	11/15/2018	3.22	12/31/2021	11/15/2018	104.94302	104.9430217	104.9430217	104.9430217	104.5095808	102.8350439	101.1955057	99.58993323	98.01733427
181120A00006	11/20/2018	3.08	11/16/2020	11/20/2018	101.56821	101.5682107	101.5682107	101.5682107	101.4776169	100.9228731	100.3741975	99.83149081	99.29465584
181123A00007	11/23/2018	3.08	11/23/2020	11/23/2018	101.62296	101.6229589	101.6229589	101.6229589	101.5269743	100.9528488	100.3852146	99.82396209	99.26898389
181211A00009	12/11/2018	3.14	12/11/2023	12/11/2018	110.37163	110.3716342	110.3716342	110.3716342	108.6429967	105.0039384	101.5076884	98.14784153	94.91831803
181211A00020	12/11/2018	3.04	12/11/2020	12/11/2018	101.739	101.7390003	101.7390003	101.7390003	101.6273561	101.0034991	100.387302	99.77862433	99.17732878
170728A00032	7/28/2017	2.36	7/27/2023	7/28/2017	106.74958	106.7495766	106.7495766	106.7495766	105.3520533	102.13091	99.02528548	96.03033526	93.14145148
170731A00027	7/31/2017	2	7/30/2021	7/31/2017	102.16734	102.1673437	102.1673437	102.1673437	101.8640137	100.6118902	99.39040846	98.19845479	97.03496884
170803A00005	8/3/2017	1.67	8/3/2020	8/3/2017	100.40959	100.4095853	100.4095853	100.4095853	100.3761741	100.1127826	99.85077491	99.59014011	99.33086739
170803A00019	8/3/2017	2.14	8/3/2022	8/3/2017	104.21181	104.2118107	104.2118107	104.2118107	103.534095	101.2886001	99.10284658	96.97481189	94.90255958
170808A00037	8/8/2017	2.19	12/15/2022	8/8/2017	105.02622	105.0262213	105.0262213	105.0262213	104.1097671	101.5018617	98.972551	96.51897959	94.13841575
170809A00005	8/9/2017	2.61	8/11/2025	8/9/2017	112.24625	112.2462478	112.2462478	112.2462478	108.6476146	103.4234826	98.48411323	93.8124735	89.39263975
170809A00023	8/9/2017	2.86	8/9/2027	8/9/2017	118.6397	118.6396964	118.6396964	118.2147087	110.8255695	103.7338582	97.15315695	91.04385888	85.36962728
170811A00015	8/11/2017	1.81	8/11/2020	8/11/2017	100.44213	100.4421294	100.4421294	100.4421294	100.4052116	100.1201451	99.83670543	99.55487846	99.27465042
170815A00027	8/15/2017	1.85	8/17/2020	8/15/2017	100.48298	100.4829829	100.4829829	100.4829829	100.443386	100.1416856	99.84180654	99.54373232	99.24744659
170830A00030	8/30/2017	2	3/30/2022	8/30/2017	103.29915	103.2991487	103.2991487	103.2991487	102.7919941	100.8903209	99.03319508	97.21930747	95.44739588
170830A00047	8/30/2017	1.61	8/31/2020	8/30/2017	100.50988	100.5098822	100.5098822	100.5098822	100.4639875	100.1231673	99.78465166	99.44841742	99.1144416
170831A00008	8/31/2017	1.78	8/31/2020	8/31/2017	100.52118	100.5211808	100.5211808	100.5211808	100.4753564	100.1350437	99.79702565	99.46127918	99.12778155
170831A00022	8/31/2017	2.27	2/29/2024	8/31/2017	107.63264	107.6326413	107.6326413	107.6326413	105.7317727	101.9348142	98.29511023	94.80535941	91.45863621
170831A00047	8/31/2017	1.6	8/31/2020	8/31/2017	100.50647	100.5064663	100.5064663	100.5064663	100.4605726	100.1197596	99.78125123	99.44502418	99.11105551
170831A00049	8/31/2017	1.68	3/1/2021	8/31/2017	101.3221	101.3221012	101.3221012	101.3221012	101.1347809	100.2930618	99.46529327	98.65113086	97.85024145
170831A00054	8/31/2017	1.85	6/30/2022	8/31/2017	103.79925	103.7992545	103.7992545	103.7992545	103.1717088	101.0116666	98.90739332	96.85705301	94.85888538
170911A00023	9/11/2017	1.77	9/11/2020	9/11/2017	100.56385	100.563851	100.563851	100.563851	100.5127382	100.142077	99.77415292	99.40893573	99.04639555
170913A00025	9/13/2017	1.94	8/16/2021	9/13/2017	102.16954	102.1695423	102.1695423	102.1695423	101.8531116	100.5619918	99.29782345	98.05976735	96.84701948
170913A00027	9/13/2017	2.08	9/13/2022	9/13/2017	104.27682	104.2768236	104.2768236	104.2768236	103.5318939	101.1780385	98.88943549	96.66392121	94.49941621

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171003A00005	10/3/2017	1.92	10/5/2020	10/3/2017	100.7303	100.730303	100.730303	100.730303	100.6671705	100.2301654	99.79694883	99.36747164	98.94168557
171004A00017	10/4/2017	1.89	10/5/2020	10/4/2017	100.71715	100.7171451	100.7171451	100.7171451	100.6540172	100.2170464	99.783864	99.35442075	98.9286684
171013A00021	10/13/2017	2	10/17/2022	10/13/2017	104.69679	104.6967861	104.6967861	104.6967861	103.8878395	101.4301144	99.04316312	96.72454548	94.47192061
171025A00026	10/25/2017	2.64	10/25/2024	10/25/2017	110.55419	110.5541919	110.5541919	110.5541919	107.9940927	103.5335075	99.2843266	95.2354266	91.37632744
171025A00027	10/25/2017	2.36	10/25/2022	10/25/2017	105.18713	105.18713	105.18713	105.18713	104.3657915	101.8906214	99.48709447	97.15272596	94.88513288
170822A00011	8/22/2017	1.83	8/24/2020	8/22/2017	100.50759	100.507593	100.507593	100.507593	100.4648809	100.1438609	99.82489532	99.50796444	99.19304881
170828A00031	8/28/2017	2.07	8/1/2022	8/28/2017	104.04214	104.0421381	104.0421381	104.0421381	103.3681262	101.1297933	98.95090507	96.82944336	94.7634765
170829A00017	8/29/2017	1.76	8/31/2020	8/29/2017	100.51435	100.5143512	100.5143512	100.5143512	100.4685286	100.1282304	99.79022673	99.45449462	99.12101126
170829A00018	8/29/2017	1.9	8/30/2021	8/29/2017	102.17982	102.1798219	102.1798219	102.1798219	101.8525149	100.5296216	99.23036732	97.95416735	96.7004559
170829A00025	8/29/2017	1.9	8/30/2021	8/29/2017	102.17982	102.1798219	102.1798219	102.1798219	101.8525149	100.5296216	99.23036732	97.95416735	96.7004559
170829A00044	8/29/2017	2.01	8/29/2022	8/29/2017	104.03827	104.0382659	104.0382659	104.0382659	103.3193393	101.0082884	98.76030815	96.57333197	94.44537312
170830A00034	8/30/2017	2.05	8/30/2022	8/30/2017	104.13733	104.1373345	104.1373345	104.1373345	103.416504	101.1016826	98.85008824	96.65965178	94.5283836
170831A00029	8/31/2017	1.87	8/31/2022	8/31/2017	104.14433	104.1443278	104.1443278	104.1443278	103.4188565	101.0927139	98.83033145	96.62961978	94.48856989
170911A00044	9/11/2017	1.73	9/13/2021	9/11/2017	102.24099	102.2409915	102.2409915	102.2409915	101.9009868	100.5363405	99.19642997	97.88064115	96.58837966
170912A00007	9/12/2017	1.84	12/15/2020	9/12/2017	101.0073	101.0072973	101.0072973	101.0072973	100.8923267	100.2601419	99.6358658	99.01935053	98.41045194
170912A00008	9/12/2017	1.98	12/15/2021	9/12/2017	102.78911	102.7891087	102.7891087	102.7891087	102.3722817	100.7582763	99.1774899	97.62896289	96.11177253
170915A00001	9/15/2017	2.43	9/16/2024	9/15/2017	109.42318	109.4231763	109.4231763	109.4231763	106.9850567	102.6455003	98.50736067	94.5602697	90.79444508
170918A00108	9/18/2017	1.97	9/20/2022	9/18/2017	104.4834	104.4833955	104.4833955	104.4833955	103.7227216	101.3386925	99.02140217	96.76861569	94.5781861
170921A00063	9/21/2017	2.23	9/21/2022	9/21/2017	104.67891	104.6789102	104.6789102	104.6789102	103.9191418	101.5390199	99.22541106	96.97609115	94.78892336
170928A00020	9/29/2017	2.29	9/29/2022	9/29/2017	104.86794	104.8679397	104.8679397	104.8679397	104.0939864	101.6901541	99.35405015	97.08339062	94.87598213
171002A00012	10/2/2017	2.08	10/1/2021	10/2/2017	102.58133	102.5813263	102.5813263	102.5813263	102.2267408	100.8145198	99.42866337	98.06849749	96.73337067
171003A00007	10/3/2017	2.22	10/3/2022	10/3/2017	104.71834	104.7183354	104.7183354	104.7183354	103.9378064	101.5253771	99.18121953	96.90302106	94.68856137
171005A00003	10/5/2017	2.02	10/5/2022	10/5/2017	104.68344	104.6834449	104.6834449	104.6834449	103.8960816	101.469709	99.11233009	96.82159702	94.59525598
171010A00004	10/10/2017	1.92	10/12/2021	10/10/2017	102.65004	102.6500363	102.6500363	102.6500363	102.2848163	100.8391232	99.4210184	98.02978146	96.66471635
171012A00025	10/12/2017	1.93	10/13/2020	10/12/2017	100.77194	100.7719356	100.7719356	100.7719356	100.7042171	100.2451425	99.79025418	99.33949493	98.89280861
171018A00002	10/18/2017	1.82	10/19/2020	10/18/2017	100.81305	100.813053	100.813053	100.813053	100.7417703	100.2653357	99.79340959	99.32592811	98.86282852
171030A00094	10/30/2017	2.13	11/1/2021	10/30/2017	102.81178	102.8117783	102.8117783	102.8117783	102.4302719	100.9347361	99.46865293	98.03122873	96.62169763
171031A00061	10/31/2017	2.28	10/31/2022	10/31/2017	105.01904	105.0190402	105.0190402	105.0190402	104.1875556	101.6990123	99.28296002	96.93686846	94.65831166
171116A00012	11/16/2017	2.14	7/15/2020	11/16/2017	100.39571	100.3957111	100.3957111	100.3957111	100.3705514	100.1600008	99.9503459	99.74158102	99.5337004
180705A00059	7/5/2018	2.93	7/6/2021	7/5/2018	103.17909	103.1790886	103.1790886	103.1790886	102.890519	101.6963947	100.5299603	99.39026057	98.27638377
180705A00062	7/5/2018	3.04	7/6/2023	7/5/2018	108.8142	108.8142016	108.8142016	108.8142016	107.4526057	104.2522449	101.1646774	98.18525328	95.30954542

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180719A00061	7/19/2018	3.07	7/19/2023	7/19/2018	109.00996	109.009963	109.009963	109.009963	107.6185616	104.3814389	101.2594256	98.24772992	95.34179235
180723A00028	1/23/2019	3.22	1/23/2024	1/23/2019	111.0094	111.0093989	111.0093989	111.0093989	109.1747974	105.413509	101.8036036	98.33810646	95.01040853
180724A00025	7/24/2018	2.93	7/25/2022	7/24/2018	106.36392	106.3639191	106.3639191	106.3639191	105.6912133	103.4364397	101.2411482	99.10332762	97.02105256
180730A00002	7/30/2018	3.03	7/30/2021	7/30/2018	103.4695	103.4695003	103.4695003	103.4695003	103.1643436	101.9035622	100.6735698	99.47324835	98.3015336
180730A00004	7/30/2018	3.14	7/28/2023	7/30/2018	109.30786	109.3078578	109.3078578	109.3078578	107.8949848	104.6297814	101.4813749	98.44487136	95.51561595
180801A00010	8/1/2018	2.99	4/15/2021	8/1/2018	102.63469	102.6346938	102.6346938	102.6346938	102.4045216	101.436081	100.4859479	99.55360622	98.6385594
180801A00015	8/1/2018	3.16	8/1/2023	8/1/2018	109.40488	109.404883	109.404883	109.404883	107.9826171	104.705488	101.5458969	98.49890902	95.55983115
180808A00009	8/8/2018	3.12	8/7/2023	8/8/2018	109.32023	109.3202312	109.3202312	109.3202312	107.8849809	104.5936803	101.4209433	98.36179801	95.41151371
180809A00030	8/9/2018	2.94	2/9/2021	8/9/2018	102.11523	102.1152326	102.1152326	102.1152326	101.9467465	101.1575422	100.3805473	99.61547983	98.86206663
180814A00033	8/14/2018	3.25	8/13/2027	8/14/2018	123.04493	123.0449304	123.0449304	122.6005204	115.0164492	107.7083114	100.9265328	94.6302763	88.78208067
180815A00009	8/15/2018	2.93	8/16/2021	8/15/2018	103.4677	103.4676996	103.4676996	103.4676996	103.149362	101.8493101	100.5763617	99.32967363	98.10843762
180815A00024	8/15/2018	2.71	8/17/2020	8/15/2018	100.7848	100.7847974	100.7847974	100.7847974	100.7450674	100.4423135	100.1413921	99.84228641	99.54497997
180816A00024	8/16/2018	3.01	8/16/2023	8/16/2018	109.02454	109.0245389	109.0245389	109.0245389	107.5707322	104.2610084	101.0713187	97.99663704	95.03217824
180821A00021	8/21/2018	2.68	8/21/2020	8/21/2018	100.80419	100.80419	100.80419	100.80419	100.762673	100.4488331	100.1369587	99.82703117	99.51903228
180823A00020	8/23/2018	2.96	4/20/2023	8/23/2018	107.99262	107.9926178	107.9926178	107.9926178	106.8040907	103.8193631	100.9344237	98.14538893	95.44854851
180824A00023	8/24/2018	2.79	8/24/2021	8/24/2018	103.56672	103.566722	103.566722	103.566722	103.241058	101.9185136	100.6213115	99.34874765	98.10014437
180827A00031	8/27/2018	2.9	8/27/2021	8/27/2018	103.50809	103.508087	103.508087	103.508087	103.1811018	101.8556714	100.554747	99.27768451	98.02386203
180905A00011	9/5/2018	2.85	9/8/2020	9/5/2018	100.94406	100.9440561	100.9440561	100.9440561	100.8942751	100.5310069	100.1703582	99.81230065	99.45680631
180906A00013	9/6/2018	2.81	9/7/2021	9/6/2018	103.69793	103.6979265	103.6979265	103.6979265	103.360676	102.0019254	100.6675287	99.35688727	98.06942144
180906A00020	9/6/2018	2.81	9/7/2021	9/6/2018	103.69793	103.6979265	103.6979265	103.6979265	103.360676	102.0019254	100.6675287	99.35688727	98.06942144
180910A00007	9/10/2018	2.96	9/8/2023	9/10/2018	109.65707	109.6570701	109.6570701	109.6570701	108.140034	104.7444271	101.4742877	98.32433056	95.28952114
180910A00033	9/10/2018	3.43	9/8/2028	9/10/2018	126.15401	126.1540112	126.1540112	124.509614	115.8521443	107.6265663	100.0658759	93.11250822	86.7141652
171212A00027	12/12/2017	2.21	12/13/2021	12/12/2017	103.43616	103.4361576	103.4361576	103.4361576	103.0183265	101.3993783	99.81374058	98.26045208	96.73858847
171218A00020	12/18/2017	2.99	12/20/2027	12/18/2017	120.55764	120.5576368	120.5576368	119.7323374	111.9383007	104.4889754	97.59913293	91.22365362	85.3212839
171219A00063	12/19/2017	2.8	12/20/2027	12/19/2017	120.68573	120.6857346	120.6857346	119.8474868	111.965969	104.4524109	97.50551498	91.07943856	85.13227801
171229A00007	12/29/2017	2.12	12/30/2020	12/29/2017	101.35646	101.3564567	101.3564567	101.3564567	101.2271238	100.5515352	99.88493848	99.22715505	98.57801109
180103A00007	1/3/2018	2.44	1/7/2022	1/3/2018	103.6664	103.666397	103.666397	103.666397	103.2299725	101.5480384	99.90158744	98.28956124	96.71094364
180104A00013	1/4/2018	2.39	1/4/2023	1/4/2018	106.16735	106.1673527	106.1673527	106.1673527	105.2032127	102.5174776	99.91405416	97.38989388	94.94208375
180111A00007	1/11/2018	2.66	1/14/2025	1/11/2018	112.10844	112.1084415	112.1084415	112.1084415	109.2633505	104.5360924	100.0423272	95.76924327	91.70480538
180111A00016	1/11/2018	2.57	1/11/2023	1/11/2018	106.20399	106.2039916	106.2039916	106.2039916	105.2301076	102.5364349	99.92556854	97.39442951	94.94007615
180116A00010	1/16/2018	2.58	1/17/2023	1/16/2018	106.26911	106.2691132	106.2691132	106.2691132	105.2829305	102.5728203	99.94642381	97.4006114	94.93239407

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180116A00031	1/16/2018	2.58	1/17/2023	1/16/2018	106.26911	106.2691132	106.2691132	106.2691132	105.2829305	102.5728203	99.94642381	97.4006114	94.93239407
180123A00026	1/23/2018	2.57	1/14/2022	1/23/2018	103.93271	103.9327059	103.9327059	103.9327059	103.4902085	101.787444	100.1208972	98.48947727	96.89213717
180202A00004	2/2/2018	2.57	2/2/2022	2/2/2018	104.37437	104.3743652	104.3743652	104.3743652	103.9142201	102.1510686	100.4263635	98.73892526	97.08762297
180205A00018	2/5/2018	2.66	2/3/2023	2/5/2018	107.11155	107.1115516	107.1115516	107.1115516	106.082893	103.3049709	100.6142171	98.00733223	95.48116684
180207A00002	2/7/2018	3.13	2/6/2026	2/7/2018	116.39043	116.3904315	116.3904315	116.3904315	111.8356473	106.0710987	100.6446738	95.53469869	90.72100472
180214A00003	2/14/2018	2.45	2/16/2021	2/14/2018	101.89033	101.8903323	101.8903323	101.8903323	101.7149685	100.9060626	100.1100023	99.32648327	98.55521067
180216A00001	2/16/2018	2.5	2/16/2021	2/16/2018	101.93087	101.9308664	101.9308664	101.9308664	101.7554715	100.9463852	100.1501465	99.36645106	98.59500399
180220A00035	2/20/2018	2.69	2/19/2021	2/20/2018	101.99221	101.9922134	101.9922134	101.9922134	101.8142675	100.9982541	100.1953033	99.40510322	98.62735188
180222A00014	2/22/2018	2.68	2/19/2021	2/22/2018	101.98403	101.9840284	101.9840284	101.9840284	101.8060889	100.9901121	100.1871976	99.39703347	98.61931761
180222A00026	2/22/2018	2.98	2/21/2025	2/22/2018	113.93275	113.9327491	113.9327491	113.9327491	110.9433662	106.072558	101.4466105	97.05193414	92.87576389
180306A00038	3/6/2018	2.7	3/5/2021	3/6/2018	102.08618	102.0861813	102.0861813	102.0861813	101.8947667	101.0403557	100.2002509	99.37409525	98.56154327
180308A00010	3/8/2018	2.72	4/8/2021	3/8/2018	102.33475	102.3347491	102.3347491	102.3347491	102.1109208	101.1629139	100.2324849	99.31914793	98.42243511
180308A00014	3/8/2018	2.79	9/15/2021	3/8/2018	103.49201	103.4920072	103.4920072	103.4920072	103.1493471	101.7738903	100.4233911	99.09722846	97.79480145
180328A00010	3/28/2018	3.1	3/28/2025	3/28/2018	113.81072	113.8107216	113.8107216	113.8107216	110.7257902	105.7983944	101.1224336	96.68377221	92.46914019
180328A00019	3/28/2018	2.55	3/29/2021	3/28/2018	102.24786	102.2478564	102.2478564	102.2478564	102.032518	101.1101943	100.2045079	99.3150116	98.44127426
180622A00006	6/22/2018	3.53	12/21/2029	6/22/2018	131.0756	131.0756037	131.0756037	127.8152752	117.7523412	108.3493805	99.80541715	92.03664345	84.96785998
180625A00041	6/25/2018	3.06	6/20/2023	6/25/2018	108.75679	108.7567878	108.7567878	108.7567878	107.4308124	104.2736306	101.2264957	98.28492475	95.44464674
180627A00026	6/27/2018	2.87	6/27/2023	6/27/2018	108.79515	108.7951503	108.7951503	108.7951503	107.4465103	104.2560625	101.1776638	98.20671513	95.3388364
180706A00013	7/6/2018	3.01	7/6/2023	7/6/2018	108.71784	108.7178407	108.7178407	108.7178407	107.3567245	104.1578996	101.0718277	98.09386022	95.21957135
180713A00011	7/13/2018	2.95	7/13/2021	7/13/2018	103.25495	103.2549548	103.2549548	103.2549548	102.9615456	101.7479774	100.5629961	99.40559971	98.27483271
180713A00013	7/13/2018	2.88	7/13/2023	7/13/2018	108.94944	108.9494369	108.9494369	108.9494369	107.5643286	104.3294538	101.2094527	98.19955293	95.29521296
180713A00030	7/13/2018	2.8	7/13/2021	7/13/2018	103.26747	103.2674663	103.2674663	103.2674663	102.9732721	101.7566483	100.568733	99.40851856	98.27504394
180716A00054	7/16/2018	3.59	7/16/2040	7/16/2018	170.32411	170.3241081	168.8796531	146.1289247	125.0841296	107.4702513	92.84127058	80.65809257	70.48264495
180717A00047	7/17/2018	3.3	9/17/2025	7/17/2018	116.2157	116.2157048	116.2157048	116.2157048	112.3977338	106.9805726	101.8622296	97.02465791	92.45098996
180726A00032	7/26/2018	2.95	10/26/2020	7/26/2018	101.33925	101.3392525	101.3392525	101.3392525	101.2638868	100.7675198	100.2760158	99.78930344	99.30731296
180807A00017	8/7/2018	2.77	8/7/2020	8/7/2018	100.72928	100.7292765	100.7292765	100.7292765	100.6940164	100.4190031	100.1455003	99.87349553	99.60297636
180809A00029	8/9/2018	2.99	9/9/2021	8/9/2018	103.72605	103.7260476	103.7260476	103.7260476	103.3880513	102.0273065	100.6909862	99.37848888	98.08923243
180810A00006	8/10/2018	2.73	8/10/2020	8/10/2018	100.74005	100.7400507	100.7400507	100.7400507	100.7034508	100.4201245	100.1384036	99.85827452	99.5797236
180821A00016	8/21/2018	2.76	8/20/2021	8/21/2018	103.49735	103.4973453	103.4973453	103.4973453	103.1749202	101.8620223	100.5754074	99.31429894	98.07795113
180823A00013	8/23/2018	2.97	8/23/2023	8/23/2018	108.94313	108.9431319	108.9431319	108.9431319	107.4741385	104.1476966	100.9425035	97.85348792	94.8758195
180827A00060	8/27/2018	2.9	8/27/2021	8/27/2018	103.50809	103.508087	103.508087	103.508087	103.1811018	101.8556714	100.554747	99.27768451	98.02386203

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180828A00032	8/28/2018	3.49	8/29/2033	8/28/2018	145.23433	145.2343334	145.2343334	136.0264528	121.819875	109.1161026	97.94663379	88.1147518	79.4500247
180830A00006	8/30/2018	2.99	8/30/2022	8/30/2018	106.35397	106.3539674	106.3539674	106.3539674	105.6264127	103.2852539	101.007884	98.79221698	96.63624707
180831A00016	8/31/2018	2.99	8/31/2023	8/31/2018	109.06941	109.0694088	109.0694088	109.0694088	107.5818939	104.2327331	101.0063152	97.89751272	94.90143914
180905A00015	9/5/2018	2.85	9/1/2022	9/5/2018	106.47058	106.4705755	106.4705755	106.4705755	105.7362971	103.3796934	101.0875876	98.85786545	96.68849411
180910A00013	9/10/2018	3.08	9/11/2023	9/10/2018	109.45643	109.4564282	109.4564282	109.4564282	107.9419957	104.5571277	101.2972947	98.15723061	95.13191857
180912A00028	9/12/2018	2.93	9/14/2020	9/12/2018	101.0176	101.0176003	101.0176003	101.0176003	100.9649147	100.5849466	100.2078453	99.83357829	99.46211365
180912A00030	9/12/2018	3	9/13/2021	9/12/2018	103.76981	103.7698109	103.7698109	103.7698109	103.4283892	102.0563821	100.7091794	99.38616579	98.08674596
180914A00013	9/14/2018	3.48	9/14/2028	9/14/2018	126.62401	126.6240097	126.6240097	124.9599676	116.2718454	108.014972	100.4263246	93.44796294	87.02725685
181211A00043	12/11/2018	3.14	12/11/2023	12/11/2018	110.37163	110.3716342	110.3716342	110.3716342	108.6429967	105.0039384	101.5076884	98.14784153	94.91831803
181219A00022	12/19/2018	2.94	12/18/2020	12/19/2018	101.72874	101.7287389	101.7287389	101.7287389	101.6105884	100.9676059	100.3327608	99.70589911	99.08687071
181220A00020	12/20/2018	2.78	12/20/2021	12/20/2018	104.42422	104.4242227	104.4242227	104.4242227	103.9989898	102.3530062	100.7411201	99.1623377	97.61570427
181221A00024	12/21/2018	2.96	12/28/2020	12/21/2018	101.81672	101.8167164	101.8167164	101.8167164	101.6892182	101.0185623	100.3567413	99.70358133	99.05891326
181226A00061	12/26/2018	2.95	12/27/2022	12/26/2018	107.13053	107.1305264	107.1305264	107.1305264	106.183089	103.5158806	100.9295913	98.42125415	95.98803231
181227A00027	12/27/2018	3.24	12/26/2025	12/27/2018	116.69233	116.6923283	116.6923283	116.6923283	112.3619595	106.6895232	101.3438084	96.30421758	91.55156119
190102A00004	1/2/2019	2.8	2/24/2021	1/2/2019	102.1089	102.1088997	102.1088997	102.1088997	101.9261272	101.0960883	100.2795479	99.47617862	98.68566366
190107A00029	1/7/2019	2.59	1/7/2021	1/7/2019	101.72979	101.7297901	101.7297901	101.7297901	101.5926422	100.8937256	100.2044155	99.52451485	98.85383168
190107A00036	1/7/2019	2.84	4/15/2022	1/7/2019	105.03752	105.0375173	105.0375173	105.0375173	104.5082913	102.546087	100.6307858	98.76097833	96.93530735
190108A00002	1/8/2019	2.89	1/8/2021	1/8/2019	101.85017	101.8501668	101.8501668	101.8501668	101.7122572	101.0113938	100.3201826	99.63842526	98.96592853
190108A00039	1/8/2019	3.04	4/30/2024	1/8/2019	111.06918	111.0691832	111.0691832	111.0691832	108.9920836	104.9721583	101.1247145	97.44143214	93.91443739
190109A00023	1/9/2019	2.92	10/9/2020	1/9/2019	101.19851	101.1985073	101.1985073	101.1985073	101.1329242	100.6836878	100.2384453	99.79714364	99.3597305
190110A00015	1/10/2019	2.88	1/18/2022	1/10/2019	104.49722	104.4972227	104.4972227	104.4972227	104.0503983	102.3320352	100.6503805	99.00432238	97.39279437
190110A00022	1/10/2019	2.86	5/10/2021	1/10/2019	102.68738	102.6873826	102.6873826	102.6873826	102.4370998	101.4004887	100.3848369	99.38951302	98.41391106
190110A00071	1/10/2019	2.67	2/8/2021	1/10/2019	102.01227	102.0122685	102.0122685	102.0122685	101.8444529	101.0568569	100.2814274	99.51788415	98.76595511
190114A00061	1/14/2019	2.98	1/31/2024	1/14/2019	110.16501	110.1650123	110.1650123	110.1650123	108.3169312	104.5508596	100.9372784	97.46912145	94.13969597
190115A00063	1/15/2019	2.96	1/16/2024	1/15/2019	109.97929	109.9792912	109.9792912	109.9792912	108.1681014	104.4437964	100.8689413	97.43667692	94.14050199
190117A00002	1/17/2019	2.87	1/7/2021	1/17/2019	101.82887	101.8288665	101.8288665	101.8288665	101.69192	100.9938725	100.3054004	99.62630754	98.95640303
190117A00004	1/17/2019	2.9	1/18/2022	1/17/2019	104.53202	104.5320176	104.5320176	104.5320176	104.0851213	102.3664476	100.684488	99.03813054	97.42630853
190118A00023	1/18/2019	2.9	1/19/2021	1/18/2019	101.93795	101.93795	101.93795	101.93795	101.7895382	101.0582799	100.3375241	99.62704557	98.9266254
190122A00046	1/22/2019	3.29	1/22/2029	1/22/2019	127.94661	127.9466137	127.9466137	125.8214786	116.6436426	107.9858893	100.0574829	92.79268547	86.13202244
190131A00019	1/31/2019	3.44	1/30/2034	1/31/2019	145.96164	145.9616357	145.9616357	136.0057624	121.4024252	108.406714	97.02327691	87.03982382	78.27319039
190211A00016	2/11/2019	3.01	2/11/2025	2/11/2019	113.03376	113.0337622	113.0337622	113.0337622	110.1091469	105.3158749	100.7617165	96.4334566	92.31868278

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190214A00004	2/14/2019	2.6	2/14/2022	2/14/2019	104.51008	104.5100802	104.5100802	104.5100802	104.0393503	102.2396911	100.4799033	98.75880963	97.07527761
171026A00004	10/26/2017	2	10/26/2020	10/26/2017	100.86724	100.8672419	100.8672419	100.8672419	100.7920614	100.2970617	99.80691516	99.32155076	98.84089873
171026A00006	10/26/2017	2.32	10/26/2022	10/26/2017	105.09222	105.0922244	105.0922244	105.0922244	104.2694173	101.7928612	99.38807049	97.05255352	94.78392073
171026A00008	10/26/2017	2.6	10/25/2024	10/26/2017	110.37336	110.3733644	110.3733644	110.3733644	107.8149068	103.35831	99.11298079	95.0678017	91.21229819
171031A00007	10/31/2017	2.15	12/27/2021	10/31/2017	103.11416	103.1141578	103.1141578	103.1141578	102.6874676	101.0393521	99.42558139	97.84514665	96.29707879
171031A00027	10/31/2017	1.98	10/30/2020	10/31/2017	100.87648	100.8764834	100.8764834	100.8764834	100.7990149	100.2930233	99.79209465	99.29615344	98.80512552
171031A00029	10/31/2017	2.43	10/31/2023	10/31/2017	107.54242	107.5424226	107.5424226	107.5424226	105.925746	102.4444579	99.09699728	95.87750267	92.78040207
171101A00022	11/1/2017	2.65	11/1/2024	11/1/2017	110.64443	110.6444316	110.6444316	110.6444316	108.0629471	103.5829547	99.31609283	95.25110352	91.37738241
171115A00028	11/15/2017	2.25	8/18/2021	11/15/2017	102.58693	102.5869343	102.5869343	102.5869343	102.2683352	100.969801	99.69779223	98.45150442	97.23016572
171120A00017	11/20/2017	2.41	11/21/2022	11/20/2017	105.46995	105.4699478	105.4699478	105.4699478	104.5977477	102.047014	99.57171992	97.16918232	94.83683152
171122A00012	11/22/2017	2.22	11/23/2020	11/22/2017	101.12888	101.1288756	101.1288756	101.1288756	101.0331234	100.4606205	99.8945957	99.33493953	98.78154488
171130A00003	11/30/2017	2.22	11/30/2020	11/30/2017	101.16693	101.1669273	101.1669273	101.1669273	101.0658026	100.4740239	99.88915232	99.31106762	98.73965229
171206A00010	12/6/2017	2.45	12/6/2022	12/6/2017	105.66247	105.6624678	105.6624678	105.6624678	104.7611638	102.1681694	99.65272173	97.21202641	94.84340906
171208A00007	12/8/2017	2.47	12/9/2024	12/8/2017	110.96923	110.9692325	110.9692325	110.9692325	108.2497251	103.6387718	99.25192786	95.0771038	91.10292866
171214A00005	12/14/2017	2.29	12/14/2022	12/14/2017	105.76947	105.7694705	105.7694705	105.7694705	104.8480722	102.2225291	99.67618936	97.20617205	94.80972142
171228A00089	12/28/2017	2.13	12/28/2020	12/28/2017	101.35205	101.3520534	101.3520534	101.3520534	101.2245837	100.5544797	99.89322649	99.24064964	98.59657923
180102A00004	1/2/2018	2.28	1/8/2021	1/2/2018	101.4219	101.4219031	101.4219031	101.4219031	101.2842595	100.5850712	99.89551886	99.21540417	98.54453427
180104A00018	1/4/2018	2.97	1/4/2027	1/4/2018	117.87171	117.8717083	117.8717083	117.8717083	111.326144	104.746821	98.60686592	92.87454618	87.52058467
180125A00022	1/25/2018	2.69	1/25/2023	1/25/2018	106.62384	106.623843	106.623843	106.623843	105.6202259	102.8845011	100.2337951	97.66490702	95.17478158
180205A00019	2/5/2018	2.88	2/5/2025	2/5/2018	113.32428	113.3242844	113.3242844	113.3242844	110.3949011	105.5828493	101.0107691	96.66537863	92.53420649
180215A00044	2/15/2018	2.64	2/1/2021	2/15/2018	101.83348	101.8334811	101.8334811	101.8334811	101.6728007	100.9065159	100.1517557	99.40826174	98.67578315
180220A00027	2/20/2018	2.69	2/19/2021	2/20/2018	101.99221	101.9922134	101.9922134	101.9922134	101.8142675	100.9982541	100.1953033	99.40510322	98.62735188
180226A00043	2/26/2018	2.73	9/27/2021	2/26/2018	103.48935	103.4893484	103.4893484	103.4893484	103.1366429	101.7284506	100.346355	98.98969303	97.65782393
180307A00010	3/7/2018	2.68	2/16/2021	3/7/2018	101.96406	101.9640611	101.9640611	101.9640611	101.788994	100.9812737	100.1863564	99.40393943	98.63372939
180308A00016	3/8/2018	2.88	6/1/2022	3/8/2018	105.4523	105.4523006	105.4523006	105.4523006	104.8634794	102.7717003	100.7322776	98.74354759	96.80391237
180308A00011	3/8/2018	2.9	9/15/2022	3/8/2018	106.25648	106.2564802	106.2564802	106.2564802	105.5019843	103.1188375	100.8017476	98.54852085	96.35704957
180323A00005	3/23/2018	2.79	3/23/2021	3/23/2018	102.28945	102.2894534	102.2894534	102.2894534	102.0803858	101.1760718	100.2877616	99.41503304	98.55747858
180326A00010	3/26/2018	2.6	3/26/2021	3/26/2018	102.2734	102.2734043	102.2734043	102.2734043	102.0609611	101.1466763	100.2487427	99.36672438	98.50020099
180327A00024	3/27/2018	2.79	5/26/2023	3/27/2018	108.30296	108.3029573	108.3029573	108.3029573	107.0276777	103.9307722	100.9403384	98.05210673	95.26200555
180328A00018	3/28/2018	2.73	3/28/2023	3/28/2018	107.69001	107.6900084	107.6900084	107.6900084	106.5469907	103.6156078	100.7805302	98.03807836	95.38473414
180406A00005	4/6/2018	2.76	4/6/2021	4/6/2018	102.34958	102.3495837	102.3495837	102.3495837	102.1275131	101.1849952	100.259849	99.35159732	98.45978041

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180425A00007	4/25/2018	2.98	4/25/2023	4/25/2018	108.64785	108.6478458	108.6478458	108.6478458	107.4394784	104.4188304	101.4998153	98.6784508	95.95093439
180426A00016	4/26/2018	2.77	4/26/2021	4/26/2018	102.6571	102.6571038	102.6571038	102.6571038	102.4167544	101.416043	100.4348562	99.47262694	98.5288095
180430A00010	4/30/2018	2.88	1/15/2021	4/30/2018	101.89415	101.8941522	101.8941522	101.8941522	101.7495668	101.0294067	100.3194375	99.6194437	98.92921598
180507A00005	5/7/2018	3.06	5/5/2023	5/7/2018	108.40672	108.4067238	108.4067238	108.4067238	107.1836327	104.1530228	101.2249145	98.39526822	95.6602278
180507A00039	5/7/2018	2.97	11/8/2021	5/7/2018	104.14404	104.144035	104.144035	104.144035	103.7544111	102.2291133	100.7340331	99.26834639	97.83125821
180522A00017	5/22/2018	2.98	5/24/2021	5/22/2018	102.91722	102.9172184	102.9172184	102.9172184	102.6568525	101.58094	100.5275626	99.49601747	98.48563065
180529A00014	5/29/2018	2.83	5/30/2023	5/29/2018	108.45732	108.4573181	108.4573181	108.4573181	107.1724703	104.0627347	101.0601652	98.16045294	95.35948911
180530A00028	5/30/2018	3.67	5/31/2033	5/30/2018	143.76361	143.7636095	143.7636095	135.1783761	121.4463911	109.1092965	98.23103713	88.62809518	80.14104874
180530A00044	5/30/2018	2.87	5/31/2022	5/30/2018	105.42411	105.4241103	105.4241103	105.4241103	104.8367707	102.7480176	100.7114981	98.72555427	96.78859374
180530A00067	5/30/2018	2.76	5/28/2021	5/30/2018	102.70745	102.7074487	102.7074487	102.7074487	102.4445204	101.358974	100.2963946	99.25605887	98.23727382
180530A00069	5/30/2018	2.87	5/31/2022	5/30/2018	105.42411	105.4241103	105.4241103	105.4241103	104.8367707	102.7480176	100.7114981	98.72555427	96.78859374
180530A00074	5/30/2018	2.87	5/31/2022	5/30/2018	105.42411	105.4241103	105.4241103	105.4241103	104.8367707	102.7480176	100.7114981	98.72555427	96.78859374
180601A00007	6/1/2018	2.74	6/1/2020	6/1/2018	100.21508	100.2150758	100.2150758	100.2150758	100.2069244	100.1182308	100.0296936	99.94131234	99.85308667
180607A00026	6/7/2018	2.92	6/7/2021	6/7/2018	102.955	102.9550035	102.9550035	102.9550035	102.685267	101.5711347	100.4811551	99.41454881	98.37056958
180612A00005	6/12/2018	3.09	6/12/2023	6/12/2018	108.79042	108.7904165	108.7904165	108.7904165	107.4819175	104.3456322	101.3180573	98.39479091	95.57163723
180614A00008	6/14/2018	2.94	6/14/2021	6/14/2018	103.02891	103.0289067	103.0289067	103.0289067	102.7546683	101.6211006	100.5125245	99.42811974	98.36710171
180619A00020	6/19/2018	3.1	6/19/2025	6/19/2018	115.48836	115.4883606	115.4883606	115.4883606	112.0491508	106.839787	101.9073507	97.23561825	92.80940417
180621A00017	6/21/2018	3.42	6/21/2028	6/21/2018	125.40348	125.4034778	125.4034778	124.0113063	115.5869386	107.5585185	100.1646659	93.35155129	87.07018614
180911A00011	9/11/2018	3	9/10/2021	9/11/2018	103.74732	103.7473209	103.7473209	103.7473209	103.4084522	102.0448172	100.7057027	99.3905038	98.09863499
180918A00012	9/18/2018	3.06	9/17/2021	9/18/2018	103.88379	103.8837858	103.8837858	103.8837858	103.5388269	102.1550461	100.7964606	99.46244103	98.1523786
180918A00023	9/18/2018	3.17	9/18/2023	9/18/2018	109.81733	109.8173296	109.8173296	109.8173296	108.2851112	104.8755534	101.5925535	98.43075361	95.3850514
180924A00043	9/24/2018	2.99	9/24/2020	9/24/2018	101.11617	101.1161683	101.1161683	101.1161683	101.0586484	100.6509074	100.2464569	99.84525738	99.44726961
180924A00055	9/24/2018	3.1	9/24/2021	9/24/2018	103.99419	103.9941914	103.9941914	103.9941914	103.6431812	102.2394403	100.8615736	99.50892701	98.18086802
180925A00045	9/25/2018	3.31	9/25/2025	9/25/2018	117.44274	117.442737	117.442737	117.442737	113.5389994	108.034702	102.835788	97.92370548	93.28112251
181002A00019	10/2/2018	2.98	10/4/2021	10/2/2018	104.14563	104.1456334	104.1456334	104.1456334	103.7848192	102.3489612	100.9400976	99.55753292	98.20059486
181004A00049	10/4/2018	3.06	11/4/2020	10/4/2018	101.46392	101.4639209	101.4639209	101.4639209	101.3825749	100.8611064	100.3449972	99.83416498	99.32852913
181009A00008	10/9/2018	3.24	10/7/2022	10/9/2018	107.25178	107.2517817	107.2517817	107.2517817	106.4559214	104.0017731	101.6171687	99.29974443	97.0472316
181009A00036	10/9/2018	3.07	10/8/2021	10/9/2018	104.30877	104.3087744	104.3087744	104.3087744	103.9442199	102.4964828	101.0761571	99.68253139	98.31491842
181022A00051	10/22/2018	3.11	10/22/2020	10/22/2018	101.38703	101.3870312	101.3870312	101.3870312	101.3139361	100.828425	100.3475702	99.87130472	99.3995631
181025A00021	10/25/2018	2.97	10/26/2020	10/25/2018	101.41777	101.4177693	101.4177693	101.4177693	101.3422431	100.8448218	100.3522839	99.86455778	99.38157301
181026A00021	10/29/2018	3.11	1/15/2021	10/29/2018	102.06009	102.0600922	102.0600922	102.0600922	101.9153995	101.1945741	100.4839463	99.78330048	99.09242718

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181030A00012	10/30/2018	3.32	10/30/2023	10/30/2018	110.67913	110.6791338	110.6791338	110.6791338	109.0463111	105.5128521	102.1145679	98.84555406	95.70019699
181109A00027	11/13/2018	3.48	4/15/2024	11/13/2018	112.71304	112.7130425	112.7130425	112.7130425	110.6618505	106.6489389	102.8061283	99.12530486	95.59878514
181114A00010	11/14/2018	3.08	11/15/2021	11/14/2018	104.63547	104.6354652	104.6354652	104.6354652	104.2379651	102.6850228	101.1631138	99.67138004	98.20899466
181115A00061	11/15/2018	2.95	11/16/2020	11/15/2018	101.57284	101.5728401	101.5728401	101.5728401	101.4820834	100.92638	100.376768	99.83314728	99.29542013
181121A00015	11/21/2018	3.24	11/21/2022	11/21/2018	107.61712	107.6171241	107.6171241	107.6171241	106.7374451	104.158851	101.6563266	99.22716919	96.86879044
181127A00026	11/27/2018	3.2	11/26/2021	11/27/2018	104.6439	104.643898	104.643898	104.643898	104.2385254	102.6597065	101.1127037	99.59662386	98.11060675
181129A00023	11/29/2018	3.16	11/29/2021	11/29/2018	104.60397	104.6039691	104.6039691	104.6039691	104.1961984	102.6094672	101.0548055	99.53130895	98.03810667
181130A00025	11/30/2018	3	6/1/2022	11/30/2018	106.09127	106.0912732	106.0912732	106.0912732	105.4985341	103.392564	101.3394034	99.33737067	97.38485105
181206A00012	12/6/2018	3.14	12/6/2023	12/6/2018	110.33249	110.3324896	110.3324896	110.3324896	108.6158482	104.9903784	101.5067676	98.15867266	94.94007169
181213A00024	12/13/2018	3.05	12/11/2020	12/13/2018	101.74524	101.7452447	101.7452447	101.7452447	101.6335972	101.0097181	100.3934992	99.7847998	99.18348276
181218A00033	12/18/2018	2.96	12/18/2020	12/18/2018	101.74162	101.7416158	101.7416158	101.7416158	101.6234582	100.980429	100.3455376	99.71863006	99.0995562
180328A00035	3/28/2018	2.73	3/29/2021	3/28/2018	102.27607	102.2760678	102.2760678	102.2760678	102.0611902	101.1406508	100.2366864	99.34885235	98.47671968
180402A00041	4/2/2018	2.77	4/6/2021	4/2/2018	102.35904	102.3590425	102.3590425	102.3590425	102.1369628	101.1943967	100.2692028	99.36090414	98.46904081
180410A00017	4/10/2018	3.02	10/10/2023	4/10/2018	109.46977	109.46977	109.46977	109.46977	107.8896201	104.4284542	101.0979589	97.89250792	94.80674786
180411A00014	4/11/2018	2.88	6/27/2022	4/11/2018	105.63742	105.6374204	105.6374204	105.6374204	105.0115187	102.8469864	100.7379373	98.6825565	96.67910316
180430A00016	4/30/2018	3.07	12/15/2022	4/30/2018	107.36095	107.3609506	107.3609506	107.3609506	106.4360376	103.7971033	101.2374772	98.75428129	96.34476249
180430A00066	4/30/2018	2.84	3/30/2022	4/30/2018	105.27791	105.2779094	105.2779094	105.2779094	104.7642767	102.8366311	100.9541689	99.11555951	97.31952037
180510A00003	5/10/2018	2.77	5/11/2020	5/10/2018	100.07456	100.0745636	100.0745636	100.0745636	100.0718003	100.0413015	100.0108372	99.9804072	99.95001157
180514A00032	5/14/2018	3.27	5/14/2026	5/14/2018	119.2321	119.2320981	119.2320981	119.2320981	114.0296688	107.9083636	102.1614821	96.76409235	91.69305024
180515A00018	5/15/2018	2.98	5/14/2021	5/15/2018	102.8422	102.8421972	102.8421972	102.8421972	102.5889357	101.5405966	100.5136712	99.50750786	98.52148125
180518A00020	5/21/2018	3.08	3/15/2022	5/21/2018	105.29349	105.2934949	105.2934949	105.2934949	104.7960854	102.9139806	101.0750561	99.2780671	97.52181269
180524A00020	5/24/2018	2.74	5/24/2021	5/24/2018	102.8308	102.830797	102.830797	102.830797	102.5698715	101.4919318	100.4366135	99.4032098	98.39104321
180529A00037	5/29/2018	2.83	5/28/2021	5/29/2018	102.78374	102.7837418	102.7837418	102.7837418	102.5207248	101.4347358	100.3717202	99.33095487	98.31174636
180529A00044	5/29/2018	3.11	5/29/2024	5/29/2018	111.5759	111.5759042	111.5759042	111.5759042	109.4199765	105.3159239	101.3905129	97.63499639	94.04110474
180529A00056	5/29/2018	3	5/26/2023	5/29/2018	108.38084	108.3808435	108.3808435	108.3808435	107.1117352	104.0269444	101.0479073	98.17039369	95.39036901
180601A00022	6/1/2018	3.03	6/1/2023	6/1/2018	108.51903	108.5190323	108.5190323	108.5190323	107.2360906	104.133514	101.1376972	98.24435191	95.44938927
180614A00034	6/15/2018	2.89	1/11/2021	6/15/2018	101.87211	101.8721097	101.8721097	101.8721097	101.7313369	101.0221901	100.3229256	99.63333786	98.95322668
180615A00031	6/15/2018	2.92	6/15/2021	6/15/2018	103.01348	103.0134764	103.0134764	103.0134764	102.738627	101.6024402	100.4913631	99.40456954	98.34126936
180618A00026	6/18/2018	3.05	4/13/2023	6/18/2018	108.20964	108.2096384	108.2096384	108.2096384	107.0353655	104.0660795	101.1954183	98.41956825	95.73488543
180620A00038	6/20/2018	3.4	6/20/2028	6/20/2018	125.23198	125.2319755	125.2319755	123.8430815	115.4264419	107.4067407	100.0208748	93.21508584	86.94044879
180702A00034	7/2/2018	2.86	7/3/2023	7/2/2018	108.80871	108.8087051	108.8087051	108.8087051	107.4466398	104.2400813	101.1466092	98.16156059	95.28049629

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180712A00033	7/12/2018	2.86	7/13/2020	7/12/2018	100.53322	100.533223	100.533223	100.533223	100.5088987	100.3036634	100.0992785	99.89573873	99.69303877
180716A00016	7/16/2018	3.03	7/14/2023	7/16/2018	108.84237	108.8423704	108.8423704	108.8423704	107.4628982	104.2413947	101.1340681	98.13618246	95.24323096
180716A00056	7/16/2018	3.1	7/16/2025	7/16/2018	115.71062	115.7106191	115.7106191	115.7106191	112.1549858	106.8722404	101.873721	97.14257286	92.66303428
180718A00026	7/18/2018	3.03	7/18/2023	7/18/2018	108.87252	108.8725151	108.8725151	108.8725151	107.4840268	104.2517017	101.134255	98.12690742	95.22511164
190214A00006	2/14/2019	2.67	2/14/2024	2/14/2019	109.7936	109.7936035	109.7936035	109.7936035	107.9028656	104.0869899	100.4276031	96.91743332	93.5495891
190215A00017	2/15/2019	2.89	2/15/2024	2/15/2019	109.93048	109.9304769	109.9304769	109.9304769	108.0476368	104.2450504	100.5980254	97.09935212	93.74219646
190226A00006	2/26/2019	2.64	2/26/2024	2/26/2019	109.76192	109.7619234	109.7619234	109.7619234	107.8421503	103.9939833	100.304893	96.767485	93.37474751
190326A00002	3/26/2019	2.56	9/26/2022	3/26/2019	105.50827	105.508272	105.508272	105.508272	104.7373815	102.3337369	99.99755319	97.726563	95.51858884
190327A00006	3/27/2019	2.53	3/27/2024	3/27/2019	108.80385	108.8038465	108.8038465	108.8038465	106.8285836	102.9412752	99.21752189	95.64960288	92.23020166
190328A00003	3/28/2019	2.64	9/30/2024	3/28/2019	110.44009	110.4400921	110.4400921	110.4400921	107.9532746	103.5558405	99.36390224	95.36680256	91.55449097
190328A00022	3/28/2019	2.53	11/20/2020	3/28/2019	101.28809	101.2880882	101.2880882	101.2880882	101.1945579	100.6297487	100.0712404	99.51892814	98.97270894
190328A00083	3/28/2019	2.37	3/28/2024	3/28/2019	108.90972	108.9097194	108.9097194	108.9097194	106.9191307	103.0077893	99.2615849	95.67269745	92.23371777
190329A00034	3/29/2019	2.56	3/29/2022	3/29/2019	104.37697	104.3769681	104.3769681	104.3769681	103.8682519	101.9585751	100.0935315	98.27181127	96.49215156
190403A00006	4/3/2019	2.48	4/3/2024	4/3/2019	109.38418	109.3841831	109.3841831	109.3841831	107.3751488	103.4390822	99.66974649	96.05921684	92.59998665
190403A00024	4/3/2019	2.61	7/29/2022	4/3/2019	105.25313	105.2531282	105.2531282	105.2531282	104.5802493	102.3358432	100.1507924	98.02308476	95.95079418
190426A00008	4/26/2019	2.57	4/26/2022	4/26/2019	104.57185	104.5718479	104.5718479	104.5718479	104.031289	102.0440134	100.1049674	98.21267994	96.365735
190429A00004	4/29/2019	2.65	4/15/2024	4/29/2019	109.39934	109.3993354	109.3993354	109.3993354	107.3722814	103.4243299	99.64446498	96.02465191	92.55728261
190509A00019	5/9/2019	2.5	10/12/2021	5/9/2019	103.25303	103.2530269	103.2530269	103.2530269	102.8878809	101.4416234	100.0228964	98.63098209	97.2651872
190515A00024	5/15/2019	2.38	5/17/2021	5/15/2019	102.22904	102.2290404	102.2290404	102.2290404	101.9743606	100.9213448	99.89002587	98.87973831	97.88984344
190515A00059	5/15/2019	2.38	5/14/2021	5/15/2019	102.21152	102.211519	102.211519	102.211519	101.9589576	100.9141617	99.89072902	98.88800902	97.90537751
190516A00016	5/16/2019	2.53	6/29/2020	5/16/2019	100.37563	100.3756336	100.3756336	100.3756336	100.3572795	100.1909598	100.0251891	99.85996467	99.69528389
190521A00068	5/21/2019	2.47	9/15/2021	5/21/2019	103.04584	103.0458404	103.0458404	103.0458404	102.7038866	101.3316765	99.98436832	98.66134254	97.36199966
190522A00003	5/22/2019	2.55	5/22/2024	5/22/2019	109.22913	109.2291297	109.2291297	109.2291297	107.10917	103.0700802	99.2067214	95.51050721	91.97331835
190523A00014	5/23/2019	2.5	11/15/2023	5/23/2019	107.88047	107.8804669	107.8804669	107.8804669	106.2273507	102.7005848	99.31054749	96.05119472	92.91678437
190523A00016	5/23/2019	2.48	2/15/2023	5/23/2019	106.16834	106.1683364	106.1683364	106.1683364	105.1234687	102.3356378	99.63611036	97.021575	94.48886615
190524A00004	5/24/2019	2.27	5/24/2021	5/24/2019	102.32329	102.3232854	102.3232854	102.3232854	102.0629441	100.9879281	99.93549061	98.90492598	97.89555764
190528A00015	5/28/2019	2.42	5/27/2022	5/28/2019	104.45243	104.4524259	104.4524259	104.4524259	103.8727773	101.8049056	99.78862664	97.82230946	95.90438694
190528A00042	5/28/2019	2.38	11/29/2021	5/28/2019	103.35465	103.3546502	103.3546502	103.3546502	102.949217	101.3728084	99.82828568	98.31474953	96.83133405
180313A00022	3/13/2018	2.54	3/12/2021	3/13/2018	102.12429	102.124287	102.124287	102.124287	101.925602	101.0501802	100.1897747	99.34400139	98.51248909
180328A00006	3/28/2018	2.73	3/26/2021	3/28/2018	102.25555	102.2555463	102.2555463	102.2555463	102.043598	101.1313041	100.2352972	99.35514411	98.49042664
180328A00008	3/28/2018	2.85	3/25/2022	3/28/2018	104.90929	104.9092917	104.9092917	104.9092917	104.4031938	102.4988024	100.6386742	98.82151679	97.04608392

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180329A00003	3/29/2018	3.08	3/29/2028	3/29/2018	123.6606	123.6605986	123.6605986	122.5119265	114.2759141	106.4321737	99.19680366	92.51924427	86.3533853
180329A00010	3/29/2018	2.76	3/29/2021	3/29/2018	102.30378	102.3037807	102.3037807	102.3037807	102.0888775	101.1681999	100.2640991	99.37613018	98.50386441
180403A00005	4/3/2018	2.72	4/3/2023	4/3/2018	107.70377	107.7037695	107.7037695	107.7037695	106.5477152	103.6002646	100.7501574	97.9936544	95.32718114
180418A00021	4/18/2018	2.85	4/19/2021	4/18/2018	102.52726	102.5272552	102.5272552	102.5272552	102.2937143	101.314976	100.3549486	99.41309879	98.48891376
180425A00023	4/25/2018	2.97	4/23/2021	4/25/2018	102.68481	102.6848081	102.6848081	102.6848081	102.4475946	101.4570216	100.4855885	99.53274452	98.59795946
180427A00011	4/27/2018	3.03	4/27/2022	4/27/2018	105.50418	105.5041802	105.5041802	105.5041802	104.9601971	102.9606767	101.0097021	99.10579096	97.24751643
180510A00024	5/10/2018	2.77	5/10/2021	5/10/2018	102.76013	102.7601277	102.7601277	102.7601277	102.5091379	101.4697184	100.4513507	99.45339985	98.475256
180514A00004	5/14/2018	2.64	5/14/2020	5/14/2018	100.09813	100.0981326	100.0981326	100.0981326	100.0946082	100.0557106	100.0168612	99.97805965	99.93930599
180514A00030	5/14/2018	2.9	5/16/2022	5/14/2018	105.75648	105.7564847	105.7564847	105.7564847	105.1855805	103.1258098	101.1170256	99.15763246	97.24609671
180514A00035	5/14/2018	3.07	5/14/2024	5/14/2018	112.06317	112.0631722	112.0631722	112.0631722	109.92914	105.8329573	101.9141114	98.16396747	94.57435892
180515A00035	5/16/2018	2.98	5/17/2021	5/16/2018	102.8647	102.8647035	102.8647035	102.8647035	102.6093105	101.5526977	100.5178337	99.50405138	98.51071108
180517A00036	5/17/2018	2.74	9/17/2020	5/17/2018	101.01952	101.0195184	101.0195184	101.0195184	100.9653026	100.5764498	100.1906016	99.80772288	99.42777951
180521A00025	5/21/2018	3.24	5/21/2025	5/21/2018	115.96576	115.9657583	115.9657583	115.9657583	112.6362004	107.4889249	102.6115541	97.98848222	93.60508841
180521A00072	5/21/2018	2.96	5/23/2022	5/21/2018	105.93581	105.9358146	105.9358146	105.9358146	105.3553273	103.2750422	101.2465401	99.2681879	97.33841675
180529A00060	5/29/2018	2.83	6/1/2021	5/29/2018	102.81206	102.812061	102.812061	102.812061	102.5462767	101.4492718	100.3756992	99.32481388	98.29590243
180530A00006	5/30/2018	2.87	5/31/2022	5/30/2018	105.42411	105.4241103	105.4241103	105.4241103	104.8367707	102.7480176	100.7114981	98.72555427	96.78859374
180530A00084	5/30/2018	2.61	6/1/2021	5/30/2018	102.74575	102.7457523	102.7457523	102.7457523	102.4793695	101.3801598	100.304474	99.25156317	98.2207098
180604A00026	6/4/2018	2.74	6/4/2020	6/4/2018	100.23515	100.2351476	100.2351476	100.2351476	100.2259034	100.1288928	100.0320748	99.93544877	99.83901426
180604A00045	6/4/2018	2.87	6/4/2021	6/4/2018	102.87761	102.877612	102.877612	102.877612	102.6098592	101.504327	100.422586	99.36387426	98.32746187
180604A00047	6/4/2018	2.97	6/3/2022	6/4/2018	105.65692	105.6569193	105.6569193	105.6569193	105.0647464	102.9653247	100.9185374	98.92270817	96.97622723
180604A00050	6/4/2018	3.15	6/4/2024	6/4/2018	111.7874	111.7873961	111.7873961	111.7873961	109.6140505	105.4900946	101.5461798	97.77346279	94.16358422
180621A00052	6/25/2018	3.35	6/23/2023	6/25/2018	109.70069	109.7006864	109.7006864	109.7006864	108.3634911	105.1833969	102.1142461	99.15151171	96.29088128
180622A00003	6/22/2018	2.87	6/22/2022	6/22/2018	105.97645	105.9764505	105.9764505	105.9764505	105.3542519	103.1919253	101.0848913	99.03134704	97.02956333
180622A00009	6/22/2018	2.82	6/22/2020	6/22/2018	100.37169	100.3716923	100.3716923	100.3716923	100.355886	100.2089368	100.0624271	99.91635492	99.77071829
180625A00039	6/25/2018	2.93	6/25/2021	6/25/2018	103.09824	103.0982424	103.0982424	103.0982424	102.8169882	101.653175	100.5156811	99.40362088	98.31614809
180625A00040	6/25/2018	3	6/24/2022	6/25/2018	105.87685	105.8768533	105.8768533	105.8768533	105.2545213	103.0955074	100.9916695	98.94120855	96.9423989
180626A00033	6/26/2018	2.79	6/26/2020	6/26/2018	100.39805	100.3980455	100.3980455	100.3980455	100.3807787	100.2227166	100.065156	99.90809438	99.75152946
180627A00014	6/27/2018	2.8	6/26/2020	6/27/2018	100.39963	100.3996283	100.3996283	100.3996283	100.3823613	100.2242973	100.0667347	99.90967112	99.75310427
180628A00027	6/28/2018	2.72	6/28/2021	6/28/2018	103.06168	103.0616827	103.0616827	103.0616827	102.7778528	101.6033022	100.4555423	99.33366415	98.23679985
180629A00004	6/29/2018	2.65	6/29/2020	6/29/2018	100.4219	100.4219013	100.4219013	100.4219013	100.4035104	100.2368578	100.0707583	99.90520918	99.74020779
180629A00071	6/29/2018	3.02	6/29/2023	6/29/2018	108.69742	108.6974238	108.6974238	108.6974238	107.3519131	104.1716089	101.1028557	98.14107887	95.28192192

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180705A00061	7/5/2018	3	7/6/2022	7/5/2018	105.96642	105.9664187	105.9664187	105.9664187	105.3263059	103.1341774	100.998706	98.91801973	96.89032415
180719A00011	7/19/2018	3	11/12/2021	7/19/2018	104.22032	104.2203158	104.2203158	104.2203158	103.8272588	102.2903574	100.7840195	99.30740565	97.85970699
180720A00029	7/20/2018	2.71	7/20/2020	7/20/2018	100.58314	100.5831414	100.5831414	100.5831414	100.55576	100.3307643	100.1067888	99.88382643	99.66187024
180720A00049	7/20/2018	2.93	7/20/2021	7/20/2018	103.26975	103.269751	103.269751	103.269751	102.971634	101.7392129	100.5362681	99.36175069	98.21466136
180720A00068	7/20/2018	2.89	7/20/2023	7/20/2018	109.03557	109.0355671	109.0355671	109.0355671	107.6343898	104.3798962	101.2415304	98.21444282	95.29401961
180723A00030	6/21/2019	3.24	6/21/2024	6/21/2019	112.29617	112.2961656	112.2961656	112.2961656	110.0737329	105.8946779	101.8996637	98.0795669	94.42576897
180731A00002	7/31/2018	2.83	2/16/2021	7/31/2018	102.19839	102.1983915	102.1983915	102.1983915	102.0227914	101.2125144	100.4150982	99.63023845	98.8576399
180731A00004	7/31/2018	2.97	7/31/2023	7/31/2018	109.38324	109.383238	109.383238	109.383238	107.9557061	104.6669289	101.4963565	98.43901306	95.49016686
180731A00046	7/31/2018	2.84	3/26/2021	7/31/2018	102.49327	102.4932744	102.4932744	102.4932744	102.2806302	101.3652551	100.4662448	99.58316327	98.71558976
180802A00006	8/2/2018	2.99	8/2/2023	8/2/2018	109.46495	109.4649514	109.4649514	109.4649514	108.032486	104.7371497	101.5604108	98.4972791	95.5430088
180809A00016	8/9/2018	3.1	8/9/2023	8/9/2018	109.26968	109.2696837	109.2696837	109.2696837	107.8302254	104.5345734	101.3578178	98.29497453	95.3413008
180814A00032	8/14/2018	3.1	8/14/2025	8/14/2018	115.94945	115.9494457	115.9494457	115.9494457	112.2621655	106.9018114	101.8336069	97.04006033	92.50482022
180820A00002	8/20/2018	2.91	8/20/2021	8/20/2018	103.47058	103.4705759	103.4705759	103.4705759	103.1491106	101.8399089	100.5568629	99.29920119	98.06618279
180821A00014	8/21/2018	2.68	8/21/2020	8/21/2018	100.80419	100.80419	100.80419	100.80419	100.762673	100.4488331	100.1369587	99.82703117	99.51903228
181221A00015	12/21/2018	2.96	12/21/2020	12/21/2018	101.76415	101.7641459	101.7641459	101.7641459	101.6431859	100.991867	100.3488935	99.71410548	99.08734733
181221A00022	12/21/2018	2.95	6/26/2020	12/21/2018	100.42337	100.4233702	100.4233702	100.4233702	100.4061002	100.2480068	100.090415	99.93332223	99.77672627
181226A00035	12/26/2018	2.95	12/27/2022	12/26/2018	107.13053	107.1305264	107.1305264	107.1305264	106.183089	103.5158806	100.9295913	98.42125415	95.98803231
181227A00029	12/27/2018	2.91	12/27/2021	12/27/2018	104.39016	104.390159	104.390159	104.390159	103.9609429	102.3018128	100.6772261	99.08616886	97.52766647
181231A00007	12/31/2018	2.86	12/31/2021	12/31/2018	104.33462	104.3346201	104.3346201	104.3346201	103.9023927	102.233139	100.5987885	98.99831062	97.43071589
190102A00050	1/2/2019	3.38	1/3/2034	1/2/2019	144.89063	144.8906305	144.8906305	135.08794	120.6073126	107.716862	96.42023167	86.50837573	77.80081076
190103A00014	1/3/2019	2.8	1/4/2021	1/3/2019	101.75872	101.7587213	101.7587213	101.7587213	101.6246673	100.9350903	100.2548586	99.58378301	98.92167966
190107A00020	1/7/2019	2.8	1/7/2021	1/7/2019	101.77992	101.7799156	101.7799156	101.7799156	101.6429993	100.9451426	100.2568594	99.57795357	98.90823435
190110A00001	1/10/2019	2.88	1/10/2022	1/10/2019	104.43998	104.4399769	104.4399769	104.4399769	103.9996093	102.3029358	100.6421651	99.01622212	97.42407458
190122A00008	1/22/2019	2.98	1/20/2023	1/22/2019	107.38895	107.388953	107.388953	107.388953	106.3924449	103.6591556	101.0103881	98.4429758	95.95389522
190123A00034	1/23/2019	2.98	1/23/2025	1/23/2019	113.70412	113.7041204	113.7041204	113.7041204	110.813798	106.0269015	101.4769956	97.1510316	93.03675503
190130A00010	1/30/2019	2.89	7/30/2020	1/30/2019	100.66343	100.663434	100.663434	100.663434	100.6317915	100.379429	100.128328	99.87847901	99.62987275
190130A00019	1/30/2019	3.01	1/30/2024	1/30/2019	110.27114	110.2711383	110.2711383	110.2711383	108.4247345	104.6592438	101.0461055	97.57826477	94.24903944
190131A00017	1/31/2019	2.83	3/25/2022	1/31/2019	104.87085	104.8708505	104.8708505	104.8708505	104.3648419	102.4608271	100.6010684	98.78427335	97.00919613
190201A00016	2/1/2019	2.8	2/1/2022	2/1/2019	104.45504	104.4550408	104.4550408	104.4550408	103.9971574	102.2418668	100.5247046	98.84449959	97.20012874
190204A00036	2/4/2019	2.86	11/4/2021	2/4/2019	103.94581	103.9458128	103.9458128	103.9458128	103.5598371	102.047108	100.5642364	99.11041322	97.68485827
190208A00009	2/8/2019	2.67	2/8/2024	2/8/2019	109.75137	109.7513717	109.7513717	109.7513717	107.875555	104.0769431	100.4335004	96.93801672	93.583661

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190214A00008	2/14/2019	2.64	2/14/2023	2/14/2019	107.13206	107.1320608	107.1320608	107.1320608	106.0803857	103.2703763	100.5494259	97.91418632	95.36145772
190215A00003	2/15/2019	2.82	2/15/2022	2/15/2019	104.60554	104.6055422	104.6055422	104.6055422	104.1352912	102.3373429	100.5791858	98.85965099	97.17761377
190222A00028	2/22/2019	2.62	2/22/2022	2/22/2019	104.60167	104.6016656	104.6016656	104.6016656	104.123875	102.2998702	100.5167008	98.77318972	97.06820268
190313A00011	3/13/2019	2.53	3/11/2022	3/13/2019	104.54962	104.5496185	104.5496185	104.5496185	104.0561246	102.1858935	100.3584763	98.57264238	96.82720462
190321A00021	3/21/2019	2.67	3/21/2024	3/21/2019	109.31629	109.3162868	109.3162868	109.3162868	107.3521314	103.4700461	99.75056049	96.18603056	92.76921089
190326A00004	3/26/2019	2.58	9/26/2023	3/26/2019	107.85231	107.8523064	107.8523064	107.8523064	106.3130432	102.9156404	99.64543013	96.49698897	93.46515378
190326A00014	3/26/2019	2.56	9/28/2020	3/26/2019	100.96622	100.9662227	100.9662227	100.9662227	100.9068304	100.4884581	100.0735472	99.66205499	99.25393939
180918A00041	9/18/2018	3.18	9/18/2024	9/18/2018	113.58752	113.5875177	113.5875177	113.5875177	111.0909779	106.6327479	102.381166	98.32558345	94.45595455
180920A00028	9/20/2018	3.12	9/20/2023	9/20/2018	110.30042	110.3004169	110.3004169	110.3004169	108.7525048	105.3138363	102.003282	98.81539797	95.74500055
180920A00063	9/20/2018	3	9/20/2021	9/20/2018	104.06277	104.062766	104.062766	104.062766	103.7139823	102.3168545	100.945355	99.59883915	98.27668321
180926A00004	9/26/2018	3.04	9/26/2022	9/26/2018	107.12282	107.1228167	107.1228167	107.1228167	106.343499	103.9109587	101.5467409	99.24854553	97.01416349
180926A00031	9/26/2018	3.24	9/26/2023	9/26/2018	110.12108	110.1210831	110.1210831	110.1210831	108.5691116	105.1331327	101.8254123	98.6404888	95.57316255
180928A00029	9/28/2018	2.87	9/28/2020	9/28/2018	101.15404	101.1540388	101.1540388	101.1540388	101.0944872	100.6749672	100.2589257	99.8463195	99.43710624
180928A00050	9/28/2018	2.98	9/28/2020	9/28/2018	101.14228	101.1422761	101.1422761	101.1422761	101.0828268	100.6640124	100.2486621	99.83673323	99.42818358
181001A00059	10/1/2018	3.02	11/2/2020	10/1/2018	101.42774	101.4277388	101.4277388	101.4277388	101.347942	100.8320774	100.3214557	99.81599716	99.31562388
181004A00028	10/4/2018	3.31	10/4/2023	10/4/2018	110.42802	110.428017	110.428017	110.428017	108.8561282	105.3939657	102.0617651	98.85395942	95.76525055
181005A00011	10/5/2018	3.2	10/5/2023	10/5/2018	110.7028	110.7028032	110.7028032	110.7028032	109.1182997	105.6329193	102.2787969	99.05029232	95.94203875
181005A00041	10/5/2018	3.06	10/5/2020	10/5/2018	101.2303	101.2303016	101.2303016	101.2303016	101.1669984	100.7286871	100.2941725	99.86340561	99.43633791
181012A00012	10/12/2018	3.05	10/9/2020	10/12/2018	101.25697	101.2569673	101.2569673	101.2569673	101.1913636	100.7419709	100.2965733	99.85511737	99.41755102
181018A00011	10/18/2018	3.35	10/18/2023	10/18/2018	110.68414	110.6841397	110.6841397	110.6841397	109.0787364	105.5760734	102.2062271	98.96344798	95.84226734
181023A00021	10/23/2018	3.28	10/23/2023	10/23/2018	110.48037	110.4803673	110.4803673	110.4803673	108.8647081	105.3527031	101.9743971	98.72397985	95.59592596
181025A00010	10/25/2018	3.07	10/25/2022	10/25/2018	107.43314	107.4331378	107.4331378	107.4331378	106.6007009	104.0875919	101.6472211	99.27706222	96.97469278
181102A00006	11/2/2018	3.07	11/2/2021	11/2/2018	104.5135	104.5134968	104.5134968	104.5134968	104.1269938	102.610977	101.124882	99.667899	98.23924725
181114A00014	11/14/2018	3.17	11/14/2023	11/14/2018	110.93631	110.9363148	110.9363148	110.9363148	109.2576931	105.6629265	102.2072837	98.88461484	95.68907735
181114A00024	11/14/2018	3.27	12/14/2021	11/14/2018	104.90408	104.9040846	104.9040846	104.9040846	104.4839502	102.8546758	101.2588517	99.69551326	98.16373302
181115A00051	11/15/2018	2.98	5/17/2021	11/15/2018	103.03434	103.034342	103.034342	103.034342	102.7781151	101.7180766	100.6798908	99.66288671	98.66642046
181116A00015	11/19/2018	3.29	2/15/2024	11/19/2018	111.46156	111.4615565	111.4615565	111.4615565	109.5683598	105.7369369	102.0619405	98.53612793	95.15263343
181119A00018	11/19/2018	3.28	11/17/2023	11/19/2018	110.68532	110.6853225	110.6853225	110.6853225	109.010741	105.429127	101.9860212	98.67530427	95.49116234
181120A00007	11/20/2018	3.15	11/15/2021	11/20/2018	104.47724	104.4772419	104.4772419	104.4772419	104.0812464	102.5340266	101.0176597	99.53129439	98.07411007
181128A00031	11/28/2018	3.29	11/28/2023	11/28/2018	110.81151	110.8115089	110.8115089	110.8115089	109.1106766	105.4974641	102.0248713	98.68664365	95.4768416
181130A00037	11/30/2018	3.05	11/30/2023	11/30/2018	110.63591	110.6359051	110.6359051	110.6359051	108.9217351	105.2892673	101.7987767	98.44392382	95.21868967

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180719A00063	7/19/2018	3.21	7/19/2024	7/19/2018	112.39486	112.3948626	112.3948626	112.3948626	110.0960221	105.8429683	101.7801043	97.89785164	94.1871716
180723A00026	10/23/2018	3.2	10/23/2023	10/23/2018	110.19943	110.1994265	110.1994265	110.1994265	108.585401	105.0782709	101.704703	98.45889187	95.33531692
180731A00022	7/31/2018	3.47	7/31/2028	7/31/2018	126.15442	126.1544178	126.1544178	124.6345837	116.08128	107.9387547	100.4467911	93.54959288	87.19643897
180816A00044	8/16/2018	2.83	8/17/2020	8/16/2018	100.77956	100.7795568	100.7795568	100.7795568	100.7398901	100.4376097	100.1371533	99.83850438	99.54164656
180821A00028	8/21/2018	2.99	8/21/2023	8/21/2018	108.99516	108.9951644	108.9951644	108.9951644	107.530355	104.2082101	101.0069795	97.92160414	94.9472663
180823A00055	8/23/2018	3.44	8/23/2033	8/23/2018	144.50899	144.5089913	144.5089913	135.3433317	121.1914418	108.5391557	97.41466844	87.62219349	78.99209202
180830A00039	8/30/2018	3.03	8/30/2023	8/30/2018	109.19652	109.1965176	109.1965176	109.1965176	107.7105505	104.3618551	101.1357799	98.02720233	95.03124074
180831A00018	8/31/2018	2.95	8/31/2022	8/31/2018	106.26698	106.2669777	106.2669777	106.2669777	105.5380709	103.1953176	100.9164638	98.69942207	96.54218516
180910A00028	9/10/2018	3.56	9/9/2033	9/10/2018	146.27694	146.2769387	146.2769387	136.9971526	122.7057592	109.9236504	98.68647674	88.79590089	80.08012642
180911A00080	9/11/2018	2.94	9/9/2022	9/11/2018	106.74625	106.7462451	106.7462451	106.7462451	105.9973572	103.6156674	101.2997058	99.04729912	96.85635854
180918A00038	9/18/2018	3.11	9/16/2022	9/18/2018	106.7687	106.7687002	106.7687002	106.7687002	106.0108977	103.6188502	101.2931386	99.03155791	96.83198974
180924A00047	9/24/2018	3.14	9/23/2022	9/24/2018	106.89567	106.895672	106.895672	106.895672	106.1255047	103.7129872	101.3678599	99.08786646	96.87083929
180925A00095	9/25/2018	3.01	9/25/2020	9/25/2018	101.13196	101.1319602	101.1319602	101.1319602	101.073955	100.6634224	100.2562237	99.85231848	99.45166681
180927A00042	9/27/2018	3.02	9/27/2022	9/27/2018	107.08209	107.0820878	107.0820878	107.0820878	106.3011797	103.8664188	101.5001178	99.19996914	96.96375728
181001A00049	10/1/2018	3.01	10/1/2020	10/1/2018	101.17776	101.1777641	101.1777641	101.1777641	101.1167702	100.6896091	100.2660486	99.84604325	99.42954863
181001A00074	10/1/2018	3.03	10/3/2022	10/1/2018	107.15488	107.1548819	107.1548819	107.1548819	106.3631532	103.9114339	101.529083	99.21374734	96.96316811
181005A00005	10/5/2018	3.31	10/5/2023	10/5/2018	110.43632	110.4363171	110.4363171	110.4363171	108.8620915	105.3972074	102.0624833	98.85233976	95.76146654
181005A00016	10/5/2018	3.26	1/10/2023	10/5/2018	108.07778	108.0777829	108.0777829	108.0777829	107.0988259	104.3822054	101.7488417	99.19564477	96.71966272
181009A00060	10/9/2018	3.07	10/12/2021	10/9/2018	104.34153	104.3415337	104.3415337	104.3415337	103.9734553	102.5148245	101.0840071	99.68027626	98.30293007
181010A00021	10/10/2018	3.29	3/15/2023	10/10/2018	108.68589	108.6858891	108.6858891	108.6858891	107.5719355	104.6720075	101.8659325	99.15017482	96.52135162
181016A00004	10/16/2018	3.07	10/16/2020	10/16/2018	101.32069	101.3206902	101.3206902	101.3206902	101.2510549	100.7822295	100.3177519	99.85756169	99.40159957
181016A00087	10/16/2018	3.31	10/16/2023	10/16/2018	110.52762	110.5276187	110.5276187	110.5276187	108.9276947	105.4328881	102.0704307	98.83460149	95.71995826
181022A00029	10/22/2018	3.22	10/24/2022	10/22/2018	107.33983	107.3398329	107.3398329	107.3398329	106.5131211	104.013397	101.5857691	99.22774211	96.9369227
181023A00025	10/23/2018	3.27	10/23/2023	10/23/2018	110.44525	110.4452497	110.4452497	110.4452497	108.8297947	105.3183991	101.9406853	98.69084385	95.56334983
171128A00028	11/28/2017	2.13	5/20/2020	11/28/2017	100.1011	100.1011003	100.1011003	100.1011003	100.0960782	100.0406565	99.98531128	99.93004238	99.87484967
171129A00010	11/29/2017	2.32	11/29/2021	11/29/2017	103.25855	103.2585488	103.2585488	103.2585488	102.8532954	101.2776808	99.733938	98.22116804	96.73850538
171201A00025	12/1/2017	2.08	5/3/2021	12/1/2017	102.00372	102.0037233	102.0037233	102.0037233	101.758473	100.7422754	99.7463001	98.76994829	97.81264449
171205A00005	12/6/2017	2.27	12/6/2022	12/6/2017	105.66863	105.6686289	105.6686289	105.6686289	104.763211	102.1599108	99.63466997	97.18466896	94.80720958
171206A00040	12/6/2017	2.23	12/6/2022	12/6/2017	105.56324	105.5632433	105.5632433	105.5632433	104.6582026	102.0562939	99.53241272	97.08374049	94.70757997
171207A00017	12/7/2017	2.23	10/16/2020	12/7/2017	100.92664	100.9266366	100.9266366	100.9266366	100.8571471	100.3894132	99.92601988	99.46690662	99.01201426
171213A00034	12/13/2017	2.05	12/15/2020	12/13/2017	101.22853	101.2285287	101.2285287	101.2285287	101.1132248	100.479134	99.85298821	99.23463859	98.62394003

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171220A00003	12/20/2017	2.36	12/21/2020	12/20/2017	101.37285	101.372848	101.372848	101.372848	101.2521068	100.6022224	99.96067036	99.32729096	98.70192867
180102A00020	1/2/2018	2.5	1/3/2023	1/2/2018	105.96437	105.9643681	105.9643681	105.9643681	105.0074542	102.3377722	99.74964616	97.24006533	94.80615209
180102A00021	1/2/2018	2.82	1/2/2026	1/2/2018	114.35145	114.3514488	114.3514488	114.3514488	110.0166158	104.3918939	99.09311962	94.09965216	89.39226744
180110A00027	1/10/2018	2.6	1/10/2023	1/10/2018	106.27945	106.2794536	106.2794536	106.2794536	105.3072933	102.615184	100.0057579	97.47594339	95.02280587
180110A00028	1/10/2018	2.85	1/10/2025	1/10/2018	112.04035	112.0403457	112.0403457	112.0403457	109.229729	104.5417444	100.0840959	95.84420563	91.81025401
180117A00011	1/17/2018	2.4	1/14/2021	1/17/2018	101.54189	101.5418868	101.5418868	101.5418868	101.3984775	100.6824558	99.9765339	99.28049887	98.59414395
180118A00004	1/18/2018	2.88	1/17/2025	1/18/2018	112.23172	112.2317235	112.2317235	112.2317235	109.396703	104.686951	100.2093531	95.95118859	91.9005067
180118A00010	1/18/2018	2.51	8/18/2021	1/18/2018	102.9293	102.9293034	102.9293034	102.9293034	102.6101988	101.3092999	100.0349668	98.78639384	97.56280807
180124A00019	1/24/2018	2.41	1/24/2022	1/24/2018	104.03175	104.031753	104.031753	104.031753	103.5796067	101.8440134	100.1458645	98.48401409	96.85736364
180129A00004	1/29/2018	2.63	1/31/2022	1/29/2018	104.14633	104.1463311	104.1463311	104.1463311	103.6899547	101.9403979	100.2288028	98.55399944	96.9148662
180130A00085	1/30/2018	2.79	1/30/2025	1/30/2018	112.84592	112.8459209	112.8459209	112.8459209	109.9414309	105.1569588	100.610456	96.288766	92.17953651
180201A00003	2/1/2018	2.54	2/1/2021	2/1/2018	101.75662	101.7566204	101.7566204	101.7566204	101.5959942	100.8300346	100.0755962	99.3324206	98.60025705
180205A00049	2/5/2018	2.55	2/5/2021	2/5/2018	101.78949	101.7894879	101.7894879	101.7894879	101.6250278	100.8480292	100.0828895	99.32933842	98.58711431
180205A00050	2/5/2018	2.81	2/6/2023	2/5/2018	107.03854	107.0385422	107.0385422	107.0385422	106.0088207	103.2345459	100.5473382	97.94391609	95.42114577
180207A00022	2/7/2018	2.79	2/7/2023	2/7/2018	106.98936	106.9893585	106.9893585	106.9893585	105.9577605	103.1813026	100.4920648	97.88676191	95.36225605
180215A00029	2/15/2018	2.65	2/16/2021	2/15/2018	101.93976	101.9397556	101.9397556	101.9397556	101.7647071	100.9570948	100.1622844	99.37997299	98.60986741
180216A00004	2/16/2018	2.75	2/16/2023	2/16/2018	107.4577	107.4577023	107.4577023	107.4577023	106.4005489	103.580155	100.8492752	98.20454905	95.64276372
180614A00006	6/14/2018	2.94	6/14/2021	6/14/2018	103.02891	103.0289067	103.0289067	103.0289067	102.7546683	101.6211006	100.5125245	99.42811974	98.36710171
180615A00069	6/15/2018	2.86	6/15/2022	6/15/2018	105.90159	105.9015948	105.9015948	105.9015948	105.2895118	103.1471789	101.0592793	99.02405166	97.03980604
180619A00031	6/19/2018	2.74	6/21/2021	6/19/2018	103.03435	103.034352	103.034352	103.034352	102.7549785	101.5996252	100.4702108	99.3658688	98.285771
180625A00009	6/25/2018	3	6/27/2022	6/25/2018	105.89921	105.8992071	105.8992071	105.8992071	105.2725918	103.1051694	100.9932892	98.93513443	96.92896272
180626A00045	6/26/2018	2.91	6/25/2021	6/26/2018	103.07489	103.0748939	103.0748939	103.0748939	102.7936693	101.6300005	100.4926487	99.38072832	98.29339322
180627A00017	6/27/2018	2.9	6/25/2021	6/27/2018	103.06322	103.0632196	103.0632196	103.0632196	102.7820099	101.6184132	100.4811325	99.36928203	98.28201578
180628A00018	6/28/2018	2.76	6/29/2020	6/28/2018	100.41395	100.4139536	100.4139536	100.4139536	100.3955945	100.2292266	100.0634078	99.89813547	99.73340687
180628A00081	6/28/2018	2.72	6/21/2021	6/28/2018	103.0112	103.0112023	103.0112023	103.0112023	102.731858	101.5766469	100.4473724	99.34316824	98.26320612
180629A00039	6/29/2018	2.91	6/29/2021	6/29/2018	103.10402	103.1040204	103.1040204	103.1040204	102.8202406	101.6455561	100.4976758	99.37569004	98.27872982
180703A00015	7/3/2018	3.06	7/3/2023	7/3/2018	108.85559	108.8555863	108.8555863	108.8555863	107.5004391	104.3071865	101.2262321	98.25295713	95.38296365
180719A00064	7/19/2018	3.3	7/21/2025	7/19/2018	115.74079	115.740785	115.740785	115.740785	112.1918532	106.9291124	101.9491543	97.23521996	92.77163694
180720A00030	7/20/2018	2.79	7/20/2021	7/20/2018	103.30719	103.3071911	103.3071911	103.3071911	103.0081894	101.7722943	100.5660116	99.3882862	98.23811246
180723A00027	1/23/2019	3.13	1/24/2022	1/23/2019	104.97924	104.9792379	104.9792379	104.9792379	104.5266547	102.788078	101.0868922	99.42195561	97.79217371
180723A00029	6/21/2019	3.17	6/21/2022	6/21/2019	106.22255	106.2225492	106.2225492	106.2225492	105.6035072	103.4488691	101.3491238	99.30248767	97.30724957

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180724A00075	7/24/2018	2.98	7/24/2023	7/24/2018	109.36068	109.3606788	109.3606788	109.3606788	107.9489047	104.6787281	101.5255182	98.4843766	95.55064414
180725A00027	7/25/2018	2.95	12/17/2020	7/25/2018	101.7277	101.727695	101.727695	101.727695	101.6104751	100.9702327	100.3380589	99.71380182	99.09731309
180725A00029	7/25/2018	2.98	4/16/2021	7/25/2018	102.63246	102.6324644	102.6324644	102.6324644	102.401425	101.4302794	100.4775435	99.54269718	98.62523968
180727A00037	7/27/2018	3.13	7/27/2023	7/27/2018	109.26732	109.2673209	109.2673209	109.2673209	107.856873	104.5949119	101.4495564	98.41592394	95.48937057
180727A00039	7/27/2018	3.48	7/27/2028	7/27/2018	126.20262	126.2026218	126.2026218	124.6955024	116.1513597	108.0154192	100.528712	93.63562151	87.28558434
180730A00023	7/30/2018	3.13	7/30/2024	7/30/2018	112.94943	112.9494334	112.9494334	112.9494334	110.6010044	106.2859855	102.1655492	98.22981273	94.4694555
180730A00033	7/30/2018	3.11	7/29/2022	7/30/2018	106.38805	106.3880531	106.3880531	106.3880531	105.7119107	103.4544974	101.2567108	99.11653052	97.03202288
180730A00041	7/30/2018	3.14	7/31/2023	7/30/2018	109.33138	109.3313752	109.3313752	109.3313752	107.9117273	104.6383879	101.4823779	98.4387699	95.50287829
180730A00081	7/30/2018	3.5	7/28/2028	7/30/2018	126.37637	126.3763695	126.3763695	124.8658318	116.313875	108.1691408	100.6743809	93.77390599	87.41708783
180801A00009	8/1/2018	2.98	3/15/2021	8/1/2018	102.40154	102.4015449	102.4015449	102.4015449	102.2001475	101.3170375	100.4491831	99.59619091	98.75768134
181207A00018	12/7/2018	3.21	7/15/2024	12/7/2018	112.36283	112.3628335	112.3628335	112.3628335	110.0751393	105.8329079	101.7799727	97.9068216	94.20447734
181210A00015	12/10/2018	3.12	12/11/2023	12/10/2018	110.29871	110.2987059	110.2987059	110.2987059	108.5705214	104.9327747	101.4377984	98.07918876	94.85086731
181212A00027	12/12/2018	2.99	12/12/2023	12/12/2018	110.51359	110.5135854	110.5135854	110.5135854	108.7717098	105.1102267	101.5929074	98.21326572	94.96514672
181226A00045	12/26/2018	2.87	12/28/2020	12/26/2018	101.75627	101.7562747	101.7562747	101.7562747	101.6288116	100.9583826	100.2967863	99.64384902	98.99940155
181226A00059	12/26/2018	2.87	12/28/2020	12/26/2018	101.75627	101.7562747	101.7562747	101.7562747	101.6288116	100.9583826	100.2967863	99.64384902	98.99940155
181226A00060	12/26/2018	2.9	12/27/2021	12/26/2018	104.37337	104.3733695	104.3733695	104.3733695	103.9441867	102.2852014	100.6607571	99.06983962	97.51147453
181226A00062	12/26/2018	3.02	12/26/2023	12/26/2018	110.04655	110.0465541	110.0465541	110.0465541	108.2847455	104.6130016	101.0866994	97.69925347	94.44441706
181227A00022	12/27/2019	2.91	12/27/2022	12/27/2019	107.02308	107.0230796	107.0230796	107.0230796	106.076039	103.4102753	100.8253972	98.31843873	95.8865642
190102A00003	1/2/2019	2.8	1/27/2021	1/2/2019	101.92121	101.921212	101.921212	101.921212	101.765219	101.0122023	100.2703139	99.5393083	98.8189474
190102A00043	1/2/2019	2.79	1/4/2021	1/2/2019	101.75181	101.7518115	101.7518115	101.7518115	101.6177617	100.9282113	100.2480059	99.57695649	98.91487901
190104A00003	1/4/2019	2.81	1/4/2022	1/4/2019	104.27797	104.2779687	104.2779687	104.2779687	103.842684	102.163325	100.5192516	98.90941608	97.33281235
190104A00021	1/4/2019	2.58	1/4/2021	1/4/2019	101.70228	101.7022814	101.7022814	101.7022814	101.5680053	100.877409	100.19619	99.52415816	98.86112857
190110A00016	1/10/2019	2.88	1/25/2022	1/10/2019	104.54731	104.5473132	104.5473132	104.5473132	104.0948401	102.357507	100.6575942	98.99395777	97.36550051
190115A00025	1/15/2019	2.96	1/12/2024	1/15/2019	109.94996	109.9499608	109.9499608	109.9499608	108.1484774	104.4349429	100.8700635	97.44703419	94.15940384
190122A00041	1/22/2019	2.71	1/22/2021	1/22/2019	101.92172	101.9217233	101.9217233	101.9217233	101.7701787	101.0294486	100.2994931	99.58007833	98.87097691
190128A00035	1/28/2019	3.04	1/26/2024	1/28/2019	110.35444	110.3544397	110.3544397	110.3544397	108.5170007	104.7601799	101.1549712	97.69437262	94.37175063
190131A00007	1/31/2019	2.67	1/31/2023	1/31/2019	107.11843	107.1184272	107.1184272	107.1184272	106.0959996	103.3266626	100.6439856	98.04468217	95.52561606
190131A00014	1/31/2019	2.79	1/29/2021	1/31/2019	101.92774	101.9277389	101.9277389	101.9277389	101.7698439	101.0113468	100.2641361	99.52796149	98.80257978
190208A00005	2/8/2019	2.63	2/8/2023	2/8/2019	107.06223	107.062232	107.062232	107.062232	106.0233424	103.2316533	100.5279697	97.90897129	95.37148632
190211A00017	2/11/2019	3.12	2/11/2026	2/11/2019	116.37043	116.3704276	116.3704276	116.3704276	111.7880699	106.011105	100.5737889	95.45432271	90.63242052
190215A00005	2/15/2019	2.89	2/15/2024	2/15/2019	109.93048	109.9304769	109.9304769	109.9304769	108.0476368	104.2450504	100.5980254	97.09935212	93.74219646

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190215A00046	2/15/2019	2.7	2/15/2024	2/15/2019	109.91587	109.9158734	109.9158734	109.9158734	108.0218669	104.2009383	100.5367845	97.02212081	93.65004318
190222A00021	2/22/2019	2.95	8/21/2024	2/22/2019	111.52974	111.5297385	111.5297385	111.5297385	109.1468877	104.8285057	100.7070183	96.77241189	93.01523584
190314A00018	3/14/2019	2.53	3/14/2022	3/14/2019	104.56969	104.569686	104.569686	104.569686	104.073235	102.1948728	100.3596774	98.56640326	96.81384871
190529A00012	5/29/2019	2.34	11/29/2021	5/29/2019	103.29058	103.2905826	103.2905826	103.2905826	102.8852692	101.30939	99.76538722	98.25236187	96.76944827
190530A00024	5/30/2019	2.25	5/30/2024	5/30/2019	108.80612	108.8061215	108.8061215	108.8061215	106.655379	102.5838328	98.69080379	94.96750776	91.40564197
190530A00034	5/30/2019	2.44	5/30/2024	5/30/2019	108.82598	108.8259842	108.8259842	108.8259842	106.6886015	102.6374867	98.76345385	95.05781204	91.5123454
190530A00074	5/30/2019	2.4	5/31/2022	5/30/2019	104.4338	104.4338003	104.4338003	104.4338003	103.8490393	101.7708641	99.74471064	97.76892734	95.84192754
190531A00035	5/31/2019	2.29	5/31/2022	5/31/2019	104.20203	104.2020256	104.2020256	104.2020256	103.6178681	101.5421685	99.51844124	97.54503593	95.62036737
190531A00037	5/31/2019	2.61	5/31/2029	5/31/2019	122.83747	122.8374651	122.8374651	120.2891867	110.9385537	102.2192543	94.26720663	87.01059116	80.38466414
190603A00002	6/3/2019	2.03	6/2/2023	6/3/2019	105.97793	105.9779272	105.9779272	105.9779272	104.6981856	101.6189576	98.64639755	95.77620061	93.00426284
190603A00041	6/3/2019	2.01	6/3/2021	6/3/2019	102.09503	102.0950334	102.0950334	102.0950334	101.828161	100.7273445	99.65023053	98.59606031	97.56410692
190604A00031	6/4/2019	2.25	6/5/2023	6/4/2019	106.11022	106.1102218	106.1102218	106.1102218	104.8299049	101.75403	98.78461806	95.91737383	93.14820232
190605A00004	6/5/2019	2.11	1/12/2022	6/5/2019	103.12745	103.1274525	103.1274525	103.1274525	102.6881807	100.9978218	99.34335251	97.72369445	96.13781268
190605A00055	6/5/2019	2.11	6/6/2022	6/5/2019	103.85273	103.8527274	103.8527274	103.8527274	103.2610762	101.1728954	99.13731095	97.15264087	95.21727003
190606A00009	6/6/2019	2	6/4/2021	6/6/2019	102.08917	102.0891722	102.0891722	102.0891722	101.8216776	100.718184	99.63851069	98.5818929	97.54759839
190606A00023	6/6/2019	2.23	6/6/2024	6/6/2019	107.99873	107.9987305	107.9987305	107.9987305	105.8494353	101.7970013	97.92258919	94.21742284	90.67320798
190606A00025	6/6/2019	2.18	6/4/2021	6/6/2019	102.11221	102.1122059	102.1122059	102.1122059	101.8453651	100.7443475	99.66705339	98.61272238	97.5806263
190607A00003	6/7/2019	1.92	6/7/2022	6/7/2019	103.83817	103.8381656	103.8381656	103.8381656	103.2428707	101.1447591	99.09967699	97.1059225	95.16186193
190607A00005	6/7/2019	1.92	6/7/2022	6/7/2019	103.83817	103.8381656	103.8381656	103.8381656	103.2428707	101.1447591	99.09967699	97.1059225	95.16186193
190607A00018	6/7/2019	2.19	6/7/2024	6/7/2019	107.83851	107.8385106	107.8385106	107.8385106	105.6878403	101.636073	97.76243595	94.05814176	90.51488588
190613A00022	6/13/2019	2.2	6/14/2021	6/13/2019	102.18755	102.187548	102.187548	102.187548	101.9143452	100.785857	99.68228223	98.60280279	97.54663588
190617A00004	6/17/2019	2.2	6/15/2021	6/17/2019	102.19286	102.1928636	102.1928636	102.1928636	101.9190274	100.787806	99.6816177	98.59963837	97.54107977
190619A00007	6/19/2019	2.21	6/20/2022	6/19/2019	104.13888	104.1388807	104.1388807	104.1388807	103.5268635	101.3977676	99.32298165	97.30074127	95.32935379
190619A00009	6/19/2019	2.26	6/19/2024	6/19/2019	108.19268	108.1926788	108.1926788	108.1926788	106.0078394	101.9178994	98.00887441	94.27178123	90.69813427
190620A00055	6/25/2019	2.08	4/17/2023	6/25/2019	105.3378	105.3378012	105.3378012	105.3378012	104.1674947	101.2303159	98.39140435	95.64694029	92.99327444
190621A00015	6/21/2019	2.2	6/21/2024	6/21/2019	107.95286	107.9528564	107.9528564	107.9528564	105.7646743	101.6744816	97.76547381	94.02864283	90.45548023
190621A00023	6/21/2019	1.93	6/21/2022	6/21/2019	103.92967	103.929668	103.929668	103.929668	103.3144245	101.1773275	99.0949445	97.06549197	95.08725897
181023A00052	10/23/2018	3.15	10/23/2023	10/23/2018	110.68019	110.680188	110.680188	110.680188	109.0542818	105.5225274	102.1255736	98.85754815	95.71286737
181102A00023	11/2/2018	3.09	5/1/2020	11/2/2018	100.00759	100.0075864	100.0075864	100.0075864	100.0073352	100.0045619	100.0017911	99.99902254	99.99625637
181109A00029	11/9/2018	3.72	11/9/2026	11/9/2018	122.38155	122.3815537	122.3815537	122.3815537	116.0877139	109.4944052	103.3300889	97.56446637	92.16953303
181115A00012	11/15/2018	3.14	11/16/2020	11/15/2018	101.60152	101.6015168	101.6015168	101.6015168	101.5109079	100.9560577	100.4072766	99.86446525	99.32752641

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181115A00028	11/15/2018	2.95	11/16/2020	11/15/2018	101.57284	101.5728401	101.5728401	101.5728401	101.4820834	100.92638	100.376768	99.83314728	99.29542013
181115A00055	11/15/2018	3.01	11/15/2021	11/15/2018	104.52591	104.5259056	104.5259056	104.5259056	104.1286051	102.5765501	101.0555128	99.56463543	98.10309161
181116A00010	11/16/2018	3.04	5/15/2020	11/16/2018	100.11333	100.1133283	100.1133283	100.1133283	100.1095591	100.0679604	100.0264134	99.98491791	99.94347384
181120A00023	11/20/2018	3.15	11/19/2021	11/20/2018	104.50887	104.5088732	104.5088732	104.5088732	104.1095214	102.551047	101.0237694	99.5268222	98.05937079
181206A00010	12/6/2018	3.09	12/6/2021	12/6/2018	104.54619	104.5461888	104.5461888	104.5461888	104.1330049	102.5280342	100.955743	99.41519982	97.90550844
181207A00004	12/7/2018	3.05	12/7/2020	12/7/2018	101.71421	101.7142064	101.7142064	101.7142064	101.6062977	100.9934852	100.3880621	99.78989525	99.19885453
181211A00019	12/11/2018	3.04	12/11/2020	12/11/2018	101.739	101.7390003	101.7390003	101.7390003	101.6273561	101.0034991	100.387302	99.77862433	99.17732878
181213A00031	12/13/2018	2.97	12/13/2023	12/13/2018	110.44825	110.4482513	110.4482513	110.4482513	108.7044139	105.0415133	101.5229305	98.14216814	94.89306085
181219A00005	12/19/2018	3.06	12/19/2023	12/19/2018	110.14079	110.1407945	110.1407945	110.1407945	108.3948104	104.7393313	101.2280323	97.85441361	94.6123077
181226A00033	12/26/2018	2.87	12/28/2020	12/26/2018	101.75627	101.7562747	101.7562747	101.7562747	101.6288116	100.9583826	100.2967863	99.64384902	98.99940155
181228A00008	12/28/2018	2.9	12/28/2021	12/28/2018	104.38058	104.3805824	104.3805824	104.3805824	103.950605	102.2889073	100.6618434	99.06839513	97.50758427
190102A00037	1/2/2019	2.8	7/2/2021	1/2/2019	102.99536	102.9953632	102.9953632	102.9953632	102.709741	101.5276095	100.3726444	99.24391704	98.14054093
190104A00027	1/4/2019	2.76	1/4/2021	1/4/2019	101.73108	101.731082	101.731082	101.731082	101.5970447	100.9075743	100.227448	99.55647692	98.89447704
190107A00034	1/7/2019	2.8	4/15/2021	1/7/2019	102.45024	102.4502401	102.4502401	102.4502401	102.2202513	101.2527749	100.303593	99.37219017	98.45806995
190110A00013	1/10/2019	2.97	1/17/2024	1/10/2019	110.0241	110.0241043	110.0241043	110.0241043	108.2102439	104.4825549	100.9045354	97.46931152	94.17036895
190114A00030	1/14/2019	2.85	1/14/2021	1/14/2019	101.8653	101.8653044	101.8653044	101.8653044	101.7216871	101.0043733	100.297172	99.5998704	98.91226138
190114A00042	1/14/2019	2.92	1/13/2023	1/14/2019	107.1731	107.1731041	107.1731041	107.1731041	106.1915223	103.4794194	100.8507285	98.30234396	95.83129915
190115A00029	1/15/2019	2.86	11/8/2021	1/15/2019	103.97424	103.9742363	103.9742363	103.9742363	103.5849163	102.060975	100.5672275	99.10285017	97.66704884
190118A00020	1/18/2019	2.89	7/15/2020	1/18/2019	100.55398	100.5539809	100.5539809	100.5539809	100.5287946	100.3180047	100.1081114	99.8991089	99.69099143
190122A00043	1/22/2019	2.96	1/22/2025	1/22/2019	113.60049	113.6004882	113.6004882	113.6004882	110.7144671	105.9325001	101.3871947	97.06552621	92.95526192
190315A00014	3/15/2019	2.74	3/15/2024	3/15/2019	109.5506	109.5506026	109.5506026	109.5506026	107.5995657	103.7281382	100.0181919	96.46216529	93.05288992
190315A00026	3/15/2019	2.66	1/19/2021	3/15/2019	101.76213	101.7621337	101.7621337	101.7621337	101.6138381	100.8832941	100.1632453	99.45346659	98.75373922
190320A00005	3/20/2019	2.75	3/20/2024	3/20/2019	109.62344	109.623438	109.623438	109.623438	107.659575	103.7740962	100.0511885	96.48321549	93.0629388
190326A00003	3/26/2019	2.57	3/27/2023	3/26/2019	106.67248	106.6724813	106.6724813	106.6724813	105.5415528	102.6398627	99.83328488	97.11819555	94.49112921
190327A00013	3/27/2019	2.53	3/27/2024	3/27/2019	108.80385	108.8038465	108.8038465	108.8038465	106.8285836	102.9412752	99.21752189	95.64960288	92.23020166
190328A00023	3/28/2019	2.51	2/24/2021	3/28/2019	101.86753	101.8675271	101.8675271	101.8675271	101.6849465	100.8560054	100.0405503	99.23825388	98.44879972
190402A00014	4/2/2019	2.64	4/2/2024	4/2/2019	109.27592	109.2759233	109.2759233	109.2759233	107.2824376	103.3707001	99.6240831	96.03476358	92.59532978
190404A00024	4/5/2019	2.61	2/15/2022	4/5/2019	104.22392	104.2239151	104.2239151	104.2239151	103.7544942	101.9600942	100.2054194	98.48930272	96.81062124
190409A00020	4/9/2019	2.41	4/8/2022	4/9/2019	104.50111	104.5011101	104.5011101	104.5011101	103.979218	102.0348095	100.1365757	98.28313915	96.47317301
190409A00033	4/9/2019	2.62	6/9/2023	4/9/2019	107.29265	107.2926476	107.2926476	107.2926476	105.9979286	102.8930339	99.89574232	97.00170262	94.20676701
190409A00041	4/9/2019	2.57	4/5/2021	4/9/2019	102.16352	102.1635238	102.1635238	102.1635238	101.9424995	101.0036446	100.0820482	99.17723751	98.28875697

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190411A00019	5/1/2019	2.63	5/2/2022	5/1/2019	104.73113	104.7311251	104.7311251	104.7311251	104.1830597	102.1780609	100.2220527	98.31352914	96.45104143
190412A00014	4/12/2019	2.63	4/12/2021	4/12/2019	102.27527	102.2752672	102.2752672	102.2752672	102.0480222	101.089463	100.1488846	99.22578412	98.31967766
190424A00019	4/24/2019	2.67	4/24/2024	4/24/2019	109.53772	109.5377248	109.5377248	109.5377248	107.4870466	103.5129977	99.70913445	96.06727246	92.57966485
190424A00023	4/24/2019	2.43	4/24/2023	4/24/2019	106.97924	106.9792396	106.9792396	106.9792396	105.7805204	102.7876383	99.89557799	97.10038905	94.39829902
190426A00009	4/26/2019	2.63	4/26/2024	4/26/2019	109.38983	109.3898297	109.3898297	109.3898297	107.3352196	103.3588988	99.55312155	95.90967443	92.42078364
190430A00001	4/30/2019	2.47	5/2/2024	4/30/2019	109.53285	109.5328456	109.5328456	109.5328456	107.4490926	103.434236	99.59269818	95.91607968	92.39643358
190506A00017	5/6/2019	2.56	5/6/2020	5/6/2019	100.03701	100.0370105	100.0370105	100.0370105	100.0355036	100.0188704	100.0022536	99.98565328	99.96906938
190507A00006	5/7/2019	2.57	5/8/2023	5/7/2019	106.93525	106.9352481	106.9352481	106.9352481	105.7122616	102.6961677	99.78247298	96.96713001	94.24627541
190507A00027	5/7/2019	2.59	5/7/2024	5/7/2019	109.29824	109.2982379	109.2982379	109.2982379	107.2162751	103.2136882	99.38387729	95.71846738	92.20953482
190514A00073	5/14/2019	2.53	5/14/2024	5/14/2019	109.09809	109.0980875	109.0980875	109.0980875	106.9996506	102.9833678	99.14113139	95.4644722	91.94537967
190517A00005	5/17/2019	2.31	5/17/2024	5/17/2019	108.97517	108.9751725	108.9751725	108.9751725	106.8567465	102.814795	98.9488326	95.25025926	91.71094258
190520A00025	5/20/2019	2.32	5/20/2021	5/20/2019	102.35282	102.3528227	102.3528227	102.3528227	102.0952554	101.030931	99.9887388	98.96799377	97.96803883
190523A00009	5/23/2019	2.43	5/21/2021	5/23/2019	102.30593	102.3059282	102.3059282	102.3059282	102.0483631	100.9840838	99.94195284	98.92128411	97.9214195
190328A00019	3/28/2019	2.56	3/28/2024	3/28/2019	108.92829	108.9282854	108.9282854	108.9282854	106.949682	103.057447	99.32905125	95.75675606	92.33322849
190328A00024	3/28/2019	2.5	4/23/2021	3/28/2019	102.21809	102.218088	102.218088	102.218088	101.9813535	100.9932694	100.0242916	99.07386998	98.14147511
190328A00032	4/25/2019	2.48	4/26/2021	4/25/2019	102.20661	102.2066129	102.2066129	102.2066129	101.9673255	100.9713191	99.99472415	99.0369773	98.09753684
190329A00017	3/29/2019	2.59	3/29/2023	3/29/2019	106.74383	106.743828	106.743828	106.743828	105.6083625	102.7004868	99.88807921	97.16749627	94.53525402
190410A00005	4/10/2019	2.49	10/13/2020	4/10/2019	101.09352	101.0935203	101.0935203	101.0935203	101.0255706	100.564864	100.108366	99.65601911	99.20776661
190423A00049	4/23/2019	2.6	4/23/2021	4/23/2019	102.31739	102.3173901	102.3173901	102.3173901	102.0805537	101.0919401	100.1224399	99.17150286	98.23859944
190424A00004	4/24/2019	2.55	4/23/2021	4/24/2019	102.26774	102.2677391	102.2677391	102.2677391	102.0309536	101.0426047	100.0733658	99.12268642	98.19003727
190424A00022	4/24/2019	2.62	4/24/2023	4/24/2019	106.99812	106.9981187	106.9981187	106.9981187	105.8053389	102.8248625	99.94451406	97.16038025	94.46872331
190430A00013	4/30/2019	2.52	4/30/2021	4/30/2019	102.27148	102.2714834	102.2714834	102.2714834	102.0286608	101.0214748	100.0341213	99.06601899	98.11660916
190502A00009	5/2/2019	2.56	5/3/2021	5/2/2019	102.33099	102.3309944	102.3309944	102.3309944	102.0860062	101.0703581	100.0748739	99.09895742	98.14203608
190502A00027	5/2/2019	2.42	5/2/2022	5/2/2019	104.67372	104.6737239	104.6737239	104.6737239	104.1237668	102.1124527	100.1504085	98.23611622	96.36811545
190507A00023	5/7/2019	2.52	5/7/2021	5/7/2019	102.31508	102.3150802	102.3150802	102.3150802	102.0673061	101.040898	100.0350902	99.0492671	98.08283727
190509A00030	5/9/2019	2.48	11/9/2021	5/9/2019	103.39371	103.393714	103.393714	103.393714	103.0046125	101.4825709	99.99072479	98.52824921	97.09434862
190510A00004	5/10/2019	2.54	11/10/2020	5/10/2019	101.23052	101.2305159	101.2305159	101.2305159	101.1446698	100.6074494	100.0759332	99.5500308	99.0296534
190514A00021	5/14/2019	2.72	11/14/2025	5/14/2019	113.45749	113.457487	113.457487	113.457487	109.3901385	103.9060769	98.73385727	93.85410387	89.24874385
190515A00011	5/15/2019	2.38	5/17/2021	5/15/2019	102.22904	102.2290404	102.2290404	102.2290404	101.9743606	100.9213448	99.89002587	98.87973831	97.88984344
190516A00027	5/16/2019	2.43	5/17/2021	5/16/2019	102.28201	102.2820124	102.2820124	102.2820124	102.0272731	100.9739575	99.94234318	98.9317644	97.94158241
190520A00036	5/20/2019	2.43	11/19/2021	5/20/2019	103.37556	103.3755642	103.3755642	103.3755642	102.9782902	101.429035	99.9108136	98.42276411	96.96405614

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190522A00017	5/23/2019	2.53	3/1/2023	5/23/2019	106.39478	106.3947788	106.3947788	106.3947788	105.3200598	102.4893366	99.74938201	97.09681439	94.52839616
190523A00017	5/23/2019	2.51	3/15/2024	5/23/2019	108.65192	108.6519182	108.6519182	108.6519182	106.7071839	102.8530165	99.15980417	95.62000574	92.22647212
190523A00020	5/23/2019	2.5	2/9/2024	5/23/2019	108.4016	108.4015995	108.4015995	108.4015995	106.5435425	102.7859747	99.18182683	95.72398186	92.40569573
190528A00007	5/28/2019	2.44	11/15/2023	5/28/2019	107.66597	107.6659687	107.6659687	107.6659687	106.0141394	102.4911595	99.10480025	95.84902178	92.71808567
190529A00002	5/29/2019	2.32	5/28/2021	5/29/2019	102.22789	102.227892	102.227892	102.227892	101.9655218	100.8827574	99.82291886	98.78528402	97.76916074
190529A00016	5/29/2019	2.32	5/28/2021	5/29/2019	102.22789	102.227892	102.227892	102.227892	101.9655218	100.8827574	99.82291886	98.78528402	97.76916074
190701A00028	7/1/2019	2.11	7/1/2021	7/1/2019	102.17138	102.171376	102.171376	102.171376	101.8874968	100.7132318	99.56592484	98.44465625	97.34854756
190703A00014	7/3/2019	2.23	10/5/2020	7/3/2019	100.86627	100.8662675	100.8662675	100.8662675	100.8030886	100.3657283	99.93215879	99.50233088	99.07619629
190708A00021	7/8/2019	1.99	7/8/2022	7/8/2019	104.14798	104.147975	104.147975	104.147975	103.5073527	101.3224525	99.19438564	97.12126405	95.10127857
190711A00026	7/11/2019	2.17	7/11/2022	7/11/2019	104.16104	104.1610447	104.1610447	104.1610447	103.5183976	101.3333775	99.20521492	97.1320191	95.11197812
190711A00028	7/11/2019	2.22	7/11/2024	7/11/2019	108.142	108.1419985	108.1419985	108.1419985	105.8992558	101.75462	97.79557099	94.01277788	90.39743386
190712A00018	7/12/2019	2.25	7/12/2024	7/12/2019	108.27431	108.2743064	108.2743064	108.2743064	106.0278112	101.8779456	97.91397011	94.12653394	90.50681199
190719A00003	7/19/2019	2.07	7/20/2020	7/19/2019	100.43917	100.4391682	100.4391682	100.4391682	100.4118123	100.1870435	99.96329407	99.74055695	99.51882523
190724A00021	7/24/2019	2.33	7/23/2027	7/24/2019	116.14662	116.146618	116.146618	115.7675058	108.4043181	101.3804824	94.86378136	88.81489847	83.1977655
190805A00048	8/5/2019	1.88	8/5/2022	8/5/2019	103.62683	103.626833	103.626833	103.626833	102.9476069	100.7036621	98.51957338	96.39331927	94.32296367
190805A00050	8/5/2019	1.91	8/5/2024	8/5/2019	106.9414	106.9413955	106.9413955	106.9413955	104.6412088	100.4597232	96.46839255	92.65753387	89.01801414
190807A00020	8/7/2019	1.57	2/7/2024	8/7/2019	105.54352	105.5435167	105.5435167	105.5435167	103.6984072	99.98157969	96.41733951	92.99857692	89.71855683
190807A00054	8/7/2019	1.66	8/6/2021	8/7/2019	101.98112	101.9811247	101.9811247	101.9811247	101.6718531	100.4013064	99.16020665	97.94753218	96.76230814
190808A00050	8/8/2019	1.7	8/8/2024	8/8/2019	106.83995	106.8399485	106.8399485	106.8399485	104.5172283	100.3082019	96.29151851	92.45735471	88.79644522
190808A00052	8/8/2019	1.7	8/8/2024	8/8/2019	106.83995	106.8399485	106.8399485	106.8399485	104.5172283	100.3082019	96.29151851	92.45735471	88.79644522
190814A00010	8/14/2019	1.84	4/5/2023	8/14/2019	104.56888	104.5688811	104.5688811	104.5688811	103.4277597	100.5335187	97.73515863	95.02899235	92.41149538
190815A00004	8/15/2019	1.82	8/15/2022	8/15/2019	103.53168	103.531676	103.531676	103.531676	102.8367024	100.5679213	98.36026002	96.21168109	94.12023002
190816A00020	8/16/2019	1.79	8/16/2024	8/16/2019	106.47066	106.4706632	106.4706632	106.4706632	104.1442638	99.94560759	95.93918544	92.11519362	88.46438184
190816A00022	8/16/2019	1.77	8/16/2024	8/16/2019	106.38407	106.3840664	106.3840664	106.3840664	104.058395	99.86157231	95.85692301	92.03464589	88.38549308
190816A00033	8/16/2019	1.77	8/16/2024	8/16/2019	106.38407	106.3840664	106.3840664	106.3840664	104.058395	99.86157231	95.85692301	92.03464589	88.38549308
190816A00035	8/16/2019	1.77	8/16/2023	8/16/2019	104.90178	104.9017827	104.9017827	104.9017827	103.4697685	100.227959	97.10435335	94.09398976	91.19214463
190819A00007	8/19/2019	1.62	8/19/2024	8/19/2019	106.53967	106.5396724	106.5396724	106.5396724	104.1890622	99.95906938	95.92364554	92.072839	88.39726037
190819A00022	8/19/2019	1.8	8/19/2024	8/19/2019	106.52638	106.5263792	106.5263792	106.5263792	104.1912992	99.9840858	95.96980374	92.13861072	88.48121911
190820A00054	8/20/2019	1.76	8/18/2022	8/20/2019	103.40483	103.4048328	103.4048328	103.4048328	102.705431	100.4303628	98.21677152	96.06261527	93.9659346
190821A00017	8/21/2019	1.8	8/21/2024	8/21/2019	106.53466	106.5346576	106.5346576	106.5346576	104.1940339	99.98172809	95.9627989	92.127379	88.46615659
180823A00033	8/23/2018	2.85	8/23/2023	8/23/2018	109.16231	109.162314	109.162314	109.162314	107.6841548	104.3390672	101.116217	98.01047939	95.0169736

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180823A00035	8/23/2018	3.05	8/22/2025	8/23/2018	115.74675	115.7467523	115.7467523	115.7467523	112.0254604	106.6506856	101.5699996	96.76576245	92.22148228
180827A00034	8/27/2018	2.99	8/28/2023	8/27/2018	109.04713	109.0471348	109.0471348	109.0471348	107.5664332	104.2253753	101.0065103	97.90473167	94.91517357
180831A00019	8/31/2018	3.21	9/2/2025	8/31/2018	115.60953	115.609528	115.609528	115.609528	111.8701979	106.5061416	101.4360839	96.64238811	92.10856234
180905A00024	9/5/2018	2.9	9/5/2023	9/5/2018	109.43009	109.4300888	109.4300888	109.4300888	107.9211179	104.5373641	101.2783902	98.13895132	95.11405079
180910A00032	9/10/2018	3.22	9/10/2024	9/10/2018	112.86287	112.8628652	112.8628652	112.8628652	110.4120467	106.013928	101.8182817	97.81474511	93.99353842
180911A00012	9/11/2018	3.06	9/9/2022	9/11/2018	106.59517	106.595173	106.595173	106.595173	105.8498765	103.478856	101.173112	98.93049141	96.74892428
180913A00040	9/13/2018	2.89	9/13/2021	9/13/2018	103.85392	103.8539159	103.8539159	103.8539159	103.511365	102.1350003	100.7835729	99.45646296	98.15307089
180914A00012	9/14/2018	2.97	10/13/2020	9/14/2018	101.25116	101.251156	101.251156	101.251156	101.1832638	100.7228813	100.2666937	99.81464381	99.36667535
180920A00027	9/20/2018	3.04	9/20/2022	9/20/2018	107.07429	107.0742949	107.0742949	107.0742949	106.3054547	103.8898387	101.5416469	99.25862351	97.03860172
180920A00062	9/20/2018	3.12	9/20/2023	9/20/2018	110.30042	110.3004169	110.3004169	110.3004169	108.7525048	105.3138363	102.003282	98.81539797	95.74500055
180924A00056	9/24/2018	3.14	9/23/2022	9/24/2018	106.89567	106.895672	106.895672	106.895672	106.1255047	103.7129872	101.3678599	99.08786646	96.87083929
181005A00010	10/5/2018	2.95	10/5/2020	10/5/2018	101.24263	101.2426304	101.2426304	101.2426304	101.1792171	100.7401607	100.3049166	99.87343521	99.44566778
181009A00024	10/9/2018	3.06	10/9/2020	10/9/2018	101.26146	101.2614642	101.2614642	101.2614642	101.195859	100.7464543	100.3010446	99.85957689	99.42199876
181009A00035	10/9/2018	3.12	10/11/2022	10/9/2018	107.4426	107.4425961	107.4425961	107.4425961	106.6354559	104.1590836	101.7533486	99.41583401	97.14422059
181010A00020	10/10/2018	3.27	12/1/2022	10/10/2018	107.77662	107.776621	107.776621	107.776621	106.8775375	104.2698343	101.7396229	99.28412636	96.90068614
181015A00008	10/15/2018	3.15	9/15/2021	10/15/2018	103.99394	103.9939449	103.9939449	103.9939449	103.6504903	102.2713808	100.9172917	99.58760012	98.28170347
181018A00014	10/18/2018	3.21	10/18/2021	10/18/2018	104.3446	104.3445953	104.3445953	104.3445953	103.9724284	102.5019456	101.0597351	99.645052	98.25717713
181022A00026	10/22/2018	3.18	10/15/2021	10/22/2018	104.27597	104.2759729	104.2759729	104.2759729	103.9065122	102.444501	101.0104537	99.60363728	98.22334394
181115A00036	11/15/2018	3.2	11/15/2021	11/15/2018	104.55539	104.5553909	104.5553909	104.5553909	104.1592533	102.6114019	101.0944146	99.60743958	98.14965615
181115A00054	11/15/2018	2.87	5/15/2020	11/15/2018	100.11472	100.1147245	100.1147245	100.1147245	100.1109476	100.0692645	100.0276341	99.98605621	99.94453076
181126A00050	11/26/2018	3.29	11/24/2023	11/26/2018	110.77864	110.7786427	110.7786427	110.7786427	109.0872765	105.4853207	102.0232213	98.69477308	95.49408199
181130A00019	11/30/2018	3.06	6/1/2020	11/30/2018	100.24351	100.2435122	100.2435122	100.2435122	100.2353585	100.1466398	100.0580775	99.96967119	99.88142052
181206A00011	12/6/2018	3.11	12/6/2022	12/6/2018	107.39715	107.3971463	107.3971463	107.3971463	106.4896508	103.8738088	101.3360357	98.87352068	96.48357382
190129A00028	1/30/2019	2.92	2/1/2022	1/30/2019	104.66845	104.668452	104.668452	104.668452	104.2101164	102.4528824	100.7338126	99.05173478	97.40552504
190130A00020	1/30/2019	2.97	4/17/2023	1/30/2019	108.00057	108.0005692	108.0005692	108.0005692	106.8185224	103.8416724	100.9640798	98.18189216	95.49142868
190131A00036	1/31/2019	2.69	7/31/2023	1/31/2019	108.46186	108.4618617	108.4618617	108.4618617	107.0391012	103.7653484	100.6093986	97.56628979	94.63130377
190211A00010	2/11/2019	2.79	2/11/2021	2/11/2019	102.01048	102.0104812	102.0104812	102.0104812	101.8401667	101.0459675	100.2641428	99.49440477	98.73647468
190212A00017	2/12/2019	2.86	6/30/2023	2/12/2019	108.19363	108.1936253	108.1936253	108.1936253	106.8483996	103.6734174	100.6099472	97.65341135	94.79945051
190221A00002	2/21/2019	2.81	2/22/2022	2/21/2019	104.63571	104.6357065	104.6357065	104.6357065	104.1594141	102.3407235	100.5626542	98.82403784	97.12374833
190227A00002	2/27/2019	2.61	2/28/2022	2/27/2019	104.62453	104.6245337	104.6245337	104.6245337	104.141553	102.2997381	100.4994802	98.73960226	97.01896818
190228A00037	2/28/2019	2.85	2/28/2023	2/28/2019	107.30372	107.3037207	107.3037207	107.3037207	106.2274063	103.386293	100.6361004	97.9734455	95.39508956

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190313A00018	3/13/2019	2.68	3/12/2021	3/13/2019	102.11595	102.1159484	102.1159484	102.1159484	101.9177115	101.0441268	100.1855001	99.34144962	98.51160609
190318A00008	3/18/2019	2.76	3/18/2024	3/18/2019	109.64909	109.6490887	109.6490887	109.6490887	107.6899706	103.8090579	100.0903121	96.5261256	93.10928684
190318A00021	3/18/2019	2.76	3/18/2024	3/18/2019	109.64909	109.6490887	109.6490887	109.6490887	107.6899706	103.8090579	100.0903121	96.5261256	93.10928684
190321A00044	3/21/2019	2.45	3/21/2022	3/21/2019	104.46336	104.4633583	104.4633583	104.4633583	103.9603622	102.0645285	100.2126613	98.40348018	96.63575069
190322A00022	3/22/2019	2.56	7/22/2021	3/22/2019	102.82484	102.8248437	102.8248437	102.8248437	102.5259856	101.2910679	100.0858347	98.9092251	97.76022812
190326A00021	3/26/2019	2.52	3/26/2021	3/26/2019	102.0633	102.0633016	102.0633016	102.0633016	101.8515287	100.9401865	100.0451195	99.1658945	98.30209373
190327A00011	3/27/2019	2.51	9/28/2020	3/27/2019	100.94526	100.9452639	100.9452639	100.9452639	100.8858785	100.4675588	100.0527002	99.64125996	99.23319603
190327A00032	3/27/2019	2.53	1/26/2024	3/27/2019	108.43032	108.430324	108.430324	108.430324	106.6055717	102.8844929	99.31396569	95.88702845	92.59708595
190328A00009	3/28/2019	2.33	3/28/2022	3/28/2019	104.27657	104.2765748	104.2765748	104.2765748	103.767231	101.8547536	99.98703289	98.16275387	96.38064893
190328A00079	3/28/2019	2.37	3/28/2024	3/28/2019	108.90972	108.9097194	108.9097194	108.9097194	106.9191307	103.0077893	99.2615849	95.67269745	92.23371777
190401A00009	4/1/2019	2.39	4/1/2022	4/1/2019	104.4178	104.417796	104.417796	104.417796	103.9040744	101.9795612	100.1003141	98.26499622	96.47231904
190401A00010	4/1/2019	2.62	4/1/2024	4/1/2019	109.19042	109.1904213	109.1904213	109.1904213	107.2000624	103.292588	99.54996157	95.96437785	92.52844178
190402A00010	4/2/2019	2.4	4/6/2022	4/2/2019	104.46883	104.4688323	104.4688323	104.4688323	103.9492949	102.0106553	100.1179284	98.26974858	96.46479989
190408A00047	4/8/2019	2.43	4/7/2023	4/8/2019	106.87056	106.8705598	106.8705598	106.8705598	105.7093833	102.7635274	99.91541857	97.16128623	94.49752684
190409A00031	4/9/2019	2.64	4/9/2024	4/9/2019	109.32088	109.3208782	109.3208782	109.3208782	107.3094716	103.3786502	99.61453075	96.009177	92.55507234
190426A00011	5/1/2019	2.56	3/15/2022	5/1/2019	104.30829	104.3082882	104.3082882	104.3082882	103.81313	101.94055	100.1109696	98.32314932	96.57589311
190523A00015	5/23/2019	2.51	4/1/2024	5/23/2019	108.75548	108.755482	108.755482	108.755482	106.7682371	102.8692101	99.13477106	95.55712493	92.1288863
190524A00005	5/24/2019	2.34	11/24/2020	5/24/2019	101.28337	101.2833734	101.2833734	101.2833734	101.1866093	100.609871	100.0397003	99.47598534	98.91861691
190524A00014	5/24/2019	2.24	5/24/2022	5/24/2019	104.43764	104.4376365	104.4376365	104.4376365	103.8597122	101.7926724	99.77720694	97.81168687	95.89454711
190524A00017	5/28/2019	2.52	5/28/2020	5/28/2019	100.17111	100.1711139	100.1711139	100.1711139	100.164082	100.0864902	100.0090226	99.93167875	99.85445855
190524A00044	5/24/2019	2.27	5/24/2021	5/24/2019	102.32329	102.3232854	102.3232854	102.3232854	102.0629441	100.9879281	99.93549061	98.90492598	97.89555764
190529A00006	5/29/2019	2.32	5/28/2021	5/29/2019	102.22789	102.227892	102.227892	102.227892	101.9655218	100.8827574	99.82291886	98.78528402	97.76916074
190529A00011	5/29/2019	2.36	5/30/2023	5/29/2019	106.42013	106.4201288	106.4201288	106.4201288	105.151473	102.0866181	99.12736614	96.26947653	93.5089052
190529A00089	5/29/2019	2.38	5/29/2024	5/29/2019	108.5733	108.5732952	108.5732952	108.5732952	106.440413	102.3969056	98.53011718	94.83137761	91.29249058
190530A00025	5/30/2019	2.36	6/1/2021	5/30/2019	102.2946	102.2946013	102.2946013	102.2946013	102.0294272	100.9354522	99.8648643	98.81691969	97.79090596
190530A00042	5/30/2019	2.3	11/30/2020	5/30/2019	101.29658	101.2965757	101.2965757	101.2965757	101.1952039	100.6019628	100.0156582	99.43616929	98.86337767
190531A00013	5/31/2019	2.31	12/6/2022	5/31/2019	105.29451	105.2945057	105.2945057	105.2945057	104.3945151	101.8063671	99.29565513	96.85958823	94.49549532
190531A00038	5/31/2019	2.82	5/31/2034	5/31/2019	138.27478	138.2747822	138.2747822	127.9165695	113.4927337	100.7631722	89.66380598	79.97424698	71.50505824
190603A00018	6/3/2019	2.44	6/3/2020	6/3/2019	100.20013	100.2001322	100.2001322	100.2001322	100.1912547	100.0970426	100.0030109	99.90915893	99.81548631
190603A00031	6/3/2019	1.98	6/3/2022	6/3/2019	103.94539	103.9453874	103.9453874	103.9453874	103.3554426	101.2670411	99.23122177	97.24630498	95.31067797
190603A00040	6/3/2019	2.11	6/3/2022	6/3/2019	103.83774	103.8377427	103.8377427	103.8377427	103.2503319	101.1704163	99.14274392	97.1656497	95.23753468

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190604A00030	6/4/2019	2.2	6/3/2022	6/4/2019	104.02812	104.0281216	104.0281216	104.0281216	103.4402125	101.3582556	99.32858277	97.34952792	95.41949088
190605A00005	6/5/2019	2.01	6/5/2024	6/5/2019	107.84595	107.8459545	107.8459545	107.8459545	105.6868337	101.6191677	97.73067132	94.01249289	90.456268
190605A00017	6/5/2019	2.12	6/4/2021	6/5/2019	102.04565	102.0456488	102.0456488	102.0456488	101.7788873	100.6782623	99.6013549	98.54740482	97.51568408
190605A00058	6/5/2019	2.14	12/5/2022	6/5/2019	104.8426	104.8425978	104.8425978	104.8425978	103.9461554	101.3665467	98.86410107	96.43603912	94.07970081
190620A00056	6/25/2019	2.07	1/17/2023	6/25/2019	104.86966	104.8696599	104.8696599	104.8696599	103.8888269	101.1979196	98.59027469	96.06277677	93.61245068
190621A00003	6/21/2019	2.08	6/22/2020	6/21/2019	100.28882	100.2888161	100.2888161	100.2888161	100.2729907	100.1258718	99.97919603	99.83296128	99.68716558
190621A00061	6/21/2019	2.12	6/21/2021	6/21/2019	102.13225	102.1322496	102.1322496	102.1322496	101.8547292	100.7076792	99.58637366	98.48995332	97.41759671
190624A00026	6/24/2019	2.08	6/24/2022	6/24/2019	103.87744	103.8774388	103.8774388	103.8774388	103.2605303	101.1235129	99.04122366	97.01187674	95.03375907
190625A00012	6/25/2019	2.12	6/25/2024	6/25/2019	107.63873	107.6387259	107.6387259	107.6387259	105.4425756	101.348524	97.43630564	93.69685822	90.12162332
180223A00022	2/23/2018	2.93	2/23/2023	2/23/2018	107.49657	107.4965698	107.4965698	107.4965698	106.429809	103.6002728	100.8608615	98.20821329	95.63911122
180226A00040	2/26/2018	2.79	2/28/2022	2/26/2018	104.64008	104.6400795	104.6400795	104.6400795	104.1586626	102.3224198	100.527512	98.772771	97.05706909
180227A00004	2/27/2018	2.67	3/26/2021	2/27/2018	102.20062	102.2006193	102.2006193	102.2006193	101.9887211	101.0766991	100.1809607	99.30107279	98.43661724
180302A00020	3/2/2018	2.79	3/17/2022	3/2/2018	104.73874	104.7387391	104.7387391	104.7387391	104.2407629	102.3591	100.5207342	98.72441402	96.96893258
180321A00005	3/21/2018	2.65	3/22/2021	3/21/2018	102.29109	102.2910898	102.2910898	102.2910898	102.0825235	101.1790456	100.2915383	99.41958065	98.56276644
180327A00013	3/27/2018	2.77	3/26/2021	3/27/2018	102.29216	102.2921644	102.2921644	102.2921644	102.0801827	101.1677074	100.2715216	99.39119166	98.52629958
180327A00027	3/27/2018	2.88	3/28/2022	3/27/2018	104.98841	104.9884103	104.9884103	104.9884103	104.4792298	102.5661629	100.6977266	98.87261299	97.08956089
180402A00028	4/2/2018	2.58	4/1/2021	4/2/2018	102.29609	102.2960858	102.2960858	102.2960858	102.0778837	101.1471436	100.2333371	99.3360054	98.45470602
180410A00016	4/10/2018	2.89	4/11/2022	4/10/2018	105.10792	105.1079152	105.1079152	105.1079152	104.5830601	102.6310087	100.725362	98.86473336	97.04778694
180412A00036	4/12/2018	3.54	4/15/2038	4/12/2018	161.66684	161.6668444	161.6668444	142.9674572	124.0788197	107.9449977	94.30181993	82.74047957	72.9218224
180416A00015	4/16/2018	2.79	4/14/2022	4/16/2018	105.29193	105.2919266	105.2919266	105.2919266	104.7612949	102.7925767	100.8709585	98.9950237	97.16340815
180426A00011	4/26/2018	2.94	4/26/2023	4/26/2018	108.53476	108.5347621	108.5347621	108.5347621	107.3247113	104.3030765	101.3832123	98.56112756	95.83301083
180430A00013	4/30/2018	3.01	2/15/2022	4/30/2018	104.95082	104.9508239	104.9508239	104.9508239	104.4798218	102.6786631	100.9173554	99.19472801	97.50965463
180430A00014	4/30/2018	3.01	3/15/2022	4/30/2018	105.16087	105.1608709	105.1608709	105.1608709	104.6637645	102.7829419	100.9452753	99.14952048	97.39447736
180430A00078	10/30/2018	3.24	10/30/2023	10/30/2018	110.39665	110.3966536	110.3966536	110.3966536	108.7654889	105.2369565	101.8434601	98.57910003	95.4382677
180514A00033	5/14/2018	3.36	5/15/2028	5/14/2018	126.3167	126.3167036	126.3167036	125.0183885	116.5772669	108.5298357	101.1136469	94.27556656	87.96720092
180517A00059	5/17/2018	3.13	5/17/2022	5/17/2018	105.8622	105.8621991	105.8621991	105.8621991	105.291866	103.2354629	101.2298727	99.2735071	97.36483954
180522A00005	5/22/2018	3.16	5/22/2023	5/22/2018	108.84513	108.8451274	108.8451274	108.8451274	107.58264	104.5011006	101.5248714	98.64975282	95.87173884
180522A00018	5/22/2018	3.1	5/23/2022	5/22/2018	105.84668	105.8466826	105.8466826	105.8466826	105.2686107	103.1964945	101.1758337	99.2050095	97.28246611
180522A00037	5/22/2018	3.01	5/22/2023	5/22/2018	108.95468	108.9546845	108.9546845	108.9546845	107.6852054	104.5887151	101.5983224	98.70978609	95.91906103
180525A00016	5/25/2018	2.72	5/25/2021	5/25/2018	102.81642	102.8164238	102.8164238	102.8164238	102.5548112	101.4742336	100.4163889	99.3805652	98.36607999
180530A00026	5/30/2018	3.55	5/30/2031	5/30/2018	135.8486	135.8485974	135.8485974	130.5044256	118.9150453	108.2756017	98.73126981	90.16201821	82.46159985

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180530A00039	5/30/2018	2.93	5/30/2023	5/30/2018	108.19296	108.1929591	108.1929591	108.1929591	106.915957	103.8237011	100.8377518	97.95384432	95.16791201
180530A00077	5/30/2018	2.93	5/30/2023	5/30/2018	108.19296	108.1929591	108.1929591	108.1929591	106.915957	103.8237011	100.8377518	97.95384432	95.16791201
190529A00022	5/29/2019	2.32	5/28/2021	5/29/2019	102.22789	102.227892	102.227892	102.227892	101.9655218	100.8827574	99.82291886	98.78528402	97.76916074
190530A00009	5/30/2019	2.25	5/30/2024	5/30/2019	108.80612	108.8061215	108.8061215	108.8061215	106.655379	102.5838328	98.69080379	94.96750776	91.40564197
190530A00021	5/30/2019	2.21	5/27/2022	5/30/2019	104.39229	104.3922876	104.3922876	104.3922876	103.8105901	101.7361141	99.71352841	97.74118892	95.81751602
190530A00030	5/30/2019	2.36	5/28/2021	5/30/2019	102.27149	102.271488	102.271488	102.271488	102.0090672	100.9260498	99.86596211	98.82808174	97.81171647
190530A00064	5/30/2019	2.51	6/1/2020	5/30/2019	100.19464	100.1946372	100.1946372	100.1946372	100.1864874	100.0978119	100.0092927	99.92092942	99.8327217
190531A00009	6/5/2019	2.1	6/3/2022	6/5/2019	104.19972	104.1997218	104.1997218	104.1997218	103.6091096	101.5179746	99.47947662	97.4919346	95.55373418
190531A00049	5/31/2019	2.29	6/1/2022	5/31/2019	104.20752	104.2075173	104.2075173	104.2075173	103.6219431	101.543477	99.51710077	97.54115825	95.61405893
190604A00033	6/4/2019	2.23	6/4/2021	6/4/2019	102.16767	102.1676701	102.1676701	102.1676701	101.9007632	100.7994185	99.72180213	98.66715367	97.63474482
190604A00048	6/4/2019	2.23	6/4/2021	6/4/2019	102.16767	102.1676701	102.1676701	102.1676701	101.9007632	100.7994185	99.72180213	98.66715367	97.63474482
190606A00027	6/6/2019	2.51	6/5/2026	6/6/2019	113.50694	113.506942	113.506942	113.506942	108.3154397	102.352151	96.75817113	91.50868598	86.58067495
190607A00011	6/7/2019	1.94	6/7/2021	6/7/2019	102.0377	102.0376961	102.0376961	102.0376961	101.7683765	100.6570563	99.5699068	98.50614609	97.46502574
190610A00018	6/10/2019	2.52	6/10/2026	6/10/2019	113.59833	113.5983259	113.5983259	113.5983259	108.3758695	102.3982297	96.79146679	91.53061516	86.59251743
190611A00006	6/11/2019	2.26	6/11/2021	6/11/2019	102.23932	102.2393209	102.2393209	102.2393209	101.9679361	100.8472421	99.75110999	98.67873884	97.62936222
190611A00047	6/11/2019	2.26	6/11/2021	6/11/2019	102.23932	102.2393209	102.2393209	102.2393209	101.9679361	100.8472421	99.75110999	98.67873884	97.62936222
190618A00002	6/18/2019	2.11	6/18/2025	6/18/2019	110.34001	110.3400127	110.3400127	110.3400127	106.9647112	101.8871732	97.08134318	92.53125353	88.22196034
190620A00027	6/20/2019	2.14	6/20/2024	6/20/2019	107.69723	107.6972335	107.6972335	107.6972335	105.5136795	101.43129	97.52970377	93.79993521	90.23349679
190620A00044	6/20/2019	2.04	6/20/2022	6/20/2019	103.7713	103.7713003	103.7713003	103.7713003	103.1602737	101.0352026	98.96435981	96.94598327	94.97838261
190625A00013	6/25/2019	2.01	6/24/2022	6/25/2019	103.72531	103.7253095	103.7253095	103.7253095	103.1088136	100.9734698	98.89282017	96.86507976	94.88853648
190626A00009	6/26/2019	2.08	6/25/2021	6/26/2019	102.10593	102.1059294	102.1059294	102.1059294	101.8259375	100.668259	99.53680312	98.43068675	97.34906608
190626A00019	6/26/2019	2.1	6/24/2022	6/26/2019	103.9209	103.9209044	103.9209044	103.9209044	103.3038779	101.1663823	99.08362466	97.05381874	95.07525124
190627A00052	6/27/2019	2.1	6/27/2022	6/27/2019	103.93581	103.9358067	103.9358067	103.9358067	103.3145432	101.1687966	99.0781502	97.04080001	95.05501606
190703A00022	7/3/2019	2.08	7/5/2022	7/3/2019	103.9316	103.9316019	103.9316019	103.9316019	103.2986263	101.131811	99.02106452	96.96453462	94.96044582
190708A00001	7/8/2019	1.99	7/8/2022	7/8/2019	104.14798	104.147975	104.147975	104.147975	103.5073527	101.3224525	99.19438564	97.12126405	95.10127857
190711A00016	7/11/2019	2.17	7/11/2022	7/11/2019	104.16104	104.1610447	104.1610447	104.1610447	103.5183976	101.3333775	99.20521492	97.1320191	95.11197812
190821A00021	8/21/2019	1.79	8/18/2022	8/21/2019	103.47458	103.4745834	103.4745834	103.4745834	102.774974	100.4990879	98.28469584	96.12975567	94.03230737
190822A00002	8/22/2019	1.89	8/20/2021	8/22/2019	102.12179	102.1217909	102.1217909	102.1217909	101.802327	100.5024759	99.22862108	97.97999551	96.75586257
190826A00004	8/26/2019	1.74	8/26/2022	8/26/2019	103.39032	103.3903218	103.3903218	103.3903218	102.678158	100.3825558	98.14946785	95.9768381	93.86269083
190826A00028	8/26/2019	1.56	8/26/2022	8/26/2019	103.39087	103.3908708	103.3908708	103.3908708	102.6757442	100.3715935	98.13035094	95.94994245	93.82837536
190827A00001	8/27/2019	1.74	8/27/2024	8/27/2019	106.29789	106.2978931	106.2978931	106.2978931	103.9428671	99.72086539	95.69339332	91.85051594	88.18285583

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190827A00022	8/27/2019	1.83	8/27/2021	8/27/2019	102.07246	102.0724597	102.0724597	102.0724597	101.7476413	100.4322911	99.14127485	97.873953	96.62970842
190827A00039	8/27/2019	1.78	8/26/2022	8/27/2019	103.48421	103.4842053	103.4842053	103.4842053	102.7717584	100.4750455	98.24087044	96.06717649	93.95198727
190828A00009	8/28/2019	1.71	8/28/2024	8/28/2019	106.17099	106.1709856	106.1709856	106.1709856	103.8143075	99.59255917	95.56547081	91.72309867	88.05605683
190829A00029	8/29/2019	1.75	7/14/2023	8/29/2019	104.7028	104.7028027	104.7028027	104.7028027	103.3441849	100.1890993	97.14643664	94.21152187	91.3799061
190903A00004	9/3/2019	1.77	9/6/2022	9/3/2019	103.50546	103.5054629	103.5054629	103.5054629	102.7747834	100.4488842	98.18703598	95.98713053	93.84714103
190910A00013	9/10/2019	1.9	9/9/2022	9/10/2019	103.82776	103.8277642	103.8277642	103.8277642	103.0910094	100.7532441	98.48004118	96.26926874	94.11887758
190912A00026	9/12/2019	1.94	9/12/2022	9/12/2019	103.93676	103.9367593	103.9367593	103.9367593	103.1945816	100.8474992	98.56543719	96.3462417	94.18784254
190912A00031	9/12/2019	1.75	9/12/2024	9/12/2019	107.21406	107.2140559	107.2140559	107.2140559	104.7903668	100.4854896	96.38117862	92.46709169	88.73347131
190913A00014	9/13/2019	2.08	9/13/2024	9/13/2019	107.86335	107.8633497	107.8633497	107.8633497	105.4472756	101.1489765	97.05025649	93.14084954	89.41106885
190913A00025	9/13/2019	2.04	3/15/2022	9/13/2019	103.32308	103.3230816	103.3230816	103.3230816	102.8301747	100.9671193	99.14688309	97.36823154	95.62997354
190919A00017	9/19/2019	1.8	9/19/2022	9/19/2019	104.0671	104.0671047	104.0671047	104.0671047	103.3094484	100.9331781	98.62339085	96.37786219	94.19445529
190920A00021	9/20/2019	1.96	9/18/2026	9/20/2019	111.8828	111.8828004	111.8828004	111.8828004	106.0392756	99.84370767	94.05046661	88.63141311	83.56051013
190923A00012	9/23/2019	2.43	9/25/2034	9/23/2019	133.48784	133.4878421	133.4878421	122.6876656	108.3068147	95.69715995	84.74612464	75.22429131	66.93513153
190923A00081	9/23/2019	1.96	9/20/2024	9/23/2019	107.36641	107.3664086	107.3664086	107.3664086	104.9349141	100.6295896	96.5251344	92.61117006	88.87790649
190924A00010	9/24/2019	1.95	9/24/2021	9/24/2019	102.36215	102.3621474	102.3621474	102.3621474	102.0137755	100.6221015	99.25609384	97.91510413	96.59850542
190930A00011	9/30/2019	1.89	10/24/2022	9/30/2019	104.00183	104.0018284	104.0018284	104.0018284	103.1862167	100.7285752	98.34209659	96.02431416	93.77286196
190930A00069	9/30/2019	1.9	9/29/2023	9/30/2019	105.52798	105.5279765	105.5279765	105.5279765	103.9950649	100.629384	97.39038156	94.27263637	91.27098816
190930A00077	9/30/2019	2.23	9/28/2029	9/30/2019	118.11076	118.1107624	118.1107624	115.2072633	105.8338645	97.158816	89.27349595	82.10173613	75.57507433
191002A00006	10/2/2019	1.84	10/2/2024	10/2/2019	106.88602	106.886022	106.886022	106.886022	104.4248136	100.0997753	95.97808362	92.04915491	88.3030098
190430A00003	4/30/2019	2.43	8/2/2023	4/30/2019	107.6191	107.6191001	107.6191001	107.6191001	106.1962224	102.9310349	99.78363723	96.74906747	93.82260691
190430A00021	4/30/2019	2.52	10/29/2021	4/30/2019	103.38769	103.3876922	103.3876922	103.3876922	103.0077109	101.5156392	100.0528152	98.61845455	97.21180033
190506A00011	5/6/2019	2.45	11/6/2020	5/6/2019	101.2305	101.2304968	101.2304968	101.2304968	101.1475706	100.6204334	100.0987874	99.58254705	99.07162853
190508A00008	5/8/2019	2.36	5/9/2022	5/8/2019	104.59539	104.5953941	104.5953941	104.5953941	104.0365374	102.0074937	100.028446	98.09784128	96.2141864
190509A00029	5/9/2019	2.34	6/9/2022	5/9/2019	104.74529	104.7452907	104.7452907	104.7452907	104.1447747	102.0314102	99.97150941	97.96335337	96.00529198
190513A00015	5/13/2019	2.51	5/13/2020	5/13/2019	100.07908	100.079084	100.079084	100.079084	100.0758187	100.0397806	100.0037852	99.96783251	99.93192237
190514A00014	5/14/2019	2.43	5/14/2021	5/14/2019	102.26408	102.2640755	102.2640755	102.2640755	102.0114558	100.9663647	99.94264086	98.93963393	97.95671949
190514A00056	5/14/2019	2.32	5/15/2023	5/14/2019	106.77511	106.7751123	106.7751123	106.7751123	105.5312082	102.4864331	99.5458034	96.70517145	93.96057987
190516A00006	5/16/2019	2.43	5/13/2021	5/16/2019	102.2581	102.2580966	102.2580966	102.2580966	102.0061834	100.963834	99.94274103	98.94225888	97.96176802
190520A00006	5/20/2019	2.44	5/20/2020	5/20/2019	100.12908	100.1290795	100.1290795	100.1290795	100.1240455	100.0684934	100.0130191	99.95762256	99.90230349
190521A00024	5/21/2019	2.53	1/20/2023	5/21/2019	106.15042	106.1504221	106.1504221	106.1504221	105.1586712	102.442425	99.81029897	97.2591396	94.78593556
190521A00047	5/21/2019	2.54	5/19/2023	5/21/2019	106.91186	106.9118627	106.9118627	106.9118627	105.664927	102.6208043	99.68076837	96.84067265	94.09656108

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190523A00005	5/23/2019	2.42	5/26/2020	5/23/2019	100.16636	100.1663592	100.1663592	100.1663592	100.1598153	100.0876072	100.0155123	99.94353037	99.87166107
190523A00007	5/23/2019	2.28	5/23/2022	5/23/2019	104.51531	104.5153112	104.5153112	104.5153112	103.9384839	101.8732609	99.85952039	97.89563808	95.98005335
190523A00022	5/23/2019	2.47	10/12/2022	5/23/2019	105.38539	105.3853883	105.3853883	105.3853883	104.5866213	102.14262	99.76839129	97.46154909	95.21980339
190528A00002	5/28/2019	2.45	11/30/2020	5/28/2019	101.30353	101.3035313	101.3035313	101.3035313	101.20234	100.6101011	100.0247732	99.44623592	98.87437178
190528A00003	5/28/2019	2.42	5/31/2022	5/28/2019	104.47594	104.4759412	104.4759412	104.4759412	103.8910704	101.8124451	99.78585053	97.80963487	95.88221121
190528A00009	5/28/2019	2.45	5/15/2024	5/28/2019	108.77825	108.7782531	108.7782531	108.7782531	106.6796648	102.6672511	98.82888213	95.15608249	91.64083612
190529A00013	5/29/2019	2.38	5/29/2024	5/29/2019	108.5733	108.5732952	108.5732952	108.5732952	106.440413	102.3969056	98.53011718	94.83137761	91.29249058
190529A00020	5/29/2019	2.38	5/29/2024	5/29/2019	108.5733	108.5732952	108.5732952	108.5732952	106.440413	102.3969056	98.53011718	94.83137761	91.29249058
190529A00050	5/29/2019	2.31	11/29/2021	5/29/2019	103.24253	103.2425319	103.2425319	103.2425319	102.8373084	101.2618262	99.71821338	98.20557112	96.72303394
190529A00069	5/29/2019	2.34	11/29/2021	5/29/2019	103.29058	103.2905826	103.2905826	103.2905826	102.8852692	101.30939	99.76538722	98.25236187	96.76944827
190530A00007	5/30/2019	2.35	11/30/2021	5/30/2019	103.3123	103.312296	103.312296	103.312296	102.9061232	101.3273342	99.78051123	98.2647513	96.77918506
190530A00031	5/30/2019	2.21	5/31/2022	5/30/2019	104.41549	104.4154923	104.4154923	104.4154923	103.8285464	101.7432662	99.71031765	97.72803528	95.7948196
190626A00004	6/26/2019	2.15	6/26/2024	6/26/2019	107.76942	107.7694178	107.7694178	107.7694178	105.5696201	101.4703158	97.55314527	93.80902694	90.22938453
190626A00010	6/26/2019	2.1	6/26/2023	6/26/2019	105.74521	105.7452134	105.7452134	105.7452134	104.4207872	101.295169	98.27937246	95.36889571	92.55945104
190626A00033	6/26/2019	2.08	6/22/2021	6/26/2019	102.09098	102.090979	102.090979	102.090979	101.8128843	100.6633896	99.5397554	98.44111654	97.3666461
190628A00027	6/28/2019	2.09	6/29/2020	6/28/2019	100.32858	100.3285818	100.3285818	100.3285818	100.3102032	100.1436681	99.97768592	99.81225379	99.64736902
190703A00015	7/3/2019	2.02	1/6/2021	7/3/2019	101.32569	101.3256917	101.3256917	101.3256917	101.1897436	100.495136	99.81004356	99.13427156	98.46763072
190708A00011	7/8/2019	2.2	7/8/2024	7/8/2019	108.04166	108.0416646	108.0416646	108.0416646	105.8077804	101.6726836	97.72246468	93.94784362	90.34006082
190710A00022	7/10/2019	2.22	7/10/2024	7/10/2019	108.13671	108.1367065	108.1367065	108.1367065	105.8966901	101.7546516	97.79798238	94.0173677	90.40401579
190711A00027	7/11/2019	2.19	7/11/2023	7/11/2019	106.1101	106.1101027	106.1101027	106.1101027	104.7509835	101.5809681	98.52346154	95.57380004	92.72754466
190717A00008	7/17/2019	2.22	7/17/2024	7/17/2019	108.17375	108.1737511	108.1737511	108.1737511	105.9146526	101.7544382	97.78111851	93.9852648	90.35798002
190719A00002	7/19/2019	2.12	4/21/2022	7/19/2019	103.64203	103.6420319	103.6420319	103.6420319	103.1093971	101.1450885	99.22817955	97.35723378	95.53086816
190724A00022	7/24/2019	1.94	7/23/2021	7/24/2019	102.27013	102.2701337	102.2701337	102.2701337	101.9705275	100.7333041	99.52596633	98.34744165	97.19670832
190724A00046	7/24/2019	2.12	7/23/2021	7/24/2019	102.28342	102.2834158	102.2834158	102.2834158	101.9846293	100.7505648	99.54625384	98.37063029	97.22267846
190805A00021	8/5/2019	1.89	1/16/2024	8/5/2019	105.97181	105.9718106	105.9718106	105.9718106	104.1867116	100.5363381	97.03323365	93.67062113	90.44207793
190805A00049	8/5/2019	1.88	8/4/2023	8/5/2019	105.21505	105.2150517	105.2150517	105.2150517	103.8078334	100.5912853	97.49097709	94.50201877	91.61975906
190807A00017	8/7/2019	1.76	3/12/2024	8/7/2019	105.70932	105.7093218	105.7093218	105.7093218	103.7925142	100.0023079	96.3707149	92.89030437	89.55403116
190807A00021	8/7/2019	2	8/7/2026	8/7/2019	110.67317	110.6731702	110.6731702	110.6731702	105.1577385	99.1367482	93.49944858	88.21940397	83.27213539
190807A00039	8/7/2019	2.02	8/7/2020	8/7/2019	100.48266	100.4826603	100.4826603	100.4826603	100.447511	100.1733905	99.90077075	99.62963954	99.35998463
190808A00009	8/8/2019	1.89	8/8/2024	8/8/2019	106.86856	106.8685596	106.8685596	106.8685596	104.560749	100.3733927	96.3767962	92.56124245	88.91756501
190808A00015	8/8/2019	1.92	8/9/2021	8/8/2019	102.11156	102.111565	102.111565	102.111565	101.8006521	100.5257944	99.27954823	98.06095038	96.86908072

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190808A00049	8/8/2019	1.89	8/8/2024	8/8/2019	106.86856	106.8685596	106.8685596	106.8685596	104.560749	100.3733927	96.3767962	92.56124245	88.91756501
190809A00008	8/9/2019	1.87	8/3/2023	8/9/2019	105.17779	105.1777897	105.1777897	105.1777897	103.7729699	100.5595667	97.46221257	94.47602454	91.59635812
190809A00015	8/9/2019	1.88	8/9/2022	8/9/2019	103.64437	103.644372	103.644372	103.644372	102.9586816	100.70415	98.50999215	96.37417986	94.29476943
190815A00007	8/15/2019	1.81	7/6/2023	8/15/2019	104.8634	104.8634038	104.8634038	104.8634038	103.5214745	100.384088	97.35784001	94.43813769	91.62060853
190815A00032	8/15/2019	1.83	8/13/2021	8/15/2019	102.01244	102.0124417	102.0124417	102.0124417	101.6985686	100.4153229	99.1597238	97.93087923	96.72793557
180801A00011	8/1/2018	3	5/14/2021	8/1/2018	102.86322	102.8632199	102.8632199	102.8632199	102.609935	101.5614777	100.5344359	99.52815782	98.54201804
180814A00010	8/14/2018	3.1	8/14/2025	8/14/2018	115.94945	115.9494457	115.9494457	115.9494457	112.2621655	106.9018114	101.8336069	97.04006033	92.50482022
180815A00008	8/15/2018	2.85	8/14/2020	8/15/2018	100.76109	100.7610895	100.7610895	100.7610895	100.722766	100.4288268	100.1366133	99.84611017	99.55730234
180815A00021	8/15/2018	3.01	8/15/2023	8/15/2018	109.01706	109.0170596	109.0170596	109.0170596	107.5655248	104.2585068	101.0713412	97.99900885	95.03673116
180817A00022	8/17/2018	2.87	8/17/2023	8/17/2018	109.18369	109.1836885	109.1836885	109.1836885	107.7189122	104.3890797	101.1804109	98.08782108	95.10646957
180820A00017	8/20/2018	3	8/18/2023	8/20/2018	109.00619	109.0061944	109.0061944	109.0061944	107.5480208	104.2334356	101.0392333	97.96037486	94.99206213
180820A00055	8/20/2018	3.37	8/21/2028	8/20/2018	125.50243	125.5024261	125.5024261	123.9162187	115.3266721	107.1647851	99.6596526	92.7546536	86.39833116
180823A00053	8/23/2018	3.2	8/23/2028	8/23/2018	125.86555	125.8655536	125.8655536	124.2466603	115.5457806	107.2971561	99.7153829	92.74276514	86.32688434
180827A00020	8/27/2018	3.21	8/27/2025	8/27/2018	115.56188	115.5618807	115.5618807	115.5618807	111.8506354	106.5024749	101.4466454	96.66564209	92.14309544
180830A00033	8/30/2018	2.87	8/31/2020	8/30/2018	100.8934	100.8933954	100.8933954	100.8933954	100.847474	100.5063711	100.1675668	99.8310381	99.49676218
180904A00004	9/4/2018	2.89	9/5/2023	9/4/2018	109.39619	109.3961865	109.3961865	109.3961865	107.8874005	104.5042155	101.2457948	98.10689416	95.08251736
180904A00012	9/4/2018	3.35	9/4/2030	9/4/2018	133.71036	133.7103632	133.7103632	129.3758919	118.420325	108.295954	99.1590596	90.90715361	83.44890077
180906A00004	9/6/2018	2.92	9/7/2021	9/6/2018	103.61506	103.6150598	103.6150598	103.6150598	103.2789145	101.9244401	100.5941903	99.2875706	98.00400572
180913A00030	9/13/2018	3.33	9/12/2025	9/13/2018	116.33691	116.3369139	116.3369139	116.3369139	112.5410961	107.1332131	102.022872	97.19214707	92.62428128
180914A00008	9/14/2018	3.15	9/14/2023	9/14/2018	109.71768	109.7176761	109.7176761	109.7176761	108.1950374	104.7977977	101.5262939	98.37521865	95.33951709
180914A00046	9/14/2018	2.93	9/14/2021	9/14/2018	103.91733	103.9173257	103.9173257	103.9173257	103.5738317	102.1942577	100.8397236	99.50960568	98.20330092
180918A00011	9/18/2018	3.17	9/18/2023	9/18/2018	109.81733	109.8173296	109.8173296	109.8173296	108.2851112	104.8755534	101.5925535	98.43075361	95.3850514
180918A00013	9/18/2018	3.11	9/16/2022	9/18/2018	106.7687	106.7687002	106.7687002	106.7687002	106.0108977	103.6188502	101.2931386	99.03155791	96.83198974
180920A00035	9/20/2018	3.16	9/20/2022	9/20/2018	106.9205	106.9204976	106.9204976	106.9204976	106.1553806	103.7506726	101.4129228	99.13989652	96.92944661
180921A00039	9/21/2018	3.15	9/21/2022	9/21/2018	106.9042	106.9041965	106.9041965	106.9041965	106.1374212	103.7302071	101.390093	99.11483692	96.90228517
180924A00044	9/24/2018	3.1	9/24/2021	9/24/2018	103.99419	103.9941914	103.9941914	103.9941914	103.6431812	102.2394403	100.8615736	99.50892701	98.18086802
180927A00030	9/27/2018	3.01	10/27/2020	9/27/2018	101.37672	101.3767157	101.3767157	101.3767157	101.3007632	100.8015401	100.3072329	99.81776942	99.33307861
181010A00018	10/10/2018	3.17	6/1/2021	10/10/2018	103.18639	103.1863935	103.1863935	103.1863935	102.9201678	101.8209711	100.7452393	99.6922267	98.66121902
181026A00019	10/29/2018	3.09	10/16/2020	10/29/2018	101.33007	101.3300724	101.3300724	101.3300724	101.2604337	100.7915823	100.3270789	99.866863	99.41087541
181206A00027	12/6/2018	2.98	6/8/2020	12/6/2018	100.29001	100.290015	100.290015	100.290015	100.2793089	100.1711605	100.0632555	99.95559312	99.84817248
181211A00018	12/11/2018	3.14	12/11/2023	12/11/2018	110.37163	110.3716342	110.3716342	110.3716342	108.6429967	105.0039384	101.5076884	98.14784153	94.91831803

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181212A00019	12/12/2018	3.19	12/12/2023	12/12/2018	110.56192	110.5619212	110.5619212	110.5619212	108.8297499	105.1846907	101.6827252	98.31743191	95.0827163
181213A00025	12/13/2018	3.05	12/11/2020	12/13/2018	101.74524	101.7452447	101.7452447	101.7452447	101.6335972	101.0097181	100.3934992	99.7847998	99.18348276
181214A00023	12/14/2018	3.07	12/14/2021	12/14/2018	104.57545	104.5754531	104.5754531	104.5754531	104.155953	102.5294606	100.9363684	99.37571358	97.84656974
181218A00077	12/18/2018	3.09	12/18/2023	12/18/2018	110.24315	110.2431547	110.2431547	110.2431547	108.4988756	104.8441164	101.333404	97.96024917	94.718494
181220A00009	12/20/2018	2.95	12/21/2020	12/20/2018	101.75762	101.7576243	101.7576243	101.7576243	101.6366679	100.9853729	100.3424231	99.70765857	99.08092368
181224A00038	12/24/2018	3.04	12/22/2023	12/24/2018	110.09009	110.0900895	110.0900895	110.0900895	108.3373858	104.6751184	101.1575657	97.77819162	94.53079481
190102A00058	1/2/2019	2.91	1/2/2024	1/2/2019	109.69129	109.6912925	109.6912925	109.6912925	107.9152665	104.2320608	100.6954333	97.2987165	94.0355875
190103A00005	1/3/2019	2.61	1/4/2021	1/3/2019	101.72302	101.7230219	101.7230219	101.7230219	101.5887333	100.8980569	100.2167586	99.54464826	98.88154092
190107A00010	1/7/2019	2.66	1/9/2023	1/7/2019	106.9356	106.9355975	106.9355975	106.9355975	105.9584401	103.249171	100.6231993	98.07742708	95.608895
190107A00019	1/7/2019	2.92	1/5/2024	1/7/2019	109.75003	109.750029	109.750029	109.750029	107.9664892	104.2745327	100.7297658	97.32548019	94.0553151
190110A00002	1/10/2019	2.93	1/10/2023	1/10/2019	107.17862	107.1786182	107.1786182	107.1786182	106.2030596	103.4986947	100.8772998	98.33579408	95.8712343
190110A00009	1/10/2019	2.97	1/16/2024	1/10/2019	110.01674	110.0167442	110.0167442	110.0167442	108.2053107	104.4803147	100.9047891	97.4718737	94.1750667
190110A00075	1/10/2019	2.67	4/7/2021	1/10/2019	102.42248	102.4224806	102.4224806	102.4224806	102.1989275	101.2511941	100.3210106	99.40789255	98.51137347
190110A00087	1/10/2019	2.89	8/7/2020	1/10/2019	100.7218	100.7217951	100.7217951	100.7217951	100.6865949	100.4120408	100.1389893	99.86742815	99.59734509
190115A00028	1/15/2019	2.86	11/8/2021	1/15/2019	103.97424	103.9742363	103.9742363	103.9742363	103.5849163	102.060975	100.5672275	99.10285017	97.66704884
190122A00042	1/22/2019	2.79	1/23/2023	1/22/2019	107.39397	107.3939713	107.3939713	107.3939713	106.3866815	103.6344482	100.9677566	98.38338581	95.87826116
190123A00005	1/23/2019	2.94	1/24/2022	1/23/2019	104.64554	104.6455367	104.6455367	104.6455367	104.1936505	102.4580781	100.7598414	99.09780048	97.4708621
190123A00033	1/23/2019	2.8	1/23/2023	1/23/2019	107.42165	107.4216467	107.4216467	107.4216467	106.4142498	103.6616337	100.9945682	98.40983237	95.90435116
190123A00035	1/23/2019	3.18	1/22/2027	1/23/2019	120.81842	120.8184168	120.8184168	120.8184168	114.0374377	107.2743301	100.9657896	95.07874233	89.58269464
190131A00053	1/31/2019	2.67	1/31/2023	1/31/2019	107.11843	107.1184272	107.1184272	107.1184272	106.0959996	103.3266626	100.6439856	98.04468217	95.52561606
190205A00013	2/5/2019	2.85	2/5/2021	2/5/2019	102.0234	102.0233962	102.0233962	102.0233962	101.8587671	101.0807651	100.3146325	99.56009937	98.81690359
190215A00004	2/15/2019	2.84	2/15/2023	2/15/2019	107.18494	107.1849433	107.1849433	107.1849433	106.1360039	103.3338373	100.6203178	97.99212286	95.44607634
190530A00062	5/30/2019	2.5	6/15/2020	5/30/2019	100.28059	100.2805914	100.2805914	100.2805914	100.2673414	100.1398524	100.0127009	99.88588557	99.75940501
190531A00007	6/5/2019	2.14	6/4/2021	6/5/2019	102.24462	102.2446179	102.2446179	102.2446179	101.9769377	100.8725256	99.7919475	98.73443843	97.69926579
190603A00033	6/3/2019	2.05	6/3/2024	6/3/2019	108.0012	108.0012033	108.0012033	108.0012033	105.8461608	101.7805534	97.89378832	94.17704111	90.62197223
190603A00046	6/3/2019	2.17	6/3/2022	6/3/2019	103.96466	103.964662	103.964662	103.964662	103.3769189	101.2956425	99.26663648	97.28823518	95.35883881
190604A00007	6/4/2019	2.23	7/8/2021	6/4/2019	102.35142	102.351418	102.351418	102.351418	102.0625883	100.8683093	99.70188812	98.56235871	97.44879912
190611A00004	6/11/2019	2.33	6/11/2020	6/11/2019	100.23644	100.2364443	100.2364443	100.2364443	100.224653	100.1082668	99.99216326	99.8763414	99.76080016
190612A00011	6/12/2019	2.2	6/30/2022	6/12/2019	104.16969	104.1696941	104.1696941	104.1696941	103.5435948	101.3871751	99.28626859	97.23905202	95.24377724
190613A00046	6/13/2019	2.2	6/14/2021	6/13/2019	102.18755	102.187548	102.187548	102.187548	101.9143452	100.785857	99.68228223	98.60280279	97.54663588
190614A00005	6/14/2019	1.99	6/14/2022	6/14/2019	104.02357	104.0235652	104.0235652	104.0235652	103.4179221	101.2987929	99.23356274	97.22048819	95.25789633

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190617A00027	6/17/2019	2.21	6/16/2023	6/17/2019	106.04296	106.0429586	106.0429586	106.0429586	104.7389153	101.6349955	98.63934237	95.74755144	92.95542571
190621A00041	6/21/2019	2.12	6/21/2022	6/21/2019	103.9493	103.949302	103.949302	103.949302	103.3363962	101.2066786	99.1313478	97.10863474	95.13684249
190625A00007	6/25/2019	2.06	6/25/2021	6/25/2019	102.08258	102.0825809	102.0825809	102.0825809	101.8026187	100.6450845	99.51377069	98.40779418	97.3263112
190625A00027	6/25/2019	2.04	6/24/2022	6/25/2019	103.79051	103.7905078	103.7905078	103.7905078	103.173835	101.037774	98.95642166	96.92799275	94.95077473
190627A00009	6/27/2019	1.93	6/27/2023	6/27/2019	105.79039	105.790391	105.790391	105.790391	104.4565528	101.3137738	98.2817955	95.35606148	92.53223282
190627A00038	6/27/2019	2.12	6/27/2023	6/27/2019	105.81391	105.8139114	105.8139114	105.8139114	104.4869664	101.3576266	98.33830513	95.42448898	92.61187998
190628A00024	6/28/2019	2.09	6/28/2022	6/28/2019	103.91893	103.9189311	103.9189311	103.9189311	103.2963148	101.1480598	99.05502096	97.01538868	95.02742751
190701A00006	7/1/2019	2.11	7/1/2021	7/1/2019	102.17138	102.171376	102.171376	102.171376	101.8874968	100.7132318	99.56592484	98.44465625	97.34854756
190701A00023	7/1/2019	1.95	7/1/2024	7/1/2019	107.72858	107.7285812	107.7285812	107.7285812	105.5017425	101.3690179	97.42098776	93.64839278	90.04249186
190711A00022	7/11/2019	2	7/11/2023	7/11/2019	106.08709	106.0870873	106.0870873	106.0870873	104.7208456	101.5371177	98.46670326	95.50489351	92.64720726
190731A00028	7/31/2019	1.93	7/29/2022	7/31/2019	104.1205	104.120501	104.120501	104.120501	103.4481699	101.2085928	99.02846723	96.90577214	94.83857313
190805A00008	8/5/2019	1.88	8/4/2023	8/5/2019	105.21505	105.2150517	105.2150517	105.2150517	103.8078334	100.5912853	97.49097709	94.50201877	91.61975906
190807A00023	8/7/2019	1.77	8/7/2024	8/7/2019	106.34755	106.3475543	106.3475543	106.3475543	104.0468218	99.87290385	95.88916594	92.08591797	88.4540195
190809A00013	8/9/2019	1.91	8/10/2020	8/9/2019	100.50777	100.5077684	100.5077684	100.5077684	100.4712197	100.1883258	99.90703551	99.62733509	99.349211
190809A00020	8/9/2019	2.44	8/9/2034	8/9/2019	133.33481	133.3348147	133.3348147	122.7606336	108.4864807	95.95268692	85.0544888	75.56737753	67.29880173
180614A00033	6/15/2018	2.82	7/10/2020	6/15/2018	100.5037	100.5036965	100.5036965	100.5036965	100.4806649	100.2837595	100.0876365	99.89229115	99.69771888
180615A00063	6/15/2018	3.2	6/15/2026	6/15/2018	119.07685	119.076853	119.076853	119.076853	113.684407	107.49104	101.681254	96.22920141	91.11091128
180618A00025	6/18/2018	3.01	4/13/2022	6/18/2018	105.35916	105.3591609	105.3591609	105.3591609	104.8314318	102.8714233	100.9581241	99.09013473	97.26610708
180619A00021	6/19/2018	3.24	6/19/2028	6/19/2018	125.643	125.6430001	125.6430001	124.2345111	115.7162717	107.6168398	100.1598985	93.29080527	86.95984226
180619A00023	6/19/2018	3.04	6/19/2023	6/19/2018	108.68589	108.6858887	108.6858887	108.6858887	107.3624615	104.2090704	101.165528	98.22736262	95.39031363
180620A00014	6/20/2018	3.4	6/20/2028	6/20/2018	125.23198	125.2319755	125.2319755	123.8430815	115.4264419	107.4067407	100.0208748	93.21508584	86.94044879
180620A00017	6/20/2018	3.24	6/20/2028	6/20/2018	125.65158	125.6515814	125.6515814	124.2399452	115.7186696	107.6166745	100.1575587	93.28663112	86.95413122
180620A00026	6/20/2018	2.91	6/18/2021	6/20/2018	103.02392	103.0239234	103.0239234	103.0239234	102.7471711	101.6027864	100.4838714	99.38958223	98.31911214
180622A00004	6/22/2018	3.47	12/22/2028	6/22/2018	127.38783	127.3878342	127.3878342	125.4021075	116.4254619	107.9283057	100.1380433	92.99168214	86.43216454
180627A00057	6/27/2018	2.98	6/27/2022	6/27/2018	105.85558	105.855576	105.855576	105.855576	105.2290797	103.0621389	100.9507306	98.89303811	96.88731946
180705A00057	7/5/2018	2.81	7/6/2020	7/5/2018	100.47159	100.4715946	100.4715946	100.4715946	100.4502876	100.2644988	100.0794035	99.89499793	99.71127812
180705A00060	7/5/2018	3	7/6/2022	7/5/2018	105.96642	105.9664187	105.9664187	105.9664187	105.3263059	103.1341774	100.998706	98.91801973	96.89032415
180716A00034	7/16/2018	2.89	7/14/2023	7/16/2018	108.98952	108.9895197	108.9895197	108.9895197	107.6019755	104.3638508	101.2407905	98.22801061	95.32095904
180717A00076	7/17/2018	3.03	7/17/2023	7/17/2018	108.86498	108.8649789	108.8649789	108.8649789	107.4787445	104.2491245	101.1342072	98.12922442	95.22963883
180719A00058	7/19/2018	2.9	7/20/2020	7/19/2018	100.5905	100.5905042	100.5905042	100.5905042	100.5631685	100.3385413	100.1149281	99.89232197	99.67071617
180720A00006	7/20/2018	3.03	7/17/2023	7/20/2018	108.86498	108.8649789	108.8649789	108.8649789	107.4787445	104.2491245	101.1342072	98.12922442	95.22963883

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180720A00010	7/20/2018	2.86	7/20/2020	7/20/2018	100.58151	100.5815081	100.5815081	100.5815081	100.554174	100.3295609	100.1059618	99.88336978	99.66177797
180720A00050	7/20/2018	2.86	7/20/2020	7/20/2018	100.58151	100.5815081	100.5815081	100.5815081	100.554174	100.3295609	100.1059618	99.88336978	99.66177797
180730A00036	7/30/2018	3.14	7/31/2023	7/30/2018	109.33138	109.3313752	109.3313752	109.3313752	107.9117273	104.6383879	101.4823779	98.4387699	95.50287829
180730A00078	7/30/2018	3.14	7/28/2023	7/30/2018	109.30786	109.3078578	109.3078578	109.3078578	107.8949848	104.6297814	101.4813749	98.44487136	95.51561595
180801A00013	8/1/2018	3.04	10/15/2021	8/1/2018	104.06916	104.0691575	104.0691575	104.0691575	103.7000479	102.2396235	100.8071355	99.4018515	98.02306451
180801A00014	8/1/2018	3.03	8/2/2021	8/1/2018	103.49232	103.4923228	103.4923228	103.4923228	103.1848918	101.9166702	100.6788912	99.47046455	98.29035165
180806A00008	8/6/2018	2.95	8/7/2023	8/6/2018	109.3723	109.3723038	109.3723038	109.3723038	107.9290503	104.6221744	101.4347493	98.36175366	95.3984104
180810A00028	8/10/2018	2.91	8/10/2023	8/10/2018	109.26309	109.2630913	109.2630913	109.2630913	107.8136526	104.5007453	101.3077784	98.22971242	95.26175219
190816A00021	8/16/2019	1.77	8/16/2023	8/16/2019	104.90178	104.9017827	104.9017827	104.9017827	103.4697685	100.227959	97.10435335	94.09398976	91.19214463
190816A00036	8/16/2019	1.77	8/16/2024	8/16/2019	106.38407	106.3840664	106.3840664	106.3840664	104.058395	99.86157231	95.85692301	92.03464589	88.38549308
190819A00030	8/19/2019	2.01	8/20/2029	8/19/2019	117.75886	117.7588637	117.7588637	114.9437906	105.5692411	96.90486696	89.02521322	81.85505817	75.32674602
190821A00016	8/21/2019	1.79	8/22/2022	8/21/2019	103.49113	103.4911297	103.4911297	103.4911297	102.7850658	100.4986258	98.27420377	96.10975011	94.00329666
190823A00005	8/23/2019	1.62	8/23/2024	8/23/2019	106.55629	106.5562928	106.5562928	106.5562928	104.1944919	99.95422307	95.90942401	92.05009226	88.36678933
190826A00025	8/26/2019	1.76	11/26/2024	8/26/2019	106.70322	106.703222	106.703222	106.703222	104.0834967	99.62778893	95.38784198	91.35208843	87.50964271
190826A00056	8/26/2019	1.72	8/26/2024	8/26/2019	106.20677	106.2067732	106.2067732	106.2067732	103.8552553	99.63764737	95.61428439	91.77524648	88.11117087
190828A00008	8/28/2019	1.75	8/29/2022	8/28/2019	103.42587	103.425872	103.425872	103.425872	102.7088	100.4050177	98.16415111	95.98413828	93.86299692
190828A00031	8/28/2019	1.71	8/28/2024	8/28/2019	106.17099	106.1709856	106.1709856	106.1709856	103.8143075	99.59255917	95.56547081	91.72309867	88.05605683
190829A00024	8/29/2019	1.54	8/29/2024	8/29/2019	106.2306	106.230599	106.230599	106.230599	103.8550157	99.60684471	95.55524769	91.69015591	88.00206666
190830A00021	8/30/2019	1.76	8/30/2024	8/30/2019	106.39718	106.3971831	106.3971831	106.3971831	104.03311	99.80163429	95.76542017	91.91449214	88.23943366
190906A00005	9/6/2019	1.77	9/6/2023	9/6/2019	104.98707	104.9870692	104.9870692	104.9870692	103.5082603	100.2115204	97.03680864	93.97899175	91.03317902
190906A00014	9/6/2019	1.57	9/6/2024	9/6/2019	106.39415	106.3941522	106.3941522	106.3941522	103.9946166	99.72270706	95.64934965	91.76433653	88.05803516
190912A00027	9/12/2019	1.95	9/12/2023	9/12/2019	105.62315	105.6231465	105.6231465	105.6231465	104.1275156	100.8044771	97.60490012	94.52356912	91.55551606
190912A00034	9/12/2019	1.76	9/12/2022	9/12/2019	103.93857	103.9385674	103.9385674	103.9385674	103.1932515	100.8373289	98.54683974	96.31961112	94.15355496
190918A00016	9/18/2019	1.78	9/18/2024	9/18/2019	107.37422	107.374217	107.374217	107.374217	104.9320604	100.6083903	96.48683088	92.55692462	88.80880741
190925A00024	9/25/2019	1.88	4/14/2022	9/25/2019	103.13231	103.1323067	103.1323067	103.1323067	102.6087997	100.6684834	98.77457091	96.92566924	95.12043666
190926A00010	9/26/2019	2.11	9/30/2020	9/26/2019	100.78786	100.7878603	100.7878603	100.7878603	100.727567	100.3041478	99.88427462	99.46790314	99.0549898
190926A00016	9/26/2019	2.28	5/24/2030	9/26/2019	119.84709	119.8470886	119.8470886	116.0731984	106.0618854	96.8649727	88.55549275	81.04284783	74.24612543
190926A00034	9/26/2019	1.88	9/26/2022	9/26/2019	103.85412	103.8541191	103.8541191	103.8541191	103.0884791	100.70508	98.38870158	96.13708983	93.94808005
190927A00019	9/30/2019	1.91	9/30/2022	9/30/2019	103.94486	103.9448568	103.9448568	103.9448568	103.1721549	100.7769934	98.44945912	96.1872682	93.98822754
191001A00009	10/1/2019	1.84	10/1/2020	10/1/2019	100.73647	100.7364741	100.7364741	100.7364741	100.6755247	100.2487983	99.82567998	99.4061243	98.9900864
191002A00016	10/2/2019	1.79	10/2/2023	10/2/2019	105.16128	105.1612813	105.1612813	105.1612813	103.623718	100.25667	97.01670102	93.89835889	90.89645456

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191003A00013	10/3/2019	1.66	10/3/2022	10/3/2019	103.34528	103.3452824	103.3452824	103.3452824	102.5691622	100.1736632	97.84606609	95.58406937	93.38546351
181109A00028	11/9/2018	3.72	11/9/2026	11/9/2018	122.38155	122.3815537	122.3815537	122.3815537	116.0877139	109.4944052	103.3300889	97.56446637	92.16953303
181113A00066	11/13/2018	3.25	11/15/2021	11/13/2018	104.63354	104.63354	104.63354	104.63354	104.2372602	102.6887772	101.1711694	99.68358476	98.22520224
181114A00026	11/14/2018	3.32	12/14/2022	11/14/2018	108.01588	108.0158775	108.0158775	108.0158775	107.0905445	104.4455318	101.8798877	99.39073538	96.97532292
181115A00034	11/15/2018	3.05	5/15/2020	11/15/2018	100.11374	100.1137449	100.1137449	100.1137449	100.1099756	100.0683766	100.0268293	99.9853334	99.94388899
181120A00024	11/20/2018	3.25	11/20/2023	11/20/2018	110.60223	110.6022282	110.6022282	110.6022282	108.9211967	105.3330444	101.8839151	98.56765487	95.37841776
181121A00016	11/21/2018	3.29	11/21/2023	11/21/2018	110.75399	110.7539932	110.7539932	110.7539932	109.0697275	105.4762168	102.0219917	98.70088345	95.5070322
181123A00015	11/23/2018	3.14	11/23/2021	11/23/2018	104.52465	104.5246536	104.5246536	104.5246536	104.1219752	102.5523785	101.0143227	99.50692639	98.02934052
181126A00048	11/26/2018	3.24	11/25/2022	11/26/2018	107.64954	107.6495379	107.6495379	107.6495379	106.7622374	104.172374	101.6591383	99.21979827	96.85173793
181128A00010	11/28/2018	2.95	11/30/2020	11/28/2018	101.68281	101.6828102	101.6828102	101.6828102	101.5812497	100.9867055	100.3991087	99.81833833	99.24427589
181203A00053	12/4/2018	3.23	12/1/2023	12/4/2018	110.61905	110.6190498	110.6190498	110.6190498	108.9124108	105.2947206	101.8181103	98.47629235	95.26329664
181212A00033	12/12/2018	2.99	12/12/2023	12/12/2018	110.51359	110.5135854	110.5135854	110.5135854	108.7717098	105.1102267	101.5929074	98.21326572	94.96514672
181214A00012	12/14/2018	3.07	12/14/2021	12/14/2018	104.57545	104.5754531	104.5754531	104.5754531	104.155953	102.5294606	100.9363684	99.37571358	97.84656974
181217A00052	12/17/2018	3.04	12/17/2021	12/17/2018	104.53242	104.5324244	104.5324244	104.5324244	104.1107393	102.4769221	100.8767593	99.30927638	97.77353645
181226A00034	12/26/2018	2.9	12/27/2021	12/26/2018	104.37337	104.3733695	104.3733695	104.3733695	103.9441867	102.2852014	100.6607571	99.06983962	97.51147453
181227A00026	12/27/2018	3.03	12/27/2023	12/27/2018	110.09096	110.0909572	110.0909572	110.0909572	108.3265226	104.6514058	101.1219418	97.73153217	94.47391742
181227A00028	12/27/2018	3.46	12/27/2028	12/27/2018	127.34401	127.3440123	127.3440123	125.3418468	116.3534995	107.8476989	100.0505217	92.89873603	86.33507565
181228A00006	12/28/2018	2.86	11/13/2020	12/28/2018	101.42446	101.4244557	101.4244557	101.4244557	101.3362258	100.79017	100.2500003	99.71562185	99.18694164
190102A00026	1/2/2019	2.62	1/4/2022	1/2/2019	104.26238	104.262383	104.262383	104.262383	103.8256611	102.1411337	100.4920864	98.87746342	97.29625131
190102A00041	1/2/2019	2.91	1/2/2024	1/2/2019	109.69129	109.6912925	109.6912925	109.6912925	107.9152665	104.2320608	100.6954333	97.2987165	94.0355875
190107A00028	1/7/2019	2.62	1/7/2022	1/7/2019	104.2832	104.283203	104.283203	104.283203	103.8440511	102.1513604	100.49445	98.87225084	97.28373641
190107A00035	1/7/2019	2.82	10/15/2021	1/7/2019	103.74416	103.7441617	103.7441617	103.7441617	103.375604	101.9176732	100.4876354	99.08475956	97.70833968
190109A00010	1/9/2019	2.98	1/9/2023	1/9/2019	107.30745	107.3074456	107.3074456	107.3074456	106.3334159	103.6299021	101.0092516	98.46839061	96.00438242
190110A00012	1/10/2019	2.97	1/18/2024	1/10/2019	110.03146	110.0314644	110.0314644	110.0314644	108.2151773	104.4847955	100.9042824	97.46675053	94.16567297
190110A00014	1/10/2019	2.97	1/17/2024	1/10/2019	110.0241	110.0241043	110.0241043	110.0241043	108.2102439	104.4825549	100.9045354	97.46931152	94.17036895
191002A00017	10/2/2019	1.84	10/2/2024	10/2/2019	106.88602	106.886022	106.886022	106.886022	104.4248136	100.0997753	95.97808362	92.04915491	88.3030098
191003A00014	10/3/2019	1.71	9/20/2024	10/3/2019	106.25996	106.2599607	106.2599607	106.2599607	103.8381372	99.556731	95.47538871	91.58376586	87.87210453
191003A00020	10/3/2019	1.72	10/3/2022	10/3/2019	103.4924	103.4923952	103.4923952	103.4923952	102.7158027	100.3184897	97.98911825	95.72538562	93.52508114
191004A00003	10/4/2019	1.89	10/5/2026	10/4/2019	110.23494	110.234939	110.234939	110.234939	104.3776956	98.2395754	92.50219636	87.13738975	82.11910169
191004A00005	10/4/2019	1.54	10/4/2024	10/4/2019	106.37189	106.3718887	106.3718887	106.3718887	103.8928205	99.55056514	95.41348823	91.47086618	87.71259022
191007A00027	10/7/2019	1.69	10/7/2022	10/7/2019	103.43427	103.4342737	103.4342737	103.4342737	102.650756	100.2438844	97.9055209	95.63333326	93.42508285

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191008A00006	10/8/2019	1.73	10/8/2021	10/8/2019	102.1059	102.1058976	102.1058976	102.1058976	101.7461059	100.3190872	98.91905421	97.54530839	96.19717493
191009A00017	10/9/2019	1.76	10/4/2024	10/9/2019	106.53738	106.537382	106.537382	106.537382	104.073477	99.75116181	95.63240174	91.70658715	87.96371506
191009A00026	10/9/2019	1.74	10/7/2022	10/9/2019	103.55742	103.5574191	103.5574191	103.5574191	102.7735032	100.3651066	98.02525147	95.75160459	93.54192636
191015A00026	10/15/2019	1.69	10/15/2021	10/15/2019	102.32483	102.324827	102.324827	102.324827	101.9575792	100.5064738	99.08321154	97.68706138	96.31731749
191017A00022	10/17/2019	2.25	7/17/2028	10/17/2019	115.99719	115.9971929	115.9971929	114.534798	106.318658	98.59498601	91.49466411	84.9640494	78.95438068
191021A00002	10/21/2019	1.9	10/21/2020	10/21/2019	100.79469	100.7946932	100.7946932	100.7946932	100.7223963	100.2413141	99.76482497	99.29286322	98.8253645
191021A00021	10/21/2019	2.22	12/21/2027	10/21/2019	114.66619	114.6661898	114.6661898	113.8405194	106.1973872	98.95779884	92.26667688	86.07958535	80.35590714
191025A00002	10/25/2019	1.75	10/26/2020	10/25/2019	100.81137	100.8113664	100.8113664	100.8113664	100.7360783	100.2404162	99.74962492	99.263633	98.78237021
191031A00019	10/31/2019	1.88	10/31/2022	10/31/2019	104.00741	104.0074094	104.0074094	104.0074094	103.1793266	100.7036279	98.30013377	95.96632285	93.69977762
191101A00002	11/1/2019	1.85	11/1/2022	11/1/2019	103.93581	103.9358091	103.9358091	103.9358091	103.1061081	100.6286466	98.22350169	95.8881456	93.62015484
191105A00007	11/5/2019	1.98	11/5/2026	11/5/2019	112.25823	112.25823	112.25823	112.25823	106.1179866	99.80384605	93.90738835	88.39885043	83.25073583
191106A00022	11/6/2019	2.34	1/2/2030	11/6/2019	119.67316	119.6731593	119.6731593	116.4209273	106.7588632	97.83528808	89.74236372	82.39813703	75.72914015
191115A00015	11/18/2019	2.61	11/18/2024	11/18/2019	110.56991	110.5699111	110.5699111	110.5699111	107.937917	103.4158791	99.11078931	95.01109212	91.10590932
191115A00030	11/15/2019	2.35	11/9/2029	11/15/2019	119.47198	119.4719786	119.4719786	116.4142441	106.8898497	98.07704791	90.0738565	82.80140899	76.18890137
191120A00031	11/20/2019	1.69	11/21/2022	11/20/2019	104.07527	104.075271	104.075271	104.075271	103.2040316	100.6614678	98.19442578	95.80021136	93.47624431
191121A00004	11/21/2019	1.77	11/21/2024	11/21/2019	107.62188	107.6218762	107.6218762	107.6218762	104.9893816	100.4995614	96.22706428	92.16024232	88.2881338
191122A00020	11/26/2019	3.2	11/23/2037	11/26/2019	150.19971	150.1997053	150.1997053	133.2433134	115.7485114	100.7738592	88.07926886	77.29663687	68.11948827
191206A00019	12/6/2019	1.96	11/15/2023	12/6/2019	105.94998	105.9499825	105.9499825	105.9499825	104.3084494	100.8157566	97.45882237	94.23163828	91.12849611
190813A00016	8/13/2019	1.88	8/13/2024	8/13/2019	106.84727	106.8472731	106.8472731	106.8472731	104.5259307	100.3266937	96.31929641	92.49396113	88.84146284
190813A00020	8/13/2019	1.89	8/12/2022	8/13/2019	103.68061	103.680611	103.680611	103.680611	102.990005	100.7272665	98.52529695	96.38206298	94.29561488
190815A00015	8/15/2019	1.82	8/15/2022	8/15/2019	103.53168	103.531676	103.531676	103.531676	102.8367024	100.5679213	98.36026002	96.21168109	94.12023002
190816A00025	8/16/2019	1.89	3/16/2021	8/16/2019	101.44144	101.4414397	101.4414397	101.4414397	101.2399095	100.358707	99.49279744	98.64178536	97.80528865
190820A00021	8/20/2019	2.13	8/20/2029	8/20/2019	116.97788	116.9778818	116.9778818	114.2130872	104.975601	96.4236906	88.64338674	81.56093976	75.10999866
190820A00038	8/20/2019	1.76	8/20/2024	8/20/2019	106.35689	106.3568861	106.3568861	106.3568861	104.0205004	99.81442578	95.80138291	91.97152207	88.31554839
190821A00028	8/21/2019	1.8	8/21/2023	8/21/2019	105.02229	105.0222851	105.0222851	105.0222851	103.5786261	100.3221827	97.18487744	94.16171398	91.2479343
190826A00029	8/26/2019	1.53	8/26/2024	8/26/2019	106.17505	106.1750514	106.1750514	106.1750514	103.8082169	99.56865414	95.5249576	91.66709828	87.9856118
190826A00034	8/26/2019	1.9	8/24/2029	8/26/2019	116.74572	116.7457156	116.7457156	113.9202034	104.5724495	95.94387599	88.09877912	80.9619347	74.46569214
190826A00063	8/26/2019	2.05	8/28/2028	8/26/2019	114.55074	114.5507445	114.5507445	112.9580576	104.6809777	96.92914301	89.81209895	83.27459118	77.26643319
190828A00020	8/28/2019	1.95	5/28/2027	8/28/2019	111.67304	111.6730373	111.6730373	111.4657585	104.4301637	97.73353404	91.51246432	85.73075153	80.35512519
190829A00031	8/29/2019	1.54	8/29/2024	8/29/2019	106.2306	106.230599	106.230599	106.230599	103.8550157	99.60684471	95.55524769	91.69015591	88.00206666
190829A00045	8/29/2019	1.9	8/28/2026	8/29/2019	110.1348	110.1347951	110.1347951	110.1347951	104.5045368	98.45385313	92.79222468	87.49270365	82.53033682

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190829A00050	8/29/2019	1.73	8/29/2024	8/29/2019	106.26219	106.2621884	106.2621884	106.2621884	103.9020007	99.67585723	95.64465885	91.79844659	88.12781984
190904A00001	9/4/2019	1.5	9/4/2024	9/4/2019	106.07818	106.0781833	106.0781833	106.0781833	103.6870467	99.4270174	95.36484081	91.49035496	87.79396994
190905A00003	9/5/2019	1.76	9/5/2024	9/5/2019	106.42122	106.4212216	106.4212216	106.4212216	104.0401447	99.79307435	95.74266965	91.87885232	88.19211027
190910A00030	9/10/2019	1.86	9/10/2024	9/10/2019	106.88107	106.8810689	106.8810689	106.8810689	104.4819597	100.2123907	96.14098731	92.25756763	88.55252323
190913A00011	9/13/2019	2.02	9/13/2022	9/13/2019	104.13302	104.13302	104.13302	104.13302	103.3885371	101.0364173	98.74951269	96.52566046	94.36278233
190916A00009	9/16/2019	2.04	9/16/2022	9/16/2019	104.19535	104.1953491	104.1953491	104.1953491	103.4455833	101.0846977	98.78947523	96.55773143	94.38736722
190924A00026	9/24/2019	1.9	7/22/2022	9/24/2019	103.61045	103.6104465	103.6104465	103.6104465	102.9528053	100.7453901	98.59606452	96.50287251	94.46394098
190924A00033	9/24/2019	1.84	9/30/2022	9/24/2019	103.7738	103.7738042	103.7738042	103.7738042	103.0016487	100.6085893	98.2831114	96.02293239	93.82586054
190925A00018	9/25/2019	1.7	9/25/2024	9/25/2019	107.04973	107.0497264	107.0497264	107.0497264	104.5905195	100.2560293	96.12508265	92.18710238	88.43211422
191001A00006	10/1/2019	1.83	6/18/2024	10/1/2019	106.39505	106.3950497	106.3950497	106.3950497	104.2269545	100.1763051	96.30517903	92.6046564	89.06631132
191001A00023	10/1/2019	1.85	9/27/2024	10/1/2019	106.90931	106.9093124	106.9093124	106.9093124	104.4621236	100.1490156	96.03809631	92.11887322	88.38145123
180813A00059	8/13/2018	3.01	8/11/2023	8/13/2018	108.98714	108.9871425	108.9871425	108.9871425	107.5446961	104.2485035	101.0714384	98.00850788	95.05496037
180815A00011	8/15/2018	2.97	8/15/2022	8/15/2018	106.19593	106.1959312	106.1959312	106.1959312	105.4930698	103.1931483	100.9550038	98.77657913	96.65590115
180816A00043	8/16/2018	2.83	8/16/2022	8/16/2018	106.30294	106.3029421	106.3029421	106.3029421	105.5952585	103.282982	101.0330266	98.84331502	96.71185438
180817A00026	8/17/2018	2.83	8/17/2020	8/17/2018	100.77956	100.7795568	100.7795568	100.7795568	100.7398901	100.4376097	100.1371533	99.83850438	99.54164656
180821A00002	8/22/2018	2.89	8/23/2021	8/22/2018	103.46579	103.4657895	103.4657895	103.4657895	103.1419895	101.825977	100.5354099	99.26957111	98.0277706
180821A00011	8/21/2018	2.98	8/21/2023	8/21/2018	108.96178	108.9617788	108.9617788	108.9617788	107.4971472	104.1755544	100.974861	97.89000842	94.91617948
180821A00024	8/21/2018	2.85	8/21/2023	8/21/2018	109.14719	109.1471878	109.1471878	109.1471878	107.6736074	104.3339718	101.1162052	98.01519669	95.02607912
180823A00001	8/23/2018	2.88	8/23/2021	8/23/2018	103.45248	103.4524831	103.4524831	103.4524831	103.128703	101.8127832	100.5223073	99.25655818	98.01484581
180827A00010	8/27/2018	2.99	8/25/2023	8/27/2018	109.02486	109.0248617	109.0248617	109.0248617	107.5509705	104.2180168	101.0067072	97.91195568	94.9289171
180827A00032	8/27/2018	2.96	8/29/2022	8/27/2018	106.27586	106.2758594	106.2758594	106.2758594	105.5501557	103.2125466	100.9385743	98.72615509	96.57328615
180904A00036	9/4/2018	2.83	9/4/2020	9/4/2018	100.90826	100.9082593	100.9082593	100.9082593	100.8604108	100.5082468	100.1585406	99.81126638	99.46639899
180914A00028	9/14/2018	3.37	9/12/2025	9/14/2018	116.55297	116.5529724	116.5529724	116.5529724	112.7544325	107.3409124	102.2251579	97.38923257	92.81636893
180914A00034	9/14/2018	2.85	9/15/2020	9/14/2018	101.04713	101.0471263	101.0471263	101.0471263	100.9938649	100.6104655	100.2299869	99.85239593	99.47765953
180917A00032	9/17/2018	3.17	9/15/2023	9/17/2018	109.79366	109.7936577	109.7936577	109.7936577	108.2683426	104.8671626	101.5919473	98.43737607	95.39838132
180917A00078	9/17/2018	3.05	9/15/2023	9/17/2018	110.01967	110.0196718	110.0196718	110.0196718	108.4847061	105.0642113	101.7707185	98.59885056	95.5434864
180920A00011	9/20/2018	2.89	9/18/2020	9/20/2018	101.08553	101.0855253	101.0855253	101.0855253	101.0308081	100.6390387	100.2503168	99.86460691	99.48187392
180921A00021	9/21/2018	2.99	9/21/2021	9/21/2018	104.05663	104.0566254	104.0566254	104.0566254	103.7070086	102.307178	100.9330707	99.58403814	98.25945353
180924A00052	9/24/2018	3.22	9/22/2023	9/24/2018	110.02022	110.0202195	110.0202195	110.0202195	108.4778433	105.0542144	101.7580161	98.58383792	95.52652832
180927A00015	9/27/2018	3.02	9/27/2022	9/27/2018	107.08209	107.0820878	107.0820878	107.0820878	106.3011797	103.8664188	101.5001178	99.19996914	96.96375728
180927A00029	9/27/2018	3.01	10/27/2020	9/27/2018	101.37672	101.3767157	101.3767157	101.3767157	101.3007632	100.8015401	100.3072329	99.81776942	99.33307861

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180928A00033	9/28/2018	2.87	9/28/2020	9/28/2018	101.15404	101.1540388	101.1540388	101.1540388	101.0944872	100.6749672	100.2589257	99.8463195	99.43710624
181001A00019	10/1/2018	3.02	10/1/2020	10/1/2018	101.18204	101.1820391	101.1820391	101.1820391	101.1210438	100.6938718	100.2703004	99.85028433	99.43377901
181005A00017	10/5/2018	3.27	4/11/2023	10/5/2018	108.84908	108.8490767	108.8490767	108.8490767	107.6763597	104.7029394	101.8280249	99.04781576	96.35867989
181010A00023	10/10/2018	3.41	4/1/2024	10/10/2018	112.31408	112.3140764	112.3140764	112.3140764	110.3013534	106.3332114	102.5317844	98.88919428	95.39797657
190722A00027	7/22/2019	2.25	7/22/2020	7/22/2019	100.4553	100.4553042	100.4553042	100.4553042	100.4271348	100.1972038	99.96833419	99.74051854	99.51374958
190724A00005	7/24/2019	2.12	7/26/2021	7/24/2019	102.29869	102.298688	102.298688	102.298688	101.9978629	100.7556255	99.54352878	98.36048619	97.20546275
190729A00006	7/29/2019	2.14	7/29/2022	7/29/2019	104.1863	104.1862989	104.1862989	104.1862989	103.5164876	101.2843082	99.11122915	96.99524575	94.9344392
190730A00007	7/30/2019	2.19	7/30/2024	7/30/2019	108.11405	108.1140538	108.1140538	108.1140538	105.8205917	101.6293513	97.62776574	93.80619596	90.15555097
190802A00016	8/2/2019	2.01	7/12/2023	8/2/2019	105.53419	105.5341918	105.5341918	105.5341918	104.175769	101.0124286	97.96152364	95.01838826	92.17858163
190802A00032	8/2/2019	2.01	8/2/2024	8/2/2019	107.35722	107.3572187	107.3572187	107.3572187	105.0618241	100.879018	96.88599878	93.07310819	89.43123705
190805A00029	8/5/2019	1.93	8/5/2022	8/5/2019	103.74129	103.741291	103.741291	103.741291	103.0617318	100.8164644	98.63108084	96.50355879	94.43196135
190807A00005	8/7/2019	1.77	8/7/2024	8/7/2019	106.34755	106.3475543	106.3475543	106.3475543	104.0468218	99.87290385	95.88916594	92.08591797	88.4540195
190808A00011	8/8/2019	1.86	8/8/2023	8/8/2019	105.16648	105.166482	105.166482	105.166482	103.7506978	100.5247986	97.41581702	94.41883859	91.52918727
190808A00023	8/8/2019	1.68	11/8/2023	8/8/2019	105.57048	105.5704799	105.5704799	105.5704799	103.937887	100.4537851	97.10500236	93.8855595	90.78977524
190809A00005	8/9/2019	1.88	7/11/2022	8/9/2019	103.51719	103.5171908	103.5171908	103.5171908	102.8763412	100.6985493	98.57746621	96.51120535	94.49795905
190809A00010	8/9/2019	1.88	8/8/2024	8/9/2019	106.82548	106.8254806	106.8254806	106.8254806	104.5180289	100.3315802	96.33586155	92.52115693	88.87830112
190813A00022	8/13/2019	1.88	8/13/2024	8/13/2019	106.84727	106.8472731	106.8472731	106.8472731	104.5259307	100.3266937	96.31929641	92.49396113	88.84146284
190815A00012	8/15/2019	1.81	8/15/2024	8/15/2019	106.55309	106.5530934	106.5530934	106.5530934	104.228739	100.0307978	96.02492913	92.20133917	88.55078729
190816A00013	8/16/2019	2.2	8/16/2029	8/16/2019	117.60877	117.608766	117.608766	114.8555876	105.6051007	97.03381346	89.23434451	82.13302205	75.66355911
190816A00031	8/16/2019	1.77	8/16/2024	8/16/2019	106.38407	106.3840664	106.3840664	106.3840664	104.058395	99.86157231	95.856923	92.03464589	88.38549308
190819A00026	8/19/2019	1.62	8/19/2024	8/19/2019	106.53967	106.5396724	106.5396724	106.5396724	104.1890622	99.95906938	95.92364554	92.072839	88.39726037
190822A00016	8/22/2019	1.84	8/22/2022	8/22/2019	103.60793	103.6079323	103.6079323	103.6079323	102.9015186	100.6137028	98.38793399	96.22216193	94.11441756
190826A00006	8/26/2019	1.72	8/26/2024	8/26/2019	106.20677	106.2067732	106.2067732	106.2067732	103.8552553	99.63764737	95.61428439	91.77524648	88.11117087
190829A00011	8/30/2019	1.98	12/15/2020	8/30/2019	101.09627	101.0962709	101.0962709	101.0962709	100.9812522	100.3487483	99.72415587	99.10732711	98.49811779
190830A00023	8/30/2019	1.78	9/15/2022	8/30/2019	103.56597	103.5659676	103.5659676	103.5659676	102.8198604	100.4692589	98.18401216	95.96194787	93.80097845
190906A00012	9/6/2019	1.76	9/6/2024	9/6/2019	106.42522	106.4252234	106.4252234	106.4252234	104.0413003	99.79162007	95.73884197	91.87286961	88.1841742
190909A00029	9/9/2019	1.83	9/8/2023	9/9/2019	105.19844	105.1984351	105.1984351	105.1984351	103.7140285	100.4085431	97.22556243	94.15992571	91.20671658
190909A00030	9/9/2019	1.83	9/9/2024	9/9/2019	106.74492	106.7449238	106.7449238	106.7449238	104.3498056	100.085689	96.01940588	92.14079621	88.44027224
190215A00006	2/15/2019	2.89	2/15/2024	2/15/2019	109.93048	109.9304769	109.9304769	109.9304769	108.0476368	104.2450504	100.5980254	97.09935212	93.74219646
190219A00020	2/19/2019	2.88	2/16/2024	2/19/2019	109.89926	109.8992559	109.8992559	109.8992559	108.014208	104.2094879	100.560526	97.06010327	93.70137634
190219A00026	2/19/2019	2.8	2/22/2022	2/19/2019	104.61734	104.6173404	104.6173404	104.6173404	104.1410884	102.3225703	100.5446702	98.80621993	97.10609348

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190220A00007	2/20/2019	2.87	2/20/2024	2/20/2019	109.88907	109.8890656	109.8890656	109.8890656	107.9944135	104.1790036	100.5202051	97.01075905	93.64378245
190225A00026	2/25/2019	3.43	2/27/2034	2/25/2019	146.07582	146.0758163	146.0758163	135.9884835	121.3088681	108.2574191	96.83368216	86.82229307	78.03755589
190308A00007	3/8/2019	2.8	3/8/2024	3/8/2019	109.73681	109.7368145	109.7368145	109.7368145	107.8017292	103.9444666	100.2473322	96.70286231	93.30397948
190313A00019	3/13/2019	2.73	7/15/2022	3/13/2019	105.43127	105.4312732	105.4312732	105.4312732	104.779033	102.56926	100.4171341	98.32073056	96.2782057
190313A00029	3/13/2019	2.56	3/13/2023	3/13/2019	107.08795	107.0879454	107.0879454	107.0879454	105.9795222	103.0959278	100.3059338	97.60600862	94.99277333
190321A00020	3/21/2019	2.62	3/22/2021	3/21/2019	102.1287	102.1287044	102.1287044	102.1287044	101.9207517	101.0199418	100.1350313	99.26560163	98.41124909
190327A00031	3/27/2019	2.53	3/27/2024	3/27/2019	108.80385	108.8038465	108.8038465	108.8038465	106.8285836	102.9412752	99.21752189	95.64960288	92.23020166
190328A00007	3/28/2019	2.38	3/26/2021	3/28/2019	102.07186	102.0718568	102.0718568	102.0718568	101.8595978	100.9463124	100.0493657	99.16832205	98.30276128
190328A00011	3/28/2019	2.37	3/28/2024	3/28/2019	108.90972	108.9097194	108.9097194	108.9097194	106.9191307	103.0077893	99.2615849	95.67269745	92.23371777
190328A00030	4/25/2019	2.48	4/26/2021	4/25/2019	102.20661	102.2066129	102.2066129	102.2066129	101.9673255	100.9713191	99.99472415	99.0369773	98.09753684
190328A00031	4/25/2019	2.56	4/25/2024	4/25/2019	109.10204	109.1020444	109.1020444	109.1020444	107.052066	103.0840174	99.28611065	95.65015588	92.16840106
190329A00016	3/29/2019	2.56	3/29/2022	3/29/2019	104.37697	104.3769681	104.3769681	104.3769681	103.8682519	101.9585751	100.0935315	98.27181127	96.49215156
190404A00023	4/5/2019	2.62	5/16/2022	4/5/2019	104.80089	104.8008864	104.8008864	104.8008864	104.2345463	102.1919208	100.1997806	98.25654896	96.36071008
190408A00004	4/8/2019	2.6	10/8/2021	4/8/2019	103.37426	103.3742646	103.3742646	103.3742646	103.0123541	101.5757223	100.1662426	98.78321205	97.42595141
190409A00009	4/9/2019	2.57	4/9/2021	4/9/2019	102.1984	102.1984003	102.1984003	102.1984003	101.9738354	101.0238143	100.0914633	99.17629288	98.27783106
190416A00026	4/16/2019	2.63	10/14/2021	4/16/2019	103.45699	103.4569862	103.4569862	103.4569862	103.089776	101.636686	100.2113515	98.81304628	97.44106916
190426A00012	5/1/2019	2.57	7/15/2022	5/1/2019	105.07428	105.0742776	105.0742776	105.0742776	104.4230408	102.2172947	100.0691124	97.97657174	95.93783145
190430A00002	4/30/2019	2.4	11/2/2022	4/30/2019	105.79643	105.7964265	105.7964265	105.7964265	104.9548958	102.4414187	100.0013919	97.63224174	95.33150111
190506A00016	5/6/2019	2.56	5/6/2020	5/6/2019	100.03701	100.0370105	100.0370105	100.0370105	100.0355036	100.0188704	100.0022536	99.98565328	99.96906938
190507A00014	5/7/2019	2.6	5/7/2024	5/7/2019	109.33877	109.3387658	109.3387658	109.3387658	107.2565	103.2531072	99.42251571	95.75634951	92.24668399
190510A00005	5/10/2019	2.47	5/10/2021	5/10/2019	102.28176	102.281762	102.281762	102.281762	102.031923	100.9975685	99.98414131	98.99101105	98.01757226
190110A00080	1/10/2019	2.68	6/7/2021	1/10/2019	102.8655	102.8654957	102.8654957	102.8654957	102.5951778	101.4789308	100.3869291	99.31838898	98.27256018
190111A00010	1/11/2019	2.87	1/7/2022	1/11/2019	104.40142	104.4014163	104.4014163	104.4014163	103.9635049	102.2751177	100.6223309	99.00408273	97.419354
190111A00037	1/11/2019	2.68	1/11/2022	1/11/2019	104.41435	104.4143522	104.4143522	104.4143522	103.9717493	102.2672607	100.5989715	98.96579393	97.36668382
190114A00040	1/14/2019	2.89	1/14/2025	1/14/2019	113.20417	113.2041724	113.2041724	113.2041724	110.3481961	105.5955673	101.0773375	96.78065505	92.69344664
190114A00043	1/14/2019	2.88	1/14/2022	1/14/2019	104.4686	104.4685997	104.4685997	104.4685997	104.0250036	102.317484	100.646269	99.01026499	97.40842284
190117A00043	1/17/2019	2.88	7/17/2020	1/17/2019	100.56428	100.5642799	100.5642799	100.5642799	100.5382362	100.3219308	100.1065683	99.89214247	99.67864712
190122A00007	1/22/2019	3.03	1/22/2024	1/22/2019	110.28661	110.2866122	110.2866122	110.2866122	108.4591383	104.7138067	101.1192654	97.66856805	94.35513258
190122A00045	1/22/2019	3.17	1/22/2027	1/22/2019	120.75042	120.7504178	120.7504178	120.7504178	113.9708179	107.2099014	100.9034466	95.01838541	89.52423011
190130A00012	1/30/2019	2.92	1/31/2022	1/30/2019	104.66127	104.6612738	104.6612738	104.6612738	104.2038084	102.4495693	100.7333784	99.05406295	97.41049922
190130A00018	1/30/2019	2.95	10/17/2022	1/30/2019	106.61086	106.6108643	106.6108643	106.6108643	105.7991303	103.3268328	100.9253848	98.59235135	96.32539651

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190131A00018	1/31/2019	2.83	3/25/2022	1/31/2019	104.87085	104.8708505	104.8708505	104.8708505	104.3648419	102.4608271	100.6010684	98.78427335	97.00919613
190213A00023	2/13/2019	2.93	2/13/2024	2/13/2019	110.0692	110.0691984	110.0691984	110.0691984	108.1902614	104.3905115	100.7459726	97.24945217	93.89413291
190226A00020	2/26/2019	2.64	2/26/2024	2/26/2019	109.76192	109.7619234	109.7619234	109.7619234	107.8421503	103.9939833	100.304893	96.767485	93.37474751
190227A00005	2/27/2019	2.87	2/27/2024	2/27/2019	109.93827	109.9382657	109.9382657	109.9382657	108.026356	104.1909859	100.513764	96.9873586	93.60481577
190228A00039	2/28/2019	2.88	2/28/2024	2/28/2019	109.98393	109.9839283	109.9839283	109.9839283	108.069288	104.2303335	100.5497695	97.02025296	93.63481893
190308A00014	3/8/2019	2.69	3/8/2021	3/8/2019	102.0978	102.0977971	102.0977971	102.0977971	101.9034593	101.0408349	100.1927953	99.35897261	98.53901142
190311A00009	3/11/2019	2.54	3/11/2022	3/11/2019	104.56849	104.5684854	104.5684854	104.5684854	104.0749486	102.2045356	100.3769401	98.5909312	96.8453217
190321A00018	3/21/2019	2.45	3/21/2022	3/21/2019	104.46336	104.4633583	104.4633583	104.4633583	103.9603622	102.0645285	100.2126613	98.40348018	96.63575069
190325A00014	3/25/2019	2.43	9/25/2020	3/25/2019	100.9503	100.9502995	100.9502995	100.9502995	100.8922566	100.4815146	100.0741175	99.6700245	99.2691955
190326A00001	3/26/2019	2.55	3/28/2022	3/26/2019	104.3514	104.3513955	104.3513955	104.3513955	103.8437028	101.9369011	100.0746103	98.25552565	96.47838936
190326A00007	3/26/2019	2.5	3/26/2021	3/26/2019	102.04499	102.0449926	102.0449926	102.0449926	101.8332364	100.9219848	100.0270073	99.14787072	98.28415727
190327A00062	3/27/2019	2.44	3/26/2021	3/27/2019	101.99007	101.9900656	101.9900656	101.9900656	101.7783595	100.8673798	99.9726708	99.09379941	98.23034786
190328A00018	3/28/2019	2.5	3/29/2021	3/28/2019	102.0636	102.0636022	102.0636022	102.0636022	101.8489207	100.9294411	100.0265231	99.13972233	98.26861013
190328A00027	3/28/2019	2.51	9/21/2021	3/28/2019	103.13846	103.1384582	103.1384582	103.1384582	102.7913396	101.4020994	100.0383393	98.69941856	97.38471769
191212A00026	12/13/2019	1.92	6/16/2022	12/13/2019	103.49395	103.4939492	103.4939492	103.4939492	102.8892604	100.7779955	98.72042374	96.71480796	94.75948134
191226A00019	12/26/2019	2.4	12/22/2028	12/26/2019	118.1274	118.1273982	118.1273982	116.1608182	107.4811896	99.35510754	91.91380207	85.09583945	78.84559826
200113A00003	1/13/2020	1.72	1/13/2022	1/13/2020	102.76901	102.7690139	102.7690139	102.7690139	102.3281939	100.6329956	98.97392966	97.34990658	95.75988091
200115A00022	1/15/2020	1.88	10/14/2022	1/15/2020	103.9329	103.9329043	103.9329043	103.9329043	103.1353137	100.7042509	98.34285676	96.04874187	93.81961352
200115A00024	1/15/2020	1.88	1/17/2023	1/15/2020	104.34829	104.348295	104.348295	104.348295	103.369455	100.6857018	98.08504267	95.56436779	93.12070707
200117A00026	1/17/2020	1.69	1/18/2022	1/17/2020	102.73896	102.7389634	102.7389634	102.7389634	102.2942583	100.5861429	98.9146541	97.2786797	95.67715289
200121A00008	1/24/2020	1.84	1/20/2022	1/24/2020	102.69645	102.6964542	102.6964542	102.6964542	102.2517793	100.5442432	98.87332078	97.23789953	95.63691215
200123A00005	1/23/2020	1.81	1/24/2022	1/23/2020	102.66089	102.6608926	102.6608926	102.6608926	102.2131515	100.4954469	98.81475018	97.16993051	95.55990358
200123A00013	1/27/2020	1.89	1/27/2025	1/27/2020	107.57206	107.5720624	107.5720624	107.5720624	104.7516296	100.1254135	95.72985233	91.5522022	87.58049634
200129A00008	1/29/2020	1.76	1/31/2022	1/29/2020	102.6015	102.6015029	102.6015029	102.6015029	102.1483937	100.4128835	98.7150762	97.05380894	95.42796715
200129A00010	1/29/2020	1.76	1/31/2022	1/29/2020	102.6015	102.6015029	102.6015029	102.6015029	102.1483937	100.4128835	98.7150762	97.05380894	95.42796715
200130A00016	1/30/2020	1.58	1/30/2025	1/30/2020	107.02795	107.0279514	107.0279514	107.0279514	104.1822175	99.53362056	95.11810281	90.9227259	86.935344
200131A00032	1/31/2020	2.1	1/31/2030	1/31/2020	117.49311	117.4931133	117.4931133	114.1449726	104.4979084	95.61793476	87.57321652	80.28062328	73.66570241
200131A00048	1/31/2020	1.69	1/31/2024	1/31/2020	105.28041	105.2804149	105.2804149	105.2804149	103.4647426	99.7897137	96.26446637	92.88203751	89.63583249
200203A00051	2/3/2020	1.58	11/3/2021	2/3/2020	102.23919	102.2391925	102.2391925	102.2391925	101.8558955	100.3551626	98.88411738	97.44195518	96.02790011
200204A00015	2/4/2020	1.72	2/6/2023	2/4/2020	103.9875	103.9875009	103.9875009	103.9875009	102.9698221	100.238208	97.5926445	95.02988291	92.54682065
200207A00015	2/7/2020	1.73	2/7/2022	2/7/2020	102.57547	102.5754689	102.5754689	102.5754689	102.1164908	100.3609198	98.64384971	96.96412009	95.32061668

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200210A00021	2/10/2020	1.76	2/10/2025	2/10/2020	107.00597	107.0059693	107.0059693	107.0059693	104.1460128	99.49664379	95.08102694	90.88619203	86.89995877
200214A00014	2/18/2020	1.8	2/18/2025	2/18/2020	107.23076	107.2307557	107.2307557	107.2307557	104.3424615	99.66649394	95.22658373	91.00961471	87.00326718
200219A00015	2/19/2020	1.77	2/19/2027	2/19/2020	111.35747	111.3574701	111.3574701	111.3574701	104.6037214	98.08022055	92.0058876	86.34754948	81.07464275
200220A00007	2/20/2020	1.72	2/21/2023	2/20/2020	104.04528	104.0452767	104.0452767	104.0452767	102.9966132	100.2217565	97.53550295	94.93453787	92.41569031
200221A00001	2/21/2020	1.57	2/22/2021	2/21/2020	101.20093	101.2009278	101.2009278	101.2009278	101.0203822	100.1982338	99.38941462	98.59360269	97.81048619
200221A00003	2/25/2020	1.69	2/25/2025	2/25/2020	106.72456	106.7245552	106.7245552	106.7245552	103.8187113	99.13604819	94.69086585	90.46994617	86.46087191
200224A00017	2/24/2020	1.59	2/24/2025	2/24/2020	106.23537	106.2353715	106.2353715	106.2353715	103.3378259	98.66936085	94.23769211	90.0296378	86.03281511
191002A00015	10/2/2019	1.78	10/3/2022	10/2/2019	103.63951	103.6395081	103.6395081	103.6395081	102.8624431	100.4633162	98.1321704	95.86670188	93.66469876
191003A00019	10/3/2019	1.71	9/27/2024	10/3/2019	106.28702	106.2870153	106.2870153	106.2870153	103.8453071	99.54570607	95.44783735	91.54122772	87.81600034
191003A00022	10/3/2019	1.72	2/3/2023	10/3/2019	103.97595	103.9759459	103.9759459	103.9759459	102.9644663	100.2415076	97.60409324	95.04898718	92.57310012
191004A00012	10/4/2019	1.78	10/4/2024	10/4/2019	106.62667	106.6266653	106.6266653	106.6266653	104.1619679	99.83770695	95.71706706	91.78943584	88.04480764
191011A00013	10/11/2019	1.88	10/11/2022	10/11/2019	103.91976	103.9197565	103.9197565	103.9197565	103.1275484	100.7043684	98.35041324	96.06331657	93.8408073
191015A00029	10/15/2019	1.91	10/15/2024	10/15/2019	107.25583	107.2558308	107.2558308	107.2558308	104.7536756	100.3888653	96.23071531	92.26838939	88.49167492
191023A00006	10/23/2019	1.95	10/23/2024	10/23/2019	107.42588	107.4258776	107.4258776	107.4258776	104.8999681	100.5132518	96.3351048	92.35454242	88.56121511
191024A00016	10/25/2019	1.91	2/16/2021	10/25/2019	101.34022	101.3402199	101.3402199	101.3402199	101.1656305	100.3606826	99.56850687	98.78880091	98.02127203
191106A00012	11/6/2019	2.02	10/11/2024	11/6/2019	107.73125	107.731245	107.731245	107.731245	105.2364252	100.8709652	96.71158194	92.74749859	88.96855694
191114A00009	11/18/2019	1.94	8/16/2023	11/18/2019	105.467	105.4669993	105.4669993	105.4669993	104.0319974	100.7808771	97.6482115	94.62903011	91.71860085
191121A00009	11/21/2019	2.55	11/21/2036	11/21/2019	140.45045	140.4504531	140.4504531	125.4804336	109.0980531	95.0260234	83.03115718	72.7908047	64.03416351
191206A00008	12/6/2019	2.44	12/6/2030	12/6/2019	122.58124	122.5812365	122.5812365	118.0410144	107.4569142	97.77999458	89.07762311	81.24599396	74.19286478
191209A00009	12/9/2019	1.91	12/9/2021	12/9/2019	102.64687	102.6468705	102.6468705	102.6468705	102.2349677	100.6379675	99.07362937	97.54101793	96.03923337
191223A00043	12/23/2019	1.77	3/23/2021	12/23/2019	101.49926	101.4992551	101.4992551	101.4992551	101.2904302	100.3881245	99.50183603	98.63114129	97.77563145
191223A00056	12/23/2019	2.46	12/14/2029	12/23/2019	120.72289	120.7228905	120.7228905	117.5349788	107.8786031	98.94415764	90.83622602	83.47369508	76.78380811
200108A00021	1/13/2020	1.97	1/13/2025	1/13/2020	107.89031	107.8903138	107.8903138	107.8903138	105.1110739	100.5113792	96.13932319	91.98242047	88.02894072
200109A00012	1/14/2020	1.94	12/15/2022	1/14/2020	104.36295	104.3629459	104.3629459	104.3629459	103.4488948	100.8498044	98.32910606	95.8839507	93.51161269
200114A00006	1/15/2020	1.99	1/15/2025	1/15/2020	107.99436	107.9943599	107.9943599	107.9943599	105.2077457	100.6007983	96.22204268	92.05895129	88.09975503
200115A00015	1/17/2020	1.88	1/17/2023	1/17/2020	104.34829	104.348295	104.348295	104.348295	103.369455	100.6857018	98.08504267	95.56436779	93.12070707
200116A00005	1/16/2020	1.92	7/16/2021	1/16/2020	102.00268	102.0026848	102.0026848	102.0026848	101.7089868	100.495583	99.3110078	98.15424321	97.02431867
200117A00002	1/17/2020	1.72	1/19/2021	1/17/2020	101.17448	101.1744793	101.1744793	101.1744793	101.0262837	100.2968006	99.57782646	98.86913533	98.17050764
200122A00034	1/22/2020	1.87	1/22/2024	1/22/2020	105.92294	105.9229369	105.9229369	105.9229369	104.1240907	100.4595965	96.94349973	93.56894462	90.32943548
200130A00028	1/30/2020	1.54	2/7/2023	1/30/2020	103.99343	103.993425	103.993425	103.993425	102.9687872	100.2230483	97.56411496	94.98870415	92.49368064
200131A00005	1/31/2020	1.64	2/1/2021	1/31/2020	101.17078	101.1707771	101.1707771	101.1707771	101.0102467	100.2453562	99.49200206	98.74992509	98.01887363

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181016A00084	10/16/2018	3.21	10/17/2022	10/16/2018	107.25839	107.2583887	107.2583887	107.2583887	106.4445258	103.9641236	101.5547498	99.21396388	96.93942473
181114A00012	11/14/2018	3.13	11/14/2022	11/14/2018	107.751	107.7509985	107.7509985	107.7509985	106.8801538	104.3089054	101.8132998	99.39066009	97.03842168
181121A00013	11/21/2018	3.11	11/20/2020	11/21/2018	101.61648	101.6164812	101.6164812	101.6164812	101.522799	100.9569238	100.3973583	99.84399702	99.29673722
181123A00013	11/23/2018	3.14	11/23/2021	11/23/2018	104.52465	104.5246536	104.5246536	104.5246536	104.1219752	102.5523785	101.0143227	99.50692639	98.02934052
181126A00046	11/26/2018	3.13	11/25/2020	11/26/2018	101.6676	101.6676045	101.6676045	101.6676045	101.5700659	100.9903083	100.4171649	99.85052316	99.29027273
181204A00023	12/4/2018	3.16	12/3/2021	12/4/2018	104.63578	104.6357836	104.6357836	104.6357836	104.2247793	102.6270474	101.0617417	99.52794224	98.02476349
181206A00009	12/6/2018	3.03	12/4/2020	12/6/2018	101.67883	101.6788273	101.6788273	101.6788273	101.5737289	100.9692597	100.371978	99.7817559	99.19846893
181214A00016	12/14/2018	3.03	12/14/2020	12/14/2018	101.75587	101.7558683	101.7558683	101.7558683	101.6414238	101.0092917	100.385024	99.76847439	99.1595002
181219A00023	12/19/2018	2.97	12/20/2021	12/19/2018	104.43905	104.4390516	104.4390516	104.4390516	104.0152043	102.3742187	100.7671452	99.19299756	97.65082797
181224A00015	12/24/2018	2.72	6/24/2020	12/24/2018	100.39747	100.3974653	100.3974653	100.3974653	100.3808982	100.2281124	100.0758007	99.92396069	99.77259027
181226A00036	12/26/2018	3.02	12/26/2023	12/26/2018	110.04655	110.0465541	110.0465541	110.0465541	108.2847455	104.6130016	101.0866994	97.69925347	94.44441706
181231A00052	12/31/2018	2.64	6/30/2020	12/31/2018	100.42723	100.4272329	100.4272329	100.4272329	100.4084775	100.2390513	100.0701946	99.90190445	99.73417805
190104A00012	1/4/2019	2.76	1/4/2021	1/4/2019	101.73108	101.731082	101.731082	101.731082	101.5970447	100.9075743	100.227448	99.55647692	98.89447704
190104A00033	1/4/2019	3.37	1/31/2029	1/4/2019	126.85437	126.8543745	126.8543745	124.7360761	115.6724058	107.1141985	99.27638686	92.09405404	85.50846863
190107A00022	1/7/2019	2.83	1/7/2022	1/7/2019	104.33304	104.3330424	104.3330424	104.3330424	103.8952694	102.2074824	100.555285	98.93761561	97.35345536
190107A00023	1/7/2019	2.87	1/6/2023	1/7/2019	106.98671	106.9867071	106.9867071	106.9867071	106.0199301	103.3285944	100.719578	98.18983497	95.73645497
190110A00003	1/10/2019	2.97	1/10/2024	1/10/2019	109.97258	109.9725839	109.9725839	109.9725839	108.1757134	104.4668806	100.9063265	97.48727203	94.2032906
190110A00006	1/10/2019	2.73	11/15/2022	1/10/2019	106.72874	106.7287375	106.7287375	106.7287375	105.8595377	103.2987724	100.8134888	98.40101189	96.05877905
190110A00028	1/10/2019	2.78	1/10/2024	1/10/2019	109.95833	109.9583339	109.9583339	109.9583339	108.1510073	104.4245846	100.8475809	97.41314782	94.11479359
190110A00077	1/10/2019	2.68	12/8/2020	1/10/2019	101.5793	101.5792989	101.5792989	101.5792989	101.4703293	100.8541746	100.2455001	99.64417004	99.05005189
190111A00013	1/11/2019	2.87	1/7/2022	1/11/2019	104.40142	104.4014163	104.4014163	104.4014163	103.9635049	102.2751177	100.6223309	99.00408273	97.419354
190111A00026	1/11/2019	3.48	1/11/2034	1/11/2019	146.34052	146.3405153	146.3405153	136.4685223	121.8858978	108.8978185	97.51494721	87.52666589	78.75115488
190114A00045	1/14/2019	2.84	1/14/2021	1/14/2019	101.85812	101.8581173	101.8581173	101.8581173	101.7145047	100.9972196	100.2900467	99.59277325	98.90519211
190123A00036	1/23/2019	3.32	1/23/2029	1/23/2019	128.21977	128.2197669	128.2197669	126.0905934	116.9011505	108.2302099	100.2896643	93.01367592	86.34268119
190513A00076	5/13/2019	2.42	11/12/2021	5/13/2019	103.3186	103.3185985	103.3185985	103.3185985	102.9271703	101.3975209	99.89830725	98.42869346	96.98787392
190514A00013	5/14/2019	2.49	11/16/2020	5/14/2019	101.2407	101.2407014	101.2407014	101.2407014	101.1502555	100.5965575	100.0489194	99.50724218	98.97142861
190514A00015	5/14/2019	2.43	5/14/2021	5/14/2019	102.26408	102.2640755	102.2640755	102.2640755	102.0114558	100.9663647	99.94264086	98.93963393	97.95671949
190515A00055	5/15/2019	2.26	5/15/2023	5/15/2019	106.59046	106.5904589	106.5904589	106.5904589	105.3474073	102.3054581	99.36758229	96.52963463	93.78766009
190515A00057	5/15/2019	2.25	5/16/2022	5/15/2019	104.41126	104.4112579	104.4112579	104.4112579	103.8437798	101.7981495	99.80322525	97.85741951	95.95920632
190516A00010	5/16/2019	2.43	5/17/2021	5/16/2019	102.28201	102.2820124	102.2820124	102.2820124	102.0272731	100.9739575	99.94234318	98.9317644	97.94158241
190517A00019	5/17/2019	2.41	5/17/2021	5/17/2019	102.26082	102.2608236	102.2608236	102.2608236	102.0061081	100.9529124	99.92141626	98.91095396	97.92088682

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190520A00024	5/20/2019	2.32	5/20/2021	5/20/2019	102.35282	102.3528227	102.3528227	102.3528227	102.0952554	101.030931	99.9887388	98.96799377	97.96803883
190521A00044	5/21/2019	2.47	5/17/2021	5/21/2019	102.32439	102.3243899	102.3243899	102.3243899	102.0696031	101.0160477	99.98419703	98.97338527	97.98297359
190522A00019	5/23/2019	2.55	5/15/2024	5/23/2019	109.18573	109.1857278	109.1857278	109.1857278	107.0840627	103.0635048	99.21724825	95.5368075	92.01415675
190522A00021	5/23/2019	2.47	10/15/2021	5/23/2019	103.22712	103.2271231	103.2271231	103.2271231	102.8594432	101.4054795	99.97933985	98.5802951	97.2076411
190523A00008	5/23/2019	2.29	5/23/2023	5/23/2019	106.73091	106.7309104	106.7309104	106.7309104	105.4696085	102.4047604	99.44529002	96.58697679	93.82579514
190524A00002	5/24/2019	2.39	5/24/2021	5/24/2019	102.28071	102.2807122	102.2807122	102.2807122	102.0210775	100.9488251	99.89905427	98.87106344	97.86417996
190524A00013	5/24/2019	2.39	5/24/2021	5/24/2019	102.28071	102.2807122	102.2807122	102.2807122	102.0210775	100.9488251	99.89905427	98.87106344	97.86417996
190524A00015	5/24/2019	2.24	5/24/2022	5/24/2019	104.43764	104.4376365	104.4376365	104.4376365	103.8597122	101.7926724	99.77720694	97.81168687	95.89454711
190524A00026	5/28/2019	2.45	6/15/2023	5/28/2019	106.79472	106.7947241	106.7947241	106.7947241	105.4892385	102.3761829	99.37153244	96.47088215	93.67003451
190529A00005	5/29/2019	2.31	11/29/2021	5/29/2019	103.24253	103.2425319	103.2425319	103.2425319	102.8373084	101.2618262	99.71821338	98.20557112	96.72303394
190529A00014	5/29/2019	2.47	5/29/2020	5/29/2019	100.1732	100.1731986	100.1731986	100.1731986	100.1659159	100.0855583	100.0053315	99.92523522	99.84526912
190529A00028	5/29/2019	2.38	5/29/2024	5/29/2019	108.5733	108.5732952	108.5732952	108.5732952	106.440413	102.3969056	98.53011718	94.83137761	91.29249058
190529A00049	5/29/2019	2.32	6/29/2021	5/29/2019	102.4087	102.4087042	102.4087042	102.4087042	102.125819	100.9554683	99.81185292	98.694065	97.60123728
190529A00080	5/29/2019	2.31	11/29/2021	5/29/2019	103.24253	103.2425319	103.2425319	103.2425319	102.8373084	101.2618262	99.71821338	98.20557112	96.72303394
190530A00026	5/30/2019	2.36	5/26/2021	5/30/2019	102.25992	102.2599177	102.2599177	102.2599177	101.9989085	100.9213664	99.86652823	98.83368215	97.82214579
190530A00047	5/30/2019	2.36	5/28/2021	5/30/2019	102.27149	102.271488	102.271488	102.271488	102.0090672	100.9260498	99.86596211	98.82808174	97.81171647
190603A00003	6/3/2019	2.05	6/3/2024	6/3/2019	108.0012	108.0012033	108.0012033	108.0012033	105.8461608	101.7805534	97.89378832	94.17704111	90.62197223
190328A00046	3/28/2019	2.7	3/4/2025	3/28/2019	111.67625	111.6762543	111.6762543	111.6762543	108.695734	103.8782388	99.30427637	94.96030148	90.83358904
190328A00065	3/28/2019	2.56	3/28/2024	3/28/2019	108.92829	108.9282854	108.9282854	108.9282854	106.949682	103.057447	99.32905125	95.75675606	92.33322849
190329A00033	3/29/2019	2.52	3/29/2021	3/29/2019	102.08208	102.0820775	102.0820775	102.0820775	101.8673789	100.9478072	100.0447982	99.15790755	98.28670661
190401A00035	4/1/2019	2.53	10/1/2021	4/1/2019	103.22867	103.2286662	103.2286662	103.2286662	102.8730175	101.4559524	100.0653356	98.70049062	97.36076392
190409A00014	4/9/2019	2.59	10/12/2021	4/9/2019	103.38523	103.385233	103.385233	103.385233	103.019864	101.5725974	100.1528788	98.7599899	97.393237
190409A00019	4/9/2019	2.91	4/9/2029	4/9/2019	125.18835	125.1883493	125.1883493	122.8129125	113.5166144	104.805764	96.8482065	89.57450749	82.92197308
190411A00020	5/1/2019	2.63	5/2/2022	5/1/2019	104.73113	104.7311251	104.7311251	104.7311251	104.1830597	102.1780609	100.2220527	98.31352914	96.45104143
190411A00037	4/11/2019	2.59	4/9/2021	4/11/2019	102.21749	102.2174851	102.2174851	102.2174851	101.9929016	101.0427823	100.1103345	99.19506838	98.29651212
190416A00021	4/16/2019	2.73	4/16/2024	4/16/2019	109.7254	109.725398	109.725398	109.725398	107.6934535	103.7365077	99.94807015	96.32008228	92.84491353
190423A00002	4/23/2019	2.52	4/23/2024	4/23/2019	109.67581	109.6758141	109.6758141	109.6758141	107.6139302	103.6196776	99.79684177	96.13716433	92.63282895
190424A00015	4/24/2019	2.55	4/26/2021	4/24/2019	102.2767	102.2767025	102.2767025	102.2767025	102.0373423	101.0409595	100.0639932	99.1058801	98.16607827
190424A00021	4/24/2019	2.6	4/22/2022	4/24/2019	104.60676	104.6067586	104.6067586	104.6067586	104.0706426	102.0938303	100.1647372	98.28191566	96.4439718
190424A00027	4/24/2019	2.55	4/23/2021	4/24/2019	102.26774	102.2677391	102.2677391	102.2677391	102.0309536	101.0426047	100.0733658	99.12268642	98.19003727
190429A00076	4/29/2019	2.52	4/29/2021	4/29/2019	102.26528	102.2652783	102.2652783	102.2652783	102.0233288	101.0188841	100.0341672	99.06860137	98.12163204

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190501A00017	5/1/2019	2.61	5/1/2024	5/1/2019	109.3411	109.341105	109.341105	109.341105	107.2742473	103.2859935	99.46935014	95.81602537	92.31817267
190513A00013	5/13/2019	2.52	5/13/2024	5/13/2019	109.05125	109.0512495	109.0512495	109.0512495	106.9557321	102.9429082	99.10390143	95.43025822	91.91398218
190514A00020	5/14/2019	2.66	5/14/2025	5/14/2019	111.93867	111.9386675	111.9386675	111.9386675	108.7062642	103.7068982	98.96940796	94.47869831	90.22062262
190515A00023	5/15/2019	2.25	5/16/2022	5/15/2019	104.41126	104.4112579	104.4112579	104.4112579	103.8437798	101.7981495	99.80322525	97.85741951	95.95920632
190515A00038	5/15/2019	2.38	5/14/2021	5/15/2019	102.21152	102.211519	102.211519	102.211519	101.9589576	100.9141617	99.89072902	98.88800902	97.90537751
190515A00041	5/15/2019	2.41	11/15/2021	5/15/2019	103.32064	103.3206366	103.3206366	103.3206366	102.9267437	101.3888721	99.88168835	98.4043457	96.956028
190515A00060	5/15/2019	2.38	5/14/2021	5/15/2019	102.21152	102.211519	102.211519	102.211519	101.9589576	100.9141617	99.89072902	98.88800902	97.90537751
190520A00007	5/20/2019	2.52	5/20/2024	5/20/2019	109.09408	109.0940751	109.0940751	109.0940751	106.9802735	102.9489366	99.09284389	95.40344095	91.87263824
190521A00023	5/21/2019	2.47	11/22/2021	5/21/2019	103.45661	103.4566086	103.4566086	103.4566086	103.0567249	101.498606	99.97178759	98.47539639	97.00859105
190523A00018	5/23/2019	2.51	3/15/2024	5/23/2019	108.65192	108.6519182	108.6519182	108.6519182	106.7071839	102.8530165	99.15980417	95.62000574	92.22647212
191004A00002	10/4/2019	2.08	10/4/2029	10/4/2019	116.7279	116.7278961	116.7278961	113.8087523	104.4713767	95.84476927	88.00635835	80.87992041	74.39696109
191007A00024	10/7/2019	1.7	7/14/2022	10/7/2019	103.12923	103.1292251	103.1292251	103.1292251	102.4849558	100.3037413	98.1795145	96.11037277	94.09449343
191008A00033	10/8/2019	1.71	10/8/2024	10/8/2019	106.32974	106.3297353	106.3297353	106.3297353	103.8561162	99.52860945	95.40543608	91.4759191	87.72999361
191009A00018	10/9/2019	1.74	10/12/2021	10/9/2019	102.13662	102.1366203	102.1366203	102.1366203	101.7733568	100.3356208	98.92526734	97.54158281	96.18387778
191009A00027	10/9/2019	1.74	10/6/2023	10/9/2019	105.00452	105.0045177	105.0045177	105.0045177	103.4588557	100.0844518	96.8378156	93.71344784	90.70611554
191017A00025	10/17/2019	1.74	10/19/2020	10/17/2019	100.77484	100.7748435	100.7748435	100.7748435	100.7035752	100.2272481	99.75542879	99.28805336	98.82505909
191021A00034	10/22/2019	1.9	10/17/2022	10/22/2019	103.99586	103.9958617	103.9958617	103.9958617	103.1927254	100.7531583	98.38371846	96.08199304	93.84566714
191022A00018	10/22/2019	1.9	10/22/2020	10/22/2019	100.79927	100.7992658	100.7992658	100.7992658	100.7263961	100.2425589	99.7633663	99.28875153	98.81864919
191108A00011	11/8/2019	2.08	10/18/2024	11/8/2019	107.98848	107.9884757	107.9884757	107.9884757	105.4719735	101.0850806	96.90600315	92.92383212	89.12828733
191115A00011	11/15/2019	1.89	11/16/2020	11/15/2019	100.90764	100.907641	100.907641	100.907641	100.8173456	100.2647111	99.71812819	99.1774978	98.64272294
191115A00014	11/18/2019	2.45	11/18/2024	11/18/2019	109.83608	109.8360842	109.8360842	109.8360842	107.2109272	102.7052979	98.41604794	94.33164632	90.44123814
191115A00016	11/18/2019	2.48	11/18/2024	11/18/2019	109.97368	109.9736767	109.9736767	109.9736767	107.3472378	102.8385319	98.54631194	94.45904241	90.56586398
191119A00027	11/19/2019	1.8	11/19/2024	11/19/2019	107.75104	107.7510421	107.7510421	107.7510421	105.1233585	100.6357475	96.36510145	92.29980382	88.42892175
191120A00027	11/20/2019	1.73	11/20/2020	11/20/2019	100.91319	100.9131929	100.9131929	100.9131929	100.8196691	100.2551121	99.69687	99.14483724	98.5989105
191120A00032	11/20/2019	1.73	5/20/2021	11/20/2019	101.72228	101.7222807	101.7222807	101.7222807	101.4654296	100.4047048	99.36605992	98.34881125	97.3523029
191121A00034	11/21/2019	2.28	11/2/2029	11/21/2019	118.76811	118.7681099	118.7681099	115.7379121	106.2567882	97.48818826	89.52453709	82.2875126	75.70678877
191122A00021	11/26/2019	3.4	11/22/2038	11/26/2019	156.62623	156.6262256	156.6262256	137.3433936	118.7280151	102.9175986	89.61320361	78.39252815	68.90710034
191125A00036	11/25/2019	2.29	11/23/2029	11/25/2019	118.97527	118.9752738	118.9752738	115.8705052	106.3301098	97.51188257	89.50722388	82.23658503	75.62857849
191206A00009	12/6/2019	2.87	12/4/2037	12/6/2019	144.55054	144.5505404	144.5505404	127.7761766	110.6775994	96.08508346	83.73439416	73.26158375	64.36388176
191210A00010	12/10/2019	1.91	12/10/2020	12/10/2019	101.02879	101.0287922	101.0287922	101.0287922	100.9184503	100.2998304	99.68878106	99.08516371	98.48884332
191217A00012	12/20/2019	2.03	12/20/2024	12/20/2019	108.06104	108.0610402	108.0610402	108.0610402	105.3551634	100.8099465	96.48697739	92.3742126	88.46032737

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191223A00022	12/23/2019	1.93	12/30/2021	12/23/2019	102.75839	102.758385	102.758385	102.758385	102.3300765	100.677144	99.05877507	97.47395033	95.92169062
200115A00017	1/15/2020	1.88	1/17/2023	1/15/2020	104.34829	104.348295	104.348295	104.348295	103.369455	100.6857018	98.08504267	95.56436779	93.12070707
200122A00035	1/22/2020	1.94	1/22/2025	1/22/2020	107.78852	107.788521	107.788521	107.788521	104.9817582	100.3626098	95.97312267	91.80064195	87.83328199
200225A00004	2/25/2020	1.54	2/26/2024	2/25/2020	104.80022	104.8002242	104.8002242	104.8002242	102.9259643	99.1908029	95.6106308	92.17823964	88.88679337
200225A00006	2/25/2020	1.57	2/25/2022	2/25/2020	102.36874	102.3687443	102.3687443	102.3687443	101.8949102	100.08883	98.32332657	96.59724312	94.90946357
200225A00012	2/25/2020	1.57	2/25/2025	2/25/2020	106.14167	106.141665	106.141665	106.141665	103.2418445	98.57294161	94.14101955	89.9328827	85.93613508
200225A00014	2/25/2020	1.57	2/25/2022	2/25/2020	102.36874	102.3687443	102.3687443	102.3687443	101.8949102	100.08883	98.32332657	96.59724312	94.90946357
200226A00009	2/26/2020	1.75	2/26/2030	2/26/2020	116.16861	116.1686106	116.1686106	112.6776252	102.8975218	93.93896994	85.83520536	78.50025421	71.85718406
200227A00009	2/27/2020	1.47	2/27/2025	2/27/2020	105.66215	105.6621503	105.6621503	105.6621503	102.7608111	98.09794352	93.67217477	89.47029291	85.47988628
200227A00012	2/27/2020	1.41	2/27/2023	2/27/2020	103.18273	103.1827304	103.1827304	103.1827304	102.1252926	99.34578179	96.65559982	94.05141438	91.53003564
200228A00041	2/28/2020	1.14	2/28/2023	2/28/2020	102.92858	102.9285843	102.9285843	102.9285843	101.8649786	99.07471177	96.37447044	93.76088937	91.23074722
200228A00059	2/28/2020	1.79	2/28/2030	2/28/2020	114.58126	114.581261	114.581261	111.1521631	101.5455131	92.7392168	84.77135146	77.55774857	71.02307386
200302A00031	3/2/2020	1.02	11/18/2022	3/2/2020	102.33042	102.3304166	102.3304166	102.3304166	101.4708498	98.95896586	96.52168406	94.15634757	91.86041182
200302A00054	3/2/2020	1.31	3/3/2025	3/2/2020	104.89506	104.8950554	104.8950554	104.8950554	101.98844	97.33398178	92.91695668	88.72410382	84.74296681
200303A00004	3/3/2020	1.06	3/3/2022	3/3/2020	101.75527	101.7552689	101.7552689	101.7552689	101.2758055	99.45337343	97.67232826	95.93149297	94.22973143
200303A00018	3/3/2020	1.27	3/3/2025	3/3/2020	104.7001	104.700102	104.700102	104.700102	101.7955133	97.14567179	92.7330952	88.54453025	84.56752771
200306A00001	3/6/2020	1.11	3/6/2026	3/6/2020	104.7288	104.7287976	104.7287976	104.7287976	100.1915928	94.68545292	89.51195005	84.64940836	80.07766584
200306A00037	3/6/2020	1.11	3/6/2026	3/6/2020	104.7288	104.7287976	104.7287976	104.7287976	100.1915928	94.68545292	89.51195005	84.64940836	80.07766584
200309A00004	3/9/2020	0.71	3/8/2024	3/9/2020	102.308	102.3079968	102.3079968	102.3079968	100.4130132	96.67906986	93.10218795	89.67499313	86.39049438
200309A00041	3/9/2020	0.73	3/9/2022	3/9/2020	100.83367	100.8336723	100.8336723	100.8336723	100.3521599	98.5286745	96.74686701	95.00554507	93.30355793
200310A00042	3/10/2020	1.41	3/11/2030	3/10/2020	110.8813	110.8812973	110.8812973	107.4306848	97.94272053	89.28293865	81.45469028	74.37402435	67.96584099
200311A00016	3/11/2020	0.87	5/11/2021	3/11/2020	100.61934	100.619336	100.619336	100.619336	100.3706224	99.34282999	98.33594375	97.34933132	96.38238554
200312A00016	3/16/2020	1.09	2/15/2023	3/16/2020	102.2431	102.243104	102.243104	102.243104	101.2139578	98.48147864	95.83597616	93.27418188	90.79297124
200316A00013	3/16/2020	1	4/15/2022	3/16/2020	101.39422	101.394225	101.394225	101.394225	100.8737803	98.94829019	97.0689922	95.23449711	93.44346699
200316A00064	3/16/2020	0.99	3/16/2022	3/16/2020	101.31687	101.3168658	101.3168658	101.3168658	100.8276875	98.98178094	97.17842719	95.41639757	93.69450683
200317A00065	3/19/2020	2.05	3/19/2025	3/19/2020	108.57829	108.5782926	108.5782926	108.5782926	105.579461	100.7992471	96.26360284	91.95879186	87.87191699
200326A00028	3/26/2020	1.54	3/26/2025	3/26/2020	106.09406	106.0940578	106.0940578	106.0940578	103.0980957	98.36060481	93.86723121	89.6041913	85.55854746
190129A00061	1/30/2019	2.92	2/1/2022	1/30/2019	104.66845	104.668452	104.668452	104.668452	104.2101164	102.4528824	100.7338126	99.05173478	97.40552504
190130A00007	1/30/2019	2.89	5/14/2021	1/30/2019	102.7476	102.7475955	102.7475955	102.7475955	102.494439	101.4466314	100.4202298	99.41458304	98.42906569
190130A00011	1/30/2019	2.88	1/29/2021	1/30/2019	101.99617	101.9961651	101.9961651	101.9961651	101.8382227	101.0794388	100.3319446	99.59548928	98.86982983
190131A00011	1/31/2019	3.13	1/30/2026	1/31/2019	116.33692	116.3369176	116.3369176	116.3369176	111.8218079	106.0766867	100.6674947	95.57273908	90.77241941

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190131A00049	1/31/2019	2.79	1/29/2021	1/31/2019	101.92774	101.9277389	101.9277389	101.9277389	101.7698439	101.0113468	100.2641361	99.52796149	98.80257978
190201A00013	2/1/2019	2.89	2/1/2024	2/1/2019	109.83131	109.8313097	109.8313097	109.8313097	107.983021	104.2204416	100.6103798	97.14576704	93.8199074
190205A00047	2/5/2019	2.85	2/5/2021	2/5/2019	102.0234	102.0233962	102.0233962	102.0233962	101.8587671	101.0807651	100.3146325	99.56009937	98.81690359
190206A00013	2/6/2019	2.68	2/6/2023	2/6/2019	107.1887	107.1886989	107.1886989	107.1886989	106.1534783	103.3657977	100.665823	98.05024118	95.51588836
190208A00010	2/8/2019	2.77	2/8/2021	2/8/2019	101.97393	101.9739306	101.9739306	101.9739306	101.8065017	101.0206368	100.2468899	99.48498189	98.73464263
190212A00024	2/12/2019	2.79	2/12/2021	2/12/2019	102.01741	102.0174116	102.0174116	102.0174116	101.8461392	101.0491849	100.2646907	99.49236589	98.73192868
190214A00012	2/14/2019	2.6	2/14/2022	2/14/2019	104.51008	104.5100802	104.5100802	104.5100802	104.0393503	102.2396911	100.4799033	98.75880963	97.07527761
190219A00045	2/19/2019	2.8	2/28/2022	2/19/2019	104.65861	104.6586114	104.6586114	104.6586114	104.1771533	102.3407352	100.5456552	98.79074531	97.07487761
190222A00031	2/22/2019	2.63	8/21/2020	2/22/2019	100.7885	100.7884992	100.7884992	100.7884992	100.7469861	100.4331777	100.1213347	99.81143836	99.50347054
190301A00009	3/1/2019	2.83	3/1/2022	3/1/2019	104.72125	104.7212492	104.7212492	104.7212492	104.2386842	102.3990333	100.6008459	98.84294868	97.12420893
190305A00010	3/5/2019	2.84	3/7/2022	3/5/2019	104.78223	104.7822266	104.7822266	104.7822266	104.2937208	102.4376548	100.6237511	98.85080682	97.11766122
190308A00003	3/8/2019	2.69	3/8/2021	3/8/2019	102.0978	102.0977971	102.0977971	102.0977971	101.9034593	101.0408349	100.1927953	99.35897261	98.53901142
190313A00017	3/13/2019	2.73	7/15/2022	3/13/2019	105.43127	105.4312732	105.4312732	105.4312732	104.779033	102.56926	100.4171341	98.32073056	96.2782057
190318A00015	3/18/2019	2.66	3/18/2021	3/18/2019	102.13829	102.1382935	102.1382935	102.1382935	101.9342133	101.0442186	100.1697459	99.31039157	98.46576572
190319A00013	3/19/2019	2.72	3/18/2022	3/19/2019	104.61245	104.6124516	104.6124516	104.6124516	104.1137996	102.230729	100.3910485	98.59350249	96.83687976
190321A00004	3/21/2019	2.62	3/22/2021	3/21/2019	102.1287	102.1287044	102.1287044	102.1287044	101.9207517	101.0199418	100.1350313	99.26560163	98.41124909
190321A00038	3/21/2019	2.64	9/21/2020	3/21/2019	100.95353	100.9535308	100.9535308	100.9535308	100.8975025	100.4984156	100.1024886	99.70968423	99.31996546
190326A00024	3/26/2019	2.59	3/26/2024	3/26/2019	109.03395	109.0339493	109.0339493	109.0339493	107.0595051	103.1702614	99.44449956	95.87450815	92.45297934
190326A00032	3/26/2019	2.4	3/26/2024	3/26/2019	109.01581	109.015807	109.015807	109.015807	107.029414	103.1210915	99.37754505	95.79098198	92.35401863
190327A00024	3/27/2019	2.48	3/25/2022	3/27/2019	104.19813	104.1981288	104.1981288	104.1981288	103.6936835	101.7962594	99.94296544	98.13251306	96.36365966
190603A00005	6/3/2019	2.25	6/3/2024	6/3/2019	108.06539	108.0653856	108.0653856	108.0653856	105.9234312	101.877399	98.00879645	94.30889163	90.76943139
190603A00019	6/3/2019	2.19	6/3/2021	6/3/2019	102.11801	102.1180108	102.1180108	102.1180108	101.8517903	100.7534418	99.67869971	98.62680931	97.59704783
190603A00032	6/3/2019	1.98	6/3/2022	6/3/2019	103.94539	103.9453874	103.9453874	103.9453874	103.3554426	101.2670411	99.23122177	97.24630498	95.31067797
190604A00047	6/4/2019	2.31	12/4/2020	6/4/2019	101.24321	101.2432111	101.2432111	101.2432111	101.1383316	100.5353565	99.93955615	99.35080299	98.76897255
190605A00012	6/5/2019	1.92	6/6/2022	6/5/2019	103.83318	103.8331792	103.8331792	103.8331792	103.2393052	101.1439626	99.10153055	97.11031296	95.16868159
190605A00020	6/5/2019	2.19	2/5/2024	6/5/2019	107.19948	107.1994755	107.1994755	107.1994755	105.3590784	101.6348198	98.06246113	94.63495038	91.3456065
190607A00009	6/7/2019	2.14	6/7/2022	6/7/2019	103.92151	103.9215131	103.9215131	103.9215131	103.3282804	101.2366574	99.19776269	97.20990806	95.27147265
190610A00017	6/10/2019	2.29	6/10/2024	6/10/2019	108.26867	108.2686723	108.2686723	108.2686723	106.1068046	102.0385575	98.14935649	94.43035647	90.87319934
190614A00013	6/14/2019	2.15	6/15/2020	6/14/2019	100.25966	100.2596601	100.2596601	100.2596601	100.2463869	100.1186777	99.99130923	99.86428022	99.73758924
190614A00018	6/14/2019	2.21	6/14/2021	6/14/2019	102.19892	102.1989177	102.1989177	102.1989177	101.9257009	100.797144	99.69350172	98.61395572	97.55772326
190620A00057	6/25/2019	2.09	5/15/2023	6/25/2019	105.50607	105.5060718	105.5060718	105.5060718	104.2743529	101.2620034	98.35257659	95.5419804	92.82631036

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190621A00019	6/21/2019	2.12	6/21/2021	6/21/2019	102.13225	102.1322496	102.1322496	102.1322496	101.8547292	100.7076792	99.58637366	98.48995332	97.41759671
190621A00021	6/21/2019	2.12	6/21/2022	6/21/2019	103.9493	103.949302	103.949302	103.949302	103.3363962	101.2066786	99.1313478	97.10863474	95.13684249
190621A00040	6/21/2019	2.12	6/21/2021	6/21/2019	102.13225	102.1322496	102.1322496	102.1322496	101.8547292	100.7076792	99.58637366	98.48995332	97.41759671
190625A00008	6/25/2019	2.04	6/27/2022	6/25/2019	103.80491	103.8049134	103.8049134	103.8049134	103.1840066	101.0397051	98.95047426	96.91451105	94.93008628
190625A00016	6/25/2019	2.13	6/25/2024	6/25/2019	107.6806	107.6805983	107.6805983	107.6805983	105.4841163	101.3892058	97.47615629	93.73590427	90.15989023
190701A00024	7/1/2019	2.24	7/1/2020	7/1/2019	100.33822	100.3382242	100.3382242	100.3382242	100.3190826	100.1472862	99.97607571	99.80544823	99.63540081
190702A00002	7/2/2019	2.16	7/2/2024	7/2/2019	107.84198	107.8419841	107.8419841	107.8419841	105.6257982	101.5097463	97.57715934	93.81885882	90.22617891
190703A00021	7/3/2019	2.11	7/2/2021	7/3/2019	102.17647	102.1764663	102.1764663	102.1764663	101.8919071	100.7149136	99.56500431	98.44125279	97.34277454
190716A00046	7/16/2019	2.19	7/18/2022	7/16/2019	104.24214	104.2421369	104.2421369	104.2421369	103.5887215	101.3845431	99.23810636	97.14747585	95.11079805
190717A00007	7/17/2019	2.18	10/14/2022	7/17/2019	104.67757	104.6775666	104.6775666	104.6775666	103.8775397	101.4371858	99.06670501	96.76370185	94.52587759
190726A00005	7/26/2019	1.97	7/26/2022	7/26/2019	104.19608	104.1960792	104.1960792	104.1960792	103.5280699	101.2954733	99.12196794	97.00555147	94.94430714
190729A00009	7/29/2019	2.19	7/29/2024	7/29/2019	108.10884	108.1088432	108.1088432	108.1088432	105.8181038	101.6294509	97.63023329	93.8108284	90.1621605
190729A00017	7/29/2019	1.97	7/29/2021	7/29/2019	102.33837	102.3383691	102.3383691	102.3383691	102.0346182	100.7807407	99.55753241	98.36387931	97.19872067
190910A00017	9/16/2019	1.86	9/16/2024	9/16/2019	106.90673	106.9067251	106.9067251	106.9067251	104.4905042	100.2052191	96.11952704	92.2231366	88.50633829
190910A00027	9/10/2019	1.86	9/9/2022	9/10/2019	103.73234	103.7323363	103.7323363	103.7323363	102.995876	100.6592575	98.38717667	96.17750244	94.02818632
190917A00029	9/17/2019	2.02	12/6/2022	9/17/2019	104.5323	104.5322985	104.5322985	104.5322985	103.6350284	101.0569195	98.55601719	96.12953772	93.77481686
190919A00007	9/19/2019	2.04	9/19/2024	9/19/2019	107.7157	107.7157024	107.7157024	107.7157024	105.2839762	100.9736362	96.8641835	92.94524726	89.20704409
190923A00020	9/23/2019	2.05	9/24/2029	9/23/2019	118.32004	118.3200354	118.3200354	115.3796696	105.8977347	97.14095052	89.18419051	81.95011665	75.36922948
190925A00011	9/25/2019	1.89	9/25/2024	9/25/2019	107.07839	107.0783949	107.0783949	107.0783949	104.6353447	100.3236162	96.21372742	92.29521751	88.55822023
190926A00006	9/26/2019	1.7	9/26/2022	9/26/2019	103.85587	103.8558703	103.8558703	103.8558703	103.0869501	100.6944924	98.36948399	96.10965092	93.91280961
190927A00036	9/27/2019	1.94	9/6/2024	9/27/2019	107.21496	107.2149581	107.2149581	107.2149581	104.8242388	100.5576276	96.48848459	92.60668973	88.9026917
190930A00041	9/30/2019	1.94	10/25/2021	9/30/2019	102.49007	102.4900705	102.4900705	102.4900705	102.1150826	100.6405434	99.1947264	97.77686628	96.38622448
191002A00013	10/2/2019	1.78	10/3/2022	10/2/2019	103.63951	103.6395081	103.6395081	103.6395081	102.8624431	100.4633162	98.1321704	95.86670188	93.66469876
191007A00018	10/8/2019	1.77	7/16/2021	10/8/2019	101.81886	101.8188626	101.8188626	101.8188626	101.5254131	100.3131982	99.12979223	97.97417779	96.84538483
191010A00012	10/10/2019	1.61	10/8/2021	10/10/2019	102.1775	102.1775011	102.1775011	102.1775011	101.8165146	100.384964	98.98054388	97.60255046	96.25030402
191018A00006	10/18/2019	1.89	6/1/2022	10/18/2019	103.3636	103.3635964	103.3635964	103.3635964	102.7802235	100.7107833	98.69325209	96.72597904	94.80737863
191025A00005	10/28/2019	1.98	10/28/2024	10/28/2019	107.58434	107.5843435	107.5843435	107.5843435	105.0425198	100.640129	96.44760629	92.45386747	88.64847133
191025A00010	10/25/2019	2.24	7/25/2028	10/25/2019	115.95694	115.9569428	115.9569428	114.4694264	106.2345698	98.49640796	91.38427224	84.84416337	78.82700797
191104A00019	11/5/2019	1.9	2/1/2022	11/5/2019	102.85446	102.8544564	102.8544564	102.8544564	102.3999646	100.65925	98.95639487	97.2902356	95.65965653
191104A00024	11/4/2019	2.26	8/3/2029	11/4/2019	118.0977	118.0976996	118.0976996	115.3880057	106.151352	97.58388329	89.78468166	82.68064366	76.20597993
191120A00002	11/20/2019	1.73	11/20/2020	11/20/2019	100.91319	100.9131929	100.9131929	100.9131929	100.8196691	100.2551121	99.69687	99.14483724	98.5989105

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191121A00010	11/21/2019	2.59	11/20/2037	11/21/2019	143.56393	143.5639343	143.5639343	126.4997377	109.2338866	94.54086544	82.12290048	71.60909911	62.69107802
191122A00018	11/26/2019	3.11	11/22/2039	11/26/2019	153.99906	153.9990568	153.3240181	132.7624255	113.7571998	97.8004213	84.49986208	73.3864666	64.07696009
191126A00023	11/26/2019	1.81	5/27/2025	11/26/2019	108.67973	108.6797305	108.6797305	108.6797305	105.4102908	100.4288619	95.71196353	91.24418465	87.0110922
191210A00009	12/10/2019	1.92	12/10/2020	12/10/2019	101.03501	101.0350088	101.0350088	101.0350088	100.9246637	100.3060219	99.69495087	99.09131203	98.49497034
191212A00028	12/13/2019	1.93	1/17/2023	12/13/2019	104.4855	104.4854963	104.4854963	104.4854963	103.5061318	100.8204959	98.21799846	95.69552805	93.25011328
191218A00013	12/18/2019	1.94	12/19/2022	12/18/2019	104.38113	104.381129	104.381129	104.381129	103.4592879	100.8496471	98.31895687	95.86433775	93.48303579
190524A00040	5/24/2019	2.47	5/24/2024	5/24/2019	108.91357	108.9135749	108.9135749	108.9135749	106.7908917	102.7531018	98.89124368	95.19671036	91.6613637
190528A00014	5/28/2019	2.41	5/28/2020	5/28/2019	100.17838	100.1783783	100.1783783	100.1783783	100.1713312	100.0935724	100.0159397	99.93843296	99.8610518
190528A00028	5/28/2019	2.42	5/30/2023	5/28/2019	106.60674	106.6067425	106.6067425	106.6067425	105.3372081	102.2694689	99.30740673	96.4467784	93.68353749
190529A00023	5/29/2019	2.38	5/29/2024	5/29/2019	108.5733	108.5732952	108.5732952	108.5732952	106.440413	102.3969056	98.53011718	94.83137761	91.29249058
190529A00065	5/29/2019	2.47	5/29/2020	5/29/2019	100.1732	100.1731986	100.1731986	100.1731986	100.1659159	100.0855583	100.0053315	99.92523522	99.84526912
190530A00006	5/30/2019	2.25	5/30/2024	5/30/2019	108.80612	108.8061215	108.8061215	108.8061215	106.655379	102.5838328	98.69080379	94.96750776	91.40564197
190530A00008	5/30/2019	2.38	5/30/2025	5/30/2019	111.62333	111.6233262	111.6233262	111.6233262	108.3091914	103.2473145	98.45348128	93.91208828	89.60852254
190530A00016	5/30/2019	2.51	6/1/2020	5/30/2019	100.19464	100.1946372	100.1946372	100.1946372	100.1864874	100.0978119	100.0092927	99.92092942	99.8327217
190530A00029	5/30/2019	2.25	5/30/2024	5/30/2019	108.80612	108.8061215	108.8061215	108.8061215	106.655379	102.5838328	98.69080379	94.96750776	91.40564197
190531A00008	5/31/2019	2.14	6/1/2021	5/31/2019	102.22781	102.22781	102.22781	102.22781	101.9620393	100.8658679	99.793175	98.74321283	97.71526498
190603A00047	6/3/2019	2.22	6/2/2023	6/3/2019	106.00057	106.000572	106.000572	106.000572	104.7273366	101.6611051	98.7007963	95.84214606	93.08108868
190607A00019	6/7/2019	2.04	12/7/2020	6/7/2019	101.17946	101.1794564	101.1794564	101.1794564	101.0716245	100.4596048	99.85498577	99.25763375	98.66741818
190611A00046	6/11/2019	2.25	6/13/2022	6/11/2019	104.1877	104.1877007	104.1877007	104.1877007	103.5853577	101.4746409	99.41741559	97.41195751	95.45661184
190617A00026	6/17/2019	2.17	6/17/2022	6/17/2019	104.03691	104.0369094	104.0369094	104.0369094	103.4293669	101.3094855	99.24353519	97.22976983	95.26651372
190620A00045	6/20/2019	2.14	6/20/2024	6/20/2019	107.69723	107.6972335	107.6972335	107.6972335	105.5136795	101.43129	97.52970377	93.79993521	90.23349679
190625A00021	6/25/2019	1.88	6/26/2023	6/25/2019	105.62569	105.6256937	105.6256937	105.6256937	104.2948634	101.1573496	98.13039823	95.20946558	92.39022462
190626A00020	6/26/2019	2.08	6/25/2021	6/26/2019	102.10593	102.1059294	102.1059294	102.1059294	101.8259375	100.668259	99.53680312	98.43068675	97.34906608
190628A00017	6/28/2019	2.25	6/30/2020	6/28/2019	100.33445	100.3344526	100.3344526	100.3344526	100.3157408	100.1467119	99.97824801	99.81034632	99.64300407
190701A00007	7/2/2019	2.09	7/1/2022	7/2/2019	103.93378	103.9337774	103.9337774	103.9337774	103.3068182	101.1504047	99.04957254	97.00249403	95.00741676
190703A00017	7/3/2019	2.33	5/4/2026	7/3/2019	112.22711	112.2271126	112.2271126	112.2271126	107.242493	101.3892101	95.89473104	90.735203	85.88847759
190711A00019	7/11/2019	2.19	7/11/2023	7/11/2019	106.1101	106.1101027	106.1101027	106.1101027	104.7509835	101.5809681	98.52346154	95.57380004	92.72754466
190711A00025	7/11/2019	2.18	7/12/2021	7/11/2019	102.31238	102.3123836	102.3123836	102.3123836	102.0209116	100.8160972	99.63964321	98.49055723	97.36789251
190715A00014	7/15/2019	2.16	3/30/2022	7/15/2019	103.60889	103.6088882	103.6088882	103.6088882	103.1010078	101.1962804	99.33615903	97.51933264	95.7445375
190719A00006	7/19/2019	2.17	7/19/2024	7/19/2019	107.97168	107.9716824	107.9716824	107.9716824	105.7088649	101.5478863	97.57409506	93.77803553	90.15078611
200131A00038	1/31/2020	1.73	1/30/2025	1/31/2020	106.81932	106.8193163	106.8193163	106.8193163	103.9969605	99.38102377	94.99581787	90.82856868	86.86728251

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200203A00006	2/3/2020	1.76	2/3/2025	2/3/2020	106.97862	106.978621	106.978621	106.978621	104.1417313	99.51167015	95.11349544	90.93435698	86.96218921
200203A00011	2/3/2020	1.7	2/15/2023	2/3/2020	103.96569	103.965688	103.965688	103.965688	102.9296425	100.1728722	97.50366095	94.91872131	92.41491073
200204A00001	2/4/2020	1.79	2/4/2025	2/4/2020	107.12653	107.1265265	107.1265265	107.1265265	104.2848848	99.64870326	95.24479515	91.06028788	87.08309444
200204A00012	2/4/2020	1.98	2/4/2027	2/4/2020	111.37286	111.3728564	111.3728564	111.3728564	104.7755024	98.33615958	92.33575492	86.74209662	81.52551692
200214A00015	2/18/2020	1.76	8/6/2024	2/18/2020	106.30047	106.3004732	106.3004732	106.3004732	104.0028699	99.83240367	95.85186675	92.05158254	88.42242365
200219A00007	2/19/2020	1.81	8/19/2021	2/19/2020	102.01177	102.0117721	102.0117721	102.0117721	101.6932468	100.3964217	99.12581696	97.88064801	96.66016168
200221A00031	2/21/2020	1.69	2/21/2025	2/21/2020	106.70969	106.7096931	106.7096931	106.7096931	103.816997	99.14531076	94.71003202	90.49801274	86.49690254
200224A00001	2/24/2020	1.59	2/24/2025	2/24/2020	106.23537	106.2353715	106.2353715	106.2353715	103.3378259	98.66936085	94.23769211	90.0296378	86.03281511
200224A00016	2/24/2020	1.56	2/24/2023	2/24/2020	103.60104	103.6010407	103.6010407	103.6010407	102.5480341	99.7710164	97.08296033	94.48054253	91.9605828
200224A00021	2/24/2020	1.58	9/24/2024	2/24/2020	105.69864	105.6986421	105.6986421	105.6986421	103.2705185	98.99121099	94.91249839	91.02398055	87.31584859
200225A00045	2/25/2020	1.54	2/24/2023	2/25/2020	103.54407	103.5440668	103.5440668	103.5440668	102.4912916	99.71508401	97.02781849	94.42617234	91.90696595
200226A00014	2/26/2020	1.53	2/27/2023	2/26/2020	103.52557	103.5255654	103.5255654	103.5255654	102.4667284	99.68232986	96.9873782	94.37853736	91.85261382
200226A00019	2/26/2020	1.38	2/26/2025	2/26/2020	106.15963	106.1596327	106.1596327	106.1596327	103.2341753	98.53368835	94.07272275	89.83790132	85.8166594
200227A00004	2/27/2020	1.65	2/27/2030	2/27/2020	115.18176	115.1817552	115.1817552	111.6923538	101.9480298	93.0317605	84.96774719	77.67018566	71.0623008
200228A00012	3/3/2020	1.4	3/3/2025	3/3/2020	105.3337	105.3337008	105.3337008	105.3337008	102.422525	97.75767926	93.33064499	89.12814435	85.13770481
200228A00030	2/28/2020	1.32	2/28/2023	2/28/2020	102.92836	102.928357	102.928357	102.928357	101.8699207	99.09123421	96.40195902	93.7987611	91.2784486
200228A00060	2/28/2020	1.31	2/28/2022	2/28/2020	101.89735	101.8973547	101.8973547	101.8973547	101.4220379	99.61175327	97.84231636	96.11257286	94.42140818
200228A00063	2/28/2020	1.32	2/28/2023	2/28/2020	102.92836	102.928357	102.928357	102.928357	101.8699207	99.09123421	96.40195902	93.7987611	91.2784486
200302A00008	3/2/2020	1.2	3/9/2023	3/2/2020	102.60773	102.6077328	102.6077328	102.6077328	101.5317757	98.73492655	96.02881791	93.41003864	90.87532428
200302A00011	3/2/2020	1.31	2/27/2025	3/2/2020	104.88409	104.8840877	104.8840877	104.8840877	101.9908049	97.34632434	92.93827389	88.75347175	84.77953474
200302A00034	3/2/2020	1.25	3/1/2024	3/2/2020	103.69181	103.6918088	103.6918088	103.6918088	101.8156456	98.09114718	94.52184128	91.10049948	87.8202662
200303A00010	3/3/2020	1.34	3/3/2025	3/3/2020	105.04127	105.0412706	105.0412706	105.0412706	102.133135	97.47521427	93.05485278	88.85878399	84.87454614
200304A00008	3/4/2020	1.03	11/15/2021	3/4/2020	101.16372	101.163724	101.163724	101.163724	100.7737523	99.25331365	97.76325521	96.30273867	94.87095605
200124A00008	1/24/2020	1.92	1/22/2027	1/24/2020	112.25054	112.2505392	112.2505392	112.2505392	105.6433464	99.1563218	93.11056473	87.47377039	82.21616403
200127A00016	1/27/2020	1.81	1/27/2025	1/27/2020	107.18982	107.1898176	107.1898176	107.1898176	104.3732183	99.75588608	95.36889036	91.19950143	87.23576592
200130A00015	1/30/2020	1.63	7/30/2021	1/30/2020	101.91319	101.9131875	101.9131875	101.9131875	101.6093594	100.3556145	99.13262033	97.9392574	96.77445977
200130A00025	1/30/2020	1.54	1/30/2023	1/30/2020	103.96214	103.9621376	103.9621376	103.9621376	102.9540859	100.2313139	97.59400578	95.03891704	92.5629518
200131A00047	1/31/2020	1.68	1/31/2023	1/31/2020	103.85309	103.8530872	103.8530872	103.8530872	102.8482423	100.1354887	97.50773781	94.96176728	92.49450209
200203A00012	2/3/2020	1.57	2/3/2025	2/3/2020	106.99582	106.995824	106.995824	106.995824	104.1373424	99.47896839	95.05468201	90.85147491	86.85713515
200204A00016	2/4/2020	1.72	2/6/2023	2/4/2020	103.9875	103.9875009	103.9875009	103.9875009	102.9698221	100.238208	97.5926445	95.02988291	92.54682065
200207A00018	2/7/2020	2.14	2/7/2030	2/7/2020	117.91712	117.9171207	117.9171207	114.54293	104.8615117	95.94849469	87.87494297	80.55720138	73.92035441

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200211A00022	2/11/2020	1.73	2/10/2023	2/11/2020	104.03101	104.031009	104.031009	104.031009	103.0049542	100.2614086	97.60460041	95.03126326	92.53827644
200214A00002	2/14/2020	1.58	11/15/2024	2/14/2020	106.72085	106.7208516	106.7208516	106.7208516	104.1148211	99.66050815	95.42144249	91.38611365	87.54368746
200214A00004	2/14/2020	1.81	2/16/2021	2/14/2020	101.2592	101.2592016	101.2592016	101.2592016	101.0846742	100.2800864	99.48826666	98.70891279	97.94173212
200214A00017	2/14/2020	1.59	2/14/2025	2/14/2020	107.1366	107.1365979	107.1365979	107.1365979	104.2404725	99.54914001	95.09495071	90.86470045	86.84599015
200218A00008	2/18/2020	1.77	2/18/2021	2/18/2020	101.23506	101.2350613	101.2350613	101.2350613	101.0586532	100.2487472	99.45177958	98.66744216	97.89543649
200218A00028	2/18/2020	1.73	2/21/2023	2/18/2020	104.07368	104.073681	104.073681	104.073681	103.0249027	100.2496432	97.56299659	94.96164782	92.44242564
200220A00008	2/20/2020	1.74	2/20/2024	2/20/2020	105.54825	105.5482512	105.5482512	105.5482512	103.6831458	99.94976932	96.37053642	92.93828242	89.64621472
200220A00025	2/20/2020	1.72	2/21/2023	2/20/2020	104.04528	104.0452767	104.0452767	104.0452767	102.9966132	100.2217565	97.53550295	94.93453787	92.41569031
200224A00018	2/24/2020	1.58	8/19/2024	2/24/2020	105.572	105.5720049	105.5720049	105.5720049	103.2449751	99.05800477	95.06329516	91.25103176	87.61195342
200225A00003	2/25/2020	1.54	2/27/2023	2/25/2020	103.55414	103.554135	103.554135	103.554135	102.4951814	99.71037553	97.0150264	94.40579761	91.87949534
200225A00005	2/25/2020	1.57	2/25/2025	2/25/2020	106.14167	106.141665	106.141665	106.141665	103.2418445	98.57294161	94.14101955	89.9328827	85.93613508
200227A00006	2/27/2020	1.47	2/27/2025	2/27/2020	105.66215	105.6621503	105.6621503	105.6621503	102.7608111	98.09794352	93.67217477	89.47029291	85.47988628
200227A00011	2/27/2020	1.42	2/28/2022	2/27/2020	102.10121	102.1012059	102.1012059	102.1012059	101.6254357	99.81322173	98.04189171	96.31029029	94.61730189
200227A00013	2/27/2020	1.43	2/27/2024	2/27/2020	104.37893	104.3789291	104.3789291	104.3789291	102.5051879	98.77537332	95.20051873	91.77341498	88.48722501
200227A00022	2/27/2020	1.41	2/27/2023	2/27/2020	103.18273	103.1827304	103.1827304	103.1827304	102.1252926	99.34578179	96.65559982	94.05141438	91.53003564
200228A00005	2/28/2020	1.35	2/28/2024	2/28/2020	104.07293	104.0729318	104.0729318	104.0729318	102.198924	98.47227654	94.90062554	91.47675851	88.19383492
190327A00041	3/27/2019	2.44	3/26/2021	3/27/2019	101.99007	101.9900656	101.9900656	101.9900656	101.7783595	100.8673798	99.9726708	99.09379941	98.23034786
190328A00025	3/28/2019	2.51	7/23/2021	3/28/2019	102.76891	102.7689094	102.7689094	102.7689094	102.4694539	101.2322048	100.0247625	98.8460595	97.69507863
190401A00005	4/1/2019	2.54	4/1/2021	4/1/2019	102.11947	102.1194676	102.1194676	102.1194676	101.9019254	100.9740215	100.0629747	99.16832892	98.28964434
190401A00008	4/1/2019	2.62	4/1/2024	4/1/2019	109.19042	109.1904213	109.1904213	109.1904213	107.2000624	103.292588	99.54996157	95.96437785	92.52844178
190411A00017	4/15/2019	2.65	4/15/2024	4/15/2019	109.39934	109.3993354	109.3993354	109.3993354	107.3722814	103.4243299	99.64446498	96.02465191	92.55728261
190411A00029	4/11/2019	2.46	4/11/2024	4/11/2019	109.35645	109.3564534	109.3564534	109.3564534	107.3273323	103.3708212	99.58282059	95.95527673	92.48056321
190415A00020	4/15/2019	2.65	5/1/2020	4/15/2019	100.00636	100.0063646	100.0063646	100.0063646	100.0061134	100.0033412	100.0005713	99.99780382	99.99503866
190416A00018	4/16/2019	2.63	4/16/2021	4/16/2019	102.29171	102.2917118	102.2917118	102.2917118	102.0610127	101.0916526	100.1406786	99.20757095	98.29182946
190422A00008	4/22/2019	2.6	4/22/2021	4/22/2019	102.30106	102.3010616	102.3010616	102.3010616	102.0651461	101.0794702	100.1127985	99.16458503	98.23430473
190424A00007	4/24/2019	2.66	4/24/2024	4/24/2019	109.49755	109.4975536	109.4975536	109.4975536	107.4471711	103.4739144	99.67081856	96.02970026	92.54281357
190426A00032	6/27/2019	2.55	6/27/2022	6/27/2019	104.91751	104.9175069	104.9175069	104.9175069	104.2935675	102.136983	100.0357197	97.98796722	95.99198939
190429A00003	4/29/2019	2.62	10/13/2023	4/29/2019	108.09857	108.0985699	108.0985699	108.0985699	106.5194439	103.0742034	99.75955775	96.5698663	93.4997629
190501A00021	5/1/2019	2.57	5/1/2020	5/1/2019	100.00614	100.0061424	100.0061424	100.0061424	100.0058913	100.0031192	100.0003496	99.99758223	99.99481726
190501A00028	5/1/2019	2.42	5/1/2024	5/1/2019	109.32378	109.3237818	109.3237818	109.3237818	107.2441817	103.2360336	99.40087326	95.73032076	92.21644718
190503A00009	5/3/2019	2.57	5/3/2021	5/3/2019	102.3412	102.341201	102.341201	102.341201	102.096202	101.0804981	100.0849589	99.1089882	98.15201336

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190506A00027	5/6/2019	2.38	5/6/2022	5/6/2019	104.61758	104.6175811	104.6175811	104.6175811	104.062566	102.041235	100.0695858	98.14608037	96.26923981
190507A00004	5/7/2019	2.88	5/7/2029	5/7/2019	125.13006	125.1300628	125.1300628	122.6588713	113.290424	104.5237432	96.52127659	89.21202663	82.53194254
190510A00017	5/10/2019	2.47	5/10/2021	5/10/2019	102.28176	102.281762	102.281762	102.281762	102.031923	100.9975685	99.98414131	98.99101105	98.01757226
190510A00018	5/10/2019	2.54	5/10/2023	5/10/2019	106.85614	106.8561403	106.8561403	106.8561403	105.6291396	102.6090831	99.6917028	96.87293416	94.14889801
190513A00003	5/13/2019	2.41	5/13/2020	5/13/2019	100.08282	100.0828184	100.0828184	100.0828184	100.0795463	100.0434334	100.007364	99.97133825	99.93535589
190514A00022	5/14/2019	2.49	11/16/2020	5/14/2019	101.2407	101.2407014	101.2407014	101.2407014	101.1502555	100.5965575	100.0489194	99.50724218	98.97142861
190514A00025	5/14/2019	2.43	5/14/2021	5/14/2019	102.26408	102.2640755	102.2640755	102.2640755	102.0114558	100.9663647	99.94264086	98.93963393	97.95671949
190514A00045	5/14/2019	2.49	5/13/2022	5/14/2019	104.51414	104.5141378	104.5141378	104.5141378	103.9523999	101.9206732	99.93905304	98.00597976	96.11995354
190515A00002	5/15/2019	2.44	5/16/2022	5/15/2019	104.42907	104.429072	104.429072	104.429072	103.8636765	101.8249502	99.83663205	97.89714745	96.00498274
200331A00060	3/31/2020	1.09	3/31/2025	3/31/2020	103.88332	103.8833231	103.8833231	103.8833231	100.8943076	96.19809467	91.74527334	87.52204454	83.515459
200401A00025	4/1/2020	0.54	4/1/2022	4/1/2020	100.81976	100.81976	100.81976	100.81976	100.3145201	98.42566624	96.58139305	94.78038303	93.02136641
200413A00032	4/13/2020	0.82	4/13/2023	4/13/2020	101.56231	101.5623145	101.5623145	101.5623145	100.4171681	97.54656961	94.77213908	92.09014425	89.49701895
200414A00016	4/16/2020	1.64	4/15/2024	4/16/2020	105.36699	105.366993	105.366993	105.366993	103.3693117	99.50040808	95.79713974	92.2515682	88.85617711
200430A00006	4/30/2020	0.61	4/29/2022	4/30/2020	100.63399	100.6339871	100.6339871	100.6339871	100.0997465	98.14475952	96.23760106	94.37680462	92.56095897
200430A00008	4/30/2020	0.94	4/30/2025	4/30/2020	103.19245	103.1924458	103.1924458	103.1924458	100.1083886	95.35669501	90.85551883	86.59041604	82.54784765
190801A00007	8/1/2019	2.17	8/2/2021	8/1/2019	102.39795	102.3979461	102.3979461	102.3979461	102.0920633	100.8311646	99.6005838	98.39923422	97.22608062
190802A00029	8/2/2019	2	8/2/2022	8/2/2019	103.88738	103.887385	103.887385	103.887385	103.2122152	100.9730611	98.79344203	96.67133963	94.60482141
190805A00037	8/5/2019	2.17	8/6/2029	8/5/2019	119.18207	119.1820659	119.1820659	116.4115467	107.0202533	98.3220204	90.40701964	83.20047555	76.6351154
190806A00027	8/6/2019	1.71	8/7/2023	8/6/2019	105.26791	105.2679082	105.2679082	105.2679082	103.8461334	100.6065679	97.48464488	94.47540638	91.57413603
190807A00014	8/7/2019	1.75	8/7/2023	8/7/2019	104.79916	104.7991597	104.7991597	104.7991597	103.3874961	100.17014	97.06936566	94.08027045	91.19819016
190807A00022	8/7/2019	1.76	1/17/2023	8/7/2019	104.01901	104.0190119	104.0190119	104.0190119	103.0414307	100.3621957	97.76594876	95.24958317	92.81013216
190807A00036	8/7/2019	1.75	8/7/2023	8/7/2019	104.79916	104.7991597	104.7991597	104.7991597	103.3874961	100.17014	97.06936566	94.08027045	91.19819016
190807A00060	8/7/2019	1.95	2/8/2021	8/7/2019	101.32779	101.3277905	101.3277905	101.3277905	101.160836	100.3777709	99.60679323	98.8476246	98.09999527
190808A00012	8/8/2019	1.89	8/8/2024	8/8/2019	106.86856	106.8685596	106.8685596	106.8685596	104.560749	100.3733927	96.3767962	92.56124245	88.91756501
190809A00012	8/9/2019	1.69	8/9/2024	8/9/2019	106.80105	106.8010492	106.8010492	106.8010492	104.4758872	100.2651949	96.24703947	92.41158632	88.74955922
190814A00003	8/14/2019	2.01	8/14/2029	8/14/2019	117.72766	117.7276551	117.7276551	114.9339476	105.575172	96.92366985	89.05450877	81.89278916	75.37113921
190814A00005	8/14/2019	1.65	8/14/2024	8/14/2019	106.64914	106.6491376	106.6491376	106.6491376	104.3114217	100.0915167	96.06514879	92.22242567	88.55401532
190815A00008	8/15/2019	1.82	8/15/2022	8/15/2019	103.53168	103.531676	103.531676	103.531676	102.8367024	100.5679213	98.36026002	96.21168109	94.12023002
190816A00014	8/16/2019	1.77	8/16/2024	8/16/2019	106.38407	106.3840664	106.3840664	106.3840664	104.058395	99.86157231	95.85692301	92.03464589	88.38549308
190816A00039	8/16/2019	1.91	2/16/2021	8/16/2019	101.34022	101.3402199	101.3402199	101.3402199	101.1656305	100.3606826	99.56850687	98.78880091	98.02127203
190819A00001	8/19/2019	1.82	8/19/2021	8/19/2019	102.02497	102.0249679	102.0249679	102.0249679	101.706423	100.4095065	99.13881208	97.89355489	96.67298178

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190819A00020	8/19/2019	1.79	8/19/2022	8/19/2019	103.47872	103.47872	103.47872	103.47872	102.7774969	100.498972	98.28207194	96.12475273	94.02505231
190819A00027	8/19/2019	2.03	8/19/2020	8/19/2019	100.54733	100.5473266	100.5473266	100.5473266	100.5068258	100.1994912	99.89404427	99.59046767	99.28874416
190820A00012	8/20/2019	1.76	8/19/2022	8/20/2019	103.40889	103.4088866	103.4088866	103.4088866	102.7078717	100.4301667	98.21406917	96.05753566	93.9586046
190820A00019	8/20/2019	1.76	8/21/2023	8/20/2019	104.88874	104.8887429	104.8887429	104.8887429	103.4457949	100.19156	97.05640342	94.03533112	91.12358701
190820A00020	8/20/2019	1.76	8/20/2024	8/20/2019	106.35689	106.3568861	106.3568861	106.3568861	104.0205004	99.81442578	95.80138291	91.97152207	88.31554839
190820A00030	8/20/2019	1.76	4/16/2024	8/20/2019	105.85009	105.8500901	105.8500901	105.8500901	103.8464085	99.9654818	96.25070475	92.69411131	89.28815928
190821A00009	8/21/2019	1.79	8/22/2022	8/21/2019	103.49113	103.4911297	103.4911297	103.4911297	102.7850658	100.4986258	98.27420377	96.10975011	94.00329666
190821A00027	8/21/2019	1.79	8/22/2022	8/21/2019	103.49113	103.4911297	103.4911297	103.4911297	102.7850658	100.4986258	98.27420377	96.10975011	94.00329666
191223A00009	12/23/2019	1.95	12/23/2022	12/23/2019	104.42606	104.4260636	104.4260636	104.4260636	103.4963355	100.8757895	98.33476285	95.87034542	93.47975447
200108A00018	1/8/2020	1.68	1/18/2022	1/8/2020	102.72154	102.7215379	102.7215379	102.7215379	102.2768688	100.5689093	98.89757351	97.26174936	95.66037011
200109A00014	1/14/2020	1.93	8/15/2022	1/14/2020	103.78652	103.7865178	103.7865178	103.7865178	103.0907897	100.81903	98.6084529	96.45701917	94.36277248
200110A00013	1/10/2020	1.76	1/10/2024	1/10/2020	106.14201	106.1420058	106.1420058	106.1420058	104.3594136	100.7032978	97.19452897	93.82633675	90.59230402
200127A00019	1/27/2020	1.8	1/27/2025	1/27/2020	107.14204	107.142037	107.142037	107.142037	104.3259168	99.70969515	95.32377012	91.15541384	87.19267462
200127A00030	1/27/2020	1.8	1/27/2025	1/27/2020	107.14204	107.142037	107.142037	107.142037	104.3259168	99.70969515	95.32377012	91.15541384	87.19267462
200129A00017	2/3/2020	1.75	8/15/2022	2/3/2020	103.3695	103.369504	103.369504	103.369504	102.6750104	100.4081249	98.2023191	96.05555686	93.96588482
200130A00012	1/30/2020	1.72	1/30/2023	1/30/2020	103.96045	103.9604531	103.9604531	103.9604531	102.9571827	100.2454959	97.61869846	95.07357558	92.607059
200130A00021	1/30/2020	1.54	1/30/2023	1/30/2020	103.96214	103.9621376	103.9621376	103.9621376	102.9540859	100.2313139	97.59400578	95.03891704	92.5629518
200131A00007	1/31/2020	1.68	1/31/2023	1/31/2020	103.85309	103.8530872	103.8530872	103.8530872	102.8482423	100.1354887	97.50773781	94.96176728	92.49450209
200131A00010	2/3/2020	1.68	2/3/2023	2/3/2020	103.86431	103.8643116	103.8643116	103.8643116	102.8532704	100.1318681	97.49597319	94.94235072	92.46791256
200131A00017	1/31/2020	1.51	1/31/2024	1/31/2020	105.28756	105.2875625	105.2875625	105.2875625	103.4609849	99.76778737	96.2255507	92.8272393	89.56619075
200203A00001	2/3/2020	1.7	2/3/2023	2/3/2020	103.92013	103.9201288	103.9201288	103.9201288	102.9088683	100.1866879	97.55003321	94.99566895	92.52050634
200207A00017	2/7/2020	1.96	2/8/2027	2/7/2020	111.25473	111.2547315	111.2547315	111.2547315	104.6366754	98.19163282	92.18669637	86.58955245	81.37042143
200214A00020	2/18/2020	1.78	1/15/2025	2/18/2020	106.99787	106.997865	106.997865	106.997865	104.2211218	99.63718489	95.28061976	91.13893502	87.20039596
200218A00004	2/18/2020	1.73	2/21/2023	2/18/2020	104.07368	104.073681	104.073681	104.073681	103.0249027	100.2496432	97.56299659	94.96164782	92.44242564
200218A00024	2/20/2020	1.73	7/17/2023	2/20/2020	104.65	104.6500024	104.6500024	104.6500024	103.285096	100.1232681	97.07434936	94.13363382	91.29664359
200224A00007	2/24/2020	1.59	2/24/2025	2/24/2020	106.23537	106.2353715	106.2353715	106.2353715	103.3378259	98.66936085	94.23769211	90.0296378	86.03281511
200224A00046	2/24/2020	1.59	2/24/2025	2/24/2020	106.23537	106.2353715	106.2353715	106.2353715	103.3378259	98.66936085	94.23769211	90.0296378	86.03281511
200225A00050	2/25/2020	1.57	2/25/2025	2/25/2020	106.14167	106.141665	106.141665	106.141665	103.2418445	98.57294161	94.14101955	89.9328827	85.93613508
200226A00006	2/26/2020	1.57	2/26/2025	2/26/2020	106.14505	106.1450522	106.1450522	106.1450522	103.2419546	98.57032331	94.13594071	89.92559366	85.92686945
200226A00012	2/26/2020	1.54	2/28/2022	2/26/2020	102.32359	102.323589	102.323589	102.323589	101.8473242	100.0330055	98.25961028	96.52598203	94.83100413
200227A00016	2/27/2020	1.47	2/27/2025	2/27/2020	105.66215	105.6621503	105.6621503	105.6621503	102.7608111	98.09794352	93.67217477	89.47029291	85.47988628

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200227A00023	2/27/2020	1.47	2/27/2025	2/27/2020	105.66215	105.6621503	105.6621503	105.6621503	102.7608111	98.09794352	93.67217477	89.47029291	85.47988628
200304A00053	3/6/2020	2.33	3/6/2025	3/6/2020	109.88303	109.8830291	109.8830291	109.8830291	106.9143988	102.1345373	97.5971558	93.28873745	89.19658516
200304A00054	3/6/2020	2.35	3/8/2027	3/6/2020	114.06202	114.0620225	114.0620225	114.0530786	107.2239837	100.6229699	94.47579783	88.74894347	83.41151847
200305A00002	3/5/2020	1.14	3/5/2025	3/5/2020	104.0711	104.0710988	104.0710988	104.0710988	101.1664027	96.52674935	92.12430388	87.9457967	83.97876429
200305A00009	3/10/2020	1.04	10/18/2023	3/10/2020	102.60372	102.6037215	102.6037215	102.6037215	101.0449879	97.68202164	94.44796081	91.33719734	88.34439764
200305A00011	3/5/2020	0.95	3/7/2022	3/5/2020	101.24315	101.2431466	101.2431466	101.2431466	100.762614	98.94038311	97.15967658	95.41930964	93.71813881
200305A00036	3/5/2020	1.36	3/5/2027	3/5/2020	107.24358	107.2435821	107.2435821	107.2379962	100.5655916	94.19327946	88.2630366	82.74207803	77.60020119
200306A00014	3/6/2020	1.38	3/6/2030	3/6/2020	110.57117	110.5711652	110.5711652	107.1404797	97.67562172	89.03832575	81.22975966	74.16633905	67.7732824
200306A00099	3/10/2020	1.92	3/10/2031	3/10/2020	117.48662	117.4866205	117.4866205	112.628055	102.0470474	92.44917277	83.8467608	76.1311611	69.20608465
200306A00100	3/10/2020	1.82	3/10/2031	3/10/2020	116.40343	116.4034256	116.4034256	111.5540924	101.0207904	91.47551836	82.92188715	75.25157139	68.36857642
200309A00064	3/9/2020	0.55	3/9/2022	3/9/2020	100.81158	100.8115775	100.8115775	100.8115775	100.328496	98.49947366	96.71235373	94.96593474	93.2590573
200310A00019	3/10/2020	0.95	3/10/2023	3/10/2020	101.88842	101.8884249	101.8884249	101.8884249	100.8133636	98.02434858	95.32598251	92.71485344	90.18769628
200311A00058	3/16/2020	1.1	10/14/2022	3/16/2020	101.99678	101.9967824	101.9967824	101.9967824	101.2055259	98.79862025	96.46085131	94.18984593	91.98332694
200313A00022	3/13/2020	1.11	3/8/2022	3/13/2020	101.54504	101.545042	101.545042	101.545042	101.0628752	99.23516371	97.44914485	95.70362751	93.99746207
200325A00029	3/25/2020	1.15	3/24/2023	3/25/2020	103.02593	103.0259255	103.0259255	103.0259255	101.911317	99.05854113	96.29972411	93.63127941	91.04977735
200325A00030	3/25/2020	1.5	3/25/2025	3/25/2020	106.84866	106.848665	106.848665	106.848665	103.8247989	99.04235134	94.50678739	90.20414238	86.12131026
200326A00026	3/26/2020	1.32	3/26/2024	3/26/2020	104.0333	104.0332962	104.0332962	104.0332962	102.0943953	98.30189457	94.66990837	91.1908406	87.85749357
200326A00030	3/26/2020	1.13	3/24/2023	3/26/2020	102.4405	102.4404973	102.4404973	102.4404973	101.3338855	98.50163145	95.76247918	93.11288261	90.54945026
200327A00026	3/27/2020	0.57	3/29/2021	3/27/2020	100.41745	100.4174466	100.4174466	100.4174466	100.2038012	99.29062301	98.39396631	97.51338645	96.64845462
200402A00021	4/2/2020	0.77	10/2/2024	4/2/2020	102.91692	102.9169212	102.9169212	102.9169212	100.4743926	96.21247692	92.15270763	88.28450699	84.59790378
200407A00002	4/8/2020	1.82	4/8/2024	4/8/2020	106.05643	106.0564271	106.0564271	106.0564271	104.0711106	100.2065894	96.50657976	92.96323872	89.56913793
200408A00021	4/8/2020	0.99	4/4/2025	4/8/2020	104.34449	104.3444913	104.3444913	104.3444913	101.3133381	96.56704866	92.06795655	87.80198101	83.75591263
200415A00035	4/17/2020	2.16	4/16/2025	4/17/2020	109.26124	109.2612449	109.2612449	109.2612449	106.1589828	101.2938141	96.68100743	92.30618441	88.15585833
200420A00047	4/20/2020	0.77	4/20/2023	4/20/2020	101.42233	101.422327	101.422327	101.422327	100.2629026	97.37631845	94.58706791	91.89134862	89.28552853
200424A00006	4/24/2020	0.6	4/24/2023	4/24/2020	101.45367	101.4536677	101.4536677	101.4536677	100.2796448	97.36980227	94.5586941	91.8424394	89.21733236
190722A00035	7/22/2019	2.18	4/13/2021	7/22/2019	101.84741	101.8474114	101.8474114	101.8474114	101.61972	100.6606723	99.71967789	98.79623065	97.88984303
190724A00025	7/24/2019	1.96	7/24/2023	7/24/2019	106.02399	106.0239926	106.0239926	106.0239926	104.629326	101.413261	98.31272139	95.32285905	92.4390628
190730A00016	7/30/2019	2	7/30/2024	7/30/2019	108.09054	108.0905355	108.0905355	108.0905355	105.7823086	101.5694076	97.5477317	93.70753658	90.03963348
190731A00029	7/31/2019	1.93	7/29/2022	7/31/2019	104.1205	104.120501	104.120501	104.120501	103.4481699	101.2085928	99.02846723	96.90577214	94.83857313
190801A00010	8/1/2019	1.97	8/1/2023	8/1/2019	106.09774	106.0977367	106.0977367	106.0977367	104.68499	101.4472195	98.32639688	95.31758983	92.41610836
190802A00017	8/2/2019	2.01	11/15/2023	8/2/2019	106.12873	106.128731	106.128731	106.128731	104.4861254	100.9902777	97.6302784	94.40011573	91.29407836

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190805A00009	8/5/2019	1.91	8/5/2024	8/5/2019	106.9414	106.9413955	106.9413955	106.9413955	104.6412088	100.4597232	96.46839255	92.65753387	89.01801414
190806A00010	8/6/2019	1.7	8/5/2022	8/6/2019	103.62805	103.6280515	103.6280515	103.6280515	102.9460539	100.6938555	98.5018867	96.36810879	94.29056939
190806A00012	8/6/2019	1.93	8/6/2021	8/6/2019	102.11079	102.1107931	102.1107931	102.1107931	101.8022104	100.5341601	99.2954377	98.08502731	96.90195958
190807A00053	8/7/2019	1.66	8/6/2021	8/7/2019	101.98112	101.9811247	101.9811247	101.9811247	101.6718531	100.4013064	99.16020665	97.94753218	96.76230814
190807A00055	8/7/2019	1.76	8/8/2022	8/7/2019	103.3643	103.3642951	103.3642951	103.3642951	102.6810273	100.4323388	98.24382729	96.11346832	94.039322
190808A00019	8/8/2019	1.87	8/8/2022	8/8/2019	103.61701	103.6170129	103.6170129	103.6170129	102.9330057	100.6813869	98.49000663	96.35683858	94.27994113
190808A00039	8/8/2019	1.84	8/8/2023	8/8/2019	105.10043	105.100426	105.100426	105.100426	103.6849869	100.4601689	97.35223961	94.35628545	91.46763138
190808A00045	8/8/2019	1.86	8/8/2023	8/8/2019	105.16648	105.166482	105.166482	105.166482	103.7506978	100.5247986	97.41581702	94.41883859	91.52918727
190808A00047	8/8/2019	1.89	8/8/2024	8/8/2019	106.86856	106.8685596	106.8685596	106.8685596	104.560749	100.3733927	96.3767962	92.56124245	88.91756501
190809A00011	8/9/2019	1.69	8/9/2024	8/9/2019	106.80105	106.8010492	106.8010492	106.8010492	104.4758872	100.2651949	96.24703948	92.41158632	88.74955922
190809A00021	8/9/2019	2.12	8/9/2029	8/9/2019	118.73107	118.7310697	118.7310697	115.9514965	106.5689674	97.88418878	89.98256806	82.7892638	76.23694824
190812A00006	8/12/2019	1.86	8/12/2024	8/12/2019	106.75654	106.7565372	106.7565372	106.7565372	104.4386955	100.2438401	96.24054206	92.41903845	88.77011867
190813A00021	8/13/2019	1.89	8/14/2023	8/13/2019	105.29196	105.2919608	105.2919608	105.2919608	103.8622925	100.6191244	97.49398165	94.48190922	91.57819068
190813A00030	8/13/2019	1.71	8/15/2022	8/13/2019	103.69514	103.6951356	103.6951356	103.6951356	102.9968175	100.7177385	98.50020279	96.34215404	94.24162002
190816A00011	8/16/2019	1.77	8/16/2024	8/16/2019	106.38407	106.3840664	106.3840664	106.3840664	104.058395	99.86157231	95.85692301	92.03464589	88.38549308
190820A00029	8/20/2019	1.76	8/20/2024	8/20/2019	106.35689	106.3568861	106.3568861	106.3568861	104.0205004	99.81442578	95.80138291	91.97152207	88.31554839
190821A00002	8/21/2019	1.61	8/21/2024	8/21/2019	106.50438	106.5043756	106.5043756	106.5043756	104.1485398	99.91433729	95.87512307	92.02092136	88.34231947
190821A00030	8/21/2019	1.8	8/21/2024	8/21/2019	106.53466	106.5346576	106.5346576	106.5346576	104.1940339	99.98172809	95.9627989	92.127379	88.46615659
190823A00002	8/23/2019	1.89	8/24/2020	8/23/2019	100.57105	100.5710512	100.5710512	100.5710512	100.5282557	100.2066094	99.8870273	99.56948962	99.25397669
190826A00030	8/26/2019	1.72	8/26/2026	8/26/2019	110.23268	110.2326819	110.2326819	110.2326819	104.5571574	98.46416183	92.76410266	87.42969582	82.43568219
190826A00057	8/26/2019	1.87	8/26/2025	8/26/2019	108.3782	108.3782006	108.3782006	108.3782006	104.7604599	99.60063106	94.72554253	90.11806234	85.76217335
190828A00019	8/28/2019	2	3/28/2028	8/28/2019	113.4309	113.4308969	113.4308969	112.3113035	104.45007	97.05102208	90.23147619	83.94308452	78.14175974
190905A00035	9/5/2019	1.82	9/7/2021	9/5/2019	102.10571	102.1057055	102.1057055	102.1057055	101.7719025	100.4282497	99.10863615	97.81247257	96.53918851
190906A00004	9/6/2019	1.78	9/6/2022	9/6/2019	103.52924	103.5292371	103.5292371	103.5292371	102.7984846	100.4723007	98.21017386	96.0099957	93.86973923
190910A00009	9/10/2019	1.86	9/10/2020	9/10/2019	100.64358	100.6435803	100.6435803	100.6435803	100.5928424	100.2241678	99.85820198	99.49491498	99.13427737
190912A00028	9/12/2019	1.94	9/12/2024	9/12/2019	107.24193	107.2419299	107.2419299	107.2419299	104.834064	100.551675	96.46818121	92.57335353	88.85753982
190912A00033	9/12/2019	1.77	9/12/2023	9/12/2019	105.63108	105.631078	105.631078	105.631078	104.1271269	100.788712	97.57467922	94.47976086	91.49893989
190913A00012	9/13/2019	2.04	9/13/2023	9/13/2019	105.93384	105.9338447	105.9338447	105.9338447	104.4342788	101.1034027	97.89632243	94.80780522	91.83286689
190916A00008	9/16/2019	2.05	9/16/2021	9/16/2019	102.46512	102.4651151	102.4651151	102.4651151	102.1232465	100.7525444	99.40676557	98.08528905	96.787514
190917A00022	9/17/2019	2.02	9/16/2022	9/17/2019	104.14725	104.1472491	104.1472491	104.1472491	103.3976335	101.0373303	98.74267779	96.51149169	94.34167334
190920A00018	9/20/2019	1.98	9/20/2022	9/20/2019	104.06958	104.0695801	104.0695801	104.0695801	103.3134254	100.9433894	98.63956115	96.39972842	94.22176594

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190926A00007	9/26/2019	1.88	9/26/2022	9/26/2019	103.85412	103.8541191	103.8541191	103.8541191	103.0884791	100.70508	98.38870158	96.13708983	93.94808005
190926A00015	9/26/2019	2.32	11/26/2030	9/26/2019	121.25752	121.2575195	121.2575195	116.7659441	106.2615133	96.66530267	88.03518162	80.26836514	73.2735005
190926A00017	9/26/2019	2.23	9/26/2029	9/26/2019	118.1004	118.1004031	118.1004031	115.2038207	105.8357107	97.16495277	89.28311348	82.11414307	75.58968178
190930A00008	9/30/2019	1.9	10/10/2023	9/30/2019	105.57662	105.5766203	105.5766203	105.5766203	104.0187087	100.6244454	97.35898846	94.21677883	91.19252733
191003A00033	10/3/2019	1.54	10/3/2022	10/3/2019	103.49335	103.4933454	103.4933454	103.4933454	102.7134049	100.3069448	97.96886203	95.69683356	93.48862935
191004A00001	10/4/2019	2.47	10/4/2034	10/4/2019	130.98279	130.9827879	130.9827879	120.4321916	106.3880341	94.06422852	83.35838817	74.0469642	65.93842949
191009A00028	10/9/2019	1.76	10/9/2024	10/9/2019	106.55752	106.5575191	106.5575191	106.5575191	104.0789785	99.74406464	95.61388656	91.6777416	87.925541
191010A00013	10/10/2019	1.59	10/7/2022	10/10/2019	103.63254	103.6325405	103.6325405	103.6325405	102.8449931	100.4264663	98.07694165	95.79406456	93.5755753
191015A00013	10/15/2019	1.72	10/15/2024	10/15/2019	107.22744	107.2274353	107.2274353	107.2274353	104.7085728	100.3205353	96.14091472	92.15875361	88.36372693
191017A00026	10/17/2019	2.3	7/17/2029	10/17/2019	118.37632	118.3763178	118.3763178	115.7245896	106.5188954	97.97176353	90.18734864	83.09339711	76.62485445
191021A00033	10/22/2019	1.9	7/18/2022	10/22/2019	103.59268	103.592682	103.592682	103.592682	102.9411011	100.744274	98.60503638	96.52145735	94.49168768
200227A00027	2/27/2020	1.47	2/27/2025	2/27/2020	105.66215	105.6621503	105.6621503	105.6621503	102.7608111	98.09794352	93.67217477	89.47029291	85.47988628
200227A00030	2/27/2020	1.59	2/27/2026	2/27/2020	107.52624	107.5262399	107.5262399	107.5262399	102.986039	97.41666133	92.18132035	87.25835494	82.62761115
200228A00023	2/28/2020	1.31	2/28/2022	2/28/2020	101.89735	101.8973547	101.8973547	101.8973547	101.4220379	99.61175327	97.84231636	96.11257286	94.42140818
200228A00043	2/28/2020	1.21	2/28/2025	2/28/2020	105.33553	105.3355291	105.3355291	105.3355291	102.4120986	97.72581505	93.27887632	89.05790197	85.05032404
200302A00036	3/2/2020	1.45	3/2/2026	3/2/2020	106.71516	106.7151597	106.7151597	106.7151597	102.1704808	96.61706939	91.39757873	86.49031827	81.87510843
200303A00012	3/3/2020	1.71	3/1/2030	3/3/2020	113.7992	113.7991955	113.7991955	110.3703841	100.7917149	92.01863484	84.08203455	76.8978689	70.39091957
200304A00034	3/4/2020	1.12	3/4/2024	3/4/2020	103.19569	103.1956856	103.1956856	103.1956856	101.315712	97.59329405	94.02639258	90.60774767	87.33047458
200304A00038	3/4/2020	1.01	3/1/2022	3/4/2020	101.34341	101.3434115	101.3434115	101.3434115	100.8683732	99.06073808	97.29396525	95.56689833	93.87842085
200305A00007	3/5/2020	1.14	3/5/2025	3/5/2020	104.0711	104.0710988	104.0710988	104.0710988	101.1664027	96.52674935	92.12430388	87.9457967	83.97876429
200305A00040	3/10/2020	0.99	3/10/2023	3/10/2020	102.00391	102.0039149	102.0039149	102.0039149	100.928374	98.13769569	95.43770689	92.82499424	90.29629141
200306A00046	3/6/2020	1.01	3/3/2025	3/6/2020	103.4329	103.4329044	103.4329044	103.4329044	100.5414897	95.92165686	91.53799563	87.37730204	83.42717351
200309A00020	3/9/2020	0.96	3/10/2025	3/9/2020	103.20185	103.2018502	103.2018502	103.2018502	100.2896443	95.65889045	91.26580532	87.09705106	83.1401025
200309A00046	3/9/2020	0.78	3/11/2025	3/9/2020	103.25371	103.2537066	103.2537066	103.2537066	100.315087	95.65214436	91.22944383	87.03345868	83.05148903
200310A00025	3/10/2020	0.87	3/11/2024	3/10/2020	102.93855	102.9385473	102.9385473	102.9385473	101.0318845	97.27845024	93.6830631	90.23829102	86.93708903
200310A00037	3/10/2020	0.84	3/7/2022	3/10/2020	101.03717	101.0371684	101.0371684	101.0371684	100.5570999	98.7368382	96.95806377	95.21959288	93.52028301
200311A00022	3/11/2020	1.23	3/11/2026	3/11/2020	106.58669	106.5866928	106.5866928	106.5866928	101.9516924	96.34342836	91.07502005	86.1242392	81.47041629
200311A00040	3/12/2020	1.3	3/11/2025	3/12/2020	104.8682	104.8682014	104.8682014	104.8682014	101.935215	97.26249035	92.82912622	88.62169884	84.62760224
200313A00032	3/18/2020	1.46	3/18/2025	3/18/2020	105.67373	105.6737302	105.6737302	105.6737302	102.7089325	98.00045797	93.53376142	89.29524269	85.27213294
200317A00026	3/17/2020	1.22	3/15/2024	3/17/2020	103.61147	103.6114707	103.6114707	103.6114707	101.7020858	97.94472548	94.34536884	90.89658912	87.59134619
200319A00024	3/19/2020	1.12	3/15/2022	3/19/2020	101.58002	101.5800237	101.5800237	101.5800237	101.0910998	99.24489576	97.44119155	95.67876161	93.95642353

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200324A00020	3/24/2020	1.23	3/24/2022	3/24/2020	101.79296	101.792956	101.792956	101.792956	101.2950543	99.42378648	97.59608316	95.81067335	94.06633148
200327A00074	3/31/2020	1.76	3/29/2024	3/31/2020	105.77791	105.7779105	105.7779105	105.7779105	103.8193249	99.98564078	96.31412982	92.79711162	89.42730909
200330A00045	3/30/2020	1.47	3/30/2027	3/30/2020	108.07885	108.0788526	108.0788526	108.0453432	101.2423934	94.79092917	88.7905652	83.20756522	78.01087353
200401A00020	4/1/2020	0.72	3/29/2022	4/1/2020	100.82005	100.8200461	100.8200461	100.8200461	100.3196506	98.44500146	96.61431521	94.8263009	93.07971391
200228A00019	2/28/2020	1.21	2/20/2025	2/28/2020	105.31164	105.3116408	105.3116408	105.3116408	102.4146105	97.75022702	93.32302868	89.11977656	85.12803793
200228A00040	2/28/2020	1.14	2/28/2023	2/28/2020	102.92858	102.9285843	102.9285843	102.9285843	101.8649786	99.07471177	96.37447044	93.76088937	91.23074722
200228A00042	2/28/2020	1.17	2/28/2024	2/28/2020	104.07666	104.0766615	104.0766615	104.0766615	102.191227	98.4459105	94.85682513	91.41668224	88.1185701
200228A00058	2/28/2020	1.31	2/28/2022	2/28/2020	101.89735	101.8973547	101.8973547	101.8973547	101.4220379	99.61175327	97.84231636	96.11257286	94.42140818
200228A00065	2/28/2020	1.4	2/28/2025	2/28/2020	105.32467	105.3246736	105.3246736	105.3246736	102.4236042	97.76608385	93.34563628	89.14904517	85.1638946
200302A00028	3/2/2020	1.25	2/26/2024	3/2/2020	103.68143	103.6814319	103.6814319	103.6814319	101.8148439	98.10091093	94.54132645	91.12890671	87.85683915
200302A00051	3/2/2020	1.22	8/8/2023	3/2/2020	103.05269	103.0526885	103.0526885	103.0526885	101.6479484	98.45664915	95.38133969	92.41713792	89.55939892
200302A00053	3/2/2020	1.31	3/3/2025	3/2/2020	104.89506	104.8950554	104.8950554	104.8950554	101.98844	97.33398178	92.91695668	88.72410382	84.74296681
200306A00065	3/6/2020	1.38	3/6/2030	3/6/2020	110.57117	110.5711652	110.5711652	107.1404797	97.67562172	89.03832575	81.22975966	74.16633905	67.7732824
200309A00003	3/9/2020	0.72	3/9/2022	3/9/2020	100.81489	100.8148918	100.8148918	100.8148918	100.3334219	98.51011649	96.72848565	94.98733707	93.28552007
200309A00056	3/9/2020	0.97	3/7/2025	3/9/2020	103.24528	103.2452818	103.2452818	103.2452818	100.3425613	95.71780014	91.33001774	87.1659358	83.21308384
200310A00022	3/10/2020	1.12	3/10/2027	3/10/2020	106.93962	106.9396164	106.9396164	106.9282796	100.1687002	93.74689493	87.77343306	82.21489323	77.04049913
200326A00029	3/26/2020	1.82	3/26/2027	3/26/2020	110.49076	110.4907587	110.4907587	110.4617102	103.6253975	97.10300867	91.03437243	85.38566446	80.12574121
200330A00041	4/1/2020	1.09	4/1/2025	4/1/2020	103.88546	103.8854561	103.8854561	103.8854561	100.8929926	96.1943117	91.7392814	87.51408029	83.50573871
200403A00016	4/3/2020	0.63	4/17/2023	4/3/2020	101.53437	101.5343741	101.5343741	101.5343741	100.3749902	97.48212786	94.68679825	91.9851926	89.37367272
200413A00031	4/13/2020	0.73	4/13/2022	4/13/2020	100.85724	100.8572372	100.8572372	100.8572372	100.3403218	98.42556062	96.55663367	94.73216625	92.95083419
200417A00016	4/21/2020	2.18	4/21/2025	4/21/2020	109.3867	109.3867005	109.3867005	109.3867005	106.2656692	101.3850646	96.75825384	92.37073927	88.20892459
200430A00007	4/30/2020	0.72	4/28/2023	4/30/2020	101.28157	101.2815691	101.2815691	101.2815691	100.1057629	97.20066707	94.3942505	91.68262952	89.06209586
190821A00035	8/21/2019	2.03	8/21/2020	8/21/2019	100.5572	100.5571975	100.5571975	100.5571975	100.5158058	100.202944	99.8920364	99.58306471	99.27601081
190826A00018	8/26/2019	1.9	8/27/2029	8/26/2019	116.76041	116.7604134	116.7604134	113.9242478	104.5686938	95.93376611	88.08349963	80.94250921	74.44300236
190826A00065	8/26/2019	2.09	8/28/2029	8/26/2019	116.6443	116.6442994	116.6442994	113.8529839	104.6084034	96.0557345	88.27675744	81.19737865	74.75094647
190827A00002	8/27/2019	1.74	8/27/2024	8/27/2019	106.29789	106.2978931	106.2978931	106.2978931	103.9428671	99.72086539	95.69339332	91.85051594	88.18285583
190829A00012	8/29/2019	1.54	8/29/2024	8/29/2019	106.2306	106.230599	106.230599	106.230599	103.8550157	99.60684471	95.55524769	91.69015591	88.00206666
190830A00010	9/3/2019	1.75	9/1/2023	9/3/2019	104.89949	104.8994863	104.8994863	104.8994863	103.4322615	100.1499901	96.98876042	93.9434999	91.00937494
190830A00012	8/30/2019	1.76	8/30/2024	8/30/2019	106.39718	106.3971831	106.3971831	106.3971831	104.03311	99.80163429	95.76542017	91.91449214	88.23943366
190906A00018	9/6/2019	1.76	9/6/2024	9/6/2019	106.42522	106.4252234	106.4252234	106.4252234	104.0413003	99.79162007	95.73884197	91.87286961	88.1841742
190909A00028	9/9/2019	1.84	9/9/2022	9/9/2019	103.68462	103.6846224	103.6846224	103.6846224	102.9483093	100.6122642	98.34074441	96.13161929	93.98284069

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190913A00001	9/13/2019	1.96	9/14/2020	9/13/2019	100.70095	100.7009465	100.7009465	100.7009465	100.6482692	100.2684398	99.89148516	99.5173725	99.14606964
190917A00035	9/19/2019	2.02	10/16/2023	9/19/2019	106.02227	106.0222691	106.0222691	106.0222691	104.4482953	101.0312624	97.74440391	94.58207722	91.53891526
190917A00045	9/17/2019	1.86	9/17/2021	9/17/2019	102.44105	102.4410483	102.4410483	102.4410483	102.0973789	100.7203652	99.36848978	98.04112389	96.73765938
190918A00003	9/18/2019	1.95	9/19/2022	9/18/2019	103.99255	103.9925491	103.9925491	103.9925491	103.2383314	100.8718991	98.5715097	96.33495883	94.16012861
190923A00078	9/23/2019	1.96	6/28/2024	9/23/2019	106.98243	106.9824299	106.9824299	106.9824299	104.7836645	100.6953879	96.7891521	93.0558652	89.48694196
190926A00012	9/26/2019	1.93	9/27/2021	9/26/2019	102.34737	102.3473741	102.3473741	102.3473741	101.9965273	100.5968218	99.22306652	97.87460264	96.55079314
190927A00012	10/1/2019	1.96	10/1/2024	10/1/2019	107.41649	107.4164887	107.4164887	107.4164887	104.9534841	100.6193435	96.48870748	92.55099413	88.79622539
190930A00075	9/30/2019	2.19	9/29/2027	9/30/2019	114.01158	114.0115793	114.0115793	113.435815	106.0233554	98.98189841	92.46023717	86.41732852	80.81556494
191001A00005	10/1/2019	1.8	4/18/2023	10/1/2019	104.50421	104.5042055	104.5042055	104.5042055	103.3354262	100.4080463	97.57879951	94.84386591	92.19959636
191003A00002	10/3/2019	1.58	10/4/2021	10/3/2019	102.11747	102.1174743	102.1174743	102.1174743	101.7600228	100.3394573	98.94562115	97.57782611	96.23540706
191004A00004	10/4/2019	1.54	10/4/2024	10/4/2019	106.37189	106.3718887	106.3718887	106.3718887	103.8928205	99.55056514	95.41348823	91.47086618	87.71259022
191004A00011	10/4/2019	1.77	10/5/2020	10/4/2019	100.7249	100.7249016	100.7249016	100.7249016	100.6616655	100.2239636	99.79006541	99.35992139	98.9334829
191004A00013	10/4/2019	1.53	10/22/2021	10/4/2019	102.1156	102.1155956	102.1155956	102.1155956	101.7426972	100.2747958	98.83540888	97.4237789	96.03917477
191007A00020	10/7/2019	1.69	10/7/2022	10/7/2019	103.43427	103.4342737	103.4342737	103.4342737	102.650756	100.2438844	97.9055209	95.63333326	93.42508285
191008A00031	10/8/2019	1.52	10/8/2024	10/8/2019	106.29776	106.2977551	106.2977551	106.2977551	103.8076818	99.45724247	95.31286841	91.36376362	87.59975261
190515A00003	5/15/2019	2.45	11/16/2020	5/15/2019	101.2185	101.2184973	101.2184973	101.2184973	101.1280615	100.5744344	100.0268667	99.48525922	98.9495149
190515A00015	5/15/2019	2.25	5/16/2022	5/15/2019	104.41126	104.4112579	104.4112579	104.4112579	103.8437798	101.7981495	99.80322525	97.85741951	95.95920632
190515A00044	5/15/2019	2.38	5/17/2021	5/15/2019	102.22904	102.2290404	102.2290404	102.2290404	101.9743606	100.9213448	99.89002587	98.87973831	97.88984344
190517A00017	5/17/2019	2.33	2/22/2021	5/17/2019	101.8297	101.8297	101.8297	101.8297	101.6486583	100.8236613	100.0120262	99.21343021	98.42756098
190520A00034	5/20/2019	2.44	5/20/2021	5/20/2019	102.31063	102.3106267	102.3106267	102.3106267	102.053756	100.9921565	99.95259428	98.93438831	97.9368853
190520A00054	5/20/2019	2.46	5/20/2021	5/20/2019	102.33198	102.3319816	102.3319816	102.3319816	102.0750867	101.0133655	99.97368339	98.95535922	97.95773968
190521A00005	5/21/2019	2.56	5/21/2024	5/21/2019	109.26384	109.2638415	109.2638415	109.2638415	107.1461839	103.1089199	99.24720827	95.552476	92.01661622
190521A00027	5/21/2019	2.56	5/21/2024	5/21/2019	109.26384	109.2638415	109.2638415	109.2638415	107.1461839	103.1089199	99.24720827	95.552476	92.01661622
190521A00028	5/21/2019	2.47	11/22/2021	5/21/2019	103.45661	103.4566086	103.4566086	103.4566086	103.0567249	101.498606	99.97178759	98.47539639	97.00859105
190521A00043	5/21/2019	2.54	5/22/2023	5/21/2019	106.93044	106.9304369	106.9304369	106.9304369	105.6768578	102.6247172	99.67713592	96.82993984	94.07914709
190523A00023	5/23/2019	2.48	3/22/2023	5/23/2019	106.37827	106.3782692	106.3782692	106.3782692	105.2591684	102.3746256	99.58426686	96.88451842	94.27196201
190524A00031	5/24/2019	2.43	5/24/2022	5/24/2019	104.45567	104.4556667	104.4556667	104.4556667	103.8798797	101.8198515	99.81109352	97.85199004	95.94098861
190528A00006	5/28/2019	2.43	9/15/2023	5/28/2019	107.27226	107.272258	107.272258	107.272258	105.7608527	102.4021881	99.16832121	96.05397311	93.05411587
190529A00031	5/29/2019	2.36	5/30/2023	5/29/2019	106.42013	106.4201288	106.4201288	106.4201288	105.151473	102.0866181	99.12736614	96.26947653	93.5089052
190529A00034	5/29/2019	2.32	5/28/2021	5/29/2019	102.22789	102.227892	102.227892	102.227892	101.9655218	100.8827574	99.82291886	98.78528402	97.76916074
190529A00060	5/29/2019	2.31	11/29/2021	5/29/2019	103.24253	103.2425319	103.2425319	103.2425319	102.8373084	101.2618262	99.71821338	98.20557112	96.72303394

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190529A00067	5/29/2019	2.32	6/1/2021	5/29/2019	102.25056	102.2505622	102.2505622	102.2505622	101.98544	100.8917229	99.82138899	98.77369465	97.74792754
190529A00079	5/29/2019	2.32	5/28/2021	5/29/2019	102.22789	102.227892	102.227892	102.227892	101.9655218	100.8827574	99.82291886	98.78528402	97.76916074
190530A00003	5/30/2019	2.21	5/27/2022	5/30/2019	104.39229	104.3922876	104.3922876	104.3922876	103.8105901	101.7361141	99.71352841	97.74118892	95.81751602
190530A00004	5/30/2019	2.24	5/30/2023	5/30/2019	106.61707	106.6170666	106.6170666	106.6170666	105.3409083	102.2596908	99.28490564	96.41226865	93.63769499
190531A00047	5/31/2019	2.32	5/28/2021	5/31/2019	102.22789	102.227892	102.227892	102.227892	101.9655218	100.8827574	99.82291886	98.78528402	97.76916074
190603A00009	6/3/2019	2.17	7/6/2022	6/3/2019	104.13511	104.1351147	104.1351147	104.1351147	103.5000704	101.3283784	99.21292406	97.15184771	95.14336674
190603A00050	6/3/2019	2.19	6/3/2021	6/3/2019	102.11801	102.1180108	102.1180108	102.1180108	101.8517903	100.7534418	99.67869971	98.62680931	97.59704783
190604A00008	6/4/2019	2.23	6/4/2021	6/4/2019	102.16767	102.1676701	102.1676701	102.1676701	101.9007632	100.7994185	99.72180213	98.66715367	97.63474482
191025A00013	10/25/2019	1.98	10/25/2024	10/25/2019	107.57054	107.5705377	107.5705377	107.5705377	105.0375259	100.6427484	96.45712073	92.46961577	88.66984486
191101A00006	11/1/2019	1.69	11/2/2020	11/1/2019	100.8121	100.812101	100.812101	100.812101	100.7324181	100.2175318	99.70789481	99.20342731	98.70405093
191104A00009	11/4/2019	1.91	11/6/2023	11/4/2019	105.73142	105.7314167	105.7314167	105.7314167	104.1117042	100.6463528	97.31501879	94.11180332	91.0311004
191104A00018	11/5/2019	1.96	11/5/2024	11/5/2019	107.53	107.5299997	107.5299997	107.5299997	104.9650728	100.5439084	96.33440231	92.32532853	88.50611512
191104A00025	11/4/2019	2.33	8/2/2030	11/4/2019	120.73132	120.731322	120.731322	116.68678	106.475394	97.11103344	88.66431965	81.04011057	74.15359485
191106A00004	11/6/2019	2.01	11/6/2024	11/6/2019	107.7622	107.7621958	107.7621958	107.7621958	105.1921517	100.7632976	96.54650439	92.53052113	88.70475256
191108A00014	11/8/2019	2.25	11/8/2029	11/8/2019	120.48051	120.4805099	120.4805099	117.369061	107.6966217	98.75953108	90.64619162	83.27615424	76.57721295
191113A00020	11/13/2019	1.88	11/13/2020	11/13/2019	100.88861	100.8886114	100.8886114	100.8886114	100.800619	100.2562523	99.71775863	99.18504319	98.65801324
191126A00026	11/26/2019	1.91	11/25/2026	11/26/2019	111.89593	111.89593	111.89593	111.89593	105.6421609	99.29373334	93.36851642	87.83613723	82.66855268
191210A00011	12/10/2019	1.92	12/12/2022	12/10/2019	104.29641	104.296412	104.296412	104.296412	103.3883948	100.7979203	98.28540444	95.84802104	93.4830662
191212A00019	12/13/2019	1.93	12/19/2022	12/13/2019	104.35449	104.3544878	104.3544878	104.3544878	103.4327438	100.8234585	98.29311549	95.8388357	93.45786537
191218A00014	12/18/2019	2.04	12/18/2024	12/18/2019	108.09825	108.0982531	108.0982531	108.0982531	105.3981607	100.8569799	96.53762329	92.42808228	88.51706414
191219A00047	12/19/2019	1.76	12/17/2021	12/19/2019	102.71514	102.7151402	102.7151402	102.7151402	102.2955879	100.6721681	99.08230987	97.52503922	95.99941959
191226A00020	12/26/2019	2.44	12/21/2029	12/26/2019	120.5709	120.5709019	120.5709019	117.3582232	107.6908189	98.74997123	90.6378413	83.27295524	76.58224727
200106A00019	1/6/2020	1.89	7/16/2024	1/6/2020	106.76767	106.7676651	106.7676651	106.7676651	104.5226616	100.3941493	96.4513657	92.68493725	89.08601885
200115A00014	1/17/2020	1.88	9/15/2022	1/17/2020	103.80619	103.806192	103.806192	103.806192	103.0593358	100.7058284	98.41773853	96.19289188	94.02919908
200115A00018	1/15/2020	1.9	1/16/2024	1/15/2020	106.00926	106.0092637	106.0092637	106.0092637	104.2239208	100.5728564	97.06908139	93.70581792	90.47664264
200122A00003	1/22/2020	1.88	1/22/2021	1/22/2020	101.20427	101.2042736	101.2042736	101.2042736	101.0535064	100.3170691	99.59133728	98.87607868	98.17106774
200122A00010	1/22/2020	1.84	1/24/2022	1/22/2020	102.71358	102.7135823	102.7135823	102.7135823	102.2657311	100.5475522	98.86638977	97.2211129	95.61063699
200127A00013	1/27/2020	1.56	1/27/2023	1/27/2020	104.00588	104.0058849	104.0058849	104.0058849	103.0036809	100.2880202	97.65738895	95.10856787	92.63848457
200130A00048	1/30/2020	1.74	1/31/2022	1/30/2020	102.56599	102.5659896	102.5659896	102.5659896	102.1129555	100.3777682	98.68027789	97.0193218	95.39378556
200131A00006	1/31/2020	1.52	1/31/2022	1/31/2020	102.49331	102.4933096	102.4933096	102.4933096	102.0388682	100.2987383	98.59650683	96.93100257	95.30110304
200207A00004	2/7/2020	1.53	2/7/2023	2/7/2020	103.96533	103.9653344	103.9653344	103.9653344	102.9408079	100.1954632	97.53691455	94.96187935	92.46722264

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200207A00006	2/7/2020	1.76	2/8/2021	2/7/2020	101.17808	101.178075	101.178075	101.178075	101.0112305	100.2288142	99.45847816	98.69994426	97.95294284
200428A00011	4/30/2020	1.95	4/29/2025	4/30/2020	108.27077	108.2707733	108.2707733	108.2707733	105.1341989	100.2610108	95.64271414	91.2646741	87.11317053
200429A00003	4/29/2020	0.74	4/28/2023	4/29/2020	101.34201	101.3420122	101.3420122	101.3420122	100.165935	97.25993012	94.45262733	91.74014224	89.11876582
200406A00006	4/6/2020	1.13	4/7/2025	4/6/2020	104.09704	104.0970378	104.0970378	104.0970378	101.0817479	96.36347092	91.89057789	87.64910537	83.62595321
200406A00020	4/6/2020	0.65	4/6/2022	4/6/2020	101.04104	101.0410376	101.0410376	101.0410376	100.5296536	98.62522161	96.76604256	94.95076943	93.17810442
200413A00023	4/13/2020	0.74	2/7/2022	4/13/2020	100.79842	100.798417	100.798417	100.798417	100.3432475	98.60400603	96.90296321	95.23896708	93.61091156
200415A00019	4/15/2020	0.68	4/15/2022	4/15/2020	100.76061	100.7606089	100.7606089	100.7606089	100.2416914	98.32258641	96.44954985	94.62119603	92.83619041
200428A00013	4/30/2020	1.49	4/29/2024	4/30/2020	104.81385	104.8138541	104.8138541	104.8138541	102.7856064	98.89202577	95.16683406	91.60188043	88.18945197
200429A00009	4/29/2020	0.78	4/29/2025	4/29/2020	103.34319	103.3431896	103.3431896	103.3431896	100.2364833	95.45362463	90.92360563	86.6318165	82.56456484
190604A00028	6/4/2019	2.2	6/3/2022	6/4/2019	104.02812	104.0281216	104.0281216	104.0281216	103.4402125	101.3582556	99.32858277	97.34952792	95.41949088
190605A00034	6/5/2019	2.11	6/6/2022	6/5/2019	103.85273	103.8527274	103.8527274	103.8527274	103.2610762	101.1728954	99.13731095	97.15264087	95.21727003
190606A00026	6/6/2019	2.23	6/6/2023	6/6/2019	106.053	106.0529972	106.0529972	106.0529972	104.7707653	101.6931329	98.72210627	95.85338107	93.08285374
190606A00029	6/6/2019	2.96	6/6/2034	6/6/2019	137.15015	137.1501483	137.1501483	127.0060158	112.8348028	100.3072794	89.37720294	79.82918702	71.47803323
190607A00012	6/7/2019	2.13	6/7/2022	6/7/2019	103.90025	103.9002495	103.9002495	103.9002495	103.3070729	101.215679	99.17700884	97.18937428	95.25115459
190607A00023	6/7/2019	1.92	6/7/2022	6/7/2019	103.83817	103.8381656	103.8381656	103.8381656	103.2428707	101.1447591	99.09967699	97.1059225	95.16186193
190610A00016	6/10/2019	2.21	6/10/2022	6/10/2019	104.08617	104.0861711	104.0861711	104.0861711	103.488301	101.3867935	99.33840197	97.34142003	95.39420969
190611A00007	6/11/2019	2.25	6/10/2022	6/11/2019	104.17156	104.1715567	104.1715567	104.1715567	103.5734604	101.4710292	99.42173264	97.42386375	95.47578402
190613A00011	6/13/2019	2.26	6/13/2024	6/13/2019	108.16042	108.1604194	108.1604194	108.1604194	105.991539	101.9177435	98.023562	94.30010575	90.73897635
190619A00024	6/19/2019	2.21	7/19/2022	6/19/2019	104.29222	104.2922233	104.2922233	104.2922233	103.6371605	101.4298091	99.28033515	97.18679665	95.14733381
190620A00025	6/20/2019	2.04	6/20/2022	6/20/2019	103.7713	103.7713003	103.7713003	103.7713003	103.1602737	101.0352026	98.96435981	96.94598327	94.97838261
190620A00026	6/20/2019	2.09	6/20/2023	6/20/2019	105.68382	105.6838181	105.6838181	105.6838181	104.3727815	101.2639451	98.26389802	95.3682003	92.57262199
190624A00036	6/24/2019	1.95	12/28/2020	6/24/2019	101.23111	101.2311073	101.2311073	101.2311073	101.1037079	100.4340586	99.77325581	99.12112517	98.47749682
190625A00003	6/25/2019	2.03	6/27/2022	6/25/2019	103.7831	103.7830978	103.7830978	103.7830978	103.1622505	101.0181898	98.92919494	96.89346289	94.90926465
190625A00023	6/25/2019	2.47	6/25/2027	6/25/2019	115.52878	115.5287751	115.5287751	115.2393381	108.0417518	101.1535544	94.75642088	88.81273248	83.28794096
190627A00010	6/27/2019	1.97	6/27/2024	6/27/2019	107.79252	107.7925151	107.7925151	107.7925151	105.5757765	101.4520189	97.51213329	93.74692273	90.14770358
190627A00037	6/27/2019	1.93	6/27/2023	6/27/2019	105.79039	105.790391	105.790391	105.790391	104.4565528	101.3137738	98.2817955	95.35606148	92.53223282
190628A00004	6/28/2019	2.12	6/28/2023	6/28/2019	105.81892	105.818919	105.818919	105.818919	104.4897677	101.3577135	98.33584803	95.4196482	92.60480617
190701A00009	7/3/2019	2.14	7/2/2024	7/3/2019	107.75786	107.7578554	107.7578554	107.7578554	105.5423414	101.4280224	97.49711226	93.7404349	90.14932657
190703A00019	7/3/2019	2.08	7/5/2022	7/3/2019	103.9316	103.9316019	103.9316019	103.9316019	103.2986263	101.131811	99.02106452	96.96453462	94.96044582
190709A00018	7/9/2019	2.24	7/9/2024	7/9/2019	108.21593	108.2159271	108.2159271	108.2159271	105.9779567	101.8367674	97.88078651	94.10071342	90.48776906
190710A00012	7/10/2019	2.18	7/10/2023	7/10/2019	106.07265	106.0726469	106.0726469	106.0726469	104.7159118	101.549046	98.49450347	95.54763149	92.70400152

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190711A00020	7/11/2019	1.98	7/11/2022	7/11/2019	104.1413	104.1412994	104.1412994	104.1412994	103.4961524	101.3034628	99.16797652	97.08778673	95.06106666
190715A00010	7/15/2019	2.23	7/15/2024	7/15/2019	108.20559	108.2055878	108.2055878	108.2055878	105.9515968	101.7956934	97.82627683	94.03395001	90.40984486
200207A00009	2/7/2020	1.58	2/7/2025	2/7/2020	107.06005	107.0600475	107.0600475	107.0600475	104.1877453	99.51707972	95.08162176	90.86829175	86.86480952
200214A00007	2/14/2020	1.59	2/14/2025	2/14/2020	107.1366	107.1365979	107.1365979	107.1365979	104.2404725	99.54914001	95.09495071	90.86470045	86.84599015
200214A00016	2/14/2020	1.57	2/14/2024	2/14/2020	105.5715	105.5714967	105.5714967	105.5714967	103.7093766	99.9731918	96.39110047	92.95592271	89.66085446
200218A00023	2/18/2020	1.55	2/21/2023	2/18/2020	104.0766	104.0765958	104.0765958	104.0765958	103.0227241	100.2359411	97.53837761	94.92668779	92.39767119
200219A00006	2/19/2020	1.76	2/18/2022	2/19/2020	102.69125	102.6912464	102.6912464	102.6912464	102.2226205	100.4337765	98.68474295	96.97436078	95.30151377
200224A00002	2/24/2020	1.56	2/24/2023	2/24/2020	103.60104	103.6010407	103.6010407	103.6010407	102.5480341	99.7710164	97.08296033	94.48054253	91.9605828
200224A00004	2/24/2020	1.68	2/24/2021	2/24/2020	101.1767	101.1767018	101.1767018	101.1767018	100.9946705	100.1688715	99.35652247	98.55729685	97.77087876
200224A00015	2/24/2020	1.57	1/10/2024	2/24/2020	104.75222	104.7522236	104.7522236	104.7522236	102.989077	99.37614727	95.90867669	92.57999226	89.38376856
200224A00020	2/24/2020	1.59	2/24/2025	2/24/2020	106.23537	106.2353715	106.2353715	106.2353715	103.3378259	98.66936085	94.23769211	90.0296378	86.03281511
200224A00035	2/24/2020	1.59	2/24/2025	2/24/2020	106.23537	106.2353715	106.2353715	106.2353715	103.3378259	98.66936085	94.23769211	90.0296378	86.03281511
200226A00005	2/26/2020	1.53	2/27/2023	2/26/2020	103.52557	103.5255654	103.5255654	103.5255654	102.4667284	99.68232986	96.9873782	94.37853736	91.85261382
200226A00013	2/26/2020	1.35	2/26/2024	2/26/2020	104.76774	104.7677417	104.7677417	104.7677417	102.8823291	99.12919389	95.53225962	92.08424272	88.77823688
200227A00052	2/27/2020	1.41	2/27/2023	2/27/2020	103.18273	103.1827304	103.1827304	103.1827304	102.1252926	99.34578179	96.65559982	94.05141438	91.53003564
200228A00013	3/3/2020	1.33	1/14/2022	3/3/2020	101.78913	101.7891305	101.7891305	101.7891305	101.3510282	99.66728374	98.01941027	96.40632639	94.82699447
200228A00020	2/28/2020	1.32	2/24/2023	2/28/2020	102.91735	102.9173537	102.9173537	102.9173537	101.8671244	99.09982774	96.42125823	93.82810017	91.31718062
200228A00061	2/28/2020	1.13	7/20/2022	2/28/2020	102.27555	102.2755504	102.2755504	102.2755504	101.6220793	99.42703167	97.28986811	95.20863795	93.18147344
200228A00062	2/28/2020	1.32	2/28/2023	2/28/2020	102.92836	102.928357	102.928357	102.928357	101.8699207	99.09123421	96.40195902	93.7987611	91.2784486
200228A00064	2/28/2020	1.35	2/28/2024	2/28/2020	104.07293	104.0729318	104.0729318	104.0729318	102.198924	98.47227654	94.90062554	91.47675851	88.19383492
200302A00035	3/2/2020	1.22	7/3/2023	3/2/2020	102.96063	102.9606343	102.9606343	102.9606343	101.6346976	98.53517384	95.54548999	92.66111184	89.87772241
200304A00007	3/4/2020	1.01	3/15/2022	3/4/2020	101.37161	101.3716146	101.3716146	101.3716146	100.883167	99.03897773	97.23725017	95.47675977	93.75632516
200304A00010	3/4/2020	1.2	3/4/2027	3/4/2020	107.47606	107.4760564	107.4760564	107.4715211	100.7280916	94.30132241	88.32188757	82.75652707	77.5746067
200304A00040	3/4/2020	1.12	3/1/2024	3/4/2020	103.18885	103.1888532	103.1888532	103.1888532	101.3161556	97.60122561	94.04119861	90.62885739	87.35735698
200305A00008	3/10/2020	1.01	6/19/2023	3/10/2020	102.26041	102.2604138	102.2604138	102.2604138	100.968177	97.9157915	94.97062895	92.12830727	89.38465176
200305A00029	3/5/2020	1.14	3/5/2025	3/5/2020	104.0711	104.0710988	104.0710988	104.0710988	101.1664027	96.52674935	92.12430388	87.9457967	83.97876429
191015A00001	10/15/2019	1.87	10/15/2021	10/15/2019	102.34077	102.3407712	102.3407712	102.3407712	101.9745962	100.5274332	99.10797605	97.71549889	96.34930068
191018A00015	10/18/2019	1.89	10/18/2021	10/18/2019	102.38367	102.3836688	102.3836688	102.3836688	102.0148538	100.5594937	99.13214266	97.73206307	96.35854272
191031A00041	10/31/2019	1.72	10/31/2023	10/31/2019	105.67777	105.6777729	105.6777729	105.6777729	104.0629202	100.5979787	97.26695272	94.06395509	90.98339047
191105A00008	11/5/2019	1.83	11/5/2024	11/5/2019	107.8232	107.8231973	107.8231973	107.8231973	105.2370321	100.7836378	96.54406281	92.50693728	88.66155547
191107A00011	11/8/2019	2.02	2/24/2023	11/8/2019	104.91144	104.9114409	104.9114409	104.9114409	103.8531109	101.0574613	98.35122268	95.73105705	93.1937703

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191113A00016	11/15/2019	2.02	8/15/2024	11/15/2019	107.46178	107.4617838	107.4617838	107.4617838	105.1297989	100.9126297	96.88816871	93.04659588	89.37864545
191113A00017	11/15/2019	1.93	12/6/2021	11/15/2019	102.66578	102.6657795	102.6657795	102.6657795	102.2561661	100.6669113	99.11005546	97.58467492	96.08988089
191115A00028	11/15/2019	2.34	9/28/2029	11/15/2019	119.14595	119.1459534	119.1459534	116.2384202	106.827346	98.10768068	90.18060672	82.9697395	76.40641872
191120A00005	11/20/2019	2.63	11/20/2034	11/20/2019	133.56336	133.5633596	133.5633596	122.7308098	108.4361069	95.89210453	85.00197601	75.53587864	67.29710708
191122A00007	11/22/2019	1.87	11/21/2025	11/22/2019	109.84826	109.8482617	109.8482617	109.8482617	105.7588188	100.3190916	95.19230035	90.35883958	85.80043186
191129A00010	11/29/2019	1.94	8/27/2021	11/29/2019	102.22005	102.2200476	102.2200476	102.2200476	101.8950064	100.5786199	99.28658507	98.01826185	96.77303262
191129A00012	11/29/2019	1.99	11/29/2024	11/29/2019	107.77694	107.77694	107.77694	107.77694	105.138189	100.6507842	96.38066256	92.316167	88.44632826
191203A00004	12/4/2019	1.87	12/4/2024	12/4/2019	107.24442	107.2444214	107.2444214	107.2444214	104.59545	100.1077591	95.83805778	91.7746181	87.90640622
191204A00013	12/4/2019	1.72	12/4/2024	12/4/2019	107.44863	107.4486259	107.4486259	107.4486259	104.7782897	100.2595604	95.96099687	91.87072277	87.97756644
191212A00027	12/13/2019	1.93	10/17/2022	12/13/2019	104.07058	104.070576	104.070576	104.070576	103.2671941	100.8266919	98.45633749	96.15371756	93.91651655
191212A00029	12/13/2019	1.94	5/16/2023	12/13/2019	105.05027	105.0502701	105.0502701	105.0502701	103.8184761	100.8105285	97.90548011	95.09923582	92.38788839
191216A00042	12/16/2019	1.95	12/16/2022	12/16/2019	104.39405	104.3940503	104.3940503	104.3940503	103.4779552	100.8758735	98.3523315	95.90447219	93.52956264
191219A00036	12/20/2019	2.1	12/20/2024	12/20/2019	108.38822	108.388223	108.388223	108.388223	105.6791924	101.1265276	96.7963727	92.67667286	88.75609242
191223A00019	12/23/2019	1.92	12/30/2020	12/23/2019	101.12753	101.1275317	101.1275317	101.1275317	100.9985783	100.3250594	99.66049136	99.00469675	98.35750284
191230A00031	12/30/2019	1.85	12/30/2024	12/30/2019	108.17774	108.1777383	108.1777383	108.1777383	105.4197386	100.8203422	96.44765172	92.28928925	88.3336216
191231A00006	12/31/2019	1.88	12/31/2021	12/31/2019	102.67842	102.6784157	102.6784157	102.6784157	102.2494918	100.5946203	98.97439147	97.38778239	95.83381031
200110A00014	1/10/2020	1.73	1/10/2023	1/10/2020	104.4023	104.4023003	104.4023003	104.4023003	103.4327174	100.7554461	98.16080916	95.64572617	93.2072546
200110A00022	1/13/2020	2	1/6/2025	1/13/2020	107.99994	107.9999351	107.9999351	107.9999351	105.2418302	100.6566046	96.29747416	92.15208341	88.20882105
200121A00009	1/24/2020	1.94	1/24/2025	1/24/2020	107.7975	107.7974987	107.7974987	107.7974987	104.9843091	100.3601118	95.96605253	91.78943728	87.81834468
190715A00024	7/15/2019	2.17	7/15/2021	7/15/2019	102.31601	102.316008	102.316008	102.316008	102.0225113	100.8095889	99.62540865	98.46895811	97.33927174
190715A00029	7/17/2019	2.16	4/18/2022	7/17/2019	103.70649	103.7064898	103.7064898	103.7064898	103.1770847	101.220206	99.31035459	97.44611106	95.62610869
190724A00023	7/24/2019	2.13	7/24/2025	7/24/2019	110.64383	110.643831	110.643831	110.643831	107.1146755	101.9416858	97.04997838	92.42275278	88.0443048
190726A00017	7/26/2019	2.44	7/24/2026	7/26/2019	113.36307	113.3630716	113.3630716	113.3630716	107.8843957	101.8136215	96.12613127	90.79568221	85.79796635
190729A00008	7/29/2019	2.18	1/29/2024	7/29/2019	107.12542	107.1254241	107.1254241	107.1254241	105.3022177	101.5978326	98.04386285	94.6333337	91.35963842
190802A00003	8/2/2019	2.01	8/2/2024	8/2/2019	107.35722	107.3572187	107.3572187	107.3572187	105.0618241	100.879018	96.88599878	93.07310819	89.43123705
190802A00015	8/2/2019	2	2/15/2023	8/2/2019	104.81286	104.8128604	104.8128604	104.8128604	103.7734218	101.0047052	98.3238338	95.72751119	93.21258589
190805A00004	8/5/2019	1.7	8/5/2022	8/5/2019	103.62805	103.6280515	103.6280515	103.6280515	102.9460539	100.6938555	98.5018867	96.36810879	94.29056939
190805A00007	8/5/2019	1.88	8/5/2022	8/5/2019	103.62683	103.626833	103.626833	103.626833	102.9476069	100.7036621	98.51957338	96.39331927	94.32296367
190805A00011	8/5/2019	1.91	8/5/2024	8/5/2019	106.9414	106.9413955	106.9413955	106.9413955	104.6412088	100.4597232	96.46839255	92.65753387	89.01801414
190806A00026	8/6/2019	1.71	8/7/2023	8/6/2019	105.26791	105.2679082	105.2679082	105.2679082	103.8461334	100.6065679	97.48464488	94.47540638	91.57413603
190807A00027	8/7/2019	1.77	8/7/2024	8/7/2019	106.34755	106.3475543	106.3475543	106.3475543	104.0468218	99.87290385	95.88916594	92.08591797	88.45401949

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190808A00025	8/8/2019	1.7	8/8/2024	8/8/2019	106.83995	106.8399485	106.8399485	106.8399485	104.5172283	100.3082019	96.29151851	92.45735471	88.79644522
190808A00041	8/8/2019	1.74	8/6/2021	8/8/2019	102.08393	102.0839302	102.0839302	102.0839302	101.7745113	100.5032695	99.2614867	98.04814062	96.86225616
190809A00024	8/9/2019	2.07	8/10/2020	8/9/2019	100.51146	100.5114619	100.5114619	100.5114619	100.4749731	100.1925322	99.91168681	99.63242338	99.3547285
190812A00003	8/12/2019	1.67	8/12/2024	8/12/2019	106.72738	106.7273782	106.7273782	106.7273782	104.3945348	100.1779413	96.15449687	92.3143318	88.64813597
190812A00008	8/12/2019	1.67	8/12/2022	8/12/2019	103.58936	103.5893573	103.5893573	103.5893573	102.8961881	100.6261723	98.41728305	96.26747022	94.17476822
190813A00007	8/13/2019	1.89	8/15/2022	8/13/2019	103.69385	103.6938481	103.6938481	103.6938481	102.9983943	100.7277177	98.51820095	96.36780532	94.27457522
190814A00008	8/14/2019	1.84	8/14/2024	8/14/2019	106.67866	106.6786574	106.6786574	106.6786574	104.3559881	100.1578522	96.15165735	92.32761855	88.67650352
190816A00006	8/16/2019	1.77	8/16/2024	8/16/2019	106.38407	106.3840664	106.3840664	106.3840664	104.058395	99.86157231	95.85692301	92.03464589	88.38549308
190816A00009	8/16/2019	2.01	8/17/2020	8/16/2019	100.5314	100.5314032	100.5314032	100.5314032	100.4917948	100.1899997	99.89002642	99.59185837	99.29547924
190816A00015	8/16/2019	2.2	8/16/2029	8/16/2019	117.60877	117.608766	117.608766	114.8555876	105.6051007	97.03381346	89.23434451	82.13302205	75.66355911
190819A00005	8/19/2019	1.62	8/21/2023	8/19/2019	105.02825	105.0282502	105.0282502	105.0282502	103.5766654	100.305331	97.1540149	94.11767135	91.19149579
190820A00008	8/20/2019	1.76	8/20/2024	8/20/2019	106.35689	106.3568861	106.3568861	106.3568861	104.0205004	99.81442578	95.80138291	91.97152207	88.31554839
190820A00013	8/20/2019	1.76	8/21/2023	8/20/2019	104.88874	104.8887429	104.8887429	104.8887429	103.4457949	100.19156	97.05640342	94.03533112	91.12358701
190826A00014	8/26/2019	1.86	8/26/2020	8/26/2019	100.57107	100.57107	100.57107	100.57107	100.5273845	100.2002228	99.87519352	99.55227577	99.23144902
190826A00038	8/26/2019	1.74	8/26/2022	8/26/2019	103.39032	103.3903218	103.3903218	103.3903218	102.678158	100.3825558	98.14946785	95.9768381	93.86269083
190826A00058	8/26/2019	1.91	8/26/2026	8/26/2019	110.18959	110.1895858	110.1895858	110.1895858	104.5701739	98.5221901	92.86275496	87.5649695	82.60392567
190826A00060	8/26/2019	2.02	8/26/2027	8/26/2019	112.58958	112.589578	112.589578	112.1143572	104.8255362	97.9064509	91.49316166	85.54613419	80.02911123
190828A00015	8/28/2019	2.04	8/28/2029	8/28/2019	116.17794	116.1779398	116.1779398	113.3883365	104.1605105	95.62778738	87.86748631	80.80560896	74.37559095
190829A00005	8/30/2019	2.06	8/30/2023	8/30/2019	105.93411	105.934111	105.934111	105.934111	104.4657314	101.1713604	97.99813297	94.94097862	91.99506565
190829A00021	8/30/2019	2.18	8/30/2021	8/30/2019	102.55782	102.5578244	102.5578244	102.5578244	102.2299429	100.9043814	99.60250456	98.32372637	97.06747983
190904A00008	9/4/2019	1.69	9/3/2024	9/4/2019	106.10667	106.1066745	106.1066745	106.1066745	103.7339196	99.49862983	95.45931418	91.6059396	87.92903606
190905A00015	9/5/2019	1.78	9/6/2022	9/5/2019	103.52924	103.5292371	103.5292371	103.5292371	102.7984846	100.4723007	98.21017386	96.0099957	93.86973923
190917A00021	9/17/2019	2.13	9/17/2020	9/17/2019	100.7289	100.7289034	100.7289034	100.7289034	100.6748638	100.2873195	99.90276321	99.52116047	99.14247721
190917A00028	9/17/2019	2.02	3/1/2023	9/17/2019	104.93492	104.9349199	104.9349199	104.9349199	103.866176	101.0563014	98.33669106	95.70397962	93.15494519
190919A00025	9/19/2019	1.8	9/19/2024	9/19/2019	107.46762	107.4676198	107.4676198	107.4676198	105.0217996	100.6935506	96.56771915	92.6338262	88.88198789
190923A00032	9/23/2019	1.72	9/22/2023	9/23/2019	105.50485	105.5048544	105.5048544	105.5048544	103.9791849	100.616665	97.38040058	94.26500317	91.26534307
190926A00004	9/26/2019	1.93	9/21/2021	9/26/2019	102.32015	102.3201539	102.3201539	102.3201539	101.974349	100.5911278	99.23328291	97.90017681	96.59119263
190930A00012	9/30/2019	1.93	9/30/2024	9/30/2019	107.27832	107.2783171	107.2783171	107.2783171	104.8194344	100.4907433	96.36522172	92.43231071	88.68205319
190930A00035	9/30/2019	1.93	9/30/2024	9/30/2019	107.27832	107.2783171	107.2783171	107.2783171	104.8194344	100.4907433	96.36522172	92.43231071	88.68205319
190930A00040	9/30/2019	1.92	2/25/2022	9/30/2019	103.01446	103.0144599	103.0144599	103.0144599	102.5391964	100.7270281	98.95555053	97.22360379	95.53006869
190930A00070	9/30/2019	1.93	9/27/2024	9/30/2019	107.26491	107.2649108	107.2649108	107.2649108	104.8145902	100.4937639	96.37538714	92.44895637	88.70456603

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190930A00071	9/30/2019	2.05	9/29/2025	9/30/2019	109.50384	109.5038394	109.5038394	109.5038394	105.7150533	100.4446173	95.46931714	90.77114295	86.33327199
191004A00009	10/4/2019	1.71	10/4/2021	10/4/2019	102.06093	102.0609279	102.0609279	102.0609279	101.7046314	100.2884383	98.89883416	97.5351357	96.19668257
191004A00032	10/4/2019	2.01	1/3/2028	10/4/2019	113.11774	113.1177381	113.1177381	112.2531719	104.6177497	97.40717013	90.74630712	84.5903976	78.89854343
191009A00021	10/9/2019	1.71	10/7/2022	10/9/2019	103.48353	103.4835318	103.4835318	103.4835318	102.6998549	100.2923733	97.95341313	95.68064179	93.47182026
191018A00007	10/18/2019	1.89	7/1/2022	10/18/2019	103.49526	103.4952584	103.4952584	103.4952584	102.8695023	100.7179526	98.62188483	96.5794741	94.58897083
200306A00039	3/6/2020	0.88	3/6/2023	3/6/2020	101.67982	101.6798233	101.6798233	101.6798233	100.6139713	97.8380126	95.15199016	92.55253043	90.03640447
200309A00021	3/9/2020	1.05	3/9/2026	3/9/2020	104.38219	104.3821851	104.3821851	104.3821851	99.83361837	94.3307417	89.16090939	84.30238575	79.73495525
200310A00073	3/12/2020	2.12	3/11/2027	3/12/2020	112.49479	112.494793	112.494793	112.4824978	105.6724847	99.11620981	93.01221964	87.32703062	82.02979624
200312A00017	3/16/2020	1.09	2/15/2023	3/16/2020	102.2431	102.243104	102.243104	102.243104	101.2139578	98.48147864	95.83597616	93.27418188	90.79297124
200403A00021	4/3/2020	0.74	4/29/2022	4/3/2020	100.89642	100.8964189	100.8964189	100.8964189	100.361531	98.4038518	96.49405381	94.63066903	92.81228478
200407A00001	4/8/2020	2.41	4/7/2025	4/8/2020	110.4581	110.4581045	110.4581045	110.4581045	107.374284	102.5025709	97.88192234	93.49811554	89.3378047
200420A00011	4/20/2020	0.7	4/19/2024	4/20/2020	102.33654	102.3365447	102.3365447	102.3365447	100.338706	96.49960731	92.82651235	89.31140632	85.94670341
200427A00010	4/27/2020	0.68	4/27/2022	4/27/2020	100.7732	100.7731981	100.7731981	100.7731981	100.2408473	98.28974135	96.38623511	94.52887316	92.71625466
200429A00010	4/29/2020	0.78	4/29/2025	4/29/2020	103.34319	103.3431896	103.3431896	103.3431896	100.2364833	95.45362463	90.92360563	86.6318165	82.56456484
200127A00018	1/27/2020	1.8	1/27/2025	1/27/2020	107.14204	107.142037	107.142037	107.142037	104.3259168	99.70969515	95.32377012	91.15541384	87.19267462
200128A00015	1/28/2020	1.81	1/28/2025	1/28/2020	107.19395	107.1939507	107.1939507	107.1939507	104.3741485	99.75430912	95.36504422	91.19360459	87.22801894
200128A00028	1/28/2020	1.81	1/28/2025	1/28/2020	107.19395	107.1939507	107.1939507	107.1939507	104.3741485	99.75430912	95.36504422	91.19360459	87.22801894
200203A00009	2/3/2020	1.52	2/3/2023	2/3/2020	103.92184	103.9218388	103.9218388	103.9218388	102.905743	100.1724057	97.525174	94.96078281	92.47611543
200203A00022	2/3/2020	1.75	2/3/2025	2/3/2020	106.93065	106.9306488	106.9306488	106.9306488	104.0942437	99.46530173	95.06820593	90.89010793	86.91894385
200207A00016	2/7/2020	1.74	2/7/2024	2/7/2020	105.49722	105.4972188	105.4972188	105.4972188	103.6634239	99.96566777	96.41928194	93.01723103	89.75284943
200210A00009	2/10/2020	1.57	2/10/2025	2/10/2020	107.02368	107.0236844	107.0236844	107.0236844	104.141879	99.46398064	95.02205975	90.80298608	86.79443113
200212A00003	2/12/2020	1.63	2/12/2025	2/12/2020	107.32229	107.322293	107.322293	107.322293	104.4308492	99.74053881	95.28699463	91.05704025	87.03830318
200214A00013	2/18/2020	1.78	11/10/2021	2/18/2020	102.31536	102.3153607	102.3153607	102.3153607	101.9273777	100.4112422	98.92523356	97.4685272	96.04032821
200218A00015	2/18/2020	1.77	2/18/2021	2/18/2020	101.23506	101.2350613	101.2350613	101.2350613	101.0586532	100.2487472	99.45177958	98.66744216	97.89543649
200220A00019	2/20/2020	1.59	2/22/2021	2/20/2020	101.21747	101.2174744	101.2174744	101.2174744	101.0369158	100.2146924	99.40579914	98.60991394	97.82672501
200220A00029	2/20/2020	1.72	2/21/2023	2/20/2020	104.04528	104.0452767	104.0452767	104.0452767	102.9966132	100.2217565	97.53550295	94.93453787	92.41569031
200221A00004	2/21/2020	1.69	2/21/2025	2/21/2020	106.70969	106.7096931	106.7096931	106.7096931	103.816997	99.14531076	94.71003202	90.49801274	86.49690254
200221A00006	2/21/2020	1.5	2/21/2025	2/21/2020	106.72664	106.7266354	106.7266354	106.7266354	103.8117134	99.11121824	94.64939114	90.41292108	86.38930676
200221A00016	2/21/2020	1.69	2/21/2025	2/21/2020	106.70969	106.7096931	106.7096931	106.7096931	103.816997	99.14531076	94.71003202	90.49801274	86.49690254
200225A00015	2/25/2020	1.54	2/26/2024	2/25/2020	104.80022	104.8002242	104.8002242	104.8002242	102.9259643	99.1908029	95.6106308	92.17823964	88.88679337
200225A00042	2/25/2020	1.39	2/25/2022	2/25/2020	102.34948	102.3494816	102.3494816	102.3494816	101.874116	100.0625874	98.29185288	96.56074694	94.86814519

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200225A00044	2/25/2020	1.57	2/25/2022	2/25/2020	102.36874	102.3687443	102.3687443	102.3687443	101.8949102	100.08883	98.32332657	96.59724312	94.90946357
200226A00025	2/26/2020	1.38	2/26/2025	2/26/2020	106.15963	106.1596327	106.1596327	106.1596327	103.2341753	98.53368835	94.07272275	89.83790132	85.8166594
200227A00005	2/27/2020	1.43	2/27/2024	2/27/2020	104.37893	104.3789291	104.3789291	104.3789291	102.5051879	98.77537332	95.20051873	91.77341498	88.48722501
200227A00026	2/27/2020	1.41	2/27/2023	2/27/2020	103.18273	103.1827304	103.1827304	103.1827304	102.1252926	99.34578179	96.65559982	94.05141438	91.53003564
200227A00031	2/27/2020	1.43	2/27/2024	2/27/2020	104.37893	104.3789291	104.3789291	104.3789291	102.5051879	98.77537332	95.20051873	91.77341498	88.48722501
200228A00027	2/28/2020	1.31	2/28/2022	2/28/2020	101.89735	101.8973547	101.8973547	101.8973547	101.4220379	99.61175327	97.84231636	96.11257286	94.42140818
200228A00029	2/28/2020	1.31	2/28/2022	2/28/2020	101.89735	101.8973547	101.8973547	101.8973547	101.4220379	99.61175327	97.84231636	96.11257286	94.42140818
191031A00033	10/31/2019	2.2	5/31/2028	10/31/2019	115.34483	115.3448281	115.3448281	114.0279589	105.9505853	98.34862549	91.35223802	84.90998807	78.97505874
191104A00022	11/4/2019	2.17	8/4/2027	11/4/2019	113.57935	113.5793537	113.5793537	113.1701251	105.9140282	99.00708885	92.60060138	86.65567841	81.13664962
191105A00014	11/5/2019	1.96	11/6/2023	11/5/2019	105.90893	105.9089286	105.9089286	105.9089286	104.288164	100.8197004	97.4853422	94.27918749	91.19562718
191108A00013	11/8/2019	2.25	11/8/2029	11/8/2019	120.48051	120.4805099	120.4805099	117.369061	107.6966217	98.75953108	90.64619162	83.27615424	76.57721295
191113A00019	11/15/2019	1.93	3/15/2021	11/15/2019	101.47233	101.4723257	101.4723257	101.4723257	101.2717366	100.3930932	99.52965111	98.6810182	97.84681585
191114A00021	11/18/2019	1.91	6/15/2022	11/18/2019	103.46799	103.4679942	103.4679942	103.4679942	102.8647725	100.7564833	98.70176337	96.69888162	94.74617679
191120A00011	11/20/2019	1.88	1/20/2023	11/20/2019	104.36143	104.361433	104.361433	104.361433	103.3765538	100.6849252	98.07683693	95.54915397	93.0988827
191120A00024	11/20/2019	2.23	11/16/2029	11/20/2019	118.36532	118.365324	118.365324	115.2877138	105.7871506	97.00904469	89.0400972	81.80128676	75.22168791
191122A00005	11/22/2019	2.03	11/22/2027	11/22/2019	114.59845	114.5984461	114.5984461	113.8490428	106.199932	98.96581235	92.27722961	86.09022266	80.36458606
191126A00022	11/26/2019	1.72	5/26/2023	11/26/2019	104.9774	104.9773971	104.9773971	104.9773971	103.7177284	100.6721904	97.73180567	94.89234936	92.14979244
191206A00020	12/9/2019	1.91	12/15/2021	12/9/2019	102.67389	102.6738942	102.6738942	102.6738942	102.25729	100.6442614	99.06443433	97.5168496	96.00058495
191212A00032	12/12/2019	1.99	12/12/2023	12/12/2019	106.18293	106.1829276	106.1829276	106.1829276	104.477993	100.9117464	97.48631439	94.19536017	91.03286986
191220A00002	12/20/2019	3.02	12/20/2038	12/20/2019	149.87192	149.8719221	149.8719221	130.7630522	112.6234798	97.27457016	84.38830794	73.54625438	64.4035979
191223A00006	12/23/2019	1.92	12/23/2020	12/23/2019	101.09515	101.0951485	101.0951485	101.0951485	100.972707	100.3183876	99.67252947	99.03496922	98.40554763
191223A00007	12/23/2019	1.95	6/23/2021	12/23/2019	101.94492	101.9449168	101.9449168	101.9449168	101.6663807	100.5150879	99.38976145	98.28953077	97.21356365
191230A00013	12/30/2019	1.84	12/2/2024	12/30/2019	107.9972	107.9971996	107.9971996	107.9971996	105.3278569	100.8016529	96.49559444	92.39782225	88.49718
200103A00009	1/3/2020	1.9	1/3/2024	1/3/2020	105.95179	105.9517897	105.9517897	105.9517897	104.1973198	100.5799122	97.10727396	93.77279965	90.57022574
200106A00015	1/6/2020	1.87	2/15/2024	1/6/2020	106.02622	106.0262241	106.0262241	106.0262241	104.1697932	100.4407399	96.86504181	93.43557381	90.14558219
200110A00004	1/10/2020	1.7	1/10/2022	1/10/2020	102.72127	102.7212705	102.7212705	102.7212705	102.2829168	100.5960551	98.94502015	97.32873628	95.74617104
200123A00048	1/23/2020	1.7	1/23/2025	1/23/2020	107.57432	107.5743216	107.5743216	107.5743216	104.7454651	100.1011937	95.68879692	91.49545362	87.50912477
200127A00023	1/27/2020	1.8	1/27/2025	1/27/2020	107.14204	107.142037	107.142037	107.142037	104.3259168	99.70969515	95.32377012	91.15541384	87.19267462
200130A00011	1/30/2020	1.54	1/30/2023	1/30/2020	103.96214	103.9621376	103.9621376	103.9621376	102.9540859	100.2313139	97.59400578	95.03891704	92.5629518
200131A00014	2/5/2020	1.7	2/22/2022	2/5/2020	102.59707	102.5970663	102.5970663	102.5970663	102.1252634	100.3257152	98.56643036	96.84625078	95.16405996
200131A00015	2/5/2020	1.73	2/5/2025	2/5/2020	106.84235	106.842354	106.842354	106.842354	104.0003315	99.3681172	94.96820059	90.78770273	86.81453048

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200203A00005	2/3/2020	1.7	5/3/2023	2/3/2020	104.26263	104.2626293	104.2626293	104.2626293	103.0626599	100.0998557	97.23766589	94.47212181	91.79943456
200205A00011	2/7/2020	2.31	2/7/2024	2/7/2020	107.66649	107.6664856	107.6664856	107.6664856	105.8181661	102.0797786	98.49397497	95.05367355	91.75216463
200210A00005	2/10/2020	1.77	2/10/2027	2/10/2020	111.31678	111.3167766	111.3167766	111.3167766	104.616608	98.11609751	92.06159104	86.42022528	81.16172125
200214A00019	2/14/2020	1.81	2/16/2021	2/14/2020	101.2592	101.2592016	101.2592016	101.2592016	101.0846742	100.2800864	99.48826666	98.70891279	97.94173212
200220A00002	2/20/2020	1.76	2/20/2025	2/20/2020	107.04504	107.0450392	107.0450392	107.0450392	104.1521444	99.47522011	95.03472474	90.81751469	86.81124394
200220A00015	2/20/2020	1.57	2/20/2025	2/20/2020	107.06349	107.063485	107.063485	107.063485	104.1483713	99.44260591	94.97552954	90.73383576	86.70502775
200221A00014	2/21/2020	1.49	2/21/2023	2/21/2020	103.90573	103.9057264	103.9057264	103.9057264	102.8525476	100.0681936	97.37300068	94.76362466	92.236867
200224A00005	2/24/2020	1.59	2/24/2022	2/24/2020	102.40211	102.4021078	102.4021078	102.4021078	101.9290447	100.125542	98.362504	96.63877366	94.95323498
200224A00025	2/24/2020	1.59	1/23/2025	2/24/2020	106.12452	106.124521	106.124521	106.124521	103.3312095	98.74823148	94.39376887	90.25520853	86.32070516
200224A00029	2/24/2020	1.56	2/24/2023	2/24/2020	103.60104	103.6010407	103.6010407	103.6010407	102.5480341	99.7710164	97.08296033	94.48054253	91.9605828
200225A00017	2/25/2020	1.94	2/25/2030	2/25/2020	116.04175	116.0417513	116.0417513	112.6154326	102.9599419	94.09431336	86.07020348	78.80328725	72.21808034
200225A00046	2/25/2020	1.54	2/23/2024	2/25/2020	104.79009	104.7900948	104.7900948	104.7900948	102.9230264	99.19601595	95.62335287	92.19785915	88.91272853
200226A00008	2/26/2020	1.38	2/26/2025	2/26/2020	106.15963	106.1596327	106.1596327	106.1596327	103.2341753	98.53368835	94.07272275	89.83790132	85.8166594
200226A00015	2/26/2020	1.53	2/26/2024	2/26/2020	104.76165	104.7616451	104.7616451	104.7616451	102.8876498	99.15322042	95.57375824	92.14205574	88.85127771
200226A00018	2/26/2020	1.38	2/26/2025	2/26/2020	106.15963	106.1596327	106.1596327	106.1596327	103.2341753	98.53368835	94.07272275	89.83790132	85.8166594
200228A00015	3/3/2020	1.34	10/16/2023	3/3/2020	103.64736	103.6473561	103.6473561	103.6473561	102.0870615	98.71102568	95.46401771	92.34043652	89.3349546
200228A00016	2/28/2020	1.35	2/22/2024	2/28/2020	104.0558	104.0558034	104.0558034	104.0558034	102.1961199	98.48565853	94.92891425	91.51873508	88.24833992
200228A00025	2/28/2020	1.57	3/2/2027	2/28/2020	108.67601	108.6760134	108.6760134	108.6737785	101.985001	95.57227233	89.60296466	84.04426418	78.86593723
200228A00067	2/28/2020	1.4	2/28/2025	2/28/2020	105.32467	105.3246736	105.3246736	105.3246736	102.4236042	97.76608385	93.34563628	89.14904517	85.1638946
200302A00045	3/4/2020	1.31	3/4/2025	3/4/2020	104.89782	104.8978183	104.8978183	104.8978183	101.9878417	97.33095371	92.91174466	88.71693319	84.73404404
200303A00034	3/3/2020	1.21	3/3/2025	3/3/2020	104.40767	104.4076718	104.4076718	104.4076718	101.5061232	96.8632068	92.457303	88.27516989	84.30436905
200304A00017	3/4/2020	0.83	3/16/2022	3/4/2020	101.35214	101.3521422	101.3521422	101.3521422	100.8611325	99.00869654	97.19906757	95.43100676	93.70331911
200306A00009	3/6/2020	0.82	3/7/2022	3/6/2020	100.99972	100.9997179	100.9997179	100.9997179	100.5197337	98.69983003	96.9214069	95.18328074	93.48430923
200306A00030	3/6/2020	0.88	3/6/2023	3/6/2020	101.67982	101.6798233	101.6798233	101.6798233	100.6139713	97.8380126	95.15199016	92.55253043	90.03640447
200228A00031	2/28/2020	1.35	2/28/2024	2/28/2020	104.07293	104.0729318	104.0729318	104.0729318	102.198924	98.47227654	94.90062554	91.47675851	88.19383492
200228A00039	2/28/2020	1.33	4/28/2023	2/28/2020	103.12508	103.125084	103.125084	103.125084	101.9410129	99.00819021	96.17474399	93.43676739	90.79052986
200303A00007	3/3/2020	1.11	3/4/2024	3/3/2020	103.85776	103.8577569	103.8577569	103.8577569	101.9617049	98.20797471	94.6113858	91.1645867	87.86060677
200304A00052	3/6/2020	2.11	3/8/2027	3/6/2020	112.41116	112.4111631	112.4111631	112.4022208	105.6077854	99.06063889	92.96470628	87.28661747	81.99562762
200305A00012	3/5/2020	1.14	3/5/2025	3/5/2020	104.0711	104.0710988	104.0710988	104.0710988	101.1664027	96.52674935	92.12430388	87.9457967	83.97876429
200306A00002	3/6/2020	0.64	3/7/2022	3/6/2020	100.97798	100.9779778	100.9779778	100.9779778	100.4964317	98.67100774	96.88728753	95.14407848	93.44022972
200306A00012	3/6/2020	0.95	3/6/2024	3/6/2020	102.5402	102.5401959	102.5401959	102.5401959	100.6599493	96.94514055	93.38587565	89.97488083	86.70525882

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200306A00063	3/6/2020	0.64	3/16/2022	3/6/2020	100.99104	100.9910391	100.9910391	100.9910391	100.500858	98.65192535	96.84573319	95.08104449	93.35666607
200306A00101	3/10/2020	1.93	3/8/2030	3/10/2020	115.99164	115.9916443	115.9916443	112.5256868	102.8461384	93.96257028	85.92469537	78.64753968	72.05505986
200309A00005	3/9/2020	0.77	3/7/2025	3/9/2020	103.1973	103.1972996	103.1972996	103.1972996	100.2726689	95.62053472	91.20761071	87.02045535	83.04644705
200311A00006	3/13/2020	1.12	3/10/2025	3/13/2020	103.98473	103.9847281	103.9847281	103.9847281	101.064324	96.41496106	92.003947	87.81791323	83.84430548
200311A00036	3/16/2020	1.03	4/15/2022	3/16/2020	101.45363	101.4536265	101.4536265	101.4536265	100.9330386	99.00694992	97.12706493	95.29199409	93.50039917
200312A00042	3/16/2020	1.38	3/16/2023	3/16/2020	103.14794	103.1479445	103.1479445	103.1479445	102.0550821	99.23274209	96.50246031	93.86075581	91.30429836
200318A00043	3/18/2020	1.06	3/20/2023	3/18/2020	102.75145	102.7514499	102.7514499	102.7514499	101.646433	98.80783142	96.06243565	93.40669967	90.83723192
200323A00007	3/23/2020	1.05	9/23/2021	3/23/2020	101.08279	101.0827932	101.0827932	101.0827932	100.737318	99.35780121	98.00369313	96.67435344	95.36916282
200323A00010	3/23/2020	1.19	3/23/2022	3/23/2020	101.7137	101.7136993	101.7136993	101.7136993	101.2169352	99.34903517	97.52456883	95.74227069	94.00092036
200327A00075	3/31/2020	1.75	3/29/2024	3/31/2020	105.73845	105.7384529	105.7384529	105.7384529	103.7801488	99.94722949	96.27645986	92.76016041	89.39105492
200331A00029	4/2/2020	1.77	4/3/2023	4/2/2020	104.35367	104.3536694	104.3536694	104.3536694	103.2177773	100.3319547	97.54158641	94.84300824	92.23271724
200331A00030	4/2/2020	1.17	4/1/2022	4/2/2020	101.69721	101.697206	101.697206	101.697206	101.1917292	99.30058527	97.45392818	95.65044653	93.88887624
200403A00014	4/3/2020	0.63	4/17/2023	4/3/2020	101.53437	101.5343741	101.5343741	101.5343741	100.3749902	97.48212786	94.68679825	91.9851926	89.37367272
200416A00005	4/16/2020	0.49	4/15/2022	4/16/2020	100.73686	100.7368614	100.7368614	100.7368614	100.216094	98.29065344	96.41154895	94.57738354	92.78681194
200417A00009	4/17/2020	1.35	4/16/2027	4/17/2020	107.29433	107.2943254	107.2943254	107.212361	100.3805306	93.91868381	87.9121366	82.32659645	77.13051472
200429A00015	4/29/2020	0.66	4/29/2024	4/29/2020	102.19075	102.1907474	102.1907474	102.1907474	100.1692813	96.30780329	92.61445271	89.08105585	85.69987971
200309A00016	3/9/2020	0.77	9/12/2022	3/9/2020	101.13581	101.1358141	101.1358141	101.1358141	100.4023255	98.0890132	95.83999447	93.6531372	91.52639225
200309A00019	3/9/2020	0.89	3/11/2024	3/9/2020	102.31547	102.3154694	102.3154694	102.3154694	100.4247757	96.70205943	93.13577308	89.71857656	86.4435111
200309A00033	3/9/2020	1.06	3/9/2026	3/9/2020	104.44106	104.4410583	104.4410583	104.4410583	99.89160958	94.38706822	89.21564229	84.3555924	79.78669956
200310A00065	3/13/2020	1.1	3/13/2025	3/13/2020	103.89343	103.8934337	103.8934337	103.8934337	100.9640263	96.30978674	91.89454701	87.70488057	83.72818002
200311A00056	3/13/2020	1.27	4/10/2024	3/13/2020	103.87649	103.876488	103.876488	103.876488	101.9019857	98.07494305	94.41153504	90.90393825	87.54474404
200327A00036	3/27/2020	0.77	9/27/2023	3/27/2020	102.24845	102.2484482	102.2484482	102.2484482	100.7298992	97.4098362	94.21545932	91.1413735	88.18244391
200330A00027	3/30/2020	0.62	3/30/2022	3/30/2020	100.97257	100.9725701	100.9725701	100.9725701	100.4690502	98.58395455	96.74322566	94.94555599	93.18968519
200402A00011	4/2/2020	0.8	3/31/2023	4/2/2020	101.48481	101.4848067	101.4848067	101.4848067	100.3676741	97.53181905	94.78985814	92.13819165	89.57337796
200406A00013	4/6/2020	0.83	4/1/2022	4/6/2020	101.03713	101.0371319	101.0371319	101.0371319	100.5332074	98.64859017	96.80833466	95.01113295	93.25572437
200408A00019	4/10/2020	1.7	4/11/2022	4/10/2020	102.7648	102.7647985	102.7647985	102.7647985	102.2455522	100.316988	98.43437499	96.59633923	94.80155736
200415A00030	4/15/2020	0.76	3/15/2023	4/15/2020	101.34631	101.3463128	101.3463128	101.3463128	100.263088	97.46934276	94.76685767	92.15218171	89.62201316
200430A00009	4/30/2020	1.16	4/30/2026	4/30/2020	105.15091	105.1509127	105.1509127	105.1509127	100.3009702	94.66128572	89.37040255	84.40504504	79.74360331
200430A00016	4/30/2020	0.82	4/30/2024	4/30/2020	102.11462	102.114617	102.114617	102.114617	100.103915	96.26122795	92.5854807	89.06857227	85.70283758
131106A00002	11/6/2013	2.76	11/16/2020	11/6/2013	101.39058	101.3905785	101.3905785	101.3905785	101.300065	100.7458884	100.1977755	99.65562715	99.11934616
140521A00019	5/21/2014	3.43	5/22/2028	5/21/2014	126.94882	126.9488166	126.9488166	125.6274426	117.1490392	109.0623534	101.6107372	94.74065583	88.40335812

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
140702A00034	7/2/2014	2.7	7/1/2022	7/2/2014	105.67153	105.6715319	105.6715319	105.6715319	105.0373231	102.8538454	100.726686	98.65399003	96.63397958
140710A00027	7/10/2014	2.8	7/17/2023	7/10/2014	108.71987	108.7198731	108.7198731	108.7198731	107.3269975	104.0854072	100.9592872	97.94382525	95.03444248
140908A00058	9/8/2014	2.21	5/29/2020	9/8/2014	100.15226	100.1522597	100.1522597	100.1522597	100.1449786	100.0646384	99.98442894	99.90434996	99.82440115
140930A00030	9/30/2014	2.36	9/30/2020	9/30/2014	100.89404	100.8940414	100.8940414	100.8940414	100.8337134	100.4100252	99.98988465	99.57324748	99.16007008
141201A00024	12/1/2014	2.19	12/1/2020	12/1/2014	101.15448	101.1544841	101.1544841	101.1544841	101.0524363	100.4579656	99.8704677	99.28982068	98.71590532
150116A00039	1/16/2015	1.85	1/19/2021	1/16/2015	101.16875	101.1687538	101.1687538	101.1687538	101.0208503	100.2927169	99.57505423	98.8676375	98.17024838
150203A00005	2/3/2015	2.11	2/3/2022	2/3/2015	103.23781	103.2378072	103.2378072	103.2378072	102.780805	101.0307808	99.31890983	97.64402714	96.00501548
150206A00015	2/6/2015	1.87	2/8/2021	2/6/2015	101.38148	101.3814826	101.3814826	101.3814826	101.2141311	100.4292728	99.65655126	98.89568651	98.14640718
150303A00011	3/3/2015	2.06	3/3/2021	3/3/2015	101.65466	101.6546551	101.6546551	101.6546551	101.4651201	100.6164222	99.78187702	98.96113295	98.15384982
150601A00006	6/1/2015	4.71	6/27/2025	6/1/2015	123.59525	123.5952518	123.5952518	123.5952518	120.0285424	114.5942185	109.446799	104.569506	99.94663602
150601A00039	6/1/2015	5.76	6/12/2026	6/1/2015	134.36444	134.3644413	134.3644413	134.3644413	128.738012	122.1002835	115.8652928	110.0062051	104.4981195
150601A00484	6/1/2015	2.45	6/23/2021	6/1/2015	102.66806	102.6680644	102.6680644	102.6680644	102.3878886	101.2293461	100.0969492	98.98982031	97.90712077
150601A00495	6/1/2015	2.99	6/27/2024	6/1/2015	111.90355	111.9035454	111.9035454	111.9035454	109.6540583	105.4456074	101.4237648	97.57922237	93.90319067
150601A00523	6/1/2015	4.55	7/25/2031	6/1/2015	146.80484	146.8048381	146.8048381	141.1226878	128.8926152	117.6029467	107.4735011	98.37655726	90.19916508
150601A00609	6/1/2015	2.52	9/30/2021	6/1/2015	103.15389	103.1538888	103.1538888	103.1538888	102.7992179	101.3853333	99.99779036	98.63591682	97.29906273
150601A00613	6/1/2015	2.63	3/31/2022	6/1/2015	104.45053	104.450527	104.450527	104.450527	103.9397007	102.024014	100.1532111	98.32597116	96.54102133
150601A00616	6/1/2015	2.72	9/30/2022	6/1/2015	105.82813	105.8281277	105.8281277	105.8281277	105.0493973	102.6310484	100.2808325	97.99645044	95.7756944
150601A00668	6/1/2015	3.89	1/16/2037	6/1/2015	158.30258	158.3025806	158.3025806	142.7188901	125.228722	110.0638474	97.08684448	85.96123599	76.40438566
150601A00681	6/1/2015	2.7	2/7/2025	6/1/2015	111.32382	111.3238185	111.3238185	111.3238185	108.4298666	103.6875692	99.18186697	94.89967896	90.82872014
150601A00733	6/1/2015	2.72	5/1/2025	6/1/2015	112.96139	112.9613856	112.9613856	112.9613856	109.7410351	104.7177344	99.95661481	95.44261479	91.16161583
150601A00734	6/1/2015	2.92	5/1/2025	6/1/2015	112.94926	112.9492635	112.9492635	112.9492635	109.7539604	104.7616783	100.0290621	95.5412372	91.28425759
150601A00916	6/1/2015	7.27	4/5/2030	6/1/2015	168.04822	168.0482238	168.0482238	164.1982042	152.4134645	141.1326353	130.8660982	121.5147267	112.9896599
150601A00940	6/1/2015	6.58	2/16/2021	6/1/2015	105.03864	105.0386436	105.0386436	105.0386436	104.8612206	104.0398287	103.231393	102.4356076	101.6521766
150601A01024	6/1/2015	5.33	2/27/2026	6/1/2015	128.99072	128.9907192	128.9907192	128.9907192	124.1320295	117.9582787	112.144261	106.6669883	101.5050586
150603A00018	6/3/2015	2.84	6/3/2025	6/3/2015	114.01758	114.0175821	114.0175821	114.0175821	110.6602208	105.5286479	100.6684103	96.06371075	91.69975576
150610A00017	6/10/2015	2.9	6/15/2023	6/10/2015	108.21414	108.2141378	108.2141378	108.2141378	106.9018031	103.7665087	100.7401961	97.81844065	94.99702605
150701A00053	7/1/2015	1.92	7/1/2020	7/1/2015	100.31026	100.3102598	100.3102598	100.3102598	100.2910898	100.1190449	99.9475901	99.77672231	99.60643854
150715A00009	7/15/2015	2.67	7/15/2022	7/15/2015	105.2974	105.2973998	105.2973998	105.2973998	104.6455359	102.437273	100.286626	98.191671	96.15056535
150722A00013	7/22/2015	2.09	7/22/2020	7/22/2015	100.41843	100.4184315	100.4184315	100.4184315	100.3902687	100.1603966	99.93158564	99.70382842	99.47711766
150729A00012	7/29/2015	2.06	7/29/2020	7/29/2015	100.44873	100.448729	100.448729	100.448729	100.4175564	100.1683103	99.92029887	99.67351306	99.4279438
150819A00012	8/19/2015	3.04	8/19/2025	8/19/2015	114.59117	114.5911733	114.5911733	114.5911733	110.9279231	105.6242013	100.6097072	95.86713979	91.38032223

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150824A00047	8/24/2015	1.88	11/24/2020	8/24/2015	100.93803	100.9380332	100.9380332	100.9380332	100.8416062	100.2669962	99.69891987	99.13726629	98.58192697
150824A00072	8/24/2015	2.14	8/24/2022	8/24/2015	104.74391	104.7439109	104.7439109	104.7439109	104.027928	101.7129695	99.46099703	97.26992998	95.13777012
150824A00097	8/24/2015	2.67	8/25/2025	8/24/2015	113.72674	113.7267421	113.7267421	113.7267421	110.0168766	104.6871715	99.65029047	94.88863386	90.38574803
150904A00015	9/4/2015	1.79	10/15/2020	9/4/2015	100.78014	100.7801394	100.7801394	100.7801394	100.7111585	100.2458101	99.78476577	99.32796578	98.87535156
150914A00053	9/14/2015	1.77	9/14/2020	9/14/2015	100.62866	100.628661	100.628661	100.628661	100.576005	100.1963448	99.81955838	99.44561299	99.07447648
150923A00049	9/23/2015	1.97	9/23/2021	9/23/2015	102.626	102.6259953	102.6259953	102.6259953	102.2770052	100.8822609	99.51324877	98.16931851	96.84984129
150924A00030	9/24/2015	1.67	9/24/2020	9/24/2015	100.63364	100.6336439	100.6336439	100.6336439	100.5761822	100.1689775	99.76506991	99.36441935	98.96698652
151008A00019	10/8/2015	1.58	10/15/2020	10/8/2015	100.68217	100.6821714	100.6821714	100.6821714	100.6132266	100.1481486	99.68737291	99.23083976	98.77849061
151013A00030	10/13/2015	1.89	4/14/2021	10/13/2015	101.57196	101.5719566	101.5719566	101.5719566	101.3436715	100.3833525	99.44117	98.51661379	97.60919271
151106A00011	11/6/2015	3.1	1/15/2026	11/6/2015	116.0488	116.048802	116.048802	116.048802	111.6193646	105.9174261	100.5469427	95.48683546	90.71747942
151120A00016	11/20/2015	2.11	11/20/2020	11/20/2015	101.05029	101.0502864	101.0502864	101.0502864	100.956866	100.3928287	99.83508616	99.28353342	98.73806777
151221A00010	12/21/2015	2.1	12/21/2020	12/21/2015	101.20329	101.2032855	101.2032855	101.2032855	101.0826391	100.4333764	99.79244035	99.15967133	98.53491392
151223A00072	12/23/2015	2.81	12/23/2025	12/23/2015	115.37121	115.3712074	115.3712074	115.3712074	111.0375356	105.3710532	100.0323346	95.00066147	90.25673468
151223A00077	12/23/2015	3.57	12/24/2035	12/23/2015	154.28756	154.2875573	154.2875573	140.6105212	123.9474803	109.3900187	96.83936905	86.00163303	76.62767267
160104A00014	1/4/2016	2.49	1/4/2023	1/4/2016	105.94337	105.9433733	105.9433733	105.9433733	104.9845296	102.3125405	99.72224711	97.21063058	94.77480587
160119A00005	1/19/2016	1.89	1/19/2021	1/19/2016	101.19806	101.1980565	101.1980565	101.1980565	101.0501337	100.3218812	99.6041007	98.89656733	98.19906274
160119A00025	1/19/2016	3.05	1/19/2028	1/19/2016	121.24086	121.2408602	121.2408602	120.3230642	112.4318677	104.893786	97.92662364	91.48393976	85.52330906
160119A00026	1/19/2016	3.14	1/19/2029	1/19/2016	124.7468	124.7468041	124.7468041	122.6734162	113.7094161	105.2609202	97.52325865	90.43248798	83.9307429
160120A00010	1/20/2016	1.99	10/20/2021	1/20/2016	102.54168	102.5416787	102.5416787	102.5416787	102.1708812	100.7090546	99.27545716	97.86934316	96.48999238
160122A00021	1/22/2016	1.71	1/22/2021	1/22/2016	101.18042	101.1804181	101.1804181	101.1804181	101.0293718	100.2916868	99.56474513	98.84831324	98.14216439
160218A00029	2/18/2016	1.81	4/15/2021	2/18/2016	101.48914	101.4891393	101.4891393	101.4891393	101.2601063	100.2976532	99.35342814	98.42691704	97.51762492
160301A00009	3/1/2016	2.06	3/1/2023	3/1/2016	105.04942	105.0494186	105.0494186	105.0494186	103.9802061	101.1686963	98.44749035	95.81322156	93.26266683
160329A00045	3/29/2016	2.12	3/29/2024	3/29/2016	107.92597	107.9259676	107.9259676	107.9259676	105.9399443	102.0451905	98.31519699	94.74215169	91.31865338
160408A00015	4/8/2016	2.01	4/7/2023	4/8/2016	105.0813	105.0812981	105.0812981	105.0812981	103.9336522	101.0265939	98.21595287	95.49801554	92.86923231
160415A00010	4/15/2016	1.66	4/15/2021	4/15/2016	101.34352	101.343518	101.343518	101.343518	101.1146298	100.1529378	99.20946377	98.28369384	97.37513325
160502A00014	5/2/2016	1.5	5/4/2020	5/2/2016	100.01279	100.0127917	100.0127917	100.0127917	100.0117881	100.0007096	99.98964141	99.97858358	99.96753606
160502A00018	5/2/2016	2.09	5/2/2023	5/2/2016	105.44168	105.4416849	105.4416849	105.4416849	104.2385666	101.2605175	98.38338014	95.60317964	92.91612102
160516A00019	5/16/2016	1.44	5/17/2021	5/16/2016	101.40134	101.4013372	101.4013372	101.4013372	101.146946	100.0961649	99.06710307	98.05909273	97.07149317
160523A00047	5/23/2016	1.77	5/18/2021	5/23/2016	101.58693	101.5869341	101.5869341	101.5869341	101.3322777	100.2801972	99.24987226	98.24063339	97.25183837
160606A00003	6/6/2016	1.66	6/7/2021	6/6/2016	101.54684	101.5468396	101.5468396	101.5468396	101.2787979	100.1730312	99.09129067	98.03280008	96.99681631
160628A00040	6/28/2016	1.56	6/28/2023	6/28/2016	104.61165	104.6116508	104.6116508	104.6116508	103.2814298	100.154712	97.13847421	94.22816679	91.41945728

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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160630A00044	6/30/2016	1.42	10/30/2020	6/30/2016	100.59203	100.5920314	100.5920314	100.5920314	100.5146768	100.0095225	99.50942502	99.014309	98.52410035
160701A00007	7/1/2016	1.42	7/1/2021	7/1/2016	101.35439	101.3543891	101.3543891	101.3543891	101.0715672	99.90241643	98.7601422	97.6438268	96.55259391
160701A00027	7/1/2016	1.93	7/1/2024	7/1/2016	106.87001	106.8700076	106.8700076	106.8700076	104.664257	100.570701	96.65975061	92.92226969	89.34963207
160701A00028	7/1/2016	2.16	7/1/2026	7/1/2016	111.49351	111.4935108	111.4935108	111.4935108	106.1825829	100.2185982	94.62881313	89.38779784	84.47198152
160707A00005	7/7/2016	1.34	7/7/2020	7/7/2016	100.20108	100.2010821	100.2010821	100.2010821	100.1793865	99.99121168	99.80375116	99.61700081	99.43095659
160714A00053	7/14/2016	1.58	7/15/2021	7/14/2016	101.59456	101.5945607	101.5945607	101.5945607	101.3020368	100.0937711	98.91417094	97.76222584	96.63697235
160801A00001	8/1/2016	1.97	8/1/2024	8/1/2016	107.18096	107.1809553	107.1809553	107.1809553	104.889766	100.7131337	96.72594856	92.91856943	89.28190358
160809A00002	8/9/2016	1.6	8/9/2021	8/9/2016	101.69816	101.6981568	101.6981568	101.6981568	101.3878402	100.1157884	98.8723005	97.65641443	96.46721141
160830A00034	8/30/2016	1.9	8/30/2023	8/30/2016	105.39598	105.395982	105.395982	105.395982	103.9305035	100.6450933	97.48058297	94.43191079	91.49425327
160907A00009	9/7/2016	1.36	9/8/2021	9/7/2016	101.70933	101.7093344	101.7093344	101.7093344	101.3743419	100.0271573	98.70417466	97.40479853	96.12845268
160922A00051	9/22/2016	2.5	9/22/2028	9/22/2016	118.45235	118.4523512	118.4523512	116.7759693	108.3163038	100.3613677	93.05914841	86.35257806	80.18985038
160923A00030	9/23/2016	1.41	9/23/2021	9/23/2016	101.83181	101.8318131	101.8318131	101.8318131	101.4841067	100.0952362	98.73199654	97.3937402	96.07984105
160923A00032	9/23/2016	1.67	9/25/2023	9/23/2016	105.34585	105.3458534	105.3458534	105.3458534	103.8143546	100.4466798	97.20576729	94.08619447	91.08279939
161013A00037	10/13/2016	1.52	10/13/2021	10/13/2016	102.06558	102.0655814	102.0655814	102.0655814	101.7004909	100.256638	98.84039492	97.4510393	96.08787358
161031A00005	10/31/2016	1.56	11/2/2020	10/31/2016	100.67398	100.6739836	100.6739836	100.6739836	100.5944955	100.0808853	99.57250137	99.06926424	98.57109616
161206A00008	12/6/2016	2.6	12/6/2023	12/6/2016	108.37084	108.370844	108.370844	108.370844	106.6663059	103.0759884	99.62651679	96.31158544	93.12520833
161213A00013	12/13/2016	1.85	12/14/2020	12/13/2016	101.09655	101.0965487	101.0965487	101.0965487	100.9822465	100.3513645	99.72835496	99.11307102	98.50536947
161222A00030	12/22/2016	3.09	12/22/2026	12/22/2016	119.95242	119.9524226	119.9524226	119.9524226	113.3779233	106.7132309	100.4920715	94.68250346	89.25505023
170109A00031	1/9/2017	2.29	1/10/2022	1/9/2017	103.42657	103.4265711	103.4265711	103.4265711	102.9882655	101.3005301	99.64853498	98.03120937	96.44752549
170119A00004	1/19/2017	2.36	1/18/2022	1/19/2017	103.59256	103.5925565	103.5925565	103.5925565	103.1476009	101.4373125	99.7635848	98.12531028	96.52142633
170203A00012	2/3/2017	3.63	2/2/2035	2/3/2017	148.65626	148.6562648	148.6562648	137.0778126	121.6998495	108.1267439	96.32899154	86.0596684	77.10761636
170213A00010	2/13/2017	2	8/13/2020	2/13/2017	100.50611	100.5061138	100.5061138	100.5061138	100.468293	100.1775968	99.88859187	99.60126333	99.31559657
170215A00035	2/15/2017	2.51	5/7/2021	2/15/2017	102.30476	102.3047627	102.3047627	102.3047627	102.0569999	101.0306487	100.0248971	99.03912934	98.07275413
170216A00041	2/16/2017	2.37	2/16/2022	2/16/2017	103.79346	103.7934594	103.7934594	103.7934594	103.3241242	101.5308134	99.7772704	98.06233039	96.38487226
170303A00021	3/3/2017	2.2	3/3/2022	3/3/2017	103.88082	103.8808154	103.8808154	103.8808154	103.3965873	101.5539066	99.75299428	97.99266265	96.27176519
170313A00035	3/13/2017	3.31	3/15/2027	3/13/2017	120.72274	120.7227443	120.7227443	120.7059635	113.7037331	106.8697766	100.5025171	94.56755846	89.03320737
170314A00005	3/14/2017	2.29	3/14/2022	3/14/2017	104.11489	104.1148861	104.1148861	104.1148861	103.6194749	101.7455131	99.91463452	98.12559603	96.37719828
170322A00010	3/22/2017	2.11	3/22/2022	3/22/2017	103.81799	103.8179877	103.8179877	103.8179877	103.3155181	101.4233549	99.57515525	97.76963717	96.00556455
170322A00011	3/22/2017	2.48	3/22/2024	3/22/2017	109.3058	109.3057985	109.3057985	109.3057985	107.3272575	103.423488	99.68381898	96.10051097	92.66622943
170322A00024	3/22/2017	3.72	9/22/2036	3/22/2017	155.37671	155.3767141	155.3767141	140.5269481	123.4690778	108.6460577	95.93360515	85.01178665	75.61110274
170327A00070	3/29/2017	3.05	3/29/2027	3/29/2017	120.46689	120.4668894	120.4668894	120.4339662	113.2969931	106.3890126	99.95730301	93.96646902	88.38391939

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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170404A00033	4/4/2017	2.22	4/4/2022	4/4/2017	103.75157	103.7515733	103.7515733	103.7515733	103.2378746	101.3183144	99.44400883	97.61361868	95.82585314
170428A00030	4/28/2017	2.25	4/28/2022	4/28/2017	103.93928	103.9392809	103.9392809	103.9392809	103.3980163	101.411815	99.47397611	97.58302021	95.73752352
170501A00006	5/1/2017	1.85	5/1/2020	5/1/2017	100.00414	100.004143	100.004143	100.004143	100.003892	100.0011216	99.99835362	99.99558795	99.99282463
170511A00004	5/11/2017	1.71	5/11/2020	5/11/2017	100.04869	100.0486903	100.0486903	100.0486903	100.0459232	100.0153827	99.98487734	99.95440715	99.92397202
170515A00010	5/15/2017	2.58	5/15/2024	5/15/2017	109.30797	109.3079702	109.3079702	109.3079702	107.2053821	103.182381	99.33375808	95.651025	92.12615294
170515A00022	5/15/2017	2.04	5/17/2021	5/15/2017	101.86883	101.8688313	101.8688313	101.8688313	101.6145557	100.5635781	99.53426812	98.5259609	97.53801844
170524A00046	5/24/2017	1.84	5/24/2021	5/24/2017	101.85897	101.8589663	101.8589663	101.8589663	101.5991595	100.5268183	99.4770165	98.44904929	97.44224105
170530A00058	5/30/2017	1.96	3/26/2021	5/30/2017	101.55065	101.5506492	101.5506492	101.5506492	101.339344	100.4305397	99.5379788	98.66122886	97.79987264
170531A00003	5/31/2017	1.94	5/31/2022	5/31/2017	103.84548	103.8454839	103.8454839	103.8454839	103.2600259	101.1808486	99.1538804	97.17745953	95.24998986
170531A00004	5/31/2017	1.79	6/1/2021	5/31/2017	101.84211	101.8421084	101.8421084	101.8421084	101.5767933	100.4828845	99.4124204	98.36465406	97.3388699
170531A00080	5/31/2017	2.3	5/31/2024	5/31/2017	109.01872	109.0187233	109.0187233	109.0187233	106.8637533	102.785364	98.88583254	95.15635468	91.58860887
170602A00015	6/2/2017	1.76	6/2/2021	6/2/2017	101.8136	101.8135967	101.8135967	101.8135967	101.5476873	100.4512376	99.37834785	98.32826541	97.3002694
170602A00034	6/2/2017	1.76	6/2/2021	6/2/2017	101.8136	101.8135967	101.8135967	101.8135967	101.5476873	100.4512376	99.37834785	98.32826541	97.3002694
170609A00026	6/9/2017	2.3	6/9/2023	6/9/2017	106.28857	106.2885696	106.2885696	106.2885696	104.9986517	101.9094094	98.92736607	96.04818393	93.26772845
170613A00033	6/13/2017	2.3	6/13/2024	6/13/2017	109.09704	109.0970437	109.0970437	109.0970437	106.9069972	102.7929694	98.86064675	95.1010193	91.50557535
170615A00034	6/15/2017	2.13	6/15/2022	6/15/2017	103.94065	103.9406507	103.9406507	103.9406507	103.3361659	101.2227323	99.16297212	97.1551511	95.19760511
170616A00017	6/16/2017	2.11	6/16/2023	6/16/2017	106.3052	106.3052028	106.3052028	106.3052028	104.9930527	101.8713975	98.85889182	95.95108499	93.14373657
170622A00016	6/22/2017	2.11	6/22/2022	6/22/2017	103.93265	103.932647	103.932647	103.932647	103.318387	101.1861551	99.10842521	97.08342278	95.10944541
170622A00037	6/22/2017	3.27	6/22/2033	6/22/2017	138.73415	138.7341545	138.7341545	130.1417119	116.6353111	104.5457703	93.90101577	84.51792806	76.23757889
170622A00038	6/22/2017	3.32	6/22/2034	6/22/2017	142.3166	142.3166023	142.3166023	131.979303	117.4665635	104.6066965	93.37992958	83.56630181	74.97669029
170626A00042	6/26/2017	1.92	6/27/2022	6/26/2017	103.93789	103.937893	103.937893	103.937893	103.3141858	101.1607316	99.06271518	97.01831744	95.02579405
170706A00028	7/6/2017	2.09	7/6/2022	7/6/2017	104.35868	104.358682	104.358682	104.358682	103.7205043	101.5384917	99.41311378	97.3424937	95.3248326
170712A00019	7/12/2017	2.18	7/12/2022	7/12/2017	104.18846	104.1884601	104.1884601	104.1884601	103.5442305	101.3562954	99.22534755	97.14948947	95.12690331
170717A00033	7/17/2017	2.19	7/18/2022	7/17/2017	104.24214	104.2421369	104.2421369	104.2421369	103.5887215	101.3845431	99.23810636	97.14747585	95.11079805
170724A00013	7/24/2017	1.99	7/26/2021	7/24/2017	102.13578	102.1357773	102.1357773	102.1357773	101.8351785	100.594016	99.38297613	98.20097274	97.04697139
170726A00011	7/26/2017	2.2	7/26/2022	7/26/2017	104.30668	104.3066827	104.3066827	104.3066827	103.6410404	101.4152901	99.24829315	97.13806313	95.08269842
170728A00029	7/28/2017	2.1	1/27/2022	7/28/2017	103.18523	103.1852275	103.1852275	103.1852275	102.7340309	101.0037234	99.31081227	97.65415037	96.03263803
170731A00012	7/31/2017	1.82	8/2/2021	7/31/2017	102.16784	102.1678366	102.1678366	102.1678366	101.8614159	100.5987161	99.36644511	98.1635103	96.98887092
170731A00029	7/31/2017	2.34	7/31/2023	7/31/2017	106.70673	106.7067341	106.7067341	106.7067341	105.3006367	102.0699813	98.95551608	95.95235348	93.05584582
170801A00018	8/1/2017	1.87	8/3/2020	8/1/2017	100.42357	100.4235728	100.4235728	100.4235728	100.3902137	100.1272229	99.8656087	99.60536035	99.34646717
170801A00020	8/1/2017	2.02	8/2/2021	8/1/2017	102.20707	102.2070665	102.2070665	102.2070665	101.9014537	100.6418322	99.41250693	98.21239172	97.04045195

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170808A00036	8/8/2017	2.04	11/15/2021	8/8/2017	102.74233	102.7423339	102.7423339	102.7423339	102.3494924	100.8162948	99.31370265	97.84087135	96.39698697
170822A00020	8/22/2017	2.59	8/22/2025	8/22/2017	112.20879	112.2087897	112.2087897	112.2087897	108.5614544	103.3120262	98.35019666	93.65872285	89.22148294
170824A00031	8/24/2017	1.98	8/24/2021	8/24/2017	102.25961	102.2596096	102.2596096	102.2596096	101.9368366	100.6269671	99.34216284	98.08172904	96.84499651
170831A00050	8/31/2017	1.72	6/14/2021	8/31/2017	101.82266	101.8226567	101.8226567	101.8226567	101.549202	100.4202201	99.31622182	98.23638498	97.17992328
170831A00051	8/31/2017	1.75	8/31/2021	8/31/2017	102.21005	102.2100478	102.2100478	102.2100478	101.8809694	100.5520069	99.24656642	97.96407768	96.70398835
170905A00072	9/5/2017	1.84	3/5/2021	9/5/2017	101.34894	101.3489364	101.3489364	101.3489364	101.1581328	100.3071625	99.47045801	98.64766285	97.83843245
170906A00005	9/6/2017	1.69	9/7/2021	9/6/2017	102.15926	102.159255	102.159255	102.159255	101.8243975	100.4767011	99.15316896	97.85320761	96.5762425
170906A00028	9/6/2017	1.57	9/8/2020	9/6/2017	100.52842	100.52842	100.52842	100.52842	100.478676	100.1157728	99.75549527	99.39781481	99.04270336
170912A00009	9/12/2017	2.11	12/15/2022	9/12/2017	104.81397	104.8139732	104.8139732	104.8139732	103.898288	101.2932033	98.76664862	96.31577035	93.93783877
170913A00003	9/13/2017	2.08	9/13/2022	9/13/2017	104.27682	104.2768236	104.2768236	104.2768236	103.5318939	101.1780385	98.88943549	96.66392121	94.49941621
170914A00052	9/14/2017	1.85	9/14/2020	9/14/2017	100.60685	100.606846	100.606846	100.606846	100.5542819	100.1752737	99.79912686	99.42580904	99.05528831
170926A00002	9/26/2017	1.73	12/3/2020	9/26/2017	100.97131	100.9713142	100.9713142	100.9713142	100.8673101	100.2669568	99.67373019	99.08750402	98.50815489
171002A00011	10/2/2017	1.9	8/31/2020	10/2/2017	100.56216	100.5621585	100.5621585	100.5621585	100.5163235	100.1759238	99.83781917	99.50198659	99.16840327
171002A00013	10/2/2017	2.23	11/30/2022	10/2/2017	105.05217	105.0521728	105.0521728	105.0521728	104.1646682	101.5952576	99.1023893	96.68331892	94.33541916
171004A00034	10/4/2017	1.73	10/5/2020	10/4/2017	100.70735	100.7073515	100.7073515	100.7073515	100.6441213	100.2064654	99.77261283	99.34251414	98.9161207
171010A00024	10/10/2017	2.38	10/10/2023	10/10/2017	107.24511	107.245113	107.245113	107.245113	105.6776707	102.2547349	98.96140438	95.7920913	92.74147899
171016A00005	10/16/2017	2.2	10/17/2022	10/16/2017	104.74301	104.7430053	104.7430053	104.7430053	103.9374125	101.4884939	99.10990883	96.79923827	94.55416125
171016A00033	10/16/2017	2.2	10/17/2022	10/16/2017	104.74301	104.7430053	104.7430053	104.7430053	103.9374125	101.4884939	99.10990883	96.79923827	94.55416125
171018A00003	10/18/2017	2.23	10/18/2023	10/18/2017	107.40979	107.4097868	107.4097868	107.4097868	105.8143589	102.3522752	99.02240987	95.81901357	92.73661853
171025A00020	10/25/2017	2.02	10/26/2020	10/25/2017	100.87718	100.877179	100.877179	100.877179	100.8019945	100.306966	99.81679096	99.33139819	98.85071798
171027A00005	10/27/2017	1.88	10/27/2020	10/27/2017	100.88088	100.8808792	100.8808792	100.8808792	100.8049915	100.3063804	99.81269395	99.3238595	98.83980576
171030A00095	10/30/2017	2.28	10/31/2022	10/30/2017	105.01904	105.0190402	105.0190402	105.0190402	104.1875556	101.6990123	99.28296002	96.93686846	94.65831166
171031A00012	10/31/2017	2.28	10/31/2022	10/31/2017	105.01904	105.0190402	105.0190402	105.0190402	104.1875556	101.6990123	99.28296002	96.93686846	94.65831166
171116A00013	11/16/2017	2.2	1/15/2021	11/16/2017	101.40355	101.403547	101.403547	101.403547	101.2592789	100.5410857	99.83306362	99.1349976	98.44667853
171122A00009	11/22/2017	2.2	11/22/2022	11/22/2017	105.40351	105.4035131	105.4035131	105.4035131	104.5257582	101.9632164	99.47672504	97.06357039	94.72115375
171130A00048	11/30/2017	2.15	5/15/2020	11/30/2017	100.07625	100.0762549	100.0762549	100.0762549	100.0724884	100.0309205	99.98940425	99.94793944	99.90652603
171130A00053	11/30/2017	2.19	8/17/2020	11/30/2017	100.58588	100.5858759	100.5858759	100.5858759	100.5462548	100.2443531	99.94427379	99.64600018	99.34951597
171205A00004	12/6/2017	2.07	12/7/2020	12/6/2017	101.19787	101.1978655	101.1978655	101.1978655	101.0900241	100.4779403	99.87325782	99.27584285	98.68556486
171206A00008	12/6/2017	2.36	12/6/2021	12/6/2017	103.36283	103.3628278	103.3628278	103.3628278	102.9518908	101.3568103	99.79423274	98.26323156	96.76291524
171206A00041	12/6/2017	2.44	12/6/2024	12/6/2017	110.81004	110.8100387	110.8100387	110.8100387	108.101456	103.5016318	99.12509873	94.95982778	90.99450368
171206A00042	12/6/2017	2.24	12/7/2020	12/6/2017	101.2174	101.2173998	101.2173998	101.2173998	101.1097459	100.4986596	99.89494768	99.29847728	98.70911861

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171207A00019	12/7/2017	2.41	6/16/2022	12/7/2017	104.54804	104.5480365	104.5480365	104.5480365	103.9405258	101.8177746	99.7489488	97.73230475	95.76616906
171211A00024	12/11/2017	2.26	12/11/2020	12/11/2017	101.25194	101.2519423	101.2519423	101.2519423	101.1405546	100.5184177	99.90392567	99.29693811	98.69731803
171212A00023	12/12/2017	2.3	2/12/2021	12/12/2017	101.62587	101.6258713	101.6258713	101.6258713	101.4548926	100.6596569	99.8768623	99.10621841	98.34744386
171212A00024	12/12/2017	2.29	12/12/2022	12/12/2017	105.75743	105.7574333	105.7574333	105.7574333	104.8399827	102.2198252	99.67858823	97.21340619	94.82153764
171213A00019	12/13/2017	2.17	12/13/2021	12/13/2017	103.37045	103.370447	103.370447	103.370447	102.9527428	101.3343512	99.74925999	98.19650832	96.67517211
171213A00032	12/13/2017	2.17	12/13/2021	12/13/2017	103.37045	103.370447	103.370447	103.370447	102.9527428	101.3343512	99.74925999	98.19650832	96.67517211
180103A00011	1/3/2018	2.35	1/3/2023	1/3/2018	106.05257	106.0525712	106.0525712	106.0525712	105.0908836	102.4093166	99.8098773	97.28952661	94.84536037
180109A00028	1/9/2018	2.6	1/9/2025	1/9/2018	111.7883	111.7882999	111.7882999	111.7882999	108.9626215	104.2552772	99.77996273	95.52397661	91.47538459
180110A00029	1/10/2018	3.13	1/10/2028	1/10/2018	121.79094	121.7909408	121.7909408	120.9005261	113.0185709	105.4797821	98.50993108	92.06288432	86.09648489
180123A00023	1/23/2018	2.43	1/29/2021	1/23/2018	101.65403	101.6540339	101.6540339	101.6540339	101.496329	100.7389784	99.99290227	99.2578503	98.53357958
180123A00045	1/23/2018	2.43	1/25/2021	1/23/2018	101.62988	101.6298775	101.6298775	101.6298775	101.4759806	100.7296245	99.99422657	99.26954689	98.5553523
180124A00018	1/24/2018	2.3	1/25/2021	1/24/2018	101.63597	101.635969	101.635969	101.635969	101.4817656	100.7340165	99.99726569	99.27127177	98.55580036
180126A00028	1/26/2018	2.69	1/26/2023	1/26/2018	106.63045	106.6304539	106.6304539	106.6304539	105.624802	102.8863942	100.2331566	97.66187998	95.169501
180126A00029	1/26/2018	2.88	1/27/2025	1/26/2018	112.30234	112.3023413	112.3023413	112.3023413	109.4344698	104.6983157	100.1967567	95.91687411	91.84653528
180130A00084	1/30/2018	2.59	1/30/2023	1/30/2018	106.8884	106.8884039	106.8884039	106.8884039	105.8689035	103.1053872	100.4283032	97.83437603	95.32048002
180207A00003	2/7/2018	3.28	2/7/2028	2/7/2018	123.17405	123.1740474	123.1740474	122.1978359	114.2033773	106.5532107	99.48445428	92.94962371	86.90535523
180226A00004	2/26/2018	2.63	2/25/2022	2/26/2018	104.64086	104.6408585	104.6408585	104.6408585	104.1604091	102.3272296	100.5352505	98.78329498	97.07022754
180306A00005	3/6/2018	2.65	3/4/2022	3/6/2018	104.72687	104.7268686	104.7268686	104.7268686	104.2397722	102.3863807	100.5750248	98.80450756	97.07367368
180316A00010	3/16/2018	2.58	3/16/2021	3/16/2018	102.18672	102.1867221	102.1867221	102.1867221	101.9840891	101.0974669	100.2262408	99.37001187	98.52839522
180406A00014	4/6/2018	2.95	4/6/2023	4/6/2018	107.86049	107.8604882	107.8604882	107.8604882	106.702953	103.7575232	100.9093522	98.15470279	95.490003
180412A00034	4/12/2018	3.23	4/15/2030	4/12/2018	131.24587	131.2458702	131.2458702	127.491197	117.0004978	107.2695458	98.45876928	90.47552777	83.23697324
180416A00016	4/16/2018	2.85	4/17/2023	4/16/2018	108.19452	108.1945159	108.1945159	108.1945159	107.0056816	104.0133342	101.1210087	98.32481367	95.62103161
180425A00020	4/25/2018	3.11	10/25/2022	4/25/2018	107.07153	107.0715311	107.0715311	107.0715311	106.2439163	103.7449652	101.318185	98.96107483	96.67123628
180430A00012	4/30/2018	2.95	7/15/2021	4/30/2018	103.26979	103.2697859	103.2697859	103.2697859	102.975003	101.7559242	100.565689	99.40328213	98.26773535
180430A00069	4/30/2018	2.75	3/30/2021	4/30/2018	102.44005	102.4400541	102.4400541	102.4400541	102.2235643	101.2975567	100.3882946	99.49532705	98.6182189
180514A00034	5/14/2018	3.07	5/14/2024	5/14/2018	112.06317	112.0631722	112.0631722	112.0631722	109.92914	105.8329573	101.9141114	98.16396747	94.57435892
180516A00019	5/16/2018	3.19	5/16/2023	5/16/2018	108.88989	108.8898918	108.8898918	108.8898918	107.6403948	104.5737906	101.6115778	98.74961112	95.98393527
180522A00004	5/22/2018	2.98	5/21/2021	5/22/2018	102.89471	102.894712	102.894712	102.894712	102.6364772	101.5688351	100.5233902	99.49945522	98.49637084
180522A00019	5/22/2018	3.16	5/22/2023	5/22/2018	108.84513	108.8451274	108.8451274	108.8451274	107.58264	104.5011006	101.5248714	98.64975282	95.87173884
180522A00035	5/22/2018	2.83	5/21/2021	5/22/2018	102.9054	102.9053956	102.9053956	102.9053956	102.6464965	101.5762945	100.5283827	99.50206974	98.49669272
180522A00038	5/22/2018	3.23	5/22/2025	5/22/2018	115.92321	115.9232072	115.9232072	115.9232072	112.5903402	107.4416066	102.5629868	97.93885585	93.55457554

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180523A00002	5/23/2018	2.66	5/26/2020	5/23/2018	100.18369	100.1836908	100.1836908	100.1836908	100.1771456	100.1049231	100.0328139	99.96081754	99.8889339
180523A00025	5/23/2018	2.86	12/15/2021	5/23/2018	104.51917	104.5191661	104.5191661	104.5191661	104.0976731	102.4642148	100.8644128	99.29729346	97.7619204
180524A00024	5/24/2018	3	3/21/2022	5/24/2018	105.16767	105.1676666	105.1676666	105.1676666	104.6648369	102.7684625	100.9159307	99.10596801	97.33734616
180525A00001	5/25/2018	3.04	5/25/2023	5/25/2018	108.49724	108.4972447	108.4972447	108.4972447	107.2297874	104.1457993	101.1674541	98.29052936	95.51099762
180529A00026	5/29/2018	2.67	6/1/2021	5/29/2018	102.81187	102.8118726	102.8118726	102.8118726	102.5454117	101.4458141	100.3697462	99.31645896	98.28523467
180529A00043	5/29/2018	2.99	5/30/2023	5/29/2018	108.37957	108.3795728	108.3795728	108.3795728	107.1016922	104.006552	101.0177923	98.13114619	95.3425443
180530A00002	5/30/2018	2.75	11/30/2022	5/30/2018	106.8895	106.8895022	106.8895022	106.8895022	105.9914756	103.387844	100.861808	98.41058124	96.03149676
180530A00024	5/30/2018	3.44	5/30/2029	5/30/2018	128.47402	128.4740177	128.4740177	125.9543149	116.5181055	107.6425473	99.53803116	92.13294273	85.36268306
180530A00025	5/30/2018	3.49	5/30/2030	5/30/2018	132.06178	132.0617816	132.0617816	128.1935822	117.6797183	107.9142388	99.0764663	91.07241167	83.81809124
180530A00038	5/30/2018	2.77	5/28/2021	5/30/2018	102.71835	102.7183477	102.7183477	102.7183477	102.4554068	101.3697971	100.3071554	99.2667583	98.24791276
180530A00041	5/30/2018	2.64	6/1/2020	5/30/2018	100.20619	100.2061895	100.2061895	100.2061895	100.1980388	100.109353	100.0208236	99.9324502	99.84423233
180531A00031	5/31/2018	2.67	5/29/2020	5/31/2018	100.18931	100.1893054	100.1893054	100.1893054	100.1820215	100.1016505	100.0214104	99.9413008	99.8613214
180601A00018	6/1/2018	2.87	6/1/2023	6/1/2018	108.59731	108.5973105	108.5973105	108.5973105	107.3073648	104.1901401	101.1804644	98.27400717	95.46663986
180601A00023	6/1/2018	3.3	6/1/2028	6/1/2018	125.97846	125.9784608	125.9784608	124.6261236	116.1484014	108.0765767	100.6413135	93.78876713	87.46991963
180604A00048	6/4/2018	3.01	6/5/2023	6/4/2018	108.48654	108.4865426	108.4865426	108.4865426	107.1949331	104.0821396	101.0767604	98.17446805	95.37113652
180612A00018	6/12/2018	2.88	6/10/2022	6/12/2018	105.90642	105.9064184	105.9064184	105.9064184	105.301406	103.1727251	101.0978809	99.07514117	97.1028433
180615A00061	6/15/2018	3.28	6/15/2028	6/15/2018	125.93683	125.9368312	125.9368312	124.5405647	116.024897	107.9232116	100.4631721	93.59028201	87.25494987
180618A00011	6/18/2018	3.02	6/20/2022	6/18/2018	105.89029	105.8902932	105.8902932	105.8902932	105.2735561	103.1252831	101.0317092	98.9910588	97.00162825
180618A00012	6/18/2018	2.9	6/19/2023	6/18/2018	108.82951	108.8295088	108.8295088	108.8295088	107.4984604	104.329026	101.2702849	98.31772046	95.46702946
180618A00032	6/18/2018	2.93	6/18/2021	6/18/2018	103.04688	103.0468843	103.0468843	103.0468843	102.7701034	101.6255789	100.5065262	99.41210144	98.34149784
180619A00019	6/19/2018	2.89	6/18/2021	6/19/2018	103.00096	103.0009625	103.0009625	103.0009625	102.7242388	101.579994	100.4612166	99.36706302	98.29672644
180620A00015	6/20/2018	3.04	6/20/2023	6/20/2018	108.69343	108.6934276	108.6934276	108.6934276	107.3677602	104.2115752	101.1654112	98.2247861	95.38542973
180620A00044	6/20/2018	2.89	6/20/2023	6/20/2018	108.80543	108.8054293	108.8054293	108.8054293	107.4722775	104.3005267	101.2396301	98.28506099	95.43250697
180622A00005	6/22/2018	3.5	7/2/2029	6/22/2018	129.30337	129.303372	129.303372	126.6678929	117.1152364	108.135928	99.94270247	92.46196939	85.62740611
180628A00034	6/28/2018	2.72	6/28/2021	6/28/2018	103.06168	103.0616827	103.0616827	103.0616827	102.7778528	101.6033022	100.4555423	99.33366415	98.23679985
180705A00058	7/5/2018	2.93	7/6/2021	7/5/2018	103.17909	103.1790886	103.1790886	103.1790886	102.890519	101.6963947	100.5299603	99.39026057	98.27638377
180716A00037	7/16/2018	3.01	7/18/2022	7/16/2018	106.07853	106.0785264	106.0785264	106.0785264	105.4199237	103.1949592	101.0281663	98.91759715	96.86138601
180719A00059	7/19/2018	2.98	7/19/2021	7/19/2018	103.32411	103.3241077	103.3241077	103.3241077	103.0265929	101.7965233	100.5958074	99.42340328	98.27831756
180719A00060	7/19/2018	3.05	7/19/2022	7/19/2018	106.17572	106.1757205	106.1757205	106.1757205	105.5153286	103.2866331	101.116257	99.00224539	96.94272589
180720A00008	7/20/2018	3	7/20/2022	7/20/2018	106.07108	106.0710836	106.0710836	106.0710836	105.4094738	103.1793351	101.0076162	98.89235668	96.83167888
180720A00011	7/20/2018	2.93	7/20/2021	7/20/2018	103.26975	103.269751	103.269751	103.269751	102.971634	101.7392129	100.5362681	99.36175069	98.21466136

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180723A00024	10/23/2018	3.1	10/22/2021	10/23/2018	104.21237	104.2123744	104.2123744	104.2123744	103.8369836	102.3569392	100.9055499	99.48205581	98.08572326
180731A00009	7/31/2018	2.97	7/31/2023	7/31/2018	109.38324	109.383238	109.383238	109.383238	107.9557061	104.6669289	101.4963565	98.43901306	95.49016686
180801A00012	8/1/2018	3.03	8/16/2021	8/1/2018	103.59883	103.5988266	103.5988266	103.5988266	103.2802964	101.9793422	100.705507	99.45794699	98.23585359
180801A00020	8/1/2018	3.02	8/1/2023	8/1/2018	109.5558	109.5558029	109.5558029	109.5558029	108.1251214	104.8309155	101.6551682	98.59289436	95.6393534
180806A00009	8/6/2018	2.9	8/6/2020	8/6/2018	100.71722	100.7172209	100.7172209	100.7172209	100.6824668	100.4106808	100.1403662	99.87151117	99.60410375
180813A00013	8/13/2018	2.99	12/5/2022	8/13/2018	107.07431	107.0743111	107.0743111	107.0743111	106.1699166	103.5609438	101.0298045	98.57369856	96.18994584
180813A00016	8/13/2018	2.92	8/13/2021	8/13/2018	103.43268	103.4326777	103.4326777	103.4326777	103.1167345	101.8237728	100.5586233	99.32038919	98.10821236
180813A00037	8/13/2018	2.95	2/14/2022	8/13/2018	104.8345	104.8344955	104.8344955	104.8344955	104.3646013	102.5674514	100.8100151	99.09112226	97.40964708
180815A00010	8/15/2018	3.02	8/15/2023	8/15/2018	109.05028	109.0502801	109.0502801	109.0502801	107.59857	104.2910051	101.1033075	98.03045727	95.06767541
180816A00032	8/16/2018	3.02	8/16/2023	8/16/2018	109.05779	109.0577869	109.0577869	109.0577869	107.6038045	104.293533	101.1033104	98.02811	95.06314625
180816A00038	8/16/2018	3.38	8/16/2028	8/16/2018	125.54396	125.5439592	125.5439592	123.9736921	115.3961253	107.2431918	99.74528596	92.84600114	86.494072
180820A00036	8/20/2018	3	8/21/2023	8/20/2018	109.02855	109.0285499	109.0285499	109.0285499	107.5635628	104.2408658	101.039098	97.95319985	94.97835313
180827A00030	8/27/2018	2.84	8/27/2020	8/27/2018	100.85442	100.8544184	100.8544184	100.8544184	100.8102861	100.4802912	100.1524563	99.82676014	99.50318196
180829A00044	8/29/2018	2.98	8/26/2022	8/29/2018	106.30071	106.3007085	106.3007085	106.3007085	105.579772	103.2497368	100.9829483	98.77732838	96.63088042
180904A00014	9/4/2018	3.37	9/1/2028	9/4/2018	125.59381	125.5938129	125.5938129	123.9723271	115.3508895	107.1622317	99.63455271	92.71072477	86.33883753
180911A00042	9/11/2018	2.99	9/11/2023	9/11/2018	109.78284	109.7828427	109.7828427	109.7828427	108.2582892	104.852521	101.5728631	98.41399141	95.37083494
180913A00029	9/13/2018	3.11	9/13/2023	9/13/2018	109.57377	109.5737685	109.5737685	109.5737685	108.054179	104.6620217	101.3953402	98.24884188	95.21748544
180914A00026	9/14/2018	3.15	9/14/2023	9/14/2018	109.71768	109.7176761	109.7176761	109.7176761	108.1950374	104.7977977	101.5262939	98.37521865	95.3395171
180914A00029	9/14/2018	3.48	9/14/2028	9/14/2018	126.62401	126.6240097	126.6240097	124.9599676	116.2718454	108.014972	100.4263246	93.44796294	87.02725685
180919A00018	9/19/2018	3.12	6/20/2022	9/19/2018	106.10652	106.106517	106.106517	106.106517	105.4891971	103.3385566	101.2426633	99.19973998	97.20808189
180920A00014	9/20/2018	3.59	9/20/2028	9/20/2018	127.59981	127.5998147	127.5998147	125.9153151	117.1809973	108.8730389	101.2378014	94.21688892	87.75726496
180924A00021	9/24/2018	2.88	9/24/2020	9/24/2018	101.12758	101.1275831	101.1275831	101.1275831	101.0699648	100.661541	100.2564216	99.85456636	99.45593603
180927A00017	9/27/2018	3	9/29/2020	9/27/2018	101.15826	101.1582622	101.1582622	101.1582622	101.0983275	100.6767213	100.2586232	99.84398955	99.4327775
181001A00020	10/1/2018	3.16	10/3/2022	10/1/2018	107.0231	107.023103	107.023103	107.023103	106.2351735	103.7943254	101.4223699	99.11697568	96.87590422
181002A00018	10/2/2018	3.1	10/4/2021	10/2/2018	104.07202	104.0720219	104.0720219	104.0720219	103.7123981	102.2810723	100.8765972	99.49828224	98.14546023
181003A00021	10/3/2018	3.1	4/5/2021	10/3/2018	102.66337	102.6633715	102.6633715	102.6633715	102.4418709	101.5004731	100.5763664	99.66907757	98.77815024
181005A00037	10/9/2018	3.4	10/3/2025	10/9/2018	118.00706	118.0070552	118.0070552	118.0070552	114.056975	108.51783	103.2869437	98.34552523	93.67602415
181016A00011	10/16/2018	3.06	10/15/2021	10/16/2018	104.35131	104.3513114	104.3513114	104.3513114	103.9806154	102.5139294	101.0753578	99.6641622	98.27962951
181017A00023	10/17/2018	3.07	10/14/2020	10/17/2018	101.30505	101.3050533	101.3050533	101.3050533	101.236569	100.7732881	100.3142536	99.85940714	99.40869137
181023A00036	10/23/2018	2.98	10/23/2020	10/23/2018	101.39889	101.3988903	101.3988903	101.3988903	101.325092	100.8359878	100.3516102	99.87189071	99.39676228
181026A00002	10/26/2018	3.28	10/26/2023	10/26/2018	110.50502	110.5050206	110.5050206	110.5050206	108.8823605	105.3622132	101.9763669	98.71897221	95.58446704

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181029A00081	10/29/2018	3.27	4/28/2023	10/29/2018	108.98807	108.988066	108.988066	108.988066	107.7777097	104.7567064	101.8372971	99.01550095	96.28751669
181101A00020	11/1/2018	3.26	11/1/2021	11/1/2018	104.5342	104.534203	104.534203	104.534203	104.1496613	102.640531	101.1610918	99.7105434	98.28811359
181107A00008	11/7/2018	3.42	11/7/2023	11/7/2018	111.10085	111.1008511	111.1008511	111.1008511	109.4469911	105.8848172	102.4595107	99.165064	95.9957669
181108A00025	11/8/2018	3.44	7/31/2023	11/8/2018	110.31562	110.3156156	110.3156156	110.3156156	108.8908863	105.6015404	102.429951	99.37117605	96.42051547
181109A00023	11/9/2018	3.39	11/9/2022	11/9/2018	107.90297	107.9029663	107.9029663	107.9029663	107.0448497	104.4951752	102.0200203	99.61676622	97.28290292
181114A00021	11/14/2018	3.17	11/14/2023	11/14/2018	110.93631	110.9363148	110.9363148	110.9363148	109.2576931	105.6629265	102.2072837	98.88461484	95.68907735
181121A00014	11/21/2018	3.18	11/19/2021	11/21/2018	104.55609	104.5560944	104.5560944	104.5560944	104.1566561	102.5977975	101.0701425	99.57282462	98.10500891
181123A00016	11/23/2018	3.19	11/23/2022	11/23/2018	107.50371	107.5037074	107.5037074	107.5037074	106.6206704	104.0381265	101.5318928	99.09925318	96.73760664
181123A00021	11/23/2018	3.25	11/22/2023	11/23/2018	110.61844	110.6184414	110.6184414	110.6184414	108.9326795	105.3389039	101.8845313	98.56338309	95.36959091
181126A00047	11/26/2018	3.19	11/26/2021	11/26/2018	104.62796	104.627964	104.627964	104.627964	104.2226211	102.6439332	101.0970592	99.58110578	98.09521294
181127A00027	11/27/2018	3.25	11/28/2022	11/27/2018	107.69991	107.6999108	107.6999108	107.6999108	106.8068031	104.2081497	101.6865517	99.2392547	96.86362178
181129A00027	11/29/2018	3.16	11/29/2021	11/29/2018	104.60397	104.6039691	104.6039691	104.6039691	104.1961984	102.6094672	101.0548055	99.53130895	98.03810667
181211A00031	12/11/2018	2.95	12/11/2023	12/11/2018	110.3593	110.3592968	110.3592968	110.3592968	108.6207529	104.9646504	101.4524428	98.07765977	94.83416052
181212A00036	12/12/2018	2.86	6/12/2020	12/12/2018	100.32754	100.3275434	100.3275434	100.3275434	100.3153554	100.195879	100.0767022	99.95782372	99.83924239
181217A00010	12/17/2018	3.11	12/15/2023	12/17/2018	110.29323	110.2932279	110.2932279	110.2932279	108.5556804	104.9077346	101.4033017	98.03592862	94.79949107
181218A00072	12/18/2018	3.04	12/19/2022	12/18/2018	107.31167	107.3116655	107.3116655	107.3116655	106.3791378	103.730397	101.1615081	98.66956339	96.2517817
181219A00006	12/19/2018	3.06	12/19/2023	12/19/2018	110.14079	110.1407945	110.1407945	110.1407945	108.3948104	104.7393313	101.2280323	97.85441361	94.6123077
181220A00027	12/20/2018	2.97	2/28/2022	12/20/2018	104.97365	104.9736542	104.9736542	104.9736542	104.4914953	102.6520955	100.8540898	99.09630861	97.37762245
181221A00018	12/21/2018	2.98	12/21/2021	12/21/2018	104.46308	104.4630816	104.4630816	104.4630816	104.0384063	102.3945616	100.7847237	99.20790213	97.66314518
181226A00024	12/26/2018	2.9	12/27/2021	12/26/2018	104.37337	104.3733695	104.3733695	104.3733695	103.9441867	102.2852014	100.6607571	99.06983962	97.51147453
190103A00010	1/3/2019	2.7	1/3/2024	1/3/2019	109.609	109.6090023	109.6090023	109.6090023	107.8207183	104.1187652	100.5646729	97.15169398	93.87343055
190107A00006	1/7/2019	2.82	3/29/2021	1/7/2019	102.35921	102.3592066	102.3592066	102.3592066	102.1442521	101.2232981	100.3189243	99.43068583	98.55815386
190107A00021	1/7/2019	2.79	1/7/2021	1/7/2019	101.77292	101.7729226	101.7729226	101.7729226	101.6360106	100.9381812	100.2499249	99.57104586	98.9013531
190107A00024	1/7/2019	2.91	1/5/2024	1/7/2019	109.71288	109.7128781	109.7128781	109.7128781	107.9295767	104.2383003	100.6941935	97.29054884	94.02100622
190110A00004	1/10/2019	3.09	1/10/2025	1/10/2019	113.17591	113.1759124	113.1759124	113.1759124	110.354106	105.6399712	101.1571022	96.89288034	92.83544694
190110A00005	1/10/2019	3.2	1/9/2026	1/10/2019	116.5756	116.575597	116.575597	116.575597	112.1713489	106.4690019	101.0970662	96.03458931	91.26206009
190110A00010	1/10/2019	2.97	1/16/2024	1/10/2019	110.01674	110.0167442	110.0167442	110.0167442	108.2053107	104.4803147	100.9047891	97.4718737	94.1750667
190110A00073	1/10/2019	2.68	8/6/2021	1/10/2019	103.2919	103.2918954	103.2918954	103.2918954	102.9807447	101.7013368	100.4515272	99.23028974	98.03664547
190110A00078	1/10/2019	2.69	12/7/2021	1/10/2019	104.18188	104.1818757	104.1818757	104.1818757	103.767311	102.1580405	100.5816539	99.03721041	97.52380537
190110A00079	1/10/2019	2.68	10/7/2021	1/10/2019	103.73235	103.7323532	103.7323532	103.7323532	103.3696287	101.9289233	100.5154543	99.12851631	97.76742766
190110A00090	1/10/2019	2.88	10/7/2020	1/10/2019	101.16594	101.165937	101.165937	101.165937	101.1015105	100.6578635	100.2181108	99.78220112	99.35008431

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190115A00034	1/15/2019	2.91	1/17/2023	1/15/2019	107.17464	107.1746418	107.1746418	107.1746418	106.1849975	103.4624619	100.8239321	98.2662691	95.78647508
190131A00027	1/31/2019	2.86	1/31/2023	1/31/2019	107.13655	107.1365498	107.1365498	107.1365498	106.1188738	103.3604748	100.6881618	98.09867765	95.58891405
190131A00048	1/31/2019	2.8	7/31/2020	1/31/2019	100.64774	100.6477395	100.6477395	100.6477395	100.6156703	100.3605696	100.1067557	99.85421896	99.60294985
190201A00009	2/1/2019	2.8	2/4/2022	2/1/2019	104.47558	104.4755808	104.4755808	104.4755808	104.0150918	102.2508356	100.5250567	98.83658457	97.18429639
190201A00011	2/1/2019	2.8	2/4/2022	2/1/2019	104.47558	104.4755808	104.4755808	104.4755808	104.0150918	102.2508356	100.5250567	98.83658457	97.18429639
190208A00008	2/8/2019	2.86	2/8/2024	2/8/2019	109.76664	109.7666388	109.7666388	109.7666388	107.9018379	104.1213899	100.494914	97.01527381	93.67570721
190211A00002	2/11/2019	2.88	2/12/2024	2/11/2019	109.87103	109.8710321	109.8710321	109.8710321	107.9958515	104.2025515	100.5641368	97.07342905	93.72362492
190211A00011	2/11/2019	2.8	2/11/2022	2/11/2019	104.52351	104.523508	104.523508	104.523508	104.0569398	102.2717705	100.5258984	98.81815453	97.14741548
190214A00013	2/14/2019	2.64	2/14/2023	2/14/2019	107.13206	107.1320608	107.1320608	107.1320608	106.0803857	103.2703763	100.5494259	97.91418632	95.36145772
190222A00029	2/22/2019	2.62	2/22/2021	2/22/2019	102.06963	102.0696263	102.0696263	102.0696263	101.8883952	101.0623113	100.2496017	99.44994335	98.66302373
190225A00039	2/25/2019	2.62	2/25/2022	2/25/2019	104.62238	104.6223797	104.6223797	104.6223797	104.1419712	102.3089663	100.5171586	98.76537121	97.05246881
190228A00035	2/28/2019	2.8	2/26/2021	2/28/2019	102.12282	102.1228161	102.1228161	102.1228161	101.9381283	101.1025835	100.2807122	99.47218077	98.67666644
190228A00036	2/28/2019	2.81	2/28/2022	2/28/2019	104.67714	104.6771434	104.6771434	104.6771434	104.195644	102.3590505	100.5637984	98.80871962	97.09268613
190301A00012	3/1/2019	3.41	3/1/2029	3/1/2019	127.44621	127.446206	127.446206	125.2360612	116.070215	107.4222033	99.50804572	92.26117289	85.62138246
190311A00003	3/11/2019	2.68	9/10/2021	3/11/2019	103.30558	103.3055803	103.3055803	103.3055803	102.9674022	101.6069524	100.2709684	98.95884697	97.67000397
190314A00027	3/22/2019	2.92	3/21/2025	3/22/2019	112.87095	112.8709472	112.8709472	112.8709472	109.8199218	104.9322688	100.2934521	95.88952263	91.70738275
190318A00024	3/18/2019	2.57	3/18/2024	3/18/2019	109.63332	109.6333157	109.6333157	109.6333157	107.6623849	103.7624798	100.0260222	96.44532437	93.01310017
190319A00008	3/19/2019	2.72	3/21/2022	3/19/2019	104.63258	104.6325825	104.6325825	104.6325825	104.130988	102.2398281	100.3924116	98.58746774	96.82377102
190321A00003	3/21/2019	2.67	3/21/2024	3/21/2019	109.31629	109.3162868	109.3162868	109.3162868	107.3521314	103.4700461	99.75056049	96.18603056	92.76921089
190321A00029	3/21/2019	2.62	3/22/2021	3/21/2019	102.1287	102.1287044	102.1287044	102.1287044	101.9207517	101.0199418	100.1350313	99.26560163	98.41124909
190328A00033	4/25/2019	2.56	4/25/2024	4/25/2019	109.10204	109.1020444	109.1020444	109.1020444	107.052066	103.0840174	99.28611065	95.65015588	92.16840106
190328A00053	3/28/2019	2.33	3/28/2022	3/28/2019	104.27657	104.2765748	104.2765748	104.2765748	103.767231	101.8547536	99.98703289	98.16275387	96.38064893
190329A00018	3/29/2019	2.6	3/29/2024	3/29/2019	109.09235	109.0923476	109.0923476	109.0923476	107.1101193	103.2121894	99.47840656	95.90101352	92.47265983
190401A00006	4/1/2019	2.58	4/1/2022	4/1/2019	104.43457	104.4345719	104.4345719	104.4345719	103.9226581	102.0044473	100.1312425	98.30171755	96.51459426
190401A00007	4/1/2019	2.6	4/3/2023	4/1/2019	106.80494	106.8049368	106.8049368	106.8049368	105.6584739	102.7365843	99.91104097	97.1781504	94.53438146
190401A00023	4/1/2019	2.54	4/1/2021	4/1/2019	102.11947	102.1194676	102.1194676	102.1194676	101.9019254	100.9740215	100.0629747	99.16832892	98.28964434
190402A00004	4/2/2019	2.9	4/2/2029	4/2/2019	125.04465	125.0446485	125.0446485	122.6934056	113.420706	104.7305039	96.79042188	89.53145221	82.89127281
190404A00003	4/4/2019	2.47	4/4/2024	4/4/2019	109.35094	109.3509414	109.3509414	109.3509414	107.33961	103.4015673	99.63045948	96.01834651	92.55770747
190416A00019	4/16/2019	2.7	4/14/2023	4/16/2019	107.17294	107.1729431	107.1729431	107.1729431	106.0010456	103.0444938	100.1863604	97.42283432	94.75027378
190422A00084	4/22/2019	2.6	4/22/2021	4/22/2019	102.30106	102.3010616	102.3010616	102.3010616	102.0651461	101.0794702	100.1127985	99.16458503	98.23430473
190426A00016	5/1/2019	2.58	4/14/2023	5/1/2019	106.81491	106.8149093	106.8149093	106.8149093	105.644583	102.6933513	99.84040557	97.08193891	94.41431388

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190426A00033	6/27/2019	2.55	6/27/2022	6/27/2019	104.91751	104.9175069	104.9175069	104.9175069	104.2935675	102.136983	100.0357197	97.98796722	95.99198939
190501A00003	5/1/2019	2.61	5/1/2024	5/1/2019	109.3411	109.341105	109.341105	109.341105	107.2742473	103.2859935	99.46935014	95.81602537	92.31817267
190506A00034	5/6/2019	2.56	5/6/2020	5/6/2019	100.03701	100.0370105	100.0370105	100.0370105	100.0355036	100.0188704	100.0022536	99.98565328	99.96906938
190507A00022	5/7/2019	2.56	5/7/2020	5/7/2019	100.04337	100.0433672	100.0433672	100.0433672	100.041609	100.0222021	100.002815	99.98344756	99.96409987
190510A00009	5/10/2019	2.47	11/10/2021	5/10/2019	103.38428	103.3842776	103.3842776	103.3842776	102.9943723	101.4696687	99.97524271	98.51026575	97.07393884
190513A00010	5/13/2019	2.41	5/13/2020	5/13/2019	100.08282	100.0828184	100.0828184	100.0828184	100.0795463	100.0434334	100.007364	99.97133825	99.93535589
190514A00023	5/14/2019	2.43	5/14/2021	5/14/2019	102.26408	102.2640755	102.2640755	102.2640755	102.0114558	100.9663647	99.94264086	98.93963393	97.95671949
190514A00024	5/14/2019	2.34	5/14/2024	5/14/2019	109.07959	109.0795944	109.0795944	109.0795944	106.9681411	102.9317268	99.07076187	95.37668682	91.84140669
190515A00008	5/15/2019	2.41	11/15/2021	5/15/2019	103.32064	103.3206366	103.3206366	103.3206366	102.9267437	101.3888721	99.88168835	98.4043457	96.956028
190515A00013	5/15/2019	2.45	11/16/2020	5/15/2019	101.2185	101.2184973	101.2184973	101.2184973	101.1280615	100.5744344	100.0268667	99.48525922	98.9495149
190515A00014	5/15/2019	2.26	5/14/2021	5/15/2019	102.25302	102.2530186	102.2530186	102.2530186	101.999776	100.9523147	99.92630855	98.92110315	97.93607063
190515A00046	5/15/2019	2.4	5/14/2021	5/15/2019	102.23254	102.2325416	102.2325416	102.2325416	101.9799569	100.9350429	99.91149375	98.90865898	97.9259143
190516A00012	5/16/2019	2.43	11/16/2021	5/16/2019	103.35781	103.3578132	103.3578132	103.3578132	102.9630324	101.4221251	99.91199535	98.43179241	96.98069653
190521A00025	5/21/2019	2.47	5/21/2021	5/21/2019	102.34875	102.3487488	102.3487488	102.3487488	102.0911351	101.0266112	99.9842392	98.96333292	97.96323415
190521A00026	5/21/2019	2.54	5/19/2023	5/21/2019	106.91186	106.9118627	106.9118627	106.9118627	105.664927	102.6208043	99.68076837	96.84067265	94.09656108
190523A00006	5/23/2019	2.31	5/24/2021	5/23/2019	102.36648	102.3664779	102.3664779	102.3664779	102.1060869	101.030822	99.97813937	98.94733311	97.93772663
190523A00024	5/23/2019	2.47	10/31/2022	5/23/2019	105.49956	105.4995648	105.4995648	105.4995648	104.6664643	102.1718199	99.74980249	97.39787762	95.11361534
190523A00034	5/23/2019	2.31	5/21/2021	5/23/2019	102.34822	102.3482212	102.3482212	102.3482212	102.089957	101.022943	99.97817291	98.95495642	97.95263165
190524A00032	5/24/2019	2.45	5/24/2023	5/24/2019	106.66439	106.6643854	106.6643854	106.6643854	105.4076771	102.3544747	99.40603782	96.55817759	93.80689839
190528A00004	5/28/2019	2.38	8/13/2021	5/28/2019	102.72907	102.7290746	102.7290746	102.7290746	102.4141569	101.1260086	99.86559053	98.63200811	97.42440551
190528A00005	5/28/2019	2.42	6/15/2023	5/28/2019	106.7001	106.7000965	106.7000965	106.7000965	105.3950675	102.2834945	99.2802882	96.38104492	93.58156841
190528A00039	5/28/2019	2.38	11/29/2021	5/28/2019	103.35465	103.3546502	103.3546502	103.3546502	102.949217	101.3728084	99.82828568	98.31474953	96.83133405
190529A00009	5/29/2019	2.35	5/31/2022	5/29/2019	104.32845	104.3284482	104.3284482	104.3284482	103.7439615	101.6669115	99.64186091	97.66715851	95.74121837
190529A00032	5/29/2019	2.38	5/29/2024	5/29/2019	108.5733	108.5732952	108.5732952	108.5732952	106.440413	102.3969056	98.53011718	94.83137761	91.29249058
190529A00059	5/29/2019	2.32	5/28/2021	5/29/2019	102.22789	102.227892	102.227892	102.227892	101.9655218	100.8827574	99.82291886	98.78528402	97.76916074
190529A00062	5/29/2019	2.32	5/28/2021	5/29/2019	102.22789	102.227892	102.227892	102.227892	101.9655218	100.8827574	99.82291886	98.78528402	97.76916074
190530A00002	5/30/2019	2.24	5/28/2021	5/30/2019	102.31446	102.3144567	102.3144567	102.3144567	102.051319	100.9654986	99.90270694	98.8622174	97.84333373
190530A00005	5/30/2019	2.36	5/28/2021	5/30/2019	102.27149	102.271488	102.271488	102.271488	102.0090672	100.9260498	99.86596211	98.82808174	97.81171647
190530A00045	5/30/2019	2.44	5/30/2024	5/30/2019	108.82598	108.8259842	108.8259842	108.8259842	106.6886015	102.6374867	98.76345385	95.05781204	91.5123454
190531A00003	5/31/2019	2.31	10/29/2021	5/31/2019	103.06934	103.0693377	103.0693377	103.0693377	102.6899137	101.2003418	99.73997382	98.30802664	96.90374447
190603A00012	6/3/2019	2.44	6/3/2020	6/3/2019	100.20013	100.2001322	100.2001322	100.2001322	100.1912547	100.0970426	100.0030109	99.90915893	99.81548631

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190603A00048	6/3/2019	2.24	6/3/2024	6/3/2019	108.02412	108.0241168	108.0241168	108.0241168	105.882481	101.8372837	97.96948932	94.27036721	90.73166518
190604A00009	6/4/2019	2.23	6/4/2021	6/4/2019	102.16767	102.1676701	102.1676701	102.1676701	101.9007632	100.7994185	99.72180213	98.66715367	97.63474482
190605A00035	6/5/2019	2.18	6/5/2023	6/5/2019	105.89135	105.8913502	105.8913502	105.8913502	104.6120734	101.5395988	98.57349969	95.70948357	92.94345838
190606A00028	6/6/2019	2.74	6/6/2029	6/6/2019	122.16099	122.1609901	122.1609901	119.6368389	110.4008786	101.7750666	93.90653491	86.72449901	80.16514043
190611A00015	6/11/2019	2.32	6/11/2024	6/11/2019	108.3986	108.3985959	108.3985959	108.3985959	106.2330958	102.1596226	98.2654927	94.54184202	90.98029495
190620A00010	6/20/2019	2.04	6/20/2022	6/20/2019	103.7713	103.7713003	103.7713003	103.7713003	103.1602737	101.0352026	98.96435981	96.94598327	94.97838261
190620A00024	6/20/2019	2.05	6/21/2021	6/20/2019	102.0513	102.051305	102.051305	102.051305	101.7738863	100.6273325	99.50651547	98.41057605	97.33869302
190624A00008	6/24/2019	2.08	6/24/2022	6/24/2019	103.87744	103.8774388	103.8774388	103.8774388	103.2605303	101.1235129	99.04122366	97.01187674	95.03375907
190624A00052	6/24/2019	1.89	6/24/2022	6/24/2019	103.8576	103.8576048	103.8576048	103.8576048	103.2383363	101.0938996	99.00452093	96.96839964	94.98380857
190625A00017	6/25/2019	2.02	12/15/2022	6/25/2019	104.57519	104.5751941	104.5751941	104.5751941	103.660374	101.0584627	98.53500844	96.08715995	93.71218967
190625A00024	6/25/2019	2.26	6/25/2025	6/25/2019	110.13473	110.1347256	110.1347256	110.1347256	106.7609679	101.7030345	96.91575694	92.3832224	88.09053911
190626A00015	6/26/2019	2.15	6/26/2024	6/26/2019	107.76942	107.7694178	107.7694178	107.7694178	105.5696201	101.4703158	97.55314527	93.80902694	90.22938453
190701A00008	7/3/2019	2.1	7/3/2023	7/3/2019	105.77996	105.7799592	105.7799592	105.7799592	104.4400522	101.2957016	98.26236664	95.33547263	92.51066387
190701A00017	7/1/2019	1.9	7/1/2022	7/1/2019	103.91391	103.9139087	103.9139087	103.9139087	103.2845341	101.1205977	99.01257882	96.95863464	94.95699834
190703A00004	7/3/2019	2.08	7/5/2022	7/3/2019	103.9316	103.9316019	103.9316019	103.9316019	103.2986263	101.131811	99.02106452	96.96453462	94.96044582
190712A00001	7/12/2019	2.05	7/12/2024	7/12/2019	108.20934	108.2093403	108.2093403	108.2093403	105.9488502	101.7785683	97.79567747	93.99072665	90.3547974
190712A00009	7/12/2019	2.19	7/12/2023	7/12/2019	106.11533	106.1153282	106.1153282	106.1153282	104.7539865	101.5813371	98.52136866	95.56940686	92.72100273
190715A00022	7/15/2019	2.27	7/15/2020	7/15/2019	100.42314	100.4231445	100.4231445	100.4231445	100.3979802	100.1873881	99.97769193	99.76888585	99.56096418
190715A00027	7/15/2019	1.99	7/15/2021	7/15/2019	102.29087	102.2908713	102.2908713	102.2908713	101.9966383	100.7808964	99.59401514	98.43497626	97.3028089
190715A00028	7/17/2019	2.17	1/18/2022	7/17/2019	103.26201	103.2620053	103.2620053	103.2620053	102.8177327	101.1103946	99.43956331	97.80413278	96.20304185
190719A00012	7/19/2019	2.07	7/20/2020	7/19/2019	100.43917	100.4391682	100.4391682	100.4391682	100.4118123	100.1870435	99.96329407	99.74055695	99.51882523
190724A00024	7/24/2019	2.49	7/24/2029	7/24/2019	122.08935	122.0893455	122.0893455	119.3548596	109.8920453	101.0951859	93.08444683	85.78516897	79.1301549
190729A00007	7/29/2019	2.17	7/28/2023	7/29/2019	106.13349	106.1334856	106.1334856	106.1334856	104.7369311	101.523231	98.42495587	95.43725941	92.55553261
190729A00019	7/29/2019	2.16	7/29/2021	7/29/2019	102.36442	102.3644189	102.3644189	102.3644189	102.0614849	100.8107414	99.5905327	98.39975142	97.23734306
190731A00004	7/31/2019	2.18	7/31/2024	7/31/2019	108.0764	108.0764036	108.0764036	108.0764036	105.7805701	101.5876365	97.58454817	93.76165049	90.10983835
190802A00004	8/2/2019	2	8/2/2022	8/2/2019	103.88738	103.887385	103.887385	103.887385	103.2122152	100.9730611	98.79344203	96.67133963	94.60482141
190806A00007	8/6/2019	1.88	8/5/2022	8/6/2019	103.62683	103.626833	103.626833	103.626833	102.9476069	100.7036621	98.51957338	96.39331927	94.32296367
190807A00012	8/7/2019	1.76	2/7/2023	8/7/2019	104.10343	104.1034275	104.1034275	104.1034275	103.0832395	100.3471721	97.69736192	95.1305546	92.64364203
190807A00045	8/7/2019	1.77	8/7/2024	8/7/2019	106.34755	106.3475543	106.3475543	106.3475543	104.0468218	99.87290385	95.88916594	92.08591797	88.45401949
190808A00024	8/8/2019	1.69	2/8/2024	8/8/2019	106.00612	106.0061165	106.0061165	106.0061165	104.1554919	100.4272782	96.85212481	93.42290213	90.13285588
190809A00001	8/9/2019	1.88	8/9/2022	8/9/2019	103.64437	103.644372	103.644372	103.644372	102.9586816	100.70415	98.50999215	96.37417986	94.29476943

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190809A00022	8/9/2019	1.88	8/9/2024	8/9/2019	106.82984	106.8298391	106.8298391	106.8298391	104.519609	100.3306021	96.33254701	92.51571531	88.8709299
190813A00008	8/13/2019	1.88	8/13/2024	8/13/2019	106.84727	106.8472731	106.8472731	106.8472731	104.5259307	100.3266937	96.31929641	92.49396113	88.84146284
190814A00006	8/14/2019	1.84	8/14/2023	8/14/2019	105.126	105.1259956	105.1259956	105.1259956	103.6972021	100.4567637	97.33427706	94.32478991	91.42358822
190814A00009	8/14/2019	1.84	8/14/2024	8/14/2019	106.67866	106.6786574	106.6786574	106.6786574	104.3559881	100.1578522	96.15165735	92.32761855	88.67650352
190814A00015	8/14/2019	1.84	8/14/2024	8/14/2019	106.67866	106.6786574	106.6786574	106.6786574	104.3559881	100.1578522	96.15165735	92.32761855	88.67650352
190815A00025	8/15/2019	1.97	8/15/2029	8/15/2019	117.35786	117.3578622	117.3578622	114.5619479	105.2140214	96.5764303	88.72055453	81.57151743	75.06197015
190816A00007	8/16/2019	1.77	8/16/2023	8/16/2019	104.90178	104.9017827	104.9017827	104.9017827	103.4697685	100.227959	97.10435335	94.09398976	91.19214463
190816A00016	8/16/2019	2.2	8/16/2029	8/16/2019	117.60877	117.608766	117.608766	114.8555876	105.6051007	97.03381346	89.23434451	82.13302205	75.66355911
190819A00004	8/20/2019	1.81	5/24/2024	8/20/2019	106.20794	106.2079426	106.2079426	106.2079426	104.1059062	100.1225037	96.31331051	92.66978853	89.18386514
190820A00005	8/21/2019	1.76	2/27/2023	8/21/2019	104.18267	104.1826659	104.1826659	104.1826659	103.1211472	100.3273803	97.62328676	95.00552307	92.47088869
190829A00015	8/30/2019	2.06	8/30/2022	8/30/2019	104.16092	104.1609157	104.1609157	104.1609157	103.4400137	101.124912	98.87304351	96.68233864	94.55080768
190830A00002	8/30/2019	1.93	8/28/2026	8/30/2019	110.32548	110.325478	110.325478	110.325478	104.691855	98.63538335	92.96823077	87.66343489	82.6960289
190904A00007	9/4/2019	1.69	9/1/2023	9/4/2019	104.69736	104.697358	104.697358	104.697358	103.231226	99.95232579	96.79437543	93.75230577	90.82128627
190904A00019	9/4/2019	1.69	9/4/2024	9/4/2019	106.11048	106.1104844	106.1104844	106.1104844	103.7348876	99.49699557	95.45531343	91.59979016	87.92093909
190904A00020	9/4/2019	1.69	9/1/2023	9/4/2019	104.69736	104.697358	104.697358	104.697358	103.231226	99.95232579	96.79437543	93.75230577	90.82128627
190905A00002	9/5/2019	1.78	9/6/2022	9/5/2019	103.52924	103.5292371	103.5292371	103.5292371	102.7984846	100.4723007	98.21017386	96.0099957	93.86973923
190909A00025	9/9/2019	1.88	9/9/2024	9/9/2019	106.96471	106.9647057	106.9647057	106.9647057	104.5676898	100.2988529	96.22800744	92.34498694	88.64019728
190910A00004	9/11/2019	1.86	9/11/2024	9/11/2019	106.88534	106.8853449	106.8853449	106.8853449	104.4833835	100.2111944	96.13740861	92.2518259	88.54482106
190917A00044	9/17/2019	1.86	9/17/2021	9/17/2019	102.44105	102.4410483	102.4410483	102.4410483	102.0973789	100.7203652	99.36848978	98.04112389	96.73765938
190918A00007	9/20/2019	1.95	12/15/2022	9/20/2019	104.38948	104.3894769	104.3894769	104.3894769	103.4753297	100.8758867	98.35484386	95.90935186	93.53668482
190923A00017	9/23/2019	1.74	9/23/2024	9/23/2019	107.21907	107.2190719	107.2190719	107.2190719	104.7640567	100.4309858	96.30110511	92.36386937	88.60933356
190924A00035	9/24/2019	1.88	9/13/2024	9/24/2019	106.98203	106.9820291	106.9820291	106.9820291	104.573599	100.2942734	96.21389022	92.32221024	88.60957203
190925A00004	9/25/2019	1.7	9/24/2024	9/25/2019	107.04536	107.0453614	107.0453614	107.0453614	104.5890339	100.2571871	96.1286418	92.19283947	88.43982312
190925A00019	9/27/2019	1.93	9/27/2023	9/27/2019	105.62239	105.6223866	105.6223866	105.6223866	104.0933904	100.7313013	97.49554965	94.38073725	91.38172534
190926A00019	9/26/2019	1.94	9/26/2024	9/26/2019	107.30487	107.3048652	107.3048652	107.3048652	104.8570086	100.5378425	96.42091842	92.49575016	88.7524479
190930A00014	9/30/2019	1.89	9/30/2022	9/30/2019	103.89598	103.8959847	103.8959847	103.8959847	103.1234389	100.728878	98.4019312	96.14031511	93.94183697
191002A00005	10/2/2019	1.83	10/2/2020	10/2/2019	100.73695	100.7369549	100.7369549	100.7369549	100.6754326	100.2459531	99.82013047	99.39791817	98.97927044
191002A00014	10/2/2019	1.78	10/3/2022	10/2/2019	103.63951	103.6395081	103.6395081	103.6395081	102.8624431	100.4633162	98.1321704	95.86670188	93.66469876
191007A00029	10/7/2019	1.88	10/9/2029	10/7/2019	116.78022	116.7802238	116.7802238	113.7923837	104.3302298	95.61155879	87.69448965	80.50112754	73.96151022
191008A00018	10/8/2019	1.74	10/11/2022	10/8/2019	103.57341	103.5734054	103.5734054	103.5734054	102.7823247	100.3634524	98.01371036	95.730735	93.51225804
191008A00022	10/8/2019	1.55	10/8/2021	10/8/2019	102.08991	102.0899145	102.0899145	102.0899145	101.7290746	100.2981893	98.89442279	97.51707179	96.16545685

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191009A00006	10/9/2019	1.53	10/7/2022	10/9/2019	103.48443	103.4844314	103.4844314	103.4844314	102.6973641	100.2806761	97.93294976	95.65183187	93.43506383
191010A00011	10/10/2019	1.6	10/10/2023	10/10/2019	105.16617	105.1661729	105.1661729	105.1661729	103.601851	100.1988719	96.92546918	93.77603496	90.74523445
191017A00003	10/17/2019	1.9	12/10/2021	10/17/2019	102.63505	102.6350534	102.6350534	102.6350534	102.2223983	100.6228636	99.05607806	97.52110246	96.01703332
191018A00005	10/18/2019	1.89	5/2/2022	10/18/2019	103.23115	103.2311533	103.2311533	103.2311533	102.686807	100.6972561	98.75639283	96.86271993	95.01479688
191024A00017	10/25/2019	1.9	7/15/2021	10/25/2019	101.98585	101.9858541	101.9858541	101.9858541	101.6928026	100.4820113	99.29992699	98.14553826	97.01788049
191025A00009	10/25/2019	2.26	5/25/2029	10/25/2019	117.72812	117.7281244	117.7281244	115.2581383	106.2053072	97.78853529	90.11306473	83.1095846	76.71559826
191104A00023	11/4/2019	2.24	8/4/2028	11/4/2019	116.00947	116.0094669	116.0094669	114.4903725	106.2290461	98.46881004	91.33819302	84.78274525	78.75299465
191105A00018	11/5/2019	1.78	11/6/2023	11/5/2019	105.91803	105.9180251	105.9180251	105.9180251	104.2879581	100.8030035	97.45317644	94.23251506	91.13535398
191114A00008	11/18/2019	1.93	4/17/2023	11/18/2019	104.88902	104.88902	104.88902	104.88902	103.7206922	100.7901996	97.95780736	95.21970121	92.5722372
191114A00020	11/18/2019	1.91	2/15/2022	11/18/2019	102.95182	102.9518248	102.9518248	102.9518248	102.4851709	100.7025986	98.95953137	97.25480846	95.58731279
191120A00006	11/20/2019	2.67	11/20/2035	11/20/2019	136.42836	136.4283564	136.4283564	123.7761718	108.5893517	95.3911574	84.03175117	74.24106338	65.79013112
191120A00010	11/20/2019	1.88	1/20/2022	11/20/2019	102.76626	102.766265	102.766265	102.766265	102.3214453	100.6132843	98.94174841	97.30572479	95.70414587
191122A00006	11/22/2019	1.74	11/22/2023	11/22/2019	105.84724	105.8472362	105.8472362	105.8472362	104.1808307	100.6550396	97.26727815	94.01139492	90.88154817
191126A00015	11/27/2019	1.88	10/14/2022	11/27/2019	103.9329	103.9329043	103.9329043	103.9329043	103.1353137	100.7042509	98.34285676	96.04874187	93.81961352
191202A00005	12/2/2019	2.03	12/2/2024	12/2/2019	107.97579	107.9757862	107.9757862	107.9757862	105.3260328	100.8267342	96.54555185	92.47076847	88.59135921
191206A00013	12/6/2019	3.05	12/6/2044	12/6/2019	165.94883	165.9488266	159.0523819	132.8962441	110.4210231	92.37509161	77.92736478	66.31291377	56.93510389
191206A00021	12/6/2019	2.02	12/6/2024	12/6/2019	107.94837	107.9483742	107.9483742	107.9483742	105.286585	100.7781217	96.48865296	92.40639097	88.5202462
191206A00044	12/10/2019	2.01	10/31/2024	12/10/2019	107.73426	107.7342641	107.7342641	107.7342641	105.182383	100.7693699	96.56704742	92.56426981	88.75053883
191220A00001	12/20/2019	2.62	12/19/2031	12/20/2019	126.83301	126.8330055	126.8330055	120.7556033	109.1068477	98.56404536	89.169024	80.78971852	73.30991782
191223A00008	12/23/2019	1.93	12/23/2021	12/23/2019	102.72666	102.7266616	102.7266616	102.7266616	102.3038355	100.6695852	99.06925534	97.50185516	95.96643234
191223A00055	12/23/2019	2.46	12/7/2029	12/23/2019	120.68213	120.6821328	120.6821328	117.519872	107.8817976	98.96225324	90.86646659	83.51372688	76.83162468
191230A00012	12/30/2019	1.77	12/1/2023	12/30/2019	105.99649	105.9964938	105.9964938	105.9964938	104.3084727	100.7564636	97.34422579	94.06549595	90.91432828
200108A00017	1/8/2020	2.55	1/8/2035	1/8/2020	135.92344	135.923438	135.923438	124.5559921	109.8104879	96.90577119	85.72269229	76.01944723	67.58944636
200110A00005	1/10/2020	1.7	1/10/2022	1/10/2020	102.72127	102.7212705	102.7212705	102.7212705	102.2829168	100.5960551	98.94502015	97.32873628	95.74617104
200122A00028	1/22/2020	1.84	1/21/2022	1/22/2020	102.70074	102.7007362	102.7007362	102.7007362	102.2552672	100.5450701	98.87158732	97.23370153	95.63034122
200123A00049	1/23/2020	1.63	1/23/2023	1/23/2020	104.18362	104.1836249	104.1836249	104.1836249	103.1887595	100.4809395	97.85761032	95.31558495	92.85182087
200129A00018	2/3/2020	1.74	12/15/2022	2/3/2020	103.83233	103.8323256	103.8323256	103.8323256	102.920197	100.3281585	97.81435011	95.37592759	93.01017025
200130A00005	1/30/2020	1.73	1/30/2024	1/30/2020	105.42792	105.4279215	105.4279215	105.4279215	103.6136108	99.93832875	96.41271657	93.02982152	89.78305844
200130A00006	1/30/2020	1.77	1/30/2025	1/30/2020	107.01077	107.0107671	107.0107671	107.0107671	104.1864856	99.56609217	95.17658961	91.00519662	87.03991274
200130A00010	1/30/2020	1.56	1/31/2022	1/30/2020	102.56445	102.5644534	102.5644534	102.5644534	102.1098611	100.3690829	98.66621502	97.00008603	95.36957307
200131A00016	1/31/2020	1.73	1/31/2025	1/31/2020	106.82323	106.8232301	106.8232301	106.8232301	103.9976755	99.37924016	94.99177354	90.82248189	86.85935354

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200203A00004	2/3/2020	1.7	2/3/2023	2/3/2020	103.92013	103.9201288	103.9201288	103.9201288	102.9088683	100.1866879	97.55003321	94.99566895	92.52050634
200203A00050	2/3/2020	1.54	2/3/2022	2/3/2020	102.54062	102.5406154	102.5406154	102.5406154	102.0835225	100.3342199	98.623169	96.94919927	95.31118812
200204A00020	2/4/2020	1.6	2/4/2025	2/4/2020	107.14447	107.1444655	107.1444655	107.1444655	104.2811828	99.61663099	95.18655854	90.97793434	86.97852469
200205A00013	2/5/2020	1.77	2/6/2023	2/5/2020	104.12746	104.1274569	104.1274569	104.1274569	103.1092257	100.3756547	97.7281809	95.16355415	92.67867043
200214A00005	2/14/2020	1.59	2/14/2025	2/14/2020	107.1366	107.1365979	107.1365979	107.1365979	104.2404725	99.54914001	95.09495071	90.86470045	86.84599015
200219A00016	2/19/2020	1.57	10/19/2022	2/19/2020	103.63148	103.6314807	103.6314807	103.6314807	102.8224689	100.372945	97.99419602	95.6837754	93.4393363
200220A00001	2/20/2020	1.74	2/22/2022	2/20/2020	102.67053	102.6705308	102.6705308	102.6705308	102.1985662	100.3983281	98.63836635	96.91752239	95.23467936
200221A00009	2/21/2020	1.69	2/22/2022	2/21/2020	102.5787	102.5787002	102.5787002	102.5787002	102.1069378	100.3075619	98.54844636	96.82843288	95.14640511
200221A00013	2/21/2020	1.69	2/21/2025	2/21/2020	106.70969	106.7096931	106.7096931	106.7096931	103.816997	99.14531076	94.71003202	90.49801274	86.49690254
200224A00019	2/24/2020	1.59	2/18/2025	2/24/2020	106.21472	106.2147204	106.2147204	106.2147204	103.3368512	98.68478019	94.26790115	90.07313674	86.088204
200224A00024	2/24/2020	1.59	2/24/2025	2/24/2020	106.23537	106.2353715	106.2353715	106.2353715	103.3378259	98.66936085	94.23769211	90.0296378	86.03281511
200225A00018	2/25/2020	1.94	2/25/2030	2/25/2020	116.04175	116.0417513	116.0417513	112.6154326	102.9599419	94.09431336	86.07020348	78.80328725	72.21808034
200226A00002	2/26/2020	1.53	2/27/2023	2/26/2020	103.52557	103.5255654	103.5255654	103.5255654	102.4667284	99.68232986	96.9873782	94.37853736	91.85261382
200226A00016	2/26/2020	1.57	2/26/2025	2/26/2020	106.14505	106.1450522	106.1450522	106.1450522	103.2419546	98.57032331	94.13594071	89.92559366	85.92686945
200226A00017	2/26/2020	1.53	2/27/2023	2/26/2020	103.52557	103.5255654	103.5255654	103.5255654	102.4667284	99.68232986	96.9873782	94.37853736	91.85261382
200228A00014	2/28/2020	1.4	2/28/2025	2/28/2020	105.32467	105.3246736	105.3246736	105.3246736	102.4236042	97.76608385	93.34563628	89.14904517	85.1638946
200228A00026	2/28/2020	2.14	2/28/2035	2/28/2020	126.97373	126.9737262	126.9737262	115.8534536	101.7702726	89.49795199	78.88685826	69.7011966	61.73979649
200228A00066	2/28/2020	1.35	2/28/2024	2/28/2020	104.07293	104.0729318	104.0729318	104.0729318	102.198924	98.47227654	94.90062554	91.47675851	88.19383492
200228A00073	2/28/2020	1.32	2/28/2023	2/28/2020	102.92836	102.928357	102.928357	102.928357	101.8699207	99.09123421	96.40195902	93.7987611	91.2784486
200302A00033	3/2/2020	1.31	3/3/2025	3/2/2020	104.89506	104.8950554	104.8950554	104.8950554	101.98844	97.33398178	92.91695668	88.72410382	84.74296681
200303A00001	3/3/2020	1.15	3/3/2025	3/3/2020	105.05079	105.0507923	105.0507923	105.0507923	102.1202133	97.43350881	92.98664221	88.76618204	84.75951381
200303A00002	3/3/2020	1.06	3/3/2023	3/3/2020	102.70704	102.7070444	102.7070444	102.7070444	101.6380244	98.84329131	96.13898998	93.52173062	90.98826879
200304A00021	3/4/2020	0.94	3/4/2024	3/4/2020	103.19632	103.1963187	103.1963187	103.1963187	101.3048572	97.56377232	93.97944467	90.54453754	87.25209443
200305A00020	3/5/2020	0.95	3/5/2025	3/5/2020	104.07607	104.0760739	104.0760739	104.0760739	101.1489503	96.48064761	92.05182864	87.84905873	83.85972154
200305A00035	3/5/2020	1.25	3/5/2026	3/5/2020	105.54929	105.5492861	105.5492861	105.5492861	101.0053568	95.47823749	90.2844671	85.40234589	80.81168842
200305A00043	3/5/2020	0.95	3/7/2022	3/5/2020	101.24315	101.2431466	101.2431466	101.2431466	100.762614	98.94038311	97.15967658	95.41930964	93.71813881
200306A00098	3/10/2020	1.59	3/8/2030	3/10/2020	112.6444	112.6443991	112.6443991	109.195697	99.64599064	90.91237943	83.01444923	75.86801163	69.39774033
200309A00027	3/9/2020	0.97	3/10/2025	3/9/2020	103.25078	103.2507801	103.2507801	103.2507801	100.3380618	95.70614487	91.31193917	87.14210494	83.18411519
200311A00021	3/11/2020	1.09	3/11/2024	3/11/2020	103.79878	103.7987838	103.7987838	103.7987838	101.8860979	98.11613913	94.50473134	91.044423	87.72815049
200312A00004	3/13/2020	1.23	1/24/2025	3/13/2020	104.41091	104.4109066	104.4109066	104.4109066	101.6315766	97.08596213	92.76767319	88.66414052	84.763561
200403A00006	4/3/2020	1.05	4/3/2025	4/3/2020	103.69138	103.6913765	103.6913765	103.6913765	100.6941454	95.99530382	91.54045458	87.31573976	83.30815644

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200430A00017	4/30/2020	0.94	4/30/2025	4/30/2020	103.19245	103.1924458	103.1924458	103.1924458	100.1083886	95.35669501	90.85551883	86.59041604	82.54784765
120330A00019	3/30/2012	2.71	3/30/2027	3/30/2017	100.43673	100.4367256	100.4367256	100.4367256	100.4180888	100.2438413	99.24855786	96.64791613	93.65472047
120606A00015	6/6/2012	2.36	6/7/2027	6/6/2017	100.3778	100.3778018	100.3778018	100.3778018	100.3591696	100.0900599	98.28884985	95.32159142	92.21391721
121121A00026	11/21/2012	1.63	11/21/2022	11/21/2017	100.2226	100.2225988	100.2225988	100.2225988	100.20425	99.85095695	98.79333681	97.54466929	96.30153592
130322A00001	3/22/2013	2.06	3/22/2023	3/22/2018	100.3274	100.3274021	100.3274021	100.3274021	100.3087658	100.0850337	98.87734908	96.82804674	94.66082001
150409A00033	4/9/2015	2.03	4/9/2025	4/9/2020	100.32137	100.3213654	100.3213654	100.3213654	100.302797	100.0315817	98.57580113	96.3814388	94.1117669
160128A00029	1/29/2016	3.45	1/29/2036	1/29/2021	102.90189	102.9018863	102.9018863	102.9018863	102.7297163	101.4409186	98.18058448	92.95352467	87.2400849
170411A00031	4/11/2017	3.39	4/12/2032	4/11/2022	106.05034	106.050342	106.050342	106.050342	105.4092885	102.7508353	99.08782423	94.61014769	89.91601667
180315A00030	3/15/2018	3.76	3/15/2033	3/17/2025	117.02843	117.0284311	117.0284311	117.0240863	113.1834536	106.7897999	99.86834089	92.73265711	85.78121514
180703A00033	7/3/2018	3.4	7/3/2028	7/3/2023	108.40407	108.404067	108.404067	108.404067	107.2319971	104.2235971	100.9692888	97.49670035	93.96824873
190409A00016	4/9/2019	2.91	4/9/2029	4/9/2024	109.97156	109.9715576	109.9715576	109.9715552	107.691531	103.1045649	98.18249991	93.15182391	88.25633559
190409A00017	4/9/2019	3.01	4/9/2029	4/9/2024	110.77617	110.7761686	110.7761686	110.7761645	108.3181313	103.3998499	98.04246164	92.51141915	87.1079572
190520A00018	5/20/2019	3.7	5/20/2044	5/20/2024	113.15214	113.1521352	113.1521352	113.1371401	109.4676348	102.5820868	94.78376645	86.85366767	79.41399318
200423A00008	4/23/2020	1.59	4/23/2030	4/23/2025	106.94001	106.9400078	106.9400078	106.7157385	100.6631784	93.60283542	86.82047389	80.49025892	74.66934484
200423A00009	4/23/2020	1.59	4/23/2030	4/23/2025	106.94001	106.9400078	106.9400078	106.7157385	100.6631784	93.60283542	86.82047389	80.49025892	74.66934484
111215A00019	12/15/2011	2.53	12/15/2026	12/15/2021	103.63128	103.6312776	103.6312776	103.6312776	103.2293979	101.4403801	99.10961409	96.3155671	93.39558679
120924A00030	9/24/2012	2.2	9/24/2027	9/25/2017	100.35089	100.3508943	100.3508943	100.3508943	100.332262	99.92352586	97.68213891	94.53722515	91.33952416
130416A00025	4/16/2013	2.27	4/18/2028	4/16/2018	100.36284	100.3628446	100.3628446	100.3628446	100.3442015	99.91877417	97.53170912	94.175969	90.76802807
140328A00011	3/28/2014	3.32	3/30/2026	3/29/2021	102.90699	102.9069882	102.9069882	102.9069882	102.6952865	101.7375893	100.2517009	97.44433111	93.72397849
140416A00025	4/14/2014	3.56	4/16/2029	4/14/2021	103.39836	103.3983615	103.3983615	103.3983615	103.1601928	102.0481188	100.0139377	96.26040707	91.57734838
141119A00005	11/19/2014	2.53	11/19/2024	11/19/2019	100.3737	100.3737002	100.3737002	100.3737002	100.3551762	100.1814778	99.31763472	97.43220473	95.34471917
141224A00038	12/24/2014	2.93	12/24/2024	12/24/2019	100.443	100.4429964	100.4429964	100.4429964	100.4243576	100.2531303	99.46164776	96.98421046	93.96432187
151005A00020	10/5/2015	2.27	10/6/2025	10/5/2020	101.1175	101.117496	101.117496	101.117496	101.019786	100.2142427	98.47415814	96.09801638	93.63784163
160105A00024	1/5/2016	3.78	1/4/2036	1/5/2021	102.99698	102.9969798	102.9969798	102.9969798	102.833197	101.7122201	98.86459571	93.90791254	88.25894664
160825A00032	8/25/2016	3.14	8/25/2036	8/25/2021	103.72089	103.7208911	103.7208911	103.7208911	103.226216	100.297562	95.35563471	89.47394343	83.67012895
161012A00009	10/12/2016	2.56	10/14/2031	10/12/2021	103.7004	103.7004039	103.7004039	103.7004039	103.1422159	100.3954122	96.390817	91.8003438	87.25186506
161118A00013	11/18/2016	2.96	11/18/2026	11/18/2021	104.47982	104.4798176	104.4798176	104.4798176	104.044895	101.9712368	98.76723737	94.46702965	89.78462485
170809A00042	8/9/2017	2.35	8/9/2027	8/9/2022	104.52491	104.5249138	104.5249138	104.5249138	103.8088607	101.273313	98.32128779	95.13763523	91.95815626
181212A00026	12/12/2018	3.22	12/12/2028	12/12/2023	109.53551	109.5355071	109.5355071	109.5355071	108.0206362	104.5904555	100.97816	97.23948086	93.51635991
190111A00040	1/11/2019	3.74	1/11/2034	1/11/2024	112.91839	112.9183902	112.9183902	112.9183409	110.6664656	105.6170806	99.65724897	93.1287605	86.59219112
190930A00079	9/30/2019	2.04	10/1/2029	9/30/2024	106.83723	106.837226	106.837226	106.8372121	104.3131682	100.0402878	95.80679419	91.72068655	87.84470593

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200430A00021	4/30/2020	1.2	4/30/2030	4/30/2025	103.51856	103.5185611	103.5185611	103.4405384	99.72529835	95.09296988	90.70803737	86.59054923	82.7366192
100517A00013	5/17/2010	3.71	5/19/2025	5/18/2015	100.60405	100.6040486	100.6040486	100.6040486	100.585433	100.4170226	100.2488955	99.7533313	97.9959337
140508A00011	5/8/2014	2.32	5/8/2024	5/8/2019	100.36945	100.3694492	100.3694492	100.3694492	100.3509141	100.1782195	99.41515505	97.71277167	95.82455726
150108A00029	1/8/2015	3.16	1/9/2035	1/10/2022	105.24326	105.2432592	105.2432592	105.2432592	104.6334134	101.6265143	96.91864438	91.1934139	85.42563275
150319A00006	3/19/2015	2.28	3/19/2025	3/19/2020	100.3319	100.331899	100.331899	100.331899	100.3133681	100.074155	98.75173922	96.61935034	94.39015172
150420A00051	4/20/2015	2.66	9/20/2030	4/20/2020	100.42915	100.4291502	100.4291502	100.4291502	100.4104705	100.0566744	97.44242614	93.34428919	89.11833172
150526A00044	5/26/2015	3.19	5/28/2030	5/26/2020	100.48698	100.4869815	100.4869815	100.4869815	100.468332	100.2894873	98.8151176	95.19789406	91.11388441
150709A00019	7/9/2015	2.36	7/9/2025	7/9/2020	100.56438	100.5643846	100.5643846	100.5643846	100.5328397	100.2472153	99.13163846	96.9755361	94.61295745
151209A00031	12/9/2015	3.18	12/9/2030	12/9/2020	101.91002	101.9100218	101.9100218	101.9100218	101.782269	100.8932291	98.57232276	94.67737862	90.4013701
160209A00028	2/9/2016	2.04	2/9/2026	2/9/2021	101.50325	101.5032477	101.5032477	101.5032477	101.2850383	99.92594259	97.74189481	95.16458174	92.57864107
170705A00037	7/5/2017	2.85	7/6/2032	7/6/2027	114.80626	114.8062553	114.8062553	114.4152506	109.2567261	103.445053	97.91271621	92.69558584	87.81870981
171004A00022	10/4/2017	2.74	10/4/2027	10/4/2022	106.09502	106.0950179	106.0950179	106.0950179	105.1527625	102.0180677	98.18443763	93.91350141	89.60133224
180105A00005	1/5/2018	3.07	1/5/2028	1/5/2023	106.94395	106.9439516	106.9439516	106.9439516	106.0712408	103.4442992	100.5015749	97.26347196	93.92495901
180130A00087	1/30/2018	2.92	1/31/2028	1/30/2023	106.58535	106.5853504	106.5853504	106.5853504	105.6991738	103.0240829	100.0188776	96.74097058	93.39556793
180302A00003	3/2/2018	3.89	3/2/2033	3/2/2023	110.69479	110.6947917	110.6947917	110.6947912	109.3641756	105.45015	100.3382589	94.18361936	87.6645447
190204A00054	2/4/2019	3.98	2/6/2034	2/2/2024	113.49938	113.499385	113.499385	113.4992637	111.1086398	105.8844445	99.71951889	92.95278324	86.14870603
190807A00041	8/7/2019	2.27	8/7/2034	7/7/2024	108.08282	108.0828163	108.0828163	108.0689947	104.3734009	98.63270094	92.80228116	87.18360804	81.94164378
191007A00013	10/7/2019	2	10/5/2029	10/7/2024	106.01997	106.0199683	106.0199683	106.0199239	103.3570657	99.03599947	94.79098866	90.7192908	86.86943782
200115A00025	1/15/2020	2.1	1/15/2025	1/15/2023	104.48913	104.4891307	104.4891307	104.4891307	103.4642382	100.4806816	97.25316614	93.93646972	90.6797305
200306A00021	3/6/2020	1.16	3/6/2030	3/6/2025	103.24179	103.2417944	103.2417944	103.1854572	99.56532448	94.97836671	90.63175686	86.54809851	82.72415783
200326A00035	3/26/2020	1.68	3/26/2030	3/26/2025	105.24269	105.2426943	105.2426943	105.2355671	101.9541073	97.37525803	92.96980223	88.79786096	84.87908314
100707A00014	7/7/2010	3.19	7/7/2025	7/7/2015	100.51668	100.5166787	100.5166787	100.5166787	100.4980711	100.3297446	100.1076979	98.8624682	96.66583123
141010A00012	10/10/2014	2.44	10/10/2024	10/10/2019	100.36017	100.3601726	100.3601726	100.3601726	100.3416525	100.1573673	99.2134516	97.31970963	95.26291307
150115A00030	1/15/2015	1.98	1/15/2025	1/15/2020	100.31282	100.3128215	100.3128215	100.3128215	100.294264	100.0172715	98.5870395	96.48110644	94.31211605
150202A00006	2/2/2015	1.92	2/3/2025	2/3/2020	100.30278	100.3027817	100.3027817	100.3027817	100.2842225	99.96861139	98.4270163	96.27104769	94.06929833
150327A00011	3/27/2015	2.88	3/27/2030	3/27/2020	102.56665	102.5666488	102.5666488	102.5666488	102.3394038	101.0222489	98.1762473	93.97199715	89.54471838
150430A00047	4/30/2015	2.89	5/6/2030	4/30/2020	100.46793	100.4679268	100.4679268	100.4679268	100.4492447	100.2445049	98.47583245	94.73407081	90.64706319
150526A00019	5/28/2015	2.27	5/28/2025	5/28/2020	100.36177	100.361775	100.361775	100.361775	100.3431973	100.1460437	99.02093657	96.88313993	94.58304413
150817A00038	8/17/2015	4.01	8/31/2040	8/17/2020	101.32504	101.3250415	101.3250415	101.3250415	101.279117	100.8681193	98.40398899	92.30221042	85.24402545
151124A00024	11/24/2015	2.6	11/24/2025	11/24/2020	101.3601	101.3601044	101.3601044	101.3601044	101.2568683	100.5519251	98.95667177	96.39071196	93.65811067
151224A00017	12/24/2015	3.06	12/24/2030	12/24/2020	101.9549	101.9548977	101.9548977	101.9548977	101.8271473	100.9729626	98.76413796	94.91830103	90.62848285

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
161012A00020	10/11/2016	2.96	10/14/2031	10/11/2023	109.63127	109.6312661	109.6312661	109.6310716	106.9964603	101.3758998	94.92285943	88.2047414	81.72178169
180627A00005	6/27/2018	3.63	6/30/2033	6/30/2023	110.42922	110.4292209	110.4292209	110.4292208	108.9898031	105.2723742	100.8881155	95.95327943	90.85998016
191028A00015	10/28/2019	2.49	10/27/2034	10/28/2024	109.38913	109.3891266	109.3891266	109.3757414	105.6616431	99.8982329	94.01546235	88.31108654	82.96809989
191031A00036	10/31/2019	2.9	10/31/2039	10/31/2024	111.09157	111.091571	111.091571	110.9864553	106.0586364	98.99819484	91.78163616	84.85652215	78.48093206
200108A00009	1/8/2020	2.4	1/8/2035	1/8/2025	109.64401	109.6440085	109.6440085	109.5943059	105.2340643	98.93793359	92.61071805	86.56266105	80.95486665
200316A00032	3/16/2020	1.35	3/15/2030	3/16/2025	104.70144	104.7014431	104.7014431	104.6877687	101.2902732	96.68322295	92.27136697	88.10463336	84.19570728
111005A00009	10/5/2011	2.72	10/5/2026	10/5/2016	100.43824	100.4382446	100.4382446	100.4382446	100.4196159	100.2474248	99.40796347	97.00008999	94.17222511
130409A00013	4/9/2013	1.76	4/11/2023	4/9/2018	100.24483	100.2448276	100.2448276	100.2448276	100.2264265	99.89734698	98.75308217	97.32920531	95.9028734
130614A00011	6/14/2013	2.95	6/14/2028	6/14/2018	100.47762	100.4776222	100.4776222	100.4776222	100.4589589	100.2865463	99.34852997	96.46070878	93.0268795
140714A00012	7/14/2014	3.04	7/16/2029	7/15/2019	100.4931	100.4930999	100.4930999	100.4930999	100.4744212	100.300391	99.20163803	95.96007374	92.14918154
150116A00005	1/16/2015	1.92	1/16/2025	1/16/2020	100.30274	100.3027364	100.3027364	100.3027364	100.2841805	99.97601907	98.46639148	96.34453343	94.17597972
160627A00034	6/27/2016	1.7	6/26/2026	6/28/2021	101.71386	101.7138596	101.7138596	101.7138596	101.3932211	99.59348094	97.0917364	94.33935272	91.62399505
160711A00011	7/11/2016	1.66	7/13/2026	7/11/2021	101.88872	101.888724	101.888724	101.888724	101.5009017	99.5139968	96.9201942	94.12755113	91.38346449
171012A00039	10/12/2017	3.73	10/12/2032	10/13/2020	102.14468	102.1446811	102.1446811	102.1446811	102.0404243	101.2390537	98.21602464	92.09483745	85.22983809
180105A00006	1/5/2018	3.07	1/5/2028	1/5/2023	106.94395	106.9439509	106.9439509	106.9439509	106.0712403	103.4442995	100.5015766	97.2634756	93.92496485
190827A00044	8/27/2019	1.9	8/27/2029	8/27/2024	106.22947	106.2294698	106.2294698	106.2294554	103.7123042	99.46620117	95.27036129	91.23008683	87.40190982
190930A00083	9/30/2019	2.04	10/1/2029	9/30/2024	106.83723	106.837226	106.837226	106.8372121	104.3131678	100.0402871	95.80679313	91.72068518	87.84470429
200309A00013	3/9/2020	1.1	3/8/2030	3/9/2025	103.01228	103.0122834	103.0122834	102.9433639	99.2870693	94.70168153	90.36328818	86.29031721	82.47736971
200316A00030	3/16/2020	1.35	3/15/2030	3/16/2025	104.70144	104.7014429	104.7014429	104.6877685	101.2902745	96.68322542	92.27137056	88.10463797	84.19571277
200423A00010	4/23/2020	1.59	4/23/2030	4/23/2025	106.94	106.9400037	106.9400037	106.7157346	100.6631802	93.60284249	86.82048598	80.49027563	74.66936568
130104A00013	1/4/2013	1.79	1/4/2023	1/4/2018	100.24953	100.2495293	100.2495293	100.2495293	100.2311549	99.94608873	98.9162971	97.60573116	96.28872007
130416A00010	4/17/2013	2.39	12/29/2028	1/31/2019	100.38324	100.3832398	100.3832398	100.3832398	100.3645848	99.96775537	97.51153269	93.94046023	90.2971956
130521A00009	5/21/2013	2.55	5/22/2028	5/21/2018	100.4101	100.4101037	100.4101037	100.4101037	100.391452	100.1491833	98.34816665	95.1074537	91.6670346
140617A00012	6/17/2014	3.14	6/18/2029	6/17/2019	100.50997	100.5099656	100.5099656	100.5099656	100.4912852	100.3206829	99.45890522	96.40662034	92.64687027
140822A00012	8/22/2014	3.7	8/22/2034	8/23/2021	104.43795	104.4379493	104.4379493	104.4379493	104.1009924	102.3617345	99.19719447	94.45816476	89.16321597
150223A00011	2/23/2015	3.54	2/22/2030	2/23/2022	105.53899	105.5389851	105.5389851	105.5389851	105.0769138	103.0922293	100.4060174	96.85908144	92.89423543
150325A00018	3/25/2015	2.02	3/25/2025	3/25/2020	100.31964	100.319639	100.319639	100.319639	100.3010739	100.0307814	98.59195508	96.42828928	94.19157024
150709A00018	7/9/2015	2.36	7/9/2025	7/6/2020	100.56438	100.5643847	100.5643847	100.5643847	100.5328399	100.2472154	99.1316383	96.97553552	94.61295645
170515A00052	5/15/2017	3.78	5/15/2042	5/15/2024	115.2764	115.2763968	115.2763968	115.269199	111.7775987	105.3736244	98.16797109	90.67943814	83.46309827
170802A00074	8/2/2017	2.92	8/2/2027	8/2/2022	105.71966	105.7196643	105.7196643	105.7196643	104.8975492	101.9262421	98.18331715	93.943142	89.64514779
171016A00037	10/16/2017	3.39	10/18/2032	10/16/2022	107.98813	107.9881294	107.9881294	107.988129	106.8163126	102.8158416	97.38270568	91.03920054	84.59427497

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180212A00090	2/12/2018	2.92	2/13/2023	2/12/2021	104.55582	104.5558183	104.5558183	104.5558183	104.0986573	102.3046885	100.39012	98.27162371	96.04469712
180504A00024	5/4/2018	3.62	5/4/2028	5/4/2023	110.34033	110.3403309	110.3403309	110.3403309	108.9910854	105.3863416	101.0761468	96.06447953	90.75958602
180712A00016	7/12/2018	3.66	7/12/2033	7/12/2028	124.33553	124.3355307	124.3355307	123.0802108	115.8201105	108.1948881	100.9152197	94.04624979	87.65645771
190301A00015	3/1/2019	3.86	3/1/2034	3/2/2026	119.89075	119.8907494	119.8907494	119.7989993	114.0254078	106.5995084	98.91501926	91.27209664	83.98608429
190430A00020	4/30/2019	3.41	4/28/2034	4/28/2026	121.19903	121.1990271	121.1990271	120.6328724	112.9695469	104.6202291	96.36306781	88.45266562	81.09961235
200110A00012	1/10/2020	2.57	1/10/2035	1/10/2025	109.37868	109.3786779	109.3786779	109.3402137	105.1954836	99.23578638	93.25625308	87.51959311	82.17501636
200318A00015	3/18/2020	1.69	3/18/2030	3/18/2023	104.08397	104.0839743	104.0839743	104.0839729	102.1383773	97.89176193	93.45701926	89.13349604	85.0472785
120702A00016	7/2/2012	2.42	7/6/2027	7/3/2013	100.38794	100.3879436	100.3879436	100.3879436	100.3693083	100.1217931	98.40915895	95.43921025	92.30113054
130823A00025	8/23/2013	3.43	8/23/2023	8/24/2020	101.12314	101.1231389	101.1231389	101.1231389	101.0774748	100.7378799	100.3663752	99.30096392	97.08373113
140723A00038	7/23/2014	2.3	7/23/2024	7/23/2019	100.36624	100.3662371	100.3662371	100.3662371	100.3476938	100.1739033	99.33799347	97.55738402	95.59841245
150319A00020	3/19/2015	2.98	3/19/2030	3/19/2020	100.45149	100.4514865	100.4514865	100.4514865	100.4328441	100.1991275	98.22493635	94.44667758	90.40095032
150421A00009	4/21/2015	2.17	4/21/2025	4/21/2020	100.31345	100.3134512	100.3134512	100.3134512	100.2949201	100.0035605	98.48992184	96.28923127	94.02660509
150423A00020	4/23/2015	2.97	4/23/2030	4/23/2020	100.44981	100.4498134	100.4498134	100.4498134	100.4311704	100.1887155	98.14934589	94.32954965	90.25624297
150501A00019	5/1/2015	3.69	5/1/2035	5/1/2020	103.54961	103.5496082	103.5496082	103.5496082	103.2806426	101.7697889	98.45477776	93.26247434	87.62211744
150526A00018	5/28/2015	2.27	5/28/2025	5/28/2020	100.36177	100.361775	100.361775	100.361775	100.3431973	100.1460436	99.02093614	96.88313906	94.58304287
160311A00019	3/11/2016	3.02	3/11/2031	3/11/2021	102.44065	102.4406473	102.4406473	102.4406473	102.2201569	100.8232373	97.88697107	93.73280809	89.36943477
161006A00023	10/6/2016	2.49	10/6/2031	10/6/2021	103.59349	103.5934872	103.5934872	103.5934872	103.0065222	100.1542607	96.06819644	91.45543894	86.91454149
161011A00037	10/11/2016	2.17	10/13/2026	10/11/2019	102.00384	102.0038421	102.0038421	102.0038421	101.7611148	100.3873745	98.00304451	94.99751969	91.95827381
170519A00006	5/19/2017	3	5/19/2032	5/19/2022	105.65772	105.6577179	105.6577179	105.6577179	104.9561191	102.0618475	98.10864457	93.45472598	88.70488843
171214A00010	12/14/2017	2.57	12/14/2022	12/14/2020	101.54399	101.5439905	101.5439905	101.5439905	101.4115539	100.6910328	99.55924982	97.69133758	95.60212727
190116A00015	1/16/2019	3.61	1/17/2034	1/16/2024	111.16494	111.164936	111.164936	111.1649301	109.1789674	104.7766442	99.81187259	94.5183247	89.25221079
190329A00023	3/29/2019	3	3/29/2034	3/29/2024	110.29058	110.2905796	110.2905796	110.2904555	107.758731	102.785203	97.38513863	91.88277385	86.57913933
190329A00025	3/29/2019	3	3/29/2034	3/29/2024	110.29056	110.2905634	110.2905634	110.2904393	107.758725	102.7852127	97.38516681	91.88282118	86.57920469
190329A00026	3/29/2019	3	3/29/2034	3/29/2024	110.29058	110.2905796	110.2905796	110.2904555	107.7587329	102.7852077	97.38514666	91.88278526	86.5791538
190530A00044	5/30/2019	2.85	5/30/2034	5/30/2024	109.93878	109.9387824	109.9387824	109.9383339	107.1590303	101.9732115	96.42739666	90.85684095	85.5360622
190807A00044	8/7/2019	2.27	8/7/2034	8/7/2024	108.349	108.3490017	108.3490017	108.3282826	104.4677512	98.6639104	92.809732	87.18483052	81.94177947
191007A00012	10/7/2019	2	10/5/2029	10/7/2024	106.01997	106.0199697	106.0199697	106.0199253	103.3570637	99.03599435	94.79098036	90.71927951	86.86942387
191031A00037	10/31/2019	2.59	10/30/2034	10/31/2024	109.29316	109.2931591	109.2931591	109.2674207	105.3093161	99.4664512	93.57700336	87.9077931	82.61449431
200108A00040	1/8/2020	2.52	1/8/2030	1/8/2025	109.60167	109.6016721	109.6016721	109.5934962	105.4885329	99.48533301	93.42852563	87.56863972	82.06324533
090429A00044	4/29/2009	4.1	4/29/2024	4/29/2014	100.63839	100.6383925	100.6383925	100.6383925	100.6198542	100.4520687	100.2848407	100.04919	98.93547063
140529A00026	5/29/2014	2.36	5/29/2024	5/29/2019	100.34641	100.3464092	100.3464092	100.3464092	100.3279118	100.1407993	99.21750965	97.45797656	95.56986479

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
141110A00008	11/10/2014	2.31	11/12/2024	11/12/2019	100.36818	100.3681767	100.3681767	100.3681767	100.3496175	100.1684363	99.25539919	97.34459907	95.24925176
150417A00033	4/17/2015	1.78	4/18/2022	4/17/2020	100.27933	100.279327	100.279327	100.279327	100.2607652	100.0253674	99.02823282	97.5749547	96.08336347
150715A00020	7/15/2015	3.45	7/15/2030	7/15/2020	100.79828	100.7982781	100.7982781	100.7982781	100.7664483	100.5055097	99.45984002	96.16083631	92.07299616
150721A00044	7/23/2015	2.68	7/23/2025	7/23/2020	100.59807	100.5980731	100.5980731	100.5980731	100.5665825	100.2996483	99.37801093	97.31644382	94.9698896
150901A00019	9/1/2015	3.26	9/3/2030	9/1/2020	101.23847	101.2384672	101.2384672	101.2384672	101.1789644	100.681565	98.90685411	95.23190351	91.04741067
151027A00015	10/27/2015	2.89	10/28/2030	10/27/2020	101.61352	101.613521	101.613521	101.613521	101.5133254	100.6721858	98.25188897	94.3002551	90.04960909
151223A00007	12/23/2015	3.76	12/23/2030	12/23/2022	109.23067	109.2306675	109.2306675	109.2306674	108.0490591	104.2990205	99.36061123	93.46636238	87.28513839
160506A00054	5/10/2016	3.31	5/12/2036	5/10/2021	103.15774	103.1577371	103.1577371	103.1577371	102.8430707	100.6268806	96.04536979	90.16253401	84.30000865
160506A00056	5/10/2016	3.77	5/10/2041	5/10/2021	103.69296	103.6929605	103.6929605	103.6929605	103.3844171	101.1742656	96.10921903	89.18246045	82.19494482
170113A00025	1/13/2017	3.59	1/13/2032	1/13/2022	105.81542	105.8154171	105.8154171	105.8154171	105.3650873	103.3890088	100.5395035	96.56055426	92.00969835
170721A00021	7/21/2017	2.95	7/21/2032	7/21/2022	106.17747	106.1774736	106.1774736	106.1774736	105.2778278	102.0325052	97.82864651	93.05737213	88.25563089
171005A00047	10/5/2017	3.29	10/5/2032	10/5/2022	107.61818	107.6181816	107.6181816	107.6181814	106.5040688	102.720266	97.68721861	91.87177856	85.98158625
190222A00023	2/22/2019	3.66	2/22/2034	2/22/2026	122.10538	122.1053826	122.1053826	121.8736963	115.1188537	106.8405885	98.47606231	90.36247277	82.76765092
190530A00037	5/30/2019	2.85	5/30/2034	5/30/2024	109.93877	109.9387742	109.9387742	109.9383257	107.1590274	101.9732169	96.42741165	90.85686599	85.53609677
191220A00029	12/20/2019	2.57	12/19/2031	12/20/2024	108.78927	108.7892712	108.7892712	108.7879079	105.667673	100.6936629	95.69632822	90.85182804	86.27430457
200102A00020	1/2/2020	2.78	1/3/2040	1/2/2025	111.61867	111.6186737	111.6186737	111.5049432	106.4722707	99.30459302	91.97160659	84.92838749	78.44362409
200115A00023	1/15/2020	2.16	1/15/2030	1/15/2025	106.90974	106.9097445	106.9097445	106.9095984	104.0877437	99.64349213	95.28324803	91.10151828	87.14905021
160210A00054	2/10/2016	1.78	2/10/2026	2/10/2016	105.061	105.0609953	105.0609953	105.0609953	103.4938298	100.5235016	97.67986319	94.95635374	92.34680202
160212A00047	2/12/2016	1.94	2/12/2026	2/12/2016	104.96732	104.9673187	104.9673187	104.9673187	103.4084807	100.451373	97.6200404	94.90798608	92.30909789
160413A00016	4/13/2016	2.55	4/14/2031	4/13/2016	113.05106	113.0510637	113.0510637	112.029686	106.9727887	101.4265822	96.28778712	91.5213937	87.09572145
160413A00021	4/13/2016	2.48	4/13/2026	4/13/2016	111.55826	111.5582645	111.5582645	111.5582645	107.4321498	102.2481013	97.36620302	92.76697351	88.43229242
160523A00086	5/23/2016	2.2	5/26/2026	5/23/2016	110.70297	110.702969	110.702969	110.702969	106.6913049	101.684555	96.96938247	92.52683975	88.33931979
160524A00028	5/24/2016	2.06	5/24/2023	5/24/2016	105.21792	105.2179245	105.2179245	105.2179245	104.0374961	101.1358984	98.33274462	95.62411905	93.00628624
160526A00018	5/26/2016	1.68	5/26/2021	5/26/2016	101.40503	101.4050332	101.4050332	101.4050332	101.169043	100.1783788	99.20798301	98.25722968	97.3255186
160603A00014	6/3/2016	1.74	6/3/2026	6/3/2016	105.21892	105.2189162	105.2189162	105.2189162	103.4556512	100.3250521	97.33439127	94.47610969	91.74311448
160606A00018	6/6/2016	1.74	6/5/2026	6/6/2016	105.21904	105.219042	105.219042	105.219042	103.4556075	100.3249396	97.33421809	94.47588344	91.74284193
160608A00021	6/8/2016	1.91	6/8/2023	6/8/2016	104.76226	104.7622608	104.7622608	104.7622608	103.5775359	100.6901789	97.90135645	95.20711454	92.60368319
160608A00024	6/8/2016	2.36	6/8/2026	6/8/2016	111.15904	111.1590437	111.1590437	111.1590437	106.7906614	101.5198864	96.56295345	91.89919497	87.50941957
160729A00015	7/29/2016	2.06	7/30/2029	7/29/2016	108.48617	108.48617	108.48617	108.1099257	104.2605451	99.65460349	95.33972677	91.29423437	87.49824601
160902A00004	9/2/2016	2.15	9/4/2029	9/2/2016	109.01489	109.0148904	109.0148904	108.6131934	104.6947831	100.0309502	95.66414438	91.57207821	87.73432747
160907A00049	9/7/2016	1.41	9/9/2024	9/7/2016	102.97309	102.9730851	102.9730851	102.9730851	102.0616041	99.81730408	97.64905572	95.55364239	93.52800741

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160908A00026	9/8/2016	2.21	9/8/2026	9/8/2016	110.70735	110.7073515	110.7073515	110.7073515	105.931981	100.5167796	95.4352359	90.66470893	86.18421442
160908A00028	9/8/2016	2.21	9/8/2026	9/8/2016	110.70735	110.7073539	110.7073539	110.7073539	105.9319811	100.5167786	95.43523385	90.66470597	86.18421065
160908A00033	9/8/2016	2.17	9/8/2026	9/8/2016	109.93052	109.9305193	109.9305193	109.9305193	105.5289073	100.3994672	95.57957793	91.04847203	86.78689093
160916A00015	9/16/2016	2.2	9/17/2029	9/16/2016	109.34936	109.3493604	109.3493604	108.9226543	104.9423564	100.2290154	95.81814604	91.68688999	87.81431263
161014A00008	10/14/2016	2.28	10/15/2029	10/14/2016	109.84335	109.8433475	109.8433475	109.3899029	105.3415511	100.5715034	96.10991269	91.93329921	88.02017295
161021A00004	10/21/2016	2.23	10/22/2029	10/21/2016	109.58724	109.5872387	109.5872387	109.1345991	105.0954672	100.3363717	95.88504413	91.71805534	87.81396165
161116A00005	11/16/2016	2.01	11/16/2021	11/16/2016	102.41736	102.4173607	102.4173607	102.4173607	102.0703686	100.6941827	99.34507015	98.02228327	96.72510151
170124A00017	1/24/2017	2.82	1/23/2032	1/24/2017	117.02293	117.0229297	117.0229297	115.6052066	109.8985688	103.8130851	98.20275852	93.02432077	88.23885199
170203A00022	2/3/2017	2.99	2/4/2030	2/3/2017	114.01232	114.01232	114.01232	113.4327825	109.0258504	103.9293256	99.17234797	94.7283298	90.57299781
170221A00028	2/21/2017	2.31	2/18/2022	2/21/2017	103.58212	103.5821194	103.5821194	103.5821194	103.1273818	101.3840699	99.67930026	98.01195195	96.38094547
170224A00008	2/24/2017	2.18	2/24/2022	2/24/2017	103.37951	103.3795146	103.3795146	103.3795146	102.920673	101.1636783	99.4458324	97.76601644	96.1231514
170317A00040	3/17/2017	2.74	3/18/2024	3/17/2017	109.09869	109.0986907	109.0986907	109.0986907	107.2657244	103.5777118	100.0414803	96.64996086	93.39645106
160209A00008	2/9/2016	2.45	2/10/2031	2/9/2016	112.2552	112.2552044	112.2552044	111.3100731	106.3835739	100.9447066	95.90008751	91.21626551	86.86293223
160303A00035	3/3/2016	2.14	3/3/2026	3/3/2016	105.73736	105.7373554	105.7373554	105.7373554	104.0760861	101.0160447	98.08902115	95.28801437	92.60644439
160328A00030	3/28/2016	1.79	3/29/2021	3/28/2016	101.38477	101.3847703	101.3847703	101.3847703	101.1750643	100.2737735	99.38863564	98.51921837	97.66510474
160608A00020	6/8/2016	2.36	6/8/2026	6/8/2016	111.15904	111.1590437	111.1590437	111.1590437	106.7906614	101.5198864	96.56295345	91.89919497	87.50941957
160608A00034	6/8/2016	2.44	6/9/2031	6/8/2016	112.57977	112.5797747	112.5797747	111.4917324	106.361529	100.7703642	95.59531437	90.80017269	86.3522167
160705A00008	7/5/2016	1.7	7/6/2026	7/5/2016	107.39573	107.3957349	107.3957349	107.3957349	103.8794551	99.368279	95.11276036	91.09642082	87.30395039
160908A00016	9/8/2016	1.87	9/8/2023	9/8/2016	104.99634	104.9963444	104.9963444	104.9963444	103.6327469	100.5333471	97.54658729	94.66776401	91.89239539
160908A00024	9/8/2016	2.21	9/8/2026	9/8/2016	110.70735	110.7073515	110.7073515	110.7073515	105.931981	100.5167796	95.4352359	90.66470893	86.18421442
160908A00036	9/8/2016	2.3	9/8/2031	9/8/2016	111.99414	111.9941438	111.9941438	110.8024351	105.5593941	99.89654551	94.66334371	89.82170981	85.33729431
161004A00070	10/4/2016	1.92	10/4/2023	10/4/2016	105.34191	105.3419115	105.3419115	105.3419115	103.8959236	100.6820949	97.58786121	94.60812047	91.73801613
161110A00010	11/10/2016	2.53	11/9/2029	11/10/2016	111.23057	111.2305698	111.2305698	110.7458091	106.5961228	101.7302937	97.18149475	92.92542089	88.93984063
161212A00010	12/12/2016	3	12/12/2029	12/12/2016	113.82217	113.8221748	113.8221748	113.2991634	109.0017277	103.9863225	99.30015284	94.91779722	90.81601793
170105A00012	1/5/2017	2.68	1/5/2024	1/5/2017	108.43807	108.4380662	108.4380662	108.4380662	106.7698193	103.2684796	99.90488385	96.67279573	93.5663005
170106A00021	1/6/2017	2.99	1/7/2030	1/6/2017	113.89041	113.8904143	113.8904143	113.3396287	108.9884215	103.9336395	99.21314865	94.80095526	90.67331346
170106A00030	1/6/2017	2.39	1/6/2027	1/6/2017	108.0615	108.0614973	108.0614973	108.0614973	105.8572618	102.3665642	99.04439169	95.88097814	92.86719938
170120A00028	1/20/2017	2.34	1/20/2022	1/20/2017	103.42471	103.4247116	103.4247116	103.4247116	102.9984125	101.3519863	99.74059551	98.16317927	96.61871985
170126A00004	1/26/2017	2.13	1/26/2022	1/26/2017	103.40266	103.4026643	103.4026643	103.4026643	102.9709561	101.3061363	99.67707076	98.08266606	96.52187388
170406A00021	4/6/2017	2.24	4/6/2022	4/6/2017	103.67623	103.6762279	103.6762279	103.6762279	103.1791892	101.3169118	99.4983475	97.72220089	95.98722363
170406A00026	4/6/2017	2.61	4/8/2024	4/6/2017	108.57937	108.5793739	108.5793739	108.5793739	106.746169	103.0830917	99.57199914	96.20573464	92.97751756

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170406A00034	4/6/2017	3.01	4/6/2027	4/6/2017	116.60801	116.6080126	116.6080126	116.5683964	110.6735116	104.6436201	99.01225415	93.75044252	88.8314788
170407A00001	4/6/2017	2.97	4/6/2027	4/6/2017	115.47249	115.4724866	115.4724866	115.4381056	110.0217663	104.3224852	98.99183237	94.0033316	89.33256066
170512A00024	5/12/2017	2.88	5/13/2030	5/12/2017	113.76597	113.7659694	113.7659694	113.099888	108.5504872	103.3565515	98.51632347	94.00152379	89.78638396
170602A00030	6/2/2017	1.88	6/2/2022	6/2/2017	103.54199	103.541989	103.541989	103.541989	102.9877408	101.0082681	99.07801574	97.19542017	95.35897985
170615A00006	6/15/2017	2.15	6/17/2024	6/15/2017	103.96106	103.961063	103.961063	103.961063	103.1615746	101.062735	99.03059514	97.06248234	95.15585085
170619A00095	6/16/2017	2.79	6/16/2027	6/16/2017	115.59247	115.5924705	115.5924705	115.39519	109.3875787	103.2791673	97.58415477	92.27177856	87.31373918
170727A00003	7/27/2017	1.97	7/29/2024	7/27/2017	104.1205	104.1205017	104.1205017	104.1205017	103.2585628	101.0693054	98.95203407	96.90377811	94.92171174
160307A00024	3/7/2016	2.17	3/6/2026	3/7/2016	105.75887	105.7588659	105.7588659	105.7588659	104.1423092	101.1240613	98.23571124	95.47047962	92.82199198
160401A00005	4/1/2016	2.02	4/3/2023	4/1/2016	104.87689	104.8768874	104.8768874	104.8768874	103.79915	101.0245227	98.34047795	95.7435581	93.23045709
160428A00020	4/28/2016	1.69	4/28/2021	4/28/2016	101.36982	101.3698221	101.3698221	101.3698221	101.1407723	100.1810437	99.23987464	98.31672737	97.41108479
160428A00025	4/28/2016	1.25	4/28/2021	4/28/2016	100.62477	100.6247749	100.6247749	100.6247749	100.5181839	99.96983562	99.42906013	98.89568332	98.36953665
160524A00101	5/24/2016	2.98	5/23/2031	5/24/2016	124.93402	124.9340235	124.9340235	121.0675441	111.7989803	103.0167208	95.08823258	87.9229461	81.44047255
160601A00023	6/1/2016	2.37	6/1/2029	6/1/2016	109.93768	109.9376768	109.9376768	109.5805781	105.7317296	101.1008909	96.7603227	92.68857115	88.86595066
160608A00015	6/8/2016	1.63	6/8/2021	6/8/2016	101.49323	101.4932285	101.4932285	101.4932285	101.2296208	100.1387129	99.07143112	98.02701256	97.00472678
160608A00030	6/8/2016	2.36	6/8/2026	6/8/2016	111.15904	111.1590437	111.1590437	111.1590437	106.7906614	101.5198864	96.56295345	91.89919497	87.50941957
160719A00012	7/19/2016	1.32	7/19/2021	7/19/2016	100.70029	100.7002851	100.7002851	100.7002851	100.5588977	99.88902337	99.23048684	98.58296933	97.94616463
160810A00022	8/10/2016	1.53	8/10/2021	8/10/2016	101.57288	101.5728796	101.5728796	101.5728796	101.2703676	100.0267198	98.81054593	97.62093288	96.45700795
160810A00029	8/10/2016	2.17	8/10/2026	8/10/2016	110.35918	110.3591806	110.3591806	110.3591806	105.7273227	100.3767147	95.35232831	90.63220053	86.19597028
160812A00006	8/12/2016	2.16	8/12/2026	8/12/2016	110.8209	110.8208994	110.8208994	110.8208994	106.4789988	101.3355962	96.50030143	91.95255115	87.67327446
160812A00016	8/12/2016	2.06	8/13/2029	8/12/2016	108.56277	108.5627696	108.5627696	108.1633336	104.2614991	99.61726015	95.26875782	91.1938054	87.37207084
160906A00027	9/6/2016	2.03	9/8/2031	9/6/2016	111.52519	111.5251916	111.5251916	110.3264897	105.0710205	99.40368879	94.16790827	89.32531677	84.8413194
160907A00041	9/7/2016	1.83	9/7/2023	9/7/2016	104.93962	104.9396201	104.9396201	104.9396201	103.5513905	100.409662	97.382576	94.46533862	91.65338184
160908A00034	9/8/2016	2.17	9/8/2026	9/8/2016	109.93052	109.9305193	109.9305193	109.9305193	105.5289073	100.3994672	95.57957793	91.04847203	86.78689093
161005A00016	10/5/2016	2.32	10/6/2031	10/5/2016	112.20911	112.2091066	112.2091066	110.9778947	105.6786936	99.97166539	94.70037905	89.82598121	85.31344584
161102A00014	11/2/2016	1.99	11/2/2023	11/2/2016	105.69768	105.6976844	105.6976844	105.6976844	104.1896748	100.9019061	97.73900998	94.69554457	91.76633616
161202A00003	12/2/2016	2.94	12/3/2029	12/2/2016	113.50154	113.5015388	113.5015388	112.9803134	108.6951328	103.6939755	99.02109744	94.65115338	90.56097493
161207A00014	12/7/2016	2.75	12/8/2031	12/7/2016	116.43773	116.4377303	116.4377303	115.068018	109.4378451	103.4174491	97.86419054	92.73578771	87.99418365
161222A00013	12/22/2016	2.93	12/22/2026	12/22/2016	115.80531	115.805313	115.805313	115.805313	110.7498052	105.1883898	99.97492622	95.08518043	90.49674955
161229A00018	12/29/2016	2.46	12/29/2026	12/29/2016	108.21423	108.2142334	108.2142334	108.2142334	106.064342	102.6071292	99.31512524	96.17884444	93.18941942
170210A00007	2/10/2017	2.96	2/11/2030	2/10/2017	113.84989	113.8498895	113.8498895	113.2709286	108.8700381	103.7805905	99.03023987	94.59243189	90.44292374
170330A00060	3/30/2017	2.06	3/30/2022	3/30/2017	103.59272	103.5927162	103.5927162	103.5927162	103.1087542	101.283393	99.50046134	97.75871155	96.05694104

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170518A00027	5/18/2017	2.11	5/18/2022	5/18/2017	103.62471	103.6247117	103.6247117	103.6247117	103.0812552	101.116109	99.19927026	97.32923061	95.50454003
170602A00019	6/2/2017	2.42	6/3/2024	6/2/2017	108.29531	108.2953068	108.2953068	108.2953068	106.2980553	102.4556879	98.7788201	95.25937932	91.88973323
160210A00049	2/10/2016	1.78	2/10/2026	2/10/2016	105.06099	105.0609931	105.0609931	105.0609931	103.493829	100.523502	97.67986478	94.95635639	92.34680564
160328A00038	3/28/2016	2.54	3/30/2026	3/28/2016	111.21398	111.2139799	111.2139799	111.2139799	107.4436628	102.5365312	97.90809045	93.54067321	89.41783058
160413A00018	4/13/2016	1.78	4/13/2026	4/13/2016	105.20567	105.2056713	105.2056713	105.2056713	103.5414245	100.4886814	97.5692884	94.77619128	92.10276238
160608A00025	6/8/2016	2.36	6/8/2026	6/8/2016	111.15904	111.1590437	111.1590437	111.1590437	106.7906614	101.5198864	96.56295345	91.89919497	87.50941957
160608A00027	6/8/2016	2.36	6/8/2026	6/8/2016	111.15904	111.1590437	111.1590437	111.1590437	106.7906614	101.5198864	96.56295345	91.89919497	87.50941957
160608A00028	6/8/2016	2.36	6/8/2026	6/8/2016	111.15904	111.1590437	111.1590437	111.1590437	106.7906614	101.5198864	96.56295345	91.89919497	87.50941957
160608A00029	6/8/2016	2.36	6/8/2026	6/8/2016	111.15904	111.1590437	111.1590437	111.1590437	106.7906614	101.5198864	96.56295345	91.89919497	87.50941957
160608A00033	6/8/2016	2.44	6/9/2031	6/8/2016	112.57979	112.5797855	112.5797855	111.4917413	106.3615326	100.7703632	95.5953091	90.80016364	86.35220425
160624A00051	6/24/2016	2.11	6/26/2029	6/24/2016	108.65463	108.6546301	108.6546301	108.3008206	104.496012	99.91851851	95.62802077	91.60330038	87.82488831
160719A00026	7/19/2016	1.87	7/20/2026	7/19/2016	105.09034	105.0903405	105.0903405	105.0903405	103.2850209	100.1307475	97.11871632	94.24118071	91.4908753
160801A00002	8/1/2016	1.58	8/3/2026	8/1/2016	104.82345	104.8234462	104.8234462	104.8234462	102.9629026	99.76696293	96.71715069	93.80540751	91.02418144
160810A00035	8/10/2016	2.1	8/10/2026	8/10/2016	109.44436	109.4443569	109.4443569	109.4443569	105.1770265	100.1137695	95.35294773	90.87442868	86.65953761
160908A00025	9/8/2016	2.21	9/8/2026	9/8/2016	110.70735	110.7073515	110.7073515	110.7073515	105.931981	100.5167796	95.4352359	90.66470893	86.18421442
160908A00032	9/8/2016	2.17	9/8/2026	9/8/2016	109.93052	109.9305193	109.9305193	109.9305193	105.5289073	100.3994672	95.57957793	91.04847203	86.78689093
160930A00025	9/30/2016	1.66	9/30/2027	9/30/2016	105.96746	105.9674599	105.9674599	105.9415603	103.315135	99.58898992	96.05796494	92.70987292	89.53338494
161014A00029	10/14/2016	2.51	10/15/2031	10/14/2016	114.6542	114.6541992	114.6541992	113.3834152	107.9335683	102.0733619	96.66222527	91.65999489	87.03047464
161118A00012	11/18/2016	2.72	11/19/2029	11/18/2016	112.22532	112.2253189	112.2253189	111.7359207	107.5490923	102.6397231	98.05024079	93.75611898	89.73492385
161125A00010	11/25/2016	2.86	11/26/2029	11/25/2016	112.96183	112.9618316	112.9618316	112.4690069	108.2546818	103.3130796	98.69347893	94.37118932	90.32362736
170126A00003	1/26/2017	2.86	1/26/2027	1/26/2017	115.59099	115.5909894	115.5909894	115.5909894	110.3962047	104.7871664	99.53315599	94.60915628	89.99206401
170221A00033	2/21/2017	2.31	2/18/2022	2/21/2017	103.58212	103.5821194	103.5821194	103.5821194	103.1273818	101.3840699	99.67930026	98.01195195	96.38094547
170224A00012	2/24/2017	2.92	2/25/2030	2/24/2017	113.63376	113.633756	113.633756	113.0554112	108.6624755	103.5823749	98.84078964	94.41120671	90.26942173
170303A00004	3/3/2017	2.8	3/4/2024	3/3/2017	109.23928	109.239276	109.239276	109.239276	107.4353802	103.7751189	100.2641724	96.89564803	93.66300698
170524A00037	5/24/2017	2.46	5/24/2024	5/24/2017	108.0145	108.0144993	108.0144993	108.0144993	106.1588592	102.5114232	99.01787575	95.6708086	92.46321301
170619A00101	6/16/2017	2.74	6/16/2027	6/16/2017	114.43181	114.4318077	114.4318077	114.2607454	108.7430388	102.9764007	97.59145888	92.56016279	87.85668994
170804A00005	8/4/2017	1.94	8/5/2024	8/4/2017	104.12944	104.1294375	104.1294375	104.1294375	103.2386647	101.0099427	98.85558237	96.77247698	94.75767311
171207A00026	12/7/2017	2.93	12/7/2027	12/7/2017	118.11113	118.1111349	118.1111349	117.4737322	110.7059364	103.9927487	97.76509905	91.98467628	86.61640272
160405A00011	4/5/2016	1.31	4/5/2021	4/5/2016	100.56545	100.5654452	100.5654452	100.5654452	100.4607851	99.91895335	99.38446381	98.85715176	98.33685765
160617A00012	6/17/2016	2.13	6/18/2029	6/17/2016	108.75271	108.7527088	108.7527088	108.3988491	104.5908196	100.0093664	95.71513681	91.68689771	87.90516629
160711A00004	7/11/2016	1.51	7/13/2026	7/11/2016	104.52928	104.5292751	104.5292751	104.5292751	102.7254904	99.57653022	96.56996628	93.6980246	90.95341527

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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160805A00014	8/5/2016	2.11	8/6/2029	8/5/2016	108.81298	108.8129826	108.8129826	108.4128743	104.5022656	99.84749379	95.48911049	91.40488172	87.57443199
160824A00019	8/24/2016	1.98	8/25/2031	8/24/2016	111.13045	111.1304512	111.1304512	109.9723897	104.7814444	99.16732182	93.9780201	89.17599973	84.72738708
160908A00019	9/8/2016	1.87	9/8/2023	9/8/2016	104.99634	104.9963444	104.9963444	104.9963444	103.6327469	100.5333471	97.54658729	94.66776401	91.89239539
160908A00023	9/8/2016	2.21	9/8/2026	9/8/2016	110.70735	110.7073515	110.7073515	110.7073515	105.931981	100.5167796	95.4352359	90.66470893	86.18421442
160908A00030	9/8/2016	2.21	9/8/2026	9/8/2016	110.70735	110.7073515	110.7073515	110.7073515	105.931981	100.5167796	95.4352359	90.66470893	86.18421442
160923A00009	9/23/2016	2.24	9/23/2031	9/23/2016	111.62149	111.6214926	111.6214926	110.43322	105.2072386	99.56294559	94.34693171	89.52123439	85.05160968
160923A00020	9/23/2016	2.15	9/24/2029	9/23/2016	109.09617	109.0961729	109.0961729	108.670207	104.6988946	99.99628919	95.59548656	91.47367673	87.60996981
161028A00011	10/28/2016	2.32	10/29/2029	10/28/2016	110.04957	110.0495675	110.0495675	109.5947915	105.5385406	100.7593036	96.28915286	92.10455693	88.18397882
161103A00013	11/3/2016	1.69	11/3/2021	11/3/2016	102.08962	102.089623	102.089623	102.089623	101.7195633	100.264587	98.83822767	97.43971121	96.06829074
161116A00006	11/16/2016	2.39	11/16/2026	11/16/2016	107.18283	107.1828346	107.1828346	107.1828346	105.1223738	101.7500237	98.53661205	95.47312886	92.55114414
161202A00001	12/2/2016	2.65	12/1/2023	12/2/2016	108.12358	108.1235817	108.1235817	108.1235817	106.5321203	103.1184379	99.83636812	96.68007779	93.64402727
170103A00025	1/3/2017	3.09	1/3/2030	1/3/2017	114.42942	114.4294248	114.4294248	113.8762071	109.5046167	104.4260751	99.68338252	95.25042543	91.10334832
170105A00010	1/5/2017	2.61	1/5/2027	1/5/2017	108.1616	108.1615952	108.1615952	108.1615952	105.966588	102.4861039	99.17315343	96.01805373	93.01175685
170120A00027	1/20/2017	2.35	1/20/2022	1/20/2017	103.48174	103.4817353	103.4817353	103.4817353	103.0498012	101.3841025	99.75391954	98.15817599	96.5958392
170127A00008	1/27/2017	3.05	1/28/2030	1/27/2017	114.21536	114.215359	114.215359	113.6622449	109.2981733	104.2286228	99.49439309	95.06940464	90.92983372
170201A00016	2/1/2017	2.49	2/1/2024	2/1/2017	108.57067	108.5706665	108.5706665	108.5706665	106.8360897	103.2568691	99.82112091	96.52222577	93.35391302
170224A00007	2/24/2017	2.02	2/24/2021	2/24/2017	101.4401	101.4401012	101.4401012	101.4401012	101.2609299	100.4449564	99.64219975	98.85234021	98.07506815
170224A00009	2/24/2017	2.39	2/24/2023	2/24/2017	105.67502	105.6750221	105.6750221	105.6750221	104.6779393	102.0041113	99.41451774	96.90603334	94.4756671
170307A00013	3/7/2017	2.33	3/7/2024	3/7/2017	104.17185	104.171846	104.171846	104.171846	103.4284227	101.407789	99.44922127	97.55030308	95.70872998
170309A00042	3/9/2017	2.18	3/11/2024	3/9/2017	104.23445	104.2344496	104.2344496	104.2344496	103.4878428	101.4599349	99.4944817	97.58904528	95.74130112
170406A00033	4/6/2017	3.01	4/6/2027	4/6/2017	116.60801	116.6080126	116.6080126	116.5683964	110.6735116	104.6436201	99.01225415	93.75044252	88.8314788
170406A00037	4/6/2017	3.07	4/6/2032	4/6/2017	117.74637	117.7463717	117.7463717	116.2113609	110.3652576	104.1701636	98.46586682	93.20702582	88.35291985
170421A00011	4/21/2017	2.83	4/22/2030	4/21/2017	113.37431	113.3743098	113.3743098	112.7398153	108.2559559	103.1154944	98.32260483	93.84968608	89.67157186
160225A00011	2/25/2016	1.5	2/27/2023	2/25/2016	102.3065	102.3064973	102.3064973	102.3064973	101.8026163	100.1648628	98.56974403	97.01581622	95.50169538
160413A00014	4/13/2016	2.55	4/14/2031	4/13/2016	113.05106	113.0510636	113.0510636	112.029686	106.9727887	101.4265823	96.28778719	91.5213938	87.09572156
160413A00020	4/13/2016	2.48	4/13/2026	4/13/2016	111.55826	111.5582645	111.5582645	111.5582645	107.4321498	102.2481013	97.36620302	92.76697351	88.43229242
160413A00033	4/13/2016	2.32	4/13/2026	4/13/2016	109.10663	109.1066292	109.1066292	109.1066292	105.8828346	101.4836552	97.32461083	93.39078203	89.66826765
160414A00042	4/13/2016	2.48	4/13/2026	4/13/2016	111.55826	111.5582645	111.5582645	111.5582645	107.4321498	102.2481013	97.36620302	92.76697351	88.43229242
160421A00016	4/21/2016	2.26	4/21/2026	4/21/2016	110.86843	110.868432	110.868432	110.868432	106.9945648	102.0395759	97.36948603	92.96601505	88.8121592
160511A00015	5/11/2016	2.42	5/11/2026	5/11/2016	111.36234	111.3623422	111.3623422	111.3623422	107.1154283	101.8874677	96.96763893	92.33585112	87.97343365
160603A00029	6/3/2016	2.18	6/3/2031	6/3/2016	112.1828	112.1827981	112.1827981	111.087942	105.9425987	100.3437144	95.16300467	90.36397711	85.91366036

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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160616A00029	6/16/2016	1.58	6/16/2026	6/16/2016	104.69723	104.6972306	104.6972306	104.6972306	102.941561	99.82598896	96.84971921	94.00522468	91.28544249
160629A00066	6/29/2016	2.61	6/30/2036	6/29/2016	130.9855	130.9854998	130.9854998	121.8585222	109.6976535	98.76554057	89.24251427	80.92822329	73.65249094
160722A00011	7/22/2016	2.17	7/23/2029	7/22/2016	109.03245	109.0324452	109.0324452	108.6545665	104.78608	100.1571641	95.82074478	91.75503667	87.94006334
160802A00026	8/2/2016	1.84	8/2/2023	8/2/2016	104.83311	104.8331125	104.8331125	104.8331125	103.5172444	100.4602398	97.51201955	94.66803667	91.92396578
160810A00027	8/10/2016	2.13	8/10/2026	8/10/2016	109.60597	109.6059651	109.6059651	109.6059651	105.3338085	100.2641775	95.49733297	91.01312005	86.79284328
160810A00030	8/10/2016	2.24	8/11/2031	8/10/2016	111.53434	111.5343419	111.5343419	110.384114	105.2085183	99.60209257	94.41834015	89.62002634	85.17354236
160908A00027	9/8/2016	2.21	9/8/2026	9/8/2016	110.70735	110.7073539	110.7073539	110.7073539	105.9319811	100.5167786	95.43523385	90.66470597	86.18421065
160908A00031	9/8/2016	2.21	9/8/2026	9/8/2016	110.70735	110.7073515	110.7073515	110.7073515	105.931981	100.5167796	95.4352359	90.66470893	86.18421442
160909A00018	9/9/2016	2.22	9/10/2029	9/9/2016	109.45051	109.4505108	109.4505108	109.0236514	105.039868	100.3223221	95.90749892	91.77252292	87.89644382
161007A00012	10/7/2016	2.27	10/9/2029	10/7/2016	109.79172	109.7917162	109.7917162	109.3386897	105.2923663	100.5246596	96.06524363	91.89065287	87.97941026
161012A00011	10/12/2016	1.53	10/12/2023	10/12/2016	102.87139	102.8713872	102.8713872	102.8713872	102.169942	100.1709874	98.2309154	96.34753432	94.51874944
170207A00055	2/7/2017	2.36	2/8/2027	2/7/2017	108.05206	108.0520642	108.0520642	108.0520642	105.7877395	102.2583364	98.90113188	95.70604957	92.66368125
170303A00011	3/3/2017	3.09	3/4/2030	3/3/2017	114.68321	114.6832058	114.6832058	114.0715897	109.5876673	104.4247806	99.6083912	95.11117909	90.90821775
170309A00016	3/9/2017	2.39	3/8/2024	3/9/2017	104.67151	104.6715146	104.6715146	104.6715146	103.921965	101.8857676	99.91227083	97.99902768	96.14370487
170406A00036	4/6/2017	3.07	4/6/2032	4/6/2017	117.74638	117.7463752	117.7463752	116.2113628	110.3652581	104.170163	98.46586534	93.20702359	88.35291701
170619A00092	6/16/2017	2.79	6/16/2027	6/16/2017	115.59246	115.5924582	115.5924582	115.3951779	109.3875723	103.2791657	97.58415757	92.27178543	87.31374978
170711A00010	7/11/2017	2.38	7/12/2027	7/11/2017	108.62725	108.6272498	108.6272498	108.6143492	106.0391848	102.2971438	98.74720118	95.37757704	92.1773073
170713A00021	7/13/2017	3.25	7/13/2037	7/13/2017	142.0362	142.0361995	142.0361995	130.948435	117.3030893	105.1535524	94.6422048	85.5248811	77.59597753
170317A00041	3/17/2017	2.73	3/18/2024	3/17/2017	108.90793	108.9079269	108.9079269	108.9079269	107.11621	103.491372	100.0149186	96.67995675	93.47995051
170322A00033	3/22/2017	3.61	3/24/2042	3/22/2017	143.64032	143.6403184	143.2461306	132.5216362	119.0333006	106.9498424	96.4895411	87.4025724	79.48089307
170511A00011	5/11/2017	2.41	5/11/2027	5/11/2017	108.54106	108.5410566	108.5410566	108.5369784	106.0816131	102.4196911	98.94203761	95.6375598	92.49592003
170619A00096	6/16/2017	2.79	6/16/2027	6/16/2017	115.59247	115.5924705	115.5924705	115.39519	109.3875787	103.2791673	97.58415477	92.27177856	87.31373918
170707A00013	7/7/2017	2.88	7/8/2030	7/7/2017	113.99932	113.9993158	113.9993158	113.2707597	108.6119939	103.3358645	98.42418404	93.84741838	89.57868934
170731A00041	7/31/2017	2.74	7/31/2030	7/31/2017	113.20982	113.2098207	113.2098207	112.4854357	107.8582714	102.6181713	97.74009358	93.19469382	88.95526743
170921A00052	9/21/2017	2.21	9/21/2022	9/21/2017	104.37499	104.3749863	104.3749863	104.3749863	103.6659628	101.4174156	99.23080037	97.10405648	95.03520416
171207A00024	12/7/2017	2.93	12/7/2027	12/7/2017	118.11113	118.1111349	118.1111349	117.4737322	110.7059364	103.9927487	97.76509905	91.98467628	86.61640272
180215A00034	2/15/2018	2.9	2/15/2023	2/15/2018	107.0387	107.0386955	107.0386955	107.0386955	106.0461248	103.3621398	100.762036	98.24268622	95.80110058
180309A00015	3/9/2018	3.37	3/10/2031	3/9/2018	117.92734	117.9273413	117.9273413	116.8990099	111.6749549	105.9262975	100.5970905	95.65152027	91.05715817
181214A00010	12/14/2018	3.41	12/14/2028	12/14/2018	121.97704	121.9770352	121.9770352	120.682845	113.7786803	106.8169425	100.3921122	94.45836872	88.97408775
181218A00086	12/18/2018	3.06	10/18/2023	12/18/2018	108.6734	108.6734025	108.6734025	108.6734025	107.287949	104.1625867	101.1519842	98.25124935	95.4557269
181218A00089	12/18/2018	3.05	6/19/2023	12/18/2018	107.90961	107.909614	107.909614	107.909614	106.7444597	103.8836443	101.1196618	98.44862487	95.86682798

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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190104A00035	1/4/2019	3.1	1/5/2026	1/4/2019	114.62463	114.6246299	114.6246299	114.6246299	110.7550578	105.5563127	100.6499517	96.01773569	91.6426663
190205A00027	2/5/2019	2.87	2/7/2022	2/5/2019	104.50594	104.5059352	104.5059352	104.5059352	104.055545	102.3254945	100.6331529	98.97738605	97.35710499
190308A00016	3/8/2019	3.18	3/8/2034	3/8/2019	133.7018	133.7017998	133.7017998	126.9806563	115.6780416	105.2353671	95.97955688	87.76188675	80.45341037
190315A00029	3/15/2019	2.88	3/15/2034	3/15/2019	120.79125	120.7912527	120.7912527	118.1071503	110.992459	103.825651	97.30710377	91.36880605	85.95057845
190327A00035	3/27/2019	2.68	3/27/2034	3/27/2019	119.2037	119.203697	119.203697	116.5542098	109.5324653	102.459442	96.0262401	90.1657283	84.81850667
190503A00015	5/3/2019	3.03	5/3/2034	5/3/2019	120.64431	120.6443073	120.6443073	117.8909065	110.746543	103.5638829	97.03498883	91.09080915	85.67029768
190605A00023	6/5/2019	2.64	6/5/2029	6/5/2019	118.89161	118.8916084	118.8916084	116.8829309	108.9343307	101.2694975	94.25037558	87.81794378	81.91890805
190605A00025	6/5/2019	2.64	6/5/2029	6/5/2019	118.8916	118.8915997	118.8915997	116.8829242	108.9343295	101.2694996	94.25038064	87.81795136	81.91891781
190607A00013	6/7/2019	2.59	6/7/2034	6/7/2019	117.25249	117.2524917	117.2524917	114.5257534	107.5385092	100.5262356	94.15552644	88.35827946	83.07432607
190621A00020	6/21/2019	2.58	6/21/2034	6/21/2019	117.17381	117.1738132	117.1738132	114.4484507	107.4656773	100.4579575	94.09141813	88.2979927	83.01754512
000929A00001	9/29/2000	6.82	9/29/2020	9/29/2000	102.7979	102.7978964	102.7978964	102.7978964	102.7380798	102.3162858	101.8979851	101.4831343	101.0716908
110701A00011	7/1/2011	3.87	7/1/2026	7/1/2011	111.82675	111.8267506	111.8267506	111.8267506	109.9082303	106.5533435	103.349673	100.288988	97.3635689
110909A00006	9/9/2011	2.26	9/9/2026	9/9/2011	106.55418	106.5541849	106.5541849	106.5541849	104.6175872	101.3422785	98.21797398	95.23628451	92.38935139
170706A00029	7/6/2017	2.42	7/6/2027	7/6/2017	108.99571	108.9957131	108.9957131	108.9505214	106.130007	102.2542277	98.58758408	95.11665653	91.82899542
170707A00007	7/7/2017	2.65	7/8/2024	7/7/2017	109.41317	109.4131682	109.4131682	109.4131682	107.3197153	103.3671586	99.58792547	95.97340036	92.51544799
170921A00048	9/21/2017	1.95	9/21/2020	9/21/2017	100.67395	100.6739499	100.6739499	100.6739499	100.6183672	100.2221871	99.8291381	99.43918296	99.05228518
170921A00053	9/21/2017	2.22	9/21/2022	9/21/2017	104.46683	104.4668253	104.4668253	104.4668253	103.7441496	101.4601577	99.2393304	97.07956291	94.97883325
170921A00055	9/21/2017	2.82	9/21/2027	9/21/2017	116.31314	116.3131445	116.3131445	115.898979	109.6606854	103.3564936	97.49207251	92.03376838	86.95068792
171204A00009	12/4/2017	2.23	12/4/2024	12/4/2017	105.07541	105.07541	105.07541	105.07541	104.0808084	101.7085412	99.41917822	97.20911769	95.07494112
171207A00020	12/7/2017	2.25	12/7/2020	12/7/2017	101.21275	101.2127477	101.2127477	101.2127477	101.1062601	100.5005656	99.90215529	99.31089809	98.72666602
171207A00025	12/7/2017	2.91	12/7/2027	12/7/2017	117.35722	117.3572228	117.3572228	116.7682253	110.3238175	103.8407309	97.82048878	92.22683166	87.02654652
180104A00024	1/4/2018	2.98	1/4/2028	1/4/2018	117.99149	117.9914877	117.9914877	117.3377377	110.8150482	104.260125	98.17666423	92.52744769	87.27840923
180117A00004	1/17/2018	2.44	1/17/2025	1/17/2018	105.69034	105.6903429	105.6903429	105.6903429	104.6571499	102.2302763	99.88946294	97.63092314	95.45106495
180125A00027	1/25/2018	2.69	1/24/2025	1/25/2018	106.32054	106.3205442	106.3205442	106.3205442	105.1314171	102.5098478	99.98680392	97.55773471	95.21833374
180206A00046	2/6/2018	2.72	2/6/2023	2/6/2018	106.49189	106.4918879	106.4918879	106.4918879	105.5195618	102.869093	100.3008342	97.81170415	95.39875933
180615A00021	6/15/2018	3.02	6/15/2023	6/15/2018	107.76089	107.7608934	107.7608934	107.7608934	106.610951	103.774533	101.0337358	98.38473389	95.82388068
180628A00078	6/28/2018	2.73	6/28/2023	6/28/2018	104.36296	104.3629615	104.3629615	104.3629615	103.8460624	102.1849187	100.5673768	98.9919356	97.45715752
180717A00021	7/17/2018	3.34	7/17/2028	7/17/2018	120.52634	120.526344	120.526344	119.5567636	113.0198805	106.3637251	100.2007963	94.49059974	89.19621747
180907A00013	9/7/2018	3.27	9/8/2025	9/7/2018	114.71374	114.713743	114.713743	114.713743	111.3431808	106.3819687	101.686129	97.23991808	93.0286083
181128A00011	11/28/2018	3.27	11/28/2023	11/28/2018	110.19144	110.1914428	110.1914428	110.1914428	108.603873	105.1768176	101.8810905	98.71089412	95.66072155
190227A00033	2/27/2019	2.65	2/27/2026	2/27/2019	107.77565	107.7756486	107.7756486	107.7756486	106.1668069	103.1194185	100.2020531	97.40797483	94.73084799

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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190315A00023	3/15/2019	2.88	3/15/2034	3/15/2019	120.79124	120.7912439	120.7912439	118.1071418	110.9924562	103.8256513	97.30710681	91.36881157	85.95058616
190322A00008	3/22/2019	2.64	3/20/2026	3/22/2019	107.24388	107.2438797	107.2438797	107.2438797	105.6035924	102.5426884	99.6135538	96.80930871	94.12348456
190401A00017	4/1/2019	2.55	4/1/2022	4/1/2019	104.20984	104.209839	104.209839	104.209839	103.7198576	101.8750235	100.0731273	98.31290568	96.593141
190510A00049	5/10/2019	2.58	5/8/2026	5/10/2019	107.15446	107.154461	107.154461	107.154461	105.4659908	102.3676788	99.40436728	96.56892967	93.85466957
190517A00012	5/17/2019	2.88	5/17/2034	5/17/2019	119.44584	119.4458377	119.4458377	116.7191064	109.645194	102.5335111	96.06917868	90.18381701	84.81697481
190605A00024	6/5/2019	2.64	6/5/2029	6/5/2019	118.8916	118.8915997	118.8915997	116.8829242	108.9343295	101.2694996	94.25038064	87.81795136	81.91891781
020129A00031	12/31/2001	6.03	6/30/2021	12/31/2001	103.79801	103.7980114	103.7980114	103.7980114	103.6633579	103.0120574	102.3711653	101.7404045	101.1195084
110504A00017	5/4/2011	3.46	5/4/2021	5/4/2011	103.30443	103.3044273	103.3044273	103.3044273	103.0674677	102.0762958	101.1046024	100.1518135	99.2173775
160211A00038	2/11/2016	1.83	2/11/2026	2/11/2016	104.62821	104.6282139	104.6282139	104.6282139	103.0744551	100.12689	97.30469222	94.60138597	92.01087909
160212A00006	2/12/2016	1.57	2/13/2023	2/12/2016	101.89408	101.8940786	101.8940786	101.8940786	101.4775805	100.0225525	98.60268895	97.21684846	95.86393633
160301A00012	3/1/2016	2.02	3/1/2023	3/1/2016	104.7324	104.7324002	104.7324002	104.7324002	103.719203	101.0244299	98.41522866	95.88842352	93.440974
160608A00022	6/8/2016	1.91	6/8/2023	6/8/2016	104.76226	104.7622608	104.7622608	104.7622608	103.5775359	100.6901789	97.90135645	95.20711454	92.60368319
160608A00023	6/8/2016	2.36	6/8/2026	6/8/2016	111.15905	111.1590481	111.1590481	111.1590481	106.7906629	101.5198858	96.56295107	91.89919093	87.50941404
160705A00010	7/5/2016	1.68	7/5/2023	7/5/2016	104.23045	104.2304516	104.2304516	104.2304516	102.9748832	99.99504416	97.11926839	94.34328673	91.66303389
160713A00015	7/13/2016	1.57	7/13/2026	7/13/2016	104.72743	104.7274283	104.7274283	104.7274283	102.9202454	99.76534067	96.75310049	93.87573629	91.12594442
160810A00024	8/10/2016	1.52	8/10/2021	8/10/2016	101.54654	101.5465385	101.5465385	101.5465385	101.2470902	100.0143638	98.80880579	97.62951415	96.47562693
160810A00025	8/10/2016	2.17	8/10/2026	8/10/2016	110.35918	110.3591806	110.3591806	110.3591806	105.7273227	100.3767147	95.35232831	90.63220053	86.19597028
160819A00012	8/19/2016	2.14	8/20/2029	8/19/2016	108.96418	108.9641777	108.9641777	108.5630397	104.6466898	99.98520941	95.62057921	91.53052735	87.69464396
160908A00017	9/8/2016	1.87	9/8/2023	9/8/2016	104.99634	104.9963444	104.9963444	104.9963444	103.6327469	100.5333471	97.54658729	94.66776401	91.8923954
160908A00022	9/8/2016	2.21	9/8/2026	9/8/2016	110.70735	110.7073539	110.7073539	110.7073539	105.9319811	100.5167786	95.43523385	90.66470597	86.18421065
160908A00037	9/8/2016	1.4	9/8/2023	9/8/2016	102.5595	102.5594973	102.5594973	102.5594973	101.8635348	99.91134396	98.01737704	96.17944303	94.395449
160930A00047	9/30/2016	2.08	10/1/2029	9/30/2016	108.7421	108.7421007	108.7421007	108.3173027	104.3586652	99.67115234	95.28449095	91.17594119	87.3246776
161005A00031	10/5/2016	1.43	10/5/2021	10/5/2016	101.05364	101.0536391	101.0536391	101.0536391	100.8768073	100.0826515	99.3023615	98.5355572	97.78187288
161014A00019	10/14/2016	2.39	10/15/2031	10/14/2016	112.6497	112.6496984	112.6496984	111.4133983	106.0933369	100.3638594	95.0718559	90.17831591	85.64807221
161014A00026	10/14/2016	2.16	10/14/2031	10/14/2016	112.43066	112.430661	112.430661	111.1843281	105.8396395	100.0926806	94.7861282	89.88059286	85.34057622
161128A00006	11/28/2016	1.93	11/29/2021	11/28/2016	102.73678	102.736776	102.736776	102.736776	102.3575484	100.8712746	99.41488431	97.98753412	96.58841219
161214A00034	12/14/2016	2.65	12/14/2026	12/14/2016	108.204	108.2039958	108.2039958	108.2039958	106.0663148	102.6230647	99.34383312	96.2192308	93.24047843
161216A00008	12/16/2016	3.16	12/17/2029	12/16/2016	114.67856	114.6785618	114.6785618	114.151473	109.8217666	104.7686786	100.0473079	95.63204043	91.4994623
161229A00019	12/29/2016	2.46	12/29/2026	12/29/2016	108.21423	108.2142309	108.2142309	108.2142309	106.0643406	102.6071289	99.31512587	96.17884596	93.18942175
170310A00008	3/10/2017	3.17	3/11/2030	3/10/2017	115.12426	115.124257	115.124257	114.5100493	110.0087847	104.8259679	99.99100248	95.47645979	91.25731432
170317A00039	3/17/2017	2.73	3/18/2024	3/17/2017	108.90793	108.9079269	108.9079269	108.9079269	107.11621	103.491372	100.0149186	96.67995675	93.47995051

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4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170406A00023	4/6/2017	2.24	4/6/2022	4/6/2017	103.67623	103.6762279	103.6762279	103.6762279	103.1791892	101.3169118	99.4983475	97.72220089	95.98722363
170406A00027	4/6/2017	2.61	4/8/2024	4/6/2017	108.57938	108.5793802	108.5793802	108.5793802	106.7461737	103.0830937	99.57199861	96.20573169	92.9775123
170504A00012	5/4/2017	2.28	5/4/2026	5/4/2017	106.89902	106.8990169	106.8990169	106.8990169	105.1590004	102.0181009	99.01599016	96.14524944	93.39891291
170921A00054	9/21/2017	2.22	9/21/2022	9/21/2017	104.46683	104.4668253	104.4668253	104.4668253	103.7441496	101.4601577	99.2393304	97.07956291	94.97883325
170921A00057	9/21/2017	2.79	9/21/2027	9/21/2017	115.21458	115.2145828	115.2145828	114.855034	109.1182045	103.166421	97.62043733	92.44959699	87.62573743
171013A00024	10/13/2017	2.47	10/15/2024	10/13/2017	108.76185	108.7618451	108.7618451	108.7618451	106.5776835	102.6133077	98.82947642	95.2169053	91.7668384
171030A00039	10/30/2017	2.86	10/30/2030	10/30/2017	114.2357	114.2357023	114.2357023	113.4086548	108.5908707	103.1967035	98.18309102	93.51856613	89.17454619
180104A00041	1/4/2018	3.08	1/4/2033	1/4/2018	131.87722	131.8772232	131.8772232	125.8715243	114.8112539	104.5729765	95.451261	87.31332645	80.04307712
180206A00040	2/6/2018	2.47	2/8/2021	2/6/2018	101.71787	101.7178727	101.7178727	101.7178727	101.5530129	100.7770817	100.0130687	99.26070025	98.5197109
180206A00048	2/6/2018	2.72	2/6/2023	2/6/2018	106.49189	106.4918883	106.4918883	106.4918883	105.5195621	102.8690931	100.3008342	97.81170396	95.398759
180220A00107	2/20/2018	3.13	2/20/2025	2/20/2018	112.26107	112.2610701	112.2610701	112.2610701	109.7043485	105.373593	101.252169	97.32870061	93.59249323
180402A00013	4/2/2018	2.99	4/3/2028	4/2/2018	116.84705	116.8470474	116.8470474	116.2870036	110.9261643	105.1517811	99.7739125	94.76180776	90.0873056
180517A00018	5/17/2018	3.46	5/17/2033	5/17/2018	123.85611	123.856112	123.856112	121.6148688	114.7894753	107.7802406	101.3718924	95.50457094	90.12497382
180716A00062	7/16/2018	2.91	7/16/2025	7/16/2018	107.7264	107.7264025	107.7264025	107.7264025	106.421562	103.6600767	101.0064331	98.45546891	96.00230734
180717A00026	7/17/2018	3.24	7/16/2025	7/17/2018	113.70304	113.7030423	113.7030423	113.7030423	110.6933724	106.0257363	101.5990662	97.39939415	93.41364433
181003A00019	10/3/2018	3.44	10/3/2025	10/3/2018	116.10818	116.1081836	116.1081836	116.1081836	112.511237	107.3527206	102.4751134	97.86149986	93.49607135
190104A00038	1/4/2019	3.25	1/4/2029	1/4/2019	122.22211	122.222112	122.222112	120.6964122	113.2257484	105.8629186	99.08574095	92.84321848	87.08909575
190129A00073	1/29/2019	3.11	1/29/2029	1/29/2019	113.01105	113.0110481	113.0110481	112.7527044	109.062565	104.4887135	100.1902676	96.1476255	92.34274475
190205A00017	2/5/2019	3.36	2/5/2029	2/5/2019	123.30063	123.3006329	123.3006329	121.6886186	114.1018567	106.6332583	99.76330904	93.43947326	87.61413726
190402A00005	4/2/2019	2.77	4/2/2032	4/2/2019	120.507	120.506997	120.506997	117.8383606	110.4283197	102.9939744	96.22505924	90.05349371	84.41877241
110504A00014	5/4/2011	3.46	5/4/2021	5/4/2011	103.30443	103.3044273	103.3044273	103.3044273	103.0674677	102.0762958	101.1046024	100.1518135	99.2173775
110719A00017	7/19/2011	3.68	7/20/2026	7/19/2011	111.17814	111.1781446	111.1781446	111.1781446	109.2689634	105.9327933	102.7470515	99.70354609	96.7945941
121114A00020	11/14/2012	1.74	11/14/2022	11/14/2012	103.80417	103.8041737	103.8041737	103.8041737	103.0391069	100.7365915	98.50039903	96.32820308	94.2177747
130321A00009	3/21/2013	2.17	3/23/2026	3/21/2013	107.9399	107.9399017	107.9399017	107.9399017	105.4567468	101.6701534	98.07393276	94.65688253	91.40853588
130422A00020	4/22/2013	1.98	4/22/2025	4/22/2013	104.36636	104.3663615	104.3663615	104.3663615	103.2156239	100.6675947	98.21489629	95.85313568	93.57815499
140219A00005	2/19/2014	3.13	2/20/2029	2/19/2014	114.19333	114.1933317	114.1933317	113.9091074	110.1040092	105.4242994	101.0295917	96.89938924	93.01484177
140428A00015	4/28/2014	2.35	4/29/2024	4/28/2014	104.68801	104.6880093	104.6880093	104.6880093	103.9089342	101.8302243	99.81666568	97.86567713	95.974799
140730A00035	7/30/2014	2.67	1/30/2023	7/30/2014	103.71062	103.7106234	103.7106234	103.7106234	103.3048218	101.8603467	100.4502018	99.07328474	97.72853798
141017A00022	10/17/2014	2.78	10/17/2024	10/17/2014	109.71287	109.71287	109.71287	109.71287	107.5943441	103.7082045	99.99720189	96.45237452	93.06526947
170802A00013	8/2/2017	2.5	8/2/2024	8/2/2017	108.9397	108.9396999	108.9396999	108.9396999	106.7924515	102.7974155	98.97999475	95.3312428	91.84271884
171207A00023	12/7/2017	2.45	12/7/2022	12/7/2017	105.42823	105.4282332	105.4282332	105.4282332	104.5724703	102.0866318	99.67434112	97.33295914	95.05995986

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180206A00045	2/6/2018	2.71	2/6/2023	2/6/2018	106.35353	106.3535265	106.3535265	106.3535265	105.402733	102.7983384	100.2743313	97.82770565	95.45558969
180228A00055	2/28/2018	3.33	2/28/2028	2/28/2018	120.04194	120.0419412	120.0419412	119.3252129	112.8341492	106.1978647	100.0370639	94.31412328	88.99461616
180601A00037	6/1/2018	2.86	6/1/2021	6/1/2018	102.80117	102.8011689	102.8011689	102.8011689	102.5402666	101.4599988	100.4026746	99.36756702	98.35397924
180813A00045	8/13/2018	2.89	8/13/2025	8/13/2018	107.79206	107.7920622	107.7920622	107.7920622	106.4469793	103.6430213	100.9499972	98.36253484	95.87556259
180925A00116	9/25/2018	3.28	9/25/2028	9/25/2018	114.20525	114.2052541	114.2052541	114.0196284	110.4911325	106.0030629	101.7771076	97.79514307	94.04044873
181003A00032	10/3/2018	3.23	10/3/2025	10/3/2018	108.47444	108.4744439	108.4744439	108.4744439	107.0447435	104.151615	101.3755749	98.71084051	96.15195797
190103A00020	1/3/2019	3.12	1/5/2026	1/3/2019	115.06255	115.06255	115.06255	115.06255	111.0677297	105.7488683	100.7314044	95.99646119	91.52644931
190305A00017	3/5/2019	3.12	3/5/2026	3/5/2019	114.57986	114.5798591	114.5798591	114.5798591	110.6399011	105.4918195	100.6366017	96.05575012	91.73203504
190308A00026	3/8/2019	3.18	3/8/2034	3/8/2019	133.7018	133.7017998	133.7017998	126.9806563	115.6780416	105.2353671	95.97955688	87.76188675	80.45341037
190405A00004	4/5/2019	3.02	4/5/2034	4/5/2019	120.43734	120.4373393	120.4373393	117.7395662	110.6514929	103.5129094	97.02075922	91.10710356	85.71184236
190412A00011	4/12/2019	3.07	4/12/2034	4/12/2019	120.84072	120.8407234	120.8407234	118.1326879	111.019249	103.8555636	97.34066068	91.40634796	85.99230203
190502A00016	5/2/2019	2.87	5/1/2026	5/2/2019	114.40396	114.4039551	114.4039551	114.4039551	109.863626	104.3292436	99.12436324	94.22741872	89.61836955
190506A00025	5/6/2019	3.03	5/4/2029	5/6/2019	121.99281	121.9928132	121.9928132	120.0394896	111.9989268	104.2207415	97.09129877	90.55182189	84.54918992
190605A00027	6/5/2019	2.64	6/5/2029	6/5/2019	118.8916	118.8915997	118.8915997	116.8829242	108.9343295	101.2694996	94.25038064	87.81795136	81.91891781
090508A00007	5/8/2009	4.26	5/8/2020	5/8/2009	100.09207	100.0920723	100.0920723	100.0920723	100.0900555	100.0677958	100.0455599	100.0233477	100.0011593
110304A00006	3/4/2011	3.6	3/4/2021	3/4/2011	102.80464	102.8046406	102.8046406	102.8046406	102.6269871	101.8190831	101.0243643	100.2425059	99.47319398
140313A00025	3/13/2014	2.43	3/15/2021	3/13/2014	102.01327	102.0132732	102.0132732	102.0132732	101.8159226	100.9472948	100.0936151	99.25449847	98.42957344
140313A00028	3/13/2014	2.86	3/13/2024	3/13/2014	108.66208	108.6620789	108.6620789	108.6620789	107.189415	104.0372244	101.0073719	98.09432782	95.29284424
140618A00019	6/18/2014	3.08	6/18/2024	6/18/2014	106.10332	106.1033205	106.1033205	106.1033205	105.2587135	103.0763072	100.964336	98.91994059	96.94039936
140929A00028	9/29/2014	2.62	3/29/2023	9/29/2014	106.81118	106.8111813	106.8111813	106.8111813	105.7785266	103.0726581	100.4538079	97.9186797	95.4641216
150115A00031	1/15/2015	1.42	1/18/2022	1/15/2015	101.21502	101.2150169	101.2150169	101.2150169	101.001127	100.0809458	99.17772264	98.29098099	97.4202626
150617A00026	6/17/2015	2	6/15/2020	6/17/2015	100.2164	100.2164038	100.2164038	100.2164038	100.2031913	100.0760043	99.94915349	99.82263765	99.6964554
150619A00011	6/19/2015	1.93	6/19/2020	6/19/2015	100.18418	100.1841836	100.1841836	100.1841836	100.1729415	100.0607459	99.94882013	99.83716308	99.72577376
150729A00028	7/29/2015	2.25	7/29/2025	7/29/2015	105.86842	105.8684185	105.8684185	105.8684185	104.5850004	101.8703941	99.26183849	96.75425431	94.34284377
171219A00067	12/19/2017	2.72	12/20/2027	12/19/2017	116.48955	116.4895495	116.4895495	115.9464822	109.9427605	103.7629846	98.01716342	92.67153722	87.69517611
180202A00027	2/2/2018	3.02	2/3/2025	2/2/2018	112.29206	112.292064	112.292064	112.292064	109.6078325	105.1045456	100.8209037	96.74489819	92.86524768
180223A00012	2/23/2018	3.33	2/24/2031	2/23/2018	117.5428	117.5428	117.5428	116.5530866	111.395412	105.701032	100.4194265	95.51557008	90.95772811
180322A00044	3/22/2018	3.18	3/22/2033	3/22/2018	121.44471	121.4447072	121.4447072	119.3426324	112.7435236	105.9383081	99.71005043	94.0018863	88.7631171
180517A00024	5/17/2018	3.46	5/17/2033	5/17/2018	123.85611	123.856108	123.856108	121.6148665	114.7894743	107.7802406	101.3718933	95.50457253	90.12497598
180605A00031	6/5/2018	3.37	6/5/2030	6/5/2018	116.65254	116.6525423	116.6525423	115.9389107	111.2235243	105.8617074	100.8676151	96.21165008	91.86685936
180628A00068	6/28/2018	3.12	6/28/2028	6/28/2018	118.05632	118.0563244	118.0563244	117.3644448	111.8140673	105.8760805	100.3547686	95.21708917	90.43284702

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180809A00031	8/9/2018	2.98	8/9/2021	8/9/2018	103.41879	103.4187867	103.4187867	103.4187867	103.1123136	101.8510508	100.6179119	99.41195307	98.23227269
181105A00015	11/5/2018	3.57	11/5/2025	11/5/2018	117.05977	117.0597717	117.0597717	117.0597717	113.2992096	108.0386646	103.0686066	98.37128744	93.93013831
181115A00044	11/15/2018	3.26	11/15/2023	11/15/2018	109.77839	109.7783928	109.7783928	109.7783928	108.260935	104.9391732	101.743058	98.66709916	95.706079
190104A00006	1/4/2019	2.83	1/5/2026	1/4/2019	107.6236	107.6235998	107.6235998	107.6235998	106.0727753	103.0814873	100.2158701	97.46950456	94.83634753
190207A00003	2/7/2019	2.68	2/7/2024	2/7/2019	108.66935	108.6693537	108.6693537	108.6693537	107.0726788	103.7083341	100.4762276	97.37033041	94.38492768
190212A00029	2/12/2019	2.6	2/12/2024	2/12/2019	105.00288	105.0028818	105.0028818	105.0028818	104.2784734	102.2767617	100.3356756	98.45287829	96.62614061
190315A00017	3/15/2019	2.88	3/15/2034	3/15/2019	120.79127	120.791269	120.791269	118.1071636	110.9924634	103.82565	97.30709799	91.36879615	85.95056499
190315A00021	3/15/2019	3.11	3/15/2034	3/15/2019	121.02429	121.0242854	121.0242854	118.3641453	111.2860272	104.1447651	97.64686423	91.7250429	86.31974564
190403A00013	4/3/2019	3.05	4/3/2029	4/3/2019	121.16613	121.1661285	121.1661285	119.4351655	111.8341461	104.3832078	97.53962849	91.24929279	85.46322052
190403A00015	4/3/2019	3.05	4/3/2029	4/3/2019	121.16614	121.1661381	121.1661381	119.4351733	111.8341487	104.3832071	97.539625	91.24928685	85.46321245
190501A00015	5/1/2019	2.78	5/1/2029	5/1/2019	111.87057	111.8705685	111.8705685	111.5302675	107.666379	102.9911539	98.60665715	94.49156182	90.62628615
190605A00007	6/5/2019	2.47	6/5/2026	6/5/2019	112.28349	112.2834865	112.2834865	112.2834865	107.6267801	102.1050177	96.91674228	92.03983639	87.45376865
190614A00022	6/14/2019	2.62	6/14/2034	6/14/2019	117.49074	117.4907363	117.4907363	114.7582875	107.7568184	100.7302824	94.34662876	88.53761307	83.24294158
190619A00010	6/19/2019	2.04	6/17/2022	6/19/2019	102.20709	102.207087	102.207087	102.207087	101.9266517	100.7912283	99.6790421	98.58941446	97.52169269
120820A00011	8/20/2012	2.4	8/22/2022	8/20/2012	104.52848	104.5284838	104.5284838	104.5284838	103.8849199	101.7629034	99.6971773	97.68589594	95.7272866
130206A00009	2/6/2013	2.83	2/7/2028	2/6/2013	114.42731	114.4273132	114.4273132	113.9629262	108.8364018	103.2779472	98.09415452	93.25646398	88.73868525
140821A00030	8/21/2014	2.27	8/21/2024	8/21/2014	104.89065	104.8906467	104.8906467	104.8906467	103.9925102	101.7467708	99.57600473	97.47707874	95.44701406
141015A00027	10/15/2014	2.01	10/15/2021	10/15/2014	102.68294	102.6829441	102.6829441	102.6829441	102.3320829	100.9366651	99.56789362	98.22506734	96.90750935
150311A00003	3/11/2015	2.72	3/31/2025	3/11/2015	110.31557	110.3155657	110.3155657	110.3155657	107.7947739	103.5729985	99.55706432	95.73565883	92.0981536
170504A00049	5/4/2017	2.63	5/6/2024	5/4/2017	108.96743	108.9674329	108.9674329	108.9674329	107.0260722	103.2287589	99.5926073	96.10987221	92.77322362
170524A00027	5/24/2017	2.32	5/24/2027	5/24/2017	108.19827	108.198267	108.198267	108.1936972	105.7455963	102.0948299	98.62780518	95.33345845	92.20147924
170619A00097	6/16/2017	2.74	6/16/2027	6/16/2017	114.43181	114.4318077	114.4318077	114.2607454	108.7430388	102.9764007	97.59145888	92.56016279	87.85668994
171201A00016	12/1/2017	2.91	12/2/2030	12/1/2017	114.76176	114.7617606	114.7617606	113.8650034	108.9271024	103.4377684	98.34097155	93.60383537	89.19653404
180126A00011	1/26/2018	2.72	1/26/2028	1/26/2018	110.66487	110.6648707	110.6648707	110.6002063	107.6265929	103.5812504	99.75589614	96.13629862	92.7092619
180712A00044	7/12/2018	3.44	7/12/2033	7/12/2018	122.47231	122.4723132	122.4723132	120.1823783	113.3861983	106.4244396	100.0637435	94.24378499	88.91089657
180809A00032	8/9/2018	3.08	8/9/2023	8/9/2018	108.75972	108.7597163	108.7597163	108.7597163	107.4105712	104.275273	101.2514922	98.33458586	95.52013488
180905A00017	9/5/2018	3.43	9/6/2033	9/5/2018	137.33236	137.3323621	137.3323621	130.5038658	118.8514134	108.1267888	98.61561657	90.16796047	82.65345329
180913A00062	9/13/2018	3.05	9/13/2023	9/13/2018	108.72617	108.726167	108.726167	108.726167	107.3430559	104.1875438	101.14635	98.21469786	95.38803683
181116A00006	11/16/2018	3.18	11/17/2025	11/16/2018	108.45504	108.4550379	108.4550379	108.4550379	106.9812533	104.04744	101.2339149	98.53466655	95.9440289
181119A00008	11/19/2018	3.23	11/17/2023	11/19/2018	109.39974	109.3997387	109.3997387	109.3997387	107.9554456	104.7550006	101.6741637	98.70773812	95.85078429
181214A00009	12/14/2018	3.22	12/14/2028	12/14/2018	113.40805	113.4080457	113.4080457	113.1695196	109.5212353	104.9695091	100.6895522	96.66217585	92.86970641

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181214A00030	12/14/2018	3.47	12/14/2033	12/14/2018	138.72775	138.7277507	138.7277507	131.352636	119.2057768	108.0715484	98.22009193	89.4900176	81.74137841
181218A00040	12/18/2018	3.23	6/18/2030	12/18/2018	115.85787	115.8578663	115.8578663	115.1485714	110.4648232	105.1391591	100.1787795	95.55427928	91.23888111
190205A00022	2/5/2019	3.32	2/5/2029	2/5/2019	122.98102	122.9810177	122.9810177	121.3715715	113.8001722	106.3479402	99.49316605	93.18341257	87.37115573
190205A00023	2/5/2019	3.32	2/5/2029	2/5/2019	122.98104	122.9810394	122.9810394	121.3715917	113.8001849	106.3479458	99.49316517	93.18340578	87.37114352
190305A00015	3/5/2019	3.32	3/5/2029	3/5/2019	123.16192	123.1619177	123.1619177	121.4856838	113.8447607	106.3353834	99.43273504	93.0832093	87.23824493
190315A00019	3/15/2019	2.88	3/15/2034	3/15/2019	120.79122	120.7912231	120.7912231	118.1071231	110.9924455	103.8256478	97.30710977	91.36882039	85.95060031
190326A00029	3/26/2019	2.38	3/26/2026	3/26/2019	107.02806	107.02806	107.02806	107.02806	105.3829904	102.3169219	99.38323869	96.57500975	93.88571934
190404A00015	4/4/2019	2.88	4/3/2026	4/4/2019	114.28887	114.2888729	114.2888729	114.2888729	109.8902401	104.416914	99.26562916	94.41556054	89.84733821
190506A00026	5/6/2019	3.03	5/4/2029	5/6/2019	121.99281	121.9928132	121.9928132	120.0394896	111.9989268	104.2207415	97.09129877	90.55182189	84.54918992
190524A00041	5/24/2019	2.83	5/24/2034	5/24/2019	119.04797	119.047967	119.047967	116.3300442	109.2795174	102.1913968	95.74850004	89.88266967	84.53365112
190531A00036	5/31/2019	2.71	5/31/2034	5/31/2019	118.09604	118.0960424	118.0960424	115.3994519	108.404953	101.3732539	94.98166822	89.16257539	83.85619578
190620A00033	6/20/2019	2.1	6/20/2029	6/20/2019	109.55906	109.5590607	109.5590607	109.1992332	105.3400376	100.7041176	96.35979394	92.28544932	88.46125305
120517A00021	5/17/2012	1.85	5/17/2024	5/17/2012	103.69945	103.6994517	103.6994517	103.6994517	102.8999539	100.8009606	98.76880226	96.80079617	94.89438748
130508A00004	5/8/2013	1.47	5/8/2020	5/8/2013	100.03008	100.0300783	100.0300783	100.0300783	100.0280662	100.0058581	99.98367366	99.96151296	99.93937592
110810A00009	8/10/2011	2.36	8/10/2021	8/10/2011	101.49235	101.4923525	101.4923525	101.4923525	101.3386762	100.6236048	99.92112785	99.23087931	98.55250814
111220A00025	12/20/2011	2.17	12/20/2021	12/20/2011	101.67168	101.6716791	101.6716791	101.6716791	101.4693305	100.5878751	99.7223436	98.8722944	98.03730267
120807A00025	8/7/2012	1.82	8/8/2022	8/7/2012	101.87593	101.8759262	101.8759262	101.8759262	101.5677406	100.3577864	99.173586	98.01436747	96.87938886
120807A00026	8/7/2012	2.42	8/9/2027	8/7/2012	108.12484	108.1248365	108.1248365	108.1063062	105.4991238	101.7511572	98.19689838	94.82439288	91.62251883
130521A00012	5/21/2013	1.61	5/21/2020	5/21/2013	100.08712	100.0871215	100.0871215	100.0871215	100.0818395	100.0235512	99.96534617	99.90722427	99.84918531
131018A00006	10/18/2013	3.28	10/20/2025	10/18/2013	114.55217	114.5521707	114.5521707	114.5521707	111.4399574	106.8113806	102.4265161	98.27088466	94.33095127
140318A00003	3/17/2014	3.08	3/18/2024	3/17/2014	110.98726	110.9872608	110.9872608	110.9872608	109.1464861	105.4286862	101.8636152	98.44415802	95.16356901
140924A00057	9/24/2014	3.25	9/25/2028	9/24/2014	123.11866	123.1186556	123.1186556	121.8176393	114.4641292	107.1827036	100.4666528	94.2679344	88.54286266
150205A00031	2/5/2015	1.96	10/6/2025	2/5/2015	105.29657	105.2965709	105.2965709	105.2965709	103.9021693	101.0834276	98.37909817	95.78351509	93.29133555
150219A00016	2/19/2015	2.68	2/19/2025	2/19/2015	110.14329	110.143291	110.143291	110.143291	107.6354304	103.3584648	99.28680453	95.40934535	91.71564575
150320A00019	3/20/2015	2.25	3/20/2025	3/20/2015	108.17765	108.1776525	108.1776525	108.1776525	106.02708	102.2517087	98.65278801	95.22085639	91.94701541
150603A00032	6/3/2015	2.21	6/3/2025	6/3/2015	105.66249	105.6624867	105.6624867	105.6624867	104.4211367	101.7530597	99.18777506	96.72042208	94.34640603
150617A00017	6/17/2015	2.27	6/17/2025	6/17/2015	105.82923	105.8292314	105.8292314	105.8292314	104.5849788	101.9121128	99.34226196	96.87055245	94.49237756
150714A00003	7/14/2015	3.76	7/12/2030	7/14/2015	120.27305	120.2730513	120.2730513	119.4924283	114.5305338	108.9257649	103.7099372	98.85141706	94.32142493
150717A00032	7/17/2015	1.88	7/17/2020	7/17/2015	100.38026	100.3802575	100.3802575	100.3802575	100.3543264	100.1388078	99.92423112	99.71059015	99.49787865
150803A00036	8/3/2015	3.41	8/2/2030	8/3/2015	125.61432	125.6143222	125.6143222	122.9072686	114.7037425	106.6930482	99.39324635	92.73463807	86.65482511
150925A00034	9/25/2015	2.36	9/25/2025	9/25/2015	105.82086	105.8208573	105.8208573	105.8208573	104.4650584	101.6812658	99.00877398	96.44214409	93.97624356

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
151223A00036	12/23/2015	2.64	12/23/2025	12/23/2015	108.48381	108.4838073	108.4838073	108.4838073	106.2917888	102.6644449	99.20846308	95.91420177	92.77263218
190708A00028	7/8/2019	2.57	7/2/2029	7/8/2019	118.43926	118.4392571	118.4392571	116.3643374	108.3839574	100.7000932	93.66817716	87.22820532	81.32603674
190708A00030	7/8/2019	2.57	7/2/2029	7/8/2019	118.43929	118.4392865	118.4392865	116.3643627	108.3839676	100.7000913	93.66816437	87.22818274	81.32600537
190719A00017	7/19/2019	2.55	7/19/2034	7/19/2019	117.03921	117.0392121	117.0392121	114.2668338	107.2495005	100.2191476	93.8353094	88.02901607	82.73937152
190816A00023	8/16/2019	2.14	8/16/2034	8/16/2019	113.88416	113.884161	113.884161	111.13686	104.2666227	97.3954657	91.15940121	85.4903451	80.328221
190826A00032	8/26/2019	1.72	8/24/2029	8/26/2019	107.82472	107.8247177	107.8247177	107.4238915	103.5247002	98.89093921	94.55325824	90.48937933	86.67889189
190910A00044	9/10/2019	2.02	9/10/2026	9/10/2019	110.06739	110.0673904	110.0673904	110.0673904	104.9935579	99.37567106	94.11024846	89.17313292	84.54194625
190920A00014	9/20/2019	2.28	9/20/2034	9/20/2019	115.08027	115.0802731	115.0802731	112.2542523	105.2705588	98.29751669	91.97221621	86.22487895	80.99397213
190930A00028	9/30/2019	1.95	9/30/2024	9/30/2019	106.67299	106.6729907	106.6729907	106.6729907	104.5148647	100.5895416	96.84265442	93.26507534	89.84819221
150203A00012	2/3/2015	1.61	2/3/2022	2/3/2015	101.28029	101.2802916	101.2802916	101.2802916	101.0552762	100.0975229	99.15768746	98.23526199	97.32975813
150224A00010	2/24/2015	2.34	2/24/2025	2/24/2015	105.89231	105.8923082	105.8923082	105.8923082	104.5301374	101.6455137	98.87331928	96.20824799	93.64528089
150617A00030	6/17/2015	2.91	6/16/2025	6/17/2015	111.57778	111.5777794	111.5777794	111.5777794	108.8223777	104.4129169	100.2258501	96.24852533	92.4690844
150624A00076	6/24/2015	2.04	6/24/2020	6/24/2015	100.26752	100.2675214	100.2675214	100.2675214	100.2510437	100.0990151	99.94745468	99.79636023	99.64572962
150630A00077	6/30/2015	2.02	6/30/2020	6/30/2015	100.29501	100.2950083	100.2950083	100.2950083	100.2763382	100.107637	99.93949916	99.77192204	99.60490283
150805A00015	8/5/2015	2.29	8/5/2022	8/5/2015	104.8208	104.8208027	104.8208027	104.8208027	104.161033	101.9661994	99.82951549	97.74902114	95.72283895
151022A00020	10/22/2015	1.71	10/22/2020	10/22/2015	100.70543	100.7054285	100.7054285	100.7054285	100.631652	100.1420774	99.65720947	99.17698056	98.70132433
151029A00008	10/29/2015	2.28	10/29/2025	10/29/2015	105.67657	105.6765703	105.6765703	105.6765703	104.2814579	101.4616348	98.75601412	96.15895058	93.66512007
151030A00026	10/30/2015	3.29	10/30/2030	10/30/2015	125.05008	125.0500759	125.0500759	122.1386772	113.8212766	105.7329699	98.37621972	91.67794005	85.57283633
151113A00035	11/13/2015	1.8	11/14/2022	11/13/2015	102.2895	102.2894976	102.2894976	102.2894976	101.9279748	100.586343	99.27527322	97.99381515	96.74105601
151124A00006	11/24/2015	1.66	11/24/2020	11/24/2015	100.4755	100.4754952	100.4754952	100.4754952	100.4270013	100.0901035	99.75599386	99.42463415	99.0959867
151215A00039	12/15/2015	2.46	12/15/2025	12/15/2015	106.39089	106.3908933	106.3908933	106.3908933	104.901672	101.9837734	99.18700069	96.50523301	93.93270478
190708A00029	7/8/2019	2.57	7/2/2029	7/8/2019	118.43929	118.4392865	118.4392865	116.3643627	108.3839676	100.7000913	93.66816437	87.22818274	81.32600537
190708A00032	7/8/2019	2.58	7/2/2029	7/8/2019	118.52381	118.5238055	118.5238055	116.4479962	108.4632628	100.7748563	93.7387445	87.2948936	81.38913552
190726A00012	7/26/2019	2.58	7/26/2034	7/26/2019	117.27861	117.2786112	117.2786112	114.5003833	107.4686606	100.4239051	94.02700158	88.20883532	82.90838269
190802A00020	8/2/2019	2.42	8/2/2034	8/2/2019	116.10257	116.1025728	116.1025728	113.3026209	106.2993452	99.29491898	92.93784785	87.15873929	81.89636168
190813A00051	8/13/2019	2.19	8/13/2029	8/13/2019	115.41454	115.4145422	115.4145422	113.2614637	105.3599933	97.77810728	90.84756387	84.50775176	78.70403986
190813A00057	8/13/2019	1.9	8/13/2024	8/13/2019	106.55325	106.5532491	106.5532491	106.5532491	104.3966997	100.4245494	96.63069026	93.00611418	89.54231971
190829A00032	8/29/2019	1.69	8/28/2026	8/29/2019	105.19381	105.1938105	105.1938105	105.1938105	103.324659	100.116706	97.05549559	94.13293195	91.34142809
190830A00013	8/30/2019	2.06	8/30/2034	8/30/2019	113.2554	113.2554019	113.2554019	110.5227414	103.6901055	96.8566507	90.65483948	85.0169527	79.88323661
190905A00018	9/5/2019	1.85	9/5/2029	9/5/2019	112.90664	112.9066418	112.9066418	111.1144807	104.1244917	97.22288118	90.89495265	85.08818753	79.7552006
190913A00006	9/13/2019	2.33	9/13/2034	9/13/2019	115.47923	115.4792301	115.4792301	112.6436821	105.6359443	98.63884303	92.29169918	86.52449838	81.27549934

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191004A00026	10/4/2019	1.74	10/4/2024	10/4/2019	106.07616	106.0761601	106.0761601	106.0761601	103.7977488	99.72442982	95.83941349	92.13297399	88.59593881
191122A00003	11/22/2019	2.32	11/22/2039	11/22/2019	128.75922	128.7592157	128.5500785	117.8515543	105.4248889	94.40348598	84.92480677	76.74519216	69.66221024
200220A00026	2/20/2020	2.22	2/21/2040	2/20/2020	120.98082	120.9808234	120.9228371	113.5490484	103.3018894	93.90284188	85.6719005	78.44187455	72.07162126
200306A00048	3/6/2020	1.04	3/6/2035	3/6/2020	107.14933	107.1493347	107.1493347	104.1993242	97.41613087	90.71920041	84.66568385	79.18402424	74.21138215
191004A00025	10/4/2019	1.74	10/4/2024	10/4/2019	106.07616	106.0761601	106.0761601	106.0761601	103.7977488	99.72442982	95.83941349	92.13297399	88.59593881
191101A00005	11/1/2019	1.83	11/2/2026	11/1/2019	110.29929	110.2992947	110.2992947	110.2992947	104.9195043	99.1661969	93.78233756	88.74201421	84.02126839
191112A00024	11/12/2019	2.09	11/12/2024	11/12/2019	107.69919	107.6991858	107.6991858	107.6991858	105.29675	101.0915529	97.08456011	93.26532277	89.62399976
191203A00009	12/3/2019	2.21	12/3/2029	12/3/2019	116.04779	116.0477905	116.0477905	113.5879303	105.4379192	97.65381057	90.55693838	84.08161017	78.16878435
191203A00010	12/3/2019	2.21	12/3/2029	12/3/2019	116.04779	116.0477905	116.0477905	113.5879303	105.4379192	97.65381057	90.55693838	84.08161017	78.16878435
200103A00002	1/3/2020	2.07	1/3/2030	1/3/2020	115.05172	115.0517208	115.0517208	112.969712	105.6607635	98.48384336	91.91983564	85.9110526	80.40560699
200115A00013	1/15/2020	2.18	1/15/2030	1/15/2020	112.81405	112.814048	112.814048	111.2462266	105.012446	98.63941741	92.77946526	87.38603386	82.41713389
200206A00034	2/6/2020	1.84	2/6/2025	2/6/2020	106.9282	106.9281954	106.9281954	106.9281954	104.3032578	99.93468863	95.78084991	91.82995776	88.07094251
200221A00012	2/21/2020	2.14	2/21/2040	2/21/2020	120.0575	120.0574958	119.9999519	112.6827722	102.5144813	93.18782698	85.02029777	77.84598695	71.52483582
200318A00012	3/18/2020	1.68	3/18/2033	3/18/2020	112.58523	112.5852297	112.5852297	109.496869	102.1191822	94.85600164	88.28326797	82.32596281	76.91792062
200406A00014	4/6/2020	1.33	4/6/2035	4/6/2020	109.51841	109.5184108	109.5184108	106.4537407	99.48233864	92.60997509	86.40103745	80.78139941	75.686006
160209A00006	2/9/2016	1.91	2/9/2026	2/9/2016	104.87459	104.874593	104.874593	104.874593	103.3173677	100.3629704	97.53422436	94.82463948	92.22811004
160210A00051	2/10/2016	2.28	2/10/2031	2/10/2016	112.40444	112.40444	112.40444	111.4487401	106.4840177	101.0115189	95.93710976	91.22691391	86.85024621
160329A00017	3/29/2016	2.48	3/30/2026	3/29/2016	110.90504	110.9050398	110.9050398	110.9050398	107.1427028	102.247108	97.62960134	93.27255163	89.159544
160330A00003	3/30/2016	1.68	3/30/2021	3/30/2016	101.28836	101.2883584	101.2883584	101.2883584	101.0778571	100.1746062	99.28759019	98.41637342	97.56053567
160404A00019	4/4/2016	2.48	4/4/2031	4/4/2016	112.62832	112.6283177	112.6283177	111.6110618	106.5731782	101.0477888	95.92825896	91.17971529	86.77060028
160412A00029	4/12/2016	2.48	4/14/2031	4/12/2016	112.62882	112.6288232	112.6288232	111.6112258	106.5731159	101.0475492	95.92788048	91.17923017	86.77003518
160427A00004	4/27/2016	2.09	4/27/2026	4/27/2016	105.5867	105.5867031	105.5867031	105.5867031	103.9230281	100.8699474	97.94989129	95.155838	92.48118958
160428A00028	4/28/2016	2	4/28/2026	4/28/2016	105.90859	105.9085921	105.9085921	105.9085921	104.2320271	101.1584657	98.21920626	95.40714089	92.71559194
160504A00022	5/4/2016	2	5/4/2023	5/4/2016	104.95302	104.9530237	104.9530237	104.9530237	103.8139161	100.9638945	98.20938049	95.54662747	92.97205833
160511A00016	5/11/2016	2.48	5/12/2031	5/11/2016	112.72661	112.7266142	112.7266142	111.6728864	106.5831242	101.0186736	95.86566633	91.08852354	86.65507017
160608A00016	6/8/2016	1.63	6/8/2021	6/8/2016	101.4863	101.4862967	101.4862967	101.4862967	101.2241488	100.1382895	99.07590673	98.03624294	97.01857301
160608A00019	6/8/2016	2.36	6/8/2026	6/8/2016	111.15904	111.1590437	111.1590437	111.1590437	106.7906614	101.5198864	96.56295345	91.89919497	87.50941957
160810A00028	8/10/2016	2.19	8/10/2026	8/10/2016	110.80716	110.8071638	110.8071638	110.8071638	105.9544297	100.4315425	95.24926384	90.3845201	85.81592728
160826A00005	8/26/2016	2.12	8/27/2029	8/26/2016	108.86416	108.8641589	108.8641589	108.4631469	104.5502099	99.89286389	95.53212264	91.44573112	87.61329497
160908A00015	9/8/2016	1.87	9/8/2023	9/8/2016	104.99634	104.9963444	104.9963444	104.9963444	103.6327469	100.5333471	97.54658729	94.66776401	91.89239539
160908A00021	9/8/2016	2.21	9/8/2026	9/8/2016	110.70735	110.7073515	110.7073515	110.7073515	105.931981	100.5167796	95.4352359	90.66470893	86.18421442

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160908A00035	9/8/2016	2.3	9/8/2031	9/8/2016	111.99414	111.9941378	111.9941378	110.8024302	105.5593931	99.89654727	94.66334788	89.82171612	85.33730249
161104A00002	11/4/2016	2.26	11/5/2029	11/4/2016	109.82708	109.8270821	109.8270821	109.3485113	105.2509815	100.4463871	95.95483092	91.75231452	87.81688687
161227A00073	12/27/2016	2.83	12/28/2026	12/27/2016	113.63231	113.6323086	113.6323086	113.6323086	109.3911493	104.4255865	99.75654154	95.3639079	91.22907295
170112A00015	1/12/2017	2.32	1/12/2027	1/12/2017	107.80768	107.8076771	107.8076771	107.8076771	105.6081036	102.12539	98.81083285	95.65468619	92.64784466
170113A00028	1/13/2017	2.92	1/14/2030	1/13/2017	113.51433	113.5143304	113.5143304	112.9650904	108.628001	103.5897136	98.88464653	94.48688728	90.37276441
170217A00012	2/17/2017	2.97	2/19/2030	2/17/2017	113.83654	113.836535	113.836535	113.2638779	108.8911153	103.8235018	99.09280783	94.6726827	90.53906784
170301A00031	3/1/2017	2.11	3/1/2024	3/1/2017	104.00512	104.0051207	104.0051207	104.0051207	103.2866127	101.3027717	99.37906761	97.51318161	95.70290178
170309A00014	3/9/2017	2.58	3/9/2027	3/9/2017	108.97288	108.97288	108.97288	108.9727459	106.628346	103.0298633	99.60877954	96.35461599	93.2575948
170313A00045	3/13/2017	3.22	3/15/2032	3/13/2017	118.62612	118.6261235	118.6261235	117.1213292	111.2792475	105.0723962	99.35431772	94.0801171	89.2094497
170317A00044	3/17/2017	3.11	3/17/2027	3/17/2017	116.19577	116.1957683	116.1957683	116.1832702	110.803446	105.1080235	99.77827689	94.78813127	90.11351987
150803A00037	8/3/2015	3.41	8/2/2030	8/3/2015	125.61431	125.6143057	125.6143057	122.9072575	114.7037382	106.6930488	99.39325105	92.73464622	86.65483615
150803A00041	8/3/2015	3.01	8/2/2030	8/3/2015	114.85965	114.8596534	114.8596534	114.0941431	109.3504294	103.9988332	99.01948974	94.38203129	90.05883854
150804A00022	8/4/2015	2.37	8/4/2022	8/4/2015	104.59171	104.5917093	104.5917093	104.5917093	103.9364894	101.7539298	99.62901118	97.55979204	95.54441306
150812A00052	8/14/2015	2.13	8/14/2025	8/14/2015	105.61899	105.6189892	105.6189892	105.6189892	104.3007608	101.5530184	98.91399324	96.37842008	93.94132846
150825A00008	8/25/2015	2.82	8/25/2025	8/25/2015	111.5331	111.5331026	111.5331026	111.5331026	108.5606745	104.0260298	99.72699117	95.64981819	91.78164832
150929A00087	9/29/2015	2.09	9/29/2025	9/29/2015	105.59289	105.5928932	105.5928932	105.5928932	104.2338354	101.4461642	98.7702716	96.20068052	93.73222324
151002A00003	10/2/2015	1.94	10/2/2025	10/2/2015	105.2378	105.2377987	105.2377987	105.2377987	103.8444846	101.0274596	98.32476574	95.73074202	93.24005008
151005A00084	10/5/2015	2.25	10/5/2022	10/5/2015	104.63639	104.6363872	104.6363872	104.6363872	103.8849783	101.5498929	99.28042842	97.07436446	94.9295695
151013A00033	10/13/2015	2.23	10/14/2025	10/13/2015	105.52913	105.529127	105.529127	105.529127	104.1371226	101.3217739	98.62040348	96.02738001	93.53739241
151023A00019	10/23/2015	1.74	10/23/2020	10/23/2015	100.71755	100.7175487	100.7175487	100.7175487	100.6450919	100.1641874	99.68790387	99.21617469	98.74893457
151030A00004	10/30/2015	2.48	10/30/2025	10/30/2015	110.03493	110.0349266	110.0349266	110.0349266	107.2936794	103.1035983	99.12858887	95.35603455	91.77413619
151118A00025	11/18/2015	2.4	11/18/2022	11/18/2015	105.06587	105.0658669	105.0658669	105.0658669	104.2704775	101.8970901	99.59245679	97.354158	95.17987551
151124A00007	11/24/2015	1.98	11/23/2022	11/24/2015	102.2928	102.2927997	102.2927997	102.2927997	101.9316984	100.5925928	99.28394293	98.00480304	96.75426455
151228A00013	12/28/2015	2.27	12/29/2025	12/28/2015	106.3961	106.3961006	106.3961006	106.3961006	104.8990028	101.9700705	99.16310196	96.47191555	93.89068953
190628A00026	6/28/2019	2.54	6/28/2034	6/28/2019	116.85737	116.8573702	116.8573702	114.1390933	107.175	100.1860785	93.83663641	88.05878531	82.79254666
190712A00016	7/12/2019	2.39	7/12/2029	7/12/2019	110.13013	110.13013	110.13013	109.7488724	105.8419509	101.1668377	96.78710661	92.68076052	88.82762848
190802A00011	8/2/2019	2.01	8/2/2029	8/2/2019	109.2805	109.2805008	109.2805008	108.8750857	104.9241019	100.2284491	95.832767	91.71449038	87.85294506
190823A00018	8/23/2019	2.12	8/23/2034	8/23/2019	113.72693	113.7269328	113.7269328	110.9831784	104.1222758	97.26049568	91.03295799	85.37166744	80.21662634
190829A00039	8/29/2019	1.85	8/29/2034	8/29/2019	113.14273	113.1427274	113.1427274	110.3824963	103.5075371	96.64265473	90.41491506	84.75578821	79.60482793
190905A00019	9/5/2019	2.08	9/5/2029	9/5/2019	114.57665	114.5766483	114.5766483	112.3720979	104.4703288	96.89945185	89.98314449	83.66016648	77.87534339
191004A00017	10/4/2019	2.02	10/4/2029	10/4/2019	114.17564	114.1756446	114.1756446	111.9000795	103.9644127	96.37253122	89.44210824	83.11078203	77.32241553

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191009A00009	10/9/2019	1.8	10/9/2026	10/9/2019	105.05275	105.0527549	105.0527549	105.0527549	103.0889289	99.8214791	96.70634273	93.73497244	90.89936615
200303A00028	3/3/2020	1.54	3/4/2030	3/3/2020	109.47963	109.4796323	109.4796323	107.3646449	100.3078556	93.40332624	87.0964777	81.33035986	76.05380829
200309A00083	3/9/2020	0.82	3/9/2023	3/9/2020	101.44956	101.4495614	101.4495614	101.4495614	100.4338341	97.7661126	95.18405538	92.68445557	90.26424398
200311A00026	3/11/2020	1.34	3/11/2030	3/11/2020	108.44045	108.4404526	108.4404526	106.0277671	98.48190791	91.24655401	84.65740149	78.65170313	73.17316893
200323A00090	3/23/2020	1.55	3/23/2027	3/23/2020	104.91385	104.9138493	104.9138493	104.9119207	102.290615	98.51943321	94.94238198	91.54757797	88.32395709
200327A00094	3/27/2020	1.6	3/27/2030	3/27/2020	109.99628	109.9962799	109.9962799	107.8281951	100.7155934	93.76069738	87.41051149	81.60713533	76.29858068
200309A00034	3/9/2020	0.96	3/9/2035	3/9/2020	106.51621	106.5162108	106.5162108	103.5833927	96.84003614	90.18249744	84.1646023	78.71521154	73.77185283
200317A00043	3/17/2020	1.29	3/15/2030	3/17/2020	106.04502	106.0450245	106.0450245	105.4732431	101.2991942	96.50137393	92.02672363	87.84968386	83.94694095
200326A00032	3/26/2020	1.49	3/26/2030	3/26/2020	106.09239	106.0923912	106.0923912	105.5253914	101.3750175	96.59705722	92.13986319	87.97813577	84.08879273
200406A00027	4/6/2020	1.31	4/5/2030	4/6/2020	109.25458	109.2545768	109.2545768	107.0507611	99.90667605	92.93871355	86.58060669	80.7736382	75.46511701
200413A00013	4/13/2020	1.19	4/12/2030	4/13/2020	104.56543	104.565433	104.565433	103.9800661	99.84283418	95.10040375	90.67866023	86.55213774	82.69761666
200428A00009	4/28/2020	1.08	4/29/2030	4/28/2020	103.99089	103.990886	103.990886	103.4081617	99.29317995	94.57643245	90.17867946	86.07458465	82.24104705
200429A00030	4/29/2020	1.41	4/29/2030	4/29/2020	109.12595	109.1259507	109.1259507	106.5845989	98.92298321	91.58906655	84.91731998	78.84270299	73.30694795
200430A00027	4/30/2020	1.31	4/30/2035	4/30/2020	107.81207	107.8120727	107.8120727	104.8279353	98.01429994	91.2869636	85.20640658	79.70059097	74.70627076
170526A00017	5/26/2017	2.16	5/28/2024	5/26/2017	103.90224	103.9022427	103.9022427	103.9022427	103.1315682	101.0743256	99.08140603	97.15026685	95.27848489
170901A00030	9/1/2017	1.82	9/1/2022	9/1/2017	103.70052	103.7005218	103.7005218	103.7005218	103.0448394	100.9072454	98.82705235	96.80238973	94.83145911
171207A00021	12/7/2017	2.25	12/7/2020	12/7/2017	101.20883	101.2088305	101.2088305	101.2088305	101.1027639	100.4990242	99.90253601	99.31316901	98.73079582
171219A00009	12/19/2017	2.3	12/19/2024	12/19/2017	105.34025	105.3402506	105.3402506	105.3402506	104.3111622	101.8928492	99.56026093	97.3096274	95.13737232
180305A00030	3/5/2018	3.12	3/5/2025	3/5/2018	112.95949	112.9594933	112.9594933	112.9594933	110.1768303	105.5825706	101.2158449	97.06412352	93.11563118
180309A00011	3/9/2018	3.19	3/10/2025	3/9/2018	113.3269	113.3269046	113.3269046	113.3269046	110.5226589	105.9056202	101.5177564	97.34641774	93.37971771
180713A00031	7/13/2018	3.06	7/14/2025	7/13/2018	107.60687	107.6068707	107.6068707	107.6068707	106.3091149	103.5602193	100.9183726	98.37846366	95.93566357
180718A00008	7/18/2018	3.37	7/18/2028	7/18/2018	122.71689	122.7168906	122.7168906	121.4854092	113.9460152	106.5430147	99.7111666	93.40246601	87.57321507
180913A00033	9/13/2018	3.31	9/13/2033	9/13/2018	123.3284	123.3284034	123.3284034	120.8974644	113.912256	106.7962953	100.3038456	94.3714711	88.94282802
180914A00049	9/14/2018	3.37	9/14/2033	9/14/2018	123.79616	123.7961575	123.7961575	121.3560238	114.3443952	107.2015011	100.6844769	94.72964674	89.28045349
180925A00013	9/25/2018	3.41	9/25/2028	9/25/2018	113.89564	113.8956389	113.8956389	113.7121667	110.213429	105.7565356	101.5591102	97.60326156	93.87247988
181128A00004	11/28/2018	3.08	11/28/2023	11/28/2018	110.16778	110.1677832	110.1677832	110.1677832	108.5738439	105.1353051	101.8288702	98.64869363	95.5892235
181226A00030	12/26/2018	2.91	12/26/2028	12/26/2018	112.8624	112.8624038	112.8624038	112.6224167	108.9699677	104.4201503	100.1428971	96.11890674	92.33040598
190104A00034	1/4/2019	3.18	1/4/2029	1/4/2019	118.17371	118.1737118	118.1737118	117.1828706	111.3111706	105.1306788	99.40464381	94.09533435	89.16841633
190111A00038	1/11/2019	2.63	1/11/2022	1/11/2019	103.96804	103.9680368	103.9680368	103.9680368	103.566841	102.0040907	100.474053	98.97575106	97.50824705
190131A00013	1/31/2019	3.48	1/31/2034	1/31/2019	136.57397	136.5739652	136.5739652	129.2099037	117.23198	106.2589326	96.55524852	87.96041916	80.33537865
190131A00023	1/31/2019	3.02	1/30/2034	1/31/2019	121.63544	121.6354367	121.6354367	119.034991	111.9613623	104.8099791	98.29876463	92.36122639	86.93845548

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190205A00025	2/5/2019	2.88	2/7/2022	2/5/2019	104.52359	104.5235905	104.5235905	104.5235905	104.0731459	102.3428769	100.6503214	98.994345	97.37385854
190313A00039	3/13/2019	2.7	6/13/2022	3/13/2019	104.99337	104.9933689	104.9933689	104.9933689	104.4099914	102.3541196	100.349926	98.39575052	96.4899994
190313A00044	3/13/2019	2.7	6/13/2022	3/13/2019	104.99337	104.9933689	104.9933689	104.9933689	104.4099914	102.3541196	100.349926	98.39575052	96.4899994
190329A00067	3/29/2019	2.61	3/29/2024	3/29/2019	108.05659	108.0565942	108.0565942	108.0565942	106.3773396	102.9371971	99.63623785	96.46801167	93.42640292
190403A00010	4/3/2019	3.08	4/3/2029	4/3/2019	122.22153	122.2215341	122.2215341	120.3478344	112.3608266	104.6215036	97.52221805	91.00547781	85.01927487
190403A00014	4/3/2019	3.05	4/3/2029	4/3/2019	121.16613	121.1661333	121.1661333	119.4351703	111.8341477	104.3832078	97.53962698	91.24928997	85.46321653
190411A00022	4/11/2019	2.68	4/11/2022	4/11/2019	103.13983	103.1398338	103.1398338	103.1398338	102.810959	101.5072169	100.2312628	98.98228789	97.75951362
190422A00037	4/22/2019	3.07	4/21/2034	4/22/2019	120.83674	120.8367377	120.8367377	118.1295607	111.0178434	103.8554976	97.34177193	91.40849194	85.99535013
190529A00061	5/29/2019	2.46	5/29/2026	5/29/2019	106.86339	106.8633883	106.8633883	106.8633883	105.1299401	102.0007331	99.00946735	96.14878398	93.41177263
111115A00005	11/15/2011	2.26	11/15/2021	11/15/2011	101.67548	101.6754828	101.6754828	101.6754828	101.4853522	100.6454316	99.82042857	99.00993283	98.21354974
120806A00015	8/6/2012	2.38	8/6/2027	8/6/2012	107.96724	107.9672352	107.9672352	107.9488427	105.3455213	101.603065	98.05402463	94.68646413	91.48927887
120808A00006	8/8/2012	2.06	8/9/2027	8/8/2012	107.46462	107.4646162	107.4646162	107.4460373	104.8406977	101.1006091	97.55441034	94.19010347	90.99652836
130312A00007	3/12/2013	1.76	3/12/2021	3/12/2013	101.40117	101.4011727	101.4011727	101.4011727	101.2097899	100.3611374	99.52690954	98.7067391	97.90027117
140703A00026	7/3/2014	3.11	7/3/2024	7/3/2014	110.43789	110.4378937	110.4378937	110.4378937	108.5357031	104.8350831	101.2920701	97.89895856	94.64846771
141015A00029	10/15/2014	2.32	10/15/2024	10/15/2014	107.82053	107.8205286	107.8205286	107.8205286	105.9826699	102.4786136	99.12691954	95.91993704	92.8504449
150203A00027	2/3/2015	2.26	2/4/2030	2/3/2015	111.12437	111.1243693	111.1243693	110.5539926	106.2314899	101.240618	96.583399	92.23363103	88.16739921
150223A00017	2/23/2015	1.77	2/23/2022	2/23/2015	102.22392	102.2239189	102.2239189	102.2239189	101.888582	100.5465862	99.23225422	97.94481989	96.68354396
150722A00035	7/22/2015	2.92	7/22/2025	7/22/2015	111.81921	111.8192081	111.8192081	111.8192081	108.9503226	104.4670325	100.2133047	96.17587518	92.34232675
150803A00040	8/3/2015	3.01	8/2/2030	8/3/2015	114.85968	114.8596763	114.8596763	114.0941629	109.3504385	103.9988343	99.01948371	94.38201889	90.05882048
150824A00050	8/24/2015	2.03	8/25/2025	8/24/2015	105.33603	105.3360279	105.3360279	105.3360279	104.0204973	101.2796569	98.64729149	96.11814661	93.68726161
150911A00007	9/10/2015	2.51	9/9/2022	9/10/2015	105.11095	105.1109512	105.1109512	105.1109512	104.3987323	102.1200946	99.90376728	97.74769926	95.64991914
150915A00072	9/15/2015	1.91	9/15/2020	9/15/2015	100.62901	100.6290079	100.6290079	100.6290079	100.5764643	100.1978304	99.82206521	99.44913619	99.07901113
151201A00004	12/1/2015	2.44	12/1/2022	12/1/2015	105.40617	105.4061674	105.4061674	105.4061674	104.5542111	102.0669938	99.65316922	97.31011531	95.03532176
151210A00011	12/10/2015	2.16	12/12/2022	12/10/2015	102.8711	102.8711018	102.8711018	102.8711018	102.4891085	101.0988915	99.74099958	98.41441287	97.11815217
160113A00002	1/13/2016	2.12	1/13/2026	1/13/2016	106.02847	106.0284686	106.0284686	106.0284686	104.4929089	101.5349038	98.70154806	95.9864564	93.38361899
190702A00068	7/2/2019	2.69	7/1/2039	7/2/2019	137.71675	137.7167514	137.5902405	124.363228	110.1291245	97.70389709	87.1036546	78.03175404	70.24261362
190809A00017	8/9/2019	2.27	8/9/2034	8/9/2019	114.91087	114.9108722	114.9108722	112.1392212	105.2074169	98.27458497	91.98251926	86.2625305	81.05400792
190813A00052	8/13/2019	2.24	8/13/2029	8/13/2019	115.83752	115.8375223	115.8375223	113.6796151	105.7558277	98.15082881	91.19896336	84.83946346	79.01755628
190906A00009	9/6/2019	2.08	9/6/2034	9/6/2019	113.49182	113.4918203	113.4918203	110.7049102	103.8173425	96.94033354	90.70213255	85.03392713	79.8750357
191004A00023	10/4/2019	2.02	10/4/2029	10/4/2019	114.17563	114.1756346	114.1756346	111.9000747	103.9644151	96.37253844	89.44211952	83.11079672	77.32243305
191101A00004	11/1/2019	1.91	11/1/2029	11/1/2019	113.564	113.5639987	113.5639987	111.6399049	104.5169	97.50405831	91.08211436	85.19620705	79.79691537

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200109A00008	1/9/2020	1.95	1/9/2030	1/9/2020	109.38657	109.386571	109.386571	108.8522599	104.6463304	99.76829816	95.21398892	90.95815706	86.97774593
200110A00037	1/10/2020	2.32	1/10/2030	1/10/2020	117.17225	117.1722512	117.1722512	114.5929622	106.3120825	98.4108862	91.21284585	84.65018903	78.66206363
200206A00027	2/6/2020	2.15	2/6/2030	2/6/2020	115.78229	115.7822895	115.7822895	113.1481124	104.8926757	97.03018226	89.87262656	83.35160123	77.40572791
200206A00032	2/6/2020	2.15	2/6/2030	2/6/2020	115.78229	115.7822938	115.7822938	113.1481141	104.8926749	97.03017958	89.87262227	83.3515956	77.40572117
130522A00027	5/22/2013	2.08	5/22/2023	5/22/2013	103.18093	103.1809278	103.1809278	103.1809278	102.6930727	101.0921099	99.53235434	98.01240925	96.53093608
130614A00018	6/14/2013	2.83	6/14/2023	6/14/2013	104.22507	104.2250708	104.2250708	104.2250708	103.7112565	102.0577597	100.4475226	98.87906075	97.35095255
140317A00056	3/17/2014	1.82	3/17/2021	3/17/2014	100.7881	100.7880978	100.7880978	100.7880978	100.6949708	100.1910287	99.69342512	99.20202768	98.7167079
140717A00027	7/17/2014	3.14	7/17/2026	7/17/2014	114.48169	114.4816924	114.4816924	114.4816924	110.3673634	105.2987465	100.5252966	96.02769493	91.78800527
150318A00003	3/18/2015	2.04	3/18/2022	3/18/2015	102.26861	102.2686057	102.2686057	102.2686057	101.9827927	100.8102367	99.66050223	98.53297367	97.42705657
150409A00009	4/9/2015	1.89	4/9/2025	4/9/2015	104.63004	104.630043	104.630043	104.630043	103.4724698	100.9099941	98.44361211	96.06888699	93.78161969
150420A00012	4/20/2015	2.07	4/20/2022	4/20/2015	103.43425	103.4342488	103.4342488	103.4342488	102.9204365	101.0168632	99.15887076	97.34508194	95.57417076
150427A00014	4/27/2015	2.98	4/27/2035	4/27/2015	121.6238	121.6237992	121.6237992	118.2605202	110.5780561	102.9918931	96.13490341	89.92588504	84.29354523
150529A00056	5/29/2015	1.41	5/29/2020	5/29/2015	100.08783	100.0878324	100.0878324	100.0878324	100.0805561	100.0002694	99.92011332	99.84008763	99.76019203
150615A00024	6/15/2015	2.26	6/16/2025	6/15/2015	105.80156	105.8015609	105.8015609	105.8015609	104.5576991	101.8855701	99.31642504	96.84539193	94.46786552
150630A00081	6/30/2015	2.02	6/30/2020	6/30/2015	100.29501	100.2950083	100.2950083	100.2950083	100.2763382	100.107637	99.93949916	99.77192204	99.60490283
150630A00086	6/30/2015	2.02	6/30/2020	6/30/2015	100.29501	100.2950083	100.2950083	100.2950083	100.2763382	100.107637	99.93949916	99.77192204	99.60490283
150630A00088	6/30/2015	2.02	6/30/2020	6/30/2015	100.29501	100.2950083	100.2950083	100.2950083	100.2763382	100.107637	99.93949916	99.77192204	99.60490283
150713A00011	7/13/2015	1.89	7/13/2020	7/13/2015	100.3629	100.3629013	100.3629013	100.3629013	100.3386753	100.1341338	99.930442	99.72759464	99.52558634
150803A00033	8/3/2015	3.41	8/2/2030	8/3/2015	125.61432	125.6143222	125.6143222	122.9072686	114.7037425	106.6930482	99.39324635	92.73463807	86.65482511
150803A00038	8/3/2015	3.41	8/2/2030	8/3/2015	125.61432	125.6143222	125.6143222	122.9072686	114.7037425	106.6930482	99.39324635	92.73463807	86.65482511
150803A00042	8/3/2015	3.01	8/2/2030	8/3/2015	114.85966	114.8596641	114.8596641	114.0941522	109.3504327	103.9988329	99.01948613	94.38202481	90.05882956
150902A00008	9/2/2015	1.37	9/2/2020	9/2/2015	100.30075	100.3007488	100.3007488	100.3007488	100.270467	100.0309225	99.7927182	99.55584189	99.32028156
150902A00009	9/2/2015	1.68	9/2/2020	9/2/2015	100.53013	100.530125	100.530125	100.530125	100.4844828	100.1459536	99.80973168	99.47579346	99.14411559
150922A00014	9/22/2015	1.84	9/22/2020	9/22/2015	100.63407	100.6340729	100.6340729	100.6340729	100.5780764	100.1795747	99.78424203	99.39204073	99.00293358
151001A00023	10/1/2015	2.02	10/1/2025	10/1/2015	105.4716	105.4716042	105.4716042	105.4716042	104.0752978	101.2520868	98.5434547	95.94372829	93.44755786
151006A00019	10/6/2015	1.67	10/6/2022	10/6/2015	101.80754	101.8075427	101.8075427	101.8075427	101.4668065	100.1762344	98.91434013	97.68024765	96.47311491
151120A00019	11/20/2015	2.72	11/20/2030	11/20/2015	114.68345	114.6834535	114.6834535	113.811896	108.8950155	103.4183256	98.33201613	93.60350282	89.20321499
151125A00037	11/25/2015	2.41	11/25/2025	11/25/2015	106.14881	106.1488105	106.1488105	106.1488105	104.7055089	101.8334853	99.0792429	96.43689394	93.90088918
151216A00005	12/16/2015	2.15	12/16/2020	12/16/2015	101.19687	101.1968686	101.1968686	101.1968686	101.0823793	100.4534491	99.83238565	99.2190417	98.61327352
151216A00006	12/16/2015	2.3	12/16/2021	12/16/2015	103.20742	103.2074242	103.2074242	103.2074242	102.8027902	101.22954	99.68854515	98.17887415	96.69963114
200327A00084	3/27/2020	1.1	3/27/2025	3/27/2020	103.49285	103.4928477	103.4928477	103.4928477	100.9443158	96.76371237	92.7910799	89.01487845	85.42426936

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200330A00079	3/30/2020	1.51	3/30/2035	3/30/2020	109.35911	109.359113	109.359113	106.381782	99.50940985	92.7135358	86.56787919	81.00035814	75.94764816
200413A00009	4/13/2020	0.77	4/13/2027	4/13/2020	102.35564	102.3556425	102.3556425	102.354307	100.0939812	96.67628446	93.42885084	90.34152567	87.40483944
150410A00021	4/10/2015	2.27	4/10/2025	4/10/2015	105.13329	105.1332888	105.1332888	105.1332888	103.974891	101.4087575	98.93859465	96.55998235	94.26873679
150603A00012	6/3/2015	2.77	6/3/2030	6/3/2015	114.3681	114.3681021	114.3681021	113.6616563	109.0092122	103.7273691	98.80902019	94.22482399	89.94806748
150604A00039	6/4/2015	2.82	6/4/2030	6/4/2015	114.65076	114.6507623	114.6507623	113.942551	109.2786426	103.9837754	99.05329983	94.4578018	90.17050217
150814A00029	8/14/2015	2.39	8/14/2025	8/14/2015	105.81538	105.8153834	105.8153834	105.8153834	104.500352	101.7570309	99.12195122	96.58988442	94.15589359
151002A00042	10/2/2015	1.26	10/2/2020	10/2/2015	100.28634	100.2863353	100.2863353	100.2863353	100.2486758	99.96517963	99.68359675	99.40390605	99.12608679
151209A00024	12/9/2015	2.22	12/9/2025	12/9/2015	106.24282	106.2428231	106.2428231	106.2428231	104.7495218	101.8255197	99.02322304	96.33646691	93.75944499
151229A00026	12/29/2015	2.28	12/29/2025	12/29/2015	106.42641	106.4264128	106.4264128	106.4264128	104.9288909	101.9991272	99.19136185	96.49941144	93.91745259
160104A00020	1/4/2016	2.47	1/4/2023	1/4/2016	105.6725	105.6725013	105.6725013	105.6725013	104.7579887	102.1848486	99.68960447	97.26939123	94.92147039
160106A00042	1/6/2016	2.43	1/6/2026	1/6/2016	106.39236	106.3923631	106.3923631	106.3923631	104.8590717	101.9018036	99.06878277	96.35366227	93.7504673
190718A00012	7/18/2019	2.55	7/18/2029	7/18/2019	116.5917	116.5916976	116.5916976	114.88539	107.8435621	100.8498532	94.42736141	88.52456715	83.09492606
190813A00067	8/13/2019	1.9	8/13/2024	8/13/2019	106.55325	106.5532491	106.5532491	106.5532491	104.3966997	100.4245494	96.63069026	93.00611418	89.54231971
190905A00023	9/5/2019	2.08	9/5/2029	9/5/2019	114.57665	114.5766482	114.5766482	112.3720979	104.4703288	96.89945186	89.98314451	83.6601665	77.87534342
190905A00025	9/5/2019	2.08	9/5/2029	9/5/2019	114.57665	114.5766483	114.5766483	112.3720979	104.4703288	96.89945185	89.98314449	83.66016648	77.87534339
190925A00009	9/25/2019	2	9/25/2026	9/25/2019	109.38963	109.3896285	109.3896285	109.3896285	104.7017609	99.39863447	94.42234132	89.75063344	85.36289828
191004A00019	10/4/2019	2.02	10/4/2029	10/4/2019	114.17564	114.1756403	114.1756403	111.9000782	103.9644138	96.37253432	89.44211299	83.11078814	77.32242275
191112A00022	11/12/2019	2.36	11/13/2029	11/12/2019	117.2663	117.2662957	117.2662957	114.8452696	106.6692535	98.84845979	91.71424878	85.20132666	79.2509775
191203A00013	12/3/2019	1.93	12/3/2024	12/3/2019	107.08288	107.0828756	107.0828756	107.0828756	104.6341647	100.4005301	96.36853727	92.52744683	88.86715105
191224A00002	12/24/2019	2.17	12/24/2029	12/24/2019	109.44531	109.4453079	109.4453079	108.9417879	104.8084044	99.98492396	95.47813346	91.26357593	87.31889559
200110A00053	1/10/2020	1.99	1/10/2025	1/10/2020	107.50499	107.5049884	107.5049884	107.5049884	104.946221	100.6184924	96.50056528	92.58106105	88.84928428
200212A00013	2/12/2020	1.98	2/12/2027	2/12/2020	110.42889	110.4288924	110.4288924	110.4288924	104.5826283	98.66501693	93.13980774	87.97861958	83.15527552
200306A00050	3/6/2020	0.87	3/6/2030	3/6/2020	103.85167	103.8516679	103.8516679	103.2918743	99.20378881	94.50491161	90.12253318	86.03162336	82.20935104
200306A00058	3/6/2020	1.06	3/6/2030	3/6/2020	103.85383	103.8538308	103.8538308	103.2993098	99.23635476	94.55908616	90.19579219	86.12171339	82.3142598
200311A00015	3/11/2020	1.26	3/11/2027	3/11/2020	105.94391	105.9439054	105.9439054	105.9340376	100.1380711	94.36411271	88.97817605	83.95192089	79.25922084
200406A00029	4/6/2020	1.61	4/5/2030	4/6/2020	111.20637	111.2063664	111.2063664	108.4849052	100.3800149	92.69666715	85.714301	79.36384534	73.58341986
200406A00030	4/6/2020	1.61	4/5/2030	4/6/2020	111.20638	111.2063765	111.2063765	108.4849126	100.3800144	92.69665975	85.71428742	79.3638262	73.58339572
200406A00035	4/6/2020	1.05	4/4/2025	4/6/2020	103.135	103.1350031	103.1350031	103.1350031	100.7276956	96.72580283	92.92037719	89.30057091	85.85619463
200424A00022	4/24/2020	1.39	4/24/2030	4/24/2020	108.3946	108.3946023	108.3946023	106.1889323	99.1199901	92.22161596	85.92750679	80.17938197	74.92495514
151223A00078	12/23/2015	2.28	12/23/2025	12/23/2015	106.42586	106.4258571	106.4258571	106.4258571	104.9288398	101.9993101	99.19175287	96.49998714	93.91819171
160119A00072	1/19/2016	2.77	1/21/2031	1/19/2016	114.86139	114.8613908	114.8613908	113.7135666	108.3198346	102.4551946	97.02738079	91.99830376	87.33354925

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160201A00016	2/1/2016	2.1	2/2/2026	2/1/2016	105.46097	105.4609743	105.4609743	105.4609743	103.8956855	100.9251184	98.08086814	95.35641118	92.74561043
160203A00017	2/3/2016	2.07	2/3/2023	2/3/2016	104.75525	104.7552467	104.7552467	104.7552467	103.7909068	101.1630262	98.61669791	96.14885471	93.75656811
190705A00007	7/5/2019	2.56	7/5/2034	7/5/2019	117.1183	117.1182993	117.1182993	114.3445135	107.3226506	100.2876914	93.89963845	88.08948494	82.79630145
190731A00013	7/31/2019	2.23	7/22/2022	7/31/2019	102.30388	102.3038751	102.3038751	102.3038751	102.0090049	100.8337018	99.68292302	98.55594264	97.45206284
190813A00064	8/13/2019	1.9	8/13/2024	8/13/2019	106.55325	106.5532491	106.5532491	106.5532491	104.3966997	100.4245494	96.63069026	93.00611418	89.54231971
190911A00016	9/11/2019	1.9	9/11/2029	9/11/2019	108.80618	108.8061833	108.8061833	108.3778008	104.3932199	99.68209259	95.27428939	91.14682398	87.27864968
191008A00007	10/8/2019	1.67	10/9/2029	10/8/2019	107.71121	107.7112059	107.7112059	107.2624951	103.2681534	98.56916702	94.17505554	90.06254704	86.21034681
191008A00014	10/8/2019	1.85	10/8/2026	10/8/2019	109.15034	109.1503382	109.1503382	109.1503382	103.9671188	98.33442359	93.05922738	88.11674958	83.48405538
191015A00025	10/15/2019	2.01	10/15/2029	10/15/2019	108.46289	108.4628907	108.4628907	108.0150838	104.0173036	99.30696103	94.90122222	90.77690039	86.91277368
200110A00038	1/10/2020	2.32	1/10/2030	1/10/2020	117.17225	117.1722512	117.1722512	114.5929622	106.3120825	98.4108862	91.21284585	84.65018903	78.66206363
200116A00012	1/16/2020	2.16	1/19/2027	1/16/2020	111.47359	111.4735932	111.4735932	111.4735932	105.7065699	99.79039075	94.26280247	89.09591332	84.26398661
200206A00033	2/6/2020	2.15	2/6/2030	2/6/2020	115.78229	115.7822895	115.7822895	113.1481124	104.8926757	97.03018226	89.87262656	83.35160123	77.40572791
200206A00035	2/6/2020	1.78	2/6/2023	2/6/2020	104.01161	104.0116134	104.0116134	104.0116134	103.0376624	100.3978692	97.84042582	95.36223718	92.96034722
200309A00084	3/9/2020	1.06	3/9/2027	3/9/2020	104.68137	104.6813651	104.6813651	104.6733415	98.93294048	93.21765118	87.88654192	82.91155855	78.26683757
200317A00009	3/17/2020	1.61	3/16/2035	3/17/2020	110.15973	110.1597265	110.1597265	107.1611814	100.2388806	93.39352489	87.20308288	81.59495734	76.50537027
200414A00009	4/14/2020	0.82	4/14/2025	4/14/2020	101.32904	101.3290371	101.3290371	101.3290371	100.212026	97.73811791	95.35674978	93.06365863	90.85480939
200414A00024	4/14/2020	1.37	4/14/2027	4/14/2020	106.72116	106.7211638	106.7211638	106.6599198	100.7309923	94.86462373	89.39702469	84.29872226	79.54257418
170406A00024	4/6/2017	2.61	4/8/2024	4/6/2017	108.57938	108.5793802	108.5793802	108.5793802	106.7461737	103.0830937	99.57199861	96.20573169	92.9775123
170406A00029	4/6/2017	3.01	4/6/2027	4/6/2017	116.60802	116.608015	116.608015	116.5683988	110.673512	104.6436197	99.01225299	93.75044072	88.83147643
170406A00032	4/6/2017	3.01	4/6/2027	4/6/2017	116.60802	116.608015	116.608015	116.5683988	110.673512	104.6436197	99.01225299	93.75044072	88.83147643
170619A00089	6/16/2017	2.79	6/16/2027	6/16/2017	115.59247	115.5924705	115.5924705	115.39519	109.3875787	103.2791673	97.58415477	92.27177856	87.31373918
170710A00079	7/10/2017	2.76	7/12/2032	7/10/2017	117.36229	117.3622871	117.3622871	115.6883413	109.6804234	103.3712864	97.57294935	92.23725378	87.32104481
170801A00022	8/1/2017	1.87	8/3/2020	8/1/2017	100.42222	100.42222	100.42222	100.42222	100.3889879	100.1268498	99.86608184	99.60667321	99.34861335
170829A00066	8/29/2017	2.11	8/29/2024	8/29/2017	108.21254	108.2125381	108.2125381	108.2125381	105.9998822	101.9515189	98.08634144	94.39506793	90.86893528
171109A00016	11/9/2017	2.94	11/9/2032	11/9/2017	129.83239	129.8323942	129.8323942	124.0889085	113.3112882	103.3146369	94.39864295	86.43597147	79.31513773
171204A00024	12/4/2017	2.71	12/4/2024	12/4/2017	110.4997	110.4997042	110.4997042	110.4997042	108.0139786	103.6986616	99.58803533	95.67121838	91.93796862
171207A00022	12/7/2017	2.45	12/7/2022	12/7/2017	105.42823	105.4282332	105.4282332	105.4282332	104.5724703	102.0866318	99.67434112	97.33295914	95.05995986
180104A00023	1/4/2018	2.91	1/4/2028	1/4/2018	115.17877	115.1787713	115.1787713	114.7261779	109.4258234	103.7425092	98.44386836	93.50059855	88.88582144
180322A00040	3/22/2018	3.16	3/21/2031	3/22/2018	120.69475	120.6947465	120.6947465	118.9085794	112.5223291	105.8867465	99.79266548	94.18922325	89.03077767
180403A00014	4/3/2018	3.11	4/3/2025	4/3/2018	113.11471	113.1147114	113.1147114	113.1147114	110.2411522	105.578195	101.149515	96.94202329	92.94343078
180410A00002	4/10/2018	3.14	4/11/2033	4/10/2018	121.29055	121.2905543	121.2905543	119.1437084	112.5060867	105.6755827	99.42740409	93.70385088	88.45351149

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180420A00011	4/20/2018	2.74	4/20/2023	4/20/2018	104.15127	104.1512679	104.1512679	104.1512679	103.6813481	102.1069327	100.5722435	99.07595405	97.61679237
180601A00038	6/1/2018	2.86	6/1/2021	6/1/2018	102.78445	102.7844531	102.7844531	102.7844531	102.5254231	101.4515961	100.4005258	99.37149186	98.36380401
180702A00022	7/2/2018	2.84	6/30/2023	7/2/2018	107.85584	107.8558397	107.8558397	107.8558397	106.6746374	103.7955026	101.0146122	98.32798526	95.73182954
180702A00040	7/2/2018	2.9	7/2/2021	7/2/2018	103.0626	103.0626039	103.0626039	103.0626039	102.7823424	101.6190055	100.4822378	99.37113405	98.28482968
180809A00034	8/9/2018	3.08	8/9/2023	8/9/2018	108.75972	108.7597163	108.7597163	108.7597163	107.4105712	104.275273	101.2514922	98.33458586	95.52013488
180906A00032	9/6/2018	3.24	9/5/2025	9/6/2018	114.85213	114.8521286	114.8521286	114.8521286	111.3972921	106.341945	101.5586087	97.03110702	92.74430853
180913A00012	9/13/2018	3.31	9/13/2033	9/13/2018	123.3284	123.3284011	123.3284011	120.8974633	113.9122556	106.7962955	100.3038462	94.37147212	88.94282932
180924A00033	9/24/2018	3.08	9/22/2023	9/24/2018	109.13026	109.1302605	109.1302605	109.1302605	107.7860894	104.7000116	101.7253629	98.85747299	96.09189376
181010A00025	10/10/2018	3.48	10/10/2030	10/10/2018	119.05239	119.0523872	119.0523872	118.1831804	113.1319376	107.4846667	102.2371113	97.35613176	92.81163335
181129A00005	11/29/2018	3.21	11/29/2023	11/29/2018	109.98913	109.9891277	109.9891277	109.9891277	108.4014667	104.9768251	101.6835144	98.51573285	95.46797
181207A00026	12/7/2018	2.94	12/6/2023	12/7/2018	109.1713	109.1712967	109.1712967	109.1712967	107.6876731	104.4407336	101.3167873	98.31041654	95.41647574
190118A00006	1/18/2019	3.14	1/18/2034	1/18/2019	122.58621	122.5862118	122.5862118	119.9660306	112.837562	105.6306054	99.0687528	93.08500415	87.62000013
110505A00036	5/5/2011	3.23	5/5/2021	5/5/2011	102.97328	102.9732793	102.9732793	102.9732793	102.7465261	101.7899496	100.8519608	99.9320147	99.02958722
121016A00013	10/16/2012	1.64	10/14/2022	10/16/2012	101.7689	101.768897	101.768897	101.768897	101.4278056	100.1370212	98.87494369	97.64069516	96.433432
140908A00080	9/8/2014	2.51	3/8/2024	9/8/2014	107.26955	107.26955	107.26955	107.26955	105.8834237	102.8694135	99.97058114	97.1817701	94.49808507
140925A00039	9/25/2014	2.02	9/27/2021	9/25/2014	101.32622	101.3262158	101.3262158	101.3262158	101.1601368	100.4029234	99.65877775	98.92733983	98.20826341
141107A00027	11/7/2014	1.98	11/8/2021	11/7/2014	101.43521	101.4352133	101.4352133	101.4352133	101.2458272	100.4088732	99.58677107	98.77911304	97.98550659
141203A00039	12/3/2014	3.6	12/4/2034	12/3/2014	126.51405	126.5140518	126.5140518	123.1820135	115.3082372	107.4960113	100.4235611	94.00969622	88.18299425
150414A00037	4/14/2015	2.34	4/14/2025	4/14/2015	105.31958	105.3195775	105.3195775	105.3195775	104.1588903	101.5880486	99.11336541	96.73041124	94.43499343
150617A00036	6/17/2015	2.44	6/15/2022	6/17/2015	104.34672	104.3467218	104.3467218	104.3467218	103.7799978	101.7788264	99.82775866	97.92518513	96.0695611
150624A00077	6/24/2015	2.54	6/24/2022	6/24/2015	104.60062	104.6006217	104.6006217	104.6006217	104.0217728	101.9954506	100.020262	98.09454887	96.21672034
150701A00056	7/1/2015	2.34	7/1/2025	7/1/2015	106.11794	106.1179423	106.1179423	106.1179423	104.8335315	102.1136932	99.50003224	96.98746841	94.57120255
150729A00041	7/29/2015	2.44	7/29/2025	7/29/2015	105.86573	105.8657304	105.8657304	105.8657304	104.587765	101.8825401	99.28270799	96.78323379	94.3793609
151006A00050	10/6/2015	2.21	10/6/2022	10/6/2015	102.52302	102.523021	102.523021	102.523021	102.1799119	100.8803349	99.60963546	98.36693127	97.15137448
151023A00018	10/23/2015	1.74	10/23/2020	10/23/2015	100.71755	100.7175487	100.7175487	100.7175487	100.6450919	100.1641874	99.68790387	99.21617469	98.74893457
151102A00024	11/2/2015	2.37	11/2/2022	11/2/2015	105.07369	105.0736859	105.0736859	105.0736859	104.2736063	101.8639909	99.52399489	97.25119314	95.04326072
151118A00037	11/18/2015	2.75	11/18/2025	11/18/2015	110.46366	110.4636612	110.4636612	110.4636612	107.6674238	103.4457782	99.44182031	95.6427197	92.03648144
160126A00004	1/26/2016	2.52	1/26/2026	1/26/2016	112.83911	112.8391074	112.8391074	112.8391074	108.8260231	103.5663814	98.60771234	93.93097109	89.51842663
190702A00071	7/2/2019	2.69	7/1/2039	7/2/2019	137.71667	137.7166742	137.5901639	124.3631917	110.12912	97.70391572	87.10369159	78.0318055	70.24267639
190708A00025	7/8/2019	2.21	7/1/2024	7/8/2019	107.63576	107.6357638	107.6357638	107.6357638	105.5676961	101.6595284	97.9226267	94.34849803	90.92912087
190926A00002	9/30/2019	2.01	9/29/2034	9/30/2019	114.49563	114.495632	114.495632	111.6522963	104.6537104	97.67695481	91.35097112	85.6054232	80.37831055

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191004A00022	10/4/2019	2.02	10/4/2029	10/4/2019	114.17564	114.1756428	114.1756428	111.9000789	103.9644132	96.37253257	89.4421103	83.11078468	77.32241865
191011A00027	10/11/2019	1.84	10/11/2029	10/11/2019	108.57831	108.578305	108.578305	108.1259544	104.0996266	99.36294713	94.93358783	90.78808986	86.90498749
191031A00025	10/31/2019	1.91	10/31/2024	10/31/2019	103.76696	103.7669601	103.7669601	103.7669601	102.8199277	100.5245786	98.30805257	96.16697715	94.0981492
191203A00011	12/3/2019	2.21	12/3/2029	12/3/2019	116.04779	116.0477905	116.0477905	113.5879303	105.4379192	97.65381057	90.55693838	84.08161017	78.16878435
191206A00005	12/6/2019	2.18	12/7/2026	12/6/2019	111.41395	111.4139519	111.4139519	111.4139519	105.8590213	100.0224088	94.56362182	89.45593159	84.67464349
200110A00039	1/10/2020	2.32	1/10/2030	1/10/2020	117.17225	117.1722512	117.1722512	114.5929622	106.3120825	98.4108862	91.21284585	84.65018903	78.66206363
200110A00043	1/10/2020	2.32	1/10/2030	1/10/2020	117.17225	117.1722512	117.1722512	114.5929622	106.3120825	98.4108862	91.21284585	84.65018903	78.66206363
200227A00046	2/27/2020	1.52	3/1/2027	2/27/2020	104.30445	104.3044451	104.3044451	104.3044451	102.1278242	98.73283703	95.50306916	92.42887408	89.5012437
200309A00081	3/9/2020	1.18	3/8/2030	3/9/2020	107.39614	107.3961416	107.3961416	104.8098843	96.97272261	89.54825056	82.79848657	76.65729572	71.06538806
200330A00047	3/30/2020	1.5	3/30/2035	3/30/2020	109.27921	109.2792131	109.2792131	106.3040499	99.43668625	92.64576463	86.50458675	80.9411232	75.89209563
200406A00032	4/6/2020	1.09	4/4/2025	4/6/2020	103.6223	103.6222958	103.6222958	103.6222958	100.8915676	96.50634227	92.3436342	88.39094541	84.63654419
200406A00033	4/6/2020	1.09	4/4/2025	4/6/2020	103.62229	103.6222935	103.6222935	103.6222935	100.8915681	96.50634545	92.34363984	88.39095329	84.63655413
200406A00037	4/6/2020	0.9	4/6/2023	4/6/2020	101.7148	101.7148031	101.7148031	101.7148031	100.6434358	97.90543523	95.25745913	92.69605488	90.21792202
190205A00019	2/5/2019	2.94	2/5/2024	2/5/2019	109.49462	109.4946153	109.4946153	109.4946153	107.7687078	104.1999344	100.7737132	97.48349436	94.32307074
190205A00020	2/5/2019	3.32	2/5/2029	2/5/2019	122.98102	122.9810177	122.9810177	121.3715715	113.8001722	106.3479402	99.49316605	93.18341257	87.37115573
190205A00021	2/5/2019	3.32	2/5/2029	2/5/2019	122.98102	122.9810177	122.9810177	121.3715715	113.8001722	106.3479402	99.49316605	93.18341257	87.37115573
190308A00008	3/8/2019	3.19	3/8/2034	3/8/2019	121.66005	121.6600527	121.6600527	118.9862926	111.8712754	104.6927057	98.16083456	92.20803446	86.77444316
190322A00011	3/22/2019	2.99	3/22/2034	3/22/2019	120.07404	120.0740376	120.0740376	117.4344031	110.411535	103.3261067	96.87903454	91.00355726	85.64058036
190329A00021	3/29/2019	2.96	3/29/2034	3/29/2019	119.83744	119.8374429	119.8374429	117.2027307	110.19354	103.1219605	96.68750866	90.82354917	85.47109915
190430A00026	4/30/2019	3.03	4/28/2034	4/30/2019	120.51816	120.5181618	120.5181618	117.8178358	110.7246868	103.5810914	97.08443827	91.16672652	85.76780245
190510A00022	5/10/2019	2.95	5/10/2034	5/10/2019	120.00418	120.0041786	120.0041786	117.2650447	110.1583278	103.0135922	96.51919322	90.60643868	85.21460053
190515A00035	5/15/2019	2.82	2/15/2029	5/15/2019	119.81893	119.8189342	119.8189342	118.0835491	110.3014155	102.7563915	95.82877657	89.46371531	83.61153156
001127A00007	11/27/2000	6.74	11/27/2020	11/27/2000	102.25865	102.2586452	102.2586452	102.2586452	102.2088887	101.8643495	101.5226852	101.183856	100.8478226
120330A00013	3/30/2012	2.98	4/2/2024	3/30/2012	109.14293	109.1429269	109.1429269	109.1429269	107.5024709	104.1133983	100.860354	97.73705144	94.73753014
120806A00014	8/6/2012	1.77	8/8/2022	8/6/2012	101.81407	101.8140698	101.8140698	101.8140698	101.5060696	100.2968444	99.11335772	97.9548378	96.82054323
120820A00009	8/20/2012	2.4	8/22/2022	8/20/2012	104.52849	104.5284872	104.5284872	104.5284872	103.8849228	101.7629046	99.697177	97.68589414	95.72728336
140508A00008	5/8/2014	1.66	5/10/2021	5/8/2014	100.91067	100.9106706	100.9106706	100.9106706	100.7926241	100.2051341	99.62628711	99.05587227	98.493686
140730A00037	7/30/2014	2.83	1/30/2024	7/30/2014	105.35874	105.3587444	105.3587444	105.3587444	104.6584179	102.6902971	100.7808281	98.92777919	97.12902058
140821A00040	8/21/2014	3.41	8/21/2031	8/21/2014	131.18098	131.1809816	131.1809816	127.0360002	117.3580065	108.1688607	99.88077144	92.39693334	85.63157839
140917A00030	9/17/2014	3.23	9/17/2029	9/17/2014	122.97138	122.9713843	122.9713843	121.1913653	113.9743789	106.7356085	100.0868371	93.97462233	88.35071425
150114A00029	1/14/2015	1.99	1/14/2022	1/14/2015	101.58171	101.5817079	101.5817079	101.5817079	101.3677178	100.4468287	99.5428633	98.65534711	97.78382405

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150213A00014	2/13/2015	2.41	2/13/2025	2/13/2015	105.81427	105.814273	105.814273	105.814273	104.7133045	102.2028965	99.78404709	97.45262792	95.20472782
150227A00011	2/27/2015	2.33	2/27/2025	2/27/2015	108.39925	108.3992515	108.3992515	108.3992515	106.2913816	102.5461822	98.97425255	95.56639231	92.31394342
150529A00055	5/29/2015	1.78	5/31/2022	5/29/2015	101.64028	101.640285	101.640285	101.640285	101.3752664	100.2882243	99.22294484	98.1788009	97.15518909
150617A00018	6/17/2015	2.45	6/17/2025	6/17/2015	105.79915	105.7991508	105.7991508	105.7991508	104.5604451	101.8974315	99.33677143	96.87363486	94.50345556
150722A00033	7/22/2015	2.47	7/22/2025	7/22/2015	105.94898	105.9489759	105.9489759	105.9489759	104.6705091	101.9634441	99.36182423	96.86061329	94.45505344
150803A00039	8/3/2015	3.01	8/2/2030	8/3/2015	114.85966	114.8596599	114.8596599	114.0941491	109.350432	103.9988335	99.01948798	94.3820277	90.05883333
150824A00033	8/24/2015	2.22	8/25/2025	8/24/2015	105.33434	105.3343396	105.3343396	105.3343396	104.0244397	101.2931054	98.66957082	96.14862741	93.72535732
150828A00018	8/28/2015	1.7	8/29/2022	8/28/2015	101.8842	101.8842023	101.8842023	101.8842023	101.5892591	100.4150283	99.26537991	98.13958379	97.03693826
150928A00016	9/28/2015	1.73	9/28/2020	9/28/2015	100.60044	100.6004369	100.6004369	100.6004369	100.5431119	100.1376826	99.73556912	99.33673066	98.94112718
150929A00076	9/29/2015	2.28	9/29/2025	9/29/2015	105.59067	105.5906712	105.5906712	105.5906712	104.2375021	101.4595856	98.79274703	96.23155762	93.7708944
150929A00083	9/29/2015	2.09	9/29/2025	9/29/2015	105.59289	105.5928932	105.5928932	105.5928932	104.2338354	101.4461642	98.7702716	96.20068052	93.73222324
151007A00010	10/7/2015	1.7	10/7/2020	10/7/2015	100.63721	100.63721	100.63721	100.63721	100.5735032	100.1344585	99.69925948	99.26785554	98.84019713
151204A00011	12/4/2015	2.28	12/4/2025	12/4/2015	106.42408	106.4240767	106.4240767	106.4240767	104.9286619	101.9998826	99.192994	96.50182255	93.92055393
160115A00011	1/15/2016	2.18	1/15/2026	1/15/2016	105.62796	105.6279552	105.6279552	105.6279552	104.1048559	101.1684139	98.35537009	95.65941924	93.07462588
190708A00026	7/8/2019	2.21	7/1/2024	7/8/2019	107.63576	107.6357638	107.6357638	107.6357638	105.5676961	101.6595284	97.9226267	94.34849803	90.92912087
190712A00003	7/12/2019	2.61	7/12/2034	7/12/2019	117.5174	117.5173956	117.5173956	114.7340045	107.6882278	100.6293128	94.21951833	88.38959933	83.07841626
190905A00021	9/5/2019	2.08	9/5/2029	9/5/2019	114.57665	114.5766482	114.5766482	112.3720979	104.4703288	96.89945186	89.98314451	83.6601665	77.87534342
190905A00024	9/5/2019	2.08	9/5/2029	9/5/2019	114.57665	114.5766482	114.5766482	112.3720979	104.4703288	96.89945186	89.98314451	83.6601665	77.87534342
190913A00018	9/13/2019	2.11	9/11/2026	9/13/2019	106.04204	106.0420397	106.0420397	106.0420397	104.114514	100.8548081	97.74539423	94.7779225	91.94457078
190930A00026	9/30/2019	1.95	9/30/2024	9/30/2019	106.67299	106.6729935	106.6729935	106.6729935	104.5148661	100.5895413	96.84265263	93.26507212	89.84818767
191105A00012	11/5/2019	2.07	11/3/2034	11/5/2019	115.15409	115.1540899	115.1540899	112.1931962	105.0712915	97.99470546	91.58474252	85.76866399	80.48243103
191112A00023	11/12/2019	2.36	11/13/2029	11/12/2019	117.2663	117.266298	117.266298	114.8452705	106.6692533	98.8484587	91.71424694	85.2013242	79.25097454
191113A00013	11/13/2019	2.17	11/13/2026	11/13/2019	111.24667	111.2466683	111.2466683	111.2466683	105.8168531	100.0324134	94.61938981	89.5517155	84.80529092
191209A00005	12/9/2019	2.22	12/10/2029	12/9/2019	114.59433	114.5943336	114.5943336	112.5940403	105.4032675	98.32338765	91.84277417	85.90548318	80.46115134
200109A00006	1/9/2020	1.95	1/9/2030	1/9/2020	109.38658	109.3865757	109.3865757	108.8522631	104.6463304	99.76829594	95.21398477	90.95815123	86.97773865
200130A00046	1/30/2020	1.81	1/29/2027	1/30/2020	105.28397	105.2839709	105.2839709	105.2839709	103.1451132	99.75613681	96.53036051	93.45834668	90.53127689
200206A00008	2/6/2020	1.64	2/6/2025	2/6/2020	106.59267	106.5926722	106.5926722	106.5926722	104.1053308	99.90526741	95.90918923	92.10595973	88.48511587
200206A00031	2/6/2020	2.15	2/6/2030	2/6/2020	115.78229	115.7822895	115.7822895	113.1481124	104.8926757	97.03018226	89.87262656	83.35160123	77.40572791
200206A00038	2/6/2020	1.78	2/6/2023	2/6/2020	104.01161	104.0116134	104.0116134	104.0116134	103.0376624	100.3978692	97.84042582	95.36223718	92.96034721
200306A00057	3/6/2020	0.92	3/8/2027	3/6/2020	104.67338	104.6733766	104.6733766	104.6672375	99.41876511	94.0184835	88.97287368	84.25633633	79.84525827
200309A00082	3/9/2020	1.18	3/8/2030	3/9/2020	107.39614	107.3961368	107.3961368	104.8098843	96.97272915	89.5482614	82.79850102	76.65731318	71.065408

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
200319A00035	3/19/2020	1.72	3/18/2033	3/19/2020	112.91848	112.9184848	112.9184848	109.8214127	102.4222209	95.13772859	88.54567813	82.57083694	77.14685027
200330A00058	3/30/2020	1.49	3/29/2030	3/30/2020	109.13009	109.1300912	109.1300912	106.9705495	99.90343377	92.99565482	86.6890185	80.92592467	75.65465847
200406A00036	4/6/2020	1.09	4/4/2025	4/6/2020	103.62229	103.6222935	103.6222935	103.6222935	100.8915681	96.50634545	92.34363984	88.39095329	84.63655413
200421A00026	4/21/2020	1.34	4/19/2030	4/21/2020	107.99193	107.9919275	107.9919275	105.8019276	98.76142804	91.89059501	85.621113	79.89504106	74.660391
011115A00014	11/15/2001	5.19	11/16/2021	11/15/2001	105.48289	105.4828919	105.4828919	105.4828919	105.2295791	104.1387122	103.0671361	102.0143523	100.9798799
030605A00010	6/5/2003	3.97	6/5/2023	6/5/2003	106.4337	106.4336973	106.4336973	106.4336973	105.8683025	104.1800338	102.5403167	100.9473478	99.39940508
050823A00088	8/23/2005	4.78	8/25/2025	8/23/2005	120.68686	120.6868552	120.6868552	120.6868552	117.7166344	113.0909452	108.7011821	104.5336989	100.5757173
110824A00006	8/24/2011	2.69	8/24/2026	8/24/2011	108.66708	108.6670817	108.6670817	108.6670817	106.5631526	103.1820725	99.96153465	96.8923441	93.96590221
120423A00011	4/23/2012	2.07	4/25/2022	4/24/2017	102.67876	102.6787631	102.6787631	102.6787631	102.2891614	100.7998619	99.34440562	97.92177275	96.53098205
120614A00015	6/14/2012	1.89	6/14/2022	6/14/2012	103.15379	103.1537915	103.1537915	103.1537915	102.657263	100.8855317	99.15811815	97.4735823	95.83054293
120827A00052	8/27/2012	2.01	8/27/2027	8/27/2012	107.33547	107.3354702	107.3354702	107.2747428	104.5475024	100.7901782	97.23451666	93.86759044	90.67740313
121120A00011	11/20/2012	2.22	11/22/2027	11/20/2012	111.50464	111.504637	111.504637	111.1537142	106.3063995	100.9796083	96.00349714	91.35183669	87.00053572
121220A00023	12/20/2012	1.82	12/20/2022	12/20/2012	103.91405	103.9140541	103.9140541	103.9140541	103.1400633	100.858228	98.64221772	96.48967343	94.39833858
130528A00020	5/28/2013	2.43	5/30/2023	5/29/2018	105.19736	105.1973572	105.1973572	105.1973572	104.2440979	101.8097331	99.45523116	97.17745419	94.97340833
150601A00011	6/1/2015	5.17	8/3/2022	6/1/2015	110.93163	110.9316304	110.9316304	110.9316304	110.2633779	108.0211331	105.8377052	103.7111138	101.6394627
150601A00033	6/1/2015	5.96	12/24/2025	6/1/2015	129.53579	129.5357889	129.5357889	129.5357889	125.5918593	120.0822322	114.8739946	109.9486494	105.288944
150601A00100	6/1/2015	3.26	1/7/2021	6/1/2015	101.03812	101.0381161	101.0381161	101.0381161	100.9826884	100.6311102	100.2829442	99.93813502	99.59662875
150601A00261	6/1/2015	3.19	2/11/2033	6/1/2015	128.41096	128.4109575	128.4109575	123.8908768	114.5204665	105.5962025	97.58391353	90.37952438	83.89168098
150601A00396	6/1/2015	3.61	1/3/2029	6/1/2015	114.19516	114.1951614	114.1951614	113.9816089	110.565906	106.204548	102.0982718	98.22928295	94.58118113
150601A00478	6/1/2015	2	6/16/2021	6/1/2015	100.97225	100.9722534	100.9722534	100.9722534	100.8555026	100.2840288	99.72136746	99.16729229	98.6215851
150601A00505	6/1/2015	2.07	7/8/2021	6/1/2015	101.08154	101.0815446	101.0815446	101.0815446	100.9538731	100.3426789	99.74152066	99.15012411	98.56822564
150601A00690	6/1/2015	2.34	2/28/2025	6/1/2015	104.87756	104.877556	104.877556	104.877556	103.8373799	101.4421938	99.13335233	96.9069936	94.75945746
150601A00745	6/1/2015	1.76	5/7/2021	6/1/2015	100.7577	100.7576998	100.7576998	100.7576998	100.6563355	100.1395634	99.63004213	99.12760218	98.63207963
150601A00770	6/1/2015	1.47	5/15/2020	6/1/2015	100.01743	100.017426	100.017426	100.017426	100.016028	100.0005979	99.98518629	99.96979307	99.9544182
150601A00772	6/1/2015	1.84	5/13/2022	6/1/2015	101.57225	101.572246	101.572246	101.572246	101.3254856	100.3050633	99.30481381	98.32415973	97.36254557
150601A00778	6/1/2015	1.56	5/19/2020	6/1/2015	100.0266	100.0265987	100.0265987	100.0265987	100.0246297	100.0029	99.98119888	99.9595262	99.93788194
150601A00832	6/1/2015	7.17	8/28/2025	6/1/2015	118.18527	118.1852739	118.1852739	118.1852739	116.8445956	113.9757793	111.2173967	108.5641906	106.0111945
150601A00938	6/1/2015	6.35	12/21/2020	6/1/2015	103.91077	103.9107727	103.9107727	103.9107727	103.7915315	103.1453973	102.5074736	101.8776037	101.2556348
050823A00085	8/23/2005	4.78	8/25/2025	8/23/2005	120.68679	120.6867863	120.6867863	120.6867863	117.7165795	113.090906	108.7011575	104.5336878	100.5757189
111128A00006	11/28/2011	3.03	11/28/2031	11/28/2011	117.63588	117.6358819	117.6358819	116.2613807	110.7360493	104.7577279	99.24064776	94.14288246	89.42672821
120210A00005	2/10/2012	1.64	2/10/2022	2/10/2012	102.01493	102.0149256	102.0149256	102.0149256	101.6869875	100.3703675	99.08047427	97.8165455	96.57784775

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
121120A00010	11/20/2012	1.93	11/22/2027	11/20/2012	107.47397	107.473972	107.473972	107.3791404	104.3750444	100.3534861	96.55401953	92.96198817	89.56382315
130206A00004	2/6/2013	2.14	2/7/2028	2/6/2013	108.3386	108.3385966	108.3385966	108.2452371	105.2372457	101.2132685	97.41161562	93.81765902	90.41785156
130624A00019	6/24/2013	3.4	6/26/2023	6/24/2013	108.53823	108.5382282	108.5382282	108.5382282	107.3958106	104.5923682	101.8842215	99.26751469	96.7385744
141031A00015	10/31/2014	2.38	10/31/2024	10/31/2019	105.72637	105.7263688	105.7263688	105.7263688	104.6543572	102.1372375	99.7095853	97.36747004	95.10716245
150601A00001	6/1/2015	5.43	6/15/2037	6/1/2015	152.79472	152.7947151	152.7947151	146.5005368	135.3369607	124.7322625	115.2818713	106.8410986	99.28503327
150601A00096	6/1/2015	2.32	11/23/2020	6/1/2015	100.62658	100.6265766	100.6265766	100.6265766	100.5853426	100.2961122	100.0092278	99.72465764	99.44237066
150601A00397	6/1/2015	2.2	12/31/2020	6/1/2015	100.6539	100.6539046	100.6539046	100.6539046	100.6008165	100.2594615	99.92134473	99.58641483	99.25462169
150601A00449	6/1/2015	2.12	4/28/2021	6/1/2015	100.92033	100.9203315	100.9203315	100.9203315	100.8222959	100.316756	99.81815444	99.32633254	98.84113662
150601A00477	6/1/2015	3.21	6/1/2029	6/1/2015	116.64911	116.6491081	116.6491081	116.1799694	111.451299	106.0307132	100.9658031	96.22961491	91.79745057
150601A00508	6/1/2015	1.97	7/8/2021	6/1/2015	101.00551	101.0055138	101.0055138	101.0055138	100.8804421	100.2787401	99.68678842	99.10432395	98.53109349
150601A00555	6/1/2015	2.13	9/2/2021	6/1/2015	101.26894	101.2689355	101.2689355	101.2689355	101.1183995	100.4250773	99.74361484	99.07368479	98.4149724
150601A00693	6/1/2015	2.31	2/27/2025	6/1/2015	104.8173	104.8172953	104.8172953	104.8172953	103.7729518	101.3732243	99.06017794	96.82992953	94.6787988
150601A00851	6/1/2015	7.12	4/30/2027	6/1/2015	127.01567	127.0156688	127.0156688	127.0118129	124.1546205	119.8747041	115.8097584	111.946893	108.2740906
150601A00868	6/1/2015	7.08	6/5/2028	6/1/2015	131.67089	131.6708946	131.6708946	131.5222692	127.5894636	122.5014996	117.7040317	113.1774688	108.9036987
150601A00909	6/1/2015	6.14	11/30/2020	6/1/2015	101.59558	101.5955774	101.5955774	101.5955774	101.5579286	101.2863686	101.0168708	100.7494089	100.4839572
150601A00939	6/1/2015	5.79	1/17/2031	6/1/2015	133.64119	133.6411869	133.6411869	132.5591171	126.7099014	120.2482908	114.2531361	108.685094	103.5084931
150601A01009	6/1/2015	4.6	5/27/2020	6/1/2015	100.16041	100.1604107	100.1604107	100.1604107	100.1571061	100.1206423	100.0842357	100.0478859	100.011593
150601A01012	6/1/2015	5.43	9/15/2023	6/1/2015	116.58936	116.5893626	116.5893626	116.5893626	115.1592306	111.8675991	108.6944657	105.6348841	102.6841422
150601A01040	6/1/2015	5.4	10/2/2026	6/1/2015	129.33211	129.3321065	129.3321065	129.3321065	124.1795195	118.1989663	112.5803782	107.2993128	102.3331188
160928A00029	9/28/2016	2.52	9/29/2036	9/28/2016	118.55319	118.553193	118.553193	114.4829783	106.6092716	98.93819659	92.05697637	85.87047371	80.2961451
160930A00033	9/30/2016	1.8	9/30/2026	9/30/2016	104.89695	104.8969474	104.8969474	104.8969474	103.0394143	99.87013408	96.845839	93.95850864	91.20062835
120119A00015	1/19/2012	2.27	1/19/2024	1/19/2012	106.26669	106.2666878	106.2666878	106.2666878	104.9804107	102.0731125	99.27220083	96.57298798	93.97102677
120315A00002	3/14/2012	2.56	3/15/2027	3/14/2022	109.65168	109.6516765	109.6516765	109.6491836	106.9230214	102.979664	99.23869425	95.68774154	92.31528727
120621A00009	6/21/2012	3.18	6/21/2032	6/21/2012	122.46582	122.4658152	122.4658152	119.388595	111.8718577	104.4289187	97.68290983	91.55948481	85.99288029
121214A00014	12/14/2012	2.16	12/14/2027	12/14/2017	108.5966	108.5965975	108.5965975	108.4944291	105.4161011	101.3288395	97.46876361	93.82078218	90.37093212
130624A00017	6/24/2013	3.4	6/26/2023	6/24/2013	108.53823	108.5382282	108.5382282	108.5382282	107.3958106	104.5923682	101.8842215	99.26751469	96.7385744
140311A00037	3/11/2014	2.59	3/11/2021	3/11/2014	102.02737	102.027367	102.027367	102.027367	101.8269786	100.9446975	100.0775342	99.22510302	98.38703141
141124A00024	11/24/2014	2.27	11/30/2021	11/24/2014	103.30962	103.3096247	103.3096247	103.3096247	102.9178428	101.3809092	99.87477957	98.39858826	96.95150204
150601A00030	6/1/2015	5.28	11/26/2027	6/1/2015	133.35649	133.3564927	133.3564927	132.8090763	126.1168407	119.1720165	112.7087437	106.6899424	101.0816122
150601A00040	6/1/2015	5.45	7/14/2023	6/1/2015	108.53394	108.5339407	108.5339407	108.5339407	107.9931702	106.2768525	104.6060217	102.9791003	101.3945776
150601A00165	6/1/2015	2.66	6/4/2032	6/1/2015	115.29927	115.2992743	115.2992743	113.8913925	108.4387643	102.5856038	97.19061567	92.21163932	87.61081125

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00348	6/1/2015	2.11	9/16/2020	6/1/2015	100.35284	100.3528447	100.3528447	100.3528447	100.3284567	100.1351703	99.94296269	99.75182404	99.56174446
150601A00395	6/1/2015	2.86	1/3/2024	6/1/2015	104.69442	104.6944178	104.6944178	104.6944178	104.0521488	102.2063409	100.4142441	98.67385172	96.98324762
150601A00426	6/1/2015	3.37	2/21/2029	6/1/2015	113.36965	113.3696542	113.3696542	113.1263579	109.6399503	105.2415971	101.1042813	97.20954708	93.5404025
150601A00473	6/1/2015	2.22	5/31/2024	6/1/2015	104.29287	104.2928704	104.2928704	104.2928704	103.5155487	101.4675263	99.48447335	97.56378544	95.70298197
150601A00475	6/1/2015	3.04	6/1/2029	6/1/2015	112.29807	112.2980745	112.2980745	111.9902975	108.3557422	103.869156	99.65643046	95.69769228	91.9746834
150601A00492	6/1/2015	1.92	6/25/2021	6/1/2015	100.95163	100.9516268	100.9516268	100.9516268	100.830701	100.2441688	99.66691292	99.09868919	98.53926227
150601A00527	6/1/2015	2.5	7/26/2024	6/1/2015	104.64778	104.6477777	104.6477777	104.6477777	103.8209816	101.70323	99.65439193	97.6716436	95.75229831
150601A00529	6/1/2015	2.08	7/28/2021	6/1/2015	101.05233	101.0523257	101.0523257	101.0523257	100.9300163	100.3382063	99.75583885	99.18266284	98.61843653
150601A00660	6/1/2015	2.26	1/5/2022	6/1/2015	103.5314	103.5313975	103.5313975	103.5313975	103.1041643	101.4536766	99.83791741	98.25585281	96.70649018
150601A00679	6/1/2015	1.86	2/4/2022	6/1/2015	101.38616	101.3861587	101.3861587	101.3861587	101.1796366	100.2929613	99.42266554	98.56828831	97.72938627
150601A00739	6/1/2015	2.35	5/6/2025	6/1/2015	105.09634	105.0963354	105.0963354	105.0963354	103.9760178	101.4842685	99.0853153	96.77488864	94.54894735
150601A00847	6/1/2015	6.59	1/31/2022	6/1/2015	110.15656	110.1565602	110.1565602	110.1565602	109.7382666	108.108123	106.5126235	104.9507104	103.4213698
150601A00912	6/1/2015	5.96	11/30/2029	6/1/2015	131.18882	131.1888163	131.1888163	130.6042049	125.5828922	119.7491946	114.2989909	109.2027557	104.4334881
150601A00921	6/1/2015	5.55	6/30/2020	6/1/2015	100.46484	100.4648376	100.4648376	100.4648376	100.4557508	100.3684421	100.2813777	100.1945563	100.1079771
070518A00023	5/18/2007	5.46	5/18/2027	5/18/2007	118.57122	118.5712171	118.5712171	118.5489439	115.935925	112.1554257	108.5694781	105.1660626	101.9339998
121217A00009	12/17/2012	2.02	12/17/2027	12/17/2012	108.00438	108.0043802	108.0043802	107.8997711	104.7991889	100.6878341	96.80527664	93.13629841	89.66682037
130128A00009	1/28/2013	2.82	1/28/2028	1/28/2013	114.1067	114.1067	114.1067	113.6643038	108.6194505	103.0876335	97.92400267	93.1006322	88.5919104
141126A00006	11/26/2014	2.41	11/30/2021	11/26/2014	103.29541	103.2954127	103.2954127	103.2954127	102.8995162	101.3496466	99.83085786	98.34227698	96.88306362
150601A00019	6/1/2015	5.64	10/3/2022	6/1/2015	112.80056	112.8005618	112.8005618	112.8005618	112.030449	109.6103636	107.2575852	104.9698447	102.7449639
150601A00022	6/1/2015	5.43	10/26/2037	6/1/2015	146.11682	146.116822	146.116822	141.1264803	131.6410316	122.3743454	114.0678084	106.6040883	99.88168782
150601A00023	6/1/2015	5.46	10/30/2037	6/1/2015	154.42047	154.420468	154.420468	147.6952678	136.1907272	125.3179076	115.6506419	107.0350539	99.33867599
150601A00058	6/1/2015	4.46	8/16/2024	6/1/2015	108.90228	108.9022833	108.9022833	108.9022833	108.0369832	105.8317585	103.6986322	101.6346338	99.63693783
150601A00061	6/1/2015	4.25	9/30/2024	6/1/2015	108.68731	108.6873147	108.6873147	108.6873147	107.779177	105.5177829	103.3320095	101.2186829	99.17478617
150601A00422	6/1/2015	2.03	2/19/2021	6/1/2015	100.67764	100.6776356	100.6776356	100.6776356	100.6119994	100.2231736	99.83857391	99.45812281	99.08174474
150601A00425	6/1/2015	2.64	2/21/2024	6/1/2015	104.45078	104.4507834	104.4507834	104.4507834	103.7665858	101.8575038	100.0055707	98.20860148	96.46451139
150601A00496	6/1/2015	2.27	6/27/2024	6/1/2015	104.46944	104.4694366	104.4694366	104.4694366	103.6678137	101.5838668	99.56689699	97.61418903	95.72315836
150601A00543	6/1/2015	2.23	8/8/2024	6/1/2015	104.50518	104.5051805	104.5051805	104.5051805	103.6643091	101.5254477	99.45679926	97.45546497	95.51868777
150601A00544	6/1/2015	1.95	8/13/2021	6/1/2015	101.07257	101.0725745	101.0725745	101.0725745	100.9343132	100.28463	99.64613481	99.0185083	98.40144393
150601A00563	6/1/2015	2.14	9/10/2021	6/1/2015	101.26955	101.2695464	101.2695464	101.2695464	101.1198763	100.4296675	99.75126864	99.08435312	98.42860701
150601A00624	6/1/2015	2.48	12/8/2021	6/1/2015	103.71972	103.7197238	103.7197238	103.7197238	103.313335	101.733096	100.1851153	98.66846941	97.18226995
150601A00732	6/1/2015	1.91	4/29/2022	6/1/2015	101.6222	101.6221958	101.6221958	101.6221958	101.3795363	100.371864	99.38397374	98.41530126	97.4653037

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00735	6/1/2015	2.35	5/1/2025	6/1/2015	105.0936	105.0935987	105.0935987	105.0935987	103.974434	101.4840311	99.08633293	96.77707589	94.5522243
150601A00865	6/1/2015	6	4/3/2028	6/1/2015	123.24384	123.2438393	123.2438393	123.1611163	120.0646378	115.7788802	111.7234491	107.883458	104.2451079
150601A00871	6/1/2015	6.74	7/31/2028	6/1/2015	130.66067	130.6606691	130.6606691	130.4894814	126.46411	121.3251702	116.4836134	111.9191575	107.6130667
150601A00893	6/1/2015	6.49	4/6/2029	6/1/2015	132.1162	132.1162046	132.1162046	131.7343734	127.1016278	121.5222958	116.290421	111.3805972	106.7694867
150601A00898	6/1/2015	6.66	6/8/2029	6/1/2015	129.69549	129.6954852	129.6954852	129.3684153	125.3639678	120.3310662	115.6008646	111.1515711	106.9631567
150601A00899	6/1/2015	7.07	6/14/2029	6/1/2015	130.56225	130.5622462	130.5622462	130.2363317	126.2444763	121.212981	116.4828391	112.03242	107.8418393
150601A00918	6/1/2015	5.62	4/28/2025	6/1/2015	114.40222	114.4022167	114.4022167	114.4022167	113.1575537	110.3871237	107.7200765	105.1516658	102.6773985
120614A00013	6/14/2012	1.89	6/14/2022	6/14/2012	103.15382	103.1538231	103.1538231	103.1538231	102.6572891	100.8855401	99.15810941	97.47355691	95.83050134
120827A00048	8/27/2012	2.01	8/27/2027	8/27/2012	107.33547	107.3354686	107.3354686	107.2747415	104.5475026	100.7901791	97.23451818	93.8675925	90.67740567
120907A00005	9/7/2012	1.76	9/7/2022	9/7/2012	102.07028	102.0702804	102.0702804	102.0702804	101.6884747	100.3028207	98.94847561	97.62449684	96.32997679
120907A00032	9/7/2012	1.86	9/9/2024	9/7/2012	105.53472	105.5347171	105.5347171	105.5347171	103.9827641	100.8743769	97.89435661	95.0364871	92.29489043
121219A00036	12/19/2012	2.2	12/19/2022	12/19/2017	104.36202	104.3620194	104.3620194	104.3620194	103.5898843	101.3087797	99.09321613	96.94085304	94.84945095
130207A00012	2/7/2013	2.9	2/7/2033	2/7/2013	117.69569	117.695692	117.695692	115.6731047	109.3559293	102.7737575	96.74495068	91.21493116	86.13506793
130510A00033	5/10/2013	1.45	5/29/2020	5/10/2013	100.10742	100.1074232	100.1074232	100.1074232	100.1001302	100.0196601	99.9393229	99.85911816	99.7790456
130913A00018	9/13/2013	3.72	9/13/2028	9/13/2013	115.12122	115.1212249	115.1212249	114.8661802	111.2853175	106.7620252	102.5066013	98.50013317	94.72520295
130918A00010	9/18/2013	2.43	9/18/2020	9/18/2013	100.88003	100.8800313	100.8800313	100.8800313	100.8271224	100.4467489	100.0692996	99.6947405	99.32303821
140325A00012	3/25/2014	3.61	3/26/2029	3/25/2019	116.29229	116.2922904	116.2922904	115.8996815	111.7696149	106.762769	102.0685777	97.66392793	93.52761616
150601A00024	6/1/2015	5.58	11/8/2022	6/1/2015	113.15672	113.1567201	113.1567201	113.1567201	112.3238843	109.8084339	107.3653497	104.9921032	102.6862709
150601A00370	6/1/2015	2.58	10/31/2023	6/1/2015	103.98315	103.9831536	103.9831536	103.9831536	103.3959425	101.6433286	99.93991072	98.28390428	96.67360312
150601A00371	6/1/2015	1.88	10/30/2020	6/1/2015	100.41047	100.4104667	100.4104667	100.4104667	100.3755246	100.1190225	99.86438476	99.61158886	99.36061259
150601A00387	6/1/2015	2.81	12/19/2023	6/1/2015	104.55199	104.5519856	104.5519856	104.5519856	103.9227094	102.0983228	100.3265831	98.60553701	96.93331901
150601A00390	6/1/2015	2.39	5/20/2022	6/1/2015	102.54029	102.5402916	102.5402916	102.5402916	102.256563	101.1304802	100.0283158	98.94935561	97.89291282
150601A00409	6/1/2015	1.98	1/22/2021	6/1/2015	100.63397	100.6339704	100.6339704	100.6339704	100.5730334	100.2001094	99.83102427	99.46571214	99.10410869
150601A00411	6/1/2015	3.38	1/24/2029	6/1/2015	113.2908	113.290801	113.290801	113.0654486	109.6302809	105.2694773	101.1654503	97.30017995	93.65706584
150601A00436	6/1/2015	1.99	3/18/2021	6/1/2015	100.72538	100.7253782	100.7253782	100.7253782	100.6498909	100.2234501	99.80201225	99.38547924	98.97375557
150601A00557	6/1/2015	2.03	9/2/2021	6/1/2015	101.17135	101.1713455	101.1713455	101.1713455	101.0254366	100.348688	99.68349572	99.02953881	98.38650874
150601A00678	6/1/2015	2.12	1/30/2025	6/1/2015	104.30287	104.3028664	104.3028664	104.3028664	103.2870275	100.9266119	98.65056328	96.45513627	94.33678
150601A00872	6/1/2015	7.42	7/31/2028	6/1/2015	133.41937	133.4193683	133.4193683	133.2526158	129.2449739	124.0805494	119.2125811	114.6209489	110.2870616
150601A00901	6/1/2015	7.16	7/26/2029	6/1/2015	131.35328	131.3532832	131.3532832	130.9966052	126.914238	121.8050515	117.0049039	112.4913994	108.2439664
150601A00925	6/1/2015	5.73	7/21/2020	6/1/2015	100.62744	100.6274358	100.6274358	100.6274358	100.6147501	100.5005334	100.3867151	100.2732928	100.1602644
150601A00932	6/1/2015	5.84	10/20/2020	6/1/2015	102.65639	102.65639	102.65639	102.65639	102.585209	102.1090491	101.6373842	101.1701505	100.7072854

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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
050812A00050	8/12/2005	4.97	8/12/2025	8/12/2005	113.29965	113.2996482	113.2996482	113.2996482	111.8182181	108.879074	106.0599288	103.3547803	100.7579714
080423A00066	4/23/2008	4.41	4/24/2023	4/23/2008	108.66592	108.665919	108.665919	108.665919	107.9897585	105.9393816	103.9466815	102.0096098	100.1262053
081226A00013	12/26/2008	3.99	12/26/2023	12/26/2008	108.08633	108.08633	108.08633	108.08633	107.2570964	105.0521589	102.9157158	100.8450418	98.83754192
110414A00007	4/14/2011	3.95	1/21/2025	4/14/2011	110.80888	110.8088789	110.8088789	110.8088789	109.375294	106.3123474	103.3685097	100.5381601	97.81598481
120410A00005	4/10/2012	2.35	4/12/2027	4/10/2012	109.00463	109.0046317	109.0046317	108.9942207	106.1941612	102.1950528	98.404042	94.80825694	91.39572283
121126A00009	11/26/2012	1.07	11/30/2020	11/26/2012	100.32379	100.3237934	100.3237934	100.3237934	100.2692318	99.92989239	99.59409478	99.26177824	98.9328834
121219A00029	12/19/2012	1.75	12/19/2022	12/21/2017	101.96328	101.9632835	101.9632835	101.9632835	101.5992889	100.2719863	98.97505224	97.70755085	96.46858223
130425A00032	4/25/2013	2.59	4/25/2028	4/25/2018	110.31411	110.3141109	110.3141109	110.1453232	106.6857027	102.2306756	98.03285001	94.07463985	90.33980724
130510A00036	5/10/2013	1.45	5/29/2020	5/10/2013	100.10742	100.1074232	100.1074232	100.1074232	100.1001302	100.0196601	99.9393229	99.85911816	99.7790456
140314A00026	3/14/2014	2.99	3/14/2024	3/14/2019	110.02958	110.0295773	110.0295773	110.0295773	108.3205015	104.7768758	101.3751889	98.10893051	94.97192509
140414A00009	4/14/2014	2.32	4/30/2024	4/14/2014	105.56805	105.5680494	105.5680494	105.5680494	104.5375475	102.0078155	99.56494237	97.20526801	94.92531234
150601A00005	6/1/2015	4.84	6/9/2025	6/1/2015	121.73038	121.7303794	121.7303794	121.7303794	118.6787603	113.8063542	109.1809793	104.7885488	100.6158603
150601A00038	6/1/2015	5.77	6/2/2023	6/1/2015	116.52364	116.5236363	116.5236363	116.5236363	115.2773652	112.1897804	109.2061854	106.322439	103.5345916
150601A00270	6/1/2015	3.12	3/21/2031	6/1/2015	126.76695	126.766951	126.766951	123.1803077	114.0913389	105.4111601	97.55674438	90.44203984	83.99051597
150601A00299	6/1/2015	1.8	4/11/2023	6/1/2015	102.26139	102.2613867	102.2613867	102.2613867	101.8170169	100.3162746	98.853052	97.42610642	96.03424607
150601A00319	6/1/2015	1.94	6/26/2020	6/1/2015	100.13141	100.1314127	100.1314127	100.1314127	100.1231621	100.0426233	99.96229488	99.8821759	99.80226551
150601A00410	6/1/2015	2.68	1/24/2024	6/1/2015	104.43087	104.4308681	104.4308681	104.4308681	103.7721908	101.9025381	100.0879387	98.32631544	96.61568574
150601A00424	6/1/2015	1.95	2/19/2021	6/1/2015	100.68875	100.6887482	100.6887482	100.6887482	100.6169213	100.2031641	99.79410403	99.38965218	98.98972204
150601A00461	6/1/2015	1.94	5/14/2021	6/1/2015	100.83968	100.8396823	100.8396823	100.8396823	100.7400812	100.2289936	99.72503979	99.22805304	98.737872
150601A00509	6/1/2015	2.52	7/8/2024	6/1/2015	104.63213	104.6321262	104.6321262	104.6321262	103.8238103	101.7319238	99.70742993	97.7475911	95.84980159
150601A00526	6/1/2015	2	7/28/2021	6/1/2015	101.06909	101.0690908	101.0690908	101.0690908	100.9366141	100.3078139	99.68964316	99.08180256	98.48400467
150601A00558	6/1/2015	2.51	8/30/2024	6/1/2015	104.77322	104.773217	104.773217	104.773217	103.911954	101.7460767	99.65194573	97.62657754	95.66713503
150601A00585	6/1/2015	2.45	10/8/2024	6/1/2015	104.74655	104.7465538	104.7465538	104.7465538	103.85005	101.6372552	99.49910358	97.43244362	95.43428024
150601A00680	6/1/2015	2.23	2/6/2025	6/1/2015	104.56681	104.5668133	104.5668133	104.5668133	103.5482008	101.1820223	98.90043762	96.69969013	94.57621829
020918A00047	9/18/2002	4.72	9/19/2022	9/18/2002	106.5667	106.566702	106.566702	106.566702	106.1660027	104.7216058	103.3101591	101.9306574	100.5821336
080220A00035	2/20/2008	4.65	2/22/2022	2/20/2008	106.08036	106.0803633	106.0803633	106.0803633	105.7431373	104.3882371	103.0610817	101.7609016	100.4869545
120210A00004	2/10/2012	1.98	2/10/2022	2/10/2012	103.10476	103.1047612	103.1047612	103.1047612	102.6751956	101.0152004	99.39116647	97.80202927	96.24676568
120217A00007	2/17/2012	2.25	2/20/2024	2/17/2012	106.38663	106.3866345	106.3866345	106.3866345	105.0397095	102.047806	99.16770693	96.39448495	93.72346052
120523A00024	5/23/2012	2.6	5/24/2027	5/23/2012	108.25783	108.2578254	108.2578254	108.2328245	105.7187519	102.1470367	98.7620916	95.55226244	92.50671573
121219A00045	12/19/2012	1.75	12/19/2022	12/19/2017	102.08138	102.0813818	102.0813818	102.0813818	101.6889152	100.2818361	98.90785735	97.5659264	96.25503288
130925A00035	9/25/2013	1.53	6/25/2025	9/25/2013	103.80381	103.8038124	103.8038124	103.8038124	102.4871218	99.84510147	97.31190971	94.88208312	92.55047446

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00035	6/1/2015	5.73	4/1/2038	6/1/2015	149.91986	149.9198637	149.9198637	144.528931	134.6350318	125.0144816	116.4077735	108.6887941	101.7487591
150601A00330	6/1/2015	2.6	8/2/2023	6/1/2015	103.73854	103.738544	103.738544	103.738544	103.222012	101.5905783	100.0025468	98.4564052	96.95070565
150601A00394	6/1/2015	2.1	12/31/2020	6/1/2015	100.627	100.6270035	100.6270035	100.6270035	100.5730747	100.2280889	99.88640489	99.5479699	99.21273247
150601A00438	6/1/2015	1.91	3/18/2021	6/1/2015	100.72755	100.7275514	100.7275514	100.7275514	100.6460312	100.1976577	99.75477642	99.31727521	98.88504521
150601A00448	6/1/2015	2.61	4/26/2024	6/1/2015	104.60221	104.602208	104.602208	104.602208	103.858848	101.8602247	99.9236371	98.04664342	96.22691628
150601A00451	6/1/2015	1.91	4/30/2021	6/1/2015	100.83198	100.8319834	100.8319834	100.8319834	100.730865	100.2155028	99.70741488	99.2064292	98.71237939
150601A00458	6/1/2015	1.86	5/14/2021	6/1/2015	100.82692	100.8269182	100.8269182	100.8269182	100.7222021	100.1936327	99.67263147	99.15901796	98.65261775
150601A00730	6/1/2015	1.55	5/1/2020	6/1/2015	100.00324	100.0032393	100.0032393	100.0032393	100.0029884	100.0002188	99.99745154	99.99468662	99.99192405
150601A00889	6/1/2015	6.55	3/2/2029	6/1/2015	132.48541	132.4854087	132.4854087	132.1202798	127.4756718	121.8760811	116.6239576	111.6940181	107.0630266
150601A00906	6/1/2015	6.2	11/1/2029	6/1/2015	132.44359	132.4435891	132.4435891	131.860675	126.8177994	120.9481427	115.4635245	110.3343458	105.5335352
150601A00947	6/1/2015	6.19	8/20/2021	6/1/2015	107.61613	107.6161284	107.6161284	107.6161284	107.3011514	106.008171	104.7408487	103.4984281	102.2801828
150601A00953	6/1/2015	6.6	6/10/2032	6/1/2015	145.84516	145.8451598	145.8451598	143.7306006	136.1093325	128.1585306	120.8541643	114.135353	107.9475183
150601A00955	6/1/2015	5.84	7/15/2032	6/1/2015	134.75796	134.7579587	134.7579587	133.2216841	127.1342932	120.5067512	114.3898486	108.7369543	103.5061739
150601A01011	6/1/2015	5.05	9/8/2025	6/1/2015	112.63677	112.6367665	112.6367665	112.6367665	111.3190328	108.5337352	105.8568677	103.2832273	100.8079
150601A01041	6/1/2015	5.99	10/2/2036	6/1/2015	155.66731	155.6673112	155.6673112	150.0431762	139.2279335	128.8195867	119.4981659	111.1325878	103.6090436
151123A00067	11/23/2015	1.68	11/23/2020	11/23/2015	100.48104	100.4810394	100.4810394	100.4810394	100.43273	100.0966438	99.76333154	99.4327551	99.10487718
160210A00068	2/10/2016	2.76	2/10/2031	2/10/2021	113.34122	113.3412227	113.3412227	112.5117286	107.8692679	102.6282261	97.7564946	93.22334358	89.00088749
170130A00046	1/30/2017	2.52	1/30/2026	1/30/2017	106.69942	106.6994248	106.6994248	106.6994248	105.1023982	102.1080134	99.24205352	96.49777372	93.86883822
180123A00010	1/23/2018	2.68	1/24/2028	1/23/2018	110.14936	110.1493638	110.1493638	110.0906443	107.2689749	103.3616073	99.66359062	96.16150204	92.84288979
180126A00018	1/26/2018	2.34	1/26/2023	1/26/2018	103.19222	103.1922206	103.1922206	103.1922206	102.7938042	101.3710475	99.98197643	98.62551166	97.30061742
180529A00057	5/29/2018	3.09	5/30/2028	5/29/2018	114.5594	114.5593961	114.5593961	114.2164308	110.1248179	105.2711586	100.7225454	96.45655205	92.45257847
180725A00034	7/25/2018	2.79	7/25/2022	7/25/2018	103.16171	103.1617094	103.1617094	103.1617094	102.8669135	101.6900209	100.5376748	99.40914769	98.30374033
180928A00077	9/28/2018	2.85	9/28/2021	9/28/2018	102.08145	102.0814477	102.0814477	102.0814477	101.9150172	101.1551225	100.4083386	99.67430412	98.95267141
181120A00026	11/20/2018	2.92	11/20/2020	11/20/2018	100.89635	100.8963496	100.8963496	100.8963496	100.8482274	100.5122574	100.1790424	99.8485449	99.52072814
181211A00042	12/11/2018	3.7	12/11/2028	12/11/2023	122.90853	122.908527	122.908527	121.7101049	115.0694884	108.2420219	101.9298386	96.08943161	90.68125379
190102A00022	1/2/2019	2.97	1/3/2034	1/2/2019	119.90182	119.9018204	119.9018204	117.6337615	111.1356032	104.438227	98.32281388	92.7300236	87.60719868
190102A00024	1/2/2019	2.97	1/3/2034	1/2/2019	119.90187	119.9018701	119.9018701	117.6337918	111.135614	104.4382229	98.32279732	92.72999679	87.60716345
190520A00020	5/20/2019	2.39	5/20/2026	5/20/2019	107.09044	107.0904408	107.0904408	107.0904408	105.4028931	102.3237931	99.37941589	96.56260002	93.86661995
190627A00020	6/27/2019	2.28	6/25/2021	6/27/2019	101.27127	101.2712651	101.2712651	101.2712651	101.1410275	100.510145	99.88927594	99.27815556	98.67652911
191114A00012	11/14/2019	1.89	11/15/2021	11/14/2019	101.354	101.3540027	101.3540027	101.3540027	101.1655267	100.3320018	99.51325805	98.70888938	97.91850489
191114A00014	11/14/2019	1.9	11/14/2023	11/14/2019	102.97344	102.9734419	102.9734419	102.9734419	102.3531844	100.5357998	98.77034412	97.05490813	95.3876672

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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191231A00021	12/31/2019	1.9	2/28/2023	12/31/2019	102.23466	102.2346553	102.2346553	102.2346553	101.8586708	100.4897625	99.1525716	97.84609879	96.56938464
200317A00022	3/17/2020	0.97	3/17/2022	3/17/2020	100.6833	100.6832996	100.6832996	100.6832996	100.4478688	99.45634886	98.48378399	97.52963976	96.59340186
200317A00024	3/17/2020	1.09	3/17/2025	3/17/2020	101.98021	101.9802064	101.9802064	101.9802064	100.9029549	98.47249551	96.13137252	93.87552826	91.7011196
200428A00018	4/28/2020	1.33	4/27/2035	4/28/2020	107.71854	107.7185404	107.7185404	104.9147147	98.34786496	91.80407806	85.87965826	80.50627957	75.62390094
150601A00943	6/1/2015	6.44	5/9/2031	6/1/2015	139.96159	139.9615865	139.9615865	138.6035074	132.0997047	125.0557343	118.5381647	112.5012293	106.9035522
150601A00964	6/1/2015	5.25	1/6/2033	6/1/2015	132.38127	132.3812742	132.3812742	130.6151389	124.3191519	117.5773921	111.3739306	105.6579347	100.3839022
150601A00976	6/1/2015	6.8	9/22/2033	6/1/2015	150.45422	150.4542245	150.4542245	147.5790634	139.203602	130.6361684	122.8142299	115.6623027	109.113311
150601A00993	6/1/2015	5.37	6/9/2034	6/1/2015	142.02377	142.0237661	142.0237661	138.6529812	130.0720152	121.4945186	113.7070969	106.6255529	100.175523
150601A01008	6/1/2015	5.08	4/15/2025	6/1/2015	111.78031	111.7803085	111.7803085	111.7803085	110.6439716	108.0685329	105.5872926	103.1959743	100.8905276
150601A01015	6/1/2015	5.61	10/28/2025	6/1/2015	126.42007	126.4200687	126.4200687	126.4200687	122.8820392	117.6910837	112.7762519	108.1210198	103.7099468
150819A00027	8/19/2015	3.05	8/19/2030	8/19/2020	115.42896	115.4289597	115.4289597	114.7340661	110.2311952	105.0529211	100.2280153	95.7279613	91.52680659
160506A00016	5/6/2016	1.28	5/6/2021	5/6/2016	100.59062	100.5906156	100.5906156	100.5906156	100.4736995	99.89114737	99.31711761	98.75140356	98.19380561
160930A00032	9/30/2016	2.15	9/30/2031	9/30/2016	110.63383	110.6338259	110.6338259	109.5519983	104.6189416	99.21077548	94.20550124	89.56780491	85.26580566
170616A00003	6/16/2017	1.91	6/17/2024	6/16/2017	103.85674	103.8567359	103.8567359	103.8567359	103.0413696	100.9248712	98.87649893	96.89348876	94.97320958
171206A00020	12/6/2017	2.62	12/6/2027	12/6/2017	109.02728	109.0272838	109.0272838	108.9798407	106.252725	102.4347317	98.81883028	95.39221042	92.14297818
180725A00035	7/25/2018	2.85	7/25/2023	7/25/2018	104.61482	104.614824	104.614824	104.614824	104.0834873	102.4012127	100.7636819	99.1693355	97.61668079
181003A00044	10/3/2018	2.78	10/2/2020	10/3/2018	100.75783	100.757834	100.757834	100.757834	100.720023	100.4352937	100.1524891	99.8715882	99.5925699
181226A00040	12/26/2018	2.84	12/28/2020	12/26/2018	100.98673	100.9867317	100.9867317	100.9867317	100.9277433	100.5466019	100.169051	99.79503422	99.4244964
190701A00022	7/1/2019	2.28	7/1/2021	7/1/2019	101.34654	101.3465411	101.3465411	101.3465411	101.205836	100.537747	99.88084251	99.23481218	98.59935772
191114A00013	11/14/2019	1.9	11/14/2022	11/14/2019	102.16485	102.164849	102.164849	102.164849	101.8081692	100.4816334	99.18516803	97.91784115	96.67875743
191115A00029	11/15/2019	2.07	11/15/2029	11/15/2019	108.56785	108.5678502	108.5678502	108.1291643	104.248618	99.63160123	95.31104396	91.26441735	87.47110337
200225A00049	2/25/2020	1.79	2/24/2040	2/25/2020	116.7557	116.7556989	116.7307205	110.5747434	101.4695249	92.98431435	85.51112332	78.909555	73.06052975
200327A00004	3/27/2020	0.63	3/28/2022	3/27/2020	100.33946	100.339457	100.339457	100.339457	100.1040866	99.113713	98.14231005	97.18934202	96.25429334
150601A00685	6/1/2015	1.91	2/10/2022	6/1/2015	101.43962	101.4396153	101.4396153	101.4396153	101.2313479	100.3385853	99.46235751	98.60219882	97.75766153
150601A00714	6/1/2015	1.67	4/1/2022	6/1/2015	101.32772	101.3277196	101.3277196	101.3277196	101.0974992	100.1307171	99.18252659	98.25240207	97.33983762
150601A00848	6/1/2015	6.36	2/18/2022	6/1/2015	105.65219	105.6521924	105.6521924	105.6521924	105.43362	104.4976739	103.5791426	102.6775355	101.7923806
150601A00864	6/1/2015	7.37	3/31/2028	6/1/2015	132.23639	132.2363858	132.2363858	132.1233284	128.3316863	123.33145	118.6111108	114.1521279	109.9373378
150601A00897	6/1/2015	6.15	5/28/2029	6/1/2015	130.34037	130.3403714	130.3403714	129.9418666	125.3487013	119.8323411	114.6613752	109.8103931	105.2560661
150601A00900	6/1/2015	6.06	6/28/2024	6/1/2015	112.88559	112.8855871	112.8855871	112.8855871	112.0045496	109.7125819	107.4942561	105.3465982	103.2667766
150601A00905	6/1/2015	6.14	10/29/2029	6/1/2015	131.83803	131.838026	131.838026	131.2860285	126.3189222	120.5130971	115.0855611	110.0074223	105.2522407
150601A00929	6/1/2015	5.91	8/30/2030	6/1/2015	133.78454	133.7845358	133.7845358	132.8311607	127.1084032	120.7311305	114.8044726	109.2912739	104.1577689

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00946	6/1/2015	6.28	8/22/2031	6/1/2015	139.9928	139.9928026	139.9928026	138.4789339	131.7614154	124.5621914	117.9126718	111.7640987	106.0724811
150601A00952	6/1/2015	6.34	2/13/2032	6/1/2015	142.49314	142.4931372	142.4931372	140.6394601	133.425145	125.824802	118.8276883	112.3782951	106.4267336
150601A00988	6/1/2015	4.57	3/22/2024	6/1/2015	108.29661	108.2966112	108.2966112	108.2966112	107.570805	105.5709229	103.6316311	101.7505887	99.92556303
150601A00997	6/1/2015	5.46	9/30/2022	6/1/2015	112.15759	112.1575905	112.1575905	112.1575905	111.4079471	109.037437	106.7324408	104.4907596	102.310282
150601A01005	6/1/2015	5.82	3/10/2025	6/1/2015	124.496	124.4959974	124.4959974	124.4959974	121.7804726	117.1433171	112.7288459	108.5249651	104.5203045
150601A01013	6/1/2015	5.21	9/29/2023	6/1/2015	116.0723	116.0722975	116.0722975	116.0722975	114.6165593	111.2994059	108.1029662	105.0221486	102.0521051
150601A01020	6/1/2015	5.22	10/19/2020	6/1/2015	101.22453	101.2245255	101.2245255	101.2245255	101.1905914	100.9386238	100.6884244	100.4399727	100.1932483
150601A01030	6/1/2015	5.43	9/30/2020	6/1/2015	102.19847	102.1984735	102.1984735	102.1984735	102.1382319	101.7144896	101.2942875	100.8775816	100.4643282
150601A01047	6/1/2015	5.35	12/30/2024	6/1/2015	122.13482	122.1348243	122.1348243	122.1348243	119.5655573	115.0528298	110.7516603	106.6507937	102.7396413
150601A01051	6/1/2015	4.91	2/7/2025	6/1/2015	120.70596	120.7059561	120.7059561	120.7059561	118.0397767	113.4693314	109.1176731	104.9729502	101.0240242
150601A01056	6/1/2015	4.7	3/16/2022	6/1/2015	108.28051	108.2805092	108.2805092	108.2805092	107.7923767	105.9363643	104.1226922	102.3501369	100.6175184
151110A00011	11/10/2015	3.23	11/12/2030	11/10/2020	115.65288	115.6528767	115.6528767	114.8808422	110.2766122	105.0262921	100.1398209	95.58737294	91.34184513
160210A00062	2/10/2016	1.36	2/10/2021	2/10/2016	100.5062	100.5062	100.5062	100.5062	100.4261596	99.96715093	99.51338834	99.0647724	98.62120633
160928A00030	9/28/2016	2.52	9/29/2036	9/28/2016	118.55319	118.553193	118.553193	114.4829783	106.6092716	98.93819659	92.05697637	85.87047371	80.2961451
160928A00042	9/28/2016	3.05	9/29/2036	9/28/2021	122.99455	122.9945519	122.9945519	118.8498322	110.760145	102.8556285	95.76040851	89.37735725	83.62217179
190327A00030	3/27/2019	2.9	3/27/2036	3/27/2019	120.7156	120.7155972	120.7155972	117.2358864	109.7290438	102.2957431	95.58935399	89.52657659	84.03462569
150601A00928	6/1/2015	5.94	8/21/2030	6/1/2015	129.88508	129.8850799	129.8850799	129.1817191	124.3938144	118.7914641	113.5639768	108.681493	104.1168126
150601A00935	6/1/2015	6.46	11/21/2030	6/1/2015	137.8185	137.8184977	137.8184977	136.7607509	130.7696089	124.1321429	117.9695638	112.2422206	106.9141248
150601A00950	6/1/2015	6.76	12/18/2031	6/1/2015	143.8404	143.8403989	143.8403989	142.1567159	135.1825399	127.7369534	120.86896	114.5263799	108.6622333
150601A00960	6/1/2015	6.49	12/16/2032	6/1/2015	140.03076	140.0307645	140.0307645	138.2569393	131.7554231	124.7411071	118.2801381	112.3207342	106.8165038
150601A00963	6/1/2015	4.76	12/27/2022	6/1/2015	106.17042	106.1704243	106.1704243	106.1704243	105.7969268	104.4304302	103.0954789	101.7910802	100.5162812
150601A00978	6/1/2015	6.32	11/24/2033	6/1/2015	141.84637	141.8463725	141.8463725	139.5419559	132.4158866	124.9168257	118.0459641	111.7409703	105.9463804
150601A00994	6/1/2015	5.86	6/24/2022	6/1/2015	111.67975	111.6797495	111.6797495	111.6797495	111.0759043	108.9550484	106.8875688	104.8717343	102.9058845
150601A01014	6/1/2015	4.96	9/30/2020	6/1/2015	102.00303	102.0030286	102.0030286	102.0030286	101.9428789	101.5198109	101.1002783	100.6842369	100.2716431
150601A01016	6/1/2015	5.73	10/28/2025	6/1/2015	126.99749	126.9974923	126.9974923	126.9974923	123.4523576	118.2466802	113.3177101	108.6488948	104.2247668
150601A01021	6/1/2015	5.28	10/3/2025	6/1/2015	113.388	113.3879984	113.3879984	113.3879984	112.0381783	109.2119038	106.496518	103.8866614	101.3772741
150601A01048	6/1/2015	5.27	1/3/2025	6/1/2015	121.84413	121.8441259	121.8441259	121.8441259	119.2664231	114.7510201	110.4477772	106.3453837	102.4331997
150914A00032	9/14/2015	1.49	9/14/2020	9/14/2015	100.30466	100.3046649	100.3046649	100.3046649	100.2732989	100.0276479	99.78342677	99.54062184	99.29921966
150914A00040	9/14/2015	1.85	9/14/2022	9/14/2015	101.96648	101.9664781	101.9664781	101.9664781	101.6442944	100.400413	99.18353967	97.99285986	96.82759052
160928A00041	9/28/2016	3.26	9/29/2036	9/30/2019	124.75434	124.7543356	124.7543356	120.580095	112.4048307	104.4078184	97.22780615	90.76687714	84.94003142
170130A00036	1/30/2017	3.11	1/31/2033	1/30/2017	118.24101	118.2410073	118.2410073	116.4252684	110.4448959	104.1472736	98.36762682	93.05580644	88.16704066

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
170130A00039	1/30/2017	2.74	1/31/2028	1/30/2017	109.79784	109.7978377	109.7978377	109.7127986	106.7855672	102.8158604	99.0629485	95.51263867	92.15178783
170130A00043	1/30/2017	2.64	1/29/2027	1/30/2017	108.22949	108.2294865	108.2294865	108.2294865	105.981367	102.496299	99.18124946	96.02618956	93.02176477
170313A00041	3/13/2017	3.21	3/15/2032	3/13/2017	117.46445	117.4644506	117.4644506	116.1484712	110.760322	104.9123074	99.51226114	94.51973063	89.89831602
170315A00005	3/15/2017	2.1	3/15/2022	3/15/2017	101.83721	101.8372094	101.8372094	101.8372094	101.6001004	100.6006862	99.62035526	98.65856969	97.714812
190102A00015	1/2/2019	2.97	1/3/2034	1/2/2019	119.90206	119.9020641	119.9020641	117.6339132	111.1356591	104.4382091	98.32273444	92.72989311	87.60702603
190220A00012	2/20/2019	2.76	2/19/2021	2/20/2019	101.09088	101.0908798	101.0908798	101.0908798	101.0157282	100.5810946	100.1513544	99.72641513	99.30618713
190604A00010	6/4/2019	2.45	6/4/2021	6/4/2019	101.37006	101.3700576	101.3700576	101.3700576	101.2406874	100.613439	99.99603029	99.38820518	98.78971706
190628A00007	6/28/2019	2.28	6/28/2034	6/28/2019	115.53871	115.5387112	115.5387112	113.0741437	106.5216216	99.85608033	93.78832609	88.25563049	83.20252097
190823A00009	8/23/2019	1.8	8/23/2029	8/23/2019	108.00403	108.004025	108.004025	107.6282092	103.8647467	99.33482548	95.09075954	91.11120188	87.3765859
180716A00046	7/16/2018	2.9	7/16/2025	7/16/2018	107.39597	107.3959671	107.3959671	107.3959671	106.1733615	103.5209725	100.9698143	98.51512322	96.15239582
180814A00020	8/14/2018	2.7	8/14/2020	8/14/2018	100.49035	100.4903485	100.4903485	100.4903485	100.4661198	100.2650775	100.064966	99.8657784	99.66750776
181015A00043	10/15/2018	2.91	10/15/2020	10/15/2018	100.77161	100.7716128	100.7716128	100.7716128	100.7326115	100.4422953	100.1540036	99.86771312	99.58340091
190513A00026	5/13/2019	2.55	5/13/2021	5/13/2019	101.3405	101.3404975	101.3404975	101.3404975	101.22266	100.6355228	100.0570029	99.48689026	98.92498203
200311A00028	3/11/2020	1.04	3/12/2024	3/11/2020	101.53325	101.533249	101.533249	101.533249	100.7896354	98.79326823	96.85891036	94.98412568	93.1665918
150601A00966	6/1/2015	4.84	2/3/2023	6/1/2015	106.53354	106.5335436	106.5335436	106.5335436	106.1340312	104.7096988	103.3191192	101.9612089	100.6349284
150601A01055	6/1/2015	5.29	3/16/2022	6/1/2015	109.34726	109.347256	109.347256	109.347256	108.8567085	106.9904591	105.1667439	103.3843339	101.6420438
151119A00027	11/19/2015	1.64	11/19/2020	11/19/2015	100.46535	100.4653518	100.4653518	100.4653518	100.4174838	100.0829954	99.75124626	99.4221991	99.09581746
170705A00027	7/5/2017	1.73	7/6/2020	7/5/2017	100.21421	100.2142115	100.2142115	100.2142115	100.1982889	100.0515022	99.90518304	99.75932906	99.61393793
170705A00028	7/5/2017	1.86	7/6/2021	7/5/2017	101.06588	101.0658814	101.0658814	101.0658814	100.9251902	100.2574981	99.60101581	98.95543109	98.32044401
180719A00077	7/19/2018	3.06	7/19/2023	7/19/2018	108.47927	108.4792716	108.4792716	108.4792716	107.187539	104.1309667	101.181338	98.33423641	95.58545816
180727A00030	7/27/2018	2.89	7/27/2021	7/27/2018	101.76213	101.7621296	101.7621296	101.7621296	101.6199045	100.9452401	100.2820044	99.62987487	98.98854197
180830A00066	8/30/2018	3.02	8/30/2023	8/30/2018	108.63887	108.6388685	108.6388685	108.6388685	107.2627927	104.1064157	101.0636826	98.12988148	95.30052109
181003A00072	10/3/2018	2.78	10/2/2020	10/3/2018	100.75783	100.757834	100.757834	100.757834	100.720023	100.4352937	100.1524891	99.8715882	99.5925699
181029A00097	10/29/2018	3.53	10/27/2028	10/29/2018	121.21622	121.216224	121.216224	120.1590401	113.8574666	107.3467956	101.3209632	95.73959062	90.56592457
181214A00026	12/14/2018	2.92	12/14/2020	12/14/2018	101.00431	101.0043083	101.0043083	101.0043083	100.9469358	100.5705097	100.1975537	99.82801477	99.46184103
190118A00031	1/18/2019	2.81	1/19/2021	1/18/2019	101.07728	101.0772759	101.0772759	101.0772759	101.0080422	100.5871065	100.1705527	99.75830497	99.35028934
190813A00019	8/13/2019	2.13	8/13/2021	8/13/2019	101.32148	101.3214804	101.3214804	101.3214804	101.1687411	100.4574532	99.75861289	99.071861	98.39685287
200310A00067	3/10/2020	0.94	3/10/2025	3/10/2020	101.60141	101.6014105	101.6014105	101.6014105	100.5267663	98.10282292	95.76800294	93.51825834	91.34975507
970806A00017	8/1/1997	7.02	7/23/2026	8/1/1997	121.72405	121.7240546	121.7240546	121.7240546	119.8184511	116.3704309	113.0736013	109.9198648	106.9016215
970806A00059	8/1/1997	8.25	9/22/2025	8/1/1997	139.20845	139.2084508	139.2084508	139.2084508	135.4656178	129.8360519	124.5010144	119.4431786	114.6463335
190523A00038	5/23/2019	2.54	5/24/2021	5/23/2019	101.33993	101.3399254	101.3399254	101.3399254	101.2214971	100.632076	100.0513664	99.47915382	98.91523134

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
191216A00013	12/16/2019	1.95	12/16/2024	12/16/2019	103.94417	103.944168	103.944168	103.944168	102.9529648	100.6076104	98.34466219	96.16051781	94.05175934
150601A00919	6/1/2015	7.41	6/7/2030	6/1/2015	142.14241	142.1424134	142.1424134	141.2615894	135.409718	128.7980028	122.6425731	116.9066085	111.5565816
150601A00923	6/1/2015	7.03	7/7/2020	6/1/2015	101.27336	101.2733564	101.2733564	101.2733564	101.2516502	101.0631691	100.8754047	100.6883528	100.5020093
150601A00941	6/1/2015	6.23	3/8/2021	6/1/2015	105.06597	105.0659723	105.0659723	105.0659723	104.8751289	104.0201349	103.1794284	102.352651	101.5394563
150601A00971	6/1/2015	6.42	6/20/2033	6/1/2015	146.43598	146.4359836	146.4359836	143.6391842	135.3712343	126.9472639	119.2544014	112.2191976	105.7763
151026A00034	10/26/2015	2.88	10/28/2030	10/26/2020	114.76654	114.7665402	114.7665402	114.0127793	109.4288357	104.2027013	99.33853045	94.80670571	90.58030734
160331A00096	3/31/2016	1.32	11/30/2020	3/31/2016	100.36246	100.3624625	100.3624625	100.3624625	100.313437	99.97496005	99.6393154	99.30646358	98.97636583
160928A00032	9/28/2016	2.52	9/29/2036	9/28/2016	118.55319	118.553193	118.553193	114.4829783	106.6092716	98.93819659	92.05697637	85.87047371	80.2961451
170612A00024	6/12/2017	1.72	6/13/2022	6/12/2017	101.82601	101.8260137	101.8260137	101.8260137	101.5487661	100.4244408	99.32307474	98.24399827	97.18656723
170705A00029	7/5/2017	1.98	7/5/2022	7/5/2017	101.98729	101.9872915	101.9872915	101.9872915	101.6967236	100.5347037	99.39683504	98.28240486	97.19072807
180914A00035	9/14/2018	2.82	9/15/2020	9/14/2018	100.63399	100.6339891	100.6339891	100.6339891	100.602449	100.3556041	100.1102004	99.86622425	99.62366193
181220A00006	12/20/2018	2.93	12/20/2022	12/20/2018	103.66659	103.6665917	103.6665917	103.6665917	103.2880309	101.9066329	100.5571673	99.23862987	97.95005618
190111A00047	1/11/2019	2.8	1/11/2021	1/11/2019	101.06678	101.0667803	101.0667803	101.0667803	100.9983965	100.5799256	100.1657677	99.7558491	99.35009785
200130A00027	1/31/2020	1.79	1/31/2025	1/31/2020	103.62381	103.6238057	103.6238057	103.6238057	102.6015899	100.2215186	97.92635565	95.71233895	93.57590128
200203A00046	2/3/2020	1.98	2/3/2040	2/3/2020	118.65984	118.6598435	118.635095	112.433377	103.2255608	94.63483504	87.0660084	80.37755614	74.44941595
200311A00027	3/11/2020	1.52	3/9/2035	3/11/2020	109.09997	109.099971	109.099971	106.3292975	99.74620143	93.16791087	87.20799523	81.79864567	76.88023063
200331A00056	3/31/2020	0.96	3/29/2030	3/31/2020	104.25292	104.2529167	104.2529167	103.7106174	99.69203462	95.04083605	90.7007026	86.64713576	82.8577837
970806A00018	8/1/1997	6.7	10/23/2026	8/1/1997	121.55237	121.5523684	121.5523684	121.5523684	119.4775724	115.9043783	112.4933015	109.2353868	106.1222449
191231A00027	12/31/2019	1.9	4/28/2023	12/31/2019	102.23465	102.2346523	102.2346523	102.2346523	101.8586646	100.4897482	99.15254939	97.84606878	96.56934698
200210A00007	2/10/2020	1.78	2/10/2025	2/10/2023	106.12141	106.1214123	106.1214123	106.1214123	104.1283654	100.5392663	97.11404475	93.84405228	90.72115142
200401A00011	4/1/2020	0.68	4/3/2023	4/1/2020	100.59927	100.5992678	100.5992678	100.5992678	100.1495075	98.63856483	97.16556351	95.72924207	94.32839091
200402A00050	4/6/2020	0.73	4/5/2024	4/6/2020	100.89601	100.8960147	100.8960147	100.8960147	100.153618	98.16617365	96.24068372	94.37470547	92.56591063
110223A00003	2/23/2011	3.41	2/23/2021	2/23/2011	102.60375	102.6037469	102.6037469	102.6037469	102.4175309	101.5724648	100.7411502	99.92325403	99.11845389
111007A00007	10/7/2011	3.92	10/7/2031	10/7/2011	130.52539	130.5253876	130.5253876	127.0364274	118.3749584	109.9071735	102.2342968	95.27270913	88.94822021
120716A00025	7/16/2012	1.83	7/18/2022	7/17/2017	101.92416	101.9241594	101.9241594	101.9241594	101.5952263	100.3609501	99.15653104	97.98094945	96.83323094
120907A00026	9/7/2012	1.71	9/7/2022	9/7/2012	103.21804	103.2180381	103.2180381	103.2180381	102.6139372	100.6289327	98.69617512	96.81397266	94.98069842
140311A00039	3/11/2014	3.06	3/11/2024	3/11/2014	108.95131	108.9513083	108.9513083	108.9513083	107.4203593	104.1423372	100.9913456	97.96167359	95.04789952
140911A00033	9/11/2014	3.02	9/13/2027	9/11/2014	112.54063	112.5406302	112.5406302	112.3781234	108.5636039	103.9466761	99.60542687	95.52066326	91.67466846
150601A00018	6/1/2015	4.91	9/5/2025	6/1/2015	123.02238	123.0223832	123.0223832	123.0223832	119.631163	114.5323708	109.701882	105.1239114	100.7836879
150601A00075	6/1/2015	3.53	5/12/2020	6/1/2015	100.03559	100.0355899	100.0355899	100.0355899	100.0345634	100.0232334	100.0119159	100.0006108	99.98931829
150601A00089	6/1/2015	2.56	10/27/2020	6/1/2015	100.56958	100.5695823	100.5695823	100.5695823	100.5356065	100.2844445	100.0350693	99.78745943	99.54159426

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00407	6/1/2015	2.06	1/22/2021	6/1/2015	100.61908	100.6190808	100.6190808	100.6190808	100.5636465	100.2155375	99.87085597	99.52954476	99.19154801
150601A00447	6/1/2015	2.02	4/28/2021	6/1/2015	100.87033	100.8703271	100.8703271	100.8703271	100.7723243	100.2669795	99.76857105	99.27694014	98.7919332
150601A00459	6/1/2015	2.42	5/16/2024	6/1/2015	104.27363	104.2736328	104.2736328	104.2736328	103.5156805	101.4982813	99.54412329	97.65069697	95.81561106
150601A00497	6/1/2015	1.95	7/1/2021	6/1/2015	100.97909	100.9790916	100.9790916	100.9790916	100.8564967	100.2637727	99.6805247	99.10650028	98.54145643
150601A00736	6/1/2015	2.87	5/1/2030	6/1/2015	112.69224	112.6922435	112.6922435	112.1225131	107.9395746	103.0536453	98.49181472	94.22863127	90.24087256
150601A00875	6/1/2015	7.14	9/29/2028	6/1/2015	133.05633	133.0563257	133.0563257	132.845159	128.6632048	123.3801532	118.4069242	113.7220934	109.3058922
150601A00883	6/1/2015	6.21	11/30/2028	6/1/2015	128.78475	128.7847468	128.7847468	128.5398448	124.3908427	119.211703	114.3409272	109.7568712	105.439588
150601A00888	6/1/2015	5.92	3/1/2029	6/1/2015	128.38239	128.3823918	128.3823918	128.0469888	123.6730308	118.3462831	113.3469713	108.6514084	104.2378178
150601A00922	6/1/2015	6.51	7/7/2020	6/1/2015	101.17637	101.1763701	101.1763701	101.1763701	101.1547014	100.9665399	100.7790937	100.5923589	100.4063311
150601A00927	6/1/2015	6.08	8/7/2030	6/1/2015	130.49296	130.4929553	130.4929553	129.8022778	125.0243684	119.4196273	114.1884733	109.3012505	104.7309359
150601A00931	6/1/2015	7.13	9/20/2030	6/1/2015	141.4525	141.4525042	141.4525042	140.4545108	134.4411996	127.7260245	121.484302	115.67704	110.2688019
150601A00948	6/1/2015	6.04	10/22/2031	6/1/2015	132.50567	132.5056714	132.5056714	131.3420469	125.8198944	119.6456169	113.9210672	108.6073247	103.6692237
151006A00015	10/6/2015	1.31	10/6/2020	10/6/2015	100.30229	100.3022913	100.3022913	100.3022913	100.2642801	99.97913178	99.69592718	99.41464462	99.13526274
160928A00033	9/28/2016	2.46	9/29/2036	9/28/2016	118.0504	118.0503977	118.0503977	113.9886175	106.1393614	98.49471374	91.6377199	85.47346803	79.91961378
160928A00044	9/28/2016	2.89	9/29/2036	9/28/2023	121.65376	121.6537643	121.6537643	117.5315367	109.5070512	101.6730075	94.64239126	88.31867542	82.61808826
170515A00037	5/15/2017	1.65	5/15/2020	5/15/2017	100.05543	100.0554271	100.0554271	100.0554271	100.0516622	100.0101116	99.96861258	99.92716502	99.88576884
170530A00019	5/30/2017	1.58	6/1/2021	5/30/2017	100.92072	100.9207221	100.9207221	100.9207221	100.7915437	100.1655297	99.54934724	98.94274054	98.34546313
170929A00046	9/29/2017	2.49	9/30/2027	9/29/2017	108.24916	108.2491621	108.2491621	108.2250477	105.669765	101.9803606	98.48102445	95.16001044	92.00639327
190102A00020	1/2/2019	2.97	1/3/2034	1/2/2019	119.90191	119.9019128	119.9019128	117.6338143	111.1356201	104.4382166	98.32278115	92.72997272	87.60713316
190618A00009	6/18/2019	2.34	6/18/2021	6/18/2019	101.30646	101.3064577	101.3064577	101.3064577	101.1765029	100.5468038	99.92706004	99.31701005	98.71640171
200316A00008	3/16/2020	1.31	3/15/2030	3/16/2020	105.04392	105.0439245	105.0439245	104.5101952	100.5162732	95.87472933	91.54171611	87.493046	83.70664261
200326A00037	3/26/2020	1.78	3/26/2035	3/26/2020	111.04853	111.048534	111.048534	108.2588952	101.6004711	94.9358906	88.89606728	83.41260769	78.42535707
200330A00010	3/30/2020	0.61	3/30/2022	3/30/2020	100.31926	100.3192555	100.3192555	100.3192555	100.0838334	99.09337752	98.12190008	97.16886492	96.23375614
061013A00024	10/13/2006	5.53	10/15/2021	10/13/2006	107.74752	107.747518	107.747518	107.747518	107.3721631	105.8835158	104.4232952	102.9907558	101.5851773
110609A00010	6/9/2011	3.83	6/9/2021	6/9/2011	103.99167	103.9916679	103.9916679	103.9916679	103.719415	102.5936679	101.4924046	100.4148318	99.36019003
110706A00009	7/6/2011	3.93	7/6/2021	7/6/2011	104.37697	104.376968	104.376968	104.376968	104.0868245	102.8851164	101.7112206	100.5641788	99.44307578
140605A00058	6/6/2016	3.29	6/7/2021	6/6/2016	103.36851	103.3685119	103.3685119	103.3685119	103.0982778	101.9816889	100.8892899	99.82030042	98.77397332
140811A00047	8/11/2016	3.13	8/11/2021	8/11/2016	103.69053	103.6905329	103.6905329	103.6905329	103.3757781	102.0856271	100.823794	99.5893457	98.38139008
140814A00004	8/14/2014	2.25	8/14/2020	8/14/2014	100.58451	100.5845127	100.5845127	100.5845127	100.5462296	100.2526287	99.96075191	99.67058401	99.38210993
150211A00005	2/11/2015	2.35	2/15/2022	2/11/2015	103.75142	103.7514244	103.7514244	103.7514244	103.2830313	101.4930244	99.74266097	98.03077628	96.35624953
150601A00188	6/1/2015	2.06	8/24/2021	6/1/2015	102.32487	102.3248653	102.3248653	102.3248653	102.0019911	100.6916538	99.40638997	98.14550441	96.90832778

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150601A00334	6/1/2015	3.33	8/9/2022	6/1/2015	106.8686	106.8686004	106.8686004	106.8686004	106.1734467	103.8814385	101.6505918	99.47885511	97.36426225
150709A00014	7/9/2015	1.91	6/25/2020	7/9/2015	100.25271	100.2527055	100.2527055	100.2527055	100.2358224	100.080717	99.92609685	99.77195952	99.61830282
150710A00025	7/10/2015	2.07	7/10/2020	7/10/2015	100.35584	100.3558364	100.3558364	100.3558364	100.3328281	100.1361358	99.94022515	99.74509158	99.55073037
151002A00011	10/2/2015	1.65	10/2/2020	10/2/2015	100.60025	100.6002451	100.6002451	100.6002451	100.5388707	100.1104374	99.68564407	99.2644445	98.84679332
151002A00038	10/2/2015	2.81	10/2/2025	10/2/2015	113.66478	113.6647807	113.6647807	113.6647807	109.8081837	104.421142	99.33443791	94.52977124	89.99004782
151002A00091	10/2/2015	1.65	10/2/2020	10/2/2015	100.60025	100.6002451	100.6002451	100.6002451	100.5388707	100.1104374	99.68564407	99.2644445	98.84679332
151211A00037	12/11/2017	2.69	1/11/2023	12/11/2017	106.53129	106.5312911	106.5312911	106.5312911	105.5561681	102.85803	100.2428028	97.70740414	95.24888921
160208A00024	2/8/2016	1.64	2/8/2021	2/8/2016	101.08352	101.083518	101.083518	101.083518	100.9167429	100.1347363	99.36480549	98.60667246	97.86006761
160209A00010	2/9/2016	1.57	2/9/2021	2/9/2016	101.03191	101.0319088	101.0319088	101.0319088	100.8642225	100.0797277	99.30739082	98.54693087	97.79807551
160211A00093	2/16/2016	2.62	2/16/2021	2/16/2016	101.91545	101.9154501	101.9154501	101.9154501	101.7404202	100.9329159	100.1382123	99.35600656	98.58600544
160225A00023	2/25/2016	1.66	2/25/2021	2/25/2016	101.16385	101.1638541	101.1638541	101.1638541	100.9808842	100.1524344	99.33752061	98.53581324	97.74699347
160302A00013	3/2/2016	1.63	3/2/2021	3/2/2016	101.28396	101.2839633	101.2839633	101.2839633	101.0957034	100.2514439	99.42122478	98.60469834	97.80152811
160304A00015	3/4/2016	1.82	3/4/2021	3/4/2016	101.32747	101.3274725	101.3274725	101.3274725	101.1376547	100.2894939	99.45550553	98.63533684	97.82864652
081219A00006	12/19/2008	3.88	12/22/2023	12/19/2008	113.87623	113.8762282	113.8762282	113.8762282	112.0894013	108.3408389	104.7401101	101.280537	97.95578398
120419A00009	4/19/2012	2.76	4/19/2022	4/19/2012	104.90628	104.9062823	104.9062823	104.9062823	104.3728368	102.4011091	100.476773	98.59839666	96.76460126
130211A00016	2/11/2013	2.27	2/15/2023	2/11/2013	105.57532	105.5753157	105.5753157	105.5753157	104.5328232	101.7533548	99.06198937	96.45542208	93.93049354
130501A00021	5/1/2013	2.27	5/1/2023	5/1/2013	105.98221	105.9822067	105.9822067	105.9822067	104.7788325	101.7951985	98.91252978	96.12685336	93.43437603
140701A00054	7/2/2014	2.65	7/2/2020	7/2/2014	100.41541	100.4154139	100.4154139	100.4154139	100.3958325	100.2211729	100.0471207	99.87367268	99.70082576
141218A00039	12/18/2014	2.29	12/18/2020	12/18/2014	101.31024	101.3102401	101.3102401	101.3102401	101.1923197	100.5508551	99.91751423	99.29214325	98.67459228
150115A00021	1/17/2017	2.26	1/18/2022	1/17/2017	103.41858	103.4185822	103.4185822	103.4185822	102.9739861	101.2652504	99.59304717	97.95626949	96.35385555
150601A00356	6/1/2015	3.66	9/22/2023	6/1/2015	111.34937	111.3493697	111.3493697	111.3493697	109.7995557	106.3533066	103.0351122	99.83953955	96.76141583
150731A00040	7/31/2015	2.01	7/31/2020	7/31/2015	100.44594	100.4459415	100.4459415	100.4459415	100.4139116	100.1591529	99.90567968	99.65348232	99.40255124
150824A00118	8/24/2015	1.65	8/24/2020	8/24/2015	100.49374	100.4937365	100.4937365	100.4937365	100.4509602	100.1294719	99.81004709	99.49266589	99.17730868
150909A00003	9/9/2015	3.11	9/9/2025	9/9/2015	115.12565	115.1256486	115.1256486	115.1256486	111.359265	105.990415	100.9170159	96.1212787	91.58657317
151030A00022	10/30/2015	1.8	10/30/2020	10/30/2015	100.78505	100.7850524	100.7850524	100.7850524	100.7076205	100.201898	99.70123655	99.20556058	98.714796
160125A00022	1/25/2016	1.74	5/5/2020	1/25/2016	100.01946	100.0194564	100.0194564	100.0194564	100.0182015	100.0043496	99.99051095	99.97668566	99.96287366
160210A00036	2/10/2016	1.77	2/10/2023	2/10/2016	104.65314	104.6531404	104.6531404	104.6531404	103.6196802	100.8561108	98.18007799	95.58827846	93.07755662
160211A00086	2/16/2016	2.8	2/16/2022	2/16/2016	104.57607	104.5760744	104.5760744	104.5760744	104.1050338	102.304436	100.5437417	98.82178221	97.13743279
160216A00040	2/16/2016	1.49	2/16/2021	2/16/2016	101.11208	101.1120775	101.1120775	101.1120775	100.9373105	100.1318687	99.33923366	98.55910176	97.79117892
160216A00051	2/16/2016	1.49	2/16/2021	2/16/2016	101.11208	101.1120775	101.1120775	101.1120775	100.9373105	100.1318687	99.33923366	98.55910176	97.79117892
160303A00020	3/3/2016	2.97	3/3/2031	3/3/2016	131.15347	131.1534714	131.1534714	126.1154394	114.811251	104.4610376	95.16767717	86.81673971	79.30675266

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160316A00009	3/16/2016	1.95	3/16/2021	3/16/2016	101.4947	101.4947042	101.4947042	101.4947042	101.2931275	100.4116682	99.54550501	98.69424237	97.8574981
160331A00056	3/31/2016	2.09	3/30/2023	3/31/2016	105.279	105.2789996	105.2789996	105.2789996	104.1476937	101.2587219	98.46485376	95.76245382	93.14804596
161017A00015	10/17/2016	1.68	10/18/2021	10/17/2016	102.0717	102.0717032	102.0717032	102.0717032	101.7034215	100.2504673	98.82548023	97.42772392	96.05648725
110805A00021	8/5/2011	3.36	8/5/2021	8/5/2011	103.93782	103.9378196	103.9378196	103.9378196	103.6274069	102.3493232	101.1010161	99.88144598	98.68962169
120531A00008	5/31/2012	2.27	5/31/2022	5/31/2012	104.15988	104.1598848	104.1598848	104.1598848	103.575837	101.5005875	99.47730135	97.5043284	95.5800837
141117A00011	11/17/2014	3.81	11/17/2034	11/17/2014	150.57389	150.5738869	150.5738869	139.3251047	123.9937463	110.4156849	98.58736053	88.26867399	79.25386147
141215A00062	12/15/2014	2.65	12/16/2024	12/15/2014	111.85785	111.8578523	111.8578523	111.8578523	109.1078414	104.4591029	100.0368048	95.8286981	91.82326376
150601A00333	6/1/2015	3.06	8/9/2021	6/1/2015	103.52455	103.5245493	103.5245493	103.5245493	103.2115938	101.9271288	100.6714392	99.44355694	98.24255764
150601A00341	6/1/2015	3.09	8/21/2020	6/1/2015	100.87386	100.873857	100.873857	100.873857	100.8323884	100.5188915	100.2073518	99.89775104	99.59007099
150601A00355	6/1/2015	2.86	9/24/2020	6/1/2015	101.04399	101.0439858	101.0439858	101.0439858	100.9864887	100.5789255	100.1746519	99.77362819	99.37581517
150619A00025	6/19/2015	2.01	6/19/2020	6/19/2015	100.23824	100.238242	100.238242	100.238242	100.223542	100.0850381	99.94692881	99.8092125	99.67188746
150624A00075	6/24/2015	2.1	6/24/2020	6/24/2015	100.27723	100.2772255	100.2772255	100.2772255	100.2607026	100.1083285	99.95642427	99.80498764	99.65401649
150731A00036	7/31/2015	2.01	7/31/2020	7/31/2015	100.44594	100.4459415	100.4459415	100.4459415	100.4139116	100.1591529	99.90567968	99.65348232	99.40255124
150812A00040	8/12/2015	2.94	8/12/2025	8/12/2015	114.00709	114.0070935	114.0070935	114.0070935	110.3824686	105.1106817	100.1256913	95.41035986	90.94866539
150909A00017	9/9/2015	2.02	9/9/2020	9/9/2015	100.64709	100.6470854	100.6470854	100.6470854	100.5969082	100.2315574	99.86886299	99.50879619	99.15132839
150929A00085	9/29/2015	1.81	9/29/2020	9/29/2015	100.65614	100.6561422	100.6561422	100.6561422	100.5963712	100.1760314	99.75919192	99.34580922	98.93584052
151002A00014	10/2/2015	1.65	10/2/2020	10/2/2015	100.60025	100.6002451	100.6002451	100.6002451	100.5388707	100.1104374	99.68564407	99.2644445	98.84679332
151027A00020	10/27/2015	1.75	10/27/2020	10/27/2015	100.74719	100.7471852	100.7471852	100.7471852	100.6714809	100.1740888	99.68159959	99.19394111	98.71104255
151215A00010	12/15/2015	2.16	12/15/2020	12/15/2015	101.21067	101.2106654	101.2106654	101.2106654	101.095585	100.4626707	99.83767166	99.22043986	98.61083104
160203A00012	2/3/2016	1.54	2/3/2021	2/3/2016	101.1017	101.1017034	101.1017034	101.1017034	100.9393175	100.1692766	99.41093701	98.66403357	97.92830921
160209A00019	2/9/2016	2.52	2/9/2026	2/9/2016	112.86865	112.8686538	112.8686538	112.8686538	108.348501	102.6745432	97.33548507	92.30979017	87.57741938
160210A00042	2/10/2016	2.57	2/10/2026	2/10/2016	113.16531	113.1653052	113.1653052	113.1653052	108.6353003	102.9505011	97.60125797	92.56599158	87.82462243
160211A00089	2/16/2016	3.91	2/16/2024	2/16/2016	113.84461	113.8446141	113.8446141	113.8446141	111.9328452	108.0537672	104.3326794	100.7622775	97.3356365
160212A00027	2/12/2016	2.53	2/12/2026	2/12/2016	112.94475	112.9447491	112.9447491	112.9447491	108.4069186	102.7231808	97.37535213	92.34181636	87.60245957
160311A00005	3/11/2016	1.91	3/11/2021	3/11/2016	101.43635	101.4363536	101.4363536	101.4363536	101.2396678	100.3720306	99.5192196	98.68085698	97.85657784
160323A00030	3/23/2016	2.22	3/22/2023	3/23/2016	105.61899	105.618993	105.618993	105.618993	104.5031059	101.6296168	98.85004048	96.16081218	93.55852211
160331A00088	3/31/2016	1.69	3/30/2021	3/31/2016	101.31931	101.3193124	101.3193124	101.3193124	101.1043515	100.1858822	99.28402308	98.39832697	97.52836266
160406A00012	4/6/2016	1.62	4/6/2021	4/6/2016	101.27128	101.2712818	101.2712818	101.2712818	101.0502433	100.1132266	99.19351062	98.29061962	97.40409532
160520A00018	9/20/2017	2.34	9/20/2024	9/20/2017	109.04821	109.0482093	109.0482093	109.0482093	106.6020149	102.2603347	98.12074784	94.17282444	90.40672546
160711A00020	8/24/2017	1.59	8/24/2022	8/24/2017	103.03109	103.031089	103.031089	103.031089	102.3232053	100.0370182	97.81299434	95.64908391	93.54331797
160714A00018	9/6/2016	2.28	9/4/2026	9/6/2016	112.58775	112.5877501	112.5877501	112.5877501	106.8724671	100.7316188	94.98532887	89.60625327	84.5690732

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160801A00007	8/1/2016	1.47	8/2/2021	8/1/2016	101.50717	101.5071744	101.5071744	101.5071744	101.2025518	99.94761354	98.72289174	97.52730256	96.3598135
160830A00068	11/30/2016	1.95	11/30/2023	11/30/2016	105.98225	105.9822468	105.9822468	105.9822468	104.3063386	100.7739572	97.38009472	94.11856351	90.9834885
170327A00078	3/27/2019	3.04	3/27/2026	3/27/2019	116.23246	116.2324555	116.2324555	116.2324555	111.4041194	105.5245067	99.99741814	94.79986848	89.91048431
170531A00055	5/31/2017	2.13	5/31/2022	5/31/2017	103.8649	103.8648988	103.8648988	103.8648988	103.2816191	101.2095205	99.18932212	97.21937569	95.29809802
170609A00052	6/11/2018	2.9	6/9/2027	6/11/2018	118.50137	118.5013697	118.5013697	118.2584804	111.0366927	104.0838323	97.62189915	91.6135623	86.02451748
170612A00035	6/12/2017	1.85	6/12/2020	6/12/2017	100.18474	100.184738	100.184738	100.184738	100.1725889	100.0534952	99.93469765	99.81619498	99.69798609
170614A00019	6/14/2017	2.48	6/13/2025	6/14/2017	111.20438	111.204375	111.204375	111.204375	107.8657355	102.8107804	98.02444026	93.4910194	89.19582276
170703A00022	7/3/2017	2.86	7/3/2026	7/3/2017	115.84613	115.8461288	115.8461288	115.8461288	110.4505148	104.3529104	98.6358414	93.27350852	88.24199632
170816A00029	8/16/2017	1.79	8/17/2020	8/16/2017	100.46483	100.4648254	100.4648254	100.4648254	100.4252327	100.1235678	99.82372408	99.52568505	99.22943435
171110A00008	11/10/2017	2.65	11/12/2024	11/10/2017	110.71492	110.7149195	110.7149195	110.7149195	108.0996415	103.5897794	99.29560568	95.20566659	91.30917727
171110A00019	5/4/2018	2.46	5/4/2023	5/4/2018	106.5759	106.5758988	106.5758988	106.5758988	105.3632917	102.3629652	99.46428737	96.66325127	93.95603139
180104A00016	1/4/2018	2.56	1/4/2023	1/4/2018	106.13295	106.1329482	106.1329482	106.1329482	105.173395	102.4988372	99.90603487	97.39196741	94.9537479
180417A00028	4/17/2018	2.88	4/16/2021	4/17/2018	102.53511	102.5351065	102.5351065	102.5351065	102.3041644	101.3335289	100.3812964	99.44694683	98.52997962
180621A00031	6/21/2018	3.07	6/21/2023	6/21/2018	108.79609	108.7960894	108.7960894	108.7960894	107.4677188	104.3072424	101.2569983	98.31249294	95.46944509
110706A00010	7/6/2011	3.93	7/6/2021	7/6/2011	104.37697	104.376968	104.376968	104.376968	104.0868245	102.8851164	101.7112206	100.5641788	99.44307578
110927A00009	9/27/2011	3.07	9/27/2021	9/27/2011	103.97469	103.9746875	103.9746875	103.9746875	103.621192	102.2093929	100.8237526	99.46360645	98.12831201
111024A00013	10/24/2011	3.24	10/25/2021	10/24/2011	104.44645	104.4464542	104.4464542	104.4464542	104.0680705	102.5782677	101.1174536	99.6848558	98.27972853
140625A00021	6/27/2016	3.2	6/25/2021	6/27/2016	103.41345	103.4134478	103.4134478	103.4134478	103.1317925	101.9660306	100.8266188	99.71267055	98.62333885
140923A00069	9/23/2014	2.63	9/23/2021	9/23/2014	103.32071	103.3207089	103.3207089	103.3207089	102.9716241	101.5755894	100.2052477	98.85995104	97.53907244
150115A00022	1/17/2017	2.56	1/16/2024	1/17/2017	108.48117	108.4811676	108.4811676	108.4811676	106.6797314	102.9830643	99.43503192	96.0288056	92.75791356
150601A00246	6/1/2015	2	12/9/2022	6/1/2015	104.89683	104.8968323	104.8968323	104.8968323	103.9883233	101.3873698	98.86465855	96.41735473	94.04274598
150601A00677	6/1/2015	2.39	1/30/2025	6/1/2015	110.75429	110.7542908	110.7542908	110.7542908	107.8709618	103.1353622	98.63597086	94.35970996	90.29430155
150601A00713	6/1/2015	2.2	4/1/2022	6/1/2015	103.63429	103.6342877	103.6342877	103.6342877	103.1242487	101.2139264	99.34845898	97.52652455	95.74684902
150821A00008	8/21/2015	1.83	8/21/2020	8/21/2015	100.49445	100.4944519	100.4944519	100.4944519	100.4530754	100.1403395	99.82955713	99.5207101	99.21378027
150929A00031	9/29/2015	1.81	9/29/2020	9/29/2015	100.65614	100.6561422	100.6561422	100.6561422	100.5963712	100.1760314	99.75919192	99.34580922	98.93584052
151002A00053	10/2/2017	2.17	10/4/2021	10/2/2017	102.72647	102.7264698	102.7264698	102.7264698	102.3690722	100.9478711	99.55334565	98.18481009	96.8416018
151027A00021	10/27/2015	2.02	10/27/2021	10/27/2015	102.62008	102.6200842	102.6200842	102.6200842	102.2431585	100.7623589	99.31050001	97.88680835	96.49053729
160210A00050	2/10/2016	1.64	2/10/2021	2/10/2016	101.091	101.0910042	101.0910042	101.0910042	100.9223251	100.134861	99.35964229	98.59638502	97.84481395
160211A00034	2/11/2016	1.82	2/10/2023	2/11/2016	104.28392	104.2839213	104.2839213	104.2839213	103.2568617	100.5097664	97.84949319	95.27277314	92.77648287
160212A00014	2/12/2016	1.61	2/12/2021	2/12/2016	101.07452	101.0745187	101.0745187	101.0745187	100.9039536	100.1111379	99.33073655	98.56245971	97.80602645
160711A00016	7/11/2016	1.42	7/12/2021	7/11/2016	101.38937	101.3893728	101.3893728	101.3893728	101.099135	99.90024079	98.72961022	97.58625337	96.46922609

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
161031A00027	10/31/2016	1.51	10/30/2020	10/31/2016	100.63775	100.6377469	100.6377469	100.6377469	100.560374	100.0550851	99.55485406	99.05960542	98.56926511
161115A00021	11/15/2016	2.02	11/15/2021	11/15/2016	102.71107	102.7110743	102.7110743	102.7110743	102.3182897	100.7853447	99.28300073	97.81041328	96.36676854
170404A00003	4/4/2017	2.74	4/4/2025	4/4/2017	112.07813	112.0781295	112.0781295	112.0781295	108.9873997	104.0841667	99.43265071	95.01863112	90.8287621
170518A00008	5/18/2018	3.06	5/18/2028	5/18/2018	122.21347	122.2134689	122.2134689	120.9301383	112.6891561	104.85499	97.63653154	90.9819327	84.84396962
130211A00035	2/11/2013	2.27	2/15/2023	2/11/2013	105.57532	105.5753157	105.5753157	105.5753157	104.5328232	101.7533548	99.06198937	96.45542208	93.93049354
130827A00012	8/27/2013	3.66	7/31/2023	8/27/2013	111.03739	111.0373919	111.0373919	111.0373919	109.6089362	106.3078522	103.124838	100.0549406	97.0934494
130827A00014	8/27/2013	2.73	8/31/2020	8/27/2013	100.89245	100.8924528	100.8924528	100.8924528	100.8464583	100.5048247	100.1654998	99.82846048	99.4936836
140626A00028	6/27/2016	2.99	6/29/2020	6/27/2016	100.45227	100.4522737	100.4522737	100.4522737	100.4339096	100.2674934	100.1016266	99.93630627	99.77152986
141002A00030	10/2/2014	2.33	10/2/2020	10/2/2014	100.89283	100.8928306	100.8928306	100.8928306	100.8313587	100.4021748	99.97663546	99.55469457	99.13630662
150120A00025	1/20/2015	2.54	1/21/2025	1/20/2015	110.64101	110.6410141	110.6410141	110.6410141	107.8089881	103.1261777	98.67515594	94.44318253	90.4182904
150601A00998	6/1/2015	5.37	10/25/2034	6/1/2015	171.66763	171.6676322	171.6676322	160.00453	143.4365388	128.6098673	115.641538	104.2809127	94.31275601
150630A00119	6/30/2015	2.05	6/30/2020	6/30/2015	100.30058	100.3005755	100.3005755	100.3005755	100.2818682	100.1128821	99.94446097	99.7766019	99.60930216
150814A00024	8/14/2015	2.04	8/14/2020	8/14/2015	100.52271	100.5227108	100.5227108	100.5227108	100.4844418	100.1909593	99.89920042	99.60914986	99.32079259
151013A00007	10/13/2015	1.75	10/13/2020	10/13/2015	100.68899	100.6889936	100.6889936	100.6889936	100.6213052	100.162457	99.70779349	99.25725762	98.81079321
151030A00001	10/30/2015	1.9	10/30/2020	10/30/2015	100.83585	100.8358474	100.8358474	100.8358474	100.7583952	100.2525232	99.75171327	99.25588994	98.76497907
151211A00040	12/11/2017	2.7	2/13/2023	12/11/2017	106.77649	106.7764945	106.7764945	106.7764945	105.7333268	102.9426494	100.2401401	97.62248976	95.08653564
160209A00007	2/9/2016	1.53	2/9/2021	2/9/2016	101.00028	101.0002789	101.0002789	101.0002789	100.832616	100.0482587	99.27605779	98.51573236	97.76701008
160209A00049	2/9/2016	1.92	2/9/2023	2/9/2016	104.56053	104.5605325	104.5605325	104.5605325	103.5344282	100.7862877	98.12489359	95.54697809	93.04941946
160210A00053	2/10/2016	1.99	2/10/2023	2/10/2016	104.76164	104.7616446	104.7616446	104.7616446	103.732687	100.9788866	98.31206843	95.72895845	93.22642834
160222A00019	2/22/2016	3.09	2/21/2031	2/22/2016	130.03322	130.0332213	130.0332213	125.1341537	114.0426427	103.867266	94.72422509	86.50232197	79.10289503
160309A00015	3/9/2016	1.84	3/9/2021	3/9/2016	101.36643	101.3664331	101.3664331	101.3664331	101.1717427	100.3098544	99.46260241	98.62961639	97.81053825
160315A00003	3/15/2016	1.88	3/15/2021	3/15/2016	101.42808	101.4280772	101.4280772	101.4280772	101.2275265	100.3490959	99.48586388	98.63743855	97.8034413
160404A00040	4/4/2016	1.65	4/5/2021	4/4/2016	101.29586	101.2958636	101.2958636	101.2958636	101.0756661	100.1412255	99.2239864	98.32347741	97.43924413
160516A00008	5/16/2016	1.42	5/18/2020	5/16/2016	100.0555	100.0554993	100.0554993	100.0554993	100.050982	100.0011294	99.95134291	99.9016223	99.85196749
160627A00021	6/27/2016	1.24	6/25/2020	6/27/2016	100.14852	100.1485197	100.1485197	100.1485197	100.1316498	99.97667237	99.82217974	99.66816964	99.51463981
161031A00028	10/31/2016	1.51	10/30/2020	10/31/2016	100.63775	100.6377469	100.6377469	100.6377469	100.560374	100.0550851	99.55485406	99.05960542	98.56926511
170404A00002	4/4/2017	2.42	4/4/2023	4/4/2017	106.27917	106.2791724	106.2791724	106.2791724	105.1328142	102.2160115	99.39553884	96.66769874	94.02895658
170405A00031	4/5/2017	2.22	4/4/2022	4/5/2017	103.75157	103.7515733	103.7515733	103.7515733	103.2378746	101.3183144	99.44400883	97.61361868	95.82585314
170519A00019	5/19/2017	2	11/19/2021	5/19/2017	102.69873	102.6987268	102.6987268	102.6987268	102.3026938	100.7589445	99.2461317	97.76339609	96.30990988
170622A00044	6/22/2017	2.38	6/21/2024	6/22/2017	108.70458	108.704583	108.704583	108.704583	106.5104729	102.4049002	98.48100668	94.72976431	91.14264559
170918A00051	12/18/2017	2.24	12/19/2022	12/18/2017	105.18037	105.1803662	105.1803662	105.1803662	104.2556106	101.6353062	99.09419812	96.62939929	94.23814831

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
171110A00006	11/10/2017	2.11	11/10/2020	11/10/2017	100.99898	100.9989784	100.9989784	100.9989784	100.913233	100.3767326	99.84593103	99.32073775	98.8010641
171219A00032	12/19/2017	2.42	12/20/2021	12/19/2017	103.52627	103.5262708	103.5262708	103.5262708	103.1042064	101.4710182	99.871602	98.30497541	96.77019427
180124A00073	1/24/2018	2.46	1/25/2021	1/24/2018	101.65235	101.6523536	101.6523536	101.6523536	101.4984414	100.7519922	100.0165022	99.29173139	98.57744661
180201A00022	2/1/2018	2.99	2/3/2025	2/1/2018	112.8792	112.8791989	112.8791989	112.8791989	109.9827028	105.2149861	100.6841057	96.37699107	92.28136764
180205A00047	2/5/2018	2.56	2/5/2021	2/5/2018	101.79728	101.7972848	101.7972848	101.7972848	101.6328191	100.8557871	100.0906142	99.33703045	98.59477395
180518A00046	5/25/2018	3.62	5/18/2027	5/25/2018	123.43773	123.4377271	123.4377271	123.2599803	115.9878601	108.9187528	102.3418328	96.22006329	90.51938236
180628A00020	6/28/2018	2.79	6/29/2020	6/28/2018	100.41895	100.4189519	100.4189519	100.4189519	100.4005921	100.2342179	100.0683929	99.90311427	99.73837944
180821A00029	8/21/2018	3.01	8/21/2023	8/21/2018	109.06194	109.0619354	109.0619354	109.0619354	107.5967706	104.2735215	101.0712165	97.98479557	95.00943995
190315A00039	3/15/2019	2.64	9/15/2021	3/15/2019	103.28287	103.2828665	103.2828665	103.2828665	102.9405375	101.5666026	100.2175992	98.89290693	97.59192561
190318A00017	3/19/2019	2.7	3/18/2022	3/19/2019	104.5744	104.5743971	104.5743971	104.5743971	104.0758324	102.1931312	100.353813	98.55662254	96.80034871
190322A00024	3/22/2019	2.55	3/22/2021	3/22/2019	102.0654	102.0653987	102.0653987	102.0653987	101.8575028	100.9570031	100.0723989	99.20327178	98.34921811
190329A00012	3/29/2019	2.61	3/29/2024	3/29/2019	109.13181	109.1318052	109.1318052	109.1318052	107.1492954	103.2506007	99.51607652	95.93796473	92.50891401
190422A00030	4/22/2019	2.93	12/22/2025	4/22/2019	114.90029	114.9002883	114.9002883	114.9002883	110.6159949	105.0020416	99.71170308	94.72458472	90.02168468
190529A00078	5/29/2019	2.39	11/30/2020	5/29/2019	101.2679	101.2678955	101.2678955	101.2678955	101.1667216	100.5746027	99.98939383	99.41097462	98.83922756
190530A00049	5/30/2019	2.44	5/30/2023	5/30/2019	106.66895	106.6689471	106.6689471	106.6689471	105.3991199	102.3304192	99.36742026	96.50587903	93.74174826
120614A00005	6/14/2012	2.22	6/15/2022	6/14/2012	104.52387	104.5238666	104.5238666	104.5238666	103.915475	101.7881726	99.71499877	97.69420122	95.72409841
140811A00037	8/11/2016	2.97	8/11/2020	8/11/2016	100.77385	100.7738533	100.7738533	100.7738533	100.7368616	100.4511738	100.1671153	99.88467226	99.60383083
140923A00070	9/23/2014	2.88	9/23/2022	9/23/2014	106.26535	106.2653528	106.2653528	106.2653528	105.4971766	103.0923494	100.7547455	98.48211369	96.2722912
150126A00024	1/26/2015	1.9	6/22/2020	1/26/2015	100.2363	100.2362958	100.2362958	100.2362958	100.2205062	100.0737197	99.92737224	99.78146192	99.63598675
150601A00211	6/1/2015	2.63	9/25/2020	6/1/2015	100.95812	100.9581233	100.9581233	100.9581233	100.9001734	100.4900713	100.0833006	99.6798207	99.27959186
150601A00672	6/1/2015	1.96	1/28/2022	6/1/2015	102.89174	102.8917374	102.8917374	102.8917374	102.4403662	100.7100701	99.01722288	97.36067408	95.73932099
150630A00091	6/30/2015	2.31	6/30/2021	6/30/2015	102.40254	102.4025399	102.4025399	102.4025399	102.119036	100.9460239	99.79986764	98.67965323	97.58450775
150731A00020	7/31/2015	2.47	7/29/2022	7/31/2015	104.93535	104.9353493	104.9353493	104.9353493	104.2633841	102.02262	99.84113527	97.71691995	95.64805015
150812A00026	8/12/2015	1.86	8/12/2020	8/12/2015	100.46086	100.4608645	100.4608645	100.4608645	100.4234982	100.1356422	99.84944504	99.56489226	99.28196965
150929A00024	9/29/2015	1.81	9/29/2020	9/29/2015	100.65614	100.6561422	100.6561422	100.6561422	100.5963712	100.1760314	99.75919192	99.34580922	98.93584052
151002A00007	10/2/2015	1.65	10/2/2020	10/2/2015	100.60025	100.6002451	100.6002451	100.6002451	100.5388707	100.1104374	99.68564407	99.2644445	98.84679332
151002A00067	10/2/2015	1.48	10/2/2020	10/2/2015	100.58631	100.5863062	100.5863062	100.5863062	100.5248342	100.0957417	99.67030375	99.2484737	98.83020585
151211A00041	12/11/2017	2.71	3/13/2023	12/11/2017	106.98997	106.9899733	106.9899733	106.9899733	105.8873607	103.0171299	100.239826	97.55195115	94.95015857
160203A00013	2/3/2016	1.72	2/3/2021	2/3/2016	101.13435	101.1343518	101.1343518	101.1343518	100.9722647	100.2035071	99.4464099	98.70070961	97.96615045
160205A00004	2/5/2016	1.7	2/5/2021	2/5/2016	101.12675	101.1267476	101.1267476	101.1267476	100.9627662	100.1886111	99.42628409	98.67551571	97.93604467
160209A00026	2/9/2016	1.57	2/8/2021	2/9/2016	101.02836	101.0283596	101.0283596	101.0283596	100.8616251	100.0798575	99.31016309	98.55226391	97.8058904

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160211A00005	2/11/2016	1.3	2/11/2021	2/11/2016	100.9418	100.9417978	100.9417978	100.9417978	100.7719162	99.9808143	99.20208311	98.43543422	97.68058809
160211A00036	2/11/2016	2.41	2/11/2026	2/11/2016	112.24079	112.2407862	112.2407862	112.2407862	107.7187627	102.0572578	96.73052378	91.71701221	86.9966729
160212A00002	2/12/2016	1.58	11/17/2020	2/12/2016	100.73922	100.7392206	100.7392206	100.7392206	100.648237	100.0934071	99.5446843	99.00196795	98.46515977
160212A00005	2/12/2016	1.42	2/16/2021	2/12/2016	101.05533	101.0553298	101.0553298	101.0553298	100.8806062	100.075417	99.28303177	98.50314686	97.73546827
160216A00007	2/16/2016	1.68	2/16/2021	2/16/2016	101.15388	101.1538778	101.1538778	101.1538778	100.979431	100.1753113	99.3839544	98.60505824	97.83833022
160212A00037	2/12/2016	3.03	2/12/2031	2/12/2016	129.32083	129.3208301	129.3208301	124.4613708	113.4246279	103.3016714	94.20442995	86.02257339	78.65819693
160223A00012	2/23/2016	1.89	2/23/2023	2/23/2016	105.05461	105.0546067	105.0546067	105.0546067	103.9926295	101.1862261	98.4697221	95.83975143	93.29309382
160229A00028	2/29/2016	1.74	3/1/2021	2/29/2016	101.24682	101.246822	101.246822	101.246822	101.0599742	100.2203147	99.39454793	98.58233157	97.7833344
160406A00009	4/6/2016	1.62	4/6/2021	4/6/2016	101.27128	101.2712818	101.2712818	101.2712818	101.0502433	100.1132266	99.19351062	98.29061962	97.40409532
160629A00021	6/29/2016	1.32	6/29/2020	6/29/2016	100.17404	100.1740367	100.1740367	100.1740367	100.155709	99.98964299	99.82412523	99.65915306	99.49472383
170327A00077	3/27/2019	2.74	3/27/2024	3/27/2019	109.6313	109.6313027	109.6313027	109.6313027	107.6501514	103.7468245	100.0075443	96.42457095	92.99056958
170327A00079	3/27/2019	3.19	3/29/2027	3/27/2019	120.00503	120.0050347	120.0050347	119.9725984	112.9192313	106.0777563	99.70633665	93.77013695	88.23707401
170327A00080	3/27/2019	3.43	3/27/2029	3/27/2019	127.84291	127.842912	127.842912	125.5432047	116.2965996	107.5793014	99.60675245	92.31092674	85.63035044
170331A00032	3/31/2017	2.03	3/31/2021	3/31/2017	101.63923	101.6392338	101.6392338	101.6392338	101.4230075	100.5002275	99.59417375	98.70439481	97.83045548
180130A00063	1/30/2018	2.63	1/31/2022	1/30/2018	104.14633	104.1463311	104.1463311	104.1463311	103.6899547	101.9403979	100.2288028	98.55399944	96.9148662
180130A00064	1/30/2018	2.75	1/30/2023	1/30/2018	106.82369	106.8236891	106.8236891	106.8236891	105.8092479	103.0577957	100.392176	97.80914367	95.30560151
180612A00031	6/12/2018	3.04	6/13/2022	6/12/2018	105.88061	105.880607	105.880607	105.880607	105.2737548	103.1446577	101.0694231	99.04631622	97.07367181
180726A00045	7/26/2018	3.1	7/26/2022	7/26/2018	106.3421	106.3420976	106.3420976	106.3420976	105.6706305	103.4216302	101.2318671	99.09934053	97.02213511
181015A00034	4/15/2019	3.25	4/15/2021	4/15/2019	102.8871	102.8871041	102.8871041	102.8871041	102.6566809	101.6869211	100.7354861	99.80185977	98.88554496
181029A00051	2/5/2019	3.69	2/5/2029	2/5/2019	129.70383	129.7038305	129.7038305	127.563345	118.3919474	109.7067569	101.7510059	94.45901488	87.77135912
181206A00018	12/6/2018	3.13	12/6/2023	12/6/2018	110.29616	110.2961628	110.2961628	110.2961628	108.5797455	104.9549268	101.4719482	98.12446734	94.90646311
181220A00076	12/20/2018	3.02	1/20/2023	12/20/2018	107.49904	107.4990446	107.4990446	107.4990446	106.5021136	103.7673095	101.1170627	98.54820569	96.05771386
190122A00017	1/22/2019	2.94	5/2/2022	1/22/2019	105.35949	105.3594916	105.3594916	105.3594916	104.8098683	102.7983981	100.8360453	98.92130056	97.05271144
190206A00009	2/12/2019	2.84	2/11/2022	2/12/2019	104.59575	104.5957501	104.5957501	104.5957501	104.1290259	102.3431889	100.5966614	98.8882742	97.21690354
190425A00041	4/25/2019	2.56	6/15/2021	4/25/2019	102.60317	102.60317	102.60317	102.60317	102.3288272	101.1951231	100.0864904	99.00210396	97.94117456
190529A00077	5/29/2019	2.48	5/29/2020	5/29/2019	100.174	100.1740039	100.1740039	100.1740039	100.1667212	100.0863629	100.0061355	99.9260385	99.84607173
170622A00045	6/22/2017	2.76	6/22/2027	6/22/2017	117.5895	117.5895048	117.5895048	117.3086787	110.071986	103.120652	96.6629369	90.6611199	85.08055324
170726A00025	7/26/2017	2.14	7/26/2022	7/26/2017	104.17099	104.1709883	104.1709883	104.1709883	103.5057343	101.2815341	99.11605489	97.0073113	94.95340264
170816A00030	8/16/2017	1.95	8/16/2021	8/16/2017	102.18266	102.182655	102.182655	102.182655	101.8662051	100.5749951	99.31073797	98.07259468	96.85976108
171219A00031	12/19/2017	2.42	12/20/2021	12/19/2017	103.52627	103.5262708	103.5262708	103.5262708	103.1042064	101.4710182	99.871602	98.30497541	96.77019427
171229A00031	12/29/2017	2.36	12/29/2020	12/29/2017	101.41962	101.4196182	101.4196182	101.4196182	101.291422	100.6195281	99.9565251	99.30223757	98.65649456

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180105A00021	1/5/2018	2.33	1/5/2021	1/5/2018	101.43972	101.4397215	101.4397215	101.4397215	101.304912	100.6138362	99.9321694	99.25972036	98.59630305
180110A00011	1/10/2018	2.38	1/11/2021	1/10/2018	101.50981	101.5098114	101.5098114	101.5098114	101.3692677	100.6615534	99.96370733	99.27552399	98.59680355
180131A00022	1/31/2018	2.96	1/30/2025	1/31/2018	112.70643	112.7064304	112.7064304	112.7064304	109.8248549	105.0718772	100.5545491	96.25987774	92.17566212
180403A00024	4/3/2018	2.96	4/3/2023	4/3/2018	107.86814	107.8681371	107.8681371	107.8681371	106.7170893	103.7795562	100.9387562	98.19098314	95.53269365
180404A00018	4/4/2018	2.89	4/4/2022	4/4/2018	105.05786	105.0578574	105.0578574	105.0578574	104.5410702	102.6085397	100.7215131	98.87864415	97.07863523
180518A00025	5/18/2018	2.96	5/18/2021	5/18/2018	102.85096	102.8509615	102.8509615	102.8509615	102.5948819	101.5356321	100.4982411	99.48203707	98.48637536
180518A00041	5/25/2018	3.32	5/20/2024	5/25/2018	112.36485	112.3648488	112.3648488	112.3648488	110.226204	106.1292851	102.2096829	98.45876038	94.86834916
180518A00071	5/25/2018	3.56	5/18/2026	5/25/2018	119.78074	119.7807429	119.7807429	119.7807429	114.5938037	108.4889069	102.7562968	97.37123212	92.31074271
180613A00046	6/13/2018	3	1/13/2022	6/13/2018	104.66856	104.6685552	104.6685552	104.6685552	104.2253423	102.518699	100.8482931	99.21303474	97.61187802
180613A00047	6/13/2018	3.17	1/12/2024	6/13/2018	110.73417	110.7341684	110.7341684	110.7341684	108.9276058	105.1996443	101.6207627	98.18413962	94.88330897
180615A00039	6/15/2018	3.49	6/15/2028	6/15/2018	125.92277	125.9227733	125.9227733	124.5485285	116.1255269	108.0905914	100.6891582	93.86760064	87.57710522
180720A00022	7/20/2018	2.88	7/20/2020	7/20/2018	100.58601	100.5860061	100.5860061	100.5860061	100.5586713	100.3340511	100.1104449	99.88784588	99.66624707
180912A00017	9/12/2018	3.13	9/12/2023	9/12/2018	109.63402	109.6340238	109.6340238	109.6340238	108.1163598	104.7258471	101.4606444	98.31547059	95.28529463
181003A00023	10/3/2018	3.17	4/4/2022	10/3/2018	105.60377	105.6037671	105.6037671	105.6037671	105.0856892	103.1477383	101.2553955	99.40731151	97.60218595
181113A00073	11/13/2018	3.17	11/13/2020	11/13/2018	101.59396	101.5939575	101.5939575	101.5939575	101.5056525	100.9590624	100.4183625	99.88345795	99.35425572
181120A00035	11/20/2018	3.12	4/15/2021	11/20/2018	102.7609	102.7608989	102.7608989	102.7608989	102.5306012	101.561501	100.610717	99.677733	98.76205218
160711A00022	1/10/2018	1.91	1/10/2025	1/10/2018	107.59271	107.5927095	107.5927095	107.5927095	104.8259195	100.2403562	95.88148762	91.73689636	87.79491505
160712A00019	7/12/2017	2.32	7/12/2027	7/12/2017	114.54569	114.5456928	114.5456928	114.2055876	106.9860921	100.0946924	93.69809784	87.75816234	82.23987292
160729A00017	7/31/2017	2.47	7/31/2029	7/31/2017	120.02468	120.0246764	120.0246764	117.3187371	108.0209114	99.3773116	91.50602793	84.333725	77.79439544
161005A00007	10/5/2016	1.51	10/5/2020	10/5/2016	100.55048	100.5504789	100.5504789	100.5504789	100.4874079	100.0508725	99.61812276	99.18910942	98.76378428
161221A00053	12/23/2016	3.05	12/23/2021	12/23/2016	104.5947	104.594702	104.594702	104.594702	104.1682061	102.5179256	100.9018544	99.31899342	97.76838285
170628A00044	10/9/2018	2.12	10/8/2021	10/9/2018	102.67448	102.6744759	102.6744759	102.6744759	102.3137344	100.8824064	99.47813865	98.10023072	96.74800577
170703A00024	7/3/2017	2.95	7/6/2027	7/3/2017	119.05174	119.0517362	119.0517362	118.7293084	111.42104	104.3890443	97.85773406	91.78871263	86.14672423
170908A00021	9/8/2017	1.96	9/8/2022	9/8/2017	103.96633	103.9663285	103.9663285	103.9663285	103.2308418	100.8940817	98.62177654	96.41180057	94.26211022
180312A00014	3/12/2018	3	3/13/2023	3/12/2018	107.82967	107.8296716	107.8296716	107.8296716	106.7235544	103.8411977	101.0520634	98.35264435	95.73958435
180515A00022	5/15/2018	3.19	5/15/2023	5/15/2018	108.88191	108.8819115	108.8819115	108.8819115	107.6346517	104.5707747	101.6111302	98.75158242	95.98818455
180524A00003	5/24/2018	2.91	5/24/2021	5/24/2018	102.8417	102.8417007	102.8417007	102.8417007	102.5814215	101.5059433	100.4529938	99.42187038	98.41189921
180621A00068	6/21/2018	3.32	6/23/2025	6/21/2018	115.615	115.6149996	115.6149996	115.6149996	112.1853902	106.9949303	102.0798837	97.42413405	93.0125955
180626A00026	6/26/2018	2.92	6/25/2021	6/26/2018	103.08657	103.0865682	103.0865682	103.0865682	102.8053287	101.6415877	100.5041649	99.3921746	98.30477065
180713A00024	7/13/2018	2.96	7/13/2021	7/13/2018	103.26713	103.2671273	103.2671273	103.2671273	102.9737018	101.7600554	100.5749971	99.41752504	98.28668354
180821A00039	8/21/2018	2.99	7/21/2023	8/21/2018	108.76499	108.764992	108.764992	108.764992	107.3704049	104.1320657	101.0090767	97.99662805	95.09014357

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180911A00007	9/11/2018	3.12	9/8/2023	9/11/2018	109.56902	109.5690208	109.5690208	109.5690208	108.0607421	104.6819598	101.4276854	98.29268708	95.2719805
180925A00033	9/25/2018	3.26	9/25/2023	9/25/2018	110.1817	110.1816957	110.1816957	110.1816957	108.6316432	105.1972939	101.891036	98.70741954	95.6412554
181001A00031	10/1/2018	3.23	9/29/2023	10/1/2018	110.11088	110.1108759	110.1108759	110.1108759	108.5521892	105.108412	101.7934753	98.60188017	95.52839241
181119A00020	11/19/2018	3.06	11/19/2020	11/19/2018	101.58041	101.5804058	101.5804058	101.5804058	101.4875067	100.9244919	100.3677255	99.81710382	99.2725253
181203A00033	12/3/2018	3.1	12/3/2020	12/3/2018	101.71328	101.7132807	101.7132807	101.7132807	101.609096	101.0072501	100.4125258	99.82479747	99.24394204
181210A00068	12/10/2018	3.34	12/10/2025	12/10/2018	117.12839	117.1283884	117.1283884	117.1283884	112.8767229	107.2304801	101.9071399	96.88648106	92.149655
190621A00034	6/21/2019	2.17	6/15/2023	6/21/2019	105.91153	105.9115333	105.9115333	105.9115333	104.6103094	101.5110913	98.51991951	95.63240131	92.84435088
190722A00047	11/22/2019	2.03	11/22/2021	11/22/2019	102.76038	102.760381	102.760381	102.760381	102.3617817	100.8093535	99.28812505	97.79722574	96.33581693
190722A00056	12/19/2019	2.02	12/20/2021	12/19/2019	102.86243	102.8624302	102.8624302	102.8624302	102.4416624	100.8141452	99.22029788	97.65914112	96.12973339
190815A00041	8/15/2019	1.86	8/15/2024	8/15/2019	106.76945	106.7694482	106.7694482	106.7694482	104.4432771	100.2407578	96.23046236	92.40259077	88.74789638
190829A00016	8/29/2019	1.82	8/29/2022	8/29/2019	103.59075	103.5907473	103.5907473	103.5907473	102.873176	100.5674367	98.32465493	96.14276735	94.01979052
180727A00017	7/27/2018	3.16	7/27/2023	7/27/2018	109.36541	109.3654149	109.3654149	109.3654149	107.9544634	104.690912	101.5440085	98.50886895	95.58084794
180821A00040	8/21/2018	2.99	8/21/2023	8/21/2018	108.99516	108.9951644	108.9951644	108.9951644	107.530355	104.2082101	101.0069795	97.92160414	94.9472663
180910A00037	9/10/2018	3.03	9/9/2022	9/10/2018	106.5236	106.523602	106.523602	106.523602	105.7785265	103.408366	101.1034637	98.86166669	96.68090583
180919A00013	9/19/2018	3.14	9/19/2022	9/19/2018	106.86435	106.8643452	106.8643452	106.8643452	106.1011144	103.6997935	101.3652703	99.09531743	96.88779533
181130A00022	11/30/2018	3.06	5/29/2020	11/30/2018	100.22071	100.2207137	100.2207137	100.2207137	100.2134274	100.1330304	100.0527643	99.97262868	99.89262335
181220A00041	12/20/2018	3.36	12/18/2026	12/20/2018	120.34599	120.3459946	120.3459946	120.3459946	113.8539313	107.2340615	101.0521317	95.27675158	89.87894286
181220A00079	12/20/2018	3.23	6/20/2025	12/20/2018	115.12484	115.1248422	115.1248422	115.1248422	111.7129622	106.5423987	101.645998	97.00773333	92.61260114
181227A00001	12/27/2018	2.92	12/27/2021	12/27/2018	104.40695	104.4069485	104.4069485	104.4069485	103.9776992	102.3184241	100.6936951	99.1024981	97.54385841
190122A00018	1/22/2019	2.98	12/1/2022	1/22/2019	107.01841	107.0184095	107.0184095	107.0184095	106.1220092	103.5242415	101.0037394	98.55773281	96.18357009
190221A00009	2/21/2019	2.81	2/22/2021	2/21/2019	102.10325	102.1032512	102.1032512	102.1032512	101.9223876	101.0978179	100.2865726	99.48833066	98.7027812
190311A00076	3/14/2019	2.88	9/16/2024	3/14/2019	111.40985	111.4098483	111.4098483	111.4098483	108.9544401	104.5720381	100.3924925	96.40537477	92.60084518
190327A00027	3/27/2019	2.66	1/15/2025	3/27/2019	111.17365	111.173653	111.173653	111.173653	108.3555457	103.6751838	99.22563007	94.9942413	90.96913876
190530A00028	5/30/2019	2.35	5/28/2021	5/30/2019	102.26059	102.260589	102.260589	102.260589	101.9981808	100.9152267	99.8552013	98.81738231	97.80107754
190607A00041	6/7/2019	2.12	6/7/2022	6/7/2019	103.87899	103.8789859	103.8789859	103.8789859	103.2858653	101.1947006	99.15625499	97.16884051	95.23083654
191002A00042	1/13/2020	1.76	1/13/2023	1/13/2020	104.00282	104.002817	104.002817	104.002817	103.033276	100.3645093	97.77813856	95.27109046	92.84042939
191002A00044	2/3/2020	1.75	2/3/2023	2/3/2020	104.05967	104.0596717	104.0596717	104.0596717	103.0478632	100.3237372	97.68518328	95.12896453	92.65199079
190530A00018	5/30/2019	2.36	5/28/2021	5/30/2019	102.27149	102.271488	102.271488	102.271488	102.0090672	100.9260498	99.86596211	98.82808174	97.81171647
190530A00066	5/30/2019	2.44	5/30/2023	5/30/2019	106.66895	106.6689471	106.6689471	106.6689471	105.3991199	102.3304192	99.36742026	96.50587903	93.74174826
190815A00040	8/15/2019	1.86	8/15/2023	8/15/2019	105.1967	105.1966983	105.1966983	105.1966983	103.7653286	100.521194	97.39521824	94.38244146	91.47814213
190829A00072	8/29/2019	1.81	12/15/2022	8/29/2019	104.01804	104.0180427	104.0180427	104.0180427	103.1052412	100.5107346	97.99451469	95.55373568	93.18567511

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190917A00030	1/10/2020	2.03	1/10/2023	1/10/2020	104.72635	104.726351	104.726351	104.726351	103.7600606	101.08912	98.50036739	95.99074674	93.55733859
160225A00024	2/25/2016	2.22	2/26/2024	2/25/2016	107.4236	107.4235992	107.4235992	107.4235992	105.5313501	101.7464117	98.11796514	94.63874444	91.30185846
160304A00016	3/4/2016	1.82	3/4/2021	3/4/2016	101.32747	101.3274725	101.3274725	101.3274725	101.1376547	100.2894939	99.45550553	98.63533684	97.82864652
160422A00019	4/22/2016	1.69	4/22/2021	4/22/2016	101.39998	101.3999806	101.3999806	101.3999806	101.1649862	100.1841035	99.22216021	98.27861199	97.35293513
160516A00007	5/16/2016	1.42	5/18/2020	5/16/2016	100.0555	100.0554993	100.0554993	100.0554993	100.050982	100.0011294	99.95134291	99.9016223	99.85196749
160520A00017	9/20/2017	2.34	9/20/2024	9/20/2017	109.04821	109.0482093	109.0482093	109.0482093	106.6020149	102.2603347	98.12074784	94.17282444	90.40672546
160524A00015	11/25/2016	2.71	11/25/2026	11/25/2016	115.86566	115.8656624	115.8656624	115.8656624	109.5987948	103.1721844	97.16988991	91.56163964	86.31947356
160527A00021	5/27/2016	1.68	5/27/2021	5/27/2016	101.52645	101.5264529	101.5264529	101.5264529	101.2655955	100.1895949	99.13634793	98.10513916	97.09528276
160601A00021	6/1/2016	1.71	6/1/2021	6/1/2016	101.57897	101.5789655	101.5789655	101.5789655	101.3146353	100.2248507	99.15839053	98.11451283	97.09250659
160627A00068	6/27/2016	1.4	6/28/2021	6/27/2016	101.32138	101.3213814	101.3213814	101.3213814	101.0405181	99.87963035	98.74524967	97.63647697	96.55245343
160714A00024	9/20/2016	2.5	9/20/2028	9/20/2016	118.4405	118.4404984	118.4404984	116.7703607	108.3162391	100.3659083	93.06752735	86.36412927	80.20399643
160819A00015	10/12/2016	2.3	10/13/2026	10/12/2016	112.92692	112.9269201	112.9269201	112.9269201	106.9726534	100.73414	94.90263079	89.44948171	84.34820359
161005A00008	10/5/2016	1.51	10/5/2020	10/5/2016	100.55048	100.5504789	100.5504789	100.5504789	100.4874079	100.0508725	99.61812276	99.18910942	98.76378428
161017A00007	10/17/2016	1.99	10/18/2023	10/17/2016	105.92684	105.9268372	105.9268372	105.9268372	104.3489104	100.9284931	97.63858979	94.47353418	91.42793713
161123A00037	11/23/2016	2.16	11/23/2021	11/23/2016	102.97126	102.9712551	102.9712551	102.9712551	102.5714484	101.0145686	99.48900429	97.99388027	96.52835353
170627A00018	6/27/2017	1.83	6/29/2020	6/27/2017	100.25901	100.2590073	100.2590073	100.2590073	100.2406685	100.0744955	99.90887115	99.74379266	99.57925741
171110A00007	11/10/2017	2.38	11/10/2022	11/10/2017	105.32928	105.3292766	105.3292766	105.3292766	104.4780832	101.9587106	99.51325184	97.13910378	94.83377174
171222A00037	12/22/2017	2.71	12/29/2023	12/22/2017	108.92333	108.9233345	108.9233345	108.9233345	107.1616359	103.5026594	99.98909059	96.61432894	93.37211394
180328A00015	3/28/2018	2.93	3/28/2023	3/28/2018	107.73601	107.7360118	107.7360118	107.7360118	106.5984243	103.6785977	100.8544318	98.12228078	95.47865837
180504A00039	5/4/2018	3.33	5/5/2025	5/4/2018	115.26152	115.2615204	115.2615204	115.2615204	112.025676	106.9669671	102.1710137	97.62276196	93.30809903
180518A00048	5/25/2018	3.65	5/18/2028	5/25/2018	126.97158	126.9715824	126.9715824	125.683538	117.3066807	109.2933704	101.9058047	95.09146771	88.80251793
180618A00036	6/18/2018	3.89	6/18/2048	6/18/2018	198.37345	198.37345	186.144922	153.8830103	126.7941632	105.4826454	88.74427848	75.51604373	64.99225854
111213A00004	12/13/2011	2.96	12/13/2021	12/13/2011	104.3873	104.3872991	104.3872991	104.3872991	103.9689439	102.3467	100.757738	99.20109945	97.6758627
140605A00056	6/6/2016	3.07	6/8/2020	6/6/2016	100.29976	100.2997619	100.2997619	100.2997619	100.2890549	100.1808965	100.0729815	99.96530912	99.85787853
150601A00332	6/1/2015	2.72	8/7/2020	6/1/2015	100.66281	100.6628112	100.6628112	100.6628112	100.6276236	100.3531764	100.0802314	99.80877631	99.53879886
150601A00625	6/1/2015	3.96	12/9/2044	6/1/2015	186.47142	186.4714176	179.4085157	151.5158802	127.0597736	107.2722839	91.33812204	78.44927393	67.97393548
150601A00656	6/1/2015	2.59	12/17/2021	6/1/2015	103.72598	103.7259835	103.7259835	103.7259835	103.3058579	101.678876	100.085426	98.52453669	96.99527453
150630A00097	6/30/2015	3.05	7/1/2024	6/30/2015	111.57814	111.5781422	111.5781422	111.5781422	109.3348395	105.1443649	101.1396275	97.31136354	93.65082593
150706A00019	7/6/2015	1.93	7/6/2020	7/6/2015	100.30788	100.3078789	100.3078789	100.3078789	100.2865961	100.1010327	99.91616223	99.73198071	99.54848429
150731A00016	7/31/2015	3.04	7/31/2025	7/31/2015	114.44894	114.4489383	114.4489383	114.4489383	110.872923	105.6188249	100.6488208	95.94598207	91.49448383
150824A00043	8/24/2015	1.82	8/24/2020	8/24/2015	100.50437	100.5043725	100.5043725	100.5043725	100.4616612	100.1406478	99.82168869	99.50476432	99.18985517

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
150824A00046	8/24/2015	1.82	8/24/2020	8/24/2015	100.50437	100.5043725	100.5043725	100.5043725	100.4616612	100.1406478	99.82168869	99.50476432	99.18985517
150930A00059	9/30/2015	1.78	9/30/2020	9/30/2015	100.6477	100.6477012	100.6477012	100.6477012	100.5874539	100.1643897	99.74486938	99.32884861	98.91628384
151008A00025	10/8/2015	2.91	10/8/2025	10/8/2015	114.25315	114.2531526	114.2531526	114.2531526	110.3594899	104.942725	99.82856737	94.9985331	90.43535981
151013A00012	10/13/2015	1.58	10/13/2020	10/13/2015	100.67404	100.6740448	100.6740448	100.6740448	100.6062474	100.1466873	99.69132821	99.24011264	98.79298402
151214A00051	12/14/2015	2.92	12/15/2025	12/14/2015	114.79346	114.79346	114.79346	114.79346	110.5475261	104.9529745	99.68004496	94.70852336	90.01957211
160208A00004	2/8/2016	1.46	2/8/2021	2/8/2016	101.0582	101.0582049	101.0582049	101.0582049	100.8910911	100.107636	99.33630222	98.57681021	97.82888886
160210A00041	2/10/2016	1.97	2/10/2023	2/10/2016	104.70544	104.7054419	104.7054419	104.7054419	103.6767076	100.9236959	98.25764781	95.67528959	93.17349358
160210A00052	2/10/2016	1.64	2/10/2021	2/10/2016	101.091	101.0910042	101.0910042	101.0910042	100.9223251	100.134861	99.35964229	98.59638502	97.84481395
160211A00056	2/11/2016	1.82	2/10/2023	2/11/2016	104.28392	104.2839213	104.2839213	104.2839213	103.2568617	100.5097664	97.84949319	95.27277314	92.77648287
160212A00017	2/12/2016	1.57	2/12/2021	2/12/2016	101.04256	101.0425562	101.0425562	101.0425562	100.8720151	100.0793397	99.29907709	98.53093746	97.77463994
160222A00005	2/22/2016	2.79	2/22/2028	2/22/2016	119.45693	119.4569314	119.4569314	118.4394767	110.5032539	102.954944	95.98616281	89.549278	83.60080369
160222A00018	2/22/2016	2.59	2/23/2026	2/22/2016	113.36165	113.3616461	113.3616461	113.3616461	108.7569491	103.033474	97.6497865	92.58396673	87.8156167
181226A00046	12/26/2018	2.9	12/28/2020	12/26/2018	101.77642	101.776422	101.776422	101.776422	101.6489471	100.9784425	100.3167713	99.66375979	99.01923879
190311A00031	3/11/2019	2.71	9/8/2021	3/11/2019	103.3336	103.3336047	103.3336047	103.3336047	102.9970583	101.6418697	100.3109641	99.00374463	97.71963371
190325A00022	3/25/2019	2.55	11/25/2022	3/25/2019	105.85693	105.8569285	105.8569285	105.8569285	104.9759119	102.4094008	99.9189876	97.50195699	95.15570865
190501A00014	5/1/2019	2.62	5/1/2024	5/1/2019	109.38147	109.3814683	109.3814683	109.3814683	107.3143109	103.3252577	99.50783993	95.85376475	92.35518471
190514A00006	5/14/2019	2.43	5/17/2021	5/14/2019	102.28201	102.2820124	102.2820124	102.2820124	102.0272731	100.9739575	99.94234318	98.9317644	97.94158241
190514A00017	5/14/2019	2.43	5/17/2021	5/14/2019	102.28201	102.2820124	102.2820124	102.2820124	102.0272731	100.9739575	99.94234318	98.9317644	97.94158241
190523A00035	5/23/2019	2.34	11/23/2021	5/23/2019	103.25657	103.2565732	103.2565732	103.2565732	102.856239	101.2970235	99.76916482	98.2717867	96.80404502
190530A00040	5/30/2019	2.32	11/30/2021	5/30/2019	103.26416	103.2641623	103.2641623	103.2641623	102.8580797	101.279689	99.73325732	98.21788171	96.7326931
190531A00051	6/3/2019	2.27	6/3/2021	6/3/2019	102.20653	102.2065321	102.2065321	102.2065321	101.9402065	100.8413371	99.76608191	98.71368605	97.68342653
190625A00018	6/25/2019	2.19	6/25/2020	6/25/2019	100.29625	100.2962458	100.2962458	100.2962458	100.2793572	100.1241984	99.9695249	99.8153344	99.66162467
190722A00054	12/19/2019	2.02	12/20/2021	12/19/2019	102.86243	102.8624302	102.8624302	102.8624302	102.4416624	100.8141452	99.22029788	97.65914112	96.12973339
190829A00017	8/29/2019	1.8	8/29/2023	8/29/2019	105.0555	105.0554993	105.0554993	105.0554993	103.5940568	100.3168418	97.16019509	94.1190671	91.18864625
190829A00076	8/29/2019	1.81	6/30/2023	8/29/2019	104.83832	104.8383232	104.8383232	104.8383232	103.509647	100.3878794	97.37623061	94.47017093	91.66538674
190917A00033	1/10/2020	2.03	1/10/2023	1/10/2020	104.72635	104.726351	104.726351	104.726351	103.7600606	101.08912	98.50036739	95.99074674	93.55733859
190123A00059	1/23/2019	2.95	1/24/2022	1/23/2019	104.6631	104.6630999	104.6630999	104.6630999	104.211177	102.4754465	100.7770546	99.11486128	97.48777324
190206A00010	2/12/2019	2.84	2/11/2022	2/12/2019	104.59575	104.5957501	104.5957501	104.5957501	104.1290259	102.3431889	100.5966614	98.8882742	97.21690354
190221A00011	2/21/2019	2.81	8/23/2021	2/21/2019	103.35934	103.3593383	103.3593383	103.3593383	103.0356974	101.720427	100.4305894	99.16546767	97.92437229
190311A00069	3/25/2019	2.78	3/27/2023	3/25/2019	107.28863	107.2886342	107.2886342	107.2886342	106.1550776	103.244378	100.4290124	97.70534975	95.06991766
190311A00072	3/25/2019	2.79	9/25/2023	3/25/2019	108.56734	108.5673439	108.5673439	108.5673439	107.0263217	103.6194007	100.3398137	97.18213781	94.1412098

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190405A00040	4/3/2020	3.12	4/5/2030	4/3/2020	127.91955	127.9195481	127.9195481	124.2857339	114.0741751	104.6029798	96.02443662	88.24902424	81.19664441
190520A00048	5/20/2019	2.53	5/20/2024	5/20/2019	109.13496	109.1349598	109.1349598	109.1349598	107.0208476	102.988691	99.13180438	95.44163244	91.91008462
190604A00019	6/4/2019	2.27	6/4/2024	6/4/2019	108.15333	108.1533271	108.1533271	108.1533271	106.0080736	101.9576767	98.08497777	94.38122737	90.83815592
190829A00080	8/29/2019	1.8	12/29/2023	8/29/2019	105.5601	105.5600954	105.5600954	105.5600954	103.8197821	100.2220664	96.76796942	93.45095748	90.26483398
190904A00037	9/4/2019	1.73	6/15/2022	9/4/2019	103.08128	103.0812752	103.0812752	103.0812752	102.4790871	100.3750068	98.32441076	96.32557023	94.37682634
190904A00043	9/4/2019	1.72	12/15/2022	9/4/2019	103.77926	103.7792636	103.7792636	103.7792636	102.8673272	100.275994	97.76287451	95.32512528	92.96002601
191002A00046	2/14/2020	1.75	2/14/2023	2/14/2020	104.10295	104.102949	104.102949	104.102949	103.0684045	100.312528	97.64408784	95.05979951	92.55652356
180627A00065	6/27/2018	2.9	6/25/2021	6/27/2018	103.06322	103.0632196	103.0632196	103.0632196	102.7820099	101.6184132	100.4811325	99.36928203	98.28201578
180709A00081	7/9/2018	3.05	7/7/2023	7/9/2018	108.85391	108.853913	108.853913	108.853913	107.4899017	104.2863195	101.1957183	98.21343698	95.33503794
180821A00041	8/21/2018	3	9/21/2023	8/21/2018	109.25896	109.2589568	109.2589568	109.2589568	107.7230737	104.3149998	101.0338065	97.87410831	94.83077735
180823A00043	8/23/2018	2.83	9/23/2020	8/23/2018	101.04375	101.0437453	101.0437453	101.0437453	100.9867285	100.5819178	100.1803538	99.78199745	99.38681042
180919A00012	9/19/2018	3	9/18/2020	9/19/2018	101.07463	101.0746335	101.0746335	101.0746335	101.0200089	100.6288885	100.2408029	99.85571679	99.47359535
181031A00070	3/1/2019	3.77	3/1/2029	3/1/2019	130.62902	130.6290154	130.6290154	128.4109972	119.1396191	110.3616706	102.3254673	94.96387367	88.21616664
181220A00078	12/20/2018	3.17	12/20/2024	12/20/2018	113.38944	113.389445	113.389445	113.389445	110.6322077	105.9656956	101.5257011	97.29999398	93.27707249
190110A00036	1/10/2019	2.88	10/9/2020	1/10/2019	101.18052	101.1805197	101.1805197	101.1805197	101.1149429	100.6657545	100.2205598	99.77930556	99.34193957
190311A00073	3/14/2019	2.81	3/14/2024	3/14/2019	109.8172	109.8171981	109.8171981	109.8171981	107.866757	103.9927435	100.2801579	96.72144761	93.30945178
190328A00077	3/28/2019	2.46	9/28/2021	3/28/2019	103.10994	103.109935	103.109935	103.109935	102.7570113	101.3489162	99.96696476	98.61049196	97.27885482
190426A00023	4/26/2019	2.91	6/24/2026	4/26/2019	116.09246	116.0924579	116.0924579	116.0924579	110.746188	104.6621908	98.95642257	93.60333268	88.57922929
190515A00032	5/15/2019	2.49	5/15/2024	5/15/2019	108.94124	108.941243	108.941243	108.941243	106.841424	102.8257526	98.98422858	95.30837249	91.79016437
190607A00040	6/7/2019	2.12	6/7/2022	6/7/2019	103.87899	103.8789859	103.8789859	103.8789859	103.2858653	101.1947006	99.15625499	97.16884051	95.23083654
190621A00039	6/21/2019	2.21	6/17/2024	6/21/2019	107.97366	107.9736613	107.9736613	107.9736613	105.7957759	101.7154668	97.81550216	94.08693588	90.52131674
190826A00046	8/26/2019	1.77	8/26/2024	8/26/2019	106.42464	106.4246361	106.4246361	106.4246361	104.0712662	99.84901809	95.82116914	91.97779312	88.30952116
190904A00044	9/4/2019	1.72	12/30/2022	9/4/2019	103.83836	103.8383577	103.8383577	103.8383577	102.8972991	100.2666567	97.71632554	95.24334798	92.84489679
191002A00038	1/13/2020	1.76	1/13/2023	1/13/2020	104.00282	104.002817	104.002817	104.002817	103.033276	100.3645093	97.77813856	95.27109046	92.84042939
191002A00043	2/3/2020	1.75	2/3/2023	2/3/2020	104.05967	104.0596717	104.0596717	104.0596717	103.0478632	100.3237372	97.68518328	95.12896453	92.65199079
200131A00031	1/31/2020	1.74	1/31/2024	1/31/2020	105.46974	105.4697404	105.4697404	105.4697404	103.6528119	99.97425424	96.44558311	93.05983147	89.81040084
160229A00027	2/29/2016	1.74	3/1/2021	2/29/2016	101.24682	101.246822	101.246822	101.246822	101.0599742	100.2203147	99.39454793	98.58233157	97.7833344
160301A00006	3/1/2016	1.69	3/1/2021	3/1/2016	101.20451	101.2045132	101.2045132	101.2045132	101.0176997	100.1782351	99.35266107	98.5406352	97.74182634
160308A00011	3/8/2016	1.81	2/16/2021	3/8/2016	101.2592	101.2592016	101.2592016	101.2592016	101.0846742	100.2800864	99.48826666	98.70891279	97.94173212
160309A00008	3/9/2016	1.83	3/3/2021	3/9/2016	101.33167	101.3316709	101.3316709	101.3316709	101.1428178	100.2973471	99.46595716	98.64829862	97.84403356
160309A00014	3/9/2016	1.84	3/9/2021	3/9/2016	101.36643	101.3664331	101.3664331	101.3664331	101.1717427	100.3098544	99.46260241	98.62961639	97.81053825

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
160405A00018	4/5/2016	1.61	4/5/2021	4/5/2016	101.25814	101.2581392	101.2581392	101.2581392	101.0379777	100.103729	99.18667936	98.28635741	97.40230878
160627A00019	6/27/2016	1.24	6/25/2020	6/27/2016	100.14852	100.1485197	100.1485197	100.1485197	100.1316498	99.97667237	99.82217974	99.66816964	99.51463981
161118A00026	12/20/2016	3.03	12/21/2026	12/20/2016	118.17015	118.1701546	118.1701546	118.1701546	111.7026207	105.144993	99.02293905	93.30515832	87.96276004
170331A00031	3/31/2017	2.03	3/31/2021	3/31/2017	101.63923	101.6392338	101.6392338	101.6392338	101.4230075	100.5002275	99.59417375	98.70439481	97.83045548
170412A00019	4/12/2017	2.56	4/12/2024	4/12/2017	109.02141	109.0214099	109.0214099	109.0214099	107.0046378	103.0718776	99.3063058	95.69994514	92.24524102
171016A00016	10/16/2017	2.23	10/17/2022	10/16/2017	104.81772	104.8177196	104.8177196	104.8177196	104.0118812	101.5620274	99.18252787	96.87096279	94.62501066
171219A00024	12/19/2017	2.26	12/18/2020	12/19/2017	101.29092	101.2909248	101.2909248	101.2909248	101.1730149	100.5316205	99.898349	99.27304682	98.65556404
180110A00012	1/10/2018	2.38	1/11/2021	1/10/2018	101.50981	101.5098114	101.5098114	101.5098114	101.3692677	100.6615534	99.96370733	99.27552399	98.59680355
180125A00038	2/1/2018	2.91	2/3/2025	2/1/2018	112.49542	112.4954215	112.4954215	112.4954215	109.6028022	104.8440387	100.3217896	96.02299861	91.93540482
180302A00011	3/2/2018	2.68	3/2/2021	3/2/2018	102.04893	102.0489309	102.0489309	102.0489309	101.8604608	101.0143839	100.1823347	99.36396644	98.55894384
180424A00028	4/24/2018	2.98	4/23/2021	4/24/2018	102.69474	102.6947383	102.6947383	102.6947383	102.4575147	101.4668886	100.4954034	99.54250781	98.60767189
180518A00024	5/18/2018	2.81	5/18/2020	5/18/2018	100.12498	100.1249814	100.1249814	100.1249814	100.1204588	100.0705486	100.0207045	99.97092634	99.92121407
180518A00042	5/25/2018	3.42	5/19/2025	5/25/2018	115.83511	115.8351077	115.8351077	115.8351077	112.54039	107.4327968	102.5919122	98.00237093	93.64977384
180529A00072	5/29/2018	3	5/30/2023	5/29/2018	108.41068	108.4106751	108.4106751	108.4106751	107.132648	104.0370271	101.0477991	98.1606965	95.37164969
180726A00046	7/26/2018	3.2	12/26/2023	7/26/2018	110.71033	110.7103266	110.7103266	110.7103266	108.9443133	105.260504	101.7224879	98.32366686	95.05778133
180910A00039	9/10/2018	3.03	9/9/2022	9/10/2018	106.5236	106.523602	106.523602	106.523602	105.7785265	103.408366	101.1034637	98.86166669	96.68090583
181206A00021	12/6/2018	3.15	12/6/2023	12/6/2018	110.36882	110.3688164	110.3688164	110.3688164	108.6519508	105.0258301	101.5415871	98.19287798	94.97368027
181210A00066	12/10/2018	3.13	12/11/2023	12/10/2018	110.33517	110.3351701	110.3351701	110.3351701	108.606759	104.9683565	101.4727434	98.11351515	94.88459267
181220A00077	12/20/2018	3.06	12/20/2023	12/20/2018	110.1484	110.1484037	110.1484037	110.1484037	108.4000252	104.7418388	101.2280235	97.85206691	94.60778984
190221A00012	2/21/2019	2.83	8/23/2022	2/21/2019	105.92763	105.9276295	105.9276295	105.9276295	105.2126557	102.8948941	100.6398905	98.44557524	96.30996073
190517A00023	5/17/2019	2.51	5/17/2024	5/17/2019	109.03492	109.0349189	109.0349189	109.0349189	106.9292615	102.9066738	99.05869221	95.37680659	91.85296841
190530A00048	5/30/2019	2.41	5/31/2022	5/30/2019	104.45487	104.4548707	104.4548707	104.4548707	103.8700549	101.7916546	99.76528059	97.7892811	95.86206938
190614A00007	6/14/2019	2.22	6/15/2021	6/14/2019	102.21566	102.2156584	102.2156584	102.2156584	101.9417941	100.8104347	99.70411062	98.62199757	97.56330726
190621A00037	6/21/2019	2.21	5/15/2024	6/21/2019	107.80031	107.8003137	107.8003137	107.8003137	105.7091097	101.7162423	97.89680345	94.24234248	90.74486661
190722A00051	11/22/2019	2.03	11/22/2021	11/22/2019	102.76038	102.760381	102.760381	102.760381	102.3617817	100.8093535	99.28812505	97.79722574	96.33581693
190726A00014	7/26/2019	2.23	7/24/2024	7/26/2019	108.25346	108.2534638	108.2534638	108.2534638	105.9749395	101.7956707	97.80485714	93.99295393	90.35095696
190829A00075	8/29/2019	1.8	6/15/2023	8/29/2019	104.74446	104.7444598	104.7444598	104.7444598	103.4488673	100.3679346	97.39457386	94.52440877	91.75326895
190829A00078	8/29/2019	1.8	12/15/2023	8/29/2019	105.50203	105.5020293	105.5020293	105.5020293	103.794401	100.2328723	96.81235337	93.52648389	90.36922856
190904A00036	9/4/2019	1.74	6/8/2022	9/4/2019	103.07494	103.0749426	103.0749426	103.0749426	102.4825451	100.3973555	98.36482738	96.38327229	94.45106908
191002A00045	2/14/2020	1.75	2/14/2023	2/14/2020	104.10295	104.102949	104.102949	104.102949	103.0684045	100.312528	97.64408784	95.05979951	92.55652356
200131A00029	1/31/2020	1.78	10/31/2024	1/31/2020	106.69073	106.6907255	106.6907255	106.6907255	104.1483788	99.75845988	95.57843805	91.5972015	87.80428428

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
130211A00026	2/11/2013	2.27	2/15/2023	2/11/2013	105.57532	105.5753157	105.5753157	105.5753157	104.5328232	101.7533548	99.06198937	96.45542208	93.93049354
130716A00006	7/16/2013	2.81	7/30/2020	7/16/2013	100.64322	100.6432208	100.6432208	100.6432208	100.6115821	100.3592536	100.1081863	99.85837095	99.60979819
140314A00003	3/14/2014	3.32	3/14/2024	3/14/2014	111.80853	111.8085331	111.8085331	111.8085331	109.8441437	105.9319101	102.182269	98.58762268	95.14076728
140930A00104	9/30/2016	3.23	9/30/2021	9/30/2016	104.22748	104.2274825	104.2274825	104.2274825	103.8710576	102.4491711	101.0537644	99.68416127	98.33970821
150601A00406	6/1/2015	3.71	1/17/2024	6/1/2015	112.59992	112.5999186	112.5999186	112.5999186	110.7692314	106.9938974	103.3696395	99.88953089	96.54700647
150601A00682	6/1/2015	2.3	2/9/2022	6/1/2015	103.54859	103.5485916	103.5485916	103.5485916	103.0858214	101.3154624	99.58400182	97.89027505	96.23316325
150601A00775	6/1/2015	2.28	11/12/2021	6/1/2015	103.04819	103.0481914	103.0481914	103.0481914	102.6572465	101.1297543	99.63265981	98.16512838	96.72635536
150601A00791	6/1/2015	2.42	5/20/2022	6/1/2015	104.33798	104.3379798	104.3379798	104.3379798	103.7676463	101.7193374	99.7218455	97.77357613	95.8729969
150619A00028	6/19/2015	2.54	6/20/2022	6/19/2015	104.85242	104.8524191	104.8524191	104.8524191	104.238479	102.1015702	100.0191299	97.98938916	96.01065079
150714A00061	7/14/2015	2.09	7/14/2020	7/14/2015	100.38008	100.3800837	100.3800837	100.3800837	100.3553555	100.1475879	99.94069289	99.73466494	99.52949854
150715A00017	7/15/2015	2.14	7/15/2020	7/15/2015	100.39571	100.3957111	100.3957111	100.3957111	100.3705514	100.1600008	99.9503459	99.74158102	99.5337004
150824A00031	8/24/2015	1.93	2/25/2021	8/24/2015	101.38933	101.3893287	101.3893287	101.3893287	101.2061787	100.3767006	99.56077015	98.75805782	97.96824445
151215A00027	12/15/2015	2.09	12/15/2020	12/15/2015	101.16618	101.1661787	101.1661787	101.1661787	101.0511223	100.4183676	99.79352663	99.17645157	98.56699811
160201A00024	2/1/2016	2.16	2/1/2023	2/1/2016	105.1938	105.1937965	105.1937965	105.1937965	104.1816527	101.4474119	98.79878357	96.2325272	93.74554973
160210A00021	2/10/2016	1.97	2/10/2023	2/10/2016	104.70544	104.7054419	104.7054419	104.7054419	103.6767076	100.9236959	98.25764781	95.67528959	93.17349358
160211A00091	2/16/2016	3.55	2/16/2023	2/16/2016	109.19881	109.1988101	109.1988101	109.1988101	108.1397215	105.3062605	102.5622993	99.90448885	97.32962729
160217A00004	2/17/2016	1.54	2/17/2021	2/17/2016	101.15653	101.1565277	101.1565277	101.1565277	100.9807748	100.1724166	99.37695339	98.59407842	97.82349467
160218A00014	2/18/2016	1.57	2/18/2021	2/18/2016	101.18493	101.1849306	101.1849306	101.1849306	101.0082042	100.1970005	99.39877932	98.61323089	97.84005524
160307A00029	3/7/2016	3.21	3/7/2031	3/7/2016	131.43639	131.4363933	131.4363933	126.4710401	115.2828349	105.012917	95.7864196	87.49071947	80.02591608
161123A00035	11/23/2016	2.16	11/23/2021	11/23/2016	102.97126	102.9712551	102.9712551	102.9712551	102.5714484	101.0145686	99.48900429	97.99388027	96.52835353
161125A00002	11/25/2016	2.62	11/27/2023	11/25/2016	108.38597	108.3859674	108.3859674	108.3859674	106.7022379	103.1348761	99.70670902	96.41154005	93.24348438
170727A00020	7/27/2017	1.94	7/27/2021	7/27/2017	102.07771	102.0777119	102.0777119	102.0777119	101.7765221	100.5330552	99.31983318	98.13576316	96.97980447
170814A00034	8/14/2017	2.1	8/15/2022	8/14/2017	104.18036	104.1803643	104.1803643	104.1803643	103.4834701	101.207107	98.99202372	96.83617801	94.73761082
170822A00023	8/23/2017	3.95	8/23/2028	8/23/2017	130.34886	130.3488585	130.3488585	128.7493293	120.0084258	111.6545967	103.9690668	96.89438838	90.37834308
171219A00022	12/19/2017	2.26	12/18/2020	12/19/2017	101.29092	101.2909248	101.2909248	101.2909248	101.1730149	100.5316205	99.898349	99.27304682	98.65556404
171228A00023	12/28/2017	2.69	3/29/2024	12/28/2017	109.44747	109.4474658	109.4474658	109.4474658	107.4627044	103.557891	99.81743621	96.23357443	92.79894741
171228A00024	12/28/2017	2.71	6/28/2024	12/28/2017	110.12903	110.129026	110.129026	110.129026	107.9052488	103.7523165	99.78351065	95.98965488	92.36208334
180118A00008	1/18/2018	2.44	1/19/2021	1/18/2018	101.60097	101.6009688	101.6009688	101.6009688	101.4527797	100.7228904	100.0034897	99.29435251	98.59526023
180123A00067	1/23/2018	2.67	1/23/2023	1/23/2018	106.55541	106.5554101	106.5554101	106.5554101	105.5560758	102.8264797	100.1815817	97.61819869	95.1332917
180130A00062	1/30/2018	2.51	2/1/2021	1/30/2018	101.73356	101.7335621	101.7335621	101.7335621	101.5729522	100.8070902	100.0527484	99.30966825	98.57759921
180316A00031	3/16/2018	2.96	12/16/2022	3/16/2018	107.07647	107.076466	107.076466	107.076466	106.1506365	103.5128701	100.9544644	98.47253648	96.06432887

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
180328A00042	3/28/2018	2.95	3/28/2023	3/28/2018	107.79475	107.7947481	107.7947481	107.7947481	106.6569097	103.7362234	100.9112191	98.17825017	95.53382963
180625A00012	6/25/2018	3.07	6/23/2023	6/25/2018	108.81133	108.8113323	108.8113323	108.8113323	107.4784796	104.3124116	101.2569213	98.30749439	95.45983037
180726A00044	7/26/2018	2.94	7/27/2020	7/26/2018	100.65376	100.6537602	100.6537602	100.6537602	100.6234064	100.3793358	100.1364511	99.89474347	99.65420455
181016A00019	10/18/2018	3.32	10/16/2023	10/18/2018	110.56254	110.5625438	110.5625438	110.5625438	108.9624187	105.4670092	102.1039658	98.86756679	95.75236944
181203A00039	12/3/2018	3.27	12/1/2023	12/3/2018	110.76381	110.7638074	110.7638074	110.7638074	109.0562814	105.4360066	101.9568861	98.6126294	95.39726389
190311A00030	3/11/2019	2.68	3/11/2021	3/11/2019	102.10925	102.1092466	102.1092466	102.1092466	101.9119863	101.0411516	100.1851813	99.34369705	98.51633311
190311A00061	3/25/2019	2.75	3/25/2022	3/25/2019	104.71709	104.7170855	104.7170855	104.7170855	104.2114342	102.3089259	100.4506448	98.63529957	96.86164493
190311A00068	3/25/2019	2.76	9/26/2022	3/25/2019	105.99479	105.9947876	105.9947876	105.9947876	105.2223527	102.8127537	100.4707448	98.1940551	95.9805032
190318A00016	3/19/2019	2.7	3/18/2022	3/19/2019	104.5744	104.5743971	104.5743971	104.5743971	104.0758324	102.1931312	100.353813	98.55662254	96.80034871
190501A00024	5/1/2019	2.62	5/1/2024	5/1/2019	109.38147	109.3814683	109.3814683	109.3814683	107.3143109	103.3252577	99.50783993	95.85376475	92.35518471
190515A00030	5/15/2019	2.49	5/15/2024	5/15/2019	108.94124	108.941243	108.941243	108.941243	106.841424	102.8257526	98.98422858	95.30837249	91.79016437
190621A00035	6/21/2019	2.19	12/15/2023	6/21/2019	106.92842	106.9284167	106.9284167	106.9284167	105.2118811	101.6246252	98.17912426	94.86899034	91.68816167
190807A00043	8/7/2019	1.8	8/7/2023	8/7/2019	104.96416	104.9641623	104.9641623	104.9641623	103.5516379	100.3315831	97.22818236	94.23653058	91.35196109
190829A00013	8/29/2019	1.78	8/29/2024	8/29/2019	106.48046	106.4804626	106.4804626	106.4804626	104.1184134	99.88761278	95.85191233	92.00134663	88.32650891
190829A00028	8/29/2019	1.78	8/29/2024	8/29/2019	106.48046	106.4804626	106.4804626	106.4804626	104.1184134	99.88761278	95.85191233	92.00134663	88.32650891
190829A00073	8/29/2019	1.81	3/15/2023	8/29/2019	104.39238	104.392382	104.392382	104.392382	103.2964042	100.458591	97.71311401	95.05648715	92.48537497
190904A00034	9/4/2019	1.74	6/1/2022	9/4/2019	103.04713	103.0471261	103.0471261	103.0471261	102.4645787	100.3985232	98.38430883	96.42028683	94.50487352
190904A00040	9/4/2019	1.73	6/22/2022	9/4/2019	103.1089	103.1088993	103.1088993	103.1088993	102.4968665	100.3736756	98.3048031	96.2884796	94.32300791
180925A00059	9/25/2018	3.01	9/25/2028	9/25/2023	124.53308	124.5330753	124.5330753	122.9676754	115.1499204	108.4056494	103.0711661	98.89754065	95.47226156
190509A00033	5/9/2019	2.41	5/9/2022	5/10/2021	104.32615	104.326145	104.326145	104.326145	103.7714458	101.8112976	100.1536937	98.93191996	97.93639824
190516A00028	5/16/2019	2.03	5/16/2024	5/18/2020	107.07163	107.0716326	107.0716326	107.0716326	105.1556973	101.9721005	100.1360031	99.93166008	99.89037344
200303A00035	3/3/2020	0.81	3/3/2025	3/3/2023	103.38595	103.3859497	103.3859497	103.3859497	101.4604855	98.28582147	95.46593708	92.83181276	90.30478224
191029A00020	10/29/2019	1.51	10/31/2022	11/2/2020	103.52769	103.5276936	103.5276936	103.5276936	102.7440583	100.7352476	99.66537556	99.12607558	98.63451978
200221A00040	2/21/2020	1.28	2/21/2025	2/22/2021	104.72264	104.7226412	104.7226412	104.7226412	102.7248872	100.2858949	99.04358802	98.22193424	97.44938247
190530A00108	5/30/2019	1.88	5/30/2024	6/1/2020	106.52108	106.5210762	106.5210762	106.5210762	104.6258013	101.5779209	100.0298253	99.87855716	99.79862677
190607A00025	6/7/2019	1.48	6/7/2024	6/8/2020	105.65508	105.6550825	105.6550825	105.6550825	103.8372912	101.0669872	99.94297848	99.81959433	99.72041514
190712A00044	7/12/2019	1.73	7/12/2022	7/13/2020	103.58959	103.5895867	103.5895867	103.5895867	102.9575041	101.0166087	99.95434641	99.69985372	99.50533406
190807A00056	8/7/2019	1.49	8/7/2024	8/7/2020	105.14211	105.1421094	105.1421094	105.1421094	103.3133573	100.7349432	99.75443723	99.45849123	99.18943191
190816A00029	8/16/2019	1.11	8/16/2024	8/17/2020	104.3103	104.3102961	104.3102961	104.3102961	102.6118098	100.3802709	99.67013806	99.37327967	99.08497442
190909A00021	9/9/2019	1.2	9/9/2024	9/9/2020	104.77329	104.773285	104.773285	104.773285	102.9613635	100.5387776	99.63154761	99.25183688	98.89446084
180406A00015	4/10/2018	2.61	4/10/2028	4/10/2023	119.98783	119.9878346	119.9878346	118.9619735	111.9947202	106.039966	101.4533488	97.93168316	95.02721188

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190426A00024	4/26/2019	2.24	4/26/2022	7/27/2020	103.90841	103.9084084	103.9084084	103.9084084	103.3716115	101.4817705	100.1363026	99.7224825	99.48997782
190516A00018	5/16/2019	2.03	5/16/2024	5/18/2020	107.07163	107.0716326	107.0716326	107.0716326	105.1556973	101.9721005	100.1360031	99.93166008	99.89037344
200228A00096	2/28/2020	1.28	2/28/2022	3/1/2021	101.84176	101.841759	101.841759	101.841759	101.3920417	99.97856543	99.01255614	98.19981001	97.41011959
191017A00012	10/17/2019	1.43	10/17/2022	10/19/2020	103.27396	103.273964	103.273964	103.273964	102.5217792	100.6063972	99.64320356	99.15193559	98.69711966
200207A00008	2/7/2020	1.35	2/7/2025	2/7/2023	105.94907	105.9490718	105.9490718	105.9490718	103.6314255	100.109512	97.14138052	94.4877769	91.98600801
190530A00092	5/30/2019	1.69	5/30/2024	6/1/2020	106.49258	106.4925824	106.4925824	106.4925824	104.591372	101.5465749	100.0216549	99.87778857	99.79771065
190607A00022	6/7/2019	1.5	6/7/2024	6/8/2020	105.73815	105.7381511	105.7381511	105.7381511	103.9101801	101.1119631	99.94903536	99.82158814	99.72240703
190712A00038	7/12/2019	1.87	7/12/2021	7/13/2020	102.12939	102.1293932	102.1293932	102.1293932	101.8377812	100.6815164	99.95900163	99.7273373	99.53277838
190807A00035	8/7/2019	1.45	8/7/2024	8/7/2020	104.9699	104.969903	104.969903	104.969903	103.1686494	100.6577873	99.73861337	99.44755899	99.17851934
190816A00028	8/16/2019	1.33	8/16/2022	8/17/2020	102.81626	102.8162564	102.8162564	102.8162564	102.1633542	100.4368276	99.7382488	99.43765843	99.14923107
190830A00028	8/30/2019	1.39	8/30/2024	8/31/2020	104.78094	104.7809402	104.7809402	104.7809402	102.97876	100.5404255	99.67115917	99.33056896	99.00551739
181031A00046	11/2/2018	3.05	10/29/2021	11/2/2020	104.19116	104.1911582	104.1911582	104.1911582	103.8097663	102.3133776	100.9050731	99.88175333	99.29733068
190104A00032	1/4/2019	2.33	1/4/2024	6/4/2020	107.55252	107.5525207	107.5525207	107.5525207	105.8585696	102.6600202	100.4692832	99.79597844	99.61470517
190513A00033	5/13/2019	2.35	5/15/2023	5/13/2022	106.304	106.3039975	106.3039975	106.3039975	105.0988617	102.2792638	99.84404933	97.74959765	95.83484855
190924A00014	9/24/2019	1.54	9/24/2024	9/24/2020	105.52117	105.5211724	105.5211724	105.5211724	103.5649479	100.8443185	99.67948926	99.23807144	98.84170956
191211A00013	12/11/2019	1.57	12/11/2024	12/12/2022	106.77911	106.7791135	106.7791135	106.7791135	104.4743205	100.912543	97.97637656	95.41911071	93.03669861
200227A00018	2/27/2020	0.99	2/27/2025	2/28/2022	104.25772	104.2577202	104.2577202	104.2577202	102.3317361	99.64357006	97.61404233	95.84619275	94.15695886
190523A00048	5/23/2019	2.32	5/23/2024	5/23/2023	108.29309	108.2930893	108.2930893	108.2930893	106.2444821	102.5092324	99.19405126	96.21334713	93.43658517
190606A00030	6/6/2019	1.48	6/6/2024	6/8/2020	105.65132	105.6513243	105.6513243	105.6513243	103.8357975	101.0680478	99.94352768	99.81959221	99.72041235
190702A00051	7/2/2019	1.46	7/2/2024	7/2/2020	105.66461	105.6646103	105.6646103	105.6646103	103.8073772	101.0376283	99.89617328	99.68389328	99.51111024
190725A00022	7/25/2019	1.7	7/25/2022	7/27/2020	103.57979	103.5797949	103.5797949	103.5797949	102.9302776	100.9750764	99.92218586	99.63850265	99.40614262
190812A00020	8/12/2019	1.47	8/12/2024	8/12/2020	105.07218	105.0721778	105.0721778	105.0721778	103.2469075	100.6939128	99.73655996	99.43013786	99.14771848
190821A00046	8/21/2019	1.44	8/21/2024	8/21/2020	104.97098	104.9709808	104.9709808	104.9709808	103.1489858	100.6345077	99.70657422	99.37963656	99.073204
190426A00017	4/26/2019	2.31	4/26/2022	7/27/2020	104.04914	104.049138	104.049138	104.049138	103.5115546	101.6065907	100.198219	99.73943875	99.50638948
190515A00056	5/15/2019	1.81	5/15/2024	5/15/2020	106.91812	106.9181168	106.9181168	106.9181168	105.0088135	101.8611192	100.1124845	99.93701613	99.89558044
081028A00036	10/30/2008	4.22	10/30/2023		113.85704	113.8570358	113.8570358	113.8570358	112.2054978	108.6165479	105.1643926	101.8430274	98.64677261
200228A00090	2/28/2020	1	2/28/2025	3/1/2021	103.37843	103.3784267	103.3784267	103.3784267	101.7236785	99.78956814	98.76479141	97.95284244	97.16448762
191008A00028	10/11/2019	1.08	10/8/2024	10/8/2020	104.32069	104.3206911	104.3206911	104.3206911	102.5659033	100.3341554	99.48580916	99.03457686	98.60117112
200130A00029	1/30/2020	1.3	1/30/2023	2/1/2021	103.29328	103.2932768	103.2932768	103.2932768	102.3993008	100.4151474	99.27716356	98.50878452	97.78578076
200227A00025	2/27/2020	1.09	2/27/2025	2/27/2023	104.74628	104.746276	104.746276	104.746276	102.5706748	99.20203202	96.29749903	93.63883691	91.1059648
190529A00115	5/29/2019	1.92	5/29/2024	5/29/2020	106.68124	106.6812403	106.6812403	106.6812403	104.7732792	101.6819824	100.0552475	99.88175734	99.80182011

	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
190606A00054	6/6/2019	1.8	6/6/2024	6/8/2020	106.22063	106.2206332	106.2206332	106.2206332	104.3448428	101.3923737	99.98586377	99.82252252	99.72363093
190702A00082	7/2/2019	1.63	6/30/2022	6/30/2020	103.31652	103.3165176	103.3165176	103.3165176	102.7050782	100.8322106	99.92106667	99.73146233	99.56395097
190801A00025	8/1/2019	1.68	8/1/2024	8/3/2020	105.93723	105.9372294	105.9372294	105.9372294	104.0051599	101.1344536	99.86226763	99.56241695	99.31171766
190812A00027	8/12/2019	1.71	8/12/2024	8/12/2022	106.10871	106.1087067	106.1087067	106.1087067	104.1156332	100.859291	98.23737965	95.98620065	93.88815782
190828A00011	8/28/2019	1.1	8/28/2024	8/28/2020	104.29945	104.2994455	104.2994455	104.2994455	102.5851762	100.3531112	99.6260522	99.29211465	98.9664901
181004A00034	10/4/2018	2.58	10/5/2020	7/6/2020	101.01978	101.0197759	101.0197759	101.0197759	100.9565439	100.5187816	100.0983005	99.84420045	99.66841822
181203A00046	12/4/2018	2.8	12/4/2023	12/4/2020	109.08359	109.0835898	109.0835898	109.0835898	107.4058651	104.0257573	101.3201506	99.75278351	99.02250014
190509A00063	5/9/2019	2.11	5/9/2024	5/11/2020	107.36288	107.3628816	107.3628816	107.3628816	105.4395494	102.1912851	100.203896	99.95401328	99.9320924
190522A00029	5/22/2019	2.41	5/22/2024	5/22/2023	108.65598	108.655976	108.655976	108.655976	106.5976312	102.8323129	99.48706451	96.48791532	93.70367678
200306A00069	3/6/2020	0.58	3/6/2025	3/7/2022	102.26358	102.2635773	102.2635773	102.2635773	100.8964252	98.66657465	96.79611569	95.0492555	93.35279443
191121A00031	11/21/2019	1.54	11/21/2024	11/21/2022	106.56045	106.5604523	106.5604523	106.5604523	104.3182086	100.822433	97.94914712	95.44511013	93.10734821
200221A00041	2/21/2020	1.53	2/21/2025	2/21/2023	105.93426	105.9342583	105.9342583	105.9342583	103.5978504	100.0642681	97.07855368	94.40336514	91.87937655
190603A00067	6/3/2019	1.72	6/3/2024	6/3/2020	105.87814	105.878139	105.878139	105.878139	104.0444575	101.2005962	99.95516379	99.8223135	99.72890829
190610A00069	6/10/2019	2.04	6/10/2022	6/10/2020	103.72328	103.7232823	103.7232823	103.7232823	103.1325985	101.2021556	100.0269434	99.83145505	99.71884304
190712A00047	7/12/2019	1.54	7/12/2024	7/13/2020	106.04176	106.0417568	106.0417568	106.0417568	104.1223365	101.2206022	99.91699649	99.66255459	99.46808819
190808A00013	8/8/2019	1.23	8/8/2024	8/10/2020	104.8073	104.8073028	104.8073028	104.8073028	103.0295574	100.5881697	99.73216494	99.44506017	99.17539552
190820A00068	8/20/2019	1.39	8/20/2024	8/20/2020	104.75079	104.7507885	104.7507885	104.7507885	102.9678146	100.5434136	99.68829919	99.3688378	99.06510356
190911A00012	9/11/2019	1.27	9/11/2024	9/11/2020	105.08856	105.0885629	105.0885629	105.0885629	103.218179	100.6671613	99.66073158	99.26707431	98.90434318
190417A00010	4/17/2019	2.09	4/17/2024	7/17/2020	107.91065	107.9106536	107.9106536	107.9106536	105.9876747	102.6274536	100.409278	99.75440183	99.53670644
190513A00065	5/13/2019	2.01	5/13/2022	5/13/2020	103.89882	103.8988177	103.8988177	103.8988177	103.3397913	101.421258	100.1162356	99.95131635	99.91540548
070906A00048	9/10/2007	3.79	9/12/2022	6/10/2020	108.3656	108.3656043	108.3656043	108.3656043	107.6097244	105.2131436	102.925972	100.9573534	99.95225007
191008A00020	10/8/2019	1.58	10/8/2024	10/11/2022	105.74797	105.7479691	105.7479691	105.7479691	103.6957275	100.4184115	97.72999675	95.37041845	93.15253806
200128A00045	1/28/2020	1.45	1/28/2025	1/28/2021	105.47286	105.4728648	105.4728648	105.4728648	103.3477554	100.6420665	99.2804547	98.49161451	97.77250341
200227A00024	2/27/2020	0.85	2/27/2025	3/1/2021	103.57374	103.5737428	103.5737428	103.5737428	101.8581803	99.84787726	98.79482871	97.97846008	97.18797048
190523A00050	5/23/2019	2.3	5/23/2023	5/23/2022	106.1948	106.1947973	106.1947973	106.1947973	104.9660312	102.1290982	99.70132193	97.61151948	95.68342757
190606A00032	6/6/2019	1.75	6/6/2024	6/8/2020	106.01388	106.0138777	106.0138777	106.0138777	104.160044	101.2718532	99.96456546	99.8175389	99.71865212
190702A00079	7/2/2019	1.69	7/2/2024	7/5/2022	106.63579	106.6357915	106.6357915	106.6357915	104.6573662	101.3534382	98.72742318	96.52996685	94.5102813
190731A00008	7/31/2019	1.53	7/31/2024	7/31/2020	106.07348	106.0734849	106.0734849	106.0734849	104.1155496	101.1933917	99.87416911	99.5675973	99.31641858
190812A00026	8/12/2019	1.48	8/12/2024	8/12/2020	105.11537	105.1153665	105.1153665	105.1153665	103.2832203	100.7133721	99.7406599	99.43300822	99.15058346
190823A00023	8/23/2019	1.37	8/23/2024	8/24/2020	104.67285	104.6728531	104.6728531	104.6728531	102.8994562	100.5074249	99.67818448	99.35782863	99.05144396
181004A00037	10/4/2018	2.48	10/5/2020	7/6/2020	100.97592	100.9759163	100.9759163	100.9759163	100.9126994	100.4750516	100.0621494	99.82618164	99.65074247

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	Parallel-Shift Sensitivity Analysis												
4/30/2020					Price								
REFERENCE	DATE	Rate	DATE	Call/Put	-400	-300	-200	-100	Base	100	200	300	400
181210A00035	12/12/2018	2.65	1/16/2024	1/15/2021	108.81825	108.8182454	108.8182454	108.8182454	107.0554493	103.6462246	101.0154914	99.52582589	98.73043829
190510A00019	5/10/2019	2.39	5/10/2022	5/10/2021	104.29101	104.2910147	104.2910147	104.2910147	103.7352253	101.7756477	100.1233116	98.90345336	97.90270277
190917A00040	9/17/2019	1.63	9/17/2024	9/17/2020	105.89496	105.894961	105.894961	105.894961	103.8950201	101.0455906	99.74853064	99.30354797	98.9254439
191209A00045	12/9/2019	1.56	12/9/2024	12/9/2022	106.72444	106.7244368	106.7244368	106.7244368	104.4297912	100.8780115	97.9479899	95.39326278	93.0116492
200221A00045	2/21/2020	1.03	2/21/2025	2/22/2021	104.43821	104.4382098	104.4382098	104.4382098	102.5026303	100.1692069	98.98508366	98.16967553	97.39558344
190605A00032	6/5/2019	1.92	6/3/2022	6/3/2020	103.43583	103.4358315	103.4358315	103.4358315	102.8576604	100.9922379	99.97852344	99.84114296	99.74772027
190613A00024	6/13/2019	2.18	6/13/2024	6/13/2023	107.82807	107.8280744	107.8280744	107.8280744	105.7492916	102.0131461	98.69393883	95.69113988	92.88012657
190725A00018	7/25/2019	1.78	7/25/2024	7/27/2020	106.3375	106.3375026	106.3375026	106.3375026	104.3676978	101.3683292	99.92646448	99.61397074	99.38211628
190809A00026	8/9/2019	1.52	8/9/2024	8/10/2020	105.27801	105.278007	105.278007	105.278007	103.4251277	100.7944578	99.7668696	99.46669624	99.19762393
190821A00024	8/21/2019	1.65	8/21/2024	8/22/2022	105.88313	105.8831256	105.8831256	105.8831256	103.8994728	100.674962	98.07100321	95.81754725	93.70766646
180404A00037	4/6/2018	2.51	4/6/2028	4/6/2022	119.1593	119.1593015	119.1593015	118.1622319	111.342021	105.625798	101.5095997	98.73414315	96.69658219
190426A00018	4/26/2019	2.14	4/26/2024	7/27/2020	107.41875	107.4187514	107.4187514	107.4187514	105.5155756	102.2573343	100.2325719	99.69965695	99.4665326
190515A00061	5/15/2019	2	5/15/2024	5/15/2020	106.94462	106.9446168	106.9446168	106.9446168	105.0404013	101.889325	100.1151698	99.9304063	99.88911835
200228A00095	2/28/2020	1.15	2/28/2023	3/1/2021	102.44221	102.4422062	102.4422062	102.4422062	101.6081424	99.90892179	98.8983721	98.08459722	97.29551868
191011A00020	10/11/2019	1.53	10/11/2024	10/13/2020	105.5344	105.5344042	105.5344042	105.5344042	103.5537624	100.8357503	99.63508598	99.14375993	98.7082285
200131A00023	1/31/2020	1.56	1/31/2025	1/31/2023	106.0091	106.0090993	106.0090993	106.0090993	103.7043678	100.200875	97.25850031	94.63282336	92.15730968
190530A00057	5/30/2019	1.71	5/30/2024	6/1/2020	106.57521	106.5752088	106.5752088	106.5752088	104.6662881	101.5982198	100.0338328	99.87939553	99.79931632
190607A00016	6/7/2019	1.75	6/7/2024	6/8/2020	106.01786	106.0178552	106.0178552	106.0178552	104.1619051	101.2716411	99.96406405	99.8175414	99.71865541
190703A00023	7/3/2019	1.9	6/30/2022	6/30/2020	103.51274	103.5127434	103.5127434	103.5127434	102.8997676	100.9848875	99.95514344	99.7480788	99.58084851
190805A00014	8/5/2019	1.49	8/5/2024	8/5/2022	105.92036	105.9203574	105.9203574	105.9203574	103.9566856	100.7387936	98.1467887	95.91294022	93.82576325
190814A00019	8/14/2019	1.46	8/14/2024	8/14/2020	105.0354	105.035403	105.035403	105.035403	103.2131146	100.6745698	99.72868188	99.41806305	99.13030505
190828A00021	8/28/2019	1.36	8/28/2024	8/28/2020	104.64403	104.6440269	104.6440269	104.6440269	102.8691842	100.4881663	99.65893549	99.3206204	98.99558334
060517A00115	5/19/2006	4.52	5/19/2021	5/21/2007	104.51977	104.5197727	104.5197727	104.5197727	104.261102	103.1726174	102.0813406	101.0831735	100.1981979
061128A00049	11/30/2006	3.84	11/30/2021	2/28/2007	105.97967	105.9796661	105.9796661	105.9796661	105.5672149	103.9163069	102.3205137	100.9093779	99.74042312
070727A00036	7/31/2007	4.23	8/1/2022	10/31/2007	108.96289	108.9628903	108.9628903	108.9628903	108.2723254	105.8384043	103.5616134	101.6248316	100.1050122

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