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.

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
050812A00050	8/12/2005	4.97	8/12/2025	103.09299	102.3820943	101.6810402	100.9896233	100.3076454	99.63491377	98.97124079	98.31644398	97.67034571
050823A00085	8/23/2005	4.78	8/25/2025	103.16938	102.4216448	101.6847793	100.9585498	100.242727	99.53708789	98.84141593	98.15550065	97.47913747
050823A00088	8/23/2005	4.78	8/25/2025	103.16938	102.4216448	101.6847793	100.9585498	100.242727	99.53708789	98.84141593	98.15550065	97.47913747
050902A00032	9/2/2005	4.69	8/22/2025	103.0677	102.3286411	101.6002165	100.8821964	100.1743586	99.47648722	98.78837244	98.10981025	97.44060235
050923A00096	9/23/2005	4.86	9/22/2025	103.57062	102.744108	101.9308356	101.1304863	100.3427534	99.56733958	98.80395709	98.0523269	97.3121786
051003A00009	10/3/2005	5.15	10/15/2025	104.04	103.1489638	102.2732666	101.4125114	100.5663172	99.7343158	98.91615154	98.11148048	97.31997001
051107A00075	11/7/2005	5.29	11/17/2025	104.68967	103.7033568	102.735732	101.7862669	100.8544527	99.93979931	99.04183466	98.16010391	97.29416864
060308A00014	3/8/2006	5.44	3/16/2026	106.53507	105.213109	103.9185592	102.6505668	101.4083176	100.1910307	98.9979572	97.8283784	96.6816041
060808A00022	8/8/2006	5.57	6/15/2026	108.07893	106.4972235	104.946958	103.4272622	101.9373009	100.4762688	99.04338968	97.63791434	96.25912
070518A00023	5/18/2007	5.46	5/18/2027	107.66615	106.1268686	104.6237486	103.1556548	101.7214974	100.3202287	98.95084107	97.61236509	96.30386793
091210A00005	12/10/2009	5.08	12/16/2024	100.19592	100.151426	100.1069874	100.0626059	100.0182814	99.97401377	99.92980292	99.88564871	99.84155105
100809A00029	8/9/2010	4.23	8/15/2025	102.60044	101.8832489	101.1761076	100.4788071	99.7911427	99.11291521	98.44393097	97.78400159	97.13294376
100824A00009	8/24/2010	3.91	9/2/2025	102.53818	101.7718767	101.0170387	100.2734065	99.54073182	98.81877356	98.10729774	97.40607711	96.71489097
100930A00008	9/30/2010	3.82	9/30/2025	102.72522	101.8814611	101.0515683	100.2352028	99.4320356	98.64174848	97.8640333	97.09859167	96.3451346
110414A00007	4/14/2011	3.95	1/21/2025	100.66724	100.4746933	100.2829029	100.0918686	99.90158574	99.71204961	99.52325563	99.33519923	99.1478759
110505A00022	5/5/2011	4.59	5/15/2026	106.17539	104.6942112	103.2412967	101.8159103	100.4173367	99.04488479	97.69788686	96.3756975	95.0776927
110701A00011	7/1/2011	3.87	7/1/2026	103.01467	102.123433	101.2482448	100.3886631	99.54426114	98.71462808	97.8993683	97.09810066	96.31045784
110719A00017	7/19/2011	3.68	7/20/2026	102.85311	101.960839	101.0846755	100.2241739	99.37890456	98.54845401	97.73242408	96.93043126	96.14210598
110805A00014	8/5/2011	4.06	8/17/2026	106.41152	104.6712504	102.9680147	101.300696	99.66822168	98.06956225	96.50372902	94.96977202	93.46677814
110824A00006	8/24/2011	2.69	8/24/2026	102.9419	101.6769592	100.4366723	99.22033272	98.02726404	96.85681576	95.70836216	94.58130106	93.47505267
110909A00006	9/9/2011	2.26	9/9/2026	101.75451	100.7900306	99.84359487	98.91469661	98.00284493	97.1075677	96.22841059	95.36493622	94.51672337
111007A00007	10/7/2011	3.92	10/7/2031	120.22226	114.0538313	108.2785956	102.868528	97.79776607	93.04243468	88.58048255	84.39153313	80.45674838
111216A00001	12/16/2011	3.95	12/30/2031	125.14885	117.5477145	110.4764547	103.8950689	97.76678198	92.05776967	86.73690733	81.77554081	77.14727814
120113A00012	1/13/2012	3.62	1/15/2027	107.09076	104.930918	102.8257449	100.7734774	98.7724229	96.82095634	94.91751699	93.06060535	91.24878024
120113A00013	1/13/2012	3.87	1/15/2032	124.70794	117.078487	109.9839835	103.383824	97.240698	91.52030501	86.19109668	81.22404206	76.59241409
120127A00018	1/27/2012	3.64	2/1/2027	107.2964	105.088039	102.9364407	100.839743	98.79615703	96.80396728	94.8615276	92.96725787	91.11964075
120127A00019	1/27/2012	3.87	1/30/2032	124.82713	117.1525934	110.018732	103.3843152	97.21147108	91.46539827	86.11410081	81.12814791	76.48045523
120410A00005	4/10/2012	2.35	4/12/2027	102.94293	101.5205497	100.1303954	98.77148882	97.44289264	96.14370429	94.87305434	93.63010505	92.41404905
120411A00013	4/11/2012	3.59	4/15/2027	107.89995	105.4784376	103.1239506	100.8342633	98.60723718	96.44081683	94.33302614	92.28196485	90.28580518
120621A00009	6/21/2012	3.18	6/21/2032	115.2404	109.5547094	104.2435928	99.27894687	94.63497101	90.28796385	86.21613999	82.39946354	78.81949718
120709A00016	7/9/2012	3.2	7/15/2027	107.72904	105.0604976	102.4721761	99.961161	97.52466616	95.16002519	92.86468562	90.63620306	88.47223584
120806A00015	8/6/2012	2.38	8/6/2027	102.90622	101.4706434	100.0690699	98.70041463	97.36363395	96.0577259	94.78172821	93.53471637	92.31580183
120807A00026	8/7/2012	2.42	8/9/2027	102.96468	101.5282071	100.1257609	98.75625586	97.41864752	96.11193313	94.83514969	93.58737196	92.36771069

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11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
120808A00006	8/8/2012	2.06	8/9/2027	102.55667	101.1241825	99.72566436	98.36003151	97.02624015	95.72328825	94.45021352	93.20609145	91.99003356
120827A00048	8/27/2012	2.01	8/27/2027	103.07851	101.3259345	99.6183984	97.95435208	96.33230901	94.7508468	93.2086039	91.70427637	90.23661495
120827A00052	8/27/2012	2.01	8/27/2027	103.07851	101.3259345	99.6183984	97.95435209	96.33230901	94.7508468	93.2086039	91.70427637	90.23661495
121116A00006	11/16/2012	2.64	11/13/2025	102.0025	101.0422734	100.1000966	99.17546717	98.26789818	97.37692037	96.50208163	95.64294614	94.79909365
121116A00021	11/16/2012	2.35	11/17/2025	101.82283	100.8515496	99.89876045	98.96393576	98.04657089	97.14617993	96.26229488	95.39446478	94.542255
121116A00022	11/16/2012	2.78	11/16/2029	113.06598	107.9451112	103.0891669	98.48305587	94.11262036	89.96457685	86.02645774	82.28655701	78.73387986
121120A00010	11/20/2012	1.93	11/22/2027	103.35674	101.3465271	99.39309675	97.49442976	95.64859661	93.85374908	92.10811633	90.4100011	88.75777616
121120A00011	11/20/2012	2.22	11/22/2027	105.40427	102.6960027	100.0763182	97.5417666	95.08905299	92.71503094	90.41669483	88.19117266	86.03571919
121217A00009	12/17/2012	2.02	12/17/2027	102.83721	101.2403253	99.6891269	98.1819473	96.71719228	95.29333714	93.90892307	92.56255386	91.25289273
130107A00002	1/7/2013	3.22	1/18/2028	109.33868	106.1375937	103.0479133	100.0651028	97.1848433	94.40301807	91.71570182	89.11915041	86.60979128
130206A00004	2/6/2013	2.14	2/7/2028	103.32462	101.5662474	99.85692217	98.19483813	96.57827084	95.00557379	93.47517424	91.98556917	90.53532164
130206A00009	2/6/2013	2.83	2/7/2028	106.93407	104.200715	101.5601192	99.00851078	96.54229461	94.15804567	91.85249964	89.62254415	87.46521067
130207A00012	2/7/2013	2.9	2/7/2033	110.85314	106.422344	102.2538582	98.32924266	94.63151341	91.14501505	87.85530697	84.74906012	81.8139632
130211A00017	2/11/2013	3.27	2/15/2028	109.74308	106.4571262	103.2877456	100.2300953	97.27956702	94.43177369	91.68253706	89.02787625	86.46399705
130405A00006	4/5/2013	2.41	4/7/2025	100.66617	100.3115512	99.95943331	99.60979352	99.2626056	98.91784372	98.57548242	98.23549659	97.89786148
130405A00007	4/5/2013	2.91	4/17/2028	109.33405	105.8767387	102.5480133	99.34242195	96.25477211	93.28011759	90.41374573	87.65116502	84.98809354
130424A00004	4/24/2013	2.46	4/24/2025	100.77961	100.3779451	99.9794834	99.58418858	99.19202293	98.80294934	98.41693125	98.03393272	97.65391833
130424A00005	4/24/2013	3.07	4/24/2030	115.65677	110.0282238	104.7122267	99.68978526	94.94315181	90.4557398	86.21204234	82.19755657	78.39871374
130531A00021	5/31/2013	3.22	5/30/2028	110.75965	107.1605834	103.6994764	100.3702882	97.16727869	94.0849897	91.11822929	88.26205732	85.51177176
130913A00018	9/13/2013	3.72	9/13/2028	108.00582	105.5787389	103.2302024	100.9570593	98.75630841	96.62508944	94.56067509	92.56046416	90.62197476
130925A00035	9/25/2013	1.53	6/25/2025	100.63452	100.0164801	99.40597986	98.80287946	98.20704442	97.61834354	97.0366488	96.46183523	95.89378082
130926A00009	9/26/2013	4	10/2/2028	114.87702	110.8540071	106.996647	103.2972579	99.74854992	96.34360699	93.07586582	89.93909598	86.92738138
131018A00006	10/18/2013	3.28	10/20/2025	102.63355	101.6919258	100.7680522	99.86142569	98.97156236	98.09799632	97.24027891	96.39797784	95.57067649
131217A00024	12/17/2013	4.34	1/2/2029	116.91305	112.6023645	108.4786262	104.5326792	100.7558709	97.14001844	93.67738101	90.36063296	87.18283932
140219A00005	2/19/2014	3.13	2/20/2029	106.5098	104.2462358	102.0571646	99.93951481	97.89036116	95.90692009	93.98654177	92.12670271	90.32499884
140423A00036	4/23/2014	4.03	4/23/2029	116.81559	112.1905959	107.7792822	103.5706452	99.55430202	95.72045505	92.05985586	88.56377164	85.22395376
140521A00019	5/21/2014	3.43	5/22/2028	111.42904	107.8398849	104.3873808	101.0655886	97.86885651	94.79180869	91.82932982	88.97655108	86.22883685
140626A00036	6/26/2014	3.55	6/26/2029	115.65518	110.8660177	106.3065688	101.9645564	97.82843038	93.88731687	90.13097474	86.5497554	83.13456523
140717A00027	7/17/2014	3.14	7/17/2026	104.4508	102.8512539	101.2853539	99.75209096	98.25049546	96.77963667	95.33862061	93.92658819	92.54271351
140815A00032	8/15/2014	3.59	10/15/2029	116.4217	111.3197957	106.4759617	101.8757854	97.50573252	93.35308842	89.40590444	85.65294795	82.0836559
140911A00033	9/11/2014	3.02	9/13/2027	106.1547	103.8417047	101.5970024	99.41814966	97.30280284	95.24871564	93.25373459	91.31579462	89.43291493
140917A00030	9/17/2014	3.23	9/17/2029	112.66257	108.3941828	104.3304895	100.4603644	96.77334651	93.25959867	89.90986719	86.71544401	83.66813171
140924A00057	9/24/2014	3.25	9/25/2028	111.21403	107.4928994	103.924095	100.5005188	97.21543996	94.06247614	91.03557344	88.12898781	85.33726749

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11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
141117A00011	11/17/2014	3.81	11/17/2034	132.16571	121.3734735	111.5930957	102.7231503	94.67291104	87.36116905	80.7151885	74.66978232	69.1664926
141208A00008	12/8/2014	3.02	12/16/2024	100.10311	100.0586898	100.0143271	99.97002151	99.92577278	99.88158083	99.83744555	99.79336683	99.74934454
141215A00062	12/15/2014	2.65	12/16/2024	100.08986	100.0454211	100.0010359	99.95670811	99.91243761	99.86822428	99.82406801	99.77996866	99.73592613
150203A00027	2/3/2015	2.26	2/4/2030	105.65228	102.8995811	100.2545807	97.71211964	95.26732239	92.91558177	90.65254209	88.47408373	86.3763087
150213A00014	2/13/2015	2.41	2/13/2025	100.2804	100.1249547	99.97004983	99.81567897	99.66183916	99.50852745	99.35574094	99.20347673	99.05173194
150219A00016	2/19/2015	2.68	2/19/2025	100.63845	100.3374935	100.0383196	99.74091297	99.44525794	99.15133888	98.85914036	98.56864716	98.27984424
150220A00022	2/20/2015	2.8	2/20/2025	100.48759	100.2603226	100.0340929	99.80889214	99.5847133	99.36154941	99.13939353	98.91823882	98.69807848
150224A00010	2/24/2015	2.34	2/24/2025	100.42916	100.1862272	99.9444534	99.70382785	99.46434232	99.22598874	98.98875909	98.75264542	98.51763988
150227A00011	2/27/2015	2.33	2/27/2025	100.56719	100.249976	99.93479081	99.6216142	99.31042687	99.00120979	98.69394418	98.38861149	98.08519339
150311A00003	3/11/2015	2.72	3/31/2025	100.87627	100.464004	100.0551225	99.64958776	99.24735894	98.84839563	98.45265812	98.06010735	97.67070488
150317A00013	3/17/2015	2.58	3/17/2025	100.60218	100.3055529	100.0106931	99.71758043	99.42619932	99.1365343	98.84857012	98.56229171	98.27768418
150319A00012	3/19/2015	3.13	3/19/2029	112.55279	108.1176241	103.8843748	99.8427749	95.98313135	92.29629361	88.77362017	85.40694735	82.18856034
150319A00013	3/19/2015	3.25	3/19/2030	115.9178	110.3969324	105.1769175	100.2397536	95.56860657	91.1477313	86.96239536	82.99880872	79.24405858
150320A00019	3/20/2015	2.25	3/20/2025	100.656	100.2761855	99.89928977	99.52527852	99.15411838	98.78577656	98.42022074	98.05741913	97.69734039
150401A00008	4/1/2015	2.62	4/1/2025	100.67746	100.3396189	100.0040385	99.67069832	99.33957588	99.01064916	98.68389639	98.35929611	98.03682711
150410A00021	4/10/2015	2.27	4/10/2025	100.3938	100.152644	99.91284856	99.67440441	99.43729907	99.20152026	98.96705586	98.73389389	98.50202256
150414A00037	4/14/2015	2.34	4/14/2025	100.41481	100.1713939	99.92937908	99.68874773	99.44948688	99.21158374	98.97502569	98.73980025	98.50589511
150422A00019	4/22/2015	2.62	4/22/2025	100.80031	100.4044596	100.0117262	99.62206974	99.23545409	98.85184366	98.47120344	98.09349893	97.71869621
150427A00014	4/27/2015	2.98	4/27/2035	114.147	108.4211825	103.1002577	98.1507447	93.54222788	89.24705491	85.24006535	81.49834746	78.00102042
150512A00029	5/12/2015	3.03	5/12/2025	101.10189	100.6503374	100.2028255	99.75930116	99.31971118	98.88400318	98.45212575	98.02402838	97.59966145
150519A00013	5/19/2015	2.98	5/19/2025	101.12679	100.655939	100.1894831	99.72735803	99.26950342	98.81586015	98.36637015	97.92097644	97.47962305
150601A00261	6/1/2015	3.19	2/11/2033	112.49479	107.9969238	103.7586612	99.76226605	95.99136348	92.43082191	89.06664969	85.88590124	82.87659142
150601A00270	6/1/2015	3.12	3/21/2031	109.47855	106.0912308	102.8594337	99.77455406	96.82853026	94.01380495	91.32328984	88.75033341	86.28869103
150601A00342	6/1/2015	3.97	8/26/2033	115.63243	110.9879989	106.6187832	102.5053627	98.62985355	94.97577709	91.52793866	88.27231837	85.19597161
150601A00396	6/1/2015	3.61	1/3/2029	106.85837	104.7192734	102.6487572	100.644046	98.70249815	96.82159776	94.99894774	93.2322634	91.51936636
150601A00404	6/1/2015	4.29	1/17/2029	116.61659	112.2706866	108.1148622	104.1397297	100.336421	96.69655462	93.21220548	89.87587775	86.68047885
150601A00405	6/1/2015	4.63	1/17/2034	136.81697	126.6556934	117.3705144	108.8801559	101.1113198	93.99786266	87.48006183	81.50395989	76.02077968
150601A00411	6/1/2015	3.38	1/24/2029	106.38442	104.2509263	102.1859285	100.1866503	98.25044995	96.37481159	94.55733834	92.79574591	91.08785643
150601A00426	6/1/2015	3.37	2/21/2029	106.49582	104.3189898	102.2131406	100.1753582	98.20286939	96.29303486	94.44334162	92.6513961	90.91491761
150601A00440	6/1/2015	3.27	3/16/2029	106.41094	104.1939814	102.0504341	99.97724011	97.97149627	96.03044092	94.15144605	92.33200987	90.5697498
150601A00450	6/1/2015	3.28	4/27/2029	106.56259	104.3010383	102.1155428	100.002903	97.9600731	95.98415739	94.07240156	92.22218496	90.43101316
150601A00460	6/1/2015	3.05	5/16/2029	106.17328	103.8765791	101.6583036	99.51510876	97.4438156	95.4414035	93.50500098	91.63187735	89.81943479
150601A00475	6/1/2015	3.04	6/1/2029	106.15297	103.8557776	101.637081	99.49352437	97.42192403	95.41925464	93.48264047	91.60934689	89.79677247

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
150601A00477	6/1/2015	3.21	6/1/2029	106.89456	104.5262251	102.2396338	100.0312711	97.89780197	95.83605809	93.84302855	91.91585077	90.05180221
150601A00506	6/1/2015	3.14	7/6/2029	106.61779	104.2313787	101.9288319	99.70647992	97.56084181	95.48861346	93.48665753	91.55199389	89.68179058
150601A00512	6/1/2015	3.79	7/16/2029	116.30404	111.4567839	106.8437841	102.4524242	98.27083505	94.28784871	90.49295326	86.87625041	83.42841627
150601A00522	6/1/2015	4.52	7/25/2030	123.65673	117.5698575	111.8306373	106.4172327	101.3092939	96.48785265	91.93522011	87.63489416	83.57147322
150601A00523	6/1/2015	4.55	7/25/2031	127.42535	120.1889778	113.4281489	107.1088237	101.1995817	95.67140591	90.4974861	85.65303956	81.11514736
150601A00528	6/1/2015	3.08	7/27/2029	106.48104	104.0957824	101.7944179	99.57327282	97.42886161	95.35787628	93.35717595	91.42377726	89.55484538
150601A00559	6/1/2015	3.06	8/31/2029	106.55337	104.1251421	101.7835629	99.52478635	97.34516855	95.2412533	93.20976105	91.24757865	89.35174973
150601A00664	6/1/2015	3.78	1/16/2032	123.69071	116.0940525	109.0309106	102.4607483	96.34631991	90.65338711	85.35046068	80.40856604	75.80102984
150601A00665	6/1/2015	3.82	1/14/2033	126.78037	118.0671477	110.0389478	102.6378251	95.81103724	89.51055188	83.69260233	78.31728787	73.34821326
150601A00666	6/1/2015	3.88	1/16/2035	132.72793	121.746656	111.8089746	102.80887	94.65165795	87.25272006	80.53638473	74.43493763	68.88774616
150601A00667	6/1/2015	3.88	1/16/2036	135.09067	123.0009699	112.1569742	102.4217596	93.67419101	85.80702392	78.72524402	72.34461284	66.59039309
150601A00668	6/1/2015	3.89	1/16/2037	137.35093	124.1604969	112.4328186	101.995107	92.69593124	84.40247621	76.99816293	70.38058434	64.45971298
150601A00677	6/1/2015	2.39	1/30/2025	100.29601	100.1268069	99.9581753	99.79011216	99.62261462	99.45567983	99.28930497	99.12348722	98.9582238
150601A00678	6/1/2015	2.12	1/30/2025	100.12304	100.0343645	99.94593313	99.85774872	99.76981016	99.68211635	99.5946662	99.50745863	99.42049256
150601A00684	6/1/2015	2.25	2/7/2025	100.17815	100.0617665	99.94577214	99.83016057	99.71492977	99.60007775	99.48560252	99.37150212	99.2577746
150601A00688	6/1/2015	2.61	2/21/2025	100.4594	100.2292135	100.0000941	99.77203037	99.54501513	99.31904106	99.09410096	98.8701877	98.64729423
150601A00689	6/1/2015	2.81	2/28/2025	100.52901	100.2795825	100.0313928	99.78442716	99.53867667	99.29413237	99.05078542	98.8086271	98.56764873
150601A00690	6/1/2015	2.34	2/28/2025	100.21361	100.0827022	99.95230083	99.82240511	99.69301187	99.56411794	99.43572018	99.30781549	99.18040077
150601A00696	6/1/2015	2.83	3/13/2025	100.6155	100.330128	100.0463837	99.76425648	99.48373238	99.20479767	98.92743877	98.65164225	98.37739482
150601A00733	6/1/2015	2.72	5/1/2025	100.9122	100.4909223	100.0731615	99.65886935	99.24800261	98.84051899	98.43637682	98.03553513	97.63795361
150601A00734	6/1/2015	2.92	5/1/2025	100.96177	100.5407644	100.1232601	99.70921718	99.29859272	98.89134456	98.4874312	98.08681182	97.68944629
150601A00736	6/1/2015	2.87	5/1/2030	106.97349	104.2057002	101.5479408	98.99485048	96.54136572	94.18270619	91.91435684	89.73205133	87.63175667
150601A00737	6/1/2015	2.68	12/31/2024	100.16964	100.0835717	99.99764792	99.91187089	99.82624026	99.74075566	99.65541672	99.57022308	99.48517438
150601A00739	6/1/2015	2.35	5/6/2025	100.41839	100.1716873	99.92665342	99.68327065	99.44152077	99.20138582	98.96284812	98.72589025	98.49049505
150601A00832	6/1/2015	7.17	8/28/2025	102.47438	102.0871895	101.7040482	101.3248811	100.9496191	100.5781951	100.2105435	99.84660029	99.48630292
150601A00851	6/1/2015	7.12	4/30/2027	108.47656	107.1682709	105.8885751	104.6366095	103.4115415	102.2125703	101.0389258	99.88986724	98.76468137
150601A00864	6/1/2015	7.37	3/31/2028	112.35298	110.4941569	108.6860671	106.9269085	105.21496	103.5485745	101.9261748	100.3462504	98.80735371
150601A00868	6/1/2015	7.08	6/5/2028	112.75999	110.7591704	108.8159658	106.9282477	105.0939821	103.3112251	101.5781176	99.89288159	98.25381581
150601A00871	6/1/2015	6.74	7/31/2028	112.40965	110.3681598	108.3865765	106.4626467	104.5942229	102.7792538	101.0157792	99.3019255	97.63590096
150601A00872	6/1/2015	7.42	7/31/2028	113.76482	111.6978953	109.6916188	107.7437144	105.8520076	104.0144216	102.2289718	100.4937612	98.8069758
150601A00875	6/1/2015	7.14	9/29/2028	113.84274	111.6825394	109.5879321	107.5563895	105.5854965	103.6729483	101.8165451	100.0141861	98.26386461
150601A00883	6/1/2015	6.21	11/30/2028	112.45736	110.2335669	108.0796163	105.9927328	103.9702763	102.0097302	100.1086949	98.26488135	96.47610507
150601A00888	6/1/2015	5.92	3/1/2029	112.61548	110.2524084	107.9672155	105.75668	103.6177402	101.5474828	99.54313459	97.60205478	95.72172772

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
150601A00889	6/1/2015	6.55	3/2/2029	114.07224	111.6776608	109.3620003	107.1219956	104.9545441	102.8566932	100.8256328	98.85868647	96.95330503
150601A00893	6/1/2015	6.49	4/6/2029	114.50471	112.010182	109.6003672	107.2716771	105.0207021	102.8442011	100.7390921	98.70244272	96.7314626
150601A00897	6/1/2015	6.15	5/28/2029	113.96497	111.4355837	108.9934881	106.6349292	104.3563466	102.1543575	100.0257472	97.96745943	95.97658728
150601A00899	6/1/2015	7.07	6/14/2029	115.46945	112.986418	110.588503	108.2720444	106.0335711	103.869786	101.7775559	99.75390239	97.79599286
150601A00905	6/1/2015	6.14	10/29/2029	115.30938	112.5181408	109.8304646	107.2416177	104.747115	102.3427079	100.0243706	97.78828663	95.63083664
150601A00906	6/1/2015	6.2	11/1/2029	115.47235	112.676924	109.9852257	107.3925137	104.8942952	102.4863143	100.1645384	97.92514463	95.76450749
150601A00912	6/1/2015	5.96	11/30/2029	115.08898	112.2570501	109.5316846	106.9079452	104.3811629	101.9469173	99.60102253	97.33951248	95.15862823
150601A00916	6/1/2015	7.27	4/5/2030	137.10973	130.9812383	125.1808161	119.6889902	114.4875423	109.5594247	104.8886792	100.4603619	96.26047372
150601A00918	6/1/2015	5.62	4/28/2025	101.07237	100.8560468	100.6410342	100.427322	100.2148972	100.0037468	99.79385831	99.58521908	99.3778168
150601A00927	6/1/2015	6.08	8/7/2030	116.8328	113.7030672	110.7026831	107.8250933	105.0641274	102.4139724	99.86914991	97.42449407	95.07513194
150601A00928	6/1/2015	5.94	8/21/2030	116.43445	113.3118217	110.3183433	107.4474712	104.6930402	102.0492425	99.5106048	97.07196639	94.72845924
150601A00929	6/1/2015	5.91	8/30/2030	117.30456	113.9957058	110.8268105	107.790679	104.8805443	102.0900356	99.41315185	96.84423832	94.37796386
150601A00935	6/1/2015	6.46	11/21/2030	119.93017	116.4031777	113.0308267	109.8049129	106.7177295	103.7620335	100.9310148	98.21826729	95.6177621
150601A00939	6/1/2015	5.79	1/17/2031	118.18598	114.6176665	111.2094883	107.9527674	104.8393635	101.8616358	99.01240874	96.28494087	93.67289525
150601A00943	6/1/2015	6.44	5/9/2031	121.57363	117.7089727	114.025708	110.5136038	107.1630798	103.9651656	100.9114576	97.99407942	95.20564496
150601A00948	6/1/2015	6.04	10/22/2031	119.70134	115.9003758	112.2823311	108.8365553	105.5531005	102.4226735	99.43658741	96.58671842	93.86546493
150601A01024	6/1/2015	5.33	2/27/2026	106.03961	104.763861	103.5190092	102.3039426	101.1175989	99.95896643	98.8270801	97.72101942	96.63990572
150601A01041	6/1/2015	5.99	10/2/2036	136.44543	128.731108	121.6284474	115.0810617	109.0382901	103.4545748	98.28890704	93.50433783	89.06754421
150603A00012	6/3/2015	2.77	6/3/2030	107.53721	104.5638376	101.7129814	98.97849838	96.35459597	93.83581338	91.41700013	89.09329633	86.86011433
150603A00017	6/3/2015	2.84	6/3/2025	101.19678	100.6840544	100.1765178	99.67409493	99.17670863	98.68428342	98.1967453	97.71402173	97.2360416
150603A00032	6/3/2015	2.21	6/3/2025	100.54693	100.2211915	99.89801469	99.57736388	99.25920663	98.94351106	98.63024586	98.31938027	98.01088407
150604A00039	6/4/2015	2.82	6/4/2030	107.68748	104.7099112	101.855034	99.1166966	96.48909808	93.96676965	91.5445533	89.21758209	86.98126169
150610A00008	6/10/2015	3.58	6/10/2030	118.80896	112.9658868	107.4529528	102.2496957	97.3370322	92.69715348	88.31343393	84.17034628	80.25338351
150610A00009	6/10/2015	3.03	6/10/2025	101.34279	100.8104288	100.2836673	99.7624169	99.24659116	98.73610557	98.23087733	97.73082534	97.23587019
150615A00024	6/15/2015	2.26	6/16/2025	100.57151	100.2409966	99.91313833	99.58790407	99.26525904	98.94516912	98.6276008	98.31252121	97.99989806
150617A00017	6/17/2015	2.27	6/17/2025	100.57621	100.2448947	99.91625461	99.59025513	99.26686112	98.94603805	98.62775206	98.31196987	97.99865888
150617A00018	6/17/2015	2.45	6/17/2025	100.60979	100.2786447	99.95017082	99.62433261	99.30109499	98.98042356	98.66228458	98.3466449	98.03347202
150617A00030	6/17/2015	2.91	6/16/2025	101.43231	100.815455	100.2062107	99.6044318	99.0099808	98.42272368	97.84252968	97.26927118	96.70282366
150701A00056	7/1/2015	2.34	7/1/2025	100.6683	100.2999434	99.93488438	99.5730781	99.21447679	98.85903369	98.50670298	98.15743978	97.8112001
150714A00003	7/14/2015	3.76	7/12/2030	110.69518	107.589958	104.6143309	101.761718	99.02592549	96.40111791	93.88179493	91.46276987	89.1391496
150720A00012	7/20/2015	2.99	7/21/2025	101.59955	100.9539526	100.3165583	99.687216	99.06577365	98.45208295	97.84599931	97.24738173	96.65609268
150721A00027	7/21/2015	3.74	7/22/2030	119.56446	113.6000789	107.9777057	102.675827	97.67439421	92.95472025	88.49937937	84.29211531	80.31775662
150722A00033	7/22/2015	2.47	7/22/2025	100.70053	100.3251948	99.95332666	99.58487689	99.21979321	98.85802447	98.49952059	98.1442326	97.79211251

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
150722A00035	7/22/2015	2.92	7/22/2025	101.66464	100.9508713	100.24728	99.55364993	98.86976939	98.19543269	97.53043991	96.8745967	96.22771407
150727A00013	7/27/2015	3.04	7/28/2025	101.6272	100.9629962	100.3074636	99.66043644	99.02175005	98.39124383	97.76876133	97.15415005	96.54726135
150729A00028	7/29/2015	2.25	7/29/2025	100.6515	100.2736231	99.89928757	99.52843491	99.16101102	98.79696299	98.43623906	98.07878856	97.72456195
150729A00041	7/29/2015	2.44	7/29/2025	100.69361	100.3159016	99.94172923	99.57103379	99.20376138	98.83985926	98.4792758	98.12196051	97.76786399
150731A00016	7/31/2015	3.04	7/31/2025	101.6472	100.9747025	100.3110933	99.65619346	99.00983256	98.37184439	97.74206712	97.12034303	96.50651841
150803A00033	8/3/2015	3.41	8/2/2030	115.40928	110.2629908	105.4021795	100.8090731	96.46711409	92.36086836	88.47594225	84.79890633	81.3172253
150803A00036	8/3/2015	3.41	8/2/2030	115.40928	110.2629908	105.4021795	100.8090731	96.46711409	92.36086836	88.47594225	84.79890633	81.3172253
150803A00037	8/3/2015	3.41	8/2/2030	115.40928	110.2629908	105.4021795	100.8090731	96.46711409	92.36086836	88.47594225	84.79890633	81.3172253
150803A00038	8/3/2015	3.41	8/2/2030	115.40928	110.2629908	105.4021795	100.8090731	96.46711409	92.36086836	88.47594225	84.79890633	81.3172253
150803A00039	8/3/2015	3.01	8/2/2030	108.25327	105.1786066	102.233669	99.41180576	96.70675941	94.11263778	91.62389009	89.23528481	86.94188911
150803A00041	8/3/2015	3.01	8/2/2030	108.25327	105.1786066	102.233669	99.41180576	96.70675941	94.11263778	91.6238901	89.23528481	86.94188911
150803A00042	8/3/2015	3.01	8/2/2030	108.25327	105.1786066	102.233669	99.41180576	96.70675941	94.11263778	91.6238901	89.23528481	86.94188911
150812A00052	8/14/2015	2.13	8/14/2025	100.668	100.2525258	99.84132291	99.43431643	99.03143525	98.63260999	98.23777285	97.84685767	97.4597998
150814A00029	8/14/2015	2.39	8/14/2025	100.74358	100.3281561	99.91699839	99.51003164	99.10718493	98.70838904	98.31357636	97.92268088	97.53563811
150817A00099	8/17/2015	3.19	8/17/2027	107.97391	105.2130716	102.5373711	99.94362374	97.4287924	94.98997528	92.62439866	90.32941021	88.10247268
150819A00012	8/19/2015	3.04	8/19/2025	101.77699	101.0521283	100.3375939	99.63316595	98.938631	98.25378142	97.57841539	96.91233669	96.25535449
150819A00013	8/19/2015	3.51	8/19/2030	118.46534	112.455183	106.7941231	101.4599307	96.43191436	91.69080499	87.21864989	82.99871562	79.01539854
150824A00033	8/24/2015	2.22	8/25/2025	100.67768	100.2595024	99.84567051	99.43610986	99.03074693	98.62951003	98.23232918	97.83913607	97.44986402
150824A00050	8/24/2015	2.03	8/25/2025	100.63099	100.2126367	99.79863956	99.38892041	98.98340553	98.58202304	98.18470274	97.79137616	97.40197643
150826A00038	8/26/2015	2.94	8/26/2026	104.6853	102.9337855	101.2200041	99.54280101	97.90107039	96.29375124	94.71982522	93.17831453	91.66827973
150826A00039	8/26/2015	3.22	8/27/2029	114.63207	109.6963732	105.0050068	100.5445094	96.30223657	92.26630926	88.42556263	84.76949882	81.28824319
150925A00034	9/25/2015	2.36	9/25/2025	100.81407	100.3527508	99.89675	99.44596105	99.00028462	98.55962401	98.12388509	97.69297624	97.26680822
150929A00076	9/29/2015	2.28	9/29/2025	100.7789	100.316662	99.85976633	99.40811435	98.96160549	98.52014194	98.08362853	97.6519726	97.22508395
150929A00083	9/29/2015	2.09	9/29/2025	100.72727	100.2648547	99.80779332	99.35598329	98.90932387	98.46771699	98.03106723	97.59928171	97.17227
150929A00087	9/29/2015	2.09	9/29/2025	100.72727	100.2648547	99.80779332	99.35598329	98.90932387	98.46771699	98.03106723	97.59928171	97.17227
151001A00023	10/1/2015	2.02	10/1/2025	100.74893	100.2516597	99.7605385	99.27543839	98.79623714	98.32281599	97.85505954	97.39285558	96.93609504
151013A00033	10/13/2015	2.23	10/14/2025	100.81988	100.3197423	99.82584034	99.33804945	98.85624396	98.38030186	97.91010465	97.44553715	96.98648746
151029A00008	10/29/2015	2.28	10/29/2025	100.85242	100.3481584	99.8502794	99.35864596	98.8731273	98.39359648	97.91993028	97.45200904	96.98971656
151030A00026	10/30/2015	3.29	10/30/2030	115.23971	109.9232552	104.9123895	100.1874783	95.73026089	91.52374691	87.55212158	83.80065785	80.25563585
151106A00011	11/6/2015	3.1	1/15/2026	102.96487	101.8271485	100.7145642	99.62628956	98.56153383	97.51954002	96.49958343	95.50096981	94.52303385
151116A00025	11/16/2015	3.04	11/14/2025	102.39549	101.4304966	100.4836842	99.55454344	98.64258274	97.74732843	96.86832415	96.00513003	95.157322
151118A00037	11/18/2015	2.75	11/18/2025	102.17399	101.1955257	100.2366687	99.2968269	98.37543047	97.4719324	96.58580726	95.71655011	94.86367554
151120A00019	11/20/2015	2.72	11/20/2030	107.93158	104.7320494	101.6727017	98.74610057	95.94526439	93.26363159	90.69503245	88.23366304	85.87406104

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
151125A00037	11/25/2015	2.41	11/25/2025	100.99785	100.4517161	99.91306577	99.38173182	98.85754852	98.34035548	97.82999737	97.32632369	96.82918862
151204A00011	12/4/2015	2.28	12/4/2025	101.04081	100.4565439	99.88081122	99.31340798	98.75413435	98.20279717	97.65920976	97.12319155	96.59456787
151209A00024	12/9/2015	2.22	12/9/2025	101.0079	100.4227692	99.84621578	99.27802977	98.71800957	98.16596036	97.62169388	97.08502807	96.55578684
151211A00055	12/11/2015	2.62	12/11/2024	100.06197	100.0314111	100.0008879	99.9703999	99.93994712	99.90952947	99.87914687	99.84879925	99.81848655
151223A00036	12/23/2015	2.64	12/23/2025	101.93216	101.0369568	100.1611853	99.30420933	98.46541628	97.6442198	96.84005859	96.05239503	95.28071394
151223A00072	12/23/2015	2.81	12/23/2025	102.54214	101.4685913	100.4174949	99.3881493	98.37988434	97.39205706	96.42405043	95.47527207	94.545153
151223A00074	12/23/2015	3.01	12/23/2027	108.72908	105.6016931	102.5814719	99.66413231	96.84558753	94.12193814	91.48946226	88.94460634	86.48397643
151223A00077	12/23/2015	3.57	12/24/2035	133.15697	121.1759564	110.4291077	100.781019	92.11185907	84.31550398	77.29790317	70.97564794	65.27471616
151223A00078	12/23/2015	2.28	12/23/2025	101.05003	100.4617181	99.88210208	99.31097214	98.74812142	98.19335009	97.64646511	97.10727991	96.57561412
151228A00013	12/28/2015	2.27	12/29/2025	101.04653	100.4571796	99.87657662	99.30450105	98.74074412	98.1851042	97.63738655	97.09740298	96.5649716
151229A00026	12/29/2015	2.28	12/29/2025	101.05294	100.4633482	99.88250689	99.31020196	98.74622418	98.19037152	97.6424489	97.10226779	96.56964598
151229A00079	12/29/2015	3	12/30/2025	102.71709	101.6246434	100.5554033	99.50863991	98.48364995	97.47975918	96.49632097	95.53271486	94.58834528
151229A00080	12/29/2015	3.49	12/30/2030	119.3078	112.9072844	106.8992728	101.2575272	95.95770138	90.97719333	86.29501144	81.89165146	77.7489836
151229A00081	12/29/2015	3.76	12/31/2035	134.2842	122.2796024	111.5089674	101.8370324	93.14408935	85.32411735	78.28315172	71.93785453	66.21426135
160106A00042	1/6/2016	2.43	1/6/2026	101.17185	100.544539	99.92709397	99.31925314	98.72076856	98.1314013	97.55092095	96.97910526	96.41573979
160113A00030	1/13/2016	2.52	1/13/2025	100.23095	100.1088694	99.98710292	99.86564925	99.7445071	99.62367523	99.50315238	99.38293731	99.2630288
160115A00011	1/15/2016	2.18	1/15/2026	101.0179	100.3897927	99.77160957	99.16308933	98.56398095	97.97404247	97.39304067	96.82075067	96.25695549
160119A00019	1/19/2016	2.95	1/19/2027	105.68375	103.5285536	101.4281922	99.38088423	97.38492398	95.43867412	93.54056255	91.6890792	89.88277303
160119A00025	1/19/2016	3.05	1/19/2028	108.80929	105.6138965	102.5298592	99.55264048	96.67791896	93.90157585	91.21968404	88.62849789	86.12444351
160119A00026	1/19/2016	3.14	1/19/2029	112.10062	107.8425035	103.7719133	99.87955101	96.1566343	92.59486382	89.18639382	85.92380458	82.8000768
160119A00027	1/19/2016	3.25	1/18/2030	115.46242	110.1237246	105.0680175	100.278753	95.74044152	91.43857714	87.35957008	83.49068363	79.81997601
160119A00028	1/19/2016	3.34	1/21/2031	118.53527	112.0985997	106.0603498	100.3936579	95.07361208	90.07710101	85.38267436	80.97041475	76.82182035
160119A00029	1/19/2016	3.39	1/20/2032	121.31097	113.7867525	106.7932762	100.2901018	94.24007763	88.60905872	83.36564816	78.48096218	73.92841637
160119A00030	1/19/2016	3.44	1/18/2033	124.16582	115.5452141	107.6053963	100.2886125	93.54230642	87.31862556	81.57397695	76.26862703	71.36634112
160119A00072	1/19/2016	2.77	1/21/2031	108.18286	104.7907473	101.5599951	98.48139866	95.54635386	92.74680945	90.07522784	87.52454872	85.08815555
160122A00029	1/22/2016	2.48	1/22/2025	100.27441	100.1273737	99.98078675	99.83464252	99.68893896	99.54367406	99.39884578	99.25445213	99.11049111
160126A00004	1/26/2016	2.52	1/26/2026	102.6389	101.4114753	100.2136848	99.04446527	97.90280041	96.78772146	95.69830472	94.63366889	93.59297269
160129A00066	1/29/2016	3.04	1/29/2031	117.25838	110.819435	104.7815663	99.11759566	93.8023265	88.81239215	84.12611323	79.72336698	75.58546738
160129A00067	1/29/2016	2.53	1/29/2026	102.50933	101.3346491	100.1868191	99.06492617	97.96809872	96.89550389	95.84634534	94.81986128	93.8153226
160201A00016	2/1/2016	2.1	2/2/2026	101.03848	100.3705635	99.71385633	99.06804792	98.43283838	97.80793933	97.19307339	96.58797359	95.99238292
160209A00006	2/9/2016	1.91	2/9/2026	100.91329	100.2447461	99.5874699	98.94114338	98.30546371	97.68013975	97.06489149	96.45944955	95.86355464
160209A00008	2/9/2016	2.45	2/10/2031	107.07205	103.7762973	100.6298458	97.62453414	94.75271156	92.00720052	89.38126409	86.86857583	84.46319202
160210A00042	2/10/2016	2.57	2/10/2026	102.54673	101.3405094	100.1626034	99.01202246	97.88782386	96.78910778	95.7150149	94.6647242	93.63745078

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
160210A00049	2/10/2016	1.78	2/10/2026	100.87914	100.2100169	99.55218309	98.90532363	98.26913453	97.64332359	97.0276098	96.42172283	95.82540248
160210A00051	2/10/2016	2.28	2/10/2031	106.77369	103.4818505	100.3393201	97.33792663	94.47001094	91.72838817	89.10631496	86.59745932	84.1958727
160210A00054	2/10/2016	1.78	2/10/2026	100.87914	100.2100169	99.55218309	98.90532363	98.26913453	97.64332359	97.0276098	96.42172283	95.82540248
160211A00035	2/11/2016	2.25	2/11/2025	100.3208	100.1186055	99.91724044	99.71669578	99.51696644	99.31804739	99.11993366	98.92262031	98.72610244
160211A00036	2/11/2016	2.41	2/11/2026	102.35972	101.1519688	99.97264356	98.82074561	97.69532643	96.59548077	95.52034427	94.46909113	93.44093199
160211A00038	2/11/2016	1.83	2/11/2026	100.85998	100.1914339	99.53415951	98.88784521	98.25218748	97.62689453	97.01168578	96.40629129	95.81045123
160212A00037	2/12/2016	3.03	2/12/2031	116.75916	110.3140714	104.2723875	98.60664043	93.29137731	88.3030029	83.61963399	79.22096612	75.08815138
160212A00047	2/12/2016	1.94	2/12/2026	100.93457	100.2653453	99.607412	98.96045507	98.32417028	97.69826522	97.08245874	96.47648035	95.8800697
160222A00005	2/22/2016	2.79	2/22/2028	108.24393	104.9621996	101.7977061	98.74554531	95.80105554	92.95980043	90.21755617	87.5702998	85.01419814
160222A00018	2/22/2016	2.59	2/23/2026	102.66195	101.4195253	100.2070984	99.02359551	97.8679907	96.73930619	95.63660938	94.55901033	93.50565932
160222A00019	2/22/2016	3.09	2/21/2031	117.19524	110.7101632	104.6322789	98.93376806	93.58885966	88.57367038	83.86605595	79.44547523	75.29286566
160303A00020	3/3/2016	2.97	3/3/2031	117.04351	110.5143251	104.3975179	98.6647782	93.28988641	88.24855163	83.51825922	79.07813148	74.90879998
160303A00035	3/3/2016	2.14	3/3/2026	101.14278	100.4386351	99.74729353	99.06837415	98.40150958	97.7463475	97.1025499	96.46979233	95.84776321
160307A00024	3/7/2016	2.17	3/6/2026	101.16711	100.4560281	99.75750334	99.07117339	98.39668646	97.73370489	97.08190448	96.44097379	95.81061346
160307A00027	3/7/2016	2.71	3/6/2026	102.89633	101.6239304	100.3808197	99.16598594	97.97846508	96.81733659	95.68172115	94.57077839	93.48370467
160307A00028	3/7/2016	2.91	3/7/2028	108.74355	105.4147521	102.2060089	99.11228069	96.12877503	93.25093019	90.47440255	87.79505459	85.20894368
160307A00029	3/7/2016	3.21	3/7/2031	118.03953	111.4889395	105.3515208	99.59893163	94.20492495	89.14518131	84.39715729	79.93994641	75.75415178
160328A00038	3/28/2016	2.54	3/30/2026	102.90159	101.5562464	100.2358279	98.93969474	97.66722947	96.41783541	95.19093558	93.9859719	92.80240444
160328A00045	3/28/2016	2.49	3/27/2026	102.87863	101.5529555	100.2517869	98.97447723	97.72040521	96.48897091	95.27959502	94.09171795	92.92479899
160329A00017	3/29/2016	2.48	3/30/2026	102.81977	101.4752606	100.1556628	98.86033561	97.588662	96.34004567	95.11390999	93.90969722	92.72686777
160330A00054	3/30/2016	2.9	3/31/2031	116.75619	110.1607594	103.9866222	98.20464695	92.78785979	87.71127309	82.95172983	78.48776088	74.29945405
160330A00056	3/30/2016	2.26	3/31/2025	100.57738	100.2421922	99.90923594	99.57848609	99.24992078	98.92351845	98.59925783	98.2771179	97.95707795
160401A00016	4/1/2016	2.42	4/1/2025	100.60978	100.2720767	99.93663778	99.6034383	99.2724559	98.94366853	98.61705442	98.29259212	97.97026042
160404A00019	4/4/2016	2.48	4/4/2031	107.35281	103.9638409	100.731869	97.64814304	94.7044638	91.89314816	89.20699322	86.63924296	84.1835575
160412A00029	4/12/2016	2.48	4/14/2031	107.35325	103.9639875	100.7317585	97.64780869	94.70393539	91.89245236	89.20615388	86.63828138	84.18249271
160413A00014	4/13/2016	2.55	4/14/2031	107.59405	104.1971436	100.9576341	97.86674061	94.91624144	92.09843277	89.40609234	86.83244615	84.37113751
160413A00016	4/13/2016	2.55	4/14/2031	107.59405	104.1971436	100.9576341	97.86674061	94.91624144	92.09843277	89.40609234	86.83244615	84.37113751
160413A00021	4/13/2016	2.48	4/13/2026	102.9519	101.5491133	100.1729532	98.82272044	97.49774252	96.19736999	94.92097524	93.66795163	92.4377126
160413A00033	4/13/2016	2.32	4/13/2026	102.52618	101.2200429	99.93850817	98.68092624	97.44667356	96.23514793	95.04576764	93.87797055	92.73121332
160414A00042	4/13/2016	2.48	4/13/2026	102.9519	101.5491133	100.1729532	98.82272044	97.49774252	96.19736999	94.92097524	93.66795163	92.4377126
160421A00016	4/21/2016	2.26	4/21/2026	102.73699	101.3419961	99.97380815	98.63171064	97.31501714	96.02306497	94.75521412	93.51084633	92.28936411
160422A00026	4/22/2016	2.62	4/22/2026	103.12818	101.7321248	100.3616867	99.0162248	97.69511543	96.39775513	95.12355997	93.87196473	92.6424222
160427A00004	4/27/2016	2.09	4/27/2026	101.19631	100.4407077	99.69813228	98.96822593	98.25064359	97.54505321	96.8511352	96.16858177	95.49709641

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
160428A00028	4/28/2016	2	4/28/2026	101.18828	100.4318493	99.68847308	98.95779443	98.23946714	97.53315812	96.83854676	96.15532433	95.48319339
160504A00004	5/4/2016	2.3	5/4/2026	102.86432	101.4357635	100.0340127	98.65838067	97.30820103	95.98282986	94.68164447	93.4040426	92.14944155
160511A00015	5/11/2016	2.42	5/11/2026	103.03387	101.557915	100.1111275	98.69270692	97.30188315	95.93791342	94.60008133	93.28769558	92.00008892
160511A00016	5/11/2016	2.48	5/12/2031	107.44267	104.0082666	100.7347615	97.61309172	94.63477302	91.79186019	89.07690928	86.48294253	84.00341602
160523A00086	5/23/2016	2.2	5/26/2026	102.84543	101.3619962	99.90824376	98.48333674	97.08647354	95.71688211	94.37381853	93.05656574	91.76443227
160524A00015	11/25/2016	2.71	11/25/2026	104.78157	102.7838515	100.8345368	98.93214718	97.07526354	95.26251971	93.49259989	91.76423645	90.07620783
160524A00027	5/24/2016	3.06	5/27/2031	117.55943	110.8054303	104.4915484	98.58671423	93.06220697	87.89146617	83.04991864	78.51482015	74.26511037
160603A00014	6/3/2016	1.74	6/3/2026	101.11744	100.2828451	99.46305636	98.65766393	97.86627677	97.08851843	96.32402634	95.57245117	94.83345621
160603A00029	6/3/2016	2.18	6/3/2031	106.75903	103.2990375	100.003114	96.86191395	93.86669621	91.00928079	88.282009	85.67770663	83.18965001
160606A00004	6/6/2016	2.43	6/8/2026	103.15077	101.6281851	100.1357445	98.67262682	97.23803975	95.83121916	94.45142776	93.09795393	91.77011058
160606A00005	6/6/2016	2.92	6/6/2031	116.70215	109.9484428	103.6369779	97.73640118	92.21774104	87.05421377	82.2210478	77.69532263	73.45582146
160606A00018	6/6/2016	1.74	6/5/2026	101.11822	100.2831834	99.46296579	98.65715724	97.86536617	97.0872156	96.32234249	95.57039701	94.83104201
160608A00019	6/8/2016	2.36	6/8/2026	103.10167	101.5568983	100.043482	98.56052248	97.10715891	95.68256267	94.28593597	92.91651038	91.57354546
160608A00020	6/8/2016	2.36	6/8/2026	103.10167	101.5568983	100.043482	98.56052248	97.10715891	95.68256267	94.28593597	92.91651038	91.57354546
160608A00023	6/8/2016	2.36	6/8/2026	103.10167	101.5568983	100.043482	98.56052248	97.10715891	95.68256267	94.28593597	92.91651038	91.57354546
160608A00024	6/8/2016	2.36	6/8/2026	103.10167	101.5568983	100.043482	98.56052248	97.10715891	95.68256267	94.28593597	92.91651038	91.57354546
160608A00025	6/8/2016	2.36	6/8/2026	103.10167	101.5568983	100.043482	98.56052248	97.10715891	95.68256267	94.28593597	92.91651038	91.57354546
160608A00026	6/8/2016	2.36	6/8/2026	103.10167	101.5568983	100.043482	98.56052248	97.10715891	95.68256267	94.28593597	92.91651038	91.57354546
160608A00027	6/8/2016	2.36	6/8/2026	103.10167	101.5568983	100.043482	98.56052248	97.10715891	95.68256267	94.28593597	92.91651038	91.57354546
160608A00028	6/8/2016	2.36	6/8/2026	103.10167	101.5568983	100.043482	98.56052248	97.10715891	95.68256267	94.28593597	92.91651038	91.57354546
160608A00029	6/8/2016	2.36	6/8/2026	103.10167	101.5568983	100.043482	98.56052248	97.10715891	95.68256267	94.28593597	92.91651038	91.57354546
160608A00030	6/8/2016	2.36	6/8/2026	103.10167	101.5568983	100.043482	98.56052248	97.10715891	95.68256267	94.28593597	92.91651038	91.57354546
160608A00031	6/8/2016	2.36	6/8/2026	103.10167	101.5568983	100.043482	98.56052248	97.10715891	95.68256267	94.28593597	92.91651038	91.57354546
160608A00032	6/8/2016	2.36	6/8/2026	103.10167	101.5568983	100.043482	98.56052248	97.10715891	95.68256267	94.28593597	92.91651038	91.57354546
160608A00033	6/8/2016	2.44	6/9/2031	107.39038	103.9154295	100.6050701	97.44993396	94.44126049	91.57085086	88.83102825	86.21460103	83.71482879
160608A00034	6/8/2016	2.44	6/9/2031	107.39038	103.9154295	100.6050701	97.44993396	94.44126049	91.57085086	88.83102825	86.21460103	83.71482879
160609A00075	6/9/2016	1.94	6/9/2026	101.22126	100.3857622	99.56507859	98.75880366	97.96654599	97.18792875	96.42258896	95.67017693	94.93035559
160613A00047	6/15/2016	2.18	6/16/2025	100.87416	100.3273368	99.78644362	99.25138133	98.72205586	98.19837518	97.68024919	97.16758972	96.66031045
160615A00031	6/15/2016	2.51	6/17/2030	112.88274	107.1826574	101.8081156	96.73880708	91.95579214	87.44140314	83.17915251	79.15364781	75.35051352
160616A00027	6/16/2016	2.27	6/16/2026	102.9544	101.411304	99.89900339	98.41664555	96.96341093	95.53850952	94.14117953	92.77068607	91.42632
160616A00029	6/16/2016	1.58	6/16/2026	100.98542	100.1500293	99.32948289	98.52336928	97.73129551	96.95288334	96.18776853	95.43560014	94.69603995
160628A00038	6/28/2016	1.88	6/27/2025	100.79413	100.216932	99.6463261	99.08220334	98.52445369	97.97296959	97.42764592	96.88837987	96.35507093
160628A00039	6/28/2016	2.01	6/29/2026	102.74778	101.1683425	99.62086299	98.10444206	96.61821165	95.16133585	93.73300934	92.33245597	90.95892745

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
160628A00049	6/28/2016	1.88	6/27/2025	100.79413	100.216932	99.6463261	99.08220334	98.52445369	97.97296959	97.42764592	96.88837987	96.35507093
160629A00066	6/29/2016	2.61	6/30/2036	119.09545	109.5573187	100.9752148	93.24401447	86.27087209	79.9737166	74.2799394	69.12524867	64.45266847
160630A00012	6/30/2016	2.11	6/30/2025	100.89395	100.3087841	99.73038418	99.15863404	98.59341961	98.03462942	97.48215449	96.93588832	96.39572676
160701A00020	7/1/2016	2.13	7/1/2026	102.82258	101.2392691	99.68803014	98.16795477	96.67817017	95.21783584	93.78614217	92.38230892	91.00558394
160701A00039	7/1/2016	1.92	7/1/2026	102.61472	101.0309606	99.47931542	97.95887912	96.46877685	95.0081662	93.57623572	92.17220344	90.79531557
160705A00104	7/5/2016	2.1	7/6/2026	102.8011	101.2046683	99.64075651	98.10843558	96.60681399	95.13503352	93.69226777	92.27772062	90.89062484
160706A00010	7/6/2016	1.99	7/7/2025	100.84978	100.2456923	99.64882596	99.05905568	98.47625536	97.90030189	97.33107506	96.76845744	96.21233433
160706A00026	7/6/2016	2.19	7/6/2027	105.00868	102.4003799	99.87018562	97.41528213	95.0329733	92.72067805	90.4759245	88.29634458	86.17966887
160706A00027	7/6/2016	2.29	7/6/2028	107.41309	103.7791082	100.2879989	96.93335446	93.70909301	90.60943939	87.6289078	84.76228545	82.00461734
160706A00028	7/6/2016	2.39	7/6/2029	109.97873	105.3036817	100.8553548	96.62154746	92.59077837	88.75224291	85.09576932	81.61177815	78.29124444
160706A00029	7/6/2016	2.49	7/8/2030	112.40535	106.6777045	101.2797332	96.19071394	91.39133235	86.86358158	82.59066691	78.55691781	74.74770683
160706A00030	7/6/2016	2.59	7/7/2031	114.68944	107.9164901	101.5931846	95.68725907	90.16892956	85.01068783	80.18711629	75.67471859	71.45176487
160711A00004	7/11/2016	1.51	7/13/2026	100.98348	100.1076201	99.24756808	98.40288801	97.57315843	96.75797373	95.95694332	95.16969097	94.39585411
160712A00019	7/12/2017	2.32	7/12/2027	105.38423	102.7549864	100.2048113	97.73084166	95.3303346	93.00066507	90.7393198	88.54389168	86.41207455
160713A00015	7/13/2016	1.57	7/13/2026	101.03715	100.1605606	99.29979471	98.45441774	97.6240076	96.80815808	96.00647804	95.21859073	94.44413307
160714A00018	9/6/2016	2.28	9/4/2026	103.43939	101.6773186	99.95361596	98.26711591	96.61670008	95.0012949	93.41986934	91.87143276	90.35503292
160714A00020	9/6/2016	2.28	9/4/2026	103.43939	101.6773186	99.95361596	98.26711591	96.61670008	95.0012949	93.41986934	91.87143276	90.35503292
160714A00023	8/10/2016	2.49	8/10/2028	108.36116	104.6164942	101.022006	97.5708108	94.25638658	91.07254859	88.01342955	85.07346121	82.24735715
160714A00024	9/20/2016	2.5	9/20/2028	108.66461	104.8029336	101.1000992	97.54872717	94.1418254	90.87276296	87.73524919	84.72331439	81.83129153
160714A00029	8/10/2016	2.27	8/10/2026	103.2769	101.5832071	99.92536619	98.30230144	96.71298247	95.15641981	93.63166282	92.13779779	90.6739461
160719A00026	7/19/2016	1.87	7/20/2026	101.23486	100.3566219	99.49424371	98.64728096	97.81531081	96.99792628	96.19473549	95.40536095	94.62943891
160726A00005	7/26/2016	2.28	7/27/2026	103.21306	101.5572027	99.93585577	98.34800618	96.79267967	95.26893979	93.77588606	92.31265222	90.87840455
160729A00017	7/31/2017	2.47	7/31/2029	110.4928	105.7393599	101.2191195	96.91937019	92.82817122	88.93429488	85.22717971	81.69688708	78.33406093
160801A00002	8/1/2016	1.58	8/3/2026	101.10515	100.188198	99.28807492	98.40431187	97.53645579	96.68407078	95.84673722	95.02405105	94.21562301
160802A00003	8/2/2016	2.53	8/1/2031	114.96401	108.0943129	101.6852974	95.70358239	90.11838176	84.90128521	80.0260627	75.46848598	71.2061657
160810A00025	8/10/2016	2.17	8/10/2026	103.1292	101.4272962	99.76246936	98.13361154	96.53966175	94.97960009	93.45244573	91.95725508	90.49311992
160810A00027	8/10/2016	2.13	8/10/2026	102.98553	101.3228412	99.69621627	98.10458517	96.54691697	95.02222072	93.52954343	92.06796826	90.63661275
160810A00028	8/10/2016	2.19	8/10/2026	103.205	101.4820836	99.79677798	98.14796427	96.53456532	94.9555457	93.40990968	91.89669929	90.41499254
160810A00029	8/10/2016	2.17	8/10/2026	103.1292	101.4272962	99.76246936	98.13361154	96.53966175	94.97960009	93.45244573	91.95725508	90.49311992
160810A00030	8/10/2016	2.24	8/11/2031	106.8417	103.3003438	99.93036708	96.72182461	93.66542405	90.75248006	87.97487041	85.32499564	82.79574178
160811A00011	8/11/2016	2.25	8/11/2026	103.2484	101.5523025	99.89214352	98.26684803	96.67538175	95.11675148	93.59000311	92.09421962	90.62851925
160812A00006	8/12/2016	2.16	8/12/2026	103.18126	101.5094451	99.87402507	98.27391783	96.70808742	95.17553768	93.67531025	92.20648278	90.76816723
160815A00005	8/15/2016	2.23	8/17/2026	103.24798	101.5359192	99.86037557	98.22024895	96.61448053	95.04205407	93.50199363	91.99336158	90.51525665

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
160815A00006	8/15/2016	2.23	8/17/2026	103.24798	101.5359192	99.86037557	98.22024895	96.61448053	95.04205407	93.50199363	91.99336158	90.51525665
160815A00007	8/15/2016	2.23	8/17/2026	103.24798	101.5359192	99.86037557	98.22024895	96.61448053	95.04205407	93.50199363	91.99336158	90.51525665
160819A00015	10/12/2016	2.3	10/13/2026	103.70738	101.8367793	100.0090374	98.22292259	96.4772455	94.77085849	93.10265373	91.47156161	89.8765491
160824A00019	8/24/2016	1.98	8/25/2031	106.19692	102.6706535	99.31528913	96.12089194	93.07818356	90.17849257	87.41371055	84.77625169	82.25901549
160830A00037	8/30/2016	2.16	8/29/2025	101.18206	100.4323551	99.69372542	98.96593001	98.24873191	97.541901	96.84521378	96.15845312	95.48140807
160830A00038	8/30/2016	2.24	8/28/2026	103.32758	101.5855113	99.88105398	98.21305369	96.58040582	94.98205081	93.41697184	91.88419254	90.38277504
160906A00027	9/6/2016	2.03	9/8/2031	106.4468	102.8708394	99.46998274	96.23395315	93.15316098	90.2186492	87.42204735	84.75552904	82.21177285
160908A00022	9/8/2016	2.21	9/8/2026	103.34558	101.571531	99.83751772	98.14240011	96.48507503	94.86447777	93.27958042	91.72939038	90.21294889
160908A00023	9/8/2016	2.21	9/8/2026	103.34558	101.571531	99.83751772	98.14240011	96.48507503	94.86447777	93.27958042	91.72939038	90.21294889
160908A00024	9/8/2016	2.21	9/8/2026	103.34558	101.571531	99.83751772	98.14240011	96.48507503	94.86447777	93.27958042	91.72939038	90.21294889
160908A00025	9/8/2016	2.21	9/8/2026	103.34558	101.571531	99.83751772	98.14240011	96.48507503	94.86447777	93.27958042	91.72939038	90.21294889
160908A00026	9/8/2016	2.21	9/8/2026	103.34558	101.571531	99.83751772	98.14240011	96.48507503	94.86447777	93.27958042	91.72939038	90.21294889
160908A00027	9/8/2016	2.21	9/8/2026	103.34558	101.571531	99.83751772	98.14240011	96.48507503	94.86447777	93.27958042	91.72939038	90.21294889
160908A00028	9/8/2016	2.21	9/8/2026	103.34558	101.571531	99.83751772	98.14240011	96.48507503	94.86447777	93.27958042	91.72939038	90.21294889
160908A00030	9/8/2016	2.21	9/8/2026	103.34558	101.571531	99.83751772	98.14240011	96.48507503	94.86447777	93.27958042	91.72939038	90.21294889
160908A00031	9/8/2016	2.21	9/8/2026	103.34558	101.571531	99.83751772	98.14240011	96.48507503	94.86447777	93.27958042	91.72939038	90.21294889
160908A00032	9/8/2016	2.17	9/8/2026	103.1913	101.4595844	99.76676231	98.11172666	96.49340626	94.9107673	93.36281175	91.84857594	90.36712908
160908A00033	9/8/2016	2.17	9/8/2026	103.1913	101.4595844	99.76676231	98.11172666	96.49340626	94.9107673	93.36281175	91.84857594	90.36712908
160908A00034	9/8/2016	2.17	9/8/2026	103.1913	101.4595844	99.76676231	98.11172666	96.49340626	94.9107673	93.36281175	91.84857594	90.36712908
160908A00035	9/8/2016	2.3	9/8/2031	107.13728	103.5440508	100.1265523	96.87448766	93.77824232	90.82883519	88.01787274	85.33750645	82.78039368
160908A00036	9/8/2016	2.3	9/8/2031	107.13728	103.5440508	100.1265523	96.87448766	93.77824232	90.82883519	88.01787274	85.33750645	82.78039368
160922A00014	9/22/2016	2.06	9/22/2026	103.29236	101.4795217	99.70715906	97.97410055	96.27921903	94.62142817	92.99968053	91.41296593	89.86030975
160923A00009	9/23/2016	2.24	9/23/2031	106.91902	103.3326157	99.92165745	96.67585668	93.58561215	90.64195557	87.8365054	85.1614245	82.60938094
160928A00029	9/28/2016	2.52	9/29/2036	112.8521	106.3265536	100.3227876	94.79201438	89.69048329	84.97892265	80.62204569	76.5881145	72.8485546
160928A00030	9/28/2016	2.52	9/29/2036	112.8521	106.3265536	100.3227876	94.79201438	89.69048329	84.97892265	80.62204569	76.5881145	72.8485546
160928A00032	9/28/2016	2.52	9/29/2036	112.8521	106.3265536	100.3227876	94.79201438	89.69048329	84.97892265	80.62204569	76.5881145	72.8485546
160928A00033	9/28/2016	2.46	9/29/2036	112.47361	105.9647933	99.97666925	94.46053563	89.37272127	84.67402662	80.3292306	76.30665515	72.57778042
160928A00041	9/28/2016	3.26	9/29/2036	117.52017	110.7882635	104.591581	98.88025229	93.60954824	88.73930708	84.23343188	80.05944644	76.18810292
160928A00042	9/28/2016	3.05	9/29/2036	116.19545	109.5221026	103.3801667	97.72007667	92.49738116	87.67217096	83.20857904	79.07433873	75.24039326
160928A00044	9/28/2016	2.89	9/29/2036	115.18613	108.5574086	102.4571843	96.83613334	91.65001576	86.85911487	82.42773878	78.32378047	74.51832876
160930A00032	9/30/2016	2.15	9/30/2031	106.43404	102.944275	99.62345492	96.46173792	93.44993213	90.5794491	87.84225997	85.23085511	82.73820701
160930A00033	9/30/2016	1.8	9/30/2026	101.30254	100.344703	99.40482433	98.48239599	97.57693256	96.68796688	95.81504918	94.95774626	94.11564072
161005A00016	10/5/2016	2.32	10/6/2031	107.29014	103.649734	100.1892275	96.89798189	93.7660674	90.78421402	87.94376323	85.23662344	82.65522898

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
161014A00019	10/14/2016	2.39	10/15/2031	107.54962	103.9001289	100.4310121	97.13160039	93.99193597	91.00272297	88.15527879	85.44148949	82.85376859
161014A00026	10/14/2016	2.16	10/14/2031	106.99738	103.3605344	99.90366711	96.61611606	93.48793533	90.50984074	87.67316132	84.96979457	82.39216528
161014A00029	10/14/2016	2.51	10/15/2031	108.29591	104.6149301	101.1161099	97.7886607	94.62251599	91.6082789	88.7371732	86.00099807	83.39208636
161109A00018	11/9/2016	2.63	11/9/2026	104.5109	102.5598826	100.6551357	98.7952837	96.97899789	95.20499793	93.47204965	91.77896305	90.12459042
161116A00006	11/16/2016	2.39	11/16/2026	102.07057	101.0190822	99.98815173	98.97719396	97.98564636	97.01296746	96.05863581	95.12214904	94.20302303
161118A00026	12/20/2016	3.03	12/21/2026	105.62867	103.5519535	101.526733	99.5513881	97.62436529	95.74417088	93.90936842	92.11857592	90.37046344
161207A00014	12/7/2016	2.75	12/8/2031	109.39752	105.5932551	101.9811541	98.54962067	95.28784646	92.18575487	89.23394644	86.42364865	83.74666985
161214A00023	12/14/2016	3.3	12/15/2031	121.0471	113.6042284	106.6813007	100.2390868	94.24151498	88.65540319	83.45021322	78.59782708	74.07234339
161214A00034	12/14/2016	2.65	12/14/2026	102.4522	101.3553628	100.280448	99.22682203	98.19387864	97.18103422	96.18772686	95.21341534	94.25757814
161222A00013	12/22/2016	2.93	12/22/2026	105.39789	103.3869197	101.426407	99.51471896	97.65029097	95.83162136	94.05726834	92.32584703	90.63602674
161222A00030	12/22/2016	3.09	12/22/2026	105.9302	103.8443637	101.8103282	99.82646613	97.89121167	96.00305942	94.16056181	92.3623263	90.60701288
161222A00036	12/22/2016	2.69	12/22/2026	102.47488	101.3865428	100.3199132	99.2743677	98.24930578	97.24414942	96.25834213	95.29134788	94.34265022
161222A00037	12/22/2016	3.08	12/22/2031	109.9937	106.2985698	102.7870483	99.4481652	96.2716916	93.24808608	90.36844393	87.62445021	85.00833653
161227A00073	12/27/2016	2.83	12/28/2026	104.86859	102.9811186	101.1404235	99.34499084	97.59337263	95.88417951	94.21607761	92.58778591	90.99807361
161229A00018	12/29/2016	2.46	12/29/2026	102.33341	101.235089	100.1587693	99.10381986	98.06963033	97.05561327	96.06120318	95.0858554	94.1290452
161229A00019	12/29/2016	2.46	12/29/2026	102.33341	101.235089	100.1587693	99.10381986	98.06963033	97.05561327	96.06120318	95.0858554	94.1290452
170105A00010	1/5/2017	2.61	1/5/2027	102.50917	101.370928	100.2558987	99.16340782	98.09280555	97.04346675	96.01478968	95.00619488	94.01712418
170106A00030	1/6/2017	2.39	1/6/2027	102.34745	101.2096959	100.0951707	99.00319855	97.93312865	96.88433483	95.85621436	94.84818691	93.85969348
170111A00009	1/11/2017	3.16	1/11/2028	109.09227	105.9139579	102.845767	99.88323488	97.02211264	94.25834902	91.58808008	89.00761918	86.51344764
170111A00011	1/11/2017	3.24	1/11/2029	112.4516	108.2078923	104.1501796	100.2692874	96.55654263	93.0037468	89.60314727	86.34741035	83.22959618
170111A00012	1/11/2017	3.31	1/11/2030	115.72077	110.3944641	105.3495118	100.5695192	96.03913259	91.74397048	87.6705563	83.80625669	80.1392242
170111A00013	1/11/2017	3.4	1/10/2031	118.83169	112.415748	106.3951383	100.7433228	95.43567969	90.44935909	85.7631463	81.35733631	77.21361865
170111A00014	1/11/2017	3.47	1/12/2032	121.82879	114.3079589	107.3158905	100.8124077	94.76059598	89.12651995	83.87896775	78.98921891	74.43083309
170111A00016	1/11/2017	3.51	1/11/2033	124.68751	116.0649469	108.121494	100.7996756	94.04717473	87.81634666	82.0637783	76.74989175	71.83858676
170112A00015	1/12/2017	2.32	1/12/2027	102.26822	101.1307276	100.0164747	98.92478333	97.85500185	96.80650341	95.77868464	94.77096461	93.78278373
170119A00006	1/19/2017	2.85	1/21/2025	100.3113	100.1671173	100.023359	99.88002688	99.73711893	99.59463327	99.45256799	99.31092121	99.16969104
170120A00008	1/20/2017	3.63	1/20/2034	128.33681	118.5427991	109.6026126	101.4365379	93.97272195	87.14635567	80.89894903	75.17768406	69.9348373
170120A00009	1/20/2017	3.67	1/22/2035	131.20965	120.2865871	110.4049646	101.4587337	93.35320508	86.00377602	79.33480672	73.27862734	67.77465948
170120A00010	1/20/2017	3.71	1/22/2036	133.86011	121.8204102	111.0246771	101.3358957	92.63288075	84.80836769	77.76734582	71.42559888	65.70842616
170120A00011	1/20/2017	3.75	1/20/2037	136.3682	123.2239393	111.5401613	101.1440983	91.88436864	83.62822186	76.25915485	69.67484411	63.78535047
170123A00039	1/23/2017	2.79	1/23/2026	102.7671	101.6072679	100.4735811	99.36515865	98.28116285	97.22079253	96.18328129	95.16789555	94.17393286
170124A00017	1/24/2017	2.82	1/23/2032	109.77311	105.9121159	102.2481815	98.76929872	95.46428404	92.32271772	89.33488661	86.49173127	83.78479746
170130A00010	1/30/2017	2.92	1/30/2025	100.37879	100.2096177	100.0410189	99.87298692	99.70551879	99.53861174	99.37226298	99.20646971	99.04122919

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
170130A00031	1/30/2017	2.96	7/30/2025	101.58688	100.9173479	100.2566301	99.60455191	98.96094456	98.32564383	97.69848972	97.07932628	96.46800152
170130A00036	1/30/2017	3.11	1/31/2033	111.57009	107.2263367	103.1314261	99.26834794	95.62140384	92.17609223	88.91900863	85.83775449	82.9208544
170130A00039	1/30/2017	2.74	1/31/2028	104.05903	102.3649075	100.7171928	99.11420901	97.5543548	96.03609968	94.55798003	93.11859569	91.71660668
170130A00043	1/30/2017	2.64	1/29/2027	102.65288	101.4712177	100.3152269	99.18410436	98.07708233	96.99342421	95.93242293	94.89339953	93.87570171
170130A00046	1/30/2017	2.52	1/30/2026	101.35318	100.6761258	100.011267	99.35823894	98.71668989	98.08628279	97.46669428	96.85761408	96.25874426
170203A00012	2/3/2017	3.63	2/2/2035	130.87718	119.9407169	110.0501096	101.0985709	92.99077861	85.64159106	78.97491061	72.92267867	67.42398739
170203A00013	2/3/2017	3.67	2/1/2036	133.47512	121.4296524	110.6319664	100.944314	92.24489089	84.42591504	77.39194464	71.05840491	65.35029794
170207A00055	2/7/2017	2.36	2/8/2027	102.40989	101.229507	100.0737529	98.94189463	97.83323216	96.74709217	95.68282696	94.63981314	93.61745054
170216A00043	2/16/2017	3.17	2/16/2027	106.40508	104.1620819	101.9776768	99.84990377	97.77688548	95.75682294	93.78799153	91.86873718	89.99747286
170216A00044	2/16/2017	3.52	2/17/2032	122.44959	114.8068094	107.7075026	101.1099001	94.97566492	89.2695907	83.95932954	79.01514536	74.40968969
170216A00045	2/16/2017	3.73	2/17/2037	136.29567	123.0784989	111.338484	100.899901	91.60889373	83.33064727	75.94693774	69.35400908	63.46073133
170224A00020	2/24/2017	3.08	2/24/2027	106.27624	104.0109228	101.8052674	99.65725837	97.56496789	95.52654943	93.54023354	91.60432394	89.71719374
170224A00021	2/24/2017	3.4	2/24/2032	121.63294	113.9988971	106.9096082	100.3230812	94.20078605	88.50734732	83.21026992	78.27968953	73.68814621
170224A00039	5/24/2017	3.17	5/24/2027	107.21359	104.6945542	102.2482076	99.87203056	97.56360928	95.32062785	93.14086392	91.02218415	88.96254013
170224A00044	5/24/2017	3.29	5/24/2029	113.78947	109.1465108	104.7227791	100.5067588	96.4875959	92.65506042	88.99950707	85.51183881	82.18347279
170228A00014	2/28/2017	2.89	3/1/2027	106.07391	103.7926445	101.5718394	99.4094498	97.3035138	95.25215263	93.25356618	91.30602897	89.40788632
170228A00015	2/28/2017	2.87	5/28/2025	101.13324	100.6376467	100.1469038	99.66094286	99.17969417	98.70308941	98.2310616	97.76354501	97.30047518
170309A00014	3/9/2017	2.58	3/9/2027	102.78044	101.5537846	100.3532693	99.17811365	98.02756395	96.9008957	95.79741218	94.71644316	93.65734358
170313A00032	3/13/2017	3.69	6/14/2032	124.5713	116.528003	109.078261	102.1748303	95.77447069	89.83758517	84.3278956	79.21214812	74.45984642
170313A00033	3/13/2017	3.31	3/15/2027	106.96149	104.6359934	102.3728938	100.1701151	98.02566569	95.93763451	93.90418685	91.92356078	89.99406369
170313A00034	3/13/2017	3.31	3/15/2027	106.96149	104.6359934	102.3728938	100.1701151	98.02566569	95.93763451	93.90418685	91.92356078	89.99406369
170313A00035	3/13/2017	3.31	3/15/2027	106.96149	104.6359934	102.3728938	100.1701151	98.02566569	95.93763451	93.90418685	91.92356078	89.99406369
170313A00041	3/13/2017	3.21	3/15/2032	110.90795	107.0249365	103.3424074	99.84794445	96.53000108	93.37783317	90.38143755	87.53149568	84.81932202
170313A00045	3/13/2017	3.22	3/15/2032	111.25534	107.2621086	103.4764887	99.88561032	96.47750224	93.24102415	90.16580307	87.24217518	84.46113243
170317A00044	3/17/2017	3.11	3/17/2027	106.21772	103.9939021	101.8305703	99.72572686	97.67745054	95.68389506	93.74328547	91.85391503	90.01414211
170322A00022	3/22/2017	3.89	9/23/2041	150.15851	131.6292239	115.7931296	102.2334292	90.60043698	80.60043269	71.98641607	64.55043127	58.11718739
170322A00023	3/22/2017	3.82	9/22/2039	143.21333	127.0885545	113.0800979	100.8926187	90.27370778	81.00744088	72.90892366	65.8196777	59.6037332
170322A00024	3/22/2017	3.72	9/22/2036	135.35806	122.585759	111.2004977	101.0419175	91.96906003	83.85792804	76.59936288	70.09719775	64.26664899
170322A00025	3/22/2017	3.58	3/22/2033	125.77315	116.9115935	108.7619113	101.2627257	94.35826045	87.99780431	82.13522714	76.72854409	71.73952333
170322A00026	3/22/2017	3.22	3/22/2028	109.88893	106.5007255	103.2358754	100.0892189	97.05584	94.1310553	91.31040137	88.58962315	85.96466296
170322A00033	3/22/2017	3.61	3/24/2042	128.89326	118.0620273	108.4695478	99.95344098	92.37446434	85.61301323	79.56617555	74.14525009	69.27365233
170327A00070	3/29/2017	3.05	3/29/2027	106.78219	104.4147476	102.1118622	99.8714165	97.69137446	95.56977858	93.50474628	91.49446661	89.53719704
170327A00072	3/29/2017	3.09	3/29/2027	106.87621	104.5076458	102.2036625	99.96214217	97.78104798	95.65842179	93.59238042	91.58111227	89.62287426

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
170327A00078	3/27/2019	3.04	3/27/2026	103.50541	102.1770343	100.8731798	99.59320378	98.33648456	97.10242215	95.89043713	94.69996973	93.53047908
170327A00079	3/27/2019	3.19	3/29/2027	106.79911	104.4378208	102.1408017	99.90594687	97.73123286	95.61471393	93.55451873	91.54884695	89.59596618
170327A00080	3/27/2019	3.43	3/27/2029	113.92135	109.4350052	105.1534606	101.0662998	97.16368539	93.43632877	89.87545603	86.47277703	83.22045621
170406A00029	4/6/2017	3.01	4/6/2027	106.31274	103.9783024	101.7091042	99.50294191	97.35769846	95.27134106	93.24191718	91.26755087	89.34643927
170406A00031	4/6/2017	3.01	4/6/2027	106.31274	103.9783024	101.7091042	99.50294191	97.35769846	95.27134106	93.24191718	91.26755087	89.34643927
170406A00032	4/6/2017	3.01	4/6/2027	106.31274	103.9783024	101.7091042	99.50294191	97.35769846	95.27134106	93.24191718	91.26755087	89.34643927
170406A00033	4/6/2017	3.01	4/6/2027	106.31274	103.9783024	101.7091042	99.50294191	97.35769846	95.27134106	93.24191718	91.26755087	89.34643927
170406A00034	4/6/2017	3.01	4/6/2027	106.31274	103.9783024	101.7091042	99.50294191	97.35769846	95.27134106	93.24191718	91.26755087	89.34643927
170406A00036	4/6/2017	3.07	4/6/2032	110.76745	106.748616	102.9407622	99.33069567	95.90615038	92.65571813	89.56878279	86.63545985	83.84654089
170407A00001	4/6/2017	2.97	4/6/2027	106.03117	103.7660244	101.5636822	99.42203031	97.33903661	95.31274984	93.34129568	91.42287326	89.55575182
170427A00044	4/27/2017	3.02	4/27/2027	106.63147	104.1921726	101.8213459	99.51668728	97.27598441	95.09711193	92.97802774	90.91676913	88.91144924
170427A00046	4/27/2017	3.1	4/27/2028	109.78204	106.2964178	102.9411738	99.71074508	96.59983602	93.60340413	90.71664647	87.93498693	85.2540643
170427A00047	4/27/2017	3.18	4/27/2029	113.08376	108.52948	104.1871282	100.0457371	96.094963	92.3250476	88.72678148	85.29147062	82.01090488
170502A00028	5/2/2017	2.84	5/3/2027	106.43789	103.9805323	101.5926822	99.27198646	97.01618285	94.82309881	92.69064757	90.61682412	88.59970155
170511A00011	5/11/2017	2.41	5/11/2027	102.76846	101.4581011	100.1769158	98.92401578	97.69854289	96.49967211	95.32661009	94.17859362	93.05488824
170524A00027	5/24/2017	2.32	5/24/2027	102.6516	101.3415712	100.060756	98.80825659	97.58321243	96.3847964	95.21221315	94.06469759	92.9415135
170609A00043	6/9/2017	3.07	6/9/2032	120.51003	112.6026049	105.2819017	98.50110074	92.21735318	86.39142578	80.98737846	75.97227198	71.31590294
170609A00052	6/11/2018	2.9	6/9/2027	106.65976	104.1040379	101.6231519	99.21446441	96.87545284	94.60369881	92.39688334	90.252782	88.16926047
170613A00032	6/13/2017	2.45	6/13/2025	101.04994	100.5102567	99.97633955	99.44809775	98.92544096	98.40828077	97.8965306	97.39010573	96.88892317
170614A00019	6/14/2017	2.48	6/13/2025	101.02328	100.4842052	99.95088054	99.42321851	98.90112907	98.38452411	97.8733174	97.36742449	96.8667627
170619A00089	6/16/2017	2.79	6/16/2027	106.25541	103.7513544	101.3215505	98.96331997	96.67409816	94.4514303	92.29296626	90.19645514	88.1597404
170619A00092	6/16/2017	2.79	6/16/2027	106.25541	103.7513544	101.3215505	98.96331997	96.67409816	94.4514303	92.29296626	90.19645514	88.1597404
170619A00095	6/16/2017	2.79	6/16/2027	106.25541	103.7513544	101.3215505	98.96331997	96.67409816	94.4514303	92.29296626	90.19645514	88.1597404
170619A00096	6/16/2017	2.79	6/16/2027	106.25541	103.7513544	101.3215505	98.96331997	96.67409816	94.4514303	92.29296626	90.19645514	88.1597404
170619A00101	6/16/2017	2.74	6/16/2027	105.93181	103.5074231	101.1543043	98.8698876	96.65172122	94.49745834	92.40485185	90.37174938	88.3960885
170622A00036	6/22/2017	3.23	6/22/2032	121.14976	113.2105304	105.8612441	99.05472778	92.74781586	86.9009941	81.47807288	76.44589125	71.77404886
170622A00037	6/22/2017	3.27	6/22/2033	123.77058	114.7424639	106.4614023	98.86118405	91.88180594	85.46885771	79.57297388	74.14934176	69.15725981
170622A00038	6/22/2017	3.32	6/22/2034	126.45301	116.327401	107.1233322	98.7512741	91.13085279	84.18987181	77.86344097	72.09320205	66.82664022
170622A00039	6/22/2017	3.36	6/22/2035	128.9269	117.709643	107.6043866	98.49373413	90.27329455	82.85017861	76.14167665	70.07409452	64.58172794
170622A00040	6/22/2017	3.41	6/23/2036	131.31031	119.003035	108.0141828	98.19359525	89.40901114	81.54384737	74.49526563	68.17248621	62.49531633
170623A00028	6/23/2017	2.79	6/23/2027	106.48516	103.892821	101.3772074	98.93558326	96.56533127	94.26394394	92.02901842	89.85825133	87.74943393
170711A00010	7/11/2017	2.38	7/12/2027	102.92497	101.5289133	100.1653011	98.83310795	97.53135178	96.25908945	95.01541467	93.79945633	92.61037679
170713A00021	7/13/2017	3.25	7/13/2037	126.66814	115.8938767	106.273626	97.67167964	89.96926357	83.06232671	76.85962847	71.28108507	66.256338

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
170728A00040	7/28/2017	2.44	1/27/2025	100.29482	100.1339197	99.97354635	99.81369323	99.65435778	99.49553747	99.33722978	99.17943223	99.02214233
170803A00020	8/3/2017	2.84	8/3/2027	106.91489	104.2062167	101.5802702	99.03399081	96.56445872	94.1688823	91.84459152	89.58903169	87.3997575
170809A00005	8/9/2017	2.61	8/11/2025	101.41969	100.7180681	100.0261517	99.34373587	98.67062584	98.00663198	97.3515698	96.7052598	96.06752724
170822A00020	8/22/2017	2.59	8/22/2025	101.46704	100.7352455	100.0139916	99.30305605	98.60221858	97.91126496	97.22998704	96.55818246	95.8956545
170822A00023	8/23/2017	3.95	8/23/2028	113.93381	110.0500107	106.3220575	102.7427801	99.30538282	96.00342372	92.83079368	89.78169694	86.8506329
170918A00007	9/18/2017	2.8	9/20/2027	107.15431	104.3118122	101.5595764	98.89422845	96.31253833	93.81141595	91.38790407	89.03917181	86.76250832
170921A00055	9/21/2017	2.82	9/21/2027	106.95487	104.2074244	101.5479732	98.97320175	96.47994184	94.06516165	91.7259593	89.45955646	87.2632924
170921A00056	9/21/2017	2.82	9/21/2027	106.95487	104.2074244	101.5479732	98.97320175	96.47994184	94.06516165	91.7259593	89.45955646	87.2632924
170921A00057	9/21/2017	2.79	9/21/2027	106.63532	103.980895	101.4106383	98.92139872	96.51015816	94.1740284	91.91024472	89.7161599	87.58923851
170929A00046	9/29/2017	2.49	9/30/2027	103.13205	101.6659805	100.2352846	98.83881145	97.47546133	96.14417902	94.84395134	93.57380518	92.33280563
171011A00013	10/11/2017	2.77	10/13/2026	104.59383	102.7146456	100.8784869	99.08411292	97.33032998	95.6159862	93.93996968	92.30120687	90.69866098
171018A00011	10/18/2017	2.68	10/18/2027	107.24268	104.3177422	101.4880659	98.7500391	96.10021081	93.53527918	91.05208405	88.64760002	86.31893004
171026A00009	10/26/2017	2.75	10/27/2025	101.9957	101.0817777	100.1842045	99.30254873	98.43638983	97.58532174	96.74895255	95.92690379	95.11880992
171026A00010	10/26/2017	2.84	10/26/2026	104.81939	102.9033457	101.0318898	99.20372081	97.41758152	95.6722596	93.9665856	92.29943104	90.66970682
171026A00011	10/26/2017	2.94	10/26/2027	107.8195	104.8701637	102.0173518	99.25738568	96.58675074	94.00208485	91.50017105	89.0779304	86.73241529
171030A00023	10/30/2017	2.9	11/1/2027	107.74615	104.7817545	101.9148853	99.14180464	96.45894381	93.8628899	91.35037812	88.91828447	86.56361893
171109A00016	11/9/2017	2.94	11/9/2032	118.31451	110.8036029	103.8572963	97.42918994	91.47696113	85.96198512	80.84899272	76.10576145	71.70283657
171129A00020	11/29/2017	2.89	11/30/2026	105.18046	103.1648831	101.1984384	99.27962288	97.40698687	95.57913513	93.79472417	92.05246005	90.35109615
171204A00024	12/4/2017	2.71	12/4/2024	100.1921	100.095235	99.99855993	99.90207862	99.80579045	99.7096948	99.61379108	99.51807871	99.42255709
171206A00020	12/6/2017	2.62	12/6/2027	103.62673	102.0335161	100.4810336	98.9679094	97.49282647	96.05452218	94.65178556	93.28345477	91.94841474
171206A00038	12/6/2017	2.69	12/6/2027	107.61922	104.5548809	101.5945448	98.73410248	95.96963002	93.29738102	90.71377729	88.21540026	85.79898288
171206A00041	12/6/2017	2.44	12/6/2024	100.03223	100.0155645	99.99891294	99.98227833	99.96566062	99.94905979	99.93247579	99.91590861	99.89935821
171206A00048	12/6/2017	3.04	12/6/2032	121.36387	112.9374038	105.1718288	98.01155978	91.40596506	85.30890172	79.67829629	74.47576641	69.66627941
171207A00024	12/7/2017	2.93	12/7/2027	107.93558	104.929126	102.0252491	99.2198312	96.50894838	93.88885793	91.355989	88.90693345	86.53843737
171207A00025	12/7/2017	2.91	12/7/2027	107.72044	104.7726992	101.9249653	99.17323894	96.51370404	93.94272085	91.45681637	89.05267562	86.72713342
171207A00026	12/7/2017	2.93	12/7/2027	107.93558	104.929126	102.0252491	99.2198312	96.50894838	93.88885793	91.355989	88.90693345	86.53843737
171219A00009	12/19/2017	2.3	12/19/2024	100.08625	100.0334908	99.98080822	99.92819813	99.87566041	99.82319488	99.7708014	99.7184798	99.66622993
171219A00063	12/19/2017	2.8	12/20/2027	108.05756	104.9486957	101.946248	99.04596843	96.24380536	93.53589249	90.91853916	88.38822126	85.94157262
171219A00067	12/19/2017	2.72	12/20/2027	107.20369	104.3323482	101.5583136	98.87766788	96.28668134	93.78179797	91.3596262	89.01693007	86.75062101
171227A00018	12/27/2017	2.83	12/27/2024	100.1569	100.081982	100.007183	99.93250289	99.85794137	99.78349815	99.70917296	99.63496552	99.56087556
180102A00021	1/2/2018	2.82	1/2/2026	102.54362	101.4439857	100.3678923	99.31459457	98.2833737	97.27354098	96.28443604	95.31542543	94.36590131
180104A00017	1/4/2018	2.77	1/3/2025	100.19243	100.09812	100.0039922	99.91004629	99.81628169	99.72269788	99.62929432	99.53607049	99.44302584
180104A00018	1/4/2018	2.97	1/4/2027	105.61193	103.4977467	101.436619	99.42685406	97.46682745	95.55497875	93.68980838	91.86987472	90.09379144

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
180104A00023	1/4/2018	2.91	1/4/2028	107.15964	104.4196647	101.7715263	99.21153488	96.73617294	94.34208755	92.02608155	89.78510516	87.61624811
180104A00024	1/4/2018	2.98	1/4/2028	108.11937	105.0971568	102.1793817	99.36177977	96.6402904	94.01104485	91.47035584	89.01470774	86.64074731
180104A00041	1/4/2018	3.08	1/4/2033	119.20977	111.6839334	104.7319691	98.30598907	92.36238009	86.86139973	81.76681226	77.04556039	72.66746956
180109A00028	1/9/2018	2.6	1/9/2025	100.2179	100.1068973	99.99615508	99.88567184	99.77544663	99.6654785	99.55576649	99.44630968	99.33710712
180110A00028	1/10/2018	2.85	1/10/2025	100.24328	100.1295822	100.0161539	99.90299674	99.79010955	99.67749136	99.56514116	99.45305797	99.34124078
180110A00029	1/10/2018	3.13	1/10/2028	108.99001	105.8160067	102.7519098	99.79327305	96.93585823	94.17562431	91.50871688	88.93145825	86.44033815
180111A00007	1/11/2018	2.66	1/14/2025	100.25392	100.1290519	100.0045101	99.88029491	99.75640506	99.63283918	99.50959596	99.38667407	99.26407221
180116A00014	1/16/2018	3.01	1/19/2027	105.81313	103.6565206	101.5547665	99.5060939	97.50879616	95.56123522	93.66183823	91.8090944	90.001552
180116A00015	1/16/2018	3.06	1/18/2028	108.83308	105.6400003	102.5581192	99.58290694	96.71005118	93.93544181	91.2551598	88.66546702	86.16279666
180118A00004	1/18/2018	2.88	1/17/2025	100.29057	100.1574682	100.0247365	99.89237243	99.76037439	99.62874083	99.49747019	99.36656094	99.23601155
180118A00037	1/18/2018	2.88	1/21/2025	100.31563	100.1714425	100.0276795	99.88434265	99.74143	99.59893965	99.4568697	99.31521825	99.17398343
180118A00039	1/18/2018	3.09	1/19/2027	105.98565	103.8271432	101.7235323	99.67304012	97.67395907	95.72465002	93.82353914	91.96911467	90.15992396
180125A00027	1/25/2018	2.69	1/24/2025	100.42905	100.2178751	100.007642	99.7983453	99.58997865	99.38253566	99.17601004	98.97039552	98.76568592
180126A00011	1/26/2018	2.72	1/26/2028	104.08987	102.4235176	100.8009026	99.22051815	97.68092276	96.18073548	94.71863274	93.29334559	91.90365698
180126A00029	1/26/2018	2.88	1/27/2025	100.35322	100.1923885	100.0320751	99.87228012	99.71300115	99.55423565	99.39598113	99.23823514	99.08099522
180130A00070	1/30/2018	3.14	1/29/2027	106.17479	103.987293	101.8559344	99.7788716	97.75434033	95.78064833	93.85617155	91.97935083	90.14868874
180130A00085	1/30/2018	2.79	1/30/2025	100.36985	100.2005527	100.0318281	99.86367214	99.69608209	99.52905506	99.36258823	99.19667879	99.03132394
180131A00022	1/31/2018	2.96	1/30/2025	100.38556	100.2163809	100.0477735	99.87973299	99.71225636	99.54534084	99.37898362	99.21318193	99.047933
180201A00022	2/1/2018	2.99	2/3/2025	100.41725	100.2369953	100.0573869	99.87842478	99.70010535	99.52242518	99.34538084	99.1689689	98.99318598
180205A00019	2/5/2018	2.88	2/5/2025	100.42464	100.2387026	100.0534595	99.86890767	99.68504327	99.50186239	99.3193612	99.13753588	98.95638264
180207A00002	2/7/2018	3.13	2/6/2026	103.19007	101.9906698	100.8191421	99.67452003	98.55588417	97.46235652	96.39309824	95.34730752	94.32421756
180207A00003	2/7/2018	3.28	2/7/2028	109.70218	106.4399744	103.2928384	100.2560196	97.32499514	94.49545751	91.76330304	89.12462058	86.57568111
180222A00025	2/22/2018	3.48	2/22/2033	125.4768	116.671465	108.5691512	101.109559	94.23788037	87.904267	82.06335696	76.67384817	71.69811481
180222A00026	2/22/2018	2.98	2/21/2025	100.55348	100.3231598	100.0938996	99.86569578	99.63854086	99.4124276	99.18734881	98.96329735	98.74026615
180222A00027	2/22/2018	3.24	2/22/2028	109.97939	106.6627882	103.4645516	100.3797342	97.40362909	94.53175725	91.75985415	89.08385818	86.4998994
180305A00030	3/5/2018	3.12	3/5/2025	100.87218	100.5242619	100.178753	99.83562729	99.49486014	99.15642721	98.82030449	98.48646832	98.15489536
180309A00011	3/9/2018	3.19	3/10/2025	100.93337	100.5716914	100.2126151	99.85611685	99.50216903	99.15074415	98.80181518	98.45535546	98.11133873
180313A00026	3/13/2018	3.34	3/13/2028	110.21195	106.8427079	103.5952862	100.4645799	97.44573237	94.53411933	91.72533579	89.01518437	86.39966411
180321A00015	3/21/2018	3.02	3/21/2025	100.78898	100.4612847	100.1359323	99.81289825	99.49215665	99.17368217	98.85744982	98.54343499	98.23161344
180322A00030	3/22/2018	2.79	3/24/2025	100.55706	100.3076007	100.0596267	99.81312374	99.56807732	99.32447321	99.08229737	98.84153592	98.60217522
180322A00040	3/22/2018	3.16	3/21/2031	112.16633	107.866673	103.7969838	99.94290653	96.29108285	92.82907557	89.54529935	86.42895717	83.46998187
180322A00044	3/22/2018	3.18	3/22/2033	112.8705	108.2831355	103.9627511	99.89096903	96.05082712	92.42666045	89.00399284	85.76943831	82.7106112
180323A00013	3/23/2018	3.18	3/23/2028	110.04063	106.6403351	103.3640557	100.2065983	97.16301607	94.22859614	91.39884702	88.6694869	86.03643263

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				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
180328A00010	3/28/2018	3.1	3/28/2025	100.81134	100.4842455	100.1592707	99.83639843	99.51560834	99.19688033	98.88019455	98.56553143	98.25287161
180329A00003	3/29/2018	3.08	3/29/2028	109.75494	106.3431622	103.0564024	99.88942815	96.83725338	93.89512589	91.05851533	88.32310153	85.68476368
180402A00013	4/2/2018	2.99	4/3/2028	107.9295	105.0598546	102.2914924	99.6201946	97.04194725	94.55292644	92.14948793	89.82815767	87.58562288
180403A00006	4/3/2018	3.07	4/3/2028	109.76266	106.3369914	103.0373146	99.85834824	96.79505659	93.84264027	90.99652397	88.25234472	85.60594098
180403A00014	4/3/2018	3.11	4/3/2025	101.0683	100.6436347	100.222551	99.80499946	99.39093576	98.98031625	98.57309799	98.1692388	97.76869717
180403A00041	4/3/2018	2.91	4/3/2025	100.81622	100.4722805	100.1306892	99.79142202	99.45445518	99.11976533	98.78732941	98.45712467	98.12912865
180410A00002	4/10/2018	3.14	4/11/2033	112.80342	108.175257	103.818768	99.71510656	95.84688538	92.19805651	88.75379876	85.5004152	82.42523997
180412A00034	4/12/2018	3.23	4/15/2030	116.46202	110.8370808	105.5228227	100.5004564	95.7524185	91.26228968	87.01471441	82.9953269	79.19068246
180412A00036	4/12/2018	3.54	4/15/2038	137.37501	122.9145352	110.2065267	99.02555882	89.17643484	80.4899925	72.81950733	66.03760861	60.03363292
180503A00040	5/3/2018	3.3	5/5/2025	101.17022	100.7377149	100.3089068	99.8837518	99.46220324	99.04421533	98.62974302	98.21874201	97.81116876
180508A00038	5/8/2018	3.57	5/9/2033	114.55443	109.8189064	105.3633951	101.168331	97.21567954	93.48880423	89.97234849	86.65212814	83.5150335
180517A00018	5/17/2018	3.46	5/17/2033	114.42561	109.6862807	105.2275926	101.029909	97.07513336	93.34657405	89.82882512	86.5076582	83.36992414
180517A00024	5/17/2018	3.46	5/17/2033	114.42561	109.6862807	105.2275926	101.029909	97.07513336	93.34657405	89.82882512	86.5076582	83.36992414
180521A00025	5/21/2018	3.24	5/21/2025	101.30226	100.8249841	100.3522104	99.88387967	99.41992942	98.96029818	98.50492569	98.05375278	97.60672141
180529A00042	5/29/2018	3.42	5/30/2028	111.17141	107.5725922	104.1114724	100.7820334	97.57855347	94.49559136	91.52797089	88.67076661	85.91929019
180529A00057	5/29/2018	3.09	5/30/2028	107.11505	104.6160466	102.201948	99.86923431	97.61455692	95.43472789	93.32671116	91.28761431	89.31468076
180530A00024	5/30/2018	3.44	5/30/2029	114.51702	109.8415399	105.3873664	101.1428392	97.09697107	93.23940822	89.56039075	86.05071524	82.70170014
180530A00025	5/30/2018	3.49	5/30/2030	117.74318	111.9764123	106.5339297	101.3957354	96.54317054	91.95881575	87.62640292	83.53073306	79.65760074
180530A00026	5/30/2018	3.55	5/30/2031	120.77323	113.9085663	107.4898654	101.4856764	95.86692627	90.60672847	85.68020771	81.06433966	76.73780411
180530A00027	5/30/2018	3.61	6/1/2032	123.86824	115.8871826	108.4932132	101.6397662	95.28420353	89.3874674	83.91376179	78.83026442	74.10686541
180530A00028	5/30/2018	3.67	5/31/2033	127.02452	117.9222131	109.5653788	101.8884828	94.83208511	88.34224659	82.36999342	76.87083618	71.80433777
180530A00030	5/30/2018	3.68	5/30/2034	129.71443	119.5015079	110.2089311	101.7479708	94.03891415	87.01010327	80.59708237	74.74183963	69.39213215
180605A00031	6/5/2018	3.37	6/5/2030	109.10164	106.0894541	103.2012503	100.4308114	97.77228145	95.22013971	92.76917871	90.41448454	88.15141827
180615A00039	6/15/2018	3.49	6/15/2028	111.5697	107.9189928	104.409259	101.0342759	97.78813057	94.66520379	91.66015303	88.76789749	85.98360364
180618A00036	6/18/2018	3.89	6/18/2048	167.31972	140.9172914	119.5311757	102.1422849	87.94659941	76.30853007	66.72461892	58.79524225	52.20251708
180619A00020	6/19/2018	3.1	6/19/2025	101.44418	100.886803	100.3355591	99.79034599	99.25106481	98.71761898	98.18991397	97.66785729	97.15135843
180619A00021	6/19/2018	3.24	6/19/2028	111.01087	107.3512014	103.8334721	100.4513916	97.19898461	94.07057325	91.06076072	88.16441558	85.37665714
180620A00014	6/20/2018	3.4	6/20/2028	111.29463	107.6347783	104.1167218	100.7341836	97.48119793	94.3520963	91.34149044	88.44425692	85.65552257
180620A00038	6/20/2018	3.4	6/20/2028	111.29463	107.6347783	104.1167218	100.7341836	97.48119793	94.3520963	91.34149044	88.44425692	85.65552257
180621A00017	6/21/2018	3.42	6/21/2028	111.37562	107.7115077	104.1894267	100.8030848	97.54650321	94.41400119	91.40017905	88.49990268	85.70828891
180621A00068	6/21/2018	3.32	6/23/2025	101.5525	100.9843444	100.4225527	99.86701503	99.31762712	98.77428717	98.23689559	97.70535498	97.17957003
180622A00004	6/22/2018	3.47	12/22/2028	113.2269	109.0217191	104.9987138	101.1489955	97.46415884	93.93625315	90.55775465	87.32154135	84.22086923
180622A00005	6/22/2018	3.5	7/2/2029	115.08592	110.3047578	105.7534442	101.4196726	97.29186317	93.35911535	89.6111645	86.03834114	82.63153318

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
180622A00006	6/22/2018	3.53	12/21/2029	116.68372	111.3903094	106.3735922	101.6176002	97.10737069	92.82887882	88.76897346	84.91531832	81.2563371
180628A00068	6/28/2018	3.12	6/28/2028	108.79928	105.7516441	102.8170516	99.99054465	97.26741671	94.64319723	92.1136381	89.67470111	87.32254616
180713A00031	7/13/2018	3.06	7/14/2025	100.91553	100.5424696	100.1728123	99.80650614	99.44350072	99.08374679	98.7271961	98.37380144	98.02351655
180716A00054	7/16/2018	3.59	7/16/2040	143.38493	126.3852156	111.7291153	99.0736442	88.12803018	78.6455106	70.41645189	63.26257572	57.03210943
180716A00062	7/16/2018	2.91	7/16/2025	100.89145	100.5171263	100.1462404	99.77873663	99.41456388	99.05367203	98.69601205	98.34153593	97.99019667
180717A00021	7/17/2018	3.34	7/17/2028	110.29435	106.8921397	103.6216348	100.4768922	97.45227973	94.542454	91.74234383	89.04713436	86.4522524
180717A00026	7/17/2018	3.24	7/16/2025	101.86477	101.1608305	100.46674	99.78228757	99.10727242	98.44149941	97.78477877	97.13692587	96.49776112
180717A00047	7/17/2018	3.3	9/17/2025	102.18725	101.3814736	100.5884139	99.80776795	99.03924555	98.28256556	97.53745549	96.80365116	96.08089636
180718A00008	7/18/2018	3.37	7/18/2028	111.14788	107.4451266	103.888656	100.4717883	97.18819472	94.03187447	90.99713479	88.0785733	85.27106118
180719A00064	7/19/2018	3.3	7/21/2025	101.74845	101.1029599	100.4656666	99.83641339	99.21504861	98.6014244	97.99539656	97.39682446	96.80557095
180719A00065	7/19/2018	3.36	7/20/2026	104.95602	103.3039436	101.6859906	100.1011725	98.5485353	97.02716162	95.53616888	94.07470767	92.64196012
180727A00028	7/27/2018	3.25	7/27/2026	104.96886	103.2954954	101.6570037	100.0523575	98.48057204	96.94070084	95.43183373	93.95309518	92.50364261
180727A00038	7/27/2018	3.36	7/25/2025	101.8174	101.1607051	100.512483	99.87257067	99.24080904	98.61704292	98.00112109	97.39289612	96.79222424
180727A00039	7/27/2018	3.48	7/27/2028	111.92118	108.1485434	104.5252412	101.0445087	97.699927	94.48540541	91.3951624	88.42370796	85.56582696
180730A00081	7/30/2018	3.5	7/28/2028	112.00403	108.2271499	104.5998461	101.115339	97.76719595	94.54931336	91.45589765	88.48144755	85.62073742
180813A00045	8/13/2018	2.89	8/13/2025	100.98479	100.5683177	100.1561165	99.74811672	99.3442472	98.9444386	98.54862316	98.15673474	97.7687087
180814A00010	8/14/2018	3.1	8/14/2025	101.8421	101.1299068	100.4276756	99.735202	99.05228344	98.37872281	97.71432846	97.05891392	96.41229777
180814A00032	8/14/2018	3.1	8/14/2025	101.8421	101.1299068	100.4276756	99.735202	99.05228344	98.37872281	97.71432846	97.05891392	96.41229777
180814A00033	8/14/2018	3.25	8/13/2027	108.32871	105.5688478	102.893893	100.3006784	97.78618224	95.34751696	92.98192209	90.68675762	88.45949776
180816A00038	8/16/2018	3.38	8/16/2028	111.7288	107.9053308	104.2350798	100.711013	97.32646723	94.07512475	90.95099309	87.94838599	85.06190572
180820A00055	8/20/2018	3.37	8/21/2028	111.73531	107.8981216	104.2151591	100.6793213	97.2838821	94.02246518	90.88902353	87.8778202	84.9834103
180823A00035	8/23/2018	3.05	8/22/2025	101.86308	101.1289085	100.4053221	99.69209133	98.98899487	98.29581757	97.61235039	96.93839012	96.2737392
180823A00053	8/23/2018	3.2	8/23/2028	111.4275	107.5823056	103.8921072	100.3497481	96.94845256	93.68179803	90.54369452	87.52836511	84.63032766
180823A00055	8/23/2018	3.44	8/23/2033	126.40564	117.0646183	108.5086016	100.6668965	93.47554315	86.87664252	80.81775157	75.25134218	70.13431619
180827A00020	8/27/2018	3.21	8/27/2025	101.95879	101.2113246	100.4748131	99.74901723	99.03370418	98.32864796	97.63362902	96.94843401	96.27285562
180828A00032	8/28/2018	3.49	8/29/2033	126.8848	117.5070581	108.9182183	101.0471454	93.82949048	87.20701075	81.12695924	75.54153889	70.4074135
180829A00008	8/29/2018	3.23	8/30/2027	108.41966	105.6124404	102.8927206	100.2571895	97.70269153	95.22621356	92.82487726	90.4959319	88.23674763
180831A00019	8/31/2018	3.21	9/2/2025	102.00289	101.2388427	100.4862352	99.7448102	99.01431962	98.29452287	97.58518631	96.8860831	96.19699289
180904A00012	9/4/2018	3.35	9/4/2030	118.15441	112.0916479	106.3840682	101.0088933	95.94492858	91.17244494	86.67306954	82.4296851	78.42633724
180904A00014	9/4/2018	3.37	9/1/2028	111.83214	107.9631235	104.2506246	100.6873933	97.2665645	93.98163227	90.82642863	87.79510373	84.88210723
180905A00017	9/5/2018	3.43	9/6/2033	123.32665	115.1205152	107.579718	100.6452918	94.26383618	88.38696479	82.97080889	77.97557227	73.36513228
180906A00032	9/6/2018	3.24	9/5/2025	102.25077	101.4046073	100.5725429	99.75422141	98.94930367	98.15746144	97.37837718	96.61174358	95.85726313
180907A00013	9/7/2018	3.27	9/8/2025	102.2893	101.4385009	100.6019844	99.77939461	98.97038454	98.17461873	97.39177273	96.6215326	95.86359454

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
180910A00028	9/10/2018	3.56	9/9/2033	127.57778	118.1400423	109.4980533	101.5799025	94.32055488	87.66115585	81.54841361	75.93404611	70.77428566
180910A00033	9/10/2018	3.43	9/8/2028	112.12336	108.2292573	104.4933529	100.9083235	97.46722747	94.16348424	90.99085347	87.94341515	85.0155511
180912A00011	9/12/2018	3.41	9/11/2026	105.51304	103.7125358	101.9515426	100.2288804	98.54341935	96.89407335	95.27979765	93.69958695	92.15247352
180913A00012	9/13/2018	3.31	9/13/2033	114.21707	109.3094147	104.7023146	100.3740732	96.30473938	92.47595692	88.87082604	85.47377729	82.27045727
180913A00030	9/13/2018	3.33	9/12/2025	102.17251	101.380456	100.6006875	99.83292075	99.07687993	98.33229758	97.59891434	96.87647862	96.16474635
180913A00033	9/13/2018	3.31	9/13/2033	114.21707	109.3094147	104.7023146	100.3740732	96.30473938	92.47595692	88.87082604	85.47377729	82.27045727
180914A00013	9/14/2018	3.48	9/14/2028	112.36936	108.4537713	104.6978311	101.0941493	97.63571788	94.31589166	91.12836761	88.06716493	85.12660673
180914A00028	9/14/2018	3.37	9/12/2025	102.2042	101.4120123	100.6321077	99.86420637	99.10803241	98.36331834	97.62980477	96.9072401	96.19538022
180914A00029	9/14/2018	3.48	9/14/2028	112.36936	108.4537713	104.6978311	101.0941493	97.63571788	94.31589166	91.12836761	88.06716493	85.12660673
180914A00049	9/14/2018	3.37	9/14/2033	114.51128	109.5909513	104.9719625	100.6325549	96.552725	92.71406914	89.09964354	85.69383828	82.48226266
180920A00014	9/20/2018	3.59	9/20/2028	112.84725	108.905698	105.1253894	101.498858	98.01902367	94.67917134	91.47293007	88.39425346	85.43740121
180925A00013	9/25/2018	3.41	9/25/2028	106.25339	104.2115557	102.2315799	100.3110816	98.44778713	96.63952693	94.88422982	93.17991793	91.52470175
180925A00116	9/25/2018	3.28	9/25/2028	106.15172	104.1092298	102.1286843	100.207698	98.34399173	96.53539087	94.77981952	93.07529536	91.41992476
181003A00019	10/3/2018	3.44	10/3/2025	102.65603	101.7302738	100.8213374	99.9287614	99.05210583	98.19094641	97.34487385	96.51349316	95.69642306
181003A00032	10/3/2018	3.23	10/3/2025	101.317	100.8168728	100.3229359	99.83505846	99.35311734	98.87699286	98.40656876	97.941732	97.48237271
181004A00029	10/4/2018	3.7	10/4/2028	113.40647	109.415154	105.5884953	101.9188429	98.39894408	95.02191814	91.78123554	88.67069818	85.68442084
181010A00025	10/10/2018	3.48	10/10/2030	110.26067	107.0362753	103.9514392	100.9988468	98.17161924	95.4632876	92.86776526	90.37932289	87.99256503
181029A00051	2/5/2019	3.69	2/5/2029	114.56053	110.2035704	106.0396946	102.0592501	98.25312697	94.61272119	91.12990339	87.79698978	84.60671499
181029A00097	10/29/2018	3.53	10/27/2028	111.34399	107.795605	104.3918706	101.1259832	97.99150301	94.98232866	92.09267712	89.31706539	86.65029317
181031A00070	3/1/2019	3.77	3/1/2029	115.15377	110.7120393	106.4698055	102.4169618	98.54397626	94.84185396	91.3021033	87.91670462	84.67808095
181105A00015	11/5/2018	3.57	11/5/2025	103.06065	102.0471944	101.0538398	100.0799888	99.12506957	98.18853222	97.2698481	96.36850868	95.48402461
181109A00028	11/9/2018	3.72	11/9/2026	106.64792	104.675447	102.7496597	100.8691689	99.03263493	97.23876652	95.48631908	93.77409256	92.10092956
181109A00029	11/9/2018	3.72	11/9/2026	106.64792	104.675447	102.7496597	100.8691689	99.03263493	97.23876652	95.48631908	93.77409256	92.10092956
181116A00006	11/16/2018	3.18	11/17/2025	101.41572	100.8693715	100.3304647	99.79882971	99.27430337	98.7567276	98.24594925	97.74181993	97.2441958
181211A00042	12/11/2018	3.7	12/11/2028	112.00037	108.3716996	104.8952526	101.563681	98.37003793	95.30775158	92.37060276	89.55270372	86.84847847
181214A00030	12/14/2018	3.47	12/14/2033	123.98112	115.4714107	107.6711018	100.5156198	93.94664958	87.911499	82.36252641	77.25662983	72.55479014
181218A00040	12/18/2018	3.23	6/18/2030	108.67971	105.6786338	102.8011133	100.0409554	97.39232219	94.84970973	92.40792671	90.06207456	87.80752896
181220A00041	12/20/2018	3.36	12/18/2026	106.28751	104.2119177	102.1876266	100.213033	98.28659432	96.40682713	94.57230461	92.78165382	91.03355329
181226A00030	12/26/2018	2.91	12/26/2028	105.76213	103.5993016	101.5054345	99.47775906	97.51363652	95.6105529	93.76611218	91.9780299	90.24412725
181227A00019	12/28/2020	3.1	12/29/2025	102.81811	101.7278099	100.6606148	99.61579637	98.59265624	97.59052465	96.60875923	95.64674357	94.70388592
181227A00027	12/27/2018	3.24	12/26/2025	102.94466	101.8618416	100.8018025	99.76382603	98.74722831	97.75135348	96.77557224	95.8192806	94.88189853
181227A00028	12/27/2018	3.46	12/27/2028	113.23084	109.0119125	104.976229	101.1148271	97.41923145	93.88142633	90.49382773	87.24925775	84.14092051
190102A00015	1/2/2019	2.97	1/3/2034	112.44643	107.639302	103.1304255	98.89786053	94.92147384	91.18277525	87.66477123	84.35183286	81.22957613

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
190102A00020	1/2/2019	2.97	1/3/2034	112.44643	107.639302	103.1304255	98.89786053	94.92147385	91.18277525	87.66477123	84.35183286	81.22957613
190102A00022	1/2/2019	2.97	1/3/2034	112.44643	107.639302	103.1304255	98.89786053	94.92147385	91.18277525	87.66477123	84.35183286	81.22957613
190102A00024	1/2/2019	2.97	1/3/2034	112.44643	107.639302	103.1304255	98.89786053	94.92147385	91.18277525	87.66477123	84.35183286	81.22957613
190102A00050	1/2/2019	3.38	1/3/2034	126.75836	117.0406418	108.1697397	100.066734	92.66046786	85.88674387	79.68761003	74.01072192	68.80877322
190103A00020	1/3/2019	3.12	1/5/2026	103.11892	101.9408046	100.7898548	99.66513258	98.56574628	97.49084418	96.43961244	95.41127298	94.40508155
190104A00006	1/4/2019	2.83	1/5/2026	101.42365	100.7951764	100.1765691	99.56757362	98.96794219	98.37743602	97.79582483	97.22288648	96.6584066
190104A00033	1/4/2019	3.37	1/31/2029	113.16307	108.8503399	104.7285035	100.7880436	97.01997077	93.41579341	89.96748718	86.66746641	83.5085574
190104A00034	1/4/2019	3.18	1/4/2029	109.85335	106.4205375	103.1290427	99.97207351	96.94321114	94.03638456	91.24584915	88.56616708	85.99218896
190104A00035	1/4/2019	3.1	1/5/2026	103.07629	101.9053069	100.7612662	99.64324028	98.55034562	97.48173832	96.43661197	95.41419557	94.41375161
190104A00038	1/4/2019	3.25	1/4/2029	111.65394	107.6897631	103.8971275	100.2675633	96.79307384	93.46610278	90.27950738	87.22653316	84.30079039
190110A00004	1/10/2019	3.09	1/10/2025	100.2706	100.1568716	100.0434181	99.93023575	99.81732341	99.70468011	99.59230486	99.48019666	99.36835451
190110A00005	1/10/2019	3.2	1/9/2026	103.02494	101.9032997	100.8060806	99.73249145	98.6817744	97.65320372	96.64608412	95.65974915	94.69355973
190111A00026	1/11/2019	3.48	1/11/2034	127.72185	117.9401122	109.0114928	100.8563777	93.40299548	86.58660584	80.34877615	74.63673655	69.40280375
190114A00040	1/14/2019	2.89	1/14/2025	100.28265	100.1577554	100.0331855	99.9089423	99.78502447	99.66143068	99.5381596	99.41520991	99.29258031
190118A00006	1/18/2019	3.14	1/18/2034	113.84844	108.7805751	104.0333588	99.58292387	95.40737983	91.48663741	87.80224736	84.33725473	81.076067
190122A00043	1/22/2019	2.96	1/22/2025	100.34502	100.1979117	100.0512464	99.90502406	99.75924257	99.61389991	99.46899408	99.32452306	99.18048485
190122A00045	1/22/2019	3.17	1/22/2027	106.35892	104.1847918	102.0661556	100.0012017	97.98819713	96.0254792	94.11145155	92.24458114	90.42339515
190122A00046	1/22/2019	3.29	1/22/2029	113.1027	108.8057601	104.6983669	100.7711049	97.01507928	93.42188558	89.98357982	86.6926505	83.5419924
190129A00073	1/29/2019	3.11	1/29/2029	106.15265	103.9418709	101.8026574	99.7320932	97.72740637	95.78595751	93.90523244	92.08283533	90.31648234
190131A00013	1/31/2019	3.48	1/31/2034	123.64689	115.0666843	107.2087908	100.0067706	93.40070171	87.33650123	81.76532409	76.6430275	71.92969276
190131A00019	1/31/2019	3.44	1/30/2034	127.4819	117.6598924	108.6989748	100.5183987	93.04540372	86.21439164	79.96618644	74.24737414	69.00971376
190131A00023	1/31/2019	3.02	1/30/2034	113.24167	108.2004989	103.4783299	99.0514079	94.89795233	90.99797515	87.33312036	83.88651894	80.64265768
190205A00017	2/5/2019	3.36	2/5/2029	112.32468	108.2699544	104.3935024	100.6863947	97.14020677	93.74698418	90.49921364	87.38979557	84.41201881
190205A00020	2/5/2019	3.32	2/5/2029	112.16269	108.112571	104.2405434	100.5376859	96.99558193	93.60628497	90.36228899	87.25650136	84.2822175
190205A00021	2/5/2019	3.32	2/5/2029	112.16269	108.112571	104.2405434	100.5376859	96.99558193	93.60628497	90.36228899	87.25650136	84.2822175
190205A00022	2/5/2019	3.32	2/5/2029	112.16269	108.112571	104.2405434	100.5376859	96.99558193	93.60628497	90.36228899	87.25650136	84.2822175
190205A00023	2/5/2019	3.32	2/5/2029	112.16269	108.112571	104.2405434	100.5376859	96.99558193	93.60628497	90.36228899	87.25650136	84.2822175
190211A00016	2/11/2019	3.01	2/11/2025	100.47476	100.2723516	100.0707722	99.87001382	99.67007141	99.47093996	99.27261448	99.07509003	98.87836171
190211A00017	2/11/2019	3.12	2/11/2026	103.22042	102.0071519	100.8223997	99.66516243	98.53448926	97.42947267	96.34924611	95.29298167	94.25988797
190225A00026	2/25/2019	3.43	2/27/2034	127.60053	117.6905274	108.6561214	100.4145708	92.89138656	86.01946801	79.73833339	73.99343426	68.7355442
190227A00033	2/27/2019	2.65	2/27/2026	101.47564	100.7994509	100.134771	99.48127023	98.83863544	98.20656583	97.58477227	96.97297676	96.37091185
190301A00012	3/1/2019	3.41	3/1/2029	113.61192	109.2029393	104.9923728	100.970164	97.12682332	93.45339602	89.94142877	86.58293836	83.37038255
190305A00015	3/5/2019	3.32	3/5/2029	112.38402	108.2568537	104.3142213	100.5468212	96.94586869	93.50306595	90.21057243	87.06097731	84.04727371

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
190305A00017	3/5/2019	3.12	3/5/2026	103.55297	102.2472484	100.9647334	99.70485364	98.46705706	97.25080921	96.05559252	94.88090571	93.72626308
190308A00016	3/8/2019	3.18	3/8/2034	120.92956	112.829197	105.4025281	98.58780909	92.32934187	86.57684733	81.28490894	76.41247632	71.92242196
190308A00026	3/8/2019	3.18	3/8/2034	120.92956	112.829197	105.4025281	98.58780909	92.32934187	86.57684733	81.28490894	76.41247632	71.92242196
190314A00027	3/22/2019	2.92	3/21/2025	100.70602	100.3984397	100.0927454	99.7889228	99.48695453	99.18682359	98.88851316	98.59200664	98.29728761
190315A00017	3/15/2019	2.88	3/15/2034	112.73964	107.634271	102.8570763	98.38325587	94.19009968	90.25679251	86.56424233	83.09492505	79.83274444
190315A00019	3/15/2019	2.88	3/15/2034	112.73964	107.634271	102.8570763	98.38325587	94.19009968	90.25679251	86.56424233	83.09492505	79.83274444
190315A00023	3/15/2019	2.88	3/15/2034	112.73964	107.634271	102.8570763	98.38325587	94.19009968	90.25679251	86.56424233	83.09492505	79.83274444
190315A00029	3/15/2019	2.88	3/15/2034	112.73964	107.634271	102.8570763	98.38325587	94.19009968	90.25679251	86.56424233	83.09492505	79.83274444
190322A00008	3/22/2019	2.64	3/20/2026	101.51199	100.7961719	100.0927367	99.40133335	98.72162461	98.05328622	97.39600653	96.7494858	96.11343564
190327A00027	3/27/2019	2.66	1/15/2025	100.24994	100.1224151	99.99522621	99.86837652	99.74186464	99.61568915	99.48984868	99.36434185	99.23916728
190327A00030	3/27/2019	2.9	3/27/2036	114.00444	108.1009218	102.636606	97.57307124	92.87562492	88.51291122	84.45656421	80.68089919	77.162638
190328A00046	3/28/2019	2.7	3/4/2025	100.53592	100.2754719	100.0163813	99.75863289	99.50221623	99.24712098	98.99333692	98.74085392	98.48966197
190402A00004	4/2/2019	2.9	4/2/2029	112.02291	107.55049	103.2837329	99.21212765	95.32575536	91.61525091	88.07176914	84.68695344	81.45290629
190402A00005	4/2/2019	2.77	4/2/2032	112.03332	106.9968749	102.2700745	97.8309245	93.65914789	89.7360422	86.04434766	82.56812708	79.29265638
190403A00010	4/3/2019	3.08	4/3/2029	111.88105	107.6059608	103.5267241	99.63326478	95.91608022	92.3662043	88.97517432	85.73500009	82.63813504
190403A00013	4/3/2019	3.05	4/3/2029	111.45691	107.2920464	103.3164626	99.52046188	95.89489652	92.43113403	89.1210254	85.9568755	82.93141535
190403A00014	4/3/2019	3.05	4/3/2029	111.45691	107.2920464	103.3164626	99.52046188	95.89489652	92.43113403	89.1210254	85.9568755	82.93141535
190404A00015	4/4/2019	2.88	4/3/2026	103.50413	102.1019528	100.725963	99.37548686	98.04987423	96.7484966	95.47074627	94.21603549	92.98379558
190409A00019	4/9/2019	2.91	4/9/2029	112.12009	107.6260986	103.3395866	99.2499107	95.34702617	91.62145142	88.06423345	84.66691581	81.42150853
190422A00030	4/22/2019	2.93	12/22/2025	102.57766	101.5078982	100.4604351	99.43457381	98.42965087	97.44502971	96.48009935	95.5342731	94.60698741
190426A00023	4/26/2019	2.91	6/24/2026	104.01464	102.4407773	100.8985456	99.38706218	97.90547487	96.45296284	95.02873496	93.6320285	92.26210782
190501A00015	5/1/2019	2.78	5/1/2029	105.86988	103.4965145	101.2048008	98.99124541	96.85252725	94.78549082	92.78713671	90.85461283	88.98520612
190502A00016	5/2/2019	2.87	5/1/2026	103.69145	102.2136051	100.7647387	99.34406855	97.95084131	96.58433015	95.24383346	93.92867371	92.63819648
190506A00026	5/6/2019	3.03	5/4/2029	111.87556	107.5257036	103.3786234	99.42370029	95.65093053	92.05088569	88.61467654	85.33391924	82.20070388
190510A00049	5/10/2019	2.58	5/8/2026	101.67049	100.8698543	100.0832273	99.31022609	98.5504803	97.80363365	97.069343	96.34727782	95.63711956
190514A00020	5/14/2019	2.66	5/14/2025	100.94644	100.4898125	100.0373203	99.58891022	99.14452703	98.70411651	98.26762542	97.83500143	97.40619318
190514A00021	5/14/2019	2.72	11/14/2025	102.08624	101.1228489	100.177623	99.25004826	98.33963326	97.44590483	96.56840704	95.70670044	94.86036134
190515A00035	5/15/2019	2.82	2/15/2029	110.47371	106.3530067	102.4162192	98.65408126	95.05784479	91.61924963	88.33049333	85.18420314	82.17340986
190520A00020	5/20/2019	2.39	5/20/2026	101.56834	100.7735144	99.99255076	99.22507354	98.47071687	97.7291286	96.99996963	96.28291331	95.5776448
190529A00061	5/29/2019	2.46	5/29/2026	101.57352	100.7736481	99.98777137	99.21550737	98.45648621	97.71035187	96.97676156	96.25538507	95.54590414
190530A00008	5/30/2019	2.38	5/30/2025	100.94004	100.4390343	99.94299085	99.45183781	98.96550312	98.48391615	98.00700764	97.53470968	97.06695567
190531A00037	5/31/2019	2.61	5/31/2029	111.14096	106.5271754	102.1331918	97.9473778	93.95877963	90.15707721	86.53254408	83.07601009	79.77882667
190531A00038	5/31/2019	2.82	5/31/2034	122.40962	112.4884912	103.471881	95.27199931	87.81001709	81.01510835	74.82360016	69.17821671	64.02740677

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
190605A00007	6/5/2019	2.47	6/5/2026	103.30991	101.7472215	100.2162118	98.7159822	97.24566601	95.8044289	94.39146742	93.00600748	91.64730306
190605A00023	6/5/2019	2.64	6/5/2029	110.36094	105.9829597	101.8123141	97.83798291	94.04958964	90.43736468	86.99210616	83.70514383	80.56830526
190605A00024	6/5/2019	2.64	6/5/2029	110.36094	105.9829597	101.8123141	97.83798291	94.04958964	90.43736468	86.99210616	83.70514383	80.56830526
190605A00025	6/5/2019	2.64	6/5/2029	110.36094	105.9829597	101.8123141	97.83798291	94.04958964	90.43736468	86.99210616	83.70514383	80.56830526
190605A00027	6/5/2019	2.64	6/5/2029	110.36094	105.9829597	101.8123141	97.83798291	94.04958964	90.43736468	86.99210616	83.70514383	80.56830526
190606A00027	6/6/2019	2.51	6/5/2026	103.25313	101.7380161	100.2528101	98.79670057	97.36890528	95.96866959	94.59526523	93.24798913	91.92616232
190606A00028	6/6/2019	2.74	6/6/2029	111.39405	106.7692739	102.3650889	98.16980586	94.17241534	90.36254598	86.73042414	83.26683628	79.96309385
190606A00029	6/6/2019	2.96	6/6/2034	122.94308	113.0226744	104.0056241	95.80428354	88.3399559	81.54193332	75.34664841	69.69691958	64.54127953
190618A00002	6/18/2019	2.11	6/18/2025	100.88799	100.3351229	99.78831022	99.24745664	98.71246501	98.18324023	97.65968928	97.1417211	96.62924662
190620A00033	6/20/2019	2.1	6/20/2029	104.52355	102.1342567	99.82855924	97.60282805	95.45361402	93.3776423	91.37180226	89.43313806	87.55883992
190625A00023	6/25/2019	2.47	6/25/2027	105.67156	103.0843178	100.5738342	98.13737129	95.77230503	93.47612175	91.24641293	89.08086995	86.9772793
190625A00024	6/25/2019	2.26	6/25/2025	100.95924	100.3875324	99.82229188	99.26340742	98.71077219	98.16428178	97.62383407	97.08932922	96.56066955
190628A00007	6/28/2019	2.28	6/28/2034	109.5815	104.6579891	100.0533223	95.74311021	91.70504172	87.91869404	84.36535871	81.027885	77.89053865
190702A00068	7/2/2019	2.69	7/1/2039	122.7366	111.0363205	100.7465692	91.68077491	83.6784842	76.60154895	70.33088766	64.76373428	59.81129881
190702A00071	7/2/2019	2.69	7/1/2039	122.7366	111.0363205	100.7465692	91.68077491	83.6784842	76.60154895	70.33088766	64.76373428	59.81129881
190703A00017	7/3/2019	2.33	5/4/2026	102.79221	101.3660696	99.96666292	98.593305	97.24533207	95.92210242	94.62299553	93.34741122	92.09476875
190708A00028	7/8/2019	2.57	7/2/2029	110.20043	105.7628972	101.5383546	97.5153189	93.68299626	90.03123324	86.55047515	83.23172715	80.06651817
190708A00029	7/8/2019	2.57	7/2/2029	110.20043	105.7628972	101.5383546	97.5153189	93.68299626	90.03123324	86.55047515	83.23172715	80.06651817
190708A00030	7/8/2019	2.57	7/2/2029	110.20043	105.7628972	101.5383546	97.5153189	93.68299626	90.03123324	86.55047515	83.23172715	80.06651817
190708A00032	7/8/2019	2.58	7/2/2029	110.24519	105.8062595	101.5803782	97.55606097	93.72251111	90.06957247	86.58768781	83.26785988	80.10161531
190712A00016	7/12/2019	2.39	7/12/2029	105.12886	102.6873513	100.3324136	98.06024014	95.86722041	93.7499279	91.70510966	89.7296762	87.82069219
190718A00012	7/18/2019	2.55	7/18/2029	109.46001	105.3039522	101.3439153	97.56939278	93.97050747	90.537968	87.26303062	84.13746348	81.15351355
190724A00021	7/24/2019	2.33	7/23/2027	105.69166	103.0242346	100.4377909	97.92935965	95.49610353	93.13530848	90.84437755	88.62082487	86.46227007
190724A00023	7/24/2019	2.13	7/24/2025	101.05711	100.4052783	99.76183982	99.12663616	98.49950989	97.88030756	97.26887958	96.66508013	96.06876699
190724A00024	7/24/2019	2.49	7/24/2029	110.93613	106.1791352	101.6548996	97.35077939	93.25488426	89.35603176	85.64370122	82.10799076	78.73957736
190726A00017	7/26/2019	2.44	7/24/2026	103.46167	101.8116778	100.1959524	98.61349425	97.06333988	95.54456297	94.05627261	92.5976116	91.16775481
190802A00011	8/2/2019	2.01	8/2/2029	104.46848	101.9975171	99.61552201	97.31852897	95.10277976	92.96471023	90.90093887	88.90825619	86.98361476
190807A00021	8/7/2019	2	8/7/2026	102.80036	101.1188353	99.47280065	97.86119379	96.28299846	94.73723858	93.22297617	91.73930956	90.28537153
190809A00020	8/9/2019	2.44	8/9/2034	119.07501	109.1256976	100.1034398	91.91652728	84.48278441	77.72853007	71.58765891	66.00082645	60.91472571
190809A00021	8/9/2019	2.12	8/9/2029	109.28045	104.5192059	99.99328509	95.68978687	91.59658914	87.70229823	83.99620087	80.46821949	77.10887087
190813A00051	8/13/2019	2.19	8/13/2029	108.68476	104.1991771	99.93352047	95.87573061	92.01448118	88.33912618	84.83965511	81.50665151	78.33125433
190813A00052	8/13/2019	2.24	8/13/2029	108.9124	104.4194838	100.1468128	96.08231567	92.21465036	88.53315598	85.02780807	81.68917694	78.50838912
190814A00003	8/14/2019	2.01	8/14/2029	108.78296	104.0200432	99.49327215	95.18966014	91.09701143	87.20386526	83.49944712	79.97362365	76.61686071

Classification | Public

Parallel-Shift Sensitivity Analysis

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				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
190819A00030	8/19/2019	2.01	8/20/2029	108.81089	104.0313573	99.48947019	95.17212836	91.06702525	87.16259827	83.44797931	79.91294896	76.54789387
190820A00021	8/20/2019	2.13	8/20/2029	108.98972	104.2181797	99.68349823	95.37263219	91.27333088	87.37408336	83.66406927	80.13311329	76.77164291
190823A00009	8/23/2019	1.8	8/23/2029	103.88427	101.4592264	99.12104872	96.86587244	94.69003705	92.59007078	90.56267963	88.60473692	86.71327368
190826A00018	8/26/2019	1.9	8/27/2029	108.31725	103.5307428	98.98320517	94.66140851	90.55293503	86.64612057	82.93000419	79.3942816	76.02926188
190826A00030	8/26/2019	1.72	8/26/2026	102.54441	100.8122678	99.11750092	97.45896685	95.83556919	94.24625617	92.69001836	91.16588646	89.67292929
190826A00032	8/26/2019	1.72	8/24/2029	103.74269	101.2877851	98.92133028	96.63938317	94.43820388	92.31424585	90.2641445	88.28470657	86.37290025
190826A00057	8/26/2019	1.87	8/26/2025	100.95273	100.2121354	99.48237524	98.763213	98.05441907	97.35577044	96.66705047	95.98804865	95.31856037
190826A00058	8/26/2019	1.91	8/26/2026	102.73758	101.0061698	99.31207725	97.65415863	96.03132034	94.44251323	92.88673034	91.3630047	89.87040734
190826A00060	8/26/2019	2.02	8/26/2027	104.81811	102.0768889	99.42111552	96.84756454	94.35316075	91.93496727	89.59017814	87.31611138	85.11020246
190826A00063	8/26/2019	2.05	8/28/2028	106.81512	103.0513663	99.44049829	95.97542577	92.64943347	89.45615783	86.38956619	83.44393719	80.61384269
190826A00065	8/26/2019	2.09	8/28/2029	108.83666	104.0475144	99.49707348	95.17214072	91.0603244	87.14998413	83.43018077	79.89062996	76.52165906
190828A00015	8/28/2019	2.04	8/28/2029	108.59779	103.8142781	99.26927345	94.94958331	90.84282446	86.93736463	83.22227238	79.68727066	76.32269375
190828A00019	8/28/2019	2	3/28/2028	105.84809	102.5114229	99.29740107	96.20088015	93.21696307	90.34098284	87.56849054	84.89524388	82.31719653
190828A00020	8/28/2019	1.95	5/28/2027	104.18069	101.6894969	99.27074046	96.92190092	94.64055954	92.42439633	90.27118542	88.17879055	86.14516092
190829A00032	8/29/2019	1.69	8/28/2026	101.21327	100.291795	99.38729428	98.49929494	97.62733794	96.7709817	95.92980129	95.10338756	94.29134645
190829A00039	8/29/2019	1.85	8/29/2034	107.80157	102.7123341	97.96308753	93.52719341	89.38032971	85.5002747	81.86671016	78.46104438	75.26625271
190829A00045	8/29/2019	1.9	8/28/2026	102.72949	100.9928483	99.29371382	97.63093959	96.00342368	94.41010913	92.84998157	91.32206705	89.82542998
190830A00002	8/30/2019	1.93	8/28/2026	102.78226	101.0451421	99.34553795	97.6823026	96.05433387	94.46057457	92.90001012	91.37166635	89.87460749
190905A00019	9/5/2019	2.08	9/5/2029	108.27367	103.7503434	99.45132568	95.36424868	91.47748709	87.78011303	84.2618507	80.91303421	77.72456832
190905A00021	9/5/2019	2.08	9/5/2029	108.27367	103.7503434	99.45132568	95.36424868	91.47748709	87.78011303	84.2618507	80.91303421	77.72456832
190905A00023	9/5/2019	2.08	9/5/2029	108.27367	103.7503434	99.45132568	95.36424868	91.47748709	87.78011303	84.2618507	80.91303421	77.72456832
190905A00024	9/5/2019	2.08	9/5/2029	108.27367	103.7503434	99.45132568	95.36424868	91.47748709	87.78011303	84.2618507	80.91303421	77.72456832
190905A00025	9/5/2019	2.08	9/5/2029	108.27367	103.7503434	99.45132568	95.36424868	91.47748709	87.78011303	84.2618507	80.91303421	77.72456832
190910A00044	9/10/2019	2.02	9/10/2026	103.0698	101.2639417	99.49909485	97.77408387	96.08777568	94.43907673	92.82693132	91.25032006	89.70825836
190911A00016	9/11/2019	1.9	9/11/2029	104.27005	101.7615474	99.34469025	97.01533912	94.76957513	92.60368408	90.51414431	88.4976154	86.55092749
190913A00018	9/13/2019	2.11	9/11/2026	101.60905	100.6454464	99.69988398	98.77185449	97.86086775	96.96645223	96.08815412	95.22553651	94.37817857
190923A00012	9/23/2019	2.43	9/25/2034	119.15686	109.0813683	99.95574043	91.68501565	84.18419237	77.3771347	71.19560726	65.57841923	60.470665
190923A00020	9/23/2019	2.05	9/24/2029	109.17113	104.2880685	99.65208557	95.24941855	91.06714536	87.09312463	83.31594455	79.72487533	76.30982497
190925A00009	9/25/2019	2	9/25/2026	103.01714	101.2204053	99.46502982	97.74980398	96.07356521	94.43519232	92.83360378	91.26775607	89.73664204
190926A00002	9/30/2019	2.01	9/29/2034	108.69648	103.5232596	98.69825022	94.19397101	89.98535137	86.04950001	82.36549955	78.91422178	75.67816149
190926A00015	9/26/2019	2.32	11/26/2030	112.01982	105.9276291	100.2078748	94.83584622	89.78859626	85.04480582	80.58466044	76.38973667	72.44289768
190926A00016	9/26/2019	2.28	5/24/2030	111.02642	105.458128	100.2049192	95.24733409	90.56721047	86.14759272	81.9726457	78.0275751	74.29855384
190926A00017	9/26/2019	2.23	9/26/2029	109.65425	104.7667825	100.1263534	95.71922301	91.53248366	87.5540061	83.77238867	80.17691004	76.7574852

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
190930A00071	9/30/2019	2.05	9/29/2025	101.23048	100.3963029	99.57583046	98.76872313	97.97465654	97.19331672	96.42439972	95.66761116	94.92266593
190930A00075	9/30/2019	2.19	9/29/2027	105.47956	102.6361936	99.88401906	97.21963202	94.63977728	92.14133802	89.72132913	87.37689096	85.1052833
190930A00077	9/30/2019	2.23	9/28/2029	109.66453	104.7713473	100.1257488	95.71395672	91.52302917	87.54080447	83.75585018	80.15741581	76.73538879
191004A00001	10/4/2019	2.47	10/4/2034	118.7436	108.7081634	99.61954518	91.38300938	83.91375837	77.13584508	70.98120913	65.38882208	60.30392914
191004A00002	10/4/2019	2.08	10/4/2029	108.9617	104.0694514	99.42575031	95.01672246	90.82933908	86.85135833	83.07127383	79.47826699	76.06216253
191004A00003	10/4/2019	1.89	10/5/2026	102.8975	101.0558717	99.25602915	97.49678635	95.77699545	94.09554825	92.45137454	90.84344061	89.27074773
191004A00017	10/4/2019	2.02	10/4/2029	108.10539	103.5203876	99.16618739	95.02986403	91.09928739	87.36306627	83.81049953	80.4315308	77.21670628
191004A00019	10/4/2019	2.02	10/4/2029	108.10539	103.5203876	99.16618739	95.02986403	91.09928739	87.36306627	83.81049953	80.4315308	77.21670628
191004A00022	10/4/2019	2.02	10/4/2029	108.10539	103.5203876	99.16618739	95.02986403	91.09928739	87.36306627	83.81049953	80.4315308	77.21670628
191004A00023	10/4/2019	2.02	10/4/2029	108.10539	103.5203876	99.16618739	95.02986403	91.09928739	87.36306627	83.81049953	80.4315308	77.21670628
191004A00032	10/4/2019	2.01	1/3/2028	105.44084	102.3412031	99.34886703	96.45950341	93.66898649	90.97338147	88.36893439	85.85206256	83.41934564
191007A00029	10/7/2019	1.88	10/9/2029	108.40681	103.5020651	98.84769224	94.42965715	90.23478476	86.25069889	82.46576987	78.86906582	75.45030748
191008A00007	10/8/2019	1.67	10/9/2029	103.74996	101.2125705	98.76918388	96.41551174	94.14748885	91.96126422	89.85318835	87.81980125	85.85782134
191008A00014	10/8/2019	1.85	10/8/2026	102.88174	101.0058827	99.17424046	97.38549955	95.63839343	93.93170157	92.26424743	90.63489654	89.04255471
191009A00009	10/9/2019	1.8	10/9/2026	101.37381	100.3716278	99.38859341	98.4241662	97.47782724	96.54907693	95.63743414	94.74243535	93.86363381
191011A00027	10/11/2019	1.84	10/11/2029	104.19098	101.6426704	99.18877746	96.82499276	94.54723274	92.35162911	90.23451596	88.19241779	86.22203833
191015A00025	10/15/2019	2.01	10/15/2029	104.42495	101.874356	99.41817142	97.05208745	94.77202452	92.57411794	90.45470503	88.41031318	86.43764872
191017A00022	10/17/2019	2.25	7/17/2028	107.33058	103.6688598	100.1520801	96.77369411	93.52749091	90.40757552	87.40835061	84.52449961	81.75097089
191017A00026	10/17/2019	2.3	7/17/2029	109.61987	104.9238666	100.4569435	96.20670117	92.16147729	88.31030115	84.64284846	81.14939965	77.82080107
191021A00021	10/21/2019	2.22	12/21/2027	106.02366	102.9495415	99.98086378	97.11341201	94.34316864	91.66629998	89.07914659	86.57821419	84.16016519
191025A00009	10/25/2019	2.26	5/25/2029	109.14542	104.6035779	100.2776584	96.15627098	92.22868799	88.48480005	84.915077	81.5105317	78.2626863
191025A00010	10/25/2019	2.24	7/25/2028	107.33931	103.6561642	100.1195104	96.72269712	93.45941743	90.32368697	87.30982529	84.41243844	81.62640271
191031A00033	10/31/2019	2.2	5/31/2028	106.87477	103.348948	99.95889114	96.69864448	93.56254816	90.54522039	87.64154225	84.8466433	82.15588809
191101A00004	11/1/2019	1.91	11/1/2029	107.46889	103.1549609	99.05566085	95.15896021	91.45357204	87.92890174	84.57500079	81.38252379	78.34268866
191101A00005	11/1/2019	1.83	11/2/2026	103.10644	101.1639806	99.26877512	97.41937007	95.61436895	93.85242783	92.13225291	90.45259824	88.81226364
191104A00022	11/4/2019	2.17	8/4/2027	105.11326	102.4264437	99.8219261	97.29666067	94.84773732	92.472374	90.16791003	87.93179985	85.76160707
191104A00023	11/4/2019	2.24	8/4/2028	107.39599	103.6852074	100.1228917	96.70226286	93.41689151	90.26067944	87.2278403	84.31288158	81.51058777
191104A00024	11/4/2019	2.26	8/3/2029	109.52101	104.7821827	100.2764834	95.99118381	91.91432276	88.03465473	84.34160282	80.82521513	77.47612422
191104A00025	11/4/2019	2.33	8/2/2030	111.60716	105.835813	100.4004373	95.27968959	90.4536918	85.9039264	81.61313591	77.56523039	73.74520224
191105A00007	11/5/2019	1.98	11/5/2026	103.37245	101.4408594	99.55493563	97.71331942	95.91470515	94.15783445	92.44149409	90.76451408	89.12576577
191105A00012	11/5/2019	2.07	11/3/2034	109.13726	103.859999	98.94317883	94.3579661	90.07808347	86.07956734	82.3405471	78.84104694	75.56280767
191106A00022	11/6/2019	2.34	1/2/2030	110.682	105.50741	100.6069154	95.96454687	91.56535389	87.39533035	83.44134973	79.69110518	76.13305399
191108A00013	11/8/2019	2.25	11/8/2029	110.37115	105.3386548	100.5663575	96.03946827	91.74411384	87.6672747	83.79672839	80.12099667	76.62929649

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
191108A00014	11/8/2019	2.25	11/8/2029	110.37115	105.3386548	100.5663575	96.03946827	91.74411384	87.6672747	83.79672839	80.12099667	76.62929649
191112A00022	11/12/2019	2.36	11/13/2029	109.8692	105.1364561	100.6461522	96.38446	92.33841805	88.49586996	84.84541008	81.37633311	78.07858735
191112A00023	11/12/2019	2.36	11/13/2029	109.8692	105.1364561	100.6461522	96.38446	92.33841805	88.49586996	84.84541008	81.37633311	78.07858735
191113A00013	11/13/2019	2.17	11/13/2026	103.67851	101.7030285	99.77596809	97.89582551	96.0611543	94.27056322	92.52271367	90.81631729	89.15013364
191115A00028	11/15/2019	2.34	9/28/2029	110.19942	105.293389	100.6354143	96.21169349	92.00926461	88.01594703	84.22029033	80.61152695	77.17952814
191115A00029	11/15/2019	2.07	11/15/2029	104.57849	102.0243427	99.56539249	97.19725752	94.91579232	92.71707148	90.59737644	88.55318314	86.58115052
191115A00030	11/15/2019	2.35	11/9/2029	110.46097	105.4367588	100.6720508	96.15210562	91.86309628	87.79204622	83.92677288	80.25583499	76.76848385
191120A00005	11/20/2019	2.63	11/20/2034	120.48989	110.2515299	100.988322	92.60165968	85.00339692	78.11468889	71.86496762	66.1910349	61.03625861
191120A00006	11/20/2019	2.67	11/20/2035	122.19819	110.9398892	100.846412	91.7901134	83.65797588	76.34986497	69.77700138	63.86062092	58.53079855
191120A00024	11/20/2019	2.23	11/16/2029	109.89751	104.8681557	100.0997453	95.57739213	91.28713826	87.21588801	83.35135014	79.68198442	76.19695194
191121A00009	11/21/2019	2.55	11/21/2036	122.89097	110.613506	99.71066739	90.01993946	81.39883382	73.7223319	66.88066296	60.77737435	55.32765455
191121A00010	11/21/2019	2.59	11/20/2037	124.41556	111.1412203	99.45874856	89.16682391	80.09061268	72.07816181	64.9972994	58.73296853	53.18493207
191121A00034	11/21/2019	2.28	11/2/2029	110.07767	105.0818751	100.3432804	95.84733376	91.58037557	87.52958325	83.68291581	80.02906229	76.55739391
191122A00003	11/22/2019	2.32	11/22/2039	117.32351	106.7784736	97.45576059	89.19685964	81.86525888	75.34324198	69.52916614	64.33515058	59.68511138
191122A00018	11/26/2019	3.11	11/22/2039	133.31841	117.7353751	104.2422754	92.54264269	82.38370427	73.54973903	65.85646911	59.14632529	53.28444602
191122A00020	11/26/2019	3.2	11/23/2037	131.08558	117.4629616	105.4569571	94.86428569	85.50831662	77.23544614	69.91198687	63.4214908	57.66244412
191122A00021	11/26/2019	3.4	11/22/2038	135.4525	120.6320438	107.6781574	96.34156599	86.40766103	77.69151642	70.0336406	63.29635519	57.36070542
191125A00036	11/25/2019	2.29	11/23/2029	110.23235	105.1757305	100.3823196	95.83705329	91.52580593	87.43532774	83.55318587	79.86770991	76.36794124
191126A00023	11/26/2019	1.81	5/27/2025	100.64264	100.1507283	99.66362037	99.1812442	98.70353108	98.23041359	97.76182563	97.29770233	96.83798009
191126A00026	11/26/2019	1.91	11/25/2026	103.33857	101.3526128	99.41489708	97.52394747	95.67834774	93.87673446	92.11779453	90.40026303	88.722921
191202A00005	12/2/2019	2.03	12/2/2024	100.00974	100.0041886	99.998643	99.9931024	99.98756676	99.98203609	99.97651038	99.97098961	99.96547379
191203A00004	12/4/2019	1.87	12/4/2024	100.01474	100.0036403	99.99255194	99.98147419	99.97040699	99.95935033	99.94830419	99.93726855	99.9262434
191203A00009	12/3/2019	2.21	12/3/2029	109.23589	104.4767528	99.96369152	95.68254847	91.62005668	87.76378117	84.10206208	80.62396218	77.31921808
191203A00010	12/3/2019	2.21	12/3/2029	109.23589	104.4767528	99.96369152	95.68254847	91.62005668	87.76378117	84.10206208	80.62396218	77.31921808
191203A00011	12/3/2019	2.21	12/3/2029	109.23589	104.4767528	99.96369152	95.68254847	91.62005668	87.76378117	84.10206209	80.62396218	77.31921808
191204A00013	12/4/2019	1.72	12/4/2024	100.01375	100.0026452	99.99154949	99.98046445	99.96939005	99.95832629	99.94727314	99.93623059	99.92519861
191206A00005	12/6/2019	2.18	12/7/2026	103.82871	101.7887672	99.79988907	97.86044163	95.96885961	94.12363953	92.32333674	90.56656263	88.85198197
191206A00008	12/6/2019	2.44	12/6/2030	112.7854	106.6439442	100.8790342	95.46560604	90.38038706	85.60176207	81.10964686	76.88537227	72.91157748
191206A00009	12/6/2019	2.87	12/4/2037	126.92119	113.5283791	101.7366398	91.34365281	82.17372474	74.07415682	66.91212807	60.57201468	54.95308261
191206A00013	12/6/2019	3.05	12/6/2044	143.83813	122.9189597	105.5543958	91.10446675	79.04855537	68.96253388	60.50037907	53.37937318	47.36817656
191206A00021	12/6/2019	2.02	12/6/2024	100.02349	100.0068448	99.99021229	99.97359657	99.95699761	99.94041536	99.9238498	99.90730091	99.89076865
191209A00005	12/9/2019	2.22	12/10/2029	108.61593	104.1931415	99.99361119	96.00464164	92.21432769	88.6115064	85.18570651	81.92710165	78.82646698
191217A00012	12/20/2019	2.03	12/20/2024	100.07244	100.016969	99.9615751	99.90625852	99.85101909	99.79585664	99.74077101	99.68576203	99.63082954

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
191218A00014	12/18/2019	2.04	12/18/2024	100.06598	100.0160499	99.96618884	99.91639456	99.86666698	99.81700595	99.76741134	99.71788301	99.66842083
191219A00036	12/20/2019	2.1	12/20/2024	100.07636	100.0208841	99.96548701	99.91016721	99.85492456	99.7997589	99.74467006	99.68965788	99.63472219
191220A00001	12/20/2019	2.62	12/19/2031	115.65012	108.4077426	101.6747479	95.41255896	89.58571457	84.16160119	79.11021021	74.40391726	70.01728124
191220A00002	12/20/2019	3.02	12/20/2038	130.39154	115.8370225	103.1358032	92.03837222	82.33015982	73.82647583	66.36820724	59.81815441	54.0579082
191223A00055	12/23/2019	2.46	12/7/2029	111.16034	106.0429812	101.1934606	96.59635104	92.23719732	88.1024464	84.17938637	80.45608994	76.92136192
191223A00056	12/23/2019	2.46	12/14/2029	111.19727	106.0603265	101.1930449	96.57985509	92.20616289	88.05828797	84.12340164	80.38946946	76.84519792
191224A00002	12/24/2019	2.17	12/24/2029	105.01111	102.3619703	99.81367317	97.36150019	95.00099026	92.72792236	90.53830101	88.42834259	86.39446272
191226A00019	12/26/2019	2.4	12/22/2028	108.84724	104.7310775	100.7942703	97.0280397	93.42408814	89.97456721	86.67205089	83.50951032	80.48029038
191226A00020	12/26/2019	2.44	12/21/2029	111.13234	105.9783516	101.095768	96.46887081	92.0829303	87.92414205	83.97956373	80.23705677	76.68523221
191230A00013	12/30/2019	1.84	12/2/2024	100.00887	100.0033158	99.99776671	99.99222266	99.98668363	99.98114962	99.9756206	99.97009658	99.96457755
191230A00031	12/30/2019	1.85	12/30/2024	100.0987	100.0154674	99.9323704	99.84941305	99.766595	99.68391591	99.60137543	99.51897323	99.43670895
200103A00002	1/3/2020	2.07	1/3/2030	108.38751	103.9158455	99.67254323	95.64446225	91.81929496	88.18551044	84.73230082	81.44953174	78.32769643
200108A00021	1/13/2020	1.97	1/13/2025	100.15436	100.032449	99.91085379	99.78956985	99.66859595	99.54793087	99.42757339	99.30752227	99.18777631
200109A00006	1/9/2020	1.95	1/9/2030	104.71132	102.024731	99.44187554	96.95784396	94.5679921	92.26792862	90.05349936	87.92077297	85.8660274
200109A00008	1/9/2020	1.95	1/9/2030	104.71132	102.024731	99.44187554	96.95784396	94.5679921	92.26792862	90.05349936	87.92077297	85.8660274
200110A00022	1/13/2020	2	1/6/2025	100.13124	100.0286912	99.92636591	99.82425966	99.7223717	99.62070131	99.51924777	99.41801035	99.31698834
200110A00037	1/10/2020	2.32	1/10/2030	109.92903	105.0590041	100.444918	96.07179829	91.92563238	87.99330225	84.26252215	80.72178098	77.36028907
200110A00038	1/10/2020	2.32	1/10/2030	109.92903	105.0590041	100.444918	96.07179829	91.92563238	87.99330225	84.26252215	80.72178098	77.36028907
200110A00039	1/10/2020	2.32	1/10/2030	109.92903	105.0590041	100.444918	96.07179829	91.92563238	87.99330225	84.26252215	80.72178098	77.36028907
200110A00043	1/10/2020	2.32	1/10/2030	109.92903	105.0590041	100.444918	96.07179829	91.92563238	87.99330225	84.26252215	80.72178098	77.36028907
200110A00053	1/10/2020	1.99	1/10/2025	100.26373	100.0647255	99.86652586	99.66912185	99.47250862	99.27668137	99.08163535	98.88736583	98.69386813
200114A00006	1/15/2020	1.99	1/15/2025	100.1644	100.0369509	99.90984681	99.78308178	99.65665437	99.53056318	99.40480683	99.27938395	99.15429315
200115A00013	1/15/2020	2.18	1/15/2030	107.69226	103.6542636	99.81466166	96.16226341	92.68657974	89.37777602	86.22662721	83.22447632	80.36319592
200116A00012	1/16/2020	2.16	1/19/2027	104.02483	101.8705825	99.7724783	97.72863769	95.73726042	93.79662151	91.90506746	90.06101254	88.26293546
200121A00009	1/24/2020	1.94	1/24/2025	100.19094	100.038589	99.88671563	99.73531345	99.58438027	99.43391391	99.28391217	99.13437288	98.9852939
200122A00035	1/22/2020	1.94	1/22/2025	100.18362	100.0368097	99.89044176	99.74451466	99.59902632	99.45397473	99.30935791	99.16517387	99.02142065
200123A00013	1/27/2020	1.89	1/27/2025	100.19386	100.033217	99.87309524	99.71349143	99.55440308	99.3958277	99.23776281	99.08020594	98.92315465
200123A00048	1/23/2020	1.7	1/23/2025	100.16286	100.0131865	99.8639726	99.71521634	99.56691554	99.41906807	99.27167182	99.12472469	98.9782246
200124A00008	1/24/2020	1.92	1/22/2027	103.65058	101.506346	99.41699684	97.38073968	95.39585863	93.46070722	91.57370488	89.73333374	87.93813558
200127A00016	1/27/2020	1.81	1/27/2025	100.18098	100.0203547	99.86024839	99.70066002	99.54158708	99.38302706	99.22497749	99.06743591	98.91039985
200127A00023	1/27/2020	1.8	1/27/2025	100.17937	100.0187469	99.85864253	99.6990561	99.53998508	99.38142698	99.22337933	99.06583965	98.9088055
200127A00030	1/27/2020	1.8	1/27/2025	100.17937	100.0187469	99.85864253	99.6990561	99.53998508	99.38142698	99.22337933	99.06583965	98.9088055
200128A00028	1/28/2020	1.81	1/28/2025	100.18428	100.0208834	99.85802535	99.6957011	99.53390806	99.37264363	99.21190523	99.05169029	98.89199627

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200130A00006	1/30/2020	1.77	1/30/2025	100.1841	100.015177	99.84682407	99.67903716	99.51181347	99.34515017	99.17904448	99.01349362	98.84849483
200130A00016	1/30/2020	1.58	1/30/2025	100.16498	99.99594753	99.82748172	99.65958393	99.49225129	99.32548095	99.1592701	98.99361592	98.82851563
200130A00027	1/31/2020	1.79	1/31/2025	100.14046	100.011648	99.88319916	99.75511441	99.62739212	99.50003064	99.37302835	99.24638362	99.12009484
200130A00046	1/30/2020	1.81	1/29/2027	101.59369	100.4630595	99.35555168	98.27048883	97.20722172	96.16512582	95.14360007	94.14206578	93.15996558
200131A00015	2/5/2020	1.73	2/5/2025	100.19634	100.0108559	99.82606742	99.64196705	99.45855093	99.27581522	99.09375612	98.91236984	98.73165264
200131A00016	1/31/2020	1.73	1/31/2025	100.1804	100.0087206	99.83762511	99.66711199	99.49717829	99.3278211	99.1590375	98.99082462	98.82317959
200131A00032	1/31/2020	2.1	1/31/2030	109.57036	104.3476032	99.40552221	94.72753938	90.29815015	86.10284335	82.12803203	78.36098945	74.78978993
200131A00038	1/31/2020	1.73	1/30/2025	100.17733	100.0084139	99.84006947	99.67229108	99.50507589	99.33842107	99.17232384	99.00678141	98.84179103
200203A00006	2/3/2020	1.76	2/3/2025	100.19537	100.0154071	99.83608854	99.65741542	99.4793842	99.30199141	99.12523363	98.94910743	98.77360942
200203A00046	2/3/2020	1.98	2/3/2040	111.20489	103.5648861	96.66547784	90.42323075	84.76502975	79.62671101	74.95188785	70.69093936	66.80013791
200204A00001	2/4/2020	1.79	2/4/2025	100.20414	100.0214046	99.83934017	99.65794244	99.47720773	99.29713241	99.11771286	98.93894547	98.76082668
200204A00012	2/4/2020	1.98	2/4/2027	103.67509	101.498343	99.37793254	97.31199904	95.29875847	93.33650012	91.42358291	89.55843189	87.73953498
200204A00020	2/4/2020	1.6	2/4/2025	100.18355	100.0006935	99.81850678	99.63698894	99.45613628	99.27594512	99.0964118	98.9175327	98.73930421
200206A00008	2/6/2020	1.64	2/6/2025	100.28524	100.0208764	99.75792088	99.49635882	99.23617905	98.97737053	98.71992237	98.46382377	98.20906407
200206A00027	2/6/2020	2.15	2/6/2030	109.19324	104.2908603	99.64915517	95.25272255	91.08715388	87.13896838	83.39554794	79.84507697	76.47648689
200206A00031	2/6/2020	2.15	2/6/2030	109.19324	104.2908603	99.64915517	95.25272255	91.08715388	87.13896838	83.39554793	79.84507697	76.47648689
200206A00032	2/6/2020	2.15	2/6/2030	109.19324	104.2908603	99.64915517	95.25272255	91.08715388	87.13896838	83.39554793	79.84507697	76.47648689
200206A00033	2/6/2020	2.15	2/6/2030	109.19324	104.2908603	99.64915517	95.25272255	91.08715388	87.13896838	83.39554793	79.84507697	76.47648689
200206A00034	2/6/2020	1.84	2/6/2025	100.31796	100.0531244	99.78969954	99.52766949	99.26702315	99.00774952	98.74983771	98.49327696	98.2380566
200207A00009	2/7/2020	1.58	2/7/2025	100.18891	99.99777066	99.807367	99.61769715	99.4287568	99.24054172	99.05304766	98.86627045	98.68020592
200207A00017	2/7/2020	1.96	2/8/2027	103.65481	101.4665468	99.33515067	97.25873529	95.2354919	93.26368649	91.34165598	89.46780471	87.64060103
200207A00018	2/7/2020	2.14	2/7/2030	109.81451	104.5650935	99.59865667	94.89843865	90.44876012	86.23494995	82.24327469	78.46087331	74.87569704
200210A00005	2/10/2020	1.77	2/10/2027	103.42329	101.2282314	99.09041074	97.00792325	94.97894247	93.00171771	91.07457018	89.19588938	87.36412968
200210A00007	2/10/2020	1.78	2/10/2025	100.33225	100.0605331	99.79030998	99.52157157	99.25430551	98.98849957	98.72414165	98.46121979	98.19972218
200210A00009	2/10/2020	1.57	2/10/2025	100.19594	99.99650939	99.7978873	99.60006527	99.40303841	99.20680186	99.01135081	98.81668048	98.62278614
200210A00021	2/10/2020	1.76	2/10/2025	100.21826	100.0189714	99.82048296	99.62279214	99.42589406	99.22978392	99.03445694	98.8399084	98.64613358
200212A00003	2/12/2020	1.63	2/12/2025	100.21422	100.0092478	99.80512801	99.60185327	99.39941827	99.19781772	98.99704641	98.79709917	98.59797084
200212A00013	2/12/2020	1.98	2/12/2027	103.73618	101.5322728	99.38702981	97.29849635	95.26479786	93.28413609	91.35478536	89.475089	87.64345603
200214A00005	2/14/2020	1.59	2/14/2025	100.21207	100.0015874	99.79199884	99.58330078	99.3754875	99.16855332	98.96249258	98.75729972	98.55296917
200214A00007	2/14/2020	1.59	2/14/2025	100.21207	100.0015874	99.79199884	99.58330078	99.3754875	99.16855331	98.96249258	98.75729972	98.55296917
200214A00014	2/18/2020	1.8	2/18/2025	100.25329	100.0318973	99.81148998	99.59206326	99.3736105	99.1561252	98.93960089	98.72403117	98.50940968
200214A00020	2/18/2020	1.78	1/15/2025	100.13758	100.0101636	99.88308611	99.75634761	99.62994668	99.50388191	99.37815193	99.25275535	99.12769081
200220A00013	2/20/2020	2.09	12/14/2029	109.31996	104.2299889	99.40790703	94.83822425	90.50642456	86.39890143	82.50289615	78.80644053	75.29830386

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200220A00014	2/20/2020	2.09	12/21/2029	109.34979	104.240567	99.40105386	94.81560909	90.46957788	86.34922657	82.44167987	78.73486269	75.21744624
200220A00015	2/20/2020	1.57	2/20/2025	100.22573	99.99866777	99.77264646	99.5476558	99.32368869	99.1007381	98.87879707	98.65785871	98.43791618
200220A00026	2/20/2020	2.22	2/21/2040	113.01691	104.7384239	97.30022667	90.60412707	84.56446744	79.10641471	74.16449944	69.68136261	65.60667938
200221A00003	2/25/2020	1.69	2/25/2025	100.25039	100.0096995	99.77016763	99.53178401	99.29454042	99.0584287	98.82344077	98.58956861	98.3568043
200221A00004	2/21/2020	1.69	2/21/2025	100.23809	100.0084523	99.77986915	99.55233751	99.32585007	99.10039961	98.87597901	98.65258118	98.43019911
200221A00012	2/21/2020	2.14	2/21/2040	112.34793	104.12192	96.73090103	90.07729682	84.07598629	78.6526058	73.7420971	69.28746185	65.238692
200221A00013	2/21/2020	1.69	2/21/2025	100.23809	100.0084523	99.77986915	99.55233751	99.32585007	99.10039961	98.87597901	98.65258118	98.43019911
200221A00016	2/21/2020	1.69	2/21/2025	100.23809	100.0084523	99.77986915	99.55233751	99.32585007	99.10039961	98.87597901	98.65258118	98.43019911
200221A00023	2/21/2020	2.05	12/7/2029	109.08794	104.0222523	99.2224525	94.67320765	90.36014788	86.26980092	82.38953141	78.70748453	75.21253381
200221A00024	2/21/2020	2.05	12/28/2029	109.17513	104.0517976	99.19981181	94.60338284	90.24772495	86.11898475	82.20417745	78.49112779	74.96841534
200221A00031	2/21/2020	1.69	2/21/2025	100.23809	100.0084523	99.77986915	99.55233751	99.32585007	99.10039961	98.87597901	98.65258118	98.43019911
200224A00001	2/24/2020	1.59	2/24/2025	100.22345	99.98556309	99.74880614	99.51317288	99.27865535	99.04524561	98.81293582	98.58171823	98.35158512
200224A00007	2/24/2020	1.59	2/24/2025	100.22345	99.98556309	99.74880614	99.51317288	99.27865535	99.04524561	98.81293582	98.58171823	98.35158512
200224A00019	2/24/2020	1.59	2/18/2025	100.20667	99.98534839	99.76501055	99.54565303	99.32726925	99.10985269	98.89339689	98.67789545	98.46334201
200224A00020	2/24/2020	1.59	2/24/2025	100.22345	99.98556309	99.74880614	99.51317288	99.27865535	99.04524561	98.81293582	98.58171823	98.35158512
200224A00024	2/24/2020	1.59	2/24/2025	100.22345	99.98556309	99.74880614	99.51317288	99.27865535	99.04524561	98.81293582	98.58171823	98.35158512
200224A00025	2/24/2020	1.59	1/23/2025	100.13482	99.98530109	99.83623953	99.68763374	99.53948161	99.39178105	99.24452997	99.09772629	98.95136796
200224A00046	2/24/2020	1.59	2/24/2025	100.22345	99.98556309	99.74880614	99.51317288	99.27865535	99.04524561	98.81293582	98.58171823	98.35158512
200225A00012	2/25/2020	1.57	2/25/2025	100.22142	99.98077794	99.74129245	99.50295506	99.26575752	99.02969169	98.79474948	98.56092287	98.32820395
200225A00017	2/25/2020	1.94	2/25/2030	108.85215	103.5752513	98.58571628	93.86636349	89.40113127	85.17500072	81.17392197	77.38474613	73.79516241
200225A00018	2/25/2020	1.94	2/25/2030	108.85215	103.5752513	98.58571628	93.86636349	89.40113127	85.17500072	81.17392197	77.38474613	73.79516241
200225A00023	2/25/2020	1.62	2/25/2025	100.23349	99.9928286	99.75332377	99.51496712	99.2777504	99.04166545	98.80670418	98.5728586	98.34012076
200225A00028	2/25/2020	1.89	12/21/2029	108.33119	103.2475472	98.43264576	93.87088811	89.54766221	85.44927487	81.56288909	77.87646607	74.3787114
200225A00029	2/25/2020	1.89	12/28/2029	108.35718	103.254465	98.42231305	93.84497047	89.50768619	85.39663961	81.49887698	77.80225245	74.29537345
200225A00049	2/25/2020	1.79	2/24/2040	109.7247	102.1939808	95.39131395	89.23494968	83.65320867	78.58315711	73.9694636	69.76341385	65.92206034
200225A00050	2/25/2020	1.57	2/25/2025	100.22142	99.98077794	99.74129245	99.50295506	99.26575752	99.02969169	98.79474948	98.56092287	98.32820395
200226A00004	2/26/2020	1.58	2/26/2025	100.2266	99.98319534	99.74096989	99.49991711	99.26002852	99.02129572	98.78371037	98.54726425	98.31194917
200226A00006	2/26/2020	1.57	2/26/2025	100.22416	99.98075757	99.73853607	99.49748723	99.25760256	99.01887367	98.78129222	98.54484998	98.30953876
200226A00008	2/26/2020	1.38	2/26/2025	100.1972	99.9536303	99.71124771	99.47004098	99.23000156	98.99112099	98.7533909	98.51680299	98.28134902
200226A00009	2/26/2020	1.75	2/26/2030	108.28774	103.0080683	98.01670709	93.29637871	88.8309373	84.60528721	80.6053086	76.81778877	73.23035874
200226A00016	2/26/2020	1.57	2/26/2025	100.22416	99.98075757	99.73853607	99.49748723	99.25760257	99.01887367	98.78129222	98.54484998	98.30953876
200226A00025	2/26/2020	1.38	2/26/2025	100.1972	99.9536303	99.71124771	99.47004098	99.23000156	98.99112099	98.7533909	98.51680299	98.28134902
200227A00004	2/27/2020	1.65	2/27/2030	107.763	102.4940869	97.51324649	92.80320346	88.34781218	84.13197796	80.14158259	76.36341552	72.78511046

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200227A00006	2/27/2020	1.47	2/27/2025	100.20221	99.95608301	99.71116597	99.46744615	99.22491482	98.98356333	98.7433831	98.50436564	98.26650257
200227A00009	2/27/2020	1.47	2/27/2025	100.20221	99.95608301	99.71116597	99.46744615	99.22491482	98.98356333	98.7433831	98.50436564	98.26650257
200227A00016	2/27/2020	1.47	2/27/2025	100.20221	99.95608301	99.71116597	99.46744615	99.22491482	98.98356333	98.7433831	98.50436564	98.26650257
200227A00027	2/27/2020	1.47	2/27/2025	100.20221	99.95608301	99.71116597	99.46744615	99.22491482	98.98356333	98.7433831	98.50436564	98.26650257
200227A00030	2/27/2020	1.59	2/27/2026	101.43352	100.1883159	98.97349921	97.78796542	96.63066646	95.50060378	94.39682538	93.31842316	92.26453039
200227A00046	2/27/2020	1.52	3/1/2027	101.31778	100.1490688	99.00476867	97.88415677	96.78653778	95.71124309	94.65762952	93.62507814	92.61299309
200228A00012	3/3/2020	1.4	3/3/2025	100.19444	99.93733017	99.68153683	99.42705372	99.17387079	98.92197807	98.67136569	98.42202392	98.17394307
200228A00014	2/28/2020	1.4	2/28/2025	100.18719	99.93833474	99.69071163	99.44431049	99.19912233	98.95513825	98.71234943	98.47074714	98.23032273
200228A00019	2/28/2020	1.21	2/20/2025	100.1438	99.91686914	99.69097248	99.46610603	99.2422627	99.01943546	98.79761736	98.57680151	98.35698106
200228A00025	2/28/2020	1.57	3/2/2027	102.89686	100.6533101	98.46942827	96.34319053	94.27266203	92.25598951	90.29139708	88.37718226	86.51171224
200228A00026	2/28/2020	2.14	2/28/2035	115.90379	105.6308183	96.36646363	88.00597885	80.45601037	73.63330738	67.46358079	61.88049645	56.82478604
200228A00059	2/28/2020	1.79	2/28/2030	108.0736	102.8082446	97.83035966	93.12272047	88.66922953	84.45483641	80.46546355	76.68793777	73.10992711
200228A00067	2/28/2020	1.4	2/28/2025	100.18719	99.93833474	99.69071163	99.44431049	99.19912233	98.95513825	98.71234943	98.47074714	98.23032273
200228A00071	2/28/2020	1.74	12/14/2029	107.54413	102.4985885	97.71926307	93.19073563	88.89856397	84.82921146	80.96998555	77.30898073	73.83502569
200228A00091	2/28/2020	1.72	12/7/2029	107.41991	102.395812	97.63603136	93.12531176	88.84935198	84.7947448	80.94891644	77.30007041	73.83713557
200302A00002	3/2/2020	1.12	3/3/2025	100.14273	99.88548449	99.62956051	99.37495007	99.12164305	98.86962943	98.61889927	98.36944278	98.12125022
200302A00005	3/2/2020	1.31	3/3/2025	100.17122	99.91414606	99.65839179	99.40394761	99.15080345	98.89894935	98.64837545	98.399072	98.15102934
200302A00011	3/2/2020	1.31	2/27/2025	100.16269	99.91663659	99.67178419	99.42812877	99.1856616	98.94437402	98.70425746	98.46530345	98.22750357
200302A00016	3/2/2020	1.36	3/3/2025	100.18412	99.92702612	99.67125014	99.41678434	99.16361864	98.91174308	98.66114781	98.41182307	98.16375919
200302A00033	3/2/2020	1.31	3/3/2025	100.17122	99.91414606	99.65839179	99.40394761	99.15080345	98.89894935	98.64837545	98.399072	98.15102934
200302A00036	3/2/2020	1.45	3/2/2026	101.27059	100.0188828	98.79720279	97.60447928	96.43968969	95.3018592	94.19005792	93.10339837	92.04103307
200302A00045	3/4/2020	1.31	3/4/2025	100.17339	99.913562	99.65508518	99.39794815	99.14214048	98.88765187	98.6344721	98.38259105	98.13199873
200302A00053	3/2/2020	1.31	3/3/2025	100.17122	99.91414606	99.65839179	99.40394761	99.15080345	98.89894935	98.64837545	98.399072	98.15102934
200302A00054	3/2/2020	1.31	3/3/2025	100.17122	99.91414606	99.65839179	99.40394761	99.15080345	98.89894935	98.64837545	98.399072	98.15102934
200302A00060	3/2/2021	1.44	3/3/2025	100.20477	99.94763422	99.69182351	99.43732311	99.18412294	98.93221305	98.68158358	98.43222477	98.18412696
200303A00001	3/3/2020	1.15	3/3/2025	100.15047	99.89321355	99.63727653	99.3826531	99.12933315	98.87730663	98.62656365	98.37709436	98.12888907
200303A00010	3/3/2020	1.34	3/3/2025	100.17896	99.92187409	99.6661068	99.41164965	99.15849256	98.90662559	98.65603887	98.40672264	98.15866725
200303A00012	3/3/2020	1.71	3/1/2030	107.65379	102.3967575	97.42704567	92.7274285	88.28180873	84.07513616	80.09333358	76.32322825	72.75248875
200303A00018	3/3/2020	1.27	3/3/2025	100.1609	99.903842	99.6481051	99.39367822	99.14055129	98.88871436	98.63815757	98.38887115	98.14084546
200303A00028	3/3/2020	1.54	3/4/2030	105.75986	101.2671814	97.01022908	92.97516122	89.14902317	85.51968688	82.07579397	78.80670294	75.70244022
200303A00034	3/3/2020	1.21	3/3/2025	100.14542	99.88838593	99.63267508	99.37827415	99.12517307	98.87336188	98.62283074	98.37356988	98.12556964
200304A00002	3/4/2020	0.98	3/4/2025	100.10807	99.84812966	99.58954317	99.33229975	99.07638891	98.82180026	98.56852354	98.31654857	98.0658653
200304A00005	3/4/2020	0.98	3/4/2025	100.10807	99.84812966	99.58954317	99.33229975	99.07638891	98.82180026	98.56852354	98.31654857	98.0658653

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	Parallel-Shift Sensitivity Analysis											
11/30/2024				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200304A00010	3/4/2020	1.2	3/4/2027	102.24348	99.99853982	97.81353228	95.68643452	93.6153048	91.59828284	89.63358562	87.71950344	85.85439627
200304A00012	3/4/2020	0.98	3/4/2025	100.10807	99.84812966	99.58954317	99.33229975	99.07638891	98.82180026	98.56852354	98.31654857	98.0658653
200304A00018	3/4/2020	0.98	3/4/2025	100.10807	99.84812966	99.58954317	99.33229975	99.07638891	98.82180026	98.56852354	98.31654857	98.0658653
200304A00020	3/4/2020	0.98	3/4/2025	100.10807	99.84812966	99.58954317	99.33229975	99.07638891	98.82180026	98.56852354	98.31654857	98.0658653
200304A00030	3/4/2020	1.6	12/22/2028	105.57272	101.5231211	97.65076109	93.94695129	90.40347453	87.01255904	83.76685181	80.65939367	77.6835959
200304A00032	3/4/2020	1.6	12/15/2028	105.54571	101.515071	97.66021217	93.97254222	90.44393983	87.06672211	83.83361848	80.73774618	77.77258746
200304A00033	3/4/2020	1.17	3/4/2025	100.13688	99.87711065	99.61869564	99.36162019	99.10587386	98.85144635	98.59832744	98.34650702	98.09597509
200304A00035	3/4/2020	1.17	3/4/2025	100.13688	99.87711065	99.61869564	99.36162019	99.10587386	98.85144635	98.59832744	98.34650702	98.09597509
200304A00052	3/6/2020	2.11	3/8/2027	104.15518	101.8811626	99.667916	97.51339448	95.41564176	93.37278245	91.38301791	89.44462247	87.55593981
200304A00053	3/6/2020	2.33	3/6/2025	100.44941	100.1836087	99.91922113	99.65623508	99.39463935	99.13442288	98.87557472	98.61808406	98.36194017
200304A00054	3/6/2020	2.35	3/8/2027	104.70451	102.4241123	100.2046122	98.04396701	95.94021681	93.89148248	91.89596186	89.95192588	88.05771493
200305A00001	3/5/2020	1.14	3/5/2025	100.13075	99.86824535	99.60712242	99.34736885	99.08897383	98.83192669	98.57621687	98.32183389	98.06876742
200305A00002	3/5/2020	1.14	3/5/2025	100.13075	99.86824535	99.60712242	99.34736885	99.08897383	98.83192669	98.57621687	98.32183389	98.06876742
200305A00007	3/5/2020	1.14	3/5/2025	100.13075	99.86824535	99.60712242	99.34736885	99.08897383	98.83192669	98.57621687	98.32183389	98.06876742
200305A00012	3/5/2020	1.14	3/5/2025	100.13075	99.86824535	99.60712242	99.34736885	99.08897383	98.83192669	98.57621687	98.32183389	98.06876742
200305A00020	3/5/2020	0.95	3/5/2025	100.10163	99.83894867	99.57765246	99.31772917	99.05916796	98.80195806	98.54608885	98.2915498	98.0383305
200305A00029	3/5/2020	1.14	3/5/2025	100.13075	99.86824535	99.60712242	99.34736885	99.08897383	98.83192669	98.57621687	98.32183389	98.06876742
200305A00030	3/5/2020	1.58	3/5/2030	106.97635	101.7265954	96.76457077	92.0730046	87.63575437	83.43772738	79.46480658	75.70378203	72.14228768
200305A00032	3/5/2020	1.58	3/5/2030	106.97635	101.7265954	96.76457077	92.0730046	87.63575437	83.43772738	79.46480658	75.70378203	72.14228768
200305A00035	3/5/2020	1.25	3/5/2026	101.02968	99.77226309	98.54415444	97.34432936	96.17181361	95.02567744	93.90503307	92.80903235	91.73686451
200305A00036	3/5/2020	1.36	3/5/2027	102.42908	100.1830368	97.99694166	95.86877165	93.79658884	91.77853626	89.81283375	87.89777406	86.03171919
200305A00037	3/5/2020	1.43	3/6/2028	103.86366	100.6179514	97.48995477	94.47471528	91.56751956	88.76388195	86.05953188	83.45040201	80.93261711
200305A00038	3/5/2020	1.51	3/5/2029	105.48773	101.2408284	97.18759123	93.31813717	89.62314923	86.09383647	82.72190108	79.49950763	76.41925449
200305A00039	3/5/2020	1.58	3/5/2030	106.97635	101.7265954	96.76457077	92.0730046	87.63575437	83.43772738	79.46480658	75.70378203	72.14228768
200306A00001	3/6/2020	1.11	3/6/2026	100.85508	99.59640058	98.36677623	97.16520083	95.99071662	94.84240928	93.71940542	92.62087033	91.54600585
200306A00013	3/6/2020	1.01	3/6/2025	100.09782	99.83262434	99.56883975	99.30645429	99.04545677	98.78583616	98.52758153	98.27068206	98.01512705
200306A00014	3/6/2020	1.38	3/6/2030	105.91905	100.6942958	95.75646771	91.08832418	86.67375252	82.49768829	78.54604124	74.80562695	71.26410357
200306A00022	3/6/2020	1.2	3/8/2027	102.07227	99.82247816	97.6329431	95.50164032	93.42662804	91.40604481	89.43810541	87.52109705	85.65337583
200306A00028	3/6/2020	1.01	3/6/2025	100.09782	99.83262434	99.56883975	99.30645429	99.04545677	98.78583616	98.52758153	98.27068206	98.01512705
200306A00031	3/6/2020	1.01	3/6/2025	100.09782	99.83262434	99.56883975	99.30645429	99.04545677	98.78583616	98.52758153	98.27068206	98.01512705
200306A00040	3/6/2020	1.01	3/6/2025	100.09782	99.83262434	99.56883975	99.30645429	99.04545677	98.78583616	98.52758153	98.27068206	98.01512705
200306A00046	3/6/2020	1.01	3/3/2025	100.09381	99.83686567	99.58124166	99.32692722	99.07391231	98.82218696	98.57174131	98.32256562	98.07465023
200306A00048	3/6/2020	1.04	3/6/2035	103.7495	98.57414359	93.76264875	89.28509169	85.11427949	81.22547657	77.59616438	74.20582617	71.03575406

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200306A00050	3/6/2020	0.87	3/6/2030	101.84331	99.1490666	96.56163797	94.07584518	91.68679835	89.38987952	87.18072556	85.05521237	83.00944013
200306A00055	3/6/2020	0.82	3/6/2025	100.06838	99.80300839	99.53904879	99.27649194	99.0153266	98.75554165	98.49712612	98.2400691	97.98435986
200306A00057	3/6/2020	0.92	3/8/2027	101.54662	99.376797	97.26598657	95.21224885	93.21371928	91.26860529	89.37518305	87.53179443	85.73684408
200306A00058	3/6/2020	1.06	3/6/2030	102.15018	99.45179506	96.86026304	94.37041022	91.97734987	89.67646665	87.46339969	85.33402673	83.28444948
200306A00064	3/6/2020	1.2	3/8/2027	102.07227	99.82247816	97.6329431	95.50164032	93.42662804	91.40604481	89.43810541	87.52109705	85.65337583
200306A00065	3/6/2020	1.38	3/6/2030	105.91905	100.6942958	95.75646771	91.08832418	86.67375252	82.49768829	78.54604124	74.80562695	71.26410357
200306A00066	3/6/2020	1.2	3/8/2027	102.07227	99.82247816	97.6329431	95.50164032	93.42662804	91.40604481	89.43810541	87.52109705	85.65337583
200306A00077	3/6/2020	1.06	3/6/2025	100.11114	99.8459192	99.58211178	99.31970356	99.05868338	98.7990402	98.54076309	98.28384122	98.02826391
200306A00087	3/8/2021	1.26	3/7/2025	100.16644	99.89837597	99.63175534	99.36656442	99.10279169	98.8404257	98.57945517	98.31986893	98.06165591
200309A00005	3/9/2020	0.77	3/7/2025	100.05595	99.78784491	99.5211869	99.25596175	98.99215783	98.72976367	98.46876789	98.20915928	97.9509267
200309A00007	3/9/2020	1.11	3/9/2027	101.86872	99.61866687	97.4289558	95.2975594	93.22253517	91.2020207	89.23422962	87.31744782	85.4500299
200309A00020	3/9/2020	0.96	3/10/2025	100.08929	99.81312065	99.53848189	99.26536357	98.99375301	98.72363765	98.45500509	98.18784306	97.92213941
200309A00021	3/9/2020	1.05	3/9/2026	100.7889	99.52337051	98.28618528	97.07639705	95.89309636	94.73541399	93.60251868	92.49361511	91.40794194
200309A00027	3/9/2020	0.97	3/10/2025	100.09207	99.8158902	99.54124655	99.26812336	98.99650795	98.72638776	98.45775039	98.19058356	97.92487514
200309A00030	3/9/2020	1.11	3/9/2027	101.86872	99.61866687	97.4289558	95.2975594	93.22253517	91.2020207	89.23422962	87.31744782	85.4500299
200309A00033	3/9/2020	1.06	3/9/2026	100.80175	99.53612438	98.29885382	97.08898171	95.90559856	94.74783508	93.61485999	92.50587793	91.42012754
200309A00034	3/9/2020	0.96	3/9/2035	103.31989	98.16591556	93.37429905	88.9152473	84.7616785	80.88895819	77.27465995	73.89835101	70.74140015
200309A00038	3/9/2020	1.26	3/11/2030	105.29083	100.0696289	95.13608568	90.47288626	86.0638515	81.89385447	77.94874628	74.21528763	70.68108551
200309A00046	3/9/2020	0.78	3/11/2025	100.06229	99.78317502	99.50562875	99.22963757	98.95518834	98.68226804	98.41086381	98.14096294	97.87255285
200309A00081	3/9/2020	1.18	3/8/2030	104.45321	99.64914968	95.10521671	90.80586945	86.73657132	82.88372403	79.23460231	75.77729359	72.50064204
200309A00082	3/9/2020	1.18	3/8/2030	104.45321	99.64914968	95.10521671	90.80586945	86.73657132	82.88372403	79.23460231	75.77729359	72.50064204
200309A00084	3/9/2020	1.06	3/9/2027	101.74554	99.50544629	97.3267695	95.20748415	93.14564461	91.13938037	89.18689266	87.28645127	85.43639154
200310A00003	3/10/2020	1.1	3/10/2025	100.12814	99.85189438	99.57718715	99.30400065	99.03232217	98.76213918	98.49343926	98.22621013	97.96043966
200310A00005	3/10/2020	1.41	3/8/2030	106.08186	100.8477057	95.90118882	91.22502438	86.8030539	82.62016977	78.66224111	74.91604529	71.36920464
200310A00015	3/10/2020	1.37	3/11/2030	105.87517	100.6386816	95.6904514	91.01313645	86.59053034	82.40748036	78.44981329	74.7042668	71.1584261
200310A00020	3/10/2020	1.1	3/10/2025	100.12814	99.85189438	99.57718715	99.30400065	99.03232217	98.76213918	98.49343926	98.22621013	97.96043966
200310A00021	3/10/2020	1.1	3/10/2025	100.12814	99.85189438	99.57718715	99.30400065	99.03232217	98.76213918	98.49343926	98.22621013	97.96043966
200310A00028	3/10/2020	1.1	3/10/2025	100.12814	99.85189438	99.57718715	99.30400065	99.03232217	98.76213918	98.49343926	98.22621013	97.96043966
200310A00033	3/10/2020	0.91	3/10/2025	100.09745	99.8210234	99.54613413	99.27276944	99.00091657	98.73056289	98.46169592	98.19430331	97.92837287
200310A00034	3/10/2020	1.41	3/11/2030	106.08765	100.8456098	95.89203894	91.20959107	86.78204992	82.59425342	78.63201947	74.8820774	71.33200449
200310A00038	3/10/2020	1.41	3/11/2030	106.08765	100.8456098	95.89203894	91.20959107	86.78204992	82.59425342	78.63201947	74.8820774	71.33200449
200310A00040	3/10/2020	1.36	3/10/2028	103.64577	100.3931747	97.25892317	94.23803503	91.32577278	88.51762674	85.80930249	83.19670908	80.67594803
200310A00041	3/10/2020	1.39	3/12/2029	104.99344	100.7388312	96.67913987	92.80441442	89.10526359	85.57282479	82.19873127	78.97508145	75.89441044

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200310A00042	3/10/2020	1.41	3/11/2030	106.08765	100.8456098	95.89203894	91.20959107	86.78204992	82.59425342	78.63201947	74.8820774	71.33200449
200310A00051	3/10/2020	1.41	3/8/2030	106.08186	100.8477057	95.90118882	91.22502438	86.8030539	82.62016977	78.66224111	74.91604529	71.36920464
200310A00054	3/10/2020	1.1	3/10/2025	100.12814	99.85189438	99.57718715	99.30400065	99.03232217	98.76213918	98.49343926	98.22621013	97.96043966
200310A00065	3/13/2020	1.1	3/13/2025	100.13289	99.84839802	99.5655311	99.28427751	99.00462339	98.72655503	98.45005885	98.17512145	97.90172959
200310A00067	3/10/2020	0.94	3/10/2025	100.0544	99.85884494	99.66416757	99.47035749	99.27740848	99.08531435	98.89406899	98.70366632	98.51410036
200310A00073	3/12/2020	2.12	3/11/2027	104.19377	101.9113401	99.69008592	97.52796096	95.42300212	93.37332667	91.37712819	89.43267289	87.53829598
200311A00006	3/13/2020	1.12	3/10/2025	100.13368	99.85743349	99.58271648	99.30952023	99.03783205	98.7676394	98.49892985	98.23169114	97.96591113
200311A00015	3/11/2020	1.26	3/11/2027	102.21058	99.95770755	97.76671317	95.63555305	93.56226313	91.54495532	89.5818141	87.67109334	85.81111316
200311A00026	3/11/2020	1.34	3/11/2030	105.10025	100.3987321	95.94941277	91.73728648	87.74831716	83.96937289	80.38816309	76.9931804	73.77364681
200311A00031	3/11/2020	1.41	12/24/2027	103.53649	100.4929397	97.55432054	94.7164235	91.97523676	89.32693266	86.76785807	84.29452532	81.90360359
200311A00040	3/12/2020	1.3	3/11/2025	100.18576	99.90667284	99.62914607	99.35317116	99.07873502	98.80582472	98.53442747	98.26453061	97.99612163
200311A00050	3/2/2021	1.46	3/2/2026	101.28324	100.0314457	98.80968283	97.61687779	96.45200802	95.31409866	94.20221981	93.11548394	92.05304352
200311A00052	3/2/2021	1.43	2/28/2025	100.19468	99.94581383	99.69817834	99.45176486	99.20656441	98.96256808	98.71976706	98.47815261	98.2377161
200311A00055	3/11/2020	1.66	12/17/2027	104.2812	101.2446112	98.3121365	95.479627	92.74312209	90.09884191	87.54317792	85.07268401	82.68406819
200312A00004	3/13/2020	1.23	1/24/2025	100.08255	99.93033005	99.77858074	99.62730235	99.47649264	99.32614944	99.17627056	99.02685383	98.87789709
200312A00006	3/12/2020	1.23	3/12/2025	100.1681	99.88628632	99.60607336	99.327443	99.05038175	98.7748763	98.50091346	98.22848021	97.95756367
200312A00009	3/12/2020	1.46	3/12/2027	102.68105	100.4136275	98.20714873	96.05957055	93.96893833	91.93337716	89.95108793	88.02034361	86.13948577
200312A00014	3/12/2020	1.04	3/12/2025	100.13679	99.85479159	99.57439314	99.29558126	99.01834239	98.74266313	98.46853023	98.1959306	97.92485128
200312A00015	3/12/2020	1.23	3/10/2025	100.1642	99.88789856	99.61312775	99.33987793	99.06813639	98.79789059	98.52912812	98.2618367	97.99600418
200312A00037	3/12/2020	1.3	3/12/2025	100.1879	99.90606012	99.62581173	99.34714609	99.07004971	98.79450927	98.52051158	98.24804363	97.97709253
200313A00032	3/18/2020	1.46	3/18/2025	100.24868	99.95023077	99.65356523	99.3586712	99.06553274	98.77413413	98.4844598	98.1964944	97.91022273
200316A00008	3/16/2020	1.31	3/15/2030	102.76632	100.1213815	97.57934563	95.13530021	92.78460198	90.52286244	88.34593213	86.24988595	84.2310095
200316A00009	3/16/2020	1.25	3/14/2025	100.17776	99.89043383	99.60476872	99.32074845	99.03835874	98.75758547	98.4784147	98.20083262	97.92482561
200316A00037	3/16/2020	1.06	3/14/2025	100.14583	99.85831135	99.57245742	99.28825242	99.00568198	98.72473191	98.44538818	98.16763693	97.89146446
200316A00049	3/16/2020	1.25	3/14/2025	100.17776	99.89043383	99.60476872	99.32074845	99.03835874	98.75758547	98.4784147	98.20083262	97.92482561
200316A00050	3/16/2020	1.54	3/16/2027	102.87958	100.5992876	98.38051668	96.22122038	94.11943376	92.07327102	90.08092157	88.14064646	86.25077499
200316A00055	3/16/2020	1.06	3/14/2025	100.14583	99.85831135	99.57245742	99.28825242	99.00568198	98.72473191	98.44538818	98.16763693	97.89146446
200317A00009	3/17/2020	1.61	3/16/2035	106.40463	101.1078211	96.18290228	91.59932495	87.32932427	83.34764187	79.631281	76.15928716	72.91255149
200317A00023	3/17/2020	1.1	3/17/2025	100.16277	99.86696841	99.57292537	99.28062594	98.99005449	98.70119564	98.41403414	98.12855497	97.84474325
200317A00024	3/17/2020	1.09	3/17/2025	100.08657	99.88615997	99.68667855	99.48811912	99.29047476	99.09373857	98.89790377	98.70296361	98.50891143
200317A00027	3/17/2020	1.29	3/17/2025	100.19564	99.90003167	99.60618233	99.31407234	99.02368616	98.73500847	98.44802414	98.16271819	97.87907585
200317A00043	3/17/2020	1.29	3/15/2030	103.01231	100.2866968	97.66917192	95.15449402	92.73771378	90.41415703	88.1794076	86.02929124	83.95986074
200317A00045	3/19/2020	1.43	3/19/2025	100.2422	99.94100444	99.64163361	99.34406613	99.04828566	98.75427603	98.46202129	98.17150567	97.88271359

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200317A00065	3/19/2020	2.05	3/19/2025	100.42968	100.1281341	99.8284096	99.53048999	99.23435894	98.94000027	98.64739802	98.35653642	98.06739986
200318A00012	3/18/2020	1.68	3/18/2033	107.13489	101.8798914	96.98043098	92.40881821	88.13972882	84.14998454	80.41835773	76.92539501	73.65325779
200318A00013	3/18/2020	1.5	3/18/2025	100.26067	99.96219317	99.6655052	99.37058883	99.07742814	98.78600739	98.49631101	98.20832366	97.92203014
200318A00038	3/18/2020	1.48	3/18/2025	100.25468	99.95621197	99.65953521	99.36463001	99.07148044	98.78007076	98.49038541	98.20240903	97.91612644
200318A00047	3/18/2020	1.29	3/18/2025	100.22151	99.92284299	99.62597084	99.33087457	99.03753817	98.7459458	98.45608183	98.16793081	97.88147749
200318A00054	3/18/2020	1.56	3/18/2025	100.27865	99.98013678	99.68341515	99.38846528	99.09527123	98.80381727	98.51408783	98.22606755	97.93974125
200319A00035	3/19/2020	1.72	3/18/2033	107.34927	102.0829328	97.17288278	92.59137462	88.31303126	84.31462601	80.57488684	77.07431965	73.79504848
200320A00049	3/25/2020	1.47	3/25/2025	100.26995	99.95220954	99.63648265	99.32275381	99.01100406	98.70121466	98.39336714	98.08744324	97.78342493
200320A00052	3/25/2020	1.47	3/25/2025	100.26995	99.95220954	99.63648265	99.32275381	99.01100406	98.70121466	98.39336714	98.08744324	97.78342493
200323A00090	3/23/2020	1.55	3/23/2027	101.70603	100.2840811	98.89535992	97.53883171	96.21349911	94.91840344	93.65262286	92.41527059	91.2054934
200324A00012	3/25/2020	1.78	3/25/2025	100.36885	100.0509103	99.73498761	99.42106392	99.10912022	98.79913779	98.49109812	98.18498297	97.88077428
200324A00013	3/25/2020	1.78	3/25/2025	100.36885	100.0509103	99.73498761	99.42106392	99.10912022	98.79913779	98.49109812	98.18498297	97.88077428
200324A00029	3/24/2020	1.86	3/24/2025	100.39068	100.0754498	99.76220275	99.45092206	99.14158921	98.83418591	98.5286941	98.22509594	97.9233738
200324A00066	3/26/2020	1.81	3/26/2025	100.38197	100.0612553	99.74258813	99.425953	99.11133047	98.79870138	98.48804679	98.17934802	97.8725866
200325A00009	3/27/2020	1.67	3/27/2025	100.34009	100.016701	99.69539972	99.37616318	99.05897148	98.743805	98.43064438	98.11947051	97.8102645
200325A00016	3/30/2020	1.67	3/31/2025	100.35274	100.0183255	99.68612876	99.35613064	99.02830942	98.70264365	98.37911217	98.05769412	97.73836888
200325A00030	3/25/2020	1.5	3/25/2025	100.3048	99.98670037	99.67062841	99.35655987	99.0444757	98.73435706	98.42618537	98.11994227	97.81560966
200325A00044	3/25/2020	1.7	12/23/2024	100.06172	99.99794842	99.93427482	99.87069535	99.80720983	99.74381802	99.68051974	99.61731477	99.5542029
200325A00046	3/25/2020	1.76	3/25/2025	100.36247	100.0445425	99.72863245	99.41472133	99.10279015	98.79282017	98.4847929	98.17869008	97.87449368
200326A00009	3/27/2020	1.54	3/27/2025	100.29789	99.97459266	99.65337631	99.33422426	99.01711665	98.70203387	98.38895655	98.07786557	97.76874208
200326A00011	3/30/2020	1.54	3/31/2025	100.30911	99.97478219	99.6426762	99.31276837	98.98503698	98.6594606	98.33601809	98.01468856	97.6954514
200326A00016	3/26/2020	1.54	3/25/2025	100.29229	99.9744968	99.65872571	99.34495287	99.03315932	98.72332634	98.41543543	98.10946834	97.80540704
200326A00028	3/26/2020	1.54	3/26/2025	100.29509	99.97454482	99.65605106	99.33958851	99.02513775	98.71267962	98.40219518	98.09366577	97.78707292
200326A00029	3/26/2020	1.82	3/26/2027	103.57073	101.2558356	99.00398889	96.81311133	94.68121	92.60636948	90.58674831	88.62057559	86.70614785
200326A00032	3/26/2020	1.49	3/26/2030	103.34883	100.617967	97.995306	95.47559832	93.05389377	90.72551708	88.48605076	86.33131908	84.25737324
200326A00037	3/26/2020	1.78	3/26/2035	107.13893	101.9541642	97.12850083	92.63268338	88.44010608	84.5265516	80.86995865	77.45021365	74.24896408
200327A00031	3/27/2020	1.18	3/27/2025	100.18105	99.85798504	99.53700379	99.21808573	98.90121099	98.58635996	98.27351331	97.96265191	97.65375691
200327A00037	3/27/2020	1.18	3/27/2026	101.13038	99.81696259	98.52784108	97.26237447	96.019947	94.7999642	93.60185199	92.42505583	91.26903984
200327A00043	3/27/2020	1.48	3/27/2028	104.37136	101.0553144	97.8614544	94.78464772	91.82000591	88.96287088	86.20880279	83.55356854	80.99313107
200327A00045	3/27/2020	2.24	3/27/2034	116.68996	107.1982537	98.56363582	90.70399798	83.54549208	77.02166174	71.07266878	65.64460405	60.68887311
200327A00046	3/27/2020	1.23	3/27/2025	100.19728	99.87418054	99.55316664	99.23421608	98.917309	98.60242578	98.28954709	97.97865381	97.66972708
200327A00047	3/27/2020	0.99	3/27/2025	100.14506	99.82177735	99.50058741	99.18146548	98.86439161	98.5493461	98.2363095	97.92526261	97.61618647
200327A00048	3/27/2020	1.18	3/24/2025	100.17563	99.86082223	99.54799742	99.23713703	98.92822254	98.62123567	98.31615837	98.01297281	97.7116614

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	Parallel-Shift Sensitivity Analysis											
11/30/2024				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200327A00051	3/27/2020	0.99	3/27/2025	100.14506	99.82177735	99.50058741	99.18146548	98.86439161	98.5493461	98.2363095	97.92526261	97.61618647
200327A00056	3/27/2020	1.18	3/27/2025	100.18105	99.85798504	99.53700379	99.21808573	98.90121099	98.58635996	98.27351331	97.96265191	97.65375691
200327A00060	3/27/2020	1.18	3/27/2025	100.18105	99.85798504	99.53700379	99.21808573	98.90121099	98.58635996	98.27351331	97.96265191	97.65375691
200327A00061	3/31/2020	1.18	3/31/2025	100.18827	99.85420075	99.52234603	99.19268822	98.86520561	98.53987679	98.21668062	97.89559622	97.57660301
200327A00073	3/27/2020	0.99	3/27/2025	100.14506	99.82177735	99.50058741	99.18146548	98.86439161	98.5493461	98.2363095	97.92526261	97.61618647
200327A00084	3/27/2020	1.1	3/27/2025	100.20341	99.79922094	99.39830445	99.00061996	98.60612844	98.2147915	97.82657135	97.44143079	97.05933324
200327A00094	3/27/2020	1.6	3/27/2030	106.07731	101.532037	97.22758478	93.14966566	89.28492082	85.62085273	82.14576513	78.84870746	75.71942348
200330A00006	3/30/2020	0.9	3/28/2025	100.11708	99.79111269	99.4672626	99.14551351	98.825845	98.50823694	98.19266942	97.87912282	97.56757774
200330A00008	3/30/2020	1.09	3/28/2025	100.1534	99.82763881	99.50399877	99.18245484	98.8629867	98.54557431	98.23019787	97.91683785	97.60547495
200330A00028	3/30/2020	1.09	3/28/2025	100.1534	99.82763881	99.50399877	99.18245484	98.8629867	98.54557431	98.23019787	97.91683785	97.60547495
200330A00037	3/30/2020	1.09	3/28/2025	100.1534	99.82763881	99.50399877	99.18245484	98.8629867	98.54557431	98.23019787	97.91683785	97.60547495
200330A00038	3/30/2020	1.79	3/29/2030	108.15973	102.8165776	97.76904875	92.9993126	88.49070469	84.22764078	80.1955416	76.38076326	72.77053269
200330A00041	4/1/2020	1.09	4/1/2025	100.15968	99.82292095	99.48842267	99.15615913	98.82610801	98.49824731	98.17255531	97.84901057	97.52759194
200330A00044	3/30/2020	1.09	3/28/2025	100.1534	99.82763881	99.50399877	99.18245484	98.8629867	98.54557431	98.23019787	97.91683785	97.60547495
200330A00045	3/30/2020	1.47	3/30/2027	102.76599	100.450105	98.1975978	96.00639632	93.87450401	91.80000083	89.78103983	87.81584401	85.90270318
200330A00047	3/30/2020	1.5	3/30/2035	105.8055	100.5382677	95.64088269	91.08296009	86.83688479	82.87753492	79.18203825	75.72955403	72.50107732
200330A00054	3/30/2021	1.19	3/30/2026	101.04942	99.73093613	98.4359883	97.16399886	95.91440501	94.68666197	93.48024231	92.29463528	91.1293461
200330A00058	3/30/2020	1.49	3/29/2030	105.56875	101.0382901	96.74813999	92.68403327	88.83262608	85.18143576	81.71878078	78.43372509	75.31602671
200330A00066	3/30/2020	1.08	3/31/2025	100.15471	99.82070591	99.48892098	99.15933262	98.83191912	98.50665907	98.18353132	97.86251502	97.54358957
200330A00079	3/30/2020	1.51	3/30/2035	105.85988	100.5899439	95.6900416	91.12977625	86.88151849	82.92013353	79.2227374	75.76847862	72.53834249
200331A00011	3/31/2020	1.09	3/31/2025	100.15807	99.82405539	99.49226348	99.16266818	98.83524777	98.50998084	98.18684625	97.86582314	97.54689091
200331A00016	3/31/2020	1.11	3/31/2026	101.05233	99.72969601	98.43042474	97.15395345	95.8997346	94.66723771	93.45594876	92.26536954	91.09501702
200331A00017	3/31/2020	0.9	3/31/2025	100.12082	99.78658799	99.4545819	99.12477748	98.79715293	98.47168671	98.14835758	97.82714458	97.50802703
200331A00022	4/1/2020	1.07	4/1/2025	100.15291	99.81616672	99.48168259	99.14943312	98.81939601	98.49154925	98.16587111	97.84234017	97.52093527
200331A00056	3/31/2020	0.96	3/29/2030	102.04093	99.40268406	96.86736744	94.43005327	92.0860872	89.83107086	87.66084596	85.57147952	83.5592501
200331A00060	3/31/2020	1.09	3/31/2025	100.15807	99.82405539	99.49226348	99.16266818	98.83524777	98.50998084	98.18684625	97.86582314	97.54689091
200401A00001	4/1/2020	1.01	4/1/2025	100.1326	99.79590406	99.46146236	99.12925512	98.79926002	98.47145506	98.14581852	97.82232897	97.50096526
200401A00012	4/2/2020	1	4/2/2025	100.13058	99.79114381	99.4540038	99.11913647	98.78651892	98.45612855	98.12794304	97.80194039	97.47809889
200401A00013	4/1/2020	1.01	4/1/2025	100.1326	99.79590406	99.46146236	99.12925512	98.79926002	98.47145506	98.14581852	97.82232897	97.50096526
200401A00023	4/1/2020	0.82	4/1/2025	100.09504	99.75812489	99.42346727	99.09104923	98.76084837	98.43284257	98.10701001	97.78332915	97.46177874
200402A00009	4/2/2020	1.03	4/2/2025	100.14082	99.80135801	99.4641965	99.12930779	98.79666895	98.46625739	98.13805081	97.81202719	97.48816483
200402A00014	4/2/2020	0.84	4/2/2025	100.10295	99.76327261	99.42589338	99.09079215	98.75794589	98.42733189	98.09892774	97.77271134	97.44866086
200402A00038	4/2/2020	0.84	4/2/2025	100.10295	99.76327261	99.42589338	99.09079215	98.75794589	98.42733189	98.09892774	97.77271134	97.44866086

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200402A00041	4/2/2020	1.03	4/2/2025	100.14082	99.80135801	99.4641965	99.12930779	98.79666895	98.46625739	98.13805081	97.81202719	97.48816483
200402A00044	4/2/2020	1.65	4/2/2030	107.41979	102.0856544	97.04750519	92.28745831	87.78879763	83.53589174	79.51411843	75.7097947	72.11011205
200403A00006	4/3/2020	1.05	4/3/2025	100.14914	99.8069224	99.46704084	99.12947056	98.79418805	98.46117008	98.13039378	97.80183654	97.4754761
200406A00006	4/6/2020	1.13	4/7/2025	100.18354	99.83028392	99.47951964	99.13122208	98.7853652	98.44192334	98.10087122	97.76218388	97.42583673
200406A00014	4/6/2020	1.33	4/6/2035	105.34368	100.0486276	95.12849175	90.55224189	86.29168792	82.32120319	78.61747238	75.15926574	71.92723696
200406A00027	4/6/2020	1.31	4/5/2030	105.11706	100.5795773	96.28385011	92.21546782	88.36095477	84.70770857	81.24393884	77.95861065	74.84139218
200406A00029	4/6/2020	1.61	4/5/2030	106.65195	101.7077327	97.03415193	92.61484171	88.43451438	84.47888112	80.7345816	77.18911893	73.83079958
200406A00030	4/6/2020	1.61	4/5/2030	106.65195	101.7077327	97.03415193	92.61484171	88.43451438	84.47888112	80.7345816	77.18911893	73.83079958
200406A00032	4/6/2020	1.09	4/4/2025	100.21117	99.78635494	99.36514267	98.94749156	98.53335651	98.1226932	97.71545802	97.31160812	96.91110133
200406A00033	4/6/2020	1.09	4/4/2025	100.21117	99.78635494	99.36514267	98.94749156	98.53335651	98.1226932	97.71545802	97.31160812	96.91110133
200406A00035	4/6/2020	1.05	4/4/2025	100.19194	99.77132546	99.35426956	98.94072533	98.5306484	98.12399513	97.72072262	97.32078871	96.92415189
200406A00036	4/6/2020	1.09	4/4/2025	100.21117	99.78635494	99.36514267	98.94749156	98.53335651	98.1226932	97.71545802	97.31160812	96.91110133
200406A00053	4/6/2020	1.13	4/7/2025	100.18354	99.83028392	99.47951964	99.13122208	98.7853652	98.44192334	98.10087122	97.76218388	97.42583673
200407A00001	4/8/2020	2.41	4/7/2025	100.63801	100.2837649	99.93202018	99.58274717	99.23591986	98.89151254	98.54949986	98.20985684	97.87255885
200407A00004	4/7/2020	0.99	4/7/2025	100.16191	99.80838543	99.45735637	99.10879976	98.76268945	98.41899967	98.07770499	97.73878036	97.40220108
200408A00021	4/8/2020	0.99	4/4/2025	100.15725	99.81196558	99.46906144	99.12851297	98.7902959	98.45438632	98.12076061	97.7893955	97.46026803
200413A00009	4/13/2020	0.77	4/13/2027	100.5772	99.33547675	98.12080995	96.93238366	95.76941198	94.63113921	93.5168385	92.42581045	91.35738184
200413A00013	4/13/2020	1.19	4/12/2030	102.55091	99.8008168	97.16107103	94.62626883	92.19130863	89.8513748	87.60191974	85.43864706	83.35749601
200414A00009	4/14/2020	0.82	4/14/2025	100.044	99.80148627	99.56036513	99.32062237	99.08224505	98.84522043	98.60953593	98.37517911	98.14213773
200414A00024	4/14/2020	1.37	4/14/2027	102.56442	100.2245515	97.95116261	95.74198345	93.59483248	91.50761577	89.47832287	87.50502301	85.58586135
200415A00021	4/15/2020	1.37	4/15/2027	102.58587	100.228847	97.93745802	95.70952135	93.54293845	91.43569244	89.38584431	87.39152952	85.45095463
200415A00023	4/15/2020	1.71	4/15/2030	107.77999	102.4016313	97.32342726	92.52713557	87.99571088	83.71322078	79.66476769	75.83641674	72.21512893
200415A00024	4/15/2020	2.2	4/16/2035	116.62551	106.200127	96.80882809	88.34319133	80.70668037	73.81329139	67.58635657	61.95748876	56.86564985
200415A00031	4/15/2020	0.97	4/15/2025	100.13695	99.76186686	99.38959604	99.02010836	98.65337261	98.28935799	97.92803421	97.56937141	97.21334016
200415A00035	4/17/2020	2.16	4/16/2025	100.59042	100.2115565	99.83555423	99.46238105	99.09200496	98.72439446	98.35951856	97.99734671	97.63784883
200415A00037	4/15/2020	0.97	4/15/2025	100.13695	99.76186686	99.38959604	99.02010836	98.65337261	98.28935799	97.92803421	97.56937141	97.21334016
200415A00038	4/15/2020	1.37	4/15/2027	102.58587	100.228847	97.93745802	95.70952135	93.54293845	91.43569244	89.38584431	87.39152952	85.45095463
200417A00002	4/17/2020	0.96	4/17/2025	100.13568	99.75511455	99.37744675	99.00264276	98.63066999	98.26149634	97.8950902	97.53142045	97.17045641
200417A00008	4/17/2020	0.96	4/17/2025	100.13568	99.75511455	99.37744675	99.00264276	98.63066999	98.26149634	97.8950902	97.53142045	97.17045641
200417A00009	4/17/2020	1.35	4/16/2027	102.54139	100.1821922	97.8887674	95.65892179	93.4905504	91.38163017	89.33021631	87.33443877	85.39249892
200417A00014	4/17/2020	0.96	4/17/2025	100.13568	99.75511455	99.37744675	99.00264276	98.63066999	98.26149634	97.8950902	97.53142045	97.17045641
200417A00016	4/21/2020	2.18	4/21/2025	100.62117	100.2284934	99.83888914	99.45231816	99.06874508	98.68813504	98.31045371	97.93566731	97.56374255
200417A00019	4/17/2020	0.77	4/17/2025	100.09323	99.7124185	99.33450834	98.95946821	98.58726537	98.21786759	97.85124313	97.48736071	97.12618955

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				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200421A00026	4/21/2020	1.34	4/19/2030	104.89807	100.3527806	96.05084124	91.97766404	88.11961977	84.46396716	80.99879026	77.71294072	74.59598418
200421A00032	4/21/2020	1.31	4/21/2027	102.46192	100.090151	97.78485759	95.54381593	93.36488737	91.24601698	89.1852298	87.18062715	85.2303833
200423A00006	4/23/2020	0.82	4/23/2025	100.11887	99.72153614	99.32735689	98.9362939	98.54831024	98.16336958	97.78143615	97.40247475	97.02645071
200423A00017	4/23/2020	1.82	4/23/2035	113.58151	103.2435585	93.93936989	85.55996231	78.00835624	71.19819935	65.05255458	59.50283175	54.48784496
200424A00014	4/28/2020	1.01	4/23/2025	100.16314	99.76606892	99.3721409	98.98132251	98.59357698	98.20886813	97.82716035	97.44841856	97.07260825
200424A00022	4/24/2020	1.39	4/24/2030	105.13741	100.5748244	96.2569914	92.16920889	88.29774216	84.6297533	81.15323786	77.85696634	74.73043
200427A00017	4/27/2020	1.02	4/25/2025	100.16997	99.76739466	99.3680526	98.97190323	98.57890837	98.18903042	97.8022324	97.41847788	97.03773104
200427A00018	4/27/2020	1.51	4/27/2028	104.31974	100.9278875	97.66381785	94.52206064	91.49740928	88.58490637	85.77983042	83.07768332	80.47417859
200428A00002	4/28/2020	1.47	4/26/2030	106.95056	101.5497949	96.45283576	91.64108493	87.09717707	82.8048883	78.74905557	74.91550225	71.29096914
200428A00003	4/29/2020	1.01	4/29/2025	100.17147	99.75792706	99.34778793	98.94100919	98.53754973	98.13736908	97.74042746	97.34668571	96.95610531
200428A00009	4/28/2020	1.08	4/29/2030	102.24066	99.49827579	96.86597809	94.33836789	91.91035342	89.5771285	87.33415461	85.17714407	83.10204455
200428A00011	4/30/2020	1.95	4/29/2025	100.56251	100.1480001	99.73689515	99.32915634	98.92474254	98.52361324	98.12572858	97.73104937	97.33953703
200428A00018	4/28/2020	1.33	4/27/2035	104.81373	99.66895376	94.88420471	90.42989967	86.27915164	82.40750596	78.79270196	75.41445956	72.25428806
200429A00009	4/29/2020	0.78	4/29/2025	100.10872	99.69495331	99.28459589	98.87760563	98.47394127	98.07356218	97.67642841	97.28250066	96.89174025
200429A00010	4/29/2020	0.78	4/29/2025	100.10872	99.69495331	99.28459589	98.87760563	98.47394127	98.07356218	97.67642841	97.28250066	96.89174025
200429A00021	5/4/2020	0.97	4/29/2025	100.15483	99.7413282	99.33123018	98.92449229	98.52107344	98.12093316	97.72403167	97.33032981	96.93978907
200429A00030	4/29/2020	1.41	4/29/2030	105.50934	100.6957712	96.1459139	91.84373553	87.77426106	83.92350184	80.27838541	76.82669074	73.55698832
200429A00043	5/1/2020	1.56	4/30/2025	100.40318	99.9863199	99.57290683	99.1628999	98.75625722	98.35293757	97.95290043	97.55610589	97.16251473
200429A00044	5/1/2020	1.86	4/30/2025	100.52881	100.1116381	99.69791269	99.28759531	98.88064405	98.47701768	98.07667563	97.67957802	97.28568557
200429A00045	5/1/2020	1.54	4/30/2025	100.39481	99.97796535	99.5645731	99.15458687	98.74796476	98.34466556	97.94464875	97.54787442	97.15430334
200429A00046	5/1/2020	2.07	4/30/2025	100.61676	100.1993608	99.78541679	99.3748821	98.96771483	98.56387375	98.16331828	97.7660085	97.37190515
200429A00047	5/1/2020	2.7	4/30/2025	100.88058	100.4625291	100.0479291	99.63674247	99.22892718	98.82444197	98.42324621	98.02529996	97.6305639
200429A00049	4/29/2020	1.25	4/29/2026	101.22428	99.82315727	98.44807871	97.09838538	95.77343638	94.47261193	93.19531248	91.94095793	90.70898682
200429A00050	5/1/2020	2.61	4/30/2025	100.8429	100.4249336	100.0104273	99.59933384	99.19161113	98.78721794	98.38611365	97.98825832	97.59361265
200429A00051	5/1/2020	2.54	4/30/2025	100.81358	100.3956927	99.98125931	99.57023825	99.16258754	98.75826591	98.35723277	97.95944816	97.56487279
200429A00053	5/1/2020	2.18	4/30/2025	100.66282	100.2453108	99.83125228	99.42060375	99.01332334	98.60936979	98.20870252	97.81128161	97.41706779
200429A00054	4/29/2020	1.04	4/29/2025	100.18395	99.7703762	99.36020625	98.95339687	98.54990694	98.14969602	97.7527243	97.35895264	96.96834249
200429A00056	5/1/2020	1.54	4/30/2025	100.39481	99.97796535	99.5645731	99.15458687	98.74796476	98.34466556	97.94464875	97.54787442	97.15430334
200429A00057	4/29/2020	1.4	4/29/2027	102.70706	100.3106032	97.98185989	95.71854729	93.51846938	91.37951691	89.29966341	87.27696141	85.30953887
200429A00058	5/1/2020	1.83	4/30/2025	100.51625	100.0991063	99.6854121	99.27512577	98.86820537	98.46460967	98.06429811	97.6672308	97.27336848
200429A00061	4/29/2020	1.66	10/29/2029	106.99053	102.0808215	97.42444615	93.00706224	88.81521484	84.83627283	81.05837433	77.47037608	74.06180634
200430A00008	4/30/2020	0.94	4/30/2025	100.14354	99.72732896	99.31456138	98.90519604	98.49919109	98.09650536	97.69709833	97.30093017	96.90796167
200430A00009	4/30/2020	1.16	4/30/2026	101.0989	99.69598943	98.31920311	96.96787867	95.64137225	94.33906122	93.06034335	91.80463594	90.57137506

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200430A00017	4/30/2020	0.94	4/30/2025	100.14354	99.72732896	99.31456138	98.90519604	98.49919109	98.09650536	97.69709833	97.30093017	96.90796167
200430A00027	4/30/2020	1.31	4/30/2035	104.79861	99.54166037	94.65646241	90.1122685	85.88115225	81.93772464	78.25888463	74.82359592	71.61268691
200430A00030	4/30/2020	0.96	4/30/2025	100.15192	99.7356835	99.3228951	98.91350907	98.50748355	98.10477736	97.70535001	97.30916165	96.91617306
200501A00002	5/1/2020	1.3	5/1/2035	104.76638	99.47183002	94.55425108	89.98226923	85.72740148	81.76376826	78.0678361	74.61818741	71.39531437
200501A00009	5/4/2020	0.67	5/1/2025	100.01273	99.73220817	99.45355901	99.17676657	98.90181062	98.62867122	98.35732875	98.08776388	97.81995756
200504A00004	5/4/2020	0.75	5/5/2025	100.10124	99.67107035	99.24458978	98.82175374	98.4025156	97.98682951	97.57465042	97.16593402	96.76063675
200504A00006	5/4/2020	0.94	5/5/2025	100.14922	99.71932561	99.29311392	98.87053926	98.4515552	98.03611606	97.62417697	97.21569379	96.81062312
200504A00007	5/4/2020	1.47	5/4/2028	104.20709	100.7986467	97.5193065	94.36351366	91.3259807	88.40167467	85.58580347	82.87380295	80.26132489
200505A00004	5/5/2020	0.77	5/5/2025	100.1099	99.67970249	99.2531999	98.83034197	98.41108207	97.99537437	97.58317378	97.17443602	96.76911753
200505A00005	5/5/2020	0.77	5/5/2025	100.1099	99.67970249	99.2531999	98.83034197	98.41108207	97.99537437	97.58317378	97.17443602	96.76911753
200506A00002	5/8/2020	0.97	5/5/2025	100.1622	99.73227123	99.30602654	98.88341908	98.46440242	98.04893088	97.63695959	97.2284444	96.82334192
200506A00005	5/6/2020	0.97	5/6/2025	100.16342	99.73075318	99.30181977	98.876571	98.45495946	98.0369386	97.62246261	97.2114865	96.80396603
200506A00010	5/6/2020	0.94	5/6/2026	100.91062	99.49149249	98.09911842	96.73280441	95.39188381	94.07571226	92.78366678	91.51514484	90.26956355
200511A00006	5/11/2020	1.65	5/13/2030	107.52677	102.0817217	96.94471458	92.09677488	87.52018975	83.19841864	79.11600994	75.25852394	71.61246165
200511A00017	5/11/2020	0.83	2/3/2025	100.02761	99.8478647	99.66876537	99.49031079	99.31249748	99.13532198	98.95878086	98.7828707	98.60758813
200511A00018	5/11/2020	0.98	2/2/2026	100.60319	99.43100782	98.28592381	97.16700884	96.07337494	95.0041739	93.95859504	92.93586319	91.93523673
200511A00019	5/11/2020	1.18	2/1/2027	101.90326	99.75509635	97.66246669	95.62354144	93.63656647	91.69985949	89.81180641	87.97085795	86.17552646
200511A00020	5/11/2020	1.4	2/1/2028	103.63392	100.4862767	97.45003628	94.52060678	91.6936124	88.96488519	86.33045367	83.78653221	81.32951098
200511A00021	5/11/2020	1.53	2/1/2029	105.43384	101.2793995	97.31087604	93.51894317	89.89479738	86.43012464	83.11707016	79.94821016	76.91652569
200511A00022	5/11/2020	1.6	2/1/2030	106.97134	101.8123761	96.93180641	92.31314993	87.94099415	83.8009157	79.87941133	76.16383417	72.64233471
200511A00023	5/11/2020	1.7	2/3/2031	108.4395	102.2743564	96.49808147	91.08413855	86.00793759	81.24668294	76.77923295	72.58597142	68.6486897
200512A00001	5/12/2020	1.17	5/12/2027	102.15992	99.75650171	97.42319479	95.15753473	92.95715749	90.81979705	88.7432807	86.72552453	84.76452917
200512A00010	5/12/2020	1.48	5/10/2030	106.05512	101.0554009	96.33378424	91.87318313	87.65765223	83.67230539	79.90323971	76.33746546	72.96284135
200512A00011	5/12/2020	1.48	5/10/2030	106.05512	101.0554009	96.33378424	91.87318313	87.65765223	83.67230539	79.90323971	76.33746546	72.96284135
200512A00013	5/12/2020	1.17	5/12/2027	102.15992	99.75650171	97.42319479	95.15753473	92.95715749	90.81979705	88.7432807	86.72552453	84.76452917
200512A00014	5/12/2020	1.17	5/12/2027	102.15992	99.75650171	97.42319479	95.15753473	92.95715749	90.81979705	88.7432807	86.72552453	84.76452917
200512A00017	5/12/2020	0.85	5/12/2025	100.13916	99.61280108	99.09201417	98.57670652	98.06679166	97.56218494	97.06280349	96.56856614	96.07939342
200512A00018	5/12/2020	0.85	5/12/2025	100.13916	99.61280108	99.09201417	98.57670652	98.06679166	97.56218494	97.06280349	96.56856614	96.07939342
200512A00020	5/12/2020	0.86	5/12/2025	100.14543	99.61600761	99.09220089	98.57391797	98.06107158	97.55357629	97.05134845	96.55430613	96.06236914
200512A00021	5/12/2020	0.86	5/12/2025	100.14543	99.61600761	99.09220089	98.57391797	98.06107158	97.55357629	97.05134845	96.55430613	96.06236914
200513A00003	5/13/2020	0.68	5/13/2025	100.07599	99.62399313	99.17608235	98.73219921	98.29228943	97.85629967	97.42417758	96.99587171	96.57133153
200514A00008	5/14/2020	1.23	5/14/2030	104.41381	99.83623498	95.50644974	91.40943933	87.53118433	83.85858906	80.37941566	77.0822233	73.95631192
200518A00019	5/19/2020	0.9	5/19/2025	100.14626	99.67810619	99.21432373	98.75485421	98.29963757	97.84861483	97.40172814	96.95892068	96.5201367

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200520A00009	5/20/2020	1.63	5/20/2038	110.35269	100.2331062	91.27141035	83.32287928	76.26191031	69.97938649	64.38041684	59.38239786	54.91334918
200521A00005	5/21/2020	0.75	5/21/2030	101.54594	98.79639784	96.15843736	93.62653094	91.19546573	88.86032415	86.61646513	84.45950667	82.3853096
200521A00013	5/21/2020	2.09	5/21/2035	115.56074	105.1026081	95.69207196	87.21828123	79.58264931	72.6974413	66.48453028	60.87430171	55.80468751
200521A00015	5/21/2020	2.14	5/21/2036	116.75212	105.331788	95.14996474	86.06509152	77.95247844	70.7022169	64.21736063	58.41233856	53.21156885
200521A00016	5/21/2020	2.18	5/21/2037	117.79567	105.4337082	94.51314452	84.857155	76.31147543	68.74142124	62.02931435	56.07225921	50.78021923
200521A00017	5/21/2020	2.22	5/21/2038	118.95702	105.6578507	94.01558319	83.81327994	74.86348803	67.00409697	60.09479848	54.01405595	48.65650813
200522A00009	5/22/2020	0.96	5/22/2030	102.0669	99.08652547	96.23127085	93.4947751	90.87104959	88.35445152	85.9396617	83.62166378	81.39572512
200527A00012	5/27/2020	1.2	5/27/2027	102.29385	99.82925075	97.4364084	95.11282388	92.85610154	90.66394351	88.534145	86.46458997	84.45324692
200527A00013	5/27/2020	1.13	11/25/2026	101.61411	99.64887146	97.73140249	95.86024311	94.03399167	92.25129861	90.51086421	88.8114363	87.15180821
200527A00014	5/27/2020	1.06	5/27/2026	101.01583	99.54265677	98.09825968	96.68187464	95.29275988	93.93019932	92.59350146	91.28199829	89.99504436
200527A00015	5/27/2020	0.99	11/26/2025	100.43665	99.44943094	98.48149527	97.53227947	96.60124505	95.687874	94.79166781	93.91214656	93.04884807
200527A00016	5/27/2020	0.92	5/27/2025	100.16433	99.67425557	99.18896553	98.70838742	98.23245288	97.76109486	97.2942476	96.83184659	96.37382854
200529A00022	6/1/2020	0.98	6/1/2026	100.90621	99.42066318	97.9643669	96.53653375	95.13640383	93.76324382	92.41634575	91.09502595	89.79862397
200601A00009	6/1/2020	0.84	6/2/2025	100.12956	99.62321298	99.12196348	98.62573836	98.13446243	97.64806197	97.16646474	96.68959989	96.217398
200604A00005	6/4/2020	0.89	6/4/2025	100.15664	99.64475867	99.13809395	98.63656521	98.14009466	97.64860608	97.16202477	96.6802775	96.20329252
200604A00009	6/4/2020	0.7	6/4/2025	100.09931	99.58711129	99.0801357	98.57830599	98.08154409	97.5897735	97.10291926	96.62090792	96.14366747
200604A00010	6/4/2020	0.89	6/4/2025	100.15664	99.64475867	99.13809395	98.63656521	98.14009466	97.64860608	97.16202477	96.6802775	96.20329252
200604A00012	6/4/2020	1.59	6/4/2030	107.24675	101.7523082	96.5719656	91.68617554	87.07670386	82.72653592	78.61978889	74.74163086	71.07820601
200604A00013	6/4/2020	2.21	6/4/2035	116.83857	106.2814534	96.78341343	88.23213012	80.52773967	73.58139944	67.31402122	61.65515572	56.54200963
200604A00014	6/4/2020	2.42	6/4/2040	124.08256	108.6956373	95.46143657	84.06328238	74.2327481	65.74208669	58.39787828	52.03569691	46.5156288
200605A00005	6/5/2020	0.99	6/5/2025	100.20927	99.69450777	99.18501931	98.68072369	98.18154182	97.68739618	97.19821083	96.71391134	96.23442477
200605A00014	6/5/2020	1.02	6/5/2025	100.25635	99.66495603	99.08055208	98.50301453	97.93222271	97.36805875	96.81040752	96.25915654	95.71419593
200605A00016	6/5/2020	1.02	6/5/2025	100.25635	99.66495603	99.08055208	98.50301453	97.93222271	97.36805875	96.81040752	96.25915654	95.71419593
200605A00017	6/5/2020	1.02	6/5/2025	100.25635	99.66495603	99.08055208	98.50301453	97.93222271	97.36805875	96.81040752	96.25915654	95.71419593
200605A00018	6/5/2020	0.91	6/5/2025	100.19074	99.59964373	99.01553551	98.43829062	97.86778844	97.30391114	96.74654364	96.19557353	95.65089095
200608A00001	6/8/2020	1.34	6/7/2030	104.96644	100.3231328	95.93336216	91.78163521	87.85349094	84.13543002	80.61484546	77.27995867	74.11976048
200610A00006	6/10/2020	1.11	6/10/2027	102.08306	99.61235961	97.21527126	94.88913856	92.63142106	90.43968695	88.31160759	86.24495231	84.23758359
200611A00010	6/11/2020	1.08	6/11/2027	102.03273	99.53113142	97.10330023	94.74663069	92.45862607	90.23689327	88.07913785	85.9831592	83.94684614
200611A00011	6/11/2020	1.2	6/9/2028	103.37452	99.88602681	96.53322974	93.31012631	90.21101706	87.23048481	84.36337902	81.60480108	78.95009053
200611A00019	6/11/2020	0.88	12/11/2025	100.35712	99.32979527	98.32336155	97.33718663	96.37066402	95.42321122	94.49426852	93.58329796	92.68978222
200611A00020	6/11/2020	0.81	6/11/2025	100.11931	99.58847549	99.06325486	98.54356232	98.02931085	97.52041524	97.01679203	96.51835954	96.02503773
200612A00004	6/12/2020	1.42	6/12/2040	106.61379	98.54843959	91.31628421	84.81823476	78.96806216	73.69061562	68.92030415	64.59979717	60.67891118
200615A00019	6/17/2020	1.34	6/16/2025	100.41305	99.8676776	99.32821731	98.79457691	98.26666249	97.74438213	97.22764588	96.71636569	96.21045538

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200616A00005	6/16/2020	0.74	6/17/2030	101.55166	98.74326822	96.05063487	93.46794726	90.98973082	88.6108245	86.32636074	84.1317467	82.02264696
200623A00028	6/23/2020	1.23	6/23/2038	105.39871	98.5983502	92.4067833	86.76096977	81.60502875	76.88936768	72.56992374	68.60750204	64.96719766
200626A00014	6/26/2020	0.62	6/26/2025	100.06367	99.49160476	98.92605105	98.36690224	97.81405	97.26738847	96.72681412	96.19222574	95.66352433
200629A00020	6/29/2020	1.4	6/28/2030	106.24325	100.7122268	95.50101101	90.58948957	85.95891846	81.59182051	77.47189328	73.58392408	69.91371158
200629A00021	6/29/2020	1.21	6/29/2028	103.47452	99.93014338	96.52526755	93.25364538	90.10934893	87.08674813	84.18049397	81.38550274	78.69694126
200629A00023	6/29/2020	0.95	6/29/2026	100.93119	99.36893337	97.83829115	96.33837378	94.86832315	93.42731281	92.01454652	90.62925688	89.27070396
200708A00011	7/10/2020	2.87	7/10/2031	116.56076	109.7191515	103.331076	97.36399805	91.78788501	86.57499961	81.69971306	77.13833413	72.86895299
200709A00002	7/10/2020	1.66	7/10/2025	100.65801	100.0464077	99.44222451	98.84532563	98.25557975	97.67285875	97.09703755	96.52799402	95.96560892
200709A00003	7/10/2020	1.63	7/10/2026	102.0591	100.458274	98.89021265	97.35398069	95.8486743	94.37342377	92.92739181	91.50977206	90.11978764
200709A00004	7/10/2020	1.4	7/10/2025	100.49802	99.88696986	99.28333597	98.68698165	98.09777572	97.5155901	96.94029978	96.3717827	95.80991968
200709A00005	7/10/2020	2.23	7/10/2030	110.94734	105.2548546	99.89095323	94.83493818	90.06752619	85.57074131	81.32781945	77.32312033	73.54204628
200709A00006	7/10/2020	2.58	7/10/2030	112.92242	107.1751395	101.7587067	96.65231119	91.83656232	87.29338293	83.00591348	78.95842363	75.13623074
200709A00007	7/10/2020	1.67	7/9/2027	103.65846	101.0601027	98.53986835	96.09492863	93.72257814	91.4202273	89.18539651	87.01571066	84.90889395
200709A00008	7/10/2020	1.88	7/10/2026	102.46505	100.8608088	99.28939503	97.74986991	96.24132797	94.76289794	93.31374103	91.89304945	90.50004491
200709A00019	7/9/2020	0.77	7/9/2025	100.12199	99.43826564	98.76390193	98.0987071	97.44249474	96.79508347	96.15629675	95.52596276	94.90391423
200709A00021	7/9/2020	0.83	7/9/2025	100.16345	99.47951148	98.80493215	98.1395243	97.48310147	96.83548221	96.19648997	95.56595286	94.94370357
200709A00025	7/9/2020	1.37	7/9/2030	105.57778	100.4665784	95.6466133	91.0995594	86.80834769	82.75707164	78.9309015	75.31600542	71.89947686
200716A00004	7/16/2020	0.97	7/16/2027	101.8	99.24652259	96.77131818	94.37147676	92.0442146	89.78687164	87.59690497	85.4718827	83.40947817
200720A00012	7/20/2020	0.77	7/15/2025	100.11228	99.48899665	98.87344592	98.26548844	97.66498427	97.07179688	96.48579306	95.90684284	95.33481935
200720A00034	7/20/2020	0.77	7/21/2025	100.11461	99.47502517	98.84358367	98.22012996	97.60451315	96.99658612	96.39620543	95.80323119	95.21752696
200720A00035	7/20/2020	1.81	7/20/2035	112.72916	102.2672176	92.8718681	84.42851242	76.8354127	70.00219156	63.84851156	58.30291424	53.30179847
200720A00037	7/22/2020	2.1	7/21/2025	100.97351	100.330817	99.69629921	99.06979675	98.45115827	97.84023628	97.23688693	96.64096995	96.0523485
200720A00039	7/22/2020	2.48	7/21/2025	101.2189	100.5753289	99.93993222	99.31255868	98.69305688	98.08127919	97.47708165	96.88032388	96.29086894
200720A00042	7/22/2020	2.04	7/21/2026	102.7813	101.1451371	99.54285895	97.97348001	96.43605123	94.92966005	93.45342864	92.00651219	90.58809735
200720A00044	7/22/2020	2.22	7/21/2026	103.07905	101.4403394	99.83555957	98.26372344	96.72388071	95.21511767	93.73655535	92.28734785	90.8666808
200724A00011	7/24/2020	1.41	7/26/2038	108.14433	97.94996958	88.94507537	80.97856072	73.91958797	67.6547415	62.08560739	57.1267016	52.70369506
200730A00011	7/30/2020	1.15	7/28/2028	103.33564	99.71813111	96.24554138	92.9112638	89.70903218	86.63290194	83.67723153	80.836665	78.1061157
200730A00013	7/30/2020	0.74	1/30/2025	100.00973	99.84102582	99.67289302	99.50532565	99.33832087	99.1718759	99.00598792	98.84065417	98.67587189
200803A00011	8/3/2020	0.72	8/4/2025	100.08647	99.40901209	98.7406823	98.08129505	97.43067186	96.788639	96.15502728	95.52967195	94.91241251
200811A00003	8/11/2020	0.57	8/11/2025	100.03912	99.34216782	98.65488651	97.97707359	97.3085344	96.64907956	95.99852482	95.35669091	94.72340332
200812A00004	8/12/2020	0.59	8/12/2025	100.05347	99.35375034	98.6637778	97.98334747	97.31226239	96.65033098	95.9973669	95.3531888	94.71762024
200813A00019	8/13/2020	1.44	8/13/2030	105.99831	100.795672	95.89359123	91.27293839	86.91590428	82.80590309	78.9274817	75.26623634	71.80873575
200813A00020	8/13/2020	1.44	8/13/2030	105.99831	100.795672	95.89359123	91.27293839	86.91590428	82.80590309	78.9274817	75.26623634	71.80873575

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200813A00023	8/13/2020	0.86	10/14/2025	100.28373	99.3441377	98.42220634	97.51744491	96.62937615	95.75754037	94.90149465	94.06081205	93.23508093
200814A00003	8/14/2020	0.96	8/14/2035	103.37282	98.01933073	93.05560698	88.44852038	84.16805613	80.18699822	76.48064746	73.02656976	69.80437124
200814A00009	8/18/2020	1.36	8/16/2028	104.17203	100.4893917	96.95580295	93.5643944	90.30865291	87.18240403	84.17979208	81.29526157	78.52353978
200814A00011	8/18/2020	1.58	8/16/2030	107.35712	101.6687109	96.31533956	91.27553165	86.52930398	82.05805176	77.84444598	73.87233902	70.12667775
200818A00004	8/18/2020	0.92	8/18/2026	100.98539	99.29087313	97.63260037	96.00947892	94.42045581	92.86452046	91.34070243	89.84806946	88.38572548
200818A00005	8/18/2020	1.05	8/18/2027	102.12191	99.43915876	96.83978906	94.320674	91.87882679	89.5113941	87.21564892	84.98898398	82.82890544
200818A00006	8/18/2020	1.18	8/18/2028	103.50417	99.82875616	96.30241447	92.91826262	89.66977614	86.5507704	83.55538062	80.67804313	77.91347793
200818A00007	8/18/2020	1.31	8/20/2029	105.09017	100.4102737	95.96395187	91.73830918	87.72123301	83.90134334	80.26794408	76.81097787	73.52098422
200818A00008	8/18/2020	1.5	8/18/2031	107.52902	100.8818766	94.68710954	88.91162092	83.52489951	78.49880794	73.80738586	69.42667032	65.33453207
200818A00009	8/18/2020	1.7	8/18/2033	110.46027	101.8441254	93.96543898	86.75722231	80.15890018	74.11566419	68.57789618	63.500652	58.84319913
200818A00010	8/18/2020	1.88	8/20/2035	113.50788	102.9309285	93.43851339	84.91339679	77.25157988	70.36074928	64.15891006	58.57318476	53.53875779
200818A00012	8/18/2020	0.97	8/18/2027	101.86675	99.23231227	96.68083038	94.20920733	91.81448071	89.49381679	87.24450403	85.06394696	82.94966045
200824A00020	8/26/2020	1.57	8/26/2025	100.72913	99.98945093	99.26060084	98.54233933	97.83443696	97.13667088	96.4488246	95.77068776	95.1020559
200825A00007	8/27/2020	4.79	8/27/2026	107.80052	106.0206214	104.278981	102.5744257	100.9058352	99.27213453	97.67229211	96.10531725	94.5702582
200826A00019	8/26/2020	0.98	8/26/2026	101.10677	99.39010482	97.71048218	96.06677074	94.45788415	92.88278028	91.34045888	89.8299595	88.35035941
200826A00021	8/26/2020	0.83	8/26/2025	100.17757	99.44016263	98.71355733	97.99751761	97.29181441	96.59622529	95.91053412	95.23453091	94.56801155
200827A00007	8/27/2020	0.77	8/27/2025	100.1334	99.39346753	98.66441165	97.94599465	97.23798513	96.54015835	95.85229601	95.174186	94.5056222
200828A00002	8/28/2020	0.73	8/28/2026	100.81056	99.08883312	97.40439331	95.75609323	94.14283591	92.56356919	91.01728342	89.50300922	88.01981543
200909A00001	9/9/2020	0.98	9/8/2028	103.10765	99.37601296	95.79800666	92.3664659	89.07460402	85.91598924	82.88452373	79.97442414	77.1802034
200910A00006	9/10/2020	0.96	9/10/2027	101.88225	99.1945163	96.59301535	94.07451341	91.63591895	89.27427263	86.98674094	84.7706101	82.62328034
200911A00011	9/11/2020	1.18	9/11/2030	104.6356	99.42666073	94.5224512	89.90339762	85.55128275	81.44914655	77.58119322	73.93270554	70.48996596
200911A00012	9/11/2020	1.18	9/11/2030	104.6356	99.42666073	94.5224512	89.90339762	85.55128275	81.44914655	77.58119322	73.93270554	70.48996596
200911A00013	9/11/2020	0.69	9/11/2025	100.0951	99.24562117	98.41060038	97.58967059	96.78247671	95.9886755	95.20793506	94.43993442	93.68436306
200916A00015	9/16/2020	0.72	9/16/2025	100.10677	99.31286864	98.53149602	97.7623554	97.00516135	96.25963722	95.52551491	94.80253442	94.09044363
200922A00015	9/24/2020	1.09	9/24/2025	100.41676	99.5998488	98.79616015	98.00537786	97.22719311	96.46130684	95.70742942	94.96528021	94.2345873
200922A00027	9/24/2020	1.65	9/23/2025	100.87591	100.0596399	99.25653223	98.46627094	97.68854966	96.92307173	96.16954979	95.42770539	94.69726869
200922A00034	9/24/2020	2.24	9/23/2026	103.48075	101.6660368	99.89184469	98.15700376	96.46038958	94.80091802	93.17754353	91.58925744	90.03508637
200922A00036	9/24/2020	1.55	9/23/2025	100.79364	99.97773465	99.17499246	98.38509252	97.60772857	96.84260402	96.08943157	95.34793286	94.61783811
200922A00037	9/24/2020	2.76	9/23/2025	101.78916	100.9687879	100.1616237	99.36735134	98.58566373	97.81626334	97.05886198	96.31318043	95.57894809
200922A00039	9/24/2020	3	9/23/2025	101.98662	101.1653604	100.3573191	99.56217953	98.77963434	98.00938584	97.2511457	96.5046345	95.76958147
200925A00002	9/25/2020	0.74	9/25/2025	100.12846	99.31014129	98.50512107	97.71307569	96.93369365	96.16667338	95.41172279	94.66855894	93.93690765
200925A00008	9/25/2020	0.74	9/25/2025	100.12846	99.31014129	98.50512107	97.71307569	96.93369365	96.16667338	95.41172279	94.66855894	93.93690765
200928A00003	9/28/2020	0.55	9/26/2025	100.03651	99.21501777	98.40693326	97.61192854	96.82968834	96.05990743	95.30229025	94.55655051	93.82241087

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200928A00009	9/28/2020	1.51	9/28/2032	108.28772	100.5762613	93.46624349	86.90776337	80.85529033	75.26726349	70.10572768	65.3360043	60.92639378
201001A00011	10/1/2020	0.71	6/17/2025	100.06751	99.52049381	98.97944327	98.44426175	97.91485404	97.39112699	96.87298946	96.36035222	95.85312797
201001A00012	10/1/2020	0.74	9/16/2025	100.12284	99.32886607	98.54742363	97.77821395	97.02095158	96.27535988	95.54117071	94.81812409	94.10596787
201007A00008	10/7/2020	1.22	10/7/2030	104.73081	99.61531235	94.79901431	90.2625934	85.98808057	81.9587563	78.15905734	74.5744909	71.19155556
201007A00010	10/7/2020	1.22	10/7/2030	104.73081	99.61531235	94.79901431	90.2625934	85.98808057	81.9587563	78.15905734	74.5744909	71.19155556
201007A00014	10/7/2020	0.8	10/7/2025	100.21657	99.29928278	98.39887336	97.51488213	96.64686203	95.79438211	94.95702679	94.13439526	93.32610073
201015A00003	10/15/2020	0.75	10/15/2025	100.1524	99.27998471	98.42268235	97.58010137	96.75186523	95.93761013	95.13698448	94.3496484	93.57527323
201015A00020	10/15/2020	0.94	10/15/2027	101.8911	99.11769681	96.43604812	93.84260675	91.33398341	88.90693863	86.55837528	84.28533141	82.08497356
201015A00024	10/19/2020	1.53	10/18/2027	103.66233	100.7951788	98.02170621	95.33836622	92.74176232	90.2286446	87.79590253	85.44055824	83.15976012
201015A00025	10/19/2020	1.54	10/18/2027	103.6914	100.8238195	98.04993246	95.36618813	92.76918964	90.25568674	87.82256863	85.46685715	83.18570038
201015A00030	10/19/2020	2.39	10/18/2027	106.16197	103.2582752	100.4491636	97.73105054	95.10051134	92.55426918	90.08918767	87.70226412	85.39062305
201015A00032	10/19/2020	2.33	10/19/2026	103.79869	101.911284	100.0674517	98.26593226	96.50550767	94.78500262	93.10328303	91.45925421	89.85185927
201019A00005	10/19/2020	0.79	10/20/2025	100.19242	99.30632561	98.435809	97.58046548	96.73990118	95.91373579	95.10160194	94.30314466	93.51802087
201021A00011	10/21/2020	1.11	10/21/2027	102.44856	99.59132662	96.82784071	94.15453464	91.56799915	89.06497259	86.64233364	84.29709448	82.02639431
201021A00012	10/21/2020	1.85	10/19/2035	113.25816	102.5481419	92.95179895	84.34719526	76.62631691	69.69342422	63.46360255	57.86149051	52.82016298
201022A00012	10/26/2020	2.25	10/24/2030	111.47304	105.4849876	99.8580381	94.56857165	89.59462619	84.91577555	80.51301455	76.36865344	72.46622055
201028A00003	10/30/2020	1.42	2/27/2026	101.21992	99.97613622	98.76271192	97.57854718	96.42259464	95.29385635	94.19138092	93.11426083	92.06162991
201028A00005	10/30/2020	1.85	10/31/2025	101.18613	100.2653707	99.36129346	98.47345146	97.60141068	96.74475244	95.90307274	95.07598159	94.26310246
201028A00011	10/28/2020	0.91	4/28/2026	100.73762	99.34283815	97.97394264	96.63027967	95.31121338	94.01612878	92.74443097	91.49554425	90.26891141
201029A00002	10/29/2020	0.59	10/29/2025	100.08882	99.17793841	98.28351681	97.40511152	96.5422959	95.6946583	94.86180146	94.04334186	93.23890914
201029A00004	10/29/2020	1.49	10/29/2038	109.04303	98.63885603	89.46612815	81.36609458	74.20159533	67.85400102	62.22060258	57.21238179	52.75210541
201030A00001	11/2/2020	2.54	10/29/2040	126.59414	110.6798807	97.03417809	85.31667768	75.2399146	66.56085028	59.07380053	52.60451956	47.00524619
201030A00002	11/2/2020	2.8	10/29/2040	130.59065	114.3786369	100.4657667	88.50807197	78.21493702	69.34057513	61.67690185	55.04757192	49.30298511
201030A00003	11/2/2020	2.58	10/29/2040	127.20899	111.2489201	97.56211479	85.80766142	75.69761036	66.98850025	59.47427766	52.98037377	47.35874448
201030A00004	11/2/2020	2.56	10/29/2040	126.90156	110.9644004	97.29814644	85.56216955	75.46876248	66.77467527	59.2740391	52.79244667	47.18199533
201030A00005	11/2/2020	2.49	10/29/2040	125.82558	109.9685814	96.3742572	84.70294801	74.6677949	66.02628781	58.57320413	52.1347018	46.56337332
201030A00012	10/30/2020	0.63	10/30/2025	100.12643	99.21266132	98.31544888	97.43434669	96.56892445	95.71876706	94.88347395	94.06265844	93.25594716
201030A00016	10/30/2020	1.14	10/8/2027	102.50471	99.68053305	96.94797839	94.30360392	91.74411312	89.26635046	86.86729459	84.5440519	82.29385037
201030A00017	10/30/2020	1.14	10/15/2027	102.52156	99.6788962	96.92901143	94.26839741	91.69369667	89.20169628	86.78932079	84.4536256	82.19179062
201030A00018	10/30/2020	1.15	10/22/2027	102.56758	99.70600235	96.93837392	94.26112294	91.67083	89.16422386	86.73817415	84.3896845	82.11588605
201030A00019	10/30/2020	1.15	10/29/2027	102.58462	99.70454335	96.91958727	94.22611126	91.62063371	89.09982479	86.66049895	84.29960786	82.0142337
201103A00005	11/3/2020	0.89	11/4/2030	101.87371	98.85907161	95.97630744	93.21843377	90.57889259	88.05151974	85.63051855	83.31043547	81.08613739
201105A00003	11/6/2020	2.24	11/4/2030	111.45422	105.437735	99.78579202	94.47443522	89.48139647	84.78597234	80.36890655	76.21228184	72.29942048

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	Parallel-Shift Sensitivity Analysis											
11/30/2024				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
201105A00016	11/9/2020	2.18	11/8/2027	105.66437	102.7117149	99.85706598	97.09664562	94.42684093	91.84419794	89.34541371	86.92732881	84.58692025
201109A00012	11/9/2020	1.39	11/8/2030	105.83835	100.4577652	95.39922121	90.64154115	86.16505151	81.95146966	77.98379832	74.24622865	70.72405106
201110A00003	11/10/2020	1.12	11/10/2027	102.46328	99.61779645	96.86825675	94.21087662	91.642043	89.15830624	86.75637167	84.43309164	82.18545803
201116A00024	11/18/2020	2.36	11/15/2034	117.79742	107.7014384	98.56933338	90.30357473	82.81697887	76.03156144	69.87752452	64.29235985	59.22005422
201116A00025	11/18/2020	1.96	11/15/2032	111.94517	103.9718604	96.62668148	89.85686846	83.6143402	77.85526325	72.53965688	67.63103662	63.09609248
201118A00009	11/18/2020	0.61	11/18/2025	100.12716	99.1620718	98.21545967	97.28679453	96.37557015	95.48129916	94.60351222	93.74175714	92.89559817
201119A00021	11/23/2020	2.22	11/21/2030	111.39884	105.338402	99.6479692	94.30303267	89.2808321	84.56021889	80.12153408	75.94649615	72.01809787
201119A00023	11/23/2020	2.23	11/21/2030	111.45892	105.3967154	99.70458801	94.35803004	89.3342774	84.61217787	80.17206911	75.99566641	72.06595953
201123A00010	11/25/2020	1.48	11/24/2025	100.92001	99.93561317	98.97032615	98.02359531	97.09488976	96.18369871	95.28953051	94.41191174	93.5503864
201123A00011	11/25/2020	1.41	11/24/2025	100.85043	99.86640145	98.90148083	97.95511147	97.02676261	96.11592355	95.22210274	94.34482686	93.48364002
201203A00005	12/3/2020	0.78	12/3/2026	101.0871	99.10282285	97.16729514	95.27901578	93.43653849	91.6384715	89.88347501	88.17025891	86.49758052
201204A00015	12/8/2020	1.07	12/8/2025	100.54673	99.52647337	98.52678759	97.54706046	96.58669927	95.64513456	94.72181903	93.8162264	92.92785049
201207A00009	12/7/2020	1.01	12/7/2027	102.19833	99.29263465	96.48670184	93.77652121	91.15826488	88.62828228	86.18309068	83.81936635	81.53393623
201207A00021	12/7/2020	1.85	12/7/2050	114.95084	101.5342711	90.24592001	80.70166552	72.5922372	65.66783086	59.72601972	54.60222887	50.16221077
201208A00029	12/10/2020	1.52	12/9/2025	101.01542	99.98985977	98.98501768	98.00027466	97.03503249	96.08871644	95.16077422	94.25067482	93.35790751
201208A00031	12/10/2020	1.43	12/9/2024	100.01856	99.99359771	99.96866587	99.94376124	99.91888378	99.89403343	99.86921016	99.84441391	99.81964463
201210A00021	12/10/2020	0.89	12/10/2027	102.14608	99.15490579	96.26624267	93.47601127	90.7803217	88.1754608	85.65788304	83.22420184	80.87118147
201211A00001	12/11/2020	0.95	12/11/2030	103.574	98.62873775	93.9743642	89.5918224	85.46341119	81.5726843	77.90435444	74.44420525	71.17901047
201215A00001	12/15/2020	0.76	12/15/2025	100.23967	99.20219552	98.18603965	97.19055455	96.21511495	95.25912054	94.32199481	93.40318379	92.50215505
201216A00004	12/16/2020	0.74	9/8/2025	100.11784	99.34551047	98.58503842	97.83614849	97.09857772	96.37207106	95.65638108	94.95126768	94.25649782
201216A00013	12/16/2020	0.59	12/16/2025	100.14515	99.1042846	98.08489097	97.08630878	96.10790634	95.14907729	94.20923938	93.2878332	92.38432115
201218A00014	12/18/2020	0.57	12/18/2025	100.12716	99.08098915	98.05650845	97.05304963	96.06997144	95.10665847	94.16251985	93.23698806	92.32951775
201221A00014	12/21/2020	0.76	12/19/2025	100.24715	99.19881984	98.17225814	97.16679084	96.18177347	95.21658755	94.27063935	93.34335861	92.4341974
201221A00015	12/21/2020	0.88	12/4/2026	101.13106	99.14675272	97.21118475	95.32285049	93.48030395	91.68215358	89.92705987	88.21373296	86.54093044
201221A00022	12/21/2020	0.51	12/19/2025	100.10755	99.01042911	97.93763085	96.88834725	95.86180835	94.85727756	93.87404986	92.91145008	91.96883142
201223A00012	12/23/2020	0.91	12/18/2026	101.22045	99.19836336	97.22651548	95.3033349	93.42730817	91.59698003	89.81095071	88.06787338	86.36645171
201223A00013	12/23/2020	0.9	12/11/2026	101.18571	99.18241269	97.22860283	95.3227422	93.46335119	91.64900655	89.87833874	88.15002951	86.46280958
201228A00013	12/28/2020	0.84	12/30/2030	101.73769	98.68596148	95.76937634	92.98069815	90.31313403	87.76030334	85.31620987	82.97521607	80.73201913
210104A00006	11/22/2021	0.88	11/20/2026	101.10261	99.15611424	97.25663866	95.4027584	93.59310244	91.82635041	90.1012303	88.41651634	86.771027
210104A00007	11/23/2021	0.88	11/23/2026	101.1088	99.15414405	97.24689544	95.38561189	93.56890568	91.79544054	90.06392939	88.37313211	86.72185354
210104A00009	12/20/2021	0.89	12/18/2026	101.17909	99.15743638	97.18601662	95.26325574	93.38764053	91.55771597	89.77208251	88.02939354	86.32835292
210104A00010	11/22/2021	0.88	11/20/2026	101.10261	99.15611424	97.25663866	95.4027584	93.59310244	91.82635041	90.1012303	88.41651634	86.771027
210104A00011	11/23/2021	0.88	11/23/2026	101.1088	99.15414405	97.24689544	95.38561189	93.56890568	91.79544054	90.06392939	88.37313211	86.72185354

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11/30/2024				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
210104A00012	12/20/2021	0.89	12/18/2026	101.17909	99.15743638	97.18601662	95.26325574	93.38764053	91.55771597	89.77208251	88.02939354	86.32835292
210107A00007	1/7/2021	0.84	1/7/2026	100.43686	99.27452048	98.13918349	97.02991665	95.9458281	94.88606627	93.84981766	92.83630469	91.8447838
210114A00009	1/19/2021	2.66	1/17/2030	112.40665	107.1484841	102.1700517	97.45497038	92.9879045	88.7544933	84.7412836	80.93566752	77.32582475
210125A00006	1/27/2021	2.16	1/26/2027	104.01813	101.8626036	99.76236933	97.71561573	95.720609	93.77568567	91.87924915	90.02976642	88.22576495
210125A00007	1/27/2021	2.98	1/27/2031	116.34597	109.9595832	103.9705523	98.35198441	93.0789481	88.12831981	83.47864323	79.1100004	75.00389343
210127A00008	1/27/2021	0.93	1/27/2027	101.34395	99.21543147	97.14171842	95.12101171	93.15158894	91.23179774	89.36005231	87.53483011	85.75466882
210127A00009	1/27/2021	1.3	7/27/2029	104.98296	100.3679372	95.98060929	91.80855053	87.84008021	84.06421519	80.47062425	77.04958569	73.79194788
210127A00010	1/27/2021	1.41	7/26/2030	106.34627	100.7404305	95.46241466	90.49137661	85.80790132	81.39390183	77.2325212	73.30804244	69.60580538
210129A00013	1/29/2021	0.65	1/9/2025	99.992817	99.88211037	99.77166174	99.66147053	99.55153579	99.44185659	99.33243199	99.22326108	99.11434293
210201A00001	2/1/2021	0.77	12/16/2025	100.25209	99.21184034	98.19302426	97.1949855	96.21709398	95.25874485	94.31935727	93.39837323	92.49525639
210201A00002	2/1/2021	1.19	2/1/2036	104.30338	98.67730557	93.47695388	88.6647827	84.20690489	80.07270551	76.23450105	72.66723627	69.34821457
210201A00003	2/2/2021	0.74	10/15/2025	100.14356	99.27119157	98.41393102	97.57139134	96.74319602	95.92898125	95.12839546	94.34109878	93.56676255
210201A00004	2/3/2021	1.15	2/3/2025	100.08534	99.90551368	99.72633893	99.54780916	99.36992087	99.19267061	99.01605493	98.84007044	98.66471373
210201A00012	2/3/2021	0.75	11/17/2025	100.18597	99.22437501	98.28111299	97.35566763	96.44753816	95.55624244	94.68131604	93.82231152	92.97879758
210208A00004	2/11/2021	0.76	10/15/2025	100.16123	99.28877784	98.43143367	97.58881139	96.76053444	95.946239	95.14557349	94.35819802	93.5837839
210208A00008	2/11/2021	0.78	11/17/2025	100.21522	99.2534631	98.31004989	97.38445534	96.47617862	95.58473754	94.70966766	93.85052147	93.00686765
210209A00029	2/12/2021	0.8	12/15/2025	100.28176	99.24404096	98.22765196	97.23193703	96.2562708	95.30005291	94.36270676	93.44367834	92.54243511
210212A00004	2/12/2021	1.1	2/12/2036	104.24211	98.60658399	93.39816243	88.57913227	84.11545541	79.97638468	76.13412055	72.56350606	69.2417553
210212A00006	2/12/2021	0.77	2/12/2026	100.42496	99.18054228	97.96303581	96.77156678	95.60529909	94.46343256	93.34520102	92.24987043	91.17673727
210212A00007	2/12/2021	0.76	2/12/2026	100.40911	99.1715901	97.96079455	96.77585792	95.61595037	94.48027772	93.36807948	92.2786271	91.21122227
210212A00008	2/12/2021	0.95	10/13/2026	101.16121	99.31524846	97.51168258	95.74929079	94.02689644	92.34336399	90.69759731	89.088538	87.51516392
210212A00014	2/17/2021	1.38	2/17/2026	101.13306	99.91692783	98.72985823	97.57081755	96.43882279	95.33293644	94.25226387	93.19595089	92.16318151
210212A00016	2/17/2021	1.32	2/18/2025	100.14674	99.92549983	99.70525127	99.48598273	99.26768763	99.05035945	98.83399174	98.61857809	98.40411215
210216A00006	2/16/2021	1.44	2/15/2030	106.61041	101.4061665	96.48526005	91.83077889	87.42691577	83.25888656	79.31285824	75.57588235	72.03583354
210216A00007	2/16/2021	1.3	2/16/2029	104.86861	100.6726035	96.66646793	92.84057352	89.18584017	85.69369841	82.35605739	79.16527517	76.11413097
210216A00008	2/16/2021	0.71	2/17/2026	100.40672	99.1938083	98.00993667	96.85407633	95.72524362	94.62250038	93.54495146	92.49174218	91.46205613
210216A00009	2/16/2021	0.92	2/16/2027	101.55683	99.36534878	97.23147982	95.15328897	93.12892424	91.15661116	89.23464878	87.3614059	85.53531761
210216A00011	2/17/2021	0.83	12/15/2025	100.31332	99.27542504	98.25886119	97.26297388	96.28713769	95.33075219	94.39324073	93.47404924	92.57264516
210217A00005	2/17/2021	0.83	2/14/2031	101.99966	98.85474721	95.85249464	92.98509732	90.24523572	87.62604358	85.12107665	82.7242839	80.42998083
210218A00010	2/18/2021	1.72	2/18/2031	108.61123	102.3981017	96.57923454	91.12755983	86.01800899	81.22735419	76.73406345	72.51816785	68.56113995
210218A00011	2/22/2021	0.85	10/24/2025	100.25067	99.35349671	98.47228087	97.60660347	96.7560566	95.92024651	95.09879301	94.2913289	93.49749938
210219A00004	2/19/2021	0.91	2/19/2026	100.56023	99.3424226	98.15386624	96.99352167	95.86039482	94.75353785	93.67204644	92.61505731	91.581746
210219A00008	2/22/2021	0.86	12/1/2025	100.31485	99.31479256	98.3345282	97.3734757	96.43107527	95.50678869	94.60009827	93.71050584	92.83753187

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
210224A00002	2/25/2021	0.88	11/3/2025	100.29089	99.36652384	98.45908459	97.5681122	96.69316203	95.83380532	94.98962851	94.1602325	93.3452321
210224A00003	2/26/2021	0.9	12/3/2025	100.3599	99.35418617	98.36849044	97.40221761	96.45479859	95.52568633	94.61435474	93.72029773	92.84302822
210224A00004	2/26/2021	0.91	12/18/2025	100.40433	99.35781365	98.33296577	97.32911882	96.34563283	95.38189363	94.4373115	93.51132001	92.60337484
210224A00006	2/26/2021	0.88	10/21/2025	100.27437	99.38517551	98.51166011	97.65341288	96.81003639	95.98114689	95.16637375	94.36535889	93.57775623
210225A00003	3/1/2021	0.93	9/24/2025	100.28468	99.46836218	98.66526208	97.87506171	97.09745237	96.33213513	95.57882047	94.83722787	94.10708553
210225A00006	2/25/2021	0.98	2/25/2026	100.66197	99.42729046	98.22264699	97.04695744	95.89918904	94.77835759	93.68352466	92.61379489	91.56831363
210225A00007	2/25/2021	1.79	8/23/2030	108.58207	102.8408489	97.43815301	92.35224181	87.562889	83.05126679	78.79984143	74.79227724	71.01334826
210225A00012	3/1/2021	0.91	8/25/2025	100.23626	99.50131947	98.77710734	98.06338818	97.35993529	96.66652848	95.98295379	95.30900332	94.64447498
210225A00013	3/1/2021	0.93	10/6/2025	100.29952	99.45070618	98.61617675	97.79557597	96.98855756	96.19478665	95.41393928	94.64570197	93.88977132
210225A00016	3/1/2021	0.88	7/15/2025	100.18149	99.55796302	98.94217013	98.33397261	97.73323047	97.13980715	96.55356944	95.97438731	95.40213388
210226A00002	2/26/2021	0.86	2/26/2025	100.0508	99.80767606	99.56573519	99.32496593	99.08535981	98.84690843	98.60960348	98.3734367	98.13839994
210226A00004	3/1/2021	1.04	12/5/2025	100.50783	99.4958975	98.50421202	97.53216875	96.57918904	95.64471681	94.72821739	93.82917654	92.94709945
210226A00012	2/26/2021	2.31	2/26/2036	118.51155	107.2024876	97.09457037	88.05307005	79.95904561	72.70741646	66.20528242	60.37045498	55.13017231
210302A00005	3/5/2021	0.92	9/10/2025	100.26071	99.4823654	98.71604534	97.96147577	97.21838804	96.48652166	95.76562395	95.05544977	94.35576125
210303A00006	3/4/2021	0.97	10/10/2025	100.33961	99.47980037	98.63465141	97.80378803	96.98685051	96.18349107	95.39337347	94.61617246	93.8515734
210304A00002	3/5/2021	0.93	7/10/2025	100.2088	99.59875538	98.99611437	98.40074447	97.81251458	97.23129676	96.65696612	96.08940071	95.52848145
210304A00006	3/4/2021	1.02	3/4/2026	100.73351	99.48051377	98.25702382	97.06199983	95.89445258	94.75343838	93.63805646	92.54744654	91.48078658
210305A00006	3/8/2021	1.02	8/11/2025	100.30053	99.60328036	98.9156884	98.23755518	97.5686865	96.90889342	96.25799212	95.61580372	94.9821541
210305A00013	3/5/2021	2.41	3/5/2036	119.64298	108.2527936	98.07261325	88.96661169	80.81489106	73.5115375	66.96292487	61.08623195	55.80814526
210311A00007	3/11/2021	1.06	3/11/2026	100.80872	99.53818008	98.29553118	97.07985266	95.8902673	94.72593594	93.58605545	92.46985682	91.37660328
210312A00008	3/12/2021	1.13	3/12/2026	100.90267	99.62905754	98.38311485	97.16393906	95.97066882	94.80247983	93.65858286	92.53822185	91.44067217
210315A00003	3/15/2021	1.13	3/13/2026	100.90635	99.63027606	98.38164178	97.15956083	95.96318812	94.79171451	93.64436496	92.52039668	91.41909747
210319A00003	3/19/2021	0.95	3/19/2025	100.09705	99.79612984	99.49703285	99.19973799	98.90422893	98.61048952	98.31850382	98.02825606	97.73973067
210319A00009	3/19/2021	1.1	3/19/2026	100.95136	99.61619736	98.30538109	97.01829922	95.75436083	94.51299417	93.29364599	92.09578073	90.91887983
210324A00002	3/24/2021	2.06	3/24/2031	110.84879	104.4761099	98.51202072	92.92824177	87.69858502	82.79879291	78.20638673	73.90052767	69.8618893
210324A00003	3/24/2021	1.18	3/24/2026	101.0131	99.70948832	98.4307935	97.17632187	95.9454095	94.73741685	93.55172763	92.38774772	91.24490416
210330A00021	3/30/2021	2.16	3/28/2031	111.49607	105.0928668	99.10047954	93.49045677	88.23645388	83.31406806	78.70068593	74.37534391	70.3186001
210330A00022	3/30/2021	1.27	3/30/2026	101.15679	99.83754644	98.54185496	97.26913443	96.01882169	94.79037163	93.58325652	92.39696528	91.23100283
210331A00007	3/31/2021	1.25	3/31/2031	103.14383	99.92754554	96.85867779	93.92908076	91.13112414	88.45765402	85.90195992	83.45774423	81.11909402
210407A00012	4/7/2021	0.94	4/7/2025	100.11608	99.76297033	99.4123516	99.06419882	98.71848599	98.37518745	98.0342779	97.69573242	97.35952641
210407A00013	4/7/2021	1.23	4/7/2026	101.12848	99.78794565	98.47137517	97.1781824	95.90779916	94.65967518	93.43327748	92.22808967	91.04361131
210408A00007	4/8/2021	1.05	4/8/2031	102.77559	99.52574446	96.42665191	93.4698936	90.6475878	87.95234958	85.37725613	82.91581464	80.56193269
210409A00010	4/9/2021	1.05	4/9/2031	102.7438	99.52984371	96.46424587	93.53874971	90.74561956	88.07760643	85.52791407	83.09016754	80.75838426

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
210420A00009	4/20/2021	1.08	12/5/2025	100.5488	99.53664969	98.54474247	97.5724805	96.6192851	95.68460009	94.76789075	93.86864276	92.98636126
210420A00010	4/20/2021	1.08	12/12/2025	100.56807	99.53686718	98.52667964	97.53687228	96.56683348	95.6159759	94.68373524	93.76956914	92.87295615
210420A00035	4/20/2021	1.92	4/20/2034	108.7089	102.7822728	97.29717473	92.21582813	87.50398754	83.13058579	79.06741818	75.28885995	71.77161311
210423A00001	4/23/2021	1.72	4/23/2036	107.99727	102.0769463	96.61121009	91.5594151	86.88492722	82.55469629	78.53887808	74.81049869	71.34515634
210423A00003	4/23/2021	1.31	4/23/2031	103.64807	100.3701313	97.24428637	94.2620435	91.41544781	88.69704603	86.09985146	83.61731161	81.24327821
210428A00006	4/28/2021	1.23	4/28/2026	101.19273	99.79455686	98.42233628	97.07540484	95.75312512	94.45488066	93.18007513	91.92813146	90.69849112
210428A00007	4/28/2021	1.74	10/27/2028	105.9048	101.9978798	98.2561456	94.67177643	91.23736116	87.9458757	84.79066076	81.76540101	78.86410554
210428A00008	4/28/2021	1.93	4/26/2030	109.00838	103.5677861	98.43188953	93.58209247	89.00102217	84.67244548	80.58118864	76.71306293	73.05479602
210428A00015	4/28/2021	2.02	4/28/2031	110.7018	104.2412146	98.20077939	92.55103404	87.26472302	82.31662327	77.68338294	73.34337385	69.27655606
210429A00005	4/29/2021	2.08	4/29/2031	111.09134	104.6158	98.56132777	92.89838833	87.59966439	82.63987617	77.99561976	73.64521909	69.56859021
210507A00008	5/7/2021	1.94	5/7/2031	110.21025	103.7419632	97.69612748	92.04299865	86.75507307	81.80690592	77.17494733	72.83739225	68.77404294
210507A00009	5/7/2021	2.02	5/7/2032	111.84453	104.3681068	97.44594848	91.03408846	85.0922612	79.58357094	74.47419404	69.73310881	65.33185052
210512A00011	5/12/2021	1.16	5/12/2026	101.17069	99.69756368	98.25362994	96.83809199	95.45017759	94.08914212	92.75426738	91.44486038	90.16025224
210512A00012	5/12/2021	1.16	5/12/2026	101.17069	99.69756368	98.25362994	96.83809199	95.45017759	94.08914212	92.75426738	91.44486038	90.16025224
210514A00007	5/14/2021	0.95	5/15/2028	101.26922	99.49445305	97.76973403	96.09324565	94.4632481	92.87807751	91.33614204	89.83591823	88.37594755
210514A00010	5/14/2021	1.34	5/14/2031	103.73567	100.4599737	97.33697764	94.35809658	91.51529853	88.80106121	86.20833625	83.73051607	81.36140332
210514A00033	5/18/2021	2.8	5/18/2028	108.90053	105.3737274	101.9810736	98.71675226	95.57522898	92.55123812	89.63976849	86.8360496	84.13553868
210518A00023	5/18/2021	1.17	5/18/2026	101.15845	99.70780552	98.28505771	96.88947673	95.52035377	94.17700417	92.85876643	91.56500123	90.29509046
210525A00004	5/25/2021	1.02	12/19/2025	100.52355	99.47365648	98.44554879	97.43855755	96.45203777	95.48537049	94.53796146	93.60923996	92.69865759
210526A00014	5/26/2021	1.01	12/19/2025	100.51292	99.46308584	98.43503761	97.42810498	96.44164299	95.47503268	94.52767984	93.59901375	92.68848605
210526A00017	5/26/2021	2.13	5/26/2033	113.93376	105.3852746	97.54816187	90.35939715	83.76184705	77.70368844	72.13789019	67.02174797	62.31646617
210526A00018	5/26/2021	1.11	5/26/2026	101.0886	99.6174793	98.17504874	96.7605434	95.37322498	94.01238073	92.67732232	91.36738479	90.08192557
210527A00019	5/27/2021	1	5/27/2026	101.04482	99.56943928	98.12291207	96.70446692	95.31335954	93.94887145	92.61030885	91.29700159	90.00830212
210527A00026	6/1/2021	2.78	6/1/2028	108.92914	105.3643519	101.9365362	98.63969293	95.46811529	92.41637699	89.47931677	86.65202386	83.92982446
210601A00002	6/1/2021	0.9	6/2/2025	100.16017	99.65373285	99.15239365	98.65607949	98.16471516	97.67822693	97.19654255	96.71959117	96.24730336
210603A00008	6/3/2021	1.74	6/3/2036	107.9672	102.1493556	96.77718962	91.81073654	87.21399609	82.95450802	79.00297634	75.33293602	71.92045706
210603A00015	6/7/2021	2.71	6/7/2028	108.72604	105.1481842	101.7083405	98.4004331	95.21869108	92.1576283	89.2120278	86.37692693	83.6476035
210608A00017	6/10/2021	2.67	6/8/2029	111.08912	106.465659	102.0630401	97.8695405	93.87412648	90.06640441	86.43658043	82.97542257	79.67422553
210609A00007	6/11/2021	2.6	6/11/2029	110.78998	106.1649634	101.7612718	97.56714336	93.57150251	89.76391752	86.13455961	82.67416483	79.37399856
210609A00013	6/11/2021	1.64	6/11/2025	100.56344	100.0312402	99.50466897	98.98363601	98.46805411	97.95783795	97.45290395	96.9531703	96.45855685
210610A00012	6/11/2021	1.9	6/10/2026	102.34728	100.8256006	99.33412469	97.87202274	96.43849845	95.03278394	93.65413843	92.301847	90.97521949
210610A00014	6/11/2021	2.03	6/10/2026	102.5476	101.0243198	99.53126825	98.06761802	96.63257212	95.22536193	93.84524597	92.49150869	91.16345926
210611A00006	6/11/2021	1.85	6/11/2031	109.71448	103.1714046	97.06171189	91.35446882	86.02110555	81.03522042	76.37240481	72.01008302	67.92736579

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
210611A00010	6/11/2021	1.02	6/11/2026	101.02976	99.48499231	97.97174973	96.48913125	95.03626693	93.61231968	92.21648372	90.84798304	89.50607006
210611A00011	6/11/2021	1.02	6/11/2026	101.02976	99.48499231	97.97174973	96.48913125	95.03626693	93.61231968	92.21648372	90.84798304	89.50607006
210611A00012	6/11/2021	1.02	6/11/2026	101.02976	99.48499231	97.97174973	96.48913125	95.03626693	93.61231968	92.21648372	90.84798304	89.50607006
210616A00006	2/11/2022	0.86	2/11/2025	100.03921	99.83741182	99.6364389	99.43628515	99.23694549	99.03841493	98.84068848	98.64376122	98.44762825
210616A00007	3/18/2022	0.9	3/18/2025	100.08089	99.78275716	99.48640568	99.19182434	98.89899721	98.60790856	98.31854285	98.03088473	97.74491902
210616A00008	5/2/2022	0.95	5/2/2025	100.15006	99.7283602	99.31020385	98.8955433	98.48433488	98.07653563	97.67210331	97.27099637	96.87317396
210616A00009	2/11/2022	0.86	2/11/2025	100.03921	99.83741182	99.6364389	99.43628515	99.23694549	99.03841493	98.84068848	98.64376122	98.44762825
210616A00011	5/2/2022	0.95	5/2/2025	100.15006	99.7283602	99.31020385	98.8955433	98.48433488	98.07653563	97.67210331	97.27099637	96.87317396
210616A00012	3/18/2022	0.9	3/18/2025	100.08089	99.78275716	99.48640568	99.19182434	98.89899721	98.60790856	98.31854285	98.03088473	97.74491902
210621A00008	6/21/2021	1.04	6/23/2025	100.25676	99.6927931	99.13515598	98.58373976	98.03844076	97.49915756	96.96579101	96.4382441	95.91642195
210623A00028	6/23/2021	1.22	6/23/2026	101.34184	99.79261889	98.27455611	96.78678269	95.32846036	93.89878152	92.49696771	91.12226839	89.77395961
210624A00004	6/24/2021	1.01	6/24/2025	100.24082	99.67418477	99.11393366	98.55996141	98.01216291	97.47043538	96.93467831	96.40479339	95.88068447
210624A00005	6/24/2021	1.22	6/24/2026	101.3451	99.79311602	98.27237444	96.78200466	95.32116487	93.88904403	92.48486051	91.10786071	89.75731778
210624A00022	6/24/2021	0.87	6/24/2025	100.20597	99.63888741	99.07820561	98.52381508	97.97561035	97.43348829	96.89734806	96.36709104	95.84262077
210624A00025	6/24/2021	1.43	6/24/2027	102.97467	100.4254423	97.95203862	95.55174965	93.22198193	90.9602512	88.76417702	86.6314777	84.55996545
210624A00026	6/24/2021	1.6	6/23/2028	104.85619	101.3032876	97.88946089	94.60851213	91.45455702	88.42200553	85.50554536	82.70012649	80.00094663
210629A00005	6/29/2021	1.25	6/29/2026	101.40922	99.84300741	98.30848449	96.8047546	95.33095776	93.88626573	92.46988057	91.0810332	89.71898212
210629A00009	6/29/2021	1.14	12/31/2025	100.68614	99.60282558	98.54265832	97.5049041	96.48885884	95.4938477	94.51922349	93.56436534	92.62867734
210629A00012	6/29/2021	1.14	12/29/2025	100.6803	99.60243966	98.54749613	97.51474992	96.50350689	95.51310156	94.54289565	93.59227671	92.66065678
210629A00014	6/29/2021	1.78	12/28/2029	107.79484	102.7062989	97.88778266	93.32356197	88.99890954	84.90002732	81.01398291	77.32865066	73.83265714
210629A00015	6/29/2021	1.89	6/27/2031	110.02354	103.427917	97.27145772	91.52265742	86.15242555	81.13389133	76.4422233	72.05446458	67.94938216
210701A00007	7/1/2021	1.22	7/1/2026	101.36754	99.79629903	98.2569104	96.74847696	95.27013158	93.82103922	92.40039552	91.00742532	89.64138133
210706A00006	7/6/2021	1.15	7/6/2026	101.26899	99.68536118	98.13402357	96.61405521	95.12457056	93.66471723	92.2336744	90.83065135	89.45488604
210706A00014	7/6/2021	1.15	6/26/2026	101.24067	99.68406313	98.15886034	96.66417897	95.19917045	93.76301737	92.35493207	90.9741552	89.61995452
210706A00015	7/6/2021	1.06	12/31/2025	100.59844	99.51563899	98.45597681	97.41872023	96.40316536	95.40863752	94.43448971	93.48010122	92.54487629
210707A00002	7/7/2021	1.12	6/26/2026	101.19311	99.63690021	98.11208153	96.61777752	95.15313981	93.71735118	92.30962411	90.92919944	89.57534506
210707A00008	7/9/2021	2.44	7/7/2031	113.69529	106.954597	100.6620185	94.78537584	89.29496654	84.16335889	79.36520685	74.87708112	70.67731468
210709A00002	7/9/2021	1.36	7/9/2029	105.59244	100.9984601	96.62927401	92.47271201	88.51732914	84.75235797	81.16766469	77.75370824	74.50150239
210709A00005	7/9/2021	1.69	7/9/2031	108.72851	102.1439002	96.00039668	90.26619565	84.91194109	79.91052777	75.23691745	70.86797106	66.7822953
210709A00006	7/13/2021	2.4	7/11/2031	113.44585	106.7028288	100.4088643	94.53165876	89.04140473	83.91057714	79.11374687	74.62741067	70.42983575
210712A00008	6/27/2022	1.05	6/27/2025	100.26734	99.69244049	99.12410869	98.56223239	98.00670214	97.45741095	96.91425422	96.37712966	95.84593727
210712A00010	6/27/2022	1.05	6/27/2025	100.26734	99.69244049	99.12410869	98.56223239	98.00670214	97.45741095	96.91425422	96.37712966	95.84593727
210714A00012	7/14/2021	1.12	7/14/2026	101.26994	99.63866126	98.0419246	96.47869122	94.94796512	93.44879005	91.98024749	90.54145477	89.13156324

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
210714A00013	7/14/2021	1.12	7/14/2026	101.26994	99.63866126	98.0419246	96.47869122	94.94796512	93.44879005	91.98024749	90.54145477	89.13156324
210714A00014	7/14/2021	1.12	7/14/2026	101.26994	99.63866126	98.0419246	96.47869122	94.94796512	93.44879005	91.98024749	90.54145477	89.13156324
210714A00015	7/14/2021	1.11	7/14/2026	101.23602	99.62380799	98.04566925	96.50057799	94.98755262	93.50565071	92.05396696	90.6316314	89.23780759
210714A00020	7/14/2021	0.9	3/14/2025	100.07677	99.78963051	99.50414871	99.22031098	98.93810303	98.65751077	98.37852024	98.10111765	97.82528939
210719A00004	7/19/2021	1	4/20/2026	100.84623	99.47238015	98.12367439	96.79948309	95.4991967	94.22222545	92.96799852	91.7359633	90.52558466
210719A00009	7/19/2021	1.04	7/17/2026	101.11766	99.50627734	97.9281617	96.38234637	94.86790452	93.38394475	91.92960932	90.50407256	89.10653933
210720A00035	7/22/2021	2.27	7/21/2031	112.61846	105.8763915	99.58540441	93.71293299	88.22892387	83.10563383	78.31744039	73.84066902	69.65343534
210721A00009	7/21/2021	1.7	7/21/2031	108.81908	102.2009802	96.0280497	90.26805812	84.89126911	79.87023589	75.17961346	70.79598712	66.69771588
210722A00001	7/22/2021	1.1	7/22/2026	101.22892	99.60339954	98.01161708	96.45258993	94.92537153	93.42905176	91.96275519	90.52563939	89.11689337
210722A00008	7/21/2023	1.84	7/22/2030	108.78033	103.1168269	97.78283901	92.75747917	88.02129395	83.55615693	79.34517099	75.3725785	71.62367849
210722A00009	7/21/2023	1.96	7/22/2032	111.61711	103.9534578	96.87209323	90.32570885	84.27107836	78.66868086	73.48236516	68.67904613	64.22842991
210729A00003	7/29/2021	1.11	7/29/2026	101.26343	99.6191353	98.00923221	96.43270911	94.88859196	93.37594465	91.89386719	90.44149388	89.01799169
210729A00004	7/29/2021	1.74	7/29/2031	109.10271	102.4549663	96.25545715	90.47165019	85.07353491	80.03341777	75.32573149	70.92686113	66.81498524
210729A00006	7/29/2021	1.87	11/30/2032	111.26757	103.2819223	95.92906613	89.15555341	82.91270949	77.15618243	71.84553898	66.9439001	62.41761217
210802A00002	8/2/2021	0.7	8/1/2025	100.12492	99.45476326	98.79352781	98.14103846	97.49712275	96.86161271	96.23434473	95.61515944	95.00390153
210803A00005	8/5/2021	2.06	8/4/2026	102.88692	101.2126036	99.57350439	97.96857337	96.39680592	94.85723694	93.34893885	91.87101978	90.42262182
210804A00008	8/6/2021	2.28	8/4/2028	107.54431	103.8307846	100.2658087	96.84259709	93.55471752	90.39606901	87.36086258	84.44360319	81.63907294
210809A00010	8/9/2021	1.06	8/7/2026	101.22545	99.53528088	97.8818999	96.26419879	94.68111555	93.13163002	91.61476182	90.12956831	88.67514282
210809A00012	8/9/2021	1.06	8/7/2026	101.22545	99.53528088	97.8818999	96.26419879	94.68111555	93.13163002	91.61476182	90.12956831	88.67514282
210809A00013	8/9/2021	1.05	8/7/2026	101.19084	99.52107795	97.88758148	96.28925773	94.72506063	93.19398531	91.69506605	90.22737431	88.79001696
210809A00014	8/9/2021	1.06	8/7/2026	101.22545	99.53528088	97.8818999	96.26419879	94.68111555	93.13163002	91.61476182	90.12956831	88.67514282
210809A00015	8/9/2021	1.06	8/7/2026	101.22545	99.53528088	97.8818999	96.26419879	94.68111555	93.13163002	91.61476182	90.12956831	88.67514282
210817A00013	8/19/2021	2	8/19/2026	102.86038	101.1464633	99.46919389	97.82746547	96.2202128	94.64641351	93.10508592	91.59528699	90.11611037
210818A00007	8/18/2021	0.81	8/18/2025	100.21424	99.49760951	98.79119021	98.09476189	97.40811365	96.73104052	96.06334324	95.40482802	94.75530639
210826A00008	8/26/2021	0.89	2/26/2025	100.05812	99.81498936	99.57303663	99.33225556	99.09263768	98.85417457	98.61685793	98.38067951	98.14563116
210826A00009	8/26/2021	1.18	8/26/2026	101.45748	99.73764568	98.05491123	96.40814448	94.79625753	93.21820672	91.67299038	90.15964664	88.67725144
210826A00013	8/26/2021	1.97	2/28/2033	112.3448	104.0818422	96.49036298	89.51220786	83.09455036	77.18937615	71.75302095	66.74575521	62.13141038
210907A00004	9/7/2021	2.01	9/7/2033	113.21425	104.4304929	96.39976146	89.053446	82.32952768	76.17191058	70.52982768	65.35730941	60.61270765
210907A00006	9/7/2021	2.1	9/7/2034	115.04963	105.2582896	96.38908307	88.35003861	81.0588118	74.44162856	68.43235295	62.97166068	58.0063059
210907A00007	9/7/2021	2.35	9/4/2037	120.09989	107.3458669	96.10407635	86.18569106	77.42641581	69.68318364	62.8313151	56.76207017	51.38053697
210907A00008	9/7/2021	2.42	9/7/2038	121.881	108.1361907	96.12954695	85.62975604	76.43747262	68.38075154	61.31115543	55.10043229	49.63767721
210907A00009	9/7/2021	2.5	9/7/2039	124.16395	109.4032037	96.62096564	85.53816234	75.91654443	67.55252699	60.27198531	53.92585452	48.38640567
210907A00010	9/7/2021	2.58	9/7/2040	126.95236	111.1324826	97.54909459	85.86928565	75.8114985	67.13736657	59.64488573	53.16269529	47.54528338

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
210907A00011	9/7/2021	2.65	9/6/2041	130.01059	113.1005339	98.70129205	86.41998048	75.9273868	66.94735136	59.24796437	52.63426211	46.94216072
210907A00013	9/9/2021	2.14	9/9/2025	101.21613	100.4363821	99.66861839	98.91256781	98.16796368	97.43454739	96.71206812	96.00028246	95.29895421
210907A00014	9/9/2021	2.45	9/9/2026	103.77422	101.9953143	100.2553918	98.55328619	96.88787621	95.25808452	93.66287526	92.10125212	90.57225641
210907A00015	9/9/2021	2.21	9/9/2026	103.34409	101.5691535	99.83312535	98.13484264	96.47318628	94.84708077	93.2554921	91.69742575	90.17192471
210913A00014	9/13/2021	1.15	9/13/2028	101.70755	99.71286877	97.77961184	95.90538217	94.08789468	92.32496972	90.61452746	88.95458258	87.34323931
210913A00015	9/13/2021	1.08	9/14/2026	101.29139	99.57158372	97.89072374	96.2476918	94.64140749	93.07082837	91.53494841	90.03279643	88.56343467
210914A00012	9/14/2021	1.18	9/14/2027	102.77838	100.0093587	97.32839133	94.73215937	92.21749416	89.78136634	87.42087867	85.13325936	82.91585572
210914A00014	9/14/2021	0.97	9/14/2026	101.27712	99.50506182	97.77221785	96.07743072	94.41958569	92.7976103	91.21047237	89.65717809	88.13677023
210914A00015	9/14/2021	0.81	9/15/2025	100.24122	99.44859153	98.66843214	97.90045413	97.14437393	96.3999167	95.66681604	94.94481362	94.2336589
210914A00017	9/14/2021	1.32	9/14/2028	104.4246	100.6517271	97.03451614	93.56571318	90.23844428	87.04619306	83.98277989	81.04234242	78.21931741
210914A00018	9/14/2021	1.43	9/14/2029	106.12548	101.3424811	96.80125112	92.48832453	88.3910593	84.49758004	80.7967273	77.27801044	73.93156402
210915A00024	9/15/2021	1.1	9/15/2026	101.38736	99.60064425	97.85475326	96.1485105	94.48078108	92.85046994	91.25652024	89.69791171	88.17365917
210915A00025	9/15/2021	1.09	9/15/2026	101.34869	99.58474719	97.86100606	96.17630575	94.52952911	92.91959828	91.345473	89.80614906	88.3006568
210915A00026	9/15/2021	1.1	9/15/2026	101.38736	99.60064425	97.85475326	96.1485105	94.48078108	92.85046994	91.25652024	89.69791171	88.17365917
210915A00027	9/15/2021	1.1	9/15/2026	101.38736	99.60064425	97.85475326	96.1485105	94.48078108	92.85046994	91.25652024	89.69791171	88.17365917
210916A00008	9/16/2021	1.48	9/15/2028	104.7316	100.9585647	97.3410321	93.87176566	90.54390654	87.35095196	84.28673449	81.34540283	78.52140365
210916A00009	9/16/2021	2.25	9/16/2036	118.21744	106.4281314	95.94606209	86.61846521	78.31117381	70.90627497	64.30006669	58.40128061	53.12953475
210917A00004	9/17/2021	1.03	9/17/2025	100.35725	99.55954316	98.77446107	98.00170489	97.2409861	96.49202512	95.75455099	95.02830101	94.31302044
210917A00008	9/17/2021	1.55	9/15/2028	104.99925	101.221118	97.59864459	94.12458458	90.79207351	87.59460326	84.52600131	81.58041149	78.75227583
210917A00012	9/17/2021	1.2	9/11/2026	101.54007	99.77632107	98.05139972	96.36414789	94.71345428	93.09825042	91.51750862	89.97024	88.4554926
210920A00014	9/9/2022	1.28	9/9/2026	101.67734	99.91778068	98.19684273	96.51337391	94.86626278	93.25444123	91.6768824	90.13259858	88.62063939
210920A00015	9/9/2022	1.28	9/9/2026	101.67734	99.91778068	98.19684273	96.51337391	94.86626278	93.25444123	91.6768824	90.13259858	88.62063939
210921A00006	9/21/2021	1.43	9/21/2028	104.37122	100.7328965	97.24526909	93.90128793	90.69426794	87.61787037	84.66608291	81.83320122	79.11381151
210921A00009	9/21/2021	1.28	9/21/2028	104.10953	100.4725257	96.98635819	93.64396402	90.43864461	87.3640488	84.41415292	81.58324214	78.86589305
210924A00003	9/24/2021	2.37	9/24/2036	119.63123	107.7423023	97.17132687	87.7642124	79.38563913	71.91669016	65.25278892	59.30190497	53.98299203
210924A00004	9/24/2021	2.37	9/24/2036	119.63123	107.7423023	97.17132687	87.7642124	79.38563913	71.91669016	65.25278892	59.30190497	53.98299203
210924A00005	9/24/2021	2.37	9/24/2036	119.63123	107.7423023	97.17132687	87.7642124	79.38563913	71.91669016	65.25278892	59.30190497	53.98299203
210924A00011	9/24/2021	2.19	9/25/2034	115.97742	106.0961874	97.1486542	89.04139929	81.69080099	75.02196121	68.96775581	63.46799253	58.46866387
210928A00008	9/28/2021	1.35	9/28/2026	101.86861	100.0554266	98.28304774	96.55031393	94.8561062	93.19934447	91.5789859	89.99402335	88.44348392
210928A00009	9/28/2021	2.18	9/28/2033	114.77246	105.8677482	97.72936167	90.28722733	83.47801276	77.244448	71.53471767	66.30191669	61.50356286
210928A00010	9/28/2021	1.12	9/26/2025	100.44488	99.622423	98.81336782	98.01738665	97.23416477	96.46339747	95.70478968	94.95805558	94.22291826
210929A00011	3/16/2022	1.03	3/14/2025	100.11428	99.82707174	99.54152186	99.25761633	98.97534087	98.69468137	98.41562389	98.13815464	97.86225998
210929A00012	3/16/2022	1.03	3/14/2025	100.11428	99.82707174	99.54152186	99.25761633	98.97534087	98.69468137	98.41562389	98.13815464	97.86225998

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
211007A00006	10/7/2021	1.28	10/7/2026	101.7805	99.93194943	98.12688595	96.36402062	94.64210954	92.95995392	91.31639808	89.71032766	88.14066776
211014A00012	10/14/2021	1.46	10/14/2031	104.43005	100.8804739	97.50655159	94.29788293	91.24476061	88.33812323	85.56950786	82.93100642	80.41522546
211015A00031	10/15/2021	1.22	10/15/2025	100.56766	99.69326202	98.83399476	97.98947244	97.15931805	96.34316732	95.54066823	94.75148046	93.97527493
211019A00009	10/19/2021	1.48	10/9/2026	102.14705	100.3020722	98.49921129	96.7372583	95.01505043	93.33146529	91.6854192	90.07586564	88.50179369
211019A00011	10/19/2021	1.48	10/16/2026	102.17114	100.3075141	98.48680998	96.70779213	94.96926473	93.27007394	91.60910616	89.9852863	88.39757624
211026A00012	10/26/2021	1.52	10/26/2026	102.28244	100.3913944	98.54445955	96.7403478	94.97781503	93.25566133	91.57272924	89.92790186	88.32010119
211026A00013	10/26/2021	1.52	10/26/2026	102.28244	100.3913944	98.54445955	96.7403478	94.97781503	93.25566133	91.57272924	89.92790186	88.32010119
211028A00012	10/28/2021	1.64	10/15/2027	103.9707	101.1069138	98.33642314	95.65570282	93.06137924	90.55022393	88.11914655	85.76518818	83.485515
211028A00013	10/28/2021	1.65	10/22/2027	104.02637	101.1433874	98.35488518	95.6572689	93.04710268	90.52109942	88.07611353	85.70913403	83.41727803
211028A00020	10/28/2021	2.05	1/28/2031	110.59157	104.3772982	98.55287324	93.09179446	87.96949909	83.16321067	78.65179983	74.41565663	70.43657352
211028A00021	10/28/2021	2.28	10/28/2033	115.75185	106.7294553	98.48895724	90.95831927	84.0724923	77.77270074	72.00580883	66.72375373	61.8830381
211110A00012	11/10/2021	1.44	11/10/2026	102.19274	100.2564193	98.36742326	96.52428818	94.72560497	92.97001815	91.25622328	89.58296469	87.94903325
211110A00013	11/10/2021	1.44	11/10/2026	102.19274	100.2564193	98.36742326	96.52428818	94.72560497	92.97001815	91.25622328	89.58296469	87.94903325
211110A00014	11/10/2021	1.44	11/10/2026	102.19274	100.2564193	98.36742326	96.52428818	94.72560497	92.97001815	91.25622328	89.58296469	87.94903325
211115A00032	11/15/2021	1.75	11/12/2027	104.40706	101.462287	98.61577365	95.8637118	93.20246405	90.62855375	88.13865689	85.72959448	83.39832542
211119A00009	11/19/2021	1.68	11/19/2027	104.22785	101.2667947	98.40519035	95.63915475	92.96498356	90.37913719	87.87823254	85.45903513	83.11845165
211123A00011	11/23/2021	1.69	11/23/2026	102.72815	100.7569372	98.83345052	96.95624222	95.12391574	93.33512635	91.58857878	89.88302507	88.21726245
211123A00012	11/23/2021	2.27	11/23/2033	115.75128	106.66198	98.36625472	90.79045023	83.86810417	77.53921233	71.74957116	66.4501903	61.59676724
211129A00011	11/29/2021	1.53	11/20/2026	102.39671	100.437033	98.52463202	96.65807514	94.83598438	93.05703265	91.31994144	89.62347877	87.96645707
211129A00012	11/29/2021	1.53	11/25/2026	102.41599	100.4425373	98.51700612	96.63794035	94.80393391	93.01363307	91.265734	89.55898064	87.89216254
211206A00008	12/6/2021	1.24	12/6/2024	100.00965	99.99301116	99.97638946	99.95978453	99.94319633	99.92662484	99.91007004	99.89353188	99.87701035
211206A00009	12/6/2021	1.43	12/5/2025	100.90735	99.89323137	98.89938386	97.92520837	96.9701256	96.03357877	95.11503259	94.21397219	93.32990216
211206A00010	12/6/2021	1.54	12/4/2026	102.47056	100.4723631	98.52317121	96.6214781	94.76583026	92.95482896	91.18712775	89.46143008	87.77648711
211206A00017	12/6/2021	1.56	12/4/2026	102.51116	100.5125331	98.56292838	96.66083045	94.8047856	92.99339488	91.22531162	89.49923908	87.81392822
211207A00011	12/7/2021	1.62	12/1/2026	102.62094	100.6291326	98.6860471	96.79018843	94.94011645	93.13444506	91.3718397	89.65101509	87.97073303
211207A00012	12/7/2021	1.62	12/4/2026	102.63293	100.6330431	98.68219987	96.7788875	94.92165163	93.10909264	91.33986325	89.61266609	87.92625155
211208A00012	12/8/2021	1.62	12/8/2026	102.65624	100.6423805	98.67894269	96.76431445	94.89694879	93.07535997	91.29812046	89.56385814	87.87125374
211208A00013	12/8/2021	1.63	12/8/2026	102.70246	100.670681	98.68987141	96.75840413	94.87471408	93.03729812	91.244712	89.49556759	87.78853022
211209A00006	12/9/2021	1.61	12/8/2026	102.62851	100.6180615	98.65708318	96.74403898	94.8774555	93.05591514	91.27805363	89.54255754	87.84816203
211209A00007	12/9/2021	1.61	12/8/2026	102.62851	100.6180615	98.65708318	96.74403898	94.8774555	93.05591514	91.27805363	89.54255754	87.84816203
211210A00014	12/10/2021	1.54	12/10/2025	101.04016	100.0117428	99.00416314	98.01678951	97.04901892	96.10027216	95.16999265	94.25764531	93.36271559
211210A00015	12/10/2021	1.63	12/10/2026	102.67736	100.6611066	98.69453827	96.77611667	94.90435855	93.07783704	91.29517903	89.55506278	87.85621556
211210A00016	12/10/2021	1.76	12/10/2027	104.55839	101.536052	98.61684073	95.79666224	93.07161273	90.43796549	87.8921617	85.43080181	83.05063741

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
211213A00011	12/13/2021	1.32	12/13/2024	100.02188	99.98583846	99.94983804	99.9138809	99.87796696	99.84209613	99.80626833	99.77048348	99.7347415
211214A00014	12/14/2021	1.31	12/13/2024	100.02151	99.98547013	99.94947001	99.91351317	99.87759953	99.841729	99.8059015	99.77011695	99.73437526
211214A00015	12/14/2021	1.49	12/12/2025	100.99601	99.96242192	98.9498804	97.95775207	96.98542456	96.03230975	95.09784264	94.18148017	93.2827002
211217A00021	12/21/2021	2.44	12/18/2026	104.38478	102.3292769	100.3246788	98.36939127	96.46188278	94.60068046	92.78436763	91.01158116	89.28100903
211220A00006	12/20/2021	1.21	12/20/2024	100.02654	99.97110601	99.91574992	99.86047108	99.80526933	99.75014451	99.69509646	99.640125	99.58522999
211221A00010	12/21/2021	1.31	12/20/2024	100.03214	99.97669906	99.92133835	99.86605491	99.81084857	99.75571916	99.70066652	99.64569049	99.59079091
211221A00023	12/21/2021	1.53	6/19/2026	101.81419	100.2720829	98.76086081	97.27966738	95.82767678	94.4040931	93.00814899	91.63910439	90.29624526
211221A00025	12/21/2021	1.59	12/21/2026	102.63856	100.5935387	98.59938257	96.6544905	94.75732624	92.90641288	91.10033004	89.33771126	87.61724153
211222A00003	12/22/2021	1.33	1/15/2025	100.08012	99.95276222	99.82574174	99.6990601	99.5727159	99.44670775	99.32103427	99.19569408	99.0706858
211222A00030	12/22/2021	1.33	1/15/2025	100.08012	99.95276222	99.82574174	99.6990601	99.5727159	99.44670775	99.32103427	99.19569408	99.0706858
211222A00031	12/22/2021	1.33	1/15/2025	100.08012	99.95276222	99.82574174	99.6990601	99.5727159	99.44670775	99.32103427	99.19569408	99.0706858
211222A00035	12/22/2021	2.15	12/22/2033	114.76533	105.6454335	97.32898513	89.74080947	82.81312731	76.48479691	70.70063297	65.4107987	60.57026271
211227A00005	12/27/2021	1.61	12/18/2026	102.66818	100.6308075	98.6439758	96.70610579	94.81567564	92.97122206	91.17133754	89.41466779	87.69990931
211227A00009	12/27/2021	1.6	12/23/2026	102.6672	100.6165752	98.6170339	96.66696879	94.7648337	92.90914232	91.0984654	89.33142809	87.60670743
220104A00006	1/4/2022	1.76	1/4/2029	106.02394	102.2637556	98.66630624	95.22355856	91.92792218	88.77222522	85.74968855	82.85390181	80.07880106
220106A00007	1/6/2022	2.42	1/6/2034	117.26058	107.9928179	99.54185667	91.83112236	84.79159863	78.36104473	72.48329828	67.10765307	62.18830344
220106A00008	1/6/2022	2.5	1/5/2035	119.3627	109.0618375	99.75431757	91.33855282	83.72384669	76.8291781	70.58212405	64.91790701	59.77855232
220106A00009	1/6/2022	2.57	1/4/2036	121.24142	109.9208676	99.78446842	90.7011495	82.55500199	75.24345812	68.67569348	62.77122806	57.4587
220106A00010	1/6/2022	2.64	1/6/2037	123.05791	110.7190483	99.77062376	90.04709035	81.40345335	73.71262333	66.86312183	60.75709127	55.3085674
220106A00011	1/6/2022	2.7	1/6/2038	124.85171	111.5069982	99.77131008	89.43986955	80.33502465	72.30252532	65.20833175	58.93587221	53.38368488
220106A00013	1/6/2022	2.75	1/6/2039	126.75297	112.399631	99.88763784	88.96778945	79.42592553	71.07783746	63.76493928	57.35058332	51.71692177
220106A00018	1/10/2022	3.11	1/8/2032	119.2354	111.815672	104.9186803	98.50469095	92.5371911	86.98261397	81.81008641	76.99119933	72.49979896
220106A00019	1/10/2022	3.17	1/7/2033	121.90379	113.4019229	105.5712988	98.35506329	91.70146565	85.56337691	79.89785457	74.66575039	69.83135678
220111A00002	1/11/2022	1.75	1/16/2026	101.43395	100.3027638	99.19668775	98.11489693	97.0565984	96.02103339	95.00747549	94.01522897	93.04362713
220111A00005	1/11/2022	1.54	1/10/2025	100.17389	99.97510187	99.77711169	99.57991623	99.38351064	99.18789013	98.99304996	98.7989854	98.60569178
220112A00004	1/12/2022	1.55	1/12/2026	101.27756	100.1568479	99.06080663	97.98863033	96.93954637	95.91281514	94.9077283	93.92360717	92.9598012
220112A00005	1/12/2022	1.55	1/12/2026	101.27756	100.1568479	99.06080663	97.98863033	96.93954637	95.91281514	94.9077283	93.92360717	92.9598012
220114A00007	1/14/2022	1.7	1/27/2026	101.4298	100.2687182	99.13407871	98.02498712	96.94058854	95.88006581	94.84263746	93.8275558	92.83410508
220114A00009	1/14/2022	1.74	4/21/2026	101.88677	100.5025676	99.14373516	97.80963543	96.49965208	95.21318884	93.94966865	92.70853292	91.48924076
220114A00010	1/14/2022	1.86	1/13/2027	103.30559	101.1924277	99.13286817	97.12517977	95.16770393	93.25884817	91.39708296	89.58093866	87.80900264
220118A00009	1/18/2022	1.65	1/17/2025	100.12669	99.99375789	99.86119379	99.72899693	99.59716575	99.46569868	99.33459417	99.20385069	99.07346671
220121A00013	1/21/2022	1.78	11/3/2025	101.13332	100.2046964	99.29305312	98.39792998	97.51888127	96.65547714	95.80730294	94.97395857	94.15505781
220121A00014	1/21/2022	1.78	11/3/2025	101.13332	100.2046964	99.29305312	98.39792998	97.51888127	96.65547714	95.80730294	94.97395857	94.15505781

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
220124A00007	1/24/2022	1.88	1/22/2027	103.39029	101.2523311	99.16905021	97.13866275	95.15946077	93.22980526	91.34812282	89.51290234	87.72269209
220124A00008	1/24/2022	1.88	1/22/2027	103.39029	101.2523311	99.16905021	97.13866275	95.15946077	93.22980526	91.34812282	89.51290234	87.72269209
220125A00010	1/25/2022	1.89	1/25/2027	103.42598	101.279674	99.18840235	97.15036897	95.16384927	93.22718856	91.33879859	89.49715429	87.70079071
220126A00002	1/26/2022	1.9	12/18/2026	103.26796	101.2242486	99.23120936	97.28725373	95.39085645	93.5405509	91.73492637	89.97262548	88.25234174
220126A00003	1/26/2022	1.9	12/18/2026	103.26796	101.2242486	99.23120936	97.28725373	95.39085645	93.5405509	91.73492637	89.97262548	88.25234174
220131A00003	1/31/2022	1.98	2/1/2027	103.65713	101.4893866	99.3775802	97.31986715	95.3144821	93.35973194	91.45399217	89.59570346	87.7833685
220131A00006	1/31/2022	1.83	2/1/2027	103.50405	101.3345472	99.22109861	97.1618551	95.15504577	93.19897232	91.29200531	89.43258082	87.61919712
220201A00011	2/1/2022	1.86	4/20/2026	102.05031	100.6676458	99.31027364	97.97756291	96.66890004	95.38369139	94.12136244	92.88135701	91.66313654
220203A00009	2/3/2022	1.99	2/2/2027	103.68507	101.5140779	99.39916328	97.33847459	95.33024013	93.37276079	91.46440643	89.60361239	87.78887633
220204A00004	2/4/2022	2.08	1/8/2027	103.75033	101.6456053	99.59399504	97.59379701	95.64337671	93.74116434	91.88565172	90.07538932	88.30898347
220204A00005	2/4/2022	1.83	1/10/2025	100.12719	100.013602	99.9002811	99.78723099	99.67445068	99.56193916	99.44969544	99.33771851	99.22600739
220209A00010	2/9/2022	2.14	1/11/2027	103.89402	101.7797595	99.71899624	97.71000783	95.75114282	93.84081542	91.97750233	90.15973973	88.38612045
220209A00011	2/9/2022	2.14	1/11/2027	103.89402	101.7797595	99.71899624	97.71000783	95.75114282	93.84081542	91.97750233	90.15973973	88.38612045
220209A00012	2/9/2022	1.98	7/29/2025	100.92588	100.2615544	99.60594775	98.95889018	98.32021539	97.68976133	97.06737009	96.45288782	95.84616453
220209A00013	2/9/2022	1.98	7/29/2025	100.92588	100.2615544	99.60594775	98.95889018	98.32021539	97.68976133	97.06737009	96.45288782	95.84616453
220211A00010	2/11/2022	1.99	2/11/2025	100.36207	100.0946494	99.82869638	99.56419842	99.30114342	99.0395194	98.7793145	98.52051701	98.26311534
220214A00010	2/14/2022	2.46	12/21/2029	111.2342	106.0776536	101.1926088	96.5633429	92.17512186	88.01413722	84.06744281	80.32289643	76.7691057
220214A00012	2/14/2022	2.47	12/28/2029	111.32225	106.1447957	101.240746	96.5942153	92.19032669	88.01514075	84.05559118	80.29942556	76.73515033
220216A00002	2/16/2022	2.09	2/14/2025	100.30094	100.0905003	99.88095897	99.67230586	99.46453525	99.25764148	99.05161896	98.84646213	98.64216548
220216A00003	2/16/2022	2.49	12/14/2029	111.34949	106.2087323	101.3377858	96.7210684	92.34397952	88.19283282	84.25479397	80.51782315	76.97062176
220217A00011	2/17/2022	2.08	2/14/2025	100.29883	100.0883943	99.87885601	99.67020592	99.4624383	99.25554753	99.04952798	98.84437412	98.64008044
220217A00012	2/17/2022	2.28	2/16/2027	104.41707	102.196654	100.034365	97.92825479	95.87645935	93.87719238	91.92874146	90.02946429	88.17778514
220217A00013	2/17/2022	2.08	2/14/2025	100.29883	100.0883943	99.87885601	99.67020592	99.4624383	99.25554753	99.04952798	98.84437412	98.64008044
220217A00015	2/17/2022	2.28	2/16/2027	104.41707	102.196654	100.034365	97.92825479	95.87645935	93.87719238	91.92874146	90.02946429	88.17778514
220217A00016	2/17/2022	2.24	9/15/2026	103.43338	101.6411217	99.88846153	98.17423666	96.49732576	94.8566498	93.25116994	91.67988575	90.14183337
220217A00017	2/17/2022	2.27	1/29/2027	104.27466	102.1082948	99.99763801	97.94085791	95.93620248	93.98199105	92.07661078	90.21851332	88.40621161
220217A00018	2/17/2022	2.28	2/17/2027	104.42388	102.200446	100.0352698	97.92640314	95.87197546	93.87019447	91.91934207	90.01777062	88.16389932
220217A00020	2/17/2022	2.08	2/13/2025	100.29467	100.0870015	99.88020359	99.67427109	99.4691985	99.26498036	99.0616113	98.85908596	98.65739905
220217A00027	2/16/2024	2.56	2/17/2032	115.50376	108.1065256	101.240169	94.86369639	88.93948839	83.43300681	78.31252658	73.54889233	69.11529735
220218A00003	2/18/2022	2.16	9/4/2026	103.22598	101.4658655	99.74408143	98.05946497	96.41089867	94.79730989	93.21766852	91.67098477	90.15630725
220222A00018	2/22/2022	2.5	12/19/2031	114.80129	107.5882677	100.8831489	94.64744904	88.84578962	83.44563416	78.41704597	73.73246783	69.36652136
220224A00010	2/24/2022	2.04	3/10/2025	100.38893	100.1122323	99.83706535	99.563421	99.29128654	99.02064942	98.7514972	98.48381761	98.21759849
220224A00018	2/24/2022	2.15	3/16/2026	102.24686	100.9542934	99.68862903	98.4490307	97.23469795	96.04486334	94.87879068	93.73577347	92.61513336

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
220224A00023	2/24/2022	2.15	3/16/2026	102.24686	100.9542934	99.68862903	98.4490307	97.23469795	96.04486334	94.87879068	93.73577347	92.61513336
220225A00014	2/25/2022	2.42	2/23/2029	109.33103	105.0303769	100.9236795	97.00110693	93.25338465	89.67176036	86.24797136	82.97421401	79.84311534
220225A00015	2/25/2022	2.26	2/25/2027	104.43325	102.1861206	99.9983505	97.86793062	95.79293915	93.77153548	91.801956	89.88251014	88.01157664
220301A00013	3/1/2022	2.01	2/16/2027	103.81396	101.6004006	99.44482093	97.34528263	95.29992559	93.30696738	91.3646993	89.47148262	87.62574505
220301A00014	3/1/2022	1.85	1/10/2025	100.12947	100.0158762	99.90255312	99.78950091	99.6767185	99.56420489	99.45195908	99.33998007	99.22826687
220301A00015	3/1/2022	2	1/4/2027	103.56029	101.4682421	99.42880365	97.44029656	95.50110883	93.60969188	91.76455753	89.96427517	88.20746903
220302A00010	3/2/2022	2.14	1/13/2027	103.90476	101.7850711	99.71910887	97.7051459	95.74151991	93.8266349	91.95895794	90.13701611	88.35939363
220302A00011	3/2/2022	2.14	1/13/2027	103.90476	101.7850711	99.71910887	97.7051459	95.74151991	93.8266349	91.95895794	90.13701611	88.35939363
220304A00004	3/4/2022	2.12	12/29/2028	107.73818	103.6259418	99.69380517	95.93292068	92.33492136	88.89189531	85.5963583	82.44122818	79.41980096
220308A00011	3/8/2022	2.07	1/10/2025	100.15451	100.0408915	99.9275453	99.81446999	99.70166453	99.58912791	99.47685914	99.36485721	99.25312113
220308A00012	3/8/2022	2.51	3/8/2032	112.80147	106.6191092	100.8579961	95.48635805	90.47499886	85.79708027	81.42791925	77.34480372	73.5268249
220309A00010	3/9/2022	2.27	3/8/2027	104.5214	102.2431291	100.0257134	97.8671095	95.76535846	93.71858247	91.72498055	89.78282475	87.89045656
220310A00008	3/10/2022	2.22	3/10/2025	100.58184	100.2212239	99.86320459	99.50775648	99.15485182	98.80446328	98.45656387	98.11112702	97.76812653
220310A00009	3/10/2022	2.31	3/10/2027	104.60505	102.328684	100.1145822	97.96069284	95.86504368	93.82573857	91.8409542	89.90893679	88.02799909
220310A00010	3/10/2022	2.31	3/10/2027	104.60505	102.328684	100.1145822	97.96069284	95.86504368	93.82573857	91.8409542	89.90893679	88.02799909
220311A00013	3/15/2022	2.35	3/15/2027	104.7456	102.4460766	100.2084011	98.03051553	95.91044395	93.84629031	91.83623439	89.87852821	87.97149256
220314A00004	3/14/2022	2.44	3/12/2027	104.93499	102.6412421	100.4089896	98.23617481	96.12082733	94.061057	92.05505008	90.10106546	88.19743116
220314A00005	3/14/2022	2.36	3/14/2025	100.49803	100.2101244	99.92387791	99.63927874	99.35631256	99.07496525	98.79522284	98.51707152	98.24049764
220314A00006	3/14/2022	2.36	3/14/2025	100.49803	100.2101244	99.92387791	99.63927874	99.35631256	99.07496525	98.79522284	98.51707152	98.24049764
220314A00007	3/14/2022	2.44	3/12/2027	104.93499	102.6412421	100.4089896	98.23617481	96.12082733	94.061057	92.05505008	90.10106546	88.19743116
220314A00008	3/14/2022	2.38	7/28/2025	101.18821	100.5256312	99.87171535	99.22629014	98.58919098	97.96025754	97.33933358	96.72626682	96.12090883
220314A00009	3/14/2022	2.38	7/28/2025	101.18821	100.5256312	99.87171535	99.22629014	98.58919098	97.96025754	97.33933358	96.72626682	96.12090883
220315A00014	3/15/2022	2.78	3/15/2032	117.23822	109.7064646	102.7189723	96.23344484	90.21108137	84.61627453	79.41633183	74.58122278	70.08334924
220315A00015	3/15/2022	3.18	3/13/2037	129.78501	116.8842114	105.4439094	95.28880105	86.26554949	78.23992809	71.09434829	64.72571808	59.04358581
220315A00018	3/15/2022	2.43	3/15/2027	104.93026	102.6285697	100.3887755	98.20881549	96.08671243	94.02056899	92.00856376	90.04894759	88.14004015
220315A00036	3/17/2022	2.63	3/16/2027	105.39854	103.0886936	100.8409887	98.65336307	96.52383404	94.45049861	92.43152971	90.46517252	88.54974105
220315A00037	3/17/2022	2.63	3/16/2027	105.39854	103.0886936	100.8409887	98.65336307	96.52383404	94.45049861	92.43152971	90.46517252	88.54974105
220317A00011	3/17/2022	2.48	3/17/2025	100.54889	100.252626	99.95812056	99.66535732	99.37432073	99.08499545	98.7973663	98.51141831	98.22713666
220317A00023	5/3/2022	2.52	5/2/2025	100.81623	100.3928556	99.97302827	99.55670696	99.14384786	98.73440791	98.32834477	97.92561679	97.52618302
220317A00026	5/3/2022	2.59	5/3/2027	105.62768	103.1844989	100.8104171	98.5030893	96.26026812	94.07979546	91.95959825	89.8976846	87.89214009
220317A00027	5/3/2022	2.59	5/3/2027	105.62768	103.1844989	100.8104171	98.5030893	96.26026812	94.07979546	91.95959825	89.8976846	87.89214009
220317A00028	5/3/2022	2.59	5/3/2027	105.62768	103.1844989	100.8104171	98.5030893	96.26026812	94.07979546	91.95959825	89.8976846	87.89214009
220323A00016	6/2/2022	2.78	6/2/2025	101.11929	100.6100221	100.1058726	99.60676834	99.112634	98.62339557	98.13898056	97.65931791	97.18433792

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
220323A00017	6/2/2022	2.78	6/2/2025	101.11929	100.6100221	100.1058726	99.60676834	99.112634	98.62339557	98.13898056	97.65931791	97.18433792
220324A00007	3/24/2022	2.72	3/24/2025	100.66266	100.3468906	100.0331095	99.72129724	99.4114353	99.10350535	98.7974893	98.4933693	98.19112772
220324A00015	3/24/2022	2.79	3/3/2026	102.9736	101.7080673	100.4725271	99.26591631	98.08722295	96.93548184	95.80977197	94.70921402	93.63296795
220325A00010	3/28/2022	2.78	3/21/2025	100.66291	100.3554113	100.0497997	99.74605933	99.44417294	99.14412352	98.84589425	98.54946853	98.25482994
220325A00011	3/28/2022	2.79	4/25/2025	100.88669	100.4823777	100.0813106	99.68344626	99.28874636	98.89717323	98.50868978	98.12325951	97.74084648
220325A00012	3/28/2022	2.85	3/23/2026	103.21826	101.9017685	100.6106802	99.34428287	98.10188881	96.88283591	95.68648661	94.5122267	93.35946422
220325A00015	3/28/2022	2.86	3/23/2027	105.981	103.6455479	101.3733358	99.16227912	97.01037469	94.91569804	92.87639972	90.89070182	88.95689471
220325A00017	3/28/2022	2.86	3/23/2027	105.981	103.6455479	101.3733358	99.16227912	97.01037469	94.91569804	92.87639972	90.89070182	88.95689471
220325A00018	3/28/2022	2.85	9/10/2026	104.49871	102.7103532	100.9612205	99.25013717	97.57597852	95.93766344	94.33415226	92.76444479	91.22757839
220325A00019	3/28/2022	2.86	3/23/2027	105.981	103.6455479	101.3733358	99.16227912	97.01037469	94.91569804	92.87639972	90.89070182	88.95689471
220325A00020	3/28/2022	2.86	3/23/2027	105.981	103.6455479	101.3733358	99.16227912	97.01037469	94.91569804	92.87639972	90.89070182	88.95689471
220329A00007	3/29/2022	2.94	3/29/2029	111.80222	107.3562062	103.1139497	99.06506437	95.19974722	91.50874149	87.98330368	84.6151724	81.39653942
220329A00009	3/29/2022	2.94	3/29/2029	111.80222	107.3562062	103.1139497	99.06506437	95.19974722	91.50874149	87.98330368	84.6151724	81.39653942
220331A00010	3/31/2022	2.83	2/18/2026	102.92252	101.6920439	100.490948	99.31819017	98.17277607	97.05375727	95.96022879	94.89132663	93.84622543
220331A00012	3/31/2022	2.81	3/17/2025	100.64685	100.3504042	100.0557169	99.76277248	99.47155553	99.18205066	98.8942427	98.60811666	98.32365773
220401A00009	4/1/2022	2.98	4/1/2027	106.32937	103.9655466	101.6662909	99.42949245	97.25311948	95.13521795	93.07390809	91.06738111	89.11389614
220404A00010	4/4/2022	2.93	4/2/2027	106.21937	103.8540974	101.5535166	99.31550379	97.13802126	95.01910939	92.95688315	90.94952875	88.99530059
220404A00014	4/4/2022	2.94	4/5/2027	106.26627	103.8921695	101.5832026	99.33722986	97.15219322	95.02611355	92.95708734	90.94328331	88.98293923
220407A00014	4/7/2022	3.14	4/6/2029	110.78288	106.9739836	103.332873	99.85108703	96.52063762	93.3339829	90.28399971	87.36395802	84.56749712
220407A00017	4/7/2022	3.16	4/6/2029	111.53983	107.4920141	103.6263604	99.93357333	96.40488563	93.03202297	89.8071736	86.72296002	83.77241245
220408A00012	4/8/2022	3.12	6/29/2026	104.3889	102.7980689	101.2393564	99.71186173	98.21471349	96.74707229	95.30812946	93.89710562	92.51324929
220408A00013	4/8/2022	3.15	1/14/2027	106.07424	103.9282032	101.8364884	99.79734888	97.80910358	95.8701386	93.97890388	92.13391006	90.33372564
220408A00014	4/8/2022	3.12	6/29/2026	104.3889	102.7980689	101.2393564	99.71186173	98.21471349	96.74707229	95.30812946	93.89710562	92.51324929
220411A00002	4/11/2022	3.18	4/9/2027	106.8679	104.4755094	102.1489961	99.88618273	97.68497966	95.54337777	93.45944509	91.43132326	89.45722433
220411A00008	4/11/2022	3.02	4/12/2027	106.67684	104.2832535	101.9573101	99.69670403	97.49922174	95.36273828	93.28521333	91.26468726	89.2992774
220412A00010	4/12/2022	3.09	3/15/2027	106.45368	104.1341375	101.8768642	99.67979018	97.54092738	95.45836813	93.43028108	91.45490748	89.53055781
220412A00016	4/12/2022	3.09	3/19/2027	106.48533	104.1546592	101.8868154	99.67971299	97.53135455	95.43982225	93.403274	91.41993987	89.4881187
220412A00017	4/12/2022	3.09	3/19/2027	106.48533	104.1546592	101.8868154	99.67971299	97.53135455	95.43982225	93.403274	91.41993987	89.4881187
220412A00018	4/12/2022	3.09	3/15/2027	106.45368	104.1341375	101.8768642	99.67979018	97.54092738	95.45836813	93.43028108	91.45490748	89.53055781
220418A00015	4/22/2022	3.03	7/28/2025	101.62055	100.9563695	100.3008613	99.65385847	99.01519612	98.38471373	97.76225485	97.14766697	96.54080146
220418A00016	4/22/2022	3.11	9/15/2026	105.00701	103.2001064	101.4330775	99.70474792	98.01398914	96.35971499	94.74087986	93.15647674	91.60553546
220419A00014	4/19/2022	3.06	4/18/2025	100.94655	100.5613655	100.1791309	99.79981107	99.42337255	99.04978249	98.67900854	98.31101883	97.94578198
220419A00015	4/19/2022	3.14	4/17/2026	103.81743	102.4300983	101.0679974	99.73049898	98.41699355	97.12689136	95.85962155	94.6146314	93.39138567

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
220419A00016	4/19/2022	3.21	4/19/2027	107.02441	104.6024463	102.2478674	99.95842823	97.73196901	95.56641448	93.45976986	91.41011725	89.41561223
220420A00032	4/20/2022	3.26	10/16/2026	105.54306	103.6466601	101.7938086	99.98324693	98.21376237	96.48418496	94.7933855	93.14027391	91.52379759
220420A00033	4/20/2022	3.29	4/20/2027	107.22553	104.7983434	102.4387415	100.1444716	97.91336542	95.74333969	93.63239197	91.57859709	89.58010371
220420A00034	6/15/2022	3.3	6/15/2027	107.73153	105.1452652	102.6349735	100.1979687	97.83167787	95.53363516	93.30147673	91.13293569	89.02583752
220420A00037	6/15/2022	3.3	6/15/2027	107.73153	105.1452652	102.6349735	100.1979687	97.83167787	95.53363516	93.30147673	91.13293569	89.02583752
220420A00061	6/15/2022	3.3	6/15/2027	107.73153	105.1452652	102.6349735	100.1979687	97.83167787	95.53363516	93.30147673	91.13293569	89.02583752
220421A00012	4/21/2022	3.31	4/21/2026	104.08926	102.6888969	101.3141826	99.96447037	98.63913656	97.33757785	96.05921041	94.80346909	93.56980672
220421A00013	4/21/2022	3.33	9/15/2026	105.40494	103.5943325	101.82367	100.0917738	98.39751321	96.73980044	95.11758812	93.52986757	91.97566702
220421A00014	4/21/2022	3.24	5/30/2025	101.33189	100.8302165	100.3335068	99.84168491	99.35467899	98.87241857	98.39483455	97.92185919	97.45342601
220421A00016	4/21/2022	3.31	4/21/2026	104.08926	102.6888969	101.3141826	99.96447037	98.63913656	97.33757785	96.05921041	94.80346909	93.56980672
220422A00014	4/22/2022	3.36	9/29/2026	105.58537	103.7341651	101.9245425	100.1553221	98.42536652	96.73357785	95.07889575	93.46029604	91.87678918
220425A00026	4/25/2022	3.13	2/25/2026	103.35146	102.0990174	100.876916	99.6840593	98.51940639	97.38196535	96.27079027	95.18497866	94.12366895
220425A00027	4/29/2022	3.15	8/20/2026	104.86293	103.1284126	101.4309757	99.76949109	98.14288074	96.5501099	94.99018506	93.46215186	91.96509311
220425A00028	4/29/2022	3.16	4/23/2027	106.9377	104.5057155	102.1416876	99.84334115	97.60848926	95.43503093	93.320947	91.26429649	89.26321309
220426A00004	4/26/2022	3.41	4/26/2032	122.12736	114.3064974	107.055276	100.3290067	94.08672691	88.29087412	82.90698722	77.90343593	73.25117487
220427A00011	4/29/2022	3.15	4/29/2027	106.96367	104.5147415	102.1346761	99.82114891	97.57193086	95.38488078	93.25794153	91.18913613	89.17656415
220428A00019	4/28/2022	3.27	4/28/2027	107.24686	104.7972221	102.416367	100.1019816	97.85184176	95.66381077	93.53583582	91.46594397	89.45223859
220429A00002	4/29/2022	3.63	4/29/2032	123.78235	115.8931868	108.57801	101.7917921	95.49326347	89.64458095	84.21102709	79.160737	74.46445047
220502A00025	5/2/2022	3.21	5/2/2025	101.10901	100.6848949	100.2643333	99.84728207	99.43369751	99.02353649	98.61675662	98.21331621	97.81317426
220502A00030	5/4/2022	3.24	6/20/2025	101.48517	100.9254687	100.3719429	99.82449418	99.28302263	98.7474306	98.21762256	97.69350502	97.17498651
220506A00016	5/6/2022	3.35	5/6/2027	107.51024	105.0357232	102.6312558	100.2944612	98.02305535	95.81484559	93.66772571	91.57967229	89.54874085
220509A00013	7/15/2022	3.37	7/15/2027	108.17863	105.5040914	102.9099055	100.3931597	97.95106365	95.58094697	93.28025336	91.04653477	88.87744598
220509A00014	7/15/2022	3.37	7/15/2027	108.17863	105.5040914	102.9099055	100.3931597	97.95106365	95.58094697	93.28025336	91.04653477	88.87744598
220509A00016	7/15/2022	3.37	7/15/2027	108.17863	105.5040914	102.9099055	100.3931597	97.95106365	95.58094697	93.28025336	91.04653477	88.87744598
220510A00015	5/13/2022	3.13	11/3/2025	102.39697	101.4619553	100.5440059	99.64265666	98.75746015	97.88798487	97.0338146	96.19454767	95.36979638
220510A00016	5/13/2022	3.23	5/5/2027	107.20784	104.7397539	102.3414861	100.0106696	97.74503013	95.542384	93.40063376	91.31776423	89.2918388
220511A00002	5/11/2022	3.18	5/12/2025	101.16969	100.7179607	100.2702704	99.82656889	99.38680282	98.95091985	98.51886855	98.09059841	97.66605979
220511A00015	5/11/2022	3.29	5/11/2027	107.40498	104.9183718	102.5025366	100.1550578	97.873616	95.65598484	93.50002636	91.40368706	89.36499404
220512A00013	5/12/2022	3.18	5/12/2027	107.14185	104.6558454	102.2406968	99.8939773	97.61336234	95.39662054	93.24160935	91.146271	89.10862852
220518A00009	5/18/2022	3.38	5/18/2028	110.92661	107.3644581	103.9374528	100.639735	97.46573577	94.41015687	91.4679557	88.63433174	85.90471347
220519A00010	5/19/2022	3.15	11/19/2026	105.61368	103.623994	101.6820918	99.78652787	97.93591239	96.12890686	94.36422177	92.64061438	90.95688676
220520A00006	5/20/2022	3.02	5/20/2027	106.85257	104.3972211	102.0133199	99.69834551	97.44987991	95.2656063	93.14330398	91.08084366	89.07618309
220526A00010	5/26/2022	3	5/26/2026	103.9227	102.4294531	100.9652815	99.52940999	98.12109024	96.73959966	95.38424051	94.05433876	92.74924308

Classification | Public

	Parallel-Shift Sensitivity Analysis											
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
220526A00011	5/26/2022	3.29	5/24/2029	113.78947	109.1465108	104.7227791	100.5067588	96.4875959	92.65506042	88.99950707	85.51183881	82.18347279
220527A00014	5/27/2022	2.99	5/27/2026	103.91525	102.4193905	100.9527119	99.51442995	98.10379233	96.72007296	95.36257069	94.0306082	92.72353107
220527A00015	5/27/2022	3.03	5/27/2027	106.88635	104.3634367	101.9135731	99.53422292	97.22295252	94.97742741	92.79540765	90.67474334	88.61337043
220601A00024	6/1/2022	3.09	6/2/2025	101.27745	100.7677081	100.2630952	99.76353087	99.26893976	98.77924784	98.29438258	97.81427285	97.33884894
220601A00038	6/3/2022	3.69	5/28/2032	124.43997	116.4488045	109.0442694	102.1799103	95.81318906	89.90513329	84.42002046	79.32509106	74.59028855
220602A00039	6/2/2022	3.11	6/2/2027	107.34235	104.7929635	102.3178602	99.91443749	97.58020461	95.31277316	93.10985215	90.96924341	88.8888372
220610A00068	6/10/2022	3.09	6/10/2025	100.83962	100.5110438	100.1850819	99.86169922	99.54086207	99.22253735	98.90669255	98.59329576	98.28231566
220615A00010	6/15/2022	3.86	6/15/2027	109.16623	106.5613827	104.0329299	101.5781693	99.19451555	96.87949098	94.63072023	92.44592543	90.32292146
220617A00030	6/17/2022	3.43	6/17/2025	100.93587	100.6036504	100.2741119	99.94721768	99.62293243	99.3012217	98.98205162	98.66538895	98.35120107
220622A00006	6/22/2022	3.58	6/22/2027	108.51683	105.9007651	103.3618869	100.8974468	98.50481649	96.18147802	93.92501817	91.73312352	89.60357557
220623A00005	6/23/2022	3.45	6/23/2027	108.19061	105.5760044	103.0386255	100.5757247	98.18466955	95.86293816	93.60811384	91.4178799	89.2900148
220624A00003	6/24/2022	3.5	6/24/2027	108.3293	105.7100783	103.1682681	100.7011091	98.30596062	95.98029312	93.72168256	91.52780532	89.39643333
220624A00016	6/24/2022	3.34	6/24/2026	104.82168	103.2390441	101.6882358	100.1683634	98.67856899	97.21802611	95.78593823	94.38153744	93.00408318
220624A00033	6/24/2022	3.5	6/24/2027	108.3293	105.7100783	103.1682681	100.7011091	98.30596062	95.98029312	93.72168256	91.52780532	89.39643333
220624A00044	6/24/2022	3.43	6/24/2025	101.62282	101.0516967	100.4869943	99.9286064	99.37642731	98.83035379	98.2902849	97.75612187	97.22776812
220627A00055	6/27/2022	3.55	6/26/2026	105.04498	103.4570966	101.9011656	100.3762948	98.881621	97.41631274	95.97956873	94.57061658	93.1887114
220628A00034	6/28/2022	3.61	6/28/2027	108.653	106.0183214	103.4617131	100.9803845	98.57166418	96.2329933	93.96192036	91.75609578	89.61326698
220628A00044	8/15/2022	3.6	8/13/2027	109.05814	106.2931986	103.6131475	101.0148245	98.49521287	96.05142941	93.68071773	91.38044157	89.14807856
220628A00052	8/15/2022	3.6	8/13/2027	109.05814	106.2931986	103.6131475	101.0148245	98.49521287	96.05142941	93.68071773	91.38044157	89.14807856
220628A00053	8/15/2022	3.6	8/13/2027	109.05814	106.2931986	103.6131475	101.0148245	98.49521287	96.05142941	93.68071773	91.38044157	89.14807856
220629A00003	6/29/2022	3.59	6/29/2027	108.61078	105.9738466	103.4151147	100.9317846	98.52117813	96.18073026	93.90798357	91.70058293	89.55627056
220629A00034	6/29/2022	3.51	6/29/2027	104.21264	102.8605878	101.5391729	100.2474454	98.98449222	97.74943599	96.54143332	95.35967317	94.20337536
220630A00036	6/30/2022	3.42	6/30/2027	108.17795	105.543902	102.9880685	100.5076458	98.09995247	95.76242048	93.49258977	91.28810278	89.14669947
220630A00044	6/30/2022	3.34	6/30/2025	101.61679	101.0292128	100.4484197	99.8742961	99.30672767	98.74560264	98.1908118	97.64224837	97.09980797
220630A00045	6/30/2022	3.39	6/30/2026	104.82838	103.2311262	101.6661462	100.1325308	98.62940316	97.15591875	95.71126409	94.29465517	92.90533613
220630A00057	6/30/2022	3.34	6/30/2025	101.61679	101.0292128	100.4484197	99.8742961	99.30672767	98.74560264	98.1908118	97.64224837	97.09980797
220701A00024	7/1/2022	3.08	7/1/2025	101.47078	100.8809552	100.2979791	99.72173203	99.15209817	98.58896412	98.03221913	97.48175492	96.93746568
220701A00049	7/1/2022	3.19	7/1/2025	101.53573	100.9456865	100.3624946	99.78603353	99.21618743	98.65284287	98.09588908	97.54521777	97.00072308
220701A00050	7/1/2022	3.26	7/1/2027	107.76984	105.1384667	102.5853281	100.1076161	97.70264562	95.36784558	93.10075287	90.89900719	88.760346
220705A00011	7/5/2022	3.14	7/7/2025	101.54789	100.9414107	100.3421743	99.75005394	99.1649233	98.58665896	98.01514044	97.45025006	96.89187285
220706A00032	7/6/2022	3.15	7/6/2027	107.73886	105.0897876	102.5198791	100.0262809	97.60626123	95.25720535	92.97660896	90.762073	88.61129837
220707A00041	7/7/2022	3.41	7/7/2025	101.7118	101.1047533	100.5049604	99.91228832	99.32661055	98.74780366	98.1757471	97.61032311	97.05141668
220711A00021	7/11/2022	3.27	7/11/2025	101.70521	101.0866322	100.4755828	99.87192895	99.27553667	98.68627526	98.10401713	97.52863775	96.9600155

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
220712A00016	7/15/2022	3.35	1/15/2026	103.24929	102.1098485	100.995572	99.90563107	98.83923409	97.7956235	96.77407397	95.77389069	94.79440776
220715A00001	7/15/2022	3.44	7/15/2027	108.36376	105.6867477	103.090147	100.5710416	98.12663909	95.75426771	93.45136949	91.21549488	89.04429721
220715A00027	7/15/2022	3.44	7/15/2027	108.36376	105.6867477	103.090147	100.5710416	98.12663909	95.75426771	93.45136949	91.21549488	89.04429721
220715A00047	7/15/2022	3.44	7/15/2027	108.36376	105.6867477	103.090147	100.5710416	98.12663909	95.75426771	93.45136949	91.21549488	89.04429721
220719A00004	7/19/2022	3.46	7/19/2027	108.45254	105.7635214	103.1555235	100.6255938	98.17091005	95.78877169	93.47659405	91.23190238	89.05232629
220722A00036	7/22/2022	3.34	7/22/2025	101.02537	100.6500471	100.2781895	99.9097437	99.54465748	99.18287984	98.8243609	98.46905179	98.1169047
220722A00044	9/1/2022	3.23	9/1/2027	108.20846	105.4037805	102.6865843	100.0535635	97.50156473	95.02757692	92.6287233	90.30225442	88.04554141
220722A00049	9/15/2022	3.25	9/15/2025	102.13181	101.3317449	100.5442165	99.76893427	99.00561386	98.25397965	97.51376447	96.78470925	96.06656269
220722A00050	9/15/2022	3.25	9/15/2025	102.13181	101.3317449	100.5442165	99.76893427	99.00561386	98.25397965	97.51376447	96.78470925	96.06656269
220722A00051	9/15/2022	3.23	9/15/2027	108.32819	105.4828852	102.7274163	100.0584133	97.47265746	94.96707073	92.53870884	90.18475436	87.90251039
220727A00004	7/27/2022	3.23	7/27/2027	107.90841	105.2051056	102.5838105	100.0415187	97.57535327	95.18256291	92.86051515	90.60669044	88.41867634
220727A00009	7/27/2022	3.31	7/28/2025	101.80679	101.1419183	100.4857242	99.83804175	99.19870603	98.5675564	97.94443631	97.32919319	96.72167829
220727A00027	7/27/2022	3.23	7/27/2027	107.90841	105.2051056	102.5838105	100.0415187	97.57535327	95.18256291	92.86051515	90.60669044	88.41867634
220727A00035	10/24/2022	3.33	10/24/2029	115.21462	110.1176109	105.2800171	100.6872717	96.32570167	92.1824667	88.2455037	84.50347613	80.94572657
220727A00049	7/27/2022	3.31	7/25/2025	101.78456	101.1279832	100.4798806	99.84008671	99.20844244	98.58479262	97.96898605	97.36087531	96.76031666
220729A00035	8/3/2022	3.14	8/3/2027	107.72401	105.0043273	102.3676284	99.81084486	97.33104915	94.92544214	92.59134664	90.32620103	88.1275534
220729A00043	7/29/2022	3.04	7/29/2027	107.41526	104.7132332	102.0933547	99.55260507	97.08809731	94.69707045	92.37688318	90.12500768	87.93902387
220729A00045	7/29/2022	3.03	7/29/2027	107.38843	104.6867637	102.0672401	99.52683716	97.06266819	94.67197246	92.35210888	90.10054988	87.91487557
220729A00047	7/29/2022	3.06	1/29/2027	106.00006	103.8145115	101.6850566	99.60985884	97.58715524	95.61525456	93.69253377	91.81743474	89.98846096
220801A00066	8/1/2022	2.93	7/30/2027	107.25584	104.578837	101.9843959	99.46941734	97.03093821	94.66612871	92.37228522	90.14682359	87.98727286
220802A00009	8/2/2022	3	8/2/2027	107.33872	104.6269734	101.9979352	99.44855542	96.97591774	94.57723366	92.24983606	89.99117288	87.79880122
220804A00023	8/4/2022	3.19	8/4/2027	107.86708	105.1427577	102.5016102	99.94056115	97.45667403	95.04714129	92.70927779	90.44051445	88.23839227
220804A00037	8/4/2022	3.35	8/4/2025	101.88673	101.2024076	100.5272803	99.86115993	99.20386691	98.55522653	97.91506865	97.28322755	96.65954182
220808A00025	8/8/2022	3.25	8/6/2027	108.04583	105.3136855	102.6650612	100.0968692	97.606156	95.19009821	92.84599572	90.57126532	88.36343476
220811A00021	8/11/2022	3.47	8/11/2025	102.02501	101.3210351	100.6267796	99.94204744	99.26664335	98.60037735	97.94306464	97.29452535	96.65458442
220812A00001	8/12/2022	3.17	8/12/2027	108.1021	105.3480642	102.6787101	100.0908843	97.58157516	95.14790439	92.78712041	90.49659155	88.27379992
220812A00002	8/12/2022	3.17	8/12/2027	108.1021	105.3480642	102.6787101	100.0908843	97.58157516	95.14790439	92.78712041	90.49659155	88.27379992
220816A00009	8/16/2022	3.33	8/16/2027	108.34829	105.5850008	102.9068121	100.3105529	97.79319009	95.35182558	92.98368903	90.68613122	88.45661777
220817A00036	10/14/2022	3.41	10/15/2027	109.10066	106.1620963	103.3186606	100.566764	97.90297553	95.32401182	92.82672975	90.40811973	88.06529929
220817A00037	10/14/2022	3.41	10/15/2027	109.10066	106.1620963	103.3186606	100.566764	97.90297553	95.32401182	92.82672975	90.40811973	88.06529929
220817A00038	10/14/2022	3.41	10/15/2027	109.10066	106.1620963	103.3186606	100.566764	97.90297553	95.32401182	92.82672975	90.40811973	88.06529929
220817A00047	8/17/2022	3.29	8/17/2027	108.47271	105.7000269	103.0128898	100.408104	97.88261531	95.43350567	93.05798606	90.75338956	88.51716509
220819A00034	8/19/2022	3.73	8/19/2032	125.37791	117.1239412	109.4909739	102.428619	95.89084646	89.83558083	84.22434181	79.02191863	74.19607572

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
220823A00002	8/23/2022	3.38	8/23/2027	108.77304	105.9799054	103.2733239	100.6500421	98.10695608	95.64110096	93.24964369	90.92987596	88.67920772
220823A00009	8/23/2022	3.52	8/23/2027	108.93143	106.1411258	103.4371657	100.8163106	98.2754672	95.81168094	93.42212822	91.10410969	88.85504375
220823A00015	8/23/2022	3.78	8/30/2032	125.84951	117.5476307	109.8720869	102.7719104	96.20055184	90.11547373	84.47778412	79.25190549	74.40527543
220824A00011	8/24/2022	3.7	8/22/2025	102.2821	101.5470012	100.8224765	100.1083032	99.40426042	98.71013336	98.02571337	97.35079758	96.68518876
220825A00006	8/25/2022	3.56	8/25/2027	109.05999	106.2624758	103.5516492	100.9242534	98.37717826	95.90745306	93.51223931	91.1888236	88.93461104
220825A00022	8/25/2022	3.68	8/25/2025	102.29321	101.5498434	100.8172893	100.0953132	99.38368711	98.68218937	97.99060464	97.30872368	96.63634307
220826A00033	8/26/2022	3.73	8/26/2025	102.33907	101.5927789	100.8573765	100.1326298	99.41830817	98.71418773	98.02005086	97.33568614	96.66088806
220829A00048	8/29/2022	3.75	2/25/2025	100.74767	100.5061867	100.2658583	100.0266811	99.78864687	99.55174738	99.31597455	99.08132036	98.84777686
220829A00057	8/29/2022	3.67	8/31/2026	105.87189	104.0986574	102.3637586	100.6660143	99.00429582	97.37752061	95.78464999	94.22468677	92.69667314
220830A00055	8/30/2022	3.7	8/30/2029	116.54658	111.5699185	106.8390178	102.3403451	98.06119495	93.9896306	90.11443268	86.42505179	82.91156451
220830A00093	11/16/2022	3.69	11/16/2029	117.19318	111.9839537	107.0423765	102.3532592	97.90235214	93.67628301	89.66249866	85.84921061	82.22534454
220831A00079	8/31/2022	3.79	8/29/2025	102.4105	101.6556807	100.9119978	100.1792015	99.45705401	98.74532432	98.04378805	97.35222723	96.67043009
220901A00033	9/1/2022	3.72	9/1/2027	109.56919	106.7454728	104.0096884	101.358517	98.78879154	96.29748739	93.88171504	91.53871271	89.26583969
220901A00035	9/1/2022	3.82	9/1/2028	113.53539	109.6342702	105.8906243	102.297167	98.84699828	95.53357915	92.35070989	89.29251037	86.3534013
220906A00046	9/6/2022	3.79	9/7/2027	109.82416	106.9800661	104.2249851	101.5555654	98.9686099	96.46106354	94.03000606	91.67264489	89.38630854
220907A00010	9/7/2022	3.9	9/9/2032	127.55724	119.1329722	111.3461141	104.1446527	97.48109552	91.31205113	85.59785424	80.3022271	75.39197334
220907A00023	9/7/2022	3.76	9/8/2026	106.11189	104.3142025	102.5557872	100.8354633	99.15209921	97.50460777	95.89194382	94.31310235	92.76711648
220912A00044	11/15/2022	3.85	11/14/2025	103.17829	102.20923	101.2584013	100.3252968	99.40942361	98.51030691	97.62748932	96.76052995	95.90900369
220912A00046	11/15/2022	3.85	11/14/2025	103.17829	102.20923	101.2584013	100.3252968	99.40942361	98.51030691	97.62748932	96.76052995	95.90900369
220912A00050	11/15/2022	3.76	11/15/2027	110.41733	107.3743451	104.4324036	101.5875938	98.83617731	96.17458127	93.59938979	91.10733625	88.69529586
220912A00051	11/15/2022	3.76	11/15/2027	110.41733	107.3743451	104.4324036	101.5875938	98.83617731	96.17458127	93.59938979	91.10733625	88.69529586
220913A00017	9/13/2022	3.98	9/14/2026	106.56991	104.7512589	102.9726369	101.2328627	99.53080068	97.86535832	96.23548402	94.64016523	93.07842665
220913A00018	9/13/2022	3.91	9/13/2027	110.22194	107.3554082	104.5790181	101.8893911	99.2832981	96.75765152	94.30949846	91.93601366	89.63449308
220915A00035	9/15/2022	4.2	3/17/2025	101.05947	100.7622581	100.4668044	100.173097	99.88112028	99.59085897	99.30229782	99.01542183	98.73021617
220915A00040	9/15/2022	4.16	9/15/2025	102.86039	102.0571339	101.2664489	100.4880446	99.72163604	98.96694691	98.22370948	97.49166409	96.77055888
220916A00018	9/16/2022	4.07	9/16/2027	110.0533	107.3421044	104.7163611	102.1728833	99.70862131	97.32065635	95.0061937	92.76255693	90.58718213
220916A00021	9/16/2022	4.17	9/16/2027	105.59984	104.1104361	102.6568362	101.2378785	99.85245122	98.49948724	97.17796223	95.88689239	94.62533257
220916A00042	9/16/2022	4.07	9/16/2030	122.44841	116.2288227	110.3735059	104.8590975	99.66385417	94.76753312	90.15128062	85.79752954	81.68990491
220916A00043	9/16/2022	4.07	9/16/2031	125.70912	118.3570688	111.4992695	105.0996582	99.12499387	93.54461908	88.33024607	83.45576177	78.8970497
220916A00045	9/16/2022	4.1	9/16/2032	129.18219	120.6761345	112.8138419	105.5427484	98.81485799	92.58632022	86.81705124	81.4703919	76.5127983
220919A00033	9/19/2022	4	9/17/2027	110.51754	107.6355797	104.8445272	102.1409868	99.52170714	96.98357842	94.52362535	92.13900027	89.82697685
220919A00036	9/19/2022	4.11	9/19/2029	118.07341	113.1566186	108.484444	104.0433269	99.82053036	95.80408609	91.98274416	88.34592622	84.883682
220920A00024	9/20/2022	4.25	9/19/2025	102.97376	102.1590321	101.3572313	100.568048	99.79118539	99.0263562	98.27328192	97.53169263	96.80132661

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
220920A00025	9/20/2022	4.23	9/18/2026	107.06707	105.2326016	103.4387088	101.6842045	99.96794917	98.28884567	96.64583698	95.03790449	93.46406626
220920A00026	9/20/2022	4.1	9/20/2027	110.8325	107.9376134	105.1342474	102.4189884	99.78856727	97.23985647	94.76986276	92.37572064	90.05468606
220921A00014	9/21/2022	4.08	9/21/2027	110.78681	107.8897537	105.0843741	102.3672504	99.73510906	97.18481803	94.71337955	92.3179236	89.99570152
220921A00069	9/21/2022	3.98	9/21/2027	110.7394	107.8377314	105.0279992	102.3067702	99.67075803	97.1168187	94.64194304	92.24325024	89.91798149
220921A00074	9/21/2022	3.98	9/21/2027	110.7394	107.8377314	105.0279992	102.3067702	99.67075803	97.1168187	94.64194304	92.24325024	89.91798149
220929A00041	9/29/2022	4.38	9/29/2027	111.73022	108.7970614	105.957266	103.2073605	100.5440221	97.96406913	95.46445416	93.04225768	90.69468199
220929A00043	9/29/2022	4.44	9/28/2029	120.41088	115.2596391	110.3653923	105.7139409	101.2919413	97.08685056	93.08687503	89.28092143	85.65855193
220929A00063	9/29/2022	4.38	9/29/2027	111.73022	108.7970614	105.957266	103.2073605	100.5440221	97.96406913	95.46445416	93.04225768	90.69468199
221005A00041	10/5/2022	4.3	10/5/2027	111.56897	108.621681	105.7687083	103.0065299	100.3317759	97.7412198	95.23177191	92.80047242	90.44448539
221006A00012	10/6/2022	4.37	10/6/2027	111.78123	108.8281481	105.9696255	103.2021284	100.5222755	97.92683021	95.41269259	92.97689347	90.61658797
221007A00003	10/7/2022	4.67	10/7/2025	103.52263	102.656014	101.8039595	100.966097	100.1420733	99.33154714	98.53418825	97.74967708	96.9777044
221011A00036	10/11/2022	4.59	10/6/2026	107.94226	106.0496241	104.1998058	102.3915821	100.6237758	98.89525061	97.2049094	95.55169244	93.93457599
221011A00122	10/11/2022	4.64	12/11/2024	100.12305	100.092462	100.0619121	100.0313973	100.0009174	99.97047245	99.94006233	99.909687	99.87934638
221014A00026	10/14/2022	4.63	10/14/2027	112.62453	109.6373502	106.7463768	103.9479967	101.2387486	98.61531958	96.07453843	93.61336819	91.22890003
221014A00027	10/14/2022	4.63	10/14/2027	112.62453	109.6373502	106.7463768	103.9479967	101.2387486	98.61531958	96.07453843	93.61336819	91.22890003
221014A00032	10/14/2022	4.67	10/14/2027	111.9879	109.1716012	106.4461202	103.8079868	101.2538852	98.78064546	96.385236	94.06475668	91.81643235
221014A00043	10/14/2022	4.49	10/14/2027	112.46223	109.4719093	106.5780308	103.7769679	101.0652468	98.43954305	95.89667441	93.43359357	91.04738191
221014A00050	10/14/2022	4.49	10/14/2027	112.46223	109.4719093	106.5780308	103.7769679	101.0652468	98.43954305	95.89667441	93.43359357	91.04738191
221018A00006	10/18/2022	4.55	10/18/2027	112.44011	109.4446569	106.5460335	103.7405833	101.0248112	98.39537278	95.84906664	93.38282772	90.99372063
221018A00007	10/18/2022	4.68	10/18/2027	106.69049	105.1146341	103.577689	102.0783781	100.6154748	99.18780221	97.79423091	96.43367633	95.1050968
221018A00030	10/18/2022	4.71	10/17/2025	103.67477	102.779996	101.9007235	101.0365538	100.1870995	99.35198632	98.53085249	97.72334844	96.92913615
221018A00031	10/18/2022	4.71	10/17/2025	103.67477	102.779996	101.9007235	101.0365538	100.1870995	99.35198632	98.53085249	97.72334844	96.92913615
221018A00047	10/18/2022	4.78	10/20/2025	103.77289	102.8693948	101.9816954	101.1093783	100.2520452	99.40931177	98.58080662	97.76617089	96.9650577
221018A00048	10/18/2022	4.71	10/19/2026	108.32691	106.3953164	104.5081353	102.6640828	100.8619178	99.10044335	97.37850418	95.69498537	94.04881046
221018A00049	10/18/2022	4.59	10/18/2027	112.55637	109.5592196	106.6589385	103.8518709	101.1345205	98.50354137	95.95573107	93.48802335	91.0974817
221019A00008	10/19/2022	4.8	10/17/2025	103.75479	102.859627	101.9799737	101.1154279	100.265602	99.43012149	98.60862473	97.800762	97.00619518
221019A00009	10/19/2022	4.8	10/17/2025	103.75479	102.859627	101.9799737	101.1154279	100.265602	99.43012149	98.60862473	97.800762	97.00619518
221020A00046	10/20/2022	4.95	1/21/2025	100.6144	100.4698814	100.3257927	100.1821309	100.038894	99.89608026	99.75368765	99.6117143	99.47015835
221025A00027	10/25/2022	4.57	10/25/2027	112.58124	109.5645421	106.6459181	103.8216482	101.0881724	98.44208499	95.88012711	93.39917931	90.99625495
221027A00009	10/27/2022	4.68	10/27/2025	103.76493	102.8422302	101.9359939	101.0457828	100.1711741	99.31175949	98.46714502	97.63695017	96.82080739
221027A00050	10/27/2022	4.52	10/27/2027	112.45839	109.4380151	106.5160168	103.6886541	100.9523501	98.30368352	95.73938042	93.25630743	90.85146477
221027A00056	4/25/2023	4.48	4/25/2030	122.86498	117.0563898	111.5670439	106.377644	101.4701569	96.82772525	92.43458484	88.27598858	84.33813571
221027A00060	12/1/2022	4.46	12/1/2027	112.69482	109.5726054	106.5552299	103.6385795	100.8187273	98.09192261	95.45458214	92.90328131	90.43474631

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
221027A00061	12/15/2022	4.45	12/15/2027	112.82831	109.6654892	106.6098231	103.6570613	100.8031526	98.04422999	95.37660087	92.79673816	90.30127182
221027A00062	12/15/2022	4.45	12/15/2027	112.82831	109.6654892	106.6098231	103.6570613	100.8031526	98.04422999	95.37660087	92.79673816	90.30127182
221027A00063	12/15/2022	4.45	12/15/2027	112.82831	109.6654892	106.6098231	103.6570613	100.8031526	98.04422999	95.37660087	92.79673816	90.30127182
221031A00004	10/31/2022	4.79	10/28/2025	103.87775	102.9517408	102.0422965	101.148977	100.2713554	99.4090201	98.56157361	97.72863217	96.90982513
221031A00033	10/31/2022	4.74	10/31/2025	103.86732	102.9331026	102.0157432	101.1147863	100.2297944	99.36034546	98.50603208	97.6664611	96.84125286
221031A00035	10/31/2022	4.67	10/30/2026	108.38551	106.423447	104.507131	102.6352136	100.8063998	99.01944097	97.27313295	95.56631399	93.8978631
221031A00036	10/31/2022	4.59	10/29/2027	112.68741	109.6581698	106.7277365	103.8923445	101.1483963	98.49245055	95.92121488	93.4315383	91.02040441
221031A00042	10/31/2022	4.73	10/30/2026	108.50148	106.5382759	104.6208327	102.7478095	100.9179106	99.12988701	97.3825338	95.67468879	94.00523045
221031A00045	10/31/2022	4.79	10/31/2025	103.91371	102.9792571	102.0616679	101.1604842	100.2752682	99.40559794	98.55106598	97.71127909	96.88585754
221102A00012	11/2/2022	4.82	11/3/2025	103.97887	103.0358572	102.1100135	101.2008701	100.3079774	99.43090195	98.56922548	97.7225444	96.89046911
221102A00026	11/2/2022	4.66	11/2/2027	112.94193	109.8977938	106.9532683	104.1045432	101.3479799	98.68009842	96.09757003	93.59720943	91.17596782
221107A00029	11/7/2022	4.83	11/9/2026	108.82415	106.8298292	104.8826152	102.9811071	101.1239534	99.30985197	97.53754758	95.80582995	94.11353181
221107A00030	11/7/2022	4.7	11/5/2027	113.09727	110.0423626	107.0876702	104.2293494	101.4637299	98.78730229	96.19670978	93.6887408	91.26032177
221107A00048	11/7/2022	4.96	9/8/2025	103.41487	102.6284068	101.8539506	101.0912261	100.3399677	99.5999176	98.87082594	98.15245013	97.44455471
221107A00053	11/7/2022	4.95	10/7/2025	103.76383	102.8960871	102.0429163	101.2039505	100.3788365	99.5672325	98.76880813	97.98324358	97.21022939
221107A00056	11/7/2022	4.73	11/8/2027	113.22362	110.1583647	107.1939139	104.3263973	101.5521132	98.86752271	96.26924141	93.75403153	91.31879488
221108A00033	11/8/2022	4.7	11/8/2027	113.13469	110.070757	107.1075981	104.2413414	101.4682864	98.78489536	96.18778461	93.67371738	91.23959636
221108A00036	11/8/2022	4.95	11/7/2025	104.15176	103.1968812	102.2595887	101.3393974	100.4358415	99.54847212	98.67685619	97.82057609	96.97922886
221110A00024	11/10/2022	4.51	11/10/2025	103.7698	102.8086368	101.8653432	100.9394197	100.0303891	99.13779128	98.26118279	97.40013602	96.55423851
221110A00025	11/10/2022	4.39	11/10/2026	107.97325	105.9846827	104.0431866	102.1473602	100.2958511	98.48735622	96.72061942	94.99442974	93.30761925
221110A00026	11/10/2022	4.29	11/10/2027	111.94197	108.8901848	105.9390972	103.0848294	100.3236749	97.65209051	95.06668794	92.56422617	90.14160418
221110A00038	11/10/2022	4.34	11/10/2027	112.09047	109.0364651	106.0832168	103.2268416	100.4636312	97.79004087	95.20268062	92.6983079	90.27382022
221110A00039	11/10/2022	4.34	11/10/2027	112.09047	109.0364651	106.0832168	103.2268416	100.4636312	97.79004087	95.20268062	92.6983079	90.27382022
221110A00064	1/17/2023	4.25	1/14/2028	112.54901	109.3080533	106.1791329	103.1577155	100.2394773	97.42029614	94.69624061	92.06355999	89.51867464
221110A00065	1/17/2023	4.25	1/14/2028	112.54901	109.3080533	106.1791329	103.1577155	100.2394773	97.42029614	94.69624061	92.06355999	89.51867464
221110A00075	11/10/2022	4.56	11/10/2025	103.81757	102.8561597	101.9126235	100.9864606	100.0771936	99.18436233	98.30752337	97.44624901	96.60012673
221110A00076	11/10/2022	4.45	11/10/2026	108.09105	106.1012982	104.1586408	102.2616752	100.4090486	98.59945707	96.83164408	95.10439804	93.41655052
221110A00084	11/10/2022	4.56	11/6/2025	103.77067	102.8204836	101.8877538	100.972003	100.07277	99.18961008	98.32209447	97.46980945	96.63235584
221110A00086	11/10/2022	4.34	11/8/2027	112.0675	109.0194653	106.0718078	103.2206705	100.4623656	97.79336716	95.21030306	92.70994758	90.28921406
221110A00108	11/10/2022	4.48	12/10/2025	104.09258	103.0472119	102.0229206	101.0190687	100.0350476	99.07027297	98.12418307	97.19623794	96.28591826
221110A00110	11/10/2022	4.47	1/13/2026	104.49857	103.3571013	102.2406721	101.1484613	100.0796857	99.03359545	98.00947251	97.00662887	96.02440504
221114A00002	11/14/2022	4.37	11/15/2027	112.23739	109.1671226	106.198583	103.3278334	100.551114	97.86483096	95.26554863	92.74998124	90.31498565
221116A00027	11/16/2022	4.46	11/14/2025	103.76781	102.7956835	101.8418303	100.9057408	99.98692106	99.08489565	98.19920631	97.32941137	96.47508496

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
221117A00012	11/17/2022	4.54	11/14/2025	103.84513	102.8725955	101.9183456	100.9818646	100.0626584	99.16025155	98.27418559	97.40401877	96.54932513
221117A00013	11/17/2022	4.54	11/14/2025	103.84513	102.8725955	101.9183456	100.9818646	100.0626584	99.16025155	98.27418559	97.40401877	96.54932513
221117A00014	11/17/2022	4.54	11/14/2025	103.84513	102.8725955	101.9183456	100.9818646	100.0626584	99.16025155	98.27418559	97.40401877	96.54932513
221117A00025	11/17/2022	4.28	11/17/2027	111.99149	108.9192842	105.9490825	103.0769283	100.2990446	97.61182142	95.011808	92.49570443	90.06035431
221118A00018	11/18/2022	4.55	11/18/2025	103.90157	102.9177515	101.952634	101.0056851	100.0763943	99.16427005	98.26883905	97.38964521	96.52624896
221118A00019	11/18/2022	4.55	11/18/2025	103.90157	102.9177515	101.952634	101.0056851	100.0763943	99.16427005	98.26883905	97.38964521	96.52624896
221118A00023	11/18/2022	4.12	11/18/2027	111.77439	108.6968597	105.7217454	102.8450727	100.0630413	97.37201976	94.76853659	92.24927268	89.8110535
221118A00045	11/18/2022	4.57	11/18/2025	103.92112	102.9371982	101.9719795	101.0249305	100.095541	99.18331935	98.28779218	97.4085034	96.54501341
221118A00046	11/18/2022	4.4	11/18/2026	108.08711	106.0750546	104.1111424	102.1939178	100.3219833	98.49399294	96.70864986	94.96470427	93.26095138
221118A00080	11/18/2022	4.61	11/18/2025	103.96022	102.9760917	102.0106703	101.0634214	100.1338344	99.22141794	98.32569844	97.44621978	96.5825423
221121A00047	11/21/2022	4.89	11/21/2033	139.20156	129.0960389	119.8465523	111.3749363	103.6105855	96.48968201	89.95450994	83.95284171	78.4373895
221121A00052	11/21/2022	4.35	11/22/2027	112.25828	109.1679863	106.1807215	103.2924706	100.4994024	97.79785657	95.18433456	92.65549159	90.20812898
221121A00064	11/21/2022	4.34	11/22/2027	112.22825	109.1384093	106.1515861	103.2637657	100.4711175	97.76998132	95.15685904	92.62840618	90.18142438
221122A00029	11/22/2022	4.31	11/22/2027	112.13816	109.0496784	106.0641798	103.1776511	100.3862627	97.68635558	95.07443249	92.54714996	90.10131055
221122A00040	11/22/2022	4.31	11/22/2027	112.13816	109.0496784	106.0641798	103.1776511	100.3862627	97.68635558	95.07443249	92.54714996	90.10131055
221123A00016	11/23/2022	4.58	11/23/2029	121.01246	115.8400933	110.9325814	106.2747912	101.8525408	97.65253213	93.66229041	89.87010907	86.26499817
221123A00034	11/23/2022	4.43	11/23/2026	108.20597	106.1787313	104.2003159	102.2692387	100.3840732	98.54344624	96.74603476	94.99056421	93.27580618
221123A00039	11/23/2022	4.29	11/23/2027	112.08944	108.998882	106.0114702	103.1231847	100.3301863	97.62880699	95.01554112	92.48703727	90.04009055
221128A00034	11/28/2022	4.27	11/26/2027	112.06319	108.9645828	105.9696694	103.0743962	100.2748937	97.56746544	94.94857896	92.41485774	89.96307328
221129A00034	11/29/2022	4.38	12/1/2025	103.9633	102.9422298	101.9412727	100.9598346	99.99734812	99.05326749	98.12706784	97.21824409	96.32631002
221129A00035	11/29/2022	4.09	11/29/2027	111.80596	108.6969324	105.6923839	102.7882122	99.9805039	97.2655214	94.63969366	92.09960779	89.64200112
221129A00037	11/29/2022	4.56	11/26/2025	104.00511	102.9987405	102.0119153	101.0440647	100.0946445	99.1631311	98.24902069	97.35182811	96.47108613
221129A00038	11/29/2022	4.56	11/26/2025	104.00511	102.9987405	102.0119153	101.0440647	100.0946445	99.1631311	98.24902069	97.35182811	96.47108613
221129A00039	11/29/2022	4.56	11/26/2025	104.00511	102.9987405	102.0119153	101.0440647	100.0946445	99.1631311	98.24902069	97.35182811	96.47108613
221129A00040	11/29/2022	4.56	11/26/2025	104.00511	102.9987405	102.0119153	101.0440647	100.0946445	99.1631311	98.24902069	97.35182811	96.47108613
221129A00041	11/29/2022	4.56	11/28/2025	104.02855	103.0165492	102.0243058	101.0512398	100.0967985	99.16045023	98.24168337	97.34000542	96.45494218
221129A00042	11/29/2022	4.56	11/28/2025	104.02855	103.0165492	102.0243058	101.0512398	100.0967985	99.16045023	98.24168337	97.34000542	96.45494218
221129A00043	11/29/2022	4.59	12/1/2025	104.09475	103.0741393	102.0736067	101.092563	100.1304422	99.18669993	98.26081256	97.3522762	96.46060577
221129A00044	11/29/2022	4.56	11/28/2025	104.02855	103.0165492	102.0243058	101.0512398	100.0967985	99.16045023	98.24168337	97.34000542	96.45494218
221129A00045	11/29/2022	4.56	11/28/2025	104.02855	103.0165492	102.0243058	101.0512398	100.0967985	99.16045023	98.24168337	97.34000542	96.45494218
221129A00046	11/29/2022	4.56	12/1/2025	104.06435	103.0439033	102.0435337	101.0626508	100.1006886	99.15710279	98.23136982	97.32298582	96.43146577
221129A00047	11/29/2022	4.56	12/1/2025	104.06435	103.0439033	102.0435337	101.0626508	100.1006886	99.15710279	98.23136982	97.32298582	96.43146577
221129A00048	11/29/2022	4.56	12/1/2025	104.06435	103.0439033	102.0435337	101.0626508	100.1006886	99.15710279	98.23136982	97.32298582	96.43146577

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
221129A00049	11/29/2022	4.56	12/1/2025	104.06435	103.0439033	102.0435337	101.0626508	100.1006886	99.15710279	98.23136982	97.32298582	96.43146577
221129A00050	11/29/2022	4.56	12/2/2025	104.07671	103.053451	102.0503747	101.066891	100.1024292	99.15644067	98.2283976	97.31779215	96.42413549
221129A00051	11/29/2022	4.56	12/2/2025	104.07671	103.053451	102.0503747	101.066891	100.1024292	99.15644067	98.2283976	97.31779215	96.42413549
221129A00052	11/29/2022	4.56	12/2/2025	104.07671	103.053451	102.0503747	101.066891	100.1024292	99.15644067	98.2283976	97.31779215	96.42413549
221129A00053	11/29/2022	4.56	12/2/2025	104.07671	103.053451	102.0503747	101.066891	100.1024292	99.15644067	98.2283976	97.31779215	96.42413549
221129A00054	11/29/2022	4.56	12/3/2025	104.08908	103.0629981	102.0572146	101.0711298	100.1041683	99.15577705	98.22542398	97.31259727	96.41680431
221129A00055	11/29/2022	4.56	12/3/2025	104.08908	103.0629981	102.0572146	101.0711298	100.1041683	99.15577705	98.22542398	97.31259727	96.41680431
221129A00056	11/29/2022	4.31	11/29/2027	112.21794	109.1085415	106.1034502	103.1985812	100.3900322	97.67407601	95.04715143	92.50585468	90.04693166
221129A00059	11/29/2022	4.39	11/27/2026	108.17299	106.1349123	104.1461726	102.2052694	100.3107539	98.46123123	96.65535802	94.89184033	93.16943131
221129A00060	11/29/2022	4.39	11/27/2026	108.17299	106.1349123	104.1461726	102.2052694	100.3107539	98.46123123	96.65535802	94.89184033	93.16943131
221129A00061	11/29/2022	4.39	11/27/2026	108.17299	106.1349123	104.1461726	102.2052694	100.3107539	98.46123123	96.65535802	94.89184033	93.16943131
221129A00062	11/29/2022	4.39	11/27/2026	108.17299	106.1349123	104.1461726	102.2052694	100.3107539	98.46123123	96.65535802	94.89184033	93.16943131
221129A00064	11/29/2022	4.28	11/30/2027	112.13859	109.0275756	106.0210278	103.114848	100.3051249	97.58812254	94.96027144	92.41816019	89.95852748
221129A00065	11/29/2022	4.28	11/30/2027	112.13859	109.0275756	106.0210278	103.114848	100.3051249	97.58812254	94.96027144	92.41816019	89.95852748
221129A00066	11/29/2022	4.28	11/29/2027	112.12727	109.0192494	106.0154995	103.1119382	100.3046646	97.58995254	94.96424169	92.42412933	89.96636228
221129A00067	11/29/2022	4.28	11/29/2027	112.12727	109.0192494	106.0154995	103.1119382	100.3046646	97.58995254	94.96424169	92.42412933	89.96636228
221129A00068	11/29/2022	4.28	11/29/2027	112.12727	109.0192494	106.0154995	103.1119382	100.3046646	97.58995254	94.96424169	92.42412933	89.96636228
221129A00069	11/29/2022	4.28	11/26/2027	112.09333	108.9942667	105.9989086	103.1032018	100.3032764	97.59543554	94.97614655	92.44203256	89.98986472
221129A00070	11/29/2022	4.28	11/26/2027	112.09333	108.9942667	105.9989086	103.1032018	100.3032764	97.59543554	94.97614655	92.44203256	89.98986472
221129A00071	11/29/2022	4.28	11/26/2027	112.09333	108.9942667	105.9989086	103.1032018	100.3032764	97.59543554	94.97614655	92.44203256	89.98986472
221129A00072	11/29/2022	4.39	12/2/2026	108.23152	106.1789982	104.1764435	102.222322	100.3151576	98.45352976	96.63607073	94.8614634	93.12843891
221129A00073	11/29/2022	4.39	12/2/2026	108.23152	106.1789982	104.1764435	102.222322	100.3151576	98.45352976	96.63607073	94.8614634	93.12843891
221129A00075	11/29/2022	4.38	12/1/2026	108.19967	106.1501976	104.150581	102.1992888	100.2948499	98.43584837	96.62092101	94.84875488	93.11808514
221129A00076	11/29/2022	4.38	12/1/2026	108.19967	106.1501976	104.150581	102.1992888	100.2948499	98.43584837	96.62092101	94.84875488	93.11808514
221129A00077	11/29/2022	4.38	12/1/2026	108.19967	106.1501976	104.150581	102.1992888	100.2948499	98.43584837	96.62092101	94.84875488	93.11808514
221129A00078	11/29/2022	4.38	12/1/2026	108.19967	106.1501976	104.150581	102.1992888	100.2948499	98.43584837	96.62092101	94.84875488	93.11808514
221129A00083	11/29/2022	4.38	11/30/2026	108.18806	106.1414273	104.144543	102.1958785	100.2939675	98.43739865	96.62481308	94.85490196	93.12640434
221129A00084	11/29/2022	4.38	11/30/2026	108.18806	106.1414273	104.144543	102.1958785	100.2939675	98.43739865	96.62481308	94.85490196	93.12640434
221129A00085	11/29/2022	4.38	11/30/2026	108.18806	106.1414273	104.144543	102.1958785	100.2939675	98.43739865	96.62481308	94.85490196	93.12640434
221129A00086	11/29/2022	4.38	11/30/2026	108.18806	106.1414273	104.144543	102.1958785	100.2939675	98.43739865	96.62481308	94.85490196	93.12640434
221130A00019	11/30/2022	4.63	11/26/2025	104.07508	103.0683348	102.0811392	101.1129232	100.1631425	99.2312734	98.31681192	97.41927284	96.53818884
221130A00032	11/30/2022	4.37	11/30/2027	112.41084	109.2956924	106.2851133	103.3750031	100.5614471	97.84070602	95.20920745	92.663537	90.20043052
221130A00033	11/30/2022	4.37	11/30/2027	112.41084	109.2956924	106.2851133	103.3750031	100.5614471	97.84070602	95.20920745	92.663537	90.20043052

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
221130A00041	11/30/2022	4.95	12/2/2024	100.02967	100.0241104	100.0185514	100.0129973	100.0074482	100.0019041	99.99636499	99.99083081	99.98530159
221130A00069	11/30/2022	4.15	11/30/2027	111.99872	108.8839437	105.8739036	102.9644876	100.1517695	97.4319999	94.80159632	92.25713528	89.79534404
221130A00075	11/30/2022	4.15	11/30/2027	111.99872	108.8839437	105.8739036	102.9644876	100.1517695	97.4319999	94.80159632	92.25713528	89.79534404
221130A00076	11/30/2022	4.15	11/30/2027	111.99872	108.8839437	105.8739036	102.9644876	100.1517695	97.4319999	94.80159632	92.25713528	89.79534404
221130A00078	11/30/2022	4.15	11/30/2027	111.99872	108.8839437	105.8739036	102.9644876	100.1517695	97.4319999	94.80159632	92.25713528	89.79534404
221130A00081	11/30/2022	4.15	11/30/2027	111.99872	108.8839437	105.8739036	102.9644876	100.1517695	97.4319999	94.80159632	92.25713528	89.79534404
221130A00085	11/30/2022	4.19	11/30/2027	111.86634	108.7594588	105.7569422	102.8546929	100.0488028	97.33553906	94.71133542	92.17278338	89.71662444
221130A00110	11/30/2022	4.15	11/30/2027	111.74533	108.6402958	105.6395709	102.7390684	99.9348818	97.22327974	94.60069719	92.06372702	89.60911198
221201A00009	12/1/2022	4.22	12/1/2025	103.80109	102.7809021	101.7808155	100.8002361	99.8385966	98.8953516	97.96997646	97.06196635	96.17083528
221201A00011	12/1/2022	3.95	12/1/2027	111.40353	108.2950615	105.2912613	102.3880151	99.58139557	96.86765198	94.2432011	91.70461872	89.24863158
221201A00037	12/1/2022	4.26	12/1/2026	107.95711	105.9101513	103.9129926	101.9641105	100.0620354	98.20535257	96.39270008	94.6227662	92.89428722
221201A00043	12/1/2022	4.37	12/3/2029	111.22856	108.3792995	105.6399133	103.0051995	100.4702455	98.03040587	95.68128549	93.41872481	91.23878541
221201A00068	12/1/2022	4.21	12/1/2027	111.15577	108.2452334	105.4317917	102.7115992	100.0809885	97.53646028	95.07467413	92.69244029	90.38671192
221202A00013	12/2/2022	4.78	12/3/2024	100.03951	100.0311612	100.0228243	100.0144952	100.0061737	99.99785991	99.98955381	99.98125538	99.9729646
221202A00018	12/2/2022	4.16	12/2/2027	111.79738	108.6860737	105.6794172	102.7733037	99.96380855	97.24718361	94.61984807	92.07837996	89.61950812
221202A00025	12/2/2022	4.06	12/2/2026	107.72958	105.6791235	103.6786657	101.7266678	99.82165142	97.96219347	96.14692408	94.37452405	92.64372263
221205A00024	12/5/2022	4.13	12/3/2027	111.71728	108.6044534	105.5964054	102.6890214	99.87836911	97.16069315	94.53240602	91.99007949	89.53043651
221205A00048	12/5/2022	4.4	12/5/2025	103.9499	102.9190816	101.9087694	100.9183563	99.94725781	98.99491214	98.06077909	97.14433905	96.24509203
221205A00088	12/5/2022	4.13	12/3/2027	111.71728	108.6044534	105.5964054	102.6890214	99.87836911	97.16069315	94.53240602	91.99007949	89.53043651
221206A00011	12/6/2022	4.29	12/7/2026	108.08593	106.0213106	104.0071642	102.0419368	100.1241291	98.25229838	96.42505626	94.64106592	92.89903995
221206A00025	12/6/2022	4.27	12/4/2026	108.01125	105.9555696	103.9500243	101.9930741	100.0832345	98.21907712	96.39922668	94.62235906	92.88719878
221206A00036	12/6/2022	4.13	12/6/2027	111.74973	108.6281869	105.6119172	102.6967766	99.87880648	97.15422658	94.51942616	91.97095512	89.50551592
221206A00039	12/6/2022	4.29	12/7/2026	108.08593	106.0213106	104.0071642	102.0419368	100.1241291	98.25229838	96.42505626	94.64106592	92.89903995
221207A00009	12/7/2022	4.38	12/8/2025	103.96502	102.9258629	101.9075498	100.9094542	99.93097731	98.97154387	98.03060098	97.10761694	96.2020803
221207A00010	12/7/2022	4.08	12/7/2027	111.60833	108.4862073	105.4694635	102.5539472	99.73569275	97.01091358	94.37599283	91.82747476	89.36205659
221207A00012	12/7/2022	4.21	12/7/2026	107.92291	105.8599815	103.8474994	101.8839039	99.96769642	98.09743538	96.27173313	94.48925368	92.74871041
221207A00017	12/7/2022	3.86	12/7/2027	111.19256	108.0708507	105.0546958	102.1399241	99.32255852	96.5988019	93.96502746	91.41777019	88.95371862
221207A00032	12/7/2022	4.52	12/7/2032	132.54956	123.7136775	115.560066	108.0318272	101.0771098	94.64863369	88.70326403	83.20162782	78.10776735
221207A00035	12/7/2022	4.31	1/7/2026	104.24533	103.1219265	102.0228136	100.9472099	99.89436601	98.86356385	97.85411545	96.8653612	95.89666842
221207A00074	12/7/2022	4.66	12/6/2024	100.07035	100.0536663	100.0369973	100.020345	100.0037096	99.98709095	99.97048901	99.95390377	99.9373352
221208A00001	12/8/2022	4.6	12/8/2033	136.76788	126.7202935	117.5301968	109.1188199	101.4150482	94.35464125	87.87953463	81.93721599	76.48016695
221208A00005	12/8/2022	4.88	12/8/2037	152.60474	137.6126886	124.3608893	112.6329361	102.2406187	93.0201043	84.82865634	77.54181018	71.05093993
221208A00006	12/8/2022	4.88	12/8/2037	152.60474	137.6126886	124.3608893	112.6329361	102.2406187	93.0201043	84.82865634	77.54181018	71.05093993

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
221208A00020	12/8/2022	4.11	12/8/2027	111.71042	108.5839969	105.5631528	102.6437259	99.82174052	97.09340061	94.45508053	91.90331624	89.43479713
221208A00050	12/8/2022	4.11	12/8/2027	111.71042	108.5839969	105.5631528	102.6437259	99.82174052	97.09340061	94.45508053	91.90331624	89.43479713
221208A00051	2/15/2023	4.27	2/13/2026	104.63779	103.4099356	102.2109956	101.0399597	99.89586024	98.77777426	97.68482034	96.61615662	95.57097846
221208A00052	2/15/2023	4.01	2/15/2028	112.13855	108.8137697	105.6065875	102.5121283	99.52574959	96.64303167	93.85976495	91.17193857	88.57572951
221208A00054	2/1/2023	4.02	2/1/2028	112.01416	108.7322136	105.565197	102.5083961	99.55731901	96.70768632	93.95541985	91.29663164	88.72761373
221208A00061	12/8/2022	4.11	12/8/2027	111.71042	108.5839969	105.5631528	102.6437259	99.82174052	97.09340061	94.45508053	91.90331624	89.43479713
221208A00062	12/8/2022	4.24	12/8/2028	116.22293	111.9956503	107.94948	104.0756602	100.3659076	96.81238269	93.40766316	90.14471942	87.01689166
221208A00110	12/8/2022	4.07	12/8/2027	111.58854	108.4639783	105.4449511	102.5272954	99.70703702	96.98038146	94.34370442	91.79354322	89.32658852
221209A00035	12/9/2022	3.91	12/9/2027	111.36586	108.2360108	105.2121055	102.2899521	99.46555407	96.73509556	94.09493245	91.54158341	89.07172157
221209A00037	12/9/2022	3.91	12/9/2027	111.36586	108.2360108	105.2121055	102.2899521	99.46555407	96.73509556	94.09493245	91.54158341	89.07172157
221209A00070	12/9/2022	4.42	12/9/2037	128.57366	120.5636909	113.2473877	106.5551796	100.4251541	94.80215665	89.63699884	84.88576488	80.50920369
221212A00011	12/12/2022	3.89	12/10/2027	111.31518	108.1833641	105.1576332	102.2337872	99.40782145	96.67591248	94.03440906	91.47982317	89.00882169
221212A00040	12/12/2022	4.45	12/12/2025	104.08555	103.0347196	102.0051834	100.9962989	100.0074479	99.03803704	98.08749605	97.15527685	96.24085241
221212A00041	12/12/2022	4.15	12/10/2027	111.85405	108.7199392	105.691791	102.7654172	99.93682288	97.20219393	94.55788767	92.00042407	89.52647748
221212A00063	12/12/2022	4.45	12/12/2025	104.08555	103.0347196	102.0051834	100.9962989	100.0074479	99.03803704	98.08749605	97.15527685	96.24085241
221212A00071	12/12/2022	4.15	12/13/2027	111.88666	108.7438202	105.7074386	102.7732999	99.93738242	97.19584707	94.54502762	91.981422	89.50168384
221212A00117	6/12/2023	4.11	6/12/2026	105.77525	104.2205404	102.6966788	101.2028228	99.73815642	98.30189293	96.89327341	95.51156557	94.15606263
221212A00131	12/12/2023	3.77	12/11/2026	107.06597	105.0011334	102.9869949	101.0219849	99.10459046	97.23335625	95.40688178	93.62381903	91.88286999
221213A00004	12/13/2022	3.99	12/13/2027	111.39692	108.2616078	105.2325573	102.3055648	99.47661494	96.74187434	94.09768251	91.54054278	89.06711403
221213A00017	12/13/2022	4.1	12/14/2026	107.77462	105.6942018	103.6649617	101.6853041	99.75369712	97.86866786	96.028799	94.23272656	92.47913737
221213A00047	12/13/2022	3.8	12/13/2027	111.07054	107.9342522	104.9044396	101.9768765	99.1475348	96.41256937	93.76830854	91.21124528	88.73802867
221213A00051	12/13/2022	4.02	12/13/2027	111.48875	108.3520226	105.3215975	102.3932651	99.56300884	96.82699423	94.18155972	91.62320763	89.14859587
221213A00056	12/13/2022	4.02	5/13/2026	105.436	103.9639088	102.5198537	101.1031028	99.71294819	98.34870629	97.00971637	95.69533978	94.40495895
221213A00061	12/13/2022	4.15	12/11/2026	107.84455	105.7715564	103.7494301	101.7765884	99.85151413	97.9727475	96.138884	94.34857165	92.60050865
221214A00003	12/14/2022	4.26	12/12/2025	103.88724	102.8375113	101.809066	100.801257	99.81346668	98.84510184	97.89559262	96.96439125	96.05097102
221214A00020	12/14/2022	4.2	12/12/2025	103.82461	102.775235	101.7471342	100.7396649	99.75220945	98.78417494	97.83499154	96.90411159	95.99100848
221214A00022	12/14/2022	4.17	2/13/2026	104.51602	103.2889416	102.0907727	100.9204952	99.7771421	98.65979059	97.56755961	96.4996076	95.45513021
221214A00031	12/14/2022	3.97	12/14/2027	111.34608	108.2088093	105.1779445	102.2492706	99.41876395	96.6825837	94.03706218	91.47869607	89.00413798
221214A00077	12/14/2022	3.84	12/14/2027	111.20338	108.0623064	105.0279216	102.0959892	99.26247044	96.52351042	93.87542818	91.31470792	88.8379905
221214A00079	12/14/2022	3.84	12/14/2027	111.20338	108.0623064	105.0279216	102.0959892	99.26247044	96.52351042	93.87542818	91.31470792	88.8379905
221214A00102	12/14/2022	4.33	12/15/2025	103.99549	102.9369013	101.8999383	100.8839402	99.88827455	98.9123345	97.95553701	97.01732187	96.09715059
221215A00082	12/15/2022	4.27	12/15/2025	103.93236	102.8741331	101.8375199	100.8218665	99.82654078	98.85093594	97.89446907	96.95658006	96.03673049
221215A00115	12/15/2022	4	12/15/2027	111.44845	108.306862	105.2718867	102.3392934	99.50504812	96.76530065	94.11637436	91.55475756	89.07709496

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
221216A00007	12/16/2022	4.27	12/16/2025	103.94393	102.8828794	101.8435619	100.825312	99.82749297	98.8494932	97.8907255	96.95062561	96.02865124
221216A00008	12/16/2022	4.27	12/16/2025	103.94393	102.8828794	101.8435619	100.825312	99.82749297	98.8494932	97.8907255	96.95062561	96.02865124
221216A00009	12/16/2022	4.27	12/16/2025	103.94393	102.8828794	101.8435619	100.825312	99.82749297	98.8494932	97.8907255	96.95062561	96.02865124
221216A00010	12/16/2022	4.27	12/16/2025	103.94393	102.8828794	101.8435619	100.825312	99.82749297	98.8494932	97.8907255	96.95062561	96.02865124
221216A00013	12/16/2022	4.04	12/16/2027	111.58167	108.4352928	105.3957414	102.4587748	99.62034873	96.87660296	94.22385162	91.65857427	89.17740738
221216A00023	12/16/2022	4.04	12/13/2027	111.54997	108.4122991	105.3809577	102.451732	99.62060478	96.88374082	94.23747786	91.67831754	89.2029171
221216A00044	12/16/2022	4.43	4/16/2025	101.453	101.0721656	100.6942015	100.3190772	99.94676056	99.57722005	99.21042455	98.84634343	98.4849465
221216A00045	12/16/2022	4.38	5/16/2025	101.75477	101.2904657	100.8304145	100.3745575	99.92283708	99.47519705	99.03158209	98.59193789	98.15621114
221216A00047	12/16/2022	4.34	6/16/2025	102.05985	101.5093177	100.9647399	100.4260213	99.89306739	99.36578588	98.84408628	98.32788008	97.81708063
221216A00048	12/16/2022	4.32	7/16/2025	102.35611	101.722157	101.0960775	100.4777256	99.86695859	99.26363722	98.66762561	98.07879121	97.49700463
221216A00049	12/16/2022	4.29	8/15/2025	102.64334	101.9259752	101.2186659	100.521199	99.83336987	99.15497924	98.48583343	97.82574402	97.17452769
221219A00043	12/19/2022	4.07	12/17/2027	111.68439	108.5336916	105.4900187	102.5491222	99.7069478	96.95962561	94.30346086	91.73492469	89.25064565
221220A00024	12/20/2022	4.7	12/20/2024	100.2219	100.1663033	100.1107864	100.0553469	99.99998479	99.94469981	99.88949182	99.83436065	99.77930615
221220A00025	12/20/2022	4.38	12/22/2025	104.13116	103.0525227	101.9963073	100.9618196	99.94839312	98.95538833	97.98219144	97.02821308	96.09288704
221220A00029	12/20/2022	4.7	12/20/2024	100.2219	100.1663033	100.1107864	100.0553469	99.99998479	99.94469981	99.88949182	99.83436065	99.77930615
221221A00038	12/21/2022	4.43	12/20/2024	100.21107	100.1554424	100.0998921	100.0444198	99.98902535	99.93370855	99.87846924	99.82330724	99.76822238
221221A00043	12/21/2022	4.26	12/19/2025	103.96799	102.8985439	101.8511707	100.8251888	99.81994678	98.83481936	97.86920617	96.92253058	95.99423847
221221A00046	12/21/2022	4.33	12/19/2025	104.0424	102.9725384	101.9247489	100.8983567	99.89271025	98.907184	97.94117751	96.99411402	96.0654393
221221A00048	12/21/2022	4.22	12/21/2026	108.09966	105.9967545	103.9458628	101.9453521	99.9936545	98.08926257	96.23072652	94.41665158	92.64569543
221221A00049	12/21/2022	4.15	12/21/2027	111.97362	108.8074755	105.7491236	102.7942707	99.93882319	97.17887458	94.51069552	91.9307247	89.43556019
221221A00053	12/21/2022	4.15	12/21/2027	111.97362	108.8074755	105.7491236	102.7942707	99.93882319	97.17887458	94.51069552	91.9307247	89.43556019
221222A00012	12/22/2022	4.35	12/16/2025	104.02831	102.9667888	101.9270027	100.9082909	99.91001637	98.93156745	97.97235677	97.03181995	96.10941455
221222A00013	12/22/2022	4.34	12/23/2025	104.10006	103.0188456	101.9601625	100.9233126	99.90762462	98.91245438	97.93718375	96.98121922	96.0439907
221222A00014	12/22/2022	4.65	12/23/2024	100.25101	100.187088	100.1232581	100.0595225	99.99588117	99.93233375	99.86888008	99.80551995	99.74225315
221222A00024	12/22/2022	4.35	12/15/2025	104.01653	102.957824	101.9207445	100.9046314	99.90885248	98.93280068	97.97589298	97.03756914	96.11729062
221222A00026	12/22/2022	4.22	12/15/2026	108.03264	105.9467951	103.9122841	101.9275117	99.99094006	98.10108999	96.2565385	94.45591613	92.69790455
221222A00027	12/22/2022	4.16	12/15/2027	111.93906	108.7899294	105.7475974	102.8078331	99.96659638	97.22003108	94.5644549	91.99635066	89.51235785
221222A00035	12/30/2022	4.34	12/30/2025	104.18236	103.0813608	102.0037027	100.948645	99.91548124	98.90353439	97.91215495	96.94071975	95.98863057
221222A00053	12/22/2022	4.18	12/22/2027	111.66865	108.6025519	105.6412255	102.7804427	100.0161701	97.34456271	94.7619539	92.26484576	89.8499002
221223A00016	12/23/2022	4.73	12/23/2024	100.25615	100.1922172	100.1283831	100.0646433	100.0009977	99.93744604	99.87398815	99.81062382	99.74735282
221223A00025	12/23/2022	4.25	12/23/2027	112.30419	109.1274371	106.0589268	103.0943494	100.2295891	97.46071879	94.78398954	92.19582164	89.69279582
221228A00044	12/28/2022	4.31	12/28/2027	112.54604	109.3517636	106.2666452	103.2863243	100.4066374	97.62361221	94.93345773	92.33255465	89.81744644
221228A00075	12/28/2022	4.09	12/28/2027	112.12345	108.9296179	105.8451243	102.8655897	99.98683854	97.20488748	94.51593503	91.91635212	89.40267315

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	Parallel-Shift Sensitivity Analysis											
11/30/2024				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
221228A00129	12/28/2022	4.11	12/28/2027	111.99468	108.8475135	105.8090298	102.8748033	100.0406185	97.30245822	94.6564929	92.09907067	89.6267077
221229A00075	12/29/2022	5.2	12/29/2037	156.88695	141.5707491	128.0310695	116.0467678	105.4255665	96.00013656	87.62473151	80.17229174	73.53195074
221230A00055	12/30/2022	4.59	12/30/2024	100.32691	100.2434845	100.1601981	100.0770516	99.99404474	99.91117716	99.8284485	99.74585844	99.66340661
221230A00059	12/30/2022	4.47	6/30/2025	102.32785	101.7373135	101.1535986	100.5765868	100.0061629	99.44221462	98.88463211	98.33330797	97.78813723
221230A00072	12/30/2022	4.8	12/31/2024	100.34923	100.2630713	100.1770603	100.0911955	100.0054765	99.91990301	99.8344746	99.74919094	99.66405169
221230A00086	12/30/2022	4.8	1/2/2025	100.37243	100.2807268	100.1891946	100.0978324	100.0066398	99.91561617	99.82476115	99.73407423	99.64355495
221230A00087	12/30/2022	4.56	1/2/2026	104.4607	103.3498017	102.2626206	101.198399	100.1564142	99.13597362	98.13641303	97.15709537	96.19740928
221230A00088	12/30/2022	4.42	12/30/2026	108.62043	106.4874042	104.4075012	102.3790403	100.4004057	98.47004435	96.58646364	94.74822806	92.95395679
221230A00108	12/30/2022	4.8	12/30/2024	100.33797	100.2546009	100.1713704	100.088279	100.0053264	99.92251229	99.83983633	99.75729819	99.67489753
221230A00109	12/30/2022	4.56	12/30/2025	104.42292	103.3205233	102.2414832	101.1850637	100.150558	99.13728853	98.14460531	97.17188473	96.21852815
221230A00111	12/30/2022	4.42	12/30/2026	108.62043	106.4874042	104.4075012	102.3790403	100.4004057	98.47004435	96.58646364	94.74822806	92.95395679
230103A00066	1/3/2023	4.19	7/15/2026	106.40488	104.7516866	103.1324579	101.5462144	99.99201247	98.46894455	96.97613729	95.51274988	94.07797254
230103A00068	1/3/2023	4.69	3/13/2025	101.15878	100.8724322	100.5877169	100.3046228	100.0231358	99.74324215	99.4649283	99.18818077	98.91298625
230103A00070	1/3/2023	4.53	10/15/2025	103.4922	102.6037894	101.7306843	100.87249	100.0288262	99.19932545	98.38363255	97.58140414	96.79230819
230104A00004	1/4/2023	4.19	1/4/2028	112.25054	109.0416577	105.9429918	102.9501101	100.0587881	97.2649967	94.5648915	91.95480342	89.43122936
230104A00044	1/4/2023	4.2	1/4/2028	112.28175	109.0723835	105.9732416	102.9798961	100.088122	97.29388987	94.59335496	91.98284781	89.45886495
230105A00020	1/5/2023	4.32	1/5/2028	112.66764	109.4494874	106.3418892	103.3403977	100.4407732	97.63897261	94.93113821	92.31358828	89.78280781
230106A00017	1/6/2023	4.23	1/6/2028	112.39752	109.1808674	106.0748237	103.0749408	100.1769731	97.3768721	94.67077498	92.0549954	89.52601405
230106A00019	1/6/2023	4.23	1/6/2028	112.39752	109.1808674	106.0748237	103.0749408	100.1769731	97.3768721	94.67077498	92.0549954	89.52601405
230106A00032	1/6/2023	4.28	1/6/2026	104.28932	103.1670762	102.0690636	100.9944983	99.94263388	98.91275561	97.90417833	96.91624518	95.94832604
230109A00011	1/9/2023	4.61	1/6/2025	100.39931	100.2965281	100.1939659	100.0916231	99.98949901	99.88759293	99.78590413	99.68443186	99.58317542
230109A00027	1/9/2023	4.64	12/17/2024	100.18671	100.1394502	100.0922544	100.0451205	99.99804843	99.95103808	99.9040893	99.85720198	99.81037599
230109A00042	1/9/2023	4.07	12/20/2027	111.71634	108.5569185	105.5050246	102.5563782	99.70689785	96.9526885	94.29003163	91.71537616	89.22532977
230109A00083	1/9/2023	4.79	1/11/2038	151.73563	136.7041829	123.4297504	111.6924525	101.3012264	92.08990601	83.91385161	76.64705039	70.1796217
230110A00006	1/10/2023	4.06	1/10/2028	111.90832	108.6884097	105.5795897	102.577378	99.67749769	96.87587052	94.1686065	91.55199375	89.02248924
230110A00023	1/10/2023	4.3	1/12/2026	104.29411	103.1566356	102.0440543	100.9555583	99.89037041	98.84774646	97.82697379	96.82736949	95.84827886
230110A00035	1/10/2023	4.08	1/10/2028	111.78087	108.6086992	105.5469671	102.5911404	99.73690001	96.98013233	94.31691786	91.74352066	89.25637836
230110A00040	1/13/2023	4.07	12/13/2027	111.64179	108.502714	105.4699979	102.5394323	99.70699868	96.96886071	94.32135507	91.76098239	89.28439894
230110A00043	1/10/2023	3.84	1/10/2028	111.47997	108.2605728	105.1524447	102.1510884	99.25221495	96.45173456	93.74574651	91.13052895	88.6025295
230110A00047	1/10/2023	3.84	1/10/2028	111.47997	108.2605728	105.1524447	102.1510884	99.25221495	96.45173456	93.74574651	91.13052895	88.6025295
230110A00055	1/10/2023	4.06	1/10/2028	111.90832	108.6884097	105.5795897	102.577378	99.67749769	96.87587052	94.1686065	91.55199375	89.02248924
230110A00070	1/10/2023	4.27	1/9/2026	104.22452	103.0957255	101.9914631	100.9109364	99.85338481	98.81808015	97.80432462	96.8114494	95.83881312
230110A00074	1/12/2023	4.65	1/10/2025	100.44814	100.334253	100.2206354	100.1072893	99.99421345	99.881407	99.76886891	99.65659818	99.5445938

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	Parallel-Shift Sensitivity Analysis											
11/30/2024				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230111A00004	1/11/2023	3.83	1/11/2028	111.45875	108.2369524	105.1265853	102.1231422	99.22232467	96.42003433	93.71236233	91.09557922	88.56612551
230111A00013	1/11/2023	4.25	1/9/2026	104.2021	103.0734372	101.9693064	100.8889094	99.83148555	98.79630676	97.78267526	96.78992229	95.81740651
230111A00019	1/11/2023	3.83	1/11/2028	111.45875	108.2369524	105.1265853	102.1231422	99.22232467	96.42003433	93.71236233	91.09557922	88.56612551
230111A00039	1/11/2023	4.6	1/13/2025	100.47557	100.3533571	100.2314526	100.10986	99.98857814	99.86760568	99.74694143	99.62658417	99.50653268
230111A00046	1/11/2023	4.28	1/13/2026	104.28346	103.1432869	102.0281318	100.9371758	99.86963616	98.82476357	97.8018404	96.8001791	95.81912057
230111A00072	1/11/2023	4.21	1/12/2026	104.19247	103.0556008	101.9436202	100.8557159	99.7911108	98.74906103	97.72885412	96.72980737	95.75126628
230112A00004	1/12/2023	4	1/12/2028	111.74091	108.5181641	105.4067893	102.402277	99.50033349	96.69686478	93.9879662	91.3699122	88.83914698
230112A00014	1/12/2023	4.09	1/12/2027	108.06686	105.9044874	103.7966454	101.7415797	99.73760802	97.78311489	95.87654861	94.01641807	92.20128991
230112A00041	1/12/2023	4.2	1/12/2026	104.18118	103.0443747	101.9324609	100.8446223	99.78008195	98.73809598	97.71795194	96.71896714	95.74048711
230112A00042	1/12/2023	4.09	1/12/2027	108.06686	105.9044874	103.7966454	101.7415797	99.73760802	97.78311489	95.87654861	94.01641807	92.20128991
230112A00044	1/12/2023	4	1/12/2028	111.74091	108.5181641	105.4067893	102.402277	99.50033349	96.69686478	93.9879662	91.3699122	88.83914698
230112A00059	3/1/2023	4.04	3/2/2026	104.54625	103.2726909	102.0295325	100.8156919	99.63013637	98.47188141	97.33998779	96.23355904	95.15173904
230112A00060	3/15/2023	4.01	3/13/2026	104.63629	103.3348025	102.06119	100.8145555	99.59404184	98.39882843	97.22812919	96.08119071	94.95729059
230112A00061	3/15/2023	4.01	3/13/2026	104.63629	103.3348025	102.06119	100.8145555	99.59404184	98.39882843	97.22812919	96.08119071	94.95729059
230112A00062	3/15/2023	3.83	3/15/2028	111.85446	108.4525568	105.1735745	102.0123755	98.96406425	96.02397871	93.18767736	90.45092742	87.80969368
230112A00063	3/15/2023	3.83	3/15/2028	111.85446	108.4525568	105.1735745	102.0123755	98.96406425	96.02397871	93.18767736	90.45092742	87.80969368
230112A00065	1/12/2023	4.09	1/12/2027	108.06686	105.9044874	103.7966454	101.7415797	99.73760802	97.78311489	95.87654861	94.01641807	92.20128991
230112A00066	1/12/2023	4	1/12/2028	111.74091	108.5181641	105.4067893	102.402277	99.50033349	96.69686478	93.9879662	91.3699122	88.83914698
230113A00037	1/26/2024	3.43	1/30/2026	103.48408	102.3019878	101.1469131	100.0179328	98.91416957	97.83478513	96.77897784	95.74598095	94.73506063
230113A00055	1/13/2023	3.88	1/13/2028	111.37379	108.1541048	105.0458096	102.0443922	99.14555403	96.34519695	93.63941243	91.02447141	88.49681489
230113A00057	1/13/2023	3.99	1/13/2028	110.89605	107.8935994	104.9942113	102.1936732	99.4879786	96.87331082	94.34603292	91.90267779	89.53993897
230113A00080	1/13/2023	4.18	1/13/2026	104.17024	103.0307529	101.9162684	100.8259729	99.75908377	98.71485205	97.69256035	96.69152132	95.7110761
230117A00015	1/17/2023	4.52	1/17/2025	100.50907	100.3757486	100.2427935	100.1102064	99.97798591	99.84613036	99.71463822	99.58350794	99.452738
230117A00040	1/17/2023	4.07	1/19/2027	108.099	105.9172705	103.790913	101.7181314	99.69720471	97.72648134	95.80437524	93.92936294	92.09998049
230117A00048	1/17/2023	3.97	1/14/2028	111.6673	108.4402539	105.3248902	102.3166806	99.41131306	96.60467676	93.89285116	91.27209589	88.73884132
230117A00087	1/17/2023	3.93	1/18/2028	111.58228	108.3456647	105.2213744	102.204847	99.29173333	96.47788771	93.75935703	91.13237047	88.59332991
230118A00019	1/18/2023	3.59	1/18/2028	110.77078	107.5407343	104.4230395	101.4131215	98.5066234	95.69939293	92.98747079	90.36708056	87.83461893
230118A00020	1/18/2023	3.87	1/16/2026	103.94309	102.7953314	101.6729753	100.5751832	99.50115394	98.45012103	97.42135067	96.41414001	95.42781551
230118A00033	1/18/2023	3.81	1/18/2028	111.20308	107.9724696	104.8540288	101.8432001	98.93563924	96.12720552	93.41395051	90.79210793	88.25808394
230118A00039	1/18/2023	3.81	1/18/2028	111.20308	107.9724696	104.8540288	101.8432001	98.93563924	96.12720552	93.41395051	90.79210793	88.25808394
230118A00053	1/18/2023	3.87	1/16/2026	103.94309	102.7953314	101.6729753	100.5751832	99.50115394	98.45012103	97.42135067	96.41414001	95.42781551
230118A00056	1/18/2023	3.87	1/16/2026	103.94309	102.7953314	101.6729753	100.5751832	99.50115394	98.45012103	97.42135067	96.41414001	95.42781551
230118A00058	1/23/2023	4	2/17/2026	104.35258	103.115555	101.9079332	100.7286765	99.57679296	98.45133612	97.35140289	96.27613094	95.22469641

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230118A00087	1/18/2023	4.02	1/16/2026	104.02274	102.8758763	101.7543647	100.6573737	99.58410445	98.5337923	97.50570532	96.49914241	95.51343169
230119A00034	1/19/2023	3.82	1/19/2028	111.24461	108.0106198	104.888984	101.8751377	98.96472632	96.15359969	93.43780042	90.81355385	88.2772583
230119A00075	1/19/2023	4.44	1/21/2025	100.54079	100.396353	100.2523445	100.1087628	99.96560579	99.8228717	99.68055859	99.53866455	99.39718771
230119A00105	1/19/2023	3.9	1/19/2027	107.7324	105.5546974	103.4322857	101.3633706	99.34623353	97.37922489	95.46076081	93.58931987	91.76344007
230119A00108	1/19/2023	3.81	1/19/2028	111.21299	107.9794935	104.858346	101.8449754	98.93502752	96.12435262	93.40899371	90.7851765	88.24929967
230119A00137	1/19/2023	3.9	1/19/2027	107.7324	105.5546974	103.4322857	101.3633706	99.34623353	97.37922489	95.46076081	93.58931987	91.76344007
230120A00021	1/20/2023	4.13	1/20/2026	104.19427	103.0353286	101.9022499	100.7941695	99.71026555	98.64975183	97.61187601	96.5959177	95.60118683
230120A00022	1/20/2023	3.9	1/20/2028	111.50779	108.2668934	105.138637	102.1184359	99.20192256	96.3849343	93.66350205	91.03384009	88.49233636
230120A00027	1/20/2023	4.13	1/20/2026	104.19427	103.0353286	101.9022499	100.7941695	99.71026555	98.64975183	97.61187601	96.5959177	95.60118683
230120A00029	1/20/2023	3.9	1/20/2028	111.50779	108.2668934	105.138637	102.1184359	99.20192256	96.3849343	93.66350205	91.03384009	88.49233636
230120A00049	1/20/2023	4.53	1/16/2025	100.49956	100.3690151	100.2388242	100.1089871	99.97950234	99.85036846	99.72158397	99.5931474	99.46505731
230120A00065	1/20/2023	4.52	1/21/2025	100.55234	100.4078869	100.2638658	100.1202715	99.97710198	99.8343554	99.69202981	99.55012334	99.40863409
230120A00071	1/20/2023	4.31	1/21/2025	100.53318	100.3886363	100.2445197	100.1008315	99.95756976	99.81473246	99.6723177	99.53032357	99.38874816
230120A00079	1/20/2023	3.68	1/20/2028	111.07511	107.8347817	104.707267	101.6879731	98.7725199	95.95673299	93.23663238	90.60842217	88.06848077
230120A00099	1/20/2023	3.92	1/20/2026	104.04479	102.8853757	101.7518594	100.643379	99.55911073	98.49826662	97.46009253	96.44386642	95.44889667
230120A00103	1/20/2023	3.92	1/20/2026	104.04479	102.8853757	101.7518594	100.643379	99.55911073	98.49826662	97.46009253	96.44386642	95.44889667
230120A00114	1/20/2023	4.13	1/20/2026	104.19427	103.0353286	101.9022499	100.7941695	99.71026555	98.64975183	97.611876	96.5959177	95.60118683
230120A00117	1/20/2023	3.9	1/20/2028	111.50779	108.2668934	105.138637	102.1184359	99.20192256	96.3849343	93.66350205	91.03384009	88.49233636
230123A00016	1/23/2023	4.64	12/2/2024	100.02756	100.0219955	100.0164378	100.0108852	100.0053375	99.99979484	99.99425713	99.98872438	99.98319658
230123A00051	1/23/2023	3.75	1/21/2028	111.30696	108.0602138	104.9265495	101.9013605	98.98025397	96.15904322	93.43373693	90.80052851	88.25578625
230123A00078	1/23/2023	4.41	6/23/2025	102.17195	101.6017965	101.0380187	100.4805107	99.92916797	99.38388861	98.84457279	98.3111229	97.78344346
230124A00004	1/24/2023	3.99	1/24/2028	111.83429	108.5772785	105.4337296	102.3990127	99.46871724	96.63863991	93.90477372	91.26329737	88.71056533
230124A00014	1/24/2023	4.23	1/26/2026	104.38018	103.2035412	102.0535101	100.9291922	99.82973119	98.75430814	97.70213987	96.67247691	95.66460172
230124A00015	1/24/2023	4.09	1/25/2027	108.20664	106.0074213	103.8643183	101.7754995	99.73921023	97.75376676	95.81755293	93.92901678	92.08666747
230124A00022	1/24/2023	4.39	1/24/2025	100.57674	100.4238235	100.2713849	100.1194205	99.96792796	99.81690506	99.66634958	99.51625934	99.36663214
230124A00024	1/24/2023	4.23	1/23/2026	104.3448	103.1766598	102.0347603	100.9182212	99.8262034	98.75790418	97.71255573	96.68942304	95.68780224
230124A00025	1/24/2023	4.09	1/25/2027	108.20664	106.0074213	103.8643183	101.7754995	99.73921023	97.75376676	95.81755293	93.92901678	92.08666747
230124A00035	1/24/2023	4.23	1/26/2026	104.38018	103.2035412	102.0535101	100.9291922	99.82973119	98.75430814	97.70213987	96.67247691	95.66460172
230124A00045	1/24/2023	3.99	1/24/2028	111.83429	108.5772785	105.4337296	102.3990127	99.46871724	96.63863991	93.90477372	91.26329737	88.71056533
230124A00046	1/24/2023	3.99	1/24/2028	111.83429	108.5772785	105.4337296	102.3990127	99.46871724	96.63863991	93.90477372	91.26329737	88.71056533
230124A00055	6/15/2023	4.13	6/15/2032	127.90342	119.7344325	112.1659403	105.1502396	98.64366396	92.60622235	87.00127162	81.79521974	76.95725684
230124A00056	3/28/2023	4.19	3/28/2033	130.89023	121.8051371	113.4465164	105.7518592	98.6643518	92.1323335	86.10880399	80.55098105	75.4199018
230124A00058	6/15/2023	4.21	6/15/2034	134.86218	124.3675243	114.8164633	106.1179892	98.19035335	90.96008097	84.36109299	78.3339258	72.82503673

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	Parallel-Shift Sensitivity Analysis											
11/30/2024				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230125A00010	1/25/2023	4.01	1/25/2027	108.0328	105.8355032	103.694285	101.6073129	99.57283347	97.58916392	95.65468913	93.76785814	91.92718104
230125A00021	1/25/2023	3.95	1/26/2026	104.14683	102.9702149	101.8202438	100.6960168	99.59667561	98.5213997	97.46940423	96.43993821	95.43228266
230125A00022	1/25/2023	3.8	1/25/2027	107.75447	105.556785	103.4152636	101.3280723	99.293453	97.30971852	95.37524963	93.48849147	91.64795046
230125A00023	1/25/2023	3.69	1/25/2028	111.15587	107.9005919	104.7590226	101.7265159	98.7986422	95.97118039	93.240107	90.60158541	88.05195586
230125A00031	1/25/2023	3.74	1/25/2028	110.49388	107.4682953	104.5475471	101.7273157	99.00348751	96.37214637	93.82956236	91.3721816	88.99661665
230126A00015	1/26/2023	4.08	1/26/2027	108.19563	105.9938183	103.8482367	101.7570517	99.71850289	97.73090147	95.79262638	93.90212104	92.05789026
230126A00034	1/26/2023	4.56	1/24/2025	100.59089	100.4380799	100.2857486	100.1338896	99.98250082	99.83157995	99.68112485	99.53113334	99.38160326
230126A00036	1/26/2023	4.19	1/26/2026	104.33346	103.1571083	102.0073621	100.8833247	99.78413976	98.7089886	97.65708811	96.62768892	95.62007359
230127A00012	1/27/2023	4	1/27/2028	111.89734	108.6311183	105.4789034	102.4360323	99.49806411	96.66076756	93.92010927	91.2722433	88.71350103
230127A00044	1/27/2023	4.25	1/27/2026	104.41539	103.2357716	102.082886	100.9558339	99.85375288	98.77581869	97.72124291	96.68927119	95.67918135
230127A00045	1/27/2023	4.12	1/27/2027	108.2935	106.0878793	103.9386362	101.8439259	99.80198198	97.81110966	95.86968238	93.97613832	92.12897735
230127A00046	1/27/2023	4	1/27/2028	111.89734	108.6311183	105.4789034	102.4360323	99.49806411	96.66076756	93.92010927	91.2722433	88.71350103
230127A00048	1/27/2023	4	1/27/2028	111.89734	108.6311183	105.4789034	102.4360323	99.49806411	96.66076756	93.92010927	91.2722433	88.71350103
230127A00053	1/27/2023	4	1/27/2028	111.89734	108.6311183	105.4789034	102.4360323	99.49806411	96.66076756	93.92010927	91.2722433	88.71350103
230127A00056	1/27/2023	3.78	1/27/2028	111.4625	108.196852	105.0453895	102.0034384	99.06654511	96.23046641	93.49115782	90.84476302	88.28760371
230127A00059	1/27/2023	4.41	1/27/2025	100.61196	100.450684	100.289929	100.1296952	99.96998009	99.81078113	99.65209579	99.49392159	99.33625604
230127A00060	1/30/2023	4.25	2/3/2026	104.49756	103.2981189	102.126299	100.9811516	99.86177253	98.76729791	97.69690225	96.64979618	95.62522451
230127A00073	1/27/2023	4.24	2/17/2026	104.6475	103.408559	102.1990545	101.0179461	99.86424061	98.73699105	97.63529349	96.55828483	95.50514052
230127A00075	1/27/2023	4.23	7/28/2025	102.47179	101.8037652	101.1444621	100.4937108	99.85134559	99.21720499	98.59113161	97.97297206	97.36257682
230127A00079	1/27/2023	4.23	7/28/2025	102.47179	101.8037652	101.1444621	100.4937108	99.85134559	99.21720499	98.59113161	97.97297206	97.36257682
230127A00095	1/27/2023	4.59	1/27/2025	100.62849	100.467321	100.3066766	100.1465515	99.98694326	99.82784936	99.66926732	99.51119466	99.35362893
230127A00096	1/27/2023	4.21	1/27/2026	104.36856	103.1892296	102.0366302	100.9098598	99.80805619	98.73039511	97.67608832	96.64438154	95.6345527
230130A00045	1/30/2023	4.02	1/28/2028	111.97152	108.7013766	105.5454449	102.4990495	99.55773851	96.71727063	93.97360301	91.32288082	88.7614271
230130A00086	1/30/2023	4.16	2/1/2027	108.43642	106.2153276	104.0512645	101.9423547	99.8868022	97.88288437	95.92894834	94.02340745	92.16473807
230130A00087	1/30/2023	4.04	1/28/2028	112.03527	108.7641093	105.6071861	102.5598247	99.61757282	96.77618801	94.03162668	91.38003324	88.81772998
230130A00095	2/3/2023	4.25	5/26/2026	105.79711	104.2892241	102.8106735	101.360671	99.93846144	98.54331588	97.17453032	95.83142471	94.51334196
230130A00096	1/30/2023	4.67	1/30/2025	100.67505	100.5055057	100.3365329	100.1681278	100.0002878	99.83300978	99.66629112	99.50012898	99.33452061
230130A00127	1/30/2023	4.02	2/1/2028	112.01416	108.7322136	105.565197	102.5083961	99.55731901	96.70768632	93.95541985	91.29663164	88.72761373
230131A00004	1/31/2023	3.76	1/31/2028	111.43875	108.1625222	105.0011698	101.949971	99.00443345	96.16027735	93.41342426	90.75998603	88.1962546
230131A00006	1/31/2023	4.23	2/2/2026	104.46222	103.2657555	102.0967771	100.9543468	99.83756666	98.74557883	97.67756334	96.63273604	95.61034669
230131A00009	1/31/2023	3.98	1/31/2028	111.87513	108.5983241	105.4362036	102.3840682	99.43743829	96.59204625	93.84382482	91.18889631	88.62356239
230131A00032	2/3/2023	4.17	7/30/2026	106.40377	104.7122203	103.0559586	101.4339491	99.84519228	98.28872762	96.76363173	95.2690164	93.80402698
230131A00034	2/3/2023	3.99	12/23/2027	111.50121	108.3368967	105.2805091	102.3277466	99.47450391	96.71686365	94.05108642	91.47360158	88.98099857

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230131A00057	1/31/2023	4.1	1/29/2027	108.27148	106.0606702	103.9064684	101.8070246	99.76056141	97.7653736	95.8198248	93.92234395	92.07142213
230131A00067	1/31/2023	4.02	2/2/2026	104.30823	103.1112849	101.941866	100.799035	99.68189173	98.58957644	97.52126724	96.47617821	95.45355743
230131A00071	1/31/2023	4.22	1/30/2026	104.41557	103.2276583	102.0668518	100.9322302	99.82291371	98.73806164	97.67687023	96.6385706	95.62242688
230131A00087	2/3/2023	4.26	1/5/2026	104.1658	103.048374	101.9549953	100.8848914	99.83732366	98.81158477	97.80699658	96.82290886	95.85869778
230131A00095	1/31/2023	4.22	1/30/2026	104.41557	103.2276583	102.0668518	100.9322302	99.82291371	98.73806164	97.67687023	96.6385706	95.62242688
230201A00003	2/1/2023	3.93	1/31/2028	111.71534	108.4410924	105.2814634	102.2317548	99.28748907	96.44440069	93.69842445	91.04568459	88.48248469
230201A00011	2/1/2023	3.93	2/1/2028	111.72629	108.4489562	105.2864319	102.2340064	99.28719168	96.44171223	93.69349353	91.03865113	88.47348043
230201A00012	2/1/2023	4.08	2/1/2027	108.26103	106.0418986	103.8797532	101.7727221	99.71901063	97.71689713	95.76472976	93.8609229	92.00395387
230201A00047	2/1/2023	4.42	2/3/2025	100.68924	100.508475	100.3283639	100.1489022	99.97008652	99.79191326	99.61437896	99.43748015	99.26121342
230201A00048	2/1/2023	4.42	2/3/2025	100.68924	100.508475	100.3283639	100.1489022	99.97008652	99.79191326	99.61437896	99.43748015	99.26121342
230202A00006	2/2/2023	3.92	2/2/2027	107.9216	105.7032638	103.5419742	101.4358519	99.38309776	97.3819866	95.430863	93.52813805	91.67228602
230202A00008	2/2/2023	3.81	2/2/2028	111.35308	108.0788228	104.9194024	101.8701033	98.92643191	96.08410805	93.33905274	90.6873775	88.12537409
230202A00011	2/2/2023	3.92	2/2/2027	107.9216	105.7032638	103.5419742	101.4358519	99.38309776	97.3819866	95.430863	93.52813805	91.67228602
230202A00033	2/2/2023	4.26	2/3/2025	100.66037	100.4796476	100.2995742	100.1201502	99.94137204	99.7632362	99.5857392	99.4088776	99.23264796
230202A00034	2/2/2024	3.41	2/2/2026	103.48856	102.2982191	101.1352695	99.99877228	98.88783213	97.80159359	96.73923903	95.69998659	94.68308818
230202A00038	2/2/2023	3.84	2/2/2028	111.44912	108.173322	105.0124017	101.9616417	99.01654725	96.17283675	93.42643004	90.77343746	88.21014964
230202A00041	2/2/2023	3.82	2/2/2028	111.3851	108.1103225	104.9504022	101.9006161	98.95647036	96.11368429	93.3681785	90.71606415	88.1536326
230202A00042	2/2/2023	3.82	2/2/2028	111.3851	108.1103225	104.9504022	101.9006161	98.95647036	96.11368429	93.3681785	90.71606415	88.1536326
230202A00045	2/2/2023	3.62	2/2/2028	111.01145	107.7362573	104.5761262	101.526324	98.58234299	95.73988947	92.99487206	90.34339061	87.78172597
230202A00050	2/2/2023	3.82	2/2/2028	111.3851	108.1103225	104.9504022	101.9006161	98.95647036	96.11368429	93.3681785	90.71606415	88.1536326
230202A00061	2/2/2023	4.16	2/2/2026	104.3791	103.1831609	102.0146971	100.8727733	99.75649176	98.66499473	97.59746249	96.55311109	95.53119048
230202A00096	2/2/2023	3.81	2/2/2028	111.35308	108.0788228	104.9194024	101.8701033	98.92643191	96.08410805	93.33905274	90.6873775	88.12537409
230203A00021	2/8/2023	4.21	6/17/2026	105.9875	104.417078	102.8779693	101.3693058	99.89025317	98.44000695	97.01779161	95.62285905	94.25448744
230203A00025	2/3/2023	4.63	2/3/2025	100.71309	100.5324464	100.3524515	100.1731039	99.9944002	99.81633686	99.63891045	99.46211753	99.28595471
230203A00026	2/3/2023	3.98	2/3/2028	111.90839	108.6223145	105.4514944	102.3911959	99.43690747	96.58433145	93.82937263	91.16812717	88.59687223
230203A00038	2/3/2023	4.1	2/3/2027	108.32855	106.1026738	103.9340689	101.82085	99.76120927	97.75341303	95.79579793	93.88676747	92.02478873
230203A00039	2/3/2023	3.98	2/3/2028	111.90839	108.6223145	105.4514944	102.3911959	99.43690747	96.58433145	93.82937263	91.16812717	88.59687223
230203A00043	2/14/2023	4.31	2/13/2026	104.68651	103.4583332	102.2590848	101.0877454	99.9433475	98.82496772	97.73172464	96.66277623	95.61731777
230203A00045	2/14/2023	4.31	2/13/2026	104.68651	103.4583332	102.2590848	101.0877454	99.9433475	98.82496772	97.73172464	96.66277623	95.61731777
230203A00046	2/10/2023	4.65	2/10/2025	100.7957	100.5956142	100.3963288	100.1978434	100.0001533	99.80325349	99.60713928	99.41180589	99.21724862
230203A00048	2/10/2023	4.65	2/10/2025	100.7957	100.5956142	100.3963288	100.1978434	100.0001533	99.80325349	99.60713928	99.41180589	99.21724862
230203A00050	2/14/2023	4.64	2/14/2025	100.83873	100.6275246	100.4172132	100.2077925	99.99925667	99.79160017	99.58481735	99.37890265	99.17385055
230203A00051	2/14/2023	4.64	2/14/2025	100.83873	100.6275246	100.4172132	100.2077925	99.99925667	99.79160017	99.58481735	99.37890265	99.17385055

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230203A00053	2/10/2023	4.32	2/10/2026	104.66334	103.4435804	102.2523557	101.0886709	99.95157728	98.84016963	97.75358328	96.69099204	95.65160606
230203A00054	2/10/2023	4.32	2/10/2026	104.66334	103.4435804	102.2523557	101.0886709	99.95157728	98.84016963	97.75358328	96.69099204	95.65160606
230203A00057	2/3/2023	4.34	2/3/2026	104.60467	103.4045576	102.2320731	101.0862718	99.96624895	98.87114065	97.80012105	96.75240055	95.72722371
230203A00058	2/3/2023	4.34	2/3/2026	104.60467	103.4045576	102.2320731	101.0862718	99.96624895	98.87114065	97.80012105	96.75240055	95.72722371
230203A00059	2/3/2023	4.67	2/3/2025	100.72031	100.5396525	100.3596482	100.1802912	100.0015781	99.82350544	99.6460697	99.4692675	99.29309542
230206A00008	2/6/2023	4.58	2/6/2025	100.7521	100.5629607	100.3745411	100.1868357	99.99984041	99.81355123	99.62796409	99.44307497	99.25887989
230206A00009	2/6/2023	4.58	2/6/2025	100.7521	100.5629607	100.3745411	100.1868357	99.99984041	99.81355123	99.62796409	99.44307497	99.25887989
230207A00025	2/7/2023	4.62	2/7/2025	100.77109	100.5791616	100.3879739	100.1975224	100.0078027	99.81881058	99.6305418	99.44299216	99.2561575
230207A00046	2/7/2023	4.83	2/7/2025	100.79632	100.6045129	100.4134489	100.2231186	100.0335179	99.84464254	99.65648833	99.46905109	99.2823267
230208A00029	2/8/2023	4.27	2/8/2027	108.76372	106.5179592	104.330253	102.198675	100.1213832	98.09661156	96.12266616	94.19792166	92.32081786
230208A00036	2/8/2023	4.43	2/6/2026	104.74804	103.5387616	102.3575096	101.2033187	100.0752654	98.97246763	97.89408281	96.8393054	95.80736501
230208A00038	2/8/2023	4.27	2/8/2027	108.76372	106.5179592	104.330253	102.198675	100.1213832	98.09661156	96.12266616	94.19792166	92.32081786
230208A00039	2/8/2023	4.17	2/8/2028	112.57522	109.2638248	106.0689044	102.985654	100.0094996	97.1360855	94.36126156	91.68107254	89.09174731
230208A00040	2/8/2023	4.26	2/8/2029	117.00033	112.5831863	108.3615339	104.3255997	100.4661583	96.77449723	93.24238529	89.86204275	86.6261139
230208A00041	2/8/2023	4.32	2/8/2030	121.21509	115.6691288	110.4178179	105.4438315	100.730956	96.26401608	92.02880185	88.01200225	84.20114301
230208A00055	2/8/2023	4.22	2/6/2026	104.59285	103.3830766	102.2013796	101.0467843	99.91836491	98.81523742	97.73655723	96.68151699	95.64934461
230208A00060	2/8/2023	4.06	2/8/2027	108.48124	106.2350857	104.0470702	101.9152705	99.83783956	97.81300671	95.83907372	93.91441115	92.03745491
230209A00015	2/9/2023	4.8	2/5/2025	100.76717	100.5809262	100.3953814	100.2105269	100.0263588	99.84287335	99.66006669	99.47793503	99.29647461
230209A00023	2/9/2023	4.79	2/10/2025	100.82368	100.6235484	100.4242244	100.2257006	100.0279721	99.83103403	99.63488168	99.43951027	99.2449151
230209A00024	2/9/2023	4.4	2/5/2026	104.70009	103.4938638	102.3155366	101.1641444	100.0387698	98.93853704	97.86260894	96.81018534	95.78050084
230209A00025	2/9/2023	4.25	2/5/2027	108.68273	106.446889	104.2686721	102.1461777	100.077583	98.06114034	96.09517314	94.17807236	92.30829318
230209A00027	2/9/2023	4.12	2/7/2028	112.40285	109.0971585	105.9076765	102.8296181	99.85842269	96.98974645	94.21945091	91.54359159	88.95840752
230209A00028	2/9/2023	4.9	12/9/2024	100.10857	100.0835403	100.0585365	100.0335599	100.0086106	99.98368848	99.95879351	99.93392564	99.90908482
230209A00037	2/9/2023	4.12	2/9/2028	112.4258	109.1138924	105.9185828	102.8350575	99.85873428	96.98524917	94.21044488	91.53035928	88.94121488
230209A00049	2/9/2023	4.17	2/9/2028	112.58683	109.2723249	106.0744863	102.9884983	100.0097762	97.13395389	94.35687207	91.67456659	89.08325804
230210A00009	2/10/2023	4.93	12/11/2024	100.13215	100.1015612	100.0710039	100.0404818	100.0099946	99.97954226	99.94912483	99.91874218	99.88839426
230210A00035	2/10/2023	4.52	2/10/2026	104.90524	103.6839314	102.4911846	101.3260021	100.1874348	99.0745767	97.98656252	96.9225655	95.88179524
230210A00040	2/10/2023	4.29	8/10/2027	110.90438	108.122291	105.4252297	102.810047	100.2737312	97.8134033	95.42631076	93.1098204	90.86141244
230210A00043	2/10/2023	4.34	2/10/2027	108.94353	106.6897389	104.4943124	102.3553141	100.2708879	98.23925488	96.25870875	94.3276125	92.44439492
230210A00045	2/10/2023	4.43	8/10/2026	106.96917	105.2428987	103.5530721	101.8985968	100.2784267	98.69155699	97.1370224	95.61389509	94.12128284
230210A00055	2/10/2023	4.02	2/10/2028	112.38528	109.0645907	105.8610425	102.7697916	99.78622582	96.90595376	94.12479202	91.43875408	88.84403951
230210A00062	2/10/2023	4.13	2/10/2027	108.66056	106.4063601	104.2106207	102.0713976	99.98682984	97.95513369	95.97459855	94.04358327	92.16051272
230210A00065	2/10/2023	4.02	2/10/2028	112.38528	109.0645907	105.8610425	102.7697916	99.78622582	96.90595376	94.12479202	91.43875408	88.84403951

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230213A00020	2/15/2023	4.28	1/25/2028	112.76668	109.4920832	106.3315057	103.2802972	100.3340245	97.488463	94.73958559	92.08355172	89.51669767
230214A00031	2/14/2023	4.31	2/14/2028	113.09769	109.7602954	106.5407205	103.434089	100.4357555	97.54129712	94.74650122	92.04735366	89.44002812
230214A00042	2/14/2023	4.96	2/14/2025	100.90622	100.6949159	100.4845079	100.2749908	100.066359	99.85860675	99.65172852	99.44571871	99.24057181
230214A00049	2/14/2023	4.38	2/14/2029	117.58167	113.1340004	108.8837257	104.8209499	100.9363298	97.22104344	93.66675796	90.26559915	87.0101235
230214A00050	2/14/2023	4.31	2/14/2028	113.09769	109.7602954	106.5407205	103.434089	100.4357555	97.54129712	94.74650122	92.04735366	89.44002812
230215A00008	2/15/2023	4.49	2/16/2027	109.35359	107.0770984	104.8598921	102.6999899	100.595495	98.54458961	96.54553095	94.59664754	92.69633554
230215A00019	2/15/2023	5.01	2/18/2025	100.96589	100.7434301	100.5219614	100.3014768	100.0819697	99.86343366	99.6458621	99.42924863	99.21358688
230215A00035	2/15/2023	4.47	2/17/2026	105.0295	103.786549	102.5731401	101.3882262	100.2308106	99.0999423	97.994714	96.91425929	95.85775043
230215A00045	2/15/2023	4.37	2/15/2028	113.30392	109.9602448	106.7346727	103.6223065	100.6184871	97.71877879	94.9189569	92.21499591	89.60305881
230216A00045	2/16/2023	4.43	5/16/2028	114.57142	110.9511825	107.4674602	104.1143611	100.8862794	97.77788091	94.78408838	91.90006747	89.12121386
230216A00046	2/16/2023	4.42	4/17/2028	114.19819	110.6650922	107.2624416	103.9847229	100.8266885	97.78333901	94.84991062	92.02186241	89.29486483
230217A00036	2/17/2023	4.44	2/17/2028	113.55523	110.2016027	106.9665671	103.8451966	100.8328071	97.92493927	95.11734631	92.40598197	89.78698979
230217A00052	2/17/2023	4.55	2/17/2027	109.50069	107.2195152	104.997795	102.8335438	100.7248573	98.66991068	96.66695457	94.71431124	92.81037091
230221A00004	2/21/2023	4.47	2/18/2028	113.66494	110.3065975	107.0670773	103.9414457	100.9250061	98.01328781	95.20203294	92.48718513	89.86487832
230221A00007	2/21/2023	4.5	10/18/2027	112.29478	109.3014536	106.4049022	103.6014737	100.8876746	98.26016205	95.71573611	93.2513332	90.8640193
230222A00024	2/22/2023	4.74	3/2/2026	105.43156	104.1520985	102.9031352	101.6835872	100.4924193	99.32864417	98.19132018	97.07954841	95.99247039
230223A00010	2/23/2023	4.68	10/3/2025	103.55263	102.695911	101.853414	101.0247818	100.2096736	99.40775997	98.61872192	97.84225073	97.07804748
230223A00012	2/23/2023	4.68	10/3/2025	103.55263	102.695911	101.853414	101.0247818	100.2096736	99.40775997	98.61872192	97.84225073	97.07804748
230223A00033	2/23/2023	4.5	2/23/2028	113.8249	110.4492442	107.1934298	104.0524628	101.02159	98.09628771	95.27224877	92.54537044	89.91174333
230224A00014	2/24/2023	4.98	2/24/2025	101.05147	100.8120563	100.5737862	100.3366479	100.1006333	99.86573429	99.63194306	99.39925172	99.1676525
230224A00015	2/24/2023	4.86	3/17/2026	105.79307	104.4737013	103.1814184	101.9153956	100.6748376	99.45898115	98.26709393	97.09847272	95.95244199
230224A00018	2/24/2023	5.19	2/24/2025	101.08252	100.8432608	100.6051423	100.3681525	100.1322833	99.8975268	99.6638751	99.43132041	99.19985502
230224A00029	2/24/2023	4.87	2/24/2026	105.51476	104.2508098	103.0173044	101.813153	100.6373147	99.48879764	98.3666556	97.26998574	96.19792605
230227A00060	2/27/2023	4.86	2/27/2026	105.5421	104.2696536	103.0280548	101.8161868	100.6329893	99.47745145	98.34860993	97.2455455	96.16738078
230228A00009	2/28/2023	4.69	2/27/2026	105.43051	104.1572296	102.9148446	101.7022403	100.5183535	99.36217131	98.23272776	97.1291015	96.05041307
230228A00010	2/28/2023	4.5	2/26/2027	109.69291	107.3786351	105.1252835	102.9307943	100.7931961	98.71060098	96.68120001	94.70325919	92.77511568
230301A00029	3/1/2023	4.59	3/1/2028	114.20687	110.8045281	107.523529	104.3587946	101.3054936	98.35902859	95.5150232	92.76930951	90.11791671
230301A00036	3/1/2023	4.91	3/2/2026	105.64657	104.365669	103.1152958	101.8943618	100.7018308	99.53671512	98.39807234	97.28500297	96.196648
230301A00047	3/1/2023	4.61	3/1/2028	114.04153	110.6905397	107.4602865	104.3457636	101.3421948	98.4450267	95.64991695	92.95272347	90.34949409
230302A00028	3/2/2023	5.02	3/2/2026	105.78569	104.5038616	103.2525762	102.0307453	100.8373324	99.67134927	98.53185314	97.41794416	96.32876292
230302A00047	3/2/2023	4.76	3/2/2028	113.74641	110.5674462	107.501157	104.5429011	101.6882526	98.93299142	96.2730925	93.70471582	91.2241968
230303A00035	5/15/2023	4.65	5/15/2030	124.00152	118.1063119	112.5376907	107.2757459	102.3018808	97.59872199	93.15003343	88.94063576	84.95633237
230303A00036	5/15/2023	4.53	5/15/2028	114.90838	111.285021	107.7981382	104.4418458	101.2105449	98.09890728	95.10186134	92.21457787	89.43245724

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230303A00037	5/15/2023	4.81	5/15/2026	106.49861	105.0149488	103.5596022	102.1318254	100.7309019	99.35613965	98.00686977	96.68244589	95.382243
230303A00038	4/14/2023	4.56	4/14/2028	114.63855	111.1064725	107.7044345	104.4269575	101.2688223	98.22505632	95.29092039	92.46189672	89.73367729
230303A00041	4/14/2023	4.56	4/14/2028	114.63855	111.1064725	107.7044345	104.4269575	101.2688223	98.22505632	95.29092039	92.46189672	89.73367729
230303A00057	3/3/2023	4.77	3/3/2027	110.18093	107.8505216	105.581672	103.3723047	101.2204327	99.12415216	97.08163849	95.09114202	93.15098433
230303A00059	3/3/2023	4.56	3/3/2027	109.89207	107.5612276	105.2920466	103.082442	100.9304213	98.83407588	96.79157622	94.80116821	92.86116924
230306A00019	3/6/2023	5.26	3/6/2025	101.22983	100.9626876	100.6969616	100.4326424	100.1697189	99.90817975	99.64801416	99.38921123	99.13176019
230306A00040	3/6/2023	5.05	3/6/2025	101.19522	100.9279044	100.6620108	100.3975275	100.1344434	99.87274726	99.61242804	99.35347483	99.09587681
230307A00004	3/7/2023	4.67	3/7/2028	114.30874	110.9366896	107.6866528	104.5535436	101.5325155	98.61894912	95.80844006	93.09678806	90.47998627
230307A00020	3/7/2023	4.98	3/9/2026	105.8353	104.5356424	103.2649237	102.0221707	100.806458	99.61690097	98.4526535	97.31290609	96.19688372
230307A00021	3/7/2023	4.63	3/7/2028	114.41089	110.9886487	107.6889627	104.5067112	101.4370174	98.47523938	95.61695633	92.85795693	90.19422776
230307A00022	3/7/2023	4.77	3/8/2027	110.24366	107.8988555	105.6162983	103.3939067	101.2296819	99.12170784	97.06814676	95.06723524	93.11728068
230307A00026	3/7/2023	4.98	3/6/2026	105.79235	104.5004884	103.2382438	102.0045998	100.7985832	99.6192647	98.46575661	97.33721046	96.23281486
230307A00034	3/7/2023	4.41	3/7/2028	113.96466	110.5429779	107.244058	104.062756	100.9941811	98.03367776	95.17681307	92.41936413	89.75730677
230307A00039	3/7/2023	5.29	3/7/2025	101.25103	100.9810842	100.712591	100.4455351	100.1799048	99.91568852	99.65287507	99.39145317	99.13141172
230307A00056	3/7/2023	5.08	3/7/2025	101.21605	100.9459348	100.6772723	100.4100507	100.1442582	99.87988346	99.61691493	99.35534137	99.09515159
230307A00057	3/7/2023	5.08	3/7/2025	101.21605	100.9459348	100.6772723	100.4100507	100.1442582	99.87988346	99.61691493	99.35534137	99.09515159
230307A00058	3/7/2023	5.29	3/7/2025	101.25103	100.9810842	100.712591	100.4455351	100.1799048	99.91568852	99.65287507	99.39145317	99.13141172
230307A00114	3/7/2023	4.65	3/7/2028	114.47679	111.0534614	107.752718	104.5694371	101.4987412	98.53598716	95.67675347	92.91682789	90.25219618
230308A00019	3/8/2023	5.05	3/9/2026	105.92518	104.6249195	103.3536035	102.1102634	100.8939734	99.70384858	98.53904267	97.39874588	96.28218294
230309A00002	3/9/2023	5.41	3/10/2025	101.32393	101.0455715	100.7687563	100.4934706	100.2197014	99.94743611	99.67666238	99.40736783	99.13954026
230309A00003	3/9/2023	5.06	3/9/2026	105.93802	104.6376733	103.3662721	102.1228481	100.9064756	99.71626967	98.55138398	97.4110087	96.29436854
230309A00004	3/9/2023	4.86	3/9/2027	110.46246	108.1123689	105.8247184	103.5974194	101.4284695	99.31594858	97.25801494	95.2529011	93.29891034
230309A00005	3/9/2023	5.06	3/9/2026	105.93802	104.6376733	103.3662721	102.1228481	100.9064756	99.71626967	98.55138398	97.4110087	96.29436854
230309A00021	3/9/2023	5.41	3/10/2025	101.32393	101.0455715	100.7687563	100.4934706	100.2197014	99.94743611	99.67666238	99.40736783	99.13954026
230309A00027	3/9/2023	4.68	3/9/2028	114.60021	111.1693197	107.8614477	104.6714534	101.5944431	98.62575788	95.76096061	92.9958237	90.32631791
230309A00030	3/9/2023	5.01	3/9/2026	105.87382	104.573904	103.3029293	102.0599247	100.8439646	99.65416423	98.48967743	97.34969457	96.23344053
230309A00031	3/9/2023	5.01	3/9/2026	105.87382	104.573904	103.3029293	102.0599247	100.8439646	99.65416423	98.48967743	97.34969457	96.23344053
230309A00032	3/9/2023	4.82	3/9/2027	110.37079	108.0217694	105.7351636	103.5088876	101.3409395	99.22940001	97.17242789	95.16825627	93.21518895
230309A00033	3/9/2023	4.82	3/9/2027	110.37079	108.0217694	105.7351636	103.5088876	101.3409395	99.22940001	97.17242789	95.16825627	93.21518895
230309A00034	3/9/2023	4.64	3/9/2028	114.46819	111.039481	107.7337308	104.5458017	101.4708021	98.50407497	95.64118488	92.87790602	90.21021079
230309A00035	3/9/2023	4.64	3/9/2028	114.46819	111.039481	107.7337308	104.5458017	101.4708021	98.50407497	95.64118488	92.87790602	90.21021079
230309A00036	3/9/2023	4.46	3/9/2028	114.15347	110.7231445	107.4160379	104.2269935	101.1511031	98.18369459	95.32031833	92.55673519	89.88890513
230309A00038	3/9/2023	4.85	3/9/2026	105.77279	104.471939	103.2000729	101.9562251	100.7394677	99.54891376	98.38371509	97.24306007	96.12617176

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230309A00041	3/9/2023	4.85	3/9/2026	105.77279	104.471939	103.2000729	101.9562251	100.7394677	99.54891376	98.38371509	97.24306007	96.12617176
230309A00057	3/9/2023	4.86	3/9/2027	110.46246	108.1123689	105.8247184	103.5974194	101.4284695	99.31594858	97.25801494	95.2529011	93.29891034
230309A00068	4/10/2023	5.21	4/9/2025	101.65821	101.2962345	100.9368486	100.5800245	100.2257349	99.87395267	99.52465112	99.17780398	98.83338533
230309A00080	3/9/2023	4.68	3/9/2028	114.60021	111.1693197	107.8614477	104.6714534	101.5944431	98.62575788	95.76096061	92.9958237	90.32631791
230309A00091	3/9/2023	4.68	3/9/2028	114.60021	111.1693197	107.8614477	104.6714534	101.5944431	98.62575788	95.76096061	92.9958237	90.32631791
230309A00096	3/9/2023	4.68	3/9/2028	114.60021	111.1693197	107.8614477	104.6714534	101.5944431	98.62575788	95.76096061	92.9958237	90.32631791
230310A00017	3/10/2023	4.43	3/9/2029	118.07135	113.5454522	109.2230049	105.0937067	101.1478412	97.37623725	93.77023437	90.32165167	87.02275828
230310A00024	3/10/2023	4.38	3/10/2028	113.62153	110.2040482	106.9093434	103.7322783	100.6679665	97.71175616	94.85921633	92.10612544	89.44845976
230310A00030	3/10/2023	4.38	3/10/2028	113.62153	110.2040482	106.9093434	103.7322783	100.6679665	97.71175616	94.85921633	92.10612544	89.44845976
230310A00037	3/10/2023	4.69	3/10/2026	105.47643	104.1767063	102.9056464	101.6622987	100.4457549	99.25514646	98.08964249	96.94844755	95.83079987
230310A00039	3/10/2023	4.33	3/10/2028	113.45636	110.0416165	106.7495683	103.5750888	100.5132945	97.55953547	94.70938332	91.95861855	89.30321949
230310A00040	3/10/2023	4.38	3/10/2028	113.62153	110.2040482	106.9093434	103.7322783	100.6679665	97.71175616	94.85921633	92.10612544	89.44845976
230310A00047	6/9/2023	4.22	6/9/2028	114.10697	110.4281342	106.8903991	103.487567	100.2137497	97.06334936	94.03104258	91.11176541	88.30069915
230310A00049	3/10/2023	4.7	3/10/2026	105.4893	104.1894874	102.9183419	101.6749099	100.4582833	99.26759347	98.10200939	96.96073566	95.84301044
230310A00054	9/8/2023	4.09	9/11/2028	114.66711	110.7163217	106.9258376	103.2882443	99.7965167	96.44399418	93.22435931	90.13161804	87.1600811
230310A00062	3/10/2023	4.38	4/10/2028	113.97962	110.4700539	107.0894137	103.8322816	100.6934963	97.66813914	94.75152207	91.93917525	89.22683581
230310A00069	3/10/2023	4.7	3/9/2026	105.47576	104.1785339	102.9102044	101.6698001	100.4563967	99.26911055	98.10709682	96.96954693	95.85568685
230310A00071	3/10/2023	4.38	3/10/2028	113.62153	110.2040482	106.9093434	103.7322783	100.6679665	97.71175616	94.85921633	92.10612544	89.44845976
230310A00073	3/10/2023	4.7	3/6/2026	105.43513	104.1456707	102.8857862	101.6544624	100.4507272	99.27365242	98.12235135	96.99597655	95.89371757
230310A00088	3/10/2023	5.03	3/10/2025	101.2185	100.9403285	100.6636992	100.3885985	100.1150136	99.84293198	99.57234109	99.30322863	99.03558243
230310A00089	3/10/2023	4.7	3/10/2026	105.4893	104.1894874	102.9183419	101.6749099	100.4582833	99.26759347	98.10200939	96.96073566	95.84301044
230310A00091	3/10/2023	4.53	3/10/2027	109.7181	107.3739398	105.0921793	102.870728	100.7075863	98.60083665	96.54863961	94.54922958	92.60091149
230310A00092	3/10/2023	4.38	3/10/2028	113.62153	110.2040482	106.9093434	103.7322783	100.6679665	97.71175616	94.85921633	92.10612544	89.44845976
230310A00114	3/10/2023	4.5	3/10/2027	109.64926	107.3059093	105.0249342	102.8042518	100.6418632	98.53585133	96.48437706	94.48567528	92.53805132
230310A00120	3/10/2023	4.33	3/10/2028	113.45636	110.0416165	106.7495683	103.5750888	100.5132945	97.55953547	94.70938332	91.95861855	89.30321949
230313A00032	3/13/2023	4.45	3/13/2025	101.0902	100.8039731	100.5193814	100.2364103	99.95504581	99.67527421	99.39708188	99.12045536	98.84538135
230313A00036	3/13/2023	4.06	3/13/2028	112.59622	109.1874801	105.9016191	102.7334998	99.67822987	96.73115077	93.88782476	91.14402306	88.49571461
230313A00048	3/13/2023	4.25	3/13/2026	104.94712	103.643513	102.3678191	101.1191384	99.89661298	98.69942126	97.52677621	96.37792355	95.25214002
230313A00052	3/13/2023	4.17	3/15/2027	108.94656	106.5977938	104.3119185	102.0868397	99.92055184	97.81113036	95.75672759	93.75556913	91.80595033
230313A00057	3/13/2023	4.06	3/13/2028	112.59622	109.1874801	105.9016191	102.7334998	99.67822987	96.73115077	93.88782476	91.14402306	88.49571461
230313A00061	3/13/2023	4.06	3/13/2028	112.59622	109.1874801	105.9016191	102.7334998	99.67822987	96.73115077	93.88782476	91.14402306	88.49571461
230313A00072	3/13/2023	4.06	3/13/2028	112.59622	109.1874801	105.9016191	102.7334998	99.67822987	96.73115077	93.88782476	91.14402306	88.49571461
230313A00078	3/13/2023	4.41	3/13/2026	105.15434	103.8493201	102.5722384	101.3221937	100.0983271	98.89981648	97.72587422	96.57574544	95.4487063

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230313A00080	3/13/2023	4.59	3/14/2025	101.14147	100.8523856	100.5649711	100.2792089	99.99508465	99.71258409	99.43169326	99.15239832	98.87468559
230313A00090	3/13/2023	4.41	3/13/2026	105.15434	103.8493201	102.5722384	101.3221937	100.0983271	98.89981648	97.72587422	96.57574544	95.4487063
230313A00091	3/13/2023	4.15	3/13/2028	112.89426	109.4805766	106.1899107	103.0171148	99.95729205	97.0057797	94.15813588	91.4101279	88.75772093
230313A00093	3/16/2023	4.65	3/17/2025	101.19306	100.8955921	100.5998903	100.3059358	100.0137132	99.72320698	99.434402	99.14728322	98.8618358
230313A00095	3/16/2023	4.65	3/17/2025	101.19306	100.8955921	100.5998903	100.3059358	100.0137132	99.72320698	99.434402	99.14728322	98.8618358
230313A00096	3/13/2023	4.36	3/14/2033	132.17853	123.0799724	114.7048413	106.9911406	99.88251179	93.32769491	87.28004228	81.69708061	76.54011682
230313A00098	3/13/2023	4.41	3/13/2026	105.15434	103.8493201	102.5722384	101.3221937	100.0983271	98.89981648	97.72587422	96.57574544	95.4487063
230313A00099	3/13/2023	4.59	3/13/2025	101.13021	100.8439076	100.5592438	100.2762009	99.99476495	99.71492217	99.43665896	99.15996185	98.88481754
230313A00102	3/13/2023	4.15	3/13/2028	112.89426	109.4805766	106.1899107	103.0171148	99.95729205	97.0057797	94.15813588	91.4101279	88.75772093
230313A00104	3/13/2023	4.58	3/13/2025	101.12735	100.8410551	100.5563965	100.2733587	99.99192787	99.71209018	99.43383202	99.15713996	98.88200067
230313A00109	3/13/2023	4.58	3/13/2025	101.12735	100.8410551	100.5563965	100.2733587	99.99192787	99.71209018	99.43383202	99.15713996	98.88200067
230313A00112	3/13/2023	4.15	3/13/2028	112.89426	109.4805766	106.1899107	103.0171148	99.95729205	97.0057797	94.15813588	91.4101279	88.75772093
230313A00113	3/13/2023	4.58	3/13/2025	101.12735	100.8410551	100.5563965	100.2733587	99.99192787	99.71209018	99.43383202	99.15713996	98.88200067
230313A00117	3/13/2023	4.59	3/13/2025	101.13021	100.8439076	100.5592438	100.2762009	99.99476495	99.71492217	99.43665896	99.15996185	98.88481754
230313A00119	3/13/2023	4.41	3/13/2026	105.15434	103.8493201	102.5722384	101.3221937	100.0983271	98.89981648	97.72587422	96.57574544	95.4487063
230313A00121	3/13/2023	4.29	3/15/2027	109.22354	106.8715334	104.5824801	102.3542896	100.1849546	98.07254839	96.01522165	94.0111982	92.05877172
230313A00123	3/13/2023	4.22	9/15/2027	111.11563	108.2308094	105.4367713	102.7301157	100.1075943	97.56610121	95.10266499	92.71444228	90.39871127
230313A00128	3/13/2023	4.18	12/15/2027	112.00039	108.8503129	105.8070613	102.8664005	100.0242899	97.27687239	94.62046497	92.0515498	89.56676571
230313A00134	3/13/2023	4.16	4/14/2028	113.27871	109.7697349	106.39017	103.1345541	99.99768967	96.97462481	94.06064017	91.25123692	88.5421252
230313A00135	3/13/2023	4.17	6/15/2028	113.99751	110.3035534	106.751802	103.3359891	100.0501586	96.88864984	93.84608088	90.91733311	88.09753682
230313A00149	3/13/2023	4.15	3/13/2028	112.89426	109.4805766	106.1899107	103.0171148	99.95729205	97.0057797	94.15813588	91.4101279	88.75772093
230313A00152	3/13/2023	4.18	3/13/2028	112.9936	109.5782755	106.2860079	103.1116531	100.0503128	97.09732267	94.24823959	91.49882951	88.84505637
230313A00158	3/13/2023	4.41	3/13/2026	105.15434	103.8493201	102.5722384	101.3221937	100.0983271	98.89981648	97.72587422	96.57574544	95.4487063
230313A00159	3/13/2023	4.41	3/13/2026	105.15434	103.8493201	102.5722384	101.3221937	100.0983271	98.89981648	97.72587422	96.57574544	95.4487063
230313A00177	3/13/2023	4.41	3/13/2026	105.15434	103.8493201	102.5722384	101.3221937	100.0983271	98.89981648	97.72587422	96.57574544	95.4487063
230313A00179	3/13/2023	4.29	3/15/2027	109.22354	106.8715334	104.5824801	102.3542896	100.1849546	98.07254839	96.01522165	94.0111982	92.05877172
230313A00180	3/13/2023	4.15	3/13/2028	112.89426	109.4805766	106.1899107	103.0171148	99.95729205	97.0057797	94.15813588	91.4101279	88.75772093
230313A00215	3/13/2023	4.13	3/13/2028	112.82803	109.4154441	106.1258459	102.9540892	99.89527824	96.94475105	94.09806674	91.35099349	88.6994973
230314A00003	3/14/2023	4.64	3/16/2026	105.49234	104.1775307	102.8900048	101.6289167	100.3934557	99.18284408	97.99633617	96.83321611	95.69279663
230314A00006	3/14/2023	4.92	1/13/2025	100.51466	100.392403	100.2704608	100.1488307	100.0275113	99.90650147	99.7857999	99.66540539	99.54531673
230314A00011	3/14/2023	4.38	3/14/2028	113.66736	110.2381174	106.9324248	103.7451163	100.6712766	97.70622441	94.84550038	92.08485468	89.42023594
230314A00014	3/14/2023	4.18	3/14/2028	112.76686	109.46759	106.2878477	103.2226341	100.2671838	97.41695606	94.66762284	92.01505744	89.45532424
230314A00015	3/14/2023	4.55	9/14/2026	107.59933	105.7711176	103.9831093	102.2341212	100.5230129	98.84868735	97.21008838	95.60619923	94.03604045

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230314A00016	3/14/2023	4.38	3/14/2028	113.66736	110.2381174	106.9324248	103.7451163	100.6712766	97.70622441	94.84550038	92.08485468	89.42023594
230314A00017	3/14/2023	4.39	1/18/2028	113.03589	109.7762459	106.6295322	103.5911601	100.6567607	97.82216945	95.08341533	92.43671023	89.87843944
230314A00019	3/14/2023	4.39	1/18/2028	113.03589	109.7762459	106.6295322	103.5911601	100.6567607	97.82216945	95.08341533	92.43671023	89.87843944
230314A00021	3/14/2023	4.41	10/13/2027	111.9761	109.0010906	106.1218908	103.3349008	100.6366753	98.02391705	95.49346915	93.04230858	90.66753965
230314A00024	3/14/2023	4.41	10/13/2027	111.9761	109.0010906	106.1218908	103.3349008	100.6366753	98.02391705	95.49346915	93.04230858	90.66753965
230314A00028	3/14/2023	4.43	7/14/2027	110.97035	108.2612766	105.6332688	103.0833932	100.6088411	98.20692454	95.87506986	93.61081232	91.41179054
230314A00030	3/14/2023	4.43	7/14/2027	110.97035	108.2612766	105.6332688	103.0833932	100.6088411	98.20692454	95.87506986	93.61081232	91.41179054
230314A00032	3/14/2023	4.45	4/14/2027	109.94662	107.5030756	105.1269465	102.8159946	100.568073	98.38111789	96.25314508	94.1822465	92.16658672
230314A00034	3/14/2023	4.45	4/14/2027	109.94662	107.5030756	105.1269465	102.8159946	100.568073	98.38111789	96.25314508	94.1822465	92.16658672
230314A00054	3/14/2023	4.46	3/15/2027	109.61594	107.2593312	104.9657757	102.733177	100.5595251	98.44289059	96.38142156	94.37333938	92.41693536
230314A00067	3/14/2023	4.16	3/14/2028	113.21747	109.7888536	106.4839824	103.2976799	100.2250161	97.26129654	94.40204939	91.64301316	88.98012566
230314A00070	3/14/2023	4.25	3/12/2027	109.28824	106.9398207	104.6541373	102.4290947	100.2626841	98.15297916	96.09813102	94.09636503	92.14597699
230314A00073	3/14/2023	4.84	3/14/2025	101.2136	100.9243879	100.6368426	100.35095	100.0666959	99.78406602	99.50304644	99.22362329	98.94578289
230314A00081	3/14/2023	4.16	3/14/2028	113.21747	109.7888536	106.4839824	103.2976799	100.2250161	97.26129654	94.40204939	91.64301316	88.98012566
230315A00007	3/15/2023	4.2	3/16/2026	104.91884	103.6079627	102.3242998	101.0670091	99.8352816	98.62834146	97.44544459	96.28587685	95.14895252
230315A00010	3/15/2023	4.2	3/13/2026	104.88236	103.5791983	102.303938	101.0556836	99.83357733	98.63679775	97.46455808	96.31610421	95.19071305
230315A00012	3/15/2023	4.24	9/15/2025	102.92444	102.1209043	101.3299419	100.5512631	99.78458304	99.02962535	98.28612223	97.55381396	96.83244865
230315A00013	3/15/2023	4.2	3/16/2026	104.91884	103.6079627	102.3242998	101.0670091	99.8352816	98.62834146	97.44544459	96.28587685	95.14895252
230315A00016	3/15/2023	4.08	3/16/2027	108.74946	106.4002887	104.1140936	101.8887822	99.72234817	97.6128656	95.5584855	93.55743196	91.60799866
230315A00023	3/15/2023	4.2	3/16/2026	104.91884	103.6079627	102.3242998	101.0670091	99.8352816	98.62834146	97.44544459	96.28587685	95.14895252
230315A00024	3/15/2023	4.03	3/15/2028	112.51786	109.1049482	105.8152538	102.6436291	99.58516848	96.63520042	93.78927422	91.04314834	88.39277917
230315A00030	3/15/2023	4.03	3/15/2028	112.51786	109.1049482	105.8152538	102.6436291	99.58516848	96.63520042	93.78927422	91.04314834	88.39277917
230315A00049	3/15/2023	4.28	3/14/2025	101.05202	100.7631026	100.4758506	100.19025	99.90628673	99.62394649	99.34321531	99.06407934	98.78652493
230315A00052	3/15/2023	4.07	3/14/2025	101.01445	100.7253431	100.4379112	100.1521349	99.86799983	99.5854917	99.30459645	99.02530018	98.74758914
230315A00055	3/15/2023	4.2	3/11/2026	104.85804	103.5600201	102.2903593	101.0481275	99.83243474	98.64242936	97.47729633	96.33625515	95.21855804
230315A00068	3/15/2023	4.2	3/16/2026	104.91884	103.6079627	102.3242998	101.0670091	99.8352816	98.62834146	97.44544459	96.28587685	95.14895252
230315A00076	3/15/2023	4.28	3/14/2025	101.05202	100.7631026	100.4758506	100.19025	99.90628673	99.62394649	99.34321531	99.06407934	98.78652493
230315A00084	3/15/2023	4.08	3/24/2027	108.83459	106.4626627	104.1548299	101.9089821	99.7230933	97.59521665	95.523481	93.50608732	91.54130547
230315A00086	3/15/2023	4.28	3/11/2025	101.02082	100.7402359	100.4612266	100.1837752	99.90786861	99.63349391	99.36063823	99.08928889	98.81943334
230315A00097	3/15/2023	4.08	3/15/2027	108.73882	106.3924891	104.1089973	101.8862522	99.7222498	97.61506684	95.56285705	93.56384732	91.61633429
230315A00098	3/15/2023	4.08	3/15/2027	108.73882	106.3924891	104.1089973	101.8862522	99.7222498	97.61506684	95.56285705	93.56384732	91.61633429
230315A00112	3/15/2023	4.5	3/14/2025	101.1155	100.8264647	100.5390974	100.2533822	99.96930461	99.68685059	99.40600611	99.12675732	98.84909056
230315A00116	3/15/2023	4.36	3/16/2026	105.12739	103.8150783	102.5300107	101.2713392	100.038254	98.82997878	97.6457688	96.4849093	95.34671401

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230315A00117	3/15/2023	4.17	3/15/2027	108.94656	106.5977938	104.3119185	102.0868397	99.92055184	97.81113036	95.75672759	93.75556913	91.80595033
230315A00125	3/15/2023	4.11	3/15/2027	108.80806	106.460924	104.1766377	101.9531147	99.78835048	97.68042135	95.62748056	93.62775459	91.67953963
230315A00128	3/15/2023	4.43	3/14/2025	101.0953	100.806304	100.5189734	100.2332947	99.94925347	99.66683565	99.38602722	99.10681433	98.82918331
230315A00130	3/15/2023	4.43	3/14/2025	101.0953	100.806304	100.5189734	100.2332947	99.94925347	99.66683565	99.38602722	99.10681433	98.82918331
230315A00131	3/15/2023	4.13	3/15/2027	108.85423	106.5065473	104.2217313	101.9976897	99.8324176	97.72399102	95.67056291	93.67035944	91.72167653
230315A00133	3/15/2023	3.9	3/15/2028	112.36499	108.9477756	105.6541207	102.4788476	99.41703221	96.46398512	93.61523914	90.86653719	88.21382107
230316A00001	3/16/2023	3.81	3/16/2028	112.07618	108.6610299	105.369493	102.1963945	99.13680732	96.18603919	93.33961984	90.59328906	87.9429855
230316A00017	3/16/2023	3.81	3/16/2028	112.07618	108.6610299	105.369493	102.1963945	99.13680732	96.18603919	93.33961984	90.59328906	87.9429855
230316A00021	3/16/2023	4.2	3/16/2026	104.91884	103.6079627	102.3242998	101.0670091	99.8352816	98.62834146	97.44544459	96.28587685	95.14895252
230316A00032	3/16/2023	4.39	3/16/2026	105.16649	103.8539125	102.5685815	101.3096511	100.0763113	98.86778577	97.68332959	96.52222789	95.38379429
230316A00039	3/16/2023	4.63	3/17/2025	101.18712	100.8896661	100.5939753	100.3000319	100.0078202	99.71732485	99.4285307	99.14142271	98.85598604
230316A00042	3/16/2023	4.42	3/14/2025	101.09242	100.8034239	100.5160986	100.230425	99.94638902	99.66397637	99.38317309	99.10396533	98.82633942
230316A00046	3/16/2023	4.18	6/16/2026	105.92925	104.362105	102.8261735	101.3205969	99.84454432	98.39721511	96.97783707	95.58566533	94.21998113
230316A00047	3/16/2023	4.07	9/16/2027	110.70416	107.8223552	105.0313632	102.3277816	99.70836169	97.16999678	94.70971461	92.32467072	90.01214204
230316A00048	3/16/2023	4.05	6/16/2028	113.58012	109.890754	106.3435811	102.932324	99.65102256	96.49401241	93.45590829	90.53158865	87.71618124
230316A00050	3/16/2023	4.2	3/16/2026	104.91884	103.6079627	102.3242998	101.0670091	99.8352816	98.62834146	97.44544459	96.28587685	95.14895252
230316A00054	3/16/2023	4.62	3/17/2025	101.18415	100.8867032	100.5910179	100.2970799	100.0048737	99.71438378	99.42559505	99.13849246	98.85306116
230316A00055	3/16/2023	4.03	3/16/2028	112.52836	109.1125307	105.8201184	102.6459613	99.58514651	96.63299524	93.7850496	91.03706101	88.38497891
230316A00060	3/16/2023	3.89	3/16/2027	108.50088	106.1507874	103.8637801	101.6377637	99.47072595	97.36073573	95.30593883	93.30455446	91.35487171
230316A00061	3/16/2023	4.31	9/16/2025	102.99098	102.1844083	101.3905012	100.6089637	99.83950761	99.08185401	98.33573233	97.60088027	96.87704345
230316A00067	3/16/2023	3.89	3/16/2027	108.50088	106.1507874	103.8637801	101.6377637	99.47072595	97.36073573	95.30593883	93.30455446	91.35487171
230316A00072	3/16/2023	4.1	3/16/2027	108.79568	106.4459658	104.1592399	101.9334087	99.76646561	97.65648445	95.60161592	93.60008381	91.65018153
230316A00076	3/16/2023	4.45	3/16/2026	105.24469	103.9315809	102.6457231	101.3862748	100.152426	98.94339977	97.75845117	96.59686506	95.45795485
230316A00078	3/16/2023	4.34	3/16/2027	109.35031	106.9940919	104.7009952	102.4689264	100.2958748	98.17991071	96.11918102	94.11190606	92.15637589
230316A00082	3/16/2023	4.3	3/16/2028	113.42469	109.9939784	106.6870814	103.4988271	100.4242891	97.45877555	94.59781627	91.83715079	89.17271719
230316A00113	3/16/2023	4.28	3/16/2026	105.12874	103.8147727	102.5281041	101.2678892	100.0333158	98.82360532	97.63801094	96.47581585	95.33633187
230317A00015	3/17/2023	4.13	3/17/2028	112.8711	109.4468411	106.1463372	102.964418	99.89615837	96.93686726	94.08207506	91.3275217	88.66914549
230317A00016	3/17/2023	4.22	3/17/2027	109.08402	106.7282051	104.4355816	102.2040568	100.0316196	97.91633944	95.85636249	93.84990791	91.89526447
230317A00024	3/17/2023	4.54	3/17/2025	101.1604	100.8629993	100.5673582	100.2734641	99.98130159	99.69085524	99.40210987	99.11505044	98.82966211
230317A00025	3/17/2023	4.35	3/17/2026	105.12693	103.8121298	102.5243429	101.2627397	100.0265268	98.81494324	97.62725865	96.4627717	95.32080869
230317A00026	3/17/2023	4.22	3/17/2027	109.08402	106.7282051	104.4355816	102.2040568	100.0316196	97.91633944	95.85636249	93.84990791	91.89526447
230317A00031	5/18/2023	4.3	5/19/2025	101.74904	101.2764867	100.8083343	100.3445239	99.88499521	99.42968891	98.97854681	98.53151182	98.08852786
230317A00032	5/18/2023	4.27	5/19/2025	101.7349	101.2623833	100.7942695	100.3304974	99.87100676	99.41573825	98.96463371	98.51763602	98.07468911

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230317A00047	3/17/2023	4.1	3/17/2028	112.77143	109.3488226	106.0499307	102.8695803	99.8028479	96.8450438	93.9916998	91.23855713	88.58155539
230317A00048	3/17/2023	4.1	3/17/2028	112.77143	109.3488226	106.0499307	102.8695803	99.8028479	96.8450438	93.9916998	91.23855713	88.58155539
230317A00049	3/17/2023	4.1	3/17/2028	112.77143	109.3488226	106.0499307	102.8695803	99.8028479	96.8450438	93.9916998	91.23855713	88.58155539
230317A00050	3/17/2023	4.1	3/17/2028	112.77143	109.3488226	106.0499307	102.8695803	99.8028479	96.8450438	93.9916998	91.23855713	88.58155539
230317A00051	3/17/2023	4.35	3/17/2026	105.12693	103.8121298	102.5243429	101.2627397	100.0265268	98.81494324	97.62725865	96.4627717	95.32080869
230320A00005	3/20/2023	4.37	3/20/2025	101.14189	100.8362264	100.5324275	100.2304717	99.93034205	99.632022	99.33549509	99.04074511	98.74775602
230320A00006	3/20/2023	4.25	3/20/2026	105.03321	103.7115784	102.4162597	101.1464777	99.90148879	98.68057852	97.48306014	96.30827321	95.15558231
230320A00033	3/20/2023	4.35	3/20/2026	105.16465	103.842116	102.545905	101.2752457	100.0293943	98.80763586	97.60928327	96.43367569	95.28017737
230320A00092	3/20/2023	4.31	3/20/2026	105.11208	103.789901	102.4940469	101.2237385	99.97823209	98.75681292	97.55879402	96.3835147	95.23033935
230321A00001	3/21/2023	4.48	3/23/2026	105.37434	104.0428604	102.7370466	101.4561739	100.1995474	98.9664985	97.75638308	96.56858074	95.40249358
230321A00002	3/21/2023	4.33	3/19/2027	109.3612	106.9966695	104.6956802	102.4561264	100.2759903	98.15333442	96.08629769	94.07309192	92.11199843
230321A00009	3/21/2023	4.27	3/21/2028	113.38087	109.9371397	106.6181537	103.4187011	100.33382	97.35878344	94.48908619	91.72043348	89.04872977
230321A00025	3/21/2023	4.57	3/21/2025	101.21412	100.9055597	100.5988916	100.2940995	99.99116608	99.69007434	99.39080741	99.09334865	98.79768162
230321A00029	3/21/2023	4.57	3/21/2025	101.21412	100.9055597	100.5988916	100.2940995	99.99116608	99.69007434	99.39080741	99.09334865	98.79768162
230321A00052	3/21/2023	4.62	3/21/2025	101.22952	100.920927	100.6142293	100.3094079	100.0064452	99.70532436	99.40602845	99.10854083	98.81284508
230321A00053	3/21/2023	4.27	3/21/2028	113.38087	109.9371397	106.6181537	103.4187011	100.33382	97.35878344	94.48908619	91.72043349	89.04872977
230321A00074	3/21/2023	4.23	3/21/2028	113.24753	109.8060222	106.4891994	103.2918519	100.2090201	97.2359786	94.36822423	91.60146399	88.931604
230322A00004	3/22/2023	4.3	3/22/2028	113.49211	110.0437759	106.7204241	103.5168365	100.4280425	97.44930587	94.57611292	91.80416034	89.12934425
230322A00005	3/22/2023	4.42	3/22/2029	118.17557	113.6113193	109.2537245	105.0923028	101.1171629	97.31896501	93.68888742	90.21859461	86.90020801
230322A00006	3/22/2023	4.53	3/22/2030	122.77684	117.0674119	111.6668207	106.556651	101.719684	97.13981149	92.8019582	88.69201038	84.79674951
230322A00007	3/22/2023	4.54	3/21/2031	126.55025	119.6978322	113.2752904	107.2532013	101.6043105	96.30335897	91.32692759	86.65329338	82.26229844
230322A00009	3/22/2023	4.59	3/22/2032	130.53433	122.5083452	115.0539121	108.1269281	101.6869235	95.69674272	90.12225721	84.93210362	80.09744635
230322A00015	3/22/2023	4.24	3/22/2028	113.29193	109.8469397	106.526838	103.3264133	100.2406979	97.26495861	94.3946845	91.62557494	88.95352862
230322A00020	3/22/2023	4.2	3/22/2029	117.59396	113.0314821	108.6760108	104.5170324	100.5446244	96.74941827	93.1225657	89.65570684	86.34094065
230322A00029	3/22/2023	4.67	3/21/2025	101.24492	100.9362942	100.6295671	100.3247162	100.0217244	99.72057438	99.42124949	99.12373302	98.82800853
230323A00027	3/23/2023	4.43	3/24/2025	101.20345	100.8866159	100.5717729	100.2589037	99.94798973	99.63901259	99.33195417	99.02679658	98.72352214
230323A00028	3/23/2023	4.1	3/23/2028	112.32289	109.0170186	105.8316002	102.7615639	99.80208213	96.94855598	94.19660308	91.54204629	88.98090286
230323A00029	3/23/2023	4.39	3/24/2031	125.62792	118.7957909	112.3932503	106.3908592	100.7613455	95.47943505	90.52169554	85.86639301	81.49336045
230323A00030	3/23/2023	4.72	3/23/2037	148.48268	134.4589347	121.991354	110.8950789	101.0082704	92.18912823	84.31330982	77.27169369	70.96843966
230323A00034	3/23/2023	4.23	3/23/2026	105.04365	103.7144721	102.4109168	101.1322642	99.87782064	98.64691834	97.43891429	96.25318902	95.08914552
230323A00048	3/23/2023	4.07	3/23/2028	112.73537	109.2969222	105.9833055	102.7893053	99.70995508	96.74052254	93.87649738	91.1135794	88.44766755
230323A00051	3/23/2023	3.85	3/23/2028	112.28081	108.8430579	105.5303349	102.3374141	99.2593143	96.29128977	93.42881756	90.66758574	88.00348227
230323A00054	3/23/2023	3.95	3/23/2028	112.33469	108.9029304	105.5958244	102.40816	99.33497665	96.37154813	93.51336965	90.75614639	88.09578245

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230323A00056	3/23/2023	4	3/23/2027	108.63753	106.2706504	103.9676818	101.7265147	99.54512688	97.4215755	95.35399345	93.34058582	91.37962664
230323A00058	3/23/2023	3.96	9/23/2027	110.46808	107.5699419	104.7637078	102.0459517	99.41339382	96.86289555	94.39145226	91.9961869	89.67434371
230323A00064	3/23/2023	4.25	3/21/2025	101.11558	100.8072091	100.5007299	100.1961258	99.89337959	99.59247419	99.29339277	98.99611869	98.70063551
230323A00065	3/23/2023	3.85	3/23/2028	112.28081	108.8430579	105.5303349	102.3374141	99.2593143	96.29128977	93.42881756	90.66758574	88.00348227
230323A00081	3/23/2023	3.85	3/23/2028	112.28081	108.8430579	105.5303349	102.3374141	99.2593143	96.29128977	93.42881756	90.66758574	88.00348227
230324A00001	3/24/2023	4.04	6/24/2026	105.7996	104.211107	102.6545063	101.1289054	99.63344547	98.16729908	96.72966876	95.31978566	93.93690826
230324A00006	3/24/2023	4.06	3/24/2026	104.83056	103.500371	102.1955518	100.9153992	99.65923673	98.42641312	97.21630061	96.02829412	94.86181011
230324A00009	3/24/2023	4.19	3/24/2025	101.12755	100.810865	100.496171	100.1834502	99.87268384	99.56385368	99.25694156	98.95192959	98.64880012
230324A00021	3/24/2023	3.72	3/24/2028	111.04355	107.8411831	104.7548807	101.7797639	98.91118804	96.14472847	93.47616892	90.90149056	88.4168616
230324A00023	3/24/2023	3.69	3/24/2028	111.75564	108.3239295	105.0172031	101.8302314	98.75803405	95.79586573	92.9392037	90.18373603	87.52535057
230324A00029	3/24/2023	4.01	3/24/2025	101.0958	100.7789018	100.4639955	100.151067	99.8400976	99.53106891	99.22396272	98.91876102	98.61544607
230324A00031	3/24/2023	4.01	3/24/2025	101.0958	100.7789018	100.4639955	100.151067	99.8400976	99.53106891	99.22396272	98.91876102	98.61544607
230324A00032	3/24/2023	3.93	3/24/2028	112.27812	108.8445766	105.535844	102.3467103	99.27220859	96.30760606	93.44839166	90.6902643	88.02912192
230324A00036	3/24/2023	3.98	3/24/2027	108.60129	106.2321212	103.9269926	101.6837921	99.50049548	97.37515746	95.30590844	93.29095088	91.32855609
230324A00050	3/24/2023	4.13	3/24/2026	102.6259	101.9073256	101.2011101	100.5069037	99.82437128	99.15319107	98.49305359	97.84366119	97.20472738
230327A00045	3/27/2023	4.42	3/27/2025	101.23264	100.9074536	100.5843564	100.2633325	99.94436198	99.62742509	99.31250245	98.99957486	98.68862337
230327A00046	3/27/2023	4.22	3/27/2026	105.07929	103.7398903	102.4252004	101.1345723	99.86737942	98.62301684	97.40090041	96.20046587	95.02116798
230327A00047	3/27/2023	4.08	3/27/2028	112.81128	109.3605946	106.0355345	102.8308539	99.7415559	96.76287803	93.8902802	91.11943298	88.44620668
230328A00011	3/28/2023	4.53	3/28/2025	101.27944	100.9513836	100.6254592	100.3016419	99.97991129	99.66024729	99.34263	99.0270398	98.7134573
230328A00019	3/28/2023	4.12	3/27/2026	105.05393	103.7130078	102.3968492	101.1048036	99.83624253	98.59055942	97.3671684	96.16550364	94.98501838
230328A00020	3/28/2023	3.98	3/28/2028	112.76845	109.3087922	105.9753358	102.7628112	99.66619302	96.68069166	93.80174125	91.02498782	88.34627824
230328A00024	3/28/2023	4.2	3/28/2028	113.22424	109.7638923	106.4295428	103.2159373	100.118065	97.13115013	94.25063951	91.47219103	88.79166271
230328A00026	3/28/2023	4.34	3/28/2029	117.89495	113.3200799	108.9531099	104.7834905	100.8012577	96.99700206	93.36183468	89.88735597	86.56562606
230328A00027	3/28/2023	4.22	3/28/2028	112.64901	109.3515164	106.1742913	103.1122599	100.1605906	97.31468147	94.57014816	91.92281206	89.3686897
230328A00028	3/28/2023	4.34	3/27/2026	105.50757	104.1031397	102.7246524	101.3714479	100.0428879	98.73835517	97.45725276	96.19900309	94.9630472
230328A00037	3/28/2023	4.21	3/28/2028	112.99939	109.6031226	106.3317602	103.1800162	100.1428538	97.21547626	94.39331361	91.6720111	89.04741769
230328A00045	3/28/2023	4.21	3/28/2028	112.99939	109.6031226	106.3317602	103.1800162	100.1428538	97.21547626	94.39331361	91.6720111	89.04741769
230328A00047	3/28/2023	4.21	3/28/2028	112.99939	109.6031226	106.3317602	103.1800162	100.1428538	97.21547626	94.39331361	91.6720111	89.04741769
230328A00051	3/28/2023	4.53	3/28/2033	130.31419	122.103258	114.5264942	107.5301582	101.065378	95.08768276	89.55658309	84.43519427	79.68989649
230328A00052	3/28/2023	4.53	3/28/2033	130.31419	122.103258	114.5264942	107.5301582	101.065378	95.08768276	89.55658309	84.43519427	79.68989649
230328A00098	3/28/2023	4.24	3/29/2027	109.26329	106.8726476	104.5469035	102.28393	100.0816855	97.93820704	95.85160673	93.82006828	91.8418439
230328A00100	3/28/2023	4.19	3/28/2028	113.19072	109.7309265	106.397124	103.1840507	100.0866964	97.10028574	94.2202661	91.44229582	88.76223332
230328A00111	3/28/2023	4.36	3/27/2026	105.26602	103.9253138	102.6093384	101.3174465	100.049011	98.80342638	97.58010792	96.37849084	95.19802938

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230328A00122	3/28/2023	4.58	3/28/2025	101.2958	100.9677171	100.6417595	100.3179091	99.99614566	99.67644894	99.35879908	99.04317645	98.7295617
230329A00020	3/29/2023	4.23	3/29/2028	113.33587	109.8708967	106.5321668	103.3144133	100.2126163	97.22199094	94.33797529	91.55621861	88.8725705
230329A00043	3/29/2023	4.36	3/27/2026	105.26602	103.9253138	102.6093384	101.3174465	100.049011	98.80342638	97.58010792	96.37849084	95.19802938
230330A00011	3/30/2023	4.21	3/30/2028	113.27975	109.8129651	106.4725928	103.2533555	100.1502269	97.1584155	94.27335299	91.49068225	88.80624661
230330A00029	3/30/2023	4.6	4/1/2025	101.34754	101.0082868	100.6713062	100.3365726	100.0040637	99.67375743	99.34563192	99.01966564	98.69583734
230330A00061	3/30/2023	4.65	3/31/2025	101.35298	101.0164718	100.6821952	100.3501275	100.0202468	99.69253184	99.36696121	99.04351398	98.72216947
230330A00062	3/30/2023	4.42	3/30/2026	105.38436	104.0353271	102.7103547	101.4088474	100.1302285	98.87393975	97.63944091	96.42620877	95.23373662
230330A00080	3/30/2023	4.44	3/31/2025	101.30921	100.9724989	100.6380196	100.3057543	99.97568101	99.64777816	99.3220244	98.99839866	98.67688016
230330A00083	3/30/2023	4.1	3/30/2027	109.13967	106.7438318	104.4131774	102.1455732	99.93896817	97.79139031	95.70094259	93.66579993	91.68420595
230331A00014	3/31/2023	4.34	3/31/2026	105.28954	103.93868	102.611638	101.3078395	100.0267251	98.76775302	97.53039811	96.31415158	95.11852018
230331A00033	3/31/2023	4.34	3/31/2026	105.28954	103.93868	102.611638	101.3078395	100.0267251	98.76775302	97.53039811	96.31415158	95.11852018
230331A00055	3/31/2023	4.5	3/31/2025	101.30263	100.9662296	100.6320576	100.3000941	99.97031711	99.64270526	99.31723726	98.99389218	98.6726493
230331A00057	3/31/2023	4.08	3/31/2028	112.8538	109.3914246	106.0554586	102.840623	99.74189071	96.75446924	93.873789	91.09549154	88.41541876
230404A00002	4/4/2023	4.1	4/2/2027	108.97807	106.5797981	104.2469167	101.9772869	99.76885067	97.61962902	95.52771814	93.49128621	91.50857029
230404A00004	4/4/2023	4.45	4/4/2025	101.32955	100.9820691	100.6369797	100.2942529	99.95386431	99.61579007	99.28000658	98.94649058	98.6152191
230404A00019	4/4/2023	4.45	4/4/2025	101.32955	100.9820691	100.6369797	100.2942529	99.95386431	99.61579007	99.28000658	98.94649058	98.6152191
230404A00040	4/4/2023	4.28	4/4/2025	101.2706	100.9232495	100.5782852	100.2356829	99.89541815	99.55746714	99.22180627	98.88841226	98.55726217
230405A00008	4/5/2023	4.01	10/6/2025	102.94424	102.0830719	101.2363358	100.403671	99.5847285	98.77917063	97.98667084	97.20691309	96.43959148
230405A00010	4/5/2023	3.96	4/6/2026	104.84211	103.4777913	102.1377986	100.8215341	99.52842084	98.25790001	97.00943044	95.78248781	94.57656406
230405A00012	4/5/2023	3.8	4/5/2028	111.96347	108.5020606	105.1676462	101.9549017	98.85875557	95.87437452	92.99715071	90.22269017	87.54680172
230405A00020	4/5/2023	4.17	4/4/2025	101.23246	100.8851897	100.5403065	100.1977846	99.85760005	99.51972878	99.18414724	98.85083217	98.51976063
230405A00021	4/5/2023	3.96	4/6/2026	104.84211	103.4777913	102.1377986	100.8215341	99.52842084	98.25790001	97.00943044	95.78248781	94.57656406
230405A00022	4/5/2023	3.8	4/5/2028	111.96347	108.5020606	105.1676462	101.9549017	98.85875557	95.87437452	92.99715071	90.22269017	87.54680172
230405A00037	4/5/2023	3.71	4/6/2026	104.61176	103.2473468	101.9072815	100.5909716	99.29783879	98.02732344	96.77888334	95.55199326	94.34614427
230405A00044	4/5/2023	3.8	4/5/2028	111.96347	108.5020606	105.1676462	101.9549017	98.85875557	95.87437452	92.99715071	90.22269017	87.54680172
230405A00045	4/5/2023	4.15	5/5/2025	101.53796	101.1045077	100.6747644	100.24868	99.82620784	99.40730193	98.99191723	98.58000938	98.17153478
230405A00046	4/5/2023	3.82	10/5/2027	110.19102	107.2636383	104.4300853	101.6868588	99.03060398	96.45810888	93.96629763	91.55222378	89.2130642
230405A00049	4/5/2023	3.81	4/5/2028	111.99722	108.5352394	105.2002711	101.9869876	98.89031707	95.90542553	93.02770472	90.2527602	87.57640036
230405A00051	4/5/2023	4.17	4/7/2025	101.2629	100.9073013	100.5542084	100.2035942	99.85543253	99.50969767	99.16636423	98.82540716	98.48680176
230406A00016	4/6/2023	3.89	4/6/2028	111.31248	108.111476	105.0268829	102.0537783	99.18747924	96.42352609	93.75767073	91.18586525	88.70425141
230406A00017	4/6/2023	3.99	4/7/2025	101.22725	100.8714116	100.5180823	100.1672373	99.81885032	99.47289555	99.12934744	98.78818084	98.44937095
230406A00023	4/6/2023	3.84	4/6/2028	112.10872	108.6420634	105.3026616	102.0851811	98.98453682	95.99588215	93.11459702	90.33627591	87.65671677
230406A00026	4/6/2023	3.92	4/6/2027	108.59557	106.1907227	103.8517535	101.5764983	99.36287486	97.20888117	95.11259171	93.07215407	91.08578581

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230406A00029	4/6/2023	3.84	4/6/2028	112.10872	108.6420634	105.3026616	102.0851811	98.98453682	95.99588215	93.11459702	90.33627591	87.65671677
230406A00038	4/6/2023	4.24	4/7/2025	101.28775	100.9321011	100.5789545	100.228287	99.88007223	99.53428458	99.19089861	98.84988928	98.51123188
230406A00039	3/29/2024	3.43	3/31/2026	104.06573	102.7235083	101.4049598	100.1095116	98.83660832	97.58571179	96.35630063	95.14786952	93.95992856
230406A00041	5/31/2024	3.25	5/29/2026	104.32235	102.8179732	101.3430269	99.89672646	98.47831082	97.08704517	95.72222006	94.38315031	93.06917389
230406A00042	4/6/2023	3.99	4/7/2025	101.22725	100.8714116	100.5180823	100.1672373	99.81885032	99.47289555	99.12934744	98.78818084	98.44937095
230406A00043	7/31/2024	3.2	7/31/2026	104.78346	103.1032855	101.4582395	99.84728906	98.26943763	96.72372744	95.20923777	93.72508312	92.27041147
230406A00044	9/30/2024	3.16	9/30/2026	105.22435	103.3737943	101.564875	99.79641097	98.06726626	96.3763438	94.72258392	93.10496285	91.52249124
230406A00045	4/29/2024	3.41	4/30/2027	107.60515	105.1455357	102.7551063	100.4315246	98.17254937	95.97602791	93.83989214	91.76215461	89.74090492
230406A00046	6/28/2024	3.35	6/30/2027	107.99571	105.3640665	102.8105755	100.3324424	97.9269874	95.59164415	93.32395404	91.12156094	88.98220621
230406A00047	8/30/2024	3.31	8/31/2027	108.42184	105.616964	102.8994709	100.266062	97.71358619	95.23903494	92.83953409	90.51233694	88.25481747
230406A00049	10/31/2024	3.29	10/29/2027	108.86949	105.8966249	103.0211685	100.2394075	97.54778833	94.94291174	92.42152572	89.98051808	87.61690966
230406A00050	4/6/2023	3.67	4/6/2027	108.19829	105.7942289	103.4561317	101.1818257	98.96922363	96.81631866	94.72118084	92.68195358	90.69685048
230406A00052	4/6/2023	4.02	4/6/2026	104.92379	103.5588938	102.218328	100.9015002	99.60783295	98.33676732	97.08776185	95.86029201	94.65384948
230406A00091	4/6/2023	3.99	4/7/2025	101.22725	100.8714116	100.5180823	100.1672373	99.81885032	99.47289555	99.12934744	98.78818084	98.44937095
230406A00105	4/6/2023	3.84	4/6/2028	112.10872	108.6420634	105.3026616	102.0851811	98.98453682	95.99588215	93.11459702	90.33627591	87.65671677
230410A00011	4/10/2023	4.08	4/9/2027	109.00736	106.5891775	104.2374251	101.9499094	99.72452479	97.5592468	95.45212872	93.40129801	91.40495307
230410A00012	4/10/2023	3.98	4/10/2028	112.62418	109.1375758	105.7792677	102.5438612	99.42621612	96.42143446	93.52484769	90.73200477	88.0386608
230411A00028	4/11/2023	4.2	4/11/2025	101.34364	100.9765069	100.6120497	100.2502365	99.89103834	99.53442678	99.18037384	98.8288519	98.47983375
230411A00030	4/11/2023	4.2	4/11/2025	101.34364	100.9765069	100.6120497	100.2502365	99.89103834	99.53442678	99.18037384	98.8288519	98.47983375
230411A00054	4/11/2023	3.74	4/11/2028	112.10508	108.6173965	105.2583898	102.0226383	98.90497592	95.90048039	93.00446063	90.21244448	87.52016733
230412A00002	4/12/2023	4.42	4/11/2025	101.39502	101.0281036	100.6638579	100.3022504	99.94325234	99.58683544	99.2329718	98.88163393	98.53279475
230412A00005	4/12/2023	4.16	4/10/2026	105.15901	103.7813317	102.4283943	101.0995839	99.79430971	98.5119995	97.25209933	96.01407267	94.79739971
230412A00006	4/12/2023	4.04	4/12/2027	108.9447	106.5188929	104.1599404	101.8656302	99.6338364	97.46251556	95.34970291	93.2935088	91.2921154
230412A00007	4/12/2023	3.95	4/12/2028	112.54366	109.0527949	105.6905957	102.451638	99.33075966	96.32304181	93.42379654	90.62855459	87.93305406
230412A00028	4/12/2023	3.69	4/12/2028	111.94538	108.457593	105.0986126	101.8630043	98.74559253	95.74144662	92.84586739	90.05437521	87.36269856
230412A00031	4/12/2023	3.91	4/10/2026	104.92699	103.5492122	102.1962043	100.8673512	99.56206082	98.2797599	97.01989352	95.78192419	94.56533119
230412A00033	4/12/2023	4.04	4/12/2027	108.9447	106.5188929	104.1599404	101.8656302	99.6338364	97.46251556	95.34970291	93.2935088	91.2921154
230412A00038	4/12/2023	3.69	4/12/2028	111.94538	108.457593	105.0986126	101.8630043	98.74559253	95.74144662	92.84586739	90.05437521	87.36269856
230412A00053	4/12/2023	4.2	4/12/2028	111.16097	108.2864012	105.5127044	102.8356797	100.2513277	97.75583921	95.34558445	93.01710378	90.76709859
230412A00059	4/12/2023	4.2	4/12/2028	111.16097	108.2864012	105.5127044	102.8356797	100.2513277	97.75583921	95.34558445	93.01710378	90.76709859
230413A00017	4/13/2023	3.88	4/13/2028	112.31644	108.8266289	105.4655727	102.2278443	99.10827315	96.10193298	93.2041288	90.41038487	87.71643326
230413A00018	4/13/2023	3.96	4/13/2027	108.76445	106.3380336	103.9785702	101.6838442	99.45172416	97.28016155	95.16718659	93.11090498	91.10949449
230413A00020	4/13/2023	3.88	4/13/2028	112.31644	108.8266289	105.4655727	102.2278443	99.10827315	96.10193298	93.2041288	90.41038487	87.71643326

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230413A00021	4/13/2023	4.07	4/13/2026	105.0682	103.6828543	102.32252	100.9865744	99.67441711	98.38546691	97.11916118	95.87495507	94.65232079
230413A00024	4/13/2023	4.41	4/14/2025	101.42378	101.0485325	100.6760705	100.3063671	99.9393915	99.57511358	99.21350349	98.85453186	98.49816977
230413A00030	4/13/2023	4.33	4/14/2025	101.39383	101.0186442	100.6462495	100.276613	99.909704	99.54549231	99.1839481	98.825042	98.46874509
230413A00031	4/13/2023	4.07	4/13/2026	105.0682	103.6828543	102.32252	100.9865744	99.67441711	98.38546691	97.11916118	95.87495507	94.65232079
230413A00045	4/13/2023	4.33	4/11/2025	101.36206	100.9952244	100.6310514	100.2695163	99.91059017	99.55424486	99.20045244	98.84918543	98.50041672
230413A00069	4/13/2023	4.33	4/14/2025	101.39383	101.0186442	100.6462495	100.276613	99.909704	99.54549231	99.1839481	98.825042	98.46874509
230413A00082	4/13/2023	4.01	4/13/2027	108.88386	106.4559983	104.0951201	101.7990095	99.56553415	97.39264461	95.2783703	93.22081614	91.2181591
230417A00023	4/17/2023	3.86	4/7/2028	112.47034	108.9877206	105.6331504	102.4012454	99.28688086	96.28517303	93.39146677	90.60132348	87.91050996
230417A00034	4/17/2023	4.63	4/17/2025	101.54042	101.1566211	100.7757387	100.3977378	100.0225856	99.6502499	99.28069887	98.91390126	98.54982624
230417A00036	4/17/2023	4.63	4/17/2025	101.54042	101.1566211	100.7757387	100.3977378	100.0225856	99.6502499	99.28069887	98.91390126	98.54982624
230417A00037	4/17/2023	4.39	4/16/2026	105.54541	104.1482705	102.7764877	101.4294252	100.106471	98.80703304	97.53053825	96.2764317	95.04417601
230417A00042	4/17/2023	4.58	4/17/2025	101.52128	101.137527	100.7566884	100.3787311	100.0036222	99.63132955	99.26182137	98.89506637	98.53103373
230417A00044	4/17/2023	4.32	4/17/2026	105.45977	104.0604742	102.6866182	101.3375638	100.012696	98.71141988	97.43315952	96.1773574	94.94347359
230417A00045	4/17/2023	4.21	4/16/2027	109.39534	106.9528798	104.5779843	102.2684091	100.0219974	97.83667638	95.71045322	93.64141177	91.62770897
230417A00046	4/17/2023	4.13	4/17/2028	113.2099	109.6936419	106.3073612	103.045566	99.90302417	96.87475167	93.95599906	91.14223928	88.42915609
230417A00085	4/17/2023	4.68	4/17/2026	103.14355	102.3828294	101.6351408	100.9001286	100.1774487	99.46676995	98.76777365	98.08015278	97.40361158
230418A00007	4/18/2023	4.61	4/18/2025	101.54413	101.1575584	100.7739479	100.3932597	100.0154604	99.64051698	99.26839711	98.89906881	98.53250064
230418A00035	4/18/2023	4.13	4/18/2028	106.85051	105.0502621	103.2995534	101.5966147	99.93975239	98.32734604	96.75784441	95.22976211	93.74167629
230418A00057	4/18/2023	4.36	4/18/2025	101.47849	101.0917272	100.7079229	100.3270469	99.94906572	99.57394623	99.20165587	98.83216258	98.46543478
230418A00059	4/18/2023	4.09	4/17/2026	105.25253	103.8529364	102.4788177	101.1295326	99.80446486	98.50301831	97.22461593	95.96869908	94.73472682
230419A00016	4/19/2023	4.41	4/18/2025	101.49777	101.1109627	100.727114	100.3461938	99.96816868	99.59300549	99.22067167	98.85113516	98.48436438
230419A00024	4/19/2023	4.66	4/18/2025	101.5634	101.1767905	100.7931356	100.4124032	100.03456	99.65957293	99.28740964	98.91803816	98.55142705
230419A00030	4/19/2023	4.39	4/20/2026	105.59256	104.1839504	102.8010831	101.4433094	100.110004	98.8005621	97.51439814	96.25094548	95.00965544
230419A00035	4/19/2023	4.16	4/19/2028	113.33443	109.8104017	106.4168198	103.1481586	99.99916052	96.96481721	94.0403566	91.2212304	88.50310239
230419A00072	4/19/2023	4.53	10/20/2025	103.54855	102.6461449	101.7595221	100.8882685	100.0319861	99.19029072	98.36281134	97.54918929	96.74907795
230420A00003	4/20/2023	4.06	4/20/2026	105.24408	103.8362012	102.4540815	101.0970708	99.7645429	98.45589214	97.17053234	95.90789613	94.66743418
230420A00024	4/20/2023	4.31	4/20/2026	105.48055	104.0727629	102.6907017	101.3337206	100.0011944	98.69251876	97.40710847	96.14439722	94.90383666
230420A00056	4/20/2023	4.38	4/20/2033	132.68376	123.4609461	114.9791494	107.1742507	99.98801169	93.36750539	87.26460673	81.63553373	76.44043487
230420A00059	4/20/2023	4.72	4/20/2038	151.65884	136.3548967	122.8729292	110.9808668	100.4775706	91.18855402	82.96231736	75.66720258	69.18869348
230420A00060	4/20/2023	4.72	4/20/2038	151.65884	136.3548967	122.8729292	110.9808668	100.4775706	91.18855402	82.96231736	75.66720258	69.18869348
230420A00063	4/20/2023	4.65	4/20/2037	147.8529	133.7887649	121.2950604	110.1841569	100.2919103	91.47461015	83.60633504	76.57666186	70.28868083
230420A00067	4/20/2023	4.57	4/21/2025	101.56246	101.1675612	100.7757485	100.3869815	100.0012248	99.61844332	99.23860276	98.86166914	98.4876091
230420A00071	4/20/2023	4.31	4/20/2026	105.48055	104.0727629	102.6907017	101.3337206	100.0011944	98.69251876	97.40710847	96.14439722	94.90383666

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	Parallel-Shift Sensitivity Analysis											
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230421A00006	4/21/2023	4.04	4/21/2028	112.94645	109.4234076	106.031033	102.7637825	99.61638092	96.58380361	93.66126332	90.84419769	88.12825742
230421A00015	4/21/2023	4.54	4/21/2025	101.55064	101.1557738	100.7639887	100.3752493	99.98951998	99.60676581	99.22695235	98.85004569	98.47601245
230421A00020	4/21/2023	4.23	4/21/2026	105.37989	103.9700581	102.5860372	101.2271762	99.89284721	98.58244275	97.29537501	96.03107501	94.78899187
230421A00025	4/21/2023	4.04	4/21/2028	112.94645	109.4234076	106.031033	102.7637825	99.61638092	96.58380361	93.66126332	90.84419769	88.12825742
230421A00036	4/21/2023	4.48	4/21/2025	101.52701	101.1321989	100.7404692	100.3517849	99.96611045	99.58341079	99.20365154	98.82679878	98.45281915
230421A00041	4/21/2023	4.22	4/21/2027	109.47583	107.0183804	104.6292593	102.3061879	100.0469741	97.84951143	95.71177519	93.63181904	91.60777127
230421A00043	4/21/2023	4.1	4/21/2028	113.15158	109.6250359	106.2292531	102.9586876	99.80806085	96.77234513	93.84675017	91.02671068	88.30787459
230421A00044	4/21/2023	4.13	10/21/2027	111.25129	108.2650513	105.3757199	102.5796321	99.87327913	97.25330392	94.7164935	92.2597721	89.8801944
230421A00062	4/21/2023	4.33	4/21/2028	107.2358	105.3914694	103.5982737	101.854382	100.1580402	98.50756967	96.90136403	95.33788497	93.8156591
230421A00064	4/21/2023	4.1	4/21/2028	113.15158	109.6250359	106.2292531	102.9586876	99.80806085	96.77234513	93.84675017	91.02671068	88.30787459
230424A00003	4/24/2023	4.15	4/26/2027	109.36268	106.8925916	104.4915598	102.1572612	99.88746932	97.68004515	95.53293334	93.44415836	91.41182089
230424A00005	4/24/2023	4.08	4/24/2028	113.11597	109.5815774	106.1785358	102.9012655	99.74445275	96.7030367	93.77219625	90.9473372	88.22408041
230424A00010	4/24/2023	4.55	4/24/2025	101.58816	101.184918	100.7848832	100.3880192	99.99428822	99.60365326	99.21607782	98.83152599	98.44996241
230424A00011	4/24/2023	4.55	4/24/2025	101.58816	101.184918	100.7848832	100.3880192	99.99428822	99.60365326	99.21607782	98.83152599	98.44996241
230424A00012	4/24/2023	4.28	4/24/2026	105.48448	104.0655392	102.6727066	101.3053244	99.9627542	98.64437867	97.3496004	96.07784127	94.82854166
230424A00026	4/24/2023	4.28	4/24/2026	105.48448	104.0655392	102.6727066	101.3053244	99.9627542	98.64437867	97.3496004	96.07784127	94.82854166
230424A00064	4/24/2023	4.28	4/24/2026	105.48448	104.0655392	102.6727066	101.3053244	99.9627542	98.64437867	97.3496004	96.07784127	94.82854166
230425A00006	4/25/2023	3.89	4/24/2026	105.04848	103.6309151	102.2394654	100.8734713	99.53229378	98.21531486	96.92193667	95.65158066	94.40368678
230425A00011	4/25/2023	4.3	9/25/2025	103.07712	102.2454692	101.4272683	100.6221911	99.82992356	99.0501612	98.28260933	97.5269824	96.78300372
230425A00024	4/25/2023	4.48	4/25/2025	101.57101	101.1650451	100.762331	100.3628292	99.96650128	99.57330959	99.18321689	98.7961866	98.41218269
230425A00029	4/25/2023	4.14	4/24/2026	105.28692	103.8694365	102.4780364	101.1120625	99.77087694	98.45386297	97.16042384	95.88998202	94.64197845
230425A00030	4/25/2023	4.01	4/26/2027	109.02331	106.5573907	104.1604372	101.8301291	99.56424254	97.36064103	95.21727165	93.1321612	91.10341261
230425A00031	4/25/2023	3.69	4/25/2028	112.07665	108.5500457	105.1549413	101.8857328	98.73708802	95.70392927	92.78141981	89.96495112	87.25013082
230425A00032	4/25/2023	3.95	4/25/2028	112.68101	109.1512484	105.752839	102.4801925	99.32799012	96.29116675	93.36489715	90.5445835	87.82584337
230425A00040	4/25/2023	3.89	4/24/2026	105.04848	103.6309151	102.2394654	100.8734713	99.53229378	98.21531486	96.92193667	95.65158066	94.40368678
230425A00045	4/25/2023	3.95	4/25/2028	112.68101	109.1512484	105.752839	102.4801925	99.32799012	96.29116675	93.36489715	90.5445835	87.82584337
230425A00047	4/25/2023	4.01	4/26/2027	109.02331	106.5573907	104.1604372	101.8301291	99.56424254	97.36064103	95.21727165	93.1321612	91.10341261
230425A00050	4/25/2023	4.14	4/24/2026	105.28692	103.8694365	102.4780364	101.1120625	99.77087694	98.45386297	97.16042384	95.88998202	94.64197845
230425A00052	4/25/2023	4.01	4/26/2027	109.02331	106.5573907	104.1604372	101.8301291	99.56424254	97.36064103	95.21727165	93.1321612	91.10341261
230425A00053	4/25/2023	4.14	4/24/2026	105.28692	103.8694365	102.4780364	101.1120625	99.77087694	98.45386297	97.16042384	95.88998202	94.64197845
230425A00104	4/25/2023	3.86	7/15/2026	105.86411	104.2154993	102.6007759	101.0189577	99.46910332	97.9503074	96.46169858	95.00243797	93.57171768
230425A00124	4/25/2023	4.42	4/25/2025	101.54672	101.1408084	100.7381527	100.3387091	99.94243898	99.54930475	99.15926918	98.77229569	98.38834827
230426A00003	4/26/2023	3.89	5/9/2028	112.61769	109.0505004	105.6174595	102.3127986	99.13103075	96.06693347	93.1155345	90.27209843	87.53211409

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	Parallel-Shift Sensitivity Analysis											
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230426A00004	4/26/2023	3.89	5/9/2028	112.61769	109.0505004	105.6174595	102.3127986	99.13103075	96.06693347	93.1155345	90.27209843	87.53211409
230426A00005	4/26/2023	3.91	6/13/2028	113.04792	109.376541	105.8465012	102.4515731	99.18584079	96.04368127	93.01974814	90.10895638	87.30646793
230426A00006	4/26/2023	3.91	6/13/2028	113.04792	109.376541	105.8465012	102.4515731	99.18584079	96.04368127	93.01974814	90.10895638	87.30646793
230426A00007	4/26/2023	3.92	7/11/2028	113.37838	109.6227787	106.0141466	102.5458923	99.21176378	96.00582459	92.92243624	89.95624118	87.10214712
230426A00008	4/26/2023	3.92	7/11/2028	113.37838	109.6227787	106.0141466	102.5458923	99.21176378	96.00582459	92.92243624	89.95624118	87.10214712
230426A00009	4/26/2023	3.94	8/8/2028	113.74091	109.9019116	106.2156219	102.6750793	99.27368108	96.00516487	92.86358859	89.84331196	86.9389792
230426A00010	4/26/2023	3.94	8/8/2028	113.74091	109.9019116	106.2156219	102.6750793	99.27368108	96.00516487	92.86358859	89.84331196	86.9389792
230426A00011	4/26/2023	3.96	9/12/2028	114.1821	110.2376892	106.4535256	102.8221969	99.33667776	95.99030706	92.77676685	89.69006236	86.72450359
230426A00012	4/26/2023	3.96	9/12/2028	114.1821	110.2376892	106.4535256	102.8221969	99.33667776	95.99030706	92.77676685	89.69006236	86.72450359
230426A00013	4/26/2023	3.98	10/10/2028	114.55344	110.5236143	106.6604253	102.9561133	99.40331641	95.99505153	92.72469337	89.58595406	86.57286424
230426A00014	4/26/2023	3.98	10/10/2028	114.55344	110.5236143	106.6604253	102.9561133	99.40331641	95.99505153	92.72469337	89.58595406	86.57286424
230426A00025	4/26/2023	3.62	4/26/2028	111.84612	108.3206661	104.926799	101.6589126	98.51166653	95.47997549	92.55899562	89.74411182	87.03092566
230426A00033	4/26/2023	3.88	4/26/2028	112.45129	108.9226537	105.5254643	102.254123	99.10330265	96.06793051	93.14317426	90.32442955	87.60730785
230426A00036	4/26/2023	4.06	4/27/2026	105.20666	103.7814285	102.3825637	101.0093939	99.66127156	98.33757034	97.03768448	95.7610278	94.50703297
230426A00037	4/26/2023	3.94	4/26/2027	108.85362	106.3897902	103.9948759	101.6665631	99.40262915	97.20093898	95.05944081	92.97616262	90.94920847
230426A00040	4/26/2023	3.9	4/26/2028	112.51994	108.9901292	105.5917947	102.3193398	99.16743612	96.13100987	93.20522772	90.38548433	87.66739025
230426A00043	4/26/2023	4.35	4/22/2025	101.48645	101.0889742	100.6946207	100.3033534	99.91513606	99.52993297	99.14770905	98.76842974	98.39206101
230426A00045	4/26/2023	4.34	4/25/2025	101.51432	101.1084928	100.7059151	100.3065489	99.91035591	99.51729829	99.1273389	98.74044116	98.35656904
230426A00046	4/26/2023	3.95	4/26/2028	112.69157	109.1588179	105.7576208	102.4823818	99.32776979	96.28870826	93.36036137	90.53812129	87.81759625
230426A00049	4/26/2023	4.13	4/27/2026	105.30602	103.8800514	102.4804621	101.1065801	99.75775742	98.43336761	97.13280451	95.85548165	94.60083141
230426A00057	4/26/2023	4.44	4/25/2025	101.55481	101.1488873	100.7462122	100.3467491	99.95045975	99.55730636	99.16725175	98.78025933	98.39629308
230426A00062	4/26/2023	4.13	4/27/2026	105.30602	103.8800514	102.4804621	101.1065801	99.75775742	98.43336761	97.13280451	95.85548165	94.60083141
230426A00064	6/15/2023	3.87	6/15/2028	112.92642	109.2515414	105.7183272	102.3205274	99.05220505	95.90771776	92.88170094	89.96905269	87.16491924
230426A00065	6/15/2023	3.87	6/15/2028	112.92642	109.2515414	105.7183272	102.3205274	99.05220505	95.90771776	92.88170094	89.96905269	87.16491924
230426A00142	4/26/2023	4.51	4/27/2026	103.02155	102.2599817	101.5114874	100.77571	100.0523035	99.34093556	98.64128585	97.95304605	97.27591908
230427A00066	4/27/2023	4.07	4/27/2027	109.17964	106.7090051	104.3075224	101.9728686	99.70281118	97.495206	95.34799264	93.25919081	91.22689672
230427A00069	4/27/2023	4.5	4/28/2025	101.61227	101.1979152	100.7869384	100.379301	99.97496232	99.57388242	99.17602202	98.78134246	98.38980569
230427A00077	4/27/2023	4.14	10/27/2026	107.32869	105.3852099	103.4869167	101.6324833	99.82063498	98.05014236	96.31981966	94.62852279	92.97514757
230428A00010	4/28/2023	4.31	4/28/2025	101.56675	101.152128	100.7408895	100.3329974	99.92841089	99.52708983	99.12899481	98.734087	98.34232821
230428A00017	4/28/2023	4.17	4/28/2026	105.37398	103.9447225	102.5419529	101.1649924	99.81318925	98.48591357	97.18255587	95.90252649	94.64525476
230428A00018	4/28/2023	3.99	4/28/2028	112.85023	109.3091189	105.9000485	102.6173896	99.45578493	96.41013279	93.47557396	90.64747867	87.92143451
230428A00026	4/28/2023	4.56	4/28/2025	101.63707	101.2226481	100.8116105	100.4039126	99.99951378	99.59837411	99.2004543	98.80571567	98.41412018
230428A00029	4/28/2023	4.23	4/28/2026	105.45931	104.0294197	102.6260267	101.2484533	99.8960477	98.56817955	97.26423915	95.98363659	94.72580096

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230428A00050	4/28/2023	4.31	4/28/2028	107.02528	105.2252152	103.4746491	101.7718103	100.1150074	98.50262194	96.93310481	95.40497249	93.9168039
230428A00054	4/28/2023	4.62	3/13/2025	101.13878	100.8524649	100.5677857	100.2847275	100.0032762	99.72341817	99.44513976	99.16842752	98.89326816
230428A00055	4/28/2023	4.61	4/28/2026	103.0987	102.3363872	101.5871725	100.8506913	100.1265973	99.41455747	98.7142511	98.02536935	97.34761468
230501A00011	5/1/2023	4.09	4/26/2027	109.21723	106.7489341	104.3496501	102.0170617	99.74894356	97.54315767	95.39764976	93.31044529	91.27964591
230501A00012	5/1/2023	3.98	5/1/2028	112.84744	109.2980283	105.8812596	102.5914706	99.42326775	96.37151571	93.43132363	90.59803213	87.86720109
230501A00013	5/1/2023	4.54	5/1/2025	101.66224	101.2394798	100.8202336	100.4044593	99.99211394	99.5831552	99.17754151	98.77523195	98.37618625
230501A00022	5/1/2023	4.54	5/1/2025	101.66224	101.2394798	100.8202336	100.4044593	99.99211394	99.5831552	99.17754151	98.77523195	98.37618625
230501A00038	5/1/2023	4.33	5/1/2025	101.60738	101.1843682	100.7648768	100.3488645	99.93628801	99.52710494	99.12127351	98.71875265	98.31950194
230501A00039	5/1/2023	4.33	5/1/2025	101.60738	101.1843682	100.7648768	100.3488645	99.93628801	99.52710494	99.12127351	98.71875265	98.31950194
230501A00041	5/1/2023	4.58	4/28/2025	101.64533	101.2308924	100.8198345	100.4121165	100.0076976	99.60653801	99.20859839	98.81384007	98.42222501
230502A00017	5/2/2023	4.26	5/4/2026	105.56903	104.1220262	102.7021164	101.308605	99.94081891	98.59810722	97.27984063	95.98541046	94.71422785
230502A00024	5/2/2023	4.38	5/2/2025	101.60546	101.1800921	100.7582852	100.3399964	99.9251817	99.51379799	99.1058028	98.70115436	98.29981159
230502A00038	5/2/2023	3.86	5/2/2028	112.44384	108.8986652	105.4861411	102.2005986	99.03663847	95.98912049	93.05314929	90.22406145	87.49741318
230502A00045	5/2/2023	4.38	5/2/2025	101.60546	101.1800921	100.7582852	100.3399964	99.9251817	99.51379799	99.1058028	98.70115436	98.29981159
230502A00047	5/2/2023	4.1	5/1/2026	105.307	103.8700065	102.4597769	101.0756292	99.71690169	98.38295462	97.07316927	95.78694712	94.52370899
230502A00052	5/2/2023	3.96	5/3/2027	108.9751	106.4904912	104.0758793	101.7288985	99.44727518	97.22882585	95.07145319	92.9731419	90.93195502
230502A00055	5/2/2023	4.08	5/4/2026	105.31005	103.864994	102.4469964	101.0553646	99.68942636	98.34853164	97.03205197	95.73937945	94.46992596
230502A00058	5/2/2023	4.39	5/2/2025	101.6097	101.1843246	100.762507	100.3442076	99.92938242	99.51798826	99.10998268	98.70532391	98.30397088
230502A00076	5/2/2023	3.95	5/3/2027	108.95067	106.4663599	104.0520439	101.7053525	99.42401235	97.20584023	95.04873892	92.9506933	90.90976659
230502A00079	5/2/2023	3.6	5/2/2028	111.83576	108.2937981	104.8846407	101.6025986	98.44225902	95.39846911	92.46632175	89.64114264	86.91847792
230502A00081	5/2/2023	3.96	5/3/2027	108.9751	106.4904912	104.0758793	101.7288985	99.44727518	97.22882585	95.07145319	92.9731419	90.93195502
230502A00086	5/2/2023	4.08	5/1/2026	105.27839	103.8416108	102.4315914	101.0476502	99.68912582	98.35537846	97.04578953	95.75976059	94.49671253
230502A00120	5/2/2023	4.38	5/2/2025	101.60546	101.1800921	100.7582852	100.3399964	99.9251817	99.51379799	99.1058028	98.70115436	98.29981159
230502A00122	5/2/2023	3.7	5/3/2027	108.5413	106.0578718	103.6445267	101.2988883	99.01867765	96.80170641	94.64587243	92.54915596	90.50961588
230503A00004	5/3/2023	3.94	5/3/2027	108.92623	106.4422285	104.0282084	101.6818064	99.40074952	97.18285461	95.02602465	92.92824471	90.88757816
230503A00012	5/3/2023	3.82	5/3/2028	112.31574	108.7700546	105.3571659	102.0713873	98.90730988	95.85978395	92.92390556	90.09500322	87.36862569
230503A00014	5/3/2023	3.94	5/3/2027	108.92623	106.4422285	104.0282084	101.6818064	99.40074952	97.18285461	95.02602465	92.92824471	90.88757816
230503A00020	5/3/2023	3.84	5/3/2028	112.38478	108.8379025	105.4238562	102.136952	98.9717796	95.92318841	92.98627337	90.15636203	87.42900216
230503A00022	5/3/2023	4.4	5/2/2025	101.61395	101.188557	100.7667289	100.3484189	99.93358314	99.52217853	99.11416256	98.70949347	98.30813018
230503A00025	5/3/2023	3.84	5/3/2028	112.38478	108.8379025	105.4238562	102.136952	98.9717796	95.92318841	92.98627337	90.15636203	87.42900216
230503A00029	5/3/2023	4.08	5/4/2026	105.31005	103.864994	102.4469964	101.0553646	99.68942636	98.34853164	97.03205197	95.73937945	94.46992596
230503A00030	5/3/2023	3.84	5/3/2028	112.38478	108.8379025	105.4238562	102.136952	98.9717796	95.92318841	92.98627337	90.15636203	87.42900216
230503A00031	5/3/2023	4.4	5/2/2025	101.61395	101.188557	100.7667289	100.3484189	99.93358314	99.52217853	99.11416256	98.70949347	98.30813018

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230503A00032	5/3/2023	4.08	5/1/2026	105.27839	103.8416108	102.4315914	101.0476502	99.68912582	98.35537846	97.04578953	95.75976059	94.49671253
230503A00034	5/3/2023	3.84	5/3/2028	112.38478	108.8379025	105.4238562	102.136952	98.9717796	95.92318841	92.98627337	90.15636203	87.42900216
230503A00036	5/3/2023	4.15	5/2/2025	101.54174	101.1161343	100.6941023	100.2755954	99.86056947	99.44898126	99.04078811	98.63594809	98.23441998
230503A00038	5/3/2023	4.15	5/2/2025	101.54174	101.1161343	100.6941023	100.2755954	99.86056947	99.44898126	99.04078811	98.63594809	98.23441998
230503A00072	5/3/2023	3.83	5/4/2026	105.06696	103.6218335	102.2038037	100.8121706	99.4462603	98.10542162	96.78902488	95.49646106	94.22714099
230504A00006	5/4/2023	3.79	12/6/2027	110.7156	107.6098466	104.6089664	101.708829	98.9054885	96.19517706	93.57429568	91.03940558	88.5872201
230504A00007	5/4/2023	3.82	7/6/2027	109.27907	106.6142595	104.0288523	101.5199863	99.08492686	96.72105577	94.42586551	92.19695371	90.03201797
230504A00011	5/4/2023	3.7	5/4/2026	104.87981	103.4360889	102.0194424	100.6291688	99.26459513	97.92507069	96.60996641	95.31867387	94.05060444
230504A00019	5/4/2023	3.95	5/4/2026	105.12301	103.6793596	102.262743	100.8724687	99.50786507	98.16828261	96.85309349	95.56169038	94.29348571
230504A00020	5/4/2023	3.83	5/4/2027	108.66732	106.1838244	103.770394	101.4246562	99.14433263	96.9272353	94.7712626	92.67439527	90.63469264
230504A00021	5/4/2023	3.76	5/4/2028	112.11832	108.5733293	105.1612421	101.8763617	98.71327014	95.66680956	92.73206844	89.90436825	87.17925121
230504A00034	5/4/2023	3.95	5/4/2026	105.12301	103.6793596	102.262743	100.8724687	99.50786507	98.16828261	96.85309349	95.56169038	94.29348571
230504A00041	5/4/2023	3.95	5/4/2026	105.12301	103.6793596	102.262743	100.8724687	99.50786507	98.16828261	96.85309349	95.56169038	94.29348571
230504A00042	5/4/2023	3.83	5/4/2027	108.66732	106.1838244	103.770394	101.4246562	99.14433263	96.9272353	94.7712626	92.67439527	90.63469264
230504A00043	5/4/2023	3.76	5/4/2028	112.11832	108.5733293	105.1612421	101.8763617	98.71327014	95.66680956	92.73206844	89.90436825	87.17925121
230504A00046	5/4/2023	4.24	5/5/2025	101.57689	101.1433446	100.7135023	100.2873195	99.8647495	99.4457464	99.03026509	98.61826122	98.20969118
230504A00049	5/4/2023	3.95	5/4/2026	105.12301	103.6793596	102.262743	100.8724687	99.50786507	98.16828261	96.85309349	95.56169038	94.29348571
230504A00054	5/4/2023	3.95	5/4/2026	105.12301	103.6793596	102.262743	100.8724687	99.50786507	98.16828261	96.85309349	95.56169038	94.29348571
230504A00055	5/4/2023	4.24	5/5/2025	101.57689	101.1433446	100.7135023	100.2873195	99.8647495	99.4457464	99.03026509	98.61826122	98.20969118
230504A00057	5/4/2023	3.86	5/4/2026	104.99352	103.5508435	102.135183	100.7458485	99.38216879	98.04349483	96.72919916	95.43867487	94.17133477
230504A00058	5/4/2023	3.69	5/4/2028	111.87649	108.3356752	104.9276459	101.6467114	98.48745779	95.4447312	92.51362365	89.68946014	86.96778622
230504A00059	5/4/2023	4.34	5/4/2026	103.05055	102.2508491	101.4650216	100.6926839	99.9334714	99.18703343	98.45303206	97.73114178	97.02104881
230504A00065	5/4/2023	4.11	5/5/2025	101.52065	101.0872469	100.6575476	100.231507	99.80907821	99.3902155	98.97487374	98.56300856	98.15457637
230504A00069	5/4/2023	3.82	5/4/2026	104.93597	103.4937253	102.0784897	100.6895729	99.32630378	97.98803359	96.67413501	95.38400131	94.11704546
230504A00084	5/4/2023	3.5	5/4/2028	111.50879	107.9670534	104.5583621	101.2770111	98.11756881	95.07486478	92.14397564	89.32021199	86.59910595
230504A00085	5/4/2023	4.24	5/5/2025	101.57689	101.1433446	100.7135023	100.2873195	99.8647495	99.4457464	99.03026509	98.61826122	98.20969118
230505A00001	5/5/2023	4.33	5/5/2025	101.61583	101.1821815	100.7522402	100.325959	99.90329116	99.48419086	99.06861294	98.65651305	98.24784758
230505A00002	5/5/2023	4.01	5/5/2026	105.2197	103.7726396	102.3527282	100.9592661	99.59157769	98.24900982	96.93093103	95.63673056	94.36581759
230505A00005	5/5/2023	3.99	5/5/2026	105.19087	103.744026	102.3243278	100.9310754	99.563593	98.22122774	96.90334821	95.60934374	94.33862358
230505A00013	5/5/2023	4.33	5/5/2025	101.61583	101.1821815	100.7522402	100.325959	99.90329116	99.48419086	99.06861294	98.65651305	98.24784758
230505A00014	5/5/2023	3.59	5/5/2028	111.82962	108.2796173	104.863023	101.5741061	98.40741778	95.35777096	92.42022685	89.59008145	86.86285312
230505A00016	5/5/2023	3.85	5/5/2028	112.43918	108.8859419	105.4659582	102.1735177	99.00318512	95.94978624	93.00839407	90.17431553	87.44307915
230505A00017	5/5/2023	4.01	5/5/2026	105.2197	103.7726396	102.3527282	100.9592661	99.59157769	98.24900982	96.93093103	95.63673056	94.36581759

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230505A00022	5/5/2023	3.85	5/5/2028	112.43918	108.8859419	105.4659582	102.1735177	99.00318512	95.94978624	93.00839407	90.17431553	87.44307915
230505A00027	5/5/2023	4.01	5/5/2026	105.2197	103.7726396	102.3527282	100.9592661	99.59157769	98.24900982	96.93093103	95.63673056	94.36581759
230505A00035	5/5/2023	3.9	5/5/2027	108.8486	106.3601605	103.9419855	101.5916932	99.30699629	97.08569877	94.92569118	92.82494682	90.78151798
230505A00071	5/5/2023	3.85	5/5/2028	112.43918	108.8859419	105.4659582	102.1735177	99.00318512	95.94978624	93.00839407	90.17431553	87.44307915
230508A00007	5/8/2023	3.92	5/8/2028	112.71161	109.1455098	105.7134033	102.4095318	99.22841887	96.164852	93.21386815	90.37074051	87.63096591
230508A00012	5/8/2023	4.43	5/8/2025	101.69151	101.249405	100.8111593	100.3767181	99.94603181	99.51905185	99.09573036	98.67602032	98.25987553
230508A00016	5/8/2023	4.14	5/8/2026	105.43925	103.9824935	102.5532069	101.1506827	99.77423375	98.4231958	97.09692686	95.79480607	94.51623294
230508A00017	5/8/2023	4.01	5/10/2027	109.16975	106.6638106	104.2289812	101.8628336	99.56304191	97.32737287	95.15368213	93.03990985	90.98407693
230508A00018	5/8/2023	3.92	5/8/2028	112.71161	109.1455098	105.7134033	102.4095318	99.22841887	96.164852	93.21386815	90.37074051	87.63096591
230509A00009	5/9/2023	4.45	5/9/2025	101.71118	101.2662782	100.8252772	100.3881292	99.95478349	99.52519057	99.09930166	98.67706885	98.25844507
230509A00010	5/9/2023	4.14	5/8/2026	105.43925	103.9824935	102.5532069	101.1506827	99.77423375	98.4231958	97.09692686	95.79480607	94.51623294
230509A00035	5/9/2023	4.14	5/8/2026	105.43925	103.9824935	102.5532069	101.1506827	99.77423375	98.4231958	97.09692686	95.79480607	94.51623294
230509A00036	5/9/2023	4.02	5/10/2027	109.19437	106.6881304	104.2530006	101.8865592	99.58647999	97.35052962	95.17656349	93.06252163	91.00642475
230509A00047	5/9/2023	4.43	5/9/2025	101.70231	101.2574271	100.8164492	100.379324	99.94600103	99.51643068	99.0905642	98.66835369	98.24975206
230509A00048	5/9/2023	4.43	5/9/2025	101.70231	101.2574271	100.8164492	100.379324	99.94600103	99.51643068	99.0905642	98.66835369	98.24975206
230509A00060	5/9/2023	3.92	5/9/2028	112.72174	109.1527512	105.7179579	102.411593	99.22816787	96.16245838	93.20949069	90.36452785	87.62305726
230509A00118	5/9/2023	4.12	5/8/2026	105.41026	103.9537166	102.5246455	101.1223332	99.74609256	98.39525943	97.0691919	95.76726923	94.488891
230510A00007	5/10/2023	4.39	5/9/2025	101.68456	101.2397251	100.7987931	100.3617137	99.92843612	99.49891091	99.07308929	98.65092336	98.23236604
230510A00009	5/10/2023	4.07	5/11/2026	105.36934	103.9050624	102.4685463	101.0590703	99.67593661	98.3184708	96.98602115	95.67795753	94.39367056
230510A00014	5/10/2023	4.07	5/11/2026	105.36934	103.9050624	102.4685463	101.0590703	99.67593661	98.3184708	96.98602115	95.67795753	94.39367056
230510A00018	11/10/2023	3.61	11/10/2026	106.44186	104.4686817	102.5422828	100.6612652	98.82428439	97.03004513	95.27729885	93.56484174	91.89151285
230510A00031	5/10/2023	4.14	5/9/2025	101.60902	101.1639668	100.7228247	100.2855425	99.85206953	99.42235591	98.99635276	98.57401199	98.15528637
230510A00033	5/10/2023	4.39	5/12/2025	101.71664	101.2634554	100.8143264	100.3691953	99.92800871	99.49071429	99.05726046	98.62759663	98.20167305
230510A00037	5/10/2023	3.84	5/10/2028	112.45418	108.8871103	105.4543102	102.1500027	98.96869143	95.90514503	92.9543831	90.11166265	87.37246546
230510A00057	5/10/2023	3.98	5/11/2026	105.23811	103.7748312	102.3392958	100.9307837	99.54859751	98.19206337	96.86052992	95.55336745	94.26996696
230510A00062	8/10/2023	3.78	8/10/2026	105.85807	104.1416026	102.4614013	100.8163783	99.2054921	97.62774256	96.08216882	94.56784729	93.08388984
230511A00015	5/11/2023	4.25	5/12/2025	101.65335	101.2003404	100.7513777	100.306412	99.86538985	99.42825874	98.99496719	98.5654646	98.13970127
230511A00023	5/11/2023	3.95	5/19/2026	105.27591	103.7908824	102.3344073	100.9057304	99.50412467	98.12888801	96.7793421	95.45483143	94.15472236
230511A00029	5/11/2023	4.25	5/9/2025	101.62244	101.1777678	100.7369969	100.3000775	99.8669589	99.43759169	99.01192709	98.5899172	98.17151496
230511A00032	5/11/2023	3.7	5/11/2026	104.9479	103.4849013	102.0496749	100.6414978	99.25967133	97.90352039	96.57239256	95.26565708	93.98270399
230511A00034	5/11/2023	4	5/12/2025	101.57638	101.1231412	100.6739663	100.2287959	99.78757652	99.35025547	98.91678104	98.48710247	98.06116985
230511A00036	5/11/2023	3.79	5/19/2027	108.71567	106.1911142	103.738908	101.3565567	99.04167131	96.79195941	94.60522059	92.47934209	90.41229475
230511A00038	5/11/2023	3.95	5/11/2026	105.19437	103.7314208	102.2962123	100.8880215	99.50615115	98.14992756	96.81869951	95.51183742	94.22873242

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230511A00039	5/11/2023	3.86	11/27/2026	107.10757	105.0804394	103.1024399	101.1720691	99.28788391	97.44849513	95.65256488	93.89880441	92.18597192
230511A00042	5/11/2023	3.72	5/11/2028	112.04722	108.4844961	105.056047	101.7560895	98.57912166	95.51990722	92.57346134	89.735037	87.00011236
230511A00043	5/11/2023	3.72	5/16/2028	112.09514	108.5180289	105.0762288	101.7638878	98.57544212	95.50559736	92.54931443	89.70179558	86.95847151
230511A00044	5/11/2023	3.79	5/11/2027	108.6377	106.1357049	103.7048194	101.3426178	99.04677102	96.815043	94.64528674	92.53543998	90.48352138
230511A00046	5/11/2023	3.95	5/11/2026	105.19437	103.7314208	102.2962123	100.8880215	99.50615115	98.14992756	96.81869951	95.51183742	94.22873242
230511A00050	5/11/2023	3.98	5/11/2026	105.23811	103.7748312	102.3392958	100.9307837	99.54859751	98.19206337	96.86052992	95.55336745	94.26996696
230511A00052	5/11/2023	4.25	5/12/2025	101.65335	101.2003404	100.7513777	100.306412	99.86538985	99.42825874	98.99496719	98.5654646	98.13970127
230511A00068	5/11/2023	4.31	5/12/2025	101.68048	101.2273897	100.7783557	100.3333191	99.89222651	99.4550254	99.02166431	98.59209261	98.1662606
230511A00069	5/11/2023	3.98	5/12/2026	105.24839	103.7823477	102.3441539	100.9330804	99.54842631	98.1895141	96.8556891	95.54631838	94.26078988
230511A00080	5/11/2023	3.49	5/11/2028	111.53852	107.9772888	104.5505296	101.2524454	98.0775187	95.0204987	92.07638697	89.24042389	86.5080759
230512A00007	5/12/2023	4.08	5/12/2025	101.61254	101.1592144	100.7099443	100.2646793	99.82336592	99.38595145	98.95238421	98.5226134	98.09658912
230512A00008	5/12/2023	3.75	5/12/2026	105.03072	103.5644027	102.1259732	100.7146997	99.3298793	97.97083335	96.63690576	95.32746231	94.04188974
230512A00009	5/12/2023	4.08	5/12/2025	101.61254	101.1592144	100.7099443	100.2646793	99.82336592	99.38595145	98.95238421	98.5226134	98.09658912
230512A00010	5/12/2023	3.75	5/12/2026	105.03072	103.5644027	102.1259732	100.7146997	99.3298793	97.97083335	96.63690576	95.32746231	94.04188974
230512A00011	5/12/2023	3.78	5/12/2028	112.26541	108.6961841	105.2615444	101.9556869	98.77309392	95.70851438	92.75694936	89.91363866	87.17404805
230512A00022	5/12/2023	4.33	5/12/2025	101.68952	101.2364061	100.7873484	100.3422882	99.90117206	99.46394762	99.03056335	98.60096861	98.17511371
230512A00026	5/12/2023	4	5/12/2026	105.27761	103.8113424	102.3729298	100.9616414	99.57677599	98.217656	96.88362667	95.57405498	94.28832877
230512A00033	5/12/2023	3.75	5/12/2026	105.03072	103.5644027	102.1259732	100.7146997	99.3298793	97.97083335	96.63690576	95.32746231	94.04188974
230512A00037	5/12/2023	3.86	5/12/2027	108.82022	106.3132481	103.8775868	101.5108014	99.2105538	96.97459966	94.80078406	92.68703723	90.63137072
230512A00042	5/12/2023	4	5/12/2026	105.27761	103.8113424	102.3729298	100.9616414	99.57677599	98.217656	96.88362667	95.57405498	94.28832877
230515A00011	5/15/2023	4.11	5/15/2026	105.4702	103.9944202	102.5468121	101.1266411	99.73319437	98.36578326	97.02374231	95.7064283	94.41321934
230515A00031	5/15/2023	4.41	5/15/2025	101.75792	101.29636	100.839006	100.3857971	99.93667675	99.49158974	99.0504817	98.61329924	98.17998996
230515A00045	5/15/2023	4.08	5/15/2026	105.42613	103.9506833	102.5034068	101.0835618	99.69043548	98.32333942	96.98160828	95.66459898	94.37168976
230515A00072	5/15/2023	4.42	5/9/2025	101.69787	101.2530016	100.8120352	100.3749214	99.9416098	99.51205074	99.08619547	98.6639961	98.24540555
230515A00074	5/15/2023	4.11	5/15/2026	105.4702	103.9944202	102.5468121	101.1266411	99.73319437	98.36578326	97.02374231	95.7064283	94.41321934
230515A00078	5/15/2023	3.96	5/17/2027	109.11811	106.5939027	104.1418445	101.7594608	99.4443744	97.19430368	95.00705851	92.88053576	90.81271539
230515A00080	5/15/2023	3.88	5/15/2028	112.64315	109.0592143	105.6106521	102.2916171	99.09654825	96.02015403	93.05739758	90.20348311	87.45384298
230516A00009	5/16/2023	4.46	5/16/2025	101.79182	101.3274134	100.8672628	100.4113069	99.95948836	99.51175081	99.06803896	98.6282985	98.1924761
230516A00013	5/16/2023	4.11	5/15/2026	105.4702	103.9944202	102.5468121	101.1266411	99.73319437	98.36578326	97.02374231	95.7064283	94.41321934
230516A00035	5/16/2023	4.11	5/15/2026	105.4702	103.9944202	102.5468121	101.1266411	99.73319437	98.36578326	97.02374231	95.7064283	94.41321934
230516A00036	5/16/2023	4	5/17/2027	109.21739	106.6919351	104.2386571	101.8550804	99.53882669	97.28761382	95.09925084	92.97163392	90.90274229
230516A00037	5/16/2023	3.91	5/16/2028	112.7578	109.1691545	105.7161358	102.3928877	99.19383518	96.11367324	93.14735253	90.29006552	87.53723355
230516A00067	5/16/2023	4.44	5/16/2025	101.78256	101.3181764	100.8580507	100.4021196	99.95032554	99.50261237	99.05892474	98.61920835	98.18340986

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230516A00069	5/16/2023	4.1	5/15/2026	105.45551	103.9798412	102.5323436	101.1122813	99.71894141	98.35163531	97.00969763	95.6924852	94.39937615
230517A00014	5/17/2023	4.14	5/18/2026	105.54643	104.0620033	102.6060642	101.1778617	99.77667162	98.40179436	97.05255414	95.72829783	94.42839408
230517A00019	5/17/2023	4.7	1/17/2025	100.53306	100.3997062	100.2667266	100.1341151	100.0018701	99.86999019	99.73847373	99.6073192	99.47652505
230517A00020	5/17/2023	4.47	7/17/2025	102.46153	101.8244531	101.1953239	100.5739917	99.9603119	99.3541434	98.75534859	98.16379321	97.57934624
230517A00046	5/17/2023	4.53	5/16/2025	101.82423	101.3597426	100.899505	100.4434627	99.99155824	99.54373536	99.09993873	98.66011403	98.22420794
230517A00048	5/17/2023	4.17	5/15/2026	105.55835	104.0818941	102.6336227	101.2127997	99.81871216	98.45067095	97.10801038	95.79008695	94.49627851
230518A00015	5/18/2023	4.64	5/16/2025	101.87517	101.4105457	100.9501713	100.4939932	100.0419538	99.59399679	99.15006693	98.71010987	98.27407226
230518A00017	5/18/2023	4.28	5/18/2026	105.75327	104.2672516	102.809748	101.3800078	99.97730613	98.60094272	97.2502411	95.9245475	94.62322994
230518A00019	5/18/2023	3.81	5/18/2028	112.72226	109.1213633	105.656941	102.3230803	99.11415722	96.02482126	93.04998032	90.1847868	87.42462453
230519A00010	5/19/2023	4.91	12/19/2024	100.22231	100.1694794	100.1167259	100.0640445	100.0114351	99.9588976	99.9064318	99.85403757	99.80171475
230519A00011	5/19/2023	4.73	5/19/2025	101.95175	101.4786348	101.0099297	100.5455704	100.0854963	99.62964827	99.177968	98.73039835	98.28688321
230519A00012	5/19/2023	4.53	12/19/2025	104.25502	103.1839512	102.1349725	101.1074081	100.1006059	99.1139401	98.1468099	97.19863813	96.26887022
230519A00013	5/19/2023	4.39	5/19/2026	105.92719	104.4371457	102.9757355	101.5422083	100.1358348	98.7559106	97.40175527	96.07271126	94.76814295
230519A00026	5/19/2023	4.73	5/19/2025	101.95175	101.4786348	101.0099297	100.5455704	100.0854963	99.62964827	99.177968	98.73039835	98.28688321
230519A00027	5/19/2023	4.39	5/19/2026	105.92719	104.4371457	102.9757355	101.5422083	100.1358348	98.7559106	97.40175527	96.07271126	94.76814295
230519A00028	5/19/2023	4.73	5/19/2025	101.95175	101.4786348	101.0099297	100.5455704	100.0854963	99.62964827	99.177968	98.73039835	98.28688321
230519A00029	5/19/2023	4.39	5/19/2026	105.92719	104.4371457	102.9757355	101.5422083	100.1358348	98.7559106	97.40175527	96.07271126	94.76814295
230519A00030	5/19/2023	4.27	5/19/2027	109.90967	107.3700842	104.9031778	102.506448	100.1774961	97.91402047	95.71381164	93.57474822	91.49479273
230519A00038	5/19/2023	3.92	5/19/2028	113.11744	109.506902	106.0332417	102.6905208	99.47309623	96.37559944	93.39292132	90.52019829	87.75279905
230519A00041	5/19/2023	3.92	5/19/2028	113.11744	109.506902	106.0332417	102.6905208	99.47309623	96.37559944	93.39292132	90.52019829	87.75279905
230522A00026	5/22/2023	4.35	5/22/2026	105.90188	104.4039463	102.9349558	101.4941366	100.0807481	98.69407559	97.33342832	95.99813909	94.68756303
230522A00029	5/22/2023	4.67	5/22/2025	101.95785	101.4764469	100.9995991	100.5272466	100.0593261	99.59577513	99.13653257	98.6815384	98.23073371
230522A00043	5/22/2023	4.17	5/16/2028	113.66461	110.0601685	106.591798	103.2536244	100.0400573	96.94577708	93.96572046	91.0950665	88.3292237
230522A00046	5/22/2023	4.17	5/22/2028	113.72954	110.1075671	106.6229212	103.2696478	100.0420808	96.93483014	93.94276656	91.06100748	88.28490374
230522A00058	5/22/2023	4.7	5/19/2025	101.93761	101.4645315	100.9958649	100.5315439	100.0715079	99.61569762	99.16405489	98.71652254	98.27304446
230522A00093	5/22/2023	4.17	5/22/2028	113.72954	110.1075671	106.6229212	103.2696478	100.0420808	96.93483014	93.94276656	91.06100748	88.28490374
230523A00008	5/23/2023	4.44	5/26/2026	106.08201	104.5719093	103.091173	101.6390226	100.2147019	98.81748075	97.44665437	96.10154178	94.78148499
230523A00024	5/23/2023	4.06	5/24/2027	109.64701	107.0928311	104.6122278	102.202656	99.86167241	97.58693298	95.37618836	93.22727936	91.13813282
230523A00047	5/23/2023	4.77	5/23/2025	102.01757	101.533231	101.0535081	100.5783318	100.1076377	99.64136234	99.1794436	98.72182046	98.26843308
230523A00048	5/23/2023	4.44	5/26/2026	106.08201	104.5719093	103.091173	101.6390226	100.2147019	98.81748075	97.44665437	96.10154178	94.78148499
230523A00049	5/23/2023	4.31	5/24/2027	110.06506	107.5099351	105.0282964	102.6176026	100.2754164	97.99939943	95.78730762	93.63698678	91.5463684
230523A00083	5/23/2023	4.21	5/23/2028	113.88064	110.253288	106.7635412	103.4054298	100.1732728	97.06166602	94.06546693	91.17978053	88.39994603
230523A00085	5/23/2023	4.39	5/23/2029	118.74365	113.9927566	109.464641	105.1476362	101.0307526	97.10363096	93.35650241	89.7801521	86.36588467

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230523A00086	5/23/2023	4.42	5/23/2030	122.81789	116.9324625	111.3747836	106.1247755	101.1636969	96.4740451	92.03946778	87.84468153	83.87539662
230523A00088	5/23/2023	4.59	5/23/2033	134.7604	125.3604117	116.7212271	108.7764552	101.4658498	94.73470888	88.53333749	82.81656476	77.5433102
230523A00089	5/23/2023	4.65	5/23/2034	138.82137	128.2093467	118.5414911	109.7274814	101.6861242	94.34438364	87.63652239	81.50333654	75.89147435
230523A00090	5/23/2023	4.71	5/23/2035	142.79533	130.9586169	120.2681136	110.6047	101.8622904	93.94634277	86.77254599	80.26566235	74.3585064
230523A00091	5/23/2023	4.77	5/23/2036	146.57973	133.5146523	121.8154702	111.3291089	101.9205149	93.47044299	85.87352669	79.03659436	72.87719676
230524A00009	5/24/2023	3.9	5/24/2028	113.09902	109.4751318	105.9891356	102.6350277	99.40710311	96.29993519	93.30836068	90.42746537	87.65257065
230524A00020	5/24/2023	4.44	5/23/2025	101.89681	101.4123578	100.9325228	100.4572423	99.98645138	99.5200865	99.05808529	98.60038656	98.14693023
230524A00021	5/24/2023	4.44	5/23/2025	101.89681	101.4123578	100.9325228	100.4572423	99.98645138	99.5200865	99.05808529	98.60038656	98.14693023
230524A00028	5/24/2023	4.36	5/26/2026	105.96205	104.4528839	102.973068	101.5218219	100.0983901	98.70204291	97.33207582	95.98780828	94.66858266
230524A00037	5/24/2023	4.69	5/23/2025	101.97897	101.4947407	101.0151252	100.5400557	100.0694676	99.60329753	99.14148339	98.68396415	98.23067997
230524A00038	5/24/2023	4.36	5/26/2026	105.96205	104.4528839	102.973068	101.5218219	100.0983901	98.70204291	97.33207582	95.98780828	94.66858266
230525A00004	5/25/2023	4.87	5/27/2025	102.11388	101.6182222	101.1273858	100.6413003	100.1598966	99.68310729	99.21086623	98.74310845	98.27977023
230525A00094	5/25/2023	4.31	5/25/2028	114.25376	110.6143838	107.1132148	103.744242	100.5017529	97.38031399	94.37475502	91.48015507	88.69182892
230526A00013	5/26/2023	4.39	5/26/2026	106.12912	104.616637	103.1335994	101.6792211	100.2527433	98.85343334	97.48058409	96.13351229	94.81155781
230526A00016	5/26/2023	4.46	5/26/2027	110.46344	107.8978231	105.4061152	102.9857526	100.6342794	98.34933999	96.12867365	93.97011058	91.87156741
230526A00026	5/26/2023	4.49	5/26/2027	110.53864	107.9720734	105.4794328	103.0581579	100.7057924	98.4199799	96.19845927	94.03906008	91.93969843
230526A00027	5/26/2023	4.49	5/26/2027	110.53864	107.9720734	105.4794328	103.0581579	100.7057924	98.4199799	96.19845927	94.03906008	91.93969843
230526A00028	5/26/2023	4.38	5/26/2028	114.51103	110.8644004	107.356307	103.9807243	100.7319231	97.60445375	94.59313118	91.69302035	88.8994228
230526A00029	5/26/2023	4.53	5/25/2029	119.39801	114.6269602	110.0796975	105.7444994	101.6103188	97.6667424	93.90395151	90.31268447	86.88420228
230526A00031	5/26/2023	4.54	5/24/2030	123.48953	117.5831066	112.0054772	106.7364989	101.7573703	97.05053297	92.59958253	88.38918726	84.40501241
230526A00033	5/26/2023	4.63	5/27/2031	127.79048	120.709931	114.0847735	107.8830823	102.0753316	96.63420724	91.53442991	86.75259333	82.26701626
230526A00034	5/26/2023	4.66	5/26/2032	131.70186	123.4501294	115.7983161	108.6991775	102.1094337	95.98941955	90.30276481	85.01610448	80.0988157
230530A00027	5/30/2023	4.22	5/30/2028	113.99242	110.343939	106.8345587	103.4582109	100.2091248	97.0818127	94.07105367	91.17187957	88.37956116
230530A00041	5/30/2023	4.93	5/27/2025	102.14349	101.6477508	101.1568302	100.670661	100.1891742	99.71230242	99.23997943	98.77214028	98.30872124
230530A00045	5/30/2023	4.56	5/29/2026	106.59361	105.0048205	103.4480107	101.9222805	100.4267627	98.9606222	97.52305424	96.11328332	94.73056173
230530A00048	5/30/2023	4.45	5/29/2026	106.13172	104.6131404	103.12424	101.6642266	100.2323326	98.82781686	97.44996389	96.09808266	94.77150553
230530A00054	5/30/2023	4.56	5/29/2026	106.59361	105.0048205	103.4480107	101.9222805	100.4267627	98.9606222	97.52305424	96.11328332	94.73056173
230530A00055	5/30/2023	4.56	5/29/2026	106.59361	105.0048205	103.4480107	101.9222805	100.4267627	98.9606222	97.52305424	96.11328332	94.73056173
230530A00118	5/30/2023	4.4	5/28/2027	110.33588	107.7664404	105.2711792	102.8475208	100.4929953	98.20523376	95.98196292	93.82100112	91.72025379
230530A00166	5/30/2023	4.81	5/30/2025	102.11981	101.6158467	101.1168587	100.6227748	100.1335229	99.64903234	99.16923383	98.69405945	98.22344257
230530A00171	5/30/2023	4.43	5/29/2026	106.10157	104.5832209	103.0945531	101.6347683	100.2030989	98.798804	97.42116816	96.06950045	94.74313334
230531A00036	5/31/2023	4.79	5/30/2025	102.10977	101.6058387	101.1068797	100.6128246	100.1236013	99.63913917	99.15936887	98.68422251	98.21363344
230531A00037	5/31/2023	4.41	5/29/2026	106.07141	104.5533015	103.0648662	101.60531	100.1738652	98.76979114	97.39237243	96.04091825	94.71476115

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230531A00038	5/31/2023	4.01	5/28/2027	109.56416	107.0001566	104.5103234	102.0920838	99.74296477	97.46059441	95.24269687	93.08708802	90.99167106
230531A00042	5/31/2023	4.01	5/28/2027	109.56416	107.0001566	104.5103234	102.0920838	99.74296477	97.46059441	95.24269687	93.08708802	90.99167107
230531A00060	5/31/2023	4.44	2/27/2026	105.01439	103.745445	102.5072862	101.2988006	100.1189294	98.96666368	97.84104127	96.74114447	95.66609724
230531A00061	5/31/2023	4.42	4/1/2026	105.409	104.0545213	102.7239674	101.4167603	100.132337	98.87015228	97.62967781	96.41040166	95.21182759
230531A00062	5/31/2023	4.39	4/30/2026	105.71043	104.2731048	102.8624982	101.4779297	100.1187396	98.78429036	97.47396521	96.18716749	94.92331979
230531A00063	5/31/2023	4.37	5/29/2026	106.0111	104.4934626	103.0054924	101.5463933	100.1153978	98.71176541	97.33478097	95.98375384	94.65801676
230531A00085	5/31/2023	5.05	12/2/2024	100.03036	100.0247927	100.0192332	100.0136786	100.0081291	100.0025845	99.99704494	99.9915103	99.98598062
230531A00088	5/31/2023	4.79	5/30/2025	102.10977	101.6058387	101.1068797	100.6128246	100.1236013	99.63913917	99.15936887	98.68422251	98.21363344
230531A00090	5/31/2023	4.41	6/1/2026	106.1064	104.579828	103.0832201	101.6157731	100.1767082	98.7652738	97.38074449	96.02241966	94.6896226
230531A00091	5/31/2023	4.26	6/1/2027	110.02886	107.4523445	104.9505262	102.5207966	100.1606587	97.8677181	95.63967758	93.47433281	91.36956789
230531A00099	5/31/2023	4.41	5/29/2026	106.07141	104.5533015	103.0648662	101.60531	100.1738652	98.76979114	97.39237243	96.04091825	94.71476115
230601A00006	6/1/2023	4.77	6/2/2025	102.13453	101.6222645	101.1151401	100.6130826	100.1160162	99.62386663	99.13656123	98.65402865	98.17619898
230601A00007	6/1/2023	5.04	12/2/2024	100.03029	100.0247245	100.019165	100.0136105	100.008061	100.0025165	99.99697694	99.99144235	99.98591272
230601A00012	6/1/2023	4.72	6/2/2025	102.10902	101.5968313	101.0897817	100.5877983	100.0908056	99.59872917	99.11149639	98.62903592	98.15127785
230601A00022	6/1/2023	5.04	12/2/2024	100.03029	100.0247245	100.019165	100.0136105	100.008061	100.0025165	99.99697694	99.99144235	99.98591272
230601A00025	6/1/2023	4.12	6/1/2028	113.66171	110.0134801	106.504583	103.1289318	99.88073747	96.75449526	93.74496869	90.84717509	88.0563718
230602A00012	6/2/2023	4.39	6/2/2026	106.0881	104.5588692	103.0596888	101.589747	100.1482616	98.73447788	97.34766726	95.98712627	94.65217545
230602A00020	6/2/2023	3.94	6/2/2028	113.3346	109.6817192	106.1686744	102.7893379	99.53788962	96.40879535	93.39679138	90.49686957	87.70426345
230602A00027	6/2/2023	4.2	6/2/2026	105.92303	104.3930577	102.8931861	101.4225998	99.98051465	98.56617414	97.17884793	95.81783093	94.48244209
230602A00030	6/2/2023	4.2	6/2/2026	105.92303	104.3930577	102.8931861	101.4225998	99.98051465	98.56617414	97.17884793	95.81783093	94.48244209
230602A00051	6/2/2023	4.33	6/2/2038	126.44618	118.9004634	112.0037533	105.690509	99.90250272	94.58794435	89.70071502	85.19969714	81.04818861
230605A00022	6/5/2023	4.39	6/4/2027	110.39271	107.8030834	105.2886641	102.8468277	100.4750539	98.17092603	95.93212602	93.75642977	91.64170267
230606A00008	6/6/2023	3.98	6/6/2028	113.52058	109.8530364	106.3261875	102.9338593	99.67018247	96.52957689	93.50673585	90.59661102	87.79439836
230606A00014	6/6/2023	4.35	6/7/2027	110.32694	107.7296779	105.208024	102.75933	100.3810556	98.07076522	95.82612329	93.64488903	91.52491217
230606A00015	6/6/2023	4.24	6/6/2028	114.14335	110.4724052	106.9419987	103.5459705	100.2784662	97.13391946	94.10703644	91.19278062	88.38635892
230606A00029	6/6/2023	4.45	6/5/2026	106.21578	104.6771376	103.1688172	101.689994	100.2398751	98.81769532	97.42271629	96.05422525	94.71153388
230607A00001	6/7/2023	4.9	6/6/2025	102.24841	101.7248013	101.2065725	100.6936369	100.1859137	99.6833235	99.18578858	98.6932328	98.20558155
230607A00007	6/7/2023	4.24	6/7/2028	114.15491	110.4809205	106.9476633	103.5489706	100.2789763	97.13210331	94.10304749	91.18676284	88.3784474
230607A00020	6/7/2023	4.28	6/7/2028	113.96957	110.3751512	106.9189627	103.5948693	100.3970463	97.31996109	94.35835652	91.50723555	88.76184672
230607A00037	6/7/2023	4.96	6/6/2025	102.27968	101.7559823	101.2376603	100.7246324	100.2168174	99.71413604	99.21651067	98.7238651	98.23612469
230607A00038	6/7/2023	4.58	6/5/2026	106.41431	104.874089	103.3642197	101.8838745	100.4322597	99.00860942	97.61218466	96.242272	94.89818248
230608A00003	6/8/2023	4.23	6/8/2028	114.13097	110.4545543	106.9190573	103.5182941	100.2463876	97.09775002	94.06706783	91.14928602	88.33959424
230608A00015	6/8/2023	4.81	6/9/2025	102.2364	101.7045835	101.1783115	100.657502	100.1420702	99.63193288	99.12700852	98.62721735	98.13248118

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230608A00049	6/8/2023	4.47	6/8/2026	106.28303	104.7354528	103.2184554	101.7312073	100.2729047	98.84277241	97.44006233	96.06405255	94.71404603
230609A00016	6/9/2023	4.91	6/9/2025	102.28936	101.757378	101.2309463	100.7099783	100.1943892	99.68409573	99.17901637	98.67907131	98.18418237
230609A00026	6/9/2023	4.11	6/9/2027	109.95095	107.3484013	104.8218521	102.36863	99.9861743	97.67203022	95.42384397	93.23935776	91.11640524
230609A00027	6/9/2023	3.99	6/9/2028	113.58947	109.9121646	106.3761677	102.9752688	99.70356242	96.55543512	93.52554892	90.60882631	87.80043597
230609A00034	6/9/2023	3.99	6/9/2028	113.58947	109.9121646	106.3761677	102.9752688	99.70356242	96.55543512	93.52554892	90.60882631	87.80043597
230609A00036	6/9/2023	4.91	6/6/2025	102.25362	101.7299981	101.2117538	100.6988028	100.1910643	99.68845892	99.19090893	98.69833818	98.21067207
230609A00038	6/9/2023	4.91	6/10/2025	102.30127	101.7665026	101.2373409	100.7137002	100.1954939	99.68263777	99.17504892	98.67264631	98.17535054
230609A00039	6/9/2023	4.73	12/10/2025	104.35214	103.30533	102.2796177	101.2743645	100.2889616	99.32282405	98.37538973	97.44611826	96.53448992
230609A00040	6/9/2023	4.38	5/12/2027	110.10369	107.5806736	105.1293263	102.7471964	100.4319355	98.18128958	95.99309412	93.86527023	91.79582063
230609A00041	6/9/2023	4.53	7/13/2026	106.80412	105.1552558	103.5401475	101.9578259	100.4073568	98.88784126	97.39841423	95.93824267	94.50652415
230609A00042	6/9/2023	4.46	11/25/2026	108.28983	106.2561395	104.2715527	102.3345726	100.4437609	98.59773295	96.79515523	95.03474295	93.31525805
230609A00043	6/9/2023	4.32	9/29/2027	111.55897	108.6282705	105.7908756	103.0433131	100.382262	97.80454225	95.30710827	92.88704216	90.54154778
230609A00076	7/10/2023	4.19	7/10/2028	114.35065	110.5801492	106.9569254	103.474388	100.1262788	96.90665533	93.80987306	90.83056831	87.96364271
230612A00023	6/12/2023	4.32	6/12/2026	106.226	104.665561	103.1361146	101.6368072	100.1668183	98.72535717	97.31166081	95.92499321	94.56464394
230612A00024	6/12/2023	4.69	6/12/2025	102.24972	101.7090757	101.1741724	100.6449149	100.1212141	99.60298235	99.09013416	98.58258567	98.0802548
230612A00058	6/12/2023	5.16	12/12/2024	100.15141	100.1180272	100.0846878	100.0513875	100.0181263	99.98490407	99.95172081	99.91857642	99.88547082
230613A00010	6/13/2023	4.9	6/13/2025	102.3316	101.7884809	101.2511434	100.7194989	100.193457	99.6729292	99.15782887	98.64807123	98.14357322
230613A00015	6/13/2023	4.73	6/13/2033	119.0452	114.3542247	109.9353546	105.7697437	101.8400153	98.13013433	94.62529427	91.31181391	88.17704362
230613A00019	6/13/2023	4.49	6/15/2026	106.39979	104.8316436	103.2946944	101.7880827	100.3109798	98.86258643	97.44213205	96.04887323	94.68209256
230613A00021	6/13/2023	4.35	6/14/2027	110.40976	107.7916366	105.2501305	102.7825347	100.3862602	98.05882547	95.79785136	93.60105626	91.46625133
230613A00034	6/13/2023	4.56	6/12/2026	106.47117	104.9108618	103.3815085	101.8822563	100.4122868	98.97081062	97.55706648	96.1703198	94.80986153
230613A00055	6/13/2023	5.14	2/13/2025	100.93154	100.7229652	100.515264	100.308431	100.1024607	99.8973478	99.69308676	99.48967225	99.28709898
230613A00061	6/13/2023	4.56	6/15/2026	106.50862	104.9395979	103.4017855	101.8943259	100.4163895	98.96717696	97.54591726	96.15186663	94.7843073
230613A00091	6/13/2023	4.58	6/15/2026	106.53972	104.9704419	103.432383	101.924681	100.4465066	98.99705997	97.57557018	96.18129332	94.81351152
230614A00001	6/14/2023	4.55	6/12/2026	106.4557	104.8955213	103.36629	101.8671578	100.3973061	98.95594579	97.54231553	96.15568081	94.79533266
230614A00029	6/14/2023	4.55	6/15/2026	106.49308	104.9241758	103.3864868	101.8791483	100.401331	98.95223545	97.5310908	96.13715329	94.7697052
230614A00031	6/14/2023	4.94	6/16/2025	102.38921	101.8376457	101.2920444	100.7523101	100.2183484	99.69006663	99.16737436	98.65018296	98.13840568
230614A00038	6/14/2023	4.3	6/15/2026	106.23106	104.6621569	103.1245022	101.6172339	100.139521	98.69056253	97.26958595	95.87584613	94.50862398
230614A00047	6/14/2023	4.94	6/16/2025	102.38921	101.8376457	101.2920444	100.7523101	100.2183484	99.69006663	99.16737436	98.65018296	98.13840568
230614A00048	6/14/2023	4.55	6/15/2026	106.49308	104.9241758	103.3864868	101.8791483	100.401331	98.95223545	97.5310908	96.13715329	94.7697052
230615A00023	6/15/2023	4.58	6/15/2026	106.53972	104.9704419	103.432383	101.924681	100.4465066	98.99705997	97.57557018	96.18129332	94.81351152
230615A00026	6/15/2023	4.84	6/15/2038	153.70553	138.1176307	124.4000849	112.3125779	101.647119	92.223527	83.88556969	76.49765698	69.94200652
230615A00033	6/15/2023	4.58	6/15/2026	106.53972	104.9704419	103.432383	101.924681	100.4465066	98.99705997	97.57557018	96.18129332	94.81351152

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230615A00039	6/15/2023	4.16	6/15/2027	110.14766	107.5255834	104.9804077	102.5094128	100.1099945	97.77965751	95.51600956	93.31675664	91.17969825
230615A00044	6/15/2023	4.33	6/15/2026	106.27773	104.7084525	103.1704273	101.662795	100.1847244	98.73541429	97.31409205	95.92001236	94.55245599
230615A00103	6/15/2023	4.99	6/16/2025	102.41666	101.8650064	101.3193198	100.7795009	100.2454551	99.71709002	99.19431503	98.67704153	98.16518276
230616A00012	6/16/2023	4.41	6/16/2026	106.4145	104.8413046	103.2994684	101.7881265	100.3064439	98.85361538	97.42886465	96.03144289	94.66062754
230616A00037	6/16/2023	4.48	6/16/2027	110.76683	108.1384247	105.5870181	103.1098893	100.7044323	98.36814936	96.09864635	93.89362729	91.75088976
230616A00038	6/16/2023	4.32	6/16/2028	114.54484	110.8382821	107.2744008	103.8469078	100.5498259	97.3774743	94.32445192	91.38562223	88.55609856
230616A00039	6/16/2023	5.07	6/16/2025	102.46057	101.9087834	101.3629604	100.823006	100.2888259	99.76032745	99.23742011	98.72001525	98.2080261
230616A00040	6/16/2023	4.66	6/16/2026	106.67686	105.1036675	103.5617974	102.0503857	100.5685988	99.11563327	97.69071435	96.29309467	94.92205303
230616A00106	6/16/2023	4.61	6/16/2026	106.59899	105.0264214	103.4851699	101.974366	100.4931764	99.04079804	97.6164563	96.21940411	94.84892054
230620A00035	6/20/2023	4.36	6/20/2030	122.76839	116.8045314	111.1768112	105.8643982	100.8478606	96.10906623	91.63108936	87.39812375	83.39540296
230620A00042	6/20/2023	5.15	12/20/2024	100.24709	100.191472	100.1359343	100.0804742	100.0250914	99.96978574	99.91455713	99.85940537	99.80433029
230620A00065	6/20/2023	4.56	6/18/2026	106.54608	104.9683283	103.422053	101.9063832	100.4204789	98.96353016	97.53475633	96.13340438	94.75874778
230620A00089	6/20/2023	4.98	6/20/2025	102.45958	101.896769	101.3401609	100.789654	100.2451481	99.70654529	99.17374964	98.64666739	98.12520679
230620A00091	6/20/2023	4.56	6/22/2026	106.59602	105.0066266	103.4490612	101.9224408	100.4259107	98.95864733	97.51985688	96.10877394	94.72466019
230621A00016	6/21/2023	4.55	6/22/2026	106.58028	104.9910143	103.4335752	101.9070789	100.4106707	98.94352719	97.50485454	96.09388742	94.70988757
230621A00022	6/21/2023	4.24	6/21/2028	114.31682	110.6000756	107.0268692	103.5908521	100.285993	97.10656025	94.04710593	91.10244965	88.26766396
230621A00031	6/21/2023	5.19	12/20/2024	100.24933	100.1937092	100.1381697	100.0827077	100.0273231	99.9720156	99.91678515	99.86163156	99.80655466
230621A00041	6/21/2023	4.24	6/21/2028	114.31682	110.6000756	107.0268692	103.5908521	100.285993	97.10656025	94.04710593	91.10244965	88.26766396
230621A00045	6/21/2023	4.95	6/23/2025	102.47884	101.9076902	101.3429285	100.7844443	100.2321332	99.68589299	99.14562387	98.61122811	98.08261011
230621A00047	6/21/2023	4.44	6/21/2028	107.76481	105.8687029	104.0266535	102.2366774	100.496875	98.80543086	97.16060855	95.56074714	94.00425718
230621A00048	6/21/2023	4.55	6/22/2026	106.58028	104.9910143	103.4335752	101.9070789	100.4106707	98.94352719	97.50485454	96.09388742	94.70988757
230622A00004	6/22/2023	4.23	6/22/2027	110.40939	107.7640664	105.1967063	102.7045403	100.2849131	97.93528086	95.65320588	93.4363512	91.28247582
230622A00005	6/22/2023	4.05	6/22/2028	113.94983	110.2290214	106.65224	103.2131064	99.90555707	96.72383083	93.6624519	90.71621402	87.88016562
230622A00019	6/22/2023	4.33	6/22/2028	113.84437	110.321699	106.934407	103.6764619	100.542135	97.52598695	94.62285161	91.8278202	89.13622693
230622A00027	6/22/2023	4.49	6/22/2026	106.48584	104.8973406	103.3406592	101.8149074	100.3192308	98.85280634	97.41484052	96.00456834	94.62125184
230622A00028	6/22/2023	4.35	6/22/2027	110.5044	107.8624104	105.2981925	102.808981	100.3921302	98.04510542	95.76547728	93.55091691	91.39919088
230622A00030	6/22/2023	4.17	6/22/2028	114.07712	110.3618115	106.7901197	103.355682	100.0524593	96.87471355	93.81699038	90.87410374	88.04112088
230622A00039	6/26/2023	4.49	6/26/2026	106.53501	104.934868	103.3669018	101.8302068	100.3239141	98.84718675	97.39921809	95.97923061	94.58647451
230622A00045	6/22/2023	4.91	6/23/2025	102.4561	101.8850314	101.3203426	100.7619307	100.2096913	99.66352229	99.12332379	98.58899809	98.06044962
230622A00047	6/22/2023	4.49	6/22/2026	106.48584	104.8973406	103.3406592	101.8149074	100.3192308	98.85280634	97.41484052	96.00456834	94.62125184
230622A00049	6/22/2023	4.71	12/17/2025	104.42082	103.3543292	102.3097167	101.2863168	100.2834867	99.30060952	98.33709288	97.3923676	96.46588669
230622A00056	6/26/2023	4.49	6/26/2026	106.53501	104.934868	103.3669018	101.8302068	100.3239141	98.84718675	97.39921809	95.97923061	94.58647451
230622A00083	6/22/2023	4.55	6/22/2026	106.58028	104.9910143	103.4335752	101.9070789	100.4106707	98.94352719	97.50485454	96.09388742	94.70988757

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230622A00093	6/22/2023	4.55	6/22/2026	106.58028	104.9910143	103.4335752	101.9070789	100.4106707	98.94352719	97.50485454	96.09388742	94.70988757
230622A00095	6/22/2023	4.38	6/22/2027	110.58184	107.9388382	105.3736329	102.8834563	100.4656619	98.11771428	95.83718348	93.62174002	91.46914992
230622A00096	6/22/2023	4.21	6/22/2028	114.2207	110.5028235	106.928634	103.4917695	100.1861884	97.00615004	93.94619773	91.00114315	88.16605141
230623A00002	6/23/2023	4.45	6/23/2026	106.43506	104.8441655	103.2851705	101.7571813	100.2593403	98.79082102	97.35082706	95.93859046	94.55337052
230623A00003	6/23/2023	4.29	6/23/2027	110.36119	107.7182378	105.1531577	102.6631775	100.2456456	97.89802171	95.61787165	93.40286173	91.25075407
230623A00004	6/23/2023	4.13	6/23/2028	113.94479	110.2290136	106.6569732	103.2223044	99.91895885	96.74118978	93.68353488	90.74080063	87.90804745
230623A00025	6/23/2023	4.45	6/23/2026	106.43506	104.8441655	103.2851705	101.7571813	100.2593403	98.79082102	97.35082706	95.93859046	94.55337052
230623A00026	6/23/2023	4.29	6/23/2027	110.36119	107.7182378	105.1531577	102.6631775	100.2456456	97.89802171	95.61787165	93.40286173	91.25075407
230623A00027	6/23/2023	4.13	6/23/2028	113.94479	110.2290136	106.6569732	103.2223044	99.91895885	96.74118978	93.68353488	90.74080063	87.90804745
230623A00031	6/23/2023	4.87	6/23/2025	102.43337	101.8623726	101.2977567	100.7394171	100.1872494	99.6411516	99.10102371	98.56676808	98.03828912
230623A00036	6/23/2023	4.45	6/23/2026	106.43506	104.8441655	103.2851705	101.7571813	100.2593403	98.79082102	97.35082706	95.93859046	94.55337052
230623A00037	6/23/2023	4.13	6/23/2028	113.94479	110.2290136	106.6569732	103.2223044	99.91895885	96.74118978	93.68353488	90.74080063	87.90804745
230623A00051	6/23/2023	4.18	6/23/2028	114.12441	110.4054114	106.8302442	103.3925374	100.0862395	96.90560054	93.84515522	90.89970723	88.06431426
230623A00053	6/23/2023	4.4	6/23/2026	106.48488	104.8914186	103.3299355	101.7995395	100.2993697	98.82859712	97.38642244	95.97207518	94.5848122
230623A00056	6/23/2023	4.18	6/23/2028	114.12441	110.4054114	106.8302442	103.3925374	100.0862395	96.90560054	93.84515522	90.89970723	88.06431426
230623A00057	6/23/2023	4.52	6/23/2026	106.54544	104.9536417	103.3937597	101.8648989	100.3662015	98.89684045	97.45601906	96.04296895	94.65694908
230623A00058	6/23/2023	4.38	6/23/2027	110.59375	107.9477628	105.3797148	102.8868332	100.4664644	98.11606638	95.83320285	93.61553835	91.46083328
230626A00019	6/26/2023	4.91	6/20/2025	102.42038	101.8576937	101.3012096	100.7508258	100.2064419	99.66796022	99.13528476	98.60832178	98.08697954
230626A00020	6/26/2023	4.49	6/26/2026	106.53501	104.934868	103.3669018	101.8302068	100.3239141	98.84718675	97.39921809	95.97923061	94.58647451
230626A00021	6/26/2023	4.49	6/26/2026	106.53501	104.934868	103.3669018	101.8302068	100.3239141	98.84718675	97.39921809	95.97923061	94.58647451
230626A00022	6/26/2023	4.34	6/25/2027	110.51399	107.8633841	105.290974	102.7939765	100.3697249	98.01566429	95.72934673	93.50842562	91.3506509
230626A00023	6/26/2023	4.18	6/26/2028	114.15861	110.4304488	106.8467264	103.4010315	100.0872764	96.89967771	93.83273903	90.88123483	88.04019561
230626A00026	6/26/2023	4.84	6/26/2025	102.45146	101.8721298	101.2993637	100.7330515	100.1730846	99.61935654	99.07176342	98.53020353	97.99457743
230627A00004	6/27/2023	4.47	6/29/2026	106.54002	104.9314021	103.3552264	101.8105754	100.2965692	98.81236045	97.35713268	95.93009907	94.53050099
230627A00005	6/27/2023	4.3	6/28/2027	110.44549	107.78728	105.207678	102.7038738	100.2731799	97.91302204	95.62093415	93.39455247	91.23161078
230627A00006	6/27/2023	4.12	6/27/2028	113.95381	110.2264789	106.6436788	103.1989879	99.88631058	96.69985606	93.634121	90.68387362	87.84413859
230627A00030	6/27/2023	4.17	6/27/2028	114.13397	110.4034077	106.817462	103.3697151	100.0540682	96.86472709	93.79618563	90.84320915	88.00081957
230627A00035	6/27/2023	4.21	6/27/2028	114.27811	110.5449507	106.9564886	103.5062969	100.1882742	96.9966239	93.92583734	90.97067757	88.12616435
230627A00036	6/27/2023	4.38	6/28/2027	110.65331	107.9923767	105.4101088	102.9036987	100.470457	98.10780798	95.81328358	93.58451846	91.41924485
230627A00037	6/27/2023	4.56	6/26/2026	106.64597	105.0449148	103.4760523	101.9384768	100.4313189	98.9537412	97.50493666	96.0841274	94.69056325
230627A00042	6/27/2023	5.16	1/27/2025	100.72024	100.5589652	100.3982104	100.2379753	100.0782573	99.91905393	99.76036271	99.60218116	99.44450683
230627A00043	6/27/2023	5.12	2/27/2025	101.10356	100.8559545	100.6095628	100.3643739	100.120379	99.87756949	99.63593665	99.39547202	99.15616715
230627A00044	6/27/2023	5.08	3/27/2025	101.44686	101.1212342	100.797706	100.4762532	100.1568557	99.83949392	99.52414839	99.2107999	98.8994295

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230627A00046	6/27/2023	5.03	4/28/2025	101.83129	101.4163892	101.004875	100.5967033	100.1918336	99.79022572	99.39184048	98.99663916	98.60458368
230627A00048	6/27/2023	4.99	5/27/2025	102.17311	101.6772794	101.1862746	100.7000217	100.2184518	99.74149754	99.26909262	98.8011721	98.33767226
230627A00049	6/27/2023	4.95	6/27/2025	102.5269	101.9445665	101.3688564	100.7996618	100.2368722	99.68037989	99.13007954	98.58586806	98.04764471
230627A00060	6/27/2023	4.89	6/27/2025	102.49214	101.9099184	101.3343218	100.7652398	100.2025619	99.64618037	99.09598992	98.55188747	98.01377229
230627A00065	6/27/2023	4.95	6/27/2025	102.5269	101.9445665	101.3688564	100.7996618	100.2368722	99.68037989	99.13007954	98.58586806	98.04764471
230627A00078	6/27/2023	4.95	6/27/2025	102.5269	101.9445665	101.3688564	100.7996618	100.2368722	99.68037989	99.13007954	98.58586806	98.04764471
230627A00087	6/27/2023	4.95	6/30/2025	102.56295	101.972213	101.3882874	100.811057	100.2404073	99.67622612	99.11840388	98.56683348	98.02141021
230627A00089	6/27/2023	4.56	6/30/2026	106.69591	105.0831929	103.5030263	101.9544913	100.4367036	98.94881179	97.48999571	96.05946482	94.65645701
230627A00090	6/27/2023	4.21	6/27/2028	114.27811	110.5449507	106.9564886	103.5062969	100.1882742	96.9966239	93.92583734	90.97067757	88.12616435
230627A00102	6/27/2023	4.95	6/27/2025	102.5269	101.9445665	101.3688564	100.7996618	100.2368722	99.68037989	99.13007954	98.58586806	98.04764471
230628A00015	6/28/2023	4.98	6/27/2025	102.54429	101.9618905	101.3861237	100.8168727	100.2540273	99.69747965	99.14712435	98.60285836	98.06458092
230628A00016	6/28/2023	4.58	6/26/2026	106.67767	105.0763568	103.5072382	101.9694111	100.462006	98.98418533	97.53514197	96.11409791	94.7203029
230628A00017	6/28/2023	4.41	6/28/2027	110.73125	108.0692879	105.4860203	102.978633	100.544436	98.18085271	95.88541461	93.65575571	91.48960762
230628A00018	6/28/2023	4.23	6/28/2028	114.36171	110.6241991	107.0316213	103.5775394	100.2558385	97.06070981	93.98663284	91.02835978	88.18090018
230628A00028	6/28/2023	4.58	6/24/2026	106.65259	105.0571052	103.4936379	101.9612906	100.4592013	98.98653941	97.54250439	96.12632449	94.73725538
230628A00038	6/28/2023	4.58	6/24/2026	106.65259	105.0571052	103.4936379	101.9612906	100.4592013	98.98653941	97.54250439	96.12632449	94.73725538
230628A00045	6/28/2023	4.18	6/28/2028	114.18141	110.4471375	106.85771	103.4066886	100.0879618	96.8957238	93.82445723	90.86891712	88.02411577
230628A00055	6/28/2023	5.19	12/27/2024	100.33411	100.259048	100.1841023	100.1092757	100.0345678	99.95997856	99.88550754	99.81115451	99.73691919
230628A00059	6/28/2023	4.87	6/27/2025	102.48055	101.898369	101.3228103	100.7537658	100.1911251	99.63478053	99.08462671	98.54056061	98.00248148
230628A00061	6/28/2023	4.47	6/26/2026	106.50331	104.9034261	103.3357159	101.7992725	100.293227	98.81674263	97.36901279	95.9492601	94.55673487
230628A00063	6/28/2023	4.47	6/29/2026	106.54002	104.9314021	103.3552264	101.8105754	100.2965692	98.81236045	97.35713268	95.93009907	94.53050099
230628A00068	6/28/2023	4.29	6/28/2027	110.41951	107.7616429	105.1823742	102.6788957	100.2485202	97.8886738	95.59689048	93.37080672	91.20815653
230629A00008	6/29/2023	4.34	6/29/2028	114.77022	111.0225027	107.4201261	103.9566331	100.6258896	97.42206832	94.33963199	91.37331661	88.51811654
230629A00019	6/29/2023	4.51	6/24/2027	110.94194	108.2885721	105.7133848	103.2135985	100.7865493	98.42968555	96.14056207	93.91683474	91.75625582
230629A00025	6/29/2023	4.7	6/24/2026	106.84214	105.2451049	103.6801116	102.1462651	100.6427026	99.16859282	97.72313453	96.30555534	94.91511029
230629A00037	6/29/2023	4.69	6/29/2026	106.89057	105.2790564	103.7000349	102.152588	100.6358346	99.14892592	97.69104431	96.26140171	94.85923831
230629A00041	6/29/2023	5.09	6/30/2025	102.64523	102.054213	101.470015	100.8925145	100.3215969	99.7571499	99.19906406	98.64723218	98.10154954
230629A00042	6/29/2023	4.69	6/29/2026	106.89057	105.2790564	103.7000349	102.152588	100.6358346	99.14892592	97.69104431	96.26140171	94.85923831
230629A00045	6/29/2023	4.69	6/29/2026	106.89057	105.2790564	103.7000349	102.152588	100.6358346	99.14892592	97.69104431	96.26140171	94.85923831
230629A00046	6/29/2023	4.51	6/29/2027	111.0033	108.3349288	105.7454746	103.2321147	100.7921498	98.42299417	96.12217079	93.88730561	91.7161226
230629A00068	6/29/2023	5.34	12/30/2024	100.38294	100.2995358	100.2162679	100.1331393	100.0501495	99.96729827	99.88458526	99.80201013	99.71957253
230629A00070	6/29/2023	5.09	6/30/2025	102.64523	102.054213	101.470015	100.8925145	100.3215969	99.7571499	99.19906406	98.64723218	98.10154954
230629A00071	6/29/2023	4.41	6/29/2028	114.86018	111.1464939	107.5779615	104.1480379	100.8505185	97.67951515	94.62943758	91.69497667	88.87108832

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230629A00072	6/29/2023	4.69	6/29/2026	106.89057	105.2790564	103.7000349	102.152588	100.6358346	99.14892592	97.69104431	96.26140171	94.85923831
230629A00076	6/29/2023	4.51	6/29/2027	111.0033	108.3349288	105.7454746	103.2321147	100.7921498	98.42299417	96.12217079	93.88730561	91.7161226
230629A00094	6/29/2023	4.41	6/29/2028	114.86018	111.1464939	107.5779615	104.1480379	100.8505185	97.67951515	94.62943758	91.69497667	88.87108832
230629A00097	6/29/2023	4.41	6/29/2028	114.86018	111.1464939	107.5779615	104.1480379	100.8505185	97.67951515	94.62943758	91.69497667	88.87108832
230629A00109	6/29/2023	5.3	12/27/2024	100.34237	100.2673011	100.1923485	100.1175151	100.0428004	99.96820435	99.89372653	99.81936671	99.74512461
230629A00120	6/29/2023	5.03	6/27/2025	102.57325	101.9907639	101.4149025	100.8455577	100.2826193	99.72597925	99.17553236	98.63117552	98.09280794
230630A00003	6/30/2023	4.54	6/30/2027	111.09367	108.4212706	105.8279578	103.3109013	100.8673936	98.4948417	96.19076146	93.9527722	91.77859163
230630A00011	6/30/2023	5.37	12/27/2024	100.34763	100.2725531	100.1975961	100.1227583	100.0480394	99.97343893	99.89895679	99.82459265	99.75034624
230630A00028	6/30/2023	4.42	6/30/2027	110.99851	108.322711	105.7262023	103.2061413	100.7598107	98.38460833	96.07804137	93.83772088	91.66135678
230630A00030	6/30/2023	4.23	6/30/2028	114.69123	110.9341919	107.3231444	103.8515893	100.5133548	97.30257822	94.21368925	91.24139299	88.38065486
230630A00043	6/30/2023	4.6	6/30/2026	106.8903	105.2737638	103.6898888	102.1377491	100.616457	99.12515741	97.66302691	96.22927182	94.82312701
230630A00046	6/30/2023	4.6	6/30/2026	106.8903	105.2737638	103.6898888	102.1377491	100.616457	99.12515741	97.66302691	96.22927182	94.82312701
230630A00055	6/30/2023	4.35	6/30/2028	114.81818	111.0667357	107.4608587	103.9940735	100.6602335	97.45349962	94.36832331	91.39943026	88.54180515
230630A00061	6/30/2023	5	7/11/2025	102.72538	102.1038716	101.4899087	100.883356	100.2840796	99.69194877	99.10683602	98.52861676	97.95716937
230630A00062	6/30/2023	4.6	6/30/2026	106.8903	105.2737638	103.6898888	102.1377491	100.616457	99.12515741	97.66302691	96.22927182	94.82312701
230630A00079	6/30/2023	4.65	6/30/2026	106.83957	105.2256596	103.6443248	102.0946421	100.5757267	99.08672664	97.62682122	96.19521941	94.79115861
230630A00080	6/30/2023	5.02	6/30/2025	102.60409	102.013213	101.4291512	100.8517858	100.2810021	99.71668801	99.15873397	98.60703283	98.06147987
230630A00086	6/30/2023	4.72	6/30/2026	106.9513	105.336467	103.7542236	102.2036483	100.6838558	99.19399374	97.73324106	96.30080631	94.89592653
230630A00088	6/30/2023	4.54	6/30/2027	111.09367	108.4212706	105.8279578	103.3109013	100.8673936	98.4948417	96.19076146	93.9527722	91.77859163
230630A00094	6/30/2023	4.42	6/30/2027	110.99851	108.322711	105.7262023	103.2061413	100.7598107	98.38460833	96.07804137	93.83772088	91.66135678
230703A00013	7/3/2023	4.34	7/3/2028	114.8164	111.0567301	107.4432093	103.9693274	100.6289017	97.41605986	94.32522223	91.3510856	88.48860768
230703A00015	7/3/2023	4.34	7/3/2028	114.8164	111.0567301	107.4432093	103.9693274	100.6289017	97.41605986	94.32522223	91.3510856	88.48860768
230703A00018	7/3/2023	4.61	7/3/2026	106.94364	105.3185162	103.7263274	102.1661434	100.6370646	99.13822533	97.66879152	96.22795969	94.81495536
230703A00019	7/3/2023	4.61	7/3/2026	106.94364	105.3185162	103.7263274	102.1661434	100.6370646	99.13822533	97.66879152	96.22795969	94.81495536
230703A00021	7/3/2023	4.99	7/3/2025	102.67039	102.0704571	101.4775556	100.8915588	100.3123465	99.73980113	99.17380789	98.61425462	98.06103169
230703A00025	7/3/2023	4.73	7/3/2026	107.00494	105.3815267	103.7909808	102.2323716	100.7048024	99.20740997	97.7393627	96.29985938	94.88812772
230703A00028	7/3/2023	5.11	7/3/2025	102.69418	102.0947676	101.502365	100.9168532	100.3381124	99.76602552	99.20047811	98.64135835	98.08855697
230703A00029	7/3/2023	4.89	2/3/2026	105.25926	104.0550162	102.8784705	101.7286726	100.604716	99.50573513	98.4309026	97.37942725	96.35055219
230703A00043	7/3/2023	4.53	7/6/2027	111.13917	108.4497531	105.8402961	103.3079249	100.8498882	98.46355159	96.14639196	93.89599204	91.71003505
230705A00006	7/5/2023	4.26	7/5/2028	114.8571	111.0832465	107.4564557	103.9701579	100.6181181	97.39441497	94.29342309	91.30979638	88.43845246
230705A00008	7/5/2023	4.63	7/6/2026	107.0133	105.3794293	103.7787877	102.210424	100.673427	99.16691981	97.69005787	96.24202772	94.82204543
230705A00019	7/5/2023	4.44	7/6/2027	111.1221	108.4282144	105.8145151	103.2781189	100.8162634	98.42630434	96.10570908	93.85205131	91.66300573
230705A00033	7/5/2023	5.12	7/7/2025	102.74985	102.1392563	101.5359392	100.9397727	100.3506298	99.76838679	99.19292259	98.62411909	98.06186091

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230705A00034	7/5/2023	4.75	7/6/2026	107.07488	105.4427357	103.8437484	102.2769703	100.741493	99.23644212	97.76097558	96.31428226	94.89558042
230705A00035	7/5/2023	5.03	8/8/2025	103.08605	102.3861707	101.6958302	101.0148319	100.3429866	99.68011046	99.0260242	98.38055352	97.74352863
230705A00040	7/5/2023	4.38	7/5/2028	114.98431	111.2160928	107.594507	104.1130102	100.7653927	97.54575684	94.4484995	91.46829533	88.6000814
230705A00042	7/5/2023	4.42	7/5/2028	115.12932	111.3584856	107.7343535	104.2503832	100.9003623	97.67839078	94.57886288	91.59645095	88.72608986
230705A00103	7/5/2023	4.56	7/6/2027	111.21777	108.5273092	105.9168359	103.3834716	100.9244641	98.53717817	96.21909026	93.96778239	91.78093719
230705A00111	7/5/2023	4.9	1/6/2026	104.88988	103.7654095	102.6651723	101.5883866	100.5343069	99.50221896	98.49143845	97.50130909	96.53120136
230706A00006	7/6/2023	4.59	7/6/2028	115.75777	111.972803	108.3350658	104.8379897	101.4753389	98.24119085	95.12991886	92.13617543	89.25487666
230706A00014	7/6/2023	4.99	7/6/2038	155.88298	140.096286	126.2063909	113.9690431	103.1729236	93.63504078	85.19678691	77.72056192	71.08688088
230706A00029	7/6/2023	5.53	1/6/2025	100.4938	100.390938	100.2882923	100.1858661	100.0836588	99.98166967	99.87989794	99.77834289	99.67700382
230706A00032	7/6/2023	5.53	1/6/2025	100.4938	100.390938	100.2882923	100.1858661	100.0836588	99.98166967	99.87989794	99.77834289	99.67700382
230706A00034	7/6/2023	5.18	7/7/2025	102.78628	102.1755546	101.5721139	100.9758248	100.3865603	99.80419672	99.22861295	98.65969088	98.09731509
230707A00021	9/1/2023	4.61	8/30/2030	124.90684	118.6835974	112.8204923	107.2945912	102.0845488	97.17048962	92.53389851	88.15751978	84.02526455
230707A00022	9/1/2023	4.61	8/30/2030	124.90684	118.6835974	112.8204923	107.2945912	102.0845488	97.17048962	92.53389851	88.15751978	84.02526455
230707A00023	9/1/2023	4.61	8/30/2030	124.90684	118.6835974	112.8204923	107.2945912	102.0845488	97.17048962	92.53389851	88.15751978	84.02526455
230707A00031	7/7/2023	4.84	7/7/2026	107.23289	105.5967087	103.993799	102.4232092	100.8840264	99.37537194	97.89639986	96.44629517	95.02427255
230707A00038	7/7/2023	5.35	1/7/2025	100.48844	100.3828134	100.2774193	100.1722575	100.0673272	99.96262768	99.85815809	99.75391765	99.64990557
230707A00041	7/7/2023	4.44	7/7/2028	115.53456	111.7428973	108.099044	104.5963938	101.2286748	97.98993107	94.87450492	91.87701972	88.9923644
230710A00013	7/10/2023	4.55	7/10/2029	120.02959	115.1131262	110.4324543	105.9749382	101.7286913	97.68252613	93.82590946	90.14892	86.64220955
230710A00053	7/10/2023	4.98	7/10/2025	102.75023	102.1307703	101.5188028	100.9141963	100.3168182	99.72653917	99.14323277	98.56677569	97.9970475
230710A00066	7/10/2023	5	7/10/2025	102.71329	102.0945701	101.4833311	100.8794367	100.2827547	99.69315608	99.11051504	98.53470863	97.96561678
230711A00012	7/11/2023	5.07	7/11/2025	102.76865	102.1469896	101.5328776	100.9261771	100.3267541	99.73447799	99.14922114	98.57085899	97.99926991
230711A00013	7/11/2023	4.78	7/13/2026	107.21214	105.559828	103.9413344	102.3556874	100.8019511	99.2792252	97.78664293	96.32336984	94.8886021
230711A00027	7/11/2023	5.07	7/11/2025	102.76865	102.1469896	101.5328776	100.9261771	100.3267541	99.73447799	99.14922114	98.57085899	97.99926991
230711A00038	7/11/2023	4.89	10/10/2025	103.74894	102.873037	102.0119791	101.1653948	100.3329207	99.51420531	98.70890895	97.91670296	97.13726937
230711A00087	7/11/2023	5.04	6/16/2025	102.4441	101.892367	101.3465951	100.8066916	100.2725619	99.74411342	99.22125571	98.70390011	98.19195985
230711A00089	7/11/2023	5.32	12/16/2024	100.20673	100.1622302	100.1177828	100.0733924	100.0290591	99.98478266	99.940563	99.8964	99.85229355
230712A00002	7/12/2023	4.31	7/12/2028	114.81007	111.0257226	107.3892857	103.8941352	100.5339801	97.30284744	94.19506376	91.20523845	88.32824783
230712A00005	7/12/2023	5.2	12/16/2024	100.20133	100.1568281	100.1123851	100.0679992	100.0236702	99.97939822	99.93518296	99.89102436	99.8469223
230712A00009	7/12/2023	4.89	6/16/2025	102.36176	101.810285	101.264769	100.7251194	100.1912416	99.66304323	99.14043369	98.62332439	98.11162859
230712A00014	7/12/2023	4.62	7/13/2026	106.95101	105.3009018	103.6845748	102.1010561	100.5494108	99.02873948	97.53817656	96.07688845	94.64407221
230712A00015	7/12/2023	4.62	7/13/2026	106.95101	105.3009018	103.6845748	102.1010561	100.5494108	99.02873948	97.53817656	96.07688845	94.64407221
230712A00016	7/12/2023	4.45	7/12/2027	110.99979	108.2957961	105.6725892	103.1272486	100.6569799	98.25910866	95.93107413	93.67042356	91.47480686
230712A00017	7/12/2023	4.45	7/12/2027	110.99979	108.2957961	105.6725892	103.1272486	100.6569799	98.25910866	95.93107413	93.67042356	91.47480686

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230712A00018	7/12/2023	4.31	7/12/2028	114.81007	111.0257226	107.3892857	103.8941352	100.5339801	97.30284744	94.19506376	91.20523845	88.32824783
230712A00019	7/12/2023	4.31	7/12/2028	114.81007	111.0257226	107.3892857	103.8941352	100.5339801	97.30284744	94.19506376	91.20523845	88.32824783
230712A00020	7/12/2023	4.31	7/12/2028	114.81007	111.0257226	107.3892857	103.8941352	100.5339801	97.30284744	94.19506376	91.20523845	88.32824783
230712A00021	7/12/2023	4.31	7/12/2028	114.81007	111.0257226	107.3892857	103.8941352	100.5339801	97.30284744	94.19506376	91.20523845	88.32824783
230712A00034	1/12/2024	4.88	1/13/2025	100.50977	100.3875222	100.2655848	100.1439594	100.0226447	99.9016395	99.78094259	99.66055274	99.54046872
230712A00035	1/12/2024	4.36	1/12/2026	104.36188	103.2239921	102.1110103	101.0221199	99.95654348	98.91353674	97.8923869	96.8924109	95.91295392
230712A00039	7/12/2023	4.62	7/13/2026	106.95101	105.3009018	103.6845748	102.1010561	100.5494108	99.02873948	97.53817656	96.07688845	94.64407221
230712A00040	7/12/2023	4.45	7/12/2027	110.99979	108.2957961	105.6725892	103.1272486	100.6569799	98.25910866	95.93107413	93.67042356	91.47480686
230712A00041	7/12/2023	4.31	7/12/2028	114.81007	111.0257226	107.3892857	103.8941352	100.5339801	97.30284744	94.19506376	91.20523845	88.32824783
230712A00046	7/12/2023	4.52	7/13/2026	106.7878	105.139073	103.5241001	101.9419115	100.391573	98.8721859	97.38288508	95.92283758	94.49124103
230712A00048	7/12/2023	4.95	7/14/2025	102.73034	102.1005588	101.4785307	100.8641099	100.2571569	99.65753589	99.06511427	98.47976258	97.90135449
230712A00051	7/12/2023	4.62	7/13/2026	106.95101	105.3009018	103.6845748	102.1010561	100.5494108	99.02873948	97.53817656	96.07688845	94.64407221
230712A00056	7/12/2023	4.22	7/12/2028	114.48206	110.703666	107.0730173	103.5834888	100.2287956	97.00297059	93.9003459	90.91553629	88.04342316
230713A00014	7/13/2023	4.2	7/13/2028	114.42022	110.6402058	107.0080942	103.5172553	100.1613933	96.93453082	93.83099068	90.84537883	87.97256857
230713A00017	7/13/2023	5.11	1/14/2025	100.55032	100.4252605	100.300529	100.1761233	100.0520422	99.92828425	99.80484827	99.68173291	99.55893687
230713A00019	7/13/2023	4.51	7/13/2026	106.77148	105.1228901	103.5080526	101.925997	100.3757892	98.85653054	97.36735594	95.9074325	94.47595791
230713A00021	7/13/2023	4.44	7/13/2026	106.65724	105.0096099	103.3957203	101.8145958	100.2653028	98.74694304	97.2586519	95.79959689	94.36897609
230713A00023	7/13/2023	4.2	7/13/2028	114.42022	110.6402058	107.0080942	103.5172553	100.1613933	96.93453082	93.83099068	90.84537883	87.97256857
230713A00025	7/13/2023	4.82	7/14/2025	102.6489	102.0194104	101.3976662	100.7835267	100.1768526	99.57750819	98.98536076	98.40028094	97.82214242
230713A00026	7/13/2023	4.49	7/13/2026	106.73884	105.0905243	103.4759576	101.8941681	100.3442217	98.82521983	97.33629764	95.87662232	94.44539168
230713A00031	7/13/2023	4.49	7/13/2026	106.73884	105.0905243	103.4759576	101.8941681	100.3442217	98.82521983	97.33629764	95.87662232	94.44539168
230713A00058	7/13/2023	4.08	7/13/2028	114.29137	110.5056958	106.8683634	103.3727118	100.0124197	96.78148551	93.67420952	90.68517663	87.80924039
230714A00019	7/14/2023	4.85	7/14/2025	102.66769	102.0381369	101.4163272	100.8021228	100.1953844	99.59597612	99.00376542	98.41862286	97.84042213
230714A00020	7/14/2023	4.52	7/14/2026	106.79978	105.1482373	103.5305442	101.9457259	100.3928442	98.87099662	97.37931461	95.91696187	94.48313287
230714A00022	7/14/2023	4.36	7/14/2027	110.78542	108.0788083	105.4532103	102.9056897	100.4334394	98.03377311	95.70411871	93.442013	91.24509602
230714A00023	7/14/2023	4.18	7/14/2028	114.35828	110.5766388	106.9430677	103.4509218	100.0938944	96.86599798	93.76154578	90.77513506	87.90163099
230714A00026	7/14/2023	4.18	7/14/2028	114.35828	110.5766388	106.9430677	103.4509218	100.0938944	96.86599798	93.76154578	90.77513506	87.90163099
230714A00030	7/14/2023	4.52	7/17/2026	106.83572	105.1757262	103.5498703	101.9571612	100.396649	98.86742021	97.36859553	95.89932867	94.45880462
230714A00034	7/14/2023	4.37	7/16/2027	110.8348	108.1220572	105.4906351	102.9375802	100.4600703	98.0554046	95.7209976	93.45437339	91.25316007
230714A00036	7/14/2023	4.37	7/12/2030	123.043	117.0093805	111.3188056	105.9498324	100.8824702	96.09807798	91.57926611	87.30980538	83.27454359
230714A00042	7/14/2023	4.58	7/14/2026	106.89787	105.2454976	103.6269894	102.0413704	100.487702	98.96508146	97.47263976	96.00954026	94.57497711
230717A00022	7/17/2023	4.59	7/17/2026	106.95074	105.2897669	103.6629506	102.0692983	100.5078594	98.97772001	97.47800042	96.00785394	94.56646513
230717A00061	7/17/2023	4.93	7/17/2025	102.7535	102.1153861	101.4852274	100.8628748	100.2481835	99.64101222	99.04122332	98.44868238	97.86325827

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11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230717A00088	7/17/2023	4.43	7/19/2027	111.02858	108.3050321	105.6633009	103.1004088	100.6135094	98.19987922	95.85691156	93.58211036	91.37308478
230718A00012	7/18/2023	5.2	12/16/2024	100.20133	100.1568281	100.1123851	100.0679992	100.0236702	99.97939822	99.93518296	99.89102436	99.8469223
230718A00013	7/18/2023	4.54	7/17/2026	106.86858	105.2083093	103.5821789	101.9892003	100.4284234	98.89893444	97.39985407	95.93033589	94.48956477
230718A00014	7/18/2023	4.37	7/19/2027	110.86924	108.1478253	105.5081806	102.9473274	100.4624207	98.05073854	95.70967543	93.43673667	91.22953271
230718A00015	7/18/2023	4.19	7/18/2028	114.43891	110.644793	106.9995793	103.4965691	100.1294057	96.8920546	93.77878581	90.784156	87.90299251
230718A00016	7/18/2023	4.54	7/17/2026	106.86858	105.2083093	103.5821789	101.9892003	100.4284234	98.89893444	97.39985407	95.93033589	94.48956477
230718A00023	7/18/2023	4.54	7/20/2026	106.90468	105.235955	103.6016554	102.0007812	100.4323703	98.89549767	97.38927348	95.91284118	94.46537609
230718A00038	7/18/2023	4.46	11/13/2026	108.14652	106.147827	104.1966361	102.2915201	100.4311092	98.61408353	96.83917128	95.1051463	93.41082633
230718A00065	7/18/2023	4.3	7/18/2033	117.71142	113.0017689	108.568572	104.3924872	100.4556889	96.74174122	93.23547942	89.92290214	86.79107377
230718A00070	7/18/2023	4.06	7/18/2028	114.27291	110.4737756	106.8239644	103.3167494	99.94574864	96.70490403	93.58846335	90.5909626	87.7072098
230718A00093	7/18/2023	4.06	7/18/2028	114.27291	110.4737756	106.8239644	103.3167494	99.94574864	96.70490403	93.58846335	90.5909626	87.7072098
230719A00006	7/19/2023	4.54	7/20/2026	106.90468	105.235955	103.6016554	102.0007812	100.4323703	98.89549767	97.38927348	95.91284118	94.46537609
230719A00015	7/19/2023	4.37	7/19/2027	110.86924	108.1478253	105.5081806	102.9473274	100.4624207	98.05073854	95.70967543	93.43673667	91.22953271
230719A00027	7/19/2023	4.92	7/18/2025	102.75902	102.1181359	101.4852742	100.860285	100.2430219	99.63334171	99.03110507	98.43617591	97.84842148
230719A00034	7/19/2023	4.19	7/19/2028	114.44994	110.6528707	107.0049068	103.4993368	100.1297913	96.89022464	93.77489588	90.77835171	87.89541016
230719A00035	7/19/2023	4.92	7/18/2025	102.75902	102.1181359	101.4852742	100.860285	100.2430219	99.63334171	99.03110507	98.43617591	97.84842148
230719A00061	7/19/2023	5.18	1/21/2025	100.6476	100.5030413	100.3589164	100.2152184	100.0719456	99.92909588	99.78666742	99.64465831	99.50306667
230719A00091	11/13/2023	4.56	11/14/2025	103.86446	102.8918235	101.9374744	101.0008955	100.0815928	99.17909052	98.29293041	97.42267062	96.56788517
230719A00096	12/18/2023	4.46	12/19/2025	104.18061	103.1099567	102.0613942	101.0342401	100.0278424	99.04157546	98.07483856	97.12705469	96.19766939
230719A00101	10/16/2023	4.65	10/17/2025	103.62143	102.7269087	101.84789	100.9839711	100.1347646	99.2998962	98.47900432	97.6717394	96.87776346
230720A00025	7/20/2023	5.18	1/21/2025	100.65876	100.5140776	100.369824	100.2259991	100.082601	99.93962764	99.79707716	99.65494763	99.51323714
230720A00037	7/20/2023	4.55	7/20/2026	107.05627	105.3839371	103.7461333	102.1418587	100.5701475	99.03007109	97.52073613	96.04128285	94.59088345
230720A00038	7/20/2023	4.55	7/20/2026	107.05627	105.3839371	103.7461333	102.1418587	100.5701475	99.03007109	97.52073613	96.04128285	94.59088345
230720A00039	7/20/2023	4.68	7/20/2026	107.13588	105.4651767	103.8289377	102.2261585	100.6558761	99.11716466	97.60913335	96.13092482	94.68171358
230721A00003	7/21/2023	4.67	7/21/2026	107.13176	105.4583705	103.8195403	102.214259	100.6415598	99.10051303	97.59022443	96.10983331	94.65851106
230721A00006	7/21/2023	4.32	7/21/2028	114.94903	111.1373222	107.4753854	103.956468	100.574167	97.32240475	94.19541057	91.18770321	88.29407442
230721A00028	7/21/2023	5.03	7/21/2025	102.86566	102.2161327	101.5748379	100.9416191	100.3163239	99.69880394	99.0889146	98.48651472	97.89146665
230721A00029	7/21/2023	4.67	7/21/2026	107.13176	105.4583705	103.8195403	102.214259	100.6415598	99.10051303	97.59022443	96.10983331	94.65851106
230721A00031	7/21/2023	5.03	7/21/2025	102.86566	102.2161327	101.5748379	100.9416191	100.3163239	99.69880394	99.0889146	98.48651472	97.89146665
230721A00032	7/21/2023	5.03	7/21/2025	102.86566	102.2161327	101.5748379	100.9416191	100.3163239	99.69880394	99.0889146	98.48651472	97.89146665
230721A00038	7/21/2023	4.67	7/21/2026	107.13176	105.4583705	103.8195403	102.214259	100.6415598	99.10051303	97.59022443	96.10983331	94.65851106
230721A00043	7/21/2023	4.98	7/21/2025	102.83337	102.1839601	101.542781	100.9096767	100.2844951	99.66708776	99.05731003	98.45502079	97.86008238
230724A00037	7/24/2023	4.29	7/24/2028	114.87286	111.0542751	107.3860101	103.861282	100.4736523	97.21701076	94.08555599	91.07377838	88.17644328

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230724A00063	7/24/2023	5.08	7/24/2025	102.93487	102.2768316	101.6272296	100.9859071	100.3527061	99.72747288	99.11005737	98.50031333	97.89809816
230724A00064	7/24/2023	4.53	7/19/2027	111.29415	108.5670435	105.9218346	103.3555443	100.8653237	98.448447	96.10230512	93.82439984	91.61233823
230724A00065	7/24/2023	4.37	7/18/2028	115.09792	111.2917726	107.6348805	104.1205284	100.7423471	97.49429038	94.37061685	91.3658723	88.47487371
230724A00066	7/24/2023	4.71	8/18/2026	107.54767	105.7945455	104.0787437	102.3991325	100.7546305	99.14419921	97.56684179	96.02160034	94.50755417
230725A00004	7/25/2023	5.06	7/25/2025	102.93405	102.2732495	101.6209639	100.9770252	100.3412735	99.71355321	99.09371253	98.48160351	97.87708188
230725A00014	7/25/2023	5.32	1/27/2025	100.746	100.5846899	100.4239041	100.2636381	100.1038893	99.94465522	99.78593335	99.62772124	99.47001642
230725A00016	7/25/2023	4.75	7/31/2026	107.39021	105.6873718	104.0200724	102.3872667	100.787947	99.22114516	97.68593032	96.18140723	94.70671446
230725A00018	7/25/2023	4.4	7/25/2028	115.28902	111.4600337	107.7817966	104.2474968	100.8506754	97.58520297	94.44526046	91.4253213	88.520135
230725A00023	7/25/2023	4.57	4/9/2027	110.17217	107.7399523	105.3744587	103.073494	100.8349438	98.65677549	96.53703425	94.47383982	92.46538317
230725A00028	7/25/2023	4.46	7/25/2030	123.68099	117.5933759	111.8534509	106.4393705	101.3307835	96.50872026	91.95549079	87.65459176	83.59062047
230725A00071	7/25/2023	4.4	7/25/2028	115.28902	111.4600337	107.7817966	104.2474968	100.8506754	97.58520297	94.44526045	91.4253213	88.520135
230726A00011	7/26/2023	4.24	7/26/2028	115.02422	111.1891903	107.5054816	103.9662445	100.564984	97.29553686	94.15205242	91.12897482	88.22102616
230726A00012	7/26/2023	4.24	7/26/2028	115.02422	111.1891903	107.5054816	103.9662445	100.564984	97.29553686	94.15205242	91.12897482	88.22102616
230726A00023	7/26/2023	4.24	7/26/2028	115.02422	111.1891903	107.5054816	103.9662445	100.564984	97.29553686	94.15205242	91.12897482	88.22102616
230726A00058	7/26/2023	4.99	7/28/2025	102.97745	102.3075447	101.6463776	100.9937796	100.3495846	99.71363092	99.08576087	98.46582084	97.85366106
230726A00060	7/26/2023	4.99	7/28/2025	102.97745	102.3075447	101.6463776	100.9937796	100.3495846	99.71363092	99.08576087	98.46582084	97.85366106
230727A00016	7/27/2023	4.51	7/27/2033	134.70275	125.1215005	116.3299157	108.2578745	100.841855	94.02428343	87.75294751	81.98047008	76.66383736
230727A00020	7/27/2023	4.39	7/27/2028	115.27537	111.4411119	107.7579866	104.219164	100.8181609	97.54882525	94.40531675	91.38208926	88.47387397
230727A00033	7/27/2023	4.82	7/27/2026	107.74259	105.9866989	104.2684579	102.5867202	100.9403839	99.32839234	97.74973088	96.20342539	94.68853992
230727A00037	7/27/2023	4.82	7/27/2026	107.74259	105.9866989	104.2684579	102.5867202	100.9403839	99.32839234	97.74973088	96.20342539	94.68853992
230727A00063	7/27/2023	4.38	7/27/2028	115.55243	111.7049173	108.009205	104.4584249	101.0460593	97.76592372	94.61214761	91.5791562	88.66165382
230727A00070	7/27/2023	4.75	7/27/2026	107.33977	105.6482604	103.9919091	102.3696797	100.7805808	99.22365935	97.69799917	96.20271866	94.7369694
230727A00073	7/27/2023	4.81	7/27/2026	107.44001	105.7476383	104.0904367	102.4673722	100.8774528	99.31972541	97.79327317	96.2972142	94.83069972
230727A00075	7/27/2023	4.5	7/27/2028	115.68083	111.8391147	108.148758	104.6029135	101.1950903	97.91912874	94.76918157	91.73969579	88.82539613
230728A00004	7/28/2023	4.77	7/28/2026	107.38585	105.6912196	104.0318476	102.4066952	100.8147669	99.2551059	97.72679201	96.22894017	94.76069861
230728A00005	7/28/2023	4.59	7/28/2027	111.56226	108.8068324	106.1347093	103.5428374	101.0282977	98.58829854	96.22016895	93.92135236	91.68940097
230728A00006	7/28/2023	4.46	7/28/2028	115.54516	111.7031746	108.0126684	104.466791	101.0590416	97.78325164	94.63356551	91.60442254	88.69054034
230728A00017	7/28/2023	5.15	7/22/2025	102.95566	102.3030491	101.6587453	101.0225873	100.3944209	99.77409594	99.16146584	98.55638778	97.95872242
230731A00012	7/31/2023	4.5	7/31/2029	120.03506	115.0598693	110.3257402	105.8196232	101.5292491	97.44307869	93.55025472	89.84055769	86.30436466
230731A00036	7/31/2023	5.1	7/31/2025	103.03449	102.3567741	101.6879931	101.02797	100.3765333	99.7335162	99.09875613	98.47209466	97.8533774
230731A00037	7/31/2023	4.74	7/31/2026	107.3734	105.6707003	104.0035445	102.3708797	100.7716986	99.20503278	97.66995166	96.16555998	94.69099638
230801A00001	8/1/2023	5.14	8/1/2025	103.07407	102.3934613	101.7218625	101.0590952	100.4049859	99.75936545	99.12206936	98.49293718	97.87181261
230801A00021	8/1/2023	4.49	8/1/2028	115.70326	111.8472815	108.1436724	104.5855226	101.1662786	97.87972278	94.71995378	91.68136829	88.75864413

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11/30/2024				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230801A00022	8/1/2023	4.65	8/2/2027	111.78433	109.0121519	106.3240915	103.7170514	101.1880728	98.7343261	96.35310493	94.0418194	91.79799027
230801A00024	8/1/2023	4.82	8/3/2026	107.54631	105.8339614	104.1574724	102.5157766	100.9078536	99.33272313	97.78944306	96.27710733	94.7948443
230801A00028	8/1/2023	5.14	8/1/2025	103.07407	102.3934613	101.7218625	101.0590952	100.4049859	99.75936545	99.12206936	98.49293718	97.87181261
230802A00017	8/2/2023	4.79	8/3/2026	107.4956	105.7837024	104.1076482	102.4663793	100.8588756	99.28415718	97.74128195	96.22934407	94.74747209
230802A00022	9/8/2023	4.41	9/8/2028	115.85154	111.8868272	108.0824249	104.4309307	100.9253258	97.55895626	94.3255116	91.21900473	88.23375342
230802A00023	10/16/2023	4.37	10/16/2028	116.13963	112.0625601	108.1543911	104.407235	100.8136098	97.36641993	94.05893452	90.8847667	87.83785416
230803A00029	8/3/2023	5.24	2/3/2025	100.83717	100.6562153	100.4759107	100.2962562	100.1172482	99.93888323	99.76115772	99.58406826	99.40761143
230804A00030	8/4/2023	4.88	8/4/2027	106.44107	104.9866148	103.5663564	102.1792077	100.8241226	99.50009696	98.20616601	96.94140292	95.70491684
230807A00010	8/7/2023	4.4	8/7/2028	115.44001	111.5722922	107.8580088	104.2901753	100.8621683	97.56770546	94.40082509	91.35586803	88.42746014
230807A00018	8/7/2023	4.65	8/7/2026	107.30827	105.587156	103.9022421	102.2524541	100.6367564	99.05415445	97.5036925	95.98445176	94.4955485
230807A00023	8/7/2023	5.26	2/7/2025	100.87865	100.6867407	100.4955658	100.305125	100.1154142	99.92642904	99.73816534	99.55061894	99.36378571
230807A00024	8/7/2023	5.03	8/7/2025	103.07371	102.3766292	101.6890071	101.0106535	100.3413813	99.68100892	99.02935918	98.38625979	97.75154291
230807A00025	8/7/2023	4.69	8/7/2026	107.37632	105.6546023	103.9691016	102.3187373	100.7024735	99.11931544	97.56830709	96.04852937	94.55909834
230807A00033	8/7/2023	4.57	8/7/2026	107.31144	105.587871	103.900601	102.2485435	100.6306596	99.04595131	97.49345997	95.97226378	94.48147625
230807A00087	11/7/2023	4.75	11/7/2025	103.96234	103.0084313	102.0720934	101.1528446	100.2502193	99.36376867	98.49306006	97.63767606	96.79721392
230807A00093	2/7/2024	4.49	2/6/2026	104.81995	103.610212	102.4285111	101.2738786	100.1453907	99.04216506	97.96335902	96.90816684	95.87581797
230808A00008	8/8/2023	4.67	4/24/2026	106.03483	104.6118253	103.2150019	101.8436967	100.4972694	99.17510098	97.87659224	96.60116346	95.34825343
230808A00010	8/8/2023	4.95	8/8/2025	103.0304	102.3307397	101.6406121	100.9598247	100.2881883	99.62551893	98.97163758	98.32636988	97.6895461
230808A00014	8/8/2023	4.6	8/7/2026	107.22322	105.502848	103.8186678	102.1696002	100.55461	98.97270321	97.42292427	95.90435473	94.4161112
230808A00029	8/8/2023	4.6	8/7/2026	107.22322	105.502848	103.8186678	102.1696002	100.55461	98.97270321	97.42292427	95.90435473	94.4161112
230808A00054	8/8/2023	4.19	8/8/2028	114.98648	111.1161308	107.3997006	103.8301662	100.4008707	97.10550055	93.93806521	90.89287863	87.96454173
230808A00057	8/8/2023	4.19	8/8/2028	114.98648	111.1161308	107.3997006	103.8301662	100.4008707	97.10550055	93.93806521	90.89287863	87.96454173
230808A00060	8/8/2023	4.19	8/8/2028	114.98648	111.1161308	107.3997006	103.8301662	100.4008707	97.10550055	93.93806521	90.89287863	87.96454173
230809A00020	8/9/2023	4.51	11/9/2026	108.19677	106.208746	104.2677091	102.37226	100.5210508	98.71278229	96.94620243	95.22010385	93.53332215
230809A00026	8/9/2023	4.59	8/7/2026	107.20621	105.4859864	103.8019529	102.1530294	100.5381808	98.95641296	97.40677062	95.88833533	94.40022374
230809A00034	8/9/2023	4.59	8/10/2026	107.24267	105.513987	103.8217911	102.1649891	100.5425337	98.95341901	97.39667866	95.87138378	94.37664112
230810A00001	8/10/2023	4.22	8/10/2028	115.12096	111.2425696	107.5185786	103.9419325	100.5059467	97.2042814	94.03092196	90.98015969	88.04657438
230810A00010	8/10/2023	4.62	8/10/2026	107.29395	105.564816	103.8721759	102.2149376	100.5920538	99.00251813	97.44536421	95.91966291	94.42452079
230810A00013	8/10/2023	4.34	8/10/2028	115.2514	111.3788841	107.6603035	104.0886392	100.6572339	97.35977369	94.19026769	91.14302963	88.21266025
230810A00024	8/10/2023	4.34	8/7/2028	115.21704	111.3534489	107.6431729	104.07923	100.6550011	97.3642081	94.20089324	91.15940116	88.23436137
230810A00025	8/10/2023	4.37	5/8/2028	114.27117	110.678075	107.2197222	103.8903296	100.684395	97.5966809	94.62220068	91.75620479	88.99416831
230810A00026	8/10/2023	4.4	1/10/2028	112.97524	109.7385355	106.6133652	103.5952229	100.6798175	97.86305731	95.14103926	92.51003899	89.96650146
230810A00046	8/10/2023	4.88	11/18/2025	104.22413	103.2386228	102.2718333	101.3232344	100.392315	99.47858342	98.58156569	97.70080531	96.8358623

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230810A00053	8/10/2023	4.82	1/20/2026	104.98879	103.824998	102.6871396	101.5743531	100.4858147	99.42073635	98.37836405	97.35797568	96.35887954
230810A00057	8/10/2023	4.62	8/10/2026	107.29395	105.564816	103.8721759	102.2149376	100.5920538	99.00251813	97.44536421	95.91966291	94.42452079
230811A00017	8/11/2023	4.78	8/11/2026	107.58013	105.8457521	104.1480123	102.4858121	100.8580988	99.26386109	97.70212769	96.17196495	94.67247512
230811A00018	8/11/2023	5.1	8/11/2025	103.17232	102.4638678	101.765179	101.0760566	100.3963044	99.72573197	99.0641537	98.41138912	97.76726254
230814A00028	8/14/2023	4.86	8/14/2026	107.75579	106.0117035	104.3045707	102.6332855	100.9967819	99.39403652	97.8240662	96.28592625	94.77870843
230814A00029	8/14/2023	4.71	2/12/2027	109.79092	107.5215382	105.3109897	103.1573211	101.0586584	99.01320515	97.0192386	95.07510616	93.17922175
230815A00031	8/15/2023	5.14	8/13/2025	103.22576	102.5115906	101.807348	101.1128216	100.427811	99.75212108	99.08556204	98.42794925	97.77910305
230815A00037	8/15/2023	4.53	8/15/2028	116.01894	112.1182985	108.3730339	104.7760366	101.320571	98.00025003	94.80901441	91.74111385	88.79108916
230815A00038	8/15/2023	4.57	8/16/2027	111.966	109.1478457	106.416222	103.7679047	101.1998128	98.70900241	96.2926593	93.94809238	91.6727271
230815A00084	8/15/2023	5.14	8/15/2025	103.25103	102.5312643	101.8215748	101.1217511	100.4315881	99.75088631	99.0794516	98.4170952	97.76363343
230816A00025	8/16/2023	4.62	4/16/2027	110.57747	108.1165621	105.7237178	103.3966763	101.1332637	98.93139061	96.78904851	94.70430616	92.67530612
230817A00036	8/17/2023	4.91	8/17/2026	107.88092	106.1275518	104.4114537	102.7315047	101.086626	99.4757819	97.89797769	96.35225774	94.83770342
230817A00054	5/17/2024	4.5	5/15/2026	106.04317	104.5630004	103.1110809	101.6866724	100.28906	98.91755325	97.57148475	96.25020953	94.95310395
230818A00005	8/18/2023	5.01	8/18/2025	103.25276	102.5239773	101.8055229	101.0971793	100.3987335	99.7099786	99.03071347	98.36074248	97.69987534
230818A00007	8/18/2023	4.73	8/18/2026	107.72428	105.9670983	104.2473571	102.563924	100.915713	99.30168152	97.72082883	96.17219326	94.65485055
230818A00024	8/18/2023	4.81	8/18/2026	107.72081	105.9661463	104.2488266	102.567725	100.9217591	99.30988994	97.73111987	96.18449034	94.66907999
230818A00025	8/18/2023	4.68	8/18/2027	112.06236	109.2423951	106.5090375	103.8590593	101.2893751	98.79703686	96.37922677	94.03325012	91.7565291
230818A00064	8/18/2023	5.09	8/18/2025	103.25278	102.5247503	101.8070301	101.0993999	100.4016475	99.71356663	99.03495677	98.36562286	97.70537519
230818A00065	8/18/2023	4.82	8/18/2026	107.73813	105.9833064	104.2658349	102.5845842	100.9384719	99.32645901	97.74754768	96.20077934	94.68523257
230821A00004	8/21/2023	5.38	2/21/2025	101.08794	100.8569915	100.627103	100.3982706	100.1704869	99.94374475	99.7180369	99.4933563	99.2696959
230821A00006	8/21/2023	4.66	8/21/2028	116.57891	112.6511414	108.8802791	105.2591241	101.7808534	98.43899797	95.22742242	92.14030527	89.17212082
230821A00035	8/21/2023	5.36	2/21/2025	101.08334	100.8523924	100.622511	100.3936856	100.165909	99.93917377	99.7134729	99.48879925	99.26514578
230821A00074	8/21/2023	5.18	8/21/2025	103.35611	102.6194034	101.8932453	101.1774067	100.4716683	99.77581686	99.08964528	98.41295211	97.74554151
230821A00085	8/21/2023	5.04	2/23/2026	105.71318	104.4506928	103.2185429	102.015644	100.8409611	99.69350785	98.57234319	97.47656921	96.40532844
230821A00087	8/21/2023	5.37	3/3/2025	101.21885	100.9600073	100.7024902	100.4462901	100.1913969	99.93780038	99.68549082	99.43445837	99.18469333
230823A00036	8/23/2023	4.87	8/24/2026	107.90225	106.1296121	104.3949466	102.6970965	101.0349536	99.40745451	97.81357838	96.25234484	94.72281183
230823A00066	8/23/2023	4.68	8/23/2027	112.12398	109.2893927	106.5421939	103.879112	101.2970217	98.7929376	96.36400659	94.007501	91.72081196
230824A00008	8/24/2023	4.69	8/24/2028	113.93552	110.6536871	107.4972224	104.4605242	101.5382725	98.72541541	96.01715398	93.4089281	90.89640317
230824A00019	2/20/2024	4.6	2/19/2027	109.63895	107.3501676	105.1211488	102.9498937	100.8344843	98.77308261	96.76392704	94.80532818	92.8956653
230824A00031	8/24/2023	4.49	8/24/2028	116.2977	112.3583912	108.5769927	104.946235	101.4592312	98.1094531	94.89071005	91.79712919	88.82313698
230824A00043	8/24/2023	4.89	8/24/2026	107.93721	106.1642577	104.429283	102.7311292	101.0686881	99.44089611	97.84673224	96.28521598	94.75540515
230824A00061	8/24/2023	4.61	8/24/2028	116.42776	112.4944711	108.7186175	105.0929642	101.6106525	98.26518068	95.0503829	91.96040939	88.98970824
230825A00005	8/25/2023	5.14	11/21/2025	104.51825	103.5229179	102.5466444	101.5888806	100.6491028	99.72680662	98.82150648	97.93273468	97.06004058

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11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230825A00009	8/25/2023	4.91	8/25/2026	107.9852	106.2090934	104.4710667	102.7699641	101.1046726	99.47412463	97.87729523	96.31320014	94.78089363
230825A00010	8/25/2023	4.62	8/25/2028	116.47762	112.5406059	108.7612669	105.1323463	101.6469715	98.29862808	95.08113804	91.98864047	89.01557298
230825A00019	8/25/2023	5.41	2/25/2025	101.1484	100.9062686	100.6652984	100.4254817	100.1868103	99.94927602	99.71287071	99.47758633	99.24341494
230825A00037	8/25/2023	4.91	8/25/2026	107.9852	106.2090934	104.4710667	102.7699641	101.1046726	99.47412463	97.87729523	96.31320014	94.78089363
230825A00043	8/25/2023	4.89	8/25/2026	107.95019	106.1743935	104.4366771	102.735879	101.0708867	99.4406325	97.84409172	96.2802802	94.74825236
230825A00044	8/25/2023	5.2	8/25/2025	103.42194	102.6739432	101.9368115	101.2103046	100.4941935	99.78825599	99.09227587	98.40604315	97.72935372
230825A00062	8/25/2023	5.21	8/25/2025	103.42936	102.6813386	101.9441767	101.21764	100.5014995	99.79553275	99.0995237	98.41326236	97.73654457
230828A00036	8/28/2023	4.8	8/28/2026	107.9752	106.1884554	104.4401886	102.7292231	101.0544299	99.41472563	97.8090709	96.23646756	94.69595681
230828A00047	8/28/2023	4.92	8/28/2026	108.0419	106.2570903	104.5106765	102.8014825	101.1283827	99.49029705	97.88618926	96.31506409	94.77596547
230828A00055	8/28/2023	5.24	8/28/2025	103.49036	102.7338192	101.9883732	101.2537834	100.5298137	99.81623449	99.11282301	98.41936271	97.73564316
230828A00056	8/28/2023	4.92	8/28/2026	108.0419	106.2570903	104.5106765	102.8014825	101.1283827	99.49029705	97.88618926	96.31506409	94.77596547
230829A00006	8/29/2023	5.21	8/29/2025	103.48066	102.7214	101.9733148	101.2361619	100.5097027	99.79370537	99.08794477	98.39220222	97.70626522
230830A00028	8/30/2023	4.45	8/30/2027	111.8047	108.9501515	106.1842255	103.503576	100.9050126	98.38548923	95.94209556	93.57205028	91.27269412
230830A00029	8/30/2023	4.45	8/30/2027	111.8047	108.9501515	106.1842255	103.503576	100.9050126	98.38548923	95.94209556	93.57205028	91.27269412
230830A00034	8/30/2023	4.44	8/30/2028	115.85842	111.9191422	108.1382154	104.5083323	101.0225687	97.67436211	94.45749036	91.36605173	88.39444613
230830A00051	8/30/2023	4.45	8/30/2027	111.8047	108.9501515	106.1842255	103.503576	100.9050126	98.38548923	95.94209556	93.57205028	91.27269412
230830A00055	8/30/2023	4.47	8/30/2028	115.22425	111.4643294	107.855389	104.390516	101.0631509	97.86706758	94.79635506	91.84539951	89.00886792
230830A00101	8/30/2023	5.06	8/31/2026	104.2522	103.3166502	102.3982556	101.4965312	100.6110144	99.74126023	98.88684028	98.0473422	97.22236875
230831A00001	8/31/2023	4.77	8/31/2026	107.81598	106.0250418	104.2727619	102.5579531	100.879478	99.23624563	97.62720912	96.05136343	94.50774323
230831A00006	8/31/2023	4.61	8/31/2027	112.02837	109.173069	106.4063539	103.7248812	101.1254632	98.6050559	96.16075122	93.7897699	91.48945457
230831A00007	8/31/2023	4.48	8/31/2028	116.02144	112.0763119	108.2898345	104.6546809	101.1639105	97.81094543	94.58954957	91.49380787	88.51810783
230831A00016	8/31/2023	4.65	8/31/2026	107.74879	105.955909	104.2017692	102.4851827	100.8050085	99.16015236	97.54956431	95.97223637	94.4272004
230831A00041	8/31/2023	4.48	8/31/2028	116.02144	112.0763119	108.2898345	104.6546809	101.1639105	97.81094543	94.58954957	91.49380787	88.51810783
230831A00066	8/31/2023	4.77	8/31/2026	107.81598	106.0250418	104.2727619	102.5579531	100.879478	99.23624563	97.62720912	96.05136343	94.50774323
230831A00069	8/31/2023	4.61	8/31/2027	112.02837	109.173069	106.4063539	103.7248812	101.1254632	98.6050559	96.16075122	93.7897699	91.48945457
230831A00070	8/31/2023	4.48	8/31/2028	116.02144	112.0763119	108.2898345	104.6546809	101.1639105	97.81094543	94.58954957	91.49380787	88.51810783
230831A00079	8/30/2024	4.28	8/29/2031	126.36994	119.0704865	112.2572761	105.8950577	99.95133066	94.39611171	89.20172661	84.34261994	79.79518173
230901A00007	9/1/2023	4.55	9/1/2027	111.8741	109.0181353	106.2508647	103.5689486	100.9691961	98.44856023	96.00412962	93.63312165	91.33287555
230901A00016	9/1/2023	4.6	8/3/2026	107.31286	105.6001554	103.9233604	102.2814078	100.6732749	99.09797919	97.5545763	96.04215823	94.55985146
230901A00029	9/1/2023	5.04	3/3/2025	101.15437	100.8954142	100.6377866	100.3814793	100.1264819	99.87278444	99.62037696	99.3692496	99.11939259
230901A00037	9/1/2023	4.3	9/1/2028	115.67459	111.7246302	107.9338974	104.295026	100.8010411	97.44533235	94.22163277	91.12399839	88.14678945
230901A00044	9/1/2023	4.55	9/1/2027	111.8741	109.0181353	106.2508647	103.5689486	100.9691961	98.44856023	96.00412962	93.63312165	91.33287555
230905A00030	9/5/2023	4.55	9/5/2028	116.34741	112.3818715	108.5762637	104.9232038	101.4156936	98.04709929	94.81113029	91.7018189	88.71350177

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230905A00033	9/5/2023	4.71	9/4/2026	107.90683	106.1012545	104.3349031	102.6065821	100.9151488	99.25950663	97.63860209	96.05142317	94.49699702
230905A00037	9/5/2023	5.16	3/5/2025	101.21146	100.9468825	100.6836938	100.4218854	100.1614466	99.90236637	99.64463417	99.38823941	99.13317162
230905A00038	9/5/2023	5.16	3/5/2025	101.21146	100.9468825	100.6836938	100.4218854	100.1614466	99.90236637	99.64463417	99.38823941	99.13317162
230906A00020	9/6/2023	5.19	9/8/2025	103.59456	102.8073324	102.0321141	101.2686356	100.5166311	99.77584288	99.0460208	98.32692216	97.61831136
230907A00012	9/7/2023	5.17	9/8/2025	103.57894	102.7917737	102.0166216	101.2532087	100.5012691	99.76054503	99.03078647	98.31175068	97.60320209
230907A00047	9/7/2023	5.08	9/5/2025	103.47075	102.6922867	101.9255786	101.1703603	100.4263745	99.69337149	98.97110893	98.25935161	97.55787115
230907A00050	9/7/2023	5.05	9/5/2025	103.50943	102.7299755	101.9623069	101.2061532	100.4612563	99.72736571	99.00423843	98.29163848	97.58933676
230907A00051	9/7/2023	4.79	9/8/2026	108.102	106.2833787	104.5044614	102.7640607	101.0610319	99.39427545	97.76273416	96.16539158	94.60126984
230908A00009	9/8/2023	4.55	9/8/2028	115.96131	112.086064	108.3682318	104.8005423	101.376103	98.08837469	94.93115084	91.89853932	88.98494473
230908A00010	9/8/2023	4.73	9/9/2030	113.8734	110.5928394	107.4524662	104.44501	101.5636345	98.80190657	96.15376954	93.61351888	91.17577915
230911A00001	9/11/2023	4.49	9/11/2028	116.51819	112.5236307	108.6909869	105.0127736	101.4818952	98.09162425	94.83558029	91.70770941	88.70226571
230911A00010	9/11/2023	4.9	9/11/2026	108.19164	106.3663639	104.5810508	102.8345145	101.125613	99.45324808	97.81636355	96.21394305	94.64500816
230911A00014	9/11/2023	4.61	9/11/2028	116.64962	112.6612069	108.8342243	105.1612176	101.6351205	98.24923321	94.99720069	91.8729931	88.87088695
230911A00026	9/11/2023	5.08	9/11/2025	103.54649	102.751223	101.9682195	101.1971993	100.4378883	99.69002079	98.95333879	98.22759219	97.51253827
230911A00030	9/11/2023	5.09	9/11/2025	103.55439	102.7590847	101.9760473	101.2049937	100.4456497	99.69774943	98.96103505	98.23525642	97.52017079
230912A00026	9/12/2023	4.84	9/14/2026	108.12307	106.2899931	104.4972092	102.7435334	101.0278227	99.34897755	97.70593973	96.09769021	94.52324747
230912A00036	9/12/2023	4.57	9/12/2028	116.50942	112.5208054	108.6937664	105.0208377	101.4949455	98.10938259	94.85778685	91.73412145	88.73265609
230912A00053	9/12/2023	4.74	9/7/2027	112.47802	109.5965916	106.8050586	104.1000486	101.4783368	98.93684208	96.47261871	94.08284983	91.7648406
230913A00013	9/13/2023	4.87	9/14/2026	108.17725	106.3436698	104.550392	102.7962312	101.0800444	99.40073171	97.75723469	96.1485341	94.5736482
230913A00014	9/13/2023	5.34	3/13/2025	101.34453	101.0578423	100.7727924	100.489365	100.2075461	99.92732199	99.64867904	99.37160377	99.09608286
230913A00020	9/13/2023	5.37	3/17/2025	101.40679	101.1089265	100.8128277	100.518478	100.2258618	99.9349638	99.64576868	99.35826144	99.07242722
230913A00030	9/13/2023	5.16	9/15/2025	103.66103	102.8542647	102.0601109	101.2782758	100.5084736	99.75042742	99.00386883	98.26853754	97.54418106
230913A00031	9/13/2023	4.91	9/15/2026	108.26278	106.4255921	104.6288346	102.871323	101.1519134	99.46950505	97.82303831	96.21149258	94.63388461
230913A00032	9/13/2023	4.74	9/15/2027	112.57974	109.6741635	106.8598669	104.1334341	101.4916016	98.93124854	96.44938943	94.04316725	91.70984708
230913A00046	9/13/2023	4.91	9/14/2026	108.24949	106.4152389	104.6213023	102.866495	101.1496733	99.46973726	97.82562798	96.21632596	94.64084917
230913A00049	9/13/2023	4.74	9/13/2027	112.55431	109.6547747	106.8461716	104.125096	101.4882944	98.93265588	96.4552049	94.05309461	91.7236002
230913A00050	9/13/2023	4.6	9/13/2028	116.63626	112.6423736	108.8103588	105.132735	101.6024155	98.21268043	94.95715543	91.82979183	88.82484791
230914A00027	9/14/2023	4.76	1/8/2027	109.44835	107.2818578	105.1697229	103.110207	101.1016411	99.14242232	97.23101036	95.36592492	93.54574266
230914A00031	9/14/2023	5.08	9/15/2025	103.59698	102.7904942	101.996618	101.2150573	100.4455266	99.68774897	98.94145608	98.20638766	97.48229129
230914A00050	9/14/2023	4.67	9/14/2027	112.37013	109.4703594	106.6616316	103.9405349	101.3038126	98.74835096	96.2711713	93.86942355	91.54037959
230914A00051	9/14/2023	4.84	9/14/2026	108.12307	106.2899931	104.4972092	102.7435334	101.0278227	99.34897755	97.70593973	96.09769021	94.52324747
230914A00059	7/26/2024	4.39	7/24/2026	106.70345	105.0255829	103.3824905	101.7731528	100.1965928	98.65187141	97.13808539	95.6543656	94.19987544
230914A00060	9/14/2023	5.28	3/14/2025	101.34056	101.0511121	100.7633363	100.4772143	100.1927316	99.90987422	99.62862805	99.34897925	99.07091414

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230914A00069	7/26/2024	4.34	7/26/2027	110.86934	108.1287606	105.4709756	102.8929527	100.3917946	97.96473011	95.60910748	93.32238858	91.10214294
230914A00070	7/26/2024	4.3	7/26/2028	114.93231	111.1071087	107.4326633	103.9021573	100.5091264	97.24743624	94.11126319	91.0950768	88.19362299
230914A00125	9/16/2024	4.46	9/16/2031	127.76372	120.3666148	113.464692	107.021917	101.0050683	95.38350123	90.1289352	85.21525915	80.61835441
230915A00026	9/15/2023	4.57	9/15/2028	116.54631	112.5484164	108.7127834	105.031915	101.4987055	98.10641648	94.84865564	91.71935678	88.7127613
230915A00028	9/15/2023	4.57	9/15/2028	116.54631	112.5484164	108.7127834	105.031915	101.4987055	98.10641648	94.84865564	91.71935678	88.7127613
230915A00030	9/15/2023	4.7	9/8/2027	112.37889	109.4960138	106.7031746	103.996989	101.3742287	98.83180871	96.36677943	93.97632008	91.65773184
230915A00054	9/15/2023	4.88	9/15/2026	108.20852	106.371834	104.575572	102.8185467	101.0996146	99.41767521	97.771669	96.16057565	94.58341212
230915A00055	9/15/2023	4.7	9/15/2027	112.46711	109.5631363	106.750398	104.0254865	101.3851395	98.82623721	96.34579524	93.94095763	91.60899048
230915A00057	9/15/2023	4.75	6/15/2027	111.44637	108.811998	106.254682	103.7717023	101.360454	99.01844039	96.74326793	94.53264126	92.38435843
230918A00008	9/18/2023	4.91	9/18/2026	108.30266	106.4566476	104.6514242	102.8857979	101.1586235	99.46879829	97.81525978	96.19698422	94.61298468
230918A00010	9/18/2023	4.72	9/18/2029	121.65268	116.5005332	111.6036974	106.9481046	102.5205386	98.30857842	94.30054548	90.48545566	86.85297408
230918A00011	9/18/2023	4.91	9/18/2026	108.30266	106.4566476	104.6514242	102.8857979	101.1586235	99.46879829	97.81525978	96.19698422	94.61298468
230918A00013	9/18/2023	4.74	9/18/2030	125.86426	119.5589001	113.6210161	108.0271102	102.755308	97.78524102	93.09793496	88.67570712	84.50207192
230918A00018	9/18/2023	5.01	3/18/2026	106.0034	104.6800761	103.3836395	102.1132752	100.8682034	99.64767594	98.45097408	97.2774075	96.12631273
230918A00023	9/18/2023	4.91	9/18/2026	108.30266	106.4566476	104.6514242	102.8857979	101.1586235	99.46879829	97.81525978	96.19698422	94.61298468
230918A00027	9/18/2023	5.11	9/30/2025	103.81152	102.9627669	102.1279402	101.3066975	100.4987089	99.70365494	98.92122648	98.15112416	97.39305799
230918A00030	9/18/2023	5.01	9/17/2027	106.83577	105.3339766	103.8682434	102.4374035	101.0403376	99.67597173	98.34327457	97.04125574	95.76896374
230919A00010	9/19/2023	4.76	9/20/2027	112.69989	109.7784048	106.9490804	104.2084819	101.5533204	98.98044935	96.48685717	94.06966082	91.72609938
230919A00029	9/19/2023	4.63	9/19/2028	116.82557	112.8109035	108.9595475	105.2639581	101.7169818	98.31183385	95.04207686	91.90160114	88.88460604
230919A00043	9/19/2023	4.62	9/19/2028	116.78723	112.77329	108.9226438	105.2277429	101.6814348	98.27693543	95.00780813	91.86794392	88.85154282
230919A00044	9/19/2023	4.93	9/21/2026	108.37904	106.5238606	104.7098308	102.935757	101.2004925	99.50293198	97.84201023	96.21669997	94.6260103
230919A00047	9/19/2023	4.98	8/19/2026	108.02839	106.2682522	104.5456088	102.8593267	101.2083179	99.5915384	98.00798541	96.45669572	94.93674352
230919A00055	9/19/2023	4.65	9/19/2028	116.90226	112.8861306	109.0333551	105.3363885	101.7880758	98.38163069	95.11061432	91.96891558	88.95073249
230919A00082	9/19/2023	5.17	9/19/2025	103.72051	102.9024779	102.0974015	101.3049788	100.5249124	99.75691444	99.00070568	98.25601561	97.52258192
230920A00002	9/20/2023	4.47	10/2/2028	116.69892	112.6407708	108.7493463	105.0169187	101.4361588	98.00011309	94.70218245	91.53610229	88.49592386
230920A00025	9/20/2023	5.14	9/16/2025	103.65781	102.8483018	102.0514969	101.2670931	100.4948022	99.73434424	98.98544834	98.2478516	97.52129912
230920A00026	9/20/2023	4.9	9/16/2026	108.25796	106.4179982	104.6185848	102.8585312	101.1366932	99.45196932	97.80329918	96.18966118	94.61007094
230921A00021	9/21/2023	4.62	9/21/2028	117.14152	113.1063258	109.2356398	105.5218573	101.9577643	98.53651834	95.25162742	92.09692976	89.06657527
230921A00028	9/21/2023	5.07	9/21/2026	108.63458	106.7770082	104.9606249	103.1842411	101.4467087	99.74692138	98.08381281	96.45635458	94.86355479
230921A00032	5/31/2024	5.03	5/30/2025	102.26178	101.7395711	101.2225401	100.7106103	100.2037066	99.70175533	99.20468438	98.7124229	98.22490145
230921A00033	6/7/2024	5.01	6/6/2025	102.3353	101.7932173	101.2567278	100.7257411	100.2001728	99.67994031	99.16496268	98.65516058	98.15045627
230921A00034	6/14/2024	4.98	6/13/2025	102.40237	101.8404956	101.2846357	100.7346908	100.1905668	99.65217166	99.11941506	98.59220874	98.07046624
230921A00035	6/21/2024	4.96	6/20/2025	102.44838	101.8856046	101.329032	100.7785602	100.2340892	99.69552099	99.16275967	98.6357115	98.11428472

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230921A00036	6/28/2024	4.94	6/27/2025	102.52111	101.9387918	101.3631007	100.7939248	100.2311538	99.67467997	99.12439793	98.58020463	98.0419993
230922A00020	9/22/2023	5.35	3/24/2025	101.4944	101.1769944	100.8615801	100.5481423	100.2366623	99.92712175	99.61950252	99.31378669	99.00995657
230922A00022	9/22/2023	4.99	9/22/2026	108.50207	106.6429174	104.8250507	103.0472766	101.3084472	99.60745626	97.94323694	96.3147604	94.72103402
230922A00025	9/22/2023	5.18	9/22/2025	103.76732	102.9408119	102.1275284	101.3271516	100.5393754	99.76390326	99.00044803	98.24873136	97.50848347
230925A00003	9/25/2023	4.99	9/25/2026	108.5426	106.6746081	104.8482535	103.0623465	101.3157375	99.60731798	97.93601815	96.30080571	94.7006841
230925A00004	9/25/2023	4.74	9/25/2028	117.32396	113.2825426	109.4060693	105.6869171	102.1178586	98.69203712	95.40294555	92.24440686	89.21055542
230925A00028	12/22/2023	5.5	12/23/2024	100.30556	100.2415858	100.1777109	100.1139304	100.0502441	99.98665184	99.92315339	99.85974856	99.79643712
230925A00056	9/25/2023	5.19	9/25/2025	103.81428	102.9793012	102.1578051	101.34947	100.553981	99.77103316	99.00033097	98.24158827	97.49452774
230925A00057	9/25/2023	5.19	9/30/2025	103.87889	103.0298246	102.194692	101.3731468	100.5648592	99.76950961	98.98678885	98.21639749	97.45804549
230925A00080	9/25/2023	5.07	9/30/2025	103.84543	102.9956029	102.1597322	101.3374748	100.5284999	99.73248699	98.94912606	98.17811682	97.41916844
230925A00114	9/25/2023	5.09	3/25/2026	106.21045	104.8681477	103.5511472	102.2587623	100.990329	99.74520737	98.52278029	97.32245249	96.14364957
230925A00121	9/25/2023	5.2	9/25/2025	103.82257	102.9875465	102.1660133	101.3576417	100.5621165	99.77913284	99.00839526	98.24961755	97.50252239
230926A00010	9/26/2023	4.74	9/26/2028	117.33672	113.2921886	109.4128289	105.6910111	102.1194969	98.69141894	95.40025985	92.23983259	89.20426183
230926A00020	9/26/2023	5.2	9/26/2025	103.83552	102.9976806	102.1734208	101.3624075	100.5643227	99.77885853	99.00571682	98.24460875	97.49525445
230926A00021	9/26/2023	4.73	9/26/2028	117.29818	113.2543897	109.3757467	105.6546242	102.0837846	98.65636135	95.36583783	92.2060277	89.17105635
230926A00048	9/26/2023	5.2	9/26/2025	103.83552	102.9976806	102.1734208	101.3624075	100.5643227	99.77885853	99.00571682	98.24460875	97.49525445
230926A00076	9/26/2023	4.73	9/26/2028	117.29818	113.2543897	109.3757467	105.6546242	102.0837846	98.65636135	95.36583783	92.2060277	89.17105635
230927A00020	9/27/2023	5.01	10/16/2026	108.85814	106.9295283	105.0450713	103.2034974	101.4035775	99.64412557	97.92399721	96.24208756	94.59732982
230927A00021	9/27/2023	4.96	1/29/2027	110.14977	107.9180707	105.7434051	103.6239117	101.5578011	99.54335666	97.57893085	95.66294195	93.79387078
230927A00031	9/27/2023	5.4	3/28/2025	101.56422	101.2355865	100.9090843	100.5846921	100.2623893	99.94215587	99.62397185	99.30781762	98.99367377
230927A00032	9/27/2023	5.02	9/23/2026	108.57051	106.7078902	104.8866873	103.1057047	101.3637935	99.65984638	97.99279547	96.36161048	94.76529727
230927A00033	9/27/2023	4.78	9/25/2028	117.478	113.4336323	109.554296	105.8323666	102.2606134	98.83217659	95.54054613	92.37954211	89.34329618
230927A00034	9/27/2023	4.82	9/27/2028	117.65801	113.6044368	109.7164483	105.9863949	102.4070208	98.97144176	95.67312402	92.50586482	89.4637737
230928A00001	9/28/2023	4.91	9/28/2026	108.58753	106.7079112	104.8703953	103.0737869	101.3169307	99.59871172	97.91805365	96.27391705	94.66529796
230928A00014	9/28/2023	4.9	9/28/2027	113.20124	110.2498032	107.3920679	104.6245508	101.9439184	99.34697853	96.8306744	94.39207753	92.02838182
230928A00016	9/28/2023	4.83	9/28/2028	117.70959	113.652145	109.7605425	106.0271182	102.4446044	99.00610542	95.70507644	92.53530389	89.49088694
230928A00017	9/28/2023	4.83	9/28/2028	117.70959	113.652145	109.7605425	106.0271182	102.4446044	99.00610542	95.70507644	92.53530389	89.49088694
230928A00033	9/28/2023	5.03	9/28/2026	108.65692	106.7793786	104.9438454	103.1491288	101.3940774	99.67757964	97.99856256	96.35598993	94.74886083
230928A00047	9/28/2023	5.21	9/29/2025	103.88275	103.0364316	102.2039512	101.3849736	100.5791717	99.78622911	99.00583927	98.23770542	97.48154007
230928A00051	9/28/2023	5.04	9/28/2026	108.88488	106.9616513	105.0829361	103.247433	101.4538859	99.7010832	97.98785673	96.31307928	94.67566312
230928A00058	9/28/2023	5.04	9/28/2026	108.88488	106.9616513	105.0829361	103.247433	101.4538859	99.7010832	97.98785673	96.31307928	94.67566312
230928A00059	9/28/2023	4.84	9/28/2028	117.29671	113.3390544	109.5439823	105.9038998	102.4116076	99.06028015	95.84344343	92.75495542	89.78898717
230928A00060	9/28/2023	4.84	9/28/2028	117.29671	113.3390544	109.5439823	105.9038998	102.4116076	99.06028015	95.84344343	92.75495542	89.78898717

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230928A00061	9/28/2023	4.84	9/28/2028	117.29671	113.3390544	109.5439823	105.9038998	102.4116076	99.06028015	95.84344343	92.75495542	89.78898717
230928A00064	9/28/2023	4.78	9/30/2027	113.12539	110.1639351	107.2967844	104.5204298	101.8315147	99.22682483	96.70328168	94.25793566	91.88796019
230929A00018	9/29/2023	5.14	9/29/2025	103.824	102.9779477	102.1457333	101.3270187	100.5214768	99.72879117	98.94865548	98.18077295	97.42485615
230929A00031	9/29/2023	5.14	9/29/2025	103.824	102.9779477	102.1457333	101.3270187	100.5214768	99.72879117	98.94865548	98.18077295	97.42485615
230929A00033	9/29/2023	4.92	9/29/2026	108.46733	106.5887612	104.7522876	102.9567147	101.2008913	99.48370607	97.8040859	96.16099422	94.55342957
230929A00046	9/29/2023	4.66	9/29/2027	112.76941	109.8159404	106.9564727	104.187514	101.5057165	98.90787487	96.39091924	93.95190866	91.588025
230929A00049	9/29/2023	4.87	9/30/2030	113.67665	110.5356008	107.5262395	104.641818	101.8759828	99.22275269	96.67649367	94.23189679	91.88395704
230929A00059	9/29/2023	5.14	9/29/2025	103.824	102.9779477	102.1457333	101.3270187	100.5214768	99.72879117	98.94865548	98.18077295	97.42485615
230929A00061	9/29/2023	4.92	9/29/2026	108.46733	106.5887612	104.7522876	102.9567147	101.2008913	99.48370607	97.8040859	96.16099422	94.55342957
230929A00062	9/29/2023	4.78	9/29/2027	112.87189	109.9223341	107.0665348	104.3010095	101.622423	99.02758166	96.51342677	94.07702786	91.71557673
231002A00018	10/2/2023	4.87	10/1/2027	113.15453	110.1953146	107.3302979	104.5559761	101.8689969	99.26615048	96.74436238	94.3006869	91.93230117
231002A00042	10/2/2023	4.73	10/2/2028	117.70678	113.6291932	109.7189246	105.9682204	102.3697297	98.91647817	95.60184698	92.41955259	89.36362821
231003A00005	10/3/2023	4.84	10/3/2028	117.81224	113.738737	109.8322507	106.0850459	102.489789	99.03952167	95.72764024	92.54787532	89.49427341
231003A00011	10/3/2023	4.89	10/15/2027	113.39011	110.3890285	107.4845993	104.673188	101.9513159	99.31565367	96.763014	94.29034498	91.89472345
231003A00036	10/3/2023	4.84	10/3/2028	117.81224	113.738737	109.8322507	106.0850459	102.489789	99.03952167	95.72764024	92.54787532	89.49427341
231004A00006	10/4/2023	4.88	10/4/2028	117.97993	113.9004196	109.9882439	106.23565	102.6352865	99.18017854	95.86370681	92.6795874	89.62185311
231004A00016	10/4/2023	5.36	4/4/2025	101.64508	101.2969269	100.9511678	100.6077747	100.2667231	99.92798926	99.59154945	99.2573804	98.92545912
231005A00003	10/5/2023	5.14	10/6/2025	103.91454	103.0488424	102.1976279	101.3605371	100.5372198	99.72733748	98.93056261	98.1465782	97.37507745
231005A00035	10/5/2023	4.98	10/5/2026	108.65718	106.7604087	104.9064653	103.0941299	101.3222266	99.5896202	97.8952146	96.23795101	94.61680659
231005A00037	10/5/2023	4.88	10/5/2027	113.23399	110.2626493	107.3862111	104.6011325	101.9040252	99.29164549	96.76088667	94.30877287	91.93245265
231005A00039	10/5/2023	5.16	10/6/2025	103.93172	103.0659357	102.2146419	101.3774728	100.554078	99.7441192	98.94726866	98.16320944	97.39163473
231005A00040	10/5/2023	4.98	10/5/2026	108.65718	106.7604087	104.9064653	103.0941299	101.3222266	99.5896202	97.8952146	96.23795101	94.61680659
231005A00054	10/5/2023	4.98	10/5/2026	108.65718	106.7604087	104.9064653	103.0941299	101.3222266	99.5896202	97.8952146	96.23795101	94.61680659
231006A00009	10/6/2023	4.98	10/15/2027	113.65096	110.6460716	107.7379334	104.922903	102.1974988	99.55838865	97.00238264	94.52642625	92.12759383
231006A00010	10/6/2023	4.93	10/16/2028	118.32858	114.20895	110.2595256	106.4723647	102.8399371	99.35510142	96.01108291	92.80145283	89.72010893
231006A00015	10/6/2023	5.38	4/7/2025	101.69251	101.3359826	100.9819628	100.6304265	100.2813475	99.93469996	99.59045849	99.24859801	98.90909376
231006A00032	10/6/2023	5.08	10/6/2026	108.85696	106.9555548	105.0971331	103.2804665	101.5043732	99.76771283	98.06938392	96.40832281	94.78350196
231006A00033	10/6/2023	4.98	10/6/2027	113.53405	110.5556281	107.6723807	104.8807546	102.1773497	99.55891051	97.02231964	94.56459085	92.18286293
231010A00007	10/10/2023	4.83	10/12/2027	113.17849	110.1887305	107.2950406	104.4938131	101.7815981	99.15509392	96.61113936	94.14670701	91.75889688
231010A00025	10/10/2023	4.66	10/10/2028	117.53474	113.4382204	109.5106908	105.7442841	102.1315392	98.66537933	95.33908999	92.14629889	89.08095652
231010A00026	10/10/2023	4.66	10/10/2028	117.53474	113.4382204	109.5106908	105.7442841	102.1315392	98.66537933	95.33908999	92.14629889	89.08095652
231010A00030	10/10/2023	4.88	10/15/2026	108.59905	106.6756745	104.7962872	102.9596233	101.1644598	99.40961647	97.69395448	96.01637426	94.37581408
231010A00031	10/10/2023	5.08	10/10/2025	103.91419	103.0375051	102.1756761	101.3283299	100.4951027	99.67564299	98.86961092	98.07667765	97.29652504

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
231010A00057	10/10/2023	4.66	10/10/2028	117.53474	113.4382204	109.5106908	105.7442841	102.1315392	98.66537933	95.33908999	92.14629889	89.08095652
231010A00068	10/10/2023	4.83	10/8/2027	113.12818	110.1501385	107.2674652	104.4765952	101.7741151	99.15675703	96.62139198	94.16502282	91.78477813
231010A00075	10/10/2023	4.78	10/10/2028	117.6673	113.5771815	109.6555374	105.8945365	102.286749	98.82512715	95.50298397	92.31397258	89.2520673
231010A00076	10/10/2023	4.66	10/10/2028	117.53474	113.4382204	109.5106908	105.7442841	102.1315392	98.66537933	95.33908999	92.14629889	89.08095652
231010A00101	10/10/2023	4.78	10/10/2028	117.6673	113.5771815	109.6555374	105.8945365	102.286749	98.82512715	95.50298397	92.31397258	89.2520673
231010A00129	10/10/2023	4.93	10/13/2026	108.6677	106.7490949	104.8742547	103.0419238	101.2508885	99.49997739	97.78805996	96.11404464	94.47687728
231011A00004	10/11/2023	4.81	10/8/2027	113.0706	110.0933927	107.211533	104.421457	101.7197519	99.10315049	96.56852424	94.11287663	91.73333678
231011A00016	10/11/2023	4.75	10/11/2028	117.56294	113.4720689	109.5498325	105.7883869	102.1802901	98.71848337	95.39626939	92.20729176	89.14551598
231011A00028	10/11/2023	4.92	10/9/2026	108.59709	106.6900352	104.8262617	103.0045342	101.2236583	99.4824811	97.77988962	96.11480904	94.48620122
231011A00029	10/11/2023	4.81	10/8/2027	113.0706	110.0933927	107.211533	104.421457	101.7197519	99.10315049	96.56852424	94.11287663	91.73333678
231011A00030	10/11/2023	4.75	10/11/2028	117.56294	113.4720689	109.5498325	105.7883869	102.1802901	98.71848337	95.39626939	92.20729176	89.14551598
231012A00015	10/12/2023	5.33	4/11/2025	101.7282	101.3605491	100.995568	100.6332289	100.2735032	99.91636236	99.5617786	99.20972436	98.86017252
231012A00016	10/12/2023	5.14	10/14/2025	104.01821	103.1300269	102.2570891	101.3990012	100.5553858	99.72587808	98.91012551	98.1077872	97.31853344
231012A00027	10/12/2023	4.78	10/16/2028	117.74226	113.6340242	109.6956503	105.919205	102.2971709	98.82241887	95.48818602	92.28805476	89.21593354
231012A00039	10/12/2023	5.33	4/11/2025	101.7282	101.3605491	100.995568	100.6332289	100.2735032	99.91636236	99.5617786	99.20972436	98.86017252
231013A00017	10/13/2023	5.13	10/14/2025	104.0094	103.1212611	102.2483649	101.3903181	100.5467432	99.71727562	98.90156268	98.09926354	97.31004851
231013A00020	10/13/2023	4.98	10/13/2026	108.76201	106.842485	104.9667493	103.1335398	101.3416421	99.58988459	97.87713612	96.20230477	94.56433599
231016A00016	10/16/2023	5.01	10/16/2026	108.85814	106.9295283	105.0450713	103.2034974	101.4035775	99.64412557	97.92399721	96.24208756	94.59732982
231016A00047	10/16/2023	4.98	2/10/2027	110.36252	108.0927189	105.8816163	103.7272617	101.6277899	99.58141286	97.58641579	95.64115339	93.74404646
231016A00049	10/16/2023	4.95	7/19/2027	112.40955	109.6674915	107.0076764	104.4271137	101.922944	99.49243171	97.13295806	94.84201567	92.61720273
231017A00008	10/17/2023	5.26	10/17/2025	104.16376	103.2666298	102.3850305	101.5185621	100.6668365	99.82947903	99.00612733	98.19643131	97.40005245
231017A00009	10/17/2023	5.42	4/17/2025	101.8428	101.4583078	101.0767335	100.6980444	100.3222078	99.9491914	99.57896341	99.21149249	98.84674781
231017A00017	10/17/2023	5.11	10/16/2026	109.04758	107.1171208	105.2308578	103.3875118	101.5858526	99.8246936	98.10288931	96.41933405	94.77296023
231017A00029	10/17/2023	4.99	10/17/2028	118.12369	114.0937341	110.2313731	106.5286805	102.9781448	99.5726492	96.3054488	93.17014908	90.16068574
231017A00032	10/17/2023	4.99	10/17/2028	118.12369	114.0937341	110.2313731	106.5286805	102.9781448	99.5726492	96.3054488	93.17014908	90.16068574
231017A00033	10/17/2023	4.99	10/17/2028	118.12369	114.0937341	110.2313731	106.5286805	102.9781448	99.5726492	96.3054488	93.17014908	90.16068574
231017A00034	10/17/2023	4.99	10/17/2028	118.12369	114.0937341	110.2313731	106.5286805	102.9781448	99.5726492	96.3054488	93.17014908	90.16068574
231017A00035	10/17/2023	4.99	10/17/2028	118.12369	114.0937341	110.2313731	106.5286805	102.9781448	99.5726492	96.3054488	93.17014908	90.16068574
231017A00036	10/17/2023	4.99	10/17/2028	118.12369	114.0937341	110.2313731	106.5286805	102.9781448	99.5726492	96.3054488	93.17014908	90.16068574
231017A00037	10/17/2023	4.99	10/17/2028	118.12369	114.0937341	110.2313731	106.5286805	102.9781448	99.5726492	96.3054488	93.17014908	90.16068574
231017A00039	10/17/2023	5.12	10/16/2026	109.28887	107.3101147	105.3783066	103.4920376	101.6499502	99.85073666	98.09313717	96.3759373	94.69796626
231017A00040	10/17/2023	5.12	10/16/2026	109.28887	107.3101147	105.3783066	103.4920376	101.6499502	99.85073666	98.09313717	96.3759373	94.69796626
231017A00041	10/17/2023	5.12	10/16/2026	109.28887	107.3101147	105.3783066	103.4920376	101.6499502	99.85073666	98.09313717	96.3759373	94.69796626

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
231017A00046	10/17/2023	5.26	10/17/2025	104.16376	103.2666298	102.3850305	101.5185621	100.6668365	99.82947903	99.00612733	98.19643131	97.40005245
231018A00026	10/18/2023	5.28	1/7/2026	105.32744	104.1976123	103.0921733	102.0103381	100.9513549	99.91450325	98.89909312	97.90446273	96.92997738
231019A00006	10/19/2023	5.29	10/20/2025	104.23054	103.3248247	102.4349291	101.5604423	100.7009659	99.85611472	99.02551699	98.20881333	97.40565639
231019A00007	10/19/2023	5.19	10/19/2026	109.24017	107.299659	105.4037354	103.5511047	101.7405216	99.97078434	98.24073366	96.54925048	94.89525439
231019A00009	10/19/2023	5.14	10/19/2027	114.1684	111.1449268	108.219072	105.3871513	102.6456412	99.99116989	97.42051027	94.9305725	92.51839757
231019A00031	1/22/2024	5.12	1/30/2026	105.47677	104.2822196	103.1148834	101.9738349	100.8581919	99.76711084	98.69978562	97.65544489	96.63335044
231019A00036	10/19/2023	5.27	10/20/2025	104.21259	103.3069647	102.4171552	101.5427535	100.6833611	99.83859304	99.00807737	98.19145481	97.38837801
231019A00041	10/19/2023	5.08	10/19/2028	118.95486	114.8146686	110.8457327	107.040044	103.3900151	99.88845123	96.52852763	93.30376864	90.20802802
231019A00043	10/19/2023	5.19	10/19/2026	109.24017	107.299659	105.4037354	103.5511047	101.7405216	99.97078434	98.24073366	96.54925048	94.89525439
231019A00044	10/19/2023	5.14	10/19/2027	114.1684	111.1449268	108.219072	105.3871513	102.6456412	99.99116989	97.42051027	94.9305725	92.51839757
231020A00041	10/20/2023	5.19	10/20/2025	104.14081	103.2355247	102.3460597	101.4719984	100.6129422	99.7685063	98.93831888	98.1220207	97.31926449
231020A00048	10/20/2023	5.08	10/20/2026	109.04426	107.1029358	105.2062818	103.3529995	101.5418396	99.77159693	98.04110854	96.34925209	94.69494404
231020A00049	10/20/2023	5.03	10/20/2027	113.8615	110.8397611	107.9156998	105.0856283	102.3460175	99.69349035	97.12481488	94.63689677	92.22677279
231020A00051	10/20/2023	5.02	10/20/2028	118.73298	114.5943259	110.6270133	106.8230294	103.1747772	99.67505325	96.31702467	93.0942084	90.00045143
231020A00061	10/20/2023	5.32	4/21/2025	101.85784	101.4622478	101.069742	100.6802859	100.2938439	99.91038107	99.52986292	99.15225549	98.77752538
231020A00067	10/20/2023	5.32	4/15/2025	101.77786	101.3990493	101.0230691	100.6498921	100.279487	99.91182273	99.54686889	99.18459542	98.82497272
231020A00069	10/20/2023	5.08	10/15/2026	108.97737	107.0503179	105.1673287	103.3271305	101.5284983	99.77025026	98.05124566	96.37038328	94.72659978
231020A00070	10/20/2023	5.19	10/15/2025	104.07534	103.1841363	102.308272	101.4473515	100.600994	99.76883131	98.95050761	98.14567896	97.35401271
231023A00028	10/23/2023	5.33	4/23/2025	101.88849	101.4872899	101.089262	100.6943674	100.3025689	99.91383014	99.52811533	99.14538916	98.7656169
231023A00029	10/23/2023	5.19	10/23/2025	104.18008	103.2663461	102.3687151	101.4867654	100.6200879	99.76828761	98.93098292	98.10780532	97.2983987
231023A00034	4/23/2024	4.95	4/23/2026	106.41662	104.9935899	103.5966965	102.2252754	100.8786884	99.55631829	98.25756795	96.98185943	95.72863324
231023A00048	10/23/2023	5.04	10/25/2027	113.95639	110.9194565	107.9811023	105.1375838	102.3853254	99.72090636	97.14105337	94.64263314	92.2226457
231024A00010	12/18/2023	5.43	12/18/2024	100.23723	100.1871569	100.1371551	100.0872204	100.0373526	99.98755152	99.93781705	99.88814904	99.83854736
231024A00011	12/18/2023	5.43	12/18/2024	100.23723	100.1871569	100.1371551	100.0872204	100.0373526	99.98755152	99.93781705	99.88814904	99.83854736
231024A00017	10/24/2023	4.97	10/25/2027	113.75158	110.7176608	107.782245	104.9415933	102.1921324	99.5304436	96.95325584	94.45743789	92.03999176
231024A00029	10/24/2023	4.97	10/25/2027	113.75158	110.7176608	107.782245	104.9415933	102.1921324	99.5304436	96.95325584	94.45743789	92.03999176
231024A00030	10/24/2023	4.96	10/24/2028	118.54973	114.4034936	110.4293852	106.6193361	102.9656954	99.46120948	96.09899899	92.87253766	89.77563227
231024A00039	10/24/2023	5.06	10/26/2026	109.08608	107.127991	105.2152953	103.3466663	101.5208252	99.73653851	97.99261674	96.28791195	94.6213163
231024A00046	10/24/2023	4.96	10/24/2028	118.54973	114.4034936	110.4293852	106.6193361	102.9656954	99.46120948	96.09899899	92.87253766	89.77563227
231024A00076	10/24/2023	5.31	4/24/2025	101.8938	101.489821	101.0890553	100.6914645	100.2970111	99.90565774	99.51736804	99.13210602	98.74983627
231024A00079	10/24/2023	5.18	10/24/2025	104.18409	103.2675784	102.3672686	101.4827324	100.6135572	99.75934449	98.91970952	98.09428066	97.28269883
231024A00082	10/24/2023	5.05	10/23/2026	109.02698	107.0776507	105.1733448	103.3127505	101.494604	99.71768614	97.98082102	96.28287367	94.62274861
231025A00003	10/25/2023	5.07	10/24/2025	104.1571	103.2397051	102.3385449	101.4531887	100.5832227	99.72824737	98.88787684	98.06173846	97.24947216

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
231025A00004	10/25/2023	5.07	10/24/2025	104.1571	103.2397051	102.3385449	101.4531887	100.5832227	99.72824737	98.88787684	98.06173846	97.24947216
231025A00013	10/25/2023	5.08	10/26/2026	109.12452	107.1660509	105.2529837	103.3839902	101.5577913	99.77315364	98.02888729	96.32384421	94.65691638
231025A00018	10/25/2023	5.19	10/27/2025	104.23245	103.3074275	102.398902	101.5064302	100.6295886	99.76796843	98.92117515	98.08882771	97.27055802
231025A00024	10/25/2023	5	10/25/2028	118.72006	114.5677008	110.5877981	106.7722623	103.1134243	99.60401329	96.23713382	93.00624461	89.9051384
231025A00036	10/25/2023	5.08	10/21/2026	109.05763	107.113457	105.2140686	103.3581686	101.5445026	99.77186087	98.03907596	96.34502126	94.68860918
231025A00068	10/25/2023	5.33	4/25/2025	101.9152	101.5083986	101.104856	100.7045306	100.3073839	99.91337817	99.52247609	99.13464105	98.749837
231027A00015	10/27/2023	5.08	2/23/2026	105.763	104.5001812	103.2677094	102.0644938	100.8894994	99.74173971	98.62027354	97.52420282	96.45266998
231027A00019	10/27/2023	4.99	10/27/2026	108.96467	107.0050543	105.0909265	103.2209583	101.3938664	99.6084134	97.86340586	96.15769217	94.49016095
231027A00021	10/27/2023	5.13	10/30/2025	104.21622	103.283007	102.3665798	101.4664838	100.5822846	99.71356315	98.85991508	98.0209499	97.19629055
231027A00028	10/27/2023	4.92	10/23/2028	118.37962	114.2394972	110.2711746	106.4666041	102.8181531	99.3185852	95.96103698	92.73899718	89.64628664
231027A00035	10/27/2023	4.99	10/30/2026	109.00406	107.035868	105.1135403	103.2357251	101.4011244	99.6084865	97.85660418	96.14431292	94.47048897
231027A00036	10/27/2023	5.13	11/3/2025	104.26904	103.3245611	102.3972693	101.4866962	100.5923918	99.71392225	98.8508689	98.00282782	97.16940907
231027A00043	10/27/2023	4.99	10/27/2026	108.96467	107.0050543	105.0909265	103.2209583	101.3938664	99.6084134	97.86340586	96.15769217	94.49016095
231030A00007	10/30/2023	5.32	4/30/2025	101.97777	101.5569747	101.139647	100.7257491	100.3152389	99.90807488	99.50421635	99.10362316	98.70625586
231030A00035	10/30/2023	4.85	10/30/2028	118.53418	114.3623126	110.3645298	106.5326299	102.858839	99.33578891	95.9564937	92.71432756	89.60300451
231030A00061	10/30/2023	5.32	4/30/2025	101.97777	101.5569747	101.139647	100.7257491	100.3152389	99.90807488	99.50421635	99.10362316	98.70625586
231031A00021	10/31/2023	5.18	10/30/2025	104.26246	103.3290248	102.4123692	101.5120475	100.6276256	99.75868416	98.90481876	98.06563889	97.24076744
231031A00022	10/31/2023	5.04	10/30/2026	109.1007	107.1315588	105.2082917	103.329555	101.4940501	99.70052486	97.94777156	96.23462525	94.55996176
231031A00033	10/31/2023	5.05	10/30/2026	109.12003	107.150697	105.227242	103.348321	101.5126353	99.71893253	97.96600504	96.25268772	94.57785631
231031A00035	4/30/2024	5.25	4/30/2025	101.94846	101.5277337	101.1104789	100.6966535	100.2862153	99.87912286	99.47533547	99.074813	98.67751599
231031A00040	4/30/2024	5.1	10/31/2025	104.20131	103.2654152	102.3464013	101.4438107	100.5572056	99.68616328	98.83027615	97.98915059	97.16240654
231101A00016	11/1/2023	4.99	11/3/2025	104.21315	103.267902	102.3398692	101.4285856	100.5335999	99.65447707	98.79079733	97.94215568	97.10816118
231101A00017	11/1/2023	5.25	5/1/2025	101.96154	101.5380252	101.1180316	100.7015145	100.2884308	99.87873818	99.47239499	99.06936028	98.66959376
231102A00022	11/2/2023	4.91	11/10/2026	108.99418	106.9953501	105.0437892	103.1380903	101.2768956	99.45889694	97.68283313	95.9474884	94.25169019
231102A00024	11/2/2023	4.78	11/2/2028	117.95507	113.795273	109.8092916	105.9889295	102.3264159	98.81438607	95.44585764	92.2142087	89.11315735
231102A00025	11/2/2023	4.9	12/8/2026	109.34206	107.2616168	105.2320172	103.2516903	101.319125	99.43286715	97.59151748	95.79372877	94.03820362
231102A00026	11/2/2023	4.9	1/12/2027	109.79796	107.6167326	105.4904146	103.4172424	101.3955229	99.42363068	97.50000412	95.62314269	93.79160393
231102A00027	11/2/2023	4.89	2/9/2027	110.14895	107.8845875	105.6787288	103.5294396	101.4348626	99.39321691	97.40279475	95.46195739	93.56913186
231102A00028	11/2/2023	4.88	3/9/2027	110.50829	108.1576686	105.8694958	103.6416853	101.4722344	99.35922286	97.30080846	95.29522352	93.34077104
231102A00029	11/2/2023	4.88	4/13/2027	110.96161	108.5085844	106.123089	103.8028862	101.545828	99.34984989	97.21296698	95.13327021	93.10892321
231102A00030	11/2/2023	4.87	5/11/2027	111.30038	108.7651443	106.3017502	103.9077476	101.5807859	99.31860863	97.11904916	94.98002628	92.89954043
231102A00031	11/2/2023	5.1	11/3/2025	104.24096	103.296622	102.3694703	101.4590356	100.5648678	99.68653319	98.82361309	97.97570362	97.14241488
231102A00032	11/2/2023	4.91	11/2/2026	108.8887	106.9133287	104.9841764	103.0998768	101.2591166	99.46062957	97.70319493	95.985635	94.30681356

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
231102A00033	11/2/2023	4.83	11/2/2027	113.44306	110.3915075	107.4397403	104.5839512	101.8204958	99.14588862	96.55679559	94.05002624	91.62252687
231102A00039	11/2/2023	4.91	10/28/2026	108.8236	106.8626539	104.9472878	103.0761704	101.2480144	99.46157845	97.71566514	96.00911933	94.34082619
231102A00064	1/22/2024	5.01	1/22/2026	105.23547	104.0646255	102.9199823	101.8006666	100.7058427	99.63471123	98.58650748	97.56049928	96.55598541
231102A00070	2/15/2024	4.86	2/16/2027	110.18007	107.8941864	105.6677857	103.4988777	101.3855598	99.32600905	97.31847761	95.36128908	93.45283492
231103A00002	11/3/2023	4.67	11/29/2027	113.30596	110.1800468	107.1588594	104.2382965	101.4144425	98.68355764	96.04206826	93.48655893	91.01376424
231103A00005	11/3/2023	5.12	5/5/2025	101.95761	101.523083	101.0922725	100.6651276	100.2416013	99.82164782	99.40522192	98.9922792	98.58277599
231103A00007	11/3/2023	5.05	8/4/2025	103.05039	102.3616367	101.6821156	101.0116429	100.3500386	99.69712722	99.05273797	98.41670456	97.78886495
231103A00008	11/3/2023	4.97	11/3/2025	104.11927	103.1755526	102.2490082	101.339173	100.4455973	99.56784726	98.70550456	97.85816541	97.02544006
231103A00029	11/3/2023	4.75	11/3/2026	108.59084	106.615641	104.686728	102.8027357	100.9623466	99.16429097	97.40734446	95.69032611	94.01209661
231103A00034	11/3/2023	4.49	11/3/2028	117.15939	113.0031941	109.0211855	105.2051273	101.5472154	98.04005411	94.67663259	91.45030268	88.35475827
231106A00007	11/6/2023	4.78	11/5/2027	113.33376	110.2753408	107.3172221	104.4555593	101.6866793	99.00707002	96.41337219	93.90237178	91.47099287
231106A00020	11/6/2023	5.02	11/6/2025	104.20506	103.2526598	102.3177459	101.3998391	100.4984773	99.61321544	98.743624	97.88928879	97.04981009
231107A00008	11/7/2023	5.17	5/7/2025	102.00495	101.5647892	101.1284429	100.6958583	100.2669866	99.8417802	99.42019199	99.00217582	98.58768631
231107A00009	11/7/2023	5.03	11/7/2025	104.22753	103.2722612	102.3345868	101.4140185	100.5100904	99.6223535	98.75037464	97.8937361	97.05203484
231107A00011	11/7/2023	4.84	11/9/2026	108.84376	106.849238	104.901831	103.0001336	101.1427941	99.3285104	97.55602712	95.82413389	94.13166336
231108A00011	11/8/2023	5.06	5/8/2025	102.00455	101.5612241	101.1217671	100.6861282	100.2542577	99.82610665	99.40162698	98.98077143	98.56349357
231108A00015	11/8/2023	4.83	11/9/2026	108.82415	106.8298292	104.8826152	102.9811071	101.1239534	99.30985197	97.53754758	95.80582995	94.11353181
231108A00026	11/8/2023	5.04	11/7/2025	104.237	103.2816837	102.3439615	101.4233461	100.5193715	99.63158868	98.75956444	97.9028811	97.06113558
231108A00028	11/8/2023	4.83	11/9/2026	108.82415	106.8298292	104.8826152	102.9811071	101.1239534	99.30985197	97.53754758	95.80582995	94.11353181
231109A00014	5/17/2024	5.03	5/16/2025	102.09097	101.6088135	101.1310867	100.6577298	100.1886829	99.72388715	99.26328497	98.80681962	98.35443547
231109A00025	11/9/2023	4.75	11/9/2028	117.04411	113.0678174	109.2579737	105.6066217	102.1062322	98.74967628	95.53020224	92.44141313	89.47724619
231109A00026	11/9/2023	5.19	5/9/2025	102.03953	101.5937663	101.1519143	100.7139206	100.2797345	99.84930641	99.42258755	98.99952994	98.58008644
231113A00007	11/13/2023	4.86	11/13/2028	118.414	114.2136954	110.1900944	106.3348033	102.6398685	99.09775518	95.70132269	92.44380175	89.31877326
231113A00034	11/13/2023	5.16	11/13/2025	104.43093	103.4581072	102.5035031	101.5666082	100.6469318	99.74400146	98.85736165	97.98657339	97.13121331
231113A00036	11/13/2023	5.3	5/15/2025	102.16761	101.7049506	101.2465025	100.7922064	100.3420061	99.89584603	99.45367183	99.01543006	98.58106821
231113A00038	11/13/2023	4.97	11/13/2026	109.15203	107.1431985	105.182056	103.267179	101.3971923	99.57077099	97.78663819	96.04356305	94.34035868
231114A00025	11/14/2023	5.13	5/14/2025	102.07661	101.6169591	101.1614638	100.71007	100.2627224	99.8193665	99.37994883	98.9444169	98.51271914
231114A00026	11/14/2023	4.97	11/14/2025	104.26069	103.2859972	102.3296153	101.39103	100.4697468	99.56528951	98.6771992	97.80503354	96.94836602
231114A00027	11/14/2023	4.76	11/13/2026	108.738	106.7333396	104.7762948	102.8654371	100.9993934	99.17684086	97.39650476	95.65715615	93.95761006
231114A00028	11/14/2023	4.68	11/15/2027	113.16233	110.0782063	107.0961496	104.2122175	101.4226392	98.72381031	96.11228508	93.58476804	91.13810669
231114A00046	11/14/2023	4.62	11/14/2028	117.46969	113.2852369	109.2771495	105.4370344	101.7569441	98.22934981	94.84711709	91.60348292	88.49203449
231114A00072	11/14/2023	4.67	11/15/2027	113.1325	110.0488165	107.0671958	104.183689	101.3945254	98.6961013	96.08497101	93.55783943	91.1115544
231114A00074	11/14/2023	4.6	11/14/2028	117.38992	113.2070461	109.200491	105.361861	101.6832104	98.15701229	94.77613379	91.53381352	88.42364019

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
231115A00039	11/15/2023	4.85	11/16/2026	108.9545	106.9392457	104.9720393	103.0514359	101.1760445	99.34452533	97.55558743	95.80798645	94.10052275
231117A00001	11/17/2023	4.99	11/12/2025	104.2542	103.2850426	102.3339917	101.4005396	100.4842	99.58450454	98.70100167	97.83325616	96.98084825
231117A00002	11/17/2023	4.76	11/12/2026	108.72523	106.7234976	104.769249	102.8610604	100.9975645	99.17744375	97.39942845	95.66229452	93.96486159
231117A00003	11/17/2023	4.59	11/17/2028	117.38666	113.1953006	109.1809698	105.3352243	101.6500713	98.11793961	94.73165578	91.48442046	88.36978714
231121A00015	11/21/2023	4.75	11/30/2026	108.93491	106.8805691	104.876126	102.9200494	101.0108687	99.14716879	97.32758683	95.55081035	93.81557483
231122A00029	11/22/2023	5.05	11/24/2025	104.46875	103.4654108	102.4814374	101.5162708	100.5693744	99.64023214	98.728347	97.83324048	96.95445166
231122A00032	11/22/2023	5.2	5/22/2025	102.2121	101.729986	101.2524339	100.779382	100.3107667	99.84652567	99.38659766	98.93092262	98.47944158
231122A00035	11/22/2023	5.2	5/22/2025	102.2121	101.729986	101.2524339	100.779382	100.3107667	99.84652567	99.38659766	98.93092262	98.47944158
231127A00024	11/27/2023	4.78	11/27/2026	108.95699	106.9108452	104.9142023	102.9655489	101.0634319	99.20645213	97.3932624	95.62256487	93.89310897
231127A00025	11/27/2023	4.68	11/29/2027	113.33618	110.2098109	107.1881763	104.2671774	101.4428984	98.71159879	96.06970484	93.51380072	91.0406207
231127A00026	11/27/2023	4.61	11/27/2028	117.58923	113.3653013	109.3209137	105.4474497	101.7367526	98.18109888	94.77317341	91.50604526	88.37314554
231127A00065	11/27/2023	5.03	11/26/2025	104.4749	103.4660166	102.4767045	101.5064006	100.5545598	99.62065795	98.70419039	97.80467134	96.92163288
231128A00002	11/28/2023	4.41	11/30/2028	117.16546	112.9319684	108.8791128	104.9981972	101.2809883	97.719692	94.3069272	91.03570201	87.89939086
231128A00003	11/28/2023	4.41	11/30/2028	117.16546	112.9319684	108.8791128	104.9981972	101.2809883	97.719692	94.3069272	91.03570201	87.89939086
231128A00009	11/28/2023	4.73	12/14/2026	109.07062	106.976591	104.9340046	102.9412621	100.9968243	99.09921118	97.24699848	95.43881564	93.67334312
231129A00006	11/29/2023	4.25	11/29/2028	116.50766	112.2902164	108.2527568	104.3866165	100.6835938	97.13592443	93.73625553	90.47762159	87.35342198
231129A00039	11/29/2023	4.97	5/30/2025	102.20011	101.6959109	101.1966908	100.7023764	100.2128955	99.72817769	99.24815351	98.77275502	98.30191559
231129A00073	11/29/2023	4.81	5/29/2025	102.14778	101.6460226	101.1491991	100.6572397	100.170073	99.68762916	99.20983976	98.73663755	98.26795665
231130A00057	11/30/2023	5.27	12/2/2024	100.03186	100.0262937	100.0207331	100.0151776	100.009627	100.0040814	99.99854083	99.99300519	99.9874745
231130A00072	11/30/2023	4.83	12/1/2025	104.33796	103.3160276	102.3141908	101.3318608	100.3684712	99.42347706	98.4963545	97.58659923	96.69372581
231130A00073	11/30/2023	4.61	11/30/2026	108.65231	106.6008938	104.5993108	102.6460388	100.7396088	98.87860711	97.06167244	95.28749366	93.55480762
231130A00074	11/30/2023	4.45	11/30/2028	116.9808	112.7604916	108.7200643	104.850862	101.144694	97.59380602	94.19085441	90.92888224	87.80129674
231201A00024	12/1/2023	4.36	12/1/2028	116.62931	112.413277	108.3771105	104.5121546	100.8102132	97.26352705	93.86474841	90.60691652	87.48343529
231201A00026	12/1/2023	4.51	12/1/2026	108.46243	106.4102478	104.4079685	102.4540653	100.5470656	98.68555215	96.86816035	95.09357596	93.36053289
231201A00027	12/1/2023	5.19	12/2/2024	100.03131	100.0257479	100.0201877	100.0146325	100.0090823	100.0035371	99.99799687	99.99246159	99.98693127
231201A00034	12/1/2023	4.62	3/2/2026	105.2798	104.0013429	102.7533747	101.5348052	100.3445993	99.18177055	98.04537749	96.93452166	95.84834501
231204A00006	12/4/2023	4.86	8/4/2025	102.92033	102.2320758	101.5530458	100.8830595	100.2219371	99.56950302	98.9255867	98.29002183	97.66264648
231205A00025	12/5/2023	4.61	12/15/2025	104.37466	103.3127096	102.2724575	101.2532429	100.2544309	99.27541215	98.31560142	97.37443631	96.45137621
231205A00026	12/5/2023	5.02	12/16/2024	100.19665	100.1521195	100.1076468	100.0632316	100.0188739	99.97457343	99.93033014	99.88614389	99.84201457
231206A00003	12/6/2023	5.18	12/6/2024	100.07958	100.0628887	100.0462125	100.0295531	100.0129105	99.99628462	99.97967552	99.96308312	99.9465074
231206A00012	12/6/2023	4.31	12/6/2028	116.48412	112.2571314	108.2109859	104.336953	100.6267709	97.07261993	93.6670958	90.40318568	87.27424511
231206A00016	12/6/2023	4.74	6/6/2025	102.20661	101.682624	101.164028	100.6507358	100.1426661	99.63973941	99.14187769	98.64900454	98.16104509
231206A00044	12/8/2023	4.71	12/8/2025	104.30581	103.2647748	102.2446047	101.2446778	100.2643948	99.30317985	98.36047954	97.43576162	96.52851409

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
231206A00046	12/6/2023	4.39	12/6/2027	112.54054	109.4069178	106.3788796	103.452266	100.6231085	97.88761739	95.24217299	92.68331652	90.20774213
231206A00047	12/6/2023	4.31	12/6/2028	116.48412	112.2571314	108.2109859	104.336953	100.6267709	97.07261993	93.6670958	90.40318568	87.27424511
231206A00070	12/6/2023	4.58	12/8/2025	104.25457	103.2126156	102.1915654	101.1907958	100.209706	99.24771857	98.30427855	97.37885233	96.47092662
231207A00010	12/7/2023	4.38	12/7/2027	112.52163	109.3855449	106.3551983	103.426421	100.595236	97.85784559	95.21062267	92.65010145	90.17296953
231207A00011	12/7/2023	4.28	12/7/2028	116.37388	112.1463353	108.099779	104.2254666	100.5151252	96.96092457	93.5554511	90.29168314	87.16296812
231207A00014	12/7/2023	4.7	12/8/2025	104.29548	103.2545047	102.2343909	101.2345195	100.2542912	99.29313027	98.35048322	97.42581784	96.51862216
231207A00016	12/7/2023	4.47	12/7/2026	108.45275	106.3843011	104.3664101	102.397511	100.4761026	98.60074013	96.7700333	94.98264345	93.23728139
231207A00027	12/7/2023	4.15	12/7/2028	116.19313	111.9596919	107.9077729	104.0285967	100.3138558	96.75568808	93.34665011	90.07969242	86.94813657
231207A00034	12/7/2023	4.7	12/5/2025	104.25723	103.2247231	102.2127477	101.2206945	100.2479782	99.29403673	98.35832925	97.4403357	96.53955565
231207A00035	12/7/2023	4.47	12/7/2026	108.45275	106.3843011	104.3664101	102.397511	100.4761026	98.60074013	96.7700333	94.98264345	93.23728139
231208A00019	3/15/2024	4.95	3/14/2025	101.29654	100.9955261	100.6962509	100.3987	100.1028584	99.80871117	99.51624385	99.22544191	98.93629107
231208A00020	3/15/2024	4.85	6/16/2025	102.33981	101.7883965	101.2429487	100.7033668	100.1695562	99.64142451	99.11888115	98.60183753	98.09020692
231208A00021	3/15/2024	4.75	9/15/2025	103.33277	102.527441	101.7347095	100.954281	100.1858702	99.42920041	98.6840035	97.95001942	97.22699597
231208A00022	3/15/2024	4.69	12/15/2025	104.37423	103.3135102	102.2744491	101.2563824	100.2586772	99.28072582	98.32194462	97.38177277	96.45967114
231208A00023	3/15/2024	4.61	3/16/2026	105.45324	104.1386965	102.851434	101.5906048	100.3553983	99.14503709	97.95877538	96.79589752	95.65571635
231211A00057	12/11/2023	4.58	12/11/2029	121.9205	116.523655	111.4058146	106.5509999	101.9442316	97.57146307	93.4195173	89.47602822	85.72938669
231211A00071	12/11/2023	5.22	12/16/2024	100.20223	100.1577284	100.1132847	100.068898	100.0245684	99.98029562	99.93607963	99.8919203	99.84781751
231212A00007	12/12/2023	5.16	2/5/2025	100.8341	100.6477748	100.4621413	100.2771984	100.0929421	99.90936876	99.72647444	99.54425537	99.3627078
231212A00008	12/12/2023	5.26	12/12/2024	100.15482	100.1214377	100.0880955	100.0547924	100.0215285	99.9883035	99.95511748	99.92197034	99.88886199
231212A00009	12/12/2023	5.01	6/12/2025	102.37888	101.8383693	101.3035822	100.7744319	100.2508293	99.73268724	99.21992046	98.71244534	98.21018006
231212A00016	12/12/2023	4.59	12/7/2026	108.69729	106.6262947	104.6059073	102.6345605	100.7107516	98.83303464	97.000018	95.21036181	93.46277569
231212A00018	12/12/2023	4.5	12/6/2027	112.87511	109.7363808	106.7033637	103.7718962	100.9380055	98.19789812	95.5479505	92.98470019	90.50483784
231212A00067	12/12/2023	4.82	12/12/2025	104.47174	103.4187568	102.3870963	101.3761172	100.3852008	99.41375295	98.46120273	97.52700143	96.61062144
231213A00019	12/13/2023	4.97	6/13/2025	102.36945	101.8262079	101.2887544	100.7569947	100.2308384	99.71019712	99.19498416	98.68511473	98.18050576
231213A00044	12/13/2023	5.07	12/13/2024	100.16012	100.1239619	100.0878491	100.0517798	100.0157537	99.97977091	99.94383128	99.90793472	99.87208116
231213A00049	12/13/2023	4.14	12/13/2028	115.87169	111.6376632	107.5855814	103.7066284	99.99246021	96.43518078	93.02731577	89.76178745	86.63189149
231214A00003	12/14/2023	4.7	6/16/2025	102.25747	101.7063145	101.1611226	100.6217946	100.088236	99.56035433	99.03805913	98.52126181	98.00987566
231214A00029	12/14/2023	4.49	12/15/2025	104.16382	103.104283	102.0663876	101.0494701	100.052898	99.07606397	98.11838483	97.17930005	96.25827083
231214A00036	12/14/2023	4.19	12/14/2026	107.95976	105.8774002	103.8462536	101.8647266	99.93128672	98.04445976	96.2028275	94.405025	92.64973819
231214A00058	12/14/2023	4.69	6/13/2025	102.21807	101.6753	101.1383107	100.6070118	100.0813129	99.56112545	99.046363	98.53694072	98.03277562
231214A00074	12/14/2023	4.69	6/13/2025	102.21807	101.6753	101.1383107	100.6070118	100.0813129	99.56112545	99.046363	98.53694072	98.03277562
231214A00075	12/14/2023	4.49	12/15/2025	104.16382	103.104283	102.0663876	101.0494701	100.052898	99.07606397	98.11838483	97.17930005	96.25827083
231215A00004	12/15/2023	4.07	12/15/2028	115.60821	111.3739806	107.3219558	103.443296	99.72963564	96.17305898	92.76607348	89.5015847	86.37287291

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
231215A00018	12/15/2023	4.19	12/15/2027	112.03105	108.8805046	105.8367932	102.8956842	100.0531367	97.30529304	94.64847	92.07914937	89.59396964
231218A00023	12/18/2023	4.76	6/18/2025	102.31339	101.756556	101.2058005	100.6610261	100.1221355	99.58903347	99.06162694	98.53982473	98.02353762
231218A00027	12/18/2023	4.96	2/19/2025	100.96693	100.7417023	100.517488	100.2942814	100.0720757	99.85086419	99.63064009	99.41139678	99.19312767
231218A00046	12/18/2023	4.76	6/18/2025	102.31339	101.756556	101.2058005	100.6610261	100.1221355	99.58903347	99.06162694	98.53982473	98.02353763
231218A00052	12/18/2023	4.54	12/18/2025	104.25335	103.1850398	102.1387151	101.113697	100.1093384	99.12501803	98.16013941	97.21412957	96.28643784
231218A00070	12/18/2023	4.6	6/18/2025	102.26897	101.711728	101.1605821	100.615429	100.076171	99.54271267	99.01496051	98.49282308	97.97621088
231219A00009	12/19/2023	4.75	6/19/2025	102.31931	101.7597043	101.2062351	100.6588053	100.1173162	99.58167123	99.05177593	98.52753786	98.00886655
231219A00011	12/19/2023	4.75	6/19/2025	102.31931	101.7597043	101.2062351	100.6588053	100.1173162	99.58167123	99.05177593	98.52753786	98.00886655
231219A00012	12/19/2023	4.54	12/19/2025	104.26565	103.1945218	102.1454837	101.1178606	100.1110007	99.12427791	98.15709152	97.20886434	96.27904176
231219A00013	12/19/2023	4.27	12/18/2026	108.16956	106.0740951	104.030325	102.0366352	100.091472	98.19334177	96.34080749	94.53248655	92.76704817
231219A00015	12/19/2023	4.17	12/20/2027	112.02435	108.8601713	105.8036392	102.850472	99.99658451	97.23807777	94.57122972	91.99248578	89.49845033
231219A00016	12/19/2023	4.27	12/18/2026	108.16956	106.0740951	104.030325	102.0366352	100.091472	98.19334177	96.34080749	94.53248655	92.76704817
231219A00017	12/19/2023	4.26	1/15/2027	108.46384	106.2889878	104.1691069	102.1024264	100.087245	98.12192974	96.20491191	94.33468452	92.50979911
231219A00018	12/19/2023	4.25	2/16/2027	108.8175	106.5470954	104.3358529	102.1817924	100.0830206	98.03772294	96.04416015	94.10066384	92.20563323
231219A00019	12/19/2023	4.17	12/15/2027	111.96973	108.8201212	105.7773293	102.8371168	99.99544314	97.24845173	94.59245993	92.02395023	89.53956178
231219A00020	12/19/2023	4.16	2/1/2028	112.46196	109.1728362	105.9988315	102.9352246	99.97751707	97.12142378	94.36286079	91.69793466	89.1229322
231219A00021	12/19/2023	4.14	3/15/2028	112.88273	109.4637634	106.1681774	102.9908185	99.9267758	96.97137236	94.1201525	91.36886985	88.71347619
231219A00022	12/19/2023	4.13	4/14/2028	113.17672	109.6694796	106.2916001	103.0376238	99.90235473	96.88084245	93.96836915	91.16043743	88.4527588
231219A00023	12/19/2023	4.12	6/15/2028	113.819	110.128218	106.5795562	103.1667455	99.883833	96.72516116	93.68535089	90.75928637	87.94210056
231219A00025	12/19/2023	4.06	12/15/2028	115.56748	111.334066	107.2828394	103.4049529	99.69204173	96.13619122	92.7299097	89.46610357	86.33805394
231219A00060	12/19/2023	4.22	6/21/2027	110.15736	107.5227282	104.9656198	102.4832846	100.0730869	97.73250148	95.45910805	93.25058625	91.10471078
231220A00008	12/20/2023	4.99	12/18/2024	100.215	100.1649483	100.1149648	100.0650483	100.0151987	99.96541581	99.91569949	99.86604961	99.81646604
231220A00014	12/20/2023	4.99	12/20/2024	100.23813	100.1825231	100.1269928	100.07154	100.0161646	99.9608663	99.90564502	99.85050058	99.79543282
231220A00015	12/20/2023	4.48	12/19/2025	104.20187	103.131098	102.0824166	101.0551452	100.048632	99.06225107	98.0954018	97.1475071	96.21801249
231220A00027	12/20/2023	4.99	12/16/2024	100.19187	100.1473744	100.1029391	100.0585609	100.0142398	99.96997544	99.92576789	99.88161698	99.83752261
231220A00028	12/20/2023	4.13	12/20/2027	111.90115	108.7388702	105.6841934	102.7328345	99.88070985	97.12392206	94.45875048	91.88164193	89.38920211
231220A00030	12/20/2023	4.48	12/22/2025	104.2383	103.1590485	102.1022295	101.0671469	100.053134	99.05955099	98.085784	97.13124342	96.19536288
231220A00031	12/20/2023	4.23	12/21/2026	108.12042	106.0172991	103.9661916	101.9654694	100.0135645	98.10896922	96.25023373	94.43596314	92.66481503
231220A00032	12/20/2023	4.57	12/19/2025	104.29755	103.2262338	102.1770172	101.1492183	100.142185	99.15529132	98.18793638	97.23954295	96.3095564
231220A00034	12/20/2023	4.99	12/20/2024	100.23813	100.1825231	100.1269928	100.07154	100.0161646	99.9608663	99.90564502	99.85050058	99.79543282
231221A00003	12/21/2023	4.39	12/22/2025	104.14187	103.0631753	102.0068995	100.9723524	99.9588672	98.96580459	97.9925507	97.03851611	96.10313462
231221A00006	12/21/2023	4.14	12/21/2026	107.93354	105.8323982	103.7832322	101.7844133	99.83437456	97.93160935	96.07466883	94.2621591	92.49273866
231221A00008	12/21/2023	3.99	12/21/2028	115.3449	111.0994315	107.0372874	103.1495414	99.42775031	95.86392673	92.45051178	89.1803496	86.0466636

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
231221A00014	12/21/2023	4.14	6/21/2027	109.95108	107.3191358	104.7646546	102.2848877	99.87720129	97.53907176	95.26808055	93.06190891	90.91833306
231221A00022	12/21/2023	4.01	12/21/2028	113.93836	110.0979617	106.4198786	102.8962311	99.51956699	96.28283882	93.1793797	90.20288023	87.34736715
231221A00039	12/21/2023	3.99	12/21/2028	115.3449	111.0994315	107.0372874	103.1495414	99.42775031	95.86392673	92.45051178	89.1803496	86.0466636
231221A00086	12/21/2023	4.48	6/23/2025	102.25713	101.6861451	101.1215488	100.5632378	100.0111072	99.46505456	98.92497986	98.39078505	97.86237432
231221A00103	12/21/2023	4.3	12/30/2025	104.22644	103.1238874	102.0447271	100.9882172	99.9536493	98.94034426	97.94765074	96.97494375	96.02162338
231221A00104	12/21/2023	4.3	12/30/2025	104.22644	103.1238874	102.0447271	100.9882172	99.9536493	98.94034426	97.94765074	96.97494375	96.02162338
231222A00004	12/22/2023	4	12/22/2028	115.39627	111.1469902	107.0812887	103.1902165	99.46531535	95.89858356	92.48244904	89.20974363	86.07367932
231222A00014	12/22/2023	4.92	12/20/2024	100.23421	100.178608	100.1230809	100.0676314	100.0122591	99.95696404	99.90174597	99.84660474	99.79154018
231222A00027	12/22/2023	4.84	2/21/2025	100.96358	100.732815	100.5031176	100.2744755	100.0468815	99.82032839	99.59480892	99.37031604	99.14684271
231222A00032	12/22/2023	4.94	12/16/2024	100.18961	100.1451235	100.1006901	100.0563138	100.0119944	99.96773192	99.9235262	99.87937713	99.83528458
231222A00039	12/22/2023	4.44	12/22/2025	104.19544	103.1164382	102.0598606	101.025016	100.0112376	99.01788592	98.04434698	97.09003129	96.15437254
231226A00016	12/26/2023	3.92	12/26/2028	114.92354	110.7969327	106.8491737	103.0714496	99.45543114	95.99324686	92.67745475	89.50101636	86.45727239
231226A00024	12/26/2023	4.03	12/26/2028	115.56123	111.2975422	107.2183964	103.3147824	99.57818136	96.00053564	92.57422098	89.29202078	86.14710196
231226A00027	12/26/2023	4.22	12/28/2026	108.17784	106.0550121	103.9849934	101.9661119	99.99676434	98.0754099	96.20056723	94.37081168	92.58477269
231226A00043	12/26/2023	4.46	12/26/2025	104.26522	103.1747833	102.1072315	101.0618516	100.0379569	99.03488902	98.05201629	97.08873227	96.14445464
231226A00095	12/26/2023	4.22	12/28/2026	108.17784	106.0550121	103.9849934	101.9661119	99.99676434	98.0754099	96.20056723	94.37081168	92.58477269
231226A00098	12/26/2023	4.67	6/26/2025	102.35344	101.7744276	101.2019801	100.6359839	100.0763305	99.52291349	98.9756289	98.43437511	97.89905271
231227A00005	12/27/2023	4.17	12/28/2026	108.07305	105.951344	103.8824236	101.8646187	99.89632669	97.97600724	96.1021796	94.27341969	92.48835748
231227A00013	12/27/2023	4.44	6/27/2025	102.27772	101.6956325	101.1201781	100.5512462	99.98872632	99.4325103	98.8824925	98.33856964	97.8006407
231227A00014	12/27/2023	4.29	12/26/2025	104.16813	103.0769671	102.0087353	100.9627128	99.93821112	98.93457032	97.95115702	96.98736334	96.04260553
231227A00023	12/27/2023	3.98	12/27/2028	115.36643	111.103947	107.0260979	103.1238598	99.38870456	95.81256596	92.387812	89.10721902	85.96394745
231227A00026	12/27/2023	4.6	6/27/2025	102.32412	101.7424526	101.1674047	100.5988668	100.0367287	99.48088268	98.93122342	98.38764795	97.85005558
231227A00027	12/27/2023	4.42	12/26/2025	104.22193	103.1317361	102.0644306	101.0192933	99.99563789	98.99280589	98.01016567	97.04711091	96.10305936
231227A00030	12/27/2023	4.44	6/27/2025	102.27772	101.6956325	101.1201781	100.5512462	99.98872632	99.4325103	98.8824925	98.33856964	97.8006407
231227A00039	12/27/2023	4.6	6/27/2025	102.32412	101.7424526	101.1674047	100.5988668	100.0367287	99.48088268	98.93122342	98.38764795	97.85005558
231228A00020	12/28/2023	4.93	12/27/2024	100.31459	100.2395408	100.1646112	100.0898007	100.015109	99.94053581	99.86608085	99.79174386	99.71752455
231228A00022	12/28/2023	4.61	6/27/2025	102.32992	101.7482273	101.1731605	100.6046038	100.0424471	99.4865826	98.93690502	98.39331138	97.85570098
231228A00023	12/28/2023	4.4	12/26/2025	104.20028	103.1102124	102.0430301	100.9980142	99.9744784	98.97176432	97.98924036	97.02630022	96.08236172
231228A00024	12/28/2023	4.15	12/28/2026	108.03113	105.9098767	103.8413957	101.8240215	99.85615163	97.93624617	96.06282455	94.2344629	92.4497914
231228A00025	12/28/2023	4.05	12/28/2027	111.73948	108.5577523	105.4848627	102.5164591	99.64838852	96.87668879	94.19757843	91.60744733	89.10284785
231228A00026	12/28/2023	3.96	12/28/2028	115.29464	111.0308607	106.9518829	103.0486717	99.31268673	95.73585029	92.31051987	89.02946208	85.88582837
231229A00017	12/29/2023	4.42	12/29/2025	104.25786	103.1591817	102.0837355	101.0307868	99.99963437	98.9896055	98.00005511	97.03036411	96.0799382
231229A00061	12/29/2023	4.74	4/29/2025	101.72317	101.3057703	100.8917985	100.4812101	100.0739638	99.67001876	99.26933512	98.87187344	98.47759498

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
231229A00062	12/29/2023	4.74	4/29/2025	101.72317	101.3057703	100.8917985	100.4812101	100.0739638	99.67001876	99.26933512	98.87187344	98.47759498
231229A00063	12/29/2023	4.74	4/29/2025	101.72317	101.3057703	100.8917985	100.4812101	100.0739638	99.67001876	99.26933512	98.87187344	98.47759498
231229A00065	12/29/2023	4.6	7/29/2025	102.67581	102.004953	101.3428753	100.6894066	100.0443798	99.40763175	98.77900379	98.15834114	97.54549299
231229A00066	12/29/2023	4.6	7/29/2025	102.67581	102.004953	101.3428753	100.6894066	100.0443798	99.40763175	98.77900379	98.15834114	97.54549299
231229A00067	12/29/2023	4.6	7/29/2025	102.67581	102.004953	101.3428753	100.6894066	100.0443798	99.40763175	98.77900379	98.15834114	97.54549299
231229A00068	12/29/2023	4.42	12/29/2025	104.25786	103.1591817	102.0837355	101.0307868	99.99963437	98.9896055	98.00005511	97.03036411	96.0799382
231229A00070	12/29/2023	4.42	12/29/2025	104.25786	103.1591817	102.0837355	101.0307868	99.99963437	98.9896055	98.00005511	97.03036411	96.0799382
231229A00071	12/29/2023	4.42	12/29/2025	104.25786	103.1591817	102.0837355	101.0307868	99.99963437	98.9896055	98.00005511	97.03036411	96.0799382
240102A00029	1/2/2024	4.66	7/2/2025	102.41484	101.8191072	101.2303169	100.6483456	100.0730753	99.50439064	98.94217886	98.38632984	97.8367359
240102A00055	1/2/2024	4.23	1/4/2027	108.27694	106.1340104	104.0447091	102.0073308	100.0202351	98.08184623	96.19064968	94.34518961	92.5440659
240103A00003	1/3/2024	4.71	7/3/2025	102.45579	101.8571799	101.2655749	100.6808542	100.1028979	99.53158902	98.96681327	98.40845889	97.85641671
240103A00004	1/3/2024	4.48	1/5/2026	104.41001	103.2911421	102.196342	101.1248376	100.0758902	99.04879165	98.04286346	97.0574549	96.09194168
240103A00005	1/3/2024	4.28	1/4/2027	108.3827	106.2386241	104.1482048	102.1097307	100.1215608	98.18211875	96.28988942	94.44341639	92.64129901
240103A00010	1/3/2024	4.84	1/18/2039	155.59798	139.2899703	125.0088787	112.4849676	101.4860479	91.81206044	83.29046341	75.77230368	69.12886749
240103A00011	1/3/2024	4.84	1/18/2039	155.59798	139.2899703	125.0088787	112.4849676	101.4860479	91.81206044	83.2904634	75.77230368	69.12886749
240103A00018	1/3/2024	4.28	1/4/2027	108.3827	106.2386241	104.1482048	102.1097307	100.1215608	98.18211875	96.28988942	94.44341639	92.64129901
240103A00023	3/29/2024	4.45	7/29/2025	102.57562	101.9051401	101.2434329	100.5903313	99.94566807	99.30928039	98.68100949	98.06070069	97.44820319
240103A00025	1/3/2024	4.48	1/2/2026	104.37256	103.2621779	102.1755066	101.1117873	100.0702974	99.05034454	98.05126466	97.07242089	96.11320201
240103A00026	1/3/2024	4.28	1/4/2027	108.3827	106.2386241	104.1482048	102.1097307	100.1215608	98.18211875	96.28988942	94.44341639	92.64129901
240103A00032	3/29/2024	4.45	7/29/2025	102.57562	101.9051401	101.2434329	100.5903313	99.94566807	99.30928039	98.68100949	98.06070069	97.44820319
240103A00033	3/29/2024	4.45	7/29/2025	102.57562	101.9051401	101.2434329	100.5903313	99.94566807	99.30928039	98.68100949	98.06070069	97.44820319
240103A00034	3/29/2024	4.45	7/29/2025	102.57562	101.9051401	101.2434329	100.5903313	99.94566807	99.30928039	98.68100949	98.06070069	97.44820319
240103A00035	3/29/2024	4.45	7/29/2025	102.57562	101.9051401	101.2434329	100.5903313	99.94566807	99.30928039	98.68100949	98.06070069	97.44820319
240103A00039	6/28/2024	4.11	10/29/2025	103.26263	102.3369312	101.4278609	100.5349701	99.65782921	98.79602389	97.94915413	97.11683375	96.29868979
240103A00042	6/28/2024	4.11	10/29/2025	103.26263	102.3369312	101.4278609	100.5349701	99.65782921	98.79602389	97.94915413	97.11683375	96.29868979
240103A00043	6/28/2024	4.11	10/29/2025	103.26263	102.3369312	101.4278609	100.5349701	99.65782921	98.79602389	97.94915413	97.11683375	96.29868979
240103A00044	6/28/2024	4.11	10/29/2025	103.26263	102.3369312	101.4278609	100.5349701	99.65782921	98.79602389	97.94915413	97.11683375	96.29868979
240103A00045	6/28/2024	4.11	10/29/2025	103.26263	102.3369312	101.4278609	100.5349701	99.65782921	98.79602389	97.94915413	97.11683375	96.29868979
240103A00047	6/28/2024	4.05	1/29/2026	104.20382	103.0199966	101.8631301	100.7323107	99.62666511	98.54535855	97.48759291	96.45260463	95.43966288
240103A00049	6/28/2024	4.05	1/29/2026	104.20382	103.0199966	101.8631301	100.7323107	99.62666511	98.54535855	97.48759291	96.45260463	95.43966288
240103A00050	6/28/2024	4.05	1/29/2026	104.20382	103.0199966	101.8631301	100.7323107	99.62666511	98.54535855	97.48759291	96.45260463	95.43966288
240103A00051	6/28/2024	4.05	1/29/2026	104.20382	103.0199966	101.8631301	100.7323107	99.62666511	98.54535855	97.48759291	96.45260463	95.43966288
240103A00052	6/28/2024	4.05	1/29/2026	104.20382	103.0199966	101.8631301	100.7323107	99.62666511	98.54535855	97.48759291	96.45260463	95.43966288

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240103A00054	6/28/2024	3.94	6/29/2026	105.69551	104.0938713	102.5245515	100.986636	99.47924809	98.00154362	96.55270919	95.1319609	93.73854292
240103A00056	6/28/2024	3.94	6/29/2026	105.69551	104.0938713	102.5245515	100.986636	99.47924809	98.00154362	96.55270919	95.1319609	93.73854292
240103A00057	6/28/2024	3.94	6/29/2026	105.69551	104.0938713	102.5245515	100.986636	99.47924809	98.00154362	96.55270919	95.1319609	93.73854292
240103A00058	6/28/2024	3.94	6/29/2026	105.69551	104.0938713	102.5245515	100.986636	99.47924809	98.00154362	96.55270919	95.1319609	93.73854292
240103A00059	6/28/2024	3.94	6/29/2026	105.69551	104.0938713	102.5245515	100.986636	99.47924809	98.00154362	96.55270919	95.1319609	93.73854292
240104A00064	1/4/2024	5.04	1/3/2025	100.40668	100.3121855	100.2178725	100.1237417	100.0297926	99.93602452	99.84243704	99.74902959	99.65580164
240104A00068	1/4/2024	4.76	7/3/2025	102.48559	101.8868784	101.2951737	100.710354	100.1322997	99.56089358	98.99602137	98.43757133	97.88543424
240105A00011	1/5/2024	5.06	12/5/2024	100.13553	100.1210276	100.1065381	100.0920627	100.0776016	100.0631546	100.0487218	100.0343031	100.0198984
240105A00015	1/5/2024	4.99	1/6/2025	100.43834	100.3355235	100.2329268	100.1305495	100.0283911	99.92645072	99.82472766	99.7232212	99.62193063
240105A00017	1/5/2024	4.29	1/5/2027	108.41515	106.2680137	104.1746519	102.1333541	100.1424735	98.20042849	96.30569913	94.45682424	92.65239873
240105A00028	1/5/2024	4.76	7/7/2025	102.53132	101.9214662	101.3188911	100.7234602	100.1350468	99.55352718	98.97878038	98.41068836	97.84913581
240108A00018	1/8/2024	4.94	1/8/2025	100.45718	100.3488122	100.2406929	100.1328188	100.025189	99.91780264	99.81065884	99.70375675	99.59709551
240108A00020	1/8/2024	4.68	7/8/2025	102.49396	101.8814929	101.2763654	100.678446	100.0876061	99.50372021	98.9266659	98.3563235	97.79257616
240108A00022	1/8/2024	4.46	1/8/2026	104.4251	103.2978675	102.1950655	101.1159027	100.0596236	99.02550453	98.01285238	97.02100253	96.04931759
240108A00023	1/8/2024	4.27	1/8/2027	108.40655	106.2513489	104.1502801	102.1016096	100.1036749	98.15487888	96.25368733	94.3986255	92.58827549
240108A00033	1/8/2024	4.96	1/2/2025	100.4579	100.362045	100.26637	100.1708727	100.0755526	99.98040934	99.88544233	99.79065109	99.69603512
240108A00035	1/8/2024	5.04	12/2/2024	100.09874	100.092943	100.0871518	100.0813658	100.0755849	100.0698093	100.0640388	100.0582735	100.0525134
240108A00037	1/8/2024	4.69	7/8/2025	102.50006	101.8875701	101.2824219	100.6844818	100.0936215	99.50971537	98.93264096	98.36227864	97.79851154
240108A00038	1/8/2024	4.13	1/8/2029	116.11135	111.8005523	107.677503	103.7329742	99.95824455	96.34506846	92.88564721	89.57260217	86.39894968
240108A00040	1/8/2024	4.13	1/8/2029	116.11135	111.8005523	107.677503	103.7329742	99.95824455	96.34506846	92.88564721	89.57260217	86.39894968
240108A00041	1/9/2024	4.13	1/9/2029	116.12205	111.8082791	107.6824832	103.7354204	99.95835422	96.34302499	92.88162109	89.56675188	86.39142256
240108A00047	1/11/2024	4.95	1/10/2025	100.48229	100.3683648	100.2547157	100.141338	100.0282308	99.91539294	99.80282354	99.69052154	99.57848597
240108A00049	1/11/2024	4.95	1/10/2025	100.48229	100.3683648	100.2547157	100.141338	100.0282308	99.91539294	99.80282354	99.69052154	99.57848597
240109A00006	1/9/2024	4.71	7/9/2025	102.52355	101.9082306	101.3003227	100.6996887	100.1061982	99.51972416	98.94014234	98.36733149	97.80117322
240109A00025	1/9/2024	4.47	1/9/2026	104.44874	103.3186089	102.2130299	101.1312065	100.0723774	99.03581406	98.02081817	97.02672047	96.05287917
240109A00030	1/9/2024	4.99	1/9/2025	100.47471	100.3635672	100.2526787	100.1420484	100.0316754	99.9215588	99.8116976	99.7020909	99.59273777
240109A00031	1/9/2024	4.73	7/9/2025	102.5358	101.92044	101.3124903	100.7118147	100.118283	99.53176812	98.95214579	98.37929477	97.81309666
240109A00042	1/9/2024	3.99	1/9/2029	115.89519	111.5762066	107.4457351	103.4944925	99.71370662	96.09508496	92.63078513	89.31338794	86.13587205
240109A00048	1/9/2024	4.12	1/9/2029	116.08063	111.7677045	107.6427332	103.6964688	99.92017591	96.30559583	92.84491791	89.5307524	86.35610537
240110A00001	1/10/2024	4.42	1/9/2026	104.39268	103.262888	102.1576382	101.0761389	100.0176293	98.98138058	97.96669478	96.9729027	95.99936266
240110A00003	1/10/2024	4.78	1/10/2025	100.47173	100.3577281	100.2439981	100.1305408	100.0173551	99.90443991	99.79179434	99.67941733	99.56730788
240110A00010	1/10/2024	4.42	1/12/2026	104.42964	103.2913486	102.1779664	101.0886815	100.0227166	98.97932703	97.95780002	96.95745232	95.97762897
240110A00017	1/10/2024	4.94	1/6/2025	100.50296	100.3955147	100.2882971	100.181309	100.0745497	99.96801848	99.86171452	99.75563709	99.64978543

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240110A00021	1/10/2024	4.13	1/10/2028	112.12798	108.9046121	105.7924258	102.7869343	99.88385765	97.07911486	94.36881325	91.74923836	89.2168447
240110A00029	1/10/2024	4.5	7/10/2025	102.45478	101.8363436	101.2253912	100.6217912	100.0254111	99.43612145	98.8537962	98.27831208	97.70954874
240111A00016	1/11/2024	4.63	7/11/2025	102.49668	101.875962	101.2627872	100.6570159	100.0585142	99.46715149	98.88280038	98.30533638	97.73463796
240111A00020	1/11/2024	4.93	1/13/2025	100.51588	100.3936231	100.2716798	100.1500485	100.028728	99.90771697	99.78701423	99.66661855	99.54652873
240111A00021	1/11/2024	4.47	7/11/2025	102.44716	101.8259999	101.2123917	100.6062009	100.0072934	99.41553806	98.83080707	98.25297558	97.68192168
240111A00025	1/11/2024	4.19	1/11/2027	108.26955	106.1076833	104.0002761	101.9455757	99.94190391	97.98764936	96.08126397	94.22126013	92.40620771
240111A00028	1/11/2024	4.09	1/11/2029	115.97753	111.6612212	107.5332382	103.5843087	99.80567013	96.18903892	92.72658128	89.41088615	86.23493991
240111A00031	1/11/2024	4.19	1/11/2027	108.26955	106.1076833	104.0002761	101.9455757	99.94190391	97.98764936	96.08126397	94.22126013	92.40620771
240111A00053	1/11/2024	4.93	1/10/2025	100.48001	100.3660907	100.2524437	100.1390681	100.0259629	99.91312721	99.80055989	99.68825999	99.5762265
240112A00014	1/12/2024	4.8	1/10/2025	100.53225	100.413349	100.2947301	100.1763947	100.0583419	99.94057048	99.82307949	99.70586787	99.58893458
240112A00015	1/12/2024	4.78	1/17/2025	100.54371	100.4103541	100.2773635	100.1447411	100.0124853	99.88059455	99.74906729	99.61790198	99.48709708
240112A00021	1/12/2024	4.8	1/13/2025	100.5	100.3777608	100.2558328	100.1342167	100.0129114	99.89191555	99.77122797	99.65084743	99.53077271
240112A00022	1/12/2024	4.24	1/12/2026	104.22635	103.089279	101.9770983	100.8889967	99.82419734	98.78195617	97.76156068	96.76232808	95.78360381
240112A00027	1/12/2024	4.79	1/15/2025	100.52191	100.3941148	100.2666562	100.1395374	100.012757	99.88631349	99.76020559	99.63443188	99.508991
240112A00033	1/12/2024	4.46	7/11/2025	102.3916	101.7712468	101.1584341	100.5530218	99.954876	99.36386626	98.77986509	98.2027481	97.63239379
240112A00034	1/12/2024	4.46	7/11/2025	102.3916	101.7712468	101.1584341	100.5530218	99.954876	99.36386626	98.77986509	98.2027481	97.63239379
240112A00036	1/12/2024	4.07	1/12/2027	108.02412	105.8622097	103.7548239	101.7002053	99.69667185	97.74260833	95.83646329	93.97674586	92.16202289
240112A00040	1/12/2024	4.24	1/12/2026	104.22635	103.089279	101.9770983	100.8889967	99.82419734	98.78195617	97.76156068	96.76232808	95.78360381
240112A00044	1/12/2024	4.24	1/12/2026	104.22635	103.089279	101.9770983	100.8889967	99.82419734	98.78195617	97.76156068	96.76232808	95.78360381
240112A00047	1/12/2024	4.46	7/14/2025	102.42339	101.7946917	101.1737335	100.5603732	99.95447162	99.35589302	98.7645049	98.18017795	97.60278595
240112A00050	1/12/2024	4.3	7/11/2025	102.34205	101.7212562	101.1080104	100.5021791	99.90362785	99.31222583	98.72784516	98.15036105	97.57965164
240112A00052	1/12/2024	4.07	1/12/2027	108.02412	105.8622097	103.7548239	101.7002053	99.69667185	97.74260833	95.83646329	93.97674586	92.16202289
240116A00006	1/16/2024	4.5	7/16/2025	102.46986	101.8355057	101.2090267	100.5902787	99.97911915	99.37540857	98.77901111	98.18979415	97.60762826
240116A00008	1/16/2024	4.81	1/17/2025	100.54771	100.414347	100.2813523	100.1487259	100.016466	99.88457119	99.75303988	99.62187052	99.49106158
240116A00052	1/16/2024	4.65	1/16/2025	100.5253	100.3946213	100.2642998	100.1343336	100.0047213	99.87546128	99.74655212	99.61799233	99.48978042
240116A00083	1/16/2024	4.53	7/16/2025	102.48882	101.8543972	101.2278515	100.6090376	99.99781257	99.39403713	98.79757536	98.20829464	97.62606554
240117A00021	1/17/2024	4.06	1/17/2029	116.27172	111.9228315	107.7644941	103.7872835	99.98229833	96.34112582	92.85581222	89.51883495	86.3230766
240117A00023	1/17/2024	4.13	1/19/2027	108.40564	106.2171003	104.0841509	102.0049865	99.97787808	98.00116623	96.07325749	94.19262133	92.35778709
240117A00024	1/17/2024	4.78	1/17/2025	100.55401	100.4205348	100.2874267	100.1546882	100.0223178	99.89031402	99.75867515	99.62739966	99.49648601
240117A00054	1/17/2024	4.22	1/18/2028	112.49868	109.2475529	106.1091261	103.078827	100.152294	97.32536968	94.59408944	91.95467163	89.40350765
240118A00004	1/18/2024	4.74	1/17/2025	100.54868	100.4152105	100.2821078	100.1493748	100.0170098	99.88501144	99.75337797	99.62210788	99.49119961
240118A00020	1/18/2024	4.25	2/18/2027	108.842	106.5653083	104.3480555	102.1882525	100.0839928	98.03344977	96.03487248	94.08658165	92.1869662
240119A00003	1/19/2024	4.68	7/21/2025	102.63963	101.9909243	101.3504391	100.7180225	100.0935225	99.47679073	98.86768263	98.26605716	97.67177677

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240119A00007	1/19/2024	4.23	1/19/2029	116.64608	112.2938973	108.1322671	104.15177	100.3435069	96.69906714	93.21049918	89.87028234	86.67130103
240119A00008	1/19/2024	4.89	1/24/2025	100.64126	100.4883975	100.3360085	100.184092	100.0326458	99.88166766	99.73115546	99.58110699	99.43152009
240119A00013	1/19/2024	4.88	1/31/2025	100.72241	100.5500319	100.3782411	100.2070345	100.0364093	99.86636262	99.69689145	99.52799293	99.35966419
240119A00022	1/19/2024	4.9	1/30/2025	100.71399	100.5443938	100.3753718	100.2069178	100.0390288	99.87170209	99.70493482	99.5387242	99.37306748
240119A00024	1/19/2024	4.49	1/20/2026	104.6088	103.44733	102.3117576	101.2012218	100.1148999	99.05200462	98.01178281	96.99351317	95.99650477
240119A00028	1/19/2024	4.48	1/13/2026	104.50989	103.3683547	102.2518585	101.1595816	100.0907409	99.0445866	98.02040051	97.01749465	96.03520949
240119A00029	1/19/2024	4.3	1/13/2027	108.52699	106.3568916	104.2415372	102.1791703	100.1681003	98.20670397	96.29342208	94.42675647	92.605267
240119A00044	1/23/2024	4.23	1/23/2029	116.68998	112.3258282	108.1531538	104.162472	100.3448223	96.69173735	93.19521299	89.84767978	86.64197695
240122A00002	1/22/2024	4.66	7/22/2025	102.63787	101.9864115	101.3432504	100.7082249	100.0811809	99.46196824	98.85044072	98.24645557	97.6498736
240122A00005	1/22/2024	4.45	1/22/2026	104.58755	103.4206777	102.2799498	101.1644889	100.0734607	99.00606749	97.96154597	96.93916537	95.93822581
240122A00006	1/22/2024	4.25	1/22/2027	108.52074	106.3262173	104.1875149	102.1028219	100.0703982	98.08857397	96.15574599	94.27037455	92.4309803
240122A00014	1/22/2024	4.93	1/16/2025	100.61798	100.4816213	100.3456364	100.2100214	100.0747747	99.93989493	99.80538042	99.67122966	99.53744114
240122A00015	1/22/2024	4.93	1/16/2025	100.61798	100.4816213	100.3456364	100.2100214	100.0747747	99.93989493	99.80538042	99.67122966	99.53744114
240122A00016	1/22/2024	4.66	7/22/2025	102.63787	101.9864115	101.3432504	100.7082249	100.0811809	99.46196824	98.85044072	98.24645557	97.6498736
240122A00050	1/22/2024	4.25	1/22/2027	108.52074	106.3262173	104.1875149	102.1028219	100.0703982	98.08857397	96.15574599	94.27037455	92.4309803
240122A00081	1/22/2024	4.93	1/22/2025	100.62346	100.4761652	100.3293099	100.1828966	100.0369232	99.89138768	99.74628813	99.60162253	99.45738889
240123A00037	1/23/2024	4.2	1/17/2029	116.49919	112.1555708	108.0019602	104.0289741	100.2277471	96.58990018	93.10751075	89.77308522	86.57953315
240123A00057	1/23/2024	4.48	1/23/2026	104.63474	103.4648187	102.3211632	101.2028954	100.1091753	99.03919961	97.99219991	96.96744053	95.96421698
240125A00007	1/25/2024	4.27	1/25/2027	108.59778	106.394237	104.2468932	102.1539193	100.113558	98.12412316	96.18399647	94.29162371	92.44551193
240125A00019	1/25/2024	4.98	12/18/2024	100.28054	100.2284398	100.1764048	100.1244395	100.0725438	100.0207176	99.96896073	99.917273	99.86565431
240125A00035	1/25/2024	4.89	1/24/2025	100.64126	100.4883975	100.3360085	100.184092	100.0326458	99.88166766	99.73115546	99.58110699	99.43152009
240125A00040	1/25/2024	4.24	12/15/2026	108.07384	105.98756	103.9526241	101.9674353	100.0304553	98.14020467	96.29526032	94.49425253	92.73586275
240125A00061	1/25/2024	4.64	7/25/2025	102.65817	101.9983856	101.3471039	100.7041599	100.069394	99.44265067	98.82377818	98.21262875	97.60905823
240125A00068	1/25/2024	4.11	1/25/2028	112.4929	109.2162901	106.053952	103.0012155	100.0536324	97.20696415	94.45717043	91.80039846	89.23297296
240125A00069	1/25/2024	4.11	1/25/2028	112.4929	109.2162901	106.053952	103.0012155	100.0536324	97.20696415	94.45717043	91.80039846	89.23297296
240126A00004	1/26/2024	4.9	1/21/2025	100.67177	100.5209708	100.3706193	100.2207138	100.0712521	99.92223245	99.7736527	99.62551092	99.47780512
240126A00006	1/26/2024	4.89	1/31/2025	100.72413	100.5517504	100.3799573	100.2087485	100.0381212	99.86807227	99.69859892	99.52969823	99.36136732
240126A00007	1/26/2024	4.9	1/24/2025	100.70714	100.5475983	100.3885563	100.230008	100.071951	99.91438306	99.75730189	99.60070522	99.44459077
240126A00031	1/26/2024	4.31	1/26/2026	104.56754	103.3883144	102.2357756	101.1090211	100.0071915	98.92946528	97.87505656	96.84321347	95.8332161
240126A00032	1/26/2024	4.31	1/26/2026	104.56754	103.3883144	102.2357756	101.1090211	100.0071915	98.92946528	97.87505656	96.84321347	95.8332161
240129A00009	1/29/2024	4.72	1/29/2025	100.68503	100.5181153	100.3517523	100.1859429	100.0206843	99.85597377	99.69180857	99.528186	99.36510337
240129A00030	1/29/2024	5.03	12/2/2024	100.09374	100.0879577	100.0821832	100.0764139	100.0706498	100.0648909	100.0591371	100.0533885	100.047645
240129A00049	1/29/2024	4.48	7/29/2025	102.64899	101.977552	101.3149098	100.6608934	100.0153352	99.37807175	98.74894368	98.12779581	97.51447686

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240129A00054	1/29/2024	4.72	1/29/2025	100.68503	100.5181153	100.3517523	100.1859429	100.0206843	99.85597377	99.69180857	99.528186	99.36510337
240129A00056	1/29/2024	4.72	1/29/2025	100.68503	100.5181153	100.3517523	100.1859429	100.0206843	99.85597377	99.69180857	99.528186	99.36510337
240129A00066	1/29/2024	4.88	1/23/2025	100.69146	100.5349291	100.3788749	100.223298	100.0681962	99.91356728	99.75940911	99.6057195	99.45249628
240130A00003	1/30/2024	4.62	7/30/2025	102.7002	102.0265002	101.3616488	100.7054755	100.0578108	99.41849012	98.78735272	98.16424215	97.54900587
240130A00005	1/30/2024	4.62	7/30/2025	102.7002	102.0265002	101.3616488	100.7054755	100.0578108	99.41849012	98.78735272	98.16424215	97.54900587
240130A00034	1/30/2024	4.43	10/30/2025	103.64277	102.7113895	101.7967931	100.8985253	100.0161515	99.14925192	98.29742181	97.46027026	96.63741982
240130A00036	1/30/2024	4.94	1/30/2025	100.72076	100.551157	100.3821265	100.2136639	100.0457664	99.87843119	99.71165546	99.54543641	99.37977129
240130A00044	1/30/2024	4.14	1/30/2029	116.38877	112.011526	107.8271356	103.8260031	99.99906983	96.33777796	92.83403953	89.48020791	86.26905098
240130A00047	1/30/2024	4.01	1/30/2029	116.20117	111.8177358	107.6277295	103.6215196	99.79000922	96.12460517	92.61718652	89.26007604	86.04601311
240130A00051	1/30/2024	4.94	1/24/2025	100.71293	100.5534096	100.3943895	100.235863	100.0778277	99.9202815	99.76322195	99.60664682	99.45055386
240130A00057	1/30/2024	4.15	1/29/2027	108.56031	106.3427733	104.1820705	102.0763363	100.0237847	98.0227026	96.07144614	94.16843704	92.31215956
240130A00059	1/30/2024	4.33	1/30/2026	104.6401	103.4493433	102.2857727	101.1484629	100.036531	98.94913359	97.88546409	96.84475101	95.826256
240130A00068	1/30/2024	4.17	1/30/2029	116.51478	112.1349116	107.9479799	103.9443877	100.1150731	96.45147499	92.94550246	89.58950604	86.37625089
240130A00070	1/30/2024	4.33	1/30/2026	104.6401	103.4493433	102.2857727	101.1484629	100.036531	98.94913359	97.88546409	96.84475101	95.826256
240130A00076	1/30/2024	4.94	1/30/2025	100.72076	100.551157	100.3821265	100.2136639	100.0457664	99.87843119	99.71165546	99.54543641	99.37977129
240130A00089	1/30/2024	4.17	1/30/2029	116.51478	112.1349116	107.9479799	103.9443877	100.1150731	96.45147499	92.94550246	89.58950604	86.37625089
240131A00013	1/31/2024	4.13	2/1/2027	108.37065	106.1502918	103.9869478	101.8787425	99.82388036	97.82063915	95.86736637	93.96247574	92.104444
240131A00014	1/31/2024	4.04	1/31/2029	115.97918	111.6077167	107.4290535	103.4335918	99.61226837	95.95652147	92.45825989	89.10983421	85.90401001
240131A00015	1/31/2024	4.02	1/31/2029	108.38499	106.0906106	103.8766358	101.7395515	99.6760228	97.68288503	95.75713381	93.89591566	92.09651938
240131A00021	1/31/2024	4.8	1/27/2025	100.72407	100.556062	100.3885952	100.2216703	100.0552848	99.88943601	99.72412133	99.5593382	99.39508404
240131A00022	3/1/2024	4.13	3/1/2027	108.70329	106.395401	104.1484388	101.9603474	99.82915408	97.7529696	95.72998368	93.75846093	91.83673707
240131A00033	1/31/2024	4.18	1/30/2026	104.46314	103.2734967	102.1110159	100.9747787	99.8639027	98.77754487	97.71489906	96.67519418	95.65769228
240131A00034	1/31/2024	4	1/29/2027	108.2324	106.0185216	103.8613951	101.7591646	99.7100463	97.71232926	95.76437142	93.8645964	92.01149025
240131A00036	1/31/2024	4.51	7/31/2025	102.63716	101.9609381	101.2936383	100.6350825	99.98509958	99.34352282	98.71018986	98.08494249	97.46762653
240131A00039	1/31/2024	4.22	7/31/2026	106.49887	104.803781	103.1440908	101.5187582	99.92677928	98.36718942	96.83906126	95.34150286	93.87365602
240131A00044	1/31/2024	4.8	1/27/2025	100.72407	100.556062	100.3885952	100.2216703	100.0552848	99.88943601	99.72412133	99.5593382	99.39508404
240131A00054	1/31/2024	4.8	1/31/2025	100.70864	100.5362844	100.3645111	100.1933222	100.0227146	99.85268537	99.68323167	99.51435056	99.34603918
240131A00059	1/31/2024	4.57	7/31/2025	102.67756	102.0011926	101.3337422	100.6750372	100.0249064	99.38318316	98.74970507	98.1243139	97.50685543
240131A00076	1/31/2024	4.35	1/30/2026	104.56885	103.3799838	102.2182342	101.0826842	99.97245389	98.88670208	97.82462468	96.78545244	95.76844917
240131A00080	1/31/2024	4.16	1/29/2027	108.40253	106.1902563	104.0346268	101.9337842	99.88595023	97.88941893	95.94255313	94.04378102	92.19159296
240201A00003	2/1/2024	4.17	2/2/2026	104.48643	103.2883609	102.1178376	100.9739197	99.85570668	98.76233825	97.69299211	96.64688192	95.62325536
240201A00021	2/1/2024	4.81	2/3/2025	100.74556	100.5648739	100.3848366	100.2054468	100.0267009	99.84859546	99.67112711	99.49429238	99.31808787
240201A00023	2/1/2024	4.5	8/1/2025	102.6413	101.9623211	101.2923407	100.6311767	99.97865569	99.33460893	98.69887201	98.07128473	97.45169102

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240201A00027	2/1/2024	3.83	2/1/2029	115.46509	111.0912107	106.9107421	102.9140327	99.09197308	95.43595844	91.93785797	88.58998565	85.38507323
240201A00029	2/1/2024	4.52	8/1/2025	102.65482	101.9757942	101.3057633	100.6445492	99.99197851	99.34788257	98.71209692	98.08446137	97.46481982
240201A00038	2/1/2024	4.3	2/2/2026	104.54534	103.34835	102.178857	101.0359202	99.91864155	98.82616294	97.7576642	96.712361	95.68950291
240201A00040	2/1/2024	4.08	2/1/2030	119.8874	114.3969479	109.1976889	104.2725403	99.60551605	95.18165065	90.98692794	87.00821566	83.23320476
240201A00042	2/1/2024	4.24	2/1/2033	130.79882	121.8763466	113.6555224	106.0768509	99.08619783	92.63427936	86.67620309	81.17105461	76.08152516
240201A00043	2/1/2024	4.27	2/1/2034	134.2716	124.1813744	114.9671411	106.5471975	98.84789527	91.80280924	85.35199345	79.44131671	74.0218698
240201A00051	2/1/2024	4.83	2/3/2025	100.74917	100.568477	100.3884349	100.2090404	100.0302898	99.85217975	99.67470674	99.49786736	99.32165822
240201A00052	2/1/2024	4.5	8/1/2025	102.6413	101.9623211	101.2923407	100.6311767	99.97865569	99.33460893	98.69887201	98.07128473	97.45169102
240201A00054	2/1/2024	4.83	2/3/2025	100.74917	100.568477	100.3884349	100.2090404	100.0302898	99.85217975	99.67470674	99.49786736	99.32165822
240201A00056	2/1/2024	4.3	2/2/2026	104.54534	103.34835	102.178857	101.0359202	99.91864155	98.82616294	97.7576642	96.712361	95.68950291
240201A00057	2/1/2024	4.83	2/3/2025	100.74917	100.568477	100.3884349	100.2090404	100.0302898	99.85217975	99.67470674	99.49786736	99.32165822
240201A00061	2/1/2024	4.5	8/1/2025	102.6413	101.9623211	101.2923407	100.6311767	99.97865569	99.33460893	98.69887201	98.07128473	97.45169102
240201A00063	2/1/2024	4.81	2/3/2025	100.74556	100.5648739	100.3848366	100.2054468	100.0267009	99.84859546	99.67112711	99.49429238	99.31808787
240201A00064	2/1/2024	4.51	8/1/2025	102.64806	101.9690576	101.299052	100.6378629	99.9853171	99.34124575	98.70548446	98.07787305	97.45825542
240201A00065	2/1/2024	4.33	2/2/2026	104.58096	103.3837477	102.2140341	101.0708803	99.95338794	98.86069899	97.79199314	96.74648598	95.723427
240201A00069	5/1/2024	4.44	4/30/2025	101.64406	101.2101951	100.7799196	100.3531929	99.9299713	99.51021189	99.09387239	98.68091122	98.27128747
240201A00072	8/1/2024	4.1	7/31/2025	102.36105	101.6858656	101.0195951	100.3620591	99.71308633	99.07251047	98.44016923	97.81590455	97.19956236
240202A00014	2/2/2024	4.51	8/1/2025	102.70205	102.0221558	101.3512744	100.6892296	100.0358475	99.39095892	98.75439877	98.12600636	97.50562511
240202A00016	2/2/2024	4.25	2/2/2027	108.64598	106.4195495	104.2503305	102.1364397	100.0760734	98.06750189	96.10906542	94.19917094	92.33628871
240202A00017	2/2/2024	4.23	8/3/2026	106.6871	104.979866	103.3084417	101.6717635	100.0688113	98.49860513	96.96020317	95.45269973	93.97522358
240202A00022	2/2/2024	4.96	2/3/2025	100.77262	100.5918969	100.4118242	100.2323991	100.0536181	99.87547763	99.69797433	99.52110475	99.3448655
240202A00023	2/2/2024	4.96	2/3/2025	100.77262	100.5918969	100.4118242	100.2323991	100.0536181	99.87547763	99.69797433	99.52110475	99.3448655
240202A00025	2/2/2024	4.82	2/3/2025	100.7614	100.5805434	100.4003379	100.2207822	100.0418727	99.86360593	99.68597835	99.50898655	99.33262708
240202A00029	2/2/2024	4.15	2/2/2029	116.46503	112.0773586	107.8833091	103.8732379	100.0380353	96.36909646	92.8582897	89.49792797	86.28074166
240202A00030	2/2/2024	4.32	2/3/2031	124.70928	118.0486961	111.7992087	105.9330785	100.4245857	95.24987382	90.38680533	85.81482818	81.51485408
240205A00020	2/5/2024	4.99	2/5/2025	100.80249	100.6162074	100.4306158	100.2457146	100.0615	99.87796815	99.69511522	99.51293743	99.33143101
240205A00044	2/5/2024	4.99	2/5/2025	100.80249	100.6162074	100.4306158	100.2457146	100.0615	99.87796815	99.69511522	99.51293743	99.33143101
240206A00017	2/6/2024	4.33	8/6/2027	110.9676	108.1955804	105.508019	102.9017907	100.3739138	97.92153773	95.54193632	93.23250134	90.99073642
240206A00026	2/6/2024	4.59	8/6/2025	102.81286	102.1188187	101.4341676	100.7587213	100.0922946	99.43470737	98.7857844	98.14535492	97.51325266
240207A00002	2/7/2024	4.81	2/7/2025	100.80748	100.6154986	100.4242619	100.2337615	100.0439931	99.85495238	99.66663518	99.47903727	99.29215448
240207A00006	2/7/2024	4.06	2/7/2029	116.50478	112.0908588	107.8725523	103.8400771	99.98419409	96.29617825	92.76778672	89.3912291	86.15913987
240207A00022	2/7/2024	4.25	2/7/2028	112.82082	109.5083894	106.3123538	103.2279132	100.2505008	97.37576736	94.59956903	91.91795615	89.32716279
240207A00025	2/8/2024	4.2	1/8/2029	116.40114	112.0843899	107.9555758	104.0054651	100.2253292	96.60691547	93.14241856	89.82445351	86.64603063

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240207A00039	2/7/2024	4.55	8/7/2025	102.79648	102.099753	101.4124932	100.7345107	100.0656183	99.40563375	98.75437957	98.11168308	97.47737607
240207A00040	2/7/2024	4.55	8/7/2025	102.79648	102.099753	101.4124932	100.7345107	100.0656183	99.40563375	98.75437958	98.11168308	97.47737607
240208A00053	2/8/2024	4.58	2/9/2026	104.96531	103.7463754	102.5558799	101.3928328	100.2562909	99.14535419	98.05916269	96.99689475	95.95776476
240208A00055	2/8/2024	4.37	2/8/2027	108.98488	106.736635	104.5464912	102.4125252	100.3328937	98.3058291	96.3296363	94.40268863	92.52342465
240209A00007	2/9/2024	4.5	12/9/2025	104.18434	103.1400162	102.1167023	101.11377	100.1306138	99.16665187	98.22132521	97.29409622	96.38444786
240209A00019	2/9/2024	4.39	2/9/2027	109.04175	106.7898587	104.5962177	102.458897	100.3760465	98.34589243	96.36673363	94.43693783	92.55493824
240209A00020	2/9/2024	4.58	2/9/2026	104.96531	103.7463754	102.5558799	101.3928328	100.2562909	99.14535419	98.05916269	96.99689475	95.95776476
240212A00029	2/12/2024	4.58	2/12/2026	105.00281	103.7753574	102.5767367	101.4059348	100.2619898	99.14398354	98.05103926	96.98231946	95.93702364
240213A00017	2/13/2024	4.26	2/13/2029	117.42472	112.9730911	108.7192292	104.6532066	100.7656568	97.04773652	93.49109255	90.08783196	86.8304937
240213A00022	2/13/2024	4.6	8/13/2026	107.2963	105.5590057	103.8584942	102.1936647	100.5634573	98.96685423	97.40287801	95.87058914	94.36908438
240214A00001	2/14/2024	4.79	11/10/2025	104.0373	103.074765	102.1301128	101.2028484	100.292494	99.39858913	98.52069005	97.65836879	96.81121255
240214A00007	2/14/2024	4.7	2/17/2026	105.21276	103.97015	102.7570371	101.5723793	100.4151819	99.28449634	98.17941713	97.0990798	96.04265841
240214A00012	2/14/2024	5.1	2/14/2025	100.93575	100.7243996	100.5139493	100.30439	100.0957162	99.88792213	99.68100216	99.47495074	99.26976236
240214A00019	2/15/2024	4.41	1/26/2029	117.477	113.088185	108.8920545	104.8790488	101.0401415	97.36680386	93.85097433	90.48502985	87.26175954
240215A00013	2/15/2024	4.82	8/15/2025	103.02225	102.3033908	101.5945973	100.8956609	100.2063766	99.52654483	98.85597182	98.19446887	97.54185244
240215A00026	2/15/2024	4.48	2/10/2027	109.25393	106.9966408	104.7977851	102.6554276	100.5677102	98.53285194	96.54914466	94.61494957	92.7286937
240215A00033	2/15/2024	4.35	2/16/2027	109.2255	106.9468175	104.7275475	102.5657074	100.4593941	98.40678391	96.40612876	94.45575194	92.55404471
240215A00046	4/1/2024	4.49	4/1/2027	109.88559	107.4792616	105.138412	102.8608993	100.6446658	98.48773229	96.38819495	94.34422179	92.35404962
240216A00012	2/16/2024	4.53	8/16/2027	111.62778	108.8193032	106.0969943	103.4576424	100.8981821	98.41568407	96.00734823	93.67049662	91.40256725
240220A00031	2/20/2024	4.68	2/20/2026	105.22651	103.9755178	102.754416	101.5621411	100.3976792	99.26006352	98.14837155	97.06172273	95.99927599
240220A00073	2/20/2024	5.08	2/20/2025	101.00638	100.7783196	100.5513012	100.3253145	100.1003524	99.87640796	99.65347422	99.43154432	99.21061143
240221A00012	2/21/2024	5.23	12/20/2024	100.31495	100.2571342	100.1993996	100.1417455	100.0841719	100.0266785	99.96926516	99.91193172	99.854678
240221A00013	2/21/2024	5.23	12/23/2024	100.35206	100.2855544	100.2191442	100.1528323	100.0866183	100.0205021	99.95448342	99.88856206	99.82273781
240221A00014	2/21/2024	4.53	2/22/2027	109.52109	107.2245966	104.9882592	102.8100544	100.6880454	98.62037691	96.60527063	94.64102163	92.72599448
240221A00015	2/21/2024	4.48	2/22/2028	113.74725	110.3758056	107.1239764	103.9867834	100.9594853	98.03756972	95.21674	92.49290328	89.8621594
240221A00022	2/21/2024	4.97	2/21/2025	101.01186	100.7808276	100.5508628	100.3219568	100.0941022	99.86729171	99.64151811	99.41677425	99.19305306
240222A00007	2/22/2024	5.26	12/23/2024	100.35412	100.287606	100.221189	100.1548701	100.0886492	100.0225261	99.95650057	99.89057234	99.82474122
240222A00030	2/22/2024	4.99	2/21/2025	101.01647	100.7854272	100.5554554	100.3265424	100.0986807	99.87186321	99.64608262	99.42133181	99.19760368
240223A00004	2/23/2024	5	2/24/2025	101.05624	100.8168218	100.5785442	100.3413984	100.1053762	99.87046975	99.63667105	99.40397228	99.17236565
240223A00007	2/23/2024	4.81	8/22/2025	103.15584	102.4164264	101.6876477	100.9692772	100.2610925	99.56287769	98.87442283	98.19552392	97.52598258
240223A00020	2/23/2024	5.16	2/24/2025	101.07536	100.8361133	100.5980062	100.3610277	100.1251698	99.89042446	99.65678394	99.4242404	99.19278611
240223A00022	2/23/2024	5.22	1/23/2025	100.74128	100.5847811	100.4287603	100.2732168	100.1181483	99.96355253	99.80942743	99.65577079	99.50258044
240226A00010	2/26/2024	4.53	7/15/2027	111.24647	108.5309666	105.8967652	103.3409157	100.8605995	98.45311912	96.11589208	93.84644524	91.64240925

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240226A00025	2/26/2024	4.43	2/26/2027	109.53447	107.2220198	104.9704535	102.7777127	100.6418272	98.56090988	96.533153	94.55682347	92.63025937
240226A00037	2/26/2024	5.17	2/26/2025	101.10318	100.858354	100.6147096	100.3722431	100.1309461	99.89081008	99.65182672	99.41398772	99.17728489
240227A00009	2/27/2024	5.24	1/27/2025	100.79456	100.6264655	100.4589197	100.2919161	100.1254521	99.95952509	99.79413244	99.62927158	99.46493995
240227A00015	2/27/2024	5.18	2/27/2025	101.11837	100.8707469	100.624331	100.3791179	100.135099	99.89226548	99.65060877	99.41012035	99.17079177
240227A00020	2/27/2024	5.18	2/27/2025	101.11837	100.8707469	100.624331	100.3791179	100.135099	99.89226548	99.65060877	99.41012035	99.17079177
240227A00021	2/27/2024	4.97	8/27/2025	103.27547	102.5225658	101.7806765	101.0495581	100.328977	99.61870605	98.91852496	98.22821946	97.54758136
240227A00025	2/27/2024	5.02	2/27/2025	101.09865	100.8508393	100.6042472	100.3588613	100.1146728	99.87167286	99.62985287	99.38920425	99.1497185
240228A00007	2/28/2024	5.17	2/27/2025	101.11591	100.8682815	100.6218696	100.3766606	100.1326457	99.88981615	99.64816342	99.40767896	99.16835433
240228A00035	5/28/2024	4.99	5/28/2025	102.18545	101.6868269	101.1930744	100.704125	100.2199088	99.74035716	99.26540295	98.79498017	98.32902414
240229A00015	2/29/2024	5.25	12/30/2024	100.43871	100.3519833	100.2653971	100.1789556	100.0926585	100.0065055	99.92049625	99.83463034	99.74890746
240229A00026	2/29/2024	4.74	2/27/2026	105.39132	104.1198797	102.8792638	101.6683622	100.486115	99.33151209	98.20359031	97.10143092	96.02415691
240229A00027	2/29/2024	4.54	2/26/2027	109.59581	107.286382	105.0376891	102.8476766	100.7143809	98.63592156	96.61049682	94.63637942	92.71191288
240301A00001	3/1/2024	5.03	6/2/2025	102.26718	101.7545173	101.2470043	100.7445609	100.2471113	99.75458144	99.2668984	98.78399086	98.30578887
240301A00022	3/1/2024	4.94	3/3/2025	101.12857	100.8696507	100.6120666	100.3558025	100.1008482	99.84719375	99.59482906	99.34374432	99.09392978
240301A00023	3/1/2024	4.17	3/1/2029	117.23479	112.7383602	108.4436274	104.3403734	100.418963	96.67030441	93.08581437	89.65738691	86.37736357
240301A00024	3/1/2024	4.17	3/1/2029	117.23479	112.7383602	108.4436274	104.3403734	100.418963	96.67030441	93.08581437	89.65738691	86.37736357
240301A00025	3/1/2024	4.45	3/1/2027	109.42956	107.1132919	104.8581261	102.6620007	100.5229381	98.4390443	96.40850439	94.42957855	92.50059823
240301A00031	3/1/2024	5.1	3/3/2025	101.14918	100.8904549	100.6330551	100.3769718	100.1221948	99.86871423	99.61652009	99.36560263	99.11595213
240305A00008	3/5/2024	4.84	9/5/2025	103.28523	102.5075566	101.7416285	100.9871818	100.2439595	99.51171199	98.79019712	98.07917978	97.37843173
240305A00010	3/5/2024	4.66	3/5/2026	105.37067	104.0841362	102.8274015	101.5994339	100.3992456	99.22589384	98.07847824	96.9561386	95.85805258
240305A00011	3/5/2024	4.55	9/4/2026	107.47635	105.6773074	103.9173108	102.1951796	100.5097769	98.86001135	97.24483493	95.66324057	94.11426022
240305A00035	3/5/2024	5.11	2/28/2025	101.16961	100.9086519	100.6489828	100.3905959	100.1334816	99.87763063	99.62303373	99.36968173	99.11756556
240306A00006	3/6/2024	4.65	9/5/2025	103.20012	102.4219895	101.6556222	100.900756	100.1571331	99.42450323	98.70262354	97.9912583	97.29017865
240306A00010	3/6/2024	4.22	3/6/2029	117.13498	112.637358	108.341809	104.2381007	100.3165818	96.56814332	92.98418469	89.55658195	86.27765864
240306A00014	3/6/2024	5.09	3/6/2025	101.18455	100.9174851	100.6518367	100.3875949	100.1247484	99.86328601	99.60319686	99.34447006	99.08709486
240306A00015	3/6/2024	4.93	3/6/2025	101.16325	100.8959925	100.6301537	100.3657251	100.1026954	99.84105348	99.58078827	99.32188885	99.06434441
240306A00025	3/19/2024	5.07	3/19/2025	101.34291	101.0396368	100.7381894	100.4385546	100.1407159	99.84465705	99.55036212	99.25781523	98.96700074
240306A00026	3/19/2024	5.07	3/19/2025	101.34291	101.0396368	100.7381894	100.4385546	100.1407159	99.84465705	99.55036212	99.25781523	98.96700074
240306A00027	3/19/2024	5.07	3/19/2025	101.34291	101.0396368	100.7381894	100.4385546	100.1407159	99.84465705	99.55036212	99.25781523	98.96700074
240306A00028	3/19/2024	5.07	3/19/2025	101.34291	101.0396368	100.7381894	100.4385546	100.1407159	99.84465705	99.55036212	99.25781523	98.96700074
240306A00029	3/19/2024	5.07	3/19/2025	101.34291	101.0396368	100.7381894	100.4385546	100.1407159	99.84465705	99.55036212	99.25781523	98.96700074
240306A00030	3/19/2024	5.07	3/19/2025	101.34291	101.0396368	100.7381894	100.4385546	100.1407159	99.84465705	99.55036212	99.25781523	98.96700074
240307A00022	3/7/2024	4.09	3/7/2029	116.95559	112.4484741	108.1442887	104.0327494	100.1041506	96.34933226	92.75964586	89.32692274	86.04344452

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240308A00005	3/8/2024	4.03	3/8/2029	116.70769	112.20309	107.9014916	103.7925979	99.86669708	96.11462302	92.52772135	89.09781774	85.81718839
240308A00008	3/8/2024	4.99	4/1/2025	101.47952	101.1399941	100.8027376	100.4677296	100.1349477	99.80436967	99.47597377	99.14973842	98.82564238
240308A00009	3/8/2024	4.74	9/8/2025	103.24299	102.4572605	101.6835334	100.9215302	100.1709853	99.43164124	98.70324825	97.98556384	97.27835269
240308A00011	3/8/2024	4.54	3/9/2026	105.27031	103.974472	102.7075077	101.4684454	100.2563616	99.07037317	97.90963586	96.7733417	95.66071721
240308A00027	3/8/2024	4.23	3/8/2027	109.19703	106.8605997	104.5863322	102.3721462	100.216043	98.11610653	96.07049897	94.07745714	92.13528868
240308A00031	3/8/2024	4.46	9/16/2026	107.46089	105.6283535	103.8362286	102.0833294	100.3685154	98.69068883	97.0487927	95.44180875	93.8687558
240311A00006	3/11/2024	4.6	3/11/2026	105.37388	104.0723564	102.7992546	101.5536402	100.3346217	99.14134572	97.97299581	96.82878997	95.70797903
240311A00009	3/11/2024	4.38	3/11/2027	109.3854	107.0423988	104.7618451	102.5416556	100.3798308	98.27445299	96.2236822	94.22575221	92.27896712
240311A00010	3/11/2024	5.07	3/11/2025	101.24219	100.961214	100.6818117	100.4039688	100.1276725	99.85290956	99.57966726	99.30793287	99.03769382
240311A00011	3/11/2024	4.89	7/11/2025	102.65739	102.0361147	101.4223861	100.8160657	100.2170196	99.62511715	99.04023083	98.4622361	97.89101138
240311A00012	3/11/2024	4.8	9/11/2025	103.32541	102.531097	101.7490396	100.9789554	100.2205704	99.47361901	98.73784346	98.0129938	97.29882748
240311A00014	3/11/2024	5.07	3/11/2025	101.24219	100.961214	100.6818117	100.4039688	100.1276725	99.85290956	99.57966726	99.30793287	99.03769382
240312A00009	3/12/2024	4.68	3/12/2026	105.49053	104.1857218	102.9091153	101.6597968	100.4368901	99.23955697	98.06699455	96.91843375	95.79313743
240312A00013	3/12/2024	4.68	3/12/2026	105.49053	104.1857218	102.9091153	101.6597968	100.4368901	99.23955697	98.06699455	96.91843375	95.79313743
240312A00015	3/12/2024	4.13	3/12/2029	117.18178	112.6559503	108.3344198	104.2068218	100.2633785	96.4948606	92.89255314	89.44822387	86.15409365
240312A00019	3/12/2024	4.87	9/12/2025	103.39272	102.595372	101.8103652	101.0374169	100.2762502	99.52659672	98.78819603	98.06079565	97.34415055
240312A00020	3/12/2024	4.82	11/3/2025	103.97887	103.0358572	102.1100135	101.2008701	100.3079774	99.43090195	98.56922548	97.7225444	96.89046911
240312A00028	3/12/2024	4.87	9/12/2025	103.39272	102.595372	101.8103652	101.0374169	100.2762502	99.52659672	98.78819603	98.06079565	97.34415055
240313A00007	3/13/2024	4.88	9/12/2025	103.40065	102.603261	101.8182202	101.0452383	100.2840384	99.5343519	98.79591864	98.06848602	97.35180902
240313A00023	3/13/2024	4.68	3/13/2026	105.50402	104.1966194	102.9171961	101.6648494	100.4387196	99.23798341	98.06185212	96.90956988	95.78041191
240314A00008	3/14/2024	4.55	3/10/2027	109.76398	107.4192934	105.1370094	102.9150454	100.7514016	98.6441602	96.5914813	94.59159912	92.64281826
240314A00009	3/14/2024	4.75	3/10/2026	105.55364	104.2533931	102.9818192	101.7379662	100.5209255	99.32982847	98.16384391	97.02217618	95.90406329
240314A00012	3/14/2024	4.62	3/13/2026	105.53149	104.2222675	102.9410799	101.6870306	100.4592571	99.25693367	98.07926937	96.92550614	95.79491711
240314A00013	3/14/2024	4.62	3/13/2026	105.53149	104.2222675	102.9410799	101.6870306	100.4592571	99.25693367	98.07926937	96.92550614	95.79491711
240314A00026	3/14/2024	5.25	1/14/2025	100.62675	100.4967599	100.3671136	100.2378063	100.1088367	99.98020349	99.85190521	99.72394052	99.59630809
240314A00027	3/14/2024	5.15	3/14/2025	101.30305	101.0136709	100.7259632	100.4399089	100.1554938	99.87270361	99.59152439	99.31194227	99.03394355
240315A00015	3/15/2024	4.8	3/16/2026	105.70089	104.3846464	103.0957157	101.8332467	100.596428	99.3844814	98.19666037	97.03224857	95.89055812
240318A00014	3/18/2024	4.67	3/18/2026	105.66473	104.3420697	103.0463187	101.7766579	100.5323066	99.31251514	98.11656394	96.94376166	95.79344392
240318A00015	3/18/2024	4.47	2/20/2029	118.03924	113.5635448	109.2870858	105.1998358	101.2923358	97.55565674	93.98136614	90.56149747	87.28852145
240318A00020	3/18/2024	4.48	3/19/2029	116.59377	112.479638	108.547609	104.7885128	101.193694	97.7549781	94.46464215	91.31538742	88.30031388
240319A00003	3/19/2024	4.65	3/19/2026	105.65217	104.3270919	103.0286915	101.7561677	100.5087561	99.28572275	98.08636256	96.90999778	95.75597674
240319A00004	3/19/2024	4.47	3/19/2027	109.87838	107.5038801	105.1932267	102.9443025	100.7550786	98.62360654	96.54801506	94.52650618	92.5573519
240319A00007	3/19/2024	5.16	3/19/2025	101.37013	101.0668008	100.7653021	100.4656161	100.1677265	99.87161702	99.57727164	99.28467453	98.99381004

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240319A00011	3/19/2024	5.12	5/1/2025	101.90674	101.483362	101.0635052	100.6471241	100.2341756	99.82461735	99.41840773	99.01550579	98.61587126
240319A00012	3/19/2024	4.77	4/14/2026	106.04757	104.6523581	103.282373	101.9369856	100.615589	99.31759586	98.04243754	96.78956345	95.5584403
240319A00014	3/19/2024	4.44	3/19/2029	118.22823	113.6711947	109.320122	105.1645747	101.1947	97.40119532	93.77527437	90.30863573	86.99343335
240319A00021	3/19/2024	4.83	9/19/2025	103.50954	102.6915652	101.8865654	101.0942348	100.3142754	99.54639837	98.79032408	98.04578133	97.31250721
240320A00010	3/20/2024	4.77	3/20/2036	146.05056	133.1926582	121.6613204	111.3098283	102.008516	93.6427012	86.11087984	79.32314617	73.19980974
240320A00015	3/20/2024	5.35	12/11/2024	100.20204	100.1703715	100.1387363	100.1071374	100.0755747	100.0440481	100.0125577	99.98110319	99.94968467
240321A00006	3/21/2024	4.88	9/22/2025	103.52132	102.6959181	101.8837238	101.0844241	100.2977129	99.52329418	98.76088079	98.01019465	97.27096617
240321A00007	3/21/2024	4.7	3/23/2026	105.66534	104.3318422	103.0240409	101.7412144	100.482667	99.24772903	98.03575561	96.84612546	95.67823987
240321A00019	3/21/2024	4.88	9/22/2025	103.52132	102.6959181	101.8837238	101.0844241	100.2977129	99.52329418	98.76088079	98.01019465	97.27096617
240321A00025	3/21/2024	5.06	4/17/2025	101.70501	101.3208304	100.9395713	100.5611958	100.1856711	99.81296489	99.44304539	99.0758813	98.71144178
240321A00026	3/21/2024	5.03	5/19/2025	102.09317	101.6196684	101.1505777	100.6858353	100.2253808	99.76915481	99.31709906	98.86915639	98.42527066
240322A00007	3/22/2024	4.67	3/23/2026	105.62566	104.2924356	102.9849053	101.7023452	100.4440598	99.20937941	97.99765935	96.80827845	95.6406381
240322A00008	3/22/2024	4.65	4/22/2026	105.98159	104.5645616	103.1735094	101.8077833	100.4667499	99.14979678	97.85633109	96.58577914	95.33758555
240322A00012	3/22/2024	4.92	3/21/2025	101.39647	101.0750707	100.7556515	100.438194	100.1226802	99.80909206	99.49741202	99.18762254	98.87970639
240322A00013	3/22/2024	4.18	3/22/2029	117.50699	112.9463904	108.5927301	104.435503	100.464789	96.67122199	93.04595584	89.58063284	86.26735398
240322A00014	3/22/2024	4.51	5/22/2026	106.26131	104.7586069	103.2849567	101.8395911	100.4217658	99.03076258	97.66588735	96.32646969	95.01186166
240322A00015	3/22/2024	4.65	11/21/2025	104.1144	103.1200774	102.1448233	101.1880885	100.2493484	99.32809774	98.42385023	97.53613741	96.66450793
240322A00018	3/22/2024	4.34	3/22/2027	109.61137	107.2318078	104.9164379	102.6631406	100.4698816	98.33470647	96.2557376	94.23117013	92.25926881
240322A00020	3/22/2024	4.92	3/21/2025	101.39647	101.0750707	100.7556515	100.438194	100.1226802	99.80909206	99.49741202	99.18762254	98.87970639
240322A00021	3/22/2024	4.93	3/21/2025	101.39965	101.0782212	100.7587712	100.4412832	100.1257389	99.81212064	99.50041057	99.19059126	98.88264545
240322A00022	3/22/2024	5.08	3/17/2025	101.3716	101.0617275	100.753698	100.4474929	100.143096	99.84049116	99.53966254	99.2405944	98.94327124
240322A00029	3/22/2024	4.36	3/22/2027	109.65796	107.2778516	104.9619422	102.7081169	100.5143408	98.37865926	96.29919434	94.27414089	92.30176338
240322A00032	3/22/2024	4.67	3/23/2026	105.62566	104.2924356	102.9849053	101.7023452	100.4440598	99.20937941	97.99765935	96.80827845	95.6406381
240325A00023	3/25/2024	4.71	9/25/2025	103.48305	102.6486681	101.8277821	101.0200672	100.2252078	99.4428982	98.67284253	97.914754	97.1683548
240325A00024	3/25/2024	4.71	9/25/2025	103.48305	102.6486681	101.8277821	101.0200672	100.2252078	99.4428982	98.67284253	97.914754	97.1683548
240325A00027	4/1/2024	4.91	10/1/2025	103.65543	102.8046494	101.9678818	101.1447788	100.3350071	99.53824428	98.75417845	97.98250742	97.2229386
240325A00028	4/1/2024	4.91	10/1/2025	103.65543	102.8046494	101.9678818	101.1447788	100.3350071	99.53824428	98.75417845	97.98250742	97.2229386
240325A00040	3/25/2024	4.46	4/30/2027	110.162	107.6708436	105.2495521	102.8957748	100.6072504	98.38180729	96.21735875	94.11189961	92.06350236
240325A00060	3/25/2024	4.57	3/25/2026	105.62765	104.2877141	102.9730724	101.6830333	100.4169329	99.17413099	97.95401045	96.75597595	95.57945305
240326A00013	3/26/2024	4.91	9/26/2025	103.59451	102.7577726	101.9345935	101.1246487	100.3276203	99.54320076	98.7710921	98.0110057	97.26266193
240326A00027	3/26/2024	4.95	3/26/2025	101.41807	101.0949895	100.773974	100.4550055	100.1380643	99.82313119	99.51018695	99.19921276	98.89018999
240326A00042	3/26/2024	4.71	3/26/2026	105.71928	104.3778997	103.0615356	101.7695188	100.5012039	99.25596808	98.03321054	96.83235128	95.65283023
240327A00008	3/27/2024	4.72	10/1/2025	103.56261	102.7113408	101.8741033	101.0505532	100.2403563	99.44318956	98.65874005	97.88670486	97.12679065

Classification | Public

	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240327A00014	3/27/2024	4.88	9/24/2025	103.54545	102.7144382	101.8968083	101.0922417	100.3004269	99.52106175	98.7538539	97.99851998	97.25478542
240327A00016	3/27/2024	4.56	3/27/2026	105.64113	104.2960894	102.9758844	101.679861	100.4073888	99.15785938	97.93068514	96.72529855	95.54115123
240327A00025	3/27/2024	4.35	3/26/2027	109.68115	107.2898081	104.9632295	102.6992867	100.4959346	98.35120817	96.26321798	94.23014722	92.25024826
240327A00028	3/27/2024	4.4	3/27/2028	113.88329	110.4146474	107.0721132	103.8504293	100.7445821	97.74979335	94.86150795	92.07538193	89.38727174
240328A00016	3/29/2024	4.98	3/28/2025	101.50161	101.1598586	100.8203299	100.483005	100.1478624	99.81488108	99.48404005	99.15531876	98.82869686
240328A00017	3/28/2024	4.6	3/30/2026	105.735	104.3817801	103.0527172	101.7472138	100.4646903	99.20458564	97.96635689	96.74947828	95.55344063
240328A00018	3/28/2024	4.39	3/29/2027	109.80998	107.4088785	105.0729953	102.8001906	100.588411	98.43568229	96.34010589	94.29985529	92.31317296
240328A00022	3/28/2024	4.3	3/28/2028	113.84281	110.3651101	107.014107	103.7845091	100.6712743	97.66959732	94.77489697	91.98280468	89.28915338
240328A00023	3/28/2024	4.22	3/28/2029	117.74709	113.1645968	108.7906778	104.6147325	100.626753	96.81728878	93.17741309	89.69869093	86.37314955
240328A00024	3/28/2024	5.14	3/24/2025	101.47775	101.1474899	100.8193117	100.4931957	100.1691223	99.8470723	99.52702684	99.20896717	98.89287479
240328A00026	3/28/2024	4.6	3/27/2026	105.69451	104.3490968	103.028524	101.7321389	100.4593112	99.20943211	97.98191394	96.776189	95.59170876
240328A00027	3/28/2024	4.39	3/29/2027	109.80998	107.4088785	105.0729953	102.8001906	100.588411	98.43568229	96.34010589	94.29985529	92.31317296
240328A00031	3/28/2024	4.92	9/24/2025	103.57847	102.7473098	101.9295328	101.1248208	100.3328621	99.55335468	98.78600613	98.03053307	97.28666087
240328A00039	3/28/2024	5.14	3/28/2025	101.47911	101.1506523	100.8243228	100.5001024	100.1779706	99.85790733	99.53989268	99.223907	98.90993091
240328A00052	3/28/2024	4.34	3/28/2029	117.89495	113.3200799	108.9531099	104.7834905	100.8012577	96.99700206	93.36183468	89.88735597	86.56562606
240328A00054	3/28/2024	5.2	2/27/2025	101.17544	100.9179922	100.6618112	100.4068832	100.153199	99.90074967	99.64952611	99.39951947	99.15072095
240328A00055	3/28/2024	5.2	2/27/2025	101.17544	100.9179922	100.6618112	100.4068832	100.153199	99.90074967	99.64952611	99.39951947	99.15072095
240328A00057	3/28/2024	5.2	2/27/2025	101.17544	100.9179922	100.6618112	100.4068832	100.153199	99.90074967	99.64952611	99.39951947	99.15072095
240328A00061	3/28/2024	4.35	3/28/2029	117.93853	113.3627104	108.994831	104.8243322	100.8412489	97.03617023	93.40020641	89.92495669	86.60248018
240328A00063	3/28/2024	4.47	3/28/2030	122.51812	116.7987261	111.3896628	106.2723952	101.4295936	96.84504558	92.503578	88.39098552	84.49396397
240328A00064	3/28/2024	4.48	3/28/2031	126.23696	119.3747222	112.9443132	106.9161182	101.2627067	95.95865741	90.98040166	86.30607926	81.91540641
240328A00065	7/16/2024	4.46	7/16/2032	130.6966	122.3369206	114.5955696	107.4230572	100.7741194	94.60733328	88.88477153	83.57168983	78.63624382
240401A00003	4/1/2024	4.81	10/1/2025	103.63868	102.7870549	101.9494707	101.1255778	100.3150422	99.5175405	98.73275984	97.96039722	97.20015921
240401A00004	4/1/2024	4.81	10/1/2025	103.63868	102.7870549	101.9494707	101.1255778	100.3150422	99.5175405	98.73275984	97.96039722	97.20015921
240401A00006	4/1/2024	4.32	4/2/2029	117.15764	112.8207228	108.6802617	104.7262083	100.9490817	97.33993463	93.89032073	90.59226356	87.43822816
240401A00009	4/1/2024	4.79	4/1/2026	105.90762	104.5496107	103.2155902	101.9049749	100.6172003	99.35171949	98.1080028	96.88553681	95.68382392
240401A00016	4/1/2024	4.47	4/1/2027	110.03405	107.6219748	105.2756002	102.9927742	100.7714299	98.6095797	96.50531176	94.45678634	92.46223292
240401A00023	4/1/2024	5.17	4/1/2025	101.54044	101.2007821	100.8633983	100.5282637	100.1953557	99.86465224	99.53613154	99.20977202	98.8855524
240401A00024	4/1/2024	4.97	10/1/2025	103.70612	102.8551071	102.0181088	101.1947775	100.3847802	99.58779442	98.80350809	98.03161903	97.27183459
240401A00027	4/1/2024	4.82	4/1/2026	105.94805	104.5897531	103.2554515	101.9445599	100.6565135	99.39076548	98.1467859	96.92406128	95.72209389
240402A00015	4/2/2024	4.61	11/15/2027	112.95348	109.8724777	106.8934732	104.0125179	101.2258432	98.52984723	95.92108653	93.39626779	90.95224065
240402A00044	4/2/2024	4.83	4/2/2026	105.97453	104.6132639	103.2760883	101.9624153	100.6716769	99.4033232	98.1568212	96.93165459	95.72732291
240403A00002	4/3/2024	5.01	10/3/2025	103.76511	102.9083446	102.0657749	101.2370531	100.4218393	99.61980478	98.83063126	98.05401071	97.28964487

Classification | Public

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240403A00006	4/3/2024	4.71	4/3/2026	105.93524	104.5697328	103.2284586	101.9108261	100.6162624	99.34421276	98.09413994	96.86552332	95.65785837
240403A00008	4/3/2024	4.67	4/2/2027	110.32206	107.9077036	105.559086	103.274053	101.0505368	98.88654884	96.78017621	94.72957831	92.73298373
240403A00010	4/3/2024	4.54	4/5/2027	110.2488	107.82289	105.4633249	103.1679228	100.9345883	98.76130642	96.64613925	94.58722249	92.58276221
240403A00013	4/3/2024	4.58	4/17/2028	114.74344	111.2010648	107.7893825	104.5028785	101.3362964	98.28462858	95.34310321	92.50717172	89.77249724
240403A00018	4/3/2024	4.67	4/5/2027	110.3597	107.9364652	105.5794157	103.2863801	101.05527	98.88407719	96.77087026	94.71379099	92.71105122
240403A00022	4/3/2024	4.53	4/3/2029	118.7932	114.1819963	109.7808305	105.5790266	101.5665013	97.73373242	94.07172519	90.57197998	87.22646271
240404A00004	4/4/2024	4.45	4/4/2029	118.45493	113.8482012	109.4515231	105.2542061	101.2461591	97.41785296	93.76028639	90.26495415	86.92381718
240404A00012	4/4/2024	4.46	4/4/2029	118.49869	113.891016	109.4934206	105.2952168	101.2863122	97.45717631	93.79880685	90.30269745	86.96080801
240404A00014	4/4/2024	4.78	4/6/2026	105.95848	104.5861916	103.2383674	101.9144037	100.6137197	99.33575326	98.07995979	96.84581178	95.63279805
240404A00015	4/4/2024	4.6	4/5/2027	110.19407	107.7728231	105.4177192	103.1265879	100.897342	98.72797462	96.61655535	94.56122709	92.56020276
240404A00019	6/3/2024	4.55	6/1/2027	110.76063	108.1747744	105.6638226	103.2251613	100.8562876	98.55480089	96.3183985	94.14487059	92.03209601
240404A00020	6/3/2024	4.55	6/1/2027	110.76063	108.1747744	105.6638226	103.2251613	100.8562876	98.55480089	96.3183985	94.14487059	92.03209601
240404A00021	4/4/2024	4.57	4/1/2031	123.67027	117.6221277	111.9418	106.6043879	101.5868192	96.86770542	92.42720983	88.24692677	84.30977096
240404A00022	4/4/2024	4.78	4/6/2026	105.95848	104.5861916	103.2383674	101.9144037	100.6137197	99.33575326	98.07995979	96.84581178	95.63279805
240404A00023	4/4/2024	4.51	4/24/2028	114.58965	111.0300128	107.6024299	104.3012907	101.1212576	98.05724699	95.10441577	92.25814888	89.51404713
240404A00062	4/4/2024	5.13	4/4/2025	101.56533	101.2173474	100.8717576	100.5285329	100.1876489	99.84908178	99.51280785	99.17880385	98.84704681
240405A00004	4/5/2024	4.99	10/6/2025	103.78574	102.9206428	102.0700228	101.2335195	100.4107829	99.60147463	98.80526724	98.0218439	97.2508979
240405A00005	4/5/2024	4.81	4/6/2026	105.99932	104.6267428	103.2786321	101.9543867	100.6534258	99.37518691	98.1191255	96.88471388	95.67144076
240405A00006	4/5/2024	4.63	4/5/2027	110.26506	107.8429554	105.4870177	103.1950703	100.9650254	98.79487572	96.68269031	94.62661162	92.6248521
240405A00017	4/5/2024	4.5	4/5/2027	110.15406	107.729291	105.3708398	103.0765281	100.844261	98.67202425	96.55788059	94.49996634	92.49648818
240408A00015	4/8/2024	4.54	4/5/2029	118.86067	114.2422836	109.8344982	105.6265909	101.6084408	97.77049141	94.1037156	90.59958397	87.25003484
240408A00018	4/8/2024	4.87	10/6/2025	103.75156	102.8856819	102.0343075	101.1970766	100.3736382	99.5636531	98.7667928	97.98273963	97.21118604
240408A00020	4/8/2024	4.86	4/8/2026	106.09356	104.7147438	103.3605876	102.0304887	100.7238594	99.44013097	98.17875256	96.9391906	95.7209281
240408A00025	4/8/2024	5.03	10/8/2025	103.8454	102.9745286	102.1183272	101.2764249	100.448465	99.63410244	98.83300365	98.04484581	97.26931652
240408A00026	4/8/2024	4.86	4/8/2026	106.09356	104.7147438	103.3605876	102.0304887	100.7238594	99.44013097	98.17875256	96.9391906	95.7209281
240409A00021	4/9/2024	4.83	4/9/2026	106.06556	104.6841541	103.327503	101.9949965	100.6860438	99.40007308	98.13653066	96.89488019	95.67460205
240409A00035	4/9/2024	4.66	4/9/2027	110.38612	107.9513191	105.5833016	103.2798666	101.0388983	98.85836239	96.73630261	94.6708373	92.66015604
240410A00005	4/10/2024	5.14	4/10/2025	101.67481	101.3097065	100.9472413	100.587384	100.2301063	99.87538062	99.52317935	99.17347552	98.82624249
240410A00007	4/10/2024	4.64	4/10/2028	115.14878	111.6122812	108.2056792	104.9235092	101.7605687	98.71190031	95.77277923	92.93870064	90.20536852
240410A00008	4/10/2024	4.56	4/10/2029	119.38883	114.7336479	110.2915235	106.0515651	102.003498	98.13762215	94.44477744	90.91631053	87.54404442
240412A00006	4/12/2024	5.44	12/12/2024	100.21318	100.1787152	100.1442945	100.1099142	100.0755743	100.0412747	100.0070152	99.97279589	99.93861662
240412A00010	4/12/2024	5.26	4/11/2025	101.74905	101.3664053	100.9865495	100.6094524	100.2350838	99.8634141	99.49441416	99.12805516	98.76430873
240412A00017	4/12/2024	4.84	4/10/2026	106.20412	104.8171553	103.4551145	102.1173813	100.8033593	99.51247141	98.24415872	96.99788005	95.7731111

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240415A00018	4/15/2024	5.41	1/15/2025	100.65429	100.5218396	100.3897452	100.2580032	100.1266123	99.99557093	99.8648777	99.73453118	99.60452992
240415A00019	4/15/2024	5.41	1/15/2025	100.65429	100.5218396	100.3897452	100.2580032	100.1266123	99.99557093	99.8648777	99.73453118	99.60452992
240415A00020	4/15/2024	5.41	1/15/2025	100.65429	100.5218396	100.3897452	100.2580032	100.1266123	99.99557093	99.8648777	99.73453118	99.60452992
240415A00060	4/15/2024	5.06	4/15/2026	106.46243	105.0614213	103.6857852	102.3348884	101.0081193	99.7048862	98.42461607	97.16675426	95.93076356
240416A00017	4/16/2024	5.17	10/16/2025	104.07071	103.1767749	102.2982755	101.4348106	100.5859958	99.75145968	98.93084327	98.12379958	97.32999308
240416A00018	4/16/2024	5.04	4/16/2026	106.44829	105.0445887	103.6663554	102.3129516	100.9837624	99.67819273	98.39566683	97.13562713	95.89753366
240416A00019	4/16/2024	4.91	4/16/2027	111.07288	108.6100411	106.2152052	103.8861158	101.6206033	99.41658279	97.27204967	95.18507649	93.15380933
240416A00020	4/16/2024	4.85	4/17/2028	115.66357	112.1055186	108.6785952	105.377266	102.1962597	99.13055472	96.1753657	93.32613118	90.57850194
240416A00030	4/16/2024	4.78	4/16/2027	110.96129	108.4957081	106.0982966	103.7667857	101.4989985	99.29284273	97.14630728	95.0574583	93.02443584
240416A00050	4/16/2024	5.14	4/16/2025	101.75315	101.3712833	100.9922968	100.6161606	100.2428422	99.87231012	99.50453294	99.1394799	98.77712065
240417A00015	4/17/2024	4.76	4/16/2027	110.91331	108.4483148	106.0514742	103.720522	101.4532816	99.24766121	97.10164994	95.01331429	92.98079462
240417A00016	4/17/2024	4.63	4/17/2029	119.78348	115.0995219	110.6307062	106.3659987	102.2949864	98.40784164	94.69528536	91.14855419	87.75936897
240417A00017	4/17/2024	4.63	4/17/2029	119.78348	115.0995219	110.6307062	106.3659987	102.2949864	98.40784164	94.69528536	91.14855419	87.75936897
240418A00001	4/18/2024	5.15	4/18/2025	101.78312	101.3956483	101.011142	100.6295679	100.2508925	99.87508255	99.50210554	99.13192936	98.76452238
240418A00004	4/18/2024	4.87	4/18/2031	128.94174	121.9347544	115.370949	109.2197426	103.4528239	98.04396839	92.9688744	88.20501299	83.73148985
240418A00012	4/18/2024	5.19	10/17/2025	104.10153	103.2046946	102.3233914	101.4572155	100.6057791	99.76870723	98.9456378	98.13622076	97.34011765
240418A00018	4/18/2024	5.31	4/18/2025	101.814	101.4268069	101.0425749	100.6612688	100.2828549	99.9073003	99.53457259	99.16463977	98.79747036
240418A00019	4/18/2024	5.05	4/17/2026	106.47579	105.0690966	103.6879684	102.3317649	100.9998679	99.69167904	98.40661946	97.14412857	95.90366358
240419A00026	4/23/2024	5.07	4/1/2026	106.28495	104.924273	103.5876291	102.2744346	100.9841238	99.71614873	98.46997846	97.24509854	96.04101033
240422A00038	4/22/2024	5.03	10/22/2025	104.095	103.1834306	102.2878958	101.4079771	100.5432677	99.69337494	98.85791958	98.03653522	97.22886777
240422A00040	4/22/2024	4.85	10/22/2026	108.789	106.8418471	104.93967	103.0811578	101.2650484	99.49012429	97.75521089	96.05917472	94.40092168
240422A00041	4/22/2024	4.92	4/22/2026	106.47584	105.0533356	103.6569341	102.2859779	100.9398301	99.61787446	98.31951496	97.04417466	95.79129505
240423A00024	4/23/2024	5.33	3/31/2025	101.6268	101.2766781	100.9288853	100.5833962	100.2401883	99.89923897	99.5605261	99.22402777	98.8897224
240423A00025	4/23/2024	5.28	6/30/2025	102.75688	102.1654988	101.580931	101.0030639	100.4317826	99.86697503	99.30853145	98.75634471	98.21031005
240423A00027	4/23/2024	4.93	3/31/2027	110.90857	108.4928355	106.1426913	103.8559972	101.6306947	99.46480402	97.3564204	95.30371093	93.30491148
240423A00028	4/23/2024	5.08	3/31/2026	106.28473	104.9268415	103.5928927	102.2823039	100.9945124	99.72897336	98.4851587	97.26255678	96.06067161
240423A00032	4/23/2024	5.06	4/20/2026	106.53062	105.1151457	103.7255267	102.3611158	101.0212846	99.7054251	98.41294909	97.14328709	95.89588772
240423A00033	4/23/2024	5.15	4/23/2025	101.84853	101.4470641	101.0487714	100.6536186	100.2615686	99.87258474	99.48663112	99.10367227	98.72367334
240423A00034	4/23/2024	4.92	4/19/2027	111.13656	108.664467	106.2608485	103.92342	101.6499905	99.43845461	97.28678862	95.19304675	93.15535777
240424A00008	4/24/2024	5.29	4/24/2025	101.88576	101.4817972	101.0810508	100.6834791	100.2890447	99.89771025	99.50943935	99.12419602	98.74194485
240424A00013	4/24/2024	5.13	4/24/2025	101.85357	101.4493191	101.0482869	100.6504365	100.2557301	99.86413028	99.47560045	99.0901045	98.70760688
240424A00014	4/24/2024	5.4	1/24/2025	100.76955	100.611271	100.4534858	100.2961905	100.1393826	99.98305993	99.82722016	99.67186105	99.51698036
240424A00030	4/24/2024	4.89	4/21/2027	111.09072	108.6135398	106.2051181	103.8631602	101.5854615	99.36990362	97.21445059	95.11714501	93.07610459

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240425A00010	4/25/2024	4.83	4/26/2027	111.21357	108.7165829	106.2893349	103.9294865	101.6347882	99.40307909	97.23228283	95.12040379	93.0655234
240425A00019	4/25/2024	5.34	4/21/2025	101.90946	101.4978936	101.089549	100.6843881	100.2823737	99.88346929	99.48763873	99.09484656	98.70505783
240425A00021	4/25/2024	4.83	4/26/2027	111.21357	108.7165829	106.2893349	103.9294865	101.6347882	99.40307909	97.23228283	95.12040379	93.0655234
240425A00028	4/25/2024	4.9	4/25/2028	115.93941	112.3538071	108.9010933	105.5756313	102.3720494	99.28523181	96.31030497	93.44262467	90.67776408
240425A00029	4/25/2024	4.85	4/25/2029	120.47248	115.7615053	111.2674388	106.9791221	102.8860274	98.97821999	95.24632213	91.68147867	88.27532539
240425A00030	4/25/2024	4.85	4/25/2029	120.47248	115.7615053	111.2674388	106.9791221	102.8860274	98.97821999	95.24632213	91.68147867	88.27532539
240425A00032	4/25/2024	4.92	4/25/2030	125.25653	119.3839615	113.8332003	108.5848213	103.620673	98.9237865	94.47829219	90.26934342	86.28304529
240425A00033	4/25/2024	4.96	4/27/2026	106.60009	105.1626577	103.7518275	102.3669251	101.007296	99.67230745	98.36134749	97.07382392	95.80916364
240425A00034	4/25/2024	4.96	4/27/2026	106.60009	105.1626577	103.7518275	102.3669251	101.007296	99.67230745	98.36134749	97.07382392	95.80916364
240426A00011	4/26/2024	5.17	10/27/2025	104.21411	103.2891845	102.3807487	101.4883656	100.6116115	99.75007788	98.90337005	98.07110702	97.25292074
240426A00012	4/26/2024	4.92	4/27/2026	106.54328	105.1062687	103.6958532	102.3113584	100.95213	99.61753559	98.3069632	97.01982086	95.75553564
240426A00024	4/26/2024	4.79	4/26/2029	119.05354	114.6144909	110.3786514	106.3355079	102.4751458	98.78821555	95.26589752	91.89986882	88.68227276
240426A00025	4/26/2024	5.32	4/21/2025	101.90121	101.4897818	101.0815722	100.6765452	100.2746638	99.87589124	99.48019156	99.08752925	98.69786939
240426A00026	4/26/2024	5.05	4/30/2026	106.65273	105.2083668	103.7908495	102.3994881	101.0336196	99.69260344	98.37581984	97.08266929	95.81257166
240426A00027	4/26/2024	5.32	4/25/2025	101.95424	101.5310631	101.1112876	100.6948704	100.2817713	99.8719508	99.46536999	99.06199053	98.66177472
240426A00029	4/26/2024	5.19	10/27/2025	104.23245	103.3074275	102.398902	101.5064302	100.6295886	99.76796843	98.92117515	98.08882771	97.27055802
240426A00044	4/26/2024	4.78	4/26/2027	111.09225	108.5967513	106.1709628	103.8125425	101.5192417	99.28890059	97.11944355	95.00887583	92.95527966
240429A00006	4/29/2024	4.86	10/29/2026	108.89914	106.9317992	105.010291	103.1332741	101.2994512	99.50757153	97.75642871	96.04485898	94.37173934
240429A00007	4/29/2024	5.04	10/29/2025	104.19433	103.2629545	102.3482952	101.4499056	100.5673541	99.70022361	98.84811203	98.01063097	97.18740535
240429A00008	4/29/2024	4.93	4/29/2026	106.58452	105.1415889	103.7254599	102.3354446	100.9708818	99.6311323	98.31557777	97.0236201	95.75468048
240429A00028	4/29/2024	5.32	4/29/2025	101.96445	101.5464537	101.1318859	100.7207052	100.31287	99.90833963	99.50707411	99.10903399	98.71418051
240429A00045	4/29/2024	5.1	8/5/2025	103.15214	102.4595442	101.776278	101.1021556	100.436994	99.78061505	99.13284534	98.49351594	97.86246237
240429A00047	4/29/2024	5.46	1/6/2025	100.5376	100.4313275	100.3252799	100.2194593	100.113865	100.0084963	99.90335234	99.79843246	99.69373589
240429A00052	4/29/2024	4.91	5/3/2027	111.29631	108.7829676	106.340251	103.9657736	101.6572436	99.41246007	97.22930881	95.10575827	93.03985588
240430A00016	4/30/2024	5.08	10/30/2025	104.24424	103.3098562	102.3922861	101.4910822	100.6058087	99.73604538	98.88138657	98.0414407	97.21582962
240430A00017	4/30/2024	5.08	10/30/2025	104.24424	103.3098562	102.3922861	101.4910822	100.6058087	99.73604538	98.88138657	98.0414407	97.21582962
240430A00030	4/30/2024	5.44	2/3/2025	100.90798	100.7208545	100.5344082	100.3486333	100.1635261	99.97908293	99.79530035	99.61217476	99.42970264
240430A00031	4/30/2024	5.36	5/1/2025	102.00791	101.5842787	101.1641694	100.7475372	100.3343391	99.92453272	99.51807651	99.11492946	98.71505126
240430A00034	4/30/2024	4.69	4/30/2029	120.21167	115.4807474	110.9686633	106.664106	102.5564124	98.63552242	94.89194241	91.3167099	87.90136127
240430A00035	4/30/2024	4.94	4/30/2027	111.33085	108.8252701	106.3898702	104.0222891	101.7202566	99.48159215	97.30420063	95.18606876	93.12526119
240430A00038	4/30/2024	5.37	3/28/2025	101.59902	101.2578961	100.918988	100.5822762	100.2477393	99.91535634	99.58510661	99.25696961	98.93092511
240430A00075	4/30/2024	5.2	4/30/2025	101.96104	101.539896	101.12223	100.7080014	100.297168	99.88968802	99.48552061	99.08462548	98.68696299
240501A00017	5/1/2024	5.13	5/1/2026	106.7804	105.3323873	103.9113338	102.5165466	101.1473591	99.80312661	98.48322584	97.18705378	95.91402693

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240501A00054	5/6/2024	4.79	5/4/2029	120.31769	115.5845678	111.0705579	106.7643229	102.655175	98.73303223	94.98838052	91.412239	87.99612722
240502A00013	5/2/2024	4.68	5/2/2028	115.56608	111.9597546	108.4880215	105.1451286	101.9256015	98.82422861	95.83604641	92.95632671	90.18056402
240502A00017	5/2/2024	4.81	5/2/2028	115.72056	112.118914	108.6514891	105.3125573	102.0966658	98.99862278	96.0134835	93.13653736	90.36329535
240502A00030	5/2/2024	4.75	5/2/2029	120.11529	115.3922061	110.8875647	106.5900832	102.4891167	98.57462255	94.8371234	91.26767235	87.85782054
240502A00048	5/2/2024	4.89	5/3/2027	111.24744	108.734705	106.29258	103.9186815	101.6107179	99.36648882	97.18388027	95.06086108	92.99547902
240503A00007	5/3/2024	5.22	4/28/2025	101.95046	101.5193044	101.0916762	100.667533	100.2468324	99.8295327	99.41559278	99.00497227	98.59763138
240503A00009	5/3/2024	4.61	5/3/2029	119.50346	114.791092	110.296968	106.0097996	101.9189419	98.01435324	94.28655723	90.72660851	87.32606004
240503A00016	5/3/2024	4.72	5/3/2028	115.42247	111.8232117	108.3582317	105.0217971	101.8084475	98.71298455	95.73045734	92.85614957	90.08556705
240503A00021	5/3/2024	5.3	3/3/2025	101.24582	100.9778339	100.7112274	100.4459874	100.1821033	99.91956464	99.65836126	99.39848295	99.13991961
240503A00022	5/3/2024	5.22	5/5/2025	102.00087	101.5662351	101.1353146	100.7080603	100.2844254	99.86436389	99.44783065	99.03478124	98.62517199
240503A00023	5/3/2024	5.13	8/4/2025	103.10515	102.4161886	101.7364608	101.0657833	100.4039761	99.75086372	99.10627535	98.47004465	97.84200957
240503A00024	5/3/2024	5.04	11/3/2025	104.1848	103.2407438	102.3138724	101.4037144	100.5098199	99.63175507	98.76910146	97.92145521	97.0884265
240503A00029	10/21/2024	4.85	10/21/2025	103.84786	102.9412491	102.0505355	101.1752999	100.3151408	99.46967016	98.63851337	97.82130841	97.01770541
240503A00035	5/3/2024	4.92	5/1/2026	106.48	105.034232	103.6153853	102.2227673	100.8557124	99.51357698	98.19573858	96.90159514	95.63056405
240503A00046	5/3/2024	5.46	12/2/2024	100.07854	100.0728218	100.0671067	100.0613968	100.055692	100.0499923	100.0442977	100.0386082	100.0329238
240503A00047	5/3/2024	5.41	1/6/2025	100.53106	100.4248816	100.3189311	100.2132074	100.1077099	100.0024377	99.89739009	99.79256633	99.68796567
240503A00048	5/3/2024	5.35	2/3/2025	100.89026	100.7033415	100.5170998	100.3315286	100.1466245	99.96238369	99.77880274	99.59587805	99.41360612
240503A00050	5/3/2024	5.3	3/3/2025	101.24582	100.9778339	100.7112274	100.4459874	100.1821033	99.91956464	99.65836126	99.39848295	99.13991961
240503A00051	5/3/2024	5.26	4/1/2025	101.61371	101.2613856	100.9114207	100.5637952	100.2184858	99.87546947	99.5347234	99.19622516	98.85995262
240503A00052	5/3/2024	5.22	5/1/2025	101.98934	101.5493861	101.1131034	100.6804448	100.2513654	99.82582094	99.40376798	98.98516373	98.56996611
240506A00011	5/6/2024	4.46	5/4/2029	119.23272	114.5122755	110.0109528	105.7173953	101.6208961	97.7113556	93.97924447	90.41556799	87.01183345
240506A00012	5/6/2024	5.04	11/6/2025	104.22395	103.27145	102.3364413	101.4184407	100.5169864	99.63163307	98.76195137	97.90752703	97.06796028
240506A00016	5/6/2024	5.23	5/6/2025	102.01822	101.5807813	101.147109	100.7171507	100.2908587	99.86818625	99.44908719	99.03351624	98.62142887
240506A00020	5/6/2024	4.73	5/6/2027	110.89352	108.376992	105.9314329	103.5544375	101.2436953	98.99698778	96.81218403	94.68723684	92.62017882
240506A00031	5/6/2024	5.08	5/6/2025	101.98772	101.5499618	101.1159696	100.6856993	100.2591031	99.83613387	99.41674547	99.00089237	98.58852986
240506A00040	5/6/2024	5.21	5/6/2025	102.00951	101.5720958	101.1384457	100.7085095	100.2822395	99.85958885	99.44051149	99.02496211	98.61289618
240507A00017	5/7/2024	4.51	5/8/2028	115.05093	111.4369556	107.9585437	104.6098771	101.3854162	98.27988872	95.28827461	92.40579296	89.62788913
240507A00019	5/7/2024	4.51	5/8/2028	115.05093	111.4369556	107.9585437	104.6098771	101.3854162	98.27988872	95.28827461	92.40579296	89.62788913
240507A00020	5/7/2024	4.6	5/7/2027	110.79141	108.269178	105.8182456	103.4361862	101.1206738	98.8694753	96.6804459	94.55152531	92.48073375
240507A00021	5/7/2024	4.77	5/7/2026	106.45827	104.9945817	103.558465	102.1492071	100.7661185	99.40853312	98.07580691	96.76731717	95.48246157
240507A00034	5/7/2024	4.9	5/7/2026	106.5283	105.0659938	103.6312086	102.2232286	100.8413665	99.48495783	98.1533605	96.84595345	95.56213596
240507A00042	5/7/2024	4.57	5/7/2029	119.37131	114.6507728	110.149399	105.8558237	101.759333	97.84982157	94.1177544	90.55413207	87.15045769
240507A00043	5/7/2024	4.9	5/7/2026	106.5283	105.0659938	103.6312086	102.2232286	100.8413665	99.48495783	98.1533605	96.84595345	95.56213596

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11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240507A00048	5/7/2024	4.73	5/7/2027	110.90586	108.3864533	105.9381708	103.5585989	101.2454198	98.99640772	96.80942527	94.68241891	92.61341533
240507A00049	5/7/2024	4.64	5/8/2028	115.20691	111.5976141	108.1235136	104.7788083	101.5579806	98.45577823	95.46720019	92.58748335	89.81208975
240507A00051	5/7/2024	4.57	5/7/2029	119.37131	114.6507728	110.149399	105.8558237	101.759333	97.84982157	94.1177544	90.55413207	87.15045769
240508A00005	5/8/2024	4.59	5/8/2031	127.92542	120.8719492	114.2694422	108.0864762	102.2939799	96.86504603	91.77475865	87.00003649	82.51948873
240508A00006	5/8/2024	4.92	5/8/2026	106.57011	105.1047942	103.6671005	102.2563128	100.8717401	99.51271437	98.17859005	96.8687428	95.58256875
240508A00010	5/8/2024	5.48	12/9/2024	100.16926	100.1435156	100.1177985	100.0921094	100.0664483	100.0408152	100.01521	99.98963273	99.96408325
240509A00005	5/9/2024	4.62	5/9/2029	119.61798	114.8864413	110.3747569	106.0715189	101.9659693	98.04796148	94.30792273	90.73681828	87.32611847
240509A00007	5/9/2024	5.22	5/8/2025	102.07856	101.618459	101.1623872	100.7102875	100.262108	99.81779788	99.37730707	98.94058643	98.50758762
240509A00008	5/9/2024	4.6	5/10/2027	110.82806	108.2971805	105.838064	103.4482634	101.1254302	98.86731001	96.67173809	94.53663516	92.46000348
240509A00009	5/9/2024	5.33	3/13/2025	101.38501	101.0881342	100.7929604	100.499471	100.2076516	99.91748774	99.62896537	99.34207046	99.05678916
240509A00010	5/9/2024	4.6	5/10/2027	110.82806	108.2971805	105.838064	103.4482634	101.1254302	98.86731001	96.67173809	94.53663516	92.46000348
240509A00011	5/9/2024	5.37	2/12/2025	101.01165	100.7988487	100.5869241	100.3758753	100.1656969	99.9563834	99.74792946	99.5403297	99.33357884
240509A00022	5/9/2024	4.66	5/9/2028	115.28839	111.674938	108.1969178	104.8485213	101.6242169	98.51873966	95.52707673	92.6444537	89.86632209
240509A00023	5/9/2024	4.6	5/9/2029	119.52853	114.7989703	110.2891995	105.9878104	101.8840477	97.96776768	94.22939983	90.65991179	87.25077613
240509A00039	5/9/2024	4.87	11/10/2025	104.19046	103.2260479	102.2795705	101.3505264	100.438436	99.54283754	98.66328568	97.79935107	96.95061959
240510A00015	5/10/2024	4.91	11/10/2025	104.22869	103.2640816	102.3174099	101.3881739	100.4758942	99.58010878	98.70037232	97.83625541	96.98734389
240510A00016	5/10/2024	4.91	11/10/2025	104.22869	103.2640816	102.3174099	101.3881739	100.4758942	99.58010878	98.70037232	97.83625541	96.98734389
240510A00020	5/10/2024	4.63	5/10/2027	110.90201	108.3702122	105.9101928	103.5195089	101.1958114	98.93684552	96.74044583	94.60453255	92.52710742
240513A00020	5/13/2024	5.23	5/13/2025	102.10935	101.6523698	101.1994976	100.7506788	100.3058587	99.864984	99.42800213	98.9948615	98.56551143
240513A00022	5/13/2024	4.92	5/13/2026	106.63447	105.155172	103.7040027	102.2802277	100.8831375	99.51204637	98.16629193	96.84523374	95.54825251
240513A00024	5/13/2024	4.74	5/13/2027	111.0046	108.4676058	106.0026724	103.6073407	101.2792478	99.01612556	96.81579625	94.6761683	92.59523234
240513A00025	5/13/2024	4.67	5/12/2028	115.35968	111.7367268	108.2498581	104.8932184	101.661238	98.54861633	95.55030713	92.66150483	89.87763174
240513A00026	5/13/2024	4.6	5/14/2029	119.58655	114.8418292	110.3182185	106.0042087	101.888951	97.96221482	94.21434991	90.63624997	87.2193193
240513A00041	5/13/2024	5.06	11/13/2025	104.33456	103.3622408	102.4081298	101.4717216	100.5525257	99.65006967	98.76389816	97.8935723	97.03866888
240513A00045	5/17/2024	4.73	6/17/2027	111.42089	108.7811607	106.2187653	103.7309667	101.3151461	98.96879405	96.68950483	94.47497163	92.32298173
240514A00049	5/14/2024	4.84	2/5/2026	105.32279	104.1111503	102.9275309	101.7709643	100.640529	99.53534494	98.45457131	97.39740424	96.36307486
240514A00065	5/14/2024	4.59	5/14/2029	119.54169	114.7979624	110.2753141	105.9622342	101.8478751	97.92200769	94.17498292	90.59769565	87.18155131
240515A00002	5/15/2024	4.4	11/13/2028	116.92202	112.7419673	108.7383318	104.9027107	101.2271483	97.70410787	94.32644799	91.08739916	87.9805426
240515A00003	5/15/2024	4.36	5/15/2029	118.9092	114.165359	109.643212	105.3311912	101.2183968	97.29455164	93.54996239	89.97548333	86.56248251
240515A00014	5/15/2024	4.81	11/17/2025	104.22161	103.2377556	102.272553	101.3254782	100.396023	99.48369819	98.58803224	97.70857099	96.84487662
240515A00020	5/15/2024	5.45	1/15/2025	100.65275	100.5208412	100.3892842	100.2580782	100.1272217	99.99671344	99.86655187	99.7367356	99.60726319
240515A00023	5/15/2024	4.51	5/15/2029	119.19414	114.4553602	109.9376527	105.6294969	101.5200373	97.59903801	93.85684384	90.28434435	86.87294029
240515A00024	5/15/2024	4.59	5/15/2028	115.11748	111.49048	108.00006	104.6403285	101.405683	98.2907922	95.29058107	92.40021739	89.61509856

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240515A00026	5/15/2024	4.64	5/17/2027	110.80587	108.2604523	105.7876585	103.3849925	101.0500632	98.78057607	96.5743282	94.42920434	92.34317275
240515A00027	5/15/2024	4.5	5/19/2027	110.68901	108.1352858	105.6546648	103.2446288	100.9027635	98.62675234	96.41437155	94.26348622	92.17204592
240515A00034	5/15/2024	5.2	5/15/2025	102.12158	101.6590416	101.2007163	100.7465424	100.2964635	99.85042397	99.40836957	98.97024682	98.53600323
240515A00035	5/15/2024	4.57	5/15/2028	115.04778	111.4219937	107.9327527	104.5741676	101.340637	98.22683056	95.2276745	92.33833755	89.55421812
240515A00036	5/17/2024	4.63	6/17/2027	111.16414	108.5277451	105.9686063	103.4839916	101.0712843	98.72797713	96.45166645	94.24004741	92.09090919
240515A00037	5/15/2024	4.5	5/15/2029	119.14924	114.411467	109.8947231	105.5874982	101.4789384	97.55880885	93.81745576	90.24576984	86.83515296
240515A00038	5/15/2024	4.5	5/15/2029	119.14924	114.411467	109.8947231	105.5874982	101.4789384	97.55880885	93.81745576	90.24576984	86.83515296
240515A00039	5/15/2024	4.57	5/15/2030	123.56232	117.6789722	112.1217358	106.8707204	101.9073514	97.21427668	92.77527985	88.57520033	84.59985922
240515A00041	7/1/2024	4.69	7/1/2027	111.49653	108.8160931	106.2150044	103.6904247	101.2396356	98.86003395	96.54912584	94.30452136	92.12392948
240515A00043	5/15/2024	5.2	5/15/2025	102.12158	101.6590416	101.2007163	100.7465424	100.2964635	99.85042397	99.40836957	98.97024682	98.53600323
240515A00044	5/15/2024	4.97	11/14/2025	104.26069	103.2859972	102.3296153	101.39103	100.4697468	99.56528951	98.6771992	97.80503354	96.94836602
240515A00048	7/1/2024	4.55	7/2/2029	119.93794	115.0458713	110.3875327	105.9504472	101.7228748	97.69376298	93.85270288	90.18988782	86.69607535
240515A00050	7/1/2024	4.55	7/2/2029	119.93794	115.0458713	110.3875327	105.9504472	101.7228748	97.69376298	93.85270288	90.18988782	86.69607535
240515A00052	7/1/2024	4.79	7/3/2034	140.55087	129.7417025	119.9022982	110.9390619	102.7679415	95.31340767	88.5075469	82.28925594	76.60352502
240515A00064	5/15/2024	5.45	1/15/2025	100.65275	100.5208412	100.3892842	100.2580782	100.1272217	99.99671344	99.86655187	99.7367356	99.60726319
240515A00066	6/28/2024	4.8	6/29/2026	107.06584	105.4528836	103.8724391	102.3235943	100.8054673	99.31720866	97.85800013	96.42705303	95.02360697
240515A00067	6/28/2024	4.8	6/29/2026	107.06584	105.4528836	103.8724391	102.3235943	100.8054673	99.31720866	97.85800013	96.42705303	95.02360697
240515A00068	6/28/2024	4.8	6/29/2026	107.06584	105.4528836	103.8724391	102.3235943	100.8054673	99.31720866	97.85800013	96.42705303	95.02360697
240515A00089	5/15/2024	4.5	5/15/2029	119.14924	114.411467	109.8947231	105.5874982	101.4789384	97.55880885	93.81745576	90.24576984	86.83515296
240516A00024	5/16/2024	5.29	4/16/2025	101.81913	101.4235889	101.0310361	100.6414409	100.25477	99.87099021	99.49006928	99.1119752	98.7366765
240516A00025	5/17/2024	4.55	10/16/2028	116.84322	112.7524711	108.8310415	105.0710267	101.4649293	98.00563898	94.68641079	91.50084439	88.44286462
240516A00026	5/16/2024	5.21	5/20/2025	102.19098	101.71445	101.2423806	100.7747111	100.31138	99.85232679	99.39749235	98.9468185	98.50024815
240516A00030	5/16/2024	5	11/17/2025	104.32849	103.3451886	102.3805084	101.4339266	100.5049363	99.59304913	98.69779507	97.81872098	96.95539013
240516A00038	5/16/2024	4.9	5/18/2026	106.66928	105.1762087	103.7117763	102.2752262	100.8658304	99.48288545	98.12571193	96.79365319	95.48607447
240517A00011	5/17/2024	4.61	5/17/2028	115.21124	111.5771095	108.0800075	104.7140207	101.4735204	98.3531504	95.34781271	92.45265345	89.66304978
240517A00017	5/17/2024	4.4	5/17/2029	119.1117	114.3577909	109.8262433	105.5054431	101.3844472	97.45293815	93.70118548	90.12000886	86.70074431
240517A00026	5/17/2024	4.68	5/17/2027	110.90515	108.3584846	105.8844711	103.480612	101.1445155	98.87388621	96.66652053	94.5203025	92.43319966
240517A00033	5/17/2024	5.3	4/17/2025	101.83601	101.4375617	101.0421499	100.6497382	100.2602927	99.87377951	99.49016565	99.10941844	98.73150576
240517A00034	5/17/2024	5.02	11/17/2025	104.34799	103.3645806	102.3997997	101.4531184	100.5240299	99.61204586	98.71669615	97.83752762	96.97410351
240517A00038	5/17/2024	5.43	1/22/2025	100.74253	100.5905099	100.4389509	100.2878485	100.1372006	99.98700519	99.83726013	99.68796338	99.53911292
240520A00010	5/20/2024	5.35	3/20/2025	101.48163	101.164826	100.8499526	100.5369936	100.2259316	99.91674918	99.60942939	99.3039553	99.00031024
240520A00011	5/20/2024	5.25	5/20/2025	102.20995	101.7333646	101.2612433	100.7935222	100.3301397	99.87103559	99.41615054	98.96542641	98.51880611
240520A00012	5/20/2024	5.18	7/21/2025	102.96253	102.3126506	101.6710089	101.0374461	100.4118102	99.79395245	99.1837283	98.58099654	97.98561945

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240520A00016	5/20/2024	4.57	8/16/2027	111.966	109.1478457	106.416222	103.7679047	101.1998128	98.70900241	96.2926593	93.94809238	91.6727271
240520A00017	5/20/2024	4.94	4/15/2026	106.29607	104.896274	103.5218242	102.1720936	100.8464713	99.54436581	98.26520489	97.00843428	95.77351724
240520A00018	5/20/2024	4.84	10/15/2026	108.52339	106.6007458	104.7220789	102.8861219	101.0916521	99.33748971	97.62249624	95.94557246	94.30565694
240520A00020	5/20/2024	4.79	1/15/2027	109.60092	107.4136393	105.2815786	103.2029622	101.1760821	99.19929833	97.27103583	95.38978133	93.55408037
240520A00025	5/20/2024	4.75	4/15/2027	110.67668	108.221467	105.8340097	103.5120563	101.2534473	99.05610706	96.91804007	94.83732746	92.81212349
240520A00027	5/20/2024	4.7	10/15/2027	112.83944	109.8463818	106.9497828	104.146012	101.4315966	98.80321316	96.25768021	93.7919512	91.40310818
240520A00031	5/20/2024	4.96	9/19/2025	103.6151	102.7966539	101.9911907	101.1984018	100.4179891	99.64966383	98.8931461	98.14816469	97.41445659
240520A00040	5/20/2024	4.89	11/20/2025	104.33821	103.3454687	102.371699	101.4163642	100.4789435	99.55893536	98.65585693	97.76924305	96.89864551
240520A00041	5/20/2024	4.83	11/25/2026	109.03157	106.9902804	104.9982361	103.0539425	101.1559575	99.30289232	97.49340978	95.72622147	94.00008581
240521A00005	5/21/2024	5.04	11/21/2025	104.41967	103.424864	102.4491055	101.4918499	100.5525735	99.63077222	98.72596057	97.837671	96.96545299
240521A00006	5/21/2024	4.9	5/21/2026	106.70772	105.2062508	103.7337234	102.2893753	100.872467	99.48228433	98.11813744	96.77935983	95.46530728
240522A00012	5/22/2024	4.67	5/22/2028	115.48166	111.8290305	108.3145892	104.9323506	101.6766189	98.54197545	95.52326361	92.61557467	89.81423444
240522A00027	5/22/2024	4.62	5/21/2027	111.01236	108.449084	105.9593124	103.5405053	101.1902306	98.90615491	96.68603872	94.52773201	92.42917005
240522A00028	5/22/2024	5.48	12/23/2024	100.3491	100.2833421	100.2176776	100.1521102	100.0866397	100.0212658	99.95598842	99.89080723	99.82572206
240522A00037	5/22/2024	5.11	5/22/2025	102.20725	101.7246877	101.2467031	100.7732285	100.3042002	99.83955535	99.3792327	98.92317191	98.47131378
240522A00039	5/22/2024	4.76	5/24/2027	111.19064	108.6212697	106.1256998	103.701381	101.3458666	99.05680927	96.83195645	94.66914571	92.56630061
240523A00021	5/23/2024	4.96	11/24/2025	104.45928	103.4548488	102.4698213	101.5036383	100.5557616	99.62567369	98.71287616	97.81688922	96.93725068
240523A00025	5/23/2024	4.96	11/18/2025	104.38094	103.393486	102.4248038	101.4743599	100.5416418	99.62615574	98.72742646	97.84499593	96.97842271
240523A00027	5/23/2024	4.49	5/24/2029	119.59782	114.8135595	110.2538389	105.9068856	101.7616107	97.80756182	94.0348836	90.43428009	86.99698017
240523A00033	5/24/2024	4.8	12/24/2027	114.01547	110.8094227	107.7124671	104.720255	101.8286398	99.03366495	96.3315534	93.71869874	91.19165617
240523A00035	5/24/2024	4.78	11/24/2027	113.57495	110.4591293	107.4472076	104.5351315	101.7190336	98.99521915	96.36015686	93.81047101	91.3429335
240523A00037	5/24/2024	4.78	1/24/2028	114.34375	111.0467926	107.8643403	104.7917278	101.8245101	98.95845108	96.18951237	93.51384245	90.92776686
240523A00043	5/24/2024	4.81	2/24/2028	114.84862	111.4532969	108.1784572	105.0190734	101.9703668	99.02778928	96.18701042	93.44390562	90.79454464
240524A00001	5/24/2024	4.98	11/24/2025	104.47917	103.4746318	102.4894996	101.5232131	100.5752344	99.64504578	98.73214888	97.83606385	96.95632847
240524A00011	5/24/2024	5.02	5/19/2026	106.85972	105.3624772	103.8940009	102.453529	101.0403289	99.65369295	98.29293776	96.95740283	95.64644969
240524A00020	5/24/2024	5.31	5/19/2025	102.26068	101.7688889	101.2816978	100.7990405	100.3208539	99.8470759	99.37764577	98.91250371	98.45159109
240524A00027	5/24/2024	4.82	6/30/2027	111.8226	109.1406128	106.5379302	104.0117152	101.5592539	99.17794701	96.86530438	94.61893956	92.43656467
970806A00017	8/1/1997	7.02	7/23/2026	105.7588	104.855738	103.968909	103.0978673	102.2421803	101.4014314	100.5752196	99.76315876	98.96487651
970806A00018	8/1/1997	6.7	10/23/2026	106.29934	105.2656931	104.2517417	103.2569293	102.2807217	101.3226045	100.3820827	99.45867917	98.55193418
970806A00059	8/1/1997	8.25	9/22/2025	103.23535	102.7989649	102.3676171	101.9412055	101.5196361	101.1028174	100.6906601	100.2830776	99.87998516
ADV1006436	5/28/2024	5.272	6/30/2025	102.75218	102.1608157	101.5762646	100.9984141	100.4271493	99.86235827	99.30393121	98.75176098	98.20574279
ADV1006437	5/28/2024	4.799	6/28/2027	111.74181	109.0665821	106.4703518	103.9502954	101.5037135	99.12802107	96.82074105	94.57949942	92.40202007
ADV1006438	5/28/2024	4.644	5/29/2029	119.95981	115.1650598	110.5955651	106.2395009	102.0857277	98.1237464	94.34365862	90.73612874	87.2923491

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1006450	5/28/2024	5.047	5/28/2026	107.01867	105.4958312	104.0026992	102.5384752	101.1023921	99.69370918	98.31171149	96.95570836	95.62503248
ADV1006451	5/28/2024	5.204	11/28/2025	104.67583	103.6603428	102.6646567	101.6881949	100.7304037	99.79075021	98.86872194	97.96382542	97.07558548
ADV1006454	5/28/2024	5.333	5/28/2025	102.3557	101.8565799	101.3623415	100.8729096	100.3882144	99.90818728	99.4327609	98.9618693	98.49544775
ADV1006457	5/28/2024	5.436	1/28/2025	100.82069	100.6516291	100.4831218	100.315167	100.1477621	99.98090428	99.814591	99.64881956	99.48358731
ADV1006464	5/28/2024	5.174	5/28/2025	102.31642	101.8169434	101.3223531	100.8325792	100.3475513	99.86720076	99.39145993	98.92026262	98.45354387
ADV1006474	5/28/2024	5.044	5/28/2026	107.01415	105.4913515	103.9982542	102.5340644	101.0980148	99.6893649	98.30739967	96.95142844	95.62078395
ADV1006478	5/28/2024	4.775	5/30/2028	115.94952	112.2665762	108.7237138	105.3148232	102.0340998	98.87602316	95.83534143	92.9070567	90.0864113
ADV1006508	5/29/2024	4.746	9/12/2028	117.18093	113.1795648	109.3401589	105.6552324	102.1176975	98.72083373	95.45826612	92.32394562	89.31213028
ADV1006512	5/29/2024	4.762	7/17/2028	116.5205	112.6911713	109.0116482	105.4752074	102.0754648	98.80636004	95.66213754	92.63732951	89.72673963
ADV1006529	5/29/2024	5.175	5/29/2025	102.33	101.8277092	101.3303623	100.8378831	100.3502005	99.86724448	99.38894651	98.91523936	98.4460571
ADV1006532	5/29/2024	5.092	2/27/2026	105.8336	104.5592234	103.3157268	102.101993	100.9169605	99.75961809	98.62900132	97.52419023	96.44430666
ADV1006538	5/29/2024	4.952	11/25/2026	109.27616	107.2323556	105.2378551	103.2911541	101.3908092	99.53543032	97.7236789	95.95426529	94.22594671
ADV1006544	5/29/2024	5.306	5/29/2025	102.35552	101.8536341	101.3566809	100.8645854	100.3772766	99.89468488	99.41674187	98.9433806	98.47453536
ADV1006558	5/29/2024	5.422	12/30/2024	100.43373	100.3480012	100.2624179	100.1769776	100.0916801	100.006525	99.92151192	99.83664056	99.75191058
ADV1006559	5/29/2024	4.894	7/30/2027	112.403	109.6306756	106.9422207	104.3345547	101.8047353	99.34994889	96.96750354	94.654823	92.40944074
ADV1006562	5/29/2024	4.768	6/29/2029	120.9087	116.0029391	111.3309367	106.8802403	102.6391315	98.59657671	94.74218366	91.06616015	87.55927624
ADV1006570	5/29/2024	4.908	5/28/2027	111.61215	109.0264855	106.5153616	104.0761915	101.7064949	99.40389228	97.16610066	94.99092882	92.87627307
ADV1006582	5/30/2024	5.037	5/29/2026	107.01681	105.491278	103.9955538	102.5288361	101.0903538	99.67936271	98.29514429	96.93700457	95.60427309
ADV1006583	5/30/2024	4.859	5/28/2027	111.48905	108.9049466	106.3953527	103.957679	101.589446	99.28827534	97.05188485	94.87808429	92.7647708
ADV1006589	5/30/2024	5.268	5/30/2025	102.34967	101.8450341	101.3453825	100.8506398	100.3607338	99.87559383	99.3951506	98.91933609	98.44808361
ADV1006595	5/30/2024	5.031	5/29/2026	107.00776	105.4823022	103.9866477	102.5199986	101.0815837	99.67065883	98.28650554	96.92842987	95.59576138
ADV1006596	5/30/2024	4.859	5/28/2027	111.48905	108.9049466	106.3953527	103.957679	101.589446	99.28827534	97.05188485	94.87808429	92.7647708
ADV1006598	5/30/2024	4.783	5/30/2028	115.97773	112.2942897	108.7509447	105.341585	102.0604055	98.9018854	95.86077229	92.93206788	90.11101407
ADV1006599	5/30/2024	4.695	5/30/2029	120.20257	115.3995979	110.8223216	106.4588933	102.2981471	98.32955953	94.54320916	90.92973915	87.48032201
ADV1006606	5/30/2024	4.579	5/30/2029	118.06119	113.7312289	109.6004927	105.6585534	101.8955888	98.30234508	94.87010081	91.59063298	88.4561858
ADV1006633	5/31/2024	4.653	5/28/2027	111.18124	108.5966589	106.0867046	103.6487879	101.2804222	98.97922257	96.74290075	94.56926064	92.45619391
ADV1006634	5/31/2024	4.572	5/31/2028	115.54614	111.8599406	108.3142885	104.9030478	101.620383	98.46074438	95.41885302	92.48968571	89.6684611
ADV1006649	5/31/2024	5.135	5/30/2025	102.35666	101.8333082	101.3151469	100.8021038	100.2941036	99.79107234	99.29293738	98.79962762	98.31107327
ADV1006650	5/31/2024	4.854	5/29/2026	106.86408	105.3377205	103.8412123	102.3737569	100.9345814	99.52293986	98.13811208	96.7794025	95.44613915
ADV1006651	5/31/2024	5.134	5/30/2025	102.35616	101.8328047	101.3146483	100.8016102	100.2936149	99.79058846	99.29245829	98.79915327	98.31060362
ADV1006652	5/31/2024	4.854	5/29/2026	106.86408	105.3377205	103.8412123	102.3737569	100.9345814	99.52293986	98.13811208	96.7794025	95.44613915
ADV1006656	5/31/2024	4.99	5/29/2026	106.94594	105.4209656	103.9257859	102.4596017	101.0216424	99.61116412	98.22744861	96.86980222	95.53755477
ADV1006657	5/31/2024	4.811	5/28/2027	111.36844	108.7858787	106.2777834	103.8415738	101.4747713	99.17499874	96.93997499	94.76751073	92.65550407

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1006659	5/31/2024	4.732	5/31/2028	115.81023	112.1269863	108.5839512	105.1750132	101.8943576	98.73645452	95.69604344	92.76811832	89.94791392
ADV1006680	6/3/2024	4.924	6/3/2026	106.91871	105.3801247	103.8717875	102.3928811	100.9426169	99.52023381	98.12499741	96.75619851	95.41315221
ADV1006681	6/3/2024	4.731	6/3/2027	111.24893	108.6512192	106.1288224	103.6791135	101.2995718	98.98778021	96.74141992	94.55826614	92.43618344
ADV1006683	6/3/2024	4.637	6/5/2028	115.54397	111.8511771	108.2994287	104.8825529	101.5946822	98.43023765	95.38391303	92.45065972	89.62567285
ADV1006698	6/3/2024	5.407	1/3/2025	100.48375	100.3866421	100.2897221	100.1929895	100.0964436	100.0000839	99.90390986	99.80792091	99.71211652
ADV1006700	6/3/2024	5.362	3/3/2025	101.25554	100.9886099	100.7230481	100.4588474	100.1959972	99.93448731	99.67430742	99.4154474	99.15789721
ADV1006703	6/3/2024	5.223	6/3/2025	102.38482	101.8690534	101.3584888	100.8530525	100.3526675	99.85725809	99.36675031	98.88107158	98.40015074
ADV1006721	6/4/2024	5.207	6/4/2025	102.38909	101.8705482	101.3572672	100.8491708	100.3461804	99.84821935	99.35521229	98.86708546	98.38376653
ADV1006724	6/4/2024	4.536	6/4/2027	110.97885	108.3772937	105.8513369	103.3983318	101.0157434	98.70114075	96.45219253	94.26666181	92.14240183
ADV1006733	6/4/2024	5.194	6/4/2025	102.38237	101.8638487	101.3505876	100.8425109	100.3395402	99.8415986	99.34861087	98.86050323	98.37720336
ADV1006734	6/4/2024	4.987	12/4/2025	104.5436	103.5122691	102.5013846	101.5103387	100.5385504	99.58546144	98.65053477	97.73325386	96.83312159
ADV1006742	6/4/2024	4.992	12/4/2025	104.54871	103.5173553	102.5064432	101.5153701	100.5435549	99.59043945	98.65548664	97.73817993	96.83802219
ADV1006757	6/5/2024	4.883	12/5/2025	104.53273	103.4975093	102.48288	101.488235	100.512987	99.55657161	98.61844617	97.69808865	96.79499677
ADV1006758	6/5/2024	5.431	12/5/2024	100.10887	100.0946344	100.0804144	100.0662083	100.0520162	100.0378379	100.0236736	100.0095231	99.99538642
ADV1006759	6/5/2024	4.502	6/5/2029	119.40365	114.6014943	110.0259073	105.664953	101.5073848	97.54260613	93.76062854	90.15203397	86.70793899
ADV1006762	6/5/2024	5.197	6/5/2025	102.39639	101.8750649	101.3590591	100.8482942	100.3426905	99.84216989	99.34665587	98.85607343	98.37034909
ADV1006779	6/5/2024	5.052	6/5/2025	102.36247	101.8407402	101.3243469	100.8132051	100.3072348	99.80635767	99.31049685	98.81957711	98.33352471
ADV1006780	6/5/2024	4.435	6/1/2029	119.05249	114.2697598	109.7123435	105.368385	101.2267184	97.27682184	93.50877609	89.91322729	86.48135153
ADV1006781	6/5/2024	4.998	10/31/2025	104.11237	103.1769523	102.2584081	101.3562809	100.4701329	99.5995417	98.74409972	97.9034135	97.07710311
ADV1006782	6/5/2024	5.4	12/19/2024	100.28848	100.2343159	100.1802248	100.1262077	100.0722645	100.0183949	99.96459883	99.91087616	99.85722672
ADV1006791	6/6/2024	5.171	6/6/2025	102.39528	101.8711955	101.3524906	100.8390828	100.3308913	99.82783665	99.32984108	98.8368284	98.34872394
ADV1006792	6/6/2024	4.967	12/8/2025	104.57664	103.5340904	102.512426	101.5110262	100.5292913	99.56664498	98.62253324	97.69642337	96.78780294
ADV1006793	6/6/2024	4.835	6/8/2026	106.84874	105.2966419	103.7752028	102.2835908	100.821	99.38665291	97.97979963	96.59971626	95.24570392
ADV1006802	6/6/2024	4.287	6/6/2029	118.83029	114.0265064	109.4499591	105.0886534	100.9312883	96.96721651	93.18640345	89.57938838	86.13724865
ADV1006838	6/7/2024	4.941	1/7/2026	105.04395	103.9144403	102.8093464	101.7278812	100.6692911	99.63285449	98.61787972	97.62370377	96.64969068
ADV1006842	6/7/2024	5.458	12/9/2024	100.16113	100.1355064	100.1099057	100.0843331	100.0587883	100.0332713	100.0077822	99.98232079	99.95688709
ADV1006844	6/7/2024	4.772	6/7/2027	111.40334	108.7922568	106.2570913	103.7951864	101.4039927	99.08106583	96.82406157	94.63073096	92.49891584
ADV1006845	6/7/2024	4.686	6/7/2028	115.74194	112.039862	108.479322	105.0541152	101.7583475	98.58641505	95.53298823	92.59299661	89.7616148
ADV1006846	6/7/2024	4.579	6/7/2029	119.77704	114.9606786	110.3716798	105.9980497	101.8284951	97.85237589	94.05966325	90.44090156	86.98717242
ADV1006860	6/10/2024	4.544	6/10/2030	124.186	118.1956734	112.5415061	107.2027364	102.1599978	97.39521487	92.89151021	88.63311895	84.60530973
ADV1006862	6/10/2024	4.698	6/12/2028	115.84844	112.1301265	108.5543724	105.114915	101.8058003	98.62136848	95.55623781	92.60528909	89.76365141
ADV1006864	6/10/2024	4.684	6/10/2030	124.47271	118.4910751	112.8444811	107.5122666	102.4751551	97.71515337	93.21545924	88.96037685	84.93523799
ADV1006866	6/10/2024	4.751	6/10/2032	132.54619	124.2205855	116.5025836	109.3441325	102.701234	96.53358089	90.8042286	85.47929808	80.52770639

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ADV1006868	6/10/2024	4.737	6/10/2031	128.6389	121.4910954	114.8049067	108.5478197	102.6897837	97.20300996	92.0617892	87.24232603	82.72258676
ADV1006872	6/10/2024	4.778	6/10/2027	111.4574	108.8370776	106.2931101	103.8228174	101.423629	99.09308042	96.82880879	94.62854741	92.49012138
ADV1006873	6/10/2024	4.612	6/4/2029	119.89078	115.0805409	110.4970004	106.128225	101.9629706	97.99064168	94.20125093	90.58538075	87.13414777
ADV1006874	6/11/2024	4.614	6/1/2029	119.86335	115.0623918	110.4873754	106.1264172	101.968326	98.00255541	94.21916333	90.60877389	87.16254234
ADV1006899	6/11/2024	5.276	5/12/2025	102.14931	101.67939	101.2136868	100.7521428	100.2947024	99.8413108	99.39191441	98.94646047	98.50489717
ADV1006901	6/11/2024	5.24	6/11/2025	102.49425	101.9560647	101.423554	100.8966268	100.3751954	99.85917374	99.34847782	98.84302524	98.3427353
ADV1006912	6/11/2024	4.816	6/11/2026	106.98428	105.4205177	103.8877714	102.3851882	100.9119484	99.4672616	98.05036527	96.66052378	95.29702702
ADV1006931	6/12/2024	4.404	6/12/2029	119.03727	114.2231539	109.6370658	105.2669413	101.1014234	97.12981349	93.34202982	89.72856822	86.28046611
ADV1006934	6/12/2024	4.933	12/12/2025	104.59373	103.540001	102.5076138	101.4959195	100.504299	99.53215791	98.57892504	97.64405138	96.72700902
ADV1006935	6/12/2024	4.796	6/12/2026	106.84006	105.2767429	103.744432	102.2422751	100.7694523	99.3251727	97.90867365	96.51921919	95.15609899
ADV1006936	6/12/2024	4.561	6/14/2027	110.95349	108.3283124	105.7799111	103.3055754	100.9027115	98.56883306	96.30155659	94.09859614	91.95775874
ADV1006937	6/12/2024	4.656	6/12/2026	106.74976	105.1850683	103.6514395	102.1480238	100.6739989	99.2285718	97.81097768	96.42047861	95.05636236
ADV1006940	6/12/2024	5.018	10/1/2025	103.75078	102.8995763	102.0623854	101.2388634	100.428677	99.63150392	98.84703192	98.07495884	97.314992
ADV1006942	6/12/2024	4.955	11/28/2025	104.42962	103.4154684	102.4211022	101.4459417	100.4894336	99.55104552	98.6302653	97.72659989	96.83957449
ADV1006943	6/12/2024	5.018	10/1/2025	103.75078	102.8995763	102.0623854	101.2388634	100.428677	99.63150392	98.84703192	98.07495884	97.314992
ADV1006944	6/12/2024	5.018	10/1/2025	103.75078	102.8995763	102.0623854	101.2388634	100.428677	99.63150392	98.84703192	98.07495884	97.314992
ADV1006945	6/12/2024	5.018	10/1/2025	103.75078	102.8995763	102.0623854	101.2388634	100.428677	99.63150392	98.84703192	98.07495884	97.314992
ADV1006946	6/12/2024	5.143	6/12/2025	102.45458	101.9137639	101.3786755	100.8492269	100.3253289	99.80689442	99.29383799	98.786076	98.28352658
ADV1006947	6/12/2024	5.018	10/1/2025	103.75078	102.8995763	102.0623854	101.2388634	100.428677	99.63150392	98.84703192	98.07495884	97.314992
ADV1006948	6/12/2024	4.955	11/28/2025	104.42962	103.4154684	102.4211022	101.4459417	100.4894336	99.55104552	98.6302653	97.72659989	96.83957449
ADV1006949	6/12/2024	4.955	11/28/2025	104.42962	103.4154684	102.4211022	101.4459417	100.4894336	99.55104552	98.6302653	97.72659989	96.83957449
ADV1006950	6/12/2024	4.952	11/28/2025	104.4266	103.412467	102.4181168	101.4429721	100.4864796	99.54810698	98.62734198	97.72369157	96.836681
ADV1006953	6/12/2024	4.55	6/14/2027	110.92533	108.3005166	105.7524714	103.2784839	100.8759605	98.54241507	96.27546439	94.0728227	91.93229723
ADV1006954	6/12/2024	4.466	6/12/2028	115.02143	111.3177931	107.7563016	104.3307048	101.0350633	97.86373119	94.81134006	91.87278349	89.04320278
ADV1006955	6/12/2024	4.371	6/12/2029	118.88656	114.075853	109.4930518	105.1261013	100.9636494	96.995002	93.21008174	89.59938861	86.15396393
ADV1006956	6/12/2024	4.382	6/12/2029	118.9368	114.1249533	109.5410565	105.173048	101.009574	97.03993916	93.25406443	89.64244848	86.19613132
ADV1006960	6/12/2024	4.668	6/12/2026	106.76834	105.2034982	103.6697225	102.1661625	100.6919958	99.2464293	97.82869814	96.43806434	95.07381559
ADV1006962	6/12/2024	4.822	6/12/2026	106.88029	105.316649	103.7840203	102.2815513	100.8084217	99.36384053	97.94704503	96.55729908	95.19389223
ADV1006965	6/17/2024	4.601	7/1/2027	111.26732	108.589926	105.991812	103.4701403	101.0221946	98.64537351	96.33718507	94.09524111	91.91725231
ADV1006966	6/12/2024	4.44	6/12/2029	119.20167	114.3838458	109.794172	105.4205849	101.2517223	97.27688057	93.48597317	89.86949144	86.41846848
ADV1006967	6/12/2024	4.643	6/14/2027	111.16341	108.5355181	105.9844618	103.5075304	101.1021282	98.76576715	96.49606209	94.29072546	92.14756271
ADV1006968	6/12/2024	5.195	6/12/2025	102.48259	101.9416878	101.4065131	100.8769789	100.352996	99.83447719	99.32133708	98.81349204	98.31086019
ADV1006980	6/13/2024	4.665	6/15/2026	106.80253	105.2289622	103.6867314	102.1749683	100.6928396	99.23954198	97.8143009	96.41636914	95.04502564

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ADV1006988	6/13/2024	4.393	6/13/2029	118.99833	114.1822156	109.5943424	105.222633	101.0557144	97.0828728	93.29401273	89.67961734	86.23071234
ADV1006989	6/13/2024	4.955	12/15/2025	104.65685	103.594494	102.5538175	101.5341593	100.534886	99.55538913	98.59508463	97.65341108	96.72982883
ADV1006993	6/13/2024	5.413	12/13/2024	100.20986	100.1728649	100.1359145	100.0990086	100.062147	100.0253296	99.98855641	99.95182731	99.9151422
ADV1006998	6/13/2024	5.149	6/13/2025	102.47015	101.9265277	101.3886926	100.8565549	100.3300242	99.80901191	99.29343144	98.78319788	98.27822811
ADV1006999	6/13/2024	4.935	12/15/2025	104.63579	103.5735561	102.5329965	101.5134535	100.5142937	99.53490887	98.57471483	97.63315024	96.70967547
ADV1007000	6/13/2024	4.793	6/15/2026	106.87459	105.3025642	103.7618088	102.2514589	100.7706835	99.31868165	97.89468101	96.49793642	95.12772881
ADV1007001	6/13/2024	4.268	6/13/2029	117.56565	113.0490456	108.7445333	104.6408555	100.727421	96.99425844	93.43197648	90.03172662	86.78516873
ADV1007016	6/13/2024	4.324	6/13/2028	114.82971	111.1189047	107.5508172	104.1191638	100.8179703	97.64155865	94.58453017	91.6417502	88.80833365
ADV1007017	6/13/2024	4.543	8/4/2027	111.52345	108.7493625	106.0596033	103.4510661	100.9207791	98.46590092	96.08371389	93.77161764	91.52712313
ADV1007019	6/13/2024	4.42	6/14/2027	110.80562	108.1778316	105.6269916	103.1503871	100.7454151	98.40958125	96.14049396	93.93585983	91.79347885
ADV1007020	6/13/2024	4.251	2/2/2029	117.25439	112.8401188	108.6207151	104.5864649	100.7281944	97.0372386	93.50540951	90.12496707	86.88859188
ADV1007052	6/14/2024	4.323	6/14/2029	118.68918	113.8771794	109.293422	104.9258259	100.7630103	96.79425486	93.00945806	89.39909783	85.9541953
ADV1007058	6/14/2024	5.144	6/16/2025	102.50442	101.9524154	101.4063803	100.8662162	100.3318287	99.80312515	99.28001494	98.7624094	98.25022173
ADV1007059	6/14/2024	5.015	6/16/2025	102.47743	101.9249732	101.3784999	100.8379095	100.3031072	99.77400012	99.25049726	98.73250969	98.21995032
ADV1007060	6/14/2024	4.361	5/21/2029	118.59372	113.8517134	109.331857	105.0225305	100.9127861	96.99230284	93.25134759	89.68073849	86.27181079
ADV1007061	6/14/2024	4.959	12/15/2025	104.66038	103.5979984	102.5572932	101.5376069	100.5383059	99.558782	98.59845093	97.65675129	96.73314343
ADV1007063	6/14/2024	4.804	6/15/2026	106.89104	105.3188745	103.7779785	102.2674908	100.7865805	99.33444642	97.9103162	96.51344458	95.14311241
ADV1007066	6/14/2024	4.562	6/14/2027	110.95522	108.3300084	105.7815734	103.3072053	100.9043101	98.57040154	96.30309599	94.10010746	91.95924294
ADV1007068	6/18/2024	4.512	11/1/2027	112.49616	109.4614772	106.5260574	103.6861081	100.9380055	98.27828405	95.70362835	93.21086584	90.79695983
ADV1007070	6/14/2024	5.406	12/16/2024	100.248	100.2024605	100.1569798	100.1115577	100.0661939	100.0208882	99.97564072	99.93045117	99.88531949
ADV1007075	6/14/2024	4.422	6/14/2027	110.81015	108.1822916	105.6313907	103.1547268	100.7496971	98.41380694	96.14466476	93.93997713	91.79754396
ADV1007076	6/14/2024	4.562	6/14/2027	110.95522	108.3300084	105.7815734	103.3072053	100.9043101	98.57040154	96.30309599	94.10010746	91.95924294
ADV1007096	6/17/2024	4.852	6/17/2026	106.99206	105.413446	103.8662869	102.3497157	100.862894	99.40501337	97.97529473	96.57298638	95.19736306
ADV1007098	6/17/2024	4.614	6/17/2027	111.12579	108.4898512	105.9311559	103.4469771	101.0346985	98.69181254	96.41591587	94.20470371	92.05596533
ADV1007099	6/17/2024	4.522	6/20/2028	115.31865	111.5868284	107.9988613	104.5483966	101.2293961	98.03612192	94.96311965	92.00520246	89.15743654
ADV1007100	6/17/2024	4.415	6/18/2029	119.15586	114.3217734	109.7172977	105.3302532	101.1491737	97.16325988	93.36233683	89.73681439	86.27765049
ADV1007107	6/17/2024	4.278	6/18/2029	118.92447	114.0838379	109.4735173	105.0812742	100.8955931	96.90562889	93.10116459	89.47257094	86.01076966
ADV1007114	6/17/2024	4.74	6/18/2029	116.11254	112.3687303	108.7893863	105.3660819	102.0908793	98.95629545	95.95527294	93.08115337	90.32765222
ADV1007138	6/18/2024	5.439	12/12/2024	100.19679	100.1626639	100.1285795	100.0945351	100.0605306	100.0265661	99.99264131	99.95875628	99.92491091
ADV1007146	6/18/2024	4.482	6/20/2028	115.17506	111.4457987	107.8603191	104.4122717	101.0956208	97.90463107	94.83385028	91.87809389	89.03243022
ADV1007153	6/20/2024	4.502	2/25/2028	113.85853	110.4764309	107.214569	104.0679287	101.0317343	98.10144108	95.27272231	92.54145685	89.90371811
ADV1007157	6/18/2024	4.969	12/18/2025	104.71094	103.6399773	102.591036	101.5634399	100.5565408	99.5697167	98.6023701	97.65392717	96.72383642
ADV1007158	6/18/2024	5.434	12/18/2024	100.27443	100.2232113	100.1720598	100.1209769	100.0699625	100.0190163	99.96813821	99.91732814	99.86658593

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1007159	6/18/2024	5.336	3/18/2025	101.44449	101.1348142	100.8269961	100.5210175	100.2168618	99.91451264	99.61395391	99.31516962	99.01814401
ADV1007160	6/18/2024	4.638	1/19/2027	109.32639	107.1311409	104.9915339	102.9057713	100.8721246	98.88893439	96.95460749	95.06761344	93.22648157
ADV1007162	6/18/2024	5.159	6/18/2025	102.53739	101.9797725	101.4282403	100.8826961	100.3430422	99.80918353	99.28102676	98.75848066	98.24145592
ADV1007163	6/18/2024	5.032	6/18/2025	102.51126	101.9531839	101.4012052	100.8552264	100.3151499	99.78087986	99.25232291	98.72938744	98.21198385
ADV1007164	6/18/2024	5.032	6/18/2025	102.51126	101.9531839	101.4012052	100.8552264	100.3151499	99.78087986	99.25232291	98.72938744	98.21198385
ADV1007166	6/18/2024	4.965	12/18/2025	104.7067	103.6357579	102.5868403	101.5592676	100.5523916	99.56559017	98.59826599	97.64984517	96.71977624
ADV1007167	6/18/2024	4.805	6/18/2026	106.93165	105.3507049	103.8013001	102.2825577	100.7936359	99.33372335	97.90203778	96.49782468	95.12035609
ADV1007168	6/18/2024	4.556	6/18/2027	110.98904	108.3520319	105.7923752	103.3073302	100.8942747	98.55069579	96.27418505	94.06243289	91.91322412
ADV1007170	6/18/2024	5.434	12/18/2024	100.27443	100.2232113	100.1720598	100.1209769	100.0699625	100.0190163	99.96813821	99.91732814	99.86658593
ADV1007171	6/18/2024	5.265	4/18/2025	101.82888	101.4294285	101.033037	100.6396741	100.249305	99.8618957	99.4774124	99.09582199	98.71709182
ADV1007173	6/18/2024	4.389	6/20/2034	121.04365	115.4544618	110.2318965	105.3477185	100.7761094	96.49344432	92.47808961	88.71022027	85.17165573
ADV1007194	6/20/2024	5.425	12/20/2024	100.29933	100.2424235	100.1855981	100.1288521	100.0721852	100.0155972	99.95908807	99.90265757	99.84630553
ADV1007195	6/20/2024	5.331	3/20/2025	101.46904	101.1536779	100.8402358	100.5286994	100.2190513	99.9112744	99.60535158	99.30126607	98.99900128
ADV1007196	6/20/2024	5.165	6/20/2025	102.56549	102.0022648	101.4452521	100.8943444	100.3494415	99.8104454	99.27726009	98.74979179	98.22794867
ADV1007211	6/20/2024	4.562	9/27/2027	112.22732	109.2927016	106.4512779	103.6995811	101.0342929	98.45223643	95.95036944	93.5257778	91.17566937
ADV1007218	6/20/2024	4.777	8/20/2026	107.69117	105.9312712	104.2089163	102.5229673	100.8723332	99.25596733	97.67286433	96.1220586	94.60262207
ADV1007219	6/20/2024	4.682	12/21/2026	109.06111	106.9479675	104.8870484	102.8767103	100.9153795	99.00154291	97.13374546	95.31058718	93.53072079
ADV1007220	6/20/2024	4.59	6/21/2027	111.1135	108.4663703	105.8970471	103.4027735	100.9809052	98.62890857	96.34435544	94.1249178	91.96836299
ADV1007227	6/20/2024	4.835	6/22/2026	107.03109	105.4380997	103.8770033	102.346916	100.8469813	99.37637373	97.93429787	96.5199866	95.13270002
ADV1007228	6/20/2024	4.588	6/21/2027	111.10835	108.4612796	105.8920221	103.3978128	100.9760073	98.62407204	96.33957899	94.12020012	91.96370283
ADV1007230	6/20/2024	4.494	6/20/2028	115.21767	111.4876298	107.9013968	104.4526179	101.1352569	97.9435774	94.87212654	91.91571904	89.06942251
ADV1007240	6/20/2024	5.424	12/20/2024	100.29927	100.242361	100.1855359	100.1287901	100.0721235	100.0155358	99.95902699	99.90259676	99.846245
ADV1007258	6/21/2024	5.154	6/23/2025	102.59637	102.0247913	101.4595961	100.9006824	100.3479458	99.80128392	99.26059695	98.72578708	98.19675866
ADV1007267	6/21/2024	4.49	6/21/2028	115.21498	111.4821266	107.8932805	104.4420706	101.1224488	97.92866809	94.8552653	91.89704571	89.04906812
ADV1007272	6/21/2024	5.405	12/23/2024	100.33651	100.2710607	100.2057111	100.1404581	100.0753016	100.0102412	99.94527676	99.88040812	99.81563504
ADV1007273	6/21/2024	5.309	3/21/2025	101.47517	101.1570072	100.8407986	100.5265289	100.2141801	99.90373472	99.59517521	99.28848437	98.98364521
ADV1007274	6/21/2024	5.144	6/23/2025	102.59069	102.0191236	101.4539468	100.8950513	100.3423327	99.79568872	99.25501952	98.72022727	98.19121635
ADV1007299	6/24/2024	5.141	6/24/2025	102.6013	102.0269457	101.4590412	100.8974771	100.3421476	99.79294903	99.24978012	98.71254178	98.18113706
ADV1007300	6/24/2024	5.141	6/24/2025	102.6013	102.0269457	101.4590412	100.8974771	100.3421476	99.79294903	99.24978012	98.71254178	98.18113706
ADV1007302	6/24/2024	5.252	4/24/2025	101.90105	101.484522	101.0713155	100.661394	100.2547184	99.85125017	99.45095149	99.05378508	98.65971426
ADV1007304	6/24/2024	5.409	12/24/2024	100.34898	100.2807049	100.2125368	100.1444714	100.0765085	100.0086477	99.94088891	99.87323189	99.8056764
ADV1007305	6/24/2024	5.316	3/24/2025	101.51638	101.1896455	100.864972	100.5423387	100.2217262	99.90311547	99.58648789	99.27182488	98.95910816
ADV1007306	6/24/2024	5.14	6/24/2025	102.60073	102.0263763	101.4584735	100.8969113	100.3415836	99.79238687	99.24921975	98.71198318	98.18058023

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1007310	6/24/2024	5.207	5/27/2025	102.3084	101.7958093	101.2882194	100.7855616	100.2877644	99.79475745	99.30647203	98.82284053	98.3437967
ADV1007317	6/25/2024	4.989	12/26/2025	104.83874	103.7449522	102.6741051	101.6254784	100.5983844	99.59216345	98.60618276	97.63983481	96.69253623
ADV1007325	6/25/2024	5.406	12/18/2024	100.27114	100.2199814	100.1688894	100.1178658	100.0669106	100.0160236	99.96520458	99.91445353	99.86377025
ADV1007326	6/25/2024	5.271	4/15/2025	101.79038	101.4000191	101.0125861	100.6280513	100.2463823	99.867547	99.49151381	99.11825162	98.7477298
ADV1007329	6/25/2024	4.377	6/25/2029	119.0601	114.2080259	109.5872311	105.1854101	100.9909762	96.99301869	93.18126028	89.54601636	86.07815775
ADV1007332	6/25/2024	5.15	6/25/2025	102.61855	102.0413999	101.4707556	100.9065111	100.3485589	99.79679418	99.25111413	98.71141837	98.17760868
ADV1007335	6/25/2024	5.154	6/25/2025	102.62085	102.0436884	101.4730367	100.9087848	100.3508253	99.79905327	99.253366	98.71366307	98.17984628
ADV1007336	6/25/2024	5.155	6/25/2025	102.62142	102.0442606	101.473607	100.9093532	100.3513919	99.79961804	99.25392897	98.71422425	98.18040568
ADV1007342	6/25/2024	4.995	12/26/2025	104.84523	103.7514103	102.6805262	101.6318631	100.6047331	99.59847679	98.61246119	97.64607881	96.69874628
ADV1007349	6/25/2024	5.141	6/25/2025	102.61339	102.0362506	101.4656231	100.9013952	100.3434596	99.79171123	99.24604742	98.70636778	98.17257408
ADV1007351	6/25/2024	4.983	12/26/2025	104.83224	103.738494	102.6676839	101.6190937	100.5920356	99.58585011	98.59990433	97.63359081	96.68632618
ADV1007352	6/25/2024	4.827	6/25/2026	107.05685	105.4552032	103.8857235	102.3475088	100.8396915	99.3614358	97.91193631	96.49041658	95.09612781
ADV1007353	6/25/2024	4.575	6/25/2027	111.12338	108.4647638	105.8845346	103.3798972	100.9481791	98.58682016	96.29336704	94.06546816	91.90086864
ADV1007354	6/25/2024	5.395	12/26/2024	100.37343	100.2994716	100.2256263	100.1518964	100.0782815	100.0047814	99.93139578	99.85812441	99.78496703
ADV1007355	6/25/2024	5.31	3/25/2025	101.52743	101.1978611	100.8703864	100.5449856	100.2216392	99.9003276	99.58103165	99.2637324	98.94841111
ADV1007356	6/25/2024	5.141	6/25/2025	102.61339	102.0362506	101.4656231	100.9013952	100.3434596	99.79171123	99.24604742	98.70636778	98.17257408
ADV1007378	6/26/2024	4.529	6/26/2030	123.77748	117.7684839	112.0985913	106.7467453	101.6933116	96.91997224	92.40963009	88.14632134	84.11513439
ADV1007379	6/26/2024	4.573	6/26/2031	127.72361	120.5587973	113.8598646	107.593805	101.7301205	96.24062212	91.09924299	86.28186783	81.76617706
ADV1007380	6/26/2024	4.622	6/28/2032	131.7556	123.4068738	115.6714655	108.5005829	101.849576	95.67756155	89.94708631	84.62382223	79.67629014
ADV1007385	6/26/2024	4.302	6/26/2029	119.125	114.2566669	109.6208137	105.2050453	100.9976971	96.98778673	93.16497019	89.51950098	86.04219245
ADV1007401	6/27/2024	5.164	6/27/2025	102.65158	102.0687989	101.4926529	100.9230262	100.3598084	99.80289153	99.2521703	98.70754157	98.16890452
ADV1007406	6/27/2024	4.515	6/27/2028	115.37777	111.6248162	108.0171339	104.548273	101.2121116	98.0028337	94.91491216	91.94309225	89.08237674
ADV1007409	6/27/2024	5.168	6/27/2025	102.65389	102.0711093	101.4949557	100.9253215	100.3620961	99.80517191	99.25444333	98.70980731	98.17116303
ADV1007410	6/27/2024	4.998	12/29/2025	104.88898	103.7866232	102.7075538	101.6510353	100.6163647	99.60286831	98.60989975	97.63683879	96.68308995
ADV1007413	6/27/2024	4.827	6/29/2026	107.10952	105.4961924	103.915389	102.3661949	100.8477277	99.35913781	97.89960644	96.46834461	95.06459158
ADV1007414	6/27/2024	4.997	12/29/2025	104.88789	103.7855386	102.7064756	101.6499632	100.6152987	99.60180827	98.60884561	97.63579047	96.68204737
ADV1007421	7/1/2024	4.411	6/18/2029	119.14053	114.3069294	109.7029164	105.3163161	101.1356632	97.15015925	93.34963019	89.72448669	86.26568743
ADV1007425	6/27/2024	4.798	7/31/2026	107.47159	105.7680547	104.100075	102.4666041	100.8666339	99.29919565	97.76335794	96.25822507	94.78293516
ADV1007426	6/27/2024	4.473	6/28/2027	111.11242	108.4408072	105.8482299	103.3318648	100.8890075	98.51706804	96.21356506	93.97612039	91.80245408
ADV1007429	6/27/2024	4.826	6/29/2026	107.10793	105.494612	103.9138215	102.3646401	100.8461855	99.35760784	97.89808853	96.46683856	95.06309718
ADV1007430	6/27/2024	5.403	12/27/2024	100.38647	100.3096797	100.2330072	100.1564565	100.0800274	100.0037195	99.92753263	99.85146646	99.77552071
ADV1007432	6/27/2024	5.316	3/27/2025	101.55538	101.2201019	100.8869826	100.5560059	100.227151	99.90039767	99.57572578	99.25311547	98.93254714
ADV1007433	6/27/2024	5.178	6/27/2025	102.65969	102.0768852	101.5007127	100.9310596	100.3678156	99.81087286	99.26012591	98.71547166	98.1768093

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1007447	6/28/2024	4.576	6/28/2027	111.16249	108.4948746	105.9060756	103.393283	100.9538026	98.58505425	96.28456575	94.04996763	91.87898817
ADV1007449	6/28/2024	4.391	6/28/2029	119.15821	114.2952728	109.6644497	105.2533661	101.050379	97.04452574	93.22548108	89.58351606	86.10946049
ADV1007450	6/28/2024	5.396	12/30/2024	100.42426	100.3389176	100.2537199	100.1686647	100.0837515	99.9989801	99.9143501	99.82986118	99.74551299
ADV1007452	6/28/2024	4.403	6/28/2029	119.21353	114.3493311	109.7172905	105.3050315	101.1009093	97.09395961	93.27385547	89.63086637	86.15582065
ADV1007460	6/28/2024	5.027	6/30/2025	102.65527	102.0636445	101.4788457	100.9007589	100.3292691	99.76426366	99.20563267	98.65326861	98.10706641
ADV1007484	6/28/2024	5.035	6/30/2025	102.65998	102.0683315	101.4835171	100.9054148	100.3339097	99.76888905	99.21024298	98.65786397	98.11164693
ADV1007487	6/28/2024	5.085	9/30/2025	103.79047	102.9418153	102.1070853	101.2859385	100.4780447	99.68308462	98.90074919	98.13073901	97.37276411
ADV1007489	6/28/2024	4.799	8/14/2026	107.65085	105.9076992	104.2014877	102.5311086	100.8954961	99.29362709	97.72451895	96.18722726	94.68084409
ADV1007493	6/28/2024	5.371	1/28/2025	100.80247	100.634238	100.4665541	100.29942	100.1328331	99.96679073	99.80129016	99.63632878	99.47190395
ADV1007515	7/1/2024	5.041	1/2/2026	104.99707	103.8830465	102.7927797	101.7255185	100.6805388	99.65714708	98.65467801	97.67249351	96.7099812
ADV1007518	7/1/2024	5.194	7/1/2025	102.72559	102.1315774	101.5444433	100.9640727	100.3903493	99.82315911	99.26239101	98.70793626	98.15968859
ADV1007520	7/1/2024	5.064	7/1/2025	102.69597	102.1014612	101.5138533	100.9330224	100.3588517	99.79122692	99.23003653	98.67517144	98.12652506
ADV1007522	7/1/2024	4.894	7/1/2026	107.24828	105.6283198	104.041077	102.485631	100.9610918	99.46660217	98.00133661	96.56449948	95.15532375
ADV1007536	7/1/2024	5.393	1/2/2025	100.46253	100.3686788	100.2749987	100.1814927	100.0881602	99.99500083	99.90201405	99.80919936	99.71655631
ADV1007539	7/1/2024	5.39	1/2/2025	100.46224	100.3683854	100.2747068	100.1812022	100.0878711	99.99471312	99.90172773	99.80891444	99.71627277
ADV1007540	7/1/2024	5.318	4/1/2025	101.62135	101.2717697	100.9245343	100.5796202	100.2370041	99.89666316	99.55857478	99.22271671	98.88906696
ADV1007541	7/1/2024	5.18	7/1/2025	102.71731	102.1233211	101.5362145	100.9558712	100.3821748	99.8150114	99.2542699	98.69984154	98.15162005
ADV1007543	7/1/2024	5.329	3/14/2025	101.38653	101.0890018	100.7931908	100.4990842	100.2066671	99.9159248	99.62684294	99.33940719	99.05360343
ADV1007544	7/1/2024	5.286	4/18/2025	101.83442	101.4356313	101.039897	100.6471862	100.2574643	99.8706972	99.4868513	99.10589349	98.72779118
ADV1007585	7/2/2024	4.518	7/2/2029	119.79582	114.9071171	110.2520222	105.8180683	101.5935202	97.56733008	93.72909327	90.06900726	86.57783347
ADV1007586	7/2/2024	4.518	7/2/2029	119.79582	114.9071171	110.2520222	105.8180683	101.5935202	97.56733008	93.72909327	90.06900726	86.57783347
ADV1007610	7/3/2024	4.582	7/6/2027	111.28103	108.5897884	105.978546	103.4444303	100.9846887	98.59668534	96.27789615	94.02590263	91.83838692
ADV1007622	7/3/2024	4.58	7/6/2027	111.27579	108.5846156	105.9734409	103.4393915	100.9797145	98.5917745	96.2730472	94.02111422	91.83365773
ADV1007623	7/8/2024	4.946	1/8/2026	104.97334	103.8428176	102.7367708	101.6544127	100.5949866	99.55776773	98.54206161	97.54720252	96.57255198
ADV1007640	7/5/2024	5.39	12/26/2024	100.37066	100.2968112	100.2230754	100.1494547	100.0759489	100.0025577	99.92928083	99.85611804	99.78306907
ADV1007642	7/5/2024	5.34	2/5/2025	100.90049	100.7095347	100.5192928	100.3297597	100.1409313	99.95280386	99.76537328	99.57863573	99.39258733
ADV1007648	7/5/2024	4.367	7/5/2029	118.34358	113.6571345	109.194578	104.9438602	100.8936545	97.03330594	93.35278778	89.84266029	86.4940331
ADV1007651	7/5/2024	4.224	7/5/2029	118.86841	113.9805553	109.3272144	104.8958306	100.6745874	96.65236201	92.81868165	89.16368127	85.67806511
ADV1007656	7/5/2024	5.374	1/6/2025	100.51231	100.4071226	100.302158	100.1974182	100.0929024	99.98860984	99.88453977	99.78069147	99.6770642
ADV1007657	7/5/2024	5.262	4/7/2025	101.67995	101.3133448	100.9493305	100.5878778	100.2289596	99.87254932	99.51862067	99.16714772	98.81810493
ADV1007658	7/5/2024	5.098	7/7/2025	102.74227	102.1316778	101.5283626	100.9321982	100.3430579	99.76081781	99.18535687	98.61655698	98.0543027
ADV1007660	7/5/2024	4.343	7/6/2029	119.02989	114.1475507	109.4992067	105.0723316	100.8551441	96.83655433	93.0061199	89.35400404	85.87093731
ADV1007673	7/5/2024	4.194	7/5/2029	118.72924	113.8445758	109.1943133	104.7659011	100.5475268	96.52807256	92.69706943	89.04465641	85.5615415

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1007693	7/8/2024	4.357	4/9/2029	118.10889	113.4954512	109.093081	104.891005	100.8790529	97.0476227	93.38764608	89.89055588	86.54825598
ADV1007695	7/8/2024	4.378	1/10/2029	117.16499	112.8270294	108.6779538	104.7084776	100.9098229	97.273691	93.79223355	90.45802515	87.2640382
ADV1007696	7/8/2024	4.411	9/13/2028	115.91887	111.938647	108.119884	104.4551189	100.93728	97.55966165	94.31590302	91.19996837	88.2061284
ADV1007702	7/8/2024	4.744	1/8/2026	104.83733	103.7062734	102.5997345	101.5169211	100.4570744	99.419468	98.40340584	97.40822061	96.43327234
ADV1007703	7/8/2024	4.366	7/8/2027	110.95561	108.2584428	105.6417024	103.1024914	100.6380343	98.24567421	95.92286684	93.66717494	91.47626294
ADV1007706	7/8/2024	4.973	7/8/2025	102.72617	102.112247	101.5056873	100.9063583	100.3141311	99.72887962	99.15048087	98.5788147	98.01376376
ADV1007707	7/8/2024	4.973	7/8/2025	102.72617	102.112247	101.5056873	100.9063583	100.3141311	99.72887962	99.15048087	98.5788147	98.01376376
ADV1007720	7/9/2024	4.76	1/9/2026	104.86873	103.7347126	102.6253339	101.5397984	100.4773419	99.43723248	98.41876917	97.42127991	96.44412029
ADV1007722	7/9/2024	4.984	7/9/2025	102.74515	102.1284057	101.5190877	100.9170665	100.3222111	99.73439379	99.15348996	98.5793778	98.01193841
ADV1007723	7/9/2024	4.593	7/9/2026	106.9952	105.3532982	103.7448952	102.1690335	100.6247904	99.11127784	97.62764104	96.1730567	94.74673158
ADV1007732	7/9/2024	4.894	1/9/2026	104.92877	103.7957356	102.6872981	101.6026601	100.5410595	99.50176645	98.48408165	97.48733478	96.51088306
ADV1007736	7/9/2024	4.517	7/9/2027	111.14508	108.4473634	105.8300429	103.2902218	100.8251263	98.43210123	96.10860404	93.852199	91.66055199
ADV1007750	7/10/2024	5.273	4/10/2025	101.72232	101.347258	100.9749108	100.6052469	100.2382374	99.87385361	99.51206741	99.15285099	98.79617694
ADV1007757	7/10/2024	4.96	7/10/2025	102.7424	102.1229026	101.5109038	100.9062669	100.3088594	99.71855191	99.13521795	98.55873419	97.98898016
ADV1007760	7/10/2024	5.365	1/14/2025	100.61512	100.487201	100.3596158	100.2323644	100.1054452	99.97885699	99.85259843	99.72666817	99.60106488
ADV1007761	7/10/2024	4.57	7/10/2026	106.97001	105.3255923	103.7147643	102.1365626	100.5900606	99.07436676	97.58862295	96.13200263	94.70370954
ADV1007763	7/10/2024	5.37	1/10/2025	100.56325	100.4467341	100.3305007	100.2145451	100.0988664	99.98346344	99.86833527	99.75348085	99.63889916
ADV1007764	7/10/2024	5.327	2/12/2025	100.98867	100.7778099	100.5678197	100.3586973	100.1504373	99.9430344	99.73648315	99.5307783	99.32591459
ADV1007765	7/10/2024	5.275	4/9/2025	101.7099	101.3377325	100.9682335	100.6013767	100.2371337	99.87547652	99.51637763	99.15980988	98.80574649
ADV1007766	7/10/2024	5.108	7/9/2025	102.77196	102.1557366	101.5469266	100.9453987	100.3510226	99.76367089	99.18321935	98.60954659	98.04253407
ADV1007770	7/10/2024	4.353	7/12/2027	110.96792	108.2596059	105.6323051	103.0830875	100.6091479	98.20780154	95.87647807	93.61271556	91.41415527
ADV1007771	7/10/2024	4.96	7/10/2025	102.7424	102.1229026	101.5109038	100.9062669	100.3088594	99.71855191	99.13521795	98.55873419	97.98898016
ADV1007784	7/11/2024	5.301	1/15/2025	100.61945	100.488733	100.3583693	100.2283534	100.098684	99.96935953	99.84037863	99.7117399	99.58344191
ADV1007786	7/11/2024	4.084	7/11/2029	118.28039	113.3893029	108.7337508	104.301081	100.0793882	96.05746878	92.22477586	88.57137675	85.08791385
ADV1007787	7/11/2024	4.357	7/12/2027	110.75836	108.0575683	105.4374874	102.8952031	100.4279233	98.0329753	95.70780041	93.44994766	91.25706873
ADV1007788	7/11/2024	4.292	7/11/2028	114.73687	110.9565989	107.3240122	103.8324926	100.4757625	97.24786125	94.14312695	91.15617982	88.28190624
ADV1007789	7/11/2024	4.221	7/11/2029	118.51625	113.6317828	108.9821353	104.5547064	100.3376418	96.31978538	92.49063396	88.84029534	85.35944941
ADV1007791	7/11/2024	4.996	7/11/2025	102.72718	102.1056007	101.4915689	100.8849486	100.285606	99.69341028	99.10823382	98.52995207	97.95844338
ADV1007793	7/11/2024	4.233	5/9/2029	117.89074	113.1974765	108.7227647	104.4552526	100.3842347	96.49961442	92.79186618	89.25200033	85.87153008
ADV1007797	7/11/2024	4.612	6/30/2026	106.7829	105.1694936	103.5886503	102.0394506	100.5210102	99.03247712	97.57303089	96.14188062	94.73826388
ADV1007801	7/11/2024	4.829	11/28/2025	104.30309	103.2896279	102.2959366	101.3214419	100.3655906	99.4278507	98.50771007	97.60467589	96.71827356
ADV1007810	7/12/2024	4.851	7/14/2025	102.72237	102.0919279	101.4692574	100.8542108	100.2466484	99.64643375	99.05343378	98.46751862	97.88856149
ADV1007814	7/12/2024	4.764	1/12/2026	104.82206	103.6813578	102.5656042	101.4739852	100.4057223	99.36007005	98.33631462	97.33377193	96.35178617

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ADV1007817	7/12/2024	4.381	7/9/2027	110.78693	108.0939642	105.4812877	102.9460049	100.4853455	98.09665751	95.77740124	93.52514388	91.33755414
ADV1007822	7/12/2024	4.567	7/13/2026	106.86824	105.2187915	103.603115	102.0202367	100.469222	98.9491717	97.45922021	95.99853418	94.56631086
ADV1007827	7/12/2024	4.093	7/12/2029	118.33256	113.43748	108.7782349	104.3421425	100.1172775	96.0924182	92.25700066	88.60107665	85.11527412
ADV1007828	7/12/2024	4.233	7/12/2029	118.5824	113.6936367	109.0399948	104.6088515	100.3883324	96.3672628	92.53512217	88.88200243	85.3985687
ADV1007829	7/12/2024	4.234	7/12/2029	118.58705	113.6981791	109.044434	104.6131912	100.3925761	96.37141366	92.53918338	88.88597701	85.40245954
ADV1007830	7/12/2024	4.234	7/12/2029	118.58705	113.6981791	109.044434	104.6131912	100.3925761	96.37141366	92.53918338	88.88597701	85.40245954
ADV1007832	7/12/2024	5.388	12/12/2024	100.18891	100.1549149	100.120958	100.0870411	100.0531639	100.0193264	99.98552863	99.95177042	99.91805172
ADV1007834	7/12/2024	4.965	7/14/2025	102.74376	102.1138734	101.4917418	100.8772189	100.2701654	99.67044541	99.07792619	98.4924783	97.91397536
ADV1007838	7/12/2024	5.308	1/13/2025	100.59423	100.4692383	100.3445643	100.2202095	100.0961728	99.97245283	99.84904838	99.72595818	99.60318098
ADV1007857	7/15/2024	4.945	7/15/2025	102.74225	102.1096075	101.4847887	100.8676447	100.2580343	99.65581982	99.06086691	98.47304445	97.89222447
ADV1007865	7/15/2024	4.703	1/15/2026	104.79156	103.6427494	102.5192435	101.4202148	100.344868	99.29244219	98.26220854	97.25346898	96.26555448
ADV1007874	7/15/2024	4.332	7/15/2027	110.72557	108.016994	105.389556	102.8403181	100.3664659	97.96530652	95.63426172	93.37086242	91.17274321
ADV1007889	7/15/2024	4.252	3/12/2027	109.29555	106.9470204	104.6612289	102.4360824	100.2695722	98.15977151	96.10483157	94.10297751	92.15250498
ADV1007906	7/16/2024	4.081	7/16/2029	118.31759	113.4117223	108.7426751	104.2976898	100.0647693	96.03262565	92.19063391	88.52878974	85.03766942
ADV1007913	7/16/2024	4.594	1/16/2026	104.7721	103.61926	102.4918988	101.3891793	100.3102983	99.25448742	98.221011	97.20916432	96.21827212
ADV1007923	7/16/2024	4.075	7/16/2029	118.28957	113.3843557	108.715932	104.2715485	100.0392089	96.00762619	92.16617631	88.50485571	85.01424145
ADV1007924	7/16/2024	4.075	7/16/2029	118.28957	113.3843557	108.715932	104.2715485	100.0392089	96.00762619	92.16617631	88.50485571	85.01424145
ADV1007925	7/16/2024	4.545	7/16/2026	106.86763	105.2100295	103.5864799	101.9959957	100.4376305	98.91047412	97.41365056	95.94631652	94.50765986
ADV1007926	7/16/2024	4.942	7/16/2025	102.75228	102.1168531	101.4893109	100.86951	100.2573073	99.65256349	99.05514239	98.46491127	97.88174055
ADV1007927	7/16/2024	4.54	7/16/2026	106.85942	105.2018942	103.578413	101.9879961	100.429697	98.90260549	97.40584572	95.93857437	94.49997934
ADV1007928	7/16/2024	4.295	1/18/2028	112.73842	109.4834676	106.341324	103.3074061	100.3773488	97.5469913	94.81236595	92.16968806	89.61534614
ADV1007937	7/16/2024	5.265	1/16/2025	100.62634	100.492892	100.3598087	100.2270875	100.0947268	99.96272504	99.8310808	99.69979256	99.56885882
ADV1007938	7/16/2024	4.927	7/16/2025	102.74279	102.1073982	101.4798896	100.8601219	100.2479522	99.64324104	99.04585232	98.4556533	97.87251441
ADV1007939	7/16/2024	4.527	7/16/2026	106.83809	105.1807425	103.5574393	101.9671972	100.4090698	98.88214706	97.38555312	95.91844478	94.48001
ADV1007941	7/16/2024	4.12	7/17/2028	114.48445	110.6841948	107.0331771	103.5246813	100.1523331	96.91008199	93.79218243	90.79317662	87.90787822
ADV1007944	7/16/2024	4.512	7/16/2026	106.81348	105.1563367	103.5332389	101.9431984	100.3852692	98.85854118	97.36213859	95.89521834	94.45696845
ADV1007957	7/17/2024	4.221	7/19/2027	110.69722	107.9733015	105.3313358	102.7683408	100.2814619	97.86796775	95.52524422	93.25078837	91.04220287
ADV1007971	7/17/2024	4.949	7/17/2025	102.76844	102.130197	101.4999147	100.8774404	100.2626292	99.65533995	99.05543478	98.46277929	97.87724229
ADV1007997	7/18/2024	5.335	12/18/2024	100.26163	100.2106594	100.1597542	100.1089174	100.0581486	100.0074477	99.95681471	99.90624935	99.85575152
ADV1008000	7/23/2024	4.195	7/2/2029	118.29886	113.4442707	108.8221015	104.4199323	100.226077	96.22953436	92.41994423	88.78754619	85.32314175
ADV1008001	7/18/2024	4.526	7/20/2026	106.88402	105.2154303	103.5812659	101.9805265	100.41225	98.8755113	97.36942038	95.89312065	94.44578735
ADV1008005	7/18/2024	5.26	1/21/2025	100.68934	100.5416764	100.3944509	100.2476622	100.1013081	99.95538681	99.80989629	99.66483462	99.52019988
ADV1008006	7/18/2024	4.957	7/18/2025	102.78526	102.1442146	101.5111901	100.8860403	100.2686188	99.65878229	99.05639144	98.46131011	97.87340549

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1008008	7/18/2024	5.337	12/18/2024	100.26174	100.2107709	100.1598654	100.1090281	100.0582589	100.0075576	99.95692415	99.90635837	99.85586012
ADV1008009	7/18/2024	4.713	1/20/2026	104.86816	103.705058	102.5678786	101.4557617	100.3678835	99.30345648	98.26172657	97.2419719	96.24350095
ADV1008011	7/18/2024	4.532	7/20/2026	106.89393	105.2252573	103.5910097	101.9901885	100.4218318	98.8850142	97.37884577	95.90246986	94.45506167
ADV1008031	7/19/2024	4.252	7/19/2027	110.77927	108.0542353	105.4111823	102.8471255	100.3592093	97.94470173	95.60098786	93.32556404	91.11603224
ADV1008032	7/19/2024	4.839	7/21/2025	102.79635	102.14636	101.5046226	100.8709766	100.2452694	99.62735202	99.01707937	98.41430986	97.8189054
ADV1008041	7/19/2024	4.968	7/21/2025	102.82807	102.1786217	101.5374072	100.9042684	100.2790532	99.66161298	99.05180318	98.44948262	97.85451364
ADV1008042	7/19/2024	4.77	1/20/2026	104.93361	103.7701015	102.6325232	101.5200136	100.4317489	99.3669413	98.32483661	97.30471282	96.30587827
ADV1008082	7/22/2024	5.349	12/20/2024	100.28696	100.2303391	100.173798	100.1173359	100.0609525	100.0046476	99.9484212	99.89227302	99.83620291
ADV1008099	7/23/2024	4.563	7/23/2026	106.98039	105.3028245	103.6599778	102.050841	100.4744395	98.92983686	97.41613194	95.9324578	94.47797981
ADV1008100	7/23/2024	4.955	7/23/2025	102.84269	102.1876862	101.54105	100.9026241	100.2722526	99.64978325	99.035068	98.42796228	97.82832514
ADV1008102	7/23/2024	4.373	7/23/2027	110.92455	108.1914016	105.5406305	102.9692253	100.4743101	98.05313434	95.70306536	93.421583	91.20627373
ADV1008103	7/23/2024	4.746	1/23/2026	104.94476	103.7728803	102.6273007	101.5071396	100.4115564	99.33974678	98.29094163	97.2644045	96.2594302
ADV1008104	7/23/2024	4.563	7/23/2026	106.98039	105.3028245	103.6599778	102.050841	100.4744395	98.92983686	97.41613194	95.9324578	94.47797981
ADV1008109	7/23/2024	4.252	7/23/2029	117.54355	112.941816	108.5600331	104.386312	100.4094824	96.61904057	93.00510591	89.5583799	86.27010837
ADV1008134	7/24/2024	4.357	7/24/2026	106.78555	105.1046041	103.4585328	101.8463142	100.2669677	98.71955057	97.20315608	95.71691189	94.25997831
ADV1008144	7/24/2024	5.322	12/18/2024	100.25948	100.2085572	100.157699	100.106909	100.056187	100.0055329	99.95494647	99.9044277	99.85397639
ADV1008145	7/24/2024	4.328	7/26/2027	110.83842	108.0982434	105.4408486	102.8632096	100.3624291	97.93573601	95.58047871	93.29411908	91.07422671
ADV1008146	7/24/2024	4.302	11/29/2027	112.19495	109.0859008	106.0811546	103.1766239	100.3684068	97.65277614	95.02617082	92.4851872	90.02657129
ADV1008164	7/25/2024	4.773	10/24/2025	103.81522	102.900493	102.0019444	101.1191484	100.2516925	99.39917881	98.56122287	97.73745346	96.92751188
ADV1008166	7/25/2024	4.782	7/25/2025	102.8048	102.1437794	101.4912808	100.8471426	100.2112048	99.58331103	98.96330922	98.35105095	97.74639155
ADV1008181	7/25/2024	4.945	6/26/2025	102.51288	101.9333131	101.3603119	100.793767	100.2335695	99.67961314	99.13179382	98.59000985	98.05416176
ADV1008182	7/25/2024	4.912	7/25/2025	102.8377	102.1772265	101.5252583	100.8816345	100.2461953	99.61878504	98.99925196	98.38744815	97.78322937
ADV1008183	7/25/2024	4.912	7/25/2025	102.8377	102.1772265	101.5252583	100.8816345	100.2461953	99.61878504	98.99925196	98.38744815	97.78322937
ADV1008184	7/25/2024	4.912	7/25/2025	102.8377	102.1772265	101.5252583	100.8816345	100.2461953	99.61878504	98.99925196	98.38744815	97.78322937
ADV1008185	7/25/2024	4.918	7/25/2025	102.84164	102.1811541	101.5291716	100.8855335	100.2500802	99.62265592	99.00310897	98.39129141	97.787059
ADV1008186	7/25/2024	4.918	7/25/2025	102.84164	102.1811541	101.5291716	100.8855335	100.2500802	99.62265592	99.00310897	98.39129141	97.787059
ADV1008192	7/25/2024	4.92	7/25/2025	102.84296	102.1824633	101.530476	100.8868332	100.2513752	99.62394621	99.00439464	98.3925725	97.78833555
ADV1008195	7/25/2024	4.41	7/26/2027	111.0574	108.314251	105.6539612	103.0734943	100.5699511	98.14055827	95.78266232	93.49372323	91.27130881
ADV1008196	7/25/2024	4.232	7/26/2027	110.8041	108.0595332	105.3979862	102.8164171	100.3119176	97.88170583	95.52312035	93.23361361	91.01074632
ADV1008198	7/25/2024	4.133	7/25/2029	118.65354	113.7148564	109.0155241	104.5425963	100.2838999	96.22798517	92.36407799	88.68203625	85.17230911
ADV1008199	7/25/2024	4.931	7/25/2025	102.85019	102.189664	101.5376503	100.8939814	100.2584974	99.63104283	99.01146582	98.39961848	97.79535654
ADV1008208	7/26/2024	4.678	1/26/2026	104.90433	103.7244097	102.5711523	101.4436595	100.3410731	99.26257318	98.20737521	97.17472852	96.16391439
ADV1008214	7/26/2024	4.775	7/28/2025	102.83526	102.1658687	101.5052103	100.8531164	100.2094211	99.57396251	98.94658321	98.32712958	97.71545193

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1008216	7/26/2024	4.284	7/26/2029	117.84745	113.1122068	108.6037622	104.3098278	100.2188523	96.31997613	92.60298613	89.05827267	85.67679043
ADV1008218	7/26/2024	4.53	7/26/2033	134.86708	125.2816691	116.4859061	108.4096921	100.9895281	94.16785914	87.89248824	82.11605052	76.79554194
ADV1008219	7/26/2024	4.588	7/26/2035	142.07225	130.0924371	119.2905407	109.5423602	100.7374833	92.77768238	85.57550905	79.0530574	73.14087508
ADV1008220	7/26/2024	4.464	7/26/2032	130.82288	122.4306682	114.661006	107.4639224	100.7937242	94.60860769	88.87030685	83.54377655	78.59690504
ADV1008221	7/26/2024	4.2	7/26/2029	118.57321	113.6458308	108.9570578	104.4939942	100.2445122	96.19720415	92.34133499	88.66679919	85.16407999
ADV1008222	7/26/2024	4.478	7/27/2026	106.88613	105.1985261	103.5460047	101.9275399	100.342142	98.78885972	97.26677817	95.77501733	94.31273021
ADV1008223	7/26/2024	4.252	7/26/2028	114.7563	110.934309	107.2629784	103.7355004	100.3454138	97.086587	93.95319938	90.93972308	88.04090663
ADV1008224	7/26/2024	4.252	7/26/2028	114.7563	110.934309	107.2629784	103.7355004	100.3454138	97.086587	93.95319938	90.93972308	88.04090663
ADV1008225	7/26/2024	4.588	7/26/2035	142.07225	130.0924371	119.2905407	109.5423602	100.7374833	92.77768238	85.57550905	79.0530574	73.14087508
ADV1008226	7/26/2024	4.2	7/26/2029	118.57321	113.6458308	108.9570578	104.4939942	100.2445122	96.19720415	92.34133499	88.66679919	85.16407999
ADV1008228	7/26/2024	4.498	7/26/2034	128.46373	120.6318373	113.4313827	106.8049689	100.7008412	95.0722991	89.8771706	85.07734482	80.63835526
ADV1008229	7/26/2024	4.903	7/28/2025	102.86725	102.1984198	101.5383042	100.8867365	100.2435513	99.60858731	98.98168748	98.36269872	97.75147176
ADV1008231	7/26/2024	4.099	11/26/2029	119.77336	114.4583002	109.4172703	104.6346396	100.0957531	95.78686337	91.6950697	87.80826145	84.11506569
ADV1008232	7/26/2024	4.673	1/26/2026	104.89849	103.7186047	102.565383	101.4379252	100.3353734	99.2569075	98.20174304	97.16912935	96.15834773
ADV1008233	7/26/2024	4.475	7/27/2026	106.88112	105.1935567	103.5410778	101.9226548	100.337298	98.78405595	97.26201401	95.77029209	94.30804324
ADV1008245	7/29/2024	4.292	7/29/2027	110.77474	108.0272236	105.3629149	102.7787588	100.2718363	97.83935572	95.47864612	93.18715131	90.96242389
ADV1008247	7/29/2024	4.465	7/29/2026	106.88726	105.194229	103.5364712	101.9129494	100.3226661	98.76466263	97.23801712	95.74184292	94.27528675
ADV1008249	7/29/2024	4.664	1/29/2026	104.92611	103.7377735	102.5764741	101.4412918	100.3313514	99.24581626	98.18388668	97.14479743	96.12781609
ADV1008250	7/29/2024	4.466	7/29/2026	106.88894	105.1958907	103.5381186	101.9145828	100.3242858	98.76626881	97.23961001	95.74342275	94.27685375
ADV1008251	7/29/2024	4.752	7/29/2026	103.76904	102.8798339	102.0066427	101.1490248	100.3065526	99.47881457	98.6654146	97.86597111	97.08011643
ADV1008257	7/29/2024	4.184	7/30/2029	118.53924	113.6015826	108.9035012	104.4320232	100.1749493	96.12080578	92.25879717	88.57876218	85.07113276
ADV1008260	7/29/2024	4.444	7/29/2032	130.69706	122.3012344	114.5288893	107.3299333	100.6585647	94.47288336	88.73453904	83.40841216	78.46232552
ADV1008263	7/31/2024	4.308	5/25/2027	110.07123	107.5133091	105.0290299	102.6158431	100.2713037	97.99306607	95.77887949	93.62658333	91.53410302
ADV1008275	7/30/2024	4.123	7/31/2028	114.64812	110.806181	107.116358	103.5717479	100.1658007	96.89230219	93.74535476	90.71935874	87.80899569
ADV1008282	7/30/2024	5.22	1/31/2025	100.80782	100.6319258	100.4566328	100.2819367	100.1078345	99.93432314	99.76139968	99.58906114	99.4173046
ADV1008284	7/30/2024	5.177	2/14/2025	100.97807	100.762264	100.5473754	100.3333984	100.120327	99.90815555	99.69687819	99.48648926	99.27698309
ADV1008287	7/30/2024	5.062	3/31/2025	101.51483	101.1701462	100.8277577	100.4876373	100.1497625	99.81411118	99.48066159	99.14939214	98.82028156
ADV1008320	7/31/2024	4.126	7/30/2027	110.56363	107.8113738	105.1426468	102.5543801	100.0436375	97.60761127	95.2436155	92.9490798	90.72154342
ADV1008323	7/31/2024	4.191	7/31/2028	114.58601	110.7533845	107.0723264	103.5359596	100.1377649	96.87155661	93.73146395	90.71191245	87.80760727
ADV1008348	8/1/2024	4.031	2/1/2029	115.95792	111.5839654	107.4030407	103.4055312	99.58235762	95.92494323	92.42518306	89.07541497	85.86839275
ADV1008352	8/1/2024	4.511	2/2/2026	104.80163	103.6030454	102.4319827	101.2875015	100.168703	99.07472845	98.00475705	96.95800386	95.93371786
ADV1008361	8/1/2024	4.307	8/3/2026	106.68479	104.9800037	103.3109318	101.6765204	100.0757529	98.50765237	96.9712801	95.46573324	93.99014329
ADV1008370	8/1/2024	4.912	5/1/2025	101.84007	101.4065523	100.9766464	100.5503117	100.1275039	99.70817933	99.29229523	98.87980944	98.47068049

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1008374	8/1/2024	4.355	2/2/2026	104.71176	103.5122897	102.3403866	101.1951111	100.0755621	98.98087883	97.9102383	96.8628537	95.83797218
ADV1008382	8/2/2024	4.49	8/4/2025	102.67278	101.9854701	101.3073791	100.6383232	99.97812251	99.32660178	98.68359046	98.04892241	97.42243581
ADV1008387	8/2/2024	3.946	8/3/2026	106.21182	104.5087655	102.8414482	101.2088035	99.60981339	98.04349987	96.5089229	95.0051786	93.53139747
ADV1008388	8/2/2024	4.208	2/2/2026	104.44146	103.2451439	102.0763101	100.9340225	99.81738309	98.72553408	97.65765554	96.61296336	95.59070734
ADV1008389	8/2/2024	3.794	8/2/2029	116.73991	111.8358896	107.170712	102.7314073	98.50578342	94.48237504	90.6503962	86.99969598	83.52071745
ADV1008391	8/2/2024	3.99	9/16/2026	106.61456	104.789947	103.0055989	101.2603337	99.55301468	97.88254806	96.24788042	94.64799709	93.08192031
ADV1008393	8/2/2024	4.823	3/3/2025	101.10073	100.8369056	100.5744381	100.3133158	100.0535284	99.79506558	99.5379173	99.28207351	99.02752428
ADV1008394	8/2/2024	4.446	8/4/2025	102.64261	101.9554107	101.2774336	100.6084905	99.94840156	99.29699153	98.65408989	98.0195305	97.39315155
ADV1008396	8/2/2024	3.86	8/2/2028	113.38751	109.5715694	105.9069429	102.3867558	99.00448724	95.75395085	92.62927544	89.62488688	86.73549114
ADV1008398	8/2/2024	3.791	8/2/2029	116.72579	111.8220959	107.1572351	102.7182361	98.49290721	94.46978363	90.63807982	86.98764529	83.5089235
ADV1008399	8/2/2024	4.399	8/4/2025	102.66501	101.9770208	101.298275	100.6285826	99.96776321	99.31564102	98.67204493	98.0368083	97.4097688
ADV1008404	8/2/2024	3.886	8/2/2027	109.73083	106.9866171	104.3258701	101.7455135	99.24260799	96.81434312	94.45803059	92.17109799	89.95108288
ADV1008405	8/2/2024	4.049	8/3/2026	106.24843	104.5474488	102.8821166	101.2513779	99.65421778	98.08966139	96.55677152	95.05464703	93.58242097
ADV1008406	8/2/2024	4.505	8/4/2025	102.68307	101.9957176	101.3175878	100.6484935	99.98825465	99.33669619	98.69364748	98.05894238	97.43241907
ADV1008407	8/2/2024	3.891	8/2/2027	109.74431	106.9999119	104.338986	101.7584546	99.25537839	96.82694665	94.470471	92.18337892	89.96320786
ADV1008409	8/2/2024	4.031	8/3/2026	106.21799	104.5172706	102.8521992	101.2217167	99.62480836	98.06049923	96.52785232	95.02596659	93.55397523
ADV1008410	8/2/2024	3.883	8/2/2027	109.72274	106.9786403	104.3180005	101.7377488	99.23494575	96.80678101	94.45056635	92.16372943	89.94380789
ADV1008411	8/2/2024	3.804	8/2/2029	116.78698	111.8818686	107.2156349	102.7753114	98.54870414	94.52434643	90.6914508	87.03986494	83.5600306
ADV1008412	8/2/2024	4.943	2/3/2025	100.79428	100.610172	100.4267239	100.2439363	100.0618057	99.88032847	99.69950121	99.51932038	99.3397825
ADV1008413	8/2/2024	4.029	8/3/2026	106.2146	104.5139174	102.8488751	101.2184211	99.62154065	98.05725899	96.52463908	95.02277988	93.55081459
ADV1008414	8/2/2024	4.946	2/3/2025	100.79484	100.6107254	100.4272745	100.2444842	100.0623508	99.8808709	99.70004093	99.51985739	99.34031681
ADV1008415	8/2/2024	4.033	8/3/2026	106.22137	104.5206237	102.8555234	101.2250124	99.62807607	98.06373947	96.53106557	95.02915331	93.55713586
ADV1008416	8/2/2024	3.874	8/2/2027	109.69848	106.9547097	104.2943919	101.7144547	99.21195903	96.78409466	94.42817362	92.14162376	89.92198293
ADV1008417	8/2/2024	3.857	8/2/2028	113.3764	109.5606633	105.8962357	102.3762417	98.99416079	95.74380664	92.6193083	89.61509184	86.72586339
ADV1008418	8/2/2024	3.791	8/2/2029	116.72579	111.8220959	107.1572351	102.7182361	98.49290721	94.46978363	90.63807982	86.98764529	83.5089235
ADV1008419	8/2/2024	3.865	8/2/2027	109.67422	106.9307791	104.2707833	101.6911607	99.18897231	96.76140832	94.40578089	92.11951809	89.90015797
ADV1008420	8/2/2024	4.48	8/4/2025	102.66592	101.9786384	101.3005733	100.6315431	99.97136775	99.31987218	98.67688578	98.04224243	97.41578029
ADV1008424	8/2/2024	3.748	8/2/2028	113.28459	109.4623802	105.7919466	102.2663873	98.87915405	95.62403491	92.49513479	89.48685718	86.5938871
ADV1008425	8/2/2024	4.221	2/2/2026	104.45692	103.2604995	102.09157	100.9491883	99.83245622	98.74051601	97.67254768	96.62776708	95.60542396
ADV1008426	8/2/2024	3.679	8/2/2029	116.60118	111.6881444	107.0147682	102.5680236	98.33566181	94.30616543	90.46870012	86.81307023	83.32967737
ADV1008432	8/5/2024	3.693	8/5/2027	109.23889	106.4931988	103.8312622	101.2499859	98.74641222	96.31771393	93.9611869	91.67424399	89.45440899
ADV1008433	8/5/2024	5.203	12/5/2024	100.0895	100.0754077	100.0613258	100.0472576	100.0332032	100.0191626	100.0051358	99.99112265	99.97712322
ADV1008436	8/5/2024	5.06	1/15/2025	100.58176	100.4516548	100.3218965	100.1924844	100.0634171	99.93469324	99.80631132	99.67826997	99.55056778

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1008437	8/5/2024	4.732	5/5/2025	101.80906	101.3648132	100.9243785	100.4877047	100.0547437	99.62544847	99.19977242	98.77766993	98.35909614
ADV1008438	8/5/2024	4.458	8/12/2025	102.73625	102.0267402	101.327059	100.6370019	99.95637099	99.28497357	98.62262233	97.96913494	97.32433398
ADV1008441	8/5/2024	3.734	8/6/2029	116.4936	111.5842869	106.9146134	102.4715426	98.24281734	94.21691287	90.38298873	86.7308441	83.25087631
ADV1008442	8/5/2024	3.826	8/7/2028	113.31126	109.4830108	105.807033	102.2763891	98.88449745	95.6251152	92.49231872	89.48048508	86.58427484
ADV1008443	8/5/2024	3.838	9/7/2027	109.96261	107.116602	104.3596463	101.688397	99.09965563	96.5903657	94.15760564	91.79858159	89.51062084
ADV1008444	8/5/2024	3.836	10/5/2027	110.24131	107.3132297	104.4789952	101.7351045	99.0782021	96.50507556	94.01264839	91.59797362	89.25822763
ADV1008448	8/5/2024	3.892	8/5/2027	109.77693	107.0239049	104.354806	101.7665331	99.25612321	96.82074417	94.45768705	92.16436009	89.93828266
ADV1008449	8/5/2024	3.821	8/6/2029	116.90409	111.9852038	107.306301	102.8543262	98.61700825	94.58280877	90.74087448	87.08099239	83.59354825
ADV1008450	8/5/2024	3.892	8/5/2027	109.77693	107.0239049	104.354806	101.7665331	99.25612321	96.82074417	94.45768705	92.16436009	89.93828266
ADV1008451	8/5/2024	4.008	8/5/2031	124.33223	117.166758	110.4758226	104.2252548	98.38353219	92.92155597	87.81245164	83.03138755	78.55540898
ADV1008452	8/5/2024	3.976	8/5/2026	106.28342	104.5743066	102.9011325	101.2628271	99.65836401	98.08675712	96.54705891	95.03835837	93.55977922
ADV1008462	8/7/2024	3.893	8/2/2027	109.74846	107.0039963	104.3430018	101.7624031	99.25926068	96.83076387	94.47422422	92.18706919	89.96683617
ADV1008468	8/5/2024	4.047	8/5/2026	106.2658	104.5592416	102.8885287	101.2525964	99.65042182	98.08102217	96.54345302	95.03680631	93.56020856
ADV1008469	8/5/2024	4.42	8/5/2025	102.68966	101.998814	101.3172793	100.6448725	99.9814107	99.32671604	98.68061531	98.04293983	97.41352533
ADV1008471	8/5/2024	4.406	8/5/2025	102.68002	101.9892103	101.3077123	100.6353417	99.97191585	99.31725678	98.6711913	98.03355075	97.40417085
ADV1008472	8/5/2024	3.867	8/5/2027	109.70934	106.9572332	104.2890342	101.7016402	99.19208917	96.75754942	94.39531266	92.10278772	89.87749451
ADV1008476	8/5/2024	4.474	8/5/2025	102.67198	101.9819064	101.3011261	100.6294542	99.96670855	99.31271178	98.66729126	98.03027882	97.40151072
ADV1008490	8/6/2024	4.968	2/6/2025	100.83447	100.6418985	100.4500568	100.2589416	100.0685486	99.87887369	99.68991286	99.50166201	99.31411712
ADV1008499	8/6/2024	5.015	2/6/2025	100.84357	100.6509489	100.4590623	100.2679023	100.0774647	99.88774537	99.69874027	99.51044532	99.3228565
ADV1008502	8/6/2024	4.121	8/6/2026	106.40203	104.6915666	103.01707	101.3774675	99.7717313	98.19887443	96.65794826	95.14804076	93.66827474
ADV1008503	10/4/2024	3.864	10/4/2027	110.31199	107.3855994	104.5529174	101.8104446	99.15483356	96.58287936	94.09151261	91.677793	89.33890318
ADV1008505	8/6/2024	4.334	2/6/2026	104.63773	103.4291284	102.2485491	101.095021	99.96762086	98.86546683	97.78771647	96.73356449	95.7022407
ADV1008506	10/4/2024	3.867	10/4/2027	110.3206	107.3940826	104.5612795	101.8186884	99.16296196	96.59089506	94.09941826	91.68559117	89.34659634
ADV1008507	8/6/2024	5.011	2/6/2025	100.84279	100.6501787	100.4582959	100.2671397	100.0767059	99.88699034	99.697989	99.50969781	99.32211272
ADV1008508	8/6/2024	4.559	8/6/2025	102.74132	102.0482286	101.3645113	100.6899779	100.0244441	99.36773039	98.71966189	98.08006848	97.44878441
ADV1008509	8/6/2024	4.127	8/6/2026	106.41222	104.7016737	103.0270893	101.3874005	99.78157967	98.20863959	96.66763165	95.1576438	93.6777988
ADV1008510	8/6/2024	3.806	8/6/2029	117.23789	112.2989019	107.6011122	103.13139	98.87739044	94.827507	90.97082285	87.2970658	83.79656649
ADV1008511	8/6/2024	3.955	8/6/2027	109.95741	107.199195	104.5251124	101.9320518	99.41704138	96.9772398	94.60992985	92.3125119	90.08249786
ADV1008512	8/6/2024	3.806	8/6/2029	117.23789	112.2989019	107.6011122	103.13139	98.87739044	94.827507	90.97082285	87.2970658	83.79656649
ADV1008517	8/6/2024	4.462	8/6/2025	102.72936	102.0356096	101.3512471	100.676087	100.0099444	99.35263923	98.70399607	98.06384426	97.43201757
ADV1008522	8/6/2024	4.109	8/7/2026	106.39246	104.6793836	103.0023662	101.3603335	99.75225391	98.17713649	96.6340291	95.12201634	93.64021779
ADV1008523	8/6/2024	3.939	8/6/2027	109.91411	107.156483	104.4829773	101.8904805	99.37602076	96.93675737	94.56997347	92.27306979	90.04355861
ADV1008531	8/7/2024	4.353	2/9/2026	104.69554	103.4782944	102.2894592	101.1280469	99.99311493	98.88376371	97.79913401	96.7384047	95.70079073

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1008545	8/7/2024	4.577	8/7/2025	102.76422	102.0682935	101.3818189	100.7046022	100.0364567	99.37720064	98.72665726	98.0846543	97.4510241
ADV1008546	8/7/2024	4.17	8/7/2026	106.49572	104.7817321	103.1038168	101.4609024	99.85195698	98.27598913	96.73204625	95.21921256	93.73660723
ADV1008547	8/7/2024	3.99	8/9/2027	110.08286	107.3147382	104.6312381	102.029222	99.50569365	97.05778902	94.68276947	92.37801522	90.14101922
ADV1008557	8/7/2024	4.096	8/7/2026	106.36977	104.6568866	102.9800577	101.3382103	99.7303128	98.15537445	96.6124431	95.10060344	93.61897513
ADV1008570	8/8/2024	3.887	8/8/2029	117.63993	112.6859773	107.9740714	103.4910196	99.22442599	95.16263666	91.29469069	87.61027499	84.09968219
ADV1008575	8/8/2024	5.037	2/10/2025	100.89668	100.6927009	100.4895449	100.2872057	100.0856784	99.88495798	99.68503962	99.48591845	99.28758965
ADV1008577	8/8/2024	4.076	8/10/2026	106.50728	104.7826368	103.0944544	101.4416394	99.82314422	98.23796253	96.68512774	95.16371073	93.67281809
ADV1008595	8/9/2024	3.986	8/9/2027	110.072	107.3040286	104.6206736	102.0187992	99.49540937	97.04764006	94.67275279	92.36812785	90.13125828
ADV1008596	8/9/2024	4.59	8/11/2025	102.81771	102.1105901	101.4132305	100.7254248	100.0469774	99.37769769	98.71740049	98.06590541	97.42303693
ADV1008597	8/9/2024	4.591	8/11/2025	102.81841	102.1112922	101.4139298	100.7261214	100.0476713	99.37838898	98.71808915	98.06659146	97.42372041
ADV1008598	8/9/2024	4.551	9/19/2025	103.22241	102.4065685	101.6036624	100.8133862	100.0354429	99.26954492	98.51541362	97.77277881	97.04137857
ADV1008611	8/12/2024	5.055	2/12/2025	100.92425	100.71467	100.5059561	100.2981048	100.0911107	99.88496837	99.67967257	99.47521801	99.2715995
ADV1008612	8/12/2024	4.364	2/12/2026	104.74394	103.5181028	102.3210717	101.1518351	100.0094316	98.89294346	97.80149468	96.73424826	95.69040418
ADV1008616	8/12/2024	4.385	8/12/2026	103.49653	102.6147815	101.7490425	100.8988687	100.0638305	99.24351429	98.43752205	97.64547045	96.86699016
ADV1008617	8/12/2024	4.497	8/12/2025	102.8188	102.1081914	101.4074306	100.7163178	100.0346544	99.36224702	98.69890771	98.04445351	97.39870636
ADV1008618	8/12/2024	4.287	2/12/2026	104.74833	103.5209674	102.3224677	101.1518206	100.0080619	98.89027153	97.79757093	96.72912082	95.68411905
ADV1008646	8/13/2024	3.838	8/13/2029	117.04903	112.1074025	107.4076457	102.9365583	98.68173454	94.63151215	90.77492386	87.10165157	83.60198423
ADV1008647	8/13/2024	3.885	8/13/2027	109.83766	107.061985	104.3714544	101.7628973	99.23328888	96.77973863	94.39948289	92.08987846	89.84839634
ADV1008648	8/15/2024	3.881	8/16/2027	109.85659	107.072484	104.3739733	101.7578675	99.22111824	96.76081303	94.3741676	92.05851935	89.81132103
ADV1008666	8/14/2024	4.249	2/17/2026	104.66127	103.4221864	102.2125471	101.0313071	99.87747342	98.75009874	97.64827904	96.5711511	95.51789025
ADV1008670	8/14/2024	4.054	8/14/2026	106.3717	104.6398592	102.9447538	101.285281	99.66038048	98.06903455	96.51026548	94.98313379	93.48673623
ADV1008677	8/14/2024	4.411	8/14/2025	102.77883	102.0628811	101.3569378	100.6607892	99.974232	99.2970686	98.6291067	97.97015926	97.32004428
ADV1008678	8/14/2024	4.496	8/14/2025	102.78259	102.0673626	101.3621225	100.6666572	99.98076403	99.304246	98.63691141	97.97857376	97.32905162
ADV1008686	8/14/2024	3.893	8/16/2027	109.88939	107.1048344	104.4058824	101.7893454	99.25217502	96.79145832	94.40441074	92.0883694	89.84078677
ADV1008705	8/15/2024	5.059	2/18/2025	100.99873	100.7721323	100.5465439	100.3219597	100.098373	99.87577719	99.65416558	99.43353162	99.21386881
ADV1008713	8/15/2024	3.965	8/15/2029	116.87537	112.1306887	107.6174722	103.3230649	99.23557675	95.34382993	91.6373124	88.10613444	84.74098838
ADV1008716	8/15/2024	4.461	12/18/2025	104.17242	103.1045225	102.0586024	101.0339841	100.0300205	99.04609046	98.08159761	97.13596902	96.2086541
ADV1008717	8/15/2024	4.437	1/15/2026	104.48877	103.341791	102.2200895	101.1228377	100.0492411	98.99853921	97.97000401	96.96293804	95.97667288
ADV1008720	8/15/2024	4.228	8/17/2026	106.70462	104.9616986	103.2558575	101.5859823	99.95099897	98.34987656	96.78162506	95.24529322	93.73996668
ADV1008726	8/15/2024	5.257	12/19/2024	100.26321	100.2096359	100.1561306	100.1026986	100.0493395	99.99605338	99.94283997	99.88969915	99.83663075
ADV1008743	8/16/2024	4.747	6/17/2025	102.29771	101.7436079	101.1955319	100.6533798	100.1170556	99.58646542	99.06151745	98.54212178	98.02819045
ADV1008752	8/19/2024	5.264	12/20/2024	100.2752	100.2188278	100.1625328	100.1063165	100.0501785	99.99411876	99.9381371	99.88223333	99.82640731
ADV1008753	8/19/2024	5.169	1/16/2025	100.60569	100.4729461	100.3405591	100.2085322	100.0768639	99.9455528	99.81459728	99.6839959	99.55374718

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1008754	8/19/2024	5.074	2/13/2025	100.93918	100.7269319	100.5155753	100.3051038	100.0955118	99.88679373	99.67894405	99.4719573	99.26582807
ADV1008766	8/26/2024	4.144	8/26/2026	106.65576	104.8889126	103.1600306	101.4679574	99.81158146	98.18983675	96.60169986	95.04618805	93.52235715
ADV1008768	8/26/2024	3.971	8/26/2027	110.20451	107.3883292	104.6593722	102.0143568	99.4501532	96.96377205	94.55235704	92.21317782	89.94362338
ADV1008771	8/19/2024	3.982	8/19/2027	110.16334	107.3668177	104.6564462	102.0290025	99.48141234	97.0107381	94.61417223	92.28903009	90.0327437
ADV1008800	8/20/2024	3.845	8/20/2029	117.14723	112.1839619	107.4644207	102.9752592	98.70393755	94.63867064	90.76837786	87.08263688	83.57164061
ADV1008813	8/20/2024	5.226	12/20/2024	100.27269	100.216327	100.1600473	100.1038461	100.0477233	99.9916787	99.93571216	99.8798235	99.82401255
ADV1008819	8/20/2024	4.106	8/20/2026	106.52534	104.7758963	103.0637994	101.3879224	99.74717957	98.14052909	96.56697047	95.02554266	93.51532203
ADV1008823	8/21/2024	4.976	2/21/2025	101.01515	100.7802874	100.5465038	100.3137963	100.0821574	99.85157971	99.62205598	99.39357894	99.16614141
ADV1008825	8/21/2024	4.509	8/21/2025	102.86666	102.1318937	101.4076503	100.6937076	99.98984676	99.29585478	98.61152482	97.93665573	97.27105192
ADV1008826	8/21/2024	4.509	8/21/2025	102.86666	102.1318937	101.4076503	100.6937076	99.98984676	99.29585478	98.61152482	97.93665573	97.27105192
ADV1008827	8/21/2024	4.231	2/23/2026	104.707	103.4510854	102.2253988	101.028857	99.86042801	98.71912813	97.60401908	96.51420546	95.4488323
ADV1008829	8/21/2024	4.056	8/21/2026	106.4486	104.6971444	102.9831274	101.3054123	99.66290962	98.05457379	96.479401	94.93642699	93.42472507
ADV1008832	8/21/2024	3.867	8/23/2027	109.88768	107.0840727	104.3671316	101.733602	99.18038086	96.70450399	94.30313881	91.97357728	89.71322943
ADV1008835	8/21/2024	4.973	2/21/2025	101.01445	100.7795877	100.5458077	100.3131036	100.0814682	99.85089396	99.62137366	99.39290004	99.16546592
ADV1008837	8/21/2024	4.507	8/21/2025	102.8652	102.130436	101.4061984	100.6922616	99.98840645	99.29442018	98.61009586	97.93523235	97.26963407
ADV1008841	8/21/2024	4.884	3/21/2025	101.32965	101.0150016	100.7022882	100.3914923	100.0825961	99.77558218	99.47043334	99.16713253	98.86566293
ADV1008842	8/21/2024	4.074	8/21/2026	106.47992	104.7281845	103.0138916	101.3359055	99.69313674	98.08453956	96.50911003	94.96588375	93.45393393
ADV1008843	8/21/2024	4.244	2/23/2026	104.72319	103.4671731	102.2413817	101.0447369	99.8762065	98.73480689	97.61959972	96.52968954	95.46422133
ADV1008846	8/21/2024	4.493	8/21/2025	102.85495	102.1202318	101.3960354	100.6821392	99.97832435	99.28437795	98.60009312	97.92526871	97.25970915
ADV1008855	8/22/2024	4.962	2/24/2025	101.048	100.8046271	100.5624171	100.3213575	100.0814399	99.84265628	99.60499865	99.36845902	99.1330295
ADV1008861	8/22/2024	4.111	8/24/2026	106.57679	104.816066	103.0930966	101.406733	99.75587272	98.13945781	96.55647275	95.00594221	93.48692902
ADV1008862	8/22/2024	3.953	8/23/2027	110.12439	107.317505	104.5973572	101.9606961	99.40441606	96.92555079	94.52126545	92.1888499	89.92571215
ADV1008865	8/22/2024	5.166	12/20/2024	100.26862	100.2122918	100.1560392	100.0998651	100.0437694	99.98775177	99.9318122	99.87595046	99.82016641
ADV1008866	8/22/2024	4.983	2/21/2025	101.01659	100.7817456	100.5479854	100.3153012	100.0836854	99.85313086	99.6236301	99.39517593	99.16776117
ADV1008867	8/22/2024	4.765	5/21/2025	102.00726	101.5178104	101.0329918	100.5527355	100.0769774	99.60565428	99.1387044	98.67606698	98.21768242
ADV1008875	8/22/2024	4.288	2/23/2026	104.77801	103.5216239	102.2954778	101.0984841	99.92961063	98.78787348	97.6723342	96.58209718	95.51630728
ADV1008895	8/23/2024	4.498	8/25/2025	102.90205	102.156159	101.4211031	100.6966512	99.98257462	99.27865143	98.58466583	97.90040814	97.22567454
ADV1008903	8/23/2024	4.418	8/25/2025	102.90187	102.1551966	101.4193849	100.6941989	99.97940918	99.27479314	98.5801343	97.89522238	97.21985295
ADV1008905	8/23/2024	3.952	8/24/2026	106.4412	104.6791901	102.9550094	101.2675034	99.61556638	97.9981376	96.41419881	94.86277208	93.34291783
ADV1008907	8/26/2024	5.046	1/16/2025	100.58759	100.455033	100.3228396	100.1910058	100.05953	99.92841088	99.79764685	99.66723643	99.53717815
ADV1008938	8/26/2024	3.994	8/26/2026	106.3927	104.6282312	102.9016842	101.2119034	99.5577786	97.93824483	96.35227978	94.79890178	93.27716765
ADV1008945	8/26/2024	3.761	8/26/2027	109.85357	107.0372123	104.3082189	101.6633024	99.09932394	96.61328593	94.20232421	91.86370109	89.59479868
ADV1008946	8/26/2024	3.841	8/26/2027	109.84562	107.0344381	104.3103564	101.6701019	99.11054839	96.62871002	94.22173384	91.88689269	89.62157867

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1008967	8/26/2024	4.397	8/26/2025	102.89646	102.1470621	101.4086002	100.6808398	99.96354916	99.25650332	98.55948358	97.87227748	97.19467853
ADV1008968	8/26/2024	4.95	2/26/2025	101.06842	100.8194975	100.571784	100.3252705	100.0799483	99.83580875	99.59284336	99.35104367	99.11040133
ADV1008970	8/26/2024	4.476	8/26/2025	102.8959	102.1472812	101.4095816	100.6825616	99.96599034	99.25964335	98.56330267	97.87675649	97.19979891
ADV1008974	8/26/2024	4.187	2/26/2026	104.68586	103.421823	102.1884063	100.9845038	99.80906423	98.66108551	97.53961224	96.44373293	95.37257746
ADV1009003	8/26/2024	3.951	8/26/2026	106.46014	104.6925441	102.9629763	101.2702768	99.6133314	97.99107128	96.40247059	94.84654422	93.32234577
ADV1009012	8/26/2024	4.489	8/26/2025	102.90559	102.1569331	101.4191939	100.6921348	99.97552481	99.26913949	98.57276086	97.8861771	97.20918233
ADV1009013	8/26/2024	4.034	8/26/2026	106.46285	104.6977462	102.9705766	101.2801844	99.62545936	98.00533601	96.4187918	94.86484478	93.34255151
ADV1009014	8/26/2024	3.869	8/26/2027	109.92292	107.1106608	104.385529	101.7442491	99.18369404	96.70087723	94.29294499	91.95716949	89.69094215
ADV1009023	8/26/2024	4.492	8/26/2025	102.90783	102.1591605	101.4214122	100.694344	99.97772507	99.2713309	98.57494352	97.88835109	97.21134774
ADV1009026	8/26/2024	4.206	2/26/2026	104.70968	103.4454887	102.2119169	101.007862	99.83227239	98.68414613	97.56252773	96.46650559	95.39520955
ADV1009074	8/27/2024	3.885	8/27/2027	109.97705	107.1613122	104.4328744	101.788449	99.22490063	96.73923474	94.32859022	91.99023225	89.72154565
ADV1009082	8/27/2024	4.187	8/26/2033	132.16913	122.6113715	113.8502349	105.8142973	98.43892181	91.66557905	85.44123852	79.71782448	74.45172812
ADV1009083	8/27/2024	4.027	8/27/2026	106.46099	104.6932002	102.9634452	101.2705624	99.61343718	97.99100029	96.40222539	94.84612697	93.32175826
ADV1009084	8/27/2024	3.811	8/27/2029	117.04992	112.0696292	107.3347591	102.8318268	98.54816497	94.47187108	90.59175696	86.89730139	83.37860634
ADV1009085	8/27/2024	3.854	8/25/2028	113.5936	109.7106624	105.9837922	102.4057984	98.96986634	95.66953659	92.49868407	89.4514983	86.52246513
ADV1009086	8/27/2024	3.817	8/1/2029	115.66522	111.0977061	106.7497372	102.6093959	98.66548253	94.90746925	91.32545509	87.91012491	84.65271115
ADV1009087	10/1/2024	3.806	10/1/2027	110.11666	107.2012324	104.3789378	101.6463114	99.00003436	96.43692844	93.95394955	91.54818127	89.21682881
ADV1009092	8/27/2024	4.029	8/27/2026	106.4645	104.6966813	102.966895	101.2739816	99.61682628	97.99435982	96.40555588	94.84942893	93.32503218
ADV1009097	8/27/2024	3.831	8/28/2028	113.53714	109.6470329	105.9135701	102.3295222	98.88803735	95.58262173	92.4071182	89.35568651	86.42278485
ADV1009119	8/28/2024	5.04	1/28/2025	100.73307	100.5665455	100.400569	100.2351368	100.0702462	99.90589451	99.74207915	99.57879749	99.41604692
ADV1009120	8/28/2024	4.918	2/26/2025	101.06008	100.811263	100.5636551	100.3172466	100.0720289	99.82799336	99.58513146	99.34343478	99.10289496
ADV1009121	8/28/2024	4.836	3/26/2025	101.37284	101.0442713	100.7178098	100.3934319	100.0711178	99.75084783	99.43260253	99.11636274	98.80210952
ADV1009134	8/28/2024	3.914	8/28/2026	106.41553	104.6429394	102.9085688	101.2112478	99.54985417	97.92331135	96.33058627	94.77068704	93.24266078
ADV1009135	8/28/2024	4.91	2/28/2025	101.08203	100.827521	100.5742763	100.3222819	100.0715287	99.82200751	99.5737094	99.32662538	99.08074662
ADV1009139	8/28/2024	3.999	8/28/2026	106.42179	104.6516744	102.919681	101.2246464	99.56545208	97.94102501	96.35033546	94.79239465	93.2662527
ADV1009152	8/29/2024	4.198	2/27/2026	104.71033	103.4434069	102.207232	101.0006973	99.82274497	98.67236681	97.54860164	96.45053252	95.37728421
ADV1009154	8/29/2024	3.884	8/30/2027	110.00414	107.1798706	104.4433573	101.7912935	99.22052017	96.72802036	94.31091202	91.96644064	89.69197254
ADV1009155	8/29/2024	3.862	8/29/2028	113.66375	109.7685259	106.03022	102.4415853	98.99575483	95.68622055	92.50681206	89.45167673	86.51526118
ADV1009156	8/29/2024	3.808	8/29/2029	117.0538	112.0679137	107.32796	102.8204135	98.53256907	94.45248996	90.56895625	86.87141753	83.34994899
ADV1009168	8/29/2024	4.039	8/31/2026	106.52405	104.7448853	103.0041656	101.3007075	99.63337911	98.0010952	96.40281422	94.8375363	93.30430105
ADV1009169	8/29/2024	3.827	8/29/2029	117.14463	112.1565934	107.4145715	102.9050306	98.61526223	94.53332659	90.64800078	86.94873164	83.42559171
ADV1009197	8/30/2024	5.123	12/30/2024	100.38552	100.3010451	100.2167069	100.1325097	100.0484532	99.964537	99.88076079	99.79712423	99.71362697
ADV1009198	8/30/2024	4.425	8/29/2025	102.94919	102.1913384	101.4446697	100.7089331	99.9838895	99.26930684	98.56495968	97.87062902	97.18610209

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1009199	8/30/2024	4.049	8/31/2026	106.54172	104.7623979	103.0215203	101.317907	99.65042633	98.01799284	96.41956493	94.85414265	93.32076557
ADV1009202	8/30/2024	3.898	8/30/2027	110.04294	107.2181297	104.4810873	101.8285069	99.257229	96.76423631	94.34664639	92.00170439	89.72677628
ADV1009205	8/30/2024	4.755	4/30/2025	101.75624	101.3276896	100.9026838	100.4811834	100.0631451	99.64852657	99.23728609	98.82938256	98.42477558
ADV1009206	8/30/2024	4.054	8/31/2026	106.55056	104.7711542	103.0301976	101.3265068	99.65894995	98.02644166	96.42794029	94.86244583	93.32899782
ADV1009228	9/3/2024	3.768	9/3/2027	109.95792	107.1180691	104.366877	101.7009958	99.11723274	96.61253813	94.18399806	91.82882707	89.54436149
ADV1009240	9/3/2024	3.792	9/4/2029	117.03831	112.0360478	107.2812951	102.7604116	98.46058859	94.36979148	90.47670879	86.77070419	83.24177231
ADV1009242	9/3/2024	5.004	2/3/2025	100.79884	100.6154747	100.4327662	100.2507156	100.0693194	99.88857392	99.70847578	99.52902146	99.3502075
ADV1009243	9/3/2024	4.931	3/3/2025	101.12266	100.8597952	100.5982832	100.3381115	100.0792697	99.82174778	99.56553558	99.31062312	99.05700051
ADV1009244	9/3/2024	3.868	9/3/2027	110.00556	107.1701764	104.4231973	101.7612928	99.18128229	96.68012774	94.25492606	91.90290208	89.62140184
ADV1009248	9/3/2024	3.937	12/16/2026	107.46492	105.3823616	103.3511354	101.3696368	99.43632596	97.54972242	95.70840177	93.91099333	92.15617765
ADV1009249	9/3/2024	3.843	12/15/2027	110.97175	107.837562	104.8097924	101.8842228	99.05682556	96.32375605	93.68134329	91.12608091	88.65461874
ADV1009261	9/4/2024	4.365	9/4/2025	102.91256	102.1391966	101.3774778	100.6271434	99.88793932	99.15961888	98.44194272	97.73467846	97.03760043
ADV1009270	9/4/2024	4.291	9/4/2025	102.91692	102.1427211	101.3801919	100.6290707	99.88910228	99.16003944	98.44164205	97.73367702	97.03591802
ADV1009271	9/4/2024	4.291	9/4/2025	102.91692	102.1427211	101.3801919	100.6290707	99.88910228	99.16003944	98.44164205	97.73367702	97.03591802
ADV1009291	9/5/2024	3.683	12/5/2028	113.93991	109.7668908	105.7728911	101.9492614	98.28781468	94.78080182	91.42088581	88.2011175	85.114913
ADV1009292	9/5/2024	5.2	12/10/2024	100.14392	100.1158425	100.0877914	100.0597718	100.0317835	100.0038266	99.97590078	99.94800618	99.92014268
ADV1009293	9/5/2024	5.219	12/5/2024	100.08249	100.068455	100.0544345	100.0404277	100.0264346	100.0124553	99.99848964	99.98453764	99.97059929
ADV1009297	9/5/2024	3.631	9/5/2029	116.68511	111.6757239	106.9147945	102.3886086	98.08428829	93.9897351	90.093578	86.38512548	82.85432093
ADV1009298	9/5/2024	3.617	9/5/2029	116.61777	111.609984	106.8505955	102.3258954	98.02300809	93.92983751	90.03501482	86.32785059	82.79829021
ADV1009301	9/5/2024	5.225	12/5/2024	100.0826	100.0685615	100.0545407	100.0405337	100.0265405	100.0125609	99.99859505	99.98464285	99.97070429
ADV1009305	9/5/2024	3.995	3/5/2026	104.6316	103.348421	102.0950156	100.870352	99.67344225	98.5033433	97.35915467	96.24001604	95.14510497
ADV1009307	9/5/2024	3.699	9/5/2029	114.05525	109.8241312	105.7940708	101.954225	98.29439153	94.80497243	91.47693474	88.30177439	85.27148245
ADV1009308	9/5/2024	3.871	9/8/2026	106.31492	104.5153712	102.7551284	101.0330112	99.34788707	97.69866781	96.0843075	94.50380026	92.95617841
ADV1009312	9/5/2024	3.873	9/8/2026	106.3185	104.5189194	102.7586442	101.0364952	99.35133988	97.70208999	96.08769957	94.50716277	92.95951187
ADV1009314	9/5/2024	3.781	1/5/2028	110.98799	107.7961889	104.714258	101.7377775	98.86252999	96.08449331	93.39983011	90.8048781	88.29614091
ADV1009327	9/6/2024	4.029	3/6/2026	104.5835	103.2997472	102.045475	100.8196643	99.62134599	98.44959468	97.30352642	96.18229632	95.08509643
ADV1009332	9/6/2024	4.267	9/8/2025	102.87808	102.093895	101.3216938	100.5612006	99.81215024	99.07428547	98.34735668	97.63112169	96.92534539
ADV1009336	9/6/2024	3.698	9/8/2026	106.15053	104.3498976	102.5886412	100.8655788	99.17957454	97.5295375	95.91441893	94.33321037	92.78494166
ADV1009337	9/6/2024	3.786	9/4/2026	106.12179	104.3351624	102.5873543	100.8771895	99.20353747	97.56531278	95.96147308	94.39101683	92.85298127
ADV1009353	9/9/2024	3.541	9/10/2029	116.29654	111.2821968	106.5173336	101.9881661	97.68174593	93.58590745	89.6892159	85.9809194	82.45090429
ADV1009354	9/9/2024	3.541	9/10/2029	116.29654	111.2821968	106.5173336	101.9881661	97.68174593	93.58590745	89.6892159	85.9809194	82.45090429
ADV1009355	9/9/2024	3.541	9/10/2029	116.29654	111.2821968	106.5173336	101.9881661	97.68174593	93.58590745	89.6892159	85.9809194	82.45090429
ADV1009369	9/9/2024	4.827	3/10/2025	101.17748	100.8950526	100.6141927	100.3348885	100.0571268	99.78089488	99.50618002	99.23296966	98.96125138

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ADV1009390	9/10/2024	3.564	9/10/2029	115.99606	111.0015415	106.2552671	101.7435274	97.45345041	93.37294152	89.49063196	85.79583125	82.27848287
ADV1009392	9/10/2024	4.128	10/10/2025	103.08994	102.2171025	101.3590766	100.5154894	99.68597792	98.87019158	98.06779119	97.27844873	96.50184683
ADV1009393	9/10/2024	4.128	10/10/2025	103.08994	102.2171025	101.3590766	100.5154894	99.68597792	98.87019158	98.06779119	97.27844873	96.50184683
ADV1009394	9/10/2024	3.563	9/10/2029	115.99124	110.9968419	106.2506777	101.7390444	97.44907002	93.3686601	89.48644605	85.79173755	82.27447822
ADV1009395	9/10/2024	4.122	10/10/2025	103.08472	102.2119034	101.353902	100.5103389	99.68085131	98.86508855	98.06271147	97.27339206	96.49681294
ADV1009397	9/10/2024	4.2	9/10/2025	102.84526	102.05572	101.2783262	100.5128027	99.75887889	99.01629203	98.28478742	97.56411789	96.85404361
ADV1009404	9/10/2024	3.947	3/10/2026	104.52392	103.2306194	101.9658658	100.7287118	99.51825247	98.33362245	97.17399394	96.03857448	94.92660517
ADV1009405	9/10/2024	3.947	3/10/2026	104.52392	103.2306194	101.9658658	100.7287118	99.51825247	98.33362245	97.17399394	96.03857448	94.92660517
ADV1009406	9/10/2024	3.947	3/10/2026	104.52392	103.2306194	101.9658658	100.7287118	99.51825247	98.33362245	97.17399394	96.03857448	94.92660517
ADV1009407	9/10/2024	3.95	9/10/2026	106.47676	104.6701024	102.9030098	101.1742972	99.48283075	97.82752049	96.20731827	94.62121569	93.06824225
ADV1009409	9/10/2024	3.95	9/10/2026	106.47676	104.6701024	102.9030098	101.1742972	99.48283075	97.82752049	96.20731827	94.62121569	93.06824225
ADV1009412	9/11/2024	5.137	12/11/2024	100.15273	100.1218631	100.0910358	100.0602437	100.029487	99.99876551	99.96807917	99.93742792	99.90681171
ADV1009418	9/11/2024	4.04	12/11/2025	103.65017	102.6044717	101.5799239	100.5758895	99.59175579	98.62693462	97.6808607	96.75299063	95.84280187
ADV1009420	9/11/2024	3.627	3/11/2027	107.65875	105.3358733	103.0750226	100.8741273	98.73119994	96.6443345	94.61170204	92.63154709	90.70218403
ADV1009421	9/11/2024	3.91	3/11/2026	104.48745	103.1919148	101.9246873	100.6848418	99.47148971	98.28378093	97.1209018	95.98207317	94.86654852
ADV1009423	9/11/2024	3.892	3/11/2026	104.56845	103.270734	102.0014015	100.7595191	99.54419523	98.35457717	97.18984873	96.04922835	94.93196726
ADV1009445	9/12/2024	4.26	9/12/2025	102.91285	102.1175256	101.334526	100.5635641	99.80436334	99.05665551	98.32018067	97.59468661	96.87992864
ADV1009446	9/12/2024	3.779	9/14/2026	106.20999	104.3946593	102.6192933	100.8827169	99.18379601	97.52143971	95.89459792	94.30225955	92.7434507
ADV1009447	9/12/2024	3.644	9/13/2027	109.47744	106.6214282	103.8553061	101.1757052	98.57940409	96.06332259	93.62451493	91.26016266	88.96756829
ADV1009462	9/12/2024	3.629	9/13/2027	109.43528	106.5798614	103.8143216	101.1352893	98.53954336	96.02400409	93.58572609	91.22189132	88.92980266
ADV1009463	9/12/2024	3.626	9/12/2028	112.91077	108.9905012	105.2297552	101.6211496	98.1576853	94.83272631	91.63997865	88.57347043	85.62753351
ADV1009481	9/13/2024	4.073	9/13/2034	134.27451	123.5588668	113.8290646	104.9879531	96.94847349	89.63255948	82.97016414	76.89839711	71.3607585
ADV1009482	9/13/2024	4.294	9/13/2039	149.96262	133.3914747	118.9756989	106.416193	95.45716711	85.87965276	77.4960151	70.14530786	63.68933857
ADV1009483	9/13/2024	4.073	9/15/2025	102.85774	102.0535911	101.2620408	100.4827972	99.71557448	98.96009552	98.21609171	97.48330261	96.76147559
ADV1009484	9/13/2024	4.986	1/13/2025	100.5394	100.4156695	100.2922552	100.169157	100.0463737	99.92390384	99.80174634	99.67989991	99.55836333
ADV1009485	9/13/2024	4.158	9/15/2025	102.86198	102.0586657	101.267928	100.4894722	99.72301332	98.9682751	98.22498973	97.4928975	96.77174651
ADV1009486	9/13/2024	3.937	3/13/2026	104.54481	103.2439033	101.9708586	100.7247762	99.50479968	98.31010898	97.13991863	95.9934758	94.87005861
ADV1009487	9/13/2024	3.722	9/14/2026	106.10684	104.2924531	102.5180223	100.7823639	99.08434465	97.42287386	95.79690193	94.2054182	92.64744918
ADV1009490	9/13/2024	4.881	2/13/2025	100.89311	100.6817615	100.4713006	100.261721	100.0530171	99.84518348	99.63821456	99.43210493	99.22684918
ADV1009492	9/13/2024	3.58	9/13/2029	116.09913	111.0937009	106.3374097	101.8164977	97.51803835	93.42988515	89.54062023	85.83950653	82.31644345
ADV1009493	9/13/2024	3.602	9/13/2028	112.82866	108.907129	105.1452997	101.5357746	98.0715463	94.74597035	91.55274454	88.48588909	85.53972812
ADV1009494	9/13/2024	3.577	9/13/2027	109.28895	106.4355951	103.6720699	100.9950046	98.40117953	95.88751653	93.45107158	91.08902798	88.7986899
ADV1009495	9/13/2024	4.158	9/15/2025	102.86198	102.0586657	101.267928	100.4894722	99.72301332	98.9682751	98.22498973	97.4928975	96.77174651

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ADV1009496	9/13/2024	3.583	9/13/2027	109.30581	106.4522215	103.6884634	101.0111707	98.41712352	95.90324363	93.46658681	91.1043362	88.81379584
ADV1009502	9/13/2024	3.563	9/13/2027	109.2496	106.3968	103.6338184	100.9572838	98.36397689	95.85081998	93.41486939	91.0533088	88.76344273
ADV1009505	9/13/2024	5.117	12/13/2024	100.17583	100.1393626	100.1029366	100.0665544	100.0302159	99.99392104	99.9576697	99.92146181	99.8852973
ADV1009506	9/13/2024	3.587	6/14/2027	108.45986	105.866946	103.350076	100.9065684	98.53385064	96.22945726	93.99102452	91.81628562	89.70306596
ADV1009507	9/13/2024	3.566	9/13/2027	109.25803	106.4051132	103.6420152	100.9653668	98.37194889	95.85868352	93.422627	91.06096291	88.77099569
ADV1009508	9/13/2024	3.569	12/13/2027	110.11107	106.9954815	103.9856636	101.0774204	98.26675223	95.54984129	92.92304176	90.38287112	87.9260018
ADV1009539	9/16/2024	4.402	6/16/2025	102.09665	101.5459304	101.0011734	100.4622776	99.92914845	99.40169363	98.87982262	98.36344687	97.85247969
ADV1009545	9/16/2024	3.674	9/16/2026	106.03937	104.2200318	102.4408659	100.7006894	98.99836843	97.33281156	95.70296783	94.10782488	92.54640718
ADV1009546	9/16/2024	3.542	9/16/2027	109.21832	106.3575738	103.5871316	100.9036134	98.30378609	95.78455778	93.34297057	90.97619372	88.68151739
ADV1009547	9/16/2024	3.57	9/18/2028	112.7537	108.8195391	105.0461349	101.4260393	97.95219478	94.61790819	91.41682992	88.34293417	85.3905006
ADV1009550	9/16/2024	3.67	9/16/2026	106.03212	104.2128508	102.4337512	100.6936398	98.99138271	97.3258886	95.6961065	94.10102409	92.53966587
ADV1009552	9/16/2024	3.676	9/16/2026	106.04299	104.2236223	102.4444233	100.7042142	99.00186129	97.33627304	95.70639849	94.11122527	92.54977783
ADV1009554	9/16/2024	4.127	9/16/2025	102.84655	102.0405572	101.2472212	100.4662492	99.69735351	98.94025498	98.19468319	97.46037592	96.73707885
ADV1009561	9/17/2024	4.119	9/17/2025	102.8499	102.0411477	101.2451429	100.4615851	99.69018347	98.93065629	98.18273043	97.44614113	96.72063163
ADV1009578	9/17/2024	4.818	2/13/2025	100.87899	100.6678125	100.4575171	100.2481024	100.0395627	99.83189259	99.62508652	99.41913904	99.21404478
ADV1009579	9/17/2024	3.902	3/24/2026	104.62344	103.2946853	101.9912689	100.7124929	99.4576818	98.22618493	97.01737533	95.83064859	94.66542188
ADV1009582	9/17/2024	4.388	6/17/2025	102.09922	101.5457439	100.9982876	100.4567503	99.92103621	99.39105153	98.86670447	98.3479052	97.83456579
ADV1009583	9/17/2024	4.14	9/17/2025	102.86684	102.0580144	101.2619355	100.4783044	99.70683025	98.94723134	98.19923454	97.46257505	96.7369961
ADV1009587	9/17/2024	4.703	3/17/2025	101.22195	100.9200899	100.6200204	100.3217281	100.0251973	99.73041231	99.43735758	99.14601784	98.85637799
ADV1009588	9/17/2024	4.061	9/17/2025	102.86744	102.0577487	101.260829	100.4763825	99.70411751	98.94375133	98.19501008	97.4576282	96.73134815
ADV1009589	9/17/2024	3.82	3/17/2026	104.54246	103.2299843	101.9445012	100.685187	99.45124814	98.24192366	97.05648307	95.89422503	94.75447584
ADV1009590	9/17/2024	3.63	9/17/2026	106.1168	104.291317	102.5062279	100.7603537	99.05255573	97.38173795	95.74684469	94.14685892	92.58080043
ADV1009591	9/17/2024	3.571	9/17/2029	116.09037	111.0738641	106.3075755	101.7776731	97.47116311	93.37583463	89.48020883	85.77349088	82.24552558
ADV1009597	9/17/2024	4.391	6/17/2025	102.10087	101.5473955	100.999934	100.4583915	99.92267228	99.3926825	98.86833039	98.3495261	97.83618171
ADV1009601	9/17/2024	4.143	9/17/2025	102.86926	102.060424	101.2643345	100.4806929	99.70920837	98.94959921	98.20159227	97.46492275	96.73933389
ADV1009610	9/18/2024	4.149	9/18/2025	102.88396	102.0723184	101.2735106	100.4872341	99.71319548	98.95111005	98.20070205	97.46170414	96.73385707
ADV1009613	9/18/2024	3.635	9/20/2027	109.51883	106.6426256	103.8574983	101.1600452	98.54701121	96.01528185	93.56187668	91.18394243	88.87874681
ADV1009618	9/18/2024	4.736	3/18/2025	101.24328	100.9385648	100.6356735	100.3345922	100.0353047	99.73779478	99.44204663	99.14804452	98.85577294
ADV1009619	9/18/2024	4.172	9/18/2025	102.90258	102.0908536	101.291964	100.5056067	99.73148814	98.96932365	98.21883746	97.47976219	96.75183859
ADV1009620	9/18/2024	3.927	3/18/2026	104.58798	103.2743563	101.9874425	100.7264337	99.49055483	98.2790624	97.09124228	95.92640845	94.78390162
ADV1009621	9/18/2024	3.762	9/18/2026	106.21874	104.3921548	102.6060001	100.8590937	99.15030004	97.47852566	95.84271716	94.24185942	92.67497383
ADV1009625	9/18/2024	3.596	9/18/2029	116.21992	111.1975023	106.4256836	101.8906124	97.57927284	93.47943353	89.57959591	85.86894653	82.33731254
ADV1009627	9/18/2024	4.943	12/18/2024	100.22604	100.1755786	100.1251802	100.0748493	100.0245858	99.9743896	99.92426053	99.87419846	99.82420325

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1009628	9/18/2024	3.804	3/18/2026	104.53266	103.2177628	101.929627	100.6674466	99.43044465	98.21787544	97.02902301	95.86319956	94.71974406
ADV1009629	9/18/2024	3.639	9/18/2026	106.143	104.3144776	102.5264701	100.7777965	99.0673177	97.39393695	95.7565976	94.15428148	92.58600709
ADV1009631	9/18/2024	3.804	3/18/2026	104.53266	103.2177628	101.929627	100.6674466	99.43044465	98.21787544	97.02902301	95.86319956	94.71974406
ADV1009637	9/18/2024	4.054	9/18/2025	102.87162	102.059165	101.2595695	100.4725304	99.69775311	98.93495218	98.18385106	97.44418161	96.71568386
ADV1009638	9/18/2024	3.651	9/18/2026	106.16483	104.3361007	102.5478927	100.7990223	99.08835039	97.41477995	95.77725432	94.17475524	92.60630111
ADV1009640	9/18/2024	4.045	9/18/2025	102.86433	102.0519096	101.2523461	100.4653387	99.6905927	98.92782275	98.17675225	97.43711311	96.70864534
ADV1009641	9/18/2024	3.641	9/18/2026	106.14664	104.3180814	102.5300405	100.7813341	99.07082314	97.39741078	95.76004039	94.15769378	92.58938943
ADV1009656	9/19/2024	4.077	9/19/2025	102.83534	102.021177	101.2199296	100.4312944	99.65497461	98.8906831	98.1381414	97.39707966	96.66723624
ADV1009658	9/19/2024	3.859	3/19/2026	104.50998	103.1944076	101.9053087	100.6418938	99.40340483	98.18911385	96.9983214	95.8303552	94.68456883
ADV1009662	9/19/2024	3.613	9/20/2027	109.45641	106.5810868	103.7968226	101.1002123	98.48800129	95.95707589	93.50445621	91.12728955	88.82284418
ADV1009663	9/19/2024	3.613	9/20/2027	109.45641	106.5810868	103.7968226	101.1002123	98.48800129	95.95707589	93.50445621	91.12728955	88.82284418
ADV1009675	9/19/2024	3.692	11/19/2026	106.6931	104.6923977	102.7396903	100.8335314	98.97252533	97.15532779	95.38064365	93.64722485	91.95386829
ADV1009678	9/19/2024	3.707	10/19/2026	106.42043	104.5074001	102.6384325	100.812253	99.02763024	97.28337606	95.57834402	93.91142754	92.28155827
ADV1009680	9/19/2024	4.076	9/19/2025	102.83453	102.0203684	101.2191246	100.4304929	99.65417665	98.88988859	98.13735032	97.39629197	96.66645189
ADV1009688	9/19/2024	3.858	3/19/2026	104.50867	103.1931045	101.9040144	100.6406083	99.40212795	98.18784544	96.99706131	95.82910331	94.683325
ADV1009695	9/19/2024	4.932	12/19/2024	100.23685	100.1835832	100.1303896	100.0772688	100.0242206	99.97124484	99.91834142	99.86551015	99.8127509
ADV1009696	9/19/2024	4.827	1/21/2025	100.61136	100.4652296	100.3195371	100.1742767	100.0294465	99.88504449	99.74106882	99.59751753	99.45438872
ADV1009713	9/20/2024	4.657	2/20/2025	100.92334	100.6925657	100.4628461	100.2341724	100.0065375	99.77993421	99.55435554	99.32979451	99.10624421
ADV1009720	9/20/2024	4.844	12/20/2024	100.24308	100.1870202	100.1310427	100.0751434	100.019322	99.96357843	99.90791247	99.85232396	99.79681276
ADV1009728	9/20/2024	3.503	9/20/2027	109.37897	106.4994893	103.7113141	101.011029	98.39536684	95.86120232	93.40554447	91.02553021	88.71841793
ADV1009744	9/23/2024	3.597	10/23/2029	116.947	111.7972728	106.9092921	102.2683735	97.86072694	93.67340153	89.69423062	85.91178023	82.31530126
ADV1009746	9/23/2024	4.057	9/23/2025	102.85753	102.0323177	101.2203656	100.4213598	99.63499209	98.86096396	98.09898623	97.34877872	96.6100699
ADV1009747	9/23/2024	4.77	1/23/2025	100.62511	100.4734477	100.3222493	100.1715134	100.0212379	99.87142046	99.72205916	99.57315184	99.42469639
ADV1009752	9/23/2024	3.597	9/23/2027	109.43917	106.5556905	103.7637705	101.0599893	98.44107802	95.90390832	93.44548559	91.06294234	88.75353202
ADV1009753	9/23/2024	4.842	12/23/2024	100.27639	100.211937	100.1475753	100.0833087	100.019137	99.95506009	99.89107771	99.82718965	99.76339571
ADV1009757	9/23/2024	4.841	12/23/2024	100.27633	100.2118703	100.1475087	100.0832423	100.0190708	99.95499403	99.89101181	99.82712391	99.76333012
ADV1009762	9/23/2024	4.22	7/16/2025	102.29424	101.6604719	101.0345792	100.4164128	99.80582987	99.20269128	98.60686115	98.01820691	97.43659921
ADV1009763	9/23/2024	4.131	8/20/2025	102.58019	101.8493227	101.1288965	100.4186843	99.71846967	99.02804229	98.3471976	97.67573675	97.01346637
ADV1009764	9/23/2024	4.064	9/19/2025	102.82406	102.0099627	101.2087856	100.4202195	99.6439678	98.87974326	98.12726749	97.38627067	96.65649117
ADV1009766	9/23/2024	4.848	12/20/2024	100.24267	100.1866311	100.1306754	100.0747978	100.0189982	99.96327627	99.90763197	99.8520651	99.7965755
ADV1009770	9/23/2024	3.596	9/23/2027	109.43633	106.5528931	103.7610126	101.0572701	98.4383965	95.90126361	93.44287684	91.06036873	88.75099273
ADV1009788	9/24/2024	4.798	12/23/2024	100.27324	100.2087983	100.1444521	100.080201	100.0160449	99.95198345	99.88801652	99.82414389	99.76036535
ADV1009789	9/24/2024	3.584	9/24/2027	109.41164	106.5257578	103.7315927	101.0257209	98.40486889	95.86590373	93.40582607	91.02176368	88.71096524

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ADV1009790	9/27/2024	4.708	1/23/2025	100.61484	100.4632835	100.3121942	100.1615671	100.0113999	99.86169063	99.7124371	99.56363722	99.41528889
ADV1009791	9/27/2024	4.625	2/18/2025	100.89225	100.6673725	100.4434939	100.2206119	99.99871995	99.77781129	99.55787938	99.33891772	99.12091985
ADV1009792	9/24/2024	4.101	8/25/2025	102.60694	101.8622517	101.1283933	100.4051268	99.69222362	98.98946206	98.29662651	97.61350748	96.93990135
ADV1009793	9/24/2024	3.611	3/24/2027	107.74138	105.3823647	103.0871757	100.8537086	98.67994527	96.56394617	94.50384729	92.49785646	90.54425015
ADV1009795	9/24/2024	4.726	1/15/2025	100.52727	100.3981887	100.2694549	100.1410645	100.0130163	99.88530868	99.75794037	99.63090995	99.50421601
ADV1009796	9/24/2024	3.931	9/24/2025	102.82898	102.0002637	101.1849252	100.3826416	99.59310097	98.81600098	98.05104898	97.2979614	96.55646343
ADV1009799	9/24/2024	4.608	2/24/2025	100.95584	100.7139041	100.4731237	100.2334866	99.99498499	99.75761063	99.52135558	99.28621193	99.05217185
ADV1009800	9/24/2024	4.43	4/24/2025	101.54987	101.1406247	100.7346439	100.3318907	99.93232655	99.53591373	99.14261503	98.75239383	98.36521409
ADV1009801	9/24/2024	4.252	6/24/2025	102.09338	101.5206821	100.9544223	100.3944897	99.8407786	99.29318562	98.75160958	98.21595156	97.68611482
ADV1009802	9/24/2024	4.015	9/24/2025	102.83246	102.0046201	101.1901296	100.3886678	99.5999235	98.82359537	98.0593916	97.30702943	96.56623484
ADV1009803	9/24/2024	4.522	3/24/2025	101.24372	100.9225115	100.6033239	100.2861418	99.97094643	99.65771908	99.34644131	99.03709493	98.72966195
ADV1009804	9/24/2024	4.022	9/24/2025	102.83824	102.0103744	101.1958582	100.3943708	99.60560124	98.82924815	98.06501969	97.3126331	96.57181436
ADV1009805	9/24/2024	3.791	3/24/2026	104.47504	103.1472961	101.8448765	100.5670801	99.31323192	98.08268179	96.87480321	95.68899222	94.5246664
ADV1009806	9/24/2024	4.811	12/17/2024	100.20646	100.1588527	100.1113108	100.0638314	100.0164143	99.96905935	99.92176641	99.87453537	99.82736611
ADV1009807	9/24/2024	4.79	12/24/2024	100.28392	100.216672	100.1495248	100.0824788	100.0155336	99.94868912	99.88194509	99.8153013	99.7487575
ADV1009808	9/24/2024	4.703	1/24/2025	100.62598	100.471546	100.3175966	100.164125	100.011129	99.85860639	99.70655497	99.55497253	99.40385688
ADV1009809	9/24/2024	4.519	3/24/2025	101.24277	100.9215601	100.6023772	100.2851998	99.97000903	99.6567863	99.34551312	99.0361713	98.72874285
ADV1009813	9/24/2024	3.936	9/24/2025	102.83311	102.0043754	101.1890184	100.3867166	99.59715789	98.82004005	98.0550704	97.30196535	96.56045011
ADV1009817	9/24/2024	4.787	12/24/2024	100.28371	100.2164638	100.1493171	100.0822715	100.0153268	99.94848285	99.88173933	99.81509603	99.74855274
ADV1009833	9/25/2024	4.031	9/25/2025	102.85503	102.02436	101.2071257	100.4030048	99.61168315	98.83285657	98.0662305	97.31151958	96.56844728
ADV1009834	9/25/2024	3.664	9/25/2026	106.10824	104.2632009	102.4593754	100.6955834	98.97068668	97.28358774	95.63322746	94.01858375	92.43866989
ADV1009835	9/25/2024	3.941	9/25/2025	102.84658	102.0150557	101.1969918	100.3920674	99.59996763	98.82038731	98.05303104	97.29761265	96.55385482
ADV1009836	9/25/2024	3.705	3/25/2026	104.47874	103.1468028	101.8400234	100.5577121	99.29920858	98.06387648	96.85110206	95.66029337	94.49087922
ADV1009839	9/25/2024	3.939	9/25/2025	102.84493	102.0134057	101.1953492	100.3904322	99.59833967	98.81876653	98.05141737	97.296006	96.55225511
ADV1009840	9/25/2024	3.701	3/25/2026	104.47342	103.1415232	101.8347803	100.5525049	99.29403667	98.05873928	96.845999	95.6552239	94.4858428
ADV1009841	9/25/2024	3.577	9/25/2026	106.09785	104.2502169	102.4439001	100.6777158	98.95052199	97.26121729	95.60873908	93.99206189	92.41019576
ADV1009842	9/25/2024	3.585	9/25/2026	106.11255	104.2647815	102.4583283	100.6920101	98.96468494	97.27525124	95.62264638	94.00584479	92.42385648
ADV1009845	9/25/2024	4.533	3/25/2025	101.25812	100.9340864	100.6121133	100.2921793	99.97426514	99.65835161	99.34441987	99.03245126	98.7224274
ADV1009846	9/25/2024	4.769	12/26/2024	100.30456	100.2317084	100.158969	100.0863431	100.0138305	99.94143099	99.86914426	99.79697007	99.72490815
ADV1009847	9/25/2024	4.773	12/24/2024	100.28253	100.2152898	100.1481543	100.0811198	100.0141863	99.94735339	99.88062094	99.81398871	99.74745646
ADV1009849	9/25/2024	4.448	4/25/2025	101.56786	101.1557647	100.7469825	100.3414706	99.93919004	99.54010219	99.14416917	98.75135366	98.36161895
ADV1009850	9/25/2024	4.767	12/26/2024	100.30441	100.2315586	100.1588195	100.086194	100.0136818	99.94128264	99.86899628	99.79682245	99.72476089
ADV1009853	9/25/2024	3.941	9/25/2025	102.84658	102.0150557	101.1969918	100.3920674	99.59996763	98.82038731	98.05303104	97.29761265	96.55385482

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1009854	9/25/2024	4.768	12/26/2024	100.30449	100.2316335	100.1588943	100.0862685	100.0137562	99.94135681	99.86907027	99.79689626	99.72483452
ADV1009855	9/25/2024	4.534	3/25/2025	101.25844	100.9344063	100.6124316	100.292496	99.97458028	99.6586652	99.34473191	99.03276177	98.72273639
ADV1009857	9/25/2024	3.597	9/25/2026	106.13461	104.2866283	102.4799706	100.7134516	98.98592936	97.29630218	95.64350732	94.02651914	92.44434754
ADV1009867	9/26/2024	3.668	9/26/2029	116.63947	111.5844205	106.7825226	102.2197585	97.88295968	93.75974966	89.83849229	86.10824379	82.55870808
ADV1009868	9/26/2024	3.558	9/27/2027	109.60171	106.6993982	103.8896529	101.1690219	98.53420141	95.98202908	93.50947663	91.11364359	88.79175109
ADV1009872	9/26/2024	3.719	9/28/2026	106.23926	104.3846272	102.5715783	100.7989314	99.06554663	97.37032348	95.71219955	94.09014885	92.5031803
ADV1009875	9/26/2024	3.644	9/27/2027	109.61083	106.7137036	103.9088703	101.1928885	98.56246786	96.01445848	93.54584401	91.15373522	88.83536389
ADV1009876	9/26/2024	3.64	9/28/2026	106.2437	104.3863163	102.5706197	100.7954279	99.05959691	97.36202234	95.70163817	94.07741493	92.48835821
ADV1009880	9/26/2024	3.727	9/28/2026	106.25402	104.3992459	102.5860596	100.813278	99.07976095	97.38440792	95.72615647	94.10398052	92.51688896
ADV1009882	9/26/2024	3.658	9/1/2027	109.26176	106.4782796	103.7827242	101.1718374	98.64249979	96.19172413	93.81664895	91.51453258	89.28274748
ADV1009896	9/26/2024	3.656	9/27/2027	109.64501	106.7473996	103.942088	101.2256393	98.59476282	96.04630839	93.57725928	91.18472594	88.86593981
ADV1009897	9/26/2024	3.687	9/26/2028	113.27936	109.3126136	105.5086957	101.860061	98.35955727	95.00039929	91.77614818	88.6806918	85.70822643
ADV1009907	9/27/2024	4.769	12/27/2024	100.3153	100.2396552	100.1641326	100.08873	100.0134472	99.93828385	99.86323965	99.78831434	99.71350765
ADV1009908	9/27/2024	3.634	9/27/2027	109.58217	106.6854575	103.8810223	101.1654293	98.53538855	95.98775037	93.51949869	91.12774454	88.80971993
ADV1009916	9/27/2024	3.624	9/27/2029	116.43455	111.3815965	106.581887	102.0213954	97.68694359	93.56614591	89.64735758	85.91962667	82.37264936
ADV1009920	9/27/2024	4.756	12/30/2024	100.34765	100.263576	100.1796475	100.0958594	100.0122113	99.92870277	99.84533358	99.76210337	99.67901178
ADV1009921	9/27/2024	3.546	9/27/2028	113.06979	109.0955268	105.2847634	101.6299141	98.12378775	94.75956237	91.53076435	88.43124879	85.45518107
ADV1009927	9/27/2024	4.059	9/26/2025	102.88784	102.0542863	101.2342557	100.427424	99.63347408	98.8520989	98.08300117	97.32589286	96.58049493
ADV1009928	9/27/2024	4.767	12/27/2024	100.31514	100.2395	100.1639778	100.0885756	100.0132932	99.93813018	99.86308636	99.78816143	99.71335511
ADV1009930	9/27/2024	3.605	9/27/2027	109.49956	106.6040267	103.8007476	101.086283	98.45734371	95.91078107	93.44357977	91.05285163	88.73582943
ADV1009933	9/27/2024	3.522	9/27/2027	109.49887	106.5980335	103.7897261	101.0704987	98.43704872	95.88621479	93.41496968	91.02041387	88.69976943
ADV1009935	9/27/2024	3.525	9/27/2027	109.50743	106.606467	103.7980398	101.0786953	98.44513117	95.89418573	93.42283172	91.02816954	88.70742118
ADV1009937	9/27/2024	3.522	9/27/2027	109.49887	106.5980335	103.7897261	101.0704987	98.43704872	95.88621479	93.41496968	91.02041387	88.69976943
ADV1009938	9/27/2024	3.676	9/29/2028	113.26631	109.2913735	105.4799217	101.824378	98.3175589	94.95264874	91.72317897	88.62300873	85.64630657
ADV1009939	9/27/2024	3.676	9/22/2028	113.19745	109.2435589	105.4515587	101.8139532	98.32363378	94.97385779	91.75822763	88.67067114	85.70542322
ADV1009941	9/27/2024	3.675	9/15/2028	113.12477	109.191987	105.419511	101.7999204	98.32618072	94.9916217	91.78991592	88.71505924	85.76135237
ADV1009942	9/27/2024	3.674	9/8/2028	113.05212	109.1404274	105.3874609	101.785878	98.32871773	95.00938108	91.82161006	88.75946782	85.81732009
ADV1009943	9/27/2024	4.023	9/29/2025	102.88702	102.0452503	101.2172724	100.4027457	99.60134413	98.8127522	98.03666435	97.27278469	96.52082663
ADV1009955	9/30/2024	4.846	12/31/2024	100.36612	100.2792589	100.1925411	100.1059708	100.0195474	99.93327075	99.84714038	99.76115596	99.67531712
ADV1009957	9/30/2024	4.527	3/31/2025	101.3216	100.9807291	100.6421219	100.3057576	99.97161418	99.63966973	99.30990266	98.98229166	98.65681568
ADV1009958	9/30/2024	4.053	9/30/2025	102.92143	102.0767667	101.2459828	100.4287363	99.6246983	98.83355019	98.05498369	97.28870025	96.53441069
ADV1009963	9/30/2024	4.529	3/31/2025	101.32228	100.9814014	100.6427908	100.3064232	99.97227651	99.64032878	99.31055845	98.98294421	98.65746501
ADV1009965	9/30/2024	4.056	9/30/2025	102.92395	102.0792813	101.248486	100.4312282	99.62717893	98.83601974	98.05744228	97.291148	96.53684772

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1009970	9/30/2024	3.7	11/3/2028	113.69279	109.6140151	105.7067089	101.9627519	98.37445453	94.93452971	91.63606951	88.47252345	85.43767814
ADV1009971	9/30/2024	3.7	11/10/2028	113.76112	109.6613947	105.7348136	101.97314	98.36857434	94.91372728	91.60159599	88.42554174	85.37926904
ADV1009973	9/30/2024	3.7	11/17/2028	113.82945	109.7087485	105.7628796	101.9834838	98.36265073	94.89288798	91.56709702	88.37855013	85.32086915
ADV1009975	9/30/2024	3.7	11/17/2028	113.82945	109.7087485	105.7628796	101.9834838	98.36265073	94.89288798	91.56709702	88.37855013	85.32086915
ADV1009978	9/30/2024	4.85	12/31/2024	100.36648	100.2796129	100.1928943	100.106323	100.0198988	99.93362129	99.84749005	99.76150475	99.67566504
ADV1009979	9/30/2024	4.85	12/31/2024	100.36648	100.2796129	100.1928943	100.106323	100.0198988	99.93362129	99.84749005	99.76150475	99.67566504
ADV1009984	9/30/2024	4.102	9/30/2025	102.96269	102.1178395	101.2868682	100.4694365	99.66521535	98.87388617	98.09514064	97.32868016	96.57421553
ADV1009987	9/30/2024	3.6	9/30/2027	109.75028	106.8374109	104.0176695	101.2875846	98.64383639	96.0832458	93.60276805	91.19948607	88.87060447
ADV1009989	9/30/2024	3.6	9/30/2027	109.75028	106.8374109	104.0176695	101.2875846	98.64383639	96.0832458	93.60276805	91.19948607	88.87060447
ADV1010009	10/1/2024	3.613	10/1/2026	106.22725	104.3617889	102.538356	100.7557652	99.01286685	97.30855112	95.64174596	94.01141578	92.41655995
ADV1010014	10/1/2024	3.62	10/2/2028	113.08241	109.1028484	105.2873122	101.6281929	98.11827258	94.75070333	91.51898624	88.41695186	85.43874186
ADV1010015	10/1/2024	4.777	1/2/2025	100.38282	100.2903738	100.1980951	100.1059878	100.0140515	99.9222857	99.83068989	99.73926361	99.64800639
ADV1010017	10/1/2024	3.694	10/1/2026	106.2266	104.3638713	102.5430685	100.7630046	99.02253424	97.32055121	95.65598722	94.02781018	92.4350228
ADV1010020	10/1/2024	4.045	10/1/2025	102.92978	102.0823618	101.2489139	100.4290922	99.62256434	98.82900864	98.04811377	97.27957828	96.52311024
ADV1010021	10/1/2024	3.817	4/1/2026	104.60126	103.2525168	101.9276048	100.6259446	99.34697579	98.09015568	96.85495834	95.64087413	94.44740905
ADV1010022	10/1/2024	4.732	1/16/2025	100.53801	100.4062322	100.2748136	100.1437526	100.0130475	99.88269697	99.75269945	99.62305347	99.49375756
ADV1010023	10/1/2024	3.703	10/1/2026	106.24329	104.3804004	102.5594417	100.7792249	99.03860442	97.33647402	95.67176532	94.04344617	92.4505192
ADV1010027	10/1/2024	4.903	12/2/2024	100.03648	100.0308923	100.0253093	100.0197314	100.0141584	100.0085905	100.0030275	99.99746952	99.99191652
ADV1010032	10/30/2024	3.564	10/29/2027	109.6742	106.6894514	103.8024071	101.0093432	98.3066965	95.691059	93.15917008	90.70790932	88.33428966
ADV1010033	10/30/2024	3.564	10/29/2027	109.6742	106.6894514	103.8024071	101.0093432	98.3066965	95.691059	93.15917008	90.70790932	88.33428966
ADV1010034	10/1/2024	4.786	1/2/2025	100.38367	100.2912197	100.1989389	100.1068295	100.0148911	99.92312315	99.83152524	99.74009686	99.64883754
ADV1010040	10/2/2024	3.63	10/18/2027	109.77071	106.814337	103.9538322	101.1855746	98.50609906	95.91208986	93.40037335	90.96791099	88.6117929
ADV1010043	10/1/2024	4.786	1/2/2025	100.38367	100.2912197	100.1989389	100.1068295	100.0148911	99.92312315	99.83152524	99.74009686	99.64883754
ADV1010081	10/3/2024	4.114	10/10/2025	103.07908	102.2063457	101.348419	100.504929	99.67551305	98.8598205	98.05751226	97.26826034	96.49174742
ADV1010084	10/3/2024	3.638	10/4/2027	109.90155	106.9757063	104.1437141	101.4020618	98.7473929	96.1764938	93.68628706	91.27382483	88.93628263
ADV1010086	10/3/2024	3.641	10/3/2029	116.99165	111.8957564	107.05623	102.4588317	98.09018205	93.93770781	89.9895892	86.23471109	82.66261755
ADV1010097	10/3/2024	4.89	12/11/2024	100.13946	100.1087091	100.0779917	100.0473095	100.0166624	99.9860505	99.9554736	99.92493167	99.89442464
ADV1010103	10/3/2024	4.91	12/6/2024	100.08233	100.0655677	100.0488183	100.0320857	100.01537	99.99867107	99.98198899	99.9653237	99.94867516
ADV1010107	10/3/2024	3.82	10/5/2026	106.49966	104.6235697	102.7899156	100.9974917	99.24513277	97.53171362	95.8561478	94.21738593	92.61441418
ADV1010108	10/3/2024	3.82	10/5/2026	106.49966	104.6235697	102.7899156	100.9974917	99.24513277	97.53171362	95.8561478	94.21738593	92.61441418
ADV1010117	10/4/2024	4.813	1/3/2025	100.3972	100.3019731	100.2069289	100.1120683	100.0173909	99.92289611	99.82858336	99.73445212	99.64050187
ADV1010118	10/4/2024	4.004	10/5/2026	106.84267	104.9632907	103.1264069	101.3308138	99.5753443	97.85887165	96.18030784	94.53860198	92.93273879
ADV1010124	10/4/2024	3.91	10/4/2027	110.44397	107.5156759	104.681136	101.93685	99.27946899	96.70578677	94.21273258	91.79736483	89.45686495

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ADV1010125	10/4/2024	4.926	12/4/2024	100.05921	100.0480367	100.0368732	100.0257204	100.0145782	100.0034466	99.99232555	99.98121512	99.97011524
ADV1010127	10/4/2024	4.326	10/6/2025	103.22069	102.3582221	101.5102031	100.6762709	99.85607599	99.04928051	98.25555758	97.47459089	96.70607425
ADV1010129	10/4/2024	3.951	10/5/2026	106.89606	105.0134078	103.1733705	101.3747379	99.61633833	97.89704098	96.21575382	94.57142215	92.96302707
ADV1010130	10/4/2024	3.864	10/4/2028	114.37484	110.3560886	106.5031338	102.808275	99.26420504	95.86399191	92.60105777	89.46915884	86.46236681
ADV1010142	10/7/2024	4.859	12/6/2024	100.08047	100.0637163	100.0469772	100.0302551	100.0135498	99.9968614	99.98018975	99.96353487	99.94689674
ADV1010146	10/7/2024	3.988	10/7/2027	110.69762	107.7575049	104.9117334	102.1567784	99.48926173	96.90594963	94.40374536	91.97968279	89.63092013
ADV1010149	10/7/2024	4.086	10/8/2026	107.02659	105.1373306	103.290955	101.4862381	99.72199753	97.9970924	96.31042099	94.66091938	93.04755985
ADV1010154	10/7/2024	4.744	1/21/2025	100.59547	100.449728	100.3044164	100.1595358	100.0150842	99.87105973	99.72746047	99.58428448	99.44152987
ADV1010155	10/7/2024	4.622	4/7/2025	101.43199	101.0713682	100.7132935	100.3577386	100.0046769	99.65408216	99.30592855	98.96019058	98.61684311
ADV1010157	10/7/2024	4.119	7/10/2026	106.10465	104.4697821	102.868291	101.2992209	99.76165158	98.2546979	96.77750754	95.32925968	93.90916352
ADV1010172	10/8/2024	4.484	10/8/2036	144.38358	131.0577633	119.1687166	108.5507746	99.05829961	90.56316019	82.95254197	76.12704129	69.99900513
ADV1010179	10/8/2024	3.997	10/8/2027	110.7338	107.790436	104.9416029	102.1837576	99.51351298	96.92762647	94.42299315	91.99663913	89.64571532
ADV1010188	10/8/2024	4.34	9/2/2025	102.87114	102.1034446	101.3472245	100.6022245	99.86819601	99.14489782	98.43209566	97.72956206	97.03707606
ADV1010189	10/8/2024	4.412	6/30/2025	102.251	101.6613173	101.0784377	100.5022445	99.93262298	99.36946131	98.81265001	98.26208208	97.71765294
ADV1010191	10/8/2024	4.853	12/9/2024	100.11434	100.0892063	100.064096	100.0390132	100.0139576	99.9889294	99.96392845	99.93895471	99.91400814
ADV1010198	10/9/2024	4.789	1/9/2025	100.46312	100.3511287	100.239395	100.1279218	100.016708	99.90575282	99.79505522	99.68461428	99.57442908
ADV1010199	10/9/2024	4.245	10/9/2025	103.25085	102.3790373	101.521988	100.6793254	99.85068904	99.03573018	98.23411169	97.44550739	96.66960171
ADV1010202	10/9/2024	4.567	4/9/2025	101.43443	101.068312	100.7048221	100.3439315	99.98561205	99.62983642	99.27657749	98.92580853	98.57750321
ADV1010211	10/9/2024	4.122	8/14/2026	106.49005	104.7571855	103.0610742	101.4006126	99.77474034	98.18243898	96.62273047	95.09467494	93.59736875
ADV1010214	10/9/2024	4.281	10/9/2025	103.2821	102.4101463	101.552951	100.7101443	99.88136542	99.06626573	98.26450803	97.47576612	96.69972439
ADV1010218	10/9/2024	4	10/9/2029	118.38104	113.2481676	108.3734866	103.742642	99.34214753	95.1593305	91.18227889	87.39979176	83.80133333
ADV1010223	10/10/2024	4.254	10/10/2025	103.2692	102.3945526	101.5347638	100.6894528	99.85825558	99.0408203	98.23680662	97.44588538	96.66773812
ADV1010225	10/10/2024	4.003	10/10/2029	117.53218	112.6327689	107.9790276	103.5572066	99.35440084	95.35849221	91.5580974	87.94251964	84.50170365
ADV1010231	10/10/2024	4.783	1/10/2025	100.47377	100.3589815	100.2444703	100.1302328	100.016268	99.90257498	99.78915264	99.67599999	99.56311603
ADV1010237	10/10/2024	4.788	1/13/2025	100.50898	100.3857655	100.2628685	100.1402862	100.0180175	99.89606094	99.77441542	99.65307967	99.53205248
ADV1010238	10/10/2024	4.797	1/10/2025	100.47539	100.3606015	100.2460862	100.1318447	100.0178759	99.90417884	99.79075249	99.67759585	99.5647079
ADV1010250	10/11/2024	3.987	10/13/2026	107.04672	105.1409677	103.2788004	101.4589632	99.68024604	97.94148105	96.24154114	94.57933813	92.95382117
ADV1010251	10/11/2024	4.561	4/11/2025	101.45429	101.0825929	100.7136028	100.3472924	99.98363248	99.62259432	99.26414953	98.90827012	98.55492856
ADV1010259	10/11/2024	3.99	4/11/2029	116.5177	111.933198	107.5591097	103.3846714	99.39972376	95.59467593	91.96047098	88.48855343	85.17083903
ADV1010263	10/11/2024	4.777	1/14/2025	100.51892	100.3929151	100.2672426	100.1418987	100.0168822	99.89219176	99.76782597	99.64378355	99.52006322
ADV1010264	10/11/2024	4.777	1/14/2025	100.51892	100.3929151	100.2672426	100.1418987	100.0168822	99.89219176	99.76782597	99.64378355	99.52006322
ADV1010279	10/11/2024	4.218	10/14/2025	103.28017	102.3945095	101.5240762	100.6684825	99.82735055	99.00031525	98.18702378	97.387135	96.60031898
ADV1010312	10/15/2024	4.756	1/15/2025	100.52688	100.3981468	100.2697529	100.1417017	100.0139916	99.88662127	99.75958934	99.6328944	99.50653506

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ADV1010330	10/15/2024	3.881	10/15/2027	110.70945	107.7419277	104.8704018	102.0912498	99.40100846	96.79636366	94.2741429	91.83130862	89.4649516
ADV1010335	10/15/2024	4.22	10/15/2025	103.29161	102.4031292	101.5299768	100.6717556	99.82808431	98.99859464	98.18293052	97.38074777	96.59171355
ADV1010339	10/16/2024	3.955	1/18/2028	111.6638	108.4258703	105.3003053	102.282538	99.36821798	96.55319818	93.83352437	91.20542463	88.66529973
ADV1010340	10/15/2024	4.219	10/15/2025	103.29072	102.402249	101.5291007	100.6708837	99.8272165	98.99773089	98.18207077	97.37989197	96.59086167
ADV1010351	10/16/2024	4.52	4/16/2025	101.49375	101.1081457	100.7254608	100.3456592	99.96870832	99.59457597	99.22323057	98.85464096	98.48877645
ADV1010352	10/16/2024	4.269	10/16/2025	103.27483	102.3846639	101.5098836	100.6500942	99.80491193	98.97396628	98.15689907	97.35336409	96.56302659
ADV1010353	10/16/2024	4.117	4/16/2026	105.16881	103.7743586	102.4052171	101.0607533	99.74035627	98.44343507	97.16941752	95.9177497	94.68789512
ADV1010355	10/16/2024	4.769	1/15/2025	100.52836	100.3996395	100.2712582	100.1432195	100.015522	99.88816413	99.76114466	99.63446214	99.50811519
ADV1010368	10/17/2024	4.776	1/15/2025	100.52907	100.4003557	100.2719891	100.1439649	100.0162818	99.88893848	99.76193343	99.63526531	99.50893271
ADV1010369	10/17/2024	4.772	1/17/2025	100.55155	100.4172202	100.2832671	100.1496851	100.0164728	99.88362853	99.75115077	99.61903794	99.4872885
ADV1010398	10/18/2024	4.245	11/24/2025	103.67085	102.6717511	101.6919572	100.7309142	99.78808694	98.86296034	97.95503865	97.06384449	96.18891801
ADV1010402	10/18/2024	4.299	10/20/2025	103.34358	102.4421266	101.5564418	100.6861154	99.83074976	98.98996087	98.16337778	97.35064206	96.55140726
ADV1010403	10/18/2024	4.038	10/19/2026	107.05055	105.1313669	103.2563686	101.4242719	99.63384217	97.88388823	96.17326072	94.50085024	92.86558572
ADV1010404	10/18/2024	4.141	4/20/2026	105.24619	103.8400735	102.4596604	101.1043016	99.7733726	98.4662695	97.18240777	95.92122162	94.68216321
ADV1010409	10/18/2024	4.756	1/17/2025	100.54918	100.4148773	100.2809471	100.1473879	100.0141984	99.88137684	99.74892172	99.61683147	99.48510455
ADV1010411	10/18/2024	4.757	1/17/2025	100.54932	100.4150121	100.2810814	100.147522	100.0143321	99.88151022	99.74905477	99.6169642	99.48523695
ADV1010445	10/21/2024	4.121	4/21/2026	105.34212	103.9307025	102.5451536	101.1848215	99.84907616	98.53730821	97.24892789	95.98336443	94.74006526
ADV1010446	10/21/2024	4.363	9/22/2025	103.09876	102.2751993	101.4648332	100.6673418	99.88241954	99.10977054	98.34910814	97.60015452	96.86264042
ADV1010447	10/21/2024	4.411	7/21/2025	102.46729	101.8191612	101.1792501	100.547403	99.92346787	99.30729642	98.69874415	98.09767008	97.5039367
ADV1010448	10/21/2024	4.483	5/21/2025	101.86169	101.3767784	100.8964534	100.4206485	99.94929997	99.48234542	99.01972353	98.56137413	98.10723817
ADV1010449	10/21/2024	3.958	10/21/2027	110.99413	108.0060899	105.1151706	102.3176901	99.61012786	96.98911583	94.45143062	91.99398666	89.61382944
ADV1010450	10/21/2024	4.021	10/21/2026	107.19421	105.265374	103.3810996	101.54009	99.74109572	97.98291144	96.26437436	94.58436223	92.94179176
ADV1010451	10/21/2024	4.34	10/21/2025	103.39016	102.4857377	101.5971867	100.7240881	99.86604062	99.02265693	98.19356279	97.37839668	96.57680916
ADV1010455	10/21/2024	4.042	10/21/2027	110.99608	108.0135444	105.1278354	102.3352848	99.63238639	97.01578569	94.48227216	92.02877233	89.65234315
ADV1010462	10/22/2024	4.761	1/23/2025	100.61785	100.4667596	100.3161364	100.1659739	100.01627	99.86702258	99.71822949	99.56988865	99.42199796
ADV1010470	10/22/2024	4.234	3/30/2026	105.13608	103.7888039	102.46556	101.1657532	99.88880766	98.63416578	97.40128791	96.18965149	94.99875041
ADV1010471	10/22/2024	4.618	3/31/2025	101.34831	101.0082196	100.6703942	100.3348067	100.0014349	99.67025695	99.34125138	99.0143969	98.68967251
ADV1010478	10/22/2024	4.827	12/19/2024	100.22389	100.1708738	100.1179267	100.0650519	100.0122495	99.95951915	99.9068608	99.85427427	99.80175942
ADV1010479	10/22/2024	4.632	3/20/2025	101.22819	100.9192683	100.6122296	100.3070578	100.0037357	99.70224648	99.40257352	99.10470033	98.80861067
ADV1010487	10/23/2024	4.191	7/23/2026	106.36287	104.6906072	103.0529686	101.4489469	99.8775703	98.33790453	96.82905098	95.35014492	93.90035394
ADV1010488	10/23/2024	4.143	10/23/2026	107.2926	105.3602549	103.4726089	101.6283632	99.82626244	98.06509593	96.34369554	94.66093401	93.01572324
ADV1010507	10/23/2024	4.276	10/23/2025	103.4261	102.5150017	101.6200018	100.7406715	99.87660129	99.02739583	98.19267334	97.37206504	96.56521456
ADV1010522	10/25/2024	4.07	10/15/2027	111.01427	108.0478027	105.1771463	102.3986918	99.70898679	97.10472706	94.58274966	92.14002592	89.77365504

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1010530	10/25/2024	4.072	10/25/2027	111.12492	108.1296181	105.231868	102.4279657	99.71436753	97.08768353	94.54466977	92.0822213	89.69736535
ADV1010536	10/25/2024	4.738	1/27/2025	100.65937	100.4971075	100.3353752	100.1741662	100.0134781	99.85330841	99.69365451	99.53451395	99.37588426
ADV1010540	10/25/2024	4.738	1/27/2025	100.65937	100.4971075	100.3353752	100.1741662	100.0134781	99.85330841	99.69365451	99.53451395	99.37588426
ADV1010541	10/25/2024	4.141	10/25/2029	109.67548	107.0888915	104.5966185	102.1943943	99.87817776	97.64413973	95.48864986	93.40826513	91.39971886
ADV1010542	10/25/2024	4.738	1/27/2025	100.65937	100.4971075	100.3353752	100.1741662	100.0134781	99.85330841	99.69365451	99.53451395	99.37588426
ADV1010543	10/25/2024	4.153	10/26/2026	107.34363	105.4026881	103.5068109	101.6546856	99.84504202	98.07665518	96.34834347	94.65896675	93.00742466
ADV1010544	10/25/2024	4.675	2/25/2025	100.97736	100.7334918	100.4907978	100.2492679	100.0088938	99.76966732	99.53158015	99.29462419	99.0587914
ADV1010545	10/25/2024	4.521	5/27/2025	101.94526	101.4433559	100.9463503	100.454174	99.96675681	99.48403013	99.00592647	98.53237969	98.06332491
ADV1010553	10/28/2024	4.792	1/28/2025	100.67908	100.5140524	100.3495666	100.1856202	100.0222106	99.85933499	99.69699092	99.53517575	99.37388691
ADV1010556	10/28/2024	4.796	1/28/2025	100.67974	100.5147112	100.3502237	100.1862757	100.0228643	99.85998713	99.69764142	99.53582462	99.37453415
ADV1010557	10/28/2024	4.796	1/28/2025	100.67974	100.5147112	100.3502237	100.1862757	100.0228643	99.85998713	99.69764142	99.53582462	99.37453415
ADV1010568	10/28/2024	4.853	12/27/2024	100.31521	100.2398662	100.1646397	100.0895327	100.0145449	99.93967612	99.86492604	99.7902944	99.71578091
ADV1010586	10/29/2024	4.219	10/29/2026	107.50274	105.5521351	103.6469861	101.7859593	99.96776919	98.19117613	96.45498454	94.75804097	93.09923233
ADV1010587	10/29/2024	4.204	10/29/2027	111.55379	108.5412904	105.6271805	102.8077138	100.0793054	97.43852672	94.88209713	92.40687714	90.00986134
ADV1010594	10/29/2024	4.246	10/1/2029	117.33141	112.7649388	108.4207364	104.2865822	100.3509994	96.60320206	93.03304975	89.63100561	86.38809712
ADV1010598	10/29/2024	4.188	10/29/2031	115.62772	111.4431126	107.4771175	103.7161522	100.1475822	96.75964989	93.5414083	90.48265929	87.57389737
ADV1010603	10/30/2024	4.18	10/30/2029	119.46869	114.2514942	109.2991777	104.5968675	100.1306003	95.88726418	91.85454193	88.02085924	84.37533599
ADV1010604	10/30/2024	4.127	10/30/2026	107.49416	105.538015	103.6275664	101.7614665	99.93842022	98.15717903	96.4165387	94.7153376	93.05245484
ADV1010613	10/30/2024	4.207	10/30/2028	115.65531	111.5491346	107.6146959	103.8438935	100.2290541	96.76290484	93.43854975	90.24944862	87.18939658
ADV1010614	10/30/2024	4.641	3/26/2025	101.29771	100.972104	100.6485823	100.3271255	100.0077139	99.69032806	99.37494862	99.06155664	98.75013333
ADV1010618	10/30/2024	4.761	1/30/2025	100.69649	100.5258968	100.3558784	100.1864319	100.0175544	99.84924305	99.68149503	99.51430754	99.34767779
ADV1010619	10/30/2024	4.585	4/30/2025	101.67372	101.2488682	100.8275342	100.4096751	99.99524838	99.58421187	99.17652419	98.77214464	98.37103316
ADV1010630	10/31/2024	4.42	10/31/2025	103.57044	102.6377136	101.7218249	100.8223202	99.93876232	99.07072963	98.21781513	97.379626	96.55578292
ADV1010632	10/31/2024	4.195	10/31/2029	119.07822	114.0645152	109.3048155	104.7847532	100.4908486	96.41045333	92.53169508	88.84342544	85.33517208
ADV1010636	10/31/2024	4.765	1/31/2025	100.70845	100.5350634	100.362271	100.190067	100.0184484	99.8474122	99.6769555	99.5070754	99.33776898
ADV1010643	10/31/2024	4.363	1/30/2026	104.58418	103.3952163	102.2333724	101.0977296	99.98740791	98.90156612	97.83940012	96.80014063	95.7830514
ADV1010651	10/31/2024	4.321	10/31/2025	103.55281	102.6191357	101.7023292	100.8019389	99.91752637	99.04866875	98.19495793	97.356	96.5314146
ADV1010652	10/31/2024	4.766	1/31/2025	100.70862	100.5352363	100.3624435	100.190239	100.0186199	99.84758331	99.67712619	99.50724565	99.33793881
ADV1010655	10/31/2024	4.239	10/30/2026	107.5524	105.5985924	103.6903735	101.8263996	100.00538	98.22607028	96.48727012	94.78782168	93.12660764
ADV1010656	11/1/2024	4.228	11/1/2029	119.73216	114.5030474	109.5396067	104.8269071	100.3509323	96.09852105	92.057311	88.21568585	84.56272673
ADV1010662	10/31/2024	4.602	4/30/2025	101.68068	101.2558411	100.8345243	100.4166823	100.0022726	99.59125288	99.18358189	98.7792189	98.37812384
ADV1010663	10/31/2024	4.483	7/31/2025	102.61897	101.9428235	101.2755916	100.6171029	99.96718651	99.32567566	98.69240801	98.06722536	97.44997352
231114A00006	11/14/2024	4.67	11/14/2031	129.79301	122.1609129	115.049572	108.4203883	102.2378213	96.46913341	91.0841553	86.05507191	81.35622714

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
231114A00007	11/14/2024	4.89	11/14/2034	142.83327	131.5365042	121.2848889	111.9744608	103.5121646	95.81465523	88.80723746	82.42292534	76.60160877
ADV1008283	11/1/2024	4.589	10/31/2025	103.73308	102.799568	101.8829029	100.9826313	100.0983161	99.2295352	98.37588154	97.53696209	96.71239735
ADV1008371	11/15/2024	4.35	11/14/2025	103.66426	102.69262	101.7392503	100.8036389	99.88529201	98.98373415	98.09850718	97.2291695	96.37529534
ADV1008845	11/21/2024	4.228	8/21/2025	102.66102	101.9270813	101.2036629	100.4905369	99.78748451	99.09429299	98.41075557	97.73667124	97.07184453
ADV1010839	11/12/2024	4.763	12/3/2024	100.0374	100.0290641	100.0207372	100.012418	100.0041065	99.99580272	99.98750659	99.97921811	99.97093729
ADV1011018	11/19/2024	4.357	11/19/2026	108.01556	106.0013983	104.0354926	102.1163899	100.2426871	98.41303302	96.62612603	94.88071162	93.17558054
ADV1010883	11/13/2024	4.717	12/30/2024	100.33457	100.2510233	100.1676138	100.0843438	100.0012129	99.91822075	99.83536707	99.7526515	99.6700737
ADV1011274	11/29/2024	4.275	11/30/2026	107.97612	105.9316752	103.9369368	101.9903778	100.0905331	98.23599242	96.42539784	94.65744156	92.93086359
ADV1011214	11/26/2024	4.8	12/3/2024	100.03469	100.0263694	100.0180578	100.0097539	100.0014577	99.99316921	99.98488834	99.97661512	99.96834953
ADV1011127	11/25/2024	4.732	12/26/2024	100.28907	100.2167989	100.1446424	100.0725986	100.0006673	99.92884801	99.85714066	99.78554494	99.7140606
ADV1010672	11/1/2024	4.729	1/31/2025	100.70201	100.5286634	100.3559091	100.1837431	100.0121623	99.84116387	99.67074479	99.50090218	99.33163312
ADV1011206	11/26/2024	4.804	12/3/2024	100.03472	100.0264034	100.0180918	100.009788	100.0014918	99.99320323	99.98492236	99.97664913	99.96838354
ADV1011257	11/29/2024	4.747	12/31/2024	100.34488	100.2587107	100.1726923	100.0868201	100.0010938	99.91551292	99.83007717	99.74478619	99.65963962
ADV1010967	11/18/2024	4.734	12/18/2024	100.20207	100.152027	100.1020541	100.0521482	100.0023092	99.95253686	99.9028311	99.85319177	99.80361873
ADV1011258	11/29/2024	4.722	1/7/2025	100.42235	100.3166912	100.2112642	100.1060699	100.0011073	99.89637577	99.79187442	99.68760249	99.58355919
ADV1010794	11/8/2024	4.27	11/8/2027	111.86407	108.8190697	105.8743733	103.0261258	100.2706415	97.60439661	95.02402113	92.52629134	90.10812246
ADV1011110	11/25/2024	4.414	5/25/2027	110.33746	107.7761419	105.2885401	102.8721074	100.5243962	98.24305856	96.0258414	93.87058192	91.77520344
ADV1010678	11/1/2024	4.73	1/31/2025	100.70218	100.5288362	100.3560815	100.183915	100.0123339	99.84133497	99.67091546	99.50107242	99.33180295
ADV1010696	11/4/2024	4.756	12/9/2024	100.10591	100.080862	100.0558447	100.0308547	100.0058919	99.9809564	99.95604803	99.93116677	99.90631258
ADV1011028	11/19/2024	4.686	1/21/2025	100.57835	100.433438	100.288953	100.1448965	100.0012667	99.85806148	99.71527908	99.57291755	99.430975
ADV1011219	11/26/2024	4.789	12/3/2024	100.03459	100.0262757	100.0179642	100.0096603	100.0013641	99.99307564	99.98479479	99.97652159	99.96825602
ADV1010904	11/14/2024	4.652	2/14/2025	100.84397	100.6316724	100.4202787	100.2097817	100.0001756	99.79145477	99.58361351	99.37664622	99.17054735
ADV1010743	11/6/2024	4.777	12/6/2024	100.07243	100.0557413	100.0390707	100.0224169	100.0057798	99.98915952	99.97255597	99.95596912	99.93939894
ADV1011042	11/20/2024	4.725	12/4/2024	100.0464	100.0352947	100.0242033	100.0131225	100.0020522	99.99099243	99.97994321	99.96890449	99.95787626
ADV1011069	11/21/2024	4.64	2/21/2025	100.91876	100.6869973	100.4563086	100.2266818	99.99810941	99.77058423	99.54409904	99.31864667	99.09422006
ADV1010834	11/12/2024	4.767	12/18/2024	100.20501	100.154926	100.1049122	100.0549655	100.0050856	99.95527257	99.90552611	99.85584613	99.80623251
ADV1010700	11/4/2024	4.777	12/2/2024	100.02806	100.0224976	100.0169409	100.011389	100.0058422	100.0003004	99.9947635	99.98923158	99.98370461
ADV1011135	11/25/2024	4.533	10/24/2025	103.59716	102.683505	101.7860164	100.9042673	100.0378456	99.18635337	98.34940669	97.52663449	96.71767829
ADV1011200	11/26/2024	4.74	12/31/2024	100.3449	100.258697	100.1726453	100.0867399	100.0009803	99.91536632	99.8298975	99.74457349	99.65939396
ADV1011253	11/27/2024	4.812	12/16/2024	100.18149	100.1370645	100.0927008	100.0483942	100.0041445	99.95995149	99.9158152	99.87173546	99.82771217
ADV1011229	11/27/2024	4.673	2/27/2025	100.99318	100.7447244	100.4974835	100.2514519	100.0066207	99.76298119	99.5205247	99.27924268	99.03912661
ADV1011096	11/22/2024	4.759	12/5/2024	100.05751	100.0436382	100.0297765	100.0159283	100.0020937	99.98827267	99.97446517	99.96067118	99.94689068
ADV1011204	11/26/2024	4.804	12/3/2024	100.03472	100.0264034	100.0180918	100.009788	100.0014918	99.99320323	99.98492236	99.97664913	99.96838354

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1010914	11/14/2024	4.764	12/5/2024	100.05931	100.0454194	100.031543	100.0176801	100.0038309	99.98999523	99.97617312	99.96236452	99.94856943
ADV1011273	11/29/2024	4.749	12/30/2024	100.33393	100.2505543	100.1673163	100.0842175	100.0012575	99.91843602	99.8357527	99.75320721	99.67079921
ADV1010840	11/12/2024	4.763	12/13/2024	100.14901	100.1128628	100.0767545	100.0406895	100.0046679	99.96868953	99.93275431	99.89686217	99.86101303
ADV1011197	11/26/2024	4.756	12/26/2024	100.2906	100.2183351	100.1461867	100.0741509	100.0022275	99.93041618	99.85871679	99.78712902	99.71565261
ADV1010835	11/12/2024	4.668	2/12/2025	100.82511	100.6183666	100.4124823	100.2074488	100.0032609	99.79991325	99.59740066	99.39571791	99.19485986
ADV1011143	11/25/2024	4.73	12/26/2024	100.28892	100.2166542	100.1444979	100.0724542	100.0005229	99.92870382	99.85699659	99.785401	99.71391678
ADV1010930	11/15/2024	4.665	2/14/2025	100.84652	100.6342476	100.422874	100.2123971	100.0028109	99.79410996	99.58628849	99.37934092	99.17326167
ADV1011226	11/27/2024	4.741	1/3/2025	100.37906	100.2845175	100.1901582	100.0959812	100.001986	99.90817214	99.81453899	99.72108605	99.62781278
ADV1010938	11/15/2024	4.609	4/15/2025	101.51095	101.1294587	100.7508342	100.3750421	100.0020506	99.63182833	99.26434448	98.89956864	98.53747086
ADV1010826	11/12/2024	4.781	12/12/2024	100.13847	100.1051015	100.0717726	100.0384827	100.005232	99.97202025	99.93884743	99.90571346	99.87261826
ADV1010949	11/15/2024	4.759	12/2/2024	100.02556	100.0200067	100.014458	100.0089143	100.0033756	99.99784188	99.99231311	99.98678928	99.9812704
ADV1010965	11/18/2024	4.734	12/18/2024	100.20207	100.152027	100.1020541	100.0521482	100.0023092	99.95253686	99.9028311	99.85319177	99.80361873
ADV1010693	11/4/2024	4.774	12/4/2024	100.05042	100.0392984	100.0281833	100.0170788	100.0059849	99.99490147	99.98382864	99.97276634	99.96171455
ADV1010831	11/12/2024	4.767	12/18/2024	100.20501	100.154926	100.1049122	100.0549655	100.0050856	99.95527257	99.90552611	99.85584613	99.80623251
ADV1011238	11/27/2024	4.257	11/29/2027	112.05835	108.9513689	105.9486346	103.0460664	100.2397641	97.52600214	94.90122074	92.36201776	89.90514055
ADV1010712	11/4/2024	4.776	12/4/2024	100.05045	100.039323	100.0282079	100.0171033	100.0060094	99.99492596	99.98385311	99.97279079	99.96173898
ADV1010878	11/13/2024	4.782	12/13/2024	100.1495	100.1133541	100.0772499	100.0411891	100.0051717	99.96919749	99.93326644	99.89737847	99.86153348
ADV1010924	11/15/2024	4.744	12/16/2024	100.181	100.1365059	100.0920739	100.0476989	100.003381	99.9591199	99.91491557	99.87076788	99.82667672
ADV1010747	11/6/2024	4.772	12/6/2024	100.07234	100.0556526	100.0389821	100.0223283	100.0056913	99.98907112	99.97246764	99.95588086	99.93931075
ADV1011262	11/29/2024	4.747	12/30/2024	100.33377	100.2503877	100.1671499	100.0840513	100.0010914	99.91827008	99.8355869	99.75304155	99.67063369
ADV1010968	11/18/2024	4.738	12/16/2024	100.18009	100.1356188	100.0912045	100.0468472	100.0025469	99.95830344	99.91411672	99.86998662	99.82591302
ADV1010961	11/18/2024	4.734	12/17/2024	100.19099	100.1437335	100.0965402	100.0494088	100.0023392	99.95533138	99.90838509	99.86150026	99.81467674
ADV1010846	11/12/2024	4.567	6/12/2025	102.14056	101.5940279	101.0533087	100.5183143	99.98895391	99.46513889	98.94678236	98.43379926	97.92610629
ADV1011093	11/22/2024	4.749	12/23/2024	100.25758	100.193637	100.1297935	100.0660443	100.0023893	99.93882834	99.87536111	99.81198745	99.74870714
ADV1011275	11/29/2024	4.209	11/29/2027	111.9127	108.8079357	105.8073599	102.9068949	100.102642	97.39087771	94.76804402	92.23074046	89.77571602
ADV1011225	11/27/2024	4.754	12/31/2024	100.34589	100.2597063	100.1736648	100.0877695	100.0020201	99.91641614	99.8309574	99.74564346	99.66047397
ADV1011162	11/25/2024	4.483	11/25/2025	103.91744	102.9142663	101.9305225	100.9656477	100.019102	99.09036586	98.17893945	97.28434136	96.4061079
ADV1011134	11/25/2024	4.596	5/22/2025	101.92086	101.4348978	100.9535599	100.4767766	100.0044833	99.53661678	99.07311496	98.61391692	98.15896287
ADV1010877	11/13/2024	4.782	12/13/2024	100.1495	100.1133541	100.0772499	100.0411891	100.0051717	99.96919749	99.93326644	99.89737847	99.86153348
ADV1010795	11/8/2024	4.775	12/19/2024	100.21745	100.1645551	100.1117308	100.0589788	100.0062989	99.95369089	99.90115473	99.84869024	99.79629726
ADV1011015	11/19/2024	4.448	11/19/2025	103.81548	102.8293148	101.8619436	100.9128362	99.98147805	99.0673737	98.17004611	97.28903567	96.42389945
ADV1010857	11/12/2024	4.753	12/19/2024	100.21542	100.162557	100.1097617	100.0570387	100.0043878	99.95180874	99.89930149	99.84686586	99.7945017
ADV1010919	11/14/2024	4.776	12/16/2024	100.18265	100.1381551	100.093716	100.049334	100.0050089	99.96074078	99.9165294	99.87237467	99.82827647

Classification | Public

	Parallel-Shift Sensitivity Analysis											
11/30/2024				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1010692	11/4/2024	4.772	12/4/2024	100.0504	100.0392739	100.0281588	100.0170543	100.0059604	99.99487699	99.98380418	99.97274189	99.96169012
ADV1011201	11/26/2024	4.656	3/19/2025	101.21757	100.9128103	100.609892	100.3087997	100.0095169	99.71202724	99.41631451	99.12236276	98.83015621
ADV1011228	11/27/2024	4.773	12/27/2024	100.3028	100.2277614	100.1528416	100.0780408	100.0033588	99.92879537	99.85435012	99.78002281	99.70581317
ADV1011272	11/29/2024	4.655	2/28/2025	100.99963	100.7484397	100.4984877	100.2497699	100.0022771	99.7560003	99.51093067	99.26705935	99.02437761
ADV1010774	11/7/2024	4.321	11/9/2026	107.83035	105.8459793	103.9085308	102.0166033	100.1688505	98.36397513	96.60072667	94.87789941	93.19433052
ADV1010926	11/15/2024	4.595	5/15/2025	101.84353	101.3768908	100.9145178	100.4563494	100.0023284	99.55239854	99.10650461	98.66459236	98.22660855
ADV1010810	11/8/2024	4.736	1/8/2025	100.43956	100.3308083	100.2223078	100.1140535	100.0060446	99.89828023	99.79075945	99.68348145	99.57644534
ADV1011266	11/29/2024	4.749	12/30/2024	100.33393	100.2505543	100.1673163	100.0842175	100.0012575	99.91843602	99.8357527	99.75320721	99.67079921
ADV1010847	11/12/2024	4.682	2/12/2025	100.82799	100.6212436	100.415352	100.2103113	100.0061162	99.80276137	99.60024161	99.39855173	99.19768658
ADV1010811	11/8/2024	4.788	12/9/2024	100.10588	100.0808495	100.0558447	100.0308671	100.0059168	99.98099374	99.95609779	99.93122894	99.90638714
ADV1011260	11/29/2024	4.722	1/7/2025	100.42235	100.3166912	100.2112642	100.1060699	100.0011073	99.89637577	99.79187442	99.68760249	99.58355919
ADV1011095	11/22/2024	4.749	12/23/2024	100.25758	100.193637	100.1297935	100.0660443	100.0023893	99.93882834	99.87536111	99.81198745	99.74870714
ADV1011196	11/26/2024	4.806	12/3/2024	100.03474	100.0264204	100.0181089	100.009805	100.0015088	99.99322024	99.98493937	99.97666614	99.96840054
ADV1011003	11/19/2024	4.354	11/19/2025	103.80189	102.8146748	101.8462943	100.8962138	99.9639172	99.04890784	98.15070727	97.26885464	96.4029058
ADV1011006	11/19/2024	4.743	12/10/2024	100.11347	100.0856956	100.0579517	100.0302389	100.002557	99.97490607	99.94728604	99.91969683	99.89213839
ADV1011227	11/27/2024	4.817	12/4/2024	100.04593	100.0348408	100.0237593	100.0126884	100.0016281	99.99057831	99.97953903	99.96851024	99.95749193
ADV1010767	11/7/2024	4.811	12/9/2024	100.1067	100.08166	100.0566513	100.03167	100.0067158	99.98178893	99.95688918	99.93201652	99.90717093
ADV1010907	11/14/2024	4.497	7/14/2025	102.44939	101.8205453	101.1994409	100.5859362	99.97989211	99.38117277	98.78964566	98.20518142	97.62765381
ADV1010809	11/8/2024	4.788	12/9/2024	100.10588	100.0808495	100.0558447	100.0308671	100.0059168	99.98099374	99.95609779	99.93122894	99.90638714
ADV1011149	11/25/2024	4.766	12/9/2024	100.10166	100.0766866	100.0517383	100.0268172	100.0019233	99.97705653	99.95221684	99.9274042	99.90261855
ADV1011077	11/21/2024	4.823	12/15/2042	150.61353	135.8623654	123.0427975	111.8699467	102.1040047	93.54274203	86.01531039	79.37710894	73.50552514
ADV1010681	11/1/2024	4.815	12/18/2024	100.2098	100.1596452	100.1095558	100.0595335	100.0095783	99.95968986	99.90986819	99.86011309	99.81042445
ADV1010838	11/12/2024	4.764	12/12/2024	100.13789	100.1045217	100.0711933	100.0379039	100.0046536	99.97144235	99.93826999	99.90513649	99.87204176
ADV1010886	11/13/2024	4.758	12/18/2024	100.20434	100.1542642	100.1042575	100.0543178	100.0044449	99.95463884	99.90489937	99.85522638	99.80561972
ADV1010796	11/8/2024	4.805	12/9/2024	100.10632	100.0812909	100.0562857	100.0313078	100.0063571	99.98143368	99.95653736	99.93166815	99.90682599
ADV1011005	11/19/2024	4.742	12/3/2024	100.0357	100.0273738	100.0190547	100.0107433	100.0024395	99.99414347	99.98585507	99.97757432	99.96930121
ADV1010882	11/13/2024	4.758	12/11/2024	100.12633	100.0957451	100.0652003	100.0346905	100.0042157	99.97377575	99.94337067	99.91300036	99.88266475
ADV1011243	11/27/2024	4.796	12/11/2024	100.1245	100.0939756	100.0634866	100.0330326	100.0026136	99.97222929	99.94187981	99.91156504	99.88128492
ADV1010843	11/12/2024	4.678	2/12/2025	100.82717	100.6204216	100.4145321	100.2094935	100.0053004	99.80194762	99.59942991	99.39774207	99.19687895
ADV1011097	11/22/2024	4.762	12/13/2024	100.14684	100.1107405	100.0746797	100.0386623	100.0026882	99.96675726	99.93086942	99.89502459	99.8592227
ADV1010775	11/7/2024	4.274	11/8/2027	111.87593	108.8307544	105.8858858	103.0374703	100.2818221	97.61541718	95.03488559	92.5370034	90.11868573
ADV1010927	11/15/2024	4.744	12/16/2024	100.181	100.1365059	100.0920739	100.0476989	100.003381	99.9591199	99.91491557	99.87076788	99.82667672
ADV1010978	11/18/2024	4.734	12/17/2024	100.19099	100.1437335	100.0965402	100.0494088	100.0023392	99.95533138	99.90838509	99.86150026	99.81467674

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1010745	11/6/2024	4.675	2/6/2025	100.7597	100.5696525	100.3803262	100.1917168	100.0038202	99.81663235	99.63014914	99.44436661	99.25928077
ADV1010801	11/8/2024	4.385	4/9/2026	105.46022	104.0831264	102.7307133	101.4023744	100.0975211	98.81558311	97.55600858	96.3182628	95.10182775
ADV1010905	11/14/2024	4.541	5/14/2025	101.80776	101.344032	100.8845168	100.4291556	99.97789193	99.53067073	99.08743769	98.64813953	98.21272393
ADV1010853	11/12/2024	4.767	12/12/2024	100.13799	100.1046241	100.0712955	100.0380061	100.0047557	99.97154433	99.93837189	99.90523831	99.8721435
ADV1010829	11/12/2024	4.788	12/10/2024	100.11625	100.0884482	100.0606778	100.0329385	100.0052302	99.97755285	99.94990645	99.9222909	99.89470616
ADV1011128	11/25/2024	4.732	12/26/2024	100.28907	100.2167989	100.1446424	100.0725986	100.0006673	99.92884801	99.85714066	99.78554494	99.7140606
ADV1010962	11/18/2024	4.732	12/18/2024	100.20197	100.151926	100.1019532	100.0520474	100.0022085	99.95243624	99.90273056	99.85309131	99.80351836
ADV1011154	11/25/2024	4.784	12/2/2024	100.02354	100.0179969	100.0124555	100.0069191	100.0013877	99.9958612	99.99033968	99.98482311	99.97931148
ADV1011233	11/27/2024	4.773	12/27/2024	100.3028	100.2277614	100.1528416	100.0780408	100.0033588	99.92879537	99.85435012	99.78002281	99.70581317
ADV1011066	11/21/2024	4.718	12/23/2024	100.25579	100.1918484	100.1279982	100.0642425	100.0005809	99.93701326	99.87353944	99.81015919	99.74687231
ADV1010748	11/6/2024	4.773	12/6/2024	100.07236	100.0556704	100.0389998	100.022346	100.005709	99.9890888	99.97248531	99.95589851	99.93932839
ADV1010925	11/15/2024	4.744	12/16/2024	100.181	100.1365059	100.0920739	100.0476989	100.003381	99.9591199	99.91491557	99.87076788	99.82667672
ADV1010912	11/14/2024	4.371	11/14/2025	103.76202	102.7887744	101.8338418	100.89671	99.97688384	99.07388639	98.18725804	97.31655582	96.46135264
ADV1011263	11/29/2024	4.786	12/20/2024	100.2248	100.1692674	100.1138127	100.0584353	100.0031352	99.9479122	99.89276606	99.83769667	99.78270385
ADV1011236	11/27/2024	4.803	12/13/2024	100.14726	100.1111828	100.0751452	100.0391509	100.0031998	99.9672919	99.93142707	99.89560524	99.85982631
ADV1010697	11/4/2024	4.773	12/4/2024	100.05041	100.0392861	100.028171	100.0170665	100.0059726	99.99488923	99.98381641	99.97275412	99.96170233
ADV1011108	11/25/2024	4.464	10/26/2026	107.94141	105.9945724	104.0929156	102.2351203	100.4199131	98.64606625	96.91239518	95.21775705	93.56104884
ADV1011240	11/27/2024	4.821	12/2/2024	100.02332	100.0177743	100.0122344	100.0066994	100.0011694	99.99564439	99.99012431	99.98460918	99.97909898
ADV1010699	11/4/2024	4.777	12/2/2024	100.02806	100.0224976	100.0169409	100.011389	100.0058422	100.0003004	99.9947635	99.98923158	99.98370461
ADV1010981	11/18/2024	4.743	12/2/2024	100.02481	100.0192628	100.0137164	100.0081749	100.0026384	99.99710692	99.99158036	99.98605875	99.98054209
ADV1011261	11/29/2024	4.747	12/31/2024	100.34488	100.2587107	100.1726923	100.0868201	100.0010938	99.91551292	99.83007717	99.74478619	99.65963962
ADV1011163	11/25/2024	4.303	11/24/2027	112.14068	109.0465121	106.0556947	103.1642008	100.3681801	97.66395423	95.0480076	92.5169796	90.06765663
ADV1010684	11/1/2024	4.85	12/2/2024	100.02921	100.0236477	100.0180884	100.012534	100.0069847	100.0014403	99.99590086	99.99036641	99.9848369
ADV1010694	11/4/2024	4.758	12/9/2024	100.10596	100.0809143	100.0558969	100.0309069	100.0059441	99.98100849	99.95610007	99.93121877	99.90636453
ADV1010761	11/7/2024	4.317	11/9/2026	107.8225	105.838212	103.9008408	102.0089891	100.1613106	98.35650821	96.59333134	94.87057438	93.18707448
ADV1010689	11/1/2024	4.324	11/3/2025	103.59501	102.6528995	101.7279647	100.8197399	99.92777472	99.05163494	98.19090157	97.34517034	96.51405103
ADV1011230	11/27/2024	4.805	12/6/2024	100.06837	100.0517242	100.0350997	100.018492	100.001901	99.98532674	99.96876915	99.95222822	99.93570392
ADV1011198	11/26/2024	4.763	12/26/2024	100.2911	100.2188412	100.1466923	100.0746561	100.0027323	99.93092061	99.8592208	99.78763261	99.71615579
ADV1010944	11/15/2024	4.742	12/16/2024	100.1809	100.1364158	100.0919838	100.047609	100.0032911	99.95903008	99.91482583	99.87067822	99.82658713
ADV1011268	11/29/2024	4.567	5/29/2025	101.98431	101.4787443	100.9781698	100.4825093	99.99169077	99.50564366	99.0242987	98.547588	98.07544494
ADV1011207	11/26/2024	4.677	2/26/2025	100.98302	100.7373421	100.4928535	100.2495492	100.0074206	99.76645934	99.52665693	99.28800507	99.05049549
ADV1010902	11/14/2024	4.54	5/14/2025	101.8073	101.3435766	100.8840637	100.4287046	99.97744323	99.53022422	99.08699336	98.64769736	98.21228391
ADV1011105	11/22/2024	4.742	12/23/2024	100.25713	100.1931879	100.1293447	100.065596	100.0019414	99.93838077	99.87491392	99.81154064	99.74826071

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	Parallel-Shift Sensitivity Analysis												
11/30/2024				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1011071	11/21/2024	4.492	11/4/2025	103.68482	102.7405555	101.8135421	100.9033071	100.0093975	99.13137625	98.26882197	97.42132795	96.58850171
ADV1010946	11/15/2024	4.742	12/16/2024	100.1809	100.1364158	100.0919838	100.047609	100.0032911	99.95903008	99.91482583	99.87067822	99.82658713
ADV1011083	11/21/2024	4.733	12/5/2024	100.05736	100.0434802	100.0296168	100.0157669	100.0019306	99.98810792	99.97429874	99.96050307	99.94672088
ADV1010760	11/7/2024	4.829	12/9/2024	100.10716	100.0821281	100.0571191	100.0321373	100.0071828	99.9822555	99.95735535	99.9324823	99.9076363
ADV1011011	11/19/2024	4.532	8/19/2025	102.8624	102.1331233	101.4142176	100.7054628	100.0066445	99.31755458	98.63799036	97.96775495	97.30665681
ADV1011064	11/21/2024	4.64	2/21/2025	100.91876	100.6869973	100.4563086	100.2266818	99.99810941	99.77058423	99.54409904	99.31864667	99.09422006
ADV1010685	11/1/2024	4.844	12/6/2024	100.07471	100.058013	100.0413303	100.0246644	100.0080152	99.99138289	99.97476729	99.9581684	99.9415862
ADV1010987	11/18/2024	4.675	1/17/2025	100.53202	100.3982747	100.2649043	100.1319034	99.99927065	99.86700432	99.73510289	99.60356481	99.47238853
ADV1010833	11/12/2024	4.785	12/10/2024	100.11616	100.0883625	100.0605921	100.0328529	100.0051447	99.97746743	99.94982109	99.92220561	99.89462093
ADV1011079	11/21/2024	4.715	12/23/2024	100.2556	100.1916558	100.1278058	100.0640502	100.0003888	99.93682134	99.87334769	99.80996761	99.74668089
ADV1011050	11/20/2024	4.727	12/4/2024	100.04642	100.0353178	100.0242264	100.0131456	100.0020753	99.99101551	99.97996628	99.96892756	99.95789932
ADV1011067	11/21/2024	4.728	12/12/2024	100.13475	100.1014248	100.0681365	100.0348874	100.0016772	99.96850603	99.93537372	99.90228022	99.86922544
ADV1011126	11/25/2024	4.743	12/23/2024	100.25656	100.192648	100.1288299	100.0651062	100.0014766	99.93794095	99.87449903	99.81115064	99.74789557
ADV1011019	11/19/2024	4.313	11/19/2027	112.1151	109.0353758	106.0580694	103.1792067	100.3949884	97.70178422	95.0961237	92.57468867	90.13430545
ADV1011103	11/22/2024	4.743	12/23/2024	100.25719	100.1932521	100.1294088	100.06566	100.0020054	99.9384447	99.87497781	99.81160447	99.74832449
ADV1010876	11/13/2024	4.777	12/13/2024	100.14932	100.1131699	100.0770659	100.0410053	100.004988	99.96901392	99.93308302	99.8971952	99.86135036
ADV1011023	11/19/2024	4.735	12/19/2024	100.21299	100.160169	100.1074231	100.0547494	100.0021477	99.94961779	99.89715961	99.84477299	99.79245777
ADV1010920	11/14/2024	4.723	1/14/2025	100.50514	100.3797074	100.2546062	100.1298321	100.0053839	99.88126026	99.75745981	99.63398128	99.51082335
ADV1011073	11/21/2024	4.728	12/5/2024	100.05729	100.0434088	100.0295453	100.0156955	100.0018593	99.98803658	99.97422743	99.96043178	99.94664962
ADV1011013	11/19/2024	4.412	5/19/2026	105.96195	104.4715775	103.0098554	101.5760244	100.1693549	98.78914205	97.43470524	96.10538661	94.80055024
ADV1010863	11/12/2024	4.714	1/13/2025	100.49307	100.3704045	100.2480556	100.12602	100.0042966	99.88288397	99.76178101	99.64098643	99.52049902
ADV1011065	11/21/2024	4.679	1/21/2025	100.57694	100.4320636	100.2876176	100.1436	100.0000089	99.85684242	99.71409857	99.57177547	99.42987124
ADV1011160	11/25/2024	4.725	12/27/2024	100.29961	100.2245561	100.1496197	100.0748024	100.0001039	99.92552388	99.85106213	99.77671835	99.70249227
ADV1011036	11/20/2024	4.716	12/20/2024	100.22279	100.1671982	100.1116805	100.0562403	100.0008775	99.94559176	99.89038303	99.83525113	99.7801959
ADV1010974	11/18/2024	4.736	12/16/2024	100.18	100.1355289	100.0911147	100.0467575	100.0024572	99.95821385	99.9140272	99.86989717	99.82582364
ADV1010842	11/12/2024	4.753	12/19/2024	100.21542	100.162557	100.1097617	100.0570387	100.0043878	99.95180874	99.89930149	99.84686586	99.7945017
ADV1011040	11/20/2024	4.303	11/20/2026	108.08303	106.0623331	104.0901661	102.1650616	100.2856058	98.45043694	96.65824331	94.90776094	93.19777152
ADV1011269	11/29/2024	4.749	12/30/2024	100.33393	100.2505543	100.1673163	100.0842175	100.0012575	99.91843602	99.8357527	99.75320721	99.67079921
ADV1010695	11/4/2024	4.756	12/9/2024	100.10591	100.080862	100.0558447	100.0308547	100.0058919	99.9809564	99.95604803	99.93116677	99.90631258
ADV1010815	11/13/2024	4.286	10/1/2029	119.69727	114.5547294	109.6693837	105.0269976	100.6141988	96.41841811	92.42783732	88.63134045	85.01846864
ADV1010825	11/12/2024	4.805	12/3/2024	100.03778	100.0294482	100.0211211	100.0128017	100.00449	99.99618598	99.98788964	99.97960097	99.97131994
ADV1010910	11/14/2024	4.622	3/14/2025	101.15288	100.8617994	100.5723979	100.2846638	99.99858253	99.71413988	99.43132166	99.15011389	98.87050273
ADV1010976	11/18/2024	4.732	12/18/2024	100.20197	100.151926	100.1019532	100.0520474	100.0022085	99.95243624	99.90273056	99.85309131	99.80351836

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1010675	11/1/2024	4.898	12/2/2024	100.02954	100.0239774	100.0184178	100.0128632	100.0073136	100.001769	99.99622938	99.99069469	99.98516496
ADV1010714	11/4/2024	4.664	2/4/2025	100.73539	100.5509154	100.3671174	100.1839927	100.0015377	99.81974869	99.63862201	99.45815402	99.27834113
ADV1011101	11/22/2024	4.419	11/24/2025	103.92267	102.9210703	101.9388337	100.9754047	100.030246	99.1028409	98.1926917	97.29931935	96.42226236
ADV1011231	11/27/2024	4.796	12/11/2024	100.1245	100.0939756	100.0634866	100.0330326	100.0026136	99.97222929	99.94187981	99.91156504	99.88128492
ADV1011259	11/29/2024	4.747	12/31/2024	100.34488	100.2587107	100.1726923	100.0868201	100.0010938	99.91551292	99.83007717	99.74478619	99.65963962
ADV1010828	11/12/2024	4.783	12/12/2024	100.13854	100.1051697	100.0718407	100.0385508	100.0053	99.97208824	99.93891536	99.90578134	99.87268609
ADV1010844	11/12/2024	4.678	2/12/2025	100.82717	100.6204216	100.4145321	100.2094935	100.0053004	99.80194762	99.59942991	99.39774207	99.19687895
ADV1010875	11/13/2024	4.777	12/13/2024	100.14932	100.1131699	100.0770659	100.0410053	100.004988	99.96901392	99.93308302	99.8971952	99.86135036
ADV1010677	11/1/2024	4.73	1/31/2025	100.70218	100.5288362	100.3560815	100.183915	100.0123339	99.84133497	99.67091546	99.50107242	99.33180295
ADV1010806	11/8/2024	4.779	12/19/2024	100.21767	100.1647698	100.1119453	100.059193	100.0065128	99.95390463	99.90136824	99.84890351	99.79651029
ADV1011104	11/22/2024	4.743	12/23/2024	100.25719	100.1932521	100.1294088	100.06566	100.0020054	99.9384447	99.87497781	99.81160447	99.74832449
ADV1010762	11/7/2024	4.69	2/6/2025	100.76235	100.5723176	100.3830085	100.1944163	100.0065367	99.81936586	99.6328996	99.44713395	99.26206493
ADV1010704	11/4/2024	4.171	12/15/2026	108.10584	106.016037	103.9777265	101.9892993	100.0492115	98.15597831	96.30817123	94.5044157	92.7433885
ADV1011014	11/19/2024	4.741	12/2/2024	100.02459	100.019036	100.0134903	100.0079496	100.0024138	99.99688303	99.9913572	99.98583633	99.98032039
ADV1011107	11/22/2024	4.743	12/23/2024	100.25719	100.1932521	100.1294088	100.06566	100.0020054	99.9384447	99.87497781	99.81160447	99.74832449
ADV1010982	11/18/2024	4.362	11/18/2025	103.79853	102.8140852	101.8483681	100.9008513	99.97102287	99.0583901	98.16247835	97.28283034	96.41900534
ADV1011099	11/22/2024	4.745	12/23/2024	100.25732	100.1933804	100.129537	100.0657881	100.0021334	99.93857258	99.87510558	99.81173213	99.74845204
ADV1011024	11/19/2024	4.647	2/19/2025	100.89824	100.6720378	100.4468583	100.2226926	99.99953401	99.77737561	99.55621067	99.3360325	99.11683447
ADV1010964	11/18/2024	4.734	12/18/2024	100.20207	100.152027	100.1020541	100.0521482	100.0023092	99.95253686	99.9028311	99.85319177	99.80361873
ADV1010813	11/8/2024	4.787	12/9/2024	100.10586	100.0808236	100.0558187	100.0308412	100.0058909	99.98096786	99.95607193	99.9312031	99.90636132
ADV1011074	11/21/2024	4.724	12/18/2024	100.20093	100.1509111	100.1009582	100.0510723	100.0012533	99.95150086	99.901815	99.85219555	99.80264236
ADV1010830	11/12/2024	4.786	12/11/2024	100.12742	100.0968321	100.0662825	100.035768	100.0052885	99.97484391	99.94443414	99.91405914	99.88371886
ADV1011142	11/25/2024	4.73	12/26/2024	100.28892	100.2166542	100.1444979	100.0724542	100.0005229	99.92870382	99.85699659	99.785401	99.71391678
ADV1010947	11/15/2024	4.391	10/20/2026	107.73424	105.8056939	103.921574	102.0805918	100.2815044	98.52311274	96.80425996	95.12382942	93.48074312
ADV1010698	11/4/2024	4.777	12/2/2024	100.02806	100.0224976	100.0169409	100.011389	100.0058422	100.0003004	99.9947635	99.98923158	99.98370461
ADV1011256	11/29/2024	4.722	1/7/2025	100.42235	100.3166912	100.2112642	100.1060699	100.0011073	99.89637577	99.79187442	99.68760249	99.58355919
ADV1010709	11/4/2024	4.776	12/4/2024	100.05045	100.039323	100.0282079	100.0171033	100.0060094	99.99492596	99.98385311	99.97279079	99.96173898
ADV1011041	11/20/2024	4.724	12/6/2024	100.0685	100.0518429	100.0352035	100.0185809	100.001975	99.98538589	99.96881345	99.95225768	99.93571856
ADV1010975	11/18/2024	4.744	12/2/2024	100.02482	100.0192689	100.0137225	100.008181	100.0026445	99.99711301	99.99158645	99.98606484	99.98054817
ADV1010841	11/12/2024	4.678	2/12/2025	100.82717	100.6204216	100.4145321	100.2094935	100.0053004	99.80194762	99.59942991	99.39774207	99.19687895
ADV1010945	11/15/2024	4.742	12/16/2024	100.1809	100.1364158	100.0919838	100.047609	100.0032911	99.95903008	99.91482583	99.87067822	99.82658713
ADV1010803	11/8/2024	4.775	12/19/2024	100.21745	100.1645551	100.1117308	100.0589788	100.0062989	99.95369089	99.90115473	99.84869024	99.79629726
ADV1011094	11/22/2024	4.581	5/22/2025	101.91418	101.4280788	100.9465962	100.4696695	99.99723415	99.52922693	99.06558571	98.60624957	98.15115869

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1010859	11/12/2024	4.402	11/12/2027	112.30151	109.2387085	106.2771089	103.4128062	100.6420697	97.96133288	95.36718588	92.85636708	90.42575605
ADV1011264	11/29/2024	4.653	2/28/2025	100.99914	100.7479417	100.497991	100.2492744	100.0017828	99.75550725	99.51043884	99.26656874	99.02388821
ADV1010705	11/4/2024	4.776	12/3/2024	100.03925	100.0309075	100.0225717	100.0142437	100.0059233	99.99761065	99.98930568	99.98100837	99.97271872
ADV1011045	11/20/2024	4.716	12/20/2024	100.22279	100.1671982	100.1116805	100.0562403	100.0008775	99.94559176	99.89038303	99.83525113	99.7801959
ADV1010711	11/8/2024	4.255	6/15/2027	110.18227	107.5642752	105.022968	102.5556407	100.1596991	97.83265684	95.57213054	93.37583443	91.24157582
ADV1011232	11/27/2024	4.788	12/23/2024	100.25902	100.1951228	100.1313194	100.0676104	100.0039954	99.9404744	99.87704709	99.81371328	99.75047276
ADV1010783	11/7/2024	4.811	12/9/2024	100.1067	100.08166	100.0566513	100.03167	100.0067158	99.98178893	99.95688918	99.93201652	99.90717093
ADV1011109	11/25/2024	4.439	1/25/2027	108.96582	106.7581788	104.6068221	102.5099196	100.4657115	98.47250922	96.52869203	94.63270349	92.78304842
ADV1011235	11/27/2024	4.773	12/27/2024	100.3028	100.2277614	100.1528416	100.0780408	100.0033588	99.92879537	99.85435012	99.78002281	99.70581317
ADV1010913	11/14/2024	4.777	12/16/2024	100.1827	100.1382002	100.093761	100.049379	100.0050539	99.96078573	99.91657431	99.87241954	99.8283213
ADV1011051	11/20/2024	4.716	12/20/2024	100.22279	100.1671982	100.1116805	100.0562403	100.0008775	99.94559176	99.89038303	99.83525113	99.7801959
ADV1010673	11/1/2024	4.513	6/2/2025	102.00564	101.487069	100.9737243	100.465529	99.96240575	99.46427909	98.97107493	98.48272065	97.99914506
ADV1010939	11/15/2024	4.383	11/15/2027	112.27897	109.2080462	106.2388712	103.3675048	100.5901861	97.90332077	95.30347243	92.78735467	90.35182373
ADV1011092	11/22/2024	4.417	12/30/2025	104.35584	103.2525463	102.1726491	101.1154126	100.0801282	99.06611664	98.07272621	97.09933178	96.14533318
130416A00025	4/16/2013	2.27	4/18/2028	100.13814	100.0159787	99.46049816	98.26607946	96.75015877	95.1698307	93.61696982	92.10468837	90.63233764
150202A00006	2/2/2015	1.92	2/3/2025	100.10802	100.0201993	99.89972372	99.75551764	99.6117199	99.46837061	99.32546753	99.18300855	99.0409915
151223A00007	12/23/2015	3.76	12/23/2030	100.24462	100.1736498	99.9460532	98.80332666	96.27227698	92.71521448	88.69891127	84.66650004	80.82783884
161012A00020	10/11/2016	2.96	10/14/2031	100.19752	100.0068594	98.94709492	96.40917716	92.62161961	88.22365577	83.76097168	79.50100471	75.50562805
170515A00052	5/15/2017	3.78	5/15/2042	100.26772	100.1201977	99.34234569	96.84738553	92.59067517	87.28328304	81.70279182	76.37109023	71.50764332
170519A00006	5/19/2017	3	5/19/2032	100.20096	100.0924662	99.61217815	98.05157332	95.52215782	92.52227698	89.45224515	86.48996357	83.6720095
170705A00037	7/5/2017	2.85	7/6/2032	105.47719	103.1021911	100.5748893	97.80749427	94.76106331	91.54644512	88.35138797	85.29084256	82.38749306
170802A00074	8/2/2017	2.92	8/2/2027	99.993121	99.99046259	99.78773837	98.73026933	97.00702966	95.00770588	92.9861707	91.01525301	89.10060048
170809A00042	8/9/2017	2.35	8/9/2027	100.14502	100.0393059	99.62556676	98.65664604	97.41428856	96.11643489	94.8382845	93.5888376	92.36757705
171004A00022	10/4/2017	2.74	10/4/2027	100.17859	100.0813099	99.71314668	98.52661845	96.6838554	94.58158251	92.46757709	90.41036782	88.41497917
171005A00047	10/5/2017	3.29	10/5/2032	100.22592	100.101971	99.50678018	97.57507098	94.33235753	90.34516382	86.17162409	82.13925165	78.35291707
180105A00005	1/5/2018	3.07	1/5/2028	100.20699	100.1208842	99.97200667	99.3346675	98.14733534	96.72067307	95.25908896	93.82668781	92.42984932
180105A00006	1/5/2018	3.07	1/5/2028	100.20699	100.1208842	99.97200667	99.3346675	98.14733534	96.72067307	95.25908896	93.82668781	92.42984932
180130A00087	1/30/2018	2.92	1/31/2028	100.19408	100.107986	99.9207257	99.17706788	97.93146778	96.48606014	95.02388711	93.59355487	92.19886745
180302A00003	3/2/2018	3.89	3/2/2033	100.27756	100.1913942	99.92138928	98.59184952	95.69990456	91.64029721	87.03296379	82.39261974	78.00903265
180315A00030	3/15/2018	3.76	3/15/2033	101.27989	100.7668199	99.91783707	98.1212493	94.93743615	90.70929685	86.0665	81.47472643	77.16203255
180504A00024	5/4/2018	3.62	5/4/2028	100.00164	99.9988873	99.96720275	99.38967016	97.72182064	95.31207758	92.60975272	89.90681301	87.29359343
180627A00005	6/27/2018	3.63	6/30/2033	100.25518	100.1690374	99.99820015	98.9806276	96.76033606	93.70915064	90.33543718	86.98773428	83.80436953
180703A00033	7/3/2018	3.4	7/3/2028	100.22875	100.1426962	100.0265381	99.49480723	98.291964	96.72237163	95.06136284	93.42467934	91.83252362

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
190111A00040	1/11/2019	3.74	1/11/2034	100.00187	99.99907719	99.74056889	98.15625546	95.08619657	91.03902803	86.63329919	82.29730527	78.23339226
190116A00015	1/16/2019	3.61	1/17/2034	100.24682	100.1607524	99.89938263	98.66570718	96.18670785	92.89990055	89.33833426	85.8375966	82.5226945
190204A00054	2/4/2019	3.98	2/6/2034	100.27366	100.1886109	99.86253242	98.34093519	95.19032406	90.84354933	85.95292165	81.05269959	76.44677376
190222A00023	2/22/2019	3.66	2/22/2034	103.80897	102.2480861	100.2358433	97.38902495	93.43519006	88.59179857	83.40783099	78.35615932	73.65867064
190301A00015	3/1/2019	3.86	3/1/2034	104.03461	102.5622807	100.6747465	98.01696285	94.23938454	89.48234299	84.27799195	79.12699761	74.31380285
190409A00016	4/9/2019	2.91	4/9/2029	100.19322	100.0899831	99.66001336	98.22690544	95.88388157	93.09522813	90.23213135	87.45249751	84.78638423
190409A00017	4/9/2019	3.01	4/9/2029	100.20182	100.1011698	99.6960719	98.24775671	95.77866976	92.76355185	89.62872709	86.57723029	83.65458215
190430A00020	4/30/2019	3.41	4/28/2034	103.66041	101.9077977	99.59146732	96.3315489	91.93348468	86.75869682	81.3966744	76.26157591	71.51331248
190520A00018	5/20/2019	3.7	5/20/2044	99.995397	99.88021646	98.72272202	95.45559222	90.46345724	84.5370557	78.49516549	72.82791836	67.71408832
190530A00044	5/30/2019	2.85	5/30/2034	100.18805	100.0193582	99.089743	96.84111583	93.57751467	89.89076843	86.20556892	82.69892375	79.40141636
190807A00041	8/7/2019	2.27	8/7/2034	100.09039	99.56405843	97.79810526	94.77660718	91.0649443	87.22367307	83.52933729	80.0532619	76.79191066
190807A00044	8/7/2019	2.27	8/7/2034	100.09039	99.56405843	97.79810526	94.77660718	91.0649443	87.22367307	83.52933729	80.0532619	76.79191066
190827A00044	8/27/2019	1.9	8/27/2029	100.09538	99.79912055	98.71308119	96.92179269	94.83088018	92.71323386	90.65463633	88.66615338	86.74561367
190930A00079	9/30/2019	2.04	10/1/2029	100.11462	99.87559604	98.89693644	97.16338915	95.06666355	92.91611228	90.81992629	88.79554393	86.841309
190930A00083	9/30/2019	2.04	10/1/2029	100.11462	99.87559604	98.89693644	97.16338915	95.06666355	92.91611228	90.81992629	88.79554392	86.841309
191007A00012	10/7/2019	2	10/5/2029	100.09723	99.80095599	98.70296393	96.87488399	94.72826895	92.54923095	90.43119869	88.38708379	86.41467072
191007A00013	10/7/2019	2	10/5/2029	100.09723	99.80095599	98.70296393	96.87488399	94.72826895	92.54923095	90.43119869	88.38708379	86.41467072
191028A00015	10/28/2019	2.49	10/27/2034	100.13249	99.76958458	98.27664969	95.46058504	91.81273973	87.93494187	84.16538387	80.61235586	77.28129708
191031A00036	10/31/2019	2.9	10/31/2039	100.12974	99.59692546	97.59883061	93.91081777	89.09640239	83.9233413	78.92339823	74.30311226	70.08156989
191031A00037	10/31/2019	2.59	10/30/2034	100.13684	99.78987913	98.3330786	95.55090745	91.92298783	88.0548526	84.28916266	80.73819904	77.4086678
191220A00029	12/20/2019	2.57	12/19/2031	100.15732	99.96316766	99.042169	97.02781734	94.30316369	91.35077231	88.44323349	85.66144243	83.01103789
200108A00009	1/8/2020	2.4	1/8/2035	100.30824	99.61325298	97.84481828	94.81706382	91.04895103	87.11905669	83.33640196	79.78928058	76.47670086
200108A00040	1/8/2020	2.52	1/8/2030	100.41252	99.95565736	98.74109803	96.34986729	93.11404229	89.58827115	86.10670586	82.77828967	79.61244187
200110A00012	1/10/2020	2.57	1/10/2035	100.38086	99.78990499	98.21166168	95.33465905	91.62020182	87.67493159	83.84358026	80.23653754	76.85914797
200115A00023	1/15/2020	2.16	1/15/2030	100.33725	99.91542548	98.8777268	97.07461313	94.86791855	92.5930616	90.37536604	88.23729081	86.17729716
200115A00025	1/15/2020	2.1	1/15/2025	99.990676	99.98744749	99.88001821	99.68370096	99.48563012	99.28836597	99.09190293	98.8962367	98.70136231
200306A00021	3/6/2020	1.16	3/6/2030	99.942789	98.81917302	96.91787299	94.59894186	92.22449956	89.91882043	87.69947709	85.5640386	83.50862962
200309A00013	3/9/2020	1.1	3/8/2030	99.894303	98.72564496	96.78178242	94.44871348	92.07440197	89.77205455	87.55626247	85.42425637	83.37215688
200316A00030	3/16/2020	1.35	3/15/2030	100.141	99.20275264	97.49483214	95.25499421	92.88290673	90.55971667	88.32112888	86.16719394	84.09409287
200316A00032	3/16/2020	1.35	3/15/2030	100.141	99.20275264	97.49483214	95.25499421	92.88290673	90.55971667	88.32112888	86.16719394	84.09409287
200318A00015	3/18/2020	1.69	3/18/2030	99.969258	99.52890067	98.0676638	95.88682328	93.44422301	91.00967721	88.65839768	86.39785024	84.22434235
200326A00035	3/26/2020	1.68	3/26/2030	100.30483	99.50955188	98.00533876	95.87227216	93.52162858	91.19043842	88.93938681	86.77312133	84.68808186
200423A00008	4/23/2020	1.59	4/23/2030	100.11109	98.77154228	96.24870507	92.72404967	88.82588571	84.97469244	81.30350577	77.82523626	74.52991493

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200423A00009	4/23/2020	1.59	4/23/2030	100.11109	98.77154228	96.24870507	92.72404967	88.82588571	84.97469244	81.30350577	77.82523626	74.52991493
200423A00010	4/23/2020	1.59	4/23/2030	100.11109	98.77154228	96.24870507	92.72404967	88.82588571	84.97469244	81.30350577	77.82523626	74.52991493
200430A00021	4/30/2020	1.2	4/30/2030	99.966707	98.85791595	96.95945397	94.61854602	92.21121803	89.87199826	87.62125746	85.45674616	83.37444203
200505A00010	5/5/2020	0.89	5/6/2030	99.816206	98.45557384	96.36557267	93.93790767	91.49786554	89.13976633	86.87323707	84.69472258	82.60003731
200512A00023	5/12/2020	1.78	5/11/2035	99.706259	97.62369895	93.9829539	89.14657636	83.90717815	78.82144929	74.09306715	69.7447103	65.7477992
200609A00003	6/9/2020	1.66	6/8/2035	99.262829	96.72000546	92.51691366	87.14408856	81.4521604	75.9914468	70.95391391	66.3516198	62.14813675
200612A00001	6/12/2020	0.75	6/12/2030	99.678829	98.17014621	95.96567645	93.48275845	91.01474421	88.63555904	86.35033211	84.15497747	82.04516393
201022A00008	10/22/2020	1.02	10/22/2035	99.128152	96.52007574	92.7664774	88.46804509	84.19356077	80.16341401	76.40841419	72.91206879	69.65348018
201029A00008	10/29/2020	0.92	10/29/2030	99.887647	98.24688033	95.96790446	93.37317679	90.77840139	88.27790823	85.88063837	83.58218516	81.37758276
201030A00025	10/30/2020	2.02	10/28/2050	98.702051	94.99544768	89.25700546	82.1280227	74.71301407	67.79390356	61.68560416	56.38806072	51.79181317
201116A00019	11/16/2020	1.32	11/15/2030	100.01566	97.93077172	94.79903262	90.92805446	86.89462797	83.00295303	79.32116184	75.84558298	72.56362259
201118A00015	11/18/2020	1.66	11/18/2036	100.7235	96.2027484	90.67944704	84.43515978	78.04115927	71.9994719	66.49938409	61.54022516	57.06915344
201118A00017	11/18/2020	1.66	11/18/2036	100.7235	96.2027484	90.67944704	84.43515978	78.04115927	71.9994719	66.49938409	61.54022516	57.06915344
201118A00018	11/18/2020	1.85	11/18/2036	101.21977	96.80833548	91.42047318	85.26559503	78.90012155	72.83862396	67.30368944	62.30919767	57.80487754
201202A00016	12/2/2020	1.32	12/3/2035	99.671557	97.18601148	93.60456283	89.34973834	85.02268364	80.91434295	77.08383496	73.51970992	70.20061239
201202A00017	12/2/2020	1.32	12/3/2035	99.671557	97.18601148	93.60456283	89.34973834	85.02268364	80.91434295	77.08383496	73.51970992	70.20061239
201229A00003	12/29/2020	1.28	12/30/2030	99.978694	97.76679463	94.52395413	90.57165076	86.48130037	82.54541211	78.8263969	75.31898917	72.01000118
201230A00018	12/30/2020	1.52	12/28/2035	100.59967	96.07572452	90.62164288	84.52134825	78.32325518	72.47692243	67.13750896	62.2976799	57.91006889
210108A00007	1/8/2021	1.65	1/8/2036	99.485475	96.45270737	91.94531083	86.35384311	80.48463204	74.88390444	69.74034079	65.06039827	60.80276846
210225A00010	2/25/2021	2.02	2/25/2041	100.36487	97.59285937	93.48802451	88.26625516	82.64083965	77.22064295	72.24228608	67.72829785	63.63646997
210405A00013	4/5/2021	1.82	4/7/2036	100.97678	98.65075733	95.41667134	91.34865008	86.96123973	82.68318118	78.67249785	74.94443025	71.47892521
210622A00004	6/22/2021	2.42	6/20/2036	101.70257	98.99632124	95.17549791	90.1611088	84.40676297	78.60071223	73.1488614	68.17231484	63.65376625
210623A00024	6/23/2021	1.56	6/23/2026	99.981459	99.68137962	98.67484472	97.29987421	95.84731445	94.41370807	93.00787346	91.62922199	90.27702867
210910A00009	9/10/2021	1.77	9/10/2036	101.44948	98.78176552	95.31216043	91.0941922	86.57789634	82.17852025	78.06137647	74.2432861	70.70255406
210924A00016	9/24/2021	1.91	9/24/2036	101.7995	99.21507893	95.86526044	91.75250681	87.26396059	82.84641109	78.69791896	74.84854144	71.27872708
211019A00005	10/19/2021	2.49	10/20/2036	102.54677	99.63419288	95.71962287	90.68805062	84.90008003	78.9933575	73.41840443	68.32936853	63.71807234
211110A00017	11/10/2021	2.01	11/10/2036	102.24543	99.57628183	96.19725818	92.08559136	87.57146942	83.10036362	78.89246077	74.98938564	71.37293384
211116A00012	11/16/2021	2.22	12/18/2034	102.85134	100.4807313	97.59994238	94.11723949	90.22229798	86.28649678	82.52794076	79.00139918	75.69874985
211124A00008	11/24/2021	2.62	11/22/2041	103.13715	100.244138	96.4648167	91.64316568	86.09473456	80.4147338	75.05811451	70.1809639	65.7747246
211215A00020	12/15/2021	1.85	12/15/2031	102.44487	100.2926079	97.83337313	95.03144654	92.03898856	89.07077926	86.22397905	83.51198138	80.92849533
211227A00012	12/27/2021	2.39	12/29/2036	105.58566	100.7307855	95.26276916	89.222494	82.84919293	76.56826838	70.71175973	65.40107113	60.61465821
220217A00024	2/17/2022	2.43	2/17/2027	100.56803	100.1742106	99.48258075	98.23359787	96.60352636	94.8846465	93.19312168	91.54404811	89.93661945
220617A00069	6/17/2022	4.06	6/17/2027	102.25115	101.5943919	100.9226355	100.1545801	99.07554819	97.51249863	95.63452358	93.70571503	91.82153291

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
220831A00108	8/31/2022	4.07	8/31/2027	103.19177	102.244808	101.2818793	100.2198375	98.85053288	97.01004389	94.85464446	92.65209886	90.50557944
221212A00004	12/12/2022	4.36	12/10/2032	110.86538	108.0961717	105.3304641	102.5365129	99.64518756	96.61391382	93.44538093	90.21946943	87.08953529
221214A00057	12/14/2022	4.65	12/14/2027	104.59285	103.4478523	102.3041636	101.1140047	99.73672414	97.97296571	95.77753115	93.37003883	90.9844778
221222A00137	12/22/2022	5.4	12/22/2037	113.42578	110.4760283	107.4656736	104.3450118	100.9922837	97.32467366	93.29316223	88.95224901	84.60850444
230804A00039	8/4/2023	5.02	8/4/2028	107.89772	106.1728033	104.4583747	102.7347324	100.9401528	98.98088328	96.77908284	94.3400907	91.84771491
240403A00012	4/3/2024	4.82	4/3/2029	110.02852	107.7150487	105.4252781	103.1355899	100.7895793	98.31704691	95.67208416	92.87278728	90.07465851
ADV1007645	7/5/2024	4.781	7/5/2029	110.30164	107.9189854	105.5586117	103.1973523	100.7791221	98.23800592	95.53120773	92.67084507	89.80932338
ADV1007841	7/12/2024	0	7/12/2029	97.465125	94.18234388	90.21902901	86.23714497	82.42460654	78.79636992	75.34372317	72.05733477	68.92840119
ADV1007842	7/12/2024	0	7/12/2029	97.465125	94.18234388	90.21902901	86.23714497	82.42460654	78.79636992	75.34372317	72.05733477	68.92840119
ADV1007970	7/17/2024	0	7/17/2029	97.462858	94.16647728	90.19052153	86.19802353	82.37619954	78.73961762	75.27945399	71.98630966	68.85132008
ADV1008036	7/19/2024	0	7/19/2029	97.462314	94.16012574	90.17911783	86.18238128	82.35684704	78.71693048	75.25376381	71.95792112	68.82051348
ADV1008090	7/23/2024	0	7/23/2029	97.460408	94.14740872	90.15631333	86.15110753	82.31815969	78.67157979	75.20241341	71.9011809	68.75894457
ADV1008152	7/24/2024	0	7/24/2029	97.459995	94.14422734	90.15061276	86.14329136	82.30849154	78.66024704	75.18958205	71.88700351	68.74356156
ADV1008200	7/25/2024	0	7/25/2029	97.459582	94.141045	90.14491239	86.13547619	82.29882486	78.64891625	75.17675318	71.87282919	68.72818224
ADV1008212	7/26/2024	0	7/26/2029	97.459436	94.13786265	90.13921221	86.12766202	82.28915966	78.63758742	75.16392681	71.85865794	68.7128066
ADV1008308	7/31/2024	0	7/31/2029	97.456235	94.12160172	90.110657	86.08860132	82.24085566	78.58097274	75.09983234	71.78784765	68.63598364
ADV1008367	8/1/2024	0	8/1/2029	97.408207	94.09996789	90.10126403	86.08040606	82.23110149	78.56956073	75.08692309	71.77359516	68.62052931
ADV1008427	8/2/2024	0	8/2/2029	97.40815	94.09675591	90.09550522	86.07251706	82.2213563	78.55815075	75.07401638	71.75934577	68.60507871
ADV1008515	8/6/2024	0	8/6/2029	97.406177	94.08388777	90.07247077	86.04097087	82.1823906	78.51253085	75.02241486	71.70237934	68.54331361
ADV1008530	8/7/2024	0	8/7/2029	97.405768	94.08066967	90.06671232	86.03308677	82.17265293	78.50113087	75.00952081	71.68814551	68.52788166
ADV1008591	8/9/2024	0	8/9/2029	97.405292	94.07423422	90.0551956	86.01732151	82.15318209	78.47833692	74.98374031	71.65968715	68.49702892
ADV1008654	8/13/2024	0	8/13/2029	97.403279	94.06134585	90.03216385	85.98580267	82.11425843	78.43277301	74.93220969	71.60280768	68.43536813
ADV1008769	8/19/2024	0	8/20/2029	97.400136	94.03876656	89.99186938	85.93068208	82.04619975	78.35311303	74.84212842	71.503388	68.32760493
ADV1008780	8/19/2024	0	8/20/2029	97.400136	94.03876656	89.99186938	85.93068208	82.04619975	78.35311303	74.84212842	71.503388	68.32760493
ADV1008881	8/22/2024	0	8/22/2029	97.399466	94.03231215	89.98035903	85.91494214	82.02676792	78.33037099	74.81641365	71.47501025	68.29684888
ADV1008893	8/23/2024	0	8/23/2029	97.399399	94.02908658	89.97460419	85.90707371	82.01705426	78.31900297	74.80356005	71.46082602	68.28147642
ADV1008894	8/23/2024	0	8/23/2029	97.399399	94.02908658	89.97460419	85.90707371	82.01705426	78.31900297	74.80356005	71.46082602	68.28147642
ADV1008939	8/26/2024	0	8/27/2029	97.397123	94.01616076	89.95158697	85.87561024	81.9782146	78.27355078	74.75217086	71.40412004	68.22002367
ADV1008940	8/26/2024	0	8/27/2029	97.397123	94.01616076	89.95158697	85.87561024	81.9782146	78.27355078	74.75217086	71.40412004	68.22002367
ADV1009099	8/27/2024	0	8/27/2029	97.397311	94.01616258	89.95158697	85.87561024	81.9782146	78.27355078	74.75217086	71.40412004	68.22002367
ADV1009133	8/28/2024	0	8/28/2029	97.396877	94.01293104	89.9458334	85.86774692	81.96850843	78.26219271	74.73932987	71.38995127	68.20466976
ADV1009166	8/29/2024	0	8/29/2029	97.396334	94.00966527	89.94007659	85.85988421	81.95880376	78.25083663	74.7264914	71.37578559	68.18931954
ADV1009167	8/29/2024	0	8/29/2029	97.396334	94.00966527	89.94007659	85.85988421	81.95880376	78.25083663	74.7264914	71.37578559	68.18931954

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1009212	8/30/2024	0	8/30/2029	97.395582	94.00638147	89.93431597	85.8520223	81.94910058	78.23948254	74.71365544	71.36162301	68.17397304
ADV1009568	9/17/2024	0	9/17/2029	97.3408	93.9295516	89.82650345	85.70899048	81.77288461	78.033615	74.48157087	71.10651218	67.89879289
ADV1009810	9/24/2024	0	9/24/2029	97.338025	93.90696634	89.78604016	85.65354772	81.70445161	77.95369029	74.39150442	71.00755651	67.79210947
ADV1009878	9/26/2024	0	9/26/2029	97.337226	93.90051006	89.7744835	85.63771619	81.68491309	77.93087283	74.36579398	70.97931121	67.76166147
ADV1010064	10/2/2024	0	10/2/2029	97.288102	93.86211326	89.73565479	85.58959547	81.62614741	77.86241374	74.28875892	70.89473968	67.67051306
ADV1010067	10/2/2024	0	10/2/2029	97.288102	93.86211326	89.73565479	85.58959547	81.62614741	77.86241374	74.28875892	70.89473968	67.67051306
ADV1010068	10/2/2024	0	10/2/2029	97.288102	93.86211326	89.73565479	85.58959547	81.62614741	77.86241374	74.28875892	70.89473968	67.67051306
ADV1010126	10/4/2024	4.138	10/4/2029	109.73057	107.147023	104.5766684	101.983962	99.30469844	96.48643454	93.53219494	90.52170433	87.59284827
ADV1010140	10/7/2024	0	10/9/2029	97.283433	93.83787323	89.69368245	85.53313426	81.55725291	77.78250874	74.1990829	70.79642366	67.56459055
ADV1010151	10/7/2024	0	10/9/2029	97.283433	93.83787323	89.69368245	85.53313426	81.55725291	77.78250874	74.1990829	70.79642366	67.56459055
ADV1010158	10/7/2024	0	10/9/2029	97.283433	93.83787323	89.69368245	85.53313426	81.55725291	77.78250874	74.1990829	70.79642366	67.56459055
ADV1010203	10/9/2024	0	10/9/2029	97.284052	93.83788657	89.69368246	85.53313426	81.55725291	77.78250874	74.1990829	70.79642366	67.56459055
ADV1010205	10/9/2024	0	10/9/2029	97.284052	93.83788657	89.69368246	85.53313426	81.55725291	77.78250874	74.1990829	70.79642366	67.56459055
ADV1010208	10/9/2024	0	10/9/2029	97.284052	93.83788657	89.69368246	85.53313426	81.55725291	77.78250874	74.1990829	70.79642366	67.56459055
ADV1010209	10/9/2024	0	10/9/2029	97.284052	93.83788657	89.69368246	85.53313426	81.55725291	77.78250874	74.1990829	70.79642366	67.56459055
ADV1010210	10/9/2024	0	10/9/2029	97.284052	93.83788657	89.69368246	85.53313426	81.55725291	77.78250874	74.1990829	70.79642366	67.56459055
ADV1010261	10/11/2024	0	10/11/2029	97.283791	93.83097519	89.68168802	85.51701128	81.53758276	77.75969706	74.17348399	70.76836097	67.53435968
ADV1010356	10/16/2024	0	10/16/2029	97.279948	93.81361294	89.65170621	85.47672079	81.48843453	77.70270343	74.10953105	70.69825785	67.45884605
ADV1010407	10/18/2024	0	10/18/2029	97.279383	93.80668208	89.63971593	85.46061134	81.46878611	77.67992021	74.08396758	70.67023803	67.42866599
ADV1010414	10/18/2024	0	10/18/2029	97.279383	93.80668208	89.63971593	85.46061134	81.46878611	77.67992021	74.08396758	70.67023803	67.42866599
ADV1010416	10/18/2024	0	10/18/2029	97.279383	93.80668208	89.63971593	85.46061134	81.46878611	77.67992021	74.08396758	70.67023803	67.42866599
ADV1010510	10/24/2024	0	10/24/2029	97.275196	93.78581274	89.60375335	85.41230789	81.40987824	77.61161924	74.00733786	70.58625195	67.33821277
ADV1010633	10/31/2024	5.44	10/29/2049	122.85763	117.6857212	112.3946189	106.9603236	101.2774762	95.28549735	88.97271467	82.45195605	76.13509126
211124A00005	11/26/2021	4.94	11/26/2025	99.978281	99.97702737	99.97334444	99.96734167	99.95912278	99.94878633	99.93642563	99.9221296	99.90598254
211124A00006	11/26/2021	4.99	11/25/2026	100.03329	100.0547078	100.0611767	100.0536408	100.0329846	100.00004	99.95558998	99.90037174	99.83507919
220608A00012	6/8/2022	5.32	6/8/2029	100.86833	100.9118621	100.9227214	100.9038426	100.8579198	100.7874287	100.6946449	100.58166	100.4503967
220913A00024	9/13/2022	5.02	5/12/2025	100.08789	100.08458	100.0803878	100.0753298	100.0694241	100.0626887	100.0551406	100.0467969	100.0376742
220929A00039	9/29/2022	5.36	9/28/2029	101.02243	101.0651389	101.0716014	101.0453143	100.989471	100.9069896	100.8005359	100.6725458	100.5252444
221017A00025	10/17/2022	4.97	1/6/2025	100.02274	100.0192634	100.0156911	100.0120223	100.0082577	100.0043978	100.000443	99.99639411	99.99225151
221115A00039	11/15/2022	5.14	11/16/2026	100.33036	100.3484014	100.3518927	100.3417436	100.3188067	100.2838848	100.2377334	100.1810646	100.1145493
221216A00018	12/16/2022	5.14	12/16/2026	100.33172	100.3511472	100.3553964	100.3453958	100.3220159	100.2860773	100.2383535	100.179574	100.1104267
230215A00013	2/15/2023	5.02	8/21/2025	100.06834	100.0655048	100.0609846	100.0548373	100.0471179	100.0378797	100.0271735	100.0150486	100.0015522
230215A00017	2/15/2023	5	3/27/2025	100.06394	100.0607513	100.0569864	100.0526579	100.0477733	100.0423405	100.0363667	100.0298594	100.0228259

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230307A00025	3/7/2023	5.14	3/7/2028	100.26472	100.3017949	100.3149794	100.3060129	100.2765159	100.2280021	100.1618852	100.0794865	99.98204016
230313A00111	3/13/2023	5.29	2/13/2026	100.41413	100.4128694	100.4127662	100.4136911	100.4155271	100.4181659	100.4215072	100.4254587	100.4299348
230313A00120	3/13/2023	5.29	4/13/2026	100.49009	100.4980196	100.4977211	100.4896263	100.4741443	100.4516624	100.4225471	100.3871464	100.3457896
230313A00124	3/13/2023	5.29	5/13/2026	100.50738	100.5164723	100.5170986	100.5096968	100.4946788	100.4724356	100.4433377	100.4077369	100.3659673
230410A00022	4/10/2023	5.25	4/10/2028	100.61956	100.6523706	100.6612198	100.6479317	100.6142056	100.5616227	100.4916541	100.4056692	100.3049426
230511A00058	5/11/2023	5.21	5/11/2028	100.47833	100.5151888	100.5276918	100.517712	100.4869869	100.437132	100.3696489	100.2859346	100.1872882
230816A00019	8/16/2023	5.19	8/16/2028	100.39219	100.4359232	100.4522805	100.4433906	100.4112377	100.3576673	100.2843959	100.1930204	100.0850264
230914A00009	9/14/2023	5.11	9/14/2028	100.08439	100.1350509	100.1571302	100.1529303	100.1245831	100.0740659	100.003212	99.91372239	99.80717454
230922A00036	9/22/2023	5.08	9/22/2028	99.967727	100.0205417	100.0444903	100.0419311	100.0150476	99.96586157	99.89624537	99.80793323	99.70253127
231025A00027	10/25/2023	5.11	10/25/2028	100.0692	100.1277933	100.1622416	100.1746163	100.1668311	100.1406502	100.0977001	100.0394808	99.96737524
231106A00009	11/6/2023	5.08	10/15/2026	100.21077	100.2290467	100.2339503	100.2262876	100.2068197	100.1762644	100.1352979	100.0845586	100.0246484
231115A00005	11/15/2023	5.07	11/16/2026	100.19195	100.2115035	100.2164814	100.2077894	100.186281	100.1527595	100.1079816	100.0526601	99.98746635
231215A00007	12/15/2023	5.06	12/1/2026	100.17339	100.1931672	100.1979786	100.188745	100.1663368	100.1315741	100.0852292	100.02803	99.96066256
240111A00009	1/11/2024	4.81	1/13/2025	100.0069	100.0042536	100.0015221	99.99871042	99.99581912	99.99284889	99.98980015	99.98667365	99.98346991
240112A00007	1/12/2024	4.83	1/13/2025	100.00934	100.006686	100.0039461	100.0011246	99.9982222	99.9952396	99.99217726	99.98903592	99.98581615
240112A00017	1/12/2024	5.13	1/12/2029	100.1048	100.1617138	100.1869816	100.1833105	100.1532002	100.0989575	100.0227113	99.92642702	99.81191832
240116A00030	1/16/2024	5.01	1/15/2027	100.04602	100.0715215	100.0815318	100.0769541	100.0586396	100.027393	99.9839749	99.92910435	99.86346137
240118A00010	1/18/2024	4.62	1/21/2025	100.00309	100.0002548	99.997322	99.99429295	99.99116835	99.98794911	99.98463583	99.98122944	99.97773067
240206A00016	2/6/2024	4.59	2/6/2025	99.996038	99.99322865	99.99030142	99.98725751	99.98409797	99.98082401	99.97743651	99.9739367	99.97032557
240215A00011	2/15/2024	4.99	2/16/2027	99.998906	100.024044	100.0334037	100.0278917	100.008366	99.97563811	99.9304755	99.87360489	99.80571389
240227A00010	2/27/2024	4.78	2/27/2025	99.99723	99.99481623	99.99220614	99.98940241	99.98640737	99.98322342	99.97985271	99.97629762	99.97256034
240301A00012	3/1/2024	4.61	3/3/2025	99.996311	99.99350644	99.99052625	99.98737286	99.98404837	99.98055495	99.97689453	99.97306928	99.96908117
240314A00006	3/14/2024	5.09	3/14/2029	99.912836	99.96810118	99.99595019	99.99437281	99.9659314	99.9129888	99.83772363	99.74214529	99.62810669
240315A00011	3/15/2024	4.97	3/15/2027	99.946359	99.97134614	99.980417	99.97451676	99.95453788	99.921323	99.87566761	99.81832331	99.74999996
240327A00032	3/27/2024	4.95	3/26/2027	99.891799	99.91769394	99.92831962	99.9238919	99.90534173	99.87354619	99.82933133	99.77347596	99.70671398
240328A00053	3/28/2024	5.08	3/28/2029	99.85752	99.9122392	99.94246291	99.94312245	99.91682622	99.86597576	99.79278199	99.69928097	99.58734739
240415A00006	4/15/2024	4.94	4/15/2027	99.857915	99.88242982	99.8940106	99.89043871	99.87267411	99.84161982	99.79812516	99.74298969	99.67696581
240417A00013	4/17/2024	5.27	4/17/2031	99.812427	99.91059071	99.95947349	99.96461118	99.93097562	99.86303237	99.76479165	99.6398549	99.49145556
240423A00053	4/23/2024	4.61	4/23/2025	99.986204	99.9834649	99.98042338	99.9770853	99.97345625	99.96954184	99.96534727	99.96087798	99.95613905
240515A00015	5/15/2024	4.93	5/17/2027	99.813223	99.83667661	99.85089449	99.84960384	99.83379908	99.80441475	99.76232897	99.70836761	99.64330713
ADV1006428	5/28/2024	4.942	5/28/2027	99.828342	99.85771948	99.872908	99.87240599	99.85722038	99.82829725	99.78652545	99.73274077	99.6677289
ADV1006699	6/3/2024	4.961	6/3/2027	99.869817	99.90138871	99.91606282	99.91491587	99.89895933	99.86914396	99.82636332	99.77145795	99.70521828
ADV1006738	6/4/2024	4.638	6/4/2025	99.980687	99.97811352	99.97513277	99.97175475	99.96798885	99.96384432	99.9593299	99.9544544	99.9492262

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	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1006870	6/10/2024	4.977	6/10/2027	99.908102	99.93894518	99.95271666	99.9504954	99.93329559	99.9020714	99.85772033	99.80108736	99.73296771
ADV1007038	6/14/2024	4.984	6/14/2027	99.924814	99.95534419	99.96870027	99.96596319	99.9481496	99.91621641	99.87106406	99.81354067	99.74444469
ADV1007043	6/14/2024	5.044	6/14/2029	99.636684	99.68189741	99.72084842	99.72892577	99.70888111	99.66324529	99.59434592	99.50432432	99.39515009
ADV1007203	6/20/2024	4.983	6/21/2027	99.920304	99.95073373	99.96379243	99.96056324	99.94206632	99.90926273	99.86305767	99.80430444	99.73380712
ADV1007514	7/1/2024	4.995	7/1/2027	99.948374	99.97828426	99.99055121	99.98626241	99.96644312	99.93206049	99.88402663	99.82320246	99.75040017
ADV1007705	7/8/2024	4.685	7/8/2025	99.981156	99.97882311	99.97603185	99.97279437	99.96912285	99.96502923	99.96052481	99.95562083	99.95032805
ADV1007965	7/17/2024	4.992	7/19/2027	99.92943	99.96103126	99.97437524	99.97059785	99.95077039	99.91590313	99.86694857	99.80480539	99.73032117
ADV1008702	8/15/2024	5.023	8/16/2027	99.997198	100.0303586	100.0441498	100.0398032	100.0184787	99.98126903	99.92920312	99.86325076	99.78432554
ADV1008824	8/21/2024	5.023	8/23/2027	99.993582	100.0273915	100.0415397	100.0372808	100.0157954	99.97819547	99.92552829	99.85878067	99.77888222
ADV1009264	9/4/2024	5.04	9/7/2027	100.03487	100.0687367	100.0823908	100.077159	100.0542895	100.0149551	99.96025782	99.89123416	99.80885825
ADV1010016	10/1/2024	5.018	10/1/2026	100.0974	100.1153939	100.1204141	100.1132051	100.0944728	100.0648847	100.0250714	99.97562984	99.91712435
ADV1010293	10/15/2024	5.057	10/15/2027	100.06991	100.1084603	100.1299842	100.1357401	100.1268965	100.1045434	100.069697	100.0233057	99.96625438
ADV1010616	10/30/2024	5.038	10/30/2026	100.10928	100.1330349	100.1456494	100.1478164	100.1401901	100.1233871	100.0979879	100.0645401	100.0235595
ADV1011265	11/29/2024	4.772	12/1/2025	99.976878	99.97621108	99.97478216	99.97262323	99.96976485	99.96623616	99.96206464	99.95727669	99.95189728
ADV1010836	11/12/2024	5.068	11/12/2027	100.0903	100.1299747	100.1517766	100.1570521	100.147051	100.1229376	100.0857964	100.0366383	99.97640515
ADV1010941	11/15/2024	5.073	11/15/2027	100.10443	100.1438957	100.1654197	100.1703536	100.1599557	100.1353977	100.0977712	100.0480933	99.98731148
ADV1009630	9/18/2024	5.185	9/18/2029	100.3503	100.2361632	100.2043333	100.1521598	100.0999297	100.0492762	99.94993368	99.8097993	99.64920332
ADV1010025	10/1/2024	5.196	10/1/2029	100.20733	100.0935661	100.1120382	100.1031754	100.0944781	100.0840239	100.0206932	99.92176252	99.80169776
ADV1010137	10/7/2024	5.189	10/9/2029	100.27514	100.1353264	100.1506089	100.127932	100.1055254	100.0638831	99.97175544	99.86048282	99.72817903
ADV1010509	10/24/2024	5.206	10/24/2029	100.50586	100.340082	100.2881752	100.2186555	100.149726	100.082201	99.98053612	99.82428717	99.64744026
ADV1010937	11/15/2024	5.125	11/15/2027	100.46592	100.2820176	100.2336704	100.1803371	100.1271047	100.07778	100.027514	99.97412868	99.86788883
ADV1010935	11/15/2024	5.219	5/15/2029	100.49667	100.3320388	100.2741617	100.2207034	100.1673471	100.1178942	100.0675624	100.0140037	99.91120848
ADV1011039	11/20/2024	5.226	11/20/2029	100.53083	100.3395201	100.2950314	100.2359679	100.1770209	100.1193171	100.043051	99.89679822	99.72666879
ADV1010723	11/5/2024	5.266	11/5/2029	100.3449	100.2191376	100.1954448	100.177286	100.1589102	100.144063	100.1281916	100.1039436	100.0142464
ADV1010727	11/5/2024	5.075	8/5/2026	100.28709	100.1181228	100.1140295	100.0979621	100.0759135	100.0616285	100.0499534	100.0267247	99.99949203
ADV1010729	11/5/2024	5.065	5/5/2026	100.284	100.1111277	100.1073283	100.0906824	100.0681194	100.0546687	100.0417073	100.0181262	99.99065998
ADV1010936	11/15/2024	5.145	2/15/2028	100.473	100.2940698	100.2428033	100.1894374	100.1361728	100.0868176	100.0365695	99.98310294	99.88001098
ADV1010971	11/18/2024	5.091	2/16/2027	100.45629	100.2630458	100.2189788	100.1660658	100.1128369	100.0629142	100.0132318	99.95989886	99.88561206
ADV1011270	11/29/2024	5.206	11/20/2029	100.52377	100.3071838	100.2864365	100.2276987	100.1690752	100.0886385	99.96304019	99.81511424	99.64728492

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