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												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
050812A00050	8/12/2005	4.97	8/12/2025	101.32146	101.031769	100.7437488	100.4573845	100.1726616	99.88956599	99.60808364	99.32820068	99.04990339
050823A00085	8/23/2005	4.78	8/25/2025	101.45424	101.1279624	100.8037966	100.4817186	100.1617082	99.8437455	99.52781073	99.2138845	98.90194762
050823A00088	8/23/2005	4.78	8/25/2025	101.45424	101.1279624	100.8037966	100.4817186	100.1617082	99.8437455	99.52781073	99.2138845	98.90194761
050902A00032	9/2/2005	4.69	8/22/2025	101.38769	101.0698839	100.7540785	100.4402596	100.1284084	99.81850636	99.51053505	99.20447641	98.90031257
050923A00096	9/23/2005	4.86	9/22/2025	101.84523	101.4404365	101.0388769	100.6405094	100.2452957	99.85319851	99.46418087	99.07820649	98.69523964
051003A00009	10/3/2005	5.15	10/15/2025	102.2483	101.7790865	101.314194	100.8535671	100.3971472	99.94487655	99.4966986	99.05255775	98.61239944
051107A00075	11/7/2005	5.29	11/17/2025	102.83593	102.2727851	101.715834	101.164975	100.6201084	100.0811364	99.54796344	99.02049604	98.49864266
060308A00014	3/8/2006	5.44	3/16/2026	104.71336	103.8112471	102.9247676	102.0535126	101.1970915	100.3551266	99.52725338	98.7131192	97.91238325
060808A00022	8/8/2006	5.57	6/15/2026	106.30939	105.1428118	104.0020246	102.8861765	101.7944541	100.7260789	99.68030553	98.65642039	97.65373947
070518A00023	5/18/2007	5.46	5/18/2027	106.03722	104.9203061	103.8290689	102.7626987	101.7204208	100.701491	99.70519427	98.73084322	97.77777691
100809A00029	8/9/2010	4.23	8/15/2025	101.14068	100.8430148	100.5471182	100.2529719	99.96056024	99.66986786	99.38087948	99.09358004	98.80795466
100824A00009	8/24/2010	3.91	9/2/2025	101.22695	100.8792833	100.5340046	100.1910889	99.85051191	99.51224989	99.17627926	98.84257677	98.51111952
100930A00008	9/30/2010	3.82	9/30/2025	101.47459	101.0489126	100.6267968	100.2082025	99.79308583	99.38140371	98.97311365	98.56817389	98.16654336
110505A00022	5/5/2011	4.59	5/15/2026	104.76845	103.6980271	102.6495669	101.6223963	100.6158703	99.62936993	98.6623007	97.71409145	96.78419326
110701A00011	7/1/2011	3.87	7/1/2026	102.51274	101.8313869	101.1615242	100.5028286	99.85499178	99.21771735	98.59072025	97.97372616	97.36647101
110719A00017	7/19/2011	3.68	7/20/2026	102.39705	101.7131088	101.0407973	100.3797911	99.72977423	99.09044338	98.46150684	97.84268409	97.23370523
110805A00014	8/5/2011	4.06	8/17/2026	105.35989	104.0328145	102.7332356	101.4603	100.2131937	98.99113642	97.79337933	96.61920376	95.46791956
110824A00006	8/24/2011	2.69	8/24/2026	102.29075	101.4433472	100.6100517	99.79049432	98.98431634	98.19117203	97.41072804	96.64266287	95.88666628
110909A00006	9/9/2011	2.26	9/9/2026	101.63619	100.8762088	100.1293665	99.39530011	98.6736601	97.96411037	97.26632744	96.57999985	95.90482759
111007A00007	10/7/2011	3.92	10/7/2031	120.29574	114.4874521	109.0323302	103.9062571	99.08690951	94.55361228	90.287208	86.26993711	82.48532841
111216A00001	12/16/2011	3.95	12/30/2031	125.27768	118.0168345	111.2381317	104.9068027	98.99076979	93.46042417	88.28842303	83.44950444	78.92031823
120113A00012	1/13/2012	3.62	1/15/2027	106.51666	104.7707052	103.0620787	101.3896451	99.75231876	98.14905782	96.57886183	95.04076972	93.53385781
120113A00013	1/13/2012	3.87	1/15/2032	124.84738	117.5564768	110.7527416	104.400832	98.46815946	92.9246591	87.74258056	82.89629789	78.36213579
120127A00018	1/27/2012	3.64	2/1/2027	106.74897	104.9541123	103.198407	101.4806437	99.79966356	98.15435519	96.54365234	94.96653155	93.4220099
120127A00019	1/27/2012	3.87	1/30/2032	124.95166	117.6158003	110.7726682	104.3863274	98.42366059	92.85412876	87.64955677	82.78393776	78.23325487
120410A00005	4/10/2012	2.35	4/12/2027	103.77848	102.2662237	100.7880814	99.34302984	97.93008824	96.54831223	95.19679228	93.87465212	92.58104727
120411A00013	4/11/2012	3.59	4/15/2027	107.51237	105.5012281	103.5382741	101.6220533	99.75116586	97.92426382	96.14004825	94.39726736	92.69471441
120621A00009	6/21/2012	3.18	6/21/2032	115.34247	110.0078045	105.0115055	100.3291599	95.93827899	91.8181387	87.94963005	84.31512367	80.89834612
120709A00016	7/9/2012	3.2	7/15/2027	107.6464	105.3802021	103.1733314	101.0237989	98.92969846	96.88920376	94.90056412	92.96210069	91.07220281
120806A00015	8/6/2012	2.38	8/6/2027	103.02368	101.7903735	100.5834558	99.40213026	98.24563283	97.11322906	96.00421284	94.91790503	93.85365217
120807A00026	8/7/2012	2.42	8/9/2027	103.07382	101.8398123	100.6322147	99.45022651	98.29308306	97.16004953	96.0504194	94.96351311	93.89867677
120808A00006	8/8/2012	2.06	8/9/2027	102.72494	101.4936765	100.2887935	99.10949093	97.95500443	96.82459941	95.71756958	94.63323568	93.57094409
120827A00048	8/27/2012	2.01	8/27/2027	102.95908	101.6126756	100.2965857	99.00989102	97.7517081	96.52118629	95.31750644	94.13987952	92.98754521

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4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
120827A00052	8/27/2012	2.01	8/27/2027	102.95908	101.6126756	100.2965857	99.00989102	97.7517081	96.52118629	95.31750645	94.13987952	92.98754521
121116A00006	11/16/2012	2.64	11/13/2025	101.28448	100.737848	100.1971227	99.6622045	99.13300008	98.60941808	98.09136906	97.57876551	97.07152174
121116A00021	11/16/2012	2.35	11/17/2025	101.19586	100.6379318	100.0861582	99.54043636	99.00066689	98.46675263	97.93859849	97.41611146	96.89920053
121116A00022	11/16/2012	2.78	11/16/2029	113.7549	108.9847181	104.4440827	100.1207221	96.0030843	92.08029348	88.34210628	84.77887182	81.38149415
121120A00010	11/20/2012	1.93	11/22/2027	103.41225	101.8029478	100.2328494	98.70067723	97.20520539	95.74525723	94.31970315	92.92745831	91.5674805
121120A00011	11/20/2012	2.22	11/22/2027	105.70087	103.3849526	101.1358846	98.95127091	96.82881744	94.76632882	92.76170324	90.81292776	88.91807386
121217A00009	12/17/2012	2.02	12/17/2027	103.75888	102.0601909	100.403892	98.78856408	97.21284814	95.67544191	94.17509681	92.71061527	91.28084824
130107A00002	1/7/2013	3.22	1/18/2028	109.47913	106.6711277	103.9501285	101.3128665	98.7562205	96.27720947	93.87298476	91.54082315	89.27812035
130206A00004	2/6/2013	2.14	2/7/2028	103.74836	102.1447608	100.5808241	99.05525673	97.56682105	96.11432888	94.69663902	93.31265509	91.96132333
130206A00009	2/6/2013	2.83	2/7/2028	107.33901	104.8813286	102.4990241	100.1893205	97.94956467	95.77721604	93.66984138	91.62510954	89.6407865
130207A00012	2/7/2013	2.9	2/7/2033	112.34873	107.763099	103.4381573	99.35633744	95.50139661	91.85831057	88.41317364	85.15310755	82.06617831
130211A00017	2/11/2013	3.27	2/15/2028	109.88877	106.9951503	104.193266	101.4796604	98.85103354	96.30423065	93.83623432	91.44415774	89.12523807
130405A00007	4/5/2013	2.91	4/17/2028	109.63776	106.5675884	103.6002904	100.731848	97.9584276	95.27636633	92.68216353	90.17247261	87.74409327
130424A00005	4/24/2013	3.07	4/24/2030	116.31725	111.0344039	106.0264204	101.277541	96.77298849	92.49890467	88.44228818	84.59093724	80.9333964
130531A00021	5/31/2013	3.22	5/30/2028	110.97619	107.7653695	104.6653456	101.6716527	98.78003262	95.98642425	93.28695316	90.67792177	88.15580005
130913A00018	9/13/2013	3.72	9/13/2028	107.51604	105.5006348	103.5442887	101.6448014	99.80006657	98.00807032	96.26688664	94.57467295	92.92966593
130925A00035	9/25/2013	1.53	6/25/2025	100.25443	100.0554651	99.85731797	99.65998765	99.46346892	99.26775655	99.07284537	98.87873025	98.68540612
130926A00009	9/26/2013	4	10/2/2028	114.8654	111.2361051	107.7430778	104.3804686	101.142711	98.02450621	95.02080917	92.12681473	89.33794497
131018A00006	10/18/2013	3.28	10/20/2025	101.69874	101.1446536	100.5967005	100.0547796	99.51879105	98.98863713	98.46422236	97.94545329	97.43223851
131217A00024	12/17/2013	4.34	1/2/2029	116.86544	112.9461603	109.1824545	105.5672383	102.0937931	98.75574566	95.54704867	92.4619614	89.49503242
140219A00005	2/19/2014	3.13	2/20/2029	106.8168	104.7515248	102.7491425	100.8072183	98.92342941	97.09556023	95.32149608	93.59921803	91.92679784
140423A00036	4/23/2014	4.03	4/23/2029	116.95022	112.7067717	108.6443467	104.7542374	101.0282036	97.45844376	94.03756903	90.75857935	87.61484075
140521A00019	5/21/2014	3.43	5/22/2028	111.55598	108.3583642	105.2704425	102.2878196	99.40630329	96.6218941	93.93077517	91.3293027	88.81399696
140626A00036	6/26/2014	3.55	6/26/2029	115.98133	111.5647623	107.3438838	103.3089182	99.45063833	95.7603287	92.22975414	88.85113024	85.617096
140717A00027	7/17/2014	3.14	7/17/2026	103.89905	102.6556541	101.4377536	100.2445597	99.07532067	97.92931564	96.80585291	95.70426849	94.62392473
140815A00032	8/15/2014	3.59	10/15/2029	116.82124	112.0837647	107.5692095	103.2658927	99.16280773	95.24957902	91.51642235	87.95410813	84.55392709
140911A00033	9/11/2014	3.02	9/13/2027	105.95557	104.0501068	102.1942952	100.3865042	98.62516464	96.90876869	95.23586752	93.60506844	92.01503237
140917A00030	9/17/2014	3.23	9/17/2029	113.26596	109.2615854	105.4366388	101.7819418	98.28883994	94.94916829	91.75522095	88.69972268	85.77580245
140924A00057	9/24/2014	3.25	9/25/2028	111.57719	108.1846013	104.91925	101.7756251	98.74848667	95.83285041	93.02397382	90.31734295	87.70865999
141117A00011	11/17/2014	3.81	11/17/2034	131.42938	120.9958126	111.5100523	102.8800518	95.023183	87.8652246	81.33946662	75.38591417	69.95057937
150203A00027	2/3/2015	2.26	2/4/2030	106.30606	103.7350934	101.2584221	98.87177553	96.57110756	94.35258412	92.21257066	90.1476203	88.15446289
150319A00012	3/19/2015	3.13	3/19/2029	113.00854	108.9425302	105.0468529	101.3134856	97.73482624	94.30366833	91.013178	87.85687292	84.82860239
150319A00013	3/19/2015	3.25	3/19/2030	116.52669	111.3539722	106.4448812	101.7846035	97.35923386	93.15571375	89.1617758	85.36589178	81.75722447

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
150427A00014	4/27/2015	2.98	4/27/2035	114.7	109.1345778	103.9502851	99.11656208	94.60556877	90.39192133	86.45245713	82.76602403	79.31329105
150512A00029	5/12/2015	3.03	5/12/2025	100.08875	100.0554154	100.0221226	99.98886894	99.9556543	99.92247863	99.88934184	99.85624388	99.82318466
150519A00013	5/19/2015	2.98	5/19/2025	100.13584	100.0830772	100.0303855	99.97776593	99.9252183	99.87274248	99.8203383	99.76800561	99.71574427
150601A00261	6/1/2015	3.19	2/11/2033	113.13455	108.8075335	104.7201577	100.8566755	97.20250446	93.74412991	90.46901921	87.36554348	84.42290613
150601A00270	6/1/2015	3.12	3/21/2031	110.08958	106.8843395	103.818519	100.8847785	98.07621742	95.38634817	92.8090682	90.33863465	87.96964067
150601A00396	6/1/2015	3.61	1/3/2029	107.06619	105.1206592	103.2328258	101.4004984	99.62158615	97.89409302	96.21611264	94.58582357	93.00148498
150601A00405	6/1/2015	4.63	1/17/2034	136.11742	126.324599	117.3468998	109.1112895	101.5516677	94.60817707	88.22658168	82.35771092	76.95696093
150601A00411	6/1/2015	3.38	1/24/2029	106.63772	104.6964395	102.8128214	100.9846678	99.20988631	97.48647939	95.81253941	94.18624389	92.60585115
150601A00426	6/1/2015	3.37	2/21/2029	106.76743	104.7820437	102.8566206	100.988853	99.17653628	97.41756695	95.70993716	94.05172967	92.44111305
150601A00440	6/1/2015	3.27	3/16/2029	106.71779	104.6910439	102.7265338	100.8218287	98.97461236	97.18267587	95.44391149	93.75630749	92.11794304
150601A00450	6/1/2015	3.28	4/27/2029	106.88349	104.8113638	102.8039545	100.8587021	98.97316466	97.14501446	95.37203187	93.6520995	91.98319679
150601A00460	6/1/2015	3.05	5/16/2029	106.55366	104.4443981	102.4020983	100.4240699	98.50775424	96.65071353	94.8506244	93.10527167	91.41254255
150601A00475	6/1/2015	3.04	6/1/2029	106.53571	104.4258038	102.3829159	100.4043586	98.48756893	96.63010493	94.82963947	93.08395387	91.39093211
150601A00477	6/1/2015	3.21	6/1/2029	107.22152	105.0515612	102.9511519	100.9174848	98.94788622	97.03980965	95.19082857	93.39863003	91.6610085
150601A00506	6/1/2015	3.14	7/6/2029	107.01055	104.8105235	102.6825255	100.6235845	98.63087796	96.70171996	94.83355346	93.02394327	91.27056938
150601A00512	6/1/2015	3.79	7/16/2029	116.60186	112.1263602	107.8509483	103.7655301	99.86058316	96.12711953	92.55665199	89.14116305	85.87307607
150601A00523	6/1/2015	4.55	7/25/2031	127.513	120.6300496	114.176544	108.123184	102.4428328	97.11034222	92.10239606	87.39736671	82.97518361
150601A00528	6/1/2015	3.08	7/27/2029	106.88576	104.6864197	102.5591517	100.5009821	98.50908352	96.5807655	94.71346693	92.90474888	91.15228796
150601A00559	6/1/2015	3.06	8/31/2029	106.97644	104.7331743	102.5645735	100.4675162	98.43903701	96.47631566	94.57666885	92.73754259	90.95650513
150601A00664	6/1/2015	3.78	1/16/2032	123.87672	116.6152418	109.839735	103.5149091	97.60822509	92.08966572	86.9315265	82.10822546	77.59612947
150601A00665	6/1/2015	3.82	1/14/2033	126.64601	118.2704046	110.5267488	103.3636649	96.73422126	90.59552567	84.9083567	79.63683116	74.74810311
150601A00666	6/1/2015	3.88	1/16/2035	131.93601	121.3165127	111.6754082	102.9163445	94.9529671	87.70783117	81.11143871	75.10138393	69.62159487
150601A00667	6/1/2015	3.88	1/16/2036	133.97429	122.266547	111.7325788	102.2469132	93.69816006	85.98735995	79.02653644	72.73742351	67.05034645
150601A00668	6/1/2015	3.89	1/16/2037	135.73875	122.9674866	111.5786681	101.4130305	92.33051725	84.20786899	76.936527	70.42080847	64.57631655
150601A00733	6/1/2015	2.72	5/1/2025	100.00647	100.0036933	100.0009158	99.99814087	99.99536833	99.99259822	99.98983055	99.98706529	99.98430246
150601A00734	6/1/2015	2.92	5/1/2025	100.00681	100.004028	100.0012523	99.99847901	99.99570816	99.99293971	99.99017367	99.98741003	99.98464879
150601A00736	6/1/2015	2.87	5/1/2030	107.5388	104.9478775	102.4537936	100.0520807	97.73850759	95.50906849	93.35996959	91.28761624	89.28860118
150601A00739	6/1/2015	2.35	5/6/2025	100.01836	100.0086551	99.99895768	99.98926983	99.97959156	99.96992284	99.96026367	99.95061403	99.9409739
150601A00832	6/1/2015	7.17	8/28/2025	101.14063	100.9684626	100.797153	100.6266954	100.4570829	100.2883086	100.1203655	99.95324696	99.78694622
150601A00851	6/1/2015	7.12	4/30/2027	107.44511	106.365018	105.306239	104.268161	103.2501959	102.2517779	101.2723622	100.311424	99.36845786
150601A00864	6/1/2015	7.37	3/31/2028	111.52288	109.8979663	108.3134768	106.7680726	105.2604706	103.7894402	102.3538006	100.9524182	99.58420477
150601A00868	6/1/2015	7.08	6/5/2028	112.05569	110.2875888	108.5660756	106.8895441	105.2564537	103.6653289	102.1147556	100.6033781	99.12989656
150601A00871	6/1/2015	6.74	7/31/2028	111.80344	109.9919951	108.2292708	106.513557	104.8432157	103.2166786	101.6324442	100.0890738	98.58518891

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
150601A00872	6/1/2015	7.42	7/31/2028	113.00513	111.1734326	109.3910047	107.6561129	105.9671006	104.3223823	102.7204395	101.1598175	99.6391223
150601A00875	6/1/2015	7.14	9/29/2028	113.18455	111.2577558	109.384742	107.5635707	105.7923856	104.069411	102.3929478	100.7613696	99.17311903
150601A00883	6/1/2015	6.21	11/30/2028	112.0441	110.0462369	108.1062052	106.2218583	104.391144	102.612101	100.8828548	99.20161262	97.56665961
150601A00888	6/1/2015	5.92	3/1/2029	112.31852	110.1786105	108.1039508	106.0920115	104.1403812	102.2467592	100.4089497	98.62485648	96.89247744
150601A00889	6/1/2015	6.55	3/2/2029	113.93385	111.7177317	109.5702409	107.4886838	105.4704951	103.5132287	101.6145511	99.77223491	97.98415415
150601A00893	6/1/2015	6.49	4/6/2029	114.11357	111.8472554	109.6523194	107.5259212	105.4653567	103.4680487	101.5315399	99.65348633	97.83165156
150601A00897	6/1/2015	6.15	5/28/2029	113.66646	111.3618994	109.1311923	106.9713568	104.8795544	102.8530815	100.8893619	98.98593994	97.14047405
150601A00899	6/1/2015	7.07	6/14/2029	115.09195	112.8183556	110.6173674	108.4860532	106.4216174	104.4213973	102.4828563	100.6035769	98.78125431
150601A00905	6/1/2015	6.14	10/29/2029	115.09011	112.5227205	110.0442881	107.6509747	105.3391388	103.1053217	100.9462371	98.85876093	96.83992272
150601A00906	6/1/2015	6.2	11/1/2029	115.23997	112.6689849	110.1870876	107.7904373	105.4753867	103.2384712	101.0763991	98.98604157	96.96442315
150601A00912	6/1/2015	5.96	11/30/2029	114.92404	112.3138974	109.7955559	107.3650081	105.0184493	102.7522676	100.5630332	98.44748783	96.40253492
150601A00916	6/1/2015	7.27	4/5/2030	136.31314	130.6057884	125.1849889	120.034697	115.1398494	110.4863019	106.0607684	101.8507643	97.8445542
150601A00927	6/1/2015	6.08	8/7/2030	116.83749	113.9044835	111.0859189	108.3762917	105.7704028	103.2633408	100.8504643	98.52738505	96.28995252
150601A00928	6/1/2015	5.94	8/21/2030	116.46524	113.538308	110.7256709	108.0218285	105.4215855	102.9200343	100.5125371	98.19470906	95.96240297
150601A00929	6/1/2015	5.91	8/30/2030	117.27222	114.1819483	111.2148551	108.3649411	105.6265415	102.9943084	100.4631896	98.02841133	95.68546018
150601A00935	6/1/2015	6.46	11/21/2030	119.81197	116.5093402	113.3435009	110.3075586	107.3950175	104.5997554	101.9159996	99.33830445	96.86153083
150601A00939	6/1/2015	5.79	1/17/2031	118.23366	114.8808636	111.670406	108.5949541	105.6476054	102.8218626	100.1116067	97.51107265	95.0148264
150601A00943	6/1/2015	6.44	5/9/2031	121.51415	117.8723471	114.3927137	111.06653	107.8856086	104.8422608	101.9292634	99.13982683	96.46756655
150601A00948	6/1/2015	6.04	10/22/2031	119.86236	116.2478957	112.7992931	109.5073087	106.3632892	103.3591278	100.4872259	97.74045756	95.11213671
150601A01024	6/1/2015	5.33	2/27/2026	104.29199	103.4393872	102.6007772	101.7758167	100.964174	100.165528	99.37956801	98.60599299	97.84451147
150601A01041	6/1/2015	5.99	10/2/2036	136.42595	128.8821635	121.9236191	115.4975103	109.5562812	104.0570676	98.96119814	94.23375245	89.8431679
150603A00012	6/3/2015	2.77	6/3/2030	108.13913	105.3494688	102.6679568	100.0894558	97.6091081	95.22232135	92.92475197	90.71229009	88.58104534
150603A00017	6/3/2015	2.84	6/3/2025	100.235	100.1405532	100.0462898	99.95220915	99.85831074	99.76459401	99.67105841	99.5777034	99.48452844
150603A00032	6/3/2015	2.21	6/3/2025	100.16518	100.076323	99.98762404	99.89908633	99.81070945	99.72249296	99.63443642	99.54653937	99.45880137
150604A00039	6/4/2015	2.82	6/4/2030	108.2795	105.4861673	102.8011332	100.219248	97.73564756	95.34573301	93.04515488	90.8297977	88.69576579
150610A00008	6/10/2015	3.58	6/10/2030	119.30887	113.8176266	108.6171217	103.6903653	99.02144837	94.59547261	90.39848013	86.41738913	82.63993409
150610A00009	6/10/2015	3.03	6/10/2025	100.30514	100.191247	100.0776278	99.9642804	99.85120381	99.73839701	99.62585899	99.51358875	99.40158528
150615A00024	6/15/2015	2.26	6/16/2025	100.20158	100.0960541	99.99076765	99.88572114	99.78091369	99.67634442	99.57201248	99.46791698	99.36405708
150617A00017	6/17/2015	2.27	6/17/2025	100.20799	100.0996816	99.99163081	99.88383414	99.77629063	99.6689993	99.56195922	99.45516942	99.34862898
150617A00018	6/17/2015	2.45	6/17/2025	100.21905	100.1108229	100.0028453	99.89512077	99.78764824	99.6804268	99.57345552	99.46673347	99.36025971
150617A00030	6/17/2015	2.91	6/16/2025	100.53043	100.3179931	100.1064661	99.89584786	99.68613246	99.47731402	99.26938669	99.06234472	98.85618236
150701A00056	7/1/2015	2.34	7/1/2025	100.28218	100.1405111	99.99927476	99.85847034	99.7180958	99.57814908	99.43862812	99.29953091	99.16085543
150714A00003	7/14/2015	3.76	7/12/2030	111.10973	108.1982015	105.4010985	102.7129138	100.1284479	97.64278836	95.25129196	92.94956815	90.73346349

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
150720A00012	7/20/2015	2.99	7/21/2025	100.6049	100.3770941	100.1503365	99.92461675	99.69992755	99.47626179	99.25361244	99.03197249	98.81133502
150721A00027	7/21/2015	3.74	7/22/2030	120.04426	114.4293959	109.1168483	104.0886345	99.32794253	94.81904897	90.54724173	86.49874935	82.66067544
150722A00033	7/22/2015	2.47	7/22/2025	100.33044	100.1694431	100.0090391	99.84922308	99.68999159	99.53134113	99.37326827	99.21576957	99.05884164
150722A00035	7/22/2015	2.92	7/22/2025	100.79479	100.4815201	100.1702142	99.86085653	99.55342888	99.24791307	98.9442912	98.64254559	98.34265878
150727A00013	7/27/2015	3.04	7/28/2025	100.65034	100.4032921	100.1574567	99.91282717	99.66939469	99.42715048	99.18608585	98.94619221	98.70746103
150729A00028	7/29/2015	2.25	7/29/2025	100.32028	100.1527159	99.98579925	99.81952999	99.653904	99.4889172	99.32456553	99.16084499	98.99775159
150729A00041	7/29/2015	2.44	7/29/2025	100.33903	100.171568	100.0047544	99.83858619	99.67305936	99.50816979	99.34391348	99.18028644	99.01728473
150731A00016	7/31/2015	3.04	7/31/2025	100.6726	100.4172106	100.1631173	99.91030551	99.65876557	99.40848795	99.15946319	98.91168195	98.66513496
150803A00033	8/3/2015	3.41	8/2/2030	116.10369	111.2121933	106.5767325	102.1822849	98.01478791	94.06107659	90.30882149	86.74647148	83.36320057
150803A00036	8/3/2015	3.41	8/2/2030	116.10369	111.2121933	106.5767325	102.1822849	98.01478791	94.06107659	90.30882149	86.74647148	83.36320057
150803A00037	8/3/2015	3.41	8/2/2030	116.10369	111.2121933	106.5767325	102.1822849	98.01478791	94.06107659	90.30882149	86.74647148	83.36320057
150803A00038	8/3/2015	3.41	8/2/2030	116.10369	111.2121933	106.5767325	102.1822849	98.01478791	94.06107659	90.30882149	86.74647148	83.36320057
150803A00039	8/3/2015	3.01	8/2/2030	108.84551	105.9543138	103.1780817	100.5112231	97.94846261	95.48481855	93.11558498	90.8363144	88.64280171
150803A00041	8/3/2015	3.01	8/2/2030	108.84551	105.9543138	103.1780817	100.5112231	97.94846261	95.48481854	93.11558498	90.8363144	88.64280171
150803A00042	8/3/2015	3.01	8/2/2030	108.84551	105.9543138	103.1780817	100.5112231	97.94846261	95.48481854	93.11558498	90.8363144	88.64280171
150812A00052	8/14/2015	2.13	8/14/2025	100.36031	100.1603561	99.96132745	99.76322089	99.56602947	99.3697463	99.17436453	98.97987742	98.78627828
150814A00029	8/14/2015	2.39	8/14/2025	100.39672	100.1968557	99.99791569	99.79989541	99.60278797	99.4065865	99.21128422	99.01687441	98.82335043
150817A00099	8/17/2015	3.19	8/17/2027	107.93996	105.5799263	103.283634	101.0489542	98.87384681	96.75635374	94.69459535	92.68676645	90.7311328
150819A00012	8/19/2015	3.04	8/19/2025	100.81783	100.5097136	100.2034954	99.89915459	99.59667381	99.29603596	98.99722412	98.70022161	98.40501194
150819A00013	8/19/2015	3.51	8/19/2030	119.02768	113.3612043	108.0040863	102.937771	98.1449098	93.60927911	89.3157018	85.24997409	81.39879815
150824A00033	8/24/2015	2.22	8/25/2025	100.37612	100.1693858	99.96366411	99.75894383	99.55521694	99.35247548	99.1507116	98.94991754	98.7500856
150824A00050	8/24/2015	2.03	8/25/2025	100.35295	100.1460916	99.94025024	99.73541288	99.53157147	99.32871801	99.1268446	98.92594343	98.72600678
150826A00038	8/26/2015	2.94	8/26/2026	104.07597	102.7366252	101.4224558	100.1327869	98.86696473	97.62435896	96.40436134	95.20638493	94.02986309
150826A00039	8/26/2015	3.22	8/27/2029	115.11293	110.5410345	106.178965	102.0159924	98.04199443	94.24741592	90.62323349	87.16092348	83.85243162
150925A00034	9/25/2015	2.36	9/25/2025	100.49638	100.2454048	99.99594656	99.74799184	99.50152554	99.25653286	99.0129992	98.77091015	98.53025151
150929A00076	9/29/2015	2.28	9/29/2025	100.48081	100.2276656	99.97607348	99.72601888	99.47748614	99.23045985	98.98492483	98.74086612	98.49826895
150929A00083	9/29/2015	2.09	9/29/2025	100.45246	100.1991738	99.94744488	99.69725689	99.44859414	99.20144116	98.95578269	98.7116037	98.46888937
150929A00087	9/29/2015	2.09	9/29/2025	100.45246	100.1991738	99.94744488	99.69725689	99.44859414	99.20144116	98.95578269	98.7116037	98.46888937
151001A00023	10/1/2015	2.02	10/1/2025	100.48827	100.2054484	99.9245334	99.64550572	99.36834466	99.09302982	98.8195411	98.5478587	98.27796315
151013A00033	10/13/2015	2.23	10/14/2025	100.5373	100.249057	99.96281758	99.67855924	99.39625935	99.11589569	98.83744638	98.56088988	98.28620499
151029A00008	10/29/2015	2.28	10/29/2025	100.5677	100.272013	99.9784678	99.68703936	99.39770224	99.11043145	98.82520241	98.54199095	98.26077332
151030A00026	10/30/2015	3.29	10/30/2030	115.96889	110.8982974	106.1032679	101.5670025	97.27382325	93.2090929	89.35913994	85.71118966	82.25330024
151106A00011	11/6/2015	3.1	1/15/2026	102.09019	101.3666389	100.6533456	99.95009447	99.25667428	98.57287964	97.89851087	97.23337379	96.57727953

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
151116A00025	11/16/2015	3.04	11/14/2025	101.51152	100.9614212	100.4172901	99.87902978	99.34654543	98.81974427	98.29853549	97.78283019	97.27254139
151118A00037	11/18/2015	2.75	11/18/2025	101.53769	100.9230162	100.3159973	99.71648796	99.12434801	98.53944081	97.96163307	97.39079478	96.82679911
151120A00019	11/20/2015	2.72	11/20/2030	108.59637	105.5760006	102.6806511	99.90402716	97.24019496	94.68356184	92.22885423	89.87109726	87.60559583
151125A00037	11/25/2015	2.41	11/25/2025	100.69806	100.3610593	100.0268579	99.69541371	99.36668876	99.04064596	98.7172489	98.39646187	98.07824983
151204A00011	12/4/2015	2.28	12/4/2025	100.7588	100.3860731	100.0167437	99.65076059	99.28807366	98.92863399	98.57239366	98.21930572	97.86932417
151209A00024	12/9/2015	2.22	12/9/2025	100.74053	100.3661449	99.99519699	99.627636	99.2634108	98.90247135	98.54476868	98.19025482	97.8388828
151223A00072	12/23/2015	2.81	12/23/2025	101.74602	101.0867	100.4359268	99.79353116	99.159352	98.53323221	97.91501869	97.30456223	96.70171733
151223A00074	12/23/2015	3.01	12/23/2027	108.89598	106.1625373	103.5121775	100.9418518	98.44864102	96.0297535	93.68251834	91.40437929	89.19288891
151223A00077	12/23/2015	3.57	12/24/2035	132.1033	120.5005237	110.0602738	100.6585578	92.18525547	84.54250082	77.643259	71.41007579	65.77397691
151223A00078	12/23/2015	2.28	12/23/2025	100.77494	100.3955824	100.0197901	99.64750393	99.27866938	98.91323323	98.55114341	98.19234893	97.83679994
151228A00013	12/28/2015	2.27	12/29/2025	100.77536	100.394275	100.0167974	99.64286896	99.27243389	98.9054378	98.54182747	98.18155082	97.82455691
151229A00026	12/29/2015	2.28	12/29/2025	100.78003	100.3985789	100.0207472	99.64647341	99.27570155	98.90837699	98.54444627	98.1838571	97.8265583
151229A00079	12/29/2015	3	12/30/2025	101.87884	101.200333	100.5308514	99.87021562	99.21825122	98.57478833	97.93966148	97.31270948	96.69377525
151229A00080	12/29/2015	3.49	12/30/2030	119.85743	113.7937063	108.0807625	102.6963618	97.61980118	92.83179271	88.31435959	84.05073981	80.02529751
151229A00081	12/29/2015	3.76	12/31/2035	133.20661	121.5803727	111.1166937	101.6916733	93.19527138	85.52968887	78.60794712	72.35263819	66.69482553
160106A00042	1/6/2016	2.43	1/6/2026	100.89063	100.4737307	100.0611104	99.65269913	99.24842604	98.84822176	98.4520186	98.05975043	97.67135269
160115A00011	1/15/2016	2.18	1/15/2026	100.79258	100.3733223	99.95841943	99.54779677	99.14138104	98.73910073	98.34088603	97.9466688	97.55638248
160119A00019	1/19/2016	2.95	1/19/2027	105.39246	103.6456865	101.9364638	100.2636487	98.62614273	97.02289192	95.45288454	93.91514897	92.40875161
160119A00025	1/19/2016	3.05	1/19/2028	109.01826	106.2139047	103.4965625	100.8629586	98.3099682	95.83460694	93.43402319	91.10549103	88.8464037
160119A00026	1/19/2016	3.14	1/19/2029	112.52109	108.6354922	104.9066199	101.3272385	97.89049029	94.58987548	91.41923123	88.37271172	85.44476975
160119A00027	1/19/2016	3.25	1/18/2030	116.04231	111.0555147	106.3151603	101.8076924	97.52037639	93.44124734	89.55905831	85.86323314	82.34382246
160119A00028	1/19/2016	3.34	1/21/2031	119.12684	113.0231513	107.2761371	101.862971	96.76241268	91.95468861	87.42138272	83.1453356	79.11055189
160119A00029	1/19/2016	3.39	1/20/2032	121.60401	114.4070341	107.6937932	101.4290604	95.58035766	90.11773018	85.01353672	80.24225884	75.78032684
160119A00030	1/19/2016	3.44	1/18/2033	124.13149	115.8400912	108.1770621	101.0911698	94.53562251	88.46766509	82.8482102	77.64150508	72.81483038
160119A00072	1/19/2016	2.77	1/21/2031	109.62037	106.1198662	102.7764055	99.58143389	96.52693276	93.60538034	90.80971736	88.13331516	85.56994633
160126A00004	1/26/2016	2.52	1/26/2026	102.02251	101.1929654	100.3769871	99.57424584	98.78442084	98.00720152	97.2422872	96.48938672	95.74821806
160129A00066	1/29/2016	3.04	1/29/2031	117.9213	111.8123716	106.0627297	100.6492539	95.55044125	90.74628177	86.21814612	81.94868265	77.92172269
160129A00067	1/29/2016	2.53	1/29/2026	101.84282	101.0807511	100.3300637	99.59050478	98.86182833	98.14379546	97.43617424	96.73873944	96.05127228
160201A00016	2/1/2016	2.1	2/2/2026	100.8405	100.3819869	99.92867905	99.480477	99.03728564	98.59901238	98.16556704	97.73686172	97.3128108
160209A00006	2/9/2016	1.91	2/9/2026	100.7577	100.2973584	99.84228415	99.39237761	98.94754155	98.50768125	98.07270451	97.64252149	97.21704469
160209A00008	2/9/2016	2.45	2/10/2031	107.82917	104.7057832	101.7163623	98.85394125	96.11196737	93.48427563	90.96506307	88.54886504	86.23053315
160210A00042	2/10/2016	2.57	2/10/2026	101.90411	101.1094488	100.3271635	99.55696747	98.79858197	98.05173672	97.31616962	96.59162649	95.87786072
160210A00049	2/10/2016	1.78	2/10/2026	100.73446	100.2735425	99.81790806	99.36745888	98.92209709	98.48172744	98.04625718	97.61559595	97.18965577

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
160210A00051	2/10/2016	2.28	2/10/2031	107.54889	104.4287753	101.4426547	98.58354738	95.84489262	93.22051838	90.70461546	88.29171371	85.97665988
160210A00054	2/10/2016	1.78	2/10/2026	100.73446	100.2735425	99.81790806	99.36745888	98.92209709	98.48172744	98.04625718	97.61559595	97.18965577
160211A00036	2/11/2016	2.41	2/11/2026	101.78431	100.9874038	100.2029601	99.43068337	98.67029206	97.9215132	97.18408216	96.45774228	95.74224459
160211A00038	2/11/2016	1.83	2/11/2026	100.72184	100.2611067	99.80566015	99.35539615	98.91021691	98.47002721	98.03473432	97.60424795	97.17848012
160212A00037	2/12/2016	3.03	2/12/2031	117.44685	111.32744	105.5698692	100.1507894	95.04848384	90.24274185	85.71474669	81.44697201	77.42308669
160212A00047	2/12/2016	1.94	2/12/2026	100.77333	100.3120848	99.85613814	99.40538508	98.95972745	98.5190697	98.08331878	97.65238411	97.2261774
160222A00005	2/22/2016	2.79	2/22/2028	108.58571	105.6901943	102.8871526	100.1731197	97.54477791	94.99895311	92.53260745	90.14283271	87.8268439
160222A00018	2/22/2016	2.59	2/23/2026	102.01942	101.1883226	100.3707385	99.5663438	98.77482129	97.99586372	97.22917361	96.47446281	95.73145211
160222A00019	2/22/2016	3.09	2/21/2031	117.8574	111.6989534	105.9059452	100.4547518	95.32339771	90.49143028	85.9398069	81.65079067	77.60785449
160303A00020	3/3/2016	2.97	3/3/2031	117.71281	111.5110259	105.6795401	100.1943092	95.03297246	90.17472249	85.60018949	81.29133527	77.2313553
160303A00035	3/3/2016	2.14	3/3/2026	101.01875	100.4850223	99.95820298	99.43814048	98.92469237	98.41772044	97.91709048	97.42267215	96.93433885
160307A00024	3/7/2016	2.17	3/6/2026	100.96926	100.4666116	99.97024512	99.48003147	98.99584436	98.51756112	98.04506258	97.57823293	97.1169596
160307A00027	3/7/2016	2.71	3/6/2026	102.20792	101.3455337	100.4976829	99.66399981	98.84413142	98.0377363	97.24448419	96.46405558	95.69614121
160307A00028	3/7/2016	2.91	3/7/2028	109.04896	106.107118	103.2603135	100.5049719	97.83767545	95.25515261	92.75427119	90.33203153	87.98556018
160307A00029	3/7/2016	3.21	3/7/2031	118.65238	112.430571	106.5798508	101.0761341	95.89701647	91.02164996	86.43062735	82.10587576	78.03055853
160328A00038	3/28/2016	2.54	3/30/2026	102.39147	101.4127002	100.45302	99.51187395	98.58872575	97.68305952	96.79437902	95.92220665	95.06608264
160328A00045	3/28/2016	2.49	3/27/2026	102.25084	101.3291143	100.423974	99.53497051	98.6616752	97.80367444	96.96056901	96.13197352	95.31751573
160329A00017	3/29/2016	2.48	3/30/2026	102.33262	101.3542879	100.3950372	99.45431335	98.53158016	97.62632197	96.73804269	95.86626493	95.01052909
160330A00054	3/30/2016	2.9	3/31/2031	117.43238	111.1621761	105.2709753	99.73387487	94.52773387	89.63103789	85.02377691	80.68733279	76.6043757
160404A00019	4/4/2016	2.48	4/4/2031	108.11843	104.9005952	101.8241066	98.88145737	96.06559449	93.36989004	90.78811251	88.31440044	85.94323792
160412A00029	4/12/2016	2.48	4/14/2031	108.11882	104.9006623	101.8238941	98.881	96.06492362	93.36903382	90.78709626	88.31324687	85.94196742
160413A00014	4/13/2016	2.55	4/14/2031	108.34629	105.1213216	102.0380466	99.08893172	96.26690521	93.56532163	90.97793314	88.49886304	86.12258117
160413A00016	4/13/2016	2.55	4/14/2031	108.34629	105.1213216	102.0380466	99.08893172	96.26690521	93.56532163	90.97793314	88.49886304	86.12258117
160413A00021	4/13/2016	2.48	4/13/2026	102.4626	101.4360661	100.4303692	99.44487846	98.47898662	97.53211058	96.60369023	95.69318731	94.80008438
160413A00033	4/13/2016	2.32	4/13/2026	102.17223	101.1993981	100.2459215	99.31122045	98.3947366	97.49593368	96.6142964	95.74932945	94.90055654
160414A00042	4/13/2016	2.48	4/13/2026	102.4626	101.4360661	100.4303692	99.44487846	98.47898662	97.53211058	96.60369023	95.69318731	94.80008438
160421A00016	4/21/2016	2.26	4/21/2026	102.33779	101.3049103	100.2933342	99.30240253	98.33148354	97.37997123	96.44728389	95.53286295	94.63617178
160422A00026	4/22/2016	2.62	4/22/2026	102.50511	101.5111524	100.5364346	99.58040481	98.64252926	97.72229432	96.81920559	95.93278698	95.06257992
160427A00004	4/27/2016	2.09	4/27/2026	101.03252	100.4824114	99.93989896	99.40480975	98.87697466	98.35622997	97.84241712	97.33538257	96.83497755
160428A00028	4/28/2016	2	4/28/2026	101.02691	100.4760944	99.93290238	99.39715601	98.86868531	98.34732572	97.83291795	97.3253077	96.82434549
160504A00004	5/4/2016	2.3	5/4/2026	102.35612	101.328549	100.3215475	99.33450394	98.36682946	97.41795819	96.4873461	95.57446999	94.67882647
160511A00015	5/11/2016	2.42	5/11/2026	102.61056	101.5070508	100.4276087	99.37144786	98.3378176	97.32599918	96.33530424	95.36507316	94.41467361
160511A00016	5/11/2016	2.48	5/12/2031	108.21453	104.950443	101.8314559	98.84977943	95.99809832	93.26954271	90.65765773	88.15637565	85.75999001

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
160523A00086	5/23/2016	2.2	5/26/2026	102.51588	101.3903787	100.2901698	99.21440088	98.16225848	97.13296487	96.12577626	95.13998092	94.17489751
160524A00015	11/25/2016	2.71	11/25/2026	104.47714	102.888063	101.3311292	99.80543742	98.31011594	96.844325	95.40725549	93.99812757	92.61618924
160524A00027	5/24/2016	3.06	5/27/2031	118.17632	111.7447604	105.7101114	100.0457327	94.72690997	89.73070482	85.03581854	80.62246632	76.47226205
160603A00014	6/3/2016	1.74	6/3/2026	101.03774	100.4075961	99.78740724	99.17690948	98.575852	97.98399307	97.40109961	96.82694683	96.2613178
160603A00029	6/3/2016	2.18	6/3/2031	107.57913	104.2864671	101.1420369	98.13779025	95.26617349	92.52009756	89.89290619	87.37834647	84.97054166
160606A00004	6/6/2016	2.43	6/8/2026	102.67457	101.5494421	100.4489087	99.37217064	98.31846243	97.287051	96.27723413	95.28833881	94.31971977
160606A00005	6/6/2016	2.92	6/6/2031	117.35985	110.9251679	104.8895445	99.22607718	93.90981969	88.91762615	84.22801191	79.82102575	75.67813268
160606A00018	6/6/2016	1.74	6/5/2026	101.03903	100.4082881	99.7875237	99.17647531	98.57489088	97.98252755	97.39915117	96.82453593	96.25846395
160608A00019	6/8/2016	2.36	6/8/2026	102.73675	101.5618119	100.4141438	99.29279888	98.19687477	97.12551005	96.07788188	95.05320392	94.0507243
160608A00020	6/8/2016	2.36	6/8/2026	102.73675	101.5618119	100.4141438	99.29279888	98.19687477	97.12551005	96.07788188	95.05320392	94.0507243
160608A00023	6/8/2016	2.36	6/8/2026	102.73675	101.5618119	100.4141438	99.29279888	98.19687477	97.12551005	96.07788188	95.05320392	94.0507243
160608A00024	6/8/2016	2.36	6/8/2026	102.73675	101.5618119	100.4141438	99.29279888	98.19687477	97.12551005	96.07788188	95.05320392	94.0507243
160608A00025	6/8/2016	2.36	6/8/2026	102.73675	101.5618119	100.4141438	99.29279888	98.19687477	97.12551005	96.07788188	95.05320392	94.0507243
160608A00026	6/8/2016	2.36	6/8/2026	102.73675	101.5618119	100.4141438	99.29279888	98.19687477	97.12551005	96.07788188	95.05320392	94.0507243
160608A00027	6/8/2016	2.36	6/8/2026	102.73675	101.5618119	100.4141438	99.29279888	98.19687477	97.12551005	96.07788188	95.05320392	94.0507243
160608A00028	6/8/2016	2.36	6/8/2026	102.73675	101.5618119	100.4141438	99.29279888	98.19687477	97.12551005	96.07788188	95.05320392	94.0507243
160608A00029	6/8/2016	2.36	6/8/2026	102.73675	101.5618119	100.4141438	99.29279888	98.19687477	97.12551005	96.07788188	95.05320392	94.0507243
160608A00030	6/8/2016	2.36	6/8/2026	102.73675	101.5618119	100.4141438	99.29279888	98.19687477	97.12551005	96.07788188	95.05320392	94.0507243
160608A00031	6/8/2016	2.36	6/8/2026	102.73675	101.5618119	100.4141438	99.29279888	98.19687477	97.12551005	96.07788188	95.05320392	94.0507243
160608A00032	6/8/2016	2.36	6/8/2026	102.73675	101.5618119	100.4141438	99.29279888	98.19687477	97.12551005	96.07788188	95.05320392	94.0507243
160608A00033	6/8/2016	2.44	6/9/2031	108.17561	104.8697356	101.7125217	98.69590488	95.81231658	93.05465327	90.41624466	87.89082435	85.47250256
160608A00034	6/8/2016	2.44	6/9/2031	108.17561	104.8697356	101.7125217	98.69590488	95.81231658	93.05465327	90.41624466	87.89082435	85.47250256
160609A00075	6/9/2016	1.94	6/9/2026	101.11706	100.4858232	99.86458101	99.2530689	98.65103416	98.05823329	97.4744315	96.89940239	96.33292753
160613A00047	6/15/2016	2.18	6/16/2025	100.22874	100.0984063	99.96842824	99.83880262	99.7095279	99.58060264	99.45202536	99.32379462	99.19590899
160615A00031	6/15/2016	2.51	6/17/2030	113.76811	108.3985726	103.3163147	98.50443027	93.94709786	89.62950661	85.53778601	81.658941	77.98079201
160616A00027	6/16/2016	2.27	6/16/2026	102.55331	101.4067507	100.2857491	99.18946037	98.11707398	97.06781454	96.04093987	95.03573926	94.0515318
160616A00029	6/16/2016	1.58	6/16/2026	100.94173	100.3096236	99.68756762	99.07530136	98.47256895	97.87912394	97.29472882	96.71915458	96.15218034
160628A00038	6/28/2016	1.88	6/27/2025	100.24668	100.0857554	99.92535159	99.76546637	99.60609722	99.44724164	99.28889713	99.13106123	98.97373148
160628A00039	6/28/2016	2.01	6/29/2026	102.4355	101.2522101	100.0961349	98.96634256	97.86194525	96.7820945	95.72597932	94.69282405	93.68188653
160628A00049	6/28/2016	1.88	6/27/2025	100.24668	100.0857554	99.92535159	99.76546637	99.60609722	99.44724164	99.28889713	99.13106123	98.97373148
160629A00066	6/29/2016	2.61	6/30/2036	118.77932	109.4731917	101.0769601	93.49309843	86.63518921	80.42659477	74.79929446	69.69286644	65.0535951
160630A00012	6/30/2016	2.11	6/30/2025	100.28511	100.1159625	99.94738661	99.77937553	99.61192643	99.44503653	99.27870304	99.11292323	98.94769434
160701A00020	7/1/2016	2.13	7/1/2026	102.49649	101.3087212	100.1483702	99.0144944	97.90619585	96.82261695	95.76293798	94.72637514	93.71217853

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
160701A00039	7/1/2016	1.92	7/1/2026	102.34245	101.154197	99.99340655	98.85913111	97.75047073	96.66656574	95.60659454	94.56977153	93.55534515
160705A00104	7/5/2016	2.1	7/6/2026	102.4954	101.2938026	100.1202661	98.9738183	97.85352972	96.7585129	95.68792017	94.64094135	93.6168018
160706A00010	7/6/2016	1.99	7/7/2025	100.29633	100.107848	99.92008399	99.7330336	99.54669269	99.36105718	99.17612302	98.99188619	98.80834271
160706A00026	7/6/2016	2.19	7/6/2027	105.32232	103.1069094	100.9491228	98.84704875	96.79885153	94.80277146	92.85712096	90.96028087	89.11069712
160706A00027	7/6/2016	2.29	7/6/2028	108.04687	104.7847287	101.6383888	98.60304813	95.67413462	92.84729492	90.11838234	87.48344552	84.93871786
160706A00028	7/6/2016	2.39	7/6/2029	110.77488	106.4496855	102.3182321	98.37077179	94.59809999	90.99152653	87.54284353	84.24429565	81.08855237
160706A00029	7/6/2016	2.49	7/8/2030	113.32859	107.9266003	102.8161563	97.97995382	93.40180673	89.0665724	84.96007847	81.06905521	77.38107301
160706A00030	7/6/2016	2.59	7/7/2031	115.43312	108.9713887	102.9162828	97.24003445	91.9169139	86.92307305	82.23639768	77.83637229	73.70395618
160711A00004	7/11/2016	1.51	7/13/2026	100.97058	100.2969973	99.63484208	98.98378872	98.34352851	97.71376475	97.09421214	96.48459623	95.88465292
160712A00019	7/12/2017	2.32	7/12/2027	105.65343	103.4180291	101.2410983	99.12068308	97.05490908	95.04198012	93.08017422	91.16783978	89.30339208
160713A00015	7/13/2016	1.57	7/13/2026	101.01193	100.337711	99.6749327	99.02327746	98.38243553	97.75210925	97.13201243	96.52186983	95.92141654
160714A00018	9/6/2016	2.28	9/4/2026	103.15082	101.797838	100.4690145	99.16375525	97.88148783	96.6216578	95.38372814	94.16717851	92.97150464
160714A00020	9/6/2016	2.28	9/4/2026	103.15082	101.797838	100.4690145	99.16375525	97.88148783	96.6216578	95.38372814	94.16717851	92.97150464
160714A00023	8/10/2016	2.49	8/10/2028	108.9363	105.5642893	102.3148257	99.18274473	96.16313118	93.25130686	90.4428177	87.73342145	85.11907609
160714A00024	9/20/2016	2.5	9/20/2028	109.25847	105.7673605	102.4068975	99.17151139	96.05590005	93.05501439	90.16404478	87.37840835	84.69373714
160714A00029	8/10/2016	2.27	8/10/2026	102.95507	101.6596914	100.3932406	99.15475279	97.94330175	96.75800209	95.59800712	94.46250674	93.35072543
160719A00026	7/19/2016	1.87	7/20/2026	101.16415	100.4884407	99.82422408	99.17117662	98.52898625	97.89735321	97.27598933	96.66461747	96.06297096
160726A00005	7/26/2016	2.28	7/27/2026	102.86644	101.6042175	100.3728595	99.17124563	97.99830825	96.85303024	95.7344421	94.64161916	93.57367902
160729A00017	7/31/2017	2.47	7/31/2029	111.27058	106.8668067	102.6629232	98.64872469	94.81458989	91.15144374	87.65072271	84.30434265	81.1046689
160801A00002	8/1/2016	1.58	8/3/2026	101.09403	100.3789977	99.67679977	98.98705265	98.30939094	97.64346422	96.98893627	96.34548434	95.71279846
160802A00003	8/2/2016	2.53	8/1/2031	115.67765	109.1212501	102.9819455	97.23094694	91.84160637	86.78924548	82.05099922	77.60567289	73.43361119
160810A00025	8/10/2016	2.17	8/10/2026	102.93783	101.6135532	100.3131435	99.03600379	97.78155993	96.54925635	95.33855523	94.14893581	92.97989369
160810A00027	8/10/2016	2.13	8/10/2026	102.82793	101.5276864	100.2508509	98.99683934	97.7650872	96.55504825	95.3661938	94.19801201	93.0500072
160810A00028	8/10/2016	2.19	8/10/2026	102.99509	101.6581434	100.3453023	99.05596653	97.78955675	96.5455125	95.32329111	94.12236712	92.94223154
160810A00029	8/10/2016	2.17	8/10/2026	102.93783	101.6135532	100.3131435	99.03600379	97.78155993	96.54925635	95.33855523	94.14893581	92.97989369
160810A00030	8/10/2016	2.24	8/11/2031	107.67403	104.2977652	101.076833	98.00262448	95.06707594	92.2626286	89.58219358	87.01911951	84.56716245
160811A00011	8/11/2016	2.25	8/11/2026	102.93627	101.6388724	100.3701538	99.12916695	97.91500285	96.72679212	95.56370303	94.42493946	93.309739
160812A00006	8/12/2016	2.16	8/12/2026	102.98674	101.6786093	100.3941298	99.13271241	97.89378423	96.67679104	95.48119656	94.30648165	93.15214365
160815A00005	8/15/2016	2.23	8/17/2026	102.95268	101.6422825	100.3590878	99.10225518	97.87097889	96.66448613	95.4820355	94.32291537	93.18644237
160815A00006	8/15/2016	2.23	8/17/2026	102.95268	101.6422825	100.3590878	99.10225518	97.87097889	96.66448613	95.4820355	94.32291537	93.18644237
160815A00007	8/15/2016	2.23	8/17/2026	102.95268	101.6422825	100.3590878	99.10225518	97.87097889	96.66448613	95.4820355	94.32291537	93.18644237
160819A00015	10/12/2016	2.3	10/13/2026	103.48315	102.0204881	100.5858251	99.17843078	97.79759604	96.44263573	95.11288784	93.80771246	92.52649088
160824A00019	8/24/2016	1.98	8/25/2031	107.06351	103.7005118	100.492466	97.43077127	94.50737335	91.71472313	89.04574135	86.49378618	84.05262312

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
160830A00037	8/30/2016	2.16	8/29/2025	100.59872	100.2634202	99.93035503	99.59949962	99.27083202	98.94433059	98.61997399	98.29774115	97.97761127
160830A00038	8/30/2016	2.24	8/28/2026	103.04385	101.7091805	100.3990159	99.11272067	97.849682	96.60930794	95.39102652	94.19428486	93.01854836
160906A00027	9/6/2016	2.03	9/8/2031	107.30813	103.8953496	100.6415314	97.53776761	94.57572045	91.74757928	89.04602378	86.46418975	83.99563756
160908A00022	9/8/2016	2.21	9/8/2026	103.19004	101.7917797	100.419962	99.07390078	97.75293044	96.45640785	95.18371151	93.93424056	92.707414
160908A00023	9/8/2016	2.21	9/8/2026	103.19004	101.7917797	100.419962	99.07390078	97.75293044	96.45640785	95.18371151	93.93424056	92.707414
160908A00024	9/8/2016	2.21	9/8/2026	103.19004	101.7917797	100.419962	99.07390078	97.75293044	96.45640785	95.18371151	93.93424056	92.707414
160908A00025	9/8/2016	2.21	9/8/2026	103.19004	101.7917797	100.419962	99.07390078	97.75293044	96.45640785	95.18371151	93.93424056	92.707414
160908A00026	9/8/2016	2.21	9/8/2026	103.19004	101.7917797	100.419962	99.07390078	97.75293044	96.45640785	95.18371151	93.93424056	92.707414
160908A00027	9/8/2016	2.21	9/8/2026	103.19004	101.7917797	100.419962	99.07390078	97.75293044	96.45640785	95.18371151	93.93424056	92.707414
160908A00028	9/8/2016	2.21	9/8/2026	103.19004	101.7917797	100.419962	99.07390078	97.75293044	96.45640785	95.18371151	93.93424056	92.707414
160908A00030	9/8/2016	2.21	9/8/2026	103.19004	101.7917797	100.419962	99.07390078	97.75293044	96.45640785	95.18371151	93.93424056	92.707414
160908A00031	9/8/2016	2.21	9/8/2026	103.19004	101.7917797	100.419962	99.07390078	97.75293044	96.45640785	95.18371151	93.93424056	92.707414
160908A00032	9/8/2016	2.17	9/8/2026	103.0693	101.6977087	100.3520082	99.03152527	97.73560725	96.46362377	95.21496567	93.98904409	92.78528964
160908A00033	9/8/2016	2.17	9/8/2026	103.0693	101.6977087	100.3520082	99.03152527	97.73560725	96.46362377	95.21496567	93.98904409	92.78528964
160908A00034	9/8/2016	2.17	9/8/2026	103.0693	101.6977087	100.3520082	99.03152527	97.73560725	96.46362377	95.21496567	93.98904409	92.78528964
160908A00035	9/8/2016	2.3	9/8/2031	107.96234	104.5342164	101.2655808	98.14750502	95.17163189	92.33013219	89.61566764	87.02135672	84.54074318
160908A00036	9/8/2016	2.3	9/8/2031	107.96234	104.5342164	101.2655808	98.14750502	95.17163189	92.33013219	89.61566764	87.02135672	84.54074318
160922A00014	9/22/2016	2.06	9/22/2026	103.09486	101.690468	100.3120013	98.95880884	97.63025611	96.32572946	95.04463519	93.78639872	92.55046383
160923A00009	9/23/2016	2.24	9/23/2031	107.75507	104.3329975	101.0701763	97.95768825	94.98718555	92.15084807	89.44134627	86.85180704	84.37578218
160928A00029	9/28/2016	2.52	9/29/2036	112.92946	106.7552932	101.0614928	95.8042475	90.94415929	86.44576738	82.27712394	78.40941856	74.81664529
160928A00030	9/28/2016	2.52	9/29/2036	112.92946	106.7552932	101.0614928	95.8042475	90.94415929	86.44576738	82.27712394	78.40941856	74.81664529
160928A00032	9/28/2016	2.52	9/29/2036	112.92946	106.7552932	101.0614928	95.8042475	90.94415929	86.44576738	82.27712394	78.40941856	74.81664529
160928A00033	9/28/2016	2.46	9/29/2036	112.57147	106.4127451	100.7334129	95.48973501	90.64238314	86.15596002	81.99857579	78.14147295	74.55869394
160928A00041	9/28/2016	3.26	9/29/2036	117.34472	110.9800533	105.1078117	99.68323485	94.6660651	90.02005807	85.71255109	81.714081	77.99804522
160928A00042	9/28/2016	3.05	9/29/2036	116.09174	109.7811349	103.959532	98.58244114	93.60984859	89.00573233	84.73763257	80.77627138	77.09521551
160928A00044	9/28/2016	2.89	9/29/2036	115.13709	108.8676733	103.0846523	97.74374118	92.80511219	88.23291272	83.99483752	80.06174978	76.40734526
160930A00032	9/30/2016	2.15	9/30/2031	107.28453	103.9495099	100.7682001	97.73204037	94.83301635	92.06361849	89.41680653	86.88597705	84.46493328
160930A00033	9/30/2016	1.8	9/30/2026	101.28699	100.5292179	99.78458402	99.05272624	98.33329435	97.62595147	96.93037341	96.24624805	95.57327476
161005A00016	10/5/2016	2.32	10/6/2031	108.11491	104.6391285	101.3268437	98.16881471	95.15639322	92.28148205	89.53649642	86.91432796	84.40831156
161014A00019	10/14/2016	2.39	10/15/2031	108.36125	104.8772458	101.5571504	98.39169879	95.37221896	92.49059177	89.73921194	87.11095206	84.59912929
161014A00026	10/14/2016	2.16	10/14/2031	107.83786	104.3650439	101.0558152	97.90091271	94.89167266	92.01998422	89.27825053	86.65935253	84.15661566
161014A00029	10/14/2016	2.51	10/15/2031	109.0709	105.5583801	102.2113128	99.02033641	95.97668795	93.07216391	90.29908054	87.6502374	85.1188836
161109A00018	11/9/2016	2.63	11/9/2026	104.20436	102.66236	101.1510725	99.6696554	98.2172959	96.79321042	95.39664306	94.0268644	92.68317036

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
161116A00006	11/16/2016	2.39	11/16/2026	101.96802	101.1212333	100.2895668	99.47260415	98.66994277	97.88119537	97.10598901	96.34396446	95.59477556
161118A00026	12/20/2016	3.03	12/21/2026	105.24583	103.5791927	101.9471973	100.3488324	98.78312333	97.24913318	95.74596078	94.27273902	92.8286332
161207A00014	12/7/2016	2.75	12/8/2031	110.13278	106.4987669	103.0396807	99.74542347	96.60655742	93.61425819	90.7602707	88.0368686	85.43681671
161214A00023	12/14/2016	3.3	12/15/2031	121.37663	114.2627779	107.6219498	101.4200792	95.62572649	90.20986629	85.14568932	80.40842205	75.97516181
161214A00034	12/14/2016	2.65	12/14/2026	102.31718	101.4259807	100.5509607	99.69166548	98.84766145	98.01853136	97.20387353	96.4033011	95.61644134
161222A00013	12/22/2016	2.93	12/22/2026	105.17588	103.5227683	101.9049837	100.3214515	98.77113829	97.2530527	95.76624312	94.30979576	92.88283266
161222A00030	12/22/2016	3.09	12/22/2026	105.49145	103.8176325	102.1786785	100.5735644	99.00130737	97.46096264	95.95162164	94.47241024	93.02248706
161222A00036	12/22/2016	2.69	12/22/2026	102.33839	101.4521371	100.5819513	99.72738528	98.88800818	98.06340534	97.25317759	96.45694053	95.67432382
161222A00037	12/22/2016	3.08	12/22/2031	110.69072	107.1555154	103.7878903	100.5782584	97.51765841	94.59770769	91.81056102	89.14887231	86.60575934
161227A00073	12/27/2016	2.83	12/28/2026	104.74769	103.1776412	101.6410081	100.1367698	98.66394685	97.22159975	95.8088269	94.42476267	93.06857556
161229A00018	12/29/2016	2.46	12/29/2026	102.22435	101.3310385	100.4539868	99.59274395	98.74687268	97.91595209	97.09957708	96.29735759	95.50891782
161229A00019	12/29/2016	2.46	12/29/2026	102.22435	101.3310385	100.4539868	99.59274395	98.74687268	97.91595209	97.09957708	96.29735759	95.50891782
170105A00010	1/5/2017	2.61	1/5/2027	102.40473	101.47215	100.5567837	99.65814298	98.77576196	97.9091926	97.0580037	96.22178011	95.40012194
170106A00030	1/6/2017	2.39	1/6/2027	102.27302	101.3405711	100.4253527	99.52687572	98.64467361	97.7782974	96.92731506	96.09131068	95.26988366
170111A00009	1/11/2017	3.16	1/11/2028	109.24998	106.4643732	103.76461	101.1474811	98.6099255	96.14901843	93.76196398	91.44608852	89.19883434
170111A00011	1/11/2017	3.24	1/11/2029	112.82964	108.9603565	105.2463116	101.6803704	98.25577517	94.96611894	91.80532462	88.76762596	85.84754958
170111A00012	1/11/2017	3.31	1/11/2030	116.27534	111.3024379	106.574361	102.0776901	97.79981829	93.72889731	89.8537872	86.16400982	82.64970562
170111A00013	1/11/2017	3.4	1/10/2031	119.40758	113.3262156	107.5984693	102.201818	97.11529597	92.31937832	87.79587392	83.52782696	79.49942637
170111A00014	1/11/2017	3.47	1/12/2032	122.10347	114.9117282	108.2016901	101.938384	96.08956225	90.62547453	85.51866116	80.74376486	76.27735891
170111A00016	1/11/2017	3.51	1/11/2033	124.63727	116.3455938	108.680544	101.5911548	95.03086969	88.95713892	83.3310541	78.11701834	73.28244785
170112A00015	1/12/2017	2.32	1/12/2027	102.20955	101.2769031	100.3615066	99.46286915	98.58052324	97.71401896	96.86292343	96.02681991	95.20530705
170120A00008	1/20/2017	3.63	1/20/2034	127.92338	118.4712942	109.8144971	101.8812859	94.60679911	87.93232735	81.80469911	76.17573087	71.00173453
170120A00009	1/20/2017	3.67	1/22/2035	130.45954	119.8937766	110.3046545	101.5957605	93.68070607	86.48203471	79.93025444	73.96297981	68.52417045
170120A00010	1/20/2017	3.71	1/22/2036	132.77123	121.110161	110.6214474	101.1795043	92.67286783	85.0025359	78.08051425	71.82853883	66.17695258
170120A00011	1/20/2017	3.75	1/20/2037	134.77555	122.0479435	110.7007715	100.5747757	91.52992561	83.44300481	76.20551058	69.72182525	63.90762339
170123A00039	1/23/2017	2.79	1/23/2026	101.99043	101.2443687	100.5092121	99.78472593	99.07067885	98.36684627	97.67300997	96.98895792	96.31448406
170124A00017	1/24/2017	2.82	1/23/2032	110.4969	106.8064547	103.2956129	99.95389519	96.77151936	93.73934492	90.84882683	88.09197248	85.46130221
170130A00031	1/30/2017	2.96	7/30/2025	100.64497	100.3923911	100.1410798	99.89102456	99.64221598	99.39464481	99.14830184	98.90317799	98.65926423
170130A00036	1/30/2017	3.11	1/31/2033	112.37978	108.1424231	104.1385507	100.3527691	96.77082688	93.37952541	90.166633	87.12080702	84.23152262
170130A00039	1/30/2017	2.74	1/31/2028	104.37122	102.8283141	101.3244701	99.85833094	98.42859952	97.03403591	95.67345409	94.34571904	93.04974412
170130A00043	1/30/2017	2.64	1/29/2027	102.69706	101.672794	100.6694034	99.6862236	98.72262403	97.77800092	96.85177607	95.94339543	95.05232784
170130A00046	1/30/2017	2.52	1/30/2026	101.16888	100.6559411	100.1494117	99.64915592	99.15504427	98.66695074	98.18475299	97.7083321	97.23757249
170203A00012	2/3/2017	3.63	2/2/2035	130.12962	119.549811	109.9510231	101.2361393	93.31816344	86.11911773	79.56906379	73.60523427	68.1712626

Classification | Public

	Parallel-Shift Sensitivity Analysis											
4/30/2025				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
170203A00013	2/3/2017	3.67	2/1/2036	132.38628	120.7189957	110.2278518	100.7865569	92.28304802	84.61782007	77.70245662	71.45834044	65.81551971
170207A00055	2/7/2017	2.36	2/8/2027	102.36636	101.3909706	100.4339562	99.49479474	98.57298288	97.66803653	96.77949001	95.90689516	95.04982049
170216A00043	2/16/2017	3.17	2/16/2027	106.08009	104.246155	102.4530134	100.699462	98.98434591	97.30655336	95.66501391	94.05869644	92.4866073
170216A00044	2/16/2017	3.52	2/17/2032	122.67202	115.3596774	108.5432385	102.1863238	96.25540741	90.7195793	85.55032853	80.72134493	76.20833849
170216A00045	2/16/2017	3.73	2/17/2037	134.66499	121.867553	110.4666486	100.300257	91.22601722	83.11874564	75.86828199	69.37761463	63.56124836
170224A00020	2/24/2017	3.08	2/24/2027	106.00407	104.1467167	102.3310969	100.5560079	98.82029456	97.12284258	95.46257696	93.83846018	92.24949063
170224A00021	2/24/2017	3.4	2/24/2032	121.88801	114.5815596	107.7724184	101.4240218	95.50267561	89.97731653	84.81929441	80.00217303	75.50154848
170224A00039	5/24/2017	3.17	5/24/2027	107.06591	104.9512121	102.8892775	100.8784389	98.91709227	97.00369609	95.13676836	93.31488379	91.53667117
170224A00044	5/24/2017	3.29	5/24/2029	114.22558	109.9498884	105.8604118	101.9480162	98.20407072	94.6204136	91.18932344	87.90349314	84.75600525
170228A00014	2/28/2017	2.89	3/1/2027	105.85639	103.9828998	102.1518203	100.3619435	98.61210553	96.9011827	95.22808981	93.59177867	91.99123653
170228A00015	2/28/2017	2.87	5/28/2025	100.19002	100.1122842	100.0346778	99.95719682	99.87984109	99.80261026	99.72550403	99.64852212	99.57166423
170309A00014	3/9/2017	2.58	3/9/2027	102.71537	101.6943592	100.6929847	99.7106881	98.74693394	97.80120677	96.87301036	95.96186674	95.06731537
170313A00032	3/13/2017	3.69	6/14/2032	124.64114	116.9317002	109.7660093	103.1026196	96.90345891	91.13353736	85.76068224	80.75529705	76.09014231
170313A00033	3/13/2017	3.31	3/15/2027	106.63172	104.7153932	102.8431738	101.0137816	99.22598545	97.47859775	95.77047226	94.10050257	92.46762039
170313A00034	3/13/2017	3.31	3/15/2027	106.63172	104.7153932	102.8431738	101.0137816	99.22598545	97.47859775	95.77047226	94.10050257	92.46762039
170313A00035	3/13/2017	3.31	3/15/2027	106.63172	104.7153932	102.8431738	101.0137816	99.22598545	97.47859775	95.77047226	94.10050257	92.46762039
170313A00041	3/13/2017	3.21	3/15/2032	111.59069	107.8659765	104.3251309	100.957235	97.75210589	94.70024155	91.79277012	89.02140386	86.37839659
170313A00045	3/13/2017	3.22	3/15/2032	111.92032	108.1003695	104.4700042	101.0179641	97.73374987	94.60756222	91.63025037	88.79326469	86.08861307
170317A00044	3/17/2017	3.11	3/17/2027	106.11573	104.2423257	102.4132959	100.6273074	98.88307233	97.17935038	95.51494676	93.88871015	92.29953081
170322A00022	3/22/2017	3.89	9/23/2041	146.50831	128.670171	113.3859184	100.2667295	88.98533707	79.26597773	70.87602831	63.61903734	57.32891378
170322A00023	3/22/2017	3.82	9/22/2039	140.11017	124.5621764	111.0190795	99.20639737	88.88876919	79.86419445	71.95914359	65.02440663	58.93156554
170322A00024	3/22/2017	3.72	9/22/2036	133.9468	121.5769418	110.5172167	100.6200401	91.75522081	83.80783333	76.67635605	70.27104485	64.51251119
170322A00025	3/22/2017	3.58	3/22/2033	125.63758	117.1102004	109.2411718	101.975907	95.2646178	89.06186904	83.3261778	78.01965091	73.10765751
170322A00026	3/22/2017	3.22	3/22/2028	110.08324	107.0851034	104.1849613	101.3790809	98.66389576	96.03599441	93.4921125	91.02912569	88.64404283
170322A00033	3/22/2017	3.61	3/24/2042	128.04269	117.4577585	108.0621464	99.70265686	92.24754985	85.5833517	79.61216091	74.24937105	69.4217435
170327A00070	3/29/2017	3.05	3/29/2027	106.53152	104.5731873	102.660824	100.7930755	98.96863415	97.18623929	95.44467526	93.7427695	92.07939071
170327A00072	3/29/2017	3.09	3/29/2027	106.60918	104.6500722	102.7369518	100.8684607	99.04329081	97.26018104	95.51791537	93.81532088	92.15126592
170327A00078	3/27/2019	3.04	3/27/2026	102.68261	101.7597736	100.8535084	99.96337354	99.08894113	98.22979821	97.38554619	96.55580024	95.74018871
170327A00079	3/27/2019	3.19	3/29/2027	106.54487	104.5911783	102.6832659	100.8197848	98.99943487	97.22096268	95.48315936	93.78485884	92.12493598
170327A00080	3/27/2019	3.43	3/27/2029	114.2677	110.1548261	106.2148571	102.4396115	98.82134135	95.35270335	92.02673594	88.83683734	85.77674505
170406A00029	4/6/2017	3.01	4/6/2027	106.25366	104.2852178	102.3646974	100.4906184	98.6615559	96.87613922	95.1330492	93.43101592	91.76881646
170406A00031	4/6/2017	3.01	4/6/2027	106.25366	104.2852178	102.3646974	100.4906184	98.6615559	96.87613922	95.1330492	93.43101592	91.76881646
170406A00032	4/6/2017	3.01	4/6/2027	106.25366	104.2852178	102.3646974	100.4906184	98.6615559	96.87613922	95.1330492	93.43101592	91.76881646

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
170406A00033	4/6/2017	3.01	4/6/2027	106.25366	104.2852178	102.3646974	100.4906184	98.6615559	96.87613922	95.1330492	93.43101592	91.76881646
170406A00034	4/6/2017	3.01	4/6/2027	106.25366	104.2852178	102.3646974	100.4906184	98.6615559	96.87613922	95.1330492	93.43101592	91.76881646
170406A00036	4/6/2017	3.07	4/6/2032	111.4619	107.613813	103.9586738	100.484916	97.18176022	94.0391518	91.04770727	88.19866484	85.48383895
170407A00001	4/6/2017	2.97	4/6/2027	106.01067	104.0925993	102.2209572	100.3943083	98.61127482	96.87053122	95.17080183	93.51085859	91.88951888
170427A00044	4/27/2017	3.02	4/27/2027	106.49677	104.4621734	102.4771644	100.5402234	98.64988706	96.8047466	95.00344576	93.24467823	91.52718548
170427A00046	4/27/2017	3.1	4/27/2028	110.04926	106.9503651	103.9560534	101.0622137	98.26491926	95.56041989	92.94513278	90.41563409	87.96865087
170427A00047	4/27/2017	3.18	4/27/2029	113.54144	109.3548648	105.3481377	101.5125689	97.83993377	94.32244736	90.95273826	87.72382439	84.62909032
170502A00028	5/2/2017	2.84	5/3/2027	106.35431	104.3013986	102.2989076	100.3452808	98.43901779	96.5786749	94.76286271	92.9902435	91.25952894
170511A00011	5/11/2017	2.41	5/11/2027	102.78963	101.6834921	100.5995876	99.53727805	98.49594493	97.47499291	96.47384896	95.49196125	94.52879817
170524A00027	5/24/2017	2.32	5/24/2027	102.6932	101.5866788	100.5024308	99.43981291	98.3982045	97.37700832	96.37564953	95.39357458	94.43025024
170609A00043	6/9/2017	3.07	6/9/2032	120.75528	113.1707484	106.1238442	99.57349807	93.48198347	87.81463161	82.53956845	77.62747546	73.05137215
170609A00052	6/11/2018	2.9	6/9/2027	106.64726	104.4925095	102.392323	100.3449404	98.34867408	96.40190382	94.50307319	92.6506867	90.84330684
170613A00032	6/13/2017	2.45	6/13/2025	100.25664	100.1344866	100.0126433	99.89111211	99.76989186	99.64898125	99.52837905	99.40808403	99.28809497
170614A00019	6/14/2017	2.48	6/13/2025	100.25077	100.1287156	100.0069759	99.88554693	99.76442754	99.6436165	99.52311257	99.40291455	99.28302122
170619A00089	6/16/2017	2.79	6/16/2027	106.38579	104.2388688	102.1475977	100.1101189	98.12465129	96.18948809	94.30299316	92.46359733	90.66979508
170619A00092	6/16/2017	2.79	6/16/2027	106.38579	104.2388688	102.1475977	100.1101189	98.12465129	96.18948809	94.30299316	92.46359733	90.66979508
170619A00095	6/16/2017	2.79	6/16/2027	106.38579	104.2388688	102.1475977	100.1101189	98.12465129	96.18948809	94.30299316	92.46359733	90.66979508
170619A00096	6/16/2017	2.79	6/16/2027	106.38579	104.2388688	102.1475977	100.1101189	98.12465129	96.18948809	94.30299316	92.46359733	90.66979508
170619A00101	6/16/2017	2.74	6/16/2027	106.09761	104.0105761	101.977279	99.99593116	98.06481779	96.18229569	94.34678946	92.55678808	90.81084171
170622A00036	6/22/2017	3.23	6/22/2032	121.36198	113.7453448	106.6696292	100.0934072	93.97863496	88.29036084	82.99645891	78.06738607	73.47596161
170622A00037	6/22/2017	3.27	6/22/2033	123.65755	114.9559518	106.94697	99.571504	92.77579477	86.51091881	80.73232947	75.39944392	70.47527117
170622A00038	6/22/2017	3.32	6/22/2034	126.00067	116.2126527	107.2859382	99.13960553	91.70074748	84.90364059	78.68900246	73.00332946	67.79830565
170622A00039	6/22/2017	3.36	6/22/2035	128.15753	117.2937731	107.4755861	98.59583459	90.55891531	83.27945739	76.68117821	70.69587241	65.26251815
170622A00040	6/22/2017	3.41	6/23/2036	130.12309	118.19709	107.5157831	97.94115677	89.35121961	81.63806557	74.70618046	68.47095979	62.85741072
170623A00028	6/23/2017	2.79	6/23/2027	106.53753	104.3445175	102.2077694	100.125448	98.09578635	96.11708972	94.18773134	92.30614931	90.47084343
170711A00010	7/11/2017	2.38	7/12/2027	103.00214	101.8093718	100.6416215	99.49814632	98.37823093	97.2811878	96.20635557	95.15309789	94.12080219
170713A00021	7/13/2017	3.25	7/13/2037	125.80629	115.3140855	105.921082	97.50098172	89.94288285	83.14931296	77.03452528	71.5230197	66.54825799
170803A00020	8/3/2017	2.84	8/3/2027	107.00388	104.6931217	102.4440198	100.2544784	98.12249012	96.04613275	94.02356446	92.05301982	90.13280594
170809A00005	8/9/2017	2.61	8/11/2025	100.63375	100.3480735	100.0640331	99.78161161	99.50079514	99.22156993	98.94392238	98.66783905	98.39330665
170822A00020	8/22/2017	2.59	8/22/2025	100.69837	100.3821997	100.0680249	99.75582517	99.44558191	99.13727667	98.83089126	98.52640771	98.22380828
170822A00023	8/23/2017	3.95	8/23/2028	113.94889	110.4571909	107.0927354	103.8501875	100.7244664	97.71073224	94.80437293	92.00099203	89.2963975
170918A00007	9/18/2017	2.8	9/20/2027	107.32129	104.8739486	102.4950721	100.1823613	97.93361181	95.74670568	93.6196075	91.5503607	89.53708402
170921A00055	9/21/2017	2.82	9/21/2027	107.19623	104.7982622	102.4685892	100.2048563	98.00480543	95.86627061	93.78717296	91.76551681	89.79938579

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
170921A00056	9/21/2017	2.82	9/21/2027	107.19623	104.7982622	102.4685892	100.2048563	98.00480543	95.86627061	93.78717296	91.76551681	89.79938579
170921A00057	9/21/2017	2.79	9/21/2027	106.90291	104.577437	102.3176508	100.1212985	97.98621556	95.91032476	93.8916327	91.92822559	90.01826561
170929A00046	9/29/2017	2.49	9/30/2027	103.2557	101.9872626	100.7465368	99.53268074	98.34488594	97.18237503	96.04440052	94.93024326	93.83921121
171011A00013	10/11/2017	2.77	10/13/2026	104.17587	102.7078803	101.2679865	99.85545179	98.46956445	97.109637	95.77500514	94.46502676	93.17908104
171018A00011	10/18/2017	2.68	10/18/2027	107.46035	104.9297548	102.4721536	100.0850188	97.76592884	95.5125601	93.32268273	91.19415611	89.12492466
171026A00009	10/26/2017	2.75	10/27/2025	101.21677	100.7172368	100.2226274	99.73287261	99.24790122	98.76764333	98.29203044	97.82099537	97.35447223
171026A00010	10/26/2017	2.84	10/26/2026	104.39722	102.8924007	101.4170344	99.97033413	98.55153801	97.15991052	95.79474154	94.45534516	93.14105871
171026A00011	10/26/2017	2.94	10/26/2027	107.97444	105.4198273	102.9393847	100.5305283	98.19078015	95.91776371	93.7091989	91.56289758	89.47675922
171030A00023	10/30/2017	2.9	11/1/2027	107.92457	105.3541135	102.8587329	100.435798	98.08278548	95.79727627	93.57694994	91.41958033	89.32303095
171109A00016	11/9/2017	2.94	11/9/2032	118.49187	111.3126895	104.6509737	98.46584139	92.71987062	87.37879077	82.41120024	77.78831128	73.48371872
171129A00020	11/29/2017	2.89	11/30/2026	104.81301	103.2070972	101.633823	100.0922643	98.58152942	97.1007598	95.64912845	94.22583856	92.83012203
171206A00020	12/6/2017	2.62	12/6/2027	103.79189	102.3952162	101.0309807	99.69816168	98.39577552	97.12287767	95.87856064	94.6619522	93.47221372
171206A00038	12/6/2017	2.69	12/6/2027	107.89649	105.2231987	102.6301989	100.1145779	97.67355287	95.30446049	93.00475062	90.7719807	88.60381046
171206A00048	12/6/2017	3.04	12/6/2032	121.46503	113.3611629	105.8665497	98.93200075	92.51254404	86.56704529	81.05786169	75.95052849	71.21347518
171207A00024	12/7/2017	2.93	12/7/2027	108.21662	105.5665207	102.9969795	100.505014	98.08777508	95.74253938	93.46670281	91.25777429	89.11336997
171207A00025	12/7/2017	2.91	12/7/2027	108.01964	105.4157588	102.8906658	100.4414501	98.0653311	95.75965096	93.52186792	91.34955044	89.24037147
171207A00026	12/7/2017	2.93	12/7/2027	108.21662	105.5665207	102.9969795	100.505014	98.08777508	95.74253938	93.46670281	91.25777429	89.11336997
171219A00063	12/19/2017	2.8	12/20/2027	108.30525	105.5880527	102.9533129	100.3980086	97.91924899	95.51426908	93.18042318	90.91517879	88.71611097
171219A00067	12/19/2017	2.72	12/20/2027	107.56797	105.0176161	102.5446153	100.1460827	97.81926795	95.56154353	93.37039808	91.24343041	89.17834368
180102A00021	1/2/2018	2.82	1/2/2026	101.78146	101.095046	100.417872	99.74975669	99.09051931	98.43998375	97.79797854	97.16433671	96.5388956
180104A00018	1/4/2018	2.97	1/4/2027	105.28196	103.5769286	101.9078924	100.273781	98.67356275	97.10624649	95.57087994	94.0665476	92.59236897
180104A00023	1/4/2018	2.91	1/4/2028	107.52754	105.0739992	102.6944536	100.3861564	98.14648144	95.97291933	93.86307132	91.81464356	89.82544159
180104A00024	1/4/2018	2.98	1/4/2028	108.4194	105.739896	103.1432842	100.6264406	98.18638762	95.82028117	93.52540346	91.29915649	89.13905572
180104A00041	1/4/2018	3.08	1/4/2033	119.80533	112.4028345	105.5427067	99.18138014	93.27904237	87.79929013	82.70881872	77.97714157	73.5763366
180110A00029	1/10/2018	3.13	1/10/2028	109.15871	106.3771129	103.6811668	101.0676799	98.53360028	96.07601155	93.6921259	91.37927726	89.13491502
180116A00014	1/16/2018	3.01	1/19/2027	105.49726	103.7495399	102.039392	100.3656685	98.72727049	97.12314357	95.55227558	94.01369446	92.50646623
180116A00015	1/16/2018	3.06	1/18/2028	109.03713	106.2352605	103.5202498	100.8888358	98.33790188	95.86447121	93.46569924	91.13886673	88.88137316
180118A00039	1/18/2018	3.09	1/19/2027	105.63699	103.8880112	102.1766296	100.5016949	98.86210749	97.25681243	95.68479695	94.14508845	92.63675239
180126A00011	1/26/2018	2.72	1/26/2028	104.2371	102.7730949	101.3440258	99.94876266	98.58622565	97.25537826	95.95522541	94.68481139	93.44321797
180130A00070	1/30/2018	3.14	1/29/2027	105.82604	104.0481008	102.3088332	100.6070389	98.94157199	97.31133412	95.71527146	94.15237261	92.62166636
180207A00002	2/7/2018	3.13	2/6/2026	102.31187	101.5264995	100.7531828	99.99164217	99.24160991	98.50282644	97.77503994	97.05800604	96.35148759
180207A00003	2/7/2018	3.28	2/7/2028	109.83708	106.9677196	104.1887159	101.4966485	98.88825341	96.36041303	93.91014785	91.53460945	89.23107364
180222A00025	2/22/2018	3.48	2/22/2033	125.36522	116.8956111	109.0754628	101.8512891	95.17427785	88.99985841	83.28731274	77.99942408	73.10215935

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
180222A00027	2/22/2018	3.24	2/22/2028	110.11102	107.1882474	104.3587643	101.6190712	98.96582021	96.39580857	93.90597099	91.49337314	89.1552051
180313A00026	3/13/2018	3.34	3/13/2028	110.35191	107.3746125	104.4938448	101.7059624	99.00747838	96.39505604	93.8655015	91.41575673	89.04289302
180322A00040	3/22/2018	3.16	3/21/2031	112.87351	108.7564768	104.8492009	101.1391754	97.61472599	94.26494983	91.0796601	88.04933451	85.16506785
180322A00044	3/22/2018	3.18	3/22/2033	113.51514	109.0970803	104.925885	100.9852018	97.25989356	93.73593978	90.40034647	87.24106374	84.24691059
180323A00013	3/23/2018	3.18	3/23/2028	110.21973	107.2112057	104.3012023	101.4859597	98.7618859	96.1255452	93.57365041	91.10305562	88.7107493
180329A00003	3/29/2018	3.08	3/29/2028	109.97822	106.9567078	104.0346757	101.208309	98.47396259	95.82815075	93.26753921	90.78893778	88.38929325
180402A00013	4/2/2018	2.99	4/3/2028	108.30614	105.7110054	103.1991899	100.7674832	98.41281802	96.13226404	93.92302083	91.78241125	89.70787525
180403A00006	4/3/2018	3.07	4/3/2028	109.9935	106.9577331	104.0223551	101.1835023	98.43748036	95.78075712	93.20995474	90.72184197	88.31332697
180410A00002	4/10/2018	3.14	4/11/2033	113.45259	108.9928268	104.7845134	100.8108527	97.0563078	93.50649631	90.1480971	86.96876426	83.95704898
180412A00034	4/12/2018	3.23	4/15/2030	117.06073	111.7851404	106.7824666	102.0371367	97.53455171	93.2610157	89.20367517	85.35046304	81.69004646
180412A00036	4/12/2018	3.54	4/15/2038	135.07705	121.1001842	108.7825127	97.91521222	88.31685984	79.82970717	72.31647903	65.65761927	59.74891925
180503A00040	5/3/2018	3.3	5/5/2025	100.043	100.0291071	100.0152268	100.0013601	99.98750701	99.9736675	99.95984154	99.94602911	99.93223018
180508A00038	5/8/2018	3.57	5/9/2033	115.13329	110.5707485	106.2674501	102.2059482	98.37011608	94.74503381	91.31688963	88.07288989	85.00117679
180517A00018	5/17/2018	3.46	5/17/2033	115.01014	110.4438969	106.1374743	102.073364	98.23538417	94.60856562	91.17905228	87.9340107	84.86154738
180517A00024	5/17/2018	3.46	5/17/2033	115.01014	110.4438969	106.1374743	102.073364	98.23538417	94.60856562	91.17905228	87.9340107	84.86154738
180521A00025	5/21/2018	3.24	5/21/2025	100.16954	100.1111679	100.0528751	99.99466571	99.93653964	99.87849668	99.82053665	99.76265935	99.70486461
180529A00042	5/29/2018	3.42	5/30/2028	111.34116	108.1308439	105.0311196	102.0375379	99.14585348	96.35201761	93.65216725	91.04261551	88.51984241
180529A00057	5/29/2018	3.09	5/30/2028	107.48762	105.20354	102.9905947	100.8460372	98.76724398	96.75171126	94.79704879	92.90097381	91.06130537
180530A00024	5/30/2018	3.44	5/30/2029	114.90134	110.5950711	106.4767727	102.5372011	98.7676219	95.15977673	91.70585444	88.39846427	85.23061078
180530A00025	5/30/2018	3.49	5/30/2030	118.30232	112.8828329	107.7487959	102.8836165	98.27175507	93.89865334	89.75066646	85.81500104	82.07965744
180530A00026	5/30/2018	3.55	5/30/2031	121.22193	114.6903155	108.5606417	102.8059586	97.40126221	92.32334559	87.55065993	83.06318783	78.84232659
180530A00027	5/30/2018	3.61	6/1/2032	123.97545	116.3261345	109.214412	102.5994642	96.4437799	90.71287249	85.37502091	80.40103414	75.76403693
180530A00028	5/30/2018	3.67	5/31/2033	126.80625	118.0406126	109.9653682	102.5220969	95.65762413	89.32352117	83.47565893	78.07380499	73.08126068
180530A00030	5/30/2018	3.68	5/30/2034	129.17323	119.3074461	110.3010902	102.0740652	94.55414747	87.67617866	81.38133997	75.61650506	70.33366172
180605A00031	6/5/2018	3.37	6/5/2030	109.59905	106.7757395	104.0617627	101.4519294	98.94133347	96.52533641	94.19955075	91.95982487	89.80222866
180615A00039	6/15/2018	3.49	6/15/2028	111.72208	108.4601084	105.311722	102.2722915	99.33740811	96.50286986	93.76467031	91.11898818	88.56217753
180618A00036	6/18/2018	3.89	6/18/2048	161.60467	136.3642521	115.8718759	99.17317608	85.51296005	74.29250786	65.03623099	57.36559677	50.97870426
180619A00020	6/19/2018	3.1	6/19/2025	100.38196	100.2430531	100.1045439	99.96643211	99.82871586	99.69139342	99.55446307	99.41792308	99.28177175
180619A00021	6/19/2018	3.24	6/19/2028	111.23191	107.9598929	104.8023358	101.7545565	98.81209368	95.97069629	93.22631208	90.57507692	88.0133048
180620A00014	6/20/2018	3.4	6/20/2028	111.48528	108.2127722	105.0546439	102.0062193	99.06304247	96.22086719	93.47564588	90.82351882	88.26080408
180620A00038	6/20/2018	3.4	6/20/2028	111.48528	108.2127722	105.0546439	102.0062193	99.06304247	96.22086719	93.47564588	90.82351882	88.26080408
180621A00017	6/21/2018	3.42	6/21/2028	111.55906	108.2825114	105.1205567	102.0685045	99.12188754	96.27644925	93.52813225	90.87306761	88.30756481
180621A00068	6/21/2018	3.32	6/23/2025	100.43377	100.283837	100.1343616	99.98534154	99.83677475	99.68865915	99.54099267	99.39377324	99.24699883

Classification | Public

	Parallel-Shift Sensitivity Analysis											
4/30/2025				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
180622A00004	6/22/2018	3.47	12/22/2028	113.50621	109.6798451	106.004994	102.4747882	99.08271362	95.8225889	92.68854662	89.67501515	86.77670182
180622A00005	6/22/2018	3.5	7/2/2029	115.46481	111.052181	106.835579	102.805188	98.95174258	95.26649269	91.74117172	88.36796686	85.13949138
180622A00006	6/22/2018	3.53	12/21/2029	117.14751	112.212659	107.5179849	103.0504671	98.79786486	94.74866538	90.89203619	87.21778107	83.71629902
180628A00068	6/28/2018	3.12	6/28/2028	109.19655	106.417186	103.731949	101.1369889	98.62864522	96.20343246	93.85803051	91.58927539	89.39415074
180713A00031	7/13/2018	3.06	7/14/2025	100.40312	100.2503178	100.0980323	99.94626507	99.79501325	99.64427402	99.49404458	99.34432217	99.19510403
180716A00054	7/16/2018	3.59	7/16/2040	139.96088	123.5904838	109.4401867	97.19084051	86.57099841	77.34955489	69.32955273	62.34296869	56.24631876
180716A00062	7/16/2018	2.91	7/16/2025	100.39945	100.2437531	100.0886038	99.9339976	99.77993135	99.62640201	99.47340655	99.32094197	99.16900527
180717A00021	7/17/2018	3.34	7/17/2028	110.63497	107.5433556	104.560811	101.6828189	98.90507832	96.22349179	93.63415478	91.13334515	88.71751353
180717A00026	7/17/2018	3.24	7/16/2025	100.84911	100.5512069	100.255083	99.96072213	99.66810859	99.37722667	99.08806092	98.80059604	98.51481694
180717A00047	7/17/2018	3.3	9/17/2025	101.1431	100.7541842	100.3682731	99.98532809	99.60531494	99.22819997	98.85394999	98.48253231	98.11391476
180718A00008	7/18/2018	3.37	7/18/2028	111.35116	108.0402215	104.8486781	101.771518	98.80397406	95.94150706	93.1797934	90.51471332	87.94234004
180719A00064	7/19/2018	3.3	7/21/2025	100.6576	100.4299146	100.2032676	99.97765563	99.75307145	99.52950802	99.30695832	99.08541542	98.86487243
180719A00065	7/19/2018	3.36	7/20/2026	104.15131	102.9000978	101.6789668	100.4868371	99.32268367	98.18552938	97.07444211	95.98853225	94.9269503
180727A00028	7/27/2018	3.25	7/27/2026	104.18724	102.9146531	101.6731449	100.4615882	99.27890845	98.12408169	96.996132	95.8941286	94.81718323
180727A00038	7/27/2018	3.36	7/25/2025	100.70448	100.4656506	100.2279574	99.9913962	99.75595896	99.52163762	99.28842424	99.05631093	98.82528991
180727A00039	7/27/2018	3.48	7/27/2028	112.103	108.7171702	105.4527189	102.3045457	99.26779715	96.33785594	93.51032773	90.78102859	88.14597342
180730A00081	7/30/2018	3.5	7/28/2028	112.17867	108.7888188	105.5205691	102.3688029	99.32865488	96.39549652	93.56492304	90.83274079	88.19495547
180813A00045	8/13/2018	2.89	8/13/2025	100.51067	100.3111085	100.1124657	99.91473851	99.7179199	99.52200309	99.32698134	99.13284799	98.93959644
180814A00010	8/14/2018	3.1	8/14/2025	100.82032	100.5257577	100.2329347	99.94183184	99.65243389	99.36472576	99.07869254	98.79431952	98.51159214
180814A00032	8/14/2018	3.1	8/14/2025	100.82032	100.5257577	100.2329347	99.94183184	99.65243389	99.36472576	99.07869254	98.79431952	98.51159214
180814A00033	8/14/2018	3.25	8/13/2027	108.23272	105.8763529	103.5834387	101.3518506	99.17954612	97.06456679	95.00503337	92.99914219	91.04516147
180816A00038	8/16/2018	3.38	8/16/2028	111.96122	108.52231	105.2084225	102.0143041	98.93495308	95.96560689	93.10172927	90.33899791	87.67329305
180820A00055	8/20/2018	3.37	8/21/2028	111.97451	108.5215117	105.194479	101.9881216	98.89740334	95.9175274	93.04392335	90.27223517	87.59830988
180823A00035	8/23/2018	3.05	8/22/2025	100.8687	100.5519143	100.2371299	99.92432727	99.61348758	99.30459231	98.99762316	98.69256204	98.38939113
180823A00053	8/23/2018	3.2	8/23/2028	111.7025	108.2415257	104.9071847	101.6941509	98.59735677	95.61197503	92.73340609	89.95726587	87.27937446
180823A00055	8/23/2018	3.44	8/23/2033	126.14754	117.1446153	108.8704055	101.2617239	94.26118132	87.81662467	81.88063425	76.41007178	71.36567357
180827A00020	8/27/2018	3.21	8/27/2025	100.93511	100.6046435	100.2763426	99.95018669	99.62615488	99.30422643	98.98438086	98.666598	98.35085793
180828A00032	8/28/2018	3.49	8/29/2033	126.60529	117.5672265	109.261571	101.6247524	94.59903515	88.13195396	82.17580838	76.68720763	71.62666122
180829A00008	8/29/2018	3.23	8/30/2027	108.35421	105.9495481	103.6106632	101.3353934	99.12166118	96.96746862	94.87089448	92.83009049	90.84327823
180831A00019	8/31/2018	3.21	9/2/2025	100.9841	100.6369562	100.2921945	99.94979318	99.60972804	99.27197524	98.93651125	98.60331287	98.27235719
180904A00012	9/4/2018	3.35	9/4/2030	118.74356	113.0240137	107.6195963	102.5112906	97.68132419	93.1130794	88.79101223	84.700578	80.82816222
180904A00014	9/4/2018	3.37	9/1/2028	112.07772	108.5924001	105.2351718	102.000666	98.88376338	95.87958502	92.98347971	90.19101218	87.49795186
180905A00017	9/5/2018	3.43	9/6/2033	123.36467	115.414699	108.086954	101.3281866	95.09000889	89.32842653	84.00341718	79.07855147	74.52065194

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
180906A00032	9/6/2018	3.24	9/5/2025	101.26502	100.8282635	100.3952846	99.96603739	99.54047374	99.11854622	98.70020826	98.28541407	97.87411865
180907A00013	9/7/2018	3.27	9/8/2025	101.30129	100.8571412	100.41691	99.98054409	99.5479925	99.1192052	98.69413301	98.27272763	97.85494158
180910A00028	9/10/2018	3.56	9/9/2033	127.26609	118.170375	109.8135748	102.1313831	95.0654079	88.56260194	82.57474841	77.05799857	71.97245567
180910A00033	9/10/2018	3.43	9/8/2028	112.34989	108.8399826	105.4597276	102.2036554	99.06655869	96.04347626	93.12967957	90.32066082	87.61212143
180912A00011	9/12/2018	3.41	9/11/2026	104.77091	103.3867311	102.027576	100.6928214	99.38186644	98.09412948	96.82904737	95.58607477	94.36468341
180913A00012	9/13/2018	3.31	9/13/2033	114.81439	110.0765052	105.6178773	101.4190615	97.46213075	93.73054303	90.20902455	86.88346353	83.74081358
180913A00030	9/13/2018	3.33	9/12/2025	101.11175	100.7367207	100.3644846	99.99500905	99.62826348	99.26421753	98.90284137	98.54410557	98.18798115
180913A00033	9/13/2018	3.31	9/13/2033	114.81439	110.0765052	105.6178773	101.4190615	97.46213075	93.73054303	90.20902455	86.88346353	83.74081358
180914A00013	9/14/2018	3.48	9/14/2028	112.58014	109.049166	105.6491851	102.3746447	99.22026163	96.18100328	93.25207431	90.42890424	87.70713571
180914A00028	9/14/2018	3.37	9/12/2025	101.12674	100.7516734	100.3794034	100.0098944	99.64311542	99.27903628	98.91762709	98.55885844	98.20270136
180914A00029	9/14/2018	3.48	9/14/2028	112.58014	109.049166	105.6491851	102.3746447	99.22026163	96.18100328	93.25207431	90.42890424	87.70713571
180914A00049	9/14/2018	3.37	9/14/2033	115.09709	110.3475139	105.8778849	101.6687118	97.70202281	93.96123475	90.43103577	87.097279	83.9468856
180920A00014	9/20/2018	3.59	9/20/2028	113.01907	109.4634075	106.0401816	102.7437568	99.56876958	96.51011215	93.56291865	90.72255244	87.98459402
180925A00013	9/25/2018	3.41	9/25/2028	106.43265	104.5930824	102.8047525	101.0658167	99.37450976	97.72914302	96.12810044	94.56983499	93.05286516
180925A00116	9/25/2018	3.28	9/25/2028	106.34184	104.5015827	102.7126362	100.9731536	99.28136541	97.63557893	96.03417436	94.47560117	92.95837454
181003A00019	10/3/2018	3.44	10/3/2025	101.61682	101.0998305	100.5881216	100.0816098	99.580216	99.08386289	98.59247459	98.10597673	97.62429647
181003A00032	10/3/2018	3.23	10/3/2025	100.81214	100.5277163	100.2452226	99.96463383	99.68592895	99.40908727	99.13408841	98.86091232	98.58953924
181004A00029	10/4/2018	3.7	10/4/2028	113.54425	109.9397349	106.4708121	103.1316515	99.91670818	96.82070405	93.83861391	90.9656518	88.19725828
181010A00025	10/10/2018	3.48	10/10/2030	110.76496	107.7291407	104.8173629	102.0234542	99.34159215	96.76628542	94.29235273	91.9149032	89.6293181
181029A00051	2/5/2019	3.69	2/5/2029	114.78046	110.8035462	106.9883273	103.3272879	99.81331024	96.43964913	93.19991038	90.08802996	87.09825479
181029A00097	10/29/2018	3.53	10/27/2028	111.72052	108.4581234	105.3177834	102.2941646	99.38219766	96.57706496	93.87418605	91.26920475	88.75797667
181031A00070	3/1/2019	3.77	3/1/2029	115.35684	111.295129	107.4011086	103.6669798	100.0853504	96.6492075	93.35189661	90.18710118	87.14882379
181105A00015	11/5/2018	3.57	11/5/2025	101.99683	101.3912729	100.7929398	100.2017017	99.61743254	99.04000947	98.46931235	97.90522388	97.34762948
181109A00028	11/9/2018	3.72	11/9/2026	105.89273	104.3371434	102.8125126	101.3179857	99.85274362	98.41599668	97.00698304	95.62496757	94.2692407
181109A00029	11/9/2018	3.72	11/9/2026	105.89273	104.3371434	102.8125126	101.3179857	99.85274362	98.41599668	97.00698304	95.62496757	94.2692407
181116A00006	11/16/2018	3.18	11/17/2025	100.94708	100.6128123	100.2812642	99.95240352	99.62619416	99.30260075	98.98158856	98.66312351	98.34717216
181211A00042	12/11/2018	3.7	12/11/2028	112.8491	109.3583994	106.0017643	102.7731585	99.66685632	96.67742622	93.79971339	91.02882385	88.36010938
181214A00030	12/14/2018	3.47	12/14/2033	124.28192	115.9025863	108.19758	101.1075631	94.57876916	88.56245136	83.0143871	77.89443376	73.16613039
181218A00040	12/18/2018	3.23	6/18/2030	109.2054	106.3916259	103.6868565	101.0859125	98.5839005	96.17619414	93.85841771	91.62643082	89.47631408
181220A00041	12/20/2018	3.36	12/18/2026	105.76312	104.1002101	102.4717472	100.876724	99.3141758	97.78317461	96.28282787	94.81227651	93.37069348
181226A00030	12/26/2018	2.91	12/26/2028	106.08199	104.1167572	102.2093628	100.3576312	98.55948302	96.81293219	95.11608127	93.46711673	91.86430466
181227A00019	12/28/2020	3.1	12/29/2025	101.9377	101.2617411	100.5947361	99.93650979	99.28688972	98.64570789	98.01280063	97.38800853	96.7711762
181227A00027	12/27/2018	3.24	12/26/2025	102.00442	101.3365163	100.6773572	100.0267723	99.38459504	98.75066313	98.12481838	97.50690666	96.89677771

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	Parallel-Shift Sensitivity Analysis											
4/30/2025				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
181227A00028	12/27/2018	3.46	12/27/2028	113.51668	109.6761956	105.9882406	102.4458753	99.04252325	95.77194496	92.62821896	89.60572327	86.69911836
190102A00015	1/2/2019	2.97	1/3/2034	113.11932	108.4591415	104.0778959	99.95575937	96.07448926	92.41728368	88.9686573	85.71432854	82.64111727
190102A00020	1/2/2019	2.97	1/3/2034	113.11932	108.4591415	104.0778959	99.95575937	96.07448926	92.41728368	88.9686573	85.71432854	82.64111727
190102A00022	1/2/2019	2.97	1/3/2034	113.11932	108.4591415	104.0778959	99.95575937	96.07448926	92.41728368	88.9686573	85.71432853	82.64111727
190102A00024	1/2/2019	2.97	1/3/2034	113.11932	108.4591415	104.0778959	99.95575937	96.07448926	92.41728368	88.9686573	85.71432854	82.64111727
190102A00050	1/2/2019	3.38	1/3/2034	126.40348	117.0252607	108.4354616	100.563156	93.34416279	86.72037138	80.63913774	75.05274337	69.91791043
190103A00020	1/3/2019	3.12	1/5/2026	102.27158	101.4966838	100.7335978	99.98204897	99.24177651	98.51252744	97.79405634	97.08612499	96.38850219
190104A00006	1/4/2019	2.83	1/5/2026	101.05613	100.6391557	100.2264567	99.81795715	99.41358642	99.0132756	98.61695736	98.22456593	97.83603708
190104A00033	1/4/2019	3.37	1/31/2029	113.5022	109.564883	105.787369	102.1622234	98.68240699	95.34125134	92.1324364	89.04996989	86.08816809
190104A00034	1/4/2019	3.18	1/4/2029	110.36636	107.1871837	104.1289037	101.1860947	98.35361025	95.62656784	93.00033362	90.47050785	88.03291154
190104A00035	1/4/2019	3.1	1/5/2026	102.24716	101.4752917	100.715162	99.96650869	99.2290725	98.50260197	97.78685312	97.08158917	96.38658027
190104A00038	1/4/2019	3.25	1/4/2029	112.10814	108.4624218	104.9617917	101.5995807	98.36946655	95.26545594	92.28186568	89.41330431	86.65465516
190110A00005	1/10/2019	3.2	1/9/2026	102.10673	101.3997125	100.7024869	100.0148523	99.33661152	98.66757289	98.00754979	97.35636066	96.71382881
190111A00026	1/11/2019	3.48	1/11/2034	127.32819	117.8891378	109.2444401	101.3225232	94.05863501	87.39415938	81.27600375	75.65605172	70.49067214
190118A00006	1/18/2019	3.14	1/18/2034	114.45816	109.5565016	104.9537622	100.6284555	96.56082022	92.73266822	89.12724812	85.72912142	82.5240503
190122A00045	1/22/2019	3.17	1/22/2027	105.95034	104.1878524	102.4634136	100.7758609	99.12407607	97.50698648	95.92356277	94.37281655	92.85379836
190122A00046	1/22/2019	3.29	1/22/2029	113.43644	109.5168301	105.7556386	102.1455309	98.67955917	95.35113935	92.15402951	89.08230981	86.13036362
190129A00073	1/29/2019	3.11	1/29/2029	106.46386	104.4507052	102.4977736	100.6027707	98.76350249	96.97787496	95.24388841	93.55963267	91.92328242
190131A00013	1/31/2019	3.48	1/31/2034	124.1052	115.5822485	107.7550223	100.5615862	93.94587011	87.8570855	82.24920154	77.080475	72.31302908
190131A00019	1/31/2019	3.44	1/30/2034	127.08266	117.6029613	108.9254505	100.9774623	93.69329545	87.0135076	80.88428738	75.25689316	70.08715027
190131A00023	1/31/2019	3.02	1/30/2034	113.9762	109.0513431	104.4292692	100.0880514	96.00753305	92.16917387	88.55590832	85.1520179	81.9430151
190205A00017	2/5/2019	3.36	2/5/2029	112.7588	109.0223033	105.43723	101.9965943	98.69376989	95.52246992	92.47672769	89.55087868	86.73954361
190205A00020	2/5/2019	3.32	2/5/2029	112.61013	108.8774913	105.2961372	101.8590854	98.55971558	95.39174642	92.34921656	89.4264665	86.61812177
190205A00021	2/5/2019	3.32	2/5/2029	112.61013	108.8774913	105.2961372	101.8590854	98.55971558	95.39174642	92.34921656	89.4264665	86.61812177
190205A00022	2/5/2019	3.32	2/5/2029	112.61013	108.8774913	105.2961372	101.8590854	98.55971558	95.39174642	92.34921656	89.4264665	86.61812177
190205A00023	2/5/2019	3.32	2/5/2029	112.61013	108.8774913	105.2961372	101.8590854	98.55971558	95.39174642	92.34921656	89.4264665	86.61812177
190211A00017	2/11/2019	3.12	2/11/2026	102.34964	101.5502713	100.7633867	99.9886957	99.2259162	98.4747748	97.7350064	97.00635389	96.28856788
190225A00026	2/25/2019	3.43	2/27/2034	127.17787	117.6109708	108.8603828	100.8516764	93.51758015	86.79725714	80.63565938	74.98295013	69.79398641
190227A00033	2/27/2019	2.65	2/27/2026	101.15103	100.6834928	100.2214102	99.76467876	99.31319523	98.86685906	98.42557241	97.98924008	97.55776939
190301A00012	3/1/2019	3.41	3/1/2029	113.95178	109.9172232	106.0495277	102.3409293	98.78406628	95.3719549	92.09796837	88.95581667	85.93952773
190305A00015	3/5/2019	3.32	3/5/2029	112.84858	109.0366892	105.3822701	101.8779189	98.51661714	95.29171269	92.19689921	89.22619604	86.37392965
190305A00017	3/5/2019	3.12	3/5/2026	102.76746	101.8421355	100.9337204	100.0417491	99.16577612	98.30537164	97.46012132	96.62962539	95.81349808
190308A00016	3/8/2019	3.18	3/8/2034	121.45887	113.4180112	106.0252998	99.22324384	92.95980384	87.1878467	81.86465669	76.95149776	72.41322138

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
190308A00026	3/8/2019	3.18	3/8/2034	121.45887	113.4180112	106.0252998	99.22324384	92.95980384	87.1878467	81.86465669	76.95149776	72.41322138
190315A00017	3/15/2019	2.88	3/15/2034	113.38695	108.4431169	103.8057904	99.4525998	95.36299323	91.51807836	87.90047676	84.49419167	81.28448824
190315A00019	3/15/2019	2.88	3/15/2034	113.38695	108.4431169	103.8057904	99.45259981	95.36299323	91.51807836	87.90047676	84.49419167	81.28448824
190315A00023	3/15/2019	2.88	3/15/2034	113.38695	108.4431169	103.8057904	99.45259981	95.36299323	91.51807836	87.90047676	84.49419167	81.28448824
190315A00029	3/15/2019	2.88	3/15/2034	113.38695	108.4431169	103.8057904	99.45259981	95.36299323	91.51807836	87.90047676	84.49419167	81.28448824
190322A00008	3/22/2019	2.64	3/20/2026	101.21744	100.7097797	100.2085456	99.71360514	99.22482705	98.7420837	98.26525121	97.79420928	97.32884105
190327A00030	3/27/2019	2.9	3/27/2036	114.53865	108.7749062	103.4279412	98.46229613	93.84586391	89.54954394	85.54693719	81.81407445	78.32917372
190402A00004	4/2/2019	2.9	4/2/2029	112.54275	108.4378942	104.5068896	100.7414646	97.13378287	93.6764202	90.36234042	87.18487303	84.13769236
190402A00005	4/2/2019	2.77	4/2/2032	113.41577	108.2913106	103.4708881	98.93373192	94.66063727	90.63383695	86.83688499	83.25455019	79.87271899
190403A00010	4/3/2019	3.08	4/3/2029	112.42758	108.475311	104.6905233	101.0651628	97.5916073	94.2626417	91.07143363	88.01151115	85.07674169
190403A00013	4/3/2019	3.05	4/3/2029	112.02608	108.1690651	104.4743147	100.9340494	97.54091101	94.28793306	91.16851805	88.17641568	85.30570266
190403A00014	4/3/2019	3.05	4/3/2029	112.02608	108.1690651	104.4743147	100.9340494	97.54091101	94.28793306	91.16851805	88.17641568	85.30570266
190404A00015	4/4/2019	2.88	4/3/2026	102.81873	101.8061521	100.8136575	99.8406501	98.88655879	97.95083446	97.03294915	96.13239497	95.24868319
190409A00019	4/9/2019	2.91	4/9/2029	112.63983	108.513131	104.562015	100.7780901	97.15340605	93.68043287	90.35203605	87.16145376	84.1022754
190422A00030	4/22/2019	2.93	12/22/2025	101.76455	101.1085987	100.461104	99.82190198	99.19083393	98.56774513	97.95248478	97.34490584	96.74486497
190426A00023	4/26/2019	2.91	6/24/2026	103.35727	102.1835685	101.0364875	99.91513287	98.81864601	97.74620622	96.69702855	95.67036189	94.66548717
190501A00015	5/1/2019	2.78	5/1/2029	106.31099	104.1300405	102.0187809	99.97440911	97.9942541	96.07577138	94.21653599	92.41423605	90.66666669
190502A00016	5/2/2019	2.87	5/1/2026	103.05762	101.9654942	100.8966895	99.85045941	98.82609257	97.82290717	96.84024956	95.87749274	94.93403507
190506A00026	5/6/2019	3.03	5/4/2029	112.46155	108.4304859	104.5730635	100.8807885	97.34563373	93.96000867	90.71673301	87.60901215	84.63041418
190510A00049	5/10/2019	2.58	5/8/2026	101.41881	100.8239915	100.2380467	99.66075503	99.09190372	98.53128728	97.97870727	97.43397196	96.89689606
190514A00020	5/14/2019	2.66	5/14/2025	100.08835	100.04948	100.0106545	99.97187676	99.93314669	99.8944642	99.85582918	99.81724156	99.77870123
190514A00021	5/14/2019	2.72	11/14/2025	101.33572	100.7861686	100.2425847	99.70486743	99.172922	98.64665564	98.12597761	97.61079906	97.10103306
190515A00035	5/15/2019	2.82	2/15/2029	111.08183	107.2831508	103.6407185	100.1472498	96.79583868	93.57993596	90.49332892	87.53012221	84.68471998
190520A00020	5/20/2019	2.39	5/20/2026	101.3414	100.7507737	100.1688992	99.59555825	99.03054272	98.47365155	97.9246905	97.38347185	96.84981413
190529A00061	5/29/2019	2.46	5/29/2026	101.34726	100.7528608	100.1673294	99.59044502	99.02199503	98.4617741	97.90958393	97.36523293	96.82853593
190530A00008	5/30/2019	2.38	5/30/2025	100.16898	100.0856591	100.0024816	99.91944393	99.83654571	99.75378663	99.67116632	99.58868446	99.50634069
190531A00037	5/31/2019	2.61	5/31/2029	111.80817	107.5527906	103.484253	99.5933335	95.87131994	92.30997642	88.9015143	85.6385653	82.5141564
190531A00038	5/31/2019	2.82	5/31/2034	122.09726	112.503454	103.7548748	95.77223374	88.48407292	81.82595638	75.73974682	70.1729602	65.07818939
190605A00007	6/5/2019	2.47	6/5/2026	102.87876	101.6972704	100.5431236	99.41537755	98.31313141	97.23552514	96.18173698	95.15098141	94.14250716
190605A00023	6/5/2019	2.64	6/5/2029	111.09287	107.0235658	103.1326731	99.41131148	95.85109556	92.44410497	89.18285583	86.06027382	83.06966929
190605A00024	6/5/2019	2.64	6/5/2029	111.09287	107.0235658	103.1326731	99.41131148	95.85109556	92.44410497	89.18285583	86.06027382	83.06966929
190605A00025	6/5/2019	2.64	6/5/2029	111.09287	107.0235658	103.1326731	99.41131148	95.85109556	92.44410497	89.18285583	86.06027382	83.06966929
190605A00027	6/5/2019	2.64	6/5/2029	111.09287	107.0235658	103.1326731	99.41131148	95.85109556	92.44410497	89.18285583	86.06027382	83.06966929

Classification | Public

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
190606A00027	6/6/2019	2.51	6/5/2026	102.74047	101.6232571	100.5302867	99.46077145	98.41396249	97.38914237	96.38562363	95.40274721	94.439881
190606A00028	6/6/2019	2.74	6/6/2029	112.04502	107.7776149	103.6978932	99.7965747	96.06489067	92.4945528	89.07772411	85.80699163	82.67534102
190606A00029	6/6/2019	2.96	6/6/2034	122.61645	113.022277	104.2724689	96.2878379	88.99701726	82.33565398	76.24568591	70.67469698	65.57534145
190618A00002	6/18/2019	2.11	6/18/2025	100.23961	100.103622	99.96801759	99.83279559	99.69795439	99.56349231	99.42940771	99.29569897	99.16236446
190620A00033	6/20/2019	2.1	6/20/2029	105.10168	102.8990148	100.7680102	98.70573314	96.70939622	94.7763457	92.90405432	91.09011431	89.33223092
190625A00023	6/25/2019	2.47	6/25/2027	105.85648	103.6653855	101.5306548	99.45043796	97.42296101	95.44652233	93.51948896	91.6402932	89.80742943
190625A00024	6/25/2019	2.26	6/25/2025	100.28504	100.1297346	99.97492046	99.82059193	99.6667467	99.51338249	99.36049703	99.20808809	99.05615341
190628A00007	6/28/2019	2.28	6/28/2034	110.33981	105.55453	101.0686671	96.86006268	92.90838953	89.19498744	85.70271429	82.4158114	79.3197817
190702A00068	7/2/2019	2.69	7/1/2039	121.34501	109.9697711	99.94098587	91.08395909	83.247983	76.30289698	70.1361612	64.65036245	59.76108642
190702A00071	7/2/2019	2.69	7/1/2039	121.34501	109.9697711	99.94098587	91.08395909	83.247983	76.30289698	70.1361612	64.65036245	59.76108642
190703A00017	7/3/2019	2.33	5/4/2026	102.30497	101.2788654	100.273289	99.28762585	98.32128883	97.37371379	96.44435831	95.53270073	94.63823911
190708A00028	7/8/2019	2.57	7/2/2029	110.96861	106.8362469	102.8878207	99.11403931	95.50613649	92.0558399	88.75533991	85.59726082	82.57463388
190708A00029	7/8/2019	2.57	7/2/2029	110.96861	106.8362469	102.8878207	99.11403931	95.50613649	92.0558399	88.75533991	85.59726082	82.57463388
190708A00030	7/8/2019	2.57	7/2/2029	110.96861	106.8362469	102.8878207	99.11403931	95.50613649	92.0558399	88.75533991	85.59726082	82.57463388
190708A00032	7/8/2019	2.58	7/2/2029	111.01008	106.8765176	102.9269457	99.15206396	95.54310413	92.0917918	88.79031543	85.63129749	82.60776752
190712A00016	7/12/2019	2.39	7/12/2029	105.67851	103.4243904	101.2446616	99.13624749	97.09622022	95.12179396	93.21031703	91.35926444	89.56623098
190718A00012	7/18/2019	2.55	7/18/2029	110.24886	106.3595589	102.640885	99.08430252	95.68175463	92.42563193	89.30874474	86.32429752	83.46586502
190724A00021	7/24/2019	2.33	7/23/2027	105.93992	103.6677083	101.455623	99.30162632	97.20376664	95.16017512	93.16906131	91.22870908	89.33747283
190724A00023	7/24/2019	2.13	7/24/2025	100.42444	100.1886102	99.95390161	99.7203023	99.48780434	99.2563999	99.02608124	98.79684067	98.56867057
190724A00024	7/24/2019	2.49	7/24/2029	111.6738	107.2701151	103.0657075	99.05043767	95.21474136	91.54959533	88.04648323	84.69736388	81.49464172
190726A00017	7/26/2019	2.44	7/24/2026	103.04405	101.7889836	100.5644004	99.36920285	98.20234269	97.06282106	95.94968556	94.86202756	93.79897973
190802A00011	8/2/2019	2.01	8/2/2029	105.09256	102.8059187	100.5959886	98.4595471	96.39353401	94.3950397	92.46129639	90.58967025	88.77765399
190807A00021	8/7/2019	2	8/7/2026	102.58589	101.299459	100.0426561	98.81446181	97.61390009	96.44003909	95.29198877	94.16889853	93.06995503
190809A00020	8/9/2019	2.44	8/9/2034	118.81206	109.1818381	100.4195469	92.44213822	85.17491746	78.55066598	72.50885743	66.99495982	61.95981374
190809A00021	8/9/2019	2.12	8/9/2029	110.16378	105.7486034	101.5353888	97.51380092	93.67409036	90.00705964	86.50402834	83.15680096	79.95763692
190813A00051	8/13/2019	2.19	8/13/2029	109.59569	105.4040568	101.4034581	97.58413296	93.93687195	90.4529817	87.12425309	83.94293187	80.90169106
190813A00052	8/13/2019	2.24	8/13/2029	109.8072	105.6092752	101.6026416	97.77752739	94.12471139	90.63548907	87.30164075	84.1154022	81.06943699
190814A00003	8/14/2019	2.01	8/14/2029	109.70956	105.2905217	101.0742984	97.0505004	93.20932845	89.54153642	86.03839701	82.69166955	79.4935701
190819A00030	8/19/2019	2.01	8/20/2029	109.74008	105.3040304	101.0722353	97.03422226	93.18011494	89.50059292	85.98685735	82.63059887	79.42396772
190820A00021	8/20/2019	2.13	8/20/2029	109.90292	105.4740221	101.2487261	97.21660664	93.3678308	89.69311835	86.1837078	82.83132452	79.628151
190823A00009	8/23/2019	1.8	8/23/2029	104.54751	102.2995836	100.126734	98.02582081	95.99385603	94.02799797	92.12554331	90.28391926	88.50067635
190826A00018	8/26/2019	1.9	8/27/2029	109.29047	104.8451196	100.6053471	96.56060683	92.70094572	89.01696933	85.49980733	82.14108169	78.93287676
190826A00030	8/26/2019	1.72	8/26/2026	102.43974	101.1119356	99.80911062	98.53059227	97.27573226	96.04390535	94.83450834	93.64695912	92.4806957

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
190826A00032	8/26/2019	1.72	8/24/2029	104.42437	102.1510231	99.95400275	97.83010706	95.77628952	93.78965326	91.86744264	90.00703533	88.20593492
190826A00057	8/26/2019	1.87	8/26/2025	100.48814	100.1613492	99.83668767	99.51413297	99.1936646	98.87526233	98.5589062	98.24457652	97.93225382
190826A00058	8/26/2019	1.91	8/26/2026	102.58732	101.2601716	99.95795997	98.68001775	97.42569819	96.19437748	94.9854538	93.7983463	92.63249422
190826A00060	8/26/2019	2.02	8/26/2027	105.2675	102.9146757	100.626112	98.39968986	96.23337066	94.12519531	92.07328066	90.07581603	88.13105996
190826A00063	8/26/2019	2.05	8/28/2028	107.57079	104.1726234	100.8997069	97.74677539	94.70881309	91.78104067	88.95890282	86.23805647	83.6143598
190826A00065	8/26/2019	2.09	8/28/2029	109.76818	105.3204744	101.0781591	97.0307068	93.16818639	89.48122301	85.96096399	82.59904712	79.38757097
190828A00015	8/28/2019	2.04	8/28/2029	109.54788	105.1049615	100.8672702	96.82428819	92.96609093	89.28330957	85.76709721	82.40909715	79.2014132
190828A00019	8/28/2019	2	3/28/2028	106.5285	103.5665146	100.7022628	97.93199601	95.25213357	92.65925119	90.15007322	87.72146535	85.37042771
190828A00020	8/28/2019	1.95	5/28/2027	104.53558	102.4370545	100.3912038	98.39634908	96.4508812	94.55325392	92.70198108	90.89563369	89.13283732
190829A00032	8/29/2019	1.69	8/28/2026	101.1832	100.4637921	99.75679244	99.0618481	98.37862398	97.70679807	97.04606068	96.39611388	95.75667095
190829A00039	8/29/2019	1.85	8/29/2034	108.60348	103.6575474	99.03083458	94.6991434	90.64031515	86.83404546	83.26171577	79.90624106	76.75193244
190829A00045	8/29/2019	1.9	8/28/2026	102.58622	101.2547848	99.94780263	98.66463556	97.40467231	96.16732242	94.95201528	93.75819937	92.58534138
190830A00002	8/30/2019	1.93	8/28/2026	102.62659	101.2948785	99.98761557	98.70417248	97.44393787	96.20632114	94.99075157	93.7966775	92.62356552
190905A00019	9/5/2019	2.08	9/5/2029	109.22979	104.9963417	100.9583058	97.10557538	93.4286163	89.91843565	86.56654802	83.36494421	80.306062
190905A00021	9/5/2019	2.08	9/5/2029	109.22979	104.9963417	100.9583058	97.10557538	93.4286163	89.91843565	86.56654802	83.36494421	80.306062
190905A00023	9/5/2019	2.08	9/5/2029	109.22979	104.9963417	100.9583058	97.10557538	93.4286163	89.91843565	86.56654802	83.36494421	80.306062
190905A00024	9/5/2019	2.08	9/5/2029	109.22979	104.9963417	100.9583058	97.10557538	93.4286163	89.91843565	86.56654802	83.36494421	80.306062
190905A00025	9/5/2019	2.08	9/5/2029	109.22979	104.9963417	100.9583058	97.10557538	93.4286163	89.91843565	86.56654802	83.36494421	80.306062
190910A00044	9/10/2019	2.02	9/10/2026	102.97797	101.5579546	100.1649243	98.79817828	97.45703574	96.14083879	94.84895172	93.58075997	92.33566928
190911A00016	9/11/2019	1.9	9/11/2029	104.92964	102.6035919	100.3568131	98.18593085	96.08774482	94.05921337	92.09744451	90.19968746	88.36332482
190913A00018	9/13/2019	2.11	9/11/2026	101.52326	100.7634692	100.0168251	99.28296446	98.56153739	97.85220739	97.1546506	96.46855524	95.79362095
190923A00012	9/23/2019	2.43	9/25/2034	118.85163	109.0970223	100.2325431	92.17205358	84.83816491	78.16130873	72.07891136	66.53465875	61.47784203
190923A00020	9/23/2019	2.05	9/24/2029	110.10126	105.5601035	101.2321932	97.10643217	93.17235773	89.42010132	85.84035191	82.42432169	79.16371398
190925A00009	9/25/2019	2	9/25/2026	102.97822	101.5487742	100.147133	98.77255539	97.42432229	96.10173968	94.80413748	93.53086853	92.28130762
190926A00002	9/30/2019	2.01	9/29/2034	109.46333	104.4359086	99.73551857	95.33718302	91.21804823	87.35718619	83.73541844	80.33515708	77.14026131
190926A00015	9/26/2019	2.32	11/26/2030	112.98951	107.2111006	101.7653493	96.63135993	91.78965796	87.2220853	82.91170434	78.84270966	75.00034649
190926A00016	9/26/2019	2.28	5/24/2030	112.01561	106.7718211	101.8057996	97.10137404	92.64339825	88.41768191	84.41092525	80.61065838	77.00518517
190926A00017	9/26/2019	2.23	9/26/2029	110.54723	106.0017163	101.6694786	97.53942543	93.60109529	89.84462087	86.26069223	82.8405225	79.57581582
190930A00071	9/30/2019	2.05	9/29/2025	100.71803	100.2970225	99.87952695	99.46549813	99.05489302	98.64766933	98.24378546	97.84320049	97.44587417
190930A00075	9/30/2019	2.19	9/29/2027	105.90306	103.4479312	101.0622528	98.74366855	96.48992052	94.29884024	92.1683446	90.09643202	88.08117867
190930A00077	9/30/2019	2.23	9/28/2029	110.55845	106.0070872	101.6695267	97.53463221	93.59190536	89.83144463	86.24390849	82.82048087	79.55283891
191004A00001	10/4/2019	2.47	10/4/2034	118.45201	108.7334579	99.90257222	91.8733496	84.56853125	77.91867615	71.86133438	66.34031149	61.30501351
191004A00002	10/4/2019	2.08	10/4/2029	109.91386	105.3604106	101.0217974	96.88678672	92.94478991	89.18582273	85.60046783	82.1798396	78.91555144

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	Parallel-Shift Sensitivity Analysis											
4/30/2025				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
191004A00003	10/4/2019	1.89	10/5/2026	102.82729	101.391107	99.98203497	98.59937456	97.2424485	95.91060217	94.6032027	93.31963806	92.05931616
191004A00017	10/4/2019	2.02	10/4/2029	109.09444	104.795388	100.6980776	96.79189488	93.06684074	89.51349359	86.12297291	82.88690521	79.7973923
191004A00019	10/4/2019	2.02	10/4/2029	109.09444	104.795388	100.6980776	96.79189488	93.06684074	89.51349359	86.12297291	82.88690521	79.7973923
191004A00022	10/4/2019	2.02	10/4/2029	109.09444	104.795388	100.6980776	96.79189488	93.06684074	89.51349359	86.12297291	82.88690521	79.7973923
191004A00023	10/4/2019	2.02	10/4/2029	109.09444	104.795388	100.6980776	96.79189488	93.06684074	89.51349359	86.12297291	82.88690521	79.7973923
191004A00032	10/4/2019	2.01	1/3/2028	106.04883	103.3289709	100.6926874	98.13687664	95.65857399	93.25494568	90.92328198	88.66099073	86.46559133
191007A00029	10/7/2019	1.88	10/9/2029	109.40689	104.8400334	100.4897244	96.344585	92.39389766	88.62755914	85.03604236	81.61036053	78.34203372
191008A00007	10/8/2019	1.67	10/9/2029	104.46795	102.1100183	99.83366197	97.63537213	95.51181438	93.45982143	91.47638347	89.55863927	87.70386779
191008A00014	10/8/2019	1.85	10/8/2026	102.91256	101.4186512	99.95440085	98.5189952	97.11165066	95.73161163	94.37814922	93.05056005	91.74816517
191009A00009	10/9/2019	1.8	10/9/2026	101.37334	100.5738921	99.78846825	99.01667749	98.25814828	97.51252303	96.77945749	96.05862004	95.34969118
191011A00027	10/11/2019	1.84	10/11/2029	104.87576	102.5084669	100.223089	98.01609543	95.88413783	93.82403553	91.83276608	89.90745627	88.04537368
191015A00025	10/15/2019	2.01	10/15/2029	105.09122	102.7221114	100.4348967	98.22605296	96.0922353	94.03026615	92.03712589	90.10994383	88.24598989
191017A00022	10/17/2019	2.25	7/17/2028	107.98605	104.6950298	101.5217621	98.46132354	95.50902753	92.66041403	89.91123681	87.25745157	84.69520488
191017A00026	10/17/2019	2.3	7/17/2029	110.45468	106.1063474	101.9540721	97.9879245	94.19853264	90.57705219	87.11513317	83.80488921	80.6388689
191021A00021	10/21/2019	2.22	12/21/2027	106.53527	103.844055	101.2346489	98.70404846	96.24938377	93.8679097	91.55699967	89.31413954	87.13692194
191025A00009	10/25/2019	2.26	5/25/2029	109.96961	105.7781907	101.7704255	97.93727981	94.27021464	90.761156	87.40246668	84.1869201	81.1076759
191025A00010	10/25/2019	2.24	7/25/2028	108.0031	104.6900715	101.4962567	98.41663701	95.44644088	92.58112885	89.81638059	87.1480827	84.57231717
191031A00033	10/31/2019	2.2	5/31/2028	107.52364	104.3703807	101.3263351	98.38709473	95.54845589	92.80640941	90.15713057	87.59696939	85.12244144
191101A00004	11/1/2019	1.91	11/1/2029	108.46827	104.4020926	100.5247421	96.82626658	93.2973011	89.92902553	86.71312971	83.64178104	80.70759423
191101A00005	11/1/2019	1.83	11/2/2026	103.16481	101.6032115	100.0733748	98.57439981	97.10541578	95.66558456	94.25409899	92.87018149	91.5130827
191104A00022	11/4/2019	2.17	8/4/2027	105.47408	103.1783993	100.9441336	98.76919395	96.65158212	94.58938406	92.58076575	90.62396901	88.71730767
191104A00023	11/4/2019	2.24	8/4/2028	108.06521	104.7239898	101.5038304	98.3996193	95.40649362	92.51982726	89.73521739	87.04847211	84.45559873
191104A00024	11/4/2019	2.26	8/3/2029	110.37841	105.9855196	101.7925851	97.78939297	93.96630953	90.3142475	86.82463129	83.48936495	80.30080237
191104A00025	11/4/2019	2.33	8/2/2030	112.58841	107.1381266	101.9856579	97.11311493	92.50378683	88.14205234	84.01330245	80.10386903	76.40095887
191105A00007	11/5/2019	1.98	11/5/2026	103.29195	101.7663881	100.2711364	98.80537247	97.36829869	95.95914574	94.57717136	93.2216591	91.89191724
191105A00012	11/5/2019	2.07	11/3/2034	109.87939	104.7486381	99.95675878	95.47750151	91.2868744	87.36293437	83.68559737	80.23646731	76.99868187
191106A00022	11/6/2019	2.34	1/2/2030	111.5866	106.7483416	102.1486723	97.77453047	93.61364688	89.65448802	85.88620787	82.29860286	78.88207011
191108A00013	11/8/2019	2.25	11/8/2029	111.24996	106.5595055	102.0946263	97.84328585	93.79415577	89.93656832	86.26047434	82.75640404	79.4154305
191108A00014	11/8/2019	2.25	11/8/2029	111.24996	106.5595055	102.0946263	97.84328585	93.79415577	89.93656832	86.26047434	82.75640404	79.4154305
191112A00022	11/12/2019	2.36	11/13/2029	110.77284	106.3293712	102.0980629	98.06754674	94.22712949	90.56674805	87.07692867	83.74874905	80.57380303
191112A00023	11/12/2019	2.36	11/13/2029	110.77284	106.3293712	102.0980629	98.06754674	94.22712949	90.56674805	87.07692867	83.74874905	80.57380303
191113A00013	11/13/2019	2.17	11/13/2026	103.65601	102.0625957	100.5019409	98.97309472	97.47514635	96.00721955	94.56847116	93.15808942	91.77529253
191115A00028	11/15/2019	2.34	9/28/2029	111.05263	106.4903289	102.1422051	97.99710378	94.0445115	90.27451246	86.67775156	83.24539981	79.96912209

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
191115A00029	11/15/2019	2.07	11/15/2029	105.24391	102.8647181	100.5684891	98.35161769	96.21068483	94.14244415	92.14381208	90.21185849	88.34379806
191115A00030	11/15/2019	2.35	11/9/2029	111.33234	106.6488327	102.1903391	97.94486126	93.90110691	90.04844192	86.37684838	82.8768856	79.53965377
191120A00005	11/20/2019	2.63	11/20/2034	120.11103	110.1952547	101.1941299	93.01807361	85.58672116	78.82793113	72.67690554	67.07540818	61.9710698
191120A00006	11/20/2019	2.67	11/20/2035	121.49364	110.5748044	100.7542253	91.91494637	83.95304509	76.77611978	70.30195892	64.45737047	59.17715074
191120A00024	11/20/2019	2.23	11/16/2029	110.81805	106.12656	101.6613983	97.41045381	93.36232803	89.50628944	85.8322308	82.3306295	78.99251053
191121A00009	11/21/2019	2.55	11/21/2036	121.70911	109.8053673	99.2015963	89.74800547	81.31280311	73.77995136	67.04721106	61.02443788	55.63209632
191121A00010	11/21/2019	2.59	11/20/2037	122.65655	109.8041391	98.45949404	88.43628937	79.57215222	71.72547517	64.77266608	58.60577422	53.1304394
191121A00034	11/21/2019	2.28	11/2/2029	110.96979	106.3141674	101.8815576	97.6601064	93.63865535	89.80669389	86.15431842	82.67219392	79.35151839
191122A00003	11/22/2019	2.32	11/22/2039	116.19397	106.0708347	97.09850896	89.13053555	82.04040454	75.71869928	70.07066686	65.01414829	60.4778132
191122A00018	11/26/2019	3.11	11/22/2039	130.38366	115.3544539	102.3061039	90.96288687	81.08894329	72.48232463	64.96995847	58.40338323	52.65513152
191122A00020	11/26/2019	3.2	11/23/2037	129.18337	115.9981681	104.3438062	94.03218539	84.89929597	76.80202306	69.61538685	63.23015951	57.55080587
191122A00021	11/26/2019	3.4	11/22/2038	132.91921	118.6025567	106.0543634	95.04332018	85.36961723	76.86050582	69.36650504	62.75815707	56.92324939
191125A00036	11/25/2019	2.29	11/23/2029	111.13586	106.4174498	101.9273496	97.6533057	93.58378553	89.70793359	86.01552817	82.49694082	79.14309868
191126A00023	11/26/2019	1.81	5/27/2025	100.10955	100.0345922	99.95975641	99.8850402	99.81044329	99.7359654	99.66160624	99.58736553	99.51324298
191126A00026	11/26/2019	1.91	11/25/2026	103.33046	101.7486795	100.1989579	98.68038896	97.19210242	95.73326017	94.30305469	92.90070768	91.52546871
191203A00009	12/3/2019	2.21	12/3/2029	110.19589	105.7212234	101.4624285	97.40782272	93.54642071	89.86789183	86.36251708	83.02114926	79.83517597
191203A00010	12/3/2019	2.21	12/3/2029	110.19589	105.7212234	101.4624285	97.40782272	93.54642071	89.86789183	86.36251708	83.02114926	79.83517597
191203A00011	12/3/2019	2.21	12/3/2029	110.19589	105.7212234	101.4624285	97.40782272	93.54642071	89.86789183	86.36251708	83.02114926	79.83517597
191206A00005	12/6/2019	2.18	12/7/2026	103.85123	102.1917545	100.5673437	98.9769433	97.41954544	95.89418221	94.39992371	92.93587616	91.50118007
191206A00008	12/6/2019	2.44	12/6/2030	113.71035	107.8845875	102.3952613	97.2211645	92.34253755	87.74096163	83.39926076	79.30141139	75.43245913
191206A00009	12/6/2019	2.87	12/4/2037	125.10564	112.1386667	100.6882654	90.5671853	81.61224634	73.68113692	66.64964885	60.40929069	54.86522617
191206A00013	12/6/2019	3.05	12/6/2044	140.70296	120.5138916	103.7100677	89.69039943	77.96431889	68.13090606	59.86204942	52.88884469	46.99059549
191209A00005	12/9/2019	2.22	12/10/2029	109.56586	105.3912998	101.4138349	97.62289939	94.0085582	90.56146567	87.27282682	84.13436156	81.13827143
191220A00001	12/20/2019	2.62	12/19/2031	116.23115	109.2977651	102.8284293	96.78959494	91.15031506	85.88202465	80.95834511	76.35490594	72.04918171
191220A00002	12/20/2019	3.02	12/20/2038	127.94047	113.8781773	101.5722737	90.79115757	81.33498059	73.03114661	65.73046825	59.30388238	53.6396409
191223A00055	12/23/2019	2.46	12/7/2029	112.00958	107.2323218	102.6875453	98.3626879	94.24593824	90.32618335	86.59296361	83.03643065	79.64730821
191223A00056	12/23/2019	2.46	12/14/2029	112.04961	107.2523326	102.6892971	98.34780304	94.21591163	90.28239298	86.53667979	82.96882451	79.56945951
191224A00002	12/24/2019	2.17	12/24/2029	105.67237	103.2044627	100.8244629	98.52848927	96.31286063	94.17408423	92.10884493	90.11399492	88.1865441
191226A00019	12/26/2019	2.4	12/22/2028	109.53645	105.783144	102.1792155	98.71787356	95.39268069	92.19752877	89.1266202	86.17445016	83.33578987
191226A00020	12/26/2019	2.44	12/21/2029	111.99509	107.1799829	102.6008046	98.2447219	94.09967128	90.15430815	86.39795976	82.82058154	79.41271656
200103A00002	1/3/2020	2.07	1/3/2030	109.36749	105.141561	101.1177152	97.2849906	93.63308589	90.15231789	86.83358054	83.66830697	80.64843424
200109A00006	1/9/2020	1.95	1/9/2030	105.4134	102.9062811	100.4898315	98.1599916	95.9129166	93.74496115	91.65266742	89.63275416	87.68210645
200109A00008	1/9/2020	1.95	1/9/2030	105.4134	102.9062811	100.4898315	98.1599916	95.9129166	93.74496115	91.65266742	89.63275416	87.68210645

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	Parallel-Shift Sensitivity Analysis											
4/30/2025				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200110A00037	1/10/2020	2.32	1/10/2030	110.87063	106.2843259	101.9233666	97.77536225	93.82867575	90.07237204	86.49617147	83.09040674	79.84598293
200110A00038	1/10/2020	2.32	1/10/2030	110.87063	106.2843259	101.9233666	97.77536225	93.82867575	90.07237204	86.49617147	83.09040674	79.84598293
200110A00039	1/10/2020	2.32	1/10/2030	110.87063	106.2843259	101.9233666	97.77536225	93.82867575	90.07237204	86.49617147	83.09040674	79.84598293
200110A00043	1/10/2020	2.32	1/10/2030	110.87063	106.2843259	101.9233666	97.77536225	93.82867575	90.07237204	86.49617147	83.09040674	79.84598293
200115A00013	1/15/2020	2.18	1/15/2030	108.62992	104.8019652	101.1506624	97.666627	94.34103281	91.16557363	88.13242937	85.23423474	82.46405006
200116A00012	1/16/2020	2.16	1/19/2027	104.13928	102.3619275	100.6241221	98.92471093	97.26258441	95.63667373	94.04594893	92.48941723	90.9661213
200124A00008	1/24/2020	1.92	1/22/2027	103.75506	102.0124218	100.307472	98.63905233	97.00605468	95.40741591	93.84211584	92.30917491	90.8076522
200130A00046	1/30/2020	1.81	1/29/2027	101.66173	100.7327151	99.82090577	98.9258178	98.04698344	97.18395283	96.33629316	95.50358779	94.68543551
200131A00032	1/31/2020	2.1	1/31/2030	110.57522	105.6824555	101.034821	96.61869379	92.42128443	88.43058351	84.63530926	81.02485902	77.58926431
200203A00046	2/3/2020	1.98	2/3/2040	111.28012	103.7954326	97.0212864	90.87927968	85.30050549	80.22432446	75.59730163	71.37228761	67.50762384
200204A00012	2/4/2020	1.98	2/4/2027	103.81336	102.036473	100.298588	98.59850627	96.93508309	95.30721975	93.71386145	92.15399498	90.6266467
200206A00027	2/6/2020	2.15	2/6/2030	110.19809	105.5736228	101.1793181	97.0024426	93.03102962	89.25383275	85.66027884	82.24042435	78.98491467
200206A00031	2/6/2020	2.15	2/6/2030	110.19809	105.5736228	101.1793181	97.0024426	93.03102962	89.25383275	85.66027884	82.24042435	78.98491467
200206A00032	2/6/2020	2.15	2/6/2030	110.19809	105.5736228	101.1793181	97.0024426	93.03102962	89.25383275	85.66027884	82.24042435	78.98491467
200206A00033	2/6/2020	2.15	2/6/2030	110.19809	105.5736228	101.1793181	97.0024426	93.03102962	89.25383275	85.66027884	82.24042435	78.98491467
200207A00017	2/7/2020	1.96	2/8/2027	103.80912	102.0203433	100.2710243	98.55997227	96.88604276	95.24813644	93.64519684	92.07620821	90.54019356
200207A00018	2/7/2020	2.14	2/7/2030	110.80789	105.8886691	101.2167674	96.7784278	92.56073107	88.55154401	84.73946699	81.1137854	77.66442451
200210A00005	2/10/2020	1.77	2/10/2027	103.62706	101.8313914	100.0754842	98.35814325	96.67822117	95.03461536	93.42626567	91.85215243	90.31129443
200212A00013	2/12/2020	1.98	2/12/2027	103.95937	102.1287161	100.3398978	98.59170534	96.88297595	95.21258757	93.57945727	91.9825396	90.42082504
200220A00013	2/20/2020	2.09	12/14/2029	110.30785	105.5508898	101.0267461	96.72278108	92.62711521	88.72857492	85.01664635	81.48143272	78.11361465
200220A00014	2/20/2020	2.09	12/21/2029	110.34064	105.563986	101.0218935	96.70159271	92.59107701	88.67905583	84.9549077	81.40863673	78.03083229
200220A00026	2/20/2020	2.22	2/21/2040	113.26031	104.9129792	97.39533005	90.61244843	84.4812777	78.92903744	73.89186603	69.31365206	65.14502715
200221A00012	2/21/2020	2.14	2/21/2040	112.59119	104.293855	96.82125935	90.07905273	83.98466963	78.46576047	73.45884213	68.90813617	64.76456752
200221A00023	2/21/2020	2.05	12/7/2029	110.08753	105.3545857	100.8525611	96.56896253	92.49204344	88.61075234	84.91468805	81.39405766	78.03963765
200221A00024	2/21/2020	2.05	12/28/2029	110.18357	105.3916376	100.835868	96.50335871	92.38198185	88.4603353	84.7276952	81.17397163	77.78966749
200225A00017	2/25/2020	1.94	2/25/2030	109.926	104.9742175	100.2741375	95.81170193	91.57370774	87.54775074	83.72217329	80.08601571	76.62897098
200225A00018	2/25/2020	1.94	2/25/2030	109.926	104.9742175	100.2741375	95.81170193	91.57370774	87.54775074	83.72217329	80.08601571	76.62897098
200225A00028	2/25/2020	1.89	12/21/2029	109.39524	104.6405591	100.1196586	95.8198046	91.72902314	87.83605451	84.13030652	80.60181113	77.24118413
200225A00029	2/25/2020	1.89	12/28/2029	109.42413	104.6499153	100.1112357	95.79521346	91.6897471	87.78345959	84.06565083	80.52625346	77.15579186
200225A00049	2/25/2020	1.79	2/24/2040	109.84148	102.4622665	95.78161764	89.7227058	84.21798187	79.20797264	74.64024606	70.46851653	66.65187037
200226A00009	2/26/2020	1.75	2/26/2030	109.40353	104.4484659	99.74594331	95.28183725	91.04287835	87.016601	83.1912907	79.55593503	76.10017817
200227A00004	2/27/2020	1.65	2/27/2030	108.91564	103.9693825	99.27552488	94.81994062	90.58936103	86.57132101	82.75410648	79.12670541	75.67876239
200227A00030	2/27/2020	1.59	2/27/2026	101.20939	100.3709434	99.54632861	98.73520266	97.93723689	97.15211324	96.37952385	95.61917059	94.87076474

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200227A00046	2/27/2020	1.52	3/1/2027	101.47025	100.5016726	99.55138168	98.61885996	97.70360988	96.8051527	95.92302762	95.0567909	94.20601511
200228A00025	2/28/2020	1.57	3/2/2027	103.25363	101.4050661	99.59845414	97.83259644	96.10634125	94.41857657	92.76822852	91.15425976	89.575668
200228A00026	2/28/2020	2.14	2/28/2035	115.58659	105.6250251	96.61165305	88.45110136	81.05803762	74.35606848	68.27676345	62.75878962	57.74714408
200228A00059	2/28/2020	1.79	2/28/2030	109.20313	104.2598704	99.56853601	95.11504171	90.88615839	86.86945686	83.05325565	79.42657241	75.97907869
200228A00071	2/28/2020	1.74	12/14/2029	108.66024	103.9414168	99.45406277	95.18559814	91.12419968	87.25874703	83.57877689	80.0744405	76.73646411
200228A00091	2/28/2020	1.72	12/7/2029	108.54051	103.8432372	99.37562256	95.12523236	91.08037201	87.23003958	83.56388089	80.07214769	76.7456589
200302A00036	3/2/2020	1.45	3/2/2026	101.10554	100.2593183	99.42719699	98.60882365	97.80385999	97.0119787	96.23286305	95.46620645	94.71171207
200303A00012	3/3/2020	1.71	3/1/2030	108.81271	103.8762192	99.19157092	94.74467704	90.52230282	86.5120144	82.70212643	79.08165337	75.64026422
200303A00028	3/3/2020	1.54	3/4/2030	106.92372	102.6590324	98.6044739	94.74839897	91.07986882	87.5886078	84.26495959	81.09984658	78.08473219
200304A00010	3/4/2020	1.2	3/4/2027	102.72341	100.8718174	99.06242043	97.29401246	95.56543079	93.87555298	92.22329518	90.60761064	89.02748808
200304A00030	3/4/2020	1.6	12/22/2028	106.5684	102.8697227	99.31882028	95.90896538	92.63377758	89.48720344	86.46349765	83.55720531	80.76314542
200304A00032	3/4/2020	1.6	12/15/2028	106.5382	102.8589102	99.32601156	95.93286834	92.67318561	89.54098946	86.53060852	83.63665676	80.85401731
200304A00052	3/6/2020	2.11	3/8/2027	104.30239	102.4276238	100.5956972	98.80538412	97.05549927	95.3448984	93.67247689	92.03716807	90.43794165
200304A00054	3/6/2020	2.35	3/8/2027	104.75368	102.8745595	101.0383654	99.24386493	97.48987057	95.77523591	94.09885427	92.45965696	90.85661176
200305A00030	3/5/2020	1.58	3/5/2030	108.18393	103.2520011	98.57242994	94.13105715	89.91459038	85.91054351	82.10718381	78.49348283	75.05907075
200305A00032	3/5/2020	1.58	3/5/2030	108.18393	103.2520011	98.57242994	94.13105715	89.91459038	85.91054351	82.10718381	78.49348283	75.05907075
200305A00035	3/5/2020	1.25	3/5/2026	100.94811	100.0943751	99.25500928	98.42965273	97.61795713	96.8195856	96.03421229	95.26152187	94.50120914
200305A00036	3/5/2020	1.36	3/5/2027	102.87719	101.0241976	99.21343203	97.4436903	95.71380827	94.02266221	92.36916703	90.75227474	89.17097294
200305A00037	3/5/2020	1.43	3/6/2028	104.75376	101.8770212	99.09362602	96.40005891	93.79295874	91.26910833	88.82542745	86.45896623	84.16689887
200305A00038	3/5/2020	1.51	3/5/2029	106.55133	102.6490797	98.91021196	95.32706795	91.89238995	88.59929499	85.44125361	82.4120699	79.50586277
200305A00039	3/5/2020	1.58	3/5/2030	108.18393	103.2520011	98.57242994	94.13105715	89.91459038	85.91054351	82.10718381	78.49348283	75.05907075
200306A00001	3/6/2020	1.11	3/6/2026	100.83182	99.97588474	99.13440222	98.30701281	97.4933649	96.69311849	95.90594471	95.13152537	94.36955255
200306A00014	3/6/2020	1.38	3/6/2030	107.19947	102.2887421	97.62976014	93.20838384	89.0113381	85.02615371	81.24111454	77.64520839	74.22808132
200306A00022	3/6/2020	1.2	3/8/2027	102.59127	100.7329925	98.91724688	97.14281106	95.4085081	93.713202	92.055796	90.43523104	88.85048413
200306A00048	3/6/2020	1.04	3/6/2035	104.63833	99.5911868	94.8875737	90.50011269	86.40384623	82.57600585	78.99580405	75.64424746	72.50396867
200306A00050	3/6/2020	0.87	3/6/2030	102.77576	100.2485531	97.81535919	95.47187314	93.21401523	91.03792153	88.93993091	86.91657308	84.96455724
200306A00057	3/6/2020	0.92	3/8/2027	102.18009	100.3508418	98.56471263	96.8204134	95.11670425	93.45239064	91.82632133	90.23738646	88.68451582
200306A00058	3/6/2020	1.06	3/6/2030	103.06084	100.5302149	98.09362985	95.74677543	93.48557521	91.30616812	89.20489557	87.17828941	85.22306074
200306A00064	3/6/2020	1.2	3/8/2027	102.59127	100.7329925	98.91724688	97.14281106	95.4085081	93.713202	92.055796	90.43523104	88.85048413
200306A00065	3/6/2020	1.38	3/6/2030	107.19947	102.2887421	97.62976014	93.20838384	89.0113381	85.02615371	81.24111454	77.64520839	74.22808132
200306A00066	3/6/2020	1.2	3/8/2027	102.59127	100.7329925	98.91724688	97.14281106	95.4085081	93.713202	92.055796	90.43523104	88.85048413
200309A00007	3/9/2020	1.11	3/9/2027	102.42632	100.5669582	98.75021705	96.97486879	95.23973249	93.5436684	91.88557619	90.26439338	88.67909376
200309A00021	3/9/2020	1.05	3/9/2026	100.79092	99.92693397	99.07768283	98.2427937	97.42190474	96.61466615	95.82073971	95.03979831	94.27152546

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200309A00030	3/9/2020	1.11	3/9/2027	102.42632	100.5669582	98.75021705	96.97486879	95.23973249	93.5436684	91.88557619	90.26439338	88.67909376
200309A00033	3/9/2020	1.06	3/9/2026	100.79961	99.93557678	99.08628512	98.25135595	97.43042742	96.62314972	95.82918462	95.04820501	94.27989437
200309A00034	3/9/2020	0.96	3/9/2035	104.2219	99.19477919	94.50983828	90.13980114	86.05980801	82.24717971	78.68121033	75.34298112	72.21519298
200309A00038	3/9/2020	1.26	3/11/2030	106.61654	101.7067607	97.04953289	92.63063171	88.43670232	84.4552029	80.67435128	77.08307514	73.67096592
200309A00081	3/9/2020	1.18	3/8/2030	105.76293	101.2123109	96.89266245	92.79096994	88.89501783	85.19333918	81.67516589	78.33038255	75.14948352
200309A00082	3/9/2020	1.18	3/8/2030	105.76293	101.2123109	96.89266245	92.79096994	88.89501783	85.19333918	81.67516589	78.33038255	75.14948352
200309A00084	3/9/2020	1.06	3/9/2027	102.36797	100.4881512	98.65290421	96.8608998	95.11085413	93.40153023	91.73173595	90.10032202	88.50618016
200310A00005	3/10/2020	1.41	3/8/2030	107.35215	102.4324376	97.76513212	93.33604964	89.13186838	85.14007607	81.34891688	77.74734195	74.32496354
200310A00015	3/10/2020	1.37	3/11/2030	107.16105	102.2380419	97.56807064	93.13689131	88.931128	84.93821904	81.14636339	77.54447088	74.12211598
200310A00034	3/10/2020	1.41	3/11/2030	107.35906	102.431235	97.75662982	93.3209857	89.11091916	85.11386127	81.31800416	77.71225115	74.28617055
200310A00038	3/10/2020	1.41	3/11/2030	107.35906	102.431235	97.75662982	93.3209857	89.11091916	85.11386127	81.31800416	77.71225115	74.28617055
200310A00040	3/10/2020	1.36	3/10/2028	104.56632	101.6815973	98.89082385	96.19045048	93.57708248	91.04747106	88.59850627	86.22721023	83.93073081
200310A00041	3/10/2020	1.39	3/12/2029	106.10576	102.1934612	98.44581169	94.85505489	91.41384341	88.1152111	84.9525513	81.91959645	79.01039898
200310A00042	3/10/2020	1.41	3/11/2030	107.35906	102.431235	97.75662982	93.3209857	89.11091916	85.11386127	81.31800416	77.71225115	74.28617055
200310A00051	3/10/2020	1.41	3/8/2030	107.35215	102.4324376	97.76513212	93.33604964	89.13186838	85.14007607	81.34891688	77.74734195	74.32496354
200310A00073	3/12/2020	2.12	3/11/2027	104.34248	102.4592346	100.6191892	98.82110405	97.06377911	95.34605622	93.6668175	92.02498361	90.41951217
200311A00015	3/11/2020	1.26	3/11/2027	102.7606	100.8701496	99.02463671	97.22271589	95.46308944	93.74450718	92.06576434	90.42569961	88.82319324
200311A00026	3/11/2020	1.34	3/11/2030	106.34764	101.889432	97.65560606	93.6335615	89.81147244	86.17823666	82.72342755	79.43724946	76.3104962
200311A00031	3/11/2020	1.41	12/24/2027	104.3739	101.703803	99.11527467	96.60530716	94.17102859	91.80969262	89.51867188	87.29545195	85.13762556
200311A00050	3/2/2021	1.46	3/2/2026	101.11403	100.2677686	99.43560841	98.61719665	97.81219501	97.02027619	96.24112342	95.47443013	94.71989946
200311A00055	3/11/2020	1.66	12/17/2027	105.0121	102.3522388	99.77312953	97.27181607	94.84547253	92.49139558	90.20699815	87.98980353	85.83743985
200312A00009	3/12/2020	1.46	3/12/2027	103.10119	101.2272687	99.39644545	97.60747379	95.85915499	94.15033229	92.47988918	90.8467477	89.24986685
200316A00008	3/16/2020	1.31	3/15/2030	103.6133	101.1355215	98.74816149	96.44714013	94.2285895	92.08884385	90.02442762	88.03204426	86.10856572
200316A00050	3/16/2020	1.54	3/16/2027	103.27443	101.3880922	99.54535836	97.74496072	95.98568025	94.26634091	92.58580778	90.94298539	89.33681602
200317A00009	3/17/2020	1.61	3/16/2035	107.21078	102.0499783	97.23997233	92.75283598	88.56310906	84.64756241	80.98498602	77.55599866	74.34287673
200317A00043	3/17/2020	1.29	3/15/2030	103.8658	101.3112911	98.8518461	96.48310662	94.20094578	92.00145506	89.88093124	87.83586418	85.8629254
200318A00012	3/18/2020	1.68	3/18/2033	108.35031	102.9785466	97.95837165	93.26335837	88.86926083	84.75381984	80.89658776	77.27876974	73.88307972
200319A00035	3/19/2020	1.72	3/18/2033	108.56714	103.1848224	98.15476752	93.45050019	89.04772848	84.92415102	81.05928134	77.43428889	74.03185475
200323A00090	3/23/2020	1.55	3/23/2027	101.98633	100.7690282	99.57729663	98.41038841	97.26758376	96.14818988	95.05153971	93.97699069	92.92392371
200326A00029	3/26/2020	1.82	3/26/2027	103.86978	101.9507181	100.0765604	98.2459917	96.45774071	94.71058164	93.00333213	91.33485148	89.70403888
200326A00032	3/26/2020	1.49	3/26/2030	104.1785	101.6195362	99.15572021	96.78269204	94.49632391	92.29270635	90.16813511	88.11909891	86.14226812
200326A00037	3/26/2020	1.78	3/26/2035	107.9313	102.8751972	98.15832474	93.75388601	89.63744013	85.78667656	82.18121357	78.80241703	75.63323758
200327A00037	3/27/2020	1.18	3/27/2026	101.04735	100.1316198	99.23239532	98.34923374	97.48170796	96.62940586	95.79192968	94.96889543	94.15993224

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200327A00043	3/27/2020	1.48	3/27/2028	105.22625	102.280678	99.43248844	96.67794523	94.01347721	91.43566928	88.94125473	86.52710785	84.19023706
200327A00045	3/27/2020	2.24	3/27/2034	116.61049	107.4283739	99.04693873	91.39208189	84.39690997	78.00100609	72.14977335	66.79384782	61.88857335
200327A00094	3/27/2020	1.6	3/27/2030	107.2321	102.9136596	98.81035478	94.91011708	91.20162591	87.67425524	84.31802723	81.1235692	78.08207359
200330A00038	3/30/2020	1.79	3/29/2030	109.30056	104.2774718	99.51419414	94.99598023	90.70899779	86.64026369	82.77758759	79.10951955	75.62530148
200330A00045	3/30/2020	1.47	3/30/2027	103.21524	101.2919045	99.41383482	97.57969435	95.78819522	94.03809588	92.32819907	90.65734989	89.02443401
200330A00047	3/30/2020	1.5	3/30/2035	106.63027	101.4971535	96.7129861	92.24998361	88.08281689	84.18837672	80.54556292	77.13509493	73.93934144
200330A00054	3/30/2021	1.19	3/30/2026	100.99557	100.0728727	99.16693426	98.27730272	97.40354132	96.54522876	95.70195849	94.87333815	94.05898887
200330A00058	3/30/2020	1.49	3/29/2030	106.75272	102.4467111	98.3554855	94.46698252	90.76988767	87.25358147	83.90809294	80.72405653	77.69267201
200330A00079	3/30/2020	1.51	3/30/2035	106.68296	101.5473059	96.76077453	92.29556675	88.12634092	84.22997641	80.5853626	77.1732094	73.97587682
200331A00016	3/31/2020	1.11	3/31/2026	100.99885	100.0723506	99.16274037	98.26956425	97.39238051	96.5307631	95.68430098	94.85259745	94.03526953
200331A00056	3/31/2020	0.96	3/29/2030	102.94061	100.4682824	98.08641798	95.79092619	93.57792978	91.44375443	89.38491673	87.39811295	85.4802085
200402A00044	4/2/2020	1.65	4/2/2030	108.61266	103.5956576	98.83893615	94.32769154	90.04803252	85.98692264	82.13212343	78.47214155	74.99617977
200406A00014	4/6/2020	1.33	4/6/2035	106.17627	101.0141784	96.20604296	91.72345491	87.54053617	83.63369345	79.98139972	76.56399805	73.3635253
200406A00027	4/6/2020	1.31	4/5/2030	106.33141	102.0167717	97.91827772	94.02374397	90.32174214	86.80154874	83.45309774	80.26693668	77.23418588
200406A00029	4/6/2020	1.61	4/5/2030	107.84327	103.1596008	98.71652836	94.50031639	90.49808582	86.69775791	83.08800019	79.65817637	76.39829996
200406A00030	4/6/2020	1.61	4/5/2030	107.84327	103.1596008	98.71652836	94.50031639	90.49808582	86.69775791	83.08800019	79.65817637	76.39829996
200413A00009	4/13/2020	0.77	4/13/2027	100.91624	99.87135373	98.84701394	97.84263494	96.85765135	95.89151901	94.94371401	94.01373176	93.10108604
200413A00013	4/13/2020	1.19	4/12/2030	103.44865	100.8665781	98.3818269	95.98988299	93.68647729	91.4675687	89.32933031	87.26813664	85.28055159
200414A00024	4/14/2020	1.37	4/14/2027	103.12639	101.1468959	99.21620488	97.33279243	95.49519236	93.70199473	91.9518433	90.243433	88.57550764
200415A00021	4/15/2020	1.37	4/15/2027	103.10276	101.1363729	99.217298	97.34411017	95.51543363	93.72994324	91.98636224	90.28346016	88.62005079
200415A00023	4/15/2020	1.71	4/15/2030	108.95587	103.8947462	99.09791025	94.55022648	90.23749923	86.14641277	82.26447225	78.57994895	75.0818295
200415A00024	4/15/2020	2.2	4/16/2035	116.25268	106.142535	97.00524743	88.74185336	81.26392511	74.49240513	68.35657059	62.7931172	57.74534758
200415A00038	4/15/2020	1.37	4/15/2027	103.10276	101.1363729	99.217298	97.34411017	95.51543363	93.72994324	91.98636224	90.28346016	88.62005079
200417A00009	4/17/2020	1.35	4/16/2027	103.0681	101.0992899	99.17792492	97.30256572	95.471831	93.68439043	91.93896231	90.23431148	88.56924726
200421A00026	4/21/2020	1.34	4/19/2030	106.12861	101.8028896	97.69484883	93.79216106	90.08326717	86.55732449	83.20415844	80.01421763	76.97853227
200421A00032	4/21/2020	1.31	4/21/2027	103.01326	101.0311865	99.09719761	97.20983258	95.3676819	93.56938843	91.81364506	90.09919244	88.42481693
200423A00017	4/23/2020	1.82	4/23/2035	113.28419	103.2555265	94.19968235	86.01715501	78.61908237	71.92606039	65.86709404	60.37866922	55.40393112
200424A00022	4/24/2020	1.39	4/24/2030	106.35697	102.01435	97.89066646	93.97349589	90.25119162	86.71283044	83.34816358	80.14757131	77.1020208
200427A00018	4/27/2020	1.51	4/27/2028	105.21251	102.1872154	99.26464233	96.44074238	93.7116486	91.07366802	88.52327281	86.05709184	83.67190278
200428A00002	4/28/2020	1.47	4/26/2030	108.19005	103.1042072	98.28618257	93.72051814	89.39272514	85.28921973	81.3972618	77.70489826	74.20091044
200428A00009	4/28/2020	1.08	4/29/2030	103.15908	100.5835607	98.10516007	95.71937217	93.42193413	91.20881095	89.07618169	87.02042663	85.03811529
200428A00018	4/28/2020	1.33	4/27/2035	105.66786	100.6466399	95.96586074	91.59838788	87.51949352	83.70662232	80.13918434	76.7983692	73.66697893
200429A00030	4/29/2020	1.41	4/29/2030	106.75473	102.1808603	97.84217093	93.725163	89.8171882	86.1063903	82.58165108	79.23254037	76.04926969

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200429A00049	4/29/2020	1.25	4/29/2026	101.17769	100.1715423	99.18527715	98.21831498	97.27009394	96.3400738	95.42773491	94.53257722	93.65411939
200429A00057	4/29/2020	1.4	4/29/2027	103.23512	101.2286227	99.27131735	97.3616925	95.4982913	93.67971154	91.90460329	90.17166651	88.47964885
200429A00061	4/29/2020	1.66	10/29/2029	108.10881	103.5287003	99.16837331	95.01614823	91.06103002	87.29266142	83.70128252	80.27769322	77.01321816
200430A00009	4/30/2020	1.16	4/30/2026	101.09077	100.0823425	99.09389839	98.12485252	97.1746389	96.24271333	95.32855236	94.43165235	93.55152852
200430A00027	4/30/2020	1.31	4/30/2035	105.64761	100.5213648	95.74618075	91.29390881	87.13890468	83.25778645	79.62921834	76.23371656	73.05347491
200501A00002	5/1/2020	1.3	5/1/2035	105.60942	100.4452247	95.63721123	91.15662744	86.97729807	83.07537139	79.42909584	76.01861963	72.82581073
200501A00009	5/4/2020	0.67	5/1/2025	100.00167	99.99474262	99.98781685	99.98089757	99.97398477	99.96707844	99.96017856	99.95328514	99.94639815
200504A00004	5/4/2020	0.75	5/5/2025	100.00624	99.99236777	99.97850586	99.96465766	99.95082315	99.93700231	99.92319511	99.90940153	99.89562154
200504A00006	5/4/2020	0.94	5/5/2025	100.00799	99.99412322	99.98027014	99.96643065	99.95260473	99.93879236	99.92499352	99.91120818	99.89743632
200504A00007	5/4/2020	1.47	5/4/2028	105.12065	102.0776879	99.13860801	96.2992914	93.55580625	90.9043988	88.34148421	85.86363788	83.46758732
200505A00004	5/5/2020	0.77	5/5/2025	100.00654	99.99266426	99.97880212	99.96495369	99.95111895	99.93729788	99.92349045	99.90969664	99.89591642
200505A00005	5/5/2020	0.77	5/5/2025	100.00654	99.99266426	99.97880212	99.96495369	99.95111895	99.93729788	99.92349045	99.90969664	99.89591642
200506A00002	5/8/2020	0.97	5/5/2025	100.00843	99.99456793	99.9807145	99.96687467	99.95304841	99.93923569	99.9254365	99.91165082	99.89787861
200506A00005	5/6/2020	0.97	5/6/2025	100.0099	99.99326053	99.9766373	99.96003085	99.94344114	99.92686814	99.91031183	99.89377218	99.87724916
200506A00010	5/6/2020	0.94	5/6/2026	100.97054	99.94508624	98.94031747	97.95561586	96.99038538	96.04405344	95.11606966	94.20590486	93.31305004
200511A00006	5/11/2020	1.65	5/13/2030	108.73618	103.6046552	98.74487168	94.14104761	89.77839792	85.64306722	81.72206658	78.00321477	74.47508388
200511A00018	5/11/2020	0.98	2/2/2026	100.61703	99.84992581	99.09445618	98.35035699	97.61737327	96.89525761	96.18376989	95.48267702	94.79175267
200511A00019	5/11/2020	1.18	2/1/2027	102.36325	100.608616	98.89238818	97.21337772	95.57044597	93.96250108	92.38849559	90.84742406	89.338321
200511A00020	5/11/2020	1.4	2/1/2028	104.50996	101.7331665	99.0439248	96.43890007	93.91490991	91.46891654	89.09801891	86.79944542	84.57054703
200511A00021	5/11/2020	1.53	2/1/2029	106.47499	102.6677815	99.01661935	95.51420914	92.15364688	88.92839282	85.83224962	82.85934204	80.00409802
200511A00022	5/11/2020	1.6	2/1/2030	108.15862	103.3203693	98.72545818	94.36033195	90.21227227	86.26933698	82.52030809	78.95464341	75.56243187
200511A00023	5/11/2020	1.7	2/3/2031	109.59183	103.724521	98.20641653	93.01491259	88.12898747	83.52908338	79.19699644	75.11577558	71.26962958
200512A00001	5/12/2020	1.17	5/12/2027	102.84102	100.7925988	98.79596922	96.84945953	94.95146534	93.10044639	91.29492344	89.5334753	87.81473604
200512A00010	5/12/2020	1.48	5/10/2030	107.29779	102.551953	98.05377479	93.78889662	89.74386923	85.90609298	82.26375944	78.8057973	75.52182232
200512A00011	5/12/2020	1.48	5/10/2030	107.29779	102.551953	98.05377479	93.78889662	89.74386923	85.90609298	82.26375944	78.8057973	75.52182232
200512A00013	5/12/2020	1.17	5/12/2027	102.84102	100.7925988	98.79596922	96.84945953	94.95146534	93.10044639	91.29492344	89.5334753	87.81473604
200512A00014	5/12/2020	1.17	5/12/2027	102.84102	100.7925988	98.79596922	96.84945953	94.95146534	93.10044639	91.29492344	89.5334753	87.81473604
200512A00017	5/12/2020	0.85	5/12/2025	100.05025	99.93158264	99.81321298	99.69513886	99.57735916	99.45987273	99.34267843	99.22577514	99.10916173
200512A00018	5/12/2020	0.85	5/12/2025	100.05025	99.93158265	99.81321298	99.69513886	99.57735916	99.45987273	99.34267843	99.22577514	99.10916173
200512A00020	5/12/2020	0.86	5/12/2025	100.05152	99.93266381	99.81410439	99.6958411	99.57787279	99.46019832	99.34281654	99.22572633	99.10892655
200512A00021	5/12/2020	0.86	5/12/2025	100.05152	99.93266381	99.81410439	99.6958411	99.57787279	99.46019832	99.34281654	99.22572633	99.10892655
200513A00003	5/13/2020	0.68	5/13/2025	100.01229	99.97622344	99.94019937	99.90421892	99.86828199	99.83238851	99.79653839	99.76073154	99.72496786
200514A00008	5/14/2020	1.23	5/14/2030	105.67879	101.3163145	97.17586981	93.24473616	89.51100055	85.9634973	82.59175679	79.38595807	76.33688502

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200518A00019	5/19/2020	0.9	5/19/2025	100.02523	99.97255922	99.91995866	99.86743007	99.8149733	99.7625882	99.71027463	99.65803243	99.60586145
200520A00009	5/20/2020	1.63	5/20/2038	109.61029	99.7371181	90.97092331	83.17627493	76.23525727	70.04510213	64.51615608	59.57013086	55.13859619
200521A00005	5/21/2020	0.75	5/21/2030	102.51879	99.93059711	97.4411835	95.04591256	92.7404016	90.52050461	88.38229783	86.32206632	84.33629137
200521A00013	5/21/2020	2.09	5/21/2035	115.19987	105.0536416	95.89345122	87.61808409	80.13719675	73.37010213	67.24469341	61.69649262	56.66780898
200521A00015	5/21/2020	2.14	5/21/2036	115.99079	104.9052207	94.99019885	86.11552843	78.16611691	71.04015649	64.6475308	58.9084196	53.75207621
200521A00016	5/21/2020	2.18	5/21/2037	116.49796	104.5097664	93.88694301	84.46603359	76.10393905	68.67528817	62.07016208	56.19212066	50.95648952
200521A00017	5/21/2020	2.22	5/21/2038	117.08016	104.2065542	92.90394638	82.97112775	74.2336341	66.54007258	59.75896807	53.776054	48.4919433
200522A00009	5/22/2020	0.96	5/22/2030	102.87409	100.2574457	97.74410892	95.32908597	93.00766503	90.77539526	88.62807049	86.5617141	84.57256491
200527A00012	5/27/2020	1.2	5/27/2027	102.95155	100.8727105	98.8460889	96.87002615	94.94292756	93.06326085	91.22955314	89.44038819	87.69440374
200527A00013	5/27/2020	1.13	11/25/2026	101.95944	100.3911594	98.85465483	97.34903167	95.87342792	94.42701338	93.00898811	91.61858104	90.25504873
200527A00014	5/27/2020	1.06	5/27/2026	101.09239	100.0097022	98.95004692	97.91269377	96.89694512	95.90213215	94.92761339	93.97277331	93.03702104
200527A00015	5/27/2020	0.99	11/26/2025	100.41783	99.83819992	99.26523693	98.69882631	98.13885618	97.58521722	97.03780255	96.49650767	95.96123045
200527A00016	5/27/2020	0.92	5/27/2025	100.03693	99.96209008	99.88737263	99.81277394	99.73829374	99.66393173	99.58968766	99.51556124	99.44155219
200529A00022	6/1/2020	0.98	6/1/2026	101.02341	99.92738322	98.85495879	97.80538287	96.77793223	95.77191386	94.78666342	93.82154373	92.87594343
200601A00009	6/1/2020	0.84	6/2/2025	100.0377	99.94626128	99.85499119	99.76389056	99.67295892	99.58219578	99.4916007	99.40117318	99.31091277
200604A00005	6/4/2020	0.89	6/4/2025	100.04487	99.9478955	99.85111456	99.75452735	99.65813329	99.56193177	99.4659222	99.370104	99.27447657
200604A00009	6/4/2020	0.7	6/4/2025	100.03394	99.936893	99.84004457	99.74339085	99.64693125	99.55066516	99.45459197	99.35871107	99.26302188
200604A00010	6/4/2020	0.89	6/4/2025	100.04487	99.9478955	99.85111456	99.75452735	99.65813329	99.56193177	99.4659222	99.370104	99.27447657
200604A00012	6/4/2020	1.59	6/4/2030	108.48723	103.3029823	98.39603725	93.75012788	89.35003068	85.18148936	81.23114812	77.48649001	73.93577978
200604A00013	6/4/2020	2.21	6/4/2035	116.4329	106.191529	96.94697524	88.59668173	81.04914231	74.22265605	68.0442315	62.44861839	57.37745123
200604A00014	6/4/2020	2.42	6/4/2040	121.18226	106.3477409	93.55459189	82.50793424	72.95698488	64.68826413	57.51987852	51.29670404	45.8863244
200605A00005	6/5/2020	0.99	6/5/2025	100.05616	99.95641136	99.85686857	99.7575319	99.65840068	99.55947426	99.46075197	99.36223318	99.26391722
200605A00014	6/5/2020	1.02	6/5/2025	100.10938	99.92699561	99.74528132	99.56423481	99.38385239	99.20413035	99.02506504	98.84665284	98.66889015
200605A00016	6/5/2020	1.02	6/5/2025	100.10938	99.92699561	99.74528132	99.56423481	99.38385239	99.20413035	99.02506504	98.84665284	98.66889015
200605A00017	6/5/2020	1.02	6/5/2025	100.10938	99.92699561	99.74528132	99.56423481	99.38385239	99.20413035	99.02506504	98.84665284	98.66889015
200605A00018	6/5/2020	0.91	6/5/2025	100.08926	99.90690532	99.72522196	99.54420628	99.36385457	99.18416315	99.00512837	98.82674658	98.6490142
200608A00001	6/8/2020	1.34	6/7/2030	106.20612	101.7784329	97.57827995	93.59250375	89.80878297	86.21557744	82.80207402	79.55813647	76.47425918
200610A00006	6/10/2020	1.11	6/10/2027	102.82306	100.7041134	98.64016179	96.62937553	94.66999993	92.76035318	90.89882264	89.0838613	87.31398456
200611A00010	6/11/2020	1.08	6/11/2027	102.76133	100.6433546	98.57932809	96.56750422	94.60620826	92.69383235	90.82883235	89.00972474	87.23508371
200611A00011	6/11/2020	1.2	6/9/2028	104.42003	101.2905315	98.2705459	95.3556144	92.54148653	89.82411054	87.19962279	84.66433769	82.21473833
200611A00019	6/11/2020	0.88	12/11/2025	100.39281	99.772082	99.15900683	98.553443	97.955253	97.36430268	96.78046113	96.20360057	95.6335963
200611A00020	6/11/2020	0.81	6/11/2025	100.0446	99.92827061	99.81222868	99.69647017	99.58099399	99.46579909	99.35088438	99.23624881	99.12189132
200612A00004	6/12/2020	1.42	6/12/2040	106.43239	98.7224161	91.79360885	85.55491101	79.92685536	74.83998838	70.23352315	66.05418309	62.25520838

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200615A00019	6/17/2020	1.34	6/16/2025	100.11912	99.98889644	99.85902794	99.72951159	99.60034591	99.47152944	99.34306072	99.21493832	99.08716078
200616A00005	6/16/2020	0.74	6/17/2030	102.54136	99.8955315	97.35231678	94.90683341	92.55447064	90.29086957	88.11190771	86.01368442	83.99250756
200623A00028	6/23/2020	1.23	6/23/2038	105.83073	99.16949565	93.09040271	87.53457479	82.44967372	77.7891178	73.51140267	69.57950693	65.96037141
200626A00014	6/26/2020	0.62	6/26/2025	100.043	99.88508733	99.72767843	99.57077176	99.41436489	99.25845544	99.10304102	98.94811926	98.7936878
200629A00020	6/29/2020	1.4	6/28/2030	107.5544	102.3282981	97.38519979	92.70831307	88.28193345	84.09136631	80.12285633	76.36352228	72.80129674
200629A00021	6/29/2020	1.21	6/29/2028	104.52645	101.3399477	98.2665082	95.30145716	92.44034408	89.67893029	87.01317731	84.43923603	81.95343641
200629A00023	6/29/2020	0.95	6/29/2026	101.09108	99.91765346	98.77125181	97.65094761	96.55585882	95.48514272	94.43799374	93.41364145	92.41134864
200708A00011	7/10/2020	2.87	7/10/2031	117.20703	110.6828341	104.5687007	98.83662515	93.46066326	88.41676879	83.6826446	79.2376061	75.06245616
200709A00002	7/10/2020	1.66	7/10/2025	100.2448	100.0481081	99.85219783	99.65706695	99.46271074	99.26912452	99.07630365	98.88424354	98.69293963
200709A00003	7/10/2020	1.63	7/10/2026	101.95435	100.7451425	99.56446445	98.41131343	97.28473576	96.18382137	95.10770134	94.0555456	93.02656073
200709A00004	7/10/2020	1.4	7/10/2025	100.19355	99.99693012	99.80108959	99.60602823	99.41174132	99.21822419	99.02547221	98.83348078	98.64224533
200709A00005	7/10/2020	2.23	7/10/2030	111.96326	106.5912102	101.5098957	96.7020217	92.15141923	87.84296334	83.7624997	79.89677692	76.23338386
200709A00006	7/10/2020	2.58	7/10/2030	113.81373	108.3937646	103.2663921	98.41423606	93.82104334	89.47160959	85.35170537	81.44800821	77.74803973
200709A00007	7/10/2020	1.67	7/9/2027	104.1866	101.9758925	99.82292983	97.7257855	95.68261323	93.69164342	91.75117928	89.85959315	88.01532305
200709A00008	7/10/2020	1.88	7/10/2026	102.25681	101.0456635	99.86307823	98.70805082	97.57962675	96.47689517	95.39898638	94.34506957	93.31435061
200709A00019	7/9/2020	0.77	7/9/2025	100.1046	99.82638908	99.54973741	99.27462994	99.00105368	98.72899577	98.45844352	98.18938436	97.92180588
200709A00021	7/9/2020	0.83	7/9/2025	100.12136	99.8431156	99.5664264	99.29128158	99.01766816	98.74557327	98.47498422	98.20588844	97.93827352
200709A00025	7/9/2020	1.37	7/9/2030	106.85529	101.9908269	97.38707943	93.02854887	88.90074622	84.99011939	81.28398731	77.77047904	74.43847748
200716A00004	7/16/2020	0.97	7/16/2027	102.63673	100.4297569	98.28209594	96.19177304	94.15689022	92.17562624	90.24623282	88.3670312	86.53640876
200720A00012	7/20/2020	0.77	7/15/2025	100.07498	99.86472344	99.65536692	99.44690195	99.23932276	99.03262365	98.82679894	98.62184302	98.41775033
200720A00034	7/20/2020	0.77	7/21/2025	100.0817	99.85488461	99.62911161	99.40437053	99.18065425	98.9579557	98.7362679	98.51558392	98.2958969
200720A00035	7/20/2020	1.81	7/20/2035	112.40352	102.2468509	93.09525355	84.84390892	77.39943036	70.67856374	64.60704122	59.11857002	54.15393951
200720A00037	7/22/2020	2.1	7/21/2025	100.38445	100.1571731	99.93094067	99.70574175	99.48156922	99.25841601	99.03627512	98.81513961	98.59500261
200720A00039	7/22/2020	2.48	7/21/2025	100.47095	100.2435412	100.0171775	99.79184781	99.56754493	99.34426181	99.12199146	98.90072695	98.68046139
200720A00042	7/22/2020	2.04	7/21/2026	102.52438	101.281051	100.0677561	98.88341465	97.72699973	96.59753258	95.49407971	94.41575029	93.36169376
200720A00044	7/22/2020	2.22	7/21/2026	102.74765	101.5028574	100.2881221	99.10236395	97.94455558	96.81371755	95.70891574	94.62925874	93.57389543
200724A00011	7/24/2020	1.41	7/26/2038	107.34193	97.39814705	88.59179895	80.78143765	73.84416604	67.67309937	62.17518981	57.26935739	52.88488259
200730A00011	7/30/2020	1.15	7/28/2028	104.42568	101.1633409	98.01918152	94.98820702	92.0656665	89.24704127	86.52803166	83.90454469	81.3726826
200803A00011	8/3/2020	0.72	8/4/2025	100.08495	99.81954777	99.55555117	99.29295273	99.03174136	98.77190604	98.5134359	98.25632018	98.00054823
200811A00003	8/11/2020	0.57	8/11/2025	100.07282	99.78791315	99.50464188	99.22298957	98.94294225	98.66448611	98.38760751	98.11229296	97.83852914
200812A00004	8/12/2020	0.59	8/12/2025	100.0796	99.79192497	99.50591787	99.22156136	98.93884105	98.65774276	98.37825242	98.10035615	97.82404025
200813A00019	8/13/2020	1.44	8/13/2030	107.25246	102.2956241	97.60852959	93.17497796	88.9798263	85.00891395	81.24899385	77.68766905	74.31333393
200813A00020	8/13/2020	1.44	8/13/2030	107.25246	102.2956241	97.60852959	93.17497796	88.9798263	85.00891395	81.24899385	77.68766905	74.31333393

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200813A00023	8/13/2020	0.86	10/14/2025	100.31091	99.76901575	99.23298875	98.70273805	98.17817041	97.65919459	97.14572128	96.63766311	96.1349345
200814A00003	8/14/2020	0.96	8/14/2035	104.23508	99.00748484	94.14885316	89.62875455	85.41953456	81.4960446	77.83539635	74.41674176	71.2210759
200814A00009	8/18/2020	1.36	8/16/2028	105.18967	101.8638283	98.65994545	95.5728736	92.59771467	89.72980542	86.96470458	84.29818088	81.72620176
200814A00011	8/18/2020	1.58	8/16/2030	108.60301	103.2199682	98.13453881	93.32875341	88.78581999	84.49004081	80.4267353	76.58216887	72.943487
200818A00004	8/18/2020	0.92	8/18/2026	101.23291	99.93230299	98.65844193	97.41051369	96.18773548	94.98935624	93.81465505	92.66293957	91.53354464
200818A00005	8/18/2020	1.05	8/18/2027	102.95229	100.6485101	98.40734505	96.22670773	94.10459212	92.03907283	90.02830121	88.0705017	86.16396838
200818A00006	8/18/2020	1.18	8/18/2028	104.59274	101.2715234	98.07235431	94.99008607	92.0198166	89.15687818	86.39682479	83.73542014	81.16862652
200818A00007	8/18/2020	1.31	8/20/2029	106.30837	101.9571479	97.80693775	93.84742044	90.0688659	86.46209187	83.01843	79.72969434	76.58815181
200818A00008	8/18/2020	1.5	8/18/2031	108.60159	102.240427	96.28991528	90.72149535	85.5087373	80.62716842	76.05411866	71.76857897	67.75107154
200818A00009	8/18/2020	1.7	8/18/2033	110.78455	102.4533614	94.80833568	87.78948349	81.34234289	75.41744578	69.96983683	64.95864093	60.34667415
200818A00010	8/18/2020	1.88	8/20/2035	113.13143	102.8636147	93.61816861	85.28784612	77.77715124	71.00100092	64.88354297	59.35711342	54.36131611
200818A00012	8/18/2020	0.97	8/18/2027	102.7415	100.4504682	98.22305308	96.05713073	93.95066048	91.90168155	89.90830937	87.96873217	86.08120774
200824A00020	8/26/2020	1.57	8/26/2025	100.38989	100.0632975	99.73883546	99.41647924	99.0962084	98.77800271	98.46184222	98.14770723	97.8355783
200825A00007	8/27/2020	4.79	8/27/2026	106.46192	105.1052646	103.7737727	102.4667818	101.1836501	99.92375803	98.68650764	97.4713213	96.27764101
200826A00019	8/26/2020	0.98	8/26/2026	101.34073	100.0223644	98.72878762	97.45933283	96.21335736	94.99024139	93.7893869	92.6102167	91.45217356
200826A00021	8/26/2020	0.83	8/26/2025	100.14753	99.82143674	99.49746666	99.17560005	98.85581644	98.53809564	98.22241772	97.90876299	97.59711203
200827A00007	8/27/2020	0.77	8/27/2025	100.12923	99.80041602	99.47376437	99.14924972	98.82685114	98.50654797	98.18831983	97.8721466	97.5580084
200828A00002	8/28/2020	0.73	8/28/2026	101.11821	99.79547384	98.4970649	97.22235079	95.97072317	94.74159439	93.53439663	92.348581	91.1836168
200909A00001	9/9/2020	0.98	9/8/2028	104.25526	100.8760206	97.62306101	94.49102897	91.47482417	88.56958788	85.77069021	83.07371813	80.47446416
200910A00006	9/10/2020	0.96	9/10/2027	102.78503	100.4384761	98.15858638	95.94308516	93.78978547	91.6965881	89.66147748	87.68251781	85.75784943
200911A00011	9/11/2020	1.18	9/11/2030	105.95928	100.9880003	96.29099004	91.85155908	87.65411606	83.68409479	79.92788157	76.37274807	73.00678926
200911A00012	9/11/2020	1.18	9/11/2030	105.95928	100.9880003	96.29099004	91.85155908	87.65411606	83.68409479	79.92788157	76.37274807	73.00678926
200911A00013	9/11/2020	0.69	9/11/2025	100.16157	99.71201434	99.26650407	98.82498777	98.38741174	97.95372321	97.52387039	97.09780237	96.67546917
200916A00015	9/16/2020	0.72	9/16/2025	100.13932	99.75550118	99.37462594	98.99666264	98.62157787	98.24933874	97.87991285	97.5132683	97.14937367
200922A00015	9/24/2020	1.09	9/24/2025	100.30115	99.89494983	99.4920345	99.09236651	98.69590668	98.30261645	97.91245789	97.52539367	97.14138706
200922A00027	9/24/2020	1.65	9/23/2025	100.52566	100.121666	99.7209175	99.32337735	98.92900705	98.53776875	98.14962518	97.76453968	97.38247616
200922A00034	9/24/2020	2.24	9/23/2026	103.24385	101.8373942	100.4569287	99.10179092	97.7713446	96.46497428	95.18208447	93.92209892	92.68445978
200922A00036	9/24/2020	1.55	9/23/2025	100.48514	100.0812469	99.68059602	99.28315292	98.88887911	98.49773673	98.10968854	97.72469786	97.34272862
200922A00037	9/24/2020	2.76	9/23/2025	100.9754	100.570318	100.1684859	99.76986851	99.37442721	98.98212411	98.5929219	98.20678385	97.8236738
200922A00039	9/24/2020	3	9/23/2025	101.07265	100.6673238	100.2652575	99.86640713	99.47073427	99.07820095	98.68876984	98.30240421	97.91906789
200925A00002	9/25/2020	0.74	9/25/2025	100.15979	99.75118157	99.34590361	98.94391325	98.54517059	98.14963638	97.757272	97.36803943	96.98190127
200925A00008	9/25/2020	0.74	9/25/2025	100.15979	99.75118157	99.34590361	98.94391325	98.54517059	98.14963638	97.757272	97.36803943	96.98190127
200928A00003	9/28/2020	0.55	9/26/2025	100.115	99.70338119	99.29513683	98.89022955	98.48861852	98.09026361	97.6951253	97.30316474	96.91434369

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200928A00009	9/28/2020	1.51	9/28/2032	108.96549	101.5340006	94.65728798	88.29120947	82.39533759	76.93263373	71.86914856	67.17375023	62.81787777
201001A00011	10/1/2020	0.71	6/17/2025	100.0377	99.90479304	99.77225618	99.64008545	99.5082793	99.37683618	99.24575456	99.11503291	98.9846697
201001A00012	10/1/2020	0.74	9/16/2025	100.14704	99.76319846	99.38230542	99.00432442	98.62922206	98.25696543	97.88752214	97.52086028	97.15694844
201007A00008	10/7/2020	1.22	10/7/2030	106.02189	101.1297003	96.50774677	92.13947887	88.00944569	84.10322138	80.40733164	76.90918599	73.59701511
201007A00010	10/7/2020	1.22	10/7/2030	106.02189	101.1297003	96.50774677	92.13947887	88.00944569	84.10322138	80.40733164	76.90918599	73.59701511
201007A00014	10/7/2020	0.8	10/7/2025	100.26254	99.74077359	99.22445881	98.71350715	98.20783517	97.70736115	97.21200505	96.72168849	96.23633465
201015A00003	10/15/2020	0.75	10/15/2025	100.19707	99.73344123	99.27409747	98.81898269	98.36803857	97.92120785	97.47843429	97.03966273	96.60483896
201015A00020	10/15/2020	0.94	10/15/2027	102.84209	100.4056695	98.04076659	95.74484615	93.51548117	91.35034601	89.24721152	87.2039403	85.21848231
201015A00024	10/19/2020	1.53	10/18/2027	104.37308	101.8858562	99.47055272	97.12467624	94.84583993	92.63175373	90.48021978	88.38912814	86.35645265
201015A00025	10/19/2020	1.54	10/18/2027	104.39813	101.9105942	99.49498095	97.14880149	94.86966881	92.65529265	90.50347497	88.41210563	86.3791583
201015A00030	10/19/2020	2.39	10/18/2027	106.52779	104.013326	101.5713801	99.19944748	96.89512355	94.65610112	92.4801659	90.3651921	88.30913836
201015A00032	10/19/2020	2.33	10/19/2026	103.5734	102.0938972	100.6430172	99.22000338	97.82412351	96.45467063	95.11096182	93.7923372	92.49815896
201019A00005	10/19/2020	0.79	10/20/2025	100.22493	99.74748865	99.27459372	98.80617783	98.34217745	97.88253028	97.42717516	96.97605209	96.5291022
201021A00011	10/21/2020	1.11	10/21/2027	103.33117	100.8491249	98.43915684	96.09876671	93.82555363	91.61721445	89.47153907	87.38640607	85.35977862
201021A00012	10/21/2020	1.85	10/19/2035	112.82978	102.4313962	93.08379283	84.6751711	77.10614855	70.28832607	64.14302522	58.60017625	53.59733809
201022A00012	10/26/2020	2.25	10/24/2030	112.47056	106.7974963	101.4466927	96.39817982	91.63332408	87.13473378	82.88616999	78.87246441	75.0794435
201028A00003	10/30/2020	1.42	2/27/2026	101.06648	100.2286913	99.4047252	98.59424048	97.79690862	97.01241172	96.24044203	95.48070156	94.73290171
201028A00005	10/30/2020	1.85	10/31/2025	100.78638	100.2770721	99.77289859	99.27377758	98.77963345	98.29039213	97.80598101	97.32632891	96.85136604
201028A00011	10/28/2020	0.91	4/28/2026	100.83104	99.82952093	98.84775267	97.88516057	96.9411877	96.01529852	95.10697784	94.21572984	93.34107721
201029A00002	10/29/2020	0.59	10/29/2025	100.17999	99.67749212	99.18001349	98.68748187	98.1998238	97.71696725	97.23884161	96.76537766	96.29650749
201029A00004	10/29/2020	1.49	10/29/2038	108.13673	97.99343637	89.02760362	81.09054326	74.05336745	67.80424282	62.24603719	57.29430285	52.87554659
201030A00001	11/2/2020	2.54	10/29/2040	123.54082	108.2075774	95.02570705	83.67797256	73.89556781	65.45050114	58.14921255	51.8272161	46.34459866
201030A00002	11/2/2020	2.8	10/29/2040	127.44404	111.8261055	98.38820198	86.80977283	76.81910986	68.18568322	60.71370987	54.23675413	48.61319044
201030A00003	11/2/2020	2.58	10/29/2040	124.14131	108.764274	95.54301396	84.15978798	74.34534351	65.87129838	58.5437506	52.19791426	46.69361278
201030A00004	11/2/2020	2.56	10/29/2040	123.84106	108.4859257	95.2843605	83.91888027	74.12045566	65.66089976	58.34648157	52.01256518	46.51910572
201030A00005	11/2/2020	2.49	10/29/2040	122.7902	107.5117066	94.3790734	83.07570328	73.33334819	64.92450459	57.65603999	51.3638434	45.90833101
201030A00012	10/30/2020	0.63	10/30/2025	100.20181	99.69649767	99.19625986	98.70102123	98.21070719	97.72524463	97.24456188	96.76858868	96.29725613
201030A00016	10/30/2020	1.14	10/8/2027	103.36042	100.9126985	98.53508555	96.22518396	93.98068989	91.79939184	89.67916636	87.61797395	85.61385524
201030A00017	10/30/2020	1.14	10/15/2027	103.38528	100.9185619	98.52302271	96.19620838	93.93576274	91.73942485	89.60502453	87.53047807	85.51378428
201030A00018	10/30/2020	1.15	10/22/2027	103.43531	100.9492678	98.53549116	96.19146607	93.9147832	91.70313139	89.554293	87.46613945	85.43662713
201030A00019	10/30/2020	1.15	10/29/2027	103.46036	100.9553128	98.5236078	96.16268049	93.87006804	91.64340869	89.48043701	87.37897925	85.33694908
201103A00005	11/3/2020	0.89	11/4/2030	102.89639	100.0395408	97.3007614	94.67411363	92.15400204	89.73515232	87.4125906	85.18162426	83.03782415
201105A00003	11/6/2020	2.24	11/4/2030	112.45329	106.7508591	101.373968	96.30234145	91.51707032	87.00051211	82.73619962	78.70875677	74.9038208

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
201105A00016	11/9/2020	2.18	11/8/2027	106.14075	103.573547	101.0818866	98.66309826	96.31462584	94.03401911	91.81892886	89.66710201	87.57637704
201109A00012	11/9/2020	1.39	11/8/2030	107.09321	101.9504068	97.09805765	92.51806061	88.19353729	84.10874718	80.24900473	76.60060294	73.15074299
201110A00003	11/10/2020	1.12	11/10/2027	103.3772	100.8686541	98.4351129	96.07385946	93.78229534	91.55793373	89.39839372	87.30139501	85.26475288
201116A00024	11/18/2020	2.36	11/15/2034	117.50402	107.7224569	98.8452266	90.78370627	83.45838397	76.79788379	70.73809579	65.2214028	60.19599313
201116A00025	11/18/2020	1.96	11/15/2032	112.438	104.7553989	97.65264607	91.08298612	85.00365783	79.37553633	74.16280664	69.33266796	64.85506582
201118A00009	11/18/2020	0.61	11/18/2025	100.22709	99.66949412	99.11809166	98.57277571	98.0334458	97.50000366	96.97235318	96.45040031	95.93405305
201119A00021	11/23/2020	2.22	11/21/2030	112.40377	106.6554883	101.2377098	96.1297069	91.31215981	86.76705201	82.47757582	78.42804506	74.60381449
201119A00023	11/23/2020	2.23	11/21/2030	112.46036	106.7105149	101.2912354	96.18179287	91.36286433	86.81643042	82.52568075	78.47492659	74.64952027
201123A00010	11/25/2020	1.48	11/24/2025	100.69519	100.1201471	99.55165247	98.98959818	98.43387518	97.88437692	97.34099922	96.80364023	96.27220033
201123A00011	11/25/2020	1.41	11/24/2025	100.65479	100.0798811	99.51151803	98.94959417	98.39400055	97.84463064	97.30138028	96.76414761	96.23283304
201203A00005	12/3/2020	0.78	12/3/2026	101.56101	99.97197717	98.41544892	96.89049893	95.39623413	93.93179491	92.4963535	91.0891125	89.70930349
201204A00015	12/8/2020	1.07	12/8/2025	100.50181	99.88893908	99.28352019	98.68541803	98.09450048	97.51063862	96.93370659	96.3635815	95.80014337
201207A00009	12/7/2020	1.01	12/7/2027	103.17647	100.6035977	98.10934789	95.69079855	93.34516249	91.06977573	88.86209113	86.71967226	84.64018774
201207A00021	12/7/2020	1.85	12/7/2050	113.18205	100.1508702	89.15980314	79.84511791	71.91312239	65.12593653	59.29027609	54.248588	49.87202709
201208A00029	12/10/2020	1.52	12/9/2025	100.78344	100.1668396	99.55776873	98.95608883	98.36166583	97.77436892	97.19407045	96.62064578	96.05397323
201210A00021	12/10/2020	0.89	12/10/2027	103.14737	100.5266178	97.98526693	95.52042582	93.12932639	90.80931993	88.55787099	86.37255169	84.25103634
201211A00001	12/11/2020	0.95	12/11/2030	104.86912	100.1201613	95.63560265	91.398977	87.39494388	83.6092024	80.02841476	76.64013589	73.43274854
201215A00001	12/15/2020	0.76	12/15/2025	100.32727	99.6957985	99.07224829	98.45647311	97.84832811	97.24767205	96.65436714	96.06827898	95.4892764
201216A00004	12/16/2020	0.74	9/8/2025	100.1357	99.77387849	99.41467096	99.05805145	98.70399198	98.35246499	98.00344329	97.65690011	97.31280904
201216A00013	12/16/2020	0.59	12/16/2025	100.27121	99.63654945	99.00989931	98.39110559	97.78002111	97.17650239	96.58040948	95.99160586	95.40995836
201218A00014	12/18/2020	0.57	12/18/2025	100.26251	99.62238716	98.99041274	98.36642864	97.75028394	97.14183151	96.54092791	95.94743322	95.36121098
201221A00014	12/21/2020	0.76	12/19/2025	100.33665	99.69416354	99.05987902	98.43363772	97.8152873	97.20467928	96.60166885	96.00611482	95.41787947
201221A00015	12/21/2020	0.88	12/4/2026	101.59777	100.0079592	98.45066734	96.92496895	95.42996996	93.96480983	92.52865993	91.12072207	89.74022703
201221A00022	12/21/2020	0.51	12/19/2025	100.2791	99.56529022	98.86172172	98.16817155	97.48442611	96.81027784	96.14552501	95.48997154	94.84342678
201223A00012	12/23/2020	0.91	12/18/2026	101.70224	100.0741275	98.47982646	96.91835464	95.38876393	93.89014264	92.42161374	90.98233319	89.57148836
201223A00013	12/23/2020	0.9	12/11/2026	101.6579	100.0488776	98.47301755	96.92936661	95.41700385	93.9350433	92.48263225	91.05894968	89.66320478
201228A00013	12/28/2020	0.84	12/30/2030	102.77735	99.88171877	97.10732726	94.44800802	91.89795019	89.45168002	87.10403903	84.85016365	82.68546639
210104A00006	11/22/2021	0.88	11/20/2026	101.54001	99.9890207	98.46931353	96.98001129	95.5202719	94.08928397	92.68626545	91.31046227	89.96114708
210104A00007	11/23/2021	0.88	11/23/2026	101.55264	99.99325622	98.46541011	96.96822013	95.5008332	94.06242758	92.65221137	91.26942114	89.91332072
210104A00009	12/20/2021	0.89	12/18/2026	101.66909	100.0412615	98.44723936	96.88604142	95.35671975	93.85836279	92.39009363	90.95106835	89.54047444
210104A00010	11/22/2021	0.88	11/20/2026	101.54001	99.9890207	98.46931353	96.98001129	95.5202719	94.08928397	92.68626545	91.31046227	89.96114708
210104A00011	11/23/2021	0.88	11/23/2026	101.55264	99.99325622	98.46541011	96.96822013	95.5008332	94.06242758	92.65221137	91.26942114	89.91332072
210104A00012	12/20/2021	0.89	12/18/2026	101.66909	100.0412615	98.44723936	96.88604142	95.35671975	93.85836279	92.39009363	90.95106835	89.54047444

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
210107A00007	1/7/2021	0.84	1/7/2026	100.51548	99.74443144	98.98524047	98.23763321	97.50134565	96.77612175	96.06171314	95.35787887	94.66438506
210114A00009	1/19/2021	2.66	1/17/2030	113.20122	108.284232	103.6110186	99.16815126	94.94301656	90.92376368	87.09925354	83.45901185	79.99318546
210125A00006	1/27/2021	2.16	1/26/2027	104.06474	102.3109955	100.5953084	98.9165068	97.27346678	95.66511043	94.09040355	92.54835335	91.03800638
210125A00007	1/27/2021	2.98	1/27/2031	117.05932	110.9981237	105.2929621	99.92095924	94.86083577	90.09278729	85.59837363	81.36041737	77.3629103
210127A00008	1/27/2021	0.93	1/27/2027	101.89646	100.159748	98.46083827	96.79855889	95.17179118	93.57946253	92.02054384	90.49404738	88.99902457
210127A00009	1/27/2021	1.3	7/27/2029	106.1954	101.910595	97.82118197	93.91717555	90.18915984	86.62825324	83.22607464	79.97471197	76.86669301
210127A00010	1/27/2021	1.41	7/26/2030	107.65419	102.3516333	97.33987064	92.6014233	88.11996159	83.88022059	79.86792459	76.06971727	72.47309735
210201A00001	2/1/2021	0.77	12/16/2025	100.336	99.70174835	99.07549178	98.45707727	97.84635812	97.24319128	96.64743722	96.05895983	95.47762634
210201A00002	2/1/2021	1.19	2/1/2036	105.08884	99.59020421	94.49554113	89.77023004	85.38293196	81.30525225	77.51144184	73.97813075	70.68409029
210201A00003	2/2/2021	0.74	10/15/2025	100.19241	99.72879203	99.26946089	98.81435864	98.36342696	97.9166086	97.47384733	97.03508797	96.60027632
210201A00012	2/3/2021	0.75	11/17/2025	100.25956	99.7051581	99.15686966	98.61459698	98.07824134	97.54770622	97.02289716	96.50372175	95.99008956
210208A00004	2/11/2021	0.76	10/15/2025	100.20174	99.73809042	99.27873405	98.82360675	98.37265018	97.92580709	97.48302126	97.04423749	96.6094016
210208A00008	2/11/2021	0.78	11/17/2025	100.27629	99.72183616	99.17349494	98.63116989	98.09476231	97.56417563	97.03931541	96.52008923	96.00640665
210209A00029	2/12/2021	0.8	12/15/2025	100.35269	99.7211224	99.09748237	98.48161815	97.87338489	97.27264134	96.67924971	96.09307556	95.51398773
210212A00004	2/12/2021	1.1	2/12/2036	105.02903	99.52133396	94.41890472	89.68696294	85.29403183	81.21159541	77.41379785	73.87717514	70.58041576
210212A00006	2/12/2021	0.77	2/12/2026	100.54681	99.6876129	98.84313898	98.01301417	97.19687438	96.39436773	95.60515409	94.82890458	94.06530109
210212A00007	2/12/2021	0.76	2/12/2026	100.53571	99.67972569	98.83839321	98.01133682	97.1981945	96.39861642	95.61226442	94.8388115	94.07794137
210212A00008	2/12/2021	0.95	10/13/2026	101.49344	100.0460637	98.62642514	97.23379597	95.86747403	94.52678104	93.21106157	91.91968202	90.65202979
210212A00014	2/17/2021	1.38	2/17/2026	100.98993	100.1799922	99.38299822	98.59863513	97.8266045	97.06661723	96.31839321	95.58166093	94.85615722
210216A00006	2/16/2021	1.44	2/15/2030	107.83461	102.9500553	98.3135127	93.9111157	89.72984913	85.75748943	81.9825522	78.39424346	74.98241446
210216A00007	2/16/2021	1.3	2/16/2029	105.97577	102.124982	98.43394505	94.89518448	91.5016197	88.24653903	85.12357816	82.12670016	79.25017672
210216A00008	2/16/2021	0.71	2/17/2026	100.50943	99.70076431	98.90503873	98.12194635	97.35118828	96.59247496	95.84552587	95.11006912	94.38584114
210216A00009	2/16/2021	0.92	2/16/2027	102.12071	100.3212368	98.56196121	96.84169992	95.15931291	93.5137029	91.90381338	90.32862665	88.78716207
210216A00011	2/17/2021	0.83	12/15/2025	100.37175	99.74011533	99.11640793	98.50047693	97.89217748	97.29136831	96.69791163	96.11167299	95.53252123
210217A00005	2/17/2021	0.83	2/14/2031	103.04272	100.0530539	97.19179373	94.45225584	91.82815196	89.31356625	86.90293069	84.59100226	82.37284168
210218A00010	2/18/2021	1.72	2/18/2031	109.74765	103.8320887	98.27094212	93.04118924	88.12141973	83.49171247	79.13352454	75.02958896	71.16382058
210218A00011	2/22/2021	0.85	10/24/2025	100.26176	99.77323327	99.28945649	98.81036165	98.335881	97.86594806	97.40049765	96.93946581	96.48278981
210219A00004	2/19/2021	0.91	2/19/2026	100.61384	99.80009306	98.99943765	98.21156272	97.43616425	96.67294781	95.92162817	95.18192893	94.45358221
210219A00008	2/22/2021	0.86	12/1/2025	100.35411	99.76096699	99.17479865	98.595486	98.02290944	97.45695213	96.89749991	96.34444124	95.79766712
210224A00002	2/25/2021	0.88	11/3/2025	100.29835	99.78225965	99.27145682	98.76586508	98.26540502	97.76999886	97.27957034	96.79404477	96.31334893
210224A00003	2/26/2021	0.9	12/3/2025	100.38344	99.78470328	99.19308019	98.6084434	98.03066979	97.45963911	96.89523388	96.33733938	95.78584349
210224A00004	2/26/2021	0.91	12/18/2025	100.43086	99.79077662	99.1588303	98.53486301	97.91872428	97.31026738	96.70934923	96.11583031	95.5295745
210224A00006	2/26/2021	0.88	10/21/2025	100.27022	99.7899112	99.31419528	98.84300959	98.37628956	97.91397183	97.45599424	97.00229582	96.5528167

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
210225A00003	3/1/2021	0.93	9/24/2025	100.23588	99.82983762	99.42708057	99.02756991	98.63126649	98.23813176	97.8481278	97.46121728	97.07736349
210225A00006	2/25/2021	0.98	2/25/2026	100.69023	99.85966437	99.04272147	98.23907012	97.44838826	96.67036416	95.904696	95.15109149	94.40926749
210225A00007	2/25/2021	1.79	8/23/2030	109.75292	104.3208341	99.18953738	94.34085466	89.75780322	85.42450532	81.32611071	77.44872506	73.77934358
210225A00012	3/1/2021	0.91	8/25/2025	100.172	99.84860743	99.52730731	99.20807732	98.89089746	98.575748	98.26260945	97.95146257	97.64228837
210225A00013	3/1/2021	0.93	10/6/2025	100.26092	99.82183525	99.38659019	98.95513498	98.52742022	98.10339738	97.68301874	97.26623742	96.85300734
210225A00016	3/1/2021	0.88	7/15/2025	100.09819	99.88789831	99.67850868	99.47001071	99.26239862	99.05566671	98.84980931	98.64482081	98.44069564
210226A00004	3/1/2021	1.04	12/5/2025	100.47397	99.86943453	99.2721474	98.68197954	98.09880424	97.52249777	96.95293932	96.39001091	95.83359726
210226A00012	2/26/2021	2.31	2/26/2036	117.80221	106.8276663	96.98731668	88.15750869	80.22866426	73.10361166	66.69612544	60.9296446	55.73614631
210302A00005	3/5/2021	0.92	9/10/2025	100.20498	99.83750087	99.47272323	99.11061455	98.7511455	98.3942872	98.0400112	97.68828945	97.33909432
210303A00006	3/4/2021	0.97	10/10/2025	100.28793	99.83778801	99.39168276	98.94956207	98.51137262	98.07706204	97.64657889	97.21987263	96.79689363
210304A00002	3/5/2021	0.93	7/10/2025	100.10091	99.90441609	99.70870161	99.51376591	99.31960429	99.12621206	98.9335846	98.74171732	98.55060565
210304A00006	3/4/2021	1.02	3/4/2026	100.74745	99.89739925	99.06161197	98.23973319	97.43141818	96.63633353	95.85415667	95.08457545	94.3272877
210305A00006	3/8/2021	1.02	8/11/2025	100.17917	99.89432348	99.61110434	99.32950065	99.04949852	98.77108422	98.49424419	98.218965	97.9452334
210305A00013	3/5/2021	2.41	3/5/2036	118.89341	107.8418046	97.93272909	89.04151201	81.05768167	73.88328715	67.43142327	61.62493583	56.39528403
210311A00007	3/11/2021	1.06	3/11/2026	100.8068	99.93723877	99.08260848	98.24252252	97.41661212	96.60452086	95.8059042	95.02042898	94.24777293
210312A00008	3/12/2021	1.13	3/12/2026	100.87176	99.9991468	99.14155849	98.29860908	97.46992624	96.6551502	95.85393316	95.06593886	94.29084209
210315A00003	3/15/2021	1.13	3/13/2026	100.87555	100.0001701	99.13991079	98.29438171	97.46320701	96.64602358	95.84248045	95.05223833	94.27496908
210319A00009	3/19/2021	1.1	3/19/2026	100.96665	100.0074653	99.06661736	98.14358151	97.23785418	96.34895063	95.47640408	94.61976491	93.77859987
210324A00002	3/24/2021	2.06	3/24/2031	111.8463	105.7772245	100.0760959	94.71874816	89.68272052	84.94712809	80.49254389	76.30089006	72.35533777
210324A00003	3/24/2021	1.18	3/24/2026	100.96273	100.0566962	99.16683595	98.29272202	97.43393953	96.590088	95.76078083	94.94564464	94.14431875
210330A00021	3/30/2021	2.16	3/28/2031	112.45663	106.3590607	100.631486	95.24957109	90.19070444	85.43386339	80.95949483	76.74940544	72.78666062
210330A00022	3/30/2021	1.27	3/30/2026	101.0697	100.1466332	99.24032746	98.35033326	97.47621373	96.61754747	95.77392786	94.94496243	94.13027223
210331A00007	3/31/2021	1.25	3/31/2031	104.17203	101.0717974	98.10773235	95.27260489	92.55962119	89.9623967	87.47492874	85.09157102	82.80701007
210407A00013	4/7/2021	1.23	4/7/2026	101.06586	100.1208112	99.19334441	98.28296962	97.38921791	96.51163738	95.6497924	94.80326285	93.97164345
210408A00007	4/8/2021	1.05	4/8/2031	103.79183	100.6977959	97.73984286	94.91073713	92.20368069	89.61228559	87.13054646	84.75281497	82.47377615
210409A00010	4/9/2021	1.05	4/9/2031	103.75438	100.6924808	97.76465358	94.96378245	92.28318674	89.71658823	87.25808401	84.90212152	82.64347534
210420A00009	4/20/2021	1.08	12/5/2025	100.49828	99.89365619	99.29628629	98.70603636	98.12277968	97.54639251	96.97675405	96.41374627	95.85725392
210420A00010	4/20/2021	1.08	12/12/2025	100.52089	99.8969706	99.28077093	98.67215272	98.07097658	97.47710652	96.89040988	96.31075717	95.738022
210420A00035	4/20/2021	1.92	4/20/2034	109.79277	103.7512846	98.14738135	92.94476706	88.11044347	83.61438468	79.42924995	75.53012602	71.89429565
210423A00001	4/23/2021	1.72	4/23/2036	108.65912	102.8783089	97.52865265	92.572674	87.97649495	83.70946336	79.74382138	76.05441022	72.61840705
210423A00003	4/23/2021	1.31	4/23/2031	104.6172	101.4979955	98.51603093	95.66400108	92.93504747	90.32272561	87.82097719	85.42410426	83.12674535
210428A00006	4/28/2021	1.23	4/28/2026	101.15333	100.1500617	99.1665725	98.20228288	97.25663539	96.32909398	95.41914295	94.52628601	93.65004539
210428A00007	4/28/2021	1.74	10/27/2028	106.8121	103.262604	99.85011667	96.56862035	93.41239572	90.37600482	87.45427549	84.64228683	81.93535563

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
210428A00008	4/28/2021	1.93	4/26/2030	110.10906	104.9890201	100.137492	95.53901898	91.17910924	87.04417439	83.1214684	79.39903112	75.86563585
210428A00015	4/28/2021	2.02	4/28/2031	111.68844	105.5293278	99.74948723	94.32361764	89.22823169	84.44151642	79.94320555	75.71446227	71.73777143
210429A00005	4/29/2021	2.08	4/29/2031	112.05675	105.8839662	100.0912649	94.65329119	89.54650336	84.74903848	80.24058427	76.00226158	72.01651625
210507A00008	5/7/2021	1.94	5/7/2031	111.21906	105.0499561	99.26231245	93.83059067	88.73108593	83.94178954	79.44225914	75.21349953	71.23785308
210507A00009	5/7/2021	2.02	5/7/2032	112.48553	105.3029881	98.62889755	92.42464193	86.65472801	81.28651617	76.28997733	71.63747168	67.30354724
210512A00011	5/12/2021	1.16	5/12/2026	101.23607	100.1328298	99.05380475	97.99820347	96.96526725	95.95426984	94.96451577	93.99533871	93.04610002
210512A00012	5/12/2021	1.16	5/12/2026	101.23607	100.1328298	99.05380475	97.99820347	96.96526725	95.95426984	94.96451577	93.99533871	93.04610002
210514A00007	5/14/2021	0.95	5/15/2028	101.86018	100.2717133	98.72422717	97.21632599	95.74667539	94.31399644	92.91706289	91.55469861	90.22577509
210514A00010	5/14/2021	1.34	5/14/2031	104.69948	101.5770807	98.59285298	95.73939443	93.00975438	90.39740473	87.89621136	85.50040757	83.20456964
210514A00033	5/18/2021	2.8	5/18/2028	109.30313	106.1576908	103.120045	100.1858827	97.3510948	94.61176026	91.96413635	89.40464944	86.92988623
210518A00023	5/18/2021	1.17	5/18/2026	101.17498	100.1165774	99.08018438	98.06512134	97.07073536	96.09639992	95.14151359	94.20549876	93.28780051
210525A00004	5/25/2021	1.02	12/19/2025	100.50473	99.86163377	99.22674592	98.5999067	97.9809637	97.36976833	96.76617573	96.17004462	95.58123722
210526A00014	5/26/2021	1.01	12/19/2025	100.49826	99.8551926	99.22032796	98.59351174	97.97459153	97.36341875	96.75984854	96.16373963	95.57495423
210526A00017	5/26/2021	2.13	5/26/2033	114.203	105.9498037	98.35662835	91.36721755	84.9303793	78.99950996	73.53216129	68.48965029	63.83670756
210526A00018	5/26/2021	1.11	5/26/2026	101.14282	100.0625925	99.00528481	97.97017417	96.95656789	95.9638018	94.99123885	94.03826767	93.10430137
210527A00019	5/27/2021	1	5/27/2026	101.11346	100.0293663	98.96835398	97.92969162	96.91267949	95.91664683	94.94095033	93.98497273	93.04812151
210527A00026	6/1/2021	2.78	6/1/2028	109.35124	106.166506	103.091906	100.1229914	97.25552437	94.48546348	91.80895325	89.22231436	86.72203446
210601A00002	6/1/2021	0.9	6/2/2025	100.0432	99.95175469	99.86048	99.76937477	99.67843854	99.58767082	99.49707116	99.40663908	99.31637412
210603A00015	6/7/2021	2.71	6/7/2028	109.17904	105.9800529	102.892178	99.9109123	97.03196113	94.25123001	91.56481385	88.96898695	86.46019353
210608A00017	6/10/2021	2.67	6/8/2029	111.76731	107.4999674	103.4205825	99.51984977	95.78897681	92.21965354	88.80402301	85.53465397	82.40451531
210609A00007	6/11/2021	2.6	6/11/2029	111.49586	107.2256351	103.1438773	99.24123732	95.50888336	91.93846921	88.52210458	85.25232754	82.12207869
210609A00013	6/11/2021	1.64	6/11/2025	100.14139	100.0249758	99.90884443	99.79299665	99.67743137	99.56214754	99.44714407	99.33241992	99.21797402
210610A00012	6/11/2021	1.9	6/10/2026	102.09293	100.9657448	99.8633483	98.7849266	97.72970423	96.69693882	95.68591936	94.6959646	93.72642148
210610A00014	6/11/2021	2.03	6/10/2026	102.23937	101.1113142	100.0080526	98.928779	97.87271743	96.83912523	95.82729111	94.8365335	93.86619907
210611A00006	6/11/2021	1.85	6/11/2031	110.7316	104.4838335	98.62779492	93.13691161	87.98654428	83.15384054	78.61759615	74.3581277	70.35715594
210611A00010	6/11/2021	1.02	6/11/2026	101.18652	100.0078149	98.85677195	97.73242508	96.63385088	95.56016814	94.51053547	93.48414909	92.48024074
210611A00011	6/11/2021	1.02	6/11/2026	101.18652	100.0078149	98.85677195	97.73242508	96.63385088	95.56016814	94.51053547	93.48414909	92.48024074
210611A00012	6/11/2021	1.02	6/11/2026	101.18652	100.0078149	98.85677195	97.73242508	96.63385088	95.56016814	94.51053547	93.48414909	92.48024074
210616A00008	5/2/2022	0.95	5/2/2025	100.00391	99.9983588	99.99281663	99.98727944	99.98174722	99.97621996	99.97069766	99.96518031	99.9596679
210616A00011	5/2/2022	0.95	5/2/2025	100.00391	99.9983588	99.99281663	99.98727944	99.98174722	99.97621996	99.97069766	99.96518031	99.9596679
210621A00008	6/21/2021	1.04	6/23/2025	100.09194	99.94238708	99.79329559	99.64465852	99.49647377	99.34873926	99.20145293	99.05461272	98.90821658
210623A00028	6/23/2021	1.22	6/23/2026	101.3834	100.2246717	99.09225258	97.98525489	96.90283077	95.84416963	94.8084962	93.7950686	92.80317654
210624A00004	6/24/2021	1.01	6/24/2025	100.08906	99.936754	99.78491655	99.63354873	99.48264835	99.33221323	99.18224122	99.03273015	98.88367789

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
210624A00005	6/24/2021	1.22	6/24/2026	101.38775	100.2262378	99.09116105	97.9816233	96.89677081	95.83578754	94.79789309	93.7823407	92.78841551
210624A00022	6/24/2021	0.87	6/24/2025	100.07965	99.92722581	99.77527563	99.62379682	99.47278716	99.32224446	99.17216652	99.02255117	98.87339625
210624A00025	6/24/2021	1.43	6/24/2027	103.57953	101.416495	99.30918675	97.25577224	95.25449787	93.30368144	91.40170857	89.54702937	87.73815526
210624A00026	6/24/2021	1.6	6/23/2028	105.75252	102.5630245	99.48604897	96.51696478	93.65136457	90.88504961	88.21401841	85.63445603	83.1427241
210629A00005	6/29/2021	1.25	6/29/2026	101.44486	100.2692236	99.12064082	97.99818995	96.90098805	95.82819153	94.77899398	93.75262415	92.74834405
210629A00009	6/29/2021	1.14	12/31/2025	100.62308	99.94657725	99.27912911	98.62055136	97.97066829	97.32930879	96.69630621	96.07149822	95.45472666
210629A00012	6/29/2021	1.14	12/29/2025	100.61628	99.9453013	99.28323096	98.62989311	97.98511598	97.3487323	96.7205791	96.10049763	95.48833319
210629A00014	6/29/2021	1.78	12/28/2029	108.90201	104.1399813	99.613051	95.3083636	91.21383572	87.31810754	83.61049532	80.08094723	76.72000236
210629A00015	6/29/2021	1.89	6/27/2031	111.01323	104.7134324	98.81094158	93.27864162	88.09140737	83.22594715	78.66065937	74.37550115	70.35186785
210701A00007	7/1/2021	1.22	7/1/2026	101.41828	100.2372981	99.08362306	97.95631718	96.85448542	95.77727282	94.72386229	93.69347251	92.68535601
210706A00006	7/6/2021	1.15	7/6/2026	101.35661	100.162249	98.99583503	97.85639556	96.74300414	95.65477627	94.59086709	93.55046918	92.53281049
210706A00014	7/6/2021	1.15	6/26/2026	101.31447	100.1479126	99.00802261	97.89389911	96.80467696	95.7395294	94.69766585	93.67833003	92.68079806
210706A00015	7/6/2021	1.06	12/31/2025	100.5687	99.89240439	99.22516079	98.56678564	97.91710328	97.27594261	96.64313703	96.01852421	95.40194605
210707A00002	7/7/2021	1.12	6/26/2026	101.27935	100.1130025	98.97332758	97.85941578	96.77040207	95.70545973	94.6637983	93.64466154	92.64732567
210707A00008	7/9/2021	2.44	7/7/2031	114.48976	108.056939	102.0294453	96.37957598	91.08166793	86.11193551	81.44832313	77.07037038	72.95908832
210709A00002	7/9/2021	1.36	7/9/2029	106.74719	102.4884957	98.42218621	94.53852262	90.82831651	87.28289528	83.89406993	80.65410509	77.55569109
210709A00005	7/9/2021	1.69	7/9/2031	109.77507	103.481568	97.58751204	92.06549023	86.89011376	82.0378565	77.48690853	73.21704199	69.20948811
210709A00006	7/13/2021	2.4	7/11/2031	114.25029	107.8141855	101.7843677	96.13302509	90.83439299	85.86459496	81.20149421	76.82455766	72.71473137
210712A00008	6/27/2022	1.05	6/27/2025	100.10038	99.939766	99.77966862	99.62008746	99.46102003	99.30246387	99.14441651	98.9868755	98.82983843
210712A00010	6/27/2022	1.05	6/27/2025	100.10038	99.939766	99.77966862	99.62008746	99.46102003	99.30246387	99.14441651	98.9868755	98.82983843
210714A00012	7/14/2021	1.12	7/14/2026	101.43759	100.1762194	98.94176457	97.73336547	96.55019742	95.39147072	94.2564288	93.14434648	92.05452836
210714A00013	7/14/2021	1.12	7/14/2026	101.43759	100.1762194	98.94176457	97.73336547	96.55019742	95.39147072	94.2564288	93.14434648	92.05452836
210714A00014	7/14/2021	1.12	7/14/2026	101.43759	100.1762194	98.94176457	97.73336547	96.55019742	95.39147072	94.2564288	93.14434648	92.05452836
210714A00015	7/14/2021	1.11	7/14/2026	101.41	100.1599944	98.93661363	97.7390017	96.56634372	95.41785937	94.29280108	93.19045227	92.11012577
210719A00004	7/19/2021	1	4/20/2026	100.89347	99.91358861	98.95262557	98.01003626	97.08529791	96.17790743	95.28738046	94.41325052	93.55506822
210719A00009	7/19/2021	1.04	7/17/2026	101.26818	100.0441104	98.84940541	97.68302247	96.5439646	95.43128111	94.34406495	93.28145023	92.24260991
210720A00035	7/22/2021	2.27	7/21/2031	113.45792	107.0196782	100.9898624	95.34039155	90.04526053	85.08037821	80.4234164	76.0536714	71.95193727
210721A00009	7/21/2021	1.7	7/21/2031	109.85117	103.5241418	97.6004982	92.05243328	86.85420035	81.98195086	77.41358422	73.12861051	69.10802459
210722A00001	7/22/2021	1.1	7/22/2026	101.36252	100.1240637	98.91564248	97.73617518	96.58463188	95.46003091	94.36143615	93.28795437	92.23873283
210722A00008	7/21/2023	1.84	7/22/2030	109.9354	104.5839327	99.5244771	94.73954542	90.21279223	85.92893478	81.87367772	78.03364371	74.39630926
210722A00009	7/21/2023	1.96	7/22/2032	112.21371	104.8412963	98.00429371	91.66101665	85.77324011	80.30589065	75.22677053	70.50630742	66.1173272
210729A00003	7/29/2021	1.11	7/29/2026	101.40396	100.1459492	98.91890293	97.72169158	96.55323863	95.41251876	94.29855489	93.21041529	92.14721106
210729A00004	7/29/2021	1.74	7/29/2031	110.11391	103.7579598	97.80833192	92.23693687	87.01777239	82.12675903	77.54158769	73.24157992	69.20756017

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
210729A00006	7/29/2021	1.87	11/30/2032	111.77949	104.0815502	96.96789273	90.39116551	84.30808578	78.67906927	73.46789635	68.64141006	64.16924261
210802A00002	8/2/2021	0.7	8/1/2025	100.09633	99.83893892	99.58287346	99.32811932	99.07466644	98.82250487	98.57162476	98.32201638	98.07367006
210803A00005	8/5/2021	2.06	8/4/2026	102.64338	101.3629834	100.1129679	98.8922567	97.6998228	96.53468702	95.39591506	94.28261498	93.19393483
210804A00008	8/6/2021	2.28	8/4/2028	108.19796	104.8545427	101.6322469	98.52595639	95.53080637	92.64216882	89.85563908	87.16702349	84.57232771
210809A00010	8/9/2021	1.06	8/7/2026	101.45213	100.1382456	98.84792565	97.58058979	96.33567496	95.11263608	93.91094535	92.73009158	91.56957949
210809A00012	8/9/2021	1.06	8/7/2026	101.45213	100.1382456	98.84792565	97.58058979	96.33567496	95.11263608	93.91094535	92.73009158	91.56957949
210809A00013	8/9/2021	1.05	8/7/2026	101.42295	100.1213779	98.84313947	97.58765851	96.35437671	95.14275368	93.95226618	92.78240747	91.63268663
210809A00014	8/9/2021	1.06	8/7/2026	101.45213	100.1382456	98.84792565	97.58058979	96.33567496	95.11263608	93.91094535	92.73009158	91.56957949
210809A00015	8/9/2021	1.06	8/7/2026	101.45213	100.1382456	98.84792565	97.58058979	96.33567496	95.11263608	93.91094535	92.73009158	91.56957949
210817A00013	8/19/2021	2	8/19/2026	102.66298	101.3503065	100.0643027	98.80417084	97.56914082	96.35847334	95.17145834	94.00741359	92.86568324
210818A00007	8/18/2021	0.81	8/18/2025	100.15314	99.84879674	99.54631212	99.24567131	98.94685736	98.64985353	98.3546433	98.06121036	97.76953857
210826A00009	8/26/2021	1.18	8/26/2026	101.60881	100.2885595	98.99312576	97.72184571	96.47407582	95.24919539	94.04660559	92.86572844	91.70600596
210826A00013	8/26/2021	1.97	2/28/2033	112.73915	104.7673524	97.41737667	90.6375548	84.38075719	78.60396987	73.26791647	68.33671662	63.77757701
210907A00004	9/7/2021	2.01	9/7/2033	113.42241	104.9325672	97.14347158	89.99367149	83.42739189	77.39398446	71.84743323	66.74591011	62.05137494
210907A00006	9/7/2021	2.1	9/7/2034	114.89663	105.4098472	96.78751674	88.9462713	81.81117653	75.31483842	69.39661082	64.00188971	59.08148438
210907A00007	9/7/2021	2.35	9/4/2037	118.58267	106.2229959	95.29615384	85.62747466	77.06442679	69.47370894	62.73874074	56.75749139	51.44059948
210907A00008	9/7/2021	2.42	9/7/2038	119.77224	106.4786464	94.83306162	84.62084373	75.65635799	67.77892707	60.84936516	54.74700799	49.36716574
210907A00009	9/7/2021	2.5	9/7/2039	121.5239	107.2772471	94.90663589	84.15255372	74.79268637	66.63641972	59.52017831	53.30346877	47.86551893
210907A00010	9/7/2021	2.58	9/7/2040	123.91846	108.6738922	95.55008569	84.23693607	74.47128578	66.02960419	58.72184165	52.38626237	46.88509652
210907A00011	9/7/2021	2.65	9/6/2041	126.8315	110.5430489	96.63705402	84.746844	74.5641426	65.82950378	58.32435264	51.86435724	46.29390327
210907A00013	9/9/2021	2.14	9/9/2025	100.65	100.2842818	99.92122838	99.56080899	99.20299496	98.84775799	98.49507023	98.14490423	97.79723291
210907A00014	9/9/2021	2.45	9/9/2026	103.42471	102.0558612	100.7116794	99.39155089	98.094886	96.82111371	95.56968113	94.34005272	93.13170967
210907A00015	9/9/2021	2.21	9/9/2026	103.09367	101.7272156	100.3853863	99.06757032	97.77317894	96.50164226	95.25240839	94.0249428	92.8187276
210913A00014	9/13/2021	1.15	9/13/2028	102.36527	100.555223	98.79649378	97.08720594	95.42556863	93.80986941	92.23847026	90.70980376	89.22236954
210913A00015	9/13/2021	1.08	9/14/2026	101.578	100.2080304	98.86419285	97.54580197	96.25219298	94.98272391	93.7367746	92.51374575	91.31305806
210914A00012	9/14/2021	1.18	9/14/2027	103.55876	101.170157	98.84830098	96.59096623	94.39601147	92.26137899	90.18509087	88.16524537	86.20001352
210914A00014	9/14/2021	0.97	9/14/2026	101.51533	100.1447367	98.79909929	97.4777977	96.18023001	94.90581365	93.65398471	92.42419713	91.21592203
210914A00015	9/14/2021	0.81	9/15/2025	100.20237	99.82080354	99.44215039	99.0663758	98.6934469	98.32333134	97.95599723	97.59141318	97.22954827
210914A00017	9/14/2021	1.32	9/14/2028	105.4431	102.0269935	98.73893729	95.57347782	92.52542423	89.58983268	86.76199322	84.03741747	81.41182699
210914A00018	9/14/2021	1.43	9/14/2029	107.28171	102.8305377	98.58794928	94.54313801	90.68590766	87.00663831	83.49625089	80.14617403	76.94831312
210915A00024	9/15/2021	1.1	9/15/2026	101.666	100.2527099	98.86651007	97.50669019	96.17256108	94.86345713	93.57873529	92.31777414	91.07997293
210915A00025	9/15/2021	1.09	9/15/2026	101.63217	100.2331468	98.86091272	97.5147634	96.19401701	94.89801509	93.62612151	92.37772154	91.15222095
210915A00026	9/15/2021	1.1	9/15/2026	101.666	100.2527099	98.86651007	97.50669019	96.17256108	94.86345713	93.57873529	92.31777414	91.07997293

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
210915A00027	9/15/2021	1.1	9/15/2026	101.666	100.2527099	98.86651007	97.50669019	96.17256108	94.86345713	93.57873529	92.31777414	91.07997293
210916A00008	9/16/2021	1.48	9/15/2028	105.71781	102.3013177	99.01277553	95.84674214	92.79803312	89.86171062	87.03307032	84.30762911	81.68111347
210916A00009	9/16/2021	2.25	9/16/2036	117.26004	105.8206289	95.61776931	86.51071957	78.37542538	71.10246912	64.59527798	58.76855927	53.54693291
210917A00004	9/17/2021	1.03	9/17/2025	100.26113	99.87427469	99.49041017	99.10950031	98.73151097	98.35640857	97.98416002	97.61473275	97.24809466
210917A00008	9/17/2021	1.55	9/15/2028	105.95834	102.537733	99.24519188	96.07526903	93.02277618	90.08277176	87.25054789	84.52161804	81.89170545
210917A00012	9/17/2021	1.2	9/11/2026	101.7103	100.3483361	99.01101015	97.69771271	96.40785306	95.14085941	93.89617812	92.67327296	91.47162446
210920A00014	9/9/2022	1.28	9/9/2026	101.81089	100.4537138	99.12100067	97.81214559	96.52656409	95.26369038	94.02297654	92.80389185	91.60592208
210920A00015	9/9/2022	1.28	9/9/2026	101.81089	100.4537138	99.12100067	97.81214559	96.52656409	95.26369038	94.02297654	92.80389185	91.60592208
210921A00006	9/21/2021	1.43	9/21/2028	105.37508	102.0504042	98.85162609	95.77327797	92.81016193	89.95733354	87.210088	84.56394713	82.01464721
210921A00009	9/21/2021	1.28	9/21/2028	105.13882	101.8149196	98.61704367	95.5397154	92.57772598	89.7261209	86.98018606	84.33543469	81.78759509
210924A00003	9/24/2021	2.37	9/24/2036	118.62593	107.0920236	96.80471629	87.62201668	79.41878688	72.08466975	65.52227706	59.64560764	54.37866514
210924A00004	9/24/2021	2.37	9/24/2036	118.62593	107.0920236	96.80471629	87.62201668	79.41878688	72.08466975	65.52227706	59.64560764	54.37866514
210924A00005	9/24/2021	2.37	9/24/2036	118.62593	107.0920236	96.80471629	87.62201668	79.41878688	72.08466975	65.52227706	59.64560764	54.37866514
210924A00011	9/24/2021	2.19	9/25/2034	115.77982	106.2066312	97.50894555	89.60197647	82.40955031	75.86319232	69.90131374	64.46848847	59.51480872
210928A00008	9/28/2021	1.35	9/28/2026	102.00809	100.5969925	99.21220453	97.85305814	96.51890401	95.20911427	93.92308166	92.6602186	91.41995646
210928A00009	9/28/2021	2.18	9/28/2033	114.90776	106.3021766	98.40997334	91.16825676	84.51997933	78.41336689	72.80140715	67.64139006	62.89449459
210928A00010	9/28/2021	1.12	9/26/2025	100.31833	99.90658534	99.49821277	99.09317255	98.69142403	98.29292718	97.89764266	97.50553171	97.11655625
211007A00006	10/7/2021	1.28	10/7/2026	102.03283	100.5572753	99.11097399	97.69312923	96.30296927	94.93974981	93.60275284	92.29128544	91.00467867
211014A00012	10/14/2021	1.46	10/14/2031	105.3984	102.0041481	98.76977916	95.68624538	92.7450789	89.93835242	87.25864091	84.69898636	82.2528652
211015A00031	10/15/2021	1.22	10/15/2025	100.41618	99.95195334	99.49201687	99.0363133	98.58478427	98.13737246	97.69402162	97.25467652	96.81928292
211019A00009	10/19/2021	1.48	10/9/2026	102.25336	100.8108323	99.39574506	98.00737997	96.64504707	95.30807968	93.99583337	92.70768507	91.44303222
211019A00011	10/19/2021	1.48	10/16/2026	102.29051	100.8289888	99.39561378	97.98964311	96.6103606	95.25707452	93.92911655	92.6258408	91.34662286
211026A00012	10/26/2021	1.52	10/26/2026	102.404	100.9148442	99.45487175	98.02329778	96.61936763	95.24235285	93.89155008	92.56627995	91.26588607
211026A00013	10/26/2021	1.52	10/26/2026	102.404	100.9148442	99.45487175	98.02329778	96.61936763	95.24235285	93.89155008	92.56627995	91.26588607
211028A00012	10/28/2021	1.64	10/15/2027	104.63384	102.1513768	99.74044806	97.39858209	95.12341251	92.91266852	90.76417047	88.67582554	86.64562379
211028A00013	10/28/2021	1.65	10/22/2027	104.69364	102.1916161	99.76221511	97.4029105	95.11128247	92.88500978	90.72186509	88.61971052	86.57649346
211028A00020	10/28/2021	2.05	1/28/2031	111.62623	105.7174537	100.1584461	94.92664085	90.00105053	85.36214614	80.99174788	76.87292435	72.98990006
211028A00021	10/28/2021	2.28	10/28/2033	115.82759	107.1077725	99.11634167	91.7885513	85.06571966	78.89463651	73.22702749	68.01907339	63.23097853
211110A00012	11/10/2021	1.44	11/10/2026	102.45025	100.8851739	99.35215766	97.85028232	96.37866	94.93643638	93.52278918	92.13692661	90.77808597
211110A00013	11/10/2021	1.44	11/10/2026	102.45025	100.8851739	99.35215766	97.85028232	96.37866	94.93643638	93.52278918	92.13692661	90.77808597
211110A00014	11/10/2021	1.44	11/10/2026	102.45025	100.8851739	99.35215766	97.85028232	96.37866	94.93643638	93.52278918	92.13692661	90.77808597
211115A00032	11/15/2021	1.75	11/12/2027	105.06095	102.4965442	100.0079195	97.59239141	95.24738516	92.97043334	90.75917074	88.6113294	86.52473388
211119A00009	11/19/2021	1.68	11/19/2027	104.91919	102.3370901	99.83171575	97.40032885	95.04030676	92.74913712	90.52441242	88.36382489	86.26516165

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
211123A00011	11/23/2021	1.69	11/23/2026	102.83886	101.2688783	99.73063026	98.22322186	96.74579496	95.29752296	93.87760931	92.48528613	91.11981288
211123A00012	11/23/2021	2.27	11/23/2033	115.81227	107.0246612	98.97648631	91.6015529	84.83991291	78.63724695	72.94430932	67.7164304	62.91307009
211129A00011	11/29/2021	1.53	11/20/2026	102.56673	101.0073279	99.47935874	97.98193998	96.51422556	95.07540028	93.66467838	92.28130224	90.92454108
211129A00012	11/29/2021	1.53	11/25/2026	102.59683	101.0232869	99.48161036	97.97090654	96.49031096	95.03899101	93.61614441	92.22099789	90.85280582
211206A00009	12/6/2021	1.43	12/5/2025	100.71095	100.1055957	99.50750157	98.91653352	98.33256478	97.75547153	97.18513286	96.62143069	96.06424968
211206A00010	12/6/2021	1.54	12/4/2026	102.66601	101.0672359	99.50114985	97.96681328	96.46332786	94.98982893	93.54548389	92.12949072	90.74107654
211206A00017	12/6/2021	1.56	12/4/2026	102.69838	101.0993352	99.53298266	97.99838433	96.49464174	95.02089011	93.57629674	92.16005947	90.77140531
211207A00011	12/7/2021	1.62	12/1/2026	102.77758	101.1859371	99.62672164	98.09901288	96.60192339	95.13459883	93.69621634	92.28598312	90.90313503
211207A00012	12/7/2021	1.62	12/4/2026	102.79549	101.1956331	99.62848107	98.09309745	96.58858336	95.11407367	93.66873528	92.25176571	90.86239163
211208A00012	12/8/2021	1.62	12/8/2026	102.90001	101.2568731	99.64848479	98.07379835	96.53181373	95.0215707	93.54214679	92.09265536	90.67224391
211208A00013	12/8/2021	1.63	12/8/2026	102.94002	101.2849899	99.6649924	98.07897922	96.52594153	95.00491059	93.51495576	92.05518259	90.62473104
211209A00006	12/9/2021	1.61	12/8/2026	102.80307	101.1924005	99.61480007	98.06931645	96.55503557	95.07107785	93.61659655	92.19077624	90.79283132
211209A00007	12/9/2021	1.61	12/8/2026	102.80307	101.1924005	99.61480007	98.06931645	96.55503557	95.07107785	93.61659655	92.19077624	90.79283132
211210A00014	12/10/2021	1.54	12/10/2025	100.80032	100.1809119	99.56910029	98.96474617	98.36771366	97.77787019	97.19508641	96.61923601	96.05019571
211210A00015	12/10/2021	1.63	12/10/2026	102.84766	101.2312364	99.64807281	98.0972071	96.57771739	95.08871667	93.62935117	92.19879882	90.79626773
211210A00016	12/10/2021	1.76	12/10/2027	105.24249	102.5984305	100.0341807	97.5468422	95.1336384	92.79191231	90.51912034	88.31282663	86.17069769
211214A00015	12/14/2021	1.49	12/12/2025	100.77798	100.1531518	99.53605375	98.92654495	98.32448592	97.72974059	97.14217616	96.56166304	95.98807475
211217A00021	12/21/2021	2.44	12/18/2026	104.23822	102.588375	100.9727402	99.39031593	97.84014359	96.32130138	94.83290256	93.37409371	91.94405319
211221A00023	12/21/2021	1.53	6/19/2026	101.72298	100.5731908	99.44925055	98.35029634	97.27550246	96.22407922	95.19527103	94.18835454	93.20263698
211221A00025	12/21/2021	1.59	12/21/2026	102.84701	101.2010157	99.58929543	98.0108426	96.46469262	94.94991816	93.46562733	92.01096193	90.58509586
211222A00035	12/22/2021	2.15	12/22/2033	114.83758	106.0164751	97.94454472	90.5541547	83.78411005	77.57900811	71.88866277	66.66758861	61.87453854
211227A00005	12/27/2021	1.61	12/18/2026	102.86249	101.2244368	99.62037523	98.04931732	96.51031018	95.00243749	93.52481778	92.07660271	90.65697553
211227A00009	12/27/2021	1.6	12/23/2026	102.8755	101.2238816	99.60672751	98.0230232	96.47179614	94.9521115	93.46307023	92.0038074	90.57349053
220104A00006	1/4/2022	1.76	1/4/2029	106.9363	103.4621849	100.1263661	96.92247936	93.84449495	90.88669758	88.04366772	85.31026425	82.68160828
220106A00007	1/6/2022	2.42	1/6/2034	117.23472	108.2739091	100.0747333	92.56827942	85.69221204	79.39011352	73.61089345	68.30826011	63.44024693
220106A00008	1/6/2022	2.5	1/5/2035	118.98329	109.0026807	99.9545506	91.74649702	84.29573127	77.52803259	71.37682087	65.78233412	60.69089826
220106A00009	1/6/2022	2.57	1/4/2036	120.51831	109.5367395	99.67226572	90.80468465	82.82732446	75.64545766	69.17490776	63.34082498	58.07660951
220106A00010	1/6/2022	2.64	1/6/2037	121.8245	109.8603325	99.21168896	89.72586627	81.26864984	73.72198989	66.98197954	60.95709499	55.56666249
220106A00011	1/6/2022	2.7	1/6/2038	123.03502	110.1148047	98.71906213	88.65816424	79.76702607	71.90181936	64.93713729	58.76355003	53.28549544
220106A00013	1/6/2022	2.75	1/6/2039	124.36356	110.4940303	98.36995152	87.75992554	78.46441885	70.31122892	63.15161434	56.8569899	51.31610167
220106A00018	1/10/2022	3.11	1/8/2032	119.63321	112.5340606	105.911257	99.73020916	93.95901885	88.56825706	83.53075983	78.82144228	74.41712877
220106A00019	1/10/2022	3.17	1/7/2033	121.96542	113.7855055	106.2251347	99.23388487	92.76569887	86.77848266	81.23374444	76.09626839	71.33381959
220111A00002	1/11/2022	1.75	1/16/2026	101.12162	100.3991768	99.6870365	98.98497595	98.2927821	97.61024789	96.93717205	96.27335885	95.61861794

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
220112A00004	1/12/2022	1.55	1/12/2026	101.01416	100.3024258	99.60069103	98.90875076	98.22640084	97.55344276	96.8896835	96.23493529	95.58901543
220112A00005	1/12/2022	1.55	1/12/2026	101.01416	100.3024258	99.60069103	98.90875076	98.22640084	97.55344276	96.8896835	96.23493529	95.58901543
220114A00007	1/14/2022	1.7	1/27/2026	101.14157	100.3887544	99.64710726	98.91638078	98.19633515	97.48673756	96.78736192	96.09798858	95.4184042
220114A00009	1/14/2022	1.74	4/21/2026	101.6279	100.6413731	99.67391795	98.72498833	97.79405605	96.88061289	95.98416959	95.10425498	94.24041519
220114A00010	1/14/2022	1.86	1/13/2027	103.44904	101.735897	100.0593744	98.41836092	96.81179342	95.23865134	93.69795467	92.18876187	90.71016796
220121A00013	1/21/2022	1.78	11/3/2025	100.76535	100.2478543	99.73566343	99.22869381	98.72686593	98.23010187	97.73832527	97.25146131	96.76943665
220121A00014	1/21/2022	1.78	11/3/2025	100.76535	100.2478543	99.73566343	99.22869381	98.72686593	98.23010187	97.73832527	97.25146131	96.76943665
220124A00007	1/24/2022	1.88	1/22/2027	103.54358	101.8053553	100.1046827	98.44041535	96.81144978	95.21672731	93.65523194	92.12598813	90.62805873
220124A00008	1/24/2022	1.88	1/22/2027	103.54358	101.8053553	100.1046827	98.44041535	96.81144978	95.21672731	93.65523194	92.12598813	90.62805873
220125A00010	1/25/2022	1.89	1/25/2027	103.5812	101.8345494	100.1257681	98.45369445	96.8172112	95.2152468	93.64677311	92.11080309	90.60638876
220126A00002	1/26/2022	1.9	12/18/2026	103.34317	101.7009935	100.0928883	98.51785901	96.97495077	95.46324536	93.98185945	92.52994294	91.10667736
220126A00003	1/26/2022	1.9	12/18/2026	103.34317	101.7009935	100.0928883	98.51785901	96.97495077	95.46324536	93.98185945	92.52994294	91.10667736
220131A00003	1/31/2022	1.98	2/1/2027	103.7895	102.0217855	100.2927195	98.6011065	96.94580128	95.32570567	93.73976608	92.18697121	90.66634991
220131A00006	1/31/2022	1.83	2/1/2027	103.66553	101.8963996	100.165994	98.4731146	96.81661287	95.19538752	93.60838204	92.05458237	90.53301473
220201A00011	2/1/2022	1.86	4/20/2026	101.74051	100.7561456	99.79075478	98.84379657	97.91474695	97.00310154	96.10837478	95.23009899	94.36782362
220203A00009	2/3/2022	1.99	2/2/2027	103.81531	102.0443734	100.3122069	98.61761307	96.95944662	95.33660915	93.74804663	92.19274706	90.66973838
220204A00004	2/4/2022	2.08	1/8/2027	103.79353	102.0908011	100.4242384	98.79275442	97.19530623	95.63089257	94.09855158	92.59735883	91.12642548
220209A00010	2/9/2022	2.14	1/11/2027	103.91864	102.2067089	100.5312699	98.89122009	97.2855029	95.71310413	94.17304972	92.66440368	91.18626625
220209A00011	2/9/2022	2.14	1/11/2027	103.91864	102.2067089	100.5312699	98.89122009	97.2855029	95.71310413	94.17304972	92.66440368	91.18626625
220209A00012	2/9/2022	1.98	7/29/2025	100.39294	100.1435529	99.89540063	99.64847766	99.40277488	99.15828326	98.91499388	98.67289789	98.43198656
220209A00013	2/9/2022	1.98	7/29/2025	100.39294	100.1435529	99.89540063	99.64847766	99.40277488	99.15828326	98.91499388	98.67289789	98.43198656
220214A00010	2/14/2022	2.46	12/21/2029	112.08963	107.2723256	102.6910281	98.33290071	94.18587666	90.23860829	86.48041988	82.9012641	79.49168138
220214A00012	2/14/2022	2.47	12/28/2029	112.17711	107.3386584	102.7380277	98.36224	94.19909805	90.23713405	86.46556169	82.87423181	79.45359102
220216A00003	2/16/2022	2.49	12/14/2029	112.19083	107.3902874	102.8240986	98.47956158	94.34473296	90.40837822	86.65992574	83.08942384	79.68750098
220217A00012	2/17/2022	2.28	2/16/2027	104.45619	102.6374711	100.8592594	99.12036131	97.41962962	95.75596013	94.12828955	92.53559366	90.97688547
220217A00015	2/17/2022	2.28	2/16/2027	104.45619	102.6374711	100.8592594	99.12036131	97.41962962	95.75596013	94.12828955	92.53559366	90.97688547
220217A00016	2/17/2022	2.24	9/15/2026	103.18167	101.7979129	100.4393618	99.10538662	97.79537839	96.5087478	95.24492443	94.00335596	92.7835075
220217A00017	2/17/2022	2.27	1/29/2027	104.28226	102.5184211	100.7929903	99.10477915	97.45264903	95.83550827	94.25230962	92.702048	91.18375829
220217A00018	2/17/2022	2.28	2/17/2027	104.46498	102.6431871	100.862018	99.12028202	97.41683196	95.75056323	94.12041196	92.52535309	90.96439863
220217A00027	2/16/2024	2.56	2/17/2032	116.0423	108.9526113	102.3479324	96.19252353	90.45345483	85.10037304	80.10528746	75.44237444	71.0877991
220218A00003	2/18/2022	2.16	9/4/2026	102.98696	101.6351601	100.3074906	99.00336583	97.72221374	96.46348047	95.22662949	94.01114095	92.81651105
220222A00018	2/22/2022	2.5	12/19/2031	115.42211	108.5152716	102.0712041	96.05643972	90.44009986	85.19368338	80.29087151	75.70734969	71.42064495
220224A00018	2/24/2022	2.15	3/16/2026	101.79248	100.9044384	100.0318574	99.17433324	98.33147862	97.50291933	96.68829382	95.88725265	95.09945801

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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	101.79248	100.9044384	100.0318574	99.17433324	98.33147862	97.50291933	96.68829382	95.88725265	95.09945801
220225A00014	2/25/2022	2.42	2/23/2029	110.04402	106.1027939	102.3247391	98.70225054	95.22811925	91.89550853	88.69793262	85.62923677	82.68357857
220225A00015	2/25/2022	2.26	2/25/2027	104.49834	102.6522698	100.8477773	99.08367408	97.35881218	95.67208401	94.02242064	92.40879017	90.8301962
220301A00013	3/1/2022	2.01	2/16/2027	103.96355	102.1494434	100.375761	98.64130827	96.9449404	95.28555544	93.66209227	92.07352877	90.51887997
220301A00015	3/1/2022	2	1/4/2027	103.62828	101.9377884	100.2830329	98.66294442	97.07649843	95.52271069	94.00063552	92.50936378	91.04802109
220302A00010	3/2/2022	2.14	1/13/2027	103.93341	102.2159487	100.5351875	98.89001246	97.27935806	95.70220178	94.15756164	92.64449419	91.16209261
220302A00011	3/2/2022	2.14	1/13/2027	103.93341	102.2159487	100.5351875	98.89001246	97.27935806	95.70220178	94.15756164	92.64449419	91.16209261
220304A00004	3/4/2022	2.12	12/29/2028	108.538	104.7840548	101.180326	97.71995802	94.39644652	91.20362175	88.13562927	85.18691177	82.35219207
220308A00012	3/8/2022	2.51	3/8/2032	113.49794	107.5257929	101.9432508	96.72213675	91.83647328	87.26229966	82.97750469	78.96167421	75.19595198
220309A00010	3/9/2022	2.27	3/8/2027	104.60325	102.725581	100.8908093	99.09770466	97.34508014	95.63179008	93.95672848	92.31882733	90.71705506
220310A00009	3/10/2022	2.31	3/10/2027	104.75545	102.8496157	100.9889274	99.17203346	97.39763251	95.66447088	93.97134041	92.31707641	90.70055583
220310A00010	3/10/2022	2.31	3/10/2027	104.75545	102.8496157	100.9889274	99.17203346	97.39763251	95.66447088	93.97134041	92.31707641	90.70055583
220311A00013	3/15/2022	2.35	3/15/2027	104.80784	102.909268	101.0544608	99.24215227	97.4711206	95.74018694	94.04821362	92.39410242	90.77679301
220314A00004	3/14/2022	2.44	3/12/2027	104.95486	103.0629797	101.214532	99.40826772	97.64297877	95.91749949	94.23070474	92.58150827	90.96886109
220314A00007	3/14/2022	2.44	3/12/2027	104.95486	103.0629797	101.214532	99.40826772	97.64297877	95.91749949	94.23070474	92.58150827	90.96886109
220314A00008	3/14/2022	2.38	7/28/2025	100.48729	100.2405056	99.9949369	99.7505731	99.50740533	99.26542484	99.02462293	98.78499101	98.54652058
220314A00009	3/14/2022	2.38	7/28/2025	100.48729	100.2405056	99.9949369	99.7505731	99.50740533	99.26542484	99.02462293	98.78499101	98.54652058
220315A00014	3/15/2022	2.78	3/15/2032	117.67788	110.45894	103.737696	97.47721142	91.6434663	86.20511703	81.1332733	76.40129463	71.98460462
220315A00015	3/15/2022	3.18	3/13/2037	128.28406	115.7861982	104.6700521	94.77385755	85.95561506	78.09058188	71.06909558	64.79468156	59.18240619
220315A00018	3/15/2022	2.43	3/15/2027	104.95983	103.0597784	101.2035202	99.38978804	97.61735934	95.88505451	94.19173517	92.53630244	90.91769529
220315A00036	3/17/2022	2.63	3/16/2027	105.34832	103.441778	101.5792181	99.75936854	97.98099995	96.24292615	94.54400254	92.88312425	91.25922456
220315A00037	3/17/2022	2.63	3/16/2027	105.34832	103.441778	101.5792181	99.75936854	97.98099995	96.24292615	94.54400254	92.88312425	91.25922456
220317A00023	5/3/2022	2.52	5/2/2025	100.0143	100.0087434	100.003194	99.99764956	99.99211011	99.98657563	99.98104611	99.97552155	99.97000192
220317A00026	5/3/2022	2.59	5/3/2027	105.67843	103.6357032	101.6431253	99.69914932	97.80228414	95.95109496	94.14420079	92.38027196	90.65802786
220317A00027	5/3/2022	2.59	5/3/2027	105.67843	103.6357032	101.6431253	99.69914932	97.80228414	95.95109496	94.14420079	92.38027196	90.65802786
220317A00028	5/3/2022	2.59	5/3/2027	105.67843	103.6357032	101.6431253	99.69914932	97.80228414	95.95109496	94.14420079	92.38027196	90.65802786
220323A00016	6/2/2022	2.78	6/2/2025	100.21547	100.1238814	100.0324625	99.94121328	99.8501333	99.75922209	99.66847917	99.57790407	99.48749633
220323A00017	6/2/2022	2.78	6/2/2025	100.21547	100.1238814	100.0324625	99.94121328	99.8501333	99.75922209	99.66847917	99.57790407	99.48749633
220324A00015	3/24/2022	2.79	3/3/2026	102.25154	101.3972466	100.5572076	99.73106749	98.91848349	98.11912387	97.33266768	96.55880428	95.79723295
220325A00012	3/28/2022	2.85	3/23/2026	102.47388	101.5631626	100.6686194	99.78982037	98.9263523	98.07781637	97.24382748	96.42401368	95.61801564
220325A00015	3/28/2022	2.86	3/23/2027	105.85006	103.9195868	102.0340341	100.192088	98.39248191	96.63399447	94.91544736	93.23570364	91.59366596
220325A00017	3/28/2022	2.86	3/23/2027	105.85006	103.9195868	102.0340341	100.192088	98.39248191	96.63399447	94.91544736	93.23570364	91.59366596
220325A00018	3/28/2022	2.85	9/10/2026	103.9859	102.6102126	101.2593494	99.93269946	98.62966765	97.34967805	96.09217303	94.85661246	93.64247315

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
220325A00019	3/28/2022	2.86	3/23/2027	105.85006	103.9195868	102.0340341	100.192088	98.39248191	96.63399447	94.91544736	93.23570364	91.59366596
220325A00020	3/28/2022	2.86	3/23/2027	105.85006	103.9195868	102.0340341	100.192088	98.39248191	96.63399447	94.91544736	93.23570364	91.59366596
220329A00007	3/29/2022	2.94	3/29/2029	112.3352	108.2548354	104.3466491	100.6024785	97.01458962	93.57565362	90.27872321	87.1172109	84.08486841
220329A00009	3/29/2022	2.94	3/29/2029	112.3352	108.2548354	104.3466491	100.6024785	97.01458962	93.57565362	90.27872321	87.1172109	84.08486841
220331A00010	3/31/2022	2.83	2/18/2026	102.17694	101.3589557	100.5540619	99.76194132	98.98229159	98.21481971	97.45924179	96.71528275	95.98267591
220401A00009	4/1/2022	2.98	4/1/2027	106.16629	104.208107	102.2960026	100.4286168	98.60463564	96.82279281	95.08186714	93.38068086	91.71809774
220404A00010	4/4/2022	2.93	4/2/2027	106.07839	104.118276	102.2043565	100.3352636	98.50967848	96.72632979	94.98399186	93.2814826	91.61766161
220404A00014	4/4/2022	2.94	4/5/2027	106.12636	104.1573502	102.2349372	100.3577342	98.52440529	96.73366314	94.98426674	93.27501943	91.60476698
220407A00014	4/7/2022	3.14	4/6/2029	111.3525	107.8087676	104.4099076	101.1490743	98.01978699	95.01590764	92.13162065	89.36141407	86.70006202
220407A00017	4/7/2022	3.16	4/6/2029	112.08944	108.3338684	104.7348739	101.2849862	97.9771308	94.80460959	91.76107856	88.84052708	86.03725843
220408A00012	4/8/2022	3.12	6/29/2026	103.65013	102.4606776	101.298499	100.1626672	99.05229357	97.9665291	96.90456211	95.86561631	94.84894882
220408A00013	4/8/2022	3.15	1/14/2027	105.69079	103.9549477	102.256189	100.5933933	98.96548309	97.37142427	95.81022369	94.28092728	92.78261804
220408A00014	4/8/2022	3.12	6/29/2026	103.65013	102.4606776	101.298499	100.1626672	99.05229357	97.9665291	96.90456211	95.86561631	94.84894882
220411A00002	4/11/2022	3.18	4/9/2027	106.63702	104.6516438	102.7134898	100.8211437	98.97324448	97.168481	95.40558943	93.68335143	92.00059209
220411A00008	4/11/2022	3.02	4/12/2027	106.57934	104.5634053	102.5969893	100.6785436	98.80658396	96.9796829	95.1964673	93.45561572	91.75585612
220412A00010	4/12/2022	3.09	3/15/2027	106.21374	104.3014895	102.4332604	100.6077832	98.82382892	97.08021194	95.37578799	93.70945253	92.08013912
220412A00016	4/12/2022	3.09	3/19/2027	106.25295	104.3294148	102.4503926	100.6145889	98.82075504	97.06768636	95.35422063	93.67923618	92.04165019
220412A00017	4/12/2022	3.09	3/19/2027	106.25295	104.3294148	102.4503926	100.6145889	98.82075504	97.06768636	95.35422063	93.67923618	92.04165019
220412A00018	4/12/2022	3.09	3/15/2027	106.21374	104.3014895	102.4332604	100.6077832	98.82382892	97.08021194	95.37578799	93.70945253	92.08013912
220418A00015	4/22/2022	3.03	7/28/2025	100.64787	100.4008256	100.1549943	99.91036877	99.6669403	99.42470009	99.18363944	98.94374976	98.70502254
220418A00016	4/22/2022	3.11	9/15/2026	104.3962	103.0035622	101.6362854	100.2937335	98.97529341	97.68037182	96.40839454	95.15880562	93.93106663
220419A00015	4/19/2022	3.14	4/17/2026	102.97283	101.9902644	101.0264462	100.0808436	99.15294345	98.24225163	97.34829228	96.47060696	95.60875385
220419A00016	4/19/2022	3.21	4/19/2027	106.79855	104.783389	102.8168024	100.8973199	99.023523	97.19404544	95.40757124	93.66283239	91.95860679
220420A00032	4/20/2022	3.26	10/16/2026	104.92884	103.4469345	101.9935344	100.5678848	99.16926012	97.79695954	96.45030595	95.12864502	93.83134421
220420A00033	4/20/2022	3.29	4/20/2027	106.96882	104.9490986	102.9781224	101.0544108	99.17653842	97.34313275	95.5528717	93.8044815	92.09673453
220420A00034	6/15/2022	3.3	6/15/2027	107.56554	105.3838015	103.2575689	101.1850413	99.16449132	97.19426106	95.27275863	93.39845488	91.56988043
220420A00037	6/15/2022	3.3	6/15/2027	107.56554	105.3838015	103.2575689	101.1850413	99.16449132	97.19426106	95.27275863	93.39845488	91.56988043
220420A00061	6/15/2022	3.3	6/15/2027	107.56554	105.3838015	103.2575689	101.1850413	99.16449132	97.19426106	95.27275863	93.39845488	91.56988043
220421A00012	4/21/2022	3.31	4/21/2026	103.17861	102.1838422	101.2082595	100.2513108	99.31246551	98.39121304	97.48706189	96.59953869	95.72818744
220421A00013	4/21/2022	3.33	9/15/2026	104.70332	103.308439	101.9389558	100.5942351	99.27366272	97.97664456	96.70260537	95.45098829	94.221254
220421A00014	4/21/2022	3.24	5/30/2025	100.23418	100.1508719	100.0677055	99.98467811	99.90178952	99.81903933	99.73642721	99.65395284	99.57161587
220421A00016	4/21/2022	3.31	4/21/2026	103.17861	102.1838422	101.2082595	100.2513108	99.31246551	98.39121304	97.48706189	96.59953869	95.72818744
220422A00014	4/22/2022	3.36	9/29/2026	104.89762	103.4620706	102.0533116	100.670654	99.31343499	97.98101379	96.67277063	95.38810598	94.12643969

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
220425A00026	4/25/2022	3.13	2/25/2026	102.48567	101.6469122	100.8218713	100.0102144	99.2116177	98.42576774	97.65236103	96.89110365	96.1417109
220425A00027	4/29/2022	3.15	8/20/2026	104.19172	102.8662489	101.5673889	100.2943523	99.04638123	97.82274798	96.62275309	95.44572414	94.29101439
220425A00028	4/29/2022	3.16	4/23/2027	106.73911	104.7132826	102.7365573	100.8074351	98.92447444	97.08628752	95.29153781	93.53893776	91.82724669
220426A00004	4/26/2022	3.41	4/26/2032	122.32241	114.8296093	107.8582961	101.3692807	95.32651508	89.6968264	84.44967385	79.55692691	74.9926636
220427A00011	4/29/2022	3.15	4/29/2027	106.7795	104.7363531	102.7431174	100.7982626	98.90031201	97.04784421	95.2394909	93.47393432	91.74990504
220428A00019	4/28/2022	3.27	4/28/2027	107.01213	104.9693974	102.9764908	101.0318822	99.13409955	97.2817258	95.47339669	93.70779834	91.98366497
220429A00002	4/29/2022	3.63	4/29/2032	123.9029	116.3471534	109.3167996	102.7723525	96.67749313	90.99880082	85.70550768	80.76927514	76.16399031
220502A00025	5/2/2022	3.21	5/2/2025	100.01886	100.0133073	100.0077547	100.0022071	99.99666451	99.99112685	99.98559416	99.98006642	99.97454363
220502A00030	5/4/2022	3.24	6/20/2025	100.39833	100.2567486	100.1155789	99.9748196	99.83446892	99.69452504	99.55498616	99.4158505	99.27711627
220506A00016	5/6/2022	3.35	5/6/2027	107.25716	105.1897971	103.1732397	101.2059118	99.28629873	97.41294302	95.58444223	93.79944624	92.05665495
220509A00013	7/15/2022	3.37	7/15/2027	108.02724	105.7567091	103.5455976	101.3919116	99.29374228	97.24926096	95.25671458	93.314422	91.42077039
220509A00014	7/15/2022	3.37	7/15/2027	108.02724	105.7567091	103.5455976	101.3919116	99.29374228	97.24926096	95.25671458	93.314422	91.42077039
220509A00016	7/15/2022	3.37	7/15/2027	108.02724	105.7567091	103.5455976	101.3919116	99.29374228	97.24926096	95.25671458	93.314422	91.42077039
220510A00015	5/13/2022	3.13	11/3/2025	101.46584	100.9462463	100.4319734	99.92293692	99.41905729	98.92025639	98.42645766	97.93758611	97.45356824
220510A00016	5/13/2022	3.23	5/5/2027	107.00178	104.9398236	102.9285061	100.9662626	99.05158465	97.18302092	95.35917469	93.57870132	91.84030588
220511A00002	5/11/2022	3.18	5/12/2025	100.09385	100.0605122	100.0272153	99.99395744	99.96073866	99.92755885	99.89441793	99.86131584	99.8282525
220511A00015	5/11/2022	3.29	5/11/2027	107.18525	105.1049366	103.0759601	101.0967235	99.16568765	97.28137213	95.44235268	93.64725862	91.89477038
220512A00013	5/12/2022	3.18	5/12/2027	106.96863	104.8878517	102.8584761	100.8789019	98.94758608	97.06304487	95.22385069	93.42862974	91.67605955
220518A00009	5/18/2022	3.38	5/18/2028	111.10152	107.9282157	104.8634164	101.9027908	99.04220667	96.27772071	93.60556894	91.02215731	88.52405294
220519A00010	5/19/2022	3.15	11/19/2026	105.1151	103.5376342	101.9918851	100.4769635	98.99201712	97.53622476	96.10879478	94.70896384	93.33599564
220520A00006	5/20/2022	3.02	5/20/2027	106.83266	104.740928	102.7021556	100.7146232	98.77667948	96.88673983	95.04328302	93.24484813	91.49003164
220526A00010	5/26/2022	3	5/26/2026	103.19323	102.1011177	101.0321006	99.9854515	98.9604735	97.95649843	96.97288536	96.00901917	95.06430935
220526A00011	5/26/2022	3.29	5/24/2029	114.22558	109.9498884	105.8604118	101.9480162	98.20407072	94.6204136	91.18932344	87.90349314	84.75600525
220527A00014	5/27/2022	2.99	5/27/2026	103.19155	102.0966684	101.0249958	99.97580116	98.94838265	97.94206726	96.95620951	95.99019001	95.04341415
220527A00015	5/27/2022	3.03	5/27/2027	106.8009	104.6808156	102.6137739	100.5980946	98.63216019	96.71441608	94.84336813	93.01757955	91.2356683
220601A00024	6/1/2022	3.09	6/2/2025	100.24388	100.152264	100.0608213	99.96954836	99.87844468	99.7875098	99.69674326	99.60614457	99.51571329
220601A00038	6/3/2022	3.69	5/28/2032	124.52375	116.8663922	109.7461148	103.122206	96.95724581	91.21682717	85.869298	80.88552704	76.23869066
220602A00039	6/2/2022	3.11	6/2/2027	107.20178	105.0574062	102.96701	100.9288608	98.94130076	97.00273756	95.11164114	93.26654078	91.46602231
220610A00068	6/10/2022	3.09	6/10/2025	100.27005	100.1714156	100.0729896	99.97476939	99.87675441	99.77894393	99.68133729	99.58393379	99.48673278
220615A00010	6/15/2022	3.86	6/15/2027	108.77317	106.5781889	104.4389803	102.3537379	100.3207271	98.33828258	96.4048055	94.51875997	92.67867013
220617A00030	6/17/2022	3.43	6/17/2025	100.32526	100.2169096	100.1088176	100.0009789	99.89339247	99.78605742	99.67897278	99.57213763	99.46555104
220622A00006	6/22/2022	3.58	6/22/2027	108.24762	106.0385013	103.8859161	101.7880141	99.7430235	97.74924445	95.80504525	93.90885917	92.05918124
220623A00005	6/23/2022	3.45	6/23/2027	107.97555	105.7666069	103.6142557	101.5166472	99.47200556	97.47862706	95.53487649	93.63918378	91.79004088

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
220624A00003	6/24/2022	3.5	6/24/2027	108.09545	105.8823362	103.7259681	101.6244884	99.57611467	97.57913705	95.63191444	93.73287125	91.88049415
220624A00016	6/24/2022	3.34	6/24/2026	103.95239	102.7735658	101.6214856	100.4952419	99.39397219	98.31685208	97.26309304	96.23194059	95.22267242
220624A00033	6/24/2022	3.5	6/24/2027	108.09545	105.8823362	103.7259681	101.6244884	99.57611467	97.57913705	95.63191444	93.73287125	91.88049415
220624A00044	6/24/2022	3.43	6/24/2025	100.4586	100.3058714	100.1536119	100.001823	99.85050257	99.6996485	99.54925859	99.39933067	99.24986262
220627A00055	6/27/2022	3.55	6/26/2026	104.12477	102.9407226	101.7836255	100.6525648	99.54666834	98.46510257	97.40707036	96.3718091	95.35858884
220628A00034	6/28/2022	3.61	6/28/2027	108.38049	106.1528312	103.9824866	101.8675727	99.80628191	97.79688053	95.83770509	93.92715883	92.0637084
220628A00044	8/15/2022	3.6	8/13/2027	108.85351	106.4937108	104.1973415	101.9622799	99.78648708	97.66800737	95.60496432	93.59555684	91.63805554
220628A00052	8/15/2022	3.6	8/13/2027	108.85351	106.4937108	104.1973415	101.9622799	99.78648708	97.66800737	95.60496432	93.59555684	91.63805554
220628A00053	8/15/2022	3.6	8/13/2027	108.85351	106.4937108	104.1973415	101.9622799	99.78648708	97.66800737	95.60496432	93.59555684	91.63805554
220629A00003	6/29/2022	3.59	6/29/2027	108.34785	106.1177041	103.9449963	101.8278321	99.76439832	97.75295598	95.79183659	93.87943865	92.01422438
220629A00034	6/29/2022	3.51	6/29/2027	104.05547	102.9060541	101.7801757	100.677146	99.59630175	98.537005	97.49864177	96.48062111	95.48237389
220630A00036	6/30/2022	3.42	6/30/2027	107.98534	105.7563989	103.5849388	101.4690618	99.40695135	97.39686511	95.43713157	93.52614641	91.66236921
220630A00044	6/30/2022	3.34	6/30/2025	100.49341	100.3240022	100.1551632	99.98688981	99.8191791	99.65202831	99.48543468	99.31939543	99.15390784
220630A00045	6/30/2022	3.39	6/30/2026	103.97892	102.7846086	101.6177358	100.4773609	99.36258851	98.27256329	97.20646752	96.16351919	95.14297004
220630A00057	6/30/2022	3.34	6/30/2025	100.49341	100.3240022	100.1551632	99.98688981	99.8191791	99.65202831	99.48543468	99.31939543	99.15390784
220701A00024	7/1/2022	3.08	7/1/2025	100.45691	100.2847878	100.1132545	99.94230744	99.77194358	99.60215998	99.43295368	99.26432174	99.09626127
220701A00049	7/1/2022	3.19	7/1/2025	100.47584	100.3036978	100.1321405	99.96116939	99.79078162	99.62097417	99.45174409	99.28308844	99.11500432
220701A00050	7/1/2022	3.26	7/1/2027	107.64341	105.4155607	103.245235	101.1305374	99.06964719	97.06081875	95.1023772	93.19271514	91.3302893
220705A00011	7/5/2022	3.14	7/7/2025	100.51343	100.324658	100.1366062	99.94926876	99.7626417	99.57672087	99.39150224	99.20698177	99.02315547
220706A00032	7/6/2022	3.15	7/6/2027	107.63131	105.3863138	103.1996408	101.0693525	98.99359143	96.97057673	94.99860067	93.07602479	91.20127649
220707A00041	7/7/2022	3.41	7/7/2025	100.5644	100.3755612	100.1874418	100.000037	99.81334277	99.62735496	99.44206953	99.25748247	99.07358977
220711A00021	7/11/2022	3.27	7/11/2025	100.58591	100.3858173	100.1865351	99.98805869	99.79038296	99.59350303	99.39741399	99.20211102	99.00758931
220712A00016	7/15/2022	3.35	1/15/2026	102.27053	101.5462558	100.8322497	100.1282928	99.43417386	98.74968728	98.07463329	97.40881762	96.75205128
220715A00001	7/15/2022	3.44	7/15/2027	108.18405	105.9117414	103.6988837	101.5434874	99.44364267	97.39751981	95.40336476	93.45949548	91.56429822
220715A00027	7/15/2022	3.44	7/15/2027	108.18405	105.9117414	103.6988837	101.5434874	99.44364267	97.39751981	95.40336476	93.45949548	91.56429822
220715A00047	7/15/2022	3.44	7/15/2027	108.18405	105.9117414	103.6988837	101.5434874	99.44364267	97.39751981	95.40336476	93.45949548	91.56429822
220719A00004	7/19/2022	3.46	7/19/2027	108.27035	105.9860732	103.7617888	101.59548	99.4852117	97.42913007	95.42545856	93.47249387	91.5686022
220722A00036	7/22/2022	3.34	7/22/2025	100.47029	100.3092246	100.1487483	99.98885982	99.82955576	99.6708326	99.51268689	99.3551152	99.19811415
220722A00044	9/1/2022	3.23	9/1/2027	108.17811	105.773977	103.4356781	101.1610495	98.9480136	96.79457264	94.69880499	92.65886182	90.67296392
220722A00049	9/15/2022	3.25	9/15/2025	101.10691	100.7236095	100.343223	99.96571981	99.59106695	99.21923212	98.85018351	98.48388974	98.12031994
220722A00050	9/15/2022	3.25	9/15/2025	101.10691	100.7236095	100.343223	99.96571981	99.59106695	99.21923212	98.85018351	98.48388974	98.12031994
220722A00051	9/15/2022	3.23	9/15/2027	108.31583	105.8704382	103.4930189	101.1813023	98.93311189	96.74635598	94.61902403	92.54918286	90.53497331
220727A00004	7/27/2022	3.23	7/27/2027	107.8304	105.5292073	103.288958	101.1075769	98.98308153	96.91357392	94.89723577	92.93232461	91.01716979

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
220727A00009	7/27/2022	3.31	7/28/2025	100.71705	100.4698866	100.2239421	99.97920383	99.73566306	99.49331097	99.25213886	99.01213815	98.7733003
220727A00027	7/27/2022	3.23	7/27/2027	107.8304	105.5292073	103.288958	101.1075769	98.98308153	96.91357392	94.89723577	92.93232461	91.01716979
220727A00035	10/24/2022	3.33	10/24/2029	115.71478	110.9770988	106.4638213	102.1631187	98.06384904	94.15551263	90.42821186	86.87261342	83.47991311
220727A00049	7/27/2022	3.31	7/25/2025	100.69255	100.4537331	100.2160588	99.97951646	99.74409798	99.50979534	99.27660059	99.04450584	98.81350331
220729A00035	8/3/2022	3.14	8/3/2027	107.69186	105.3731004	103.1161669	100.9189572	98.77945918	96.69574587	94.66597101	92.68836491	90.7612305
220729A00043	7/29/2022	3.04	7/29/2027	107.41679	105.1149029	102.8741135	100.6923449	98.56760494	96.49798636	94.4816624	92.51688258	90.60196878
220729A00045	7/29/2022	3.03	7/29/2027	107.394	105.0923734	102.851842	100.6703261	98.54583355	96.47645737	94.4603709	92.4958238	90.58113809
220729A00047	7/29/2022	3.06	1/29/2027	105.68408	103.9074406	102.1694454	100.4689	98.80465954	97.175626	95.58074623	94.01900942	92.48944492
220801A00066	8/1/2022	2.93	7/30/2027	107.3513	105.0428446	102.7970198	100.6117743	98.4851345	96.41520311	94.40015527	92.43823555	90.52775478
220802A00009	8/2/2022	3	8/2/2027	107.3618	105.0496149	102.7990407	100.6079825	98.47443229	96.39646739	94.37224582	92.40000227	90.47804414
220804A00023	8/4/2022	3.19	8/4/2027	107.81605	105.4931106	103.2321555	101.0310834	98.88787953	96.80061411	94.76743783	92.78657787	90.85633397
220804A00037	8/4/2022	3.35	8/4/2025	100.78578	100.5191633	100.2539598	99.99015926	99.72775062	99.4667228	99.20706491	98.94876614	98.69181581
220808A00025	8/8/2022	3.25	8/6/2027	107.97321	105.6429573	103.3749914	101.167206	99.01758145	96.92418286	94.8851555	92.89872082	90.96317262
220811A00021	8/11/2022	3.47	8/11/2025	100.87962	100.593498	100.3090134	100.0261496	99.74489269	99.46522887	99.18714455	98.91062627	98.63566074
220812A00001	8/12/2022	3.17	8/12/2027	108.03714	105.6858251	103.3977821	101.1708861	99.00309838	96.89246367	94.8371064	92.83522665	90.88509643
220812A00002	8/12/2022	3.17	8/12/2027	108.03714	105.6858251	103.3977821	101.1708861	99.00309838	96.89246367	94.8371064	92.83522665	90.88509643
220816A00009	8/16/2022	3.33	8/16/2027	108.25656	105.8955391	103.5981998	101.3624184	99.18615435	97.06744963	95.0044248	92.99527514	91.03826708
220817A00036	10/14/2022	3.41	10/15/2027	109.05371	106.5155416	104.0501338	101.6549851	99.32769271	97.06595112	94.86754711	92.73035562	90.65233567
220817A00037	10/14/2022	3.41	10/15/2027	109.05371	106.5155416	104.0501338	101.6549851	99.32769271	97.06595112	94.86754711	92.73035562	90.65233567
220817A00038	10/14/2022	3.41	10/15/2027	109.05371	106.5155416	104.0501338	101.6549851	99.32769271	97.06595112	94.86754711	92.73035562	90.65233567
220817A00047	8/17/2022	3.29	8/17/2027	108.36584	105.9968848	103.6919496	101.4489008	99.26568724	97.14034072	95.07097173	93.05576575	91.09297968
220819A00034	8/19/2022	3.73	8/19/2032	125.37687	117.4585703	110.1105994	103.2886388	96.95204099	91.06350589	85.58878853	80.49643404	75.75753669
220823A00002	8/23/2022	3.38	8/23/2027	108.63775	106.2490139	103.9251783	101.6640926	99.46369144	97.32199131	95.2370864	93.20714503	91.23040631
220823A00009	8/23/2022	3.52	8/23/2027	108.77235	106.3859584	104.0643164	101.8052845	99.60680424	97.46689864	95.38366799	93.35528645	91.37999861
220823A00015	8/23/2022	3.78	8/30/2032	125.82258	117.857768	110.4683874	103.6096255	97.24038233	91.3229452	85.82269343	80.70783024	75.94913924
220824A00011	8/24/2022	3.7	8/22/2025	101.04959	100.732723	100.4178578	100.104971	99.79404373	99.48505769	99.17799462	98.87283654	98.56956567
220825A00006	8/25/2022	3.56	8/25/2027	108.88745	106.4941701	104.1659433	101.900621	99.69613996	97.55051773	95.46184895	93.42830184	91.44811483
220825A00022	8/25/2022	3.68	8/25/2025	101.07151	100.7462984	100.423187	100.1021544	99.78318055	99.46624565	99.15133014	98.83841473	98.52748034
220826A00033	8/26/2022	3.73	8/26/2025	101.0973	100.7692695	100.4433714	100.1195861	99.79789304	99.47827199	99.16070292	98.84516609	98.531642
220829A00057	8/29/2022	3.67	8/31/2026	105.0018	103.6467573	102.3157181	101.0081013	99.72334109	98.46088972	97.22021636	96.00080663	94.80216194
220830A00055	8/30/2022	3.7	8/30/2029	116.88089	112.2730942	107.8763484	103.6798819	99.67353112	95.84769964	92.19332384	88.70184054	85.36515685
220830A00093	11/16/2022	3.69	11/16/2029	117.57685	112.7314189	108.117685	103.7233042	99.53665701	95.54680217	91.74343314	88.11683791	84.65786141
220831A00079	8/31/2022	3.79	8/29/2025	101.14612	100.8096754	100.4754716	100.1434832	99.81368817	99.48606493	99.16059206	98.83724843	98.51601321

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
220901A00033	9/1/2022	3.72	9/1/2027	109.34148	106.9233681	104.5713884	102.2833702	100.0572272	97.89095335	95.78261897	93.7303675	91.7324123
220901A00035	9/1/2022	3.82	9/1/2028	113.60636	110.0951858	106.7128114	103.4538424	100.3131354	97.28578849	94.36712834	91.55269852	88.83824822
220906A00046	9/6/2022	3.79	9/7/2027	109.57608	107.1380783	104.7671736	102.461145	100.217863	98.03528004	95.91142731	93.84441111	91.83240953
220907A00010	9/7/2022	3.9	9/9/2032	127.45023	119.3708583	111.8770551	104.9230501	98.46688292	92.47006407	86.89727147	81.71607476	76.89668491
220907A00023	9/7/2022	3.76	9/8/2026	105.21963	103.8406151	102.4863862	101.156336	99.84987199	98.56642062	97.30542649	96.06635163	94.84867486
220912A00044	11/15/2022	3.85	11/14/2025	101.95652	101.4050296	100.8595132	100.3198782	99.78602975	99.25787487	98.73532262	98.218284	97.70667186
220912A00046	11/15/2022	3.85	11/14/2025	101.95652	101.4050296	100.8595132	100.3198782	99.78602975	99.25787487	98.73532262	98.218284	97.70667186
220912A00050	11/15/2022	3.76	11/15/2027	110.27127	107.6306447	105.067763	102.5798647	100.1643084	97.81856282	95.54020202	93.32689988	91.1764254
220912A00051	11/15/2022	3.76	11/15/2027	110.27127	107.6306447	105.067763	102.5798647	100.1643084	97.81856282	95.54020202	93.32689988	91.1764254
220913A00017	9/13/2022	3.98	9/14/2026	105.59812	104.1995063	102.8263089	101.4778907	100.1536379	98.85295673	97.57527218	96.32002767	95.08668413
220913A00018	9/13/2022	3.91	9/13/2027	109.93341	107.473987	105.0826564	102.7571549	100.4953077	98.2950246	96.15429639	94.07119091	92.04384979
220915A00040	9/15/2022	4.16	9/15/2025	101.45543	101.0713223	100.6901369	100.3118392	99.93639621	99.56377559	99.19394547	98.82687444	98.4625316
220916A00018	9/16/2022	4.07	9/16/2027	109.87259	107.5074872	105.2087532	102.974121	100.8014156	98.68854952	96.63351887	94.63439946	92.68934302
220916A00021	9/16/2022	4.17	9/16/2027	105.37985	104.0944897	102.8371116	101.6068698	100.4029496	99.22456771	98.07097093	96.94143455	95.8352611
220916A00042	9/16/2022	4.07	9/16/2030	122.78149	116.9191865	111.3800868	106.1446292	101.1945341	96.51271412	92.08319102	87.89101772	83.92220696
220916A00043	9/16/2022	4.07	9/16/2031	125.85943	118.8554676	112.2991909	106.1595025	100.4076216	95.01689967	89.96265256	85.22200589	80.77375383
220916A00045	9/16/2022	4.1	9/16/2032	129.00433	120.8483957	113.2838743	106.2644821	99.74778683	93.69487261	88.07003144	82.84048362	77.97612371
220919A00033	9/19/2022	4	9/17/2027	110.19806	107.7239929	105.3186967	102.9798755	100.7053243	98.49292382	96.34063741	94.24650689	92.20864917
220919A00036	9/19/2022	4.11	9/19/2029	118.35255	113.7741586	109.4080508	105.2431742	101.2691109	97.47603826	93.85469211	90.39633193	87.09270843
220920A00024	9/20/2022	4.25	9/19/2025	101.53451	101.1391425	100.74687	100.3576519	99.97145253	99.58823665	99.20796969	98.8306176	98.45614682
220920A00025	9/20/2022	4.23	9/18/2026	105.99964	104.5868318	103.1998756	101.8381212	100.5009398	99.18772323	97.89788305	96.63084953	95.3860711
220920A00026	9/20/2022	4.1	9/20/2027	110.47676	107.9907001	105.5739478	103.2241783	100.9391625	98.71675888	96.55490949	94.45163589	92.40503583
220921A00014	9/21/2022	4.08	9/21/2027	110.44042	107.951953	105.53293	103.1810257	100.8940044	98.66971808	96.50610239	94.4011731	92.35302239
220921A00069	9/21/2022	3.98	9/21/2027	110.40016	107.9080047	105.4854854	103.1302621	100.8400907	98.61281522	96.44636386	94.33874531	92.288045
220921A00074	9/21/2022	3.98	9/21/2027	110.40016	107.9080047	105.4854854	103.1302621	100.8400907	98.61281522	96.44636386	94.33874531	92.288045
220929A00041	9/29/2022	4.38	9/29/2027	111.27386	108.7521704	106.3013857	103.919109	101.6030398	99.35096861	97.16077309	95.03041369	92.95793015
220929A00043	9/29/2022	4.44	9/28/2029	120.48692	115.7158511	111.1660654	106.8261064	102.685174	98.73307997	94.96021001	91.35748873	87.9163465
220929A00063	9/29/2022	4.38	9/29/2027	111.27386	108.7521704	106.3013857	103.919109	101.6030398	99.35096861	97.16077309	95.03041369	92.95793015
221005A00041	10/5/2022	4.3	10/5/2027	111.15237	108.6154677	106.1503586	103.7546039	101.4258593	99.16187419	96.96048692	94.81962112	92.73728156
221006A00012	10/6/2022	4.37	10/6/2027	111.33779	108.7957957	106.3258063	103.9253674	101.5921255	99.32382163	97.11828605	94.97343468	92.88726503
221007A00003	10/7/2022	4.67	10/7/2025	101.92371	101.477529	101.0352609	100.5968583	100.1622708	99.73144844	99.30434238	98.88090454	98.4610877
221011A00036	10/11/2022	4.59	10/6/2026	106.76062	105.2918837	103.8508825	102.436894	101.0492237	99.68719993	98.35017381	97.03751774	95.74862472
221014A00026	10/14/2022	4.63	10/14/2027	112.08688	109.5132647	107.0130994	104.5838657	102.2231438	99.92861134	97.6980389	95.52928578	93.42029583

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4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
221014A00027	10/14/2022	4.63	10/14/2027	112.08688	109.5132647	107.0130994	104.5838657	102.2231438	99.92861134	97.6980389	95.52928578	93.42029583
221014A00032	10/14/2022	4.67	10/14/2027	111.63513	109.1702964	106.7763116	104.4506877	102.1910427	99.99509341	97.86065104	95.78561638	93.76797556
221014A00043	10/14/2022	4.49	10/14/2027	111.94731	109.3710802	106.8684759	104.4369656	102.0741211	99.77761213	97.54520209	95.37474322	93.26417273
221014A00050	10/14/2022	4.49	10/14/2027	111.94731	109.3710802	106.8684759	104.4369656	102.0741211	99.77761213	97.54520209	95.37474322	93.26417273
221018A00006	10/18/2022	4.55	10/18/2027	111.93964	109.3567385	106.8478767	104.4105008	102.0421615	99.74050852	97.50328637	95.32832949	93.21355827
221018A00007	10/18/2022	4.68	10/18/2027	106.36535	105.0039879	103.6730755	102.3716787	101.0988975	99.8538672	98.63575615	97.44376464	96.27712315
221018A00030	10/18/2022	4.71	10/17/2025	102.06861	101.5943347	101.1244866	100.6590011	100.1978173	99.74087576	99.28811782	98.83948606	98.39492405
221018A00031	10/18/2022	4.71	10/17/2025	102.06861	101.5943347	101.1244866	100.6590011	100.1978173	99.74087576	99.28811782	98.83948606	98.39492405
221018A00047	10/18/2022	4.78	10/20/2025	102.14035	101.6575585	101.179348	100.7056527	100.2364087	99.77155318	99.31102473	98.85476291	98.40270844
221018A00048	10/18/2022	4.71	10/19/2026	107.12091	105.6138571	104.1359113	102.6863004	101.2642792	99.86912863	98.50015376	97.15668333	95.83806853
221018A00049	10/18/2022	4.59	10/18/2027	112.03986	109.4556906	106.9455896	104.5070018	102.137477	99.83466421	97.59630712	95.42023944	93.30438086
221019A00008	10/19/2022	4.8	10/17/2025	102.11106	101.6366741	101.16671	100.7011092	100.239811	99.78275571	99.32988481	98.88114082	98.43646733
221019A00009	10/19/2022	4.8	10/17/2025	102.11106	101.6366741	101.16671	100.7011092	100.239811	99.78275571	99.32988481	98.88114082	98.43646733
221025A00027	10/25/2022	4.57	10/25/2027	112.08167	109.4774616	106.9484352	104.4919787	102.1055876	99.78685943	97.53348913	95.34326443	93.21406148
221027A00009	10/27/2022	4.68	10/27/2025	102.18075	101.678415	101.1810302	100.6885196	100.2008118	99.71783682	99.2395258	98.76581139	98.29662746
221027A00050	10/27/2022	4.52	10/27/2027	111.9814	109.3728976	106.8398622	104.3796692	101.9897989	99.66783521	97.41145984	95.21844813	93.08666451
221027A00056	4/25/2023	4.48	4/25/2030	123.04772	117.6083423	112.4493048	107.5546137	102.9092693	98.49920175	94.3112084	90.33289588	86.55262631
221027A00060	12/1/2022	4.46	12/1/2027	112.2917	109.578616	106.9461913	104.3915309	101.9118597	99.50452054	97.1669684	94.89676488	92.69157288
221027A00061	12/15/2022	4.45	12/15/2027	112.44446	109.6902337	107.0187762	104.4270751	101.9122495	99.4715431	97.10231748	94.80204642	92.56831013
221027A00062	12/15/2022	4.45	12/15/2027	112.44446	109.6902337	107.0187762	104.4270751	101.9122495	99.4715431	97.10231748	94.80204642	92.56831013
221027A00063	12/15/2022	4.45	12/15/2027	112.44446	109.6902337	107.0187762	104.4270751	101.9122495	99.4715431	97.10231748	94.80204642	92.56831013
221031A00004	10/31/2022	4.79	10/28/2025	102.24862	101.743316	101.2430111	100.7476338	100.2571113	99.77137254	99.29034769	98.81396832	98.3421673
221031A00033	10/31/2022	4.74	10/31/2025	102.2619	101.7482277	101.2397204	100.7362969	100.2378813	99.74439927	99.25577769	98.77194506	98.29283125
221031A00035	10/31/2022	4.67	10/30/2026	107.21729	105.6793282	104.1716278	102.6933737	101.2437779	99.82208004	98.42754614	97.05946745	95.71715939
221031A00036	10/31/2022	4.59	10/29/2027	112.18492	109.5682378	107.0273985	104.5597583	102.1627806	99.83403251	97.57118038	95.37198477	93.23429617
221031A00042	10/31/2022	4.73	10/30/2026	107.30856	105.7698745	104.2614642	102.7825126	101.3322314	99.90985976	98.51466352	97.14593358	95.80298508
221031A00045	10/31/2022	4.79	10/31/2025	102.28742	101.7736802	101.2650979	100.7616	100.2631106	99.7695551	99.28086067	98.79695572	98.3177701
221102A00012	11/2/2022	4.82	11/3/2025	102.34275	101.8205297	101.3036502	100.7920264	100.2855783	99.7842276	99.28789747	98.79651272	98.30999963
221102A00026	11/2/2022	4.66	11/2/2027	112.41687	109.785866	107.2313754	104.7507182	102.3413261	100.0007363	97.72658687	95.51661182	93.36863641
221107A00029	11/7/2022	4.83	11/9/2026	107.61207	106.0426568	104.5044378	102.9965605	101.5181995	100.0685588	98.64687053	97.25239373	95.88441325
221107A00030	11/7/2022	4.7	11/5/2027	112.56057	109.9190537	107.3545179	104.8642603	102.4456903	100.0963243	97.81378041	95.59577397	93.44011261
221107A00048	11/7/2022	4.96	9/8/2025	101.66996	101.3047434	100.9421608	100.5821841	100.224785	99.86993583	99.51760933	99.16777852	98.82041685
221107A00053	11/7/2022	4.95	10/7/2025	102.04803	101.6015239	101.1589323	100.7202084	100.2853015	99.85416185	99.42674046	99.00298926	98.58286099

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
221107A00056	11/7/2022	4.73	11/8/2027	112.6793	110.027581	107.4533032	104.9537432	102.5262883	100.1684339	97.8777784	95.65201862	93.48894461
221108A00033	11/8/2022	4.7	11/8/2027	112.60238	109.9516512	107.3783453	104.8797356	102.4532099	100.0962643	97.80649782	95.58160783	93.41938499
221108A00036	11/8/2022	4.95	11/7/2025	102.46498	101.9313113	101.4032139	100.8806037	100.3633954	99.8515054	99.34485169	98.84335409	98.34693401
221110A00024	11/10/2022	4.51	11/10/2025	102.26922	101.7278314	101.1921903	100.6622051	100.1377865	99.61884683	99.10530038	98.59706318	98.09405301
221110A00025	11/10/2022	4.39	11/10/2026	106.94451	105.3776243	103.8419315	102.3365711	100.8607166	99.41357085	97.99436515	96.60235777	95.23683279
221110A00026	11/10/2022	4.29	11/10/2027	111.57666	108.9334401	106.3676244	103.8764859	101.4574072	99.10787952	96.82549775	94.60795522	92.45303908
221110A00038	11/10/2022	4.34	11/10/2027	111.70515	109.0602621	106.4928196	104.0000908	101.579457	99.22840844	96.94453897	94.72554091	92.56920047
221110A00039	11/10/2022	4.34	11/10/2027	111.70515	109.0602621	106.4928196	104.0000908	101.579457	99.22840844	96.94453897	94.72554091	92.56920047
221110A00064	1/17/2023	4.25	1/14/2028	112.2761	109.4404273	106.6920498	104.0277025	101.4442694	98.9387737	96.50836988	94.15033723	91.86207322
221110A00065	1/17/2023	4.25	1/14/2028	112.2761	109.4404273	106.6920498	104.0277025	101.4442694	98.9387737	96.50836988	94.15033723	91.86207322
221110A00075	11/10/2022	4.56	11/10/2025	102.29613	101.7546632	101.2189397	100.6888728	100.164373	99.64535286	99.13172651	98.62340999	98.12032108
221110A00076	11/10/2022	4.45	11/10/2026	107.03761	105.4699786	103.9335488	102.4274643	100.9508982	99.50305312	98.08315999	96.69047674	95.32428717
221110A00084	11/10/2022	4.56	11/6/2025	102.24568	101.7154448	101.1907212	100.6714225	100.1574648	99.64876565	99.14524469	98.64682293	98.15342308
221110A00086	11/10/2022	4.34	11/8/2027	111.67929	109.0404934	106.4788512	103.9916446	101.5762694	99.23022925	96.95113083	94.73667843	92.58466957
221110A00108	11/10/2022	4.48	12/10/2025	102.62752	102.0017166	101.3835673	100.7729303	100.1696688	99.57364965	98.98474258	98.40282062	97.82775974
221110A00110	11/10/2022	4.47	1/13/2026	103.05286	102.3310243	101.6193291	100.9175621	100.2255163	99.54299015	98.86978789	98.205719	97.55059812
221114A00002	11/14/2022	4.37	11/15/2027	111.84732	109.1861777	106.6032406	104.0957371	101.6610118	99.29652049	96.99982421	94.76858459	92.6005588
221116A00027	11/16/2022	4.46	11/14/2025	102.29165	101.739105	101.1925453	100.6518752	100.1169994	99.58782507	99.06426108	98.54621834	98.03360962
221117A00012	11/17/2022	4.54	11/14/2025	102.3356	101.7829182	101.2362217	100.6954158	100.1604053	99.63109723	99.10740055	98.58922612	98.0764867
221117A00013	11/17/2022	4.54	11/14/2025	102.3356	101.7829182	101.2362217	100.6954158	100.1604053	99.63109723	99.10740055	98.58922612	98.0764867
221117A00014	11/17/2022	4.54	11/14/2025	102.3356	101.7829182	101.2362217	100.6954158	100.1604053	99.63109723	99.10740055	98.58922612	98.0764867
221117A00025	11/17/2022	4.28	11/17/2027	111.64032	108.9761088	106.3903324	103.8802033	101.4430537	99.07632746	96.77757478	94.54444694	92.37469145
221118A00018	11/18/2022	4.55	11/18/2025	102.39144	101.8274829	101.2697555	100.7181554	100.1725819	99.63293619	99.09912196	98.57104479	98.04861233
221118A00019	11/18/2022	4.55	11/18/2025	102.39144	101.8274829	101.2697555	100.7181554	100.1725819	99.63293619	99.09912196	98.57104479	98.04861233
221118A00023	11/18/2022	4.12	11/18/2027	111.45564	108.7863386	106.1957844	103.6811784	101.2398366	98.86918775	96.56676792	94.33021493	92.15726363
221118A00045	11/18/2022	4.57	11/18/2025	102.40265	101.8386567	101.2808938	100.7292585	100.18365	99.64396962	99.11012097	98.58200964	98.05954329
221118A00046	11/18/2022	4.4	11/18/2026	107.07207	105.4814419	103.9227237	102.3950254	100.8974906	99.42929442	97.98964144	96.57776472	95.19292439
221118A00080	11/18/2022	4.61	11/18/2025	102.42507	101.8610044	101.3031704	100.7514647	100.2057862	99.66603648	99.13211898	98.60393934	98.08140519
221121A00047	11/21/2022	4.89	11/21/2033	138.45063	128.720583	119.7857417	111.5760329	104.0279275	97.08380061	90.69135351	84.80309507	79.37587615
221121A00052	11/21/2022	4.35	11/22/2027	111.88637	109.2045289	106.6019137	104.0757017	101.6231868	99.24177704	96.92898876	94.68244133	92.49985218
221121A00064	11/21/2022	4.34	11/22/2027	111.86034	109.1788378	106.5765563	104.0506704	101.5984743	99.21737626	96.90489286	94.65864367	92.4763463
221122A00029	11/22/2022	4.31	11/22/2027	111.78224	109.1017645	106.5004839	103.9755763	101.5243367	99.1441739	96.83260516	94.58725068	92.40582867
221122A00040	11/22/2022	4.31	11/22/2027	111.78224	109.1017645	106.5004839	103.9755763	101.5243367	99.1441739	96.83260516	94.58725068	92.40582867

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
221123A00016	11/23/2022	4.58	11/23/2029	121.17197	116.3432389	111.7451778	107.3653919	103.1922283	99.21472337	95.42255788	91.80601546	88.35594382
221123A00034	11/23/2022	4.43	11/23/2026	107.18975	105.5839454	104.0105108	102.4685364	100.9571471	99.47549991	98.02278261	96.59821212	95.20103328
221123A00039	11/23/2022	4.29	11/23/2027	111.74297	109.0601248	106.4566088	103.9295919	101.4763621	99.09432198	96.78098258	94.53395842	92.35096233
221128A00034	11/28/2022	4.27	11/26/2027	111.72907	109.0377497	106.4261958	103.8915503	101.4310796	99.04216565	96.72230062	94.46908097	92.28020257
221129A00034	11/29/2022	4.38	12/1/2025	102.50135	101.9003386	101.3063808	100.7193535	100.139136	99.56561021	98.99866075	98.43817492	97.88404256
221129A00035	11/29/2022	4.09	11/29/2027	111.51515	108.8132862	106.1917971	103.647791	101.1785036	98.78128809	96.45360923	94.19303786	91.99724571
221129A00037	11/29/2022	4.56	11/26/2025	102.49796	101.9114365	101.3316406	100.7584528	100.1917607	99.63145394	99.07742509	98.52956889	97.9877825
221129A00038	11/29/2022	4.56	11/26/2025	102.49796	101.9114365	101.3316406	100.7584528	100.1917607	99.63145394	99.07742509	98.52956889	97.9877825
221129A00039	11/29/2022	4.56	11/26/2025	102.49796	101.9114365	101.3316406	100.7584528	100.1917607	99.63145394	99.07742509	98.52956889	97.9877825
221129A00040	11/29/2022	4.56	11/26/2025	102.49796	101.9114365	101.3316406	100.7584528	100.1917607	99.63145394	99.07742509	98.52956889	97.9877825
221129A00041	11/29/2022	4.56	11/28/2025	102.52318	101.9310219	101.3457088	100.7671255	100.1951565	99.62968876	99.07061175	98.51781754	97.97120058
221129A00042	11/29/2022	4.56	11/28/2025	102.52318	101.9310219	101.3457088	100.7671255	100.1951565	99.62968876	99.07061175	98.51781754	97.97120058
221129A00043	11/29/2022	4.59	12/1/2025	102.57919	101.9785086	101.3848695	100.7981486	100.2182254	99.64498219	99.07830403	98.51807855	97.96419591
221129A00044	11/29/2022	4.56	11/28/2025	102.52318	101.9310219	101.3457088	100.7671255	100.1951565	99.62968876	99.07061175	98.51781754	97.97120058
221129A00045	11/29/2022	4.56	11/28/2025	102.52318	101.9310219	101.3457088	100.7671255	100.1951565	99.62968876	99.07061175	98.51781754	97.97120058
221129A00046	11/29/2022	4.56	12/1/2025	102.56129	101.9606732	101.3670941	100.7804328	100.2005687	99.62738409	99.06076405	98.50059621	97.94677074
221129A00047	11/29/2022	4.56	12/1/2025	102.56129	101.9606732	101.3670941	100.7804328	100.2005687	99.62738409	99.06076405	98.50059621	97.94677074
221129A00048	11/29/2022	4.56	12/1/2025	102.56129	101.9606732	101.3670941	100.7804328	100.2005687	99.62738409	99.06076405	98.50059621	97.94677074
221129A00049	11/29/2022	4.56	12/1/2025	102.56129	101.9606732	101.3670941	100.7804328	100.2005687	99.62738409	99.06076405	98.50059621	97.94677074
221129A00050	11/29/2022	4.56	12/2/2025	102.57418	101.9707409	101.3744146	100.7850715	100.2025895	99.62684922	99.05773393	98.49512969	97.93892516
221129A00051	11/29/2022	4.56	12/2/2025	102.57418	101.9707409	101.3744146	100.7850715	100.2025895	99.62684922	99.05773393	98.49512969	97.93892516
221129A00052	11/29/2022	4.56	12/2/2025	102.57418	101.9707409	101.3744146	100.7850715	100.2025895	99.62684922	99.05773393	98.49512969	97.93892516
221129A00053	11/29/2022	4.56	12/2/2025	102.57418	101.9707409	101.3744146	100.7850715	100.2025895	99.62684922	99.05773393	98.49512969	97.93892516
221129A00054	11/29/2022	4.56	12/3/2025	102.58706	101.9808081	101.381734	100.7897089	100.2046089	99.62631279	99.05470234	98.48966196	97.9310787
221129A00055	11/29/2022	4.56	12/3/2025	102.58706	101.9808081	101.381734	100.7897089	100.2046089	99.62631279	99.05470234	98.48966196	97.9310787
221129A00056	11/29/2022	4.31	11/29/2027	111.8722	109.1703338	106.5487152	104.0044615	101.5348159	99.13713868	96.80890143	94.54768126	92.35115582
221129A00059	11/29/2022	4.39	11/27/2026	107.18216	105.5650445	103.980651	102.4280584	100.9063767	99.41474899	97.95234964	96.51838295	95.11208182
221129A00060	11/29/2022	4.39	11/27/2026	107.18216	105.5650445	103.980651	102.4280584	100.9063767	99.41474899	97.95234964	96.51838295	95.11208182
221129A00061	11/29/2022	4.39	11/27/2026	107.18216	105.5650445	103.980651	102.4280584	100.9063767	99.41474899	97.95234964	96.51838295	95.11208182
221129A00062	11/29/2022	4.39	11/27/2026	107.18216	105.5650445	103.980651	102.4280584	100.9063767	99.41474899	97.95234964	96.51838295	95.11208182
221129A00064	11/29/2022	4.28	11/30/2027	111.80628	109.1024013	106.4788934	103.9328695	101.4615663	99.06233782	96.73264959	94.47007324	92.27228117
221129A00065	11/29/2022	4.28	11/30/2027	111.80628	109.1024013	106.4788934	103.9328695	101.4615663	99.06233782	96.73264959	94.47007324	92.27228117
221129A00066	11/29/2022	4.28	11/29/2027	111.79351	109.092689	106.4720862	103.9288251	101.4601498	99.06342135	96.73611185	94.47579909	92.28016132

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
221129A00067	11/29/2022	4.28	11/29/2027	111.79351	109.092689	106.4720862	103.9288251	101.4601498	99.06342135	96.73611185	94.47579909	92.28016132
221129A00068	11/29/2022	4.28	11/29/2027	111.79351	109.092689	106.4720862	103.9288251	101.4601498	99.06342135	96.73611185	94.47579909	92.28016132
221129A00069	11/29/2022	4.28	11/26/2027	111.75521	109.0635496	106.4516594	103.916685	101.4558928	99.06666456	96.74649216	94.49297186	92.30379934
221129A00070	11/29/2022	4.28	11/26/2027	111.75521	109.0635496	106.4516594	103.916685	101.4558928	99.06666456	96.74649216	94.49297186	92.30379934
221129A00071	11/29/2022	4.28	11/26/2027	111.75521	109.0635496	106.4516594	103.916685	101.4558928	99.06666456	96.74649216	94.49297186	92.30379934
221129A00072	11/29/2022	4.39	12/2/2026	107.25147	105.6197491	104.0212178	102.4549303	100.9199776	99.41548446	97.94060818	96.4945368	95.0764878
221129A00073	11/29/2022	4.39	12/2/2026	107.25147	105.6197491	104.0212178	102.4549303	100.9199776	99.41548446	97.94060818	96.4945368	95.0764878
221129A00075	11/29/2022	4.38	12/1/2026	107.22169	105.592963	103.9973279	102.4338447	100.9016083	99.3997473	97.92742254	96.48382537	95.06817642
221129A00076	11/29/2022	4.38	12/1/2026	107.22169	105.592963	103.9973279	102.4338447	100.9016083	99.3997473	97.92742254	96.48382537	95.06817642
221129A00077	11/29/2022	4.38	12/1/2026	107.22169	105.592963	103.9973279	102.4338447	100.9016083	99.3997473	97.92742254	96.48382537	95.06817642
221129A00078	11/29/2022	4.38	12/1/2026	107.22169	105.592963	103.9973279	102.4338447	100.9016083	99.3997473	97.92742254	96.48382537	95.06817642
221129A00083	11/29/2022	4.38	11/30/2026	107.20804	105.5821716	103.9892996	102.4284903	100.8988423	99.39948794	97.92959139	96.48834735	95.07497956
221129A00084	11/29/2022	4.38	11/30/2026	107.20804	105.5821716	103.9892996	102.4284903	100.8988423	99.39948794	97.92959139	96.48834735	95.07497956
221129A00085	11/29/2022	4.38	11/30/2026	107.20804	105.5821716	103.9892996	102.4284903	100.8988423	99.39948794	97.92959139	96.48834735	95.07497956
221129A00086	11/29/2022	4.38	11/30/2026	107.20804	105.5821716	103.9892996	102.4284903	100.8988423	99.39948794	97.92959139	96.48834735	95.07497956
221130A00019	11/30/2022	4.63	11/26/2025	102.53874	101.9520882	101.3721583	100.7988377	100.2320137	99.67157623	99.11741769	98.56943284	98.02751881
221130A00032	11/30/2022	4.37	11/30/2027	112.04258	109.3355805	106.7090191	104.160011	101.6857907	99.28371025	96.95123313	94.68592908	92.48546868
221130A00033	11/30/2022	4.37	11/30/2027	112.04258	109.3355805	106.7090191	104.160011	101.6857907	99.28371025	96.95123313	94.68592908	92.48546868
221130A00069	11/30/2022	4.15	11/30/2027	111.68534	108.9783349	106.3519005	103.8031379	101.3292741	98.92765385	96.59573395	94.3310778	92.13135003
221130A00075	11/30/2022	4.15	11/30/2027	111.68534	108.9783349	106.3519005	103.8031379	101.3292741	98.92765385	96.59573395	94.3310778	92.13135003
221130A00076	11/30/2022	4.15	11/30/2027	111.68534	108.9783349	106.3519005	103.8031379	101.3292741	98.92765385	96.59573395	94.3310778	92.13135003
221130A00081	11/30/2022	4.15	11/30/2027	111.68534	108.9783349	106.3519005	103.8031379	101.3292741	98.92765385	96.59573395	94.3310778	92.13135003
221130A00085	11/30/2022	4.19	11/30/2027	111.56998	108.869222	106.2487676	103.705728	101.2373419	98.84096538	96.51406604	94.25421739	92.05909367
221130A00110	11/30/2022	4.15	11/30/2027	111.46495	108.7655868	106.1464895	103.6047762	101.1376866	98.74257763	96.4169178	94.15828146	91.96434366
221201A00011	12/1/2022	3.95	12/1/2027	111.17129	108.4683069	105.845885	103.3011218	100.8312415	98.4335864	96.10561129	93.84487751	91.64904794
221201A00043	12/1/2022	4.37	12/3/2029	111.64377	108.9506632	106.3560391	103.8554539	101.4446949	99.11976965	96.8768925	94.71247258	92.62310245
221201A00068	12/1/2022	4.21	12/1/2027	111.02171	108.4528451	105.9605114	103.5419125	101.1943743	98.91533978	96.70236274	94.55310186	92.46531558
221202A00018	12/2/2022	4.16	12/2/2027	111.51516	108.8095743	106.1845591	103.6372179	101.1647752	98.7645737	96.43406856	94.17082146	91.97249559
221202A00025	12/2/2022	4.06	12/2/2026	106.85123	105.2206166	103.623213	102.0580726	100.5242849	99.02097335	97.5472941	96.10243403	94.68560955
221205A00024	12/5/2022	4.13	12/3/2027	111.44812	108.7406415	106.1138605	103.5648715	101.0908923	98.68925946	96.35742197	94.09293603	91.89345956
221205A00048	12/5/2022	4.4	12/5/2025	102.5156	101.9040541	101.2998141	100.7027523	100.1127412	99.52965631	98.95337595	98.38378136	97.82075651
221205A00088	12/5/2022	4.13	12/3/2027	111.44812	108.7406415	106.1138605	103.5648715	101.0908923	98.68925946	96.35742197	94.09293603	91.89345956
221206A00011	12/6/2022	4.29	12/7/2026	107.15717	105.5125197	103.9015058	102.3231615	100.776559	99.26080549	97.77504126	96.31843849	94.89019954

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
221206A00025	12/6/2022	4.27	12/4/2026	107.0846	105.4487896	103.8463275	102.2762603	100.7376719	99.22968066	97.75143754	96.30212471	94.88095406
221206A00036	12/6/2022	4.13	12/6/2027	111.4838	108.7675095	106.1323627	103.5754328	101.0939151	98.68512487	96.34649143	94.07555218	91.86994746
221206A00039	12/6/2022	4.29	12/7/2026	107.15717	105.5125197	103.9015058	102.3231615	100.776559	99.26080549	97.77504126	96.31843849	94.89019954
221207A00009	12/7/2022	4.38	12/8/2025	102.5406	101.9206496	101.3082113	100.7031498	100.1053324	99.51462907	98.93091327	98.35406129	97.78395234
221207A00010	12/7/2022	4.08	12/7/2027	111.36344	108.6459678	106.0097523	103.4518563	100.969469	98.55989973	96.22057218	93.94901863	91.74287458
221207A00012	12/7/2022	4.21	12/7/2026	107.02702	105.3834652	103.7735277	102.1962407	100.6506769	99.13594394	97.65118268	96.19556572	94.76829589
221207A00017	12/7/2022	3.86	12/7/2027	111.00276	108.2853236	105.6492709	103.0916572	100.6096639	98.20059291	95.86186119	93.59099458	91.38562252
221207A00032	12/7/2022	4.52	12/7/2032	132.20866	123.728993	115.877393	108.6035599	101.8614873	95.60907384	89.80777194	84.42227012	79.42020523
221207A00035	12/7/2022	4.31	1/7/2026	102.86427	102.1598347	101.4650719	100.7797788	100.1037624	99.43683501	98.77881392	98.12952129	97.48878402
221208A00001	12/8/2022	4.6	12/8/2033	136.09415	126.4141267	117.5311222	109.3744781	101.8801743	94.99017292	88.65182961	82.81736549	77.44339359
221208A00005	12/8/2022	4.88	12/8/2037	150.15845	135.6710355	122.8293197	111.4332798	101.3083628	92.3021129	84.28126321	77.12922392	70.74391067
221208A00006	12/8/2022	4.88	12/8/2037	150.15845	135.6710355	122.8293197	111.4332798	101.3083628	92.3021129	84.28126321	77.12922392	70.74391067
221208A00020	12/8/2022	4.11	12/8/2027	111.45463	108.733166	106.0931297	103.5315786	101.0456934	98.63277582	96.29024213	94.01561775	91.80653165
221208A00050	12/8/2022	4.11	12/8/2027	111.45463	108.733166	106.0931297	103.5315786	101.0456934	98.63277582	96.29024213	94.01561775	91.80653165
221208A00051	2/15/2023	4.27	2/13/2026	103.28994	102.4809084	101.684576	100.9006492	100.1288395	99.36886694	98.62046037	97.88335676	97.15730104
221208A00052	2/15/2023	4.01	2/15/2028	111.99092	109.0673441	106.2362236	103.4940805	100.8375923	98.26358253	95.76901326	93.35097774	91.00669406
221208A00054	2/1/2023	4.02	2/1/2028	111.85021	108.9701704	106.1801455	103.4767239	100.8566469	98.31680359	95.85422254	93.46606466	91.14961605
221208A00061	12/8/2022	4.11	12/8/2027	111.45463	108.733166	106.0931297	103.5315786	101.0456934	98.63277582	96.29024213	94.01561775	91.80653165
221208A00062	12/8/2022	4.24	12/8/2028	116.19924	112.362772	108.676447	105.1335279	101.7276223	98.45266075	95.30287886	92.27279964	89.35721755
221208A00110	12/8/2022	4.07	12/8/2027	111.34872	108.6286597	105.9900028	103.4297995	100.9452317	98.53360191	96.19232741	93.91893443	91.71105279
221209A00035	12/9/2022	3.91	12/9/2027	111.1582	108.4331244	105.7897716	103.2251821	100.7365206	98.3210739	95.97624434	93.69954414	91.48858986
221209A00037	12/9/2022	3.91	12/9/2027	111.1582	108.4331244	105.7897716	103.2251821	100.7365206	98.3210739	95.97624434	93.69954414	91.48858986
221209A00070	12/9/2022	4.42	12/9/2037	128.44887	120.6501534	113.5100757	106.964178	100.9549336	95.43094802	90.34625623	85.65970633	81.33441687
221212A00011	12/12/2022	3.89	12/10/2027	111.1166	108.3892886	105.7438415	103.1772843	100.6867749	98.26959319	95.92313545	93.64490799	91.43252186
221212A00040	12/12/2022	4.45	12/12/2025	102.63403	102.0026554	101.3790712	100.7631328	100.1546998	99.55363532	98.95980588	98.37308107	97.79333365
221212A00041	12/12/2022	4.15	12/10/2027	111.58445	108.8556889	106.2086898	103.6404921	101.1482604	98.7292812	96.38095667	94.10079874	91.88642372
221212A00063	12/12/2022	4.45	12/12/2025	102.63403	102.0026554	101.3790712	100.7631328	100.1546998	99.55363532	98.95980588	98.37308107	97.79333365
221212A00071	12/12/2022	4.15	12/13/2027	111.6203	108.8827103	106.2273331	103.6511854	101.1514093	98.72526977	96.37014893	94.08353981	91.86304093
221212A00117	6/12/2023	4.11	6/12/2026	104.60728	103.4594231	102.3368263	101.238662	100.1641378	99.11249521	98.08300791	97.07498003	96.08774462
221212A00131	12/12/2023	3.77	12/11/2026	106.359	104.7101408	103.0951609	101.5130867	99.96297811	98.44393069	96.95507401	95.49556999	94.06461136
221213A00004	12/13/2022	3.99	12/13/2027	111.1944	108.4625082	105.8127045	103.2420028	100.747549	98.32661207	95.97657772	93.6949425	91.47930834
221213A00017	12/13/2022	4.1	12/14/2026	106.93817	105.2761692	103.6484211	102.0539316	100.4917463	98.96094778	97.46065281	95.99001132	94.54820464
221213A00047	12/13/2022	3.8	12/13/2027	110.91116	108.1782523	105.5275842	102.9561625	100.4611247	98.0397315	95.68936099	93.40750255	91.19175134

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
221213A00051	12/13/2022	4.02	12/13/2027	111.27426	108.5412961	105.8904474	103.3187245	100.8232728	98.40136039	96.05037232	93.7678045	91.5512582
221213A00056	12/13/2022	4.02	5/13/2026	104.22809	103.1650657	102.1237729	101.1035525	100.1037689	99.12381142	98.16309376	97.2210525	96.29714605
221213A00061	12/13/2022	4.15	12/11/2026	106.98145	105.3273115	103.707152	102.1199904	100.5648841	99.04092623	97.547244	96.08299707	94.64737599
221214A00003	12/14/2022	4.26	12/12/2025	102.51489	101.8839373	101.2607694	100.6452437	100.0372198	99.436561	98.8431337	98.25680761	97.67745554
221214A00020	12/14/2022	4.2	12/12/2025	102.47727	101.8464474	101.223411	100.6080155	100.0001209	99.39959016	98.80628986	98.22008968	97.64086245
221214A00022	12/14/2022	4.17	2/13/2026	103.20977	102.4010811	101.6050969	100.8215146	100.0500456	99.29041016	98.54233703	97.80556331	97.07983399
221214A00031	12/14/2022	3.97	12/14/2027	111.15261	108.4184994	105.7666116	103.1939525	100.697661	98.27499929	95.92334689	93.64019448	91.42313847
221214A00077	12/14/2022	3.84	12/14/2027	111.02908	108.2918047	105.6369552	103.0615274	100.5626498	98.13757515	95.78367389	93.49842816	91.27942633
221214A00079	12/14/2022	3.84	12/14/2027	111.02908	108.2918047	105.6369552	103.0615274	100.5626498	98.13757515	95.78367389	93.49842816	91.27942633
221214A00102	12/14/2022	4.33	12/15/2025	102.59552	101.9559572	101.3243897	100.7006678	100.0846458	99.47618136	98.8751357	98.28137344	97.69476247
221215A00082	12/15/2022	4.27	12/15/2025	102.5574	101.9179714	101.2865386	100.6629503	100.0470606	99.43872742	98.83781186	98.24417857	97.65769548
221215A00115	12/15/2022	4	12/15/2027	111.24408	108.5059665	105.8502483	103.2739257	100.7741291	98.34811302	95.99324947	93.70702217	91.48702094
221216A00007	12/16/2022	4.27	12/16/2025	102.56948	101.9272322	101.2930509	100.6667818	100.0482772	99.43739294	98.83398863	98.23792714	97.64907473
221216A00008	12/16/2022	4.27	12/16/2025	102.56948	101.9272322	101.2930509	100.6667818	100.0482772	99.43739294	98.83398863	98.23792714	97.64907473
221216A00009	12/16/2022	4.27	12/16/2025	102.56948	101.9272322	101.2930509	100.6667818	100.0482772	99.43739294	98.83398863	98.23792714	97.64907473
221216A00010	12/16/2022	4.27	12/16/2025	102.56948	101.9272322	101.2930509	100.6667818	100.0482772	99.43739294	98.83398863	98.23792714	97.64907473
221216A00013	12/16/2022	4.04	12/16/2027	111.36242	108.6199406	105.960037	103.379704	100.8760637	98.44636229	96.08796421	93.79834596	91.57509056
221216A00023	12/16/2022	4.04	12/13/2027	111.32749	108.5938214	105.9422759	103.3698724	100.8737553	98.4511926	96.09956872	93.81637916	91.59922478
221216A00045	12/16/2022	4.38	5/16/2025	100.17788	100.1333872	100.0889565	100.0445829	100.0002663	99.95600658	99.91180363	99.86765734	99.82356759
221216A00047	12/16/2022	4.34	6/16/2025	100.51062	100.3800029	100.2497433	100.1198367	99.99028161	99.86107657	99.73222013	99.60371083	99.47554724
221216A00048	12/16/2022	4.32	7/16/2025	100.83494	100.620826	100.4076394	100.1953709	99.98401461	99.7735645	99.5640147	99.35535935	99.14759266
221216A00049	12/16/2022	4.29	8/15/2025	101.1585	100.860801	100.5648713	100.270692	99.97824747	99.68752235	99.39850138	99.11116949	98.8255118
221219A00043	12/19/2022	4.07	12/17/2027	111.45426	108.7077605	106.0440165	103.4600106	100.9528564	98.5197923	96.15817526	93.86547478	91.63926725
221220A00025	12/20/2022	4.38	12/22/2025	102.71398	102.0545478	101.4036049	100.760986	100.1265319	99.50008735	98.88150122	98.27062598	97.66731786
221221A00043	12/21/2022	4.26	12/19/2025	102.59925	101.9485704	101.3061642	100.671874	100.0455464	99.42703189	98.81618457	98.21286224	97.61692619
221221A00048	12/21/2022	4.22	12/21/2026	107.2282	105.5444917	103.8957412	102.2809212	100.6990487	99.14917893	97.63040301	96.14184648	94.68266753
221221A00049	12/21/2022	4.15	12/21/2027	111.71591	108.9547465	106.2770105	103.6796527	101.1597539	98.71452192	96.34128464	94.03748431	91.80067163
221221A00053	12/21/2022	4.15	12/21/2027	111.71591	108.9547465	106.2770105	103.6796527	101.1597539	98.71452192	96.34128464	94.03748431	91.80067163
221222A00012	12/22/2022	4.35	12/16/2025	102.62053	101.9781004	101.3437379	100.7172893	100.0986067	99.48754612	98.88396695	98.28773211	97.69870784
221222A00013	12/22/2022	4.34	12/23/2025	102.70006	102.0379026	101.3843019	100.7390932	100.1021153	99.47321114	98.85222771	98.23901578	97.63342988
221222A00024	12/22/2022	4.35	12/15/2025	102.60823	101.9686192	101.3370067	100.7132403	100.0971742	99.488666	98.88757698	98.29377173	97.70711814
221222A00026	12/22/2022	4.22	12/15/2026	107.14894	105.4824004	103.8502377	102.2514543	100.6850912	99.15022624	97.64597207	96.17147447	94.7259109
221222A00027	12/22/2022	4.16	12/15/2027	111.67088	108.9270393	106.2657249	103.6839344	101.1787942	98.74755483	96.38758476	94.09636412	91.87147932

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
221222A00035	12/30/2022	4.34	12/30/2025	102.78598	102.1040368	101.431154	100.767149	100.1118469	99.46507733	98.8266743	98.19647616	97.5743254
221222A00053	12/22/2022	4.18	12/22/2027	111.5245	108.8194878	106.197114	103.6542929	101.1880742	98.79563974	96.47429646	94.22146967	92.034697
221223A00025	12/23/2022	4.25	12/23/2027	112.0088	109.2380975	106.551213	103.9450775	101.4167537	98.96343231	96.58242542	94.27116018	92.02717303
221228A00044	12/28/2022	4.31	12/28/2027	112.23219	109.4444834	106.7414174	104.1198757	101.5768809	99.10958575	96.71526656	94.39131693	92.13524169
221228A00075	12/28/2022	4.09	12/28/2027	111.86435	109.0767061	106.3738335	103.7526099	101.2100496	98.74329749	96.34962276	94.02641215	91.77116409
221228A00129	12/28/2022	4.11	12/28/2027	111.82663	109.0537606	106.3664937	103.7615985	101.2359942	98.78673951	96.41102452	94.10616408	91.86959107
221229A00075	12/29/2022	5.2	12/29/2037	154.30552	139.5102207	126.394629	114.754335	104.4110086	95.20894128	87.01206026	79.7013522	73.17263643
221230A00059	12/30/2022	4.47	6/30/2025	100.69813	100.5283263	100.3590907	100.1904234	100.0223215	99.85478218	99.68780269	99.52138022	99.35551199
221230A00087	12/30/2022	4.56	1/2/2026	102.97387	102.2828918	101.6012042	100.9286181	100.2649521	99.6100295	98.96367808	98.32573025	97.69602275
221230A00088	12/30/2022	4.42	12/30/2026	107.68529	105.9728399	104.2962767	102.6545332	101.0465885	99.47146201	97.92821084	96.41592837	94.93374229
221230A00109	12/30/2022	4.56	12/30/2025	102.93491	102.2524061	101.5789649	100.9144068	100.2585567	99.61124418	98.97230327	98.34157218	97.71889333
221230A00111	12/30/2022	4.42	12/30/2026	107.68529	105.9728399	104.2962767	102.6545332	101.0465885	99.47146201	97.92821084	96.41592837	94.93374229
230103A00066	1/3/2023	4.19	7/15/2026	105.21435	103.9686805	102.7526047	101.5650734	100.4050886	99.27169833	98.16399422	97.08110881	96.02221336
230103A00070	1/3/2023	4.53	10/15/2025	101.95927	101.4908365	101.0267258	100.5668757	100.1112273	99.65972323	99.21230681	98.76892255	98.32951592
230104A00004	1/4/2023	4.19	1/4/2028	111.99166	109.187737	106.4694477	103.8336213	101.2772269	98.79736748	96.39127254	94.05629174	91.78988868
230104A00044	1/4/2023	4.2	1/4/2028	112.0189	109.214598	106.4959446	103.8597625	101.3030207	98.82282174	96.41639496	94.08108978	91.81436957
230105A00020	1/5/2023	4.32	1/5/2028	112.358	109.5462754	106.820459	104.1773665	101.6139555	99.12731758	96.71467188	94.37335812	92.10083052
230106A00017	1/6/2023	4.23	1/6/2028	112.12469	109.3133812	106.5880607	103.945539	101.3827675	98.89683251	96.48494799	94.14444895	91.87278522
230106A00019	1/6/2023	4.23	1/6/2028	112.12469	109.3133812	106.5880607	103.945539	101.3827675	98.89683251	96.48494799	94.14444895	91.87278522
230106A00032	1/6/2023	4.28	1/6/2026	102.88643	102.1839665	101.4911143	100.8076774	100.1334644	99.46828923	98.81197082	98.16433283	97.52520359
230109A00042	1/9/2023	4.07	12/20/2027	111.48944	108.7341191	106.0620059	103.4700617	100.9553773	98.51516928	96.14677444	93.84764317	91.6153339
230109A00083	1/9/2023	4.79	1/11/2038	149.25984	134.7355792	121.8731761	110.4692879	100.3466331	91.35051726	83.34584138	76.21452026	69.85325343
230110A00006	1/10/2023	4.06	1/10/2028	111.70705	108.8903639	106.1601528	103.5132003	100.9464289	98.45689825	96.04179714	93.69843714	91.42424613
230110A00023	1/10/2023	4.3	1/12/2026	102.91886	102.2003303	101.4918608	100.7932388	100.1042596	99.42472414	98.75443887	98.09321546	97.44087068
230110A00035	1/10/2023	4.08	1/10/2028	111.66637	108.8653315	106.151608	103.5219203	100.9731372	98.50226623	96.10644631	93.78294102	91.52913219
230110A00040	1/13/2023	4.07	12/13/2027	111.40735	108.6726093	106.0200188	103.4465941	100.9494791	98.52594092	96.17336332	93.88924116	91.67117464
230110A00043	1/10/2023	3.84	1/10/2028	111.33362	108.5170319	105.787064	103.1404818	100.5741993	98.08526801	95.67086926	93.32830758	91.05500425
230110A00047	1/10/2023	3.84	1/10/2028	111.33362	108.5170319	105.787064	103.1404818	100.5741993	98.08526801	95.67086926	93.32830758	91.05500425
230110A00055	1/10/2023	4.06	1/10/2028	111.70705	108.8903639	106.1601528	103.5132003	100.9464289	98.45689825	96.04179714	93.69843714	91.42424613
230110A00070	1/10/2023	4.27	1/9/2026	102.86077	102.1507973	101.4506512	100.7601245	100.0790195	99.4071441	98.74431127	98.090339	97.44505019
230111A00004	1/11/2023	3.83	1/11/2028	111.31735	108.4982143	105.7658417	103.1169977	100.5485884	98.05765765	95.64137969	93.29705236	91.02209069
230111A00013	1/11/2023	4.25	1/9/2026	102.84667	102.1367584	101.4366668	100.7461941	100.0651427	99.39332034	98.73054002	98.07661978	97.4313825
230111A00019	1/11/2023	3.83	1/11/2028	111.31735	108.4982143	105.7658417	103.1169977	100.5485884	98.05765765	95.64137969	93.29705236	91.02209069

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230111A00046	1/11/2023	4.28	1/13/2026	102.91686	102.1955615	101.4844002	100.7831619	100.0916396	99.40963184	98.73694297	98.07338253	97.41876526
230112A00004	1/12/2023	4	1/12/2028	111.56546	108.7451619	106.0116155	103.3615788	100.7919595	98.29980293	95.88228474	93.53670416	91.2604775
230112A00014	1/12/2023	4.09	1/12/2027	107.29388	105.549209	103.8416818	102.1701756	100.5336147	98.93096644	97.3612391	95.82347978	94.31677248
230112A00041	1/12/2023	4.2	1/12/2026	102.84756	102.1293094	101.4211189	100.7227731	100.0340675	99.3548029	98.68478591	98.02382821	97.37174662
230112A00042	1/12/2023	4.09	1/12/2027	107.29388	105.549209	103.8416818	102.1701756	100.5336147	98.93096644	97.3612391	95.82347978	94.31677248
230112A00044	1/12/2023	4	1/12/2028	111.56546	108.7451619	106.0116155	103.3615788	100.7919595	98.29980293	95.88228474	93.53670416	91.2604775
230112A00059	3/1/2023	4.04	3/2/2026	103.30435	102.4479414	101.6057538	100.7774309	99.96263215	99.16102808	98.37229979	97.59613861	96.83224569
230112A00060	3/15/2023	4.01	3/13/2026	103.40845	102.5209774	101.6487672	100.79143	99.94858729	99.11987309	98.30493376	97.5034274	96.71502333
230112A00061	3/15/2023	4.01	3/13/2026	103.40845	102.5209774	101.6487672	100.79143	99.94858729	99.11987309	98.30493376	97.5034274	96.71502333
230112A00062	3/15/2023	3.83	3/15/2028	111.80232	108.798283	105.8916402	103.0787131	100.3559803	97.72007208	95.16776325	92.69596601	90.30172331
230112A00063	3/15/2023	3.83	3/15/2028	111.80232	108.798283	105.8916402	103.0787131	100.3559803	97.72007208	95.16776325	92.69596601	90.30172331
230112A00065	1/12/2023	4.09	1/12/2027	107.29388	105.549209	103.8416818	102.1701756	100.5336147	98.93096644	97.3612391	95.82347978	94.31677248
230112A00066	1/12/2023	4	1/12/2028	111.56546	108.7451619	106.0116155	103.3615788	100.7919595	98.29980293	95.88228474	93.53670416	91.2604775
230113A00037	1/26/2024	3.43	1/30/2026	102.4768	101.7101031	100.9548684	100.210845	99.47778446	98.75544586	98.04359514	97.34200507	96.65045492
230113A00055	1/13/2023	3.88	1/13/2028	111.24704	108.4283635	105.696491	103.0481759	100.4803208	97.98996628	95.57428374	93.23056837	90.95623278
230113A00057	1/13/2023	3.99	1/13/2028	110.88001	108.212732	105.6276592	103.1217347	100.6920326	98.33575522	96.05022685	93.8328871	91.68128529
230113A00080	1/13/2023	4.18	1/13/2026	102.84528	102.1242653	101.4133851	100.712425	100.0211781	99.33944325	98.66702459	98.00373176	97.34937954
230117A00040	1/17/2023	4.07	1/19/2027	107.34865	105.5842841	103.8577901	102.168018	100.5138608	98.89425603	97.30818384	95.75466484	94.23275791
230117A00048	1/17/2023	3.97	1/14/2028	111.50573	108.6807044	105.9427246	103.2885319	100.715018	98.21921323	95.79827942	93.44950262	91.17028683
230117A00087	1/17/2023	3.93	1/18/2028	111.44051	108.6052884	105.8577153	103.1945026	100.6125094	98.10873554	95.68031424	93.32450477	91.03868599
230118A00019	1/18/2023	3.59	1/18/2028	110.73181	107.9013318	105.1585338	102.500119	99.92294135	97.42399569	95.00041059	92.64944112	90.36846231
230118A00020	1/18/2023	3.87	1/16/2026	102.71429	101.9847074	101.265513	100.556482	99.85739995	99.16805794	98.48825312	97.81778819	97.15647127
230118A00033	1/18/2023	3.81	1/18/2028	111.10901	108.278388	105.5353063	102.8764796	100.2987704	97.79918184	95.37485011	93.02303746	90.7411256
230118A00039	1/18/2023	3.81	1/18/2028	111.10901	108.278388	105.5353063	102.8764796	100.2987704	97.79918184	95.37485011	93.02303746	90.7411256
230118A00053	1/18/2023	3.87	1/16/2026	102.71429	101.9847074	101.265513	100.556482	99.85739995	99.16805794	98.48825312	97.81778819	97.15647127
230118A00056	1/18/2023	3.87	1/16/2026	102.71429	101.9847074	101.2655129	100.556482	99.85739995	99.16805794	98.48825312	97.81778819	97.15647127
230118A00058	1/23/2023	4	2/17/2026	103.1197	102.3002983	101.4939373	100.7003113	99.9191199	99.15007211	98.392886	97.64728829	96.91301406
230118A00087	1/18/2023	4.02	1/16/2026	102.76537	102.0363474	101.3176874	100.6091721	99.91058737	99.2217251	98.54238298	97.87236429	97.2114777
230119A00034	1/19/2023	3.82	1/19/2028	111.14754	108.3136085	105.5673901	102.9055876	100.3250547	97.82278654	95.39591151	93.0416847	90.75748103
230119A00105	1/19/2023	3.9	1/19/2027	107.05173	105.2900327	103.5661602	101.878962	100.2273322	98.61020969	97.02657591	95.47545261	93.95589981
230119A00108	1/19/2023	3.81	1/19/2028	111.11989	108.2863396	105.5404962	102.8790599	100.2988848	97.79696602	95.37043244	93.01653933	90.73266185
230119A00137	1/19/2023	3.9	1/19/2027	107.05173	105.2900327	103.5661602	101.878962	100.2273322	98.61020969	97.02657591	95.47545261	93.95589981
230120A00021	1/20/2023	4.13	1/20/2026	102.89241	102.1517609	101.4217977	100.7022897	99.99301325	99.2937507	98.60429074	97.92442794	97.25396259

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230120A00022	1/20/2023	3.9	1/20/2028	111.37989	108.5399553	105.7879681	103.1206197	100.5347531	98.0273532	95.59553912	93.23655691	90.94777304
230120A00027	1/20/2023	4.13	1/20/2026	102.89241	102.1517609	101.4217977	100.7022897	99.99301325	99.2937507	98.60429074	97.92442794	97.25396259
230120A00029	1/20/2023	3.9	1/20/2028	111.37989	108.5399553	105.7879681	103.1206197	100.5347531	98.0273532	95.59553912	93.23655691	90.94777304
230120A00079	1/20/2023	3.68	1/20/2028	111.00222	108.1624271	105.4107211	102.7437829	100.1584469	97.65168948	95.22062218	92.86248382	90.57463412
230120A00099	1/20/2023	3.92	1/20/2026	102.79645	102.0554143	101.3250856	100.6052299	99.89562254	99.19604549	98.5062868	97.82614048	97.15540626
230120A00103	1/20/2023	3.92	1/20/2026	102.79645	102.0554143	101.3250856	100.6052299	99.89562254	99.19604549	98.5062868	97.82614048	97.15540626
230120A00114	1/20/2023	4.13	1/20/2026	102.89241	102.1517609	101.4217977	100.7022897	99.99301325	99.2937507	98.60429074	97.92442794	97.25396259
230120A00117	1/20/2023	3.9	1/20/2028	111.37989	108.5399553	105.7879681	103.1206197	100.5347531	98.0273532	95.59553912	93.23655691	90.94777304
230123A00051	1/23/2023	3.75	1/21/2028	111.20715	108.3617259	105.6046122	102.9324811	100.3421567	97.83060573	95.39493014	93.0323601	90.74024707
230123A00078	1/23/2023	4.41	6/23/2025	100.59719	100.4470741	100.2974151	100.1482119	99.9994625	99.85116471	99.70331649	99.55591577	99.40896051
230124A00004	1/24/2023	3.99	1/24/2028	111.67453	108.8193768	106.0529029	103.3717595	100.772753	98.25283409	95.80908959	93.43873532	91.13910928
230124A00014	1/24/2023	4.23	1/26/2026	103.03867	102.2807392	101.533974	100.798133	100.0729775	99.35827574	98.65380261	97.95933937	97.27467353
230124A00015	1/24/2023	4.09	1/25/2027	107.46049	105.6786284	103.9352868	102.2292844	100.5594864	98.92480434	97.32419369	95.75665175	94.22121541
230124A00024	1/24/2023	4.23	1/23/2026	103.0023	102.2528638	101.5143536	100.786534	100.0691737	99.36204812	98.66493894	97.97763416	97.29992766
230124A00025	1/24/2023	4.09	1/25/2027	107.46049	105.6786284	103.9352868	102.2292844	100.5594864	98.92480434	97.32419369	95.75665175	94.22121541
230124A00035	1/24/2023	4.23	1/26/2026	103.03867	102.2807392	101.533974	100.798133	100.0729775	99.35827574	98.65380261	97.95933937	97.27467353
230124A00045	1/24/2023	3.99	1/24/2028	111.67453	108.8193768	106.0529029	103.3717595	100.772753	98.25283409	95.80908959	93.43873532	91.13910928
230124A00046	1/24/2023	3.99	1/24/2028	111.67453	108.8193768	106.0529029	103.3717595	100.772753	98.25283409	95.80908959	93.43873532	91.13910928
230124A00055	6/15/2023	4.13	6/15/2032	127.82941	120.0051342	112.7306996	105.9642649	99.66739669	93.80476989	88.34390061	83.25490331	78.51026989
230124A00056	3/28/2023	4.19	3/28/2033	130.55644	121.8218795	113.7588132	106.3116401	99.42964718	93.06655473	87.18010757	81.7317059	76.68607168
230124A00058	6/15/2023	4.21	6/15/2034	134.14361	124.0124653	114.7622409	106.3107644	98.58396155	91.51501859	85.04363458	79.11535474	73.68097503
230125A00010	1/25/2023	4.01	1/25/2027	107.31943	105.5388437	103.7967588	102.0919902	100.4234037	98.78991134	97.19046931	95.62407544	94.08976717
230125A00022	1/25/2023	3.8	1/25/2027	107.0935	105.3124246	103.5699052	101.864758	100.1958459	98.5620785	96.96240938	95.39583413	93.861388
230125A00023	1/25/2023	3.69	1/25/2028	111.08383	108.2290036	105.4630818	102.7827026	100.1846572	97.66588227	95.22345128	92.85456776	90.55655822
230125A00031	1/25/2023	3.74	1/25/2028	110.54718	107.853858	105.2444451	102.7158374	100.2650604	97.88926686	95.5857307	93.35184094	91.18509615
230126A00015	1/26/2023	4.08	1/26/2027	107.45565	105.6710814	103.9251393	102.216636	100.5444321	98.90743494	97.30459593	95.73490854	94.19740608
230126A00036	1/26/2023	4.19	1/26/2026	103.0086	102.2507896	101.5041479	100.7684291	100.0433946	99.32881267	98.62445809	97.93011222	97.24556257
230127A00012	1/27/2023	4	1/27/2028	111.73654	108.8721757	106.0969886	103.4076015	100.8007953	98.27349615	95.82276818	93.44580579	91.13992691
230127A00044	1/27/2023	4.25	1/27/2026	103.06589	102.3050599	101.5554799	100.8169029	100.0890879	99.37180047	98.66481326	97.96790529	97.2808619
230127A00045	1/27/2023	4.12	1/27/2027	107.5392	105.7511185	104.0017861	102.2900066	100.6146359	98.97457633	97.3687751	95.79622147	94.25594477
230127A00046	1/27/2023	4	1/27/2028	111.73654	108.8721757	106.0969886	103.4076015	100.8007953	98.27349615	95.82276818	93.44580579	91.13992691
230127A00048	1/27/2023	4	1/27/2028	111.73654	108.8721757	106.0969886	103.4076015	100.8007953	98.27349615	95.82276818	93.44580579	91.13992691
230127A00053	1/27/2023	4	1/27/2028	111.73654	108.8721757	106.0969886	103.4076015	100.8007953	98.27349615	95.82276818	93.44580579	91.13992691

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230127A00056	1/27/2023	3.78	1/27/2028	111.35656	108.4923539	105.7174578	103.0284929	100.4222307	97.89558915	95.44562448	93.06952374	90.76459796
230127A00060	1/30/2023	4.25	2/3/2026	103.15137	102.3707225	101.6019094	100.8446622	100.0987212	99.36383417	98.6397566	97.92625102	97.22308689
230127A00073	1/27/2023	4.24	2/17/2026	103.3148	102.4945248	101.6873058	100.8928313	100.1108007	99.34092294	98.58291587	97.83650606	97.10142843
230127A00075	1/27/2023	4.23	7/28/2025	100.96374	100.7159677	100.4694111	100.2240658	99.97992281	99.73697341	99.4952088	99.25462031	99.01519935
230127A00079	1/27/2023	4.23	7/28/2025	100.96374	100.7159677	100.4694111	100.2240658	99.97992281	99.73697341	99.4952088	99.25462031	99.01519935
230127A00096	1/27/2023	4.21	1/27/2026	103.03571	102.2750002	101.5255446	100.7870908	100.0593976	99.34223086	98.63536304	97.93857327	97.25164688
230130A00045	1/30/2023	4.02	1/28/2028	111.80375	108.9356664	106.1569369	103.4641795	100.8541657	98.32381314	95.87017794	93.49044691	91.18193084
230130A00086	1/30/2023	4.16	2/1/2027	107.67603	105.8726725	104.1086223	102.3826674	100.6936445	99.04043817	97.42197816	95.8372372	94.28522869
230130A00087	1/30/2023	4.04	1/28/2028	111.85956	108.9906933	106.2112004	103.5176976	100.9069558	98.3758923	95.92156245	93.54115261	91.23197313
230130A00095	2/3/2023	4.25	5/26/2026	104.54932	103.4493487	102.3725873	101.3183069	100.2858079	99.27441948	98.28349813	97.31242625	96.36061092
230130A00127	1/30/2023	4.02	2/1/2028	111.85021	108.9701704	106.1801455	103.4767239	100.8566469	98.31680359	95.85422254	93.46606466	91.14961605
230131A00004	1/31/2023	3.76	1/31/2028	111.34465	108.469479	105.6842537	102.9855582	100.3701305	97.83485665	95.3767632	92.99300934	90.68087997
230131A00006	1/31/2023	4.23	2/2/2026	103.12369	102.3459377	101.579932	100.8254086	100.0821103	99.34978793	98.62819945	97.91710992	97.21629124
230131A00009	1/31/2023	3.98	1/31/2028	111.72618	108.8508464	106.0653178	103.3661872	100.7502016	98.2142556	95.7553837	93.37075251	91.05765388
230131A00032	2/3/2023	4.17	7/30/2026	105.28024	103.9935383	102.7383792	101.5136113	100.3181394	99.15092017	98.01095952	96.89730943	95.80906547
230131A00034	2/3/2023	3.99	12/23/2027	111.30944	108.5481962	105.8705542	103.2734481	100.7539475	98.30924929	95.93667183	93.63364816	91.39772042
230131A00057	1/31/2023	4.1	1/29/2027	107.52952	105.7360232	103.9814875	102.2647048	100.5845215	98.93983161	97.32957418	95.75273079	94.20832353
230131A00067	1/31/2023	4.02	2/2/2026	103.02312	102.2449712	101.4785899	100.7237099	99.98007342	99.24743049	98.52553844	97.81416172	97.11307161
230131A00071	1/31/2023	4.22	1/30/2026	103.07954	102.3103021	101.5525559	100.8060473	100.0705276	99.34575533	98.63149598	97.92752191	97.23361197
230131A00087	2/3/2023	4.26	1/5/2026	102.8049	102.1062454	101.4171059	100.7372847	100.0665935	99.40484896	98.75187274	98.10749117	97.47153516
230131A00095	1/31/2023	4.22	1/30/2026	103.07954	102.3103021	101.5525559	100.8060473	100.0705276	99.34575533	98.63149598	97.92752191	97.23361197
230201A00003	2/1/2023	3.93	1/31/2028	111.58624	108.7128715	105.9292626	103.2320063	100.6178509	98.08369267	95.62656723	93.24364253	90.93221168
230201A00011	2/1/2023	3.93	2/1/2028	111.59807	108.7215711	105.9350082	103.2349666	100.6181903	98.08157083	95.6221392	93.23705865	90.9236175
230201A00012	2/1/2023	4.08	2/1/2027	107.53341	105.7313555	103.9685892	102.2438945	100.556109	98.90411771	97.28685111	95.70328248	94.1524258
230202A00006	2/2/2023	3.92	2/2/2027	107.26151	105.4589268	103.6956967	101.9706098	100.2825048	98.63026805	97.0128307	95.42916651	93.87828974
230202A00008	2/2/2023	3.81	2/2/2028	111.27336	108.3984782	105.6135857	102.915274	100.3002859	97.76551173	95.30798113	92.92485566	90.61342185
230202A00011	2/2/2023	3.92	2/2/2027	107.26151	105.4589268	103.6956967	101.9706098	100.2825048	98.63026805	97.0128307	95.42916651	93.87828974
230202A00034	2/2/2024	3.41	2/2/2026	102.49124	101.7161747	100.9528274	100.200934	99.46023819	98.73049105	98.01145107	97.30288377	96.60456151
230202A00038	2/2/2023	3.84	2/2/2028	111.3575	108.4814262	105.6953775	102.995937	100.3798466	97.84399579	95.38541345	93.00126032	90.6888222
230202A00041	2/2/2023	3.82	2/2/2028	111.30141	108.4261275	105.6408497	102.9421617	100.3268061	97.79167308	95.3337919	92.95032388	90.6385553
230202A00042	2/2/2023	3.82	2/2/2028	111.30141	108.4261275	105.6408497	102.9421617	100.3268061	97.79167308	95.3337919	92.95032388	90.6385553
230202A00045	2/2/2023	3.62	2/2/2028	110.97481	108.0989119	105.3131815	102.6141912	99.99867407	97.463511	95.00572285	92.62246295	90.31101011
230202A00050	2/2/2023	3.82	2/2/2028	111.30141	108.4261275	105.6408497	102.9421617	100.3268061	97.79167308	95.3337919	92.95032388	90.6385553

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230202A00061	2/2/2023	4.16	2/2/2026	103.0697	102.2921774	101.5263987	100.7720998	100.0290237	99.29692113	98.57555019	97.86467598	97.16407041
230202A00096	2/2/2023	3.81	2/2/2028	111.27336	108.3984782	105.6135857	102.915274	100.3002859	97.76551173	95.30798113	92.92485566	90.61342185
230203A00021	2/8/2023	4.21	6/17/2026	104.78374	103.6208132	102.4837831	101.3717879	100.2840062	99.21965207	98.17797343	97.15825005	96.15979195
230203A00026	2/3/2023	3.98	2/3/2028	111.76208	108.8773515	106.0829488	103.3754512	100.7515922	98.20825281	95.74245329	93.35134607	91.03220868
230203A00038	2/3/2023	4.1	2/3/2027	107.59678	105.7880802	104.0189125	102.2880602	100.5943606	98.93669834	97.31400273	95.72524554	94.16943884
230203A00039	2/3/2023	3.98	2/3/2028	111.76208	108.8773515	106.0829488	103.3754512	100.7515922	98.20825281	95.74245329	93.35134607	91.03220868
230203A00043	2/14/2023	4.31	2/13/2026	103.32202	102.5128394	101.7163676	100.932303	100.160357	99.40024965	98.6517097	97.91447414	97.18828786
230203A00045	2/14/2023	4.31	2/13/2026	103.32202	102.5128394	101.7163676	100.932303	100.160357	99.40024965	98.6517097	97.91447414	97.18828786
230203A00053	2/10/2023	4.32	2/10/2026	103.29269	102.4919833	101.7037208	100.9276126	100.1633786	99.41074751	98.66945602	97.9392489	97.21987847
230203A00054	2/10/2023	4.32	2/10/2026	103.29269	102.4919833	101.7037208	100.9276126	100.1633786	99.41074751	98.66945602	97.9392489	97.21987847
230203A00057	2/3/2023	4.34	2/3/2026	103.22103	102.4400905	101.6709838	100.9134461	100.1672175	99.43204605	98.70768697	97.99390279	97.29046292
230203A00058	2/3/2023	4.34	2/3/2026	103.22103	102.4400905	101.6709838	100.9134461	100.1672175	99.43204605	98.70768697	97.99390279	97.29046292
230208A00029	2/8/2023	4.27	2/8/2027	107.97246	106.1451219	104.3579588	102.6097601	100.8993619	99.22564603	97.58753799	95.98400461	94.41405211
230208A00036	2/8/2023	4.43	2/6/2026	103.32896	102.539216	101.7615736	100.9957536	100.2414876	99.4985151	98.76658359	98.04544791	97.33487013
230208A00038	2/8/2023	4.27	2/8/2027	107.97246	106.1451219	104.3579588	102.6097601	100.8993619	99.22564603	97.58753799	95.98400461	94.41405211
230208A00039	2/8/2023	4.17	2/8/2028	112.35794	109.4499546	106.6333468	103.9046688	101.2606259	98.69807033	96.2139935	93.80551882	91.46989478
230208A00040	2/8/2023	4.26	2/8/2029	117.00483	112.9763198	109.111483	105.4027214	101.8428388	98.42501457	95.14278187	91.99000658	88.96086825
230208A00041	2/8/2023	4.32	2/8/2030	121.41625	116.2406242	111.3218055	106.6456033	102.1986895	97.9685429	93.94339623	90.11218582	86.46450572
230208A00055	2/8/2023	4.22	2/6/2026	103.22709	102.4369495	101.6589262	100.892745	100.1381366	99.3948398	98.66260142	97.94117564	97.23032392
230208A00060	2/8/2023	4.06	2/8/2027	107.74218	105.9143356	104.1267291	102.3781461	100.6674195	98.99342849	97.35509604	95.75138653	94.1813039
230209A00024	2/9/2023	4.4	2/5/2026	103.29282	102.5060095	101.7312141	100.9681564	100.216571	99.47620009	98.74679383	98.02810961	97.31991198
230209A00025	2/9/2023	4.25	2/5/2027	107.89358	106.0760865	104.2984005	102.5593132	100.8576609	99.19232638	97.56223683	95.96636149	94.40370957
230209A00027	2/9/2023	4.12	2/7/2028	112.20452	109.3016794	106.4899917	103.7660169	101.1264666	98.56819906	96.08821183	93.68363448	91.35172166
230209A00037	2/9/2023	4.12	2/9/2028	112.22924	109.3201053	106.5024754	103.7728995	101.1280799	98.56486538	96.08024402	93.67133564	91.33538514
230210A00035	2/10/2023	4.52	2/10/2026	103.45138	102.6499872	101.8610417	101.0842578	100.3193554	99.56606303	98.82411733	98.09326289	97.37325193
230210A00055	2/10/2023	4.02	2/10/2028	112.19656	109.2796162	106.4546134	103.718083	101.0667097	98.49732565	96.00690255	93.59254455	91.25148143
230210A00062	2/10/2023	4.13	2/10/2027	107.89685	106.061479	104.2666114	102.5110297	100.7935665	99.1130995	97.46855008	95.85888051	94.28309228
230210A00065	2/10/2023	4.02	2/10/2028	112.19656	109.2796162	106.4546134	103.718083	101.0667097	98.49732565	96.00690255	93.59254455	91.25148143
230213A00020	2/15/2023	4.28	1/25/2028	112.4927	109.623341	106.8430857	104.1485735	101.5365942	99.00408256	96.54811026	94.16587877	91.85471248
230214A00031	2/14/2023	4.31	2/14/2028	112.83025	109.8976962	107.0577114	104.306815	101.6416802	99.05912681	96.55611316	94.12972949	91.77719114
230215A00008	2/15/2023	4.49	2/16/2027	108.48857	106.6320681	104.8167834	103.0414991	101.3050487	99.60630961	97.9442006	96.31768033	94.72574529
230215A00035	2/15/2023	4.47	2/17/2026	103.56698	102.7447015	101.9355167	101.1391149	100.3551943	99.58346263	98.82363681	98.07544236	97.33861322
230215A00045	2/15/2023	4.37	2/15/2028	113.01359	110.0754384	107.2300949	104.4740686	101.8040262	99.21678074	96.70928409	94.27861991	91.92199697

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230217A00036	2/17/2023	4.44	2/17/2028	113.23895	110.2916147	107.4375084	104.6731307	101.9951367	99.40032772	96.88564381	94.44815671	92.08506336
230217A00052	2/17/2023	4.55	2/17/2027	108.61316	106.7524461	104.9330845	103.1538641	101.4136178	99.71122185	98.04559408	96.41569172	94.82050977
230221A00004	2/21/2023	4.47	2/18/2028	113.33768	110.3859453	107.5276477	104.7592801	102.077492	99.47907893	96.96097518	94.52024664	92.15408441
230221A00007	2/21/2023	4.5	10/18/2027	111.81437	109.2330484	106.7257356	104.2898746	101.9230171	99.6228139	97.38701043	95.21344205	93.10003003
230222A00024	2/22/2023	4.74	3/2/2026	103.89862	103.0394611	102.1945529	101.3635409	100.5460841	99.74185223	98.95052593	98.17179595	97.40536289
230223A00010	2/23/2023	4.68	10/3/2025	101.91189	101.4763979	101.0446346	100.6165515	100.1921017	99.77123902	99.35391805	98.94009413	98.52972337
230223A00012	2/23/2023	4.68	10/3/2025	101.91189	101.4763979	101.0446346	100.6165515	100.1921017	99.77123902	99.35391805	98.94009413	98.52972337
230223A00033	2/23/2023	4.5	2/23/2028	113.49027	110.5213973	107.6468811	104.8631915	102.1669531	99.55493594	97.02404822	94.57132973	92.19394531
230224A00015	2/24/2023	4.86	3/17/2026	104.21257	103.3100778	102.4232835	101.5517777	100.6951668	99.85307029	99.02512092	98.21096354	97.41025485
230224A00029	2/24/2023	4.87	2/24/2026	103.92475	103.0822172	102.2533898	101.4379345	100.6355292	99.84586185	99.06863058	98.3035428	97.55031511
230227A00060	2/27/2023	4.86	2/27/2026	103.95827	103.1072043	102.2701118	101.4466516	100.6364923	99.83931313	99.05480365	98.28266319	97.52260055
230228A00009	2/28/2023	4.69	2/27/2026	103.88312	103.0314766	102.1938297	101.3698391	100.5591723	99.76150783	98.97653429	98.20395023	97.4434637
230228A00010	2/28/2023	4.5	2/26/2027	108.81018	106.9173513	105.0671001	103.2582124	101.4895151	99.75987598	98.06820218	96.41343866	94.79456645
230301A00029	3/1/2023	4.59	3/1/2028	113.84286	110.8481434	107.9491214	105.142229	102.4240495	99.79131137	97.24088145	94.76975842	92.3750664
230301A00036	3/1/2023	4.91	3/2/2026	104.04294	103.1831159	102.337547	101.505882	100.6877796	99.88290953	99.09095228	98.31159845	97.54454849
230301A00047	3/1/2023	4.61	3/1/2028	113.77274	110.7981406	107.9201386	105.1350535	102.4393627	99.82969763	97.30283594	94.85569425	92.48532138
230302A00028	3/2/2023	5.02	3/2/2026	104.13633	103.276069	102.4300725	101.597985	100.7794649	99.97418189	99.18181639	98.40205889	97.63460976
230302A00047	3/2/2023	4.76	3/2/2028	113.50952	110.6736004	107.9285071	105.2707951	102.6971707	100.2044837	97.78972047	95.44999701	93.18255278
230303A00035	5/15/2023	4.65	5/15/2030	124.13545	118.6111759	113.3738646	108.4070071	103.6951292	99.22372481	94.97919006	90.94876232	87.12046382
230303A00036	5/15/2023	4.53	5/15/2028	114.62909	111.4095736	108.2994648	105.2944118	102.3902644	99.58306125	96.8690208	94.24453146	91.70614308
230303A00037	5/15/2023	4.81	5/15/2026	105.0004	103.9286717	102.8789218	101.8504797	100.8427001	99.85496365	98.88667534	97.93726367	97.00617933
230303A00038	4/14/2023	4.56	4/14/2028	114.32159	111.1952829	108.172732	105.2499137	102.4229849	99.68827278	97.04226621	94.48160785	92.00308635
230303A00041	4/14/2023	4.56	4/14/2028	114.32159	111.1952829	108.172732	105.2499137	102.4229849	99.68827278	97.04226621	94.48160785	92.00308635
230303A00057	3/3/2023	4.77	3/3/2027	109.23174	107.3232597	105.4579297	103.6345169	101.8518353	100.1087402	98.40412614	96.73692539	95.10610654
230303A00059	3/3/2023	4.56	3/3/2027	108.99465	107.0856427	105.2198467	103.3960323	101.6130107	99.86963403	98.16479423	96.49742099	94.86648041
230307A00004	3/7/2023	4.67	3/7/2028	114.02226	111.0271449	108.1297982	105.3264689	102.6135734	99.987686	97.44553023	94.98397193	92.60001203
230307A00020	3/7/2023	4.98	3/9/2026	104.20366	103.323559	102.4583838	101.6077588	100.7713184	99.94870937	99.13958985	98.34362933	97.56050803
230307A00021	3/7/2023	4.63	3/7/2028	114.036	111.0216778	108.1041657	105.2798302	102.545198	99.89694413	97.33188531	94.84697271	92.4392857
230307A00022	3/7/2023	4.77	3/8/2027	109.30414	107.3811615	105.5019364	103.6652131	101.8697812	100.1144725	98.39815949	96.71975323	95.07820209
230307A00026	3/7/2023	4.98	3/6/2026	104.16025	103.2887232	102.4318373	101.5892251	100.7605314	99.94541281	99.14353708	98.3545828	97.57823888
230307A00034	3/7/2023	4.41	3/7/2028	113.64374	110.6295719	107.7123662	104.8884823	102.1544367	99.50689541	96.94266639	94.45869265	92.05204591
230307A00114	3/7/2023	4.65	3/7/2028	114.09398	111.0788238	108.1604895	105.3353518	102.5999366	99.95091845	97.38511338	94.89947202	92.4910732
230308A00019	3/8/2023	5.05	3/9/2026	104.26445	103.3840587	102.5185998	101.6676945	100.8309772	100.0080944	99.19870422	98.4024762	97.61909042

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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
230309A00003	3/9/2023	5.06	3/9/2026	104.27313	103.3927015	102.5272021	101.6762568	100.8394999	100.0165779	99.20714914	98.41088289	97.62745933
230309A00004	3/9/2023	4.86	3/9/2027	109.48811	107.5605878	105.6769773	103.836016	102.036488	100.2772194	98.5570775	96.87496835	95.22983551
230309A00005	3/9/2023	5.06	3/9/2026	104.27313	103.3927015	102.5272021	101.6762568	100.8394999	100.0165779	99.20714914	98.41088289	97.62745933
230309A00027	3/9/2023	4.68	3/9/2028	114.20719	111.1847744	108.2595745	105.4279384	102.6863725	100.0315331	97.46021874	94.96936366	92.5560312
230309A00030	3/9/2023	5.01	3/9/2026	104.22971	103.3494874	102.4841907	101.6334455	100.7968865	99.97416008	99.16492458	98.36884942	97.58561477
230309A00031	3/9/2023	5.01	3/9/2026	104.22971	103.3494874	102.4841907	101.6334455	100.7968865	99.97416008	99.16492458	98.36884942	97.58561477
230309A00032	3/9/2023	4.82	3/9/2027	109.41278	107.4859891	105.6030918	103.7628305	101.9639892	100.2053949	98.48591482	96.80445555	95.15996093
230309A00033	3/9/2023	4.82	3/9/2027	109.41278	107.4859891	105.6030918	103.7628305	101.9639892	100.2053949	98.48591482	96.80445555	95.15996093
230309A00034	3/9/2023	4.64	3/9/2028	114.09099	111.070265	108.1467156	105.3166899	102.5766958	99.92339048	97.35357396	94.86418157	92.45227775
230309A00035	3/9/2023	4.64	3/9/2028	114.09099	111.070265	108.1467156	105.3166899	102.5766958	99.92339048	97.35357396	94.86418157	92.45227775
230309A00036	3/9/2023	4.46	3/9/2028	113.81437	110.7921009	107.8672076	105.0360239	102.2950463	99.64092158	97.07043974	94.58052675	92.16823825
230309A00038	3/9/2023	4.85	3/9/2026	104.16086	103.2799913	102.4140809	101.5627481	100.7256263	99.902361	99.09260964	98.29604075	97.51233366
230309A00041	3/9/2023	4.85	3/9/2026	104.16086	103.2799913	102.4140809	101.5627481	100.7256263	99.902361	99.09260964	98.29604075	97.51233366
230309A00057	3/9/2023	4.86	3/9/2027	109.48811	107.5605878	105.6769773	103.836016	102.036488	100.2772194	98.5570775	96.87496835	95.22983551
230309A00080	3/9/2023	4.68	3/9/2028	114.20719	111.1847744	108.2595745	105.4279384	102.6863725	100.0315331	97.46021874	94.96936366	92.5560312
230309A00091	3/9/2023	4.68	3/9/2028	114.20719	111.1847744	108.2595745	105.4279384	102.6863725	100.0315331	97.46021874	94.96936366	92.5560312
230309A00096	3/9/2023	4.68	3/9/2028	114.20719	111.1847744	108.2595745	105.4279384	102.6863725	100.0315331	97.46021874	94.96936366	92.5560312
230310A00017	3/10/2023	4.43	3/9/2029	118.02833	113.8923986	109.9275358	106.1257624	102.4795116	98.98160666	95.62523932	92.40394849	89.31160097
230310A00024	3/10/2023	4.38	3/10/2028	113.34795	110.3352544	107.4196392	104.5974555	101.8652104	99.21956053	96.65730536	94.17537997	91.77084864
230310A00030	3/10/2023	4.38	3/10/2028	113.34795	110.3352544	107.4196392	104.5974555	101.8652104	99.21956053	96.65730536	94.17537997	91.77084864
230310A00037	3/10/2023	4.69	3/10/2026	103.9655	103.0837309	102.2169735	101.3648449	100.5269761	99.70301091	98.8926045	98.09542357	97.31114565
230310A00039	3/10/2023	4.33	3/10/2028	113.20256	110.1919819	107.2784336	104.4582667	101.7279897	99.08426103	96.52388154	94.04378776	91.64104536
230310A00047	6/9/2023	4.22	6/9/2028	113.96978	110.6894937	107.5226378	104.4646219	101.5110672	98.65779895	95.90083555	93.2363784	90.66080212
230310A00049	3/10/2023	4.7	3/10/2026	103.97421	103.0924012	102.225603	101.3734341	100.5355256	99.71152104	98.90107574	98.10385637	97.31954046
230310A00054	9/8/2023	4.09	9/11/2028	114.63963	111.0821352	107.6559769	104.3556141	101.175767	98.11140502	95.1577345	92.31018572	89.56440145
230310A00069	3/10/2023	4.7	3/9/2026	103.96052	103.0815603	102.2175196	101.3680157	100.5326834	99.71116939	98.90313233	98.10824188	97.32617849
230310A00071	3/10/2023	4.38	3/10/2028	113.34795	110.3352544	107.4196392	104.5974555	101.8652104	99.21956053	96.65730536	94.17537997	91.77084864
230310A00073	3/10/2023	4.7	3/6/2026	103.91943	103.0490346	102.1932632	101.3517524	100.5241473	99.71010469	98.90929267	98.12139002	97.34608586
230310A00089	3/10/2023	4.7	3/10/2026	103.97421	103.0924012	102.225603	101.3734341	100.5355256	99.71152104	98.90107574	98.10385637	97.31954046
230310A00091	3/10/2023	4.53	3/10/2027	108.88048	106.9560707	105.0755757	103.2377367	101.4413357	99.6851974	97.96818728	96.28920995	94.64720756
230310A00092	3/10/2023	4.38	3/10/2028	113.34795	110.3352544	107.4196392	104.5974555	101.8652104	99.21956053	96.65730536	94.17537997	91.77084864
230310A00114	3/10/2023	4.5	3/10/2027	108.82391	106.9000396	105.0200811	103.1827685	101.386884	99.63125279	97.91474045	96.23625189	94.59472949
230310A00120	3/10/2023	4.33	3/10/2028	113.20256	110.1919819	107.2784336	104.4582667	101.7279897	99.08426103	96.52388154	94.04378776	91.64104536

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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
230313A00036	3/13/2023	4.06	3/13/2028	112.45158	109.4436011	106.5329038	103.71582	100.9888392	98.34860182	95.79189231	93.31563167	90.9168711
230313A00048	3/13/2023	4.25	3/13/2026	103.61953	102.7310447	101.8578385	100.9995174	100.1557023	99.32602721	98.5101382	97.70769316	96.91836118
230313A00052	3/13/2023	4.17	3/15/2027	108.2656	106.3333803	104.4455625	102.6008661	100.7980519	99.0359241	97.31332897	95.6291527	93.98231993
230313A00057	3/13/2023	4.06	3/13/2028	112.45158	109.4436011	106.5329038	103.71582	100.9888392	98.34860182	95.79189231	93.31563167	90.9168711
230313A00061	3/13/2023	4.06	3/13/2028	112.45158	109.4436011	106.5329038	103.71582	100.9888392	98.34860182	95.79189231	93.31563167	90.9168711
230313A00072	3/13/2023	4.06	3/13/2028	112.45158	109.4436011	106.5329038	103.71582	100.9888392	98.34860182	95.79189231	93.31563167	90.9168711
230313A00078	3/13/2023	4.41	3/13/2026	103.76024	102.8710895	101.9972195	101.1382423	100.293779	99.4634633	98.64694117	97.84387033	97.05391975
230313A00090	3/13/2023	4.41	3/13/2026	103.76024	102.8710895	101.9972195	101.1382423	100.293779	99.4634633	98.64694117	97.84387033	97.05391975
230313A00091	3/13/2023	4.15	3/13/2028	112.71404	109.7022246	106.7877862	103.9670522	101.2365093	98.59279504	96.03269116	93.55311604	91.15111835
230313A00098	3/13/2023	4.41	3/13/2026	103.76024	102.8710895	101.9972195	101.1382423	100.293779	99.4634633	98.64694117	97.84387033	97.05391975
230313A00102	3/13/2023	4.15	3/13/2028	112.71404	109.7022246	106.7877862	103.9670522	101.2365093	98.59279504	96.03269116	93.55311604	91.15111835
230313A00112	3/13/2023	4.15	3/13/2028	112.71404	109.7022246	106.7877862	103.9670522	101.2365093	98.59279504	96.03269116	93.55311604	91.15111835
230313A00119	3/13/2023	4.41	3/13/2026	103.76024	102.8710895	101.9972195	101.1382423	100.293779	99.4634633	98.64694117	97.84387033	97.05391975
230313A00121	3/13/2023	4.29	3/15/2027	108.49359	106.5591459	104.6691516	102.8223198	101.01741	99.25322546	97.5286113	95.84245272	94.19367335
230313A00123	3/13/2023	4.22	9/15/2027	110.70501	108.2304715	105.8245299	103.484904	101.2093989	98.99590535	96.84239573	94.74692058	92.707605
230313A00128	3/13/2023	4.18	12/15/2027	111.72423	108.9796734	106.3176595	103.7351855	101.2293773	98.79748506	96.43687667	94.14503187	91.91953662
230313A00134	3/13/2023	4.16	4/14/2028	113.11933	110.0111079	107.0061866	104.1005599	101.2903989	98.57204468	95.94199951	93.39691876	90.93360336
230313A00135	3/13/2023	4.17	6/15/2028	113.88376	110.5874831	107.4056862	104.3337098	101.3671156	98.50167347	95.73334994	93.05829788	90.4728465
230313A00149	3/13/2023	4.15	3/13/2028	112.71404	109.7022246	106.7877862	103.9670522	101.2365093	98.59279504	96.03269116	93.55311604	91.15111835
230313A00152	3/13/2023	4.18	3/13/2028	112.80153	109.7884325	106.872747	104.0507963	101.319066	98.67419278	96.11295744	93.63227749	91.22920077
230313A00158	3/13/2023	4.41	3/13/2026	103.76024	102.8710895	101.9972195	101.1382423	100.293779	99.4634633	98.64694117	97.84387033	97.05391975
230313A00159	3/13/2023	4.41	3/13/2026	103.76024	102.8710895	101.9972195	101.1382423	100.293779	99.4634633	98.64694117	97.84387033	97.05391975
230313A00177	3/13/2023	4.41	3/13/2026	103.76024	102.8710895	101.9972195	101.1382423	100.293779	99.4634633	98.64694117	97.84387033	97.05391975
230313A00179	3/13/2023	4.29	3/15/2027	108.49359	106.5591459	104.6691516	102.8223198	101.01741	99.25322546	97.5286113	95.84245272	94.19367335
230313A00180	3/13/2023	4.15	3/13/2028	112.71404	109.7022246	106.7877862	103.9670522	101.2365093	98.59279504	96.03269116	93.55311604	91.15111835
230313A00215	3/13/2023	4.13	3/13/2028	112.65572	109.6447527	106.7311457	103.9112229	101.1814715	98.53852988	95.9791803	93.50034173	91.09906341
230314A00003	3/14/2023	4.64	3/16/2026	104.00311	103.1044243	102.2213244	101.3534082	100.5002859	99.66158078	98.83692887	98.0259784	97.22838927
230314A00011	3/14/2023	4.38	3/14/2028	113.39704	110.3724495	107.4456547	104.6129659	101.8708525	99.21593644	96.64498393	94.15489891	91.74271629
230314A00014	3/14/2023	4.18	3/14/2028	112.66684	109.7253155	106.8800891	104.1274483	101.4638452	98.88588913	96.39033821	93.97409231	91.6341858
230314A00015	3/14/2023	4.55	9/14/2026	106.39226	104.9878521	103.6089597	102.2549436	100.9251875	99.61909485	98.33608831	97.07560888	95.83711519
230314A00016	3/14/2023	4.38	3/14/2028	113.39704	110.3724495	107.4456547	104.6129659	101.8708525	99.21593644	96.64498393	94.15489891	91.74271629
230314A00017	3/14/2023	4.39	1/18/2028	112.71126	109.8584066	107.0936166	104.4135908	101.8151754	99.29535806	96.85126011	94.48012949	92.17933415
230314A00019	3/14/2023	4.39	1/18/2028	112.71126	109.8584066	107.0936166	104.4135908	101.8151754	99.29535806	96.85126011	94.48012949	92.17933415

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230314A00021	3/14/2023	4.41	10/13/2027	111.52545	108.9616791	106.4710485	104.0510499	101.6992757	99.41341506	97.19124974	95.03064951	92.92956824
230314A00024	3/14/2023	4.41	10/13/2027	111.52545	108.9616791	106.4710485	104.0510499	101.6992757	99.41341506	97.19124974	95.03064951	92.92956824
230314A00028	3/14/2023	4.43	7/14/2027	110.38879	108.0941833	105.8594186	103.6824962	101.5614978	99.49458524	97.47999628	95.51604094	93.6010977
230314A00030	3/14/2023	4.43	7/14/2027	110.38879	108.0941833	105.8594186	103.6824962	101.5614978	99.49458524	97.47999628	95.51604094	93.6010977
230314A00032	3/14/2023	4.45	4/14/2027	109.20689	107.1814028	105.2043022	103.2741322	101.3894898	99.54902352	97.75143103	95.99545733	94.27989247
230314A00034	3/14/2023	4.45	4/14/2027	109.20689	107.1814028	105.2043022	103.2741322	101.3894898	99.54902352	97.75143103	95.99545733	94.27989247
230314A00054	3/14/2023	4.46	3/15/2027	108.81657	106.8789806	104.9859029	103.1360458	101.3281673	99.56106904	97.8335946	96.14462774	94.4930907
230314A00067	3/14/2023	4.16	3/14/2028	113.00133	109.9769351	107.0504884	104.2182938	101.476811	98.82265202	96.25257455	93.76347419	91.35237803
230314A00070	3/14/2023	4.25	3/12/2027	108.53504	106.6056064	104.720379	102.878085	101.077494	99.31741876	97.59671366	95.91427263	94.26902765
230314A00081	3/14/2023	4.16	3/14/2028	113.00133	109.9769351	107.0504884	104.2182938	101.476811	98.82265202	96.25257455	93.76347419	91.35237803
230315A00007	3/15/2023	4.2	3/16/2026	103.61248	102.7156718	101.8344306	100.9683508	100.1170429	99.28013056	98.45725038	97.64805096	96.85219258
230315A00010	3/15/2023	4.2	3/13/2026	103.57555	102.6872807	101.814282	100.9561659	100.1125534	99.28307844	98.46738728	97.66513779	96.87599913
230315A00012	3/15/2023	4.24	9/15/2025	101.48607	101.1018904	100.7206349	100.3422673	99.96675483	99.59406513	99.2241663	98.85702695	98.49261614
230315A00013	3/15/2023	4.2	3/16/2026	103.61248	102.7156718	101.8344306	100.9683508	100.1170429	99.28013056	98.45725038	97.64805096	96.85219258
230315A00016	3/15/2023	4.08	3/16/2027	108.10718	106.1737455	104.2848113	102.4390854	100.6353243	98.87232855	97.14894052	95.46404292	93.81655703
230315A00023	3/15/2023	4.2	3/16/2026	103.61248	102.7156718	101.8344306	100.9683508	100.1170429	99.28013056	98.45725038	97.64805096	96.85219258
230315A00024	3/15/2023	4.03	3/15/2028	112.38668	109.374088	106.4591006	103.6380321	100.9073547	98.26369213	95.70381324	93.22462433	90.82316275
230315A00030	3/15/2023	4.03	3/15/2028	112.38668	109.374088	106.4591006	103.6380321	100.9073547	98.26369213	95.70381324	93.22462433	90.82316275
230315A00055	3/15/2023	4.2	3/11/2026	103.55094	102.6683511	101.8008452	100.9480368	100.1095539	99.28503723	98.47413936	97.67652434	96.89186719
230315A00068	3/15/2023	4.2	3/16/2026	103.61248	102.7156718	101.8344306	100.9683508	100.1170429	99.28013056	98.45725038	97.64805096	96.85219258
230315A00084	3/15/2023	4.08	3/24/2027	108.20768	106.2512498	104.3403098	102.4735246	100.6496107	98.86733015	97.1254889	95.42293488	93.75855621
230315A00098	3/15/2023	4.08	3/15/2027	108.09462	106.164056	104.2778706	102.4347759	100.6335333	98.87294809	97.15186722	95.46917768	93.82380486
230315A00116	3/15/2023	4.36	3/16/2026	103.75453	102.8570363	101.9751193	101.1083717	100.256404	99.41883973	98.59531529	97.78547912	96.98899138
230315A00117	3/15/2023	4.17	3/15/2027	108.2656	106.3333803	104.4455625	102.6008661	100.7980519	99.0359241	97.31332897	95.6291527	93.98231993
230315A00125	3/15/2023	4.11	3/15/2027	108.15161	106.2204974	104.3337679	102.4901393	100.6883728	98.92727343	97.2056878	95.52250269	93.87664322
230315A00131	3/15/2023	4.13	3/15/2027	108.18961	106.2581251	104.3710328	102.5270482	100.7249325	98.96349032	97.24156819	95.55805269	93.91186879
230316A00001	3/16/2023	3.81	3/16/2028	112.00031	108.985003	106.0676337	103.2444973	100.5120461	97.86688607	95.30576871	92.82558429	90.423355
230316A00017	3/16/2023	3.81	3/16/2028	112.00031	108.985003	106.0676337	103.2444973	100.5120461	97.86688607	95.30576871	92.82558429	90.423355
230316A00021	3/16/2023	4.2	3/16/2026	103.61248	102.7156718	101.8344306	100.9683508	100.1170429	99.28013056	98.45725038	97.64805096	96.85219258
230316A00032	3/16/2023	4.39	3/16/2026	103.78116	102.8835422	102.0014984	101.1346256	100.2825342	99.4448477	98.62120246	97.8112469	97.01464115
230316A00046	3/16/2023	4.18	6/16/2026	104.73679	103.5769541	102.4428825	101.3337239	100.2486628	99.18691871	98.14774485	97.13042587	96.13427644
230316A00047	3/16/2023	4.07	9/16/2027	110.3552	107.8820684	105.4775975	103.1394974	100.8655686	98.6536977	96.50185325	94.40808207	92.3705058
230316A00048	3/16/2023	4.05	6/16/2028	113.51396	110.2206708	107.0418832	103.9729376	101.0093905	98.14700727	95.3817502	92.70976828	90.12738721

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230316A00055	3/16/2023	4.03	3/16/2028	112.39798	109.3824347	106.464678	103.6410086	100.9078891	98.26193457	95.69990552	93.21870047	90.81534942
230316A00060	3/16/2023	3.89	3/16/2027	107.90264	105.9683264	104.0785909	102.232137	100.427718	98.66413102	96.94021542	95.254851	93.60695629
230316A00061	3/16/2023	4.31	9/16/2025	101.52419	101.137162	100.7530929	100.3719534	99.99371	99.61832968	99.24577987	98.87602849	98.50904399
230316A00067	3/16/2023	3.89	3/16/2027	107.90264	105.9683264	104.0785909	102.232137	100.427718	98.66413102	96.94021542	95.254851	93.60695629
230316A00072	3/16/2023	4.1	3/16/2027	108.14523	106.2114278	104.3221298	102.476047	100.6719357	98.90859617	97.1848707	95.4996418	93.85183058
230316A00076	3/16/2023	4.45	3/16/2026	103.83443	102.9365539	102.0542566	101.1871334	100.3347946	99.49686364	98.6729768	97.86278246	97.0659407
230316A00078	3/16/2023	4.34	3/16/2027	108.60187	106.6636155	104.7699521	102.9195863	101.1112721	99.3438076	97.61603285	95.92682834	94.27511319
230316A00082	3/16/2023	4.3	3/16/2028	113.18762	110.1605045	107.2314616	104.3967812	101.6529168	98.99647508	96.42420816	93.93300668	91.51989302
230316A00113	3/16/2023	4.28	3/16/2026	103.75498	102.8564914	101.9736121	101.1059334	100.2530644	99.41462755	98.59025823	97.77960388	96.98232367
230317A00015	3/17/2023	4.13	3/17/2028	112.70201	109.6792263	106.7545123	103.9241561	101.1846075	98.53246995	95.96449233	93.47756247	91.06870018
230317A00016	3/17/2023	4.22	3/17/2027	108.3865	106.4475937	104.5533566	102.7024938	100.8937555	99.12593618	97.39787244	95.70844148	94.05655928
230317A00025	3/17/2023	4.35	3/17/2026	103.75837	102.8580762	101.9734493	101.1040846	100.2495891	99.40958284	98.58369905	97.77158304	96.97289201
230317A00026	3/17/2023	4.22	3/17/2027	108.3865	106.4475937	104.5533566	102.7024938	100.8937555	99.12593618	97.39787244	95.70844148	94.05655928
230317A00031	5/18/2023	4.3	5/19/2025	100.20604	100.1532136	100.1004641	100.0477868	99.99518148	99.94264807	99.89018639	99.83779628	99.7854776
230317A00032	5/18/2023	4.27	5/19/2025	100.20444	100.1516196	100.0988714	100.0461954	99.99359141	99.94105931	99.88859893	99.83621013	99.78389275
230317A00047	3/17/2023	4.1	3/17/2028	112.61419	109.5926926	106.669235	103.8401045	101.101752	98.45078175	95.88394371	93.39812653	90.99035087
230317A00048	3/17/2023	4.1	3/17/2028	112.61419	109.5926926	106.669235	103.8401045	101.101752	98.45078175	95.88394371	93.39812653	90.99035087
230317A00049	3/17/2023	4.1	3/17/2028	112.61419	109.5926926	106.669235	103.8401045	101.101752	98.45078175	95.88394371	93.39812653	90.99035087
230317A00050	3/17/2023	4.1	3/17/2028	112.61419	109.5926926	106.669235	103.8401045	101.101752	98.45078175	95.88394371	93.39812653	90.99035087
230317A00051	3/17/2023	4.35	3/17/2026	103.75837	102.8580762	101.9734493	101.1040846	100.2495891	99.40958284	98.58369905	97.77158304	96.97289201
230320A00006	3/20/2023	4.25	3/20/2026	103.70666	102.7982466	101.9057931	101.0288775	100.167096	99.32005862	98.4873887	97.66872236	96.86370787
230320A00033	3/20/2023	4.35	3/20/2026	103.79655	102.887699	101.9948129	101.11747	100.2552663	99.40781181	98.57472977	97.75565615	96.95023918
230320A00092	3/20/2023	4.31	3/20/2026	103.76059	102.8519181	101.959205	101.082033	100.2199982	99.37271053	98.53979334	97.72088264	96.91562666
230321A00001	3/21/2023	4.48	3/23/2026	103.95266	103.0346778	102.1329559	101.2470665	100.3765947	99.52113998	98.68031544	97.8537475	97.04107519
230321A00002	3/21/2023	4.33	3/19/2027	108.62262	106.675892	104.7741228	102.9160024	101.1002701	99.32570951	97.59114737	95.89545118	94.23752775
230321A00009	3/21/2023	4.27	3/21/2028	113.1597	110.119035	107.1773017	104.3307466	101.5757775	98.90895771	96.32699854	93.82675223	91.40520497
230321A00053	3/21/2023	4.27	3/21/2028	113.1597	110.119035	107.1773017	104.3307466	101.5757775	98.90895771	96.32699854	93.82675223	91.40520497
230321A00074	3/21/2023	4.23	3/21/2028	113.04216	110.0032225	107.0631768	104.2182681	101.4649054	98.79965325	96.2192244	93.72047221	91.30038399
230322A00007	3/22/2023	4.54	3/21/2031	126.69776	120.2024092	114.0928394	108.3439909	102.9325616	97.83687274	93.0367478	88.51340078	84.24933383
230322A00009	3/22/2023	4.59	3/22/2032	130.37358	122.7040123	115.5560744	108.8912795	102.674173	96.87208241	91.4548849	86.39479649	81.66617901
230322A00015	3/22/2023	4.24	3/22/2028	113.08343	110.0410891	107.0978338	104.2498955	101.4936734	98.8257229	96.24274801	93.74159391	91.31924021
230322A00020	3/22/2023	4.2	3/22/2029	117.61368	113.439875	109.4404687	105.6072501	101.9324336	98.40863949	95.02887017	91.78648863	88.67519784
230323A00028	3/23/2023	4.1	3/23/2028	112.28782	109.335692	106.4808767	103.7195988	101.0482488	98.46337814	95.96169093	93.54003625	91.19540094

Classification | Public

	Parallel-Shift Sensitivity Analysis											
4/30/2025				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230323A00029	3/23/2023	4.39	3/24/2031	125.82532	119.3469813	113.2543147	107.522222	102.1273685	97.0480474	92.26405861	87.75659647	83.50814679
230323A00030	3/23/2023	4.72	3/23/2037	146.49628	132.933368	120.8407215	110.0479011	100.4051795	91.78091985	84.05930212	77.13834484	70.92818359
230323A00034	3/23/2023	4.23	3/23/2026	103.72586	102.8089853	101.9083644	101.0235625	100.1541649	99.29977133	98.4599952	97.63446317	96.82281452
230323A00048	3/23/2023	4.07	3/23/2028	112.5948	109.5568764	106.6180319	103.7744978	101.0226698	98.35909983	95.78048876	93.28367901	90.86564762
230323A00051	3/23/2023	3.85	3/23/2028	112.19467	109.1569913	106.2185497	103.3755663	100.6244262	97.96167181	95.38399507	92.88822988	90.47134534
230323A00054	3/23/2023	3.95	3/23/2028	112.2415	109.2087878	106.2750248	103.4364478	100.6894564	98.03060659	95.45660292	92.96429138	90.55065247
230323A00056	3/23/2023	4	3/23/2027	108.04134	106.0893021	104.1825986	102.3199029	100.4999374	98.72146956	96.98331082	95.28431415	93.62337253
230323A00058	3/23/2023	3.96	9/23/2027	110.17257	107.6816764	105.2604649	102.906594	100.6178156	98.39196985	96.22698159	94.12085611	92.07167575
230323A00065	3/23/2023	3.85	3/23/2028	112.19467	109.1569913	106.2185497	103.3755663	100.6244262	97.96167181	95.38399507	92.88822988	90.47134534
230323A00081	3/23/2023	3.85	3/23/2028	112.19467	109.1569913	106.2185497	103.3755663	100.6244262	97.96167181	95.38399507	92.88822988	90.47134534
230324A00001	3/24/2023	4.04	6/24/2026	104.67418	103.4923163	102.3372088	101.2079529	100.1036868	99.02358675	97.96686468	96.93276659	95.92057058
230324A00006	3/24/2023	4.06	3/24/2026	103.58355	102.6645893	101.7619694	100.8752536	100.0040236	99.14787596	98.30642091	97.47928212	96.66609601
230324A00021	3/24/2023	3.72	3/24/2028	111.15106	108.279843	105.5028947	102.816554	100.2173272	97.70187658	95.26701217	92.9096845	90.62697748
230324A00023	3/24/2023	3.69	3/24/2028	111.73363	108.6999724	105.7655624	102.9266134	100.1795065	97.52078054	94.94712396	92.45536759	90.04247771
230324A00032	3/24/2023	3.93	3/24/2028	112.19363	109.1588442	106.223164	103.3828182	100.6341977	97.97385021	95.39847252	92.90490337	90.49011638
230324A00036	3/24/2023	3.98	3/24/2027	108.01518	106.0606504	104.151571	102.2866111	100.4644882	98.68396515	96.943849	95.2429885	93.58027263
230324A00050	3/24/2023	4.13	3/24/2026	102.00789	101.4982176	100.9949985	100.4980951	100.0073755	99.5227113	99.04397818	98.57105524	98.10382507
230327A00046	3/27/2023	4.22	3/27/2026	103.76624	102.8380137	101.9264265	101.0310362	100.1514133	99.28714361	98.43782719	97.60307797	96.78252305
230327A00047	3/27/2023	4.08	3/27/2028	112.66998	109.6197936	106.6694199	103.8150462	101.0530298	98.37988674	95.79228399	93.28703197	90.86107757
230328A00019	3/28/2023	4.12	3/27/2026	103.7483	102.8191265	101.9066253	101.0103529	100.1298787	99.26478724	98.41467749	97.57916229	96.75786771
230328A00020	3/28/2023	3.98	3/28/2028	112.63486	109.5767029	106.6188274	103.7573977	100.9887468	98.30936825	95.71590743	93.20515465	90.77403775
230328A00024	3/28/2023	4.2	3/28/2028	113.03639	109.9779864	107.0197065	104.157723	101.3883793	98.70817864	96.11377576	93.60196946	91.16969565
230328A00026	3/28/2023	4.34	3/28/2029	117.8972	113.7101064	109.6983523	105.853654	102.1681661	98.63445311	95.24546555	91.99451818	88.87526911
230328A00027	3/28/2023	4.22	3/28/2028	112.59497	109.6448984	106.7922884	104.0333436	101.3644369	98.78210348	96.28303291	93.86406077	91.52216156
230328A00028	3/28/2023	4.34	3/27/2026	104.2213	103.2158249	102.2299362	101.2630664	100.3146673	99.3842115	98.47119173	97.57511956	96.69552471
230328A00037	3/28/2023	4.21	3/28/2028	112.90169	109.8737404	106.946539	104.1161444	101.378796	98.73090149	96.16902886	93.6898978	91.29037223
230328A00045	3/28/2023	4.21	3/28/2028	112.90169	109.8737404	106.946539	104.1161444	101.378796	98.73090149	96.16902886	93.6898978	91.29037223
230328A00047	3/28/2023	4.21	3/28/2028	112.90169	109.8737404	106.946539	104.1161444	101.378796	98.73090149	96.16902886	93.6898978	91.29037223
230328A00051	3/28/2023	4.53	3/28/2033	130.1683	122.2423299	114.9061318	108.1115217	101.8145335	95.97502501	90.55632543	85.52491705	80.85014771
230328A00052	3/28/2023	4.53	3/28/2033	130.1683	122.2423299	114.9061318	108.1115217	101.8145335	95.97502501	90.55632543	85.52491705	80.85014771
230328A00098	3/28/2023	4.24	3/29/2027	108.58072	106.6068262	104.6790992	102.7961811	100.9567613	99.15957598	97.40340648	95.68707726	94.00945406
230328A00100	3/28/2023	4.19	3/28/2028	113.00681	109.9488434	106.9909909	104.1294242	101.3604872	98.68068351	96.08666802	93.57523989	91.14333534
230328A00111	3/28/2023	4.36	3/27/2026	103.89481	102.9659405	102.0537219	101.157708	100.2774693	99.41259137	98.56267409	97.72733126	96.90618983

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230329A00020	3/29/2023	4.23	3/29/2028	113.13698	110.0742982	107.1119465	104.2460934	101.4730719	98.78937511	96.19164838	93.67668162	91.24140238
230329A00043	3/29/2023	4.36	3/27/2026	103.89481	102.9659405	102.0537219	101.157708	100.2774693	99.41259137	98.56267409	97.72733126	96.90618983
230330A00011	3/30/2023	4.21	3/30/2028	113.08956	110.0247856	107.060502	104.1928666	101.4182038	98.73299832	96.13388758	93.61765418	91.1812187
230330A00062	3/30/2023	4.42	3/30/2026	103.98867	103.0509523	102.1301847	101.2259108	100.3376899	99.46509704	98.60772183	97.76516835	96.93705426
230330A00083	3/30/2023	4.1	3/30/2027	108.48249	106.5038508	104.5716024	102.6843777	100.8408567	99.03976676	97.27988085	95.56001543	93.87902865
230331A00014	3/31/2023	4.34	3/31/2026	103.92723	102.9870406	102.0638916	101.1573268	100.2669021	99.39218866	98.53277316	97.68825641	96.8582531
230331A00033	3/31/2023	4.34	3/31/2026	103.92723	102.9870406	102.0638916	101.1573268	100.2669021	99.39218866	98.53277316	97.68825641	96.8582531
230331A00057	3/31/2023	4.08	3/31/2028	112.71571	109.653704	106.6922271	103.8274314	101.0556359	98.37332091	95.77711951	93.2638103	90.83031019
230404A00002	4/4/2023	4.1	4/2/2027	108.35996	106.3770825	104.4408402	102.5498511	100.7027843	98.89835696	97.13533232	95.41251751	93.72876187
230405A00008	4/5/2023	4.01	10/6/2025	101.6199	101.177275	100.7385112	100.3035594	99.87237008	99.44489441	99.02108447	98.60089315	98.18427415
230405A00010	4/5/2023	3.96	4/6/2026	103.64449	102.6890259	101.7512054	100.830545	99.92657619	99.03884758	98.16692388	97.31038524	96.46882658
230405A00012	4/5/2023	3.8	4/5/2028	111.93945	108.8746906	105.9111077	103.0448044	100.2720582	97.58931033	94.99315762	92.48034454	90.04775606
230405A00021	4/5/2023	3.96	4/6/2026	103.64449	102.6890259	101.7512054	100.830545	99.92657619	99.03884758	98.16692388	97.31038524	96.46882658
230405A00022	4/5/2023	3.8	4/5/2028	111.93945	108.8746906	105.9111077	103.0448044	100.2720582	97.58931033	94.99315762	92.48034454	90.04775606
230405A00037	4/5/2023	3.71	4/6/2026	103.484	102.5282777	101.5902259	100.6693587	99.76520676	98.87731744	98.00525444	97.14859694	96.30693892
230405A00044	4/5/2023	3.8	4/5/2028	111.93945	108.8746906	105.9111077	103.0448044	100.2720582	97.58931033	94.99315762	92.48034454	90.04775606
230405A00045	4/5/2023	4.15	5/5/2025	100.05561	100.0417072	100.0278171	100.0139406	100.0000778	99.98622846	99.97239273	99.95857055	99.94476187
230405A00046	4/5/2023	3.82	10/5/2027	109.96717	107.4450449	104.9943934	102.612781	100.2978731	98.04742793	95.85929288	93.73139996	91.6617621
230405A00049	4/5/2023	3.81	4/5/2028	111.96925	108.9040508	105.9400343	103.073308	100.3001492	97.6169988	95.02045325	92.5072567	90.07429386
230406A00016	4/6/2023	3.89	4/6/2028	111.39911	108.5254789	105.7465795	103.0587072	100.4583294	97.94207266	95.50671427	93.14917446	90.86650928
230406A00023	4/6/2023	3.84	4/6/2028	112.06965	109.0000928	106.0319433	103.1612958	100.3844161	97.69773436	95.097837	92.58145867	90.14547508
230406A00026	4/6/2023	3.92	4/6/2027	108.05784	106.0666511	104.122568	102.2241839	100.370147	98.55915498	96.78995217	95.06132798	93.37211481
230406A00029	4/6/2023	3.84	4/6/2028	112.06965	109.0000928	106.0319433	103.1612958	100.3844161	97.69773436	95.097837	92.58145867	90.14547508
230406A00039	3/29/2024	3.43	3/31/2026	103.08145	102.1455133	101.2265649	100.3241479	99.43781879	98.56715029	97.71172986	96.87115942	96.04505463
230406A00041	5/31/2024	3.25	5/29/2026	103.49413	102.3919136	101.31317	100.2571508	99.22314325	98.21046423	97.21845851	96.24649753	95.29397795
230406A00043	7/31/2024	3.2	7/31/2026	104.06275	102.7814058	101.5316007	100.3121784	99.1220407	97.96014175	96.82548494	95.71712009	94.63414078
230406A00044	9/30/2024	3.16	9/30/2026	104.62096	103.184691	101.7752695	100.3920093	99.03424517	97.70133379	96.39265312	95.10760144	93.84559647
230406A00045	4/29/2024	3.41	4/30/2027	107.31691	105.2653698	103.2639949	101.3112362	99.40560793	97.54568041	95.73007714	93.95747263	92.22659005
230406A00046	6/28/2024	3.35	6/30/2027	107.83145	105.6042335	103.4344575	101.3202304	99.25973653	97.25123452	95.29305378	93.3835909	91.52130629
230406A00047	8/30/2024	3.31	8/31/2027	108.35799	105.9545221	103.6167868	101.3426251	99.12996505	96.9768142	94.88125582	92.84144577	90.85560929
230406A00049	10/31/2024	3.29	10/29/2027	108.88785	106.3133534	103.8137567	101.386444	99.02890665	96.73873862	94.51363201	92.35137222	90.24983361
230406A00050	4/6/2023	3.67	4/6/2027	107.72915	105.7382639	103.7945362	101.8965634	100.0429906	98.23251232	96.46387033	94.73585135	93.0472853
230406A00052	4/6/2023	4.02	4/6/2026	103.70126	102.7455008	101.8073942	100.8864512	99.98220347	99.09419945	98.22200377	97.36519653	96.52337256

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230406A00105	4/6/2023	3.84	4/6/2028	112.06965	109.0000928	106.0319433	103.1612958	100.3844161	97.69773436	95.097837	92.58145867	90.14547508
230410A00011	4/10/2023	4.08	4/9/2027	108.40964	106.4064155	104.4507603	102.5412491	100.6765114	98.85522677	97.07612273	95.33797245	93.63959291
230410A00012	4/10/2023	3.98	4/10/2028	112.53281	109.444876	106.4592692	103.5720358	100.7793955	98.07773475	95.46359857	92.93368283	90.48482661
230411A00054	4/11/2023	3.74	4/11/2028	112.07673	108.9869529	105.9998398	103.1114123	100.3178691	97.61557757	95.00106469	92.47100936	90.02223476
230412A00005	4/12/2023	4.16	4/10/2026	103.88289	102.9150612	101.9653073	101.0331277	100.1180372	99.21956825	98.33727032	97.47070901	96.61946539
230412A00006	4/12/2023	4.04	4/12/2027	108.36853	106.3572122	104.3938513	102.4770065	100.6052906	98.77736723	96.99194873	95.24779386	93.54370589
230412A00007	4/12/2023	3.95	4/12/2028	112.46556	109.3729032	106.382924	103.4916472	100.6952726	97.990168	95.37286122	92.84003167	90.38850304
230412A00028	4/12/2023	3.69	4/12/2028	111.9375	108.8469465	105.8591933	102.970252	100.1763129	97.47373517	94.85903819	92.32889378	89.88011849
230412A00031	4/12/2023	3.91	4/10/2026	103.72063	102.7525416	101.8025565	100.8701709	99.95489839	99.05627038	98.17383523	97.30715754	96.4558174
230412A00033	4/12/2023	4.04	4/12/2027	108.36853	106.3572122	104.3938513	102.4770065	100.6052906	98.77736723	96.99194873	95.24779386	93.54370589
230412A00038	4/12/2023	3.69	4/12/2028	111.9375	108.8469465	105.8591933	102.970252	100.1763129	97.47373517	94.85903819	92.32889378	89.88011849
230413A00017	4/13/2023	3.88	4/13/2028	112.26665	109.1741191	106.1843765	103.2934407	100.4975037	97.79292582	95.17622802	92.64408325	90.19330918
230413A00018	4/13/2023	3.96	4/13/2027	108.22263	106.2099525	104.2453355	102.3273337	100.454555	98.62565829	96.83935159	95.09438944	93.38957113
230413A00020	4/13/2023	3.88	4/13/2028	112.26665	109.1741191	106.1843765	103.2934407	100.4975037	97.79292582	95.17622802	92.64408325	90.19330918
230413A00021	4/13/2023	4.07	4/13/2026	103.83289	102.8569523	101.8994053	100.9597299	100.0374285	99.1320217	98.24304773	97.37006146	96.51263376
230413A00031	4/13/2023	4.07	4/13/2026	103.83289	102.8569523	101.8994053	100.9597299	100.0374285	99.1320217	98.24304773	97.37006146	96.51263376
230413A00082	4/13/2023	4.01	4/13/2027	108.32167	106.3079866	104.3423868	102.423421	100.5496966	98.71987223	96.9326552	95.18679962	93.48110432
230417A00023	4/17/2023	3.86	4/7/2028	112.39167	109.3086575	106.3276708	103.4447762	100.6562102	97.95837484	95.34783022	92.82128606	90.37559451
230417A00037	4/17/2023	4.39	4/16/2026	104.18066	103.1945346	102.22714	101.2779426	100.3464317	99.43211533	98.53451988	97.65318887	96.78768233
230417A00044	4/17/2023	4.32	4/17/2026	104.12523	103.136606	102.1668111	101.2153106	100.2815898	99.36515271	98.46552194	97.58223745	96.7148559
230417A00045	4/17/2023	4.21	4/16/2027	108.75691	106.7303005	104.7522528	102.8213046	100.9360437	99.09511011	97.29719351	95.54103119	93.82540591
230417A00046	4/17/2023	4.13	4/17/2028	113.06455	109.9485253	106.9363508	104.0239837	101.2075649	98.48340681	95.84798474	93.2979289	90.83001645
230417A00085	4/17/2023	4.68	4/17/2026	102.43855	101.8870627	101.3431046	100.8065054	100.2770996	99.7547267	99.23923142	98.73046316	98.22827602
230418A00035	4/18/2023	4.13	4/18/2028	106.78217	105.1831644	103.6243908	102.1045088	100.6222296	99.17631754	97.76558702	96.38890046	95.0451658
230418A00059	4/18/2023	4.09	4/17/2026	103.97934	102.9903588	102.0202335	101.0684302	100.1344326	99.21774373	98.31788497	97.4343952	96.56683004
230419A00030	4/19/2023	4.39	4/20/2026	104.2324	103.2348309	102.256414	101.2966031	100.3548703	99.43070749	98.52362552	97.63315321	96.7588366
230419A00035	4/19/2023	4.16	4/19/2028	113.17873	110.0552297	107.0360022	104.11698	101.2942819	98.56419923	95.92318785	93.36785938	90.89497359
230420A00003	4/20/2023	4.06	4/20/2026	103.98679	102.9893829	102.0111508	101.0515458	100.1100386	99.18612017	98.27930025	97.38910673	96.5150847
230420A00024	4/20/2023	4.31	4/20/2026	104.15361	103.1564535	102.1784485	101.219044	100.2777122	99.35394525	98.44725396	97.55716731	96.68323145
230420A00056	4/20/2023	4.38	4/20/2033	132.2698	123.403162	115.2218411	107.6687289	100.691772	94.24349893	88.28059431	82.76351482	77.65614262
230420A00059	4/20/2023	4.72	4/20/2038	149.03829	134.2567516	121.199214	109.6507948	99.42463551	90.35810644	82.30954444	75.15544524	68.7880444
230420A00060	4/20/2023	4.72	4/20/2038	149.03829	134.2567516	121.199214	109.6507948	99.42463551	90.35810644	82.30954444	75.15544524	68.7880444
230420A00063	4/20/2023	4.65	4/20/2037	145.84293	132.2411984	120.1235842	109.3169691	99.66939834	91.04738888	83.3335936	76.42477111	70.23002047

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230420A00071	4/20/2023	4.31	4/20/2026	104.15361	103.1564535	102.1784485	101.219044	100.2777122	99.35394525	98.44725396	97.55716731	96.68323145
230421A00006	4/21/2023	4.04	4/21/2028	112.83946	109.7153441	106.6957474	103.7765878	100.9539673	98.22416152	95.58361175	93.02891591	90.556821
230421A00020	4/21/2023	4.23	4/21/2026	104.08731	103.0877095	102.1073642	101.1457164	100.2022341	99.27640549	98.36773763	97.4757559	96.60000303
230421A00025	4/21/2023	4.04	4/21/2028	112.83946	109.7153441	106.6957474	103.7765878	100.9539673	98.22416152	95.58361175	93.02891591	90.556821
230421A00041	4/21/2023	4.22	4/21/2027	108.84212	106.8004151	104.8079636	102.8632682	100.9648876	99.11143363	97.30156964	95.53400769	93.8075066
230421A00043	4/21/2023	4.1	4/21/2028	113.02097	109.8941095	106.8718348	103.9500641	101.124897	98.39260733	95.74963411	93.19257338	90.71817023
230421A00044	4/21/2023	4.13	10/21/2027	110.92304	108.3446839	105.8405485	103.4080679	101.044778	98.7483151	96.51641064	94.34688713	92.23765373
230421A00062	4/21/2023	4.33	4/21/2028	107.12174	105.4884017	103.8964161	102.3443985	100.831021	99.35501053	97.91514551	96.51025396	95.13921081
230421A00064	4/21/2023	4.1	4/21/2028	113.02097	109.8941095	106.8718348	103.9500641	101.124897	98.39260733	95.74963411	93.19257338	90.71817023
230424A00003	4/24/2023	4.15	4/26/2027	108.76625	106.7110976	104.7058544	102.7489966	100.839054	98.9746111	97.15430534	95.37682411	93.64090281
230424A00005	4/24/2023	4.08	4/24/2028	112.99544	109.8603342	106.8303808	103.901458	101.0696342	98.33115385	95.68242865	93.1200288	90.64067516
230424A00012	4/24/2023	4.28	4/24/2026	104.17459	103.1661425	102.1772748	101.2074165	100.2560226	99.32256886	98.40655051	97.50748171	96.62489451
230424A00026	4/24/2023	4.28	4/24/2026	104.17459	103.1661425	102.1772748	101.2074165	100.2560226	99.32256886	98.40655051	97.50748171	96.62489451
230424A00064	4/24/2023	4.28	4/24/2026	104.17459	103.1661425	102.1772748	101.2074165	100.2560226	99.32256886	98.40655051	97.50748171	96.62489451
230425A00006	4/25/2023	3.89	4/24/2026	103.86641	102.8584612	101.870107	100.9007793	99.94993182	99.01703932	98.10159616	97.20311553	96.32112863
230425A00011	4/25/2023	4.3	9/25/2025	101.62195	101.2097541	100.800908	100.3953707	99.99310198	99.59406246	99.19821329	98.80551627	98.41593381
230425A00029	4/25/2023	4.14	4/24/2026	104.03514	103.0274439	102.0393128	101.0701813	100.1195046	99.1867584	98.27143839	97.37305887	96.49115207
230425A00030	4/25/2023	4.01	4/26/2027	108.48388	106.4316269	104.4292349	102.4751728	100.5679719	98.70621846	96.88855124	95.11365904	93.38027861
230425A00031	4/25/2023	3.69	4/25/2028	112.0781	108.9481221	105.9234553	102.9999682	100.1737135	97.44092118	94.79798949	92.24147607	89.76809018
230425A00032	4/25/2023	3.95	4/25/2028	112.61236	109.4802025	106.4532357	103.5273363	100.6985669	97.96316686	95.31754272	92.75826017	90.28203589
230425A00040	4/25/2023	3.89	4/24/2026	103.86641	102.8584612	101.870107	100.9007793	99.94993182	99.01703932	98.10159616	97.20311553	96.32112863
230425A00045	4/25/2023	3.95	4/25/2028	112.61236	109.4802025	106.4532357	103.5273363	100.6985669	97.96316686	95.31754272	92.75826017	90.28203589
230425A00047	4/25/2023	4.01	4/26/2027	108.48388	106.4316269	104.4292349	102.4751728	100.5679719	98.70621846	96.88855124	95.11365904	93.38027861
230425A00050	4/25/2023	4.14	4/24/2026	104.03514	103.0274439	102.0393128	101.0701813	100.1195046	99.1867584	98.27143839	97.37305887	96.49115207
230425A00052	4/25/2023	4.01	4/26/2027	108.48388	106.4316269	104.4292349	102.4751728	100.5679719	98.70621846	96.88855124	95.11365904	93.38027861
230425A00053	4/25/2023	4.14	4/24/2026	104.03514	103.0274439	102.0393128	101.0701813	100.1195046	99.1867584	98.27143839	97.37305887	96.49115207
230425A00104	4/25/2023	3.86	7/15/2026	104.81031	103.5672624	102.3537632	101.1687663	100.011275	98.8803383	97.77504895	96.6945405	95.6379852
230426A00003	4/26/2023	3.89	5/9/2028	112.58433	109.4131582	106.3495905	103.3893647	100.528411	97.7628438	95.08895317	92.50319511	90.00218339
230426A00004	4/26/2023	3.89	5/9/2028	112.58433	109.4131582	106.3495905	103.3893647	100.528411	97.7628438	95.08895317	92.50319511	90.00218339
230426A00005	4/26/2023	3.91	6/13/2028	113.03466	109.7576184	106.5943451	103.5402148	100.5908211	97.74196372	94.98963754	92.33002206	89.75947173
230426A00006	4/26/2023	3.91	6/13/2028	113.03466	109.7576184	106.5943451	103.5402148	100.5908211	97.74196372	94.98963754	92.33002206	89.75947173
230426A00007	4/26/2023	3.92	7/11/2028	113.3788	110.0166058	106.7734077	103.6442642	100.6244748	97.70956438	94.89527079	92.1775332	89.55248103
230426A00008	4/26/2023	3.92	7/11/2028	113.3788	110.0166058	106.7734077	103.6442642	100.6244748	97.70956438	94.89527079	92.1775332	89.55248103

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230426A00009	4/26/2023	3.94	8/8/2028	113.75084	110.3044085	106.9823145	103.7793292	100.6904778	97.71102594	94.83646608	92.06250518	89.38505293
230426A00010	4/26/2023	3.94	8/8/2028	113.75084	110.3044085	106.9823145	103.7793292	100.6904778	97.71102594	94.83646608	92.06250518	89.38505293
230426A00011	4/26/2023	3.96	9/12/2028	114.20564	110.6526569	107.2310186	103.9351727	100.7598341	97.69996776	94.75077564	91.90768421	89.16633276
230426A00012	4/26/2023	3.96	9/12/2028	114.20564	110.6526569	107.2310186	103.9351727	100.7598341	97.69996776	94.75077564	91.90768421	89.16633276
230426A00013	4/26/2023	3.98	10/10/2028	114.58665	110.9473097	107.4453139	104.0747318	100.8299253	97.70552924	94.69643667	91.79778472	89.00494175
230426A00014	4/26/2023	3.98	10/10/2028	114.58665	110.9473097	107.4453139	104.0747318	100.8299253	97.70552924	94.69643667	91.79778472	89.00494175
230426A00025	4/26/2023	3.62	4/26/2028	111.87591	108.7461387	105.7217902	102.7987254	99.97298886	97.24080321	94.59855953	92.042809	89.57025473
230426A00033	4/26/2023	3.88	4/26/2028	112.41091	109.2789444	106.2522825	103.326792	100.4985277	97.76372113	95.11877203	92.56023951	90.08483415
230426A00036	4/26/2023	4.06	4/27/2026	103.99152	102.9756808	101.9797222	101.0030669	100.0451573	99.10545681	98.18344934	97.27863808	96.3905447
230426A00037	4/26/2023	3.94	4/26/2027	108.34269	106.2918916	104.2909251	102.3382609	100.4324309	98.57202214	96.75567418	94.9820765	93.24996652
230426A00040	4/26/2023	3.9	4/26/2028	112.47169	109.338804	106.3112413	103.3848727	100.555752	97.82011021	95.17434626	92.61501866	90.13883733
230426A00046	4/26/2023	3.95	4/26/2028	112.62365	109.488453	106.4586385	103.5300744	100.6988128	97.96108289	95.31328185	92.75196653	90.27384529
230426A00049	4/26/2023	4.13	4/27/2026	104.06183	103.0456068	102.0492738	101.0722492	100.1139752	99.17391525	98.25155302	97.34639165	96.4579527
230426A00062	4/26/2023	4.13	4/27/2026	104.06183	103.0456068	102.0492738	101.0722492	100.1139752	99.17391525	98.25155302	97.34639165	96.4579527
230426A00064	6/15/2023	3.87	6/15/2028	112.93008	109.6489354	106.4818785	103.4242606	100.4716564	97.61984835	94.86481481	92.20272007	89.62990431
230426A00065	6/15/2023	3.87	6/15/2028	112.93008	109.6489354	106.4818785	103.4242606	100.4716564	97.61984835	94.86481481	92.20272007	89.62990431
230426A00142	4/26/2023	4.51	4/27/2026	102.35562	101.8023396	101.2566677	100.718428	100.1874518	99.66357574	99.14664156	98.63649598	98.13299049
230427A00066	4/27/2023	4.07	4/27/2027	108.61754	106.5610727	104.5546223	102.5966572	100.6857021	98.82033696	96.99919457	95.22095805	93.4843587
230427A00077	4/27/2023	4.14	10/27/2026	106.37296	104.849872	103.3566199	101.892399	100.4564364	99.04798568	97.66632658	96.31076331	94.98062375
230428A00017	4/28/2023	4.17	4/28/2026	104.11433	103.0950303	102.0957297	101.1158441	100.154811	99.21208974	98.28715993	97.37952089	96.48869053
230428A00018	4/28/2023	3.99	4/28/2028	112.76803	109.6248886	106.5875696	103.6519131	100.8139481	98.06988233	95.41609275	92.84911714	90.36564592
230428A00029	4/28/2023	4.23	4/28/2026	104.17476	103.1551317	102.1555085	101.1753045	100.2139575	99.27092639	98.34569089	97.43775017	96.54662206
230428A00050	4/28/2023	4.31	4/28/2028	106.93767	105.3386813	103.7799056	102.2600004	100.7776778	99.3317029	97.92089098	96.54410518	95.20025416
230428A00055	4/28/2023	4.61	4/28/2026	102.41272	101.858751	101.3124061	100.773513	100.2419023	99.71740966	99.19987626	98.68914814	98.18507614
230501A00011	5/1/2023	4.09	4/26/2027	108.64523	106.5913244	104.5873032	102.6316436	100.7228759	98.85958568	97.04041072	95.26403908	93.52920672
230501A00012	5/1/2023	3.98	5/1/2028	112.77153	109.6198039	106.5744417	103.631256	100.7862459	98.03559082	95.37564128	92.80291013	90.3140644
230501A00013	5/1/2023	4.54	5/1/2025	100.01643	100.0136435	100.010864	100.0080869	100.0053122	100.0025399	99.99977007	99.99700262	99.99423757
230501A00038	5/1/2023	4.33	5/1/2025	100.01583	100.013042	100.0102608	100.007482	100.0047057	100.0019318	99.99916029	99.99639125	99.99362463
230501A00039	5/1/2023	4.33	5/1/2025	100.01583	100.013042	100.0102608	100.007482	100.0047057	100.0019318	99.99916029	99.99639125	99.99362463
230502A00024	5/2/2023	4.38	5/2/2025	100.02661	100.0210462	100.0154882	100.0099352	100.0043872	99.99884413	99.99330606	99.98777294	99.98224479
230502A00038	5/2/2023	3.86	5/2/2028	112.41602	109.2669327	106.2242402	103.2837451	100.4414419	97.69350601	95.03628418	92.46628587	89.98017497
230502A00045	5/2/2023	4.38	5/2/2025	100.02661	100.0210462	100.0154882	100.0099352	100.0043872	99.99884413	99.99330606	99.98777294	99.98224479
230502A00047	5/2/2023	4.1	5/1/2026	104.08034	103.0528511	102.0456818	101.0582374	100.0899421	99.14024241	98.20860582	97.29452012	96.39749226

Classification | Public

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230502A00052	5/2/2023	3.96	5/3/2027	108.46846	106.3967346	104.3757306	102.4038842	100.4796884	98.60169334	96.76850336	94.97877472	93.23121323
230502A00055	5/2/2023	4.08	5/4/2026	104.09661	103.0606658	102.0453819	101.0501455	100.0743663	99.11747716	98.17893277	97.25820867	96.35480019
230502A00076	5/2/2023	3.95	5/3/2027	108.4481	106.3765811	104.3557846	102.3841416	100.4601453	98.58234591	96.74934787	94.95980755	93.21243086
230502A00079	5/2/2023	3.6	5/2/2028	111.87807	108.7312115	105.6908701	102.7528392	99.91310325	97.16782838	94.51335263	91.94617737	89.46295895
230502A00081	5/2/2023	3.96	5/3/2027	108.46846	106.3967346	104.3757306	102.4038842	100.4796884	98.60169334	96.76850336	94.97877472	93.23121323
230502A00086	5/2/2023	4.08	5/1/2026	104.06004	103.0326525	102.0255925	101.0382559	100.0700669	99.12047208	98.18893898	97.27495539	96.37802831
230502A00120	5/2/2023	4.38	5/2/2025	100.02661	100.0210462	100.0154882	100.0099352	100.0043872	99.99884413	99.99330606	99.98777294	99.98224479
230502A00122	5/2/2023	3.7	5/3/2027	108.10718	106.0360321	104.0156637	102.0445093	100.1210586	98.24385826	96.41150974	94.62266641	92.8760314
230503A00004	5/3/2023	3.94	5/3/2027	108.42773	106.3564276	104.3358385	102.364399	100.4406022	98.56299847	96.73019238	94.94084037	93.19364848
230503A00012	5/3/2023	3.82	5/3/2028	112.30453	109.1543669	106.1107148	103.1693722	100.3263263	97.57774521	94.91996934	92.34950199	89.86300136
230503A00014	5/3/2023	3.94	5/3/2027	108.42773	106.3564276	104.3358385	102.364399	100.4406022	98.56299847	96.73019238	94.94084037	93.19364848
230503A00020	5/3/2023	3.84	5/3/2028	112.36571	109.2146061	106.170042	103.2278103	100.3838975	97.63447101	94.97587047	92.40459854	89.91731277
230503A00022	5/3/2023	4.4	5/2/2025	100.02674	100.0211785	100.0156204	100.0100673	100.0045192	99.99897605	99.99343788	99.98790468	99.98237643
230503A00025	5/3/2023	3.84	5/3/2028	112.36571	109.2146061	106.170042	103.2278103	100.3838975	97.63447101	94.97587047	92.40459854	89.91731277
230503A00029	5/3/2023	4.08	5/4/2026	104.09661	103.0606658	102.0453819	101.0501455	100.0743663	99.11747716	98.17893277	97.25820867	96.35480019
230503A00030	5/3/2023	3.84	5/3/2028	112.36571	109.2146061	106.170042	103.2278103	100.3838975	97.63447101	94.97587047	92.40459854	89.91731277
230503A00031	5/3/2023	4.4	5/2/2025	100.02674	100.0211785	100.0156204	100.0100673	100.0045192	99.99897605	99.99343788	99.98790468	99.98237643
230503A00032	5/3/2023	4.08	5/1/2026	104.06004	103.0326525	102.0255925	101.0382559	100.0700669	99.12047208	98.18893898	97.27495539	96.37802831
230503A00034	5/3/2023	3.84	5/3/2028	112.36571	109.2146061	106.170042	103.2278103	100.3838975	97.63447101	94.97587047	92.40459854	89.91731277
230503A00036	5/3/2023	4.15	5/2/2025	100.02552	100.0199506	100.0143892	100.0088329	100.0032817	99.99773547	99.99219426	99.98665805	99.98112685
230503A00038	5/3/2023	4.15	5/2/2025	100.02552	100.0199506	100.0143892	100.0088329	100.0032817	99.99773547	99.99219426	99.98665805	99.98112685
230503A00072	5/3/2023	3.83	5/4/2026	103.92321	102.8870215	101.8715216	100.8760972	99.90015679	98.9431318	98.00447569	97.08366279	96.18018735
230504A00006	5/4/2023	3.79	12/6/2027	110.5854	107.8810569	105.2575868	102.7120677	100.2417029	97.84381594	95.5158435	93.25533041	91.05992404
230504A00007	5/4/2023	3.82	7/6/2027	108.93294	106.6768975	104.4793222	102.3382729	100.2518903	98.21839182	96.23606802	94.3032786	92.41844913
230504A00011	5/4/2023	3.7	5/4/2026	103.79006	102.7546023	101.7398245	100.7451122	99.76987408	98.81354188	97.87556925	96.95543073	96.05262074
230504A00019	5/4/2023	3.95	5/4/2026	103.96352	102.9283035	101.9137408	100.9192155	99.94413769	98.98794045	98.05007867	97.13002808	96.22728422
230504A00020	5/4/2023	3.83	5/4/2027	108.21538	106.1435269	104.1224579	102.1506006	100.2264448	98.34853704	96.51547879	94.72592336	92.97857386
230504A00021	5/4/2023	3.76	5/4/2028	112.13159	108.9812902	105.9375982	102.9963048	100.1533904	97.40501687	94.74751879	92.17739403	89.69129574
230504A00034	5/4/2023	3.95	5/4/2026	103.96352	102.9283035	101.9137408	100.9192155	99.94413769	98.98794045	98.05007867	97.13002808	96.22728422
230504A00041	5/4/2023	3.95	5/4/2026	103.96352	102.9283035	101.9137408	100.9192155	99.94413769	98.98794045	98.05007867	97.13002808	96.22728422
230504A00042	5/4/2023	3.83	5/4/2027	108.21538	106.1435269	104.1224579	102.1506006	100.2264448	98.34853704	96.51547879	94.72592336	92.97857386
230504A00043	5/4/2023	3.76	5/4/2028	112.13159	108.9812902	105.9375982	102.9963048	100.1533904	97.40501687	94.74751879	92.17739403	89.69129574
230504A00046	5/4/2023	4.24	5/5/2025	100.05695	100.0430413	100.0291502	100.0152727	100.0014088	99.98755844	99.97372168	99.95989846	99.94608876

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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
230504A00049	5/4/2023	3.95	5/4/2026	103.96352	102.9283035	101.9137408	100.9192155	99.94413769	98.98794045	98.05007867	97.13002808	96.22728422
230504A00054	5/4/2023	3.95	5/4/2026	103.96352	102.9283035	101.9137408	100.9192155	99.94413769	98.98794045	98.05007867	97.13002808	96.22728422
230504A00055	5/4/2023	4.24	5/5/2025	100.05695	100.0430413	100.0291502	100.0152727	100.0014088	99.98755844	99.97372168	99.95989846	99.94608876
230504A00057	5/4/2023	3.86	5/4/2026	103.87138	102.836668	101.8226046	100.8285716	99.85397942	98.89826119	97.96087199	97.04128767	96.13900394
230504A00058	5/4/2023	3.69	5/4/2028	111.91728	108.770263	105.7297688	102.7915926	99.95171747	97.20630802	94.55170114	91.98439712	89.50105138
230504A00059	5/4/2023	4.34	5/4/2026	102.42789	101.8368228	101.2543995	100.6804089	100.1146483	99.55692205	99.00704097	98.46482208	97.9300884
230504A00065	5/4/2023	4.11	5/5/2025	100.05502	100.0411143	100.0272246	100.0133486	99.99948619	99.98563736	99.97180209	99.95798036	99.94417215
230504A00069	5/4/2023	3.82	5/4/2026	103.83042	102.7959412	101.7820996	100.7882854	99.81390908	98.85840374	97.92122457	97.00184749	96.09976826
230504A00084	5/4/2023	3.5	5/4/2028	111.59229	108.4442416	105.4029234	102.4641168	99.6237921	96.87810194	94.22337203	91.6560922	89.17290802
230505A00001	5/5/2023	4.33	5/5/2025	100.05828	100.0443755	100.0304833	100.0166047	100.0027398	99.98888843	99.97505063	99.96122638	99.94741564
230505A00002	5/5/2023	4.01	5/5/2026	104.03694	102.9985384	101.9809027	100.9834173	100.0054874	99.04654119	98.10602931	97.18342325	96.27821457
230505A00005	5/5/2023	3.99	5/5/2026	104.01641	102.9781201	101.9605959	100.9632204	99.98539888	99.02655969	98.08615334	97.1636514	96.25854547
230505A00013	5/5/2023	4.33	5/5/2025	100.05828	100.0443755	100.0304833	100.0166047	100.0027398	99.98888843	99.97505063	99.96122638	99.94741564
230505A00014	5/5/2023	3.59	5/5/2028	111.87853	108.7232997	105.6750827	102.7296397	99.88292843	97.13108974	94.47043818	91.897453	89.40876983
230505A00016	5/5/2023	3.85	5/5/2028	112.41797	109.2604954	106.2099085	103.2619821	100.412684	97.65816452	94.99474693	92.41891862	89.92732281
230505A00017	5/5/2023	4.01	5/5/2026	104.03694	102.9985384	101.9809027	100.9834173	100.0054874	99.04654119	98.10602931	97.18342325	96.27821457
230505A00022	5/5/2023	3.85	5/5/2028	112.41797	109.2604954	106.2099085	103.2619821	100.412684	97.65816452	94.99474693	92.41891862	89.92732281
230505A00027	5/5/2023	4.01	5/5/2026	104.03694	102.9985384	101.9809027	100.9834173	100.0054874	99.04654119	98.10602931	97.18342325	96.27821457
230505A00035	5/5/2023	3.9	5/5/2027	108.36999	106.293772	104.26848	102.2925356	100.3644225	98.48268185	96.64590982	94.85275478	93.10191516
230505A00071	5/5/2023	3.85	5/5/2028	112.41797	109.2604954	106.2099085	103.2619821	100.412684	97.65816452	94.99474693	92.41891862	89.92732281
230508A00007	5/8/2023	3.92	5/8/2028	112.66557	109.4959327	106.4337729	103.474831	100.6150447	97.8505362	95.17760231	92.59270559	90.09246585
230508A00012	5/8/2023	4.43	5/8/2025	100.09259	100.0703402	100.0481144	100.0259123	100.0037338	99.98157883	99.95944741	99.93733948	99.915255
230508A00016	5/8/2023	4.14	5/8/2026	104.20748	103.1597609	102.1331665	101.1270583	100.1408268	99.17388622	98.22567385	97.2956486	96.38329008
230508A00017	5/8/2023	4.01	5/10/2027	108.65545	106.5624555	104.5210001	102.5294762	100.586341	98.69011082	96.839358	95.03270849	93.26883944
230508A00018	5/8/2023	3.92	5/8/2028	112.66557	109.4959327	106.4337729	103.474831	100.6150447	97.8505362	95.17760231	92.59270559	90.09246585
230509A00009	5/9/2023	4.45	5/9/2025	100.10405	100.0790167	100.0540136	100.0290378	100.0040893	99.97916797	99.95427379	99.92940673	99.90456671
230509A00010	5/9/2023	4.14	5/8/2026	104.20748	103.1597609	102.1331665	101.1270583	100.1408268	99.17388622	98.22567385	97.2956486	96.38329008
230509A00036	5/9/2023	4.02	5/10/2027	108.67601	106.5828003	104.5411336	102.5494025	100.6060643	98.70963487	96.85868664	95.05184543	93.28778829
230509A00047	5/9/2023	4.43	5/9/2025	100.10353	100.0785013	100.0534986	100.0285233	100.0035752	99.97865424	99.95376048	99.92889382	99.90405422
230509A00048	5/9/2023	4.43	5/9/2025	100.10353	100.0785013	100.0534986	100.0285233	100.0035752	99.97865424	99.95376048	99.92889382	99.90405422
230509A00060	5/9/2023	3.92	5/9/2028	112.6766	109.5040052	106.4390549	103.4774816	100.615214	97.84836569	95.17322547	92.58624838	90.08404719
230509A00118	5/9/2023	4.12	5/8/2026	104.18678	103.1391777	102.1126965	101.1066999	100.1205785	99.15374647	98.2056412	97.27572161	96.36346734
230510A00007	5/10/2023	4.39	5/9/2025	100.1025	100.0774705	100.0524687	100.0274942	100.0025469	99.97762678	99.95273385	99.92786802	99.90302924

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230510A00009	5/10/2023	4.07	5/11/2026	104.17153	103.1156424	102.0812123	101.0675902	100.0741518	99.10029774	98.14545222	97.20906181	96.29059437
230510A00014	5/10/2023	4.07	5/11/2026	104.17153	103.1156424	102.0812123	101.0675902	100.0741518	99.10029774	98.14545222	97.20906181	96.29059437
230510A00018	11/10/2023	3.61	11/10/2026	105.73415	104.1770188	102.6509072	101.1549602	99.68835577	98.25030129	96.84003227	95.45681109	94.09992578
230510A00031	5/10/2023	4.14	5/9/2025	100.09799	100.0729432	100.0479264	100.0229372	99.99797542	99.97304108	99.9481341	99.92325444	99.89840204
230510A00037	5/10/2023	3.84	5/10/2028	112.44137	109.2696017	106.2055537	103.2449487	100.3837093	97.6179435	94.943935	92.35813405	89.85714899
230510A00057	5/10/2023	3.98	5/11/2026	104.07764	103.0222764	101.9883635	100.9752512	99.98231555	99.00895733	98.05460087	97.11869289	96.20070141
230510A00062	8/10/2023	3.78	8/10/2026	104.91198	103.6032228	102.3236314	101.0722281	99.84808004	98.65029587	97.47802296	96.33044554	95.20678264
230511A00015	5/11/2023	4.25	5/12/2025	100.13024	100.0968694	100.0635428	100.0302554	99.99700709	99.96379777	99.93062738	99.89749585	99.8644031
230511A00023	5/11/2023	3.95	5/19/2026	104.14101	103.0629617	102.0072792	100.9732738	99.96028161	98.96766612	97.99481609	97.04114457	96.10608769
230511A00029	5/11/2023	4.25	5/9/2025	100.09889	100.0738628	100.0488639	100.0238922	99.99894786	99.97403067	99.94914063	99.92427769	99.89944181
230511A00032	5/11/2023	3.7	5/11/2026	103.86961	102.8141754	101.7802239	100.7670997	99.77417725	98.8008561	97.8465593	96.91073235	95.99284217
230511A00034	5/11/2023	4	5/12/2025	100.12431	100.0909274	100.0575808	100.0242736	99.99100576	99.95777724	99.92458794	99.89143778	99.85832668
230511A00036	5/11/2023	3.79	5/19/2027	108.3071	106.1929449	104.1312582	102.1203888	100.1587508	98.24481968	96.37712919	94.55426895	92.7748817
230511A00038	5/11/2023	3.95	5/11/2026	104.04634	102.9911545	101.9574139	100.9444715	99.95170347	98.97851053	98.02431709	97.08856991	96.17073709
230511A00039	5/11/2023	3.86	11/27/2026	106.33467	104.724573	103.1470794	101.6012646	100.0862423	98.60115843	97.14519063	95.71754616	94.31746079
230511A00042	5/11/2023	3.72	5/11/2028	112.08244	108.9134177	105.8521345	102.8943131	100.0358717	97.27291424	94.60172067	92.01873787	89.5205711
230511A00043	5/11/2023	3.72	5/16/2028	112.13481	108.9510571	105.8758942	102.90499	100.0342168	97.25963558	94.57748617	91.98417766	89.47627992
230511A00044	5/11/2023	3.79	5/11/2027	108.21467	106.1235453	104.0839758	102.0943544	100.153136	98.25883444	96.41002008	94.60531691	92.84340025
230511A00046	5/11/2023	3.95	5/11/2026	104.04634	102.9911545	101.9574139	100.9444715	99.95170347	98.97851053	98.02431709	97.08856991	96.17073709
230511A00050	5/11/2023	3.98	5/11/2026	104.07764	103.0222764	101.9883635	100.9752512	99.98231555	99.00895733	98.05460087	97.11869289	96.20070141
230511A00052	5/11/2023	4.25	5/12/2025	100.13024	100.0968694	100.0635428	100.0302554	99.99700709	99.96379777	99.93062738	99.89749585	99.8644031
230511A00068	5/11/2023	4.31	5/12/2025	100.13228	100.0989081	100.0655799	100.0322908	99.99904083	99.96582986	99.93265781	99.89952463	99.86643024
230511A00069	5/11/2023	3.98	5/12/2026	104.08956	103.031336	101.9946809	100.9789358	99.98347165	99.00768473	98.05099492	97.11284475	96.19269831
230511A00080	5/11/2023	3.49	5/11/2028	111.63214	108.4639845	105.4037311	102.4470884	99.58996335	96.82844922	94.15881602	91.57750135	89.08110183
230512A00007	5/12/2023	4.08	5/12/2025	100.12703	100.0936459	100.060297	100.0269876	99.99371758	99.96048685	99.92729534	99.89414298	99.86102969
230512A00008	5/12/2023	3.75	5/12/2026	103.93329	102.8747147	101.8377335	100.821693	99.82596281	98.84993765	97.89303607	96.95469931	96.03439023
230512A00009	5/12/2023	4.08	5/12/2025	100.12703	100.0936459	100.060297	100.0269876	99.99371758	99.96048685	99.92729534	99.89414298	99.86102969
230512A00010	5/12/2023	3.75	5/12/2026	103.93329	102.8747147	101.8377335	100.821693	99.82596281	98.84993765	97.89303607	96.95469931	96.03439023
230512A00011	5/12/2023	3.78	5/12/2028	112.27795	109.1031285	106.0362904	103.0731434	100.2095945	97.44173663	94.7658396	92.17834068	89.67583608
230512A00022	5/12/2023	4.33	5/12/2025	100.13296	100.0995877	100.0662589	100.0329693	99.99971874	99.96650722	99.93333463	99.90020089	99.86710595
230512A00026	5/12/2023	4	5/12/2026	104.11048	103.052139	102.0153684	100.9995093	100.0039329	99.02803528	98.07123626	97.13297836	96.21272564
230512A00033	5/12/2023	3.75	5/12/2026	103.93329	102.8747147	101.8377335	100.821693	99.82596281	98.84993765	97.89303607	96.95469931	96.03439023
230512A00037	5/12/2023	3.86	5/12/2027	108.37054	106.2750179	104.2311982	102.2374639	100.2922641	98.3941071	96.54155783	94.7332353	92.96781007

Classification | Public

	Parallel-Shift Sensitivity Analysis											
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230512A00042	5/12/2023	4	5/12/2026	104.11048	103.052139	102.0153684	100.9995093	100.0039329	99.02803528	98.07123626	97.13297836	96.21272564
230515A00011	5/15/2023	4.11	5/15/2026	104.26237	103.1948026	102.1491563	101.1247597	100.1209688	99.13716545	98.17275602	97.22717024	96.29986001
230515A00031	5/15/2023	4.41	5/15/2025	100.16834	100.1266274	100.0849704	100.0433657	100.0018134	99.96031319	99.9188651	99.87746899	99.83612476
230515A00045	5/15/2023	4.08	5/15/2026	104.23074	103.163351	102.1178807	101.0936575	100.0900375	99.10640268	98.14215948	97.19673767	96.26958918
230515A00072	5/15/2023	4.42	5/9/2025	100.10327	100.0782436	100.0532411	100.028266	100.0033181	99.97839737	99.95350382	99.92863737	99.90379798
230515A00074	5/15/2023	4.11	5/15/2026	104.26237	103.1948026	102.1491563	101.1247597	100.1209688	99.13716545	98.17275602	97.22717024	96.29986001
230515A00078	5/15/2023	3.96	5/17/2027	108.63684	106.5247112	104.4648977	102.4557555	100.4957069	98.58323501	96.71688091	94.89524099	93.11696441
230515A00080	5/15/2023	3.88	5/15/2028	112.6191	109.4306498	106.3508122	103.3752625	100.499876	97.72071635	95.03402546	92.43621446	89.92385495
230516A00009	5/16/2023	4.46	5/16/2025	100.18147	100.1369811	100.0925475	100.0481709	100.0038514	99.95958874	99.91538286	99.87123364	99.82714096
230516A00013	5/16/2023	4.11	5/15/2026	104.26237	103.1948026	102.1491563	101.1247597	100.1209688	99.13716545	98.17275602	97.22717024	96.29986001
230516A00035	5/16/2023	4.11	5/15/2026	104.26237	103.1948026	102.1491563	101.1247597	100.1209688	99.13716545	98.17275602	97.22717024	96.29986001
230516A00036	5/16/2023	4	5/17/2027	108.71986	106.6068557	104.5461814	102.5361954	100.5753195	98.66203638	96.79488661	94.97246618	93.19342383
230516A00037	5/16/2023	3.91	5/16/2028	112.72287	109.5300267	106.4459999	103.4664566	100.5872619	97.80446941	95.11431204	92.51319223	89.99767346
230516A00067	5/16/2023	4.44	5/16/2025	100.18057	100.1360826	100.0916497	100.0472739	100.0029551	99.9586932	99.91448806	99.87033957	99.82624762
230516A00069	5/16/2023	4.1	5/15/2026	104.25183	103.1843187	102.1387311	101.1143923	100.1106584	99.12691119	98.16255718	97.21702605	96.28976973
230517A00014	5/17/2023	4.14	5/18/2026	104.33108	103.2547453	102.2006762	101.1681899	100.1566273	99.16535613	98.19376931	97.2412838	96.30733942
230517A00020	5/17/2023	4.47	7/17/2025	100.87839	100.6614437	100.445448	100.2303939	100.0162752	99.80308576	99.59081937	99.37947002	99.16903169
230517A00046	5/17/2023	4.53	5/16/2025	100.18462	100.1401258	100.0956896	100.0513105	100.0069884	99.96272314	99.91851469	99.8743629	99.83026766
230517A00048	5/17/2023	4.17	5/15/2026	104.32563	103.2577056	102.2117077	101.1869643	100.1828315	99.19869101	98.23394911	97.28803539	96.36040166
230518A00015	5/18/2023	4.64	5/16/2025	100.18957	100.1450675	100.1006272	100.056244	100.0119179	99.96764862	99.92343613	99.87928031	99.83518104
230518A00017	5/18/2023	4.28	5/18/2026	104.47986	103.4026724	102.3477701	101.3144625	100.3020902	99.31002073	98.33764668	97.38438478	96.44967459
230518A00019	5/18/2023	3.81	5/18/2028	112.6961	109.4919431	106.3972649	103.4076976	100.519071	97.72740556	95.02890306	92.41993676	89.89704262
230519A00012	5/19/2023	4.53	12/19/2025	102.77379	102.1224818	101.479449	100.8445379	100.217595	99.59847052	98.98701864	98.38309704	97.78656694
230519A00026	5/19/2023	4.73	5/19/2025	100.2289	100.176061	100.1232927	100.0705966	100.0179725	99.96542035	99.91293994	99.86053112	99.80819375
230519A00027	5/19/2023	4.39	5/19/2026	104.60981	103.5290835	102.4707692	101.4341696	100.4186202	99.4234833	98.44814702	97.49202355	96.55454822
230519A00028	5/19/2023	4.73	5/19/2025	100.2289	100.176061	100.1232927	100.0705966	100.0179725	99.96542035	99.91293994	99.86053112	99.80819375
230519A00029	5/19/2023	4.39	5/19/2026	104.60981	103.5290835	102.4707692	101.4341696	100.4186202	99.4234833	98.44814702	97.49202355	96.55454822
230519A00030	5/19/2023	4.27	5/19/2027	109.30605	107.1813022	105.109232	103.0881843	101.1165675	99.19285124	97.31556396	95.48329001	93.69466711
230519A00038	5/19/2023	3.92	5/19/2028	113.04888	109.8364446	106.7337951	103.7365495	100.8405236	98.04172534	95.33634401	92.72074136	90.19144246
230519A00041	5/19/2023	3.92	5/19/2028	113.04888	109.8364446	106.7337951	103.7365495	100.8405236	98.04172534	95.33634401	92.72074136	90.19144246
230522A00026	5/22/2023	4.35	5/22/2026	104.60602	103.5169249	102.4505787	101.4062765	100.383339	99.38111414	98.3989766	97.43632581	96.492585
230522A00029	5/22/2023	4.67	5/22/2025	100.26051	100.1993322	100.1382449	100.0772462	100.016336	99.95551406	99.89478018	99.83413419	99.77357589
230522A00043	5/22/2023	4.17	5/16/2028	113.52759	110.3223009	107.2261444	104.2347794	101.3440604	98.55003151	95.84891586	93.23710689	90.71115936

Classification | Public

	Parallel-Shift Sensitivity Analysis											
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230522A00046	5/22/2023	4.17	5/22/2028	113.59798	110.3747699	107.2617258	104.2544422	101.3487179	98.54054465	95.82609683	93.20172195	90.66393171
230522A00058	5/22/2023	4.7	5/19/2025	100.22731	100.174467	100.1217	100.0690052	100.0163824	99.96383159	99.91135248	99.85894497	99.80660891
230522A00093	5/22/2023	4.17	5/22/2028	113.59798	110.3747699	107.2617258	104.2544422	101.3487179	98.54054465	95.82609683	93.20172195	90.66393171
230523A00008	5/23/2023	4.44	5/26/2026	104.75545	103.6542798	102.5763413	101.5209009	100.4872587	99.47474348	98.48271127	97.51054413	96.55764876
230523A00024	5/23/2023	4.06	5/24/2027	109.10437	106.9645901	104.878149	102.843363	100.8586099	98.92233119	97.03302822	95.18925989	93.38963982
230523A00047	5/23/2023	4.77	5/23/2025	100.27852	100.2145602	100.1506943	100.0869228	100.0232456	99.95966243	99.89617307	99.83277733	99.769475
230523A00048	5/23/2023	4.44	5/26/2026	104.75545	103.6542798	102.5763413	101.5209009	100.4872587	99.47474348	98.48271127	97.51054413	96.55764876
230523A00049	5/23/2023	4.31	5/24/2027	109.45433	107.3141325	105.227214	103.1918871	101.2065336	99.2695984	97.37958634	95.53505946	93.73463439
230523A00083	5/23/2023	4.21	5/23/2028	113.7343	110.50616	107.3884109	104.3766325	101.4666127	98.65433284	95.93595774	93.30782575	90.76644
230523A00085	5/23/2023	4.39	5/23/2029	118.76523	114.3995936	110.2229028	106.2259256	102.3999325	98.73666746	95.22831877	91.86749301	88.64719004
230523A00086	5/23/2023	4.42	5/23/2030	123.0395	117.5199215	112.2884517	107.3284483	102.6243156	98.16143781	93.92611159	89.90548449	86.08749748
230523A00088	5/23/2023	4.59	5/23/2033	134.25766	125.2193138	116.8847668	109.1948889	102.0958252	95.53850241	89.47818081	83.87405001	78.68886457
230523A00089	5/23/2023	4.65	5/23/2034	137.98688	127.7505356	118.3949034	109.8385103	102.0078504	94.83656964	88.26473493	82.23818112	76.70792768
230523A00090	5/23/2023	4.71	5/23/2035	141.63996	130.1984601	119.8327757	110.4343882	101.906314	94.16182074	87.12329359	80.72123184	74.89336078
230523A00091	5/23/2023	4.77	5/23/2036	145.0218	132.3819693	121.0296662	110.8244124	101.641834	93.3717365	85.91641857	79.18919369	73.11309385
230524A00009	5/24/2023	3.9	5/24/2028	113.04284	109.8164643	106.7007128	103.6911511	100.7835493	97.97387209	95.25826867	92.63306303	90.09474487
230524A00020	5/24/2023	4.44	5/23/2025	100.2623	100.1983064	100.1344048	100.0705982	100.0068864	99.94326922	99.87974646	99.81631788	99.75298327
230524A00021	5/24/2023	4.44	5/23/2025	100.2623	100.1983064	100.1344048	100.0705982	100.0068864	99.94326922	99.87974646	99.81631788	99.75298327
230524A00028	5/24/2023	4.36	5/26/2026	104.66866	103.567993	102.4905501	101.4355982	100.4024373	99.39039654	98.39883205	97.42712607	96.47468546
230524A00037	5/24/2023	4.69	5/23/2025	100.27339	100.2094338	100.1455722	100.081805	100.018132	99.95455301	99.89106787	99.82767634	99.76437821
230524A00038	5/24/2023	4.36	5/26/2026	104.66866	103.567993	102.4905501	101.4355982	100.4024373	99.39039654	98.39883205	97.42712607	96.47468546
230525A00004	5/25/2023	4.87	5/27/2025	100.33352	100.258439	100.1834758	100.1086318	100.0339066	99.95929997	99.8848117	99.81044146	99.736189
230525A00094	5/25/2023	4.31	5/25/2028	114.07001	110.8310208	107.7028928	104.6811813	101.7616514	98.94026309	96.2131609	93.57666423	91.02725833
230526A00013	5/26/2023	4.39	5/26/2026	104.789	103.6863418	102.6069603	101.5501262	100.5151373	99.50132039	98.50802979	97.53464575	96.58057328
230526A00016	5/26/2023	4.46	5/26/2027	109.79544	107.6460468	105.5502274	103.5062871	101.5125954	99.5675856	97.66975141	95.81764446	94.00987141
230526A00033	5/26/2023	4.63	5/27/2031	127.8729	121.1493216	114.8356172	108.9044532	103.3304623	98.09009275	93.16146945	88.52426583	84.15958622
230526A00034	5/26/2023	4.66	5/26/2032	131.47092	123.5768477	116.2313792	109.3931429	103.0241008	97.08926672	91.55644584	86.39599829	81.58062344
230530A00027	5/30/2023	4.22	5/30/2028	113.84854	110.5989561	107.460984	104.4301342	101.5021286	98.67288662	95.9385149	93.29529739	90.73968615
230530A00041	5/30/2023	4.93	5/27/2025	100.33803	100.2629405	100.1879736	100.1131258	100.0383969	99.96378658	99.8892946	99.81492066	99.74066449
230530A00045	5/30/2023	4.56	5/29/2026	105.2954	104.1068387	102.9453674	101.8100659	100.7000542	99.61449158	98.55257423	97.51353324	96.49663279
230530A00048	5/30/2023	4.45	5/29/2026	104.80597	103.6960964	102.6098056	101.5463503	100.5050149	99.48511376	98.48598906	97.50700978	96.54757024
230530A00054	5/30/2023	4.56	5/29/2026	105.2954	104.1068387	102.9453674	101.8100659	100.7000542	99.61449158	98.55257423	97.51353324	96.49663279
230530A00055	5/30/2023	4.56	5/29/2026	105.2954	104.1068387	102.9453674	101.8100659	100.7000542	99.61449158	98.55257423	97.51353324	96.49663279

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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
230530A00118	5/30/2023	4.4	5/28/2027	109.69592	107.5420291	105.441923	103.3938925	101.3962973	99.44756161	97.54617049	95.69066739	93.87965128
230530A00166	5/30/2023	4.81	5/30/2025	100.36496	100.2815498	100.1982748	100.1151392	100.0321424	99.94928424	99.86656434	99.78398235	99.70153795
230530A00171	5/30/2023	4.43	5/29/2026	104.78411	103.67436	102.588195	101.5248636	100.4836504	99.4638696	98.46486355	97.48600124	96.52667704
230531A00037	5/31/2023	4.41	5/29/2026	104.76224	103.6526237	102.5665844	101.5033769	100.4622859	99.44262544	98.44373804	97.46499271	96.50578383
230531A00038	5/31/2023	4.01	5/28/2027	109.04916	106.8988612	104.802348	102.7579126	100.7639126	98.81877011	96.92096857	95.06904973	93.26161106
230531A00042	5/31/2023	4.01	5/28/2027	109.04916	106.8988612	104.802348	102.7579126	100.7639126	98.81877011	96.92096857	95.06904973	93.26161106
230531A00060	5/31/2023	4.44	2/27/2026	103.6052	102.7557579	101.9202681	101.0983921	100.2897989	99.49416819	98.71118973	97.94056322	97.18199778
230531A00061	5/31/2023	4.42	4/1/2026	104.01461	103.0711854	102.1449188	101.2353407	100.3420026	99.46447184	98.60233122	97.75517801	96.92262344
230531A00062	5/31/2023	4.39	4/30/2026	104.36178	103.3355404	102.3295354	101.3431692	100.3758703	99.42708918	98.49629725	97.58298587	96.68666544
230531A00063	5/31/2023	4.37	5/29/2026	104.71851	103.6091509	102.5233632	101.4604036	100.4195568	99.40013712	98.40148702	97.42297563	96.46399742
230531A00088	5/31/2023	4.79	5/30/2025	100.3633	100.2798851	100.1966115	100.1134772	100.0304819	99.94762507	99.86490654	99.78232592	99.69988289
230531A00090	5/31/2023	4.41	6/1/2026	104.80167	103.6834235	102.5891152	101.5179796	100.4692854	99.44233198	98.43644746	97.45098748	96.48533372
230531A00091	5/31/2023	4.26	6/1/2027	109.45272	107.2902623	105.1820042	103.1262134	101.1212302	99.16546009	97.25737072	95.39548912	93.57839869
230531A00099	5/31/2023	4.41	5/29/2026	104.76224	103.6526237	102.5665844	101.5033769	100.4622859	99.44262544	98.44373804	97.46499271	96.50578383
230601A00012	6/1/2023	4.72	6/2/2025	100.39324	100.3015016	100.2099338	100.118536	100.0273077	99.9362484	99.84535764	99.75463496	99.66407988
230601A00025	6/1/2023	4.12	6/1/2028	113.55858	110.3078579	107.1689737	104.1374238	101.2089147	98.3793516	95.6448278	93.00161492	90.44615353
230602A00012	6/2/2023	4.39	6/2/2026	104.79278	103.6717946	102.574862	101.5012167	100.450122	99.42087191	98.41278972	97.4252264	96.45755924
230602A00020	6/2/2023	3.94	6/2/2028	113.27028	110.0149084	106.8717948	103.8364048	100.9044206	98.07172468	95.3343892	92.68866585	90.13097654
230602A00027	6/2/2023	4.2	6/2/2026	104.67228	103.5506663	102.4531528	101.3789643	100.3273622	99.29763872	98.28911555	97.30114209	96.33309417
230602A00030	6/2/2023	4.2	6/2/2026	104.67228	103.5506663	102.4531528	101.3789643	100.3273622	99.29763872	98.28911555	97.30114209	96.33309417
230602A00051	6/2/2023	4.33	6/2/2038	126.47061	119.0951864	112.3396208	106.1427346	100.4500286	95.2128954	90.3879333	85.93634438	81.82340694
230605A00022	6/5/2023	4.39	6/4/2027	109.76829	107.5938575	105.4740583	103.4071436	101.3914348	99.42531961	97.50724914	95.63573445	93.80934395
230606A00008	6/6/2023	3.98	6/6/2028	113.44308	110.1734311	107.0168207	103.968675	101.024634	98.18054046	95.43242942	92.77651775	90.20919469
230606A00014	6/6/2023	4.35	6/7/2027	109.72323	107.5407135	105.4131857	103.3388848	101.3161154	99.34324974	97.41872394	95.54103514	93.70873854
230606A00015	6/6/2023	4.24	6/6/2028	113.9964	110.7243623	107.5652321	104.5144471	101.5676581	98.72071816	95.96967174	93.31074449	90.7403338
230606A00029	6/6/2023	4.45	6/5/2026	104.89898	103.768971	102.6633899	101.5814524	100.5224049	99.4855254	98.47012213	97.47553179	96.50111819
230607A00001	6/7/2023	4.9	6/6/2025	100.45944	100.3565794	100.2539353	100.1515103	100.0493039	99.94731524	99.84554367	99.74398846	99.64264889
230607A00007	6/7/2023	4.24	6/7/2028	114.00861	110.7334882	107.5714589	104.517948	101.5685961	98.71924668	95.96593532	93.30487932	90.73246828
230607A00020	6/7/2023	4.28	6/7/2028	113.90153	110.6720713	107.5551236	104.5460604	101.6404771	98.83417892	96.12316934	93.503639	90.97195579
230607A00038	6/7/2023	4.58	6/5/2026	105.04363	103.9127559	102.8063298	101.7235599	100.6636923	99.62600468	98.60980502	97.61442973	96.63924233
230608A00003	6/8/2023	4.23	6/8/2028	113.98922	110.7115183	107.5470751	104.491311	101.539857	98.68854735	95.93340916	93.27065174	90.69665721
230608A00015	6/8/2023	4.81	6/9/2025	100.48673	100.3755309	100.264594	100.1539148	100.0434925	99.93332608	99.82341468	99.71375735	99.60435319
230608A00049	6/8/2023	4.47	6/8/2026	104.96135	103.8225611	102.7085799	101.6185964	100.5518398	99.50757233	98.48508698	97.48370621	96.50278032

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230609A00016	6/9/2023	4.91	6/9/2025	100.49783	100.3866277	100.2756808	100.1649917	100.0545594	99.94438309	99.83446178	99.72479457	99.61538053
230609A00026	6/9/2023	4.11	6/9/2027	109.41415	107.2258365	105.0928466	103.0133948	100.9857704	99.00833062	97.0794977	95.19775563	93.3616472
230609A00027	6/9/2023	3.99	6/9/2028	113.50995	110.2305657	107.0647864	104.0080048	101.0558298	98.20407529	95.44874891	92.7860421	90.21232018
230609A00034	6/9/2023	3.99	6/9/2028	113.50995	110.2305657	107.0647864	104.0080048	101.0558298	98.20407529	95.44874891	92.7860421	90.21232018
230609A00036	6/9/2023	4.91	6/6/2025	100.46047	100.3576059	100.2549609	100.152535	100.0503277	99.94833819	99.84656574	99.74500965	99.64366919
230609A00038	6/9/2023	4.91	6/10/2025	100.51029	100.3962998	100.2825847	100.1691405	100.0559663	99.94306106	99.83042377	99.71805344	99.60594909
230609A00039	6/9/2023	4.73	12/10/2025	102.78289	102.156547	101.5378588	100.9266875	100.3228963	99.72635198	99.13692423	98.55448598	97.97891315
230609A00040	6/9/2023	4.38	5/12/2027	109.44258	107.3357921	105.2809268	103.2763643	101.3205473	99.41197822	97.54921623	95.73087484	93.9556193
230609A00041	6/9/2023	4.53	7/13/2026	105.50381	104.2634237	103.0523315	101.8695036	100.7139569	99.58475361	98.48099872	97.4018372	96.34645206
230609A00042	6/9/2023	4.46	11/25/2026	107.26574	105.6536209	104.0740596	102.52614	101.0089793	99.5217271	98.06356431	96.63370125	95.23137652
230609A00043	6/9/2023	4.32	9/29/2027	111.12671	108.6068488	106.1578478	103.7773161	101.4629543	99.21255414	97.02399423	94.89523611	92.82432052
230609A00076	7/10/2023	4.19	7/10/2028	114.24507	110.8716253	107.6173649	104.4773465	101.4468681	98.52145237	95.69683528	92.96895368	90.33393463
230612A00023	6/12/2023	4.32	6/12/2026	104.93674	103.7855178	102.6596411	101.5582772	100.4806307	99.42594015	98.39347659	97.38254154	96.39246558
230612A00024	6/12/2023	4.69	6/12/2025	100.51826	100.3986313	100.2792984	100.1602646	100.0415286	99.92308934	99.80494555	99.68709611	99.56953988
230613A00010	6/13/2023	4.9	6/13/2025	100.54642	100.4240901	100.3020688	100.1803588	100.058959	99.9378681	99.81708488	99.69660813	99.57643665
230613A00015	6/13/2023	4.73	6/13/2033	119.46765	114.9415007	110.6680886	106.6305348	102.8132329	99.2017406	95.7826851	92.54367568	89.47322469
230613A00019	6/13/2023	4.49	6/15/2026	105.07775	103.918645	102.7852138	101.6766093	100.5920209	99.53067286	98.49182264	97.47475903	96.47880058
230613A00021	6/13/2023	4.35	6/14/2027	109.81652	107.6129585	105.4652769	103.3716686	101.3303982	99.33979956	97.39827287	95.50428126	93.65634784
230613A00034	6/13/2023	4.56	6/12/2026	105.11671	103.9657874	102.8401681	101.7390274	100.6615714	99.60704066	98.57470768	97.56387559	96.57387643
230613A00061	6/13/2023	4.56	6/15/2026	105.15758	103.9979892	102.8640812	101.7550072	100.6699564	99.60815288	98.56885393	97.55134819	96.55495402
230613A00091	6/13/2023	4.58	6/15/2026	105.18039	104.0206589	102.8866147	101.7774066	100.6922237	99.63029002	98.59086288	97.57323081	96.57671215
230614A00001	6/14/2023	4.55	6/12/2026	105.10539	103.9545348	102.8289828	101.7279081	100.6505173	99.59605076	98.56378102	97.55301125	96.5630735
230614A00029	6/14/2023	4.55	6/15/2026	105.14618	103.9866543	102.8528144	101.7438075	100.6588227	99.5970843	98.55784946	97.54040688	96.54407496
230614A00031	6/14/2023	4.94	6/16/2025	100.58892	100.4582242	100.3278864	100.1979017	100.0682688	99.938986	99.81005201	99.68146534	99.55322453
230614A00038	6/14/2023	4.3	6/15/2026	104.95349	103.7937468	102.6597193	101.5505586	100.4654519	99.40362178	98.36432377	97.34684501	96.35050242
230614A00047	6/14/2023	4.94	6/16/2025	100.58892	100.4582242	100.3278864	100.1979017	100.0682688	99.938986	99.81005201	99.68146534	99.55322453
230614A00048	6/14/2023	4.55	6/15/2026	105.14618	103.9866543	102.8528144	101.7438075	100.6588227	99.5970843	98.55784946	97.54040688	96.54407496
230615A00023	6/15/2023	4.58	6/15/2026	105.18039	104.0206589	102.8866147	101.7774066	100.6922237	99.63029002	98.59086288	97.57323081	96.57671215
230615A00026	6/15/2023	4.84	6/15/2038	150.96346	135.9109473	122.6281301	110.8925108	100.510865	91.31524617	83.1595515	75.91656979	69.47544232
230615A00033	6/15/2023	4.58	6/15/2026	105.18039	104.0206589	102.8866147	101.7774066	100.6922237	99.63029002	98.59086288	97.57323081	96.57671215
230615A00039	6/15/2023	4.16	6/15/2027	109.59949	107.3919661	105.2405498	103.1434233	101.0988402	99.10512423	97.16066607	95.2639198	93.41339995
230615A00044	6/15/2023	4.33	6/15/2026	104.98772	103.8277676	102.6935355	101.5841733	100.4988682	99.43684257	98.397352	97.37968349	96.38315392
230615A00103	6/15/2023	4.99	6/16/2025	100.59544	100.4647426	100.3343983	100.2044071	100.0747677	99.94547845	99.816538	99.68794488	99.55969764

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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
230616A00012	6/16/2023	4.41	6/16/2026	105.09244	103.9290394	102.7914954	101.6789488	100.5905806	99.52560768	98.48328018	97.46288011	96.46371955
230616A00037	6/16/2023	4.48	6/16/2027	110.12389	107.9112203	105.7547563	103.6526699	101.6032121	99.6047043	97.65553465	95.75415491	93.89907742
230616A00038	6/16/2023	4.32	6/16/2028	114.37303	111.066095	107.8740188	104.7921287	101.8159695	98.94129523	96.16405754	93.48039508	90.88662368
230616A00039	6/16/2023	5.07	6/16/2025	100.60588	100.4751721	100.3448174	100.2148158	100.085166	99.95586638	99.82691559	99.69831215	99.57005461
230616A00040	6/16/2023	4.66	6/16/2026	105.28552	104.1223455	102.9849893	101.8725964	100.78435	99.71946845	98.6772037	97.65683926	96.65768871
230616A00106	6/16/2023	4.61	6/16/2026	105.22836	104.0655339	102.9285198	101.8164638	100.7285492	99.66399452	98.62205173	97.60200453	96.6031666
230620A00035	6/20/2023	4.36	6/20/2030	123.02188	117.4211479	112.1165017	107.0906146	102.327273	97.81129537	93.52846056	89.46544189	85.60974584
230620A00065	6/20/2023	4.56	6/18/2026	105.19845	104.0301872	102.8879859	101.7709757	100.6783283	99.60925148	98.56298707	97.53880915	96.53602232
230620A00089	6/20/2023	4.98	6/20/2025	100.64472	100.5028718	100.361439	100.2204173	100.0798048	99.93959966	99.79980018	99.66040452	99.5214109
230620A00091	6/20/2023	4.56	6/22/2026	105.25294	104.0731121	102.9198462	101.7922495	100.6894706	99.61069513	98.55514421	97.52207233	96.51076562
230621A00016	6/21/2023	4.55	6/22/2026	105.24134	104.0615851	102.9083896	101.7808622	100.6781515	99.5994432	98.54395845	97.51095175	96.49970925
230621A00022	6/21/2023	4.24	6/21/2028	114.17954	110.8611986	107.6585404	104.5668419	101.5815998	98.69852305	95.91352111	93.22269332	90.62231871
230621A00041	6/21/2023	4.24	6/21/2028	114.17954	110.8611986	107.6585404	104.5668419	101.5815998	98.69852305	95.91352111	93.22269332	90.62231871
230621A00045	6/21/2023	4.95	6/23/2025	100.67815	100.5279438	100.3781939	100.2289	100.0800601	99.93167205	99.7837338	99.63624326	99.48919841
230621A00047	6/21/2023	4.44	6/21/2028	107.67568	105.9810732	104.3307698	102.7232451	101.1570392	99.63075341	98.14304721	96.69263559	95.27828615
230621A00048	6/21/2023	4.55	6/22/2026	105.24134	104.0615851	102.9083896	101.7808622	100.6781515	99.5994432	98.54395845	97.51095175	96.49970925
230622A00004	6/22/2023	4.23	6/22/2027	109.84327	107.6129735	105.4397188	103.321645	101.2569635	99.24395835	97.28098272	95.36645525	93.49885697
230622A00005	6/22/2023	4.05	6/22/2028	113.85505	110.5325112	107.3260713	104.2309799	101.2427088	98.35694358	95.5695721	92.87667328	90.2745071
230622A00019	6/22/2023	4.33	6/22/2028	113.82153	110.6408501	107.5712323	104.6080777	101.7470093	98.98386074	96.31466458	93.73564118	91.24318846
230622A00027	6/22/2023	4.49	6/22/2026	105.17175	103.9924233	102.83965	101.7125383	100.6102369	99.53193165	98.47684389	97.44422826	96.43337107
230622A00028	6/22/2023	4.35	6/22/2027	109.92316	107.6955031	105.5247598	103.4090674	101.3466433	99.33577755	97.37482851	95.46221997	93.59643785
230622A00030	6/22/2023	4.17	6/22/2028	113.96786	110.6499956	107.447913	104.3568752	101.3723717	98.49010459	95.70597715	93.01608289	90.41669548
230622A00039	6/26/2023	4.49	6/26/2026	105.22547	104.0345732	102.8707366	101.7330422	100.620615	99.53261872	98.46825379	97.42675507	96.40739023
230622A00045	6/22/2023	4.91	6/23/2025	100.67215	100.5219535	100.3722103	100.2229231	100.0740899	99.92570855	99.77777696	99.63029308	99.48325486
230622A00047	6/22/2023	4.49	6/22/2026	105.17175	103.9924233	102.83965	101.7125383	100.6102369	99.53193165	98.47684389	97.44422826	96.43337107
230622A00049	6/22/2023	4.71	12/17/2025	102.86356	102.2174797	101.579545	100.9495993	100.3274928	99.71307959	99.10621716	98.50676664	97.91459251
230622A00056	6/26/2023	4.49	6/26/2026	105.22547	104.0345732	102.8707366	101.7330422	100.620615	99.53261872	98.46825379	97.42675507	96.40739023
230622A00083	6/22/2023	4.55	6/22/2026	105.24134	104.0615851	102.9083896	101.7808622	100.6781515	99.5994432	98.54395845	97.51095175	96.49970925
230622A00093	6/22/2023	4.55	6/22/2026	105.24134	104.0615851	102.9083896	101.7808622	100.6781515	99.5994432	98.54395845	97.51095175	96.49970925
230622A00095	6/22/2023	4.38	6/22/2027	109.98844	107.7600616	105.5886109	103.4722253	101.409122	99.39759053	97.4359889	95.52274052	93.65633096
230622A00096	6/22/2023	4.21	6/22/2028	114.0958	110.7758935	107.571822	104.478847	101.4924562	98.60834999	95.8224301	93.13078847	90.52969726
230623A00002	6/23/2023	4.45	6/23/2026	105.13867	103.9567438	102.8014882	101.6720097	100.5674512	99.48699325	98.42985196	97.39527718	96.38255068
230623A00003	6/23/2023	4.29	6/23/2027	109.80576	107.5765388	105.4043291	103.2872644	101.2235573	99.21149277	97.24942486	95.33577311	93.46901945

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230623A00004	6/23/2023	4.13	6/23/2028	113.85182	110.5329178	107.329928	104.2381067	101.2529349	98.37010659	95.58551756	92.8952544	90.29558426
230623A00025	6/23/2023	4.45	6/23/2026	105.13867	103.9567438	102.8014882	101.6720097	100.5674512	99.48699325	98.42985196	97.39527718	96.38255068
230623A00026	6/23/2023	4.29	6/23/2027	109.80576	107.5765388	105.4043291	103.2872644	101.2235573	99.21149277	97.24942486	95.33577311	93.46901945
230623A00027	6/23/2023	4.13	6/23/2028	113.85182	110.5329178	107.329928	104.2381067	101.2529349	98.37010659	95.58551756	92.8952544	90.29558426
230623A00031	6/23/2023	4.87	6/23/2025	100.66616	100.5159631	100.3662267	100.2169462	100.0681197	99.91974504	99.77182012	99.6243429	99.47731132
230623A00036	6/23/2023	4.45	6/23/2026	105.13867	103.9567438	102.8014882	101.6720097	100.5674512	99.48699325	98.42985196	97.39527718	96.38255068
230623A00037	6/23/2023	4.13	6/23/2028	113.85182	110.5329178	107.329928	104.2381067	101.2529349	98.37010659	95.58551756	92.8952544	90.29558426
230623A00051	6/23/2023	4.18	6/23/2028	114.01189	110.6904256	107.4849453	104.3906984	101.4031636	98.51803262	95.73119937	93.03874843	90.43694513
230623A00053	6/23/2023	4.4	6/23/2026	105.1749	103.9913173	102.8344669	101.7034506	100.5974086	99.51551912	98.45699607	97.42108715	96.40707208
230623A00056	6/23/2023	4.18	6/23/2028	114.01189	110.6904256	107.4849453	104.3906984	101.4031636	98.51803262	95.73119937	93.03874843	90.43694513
230623A00057	6/23/2023	4.52	6/23/2026	105.22006	104.0376246	102.8818741	101.7519084	100.6468702	99.56593989	98.50833335	97.47330028	96.46012226
230623A00058	6/23/2023	4.38	6/23/2027	110.00185	107.77046	105.5961226	103.4769734	101.4112235	99.39715695	97.43312647	95.51755054	93.64891001
230626A00019	6/26/2023	4.91	6/20/2025	100.63481	100.4929702	100.3515481	100.2105369	100.0699349	99.92974033	99.78995134	99.65056614	99.51158295
230626A00020	6/26/2023	4.49	6/26/2026	105.22547	104.0345732	102.8707366	101.7330422	100.620615	99.53261872	98.46825379	97.42675507	96.40739023
230626A00021	6/26/2023	4.49	6/26/2026	105.22547	104.0345732	102.8707366	101.7330422	100.620615	99.53261872	98.46825379	97.42675507	96.40739023
230626A00022	6/26/2023	4.34	6/25/2027	109.9413	107.7048501	105.5256884	103.401942	101.3318109	99.31356824	97.34555695	95.42618599	93.55392731
230626A00023	6/26/2023	4.18	6/26/2028	114.04801	110.7172891	107.5031053	104.4006827	101.4054687	98.51312587	95.71952065	93.02071202	90.41294128
230626A00026	6/26/2023	4.84	6/26/2025	100.69842	100.5398638	100.3818086	100.2242559	100.0672031	99.91064794	99.75458806	99.5990211	99.44394472
230627A00004	6/27/2023	4.47	6/29/2026	105.24217	104.0427433	102.8707496	101.7252577	100.6053751	99.51024874	98.43906317	97.39103846	96.3654282
230627A00005	6/27/2023	4.3	6/28/2027	109.8935	107.6489802	105.4621175	103.3310214	101.2538746	99.22893391	97.25452693	95.32904817	93.45095591
230627A00006	6/27/2023	4.12	6/27/2028	113.86731	110.5365836	107.3225067	104.220289	101.2253698	98.33340463	95.54025321	92.84196833	90.23478552
230627A00030	6/27/2023	4.17	6/27/2028	114.02793	110.6946328	107.4780485	104.3733887	101.3760905	98.48180747	95.68639709	92.98591021	90.37658051
230627A00035	6/27/2023	4.21	6/27/2028	114.15643	110.8210721	107.6024819	104.4958684	101.4966671	98.60052974	95.80331218	93.10106372	90.49001651
230627A00036	6/27/2023	4.38	6/28/2027	110.06893	107.8224467	105.6336689	103.5006966	101.4217114	99.39496909	97.41879613	95.49158607	93.6117962
230627A00037	6/27/2023	4.56	6/26/2026	105.30743	104.1160302	102.9516917	101.8135033	100.7005897	99.61211461	98.54727809	97.50531488	96.48549246
230627A00048	6/27/2023	4.99	5/27/2025	100.34253	100.267442	100.1924713	100.1176198	100.0428872	99.96827319	99.89377749	99.81939985	99.74513999
230627A00049	6/27/2023	4.95	6/27/2025	100.72839	100.5670182	100.4061663	100.2458326	100.0860146	99.92670986	99.76791594	99.60963035	99.45185066
230627A00060	6/27/2023	4.89	6/27/2025	100.71873	100.5573682	100.3965279	100.2362057	100.0763993	99.91710608	99.75832364	99.6000495	99.44228124
230627A00065	6/27/2023	4.95	6/27/2025	100.72839	100.5670182	100.4061663	100.2458326	100.0860146	99.92670986	99.76791594	99.60963035	99.45185066
230627A00078	6/27/2023	4.95	6/27/2025	100.72839	100.5670182	100.4061663	100.2458326	100.0860146	99.92670986	99.76791594	99.60963035	99.45185066
230627A00087	6/27/2023	4.95	6/30/2025	100.76607	100.5963143	100.427131	100.2585142	100.090461	99.92296878	99.75603462	99.5896558	99.42382958
230627A00089	6/27/2023	4.56	6/30/2026	105.36194	104.1589416	102.9835226	101.834737	100.7116857	99.61350995	98.53938873	97.48853682	96.46020289
230627A00090	6/27/2023	4.21	6/27/2028	114.15643	110.8210721	107.6024819	104.4958684	101.4966671	98.60052974	95.80331218	93.10106372	90.49001651

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230627A00102	6/27/2023	4.95	6/27/2025	100.72839	100.5670182	100.4061663	100.2458326	100.0860146	99.92670986	99.76791594	99.60963035	99.45185066
230628A00015	6/28/2023	4.98	6/27/2025	100.73322	100.5718433	100.4109855	100.250646	100.0908222	99.93151176	99.77271208	99.61442077	99.45663537
230628A00016	6/28/2023	4.58	6/26/2026	105.33085	104.1393036	102.9748217	101.8364922	100.7234396	99.63482772	98.56985646	97.52776054	96.50780739
230628A00017	6/28/2023	4.41	6/28/2027	110.13471	107.8874967	105.6980007	103.5643249	101.4846502	99.45723228	97.48039708	95.55253778	93.67211131
230628A00018	6/28/2023	4.23	6/28/2028	114.23286	110.8933802	107.6708803	104.56056	101.5578432	98.65837104	95.85798943	93.15273826	90.5388409
230628A00028	6/28/2023	4.58	6/24/2026	105.30349	104.1177356	102.9587924	101.8257607	100.7177771	99.63401639	98.57368903	97.53603963	96.52034496
230628A00038	6/28/2023	4.58	6/24/2026	105.30349	104.1177356	102.9587924	101.8257607	100.7177771	99.63401639	98.57368903	97.53603963	96.52034496
230628A00045	6/28/2023	4.18	6/28/2028	114.0721	110.7351956	107.5152075	104.4073334	101.4069995	98.50984908	95.71173013	93.00868452	90.3969375
230628A00059	6/28/2023	4.87	6/27/2025	100.71551	100.5541515	100.3933151	100.2329968	100.0731942	99.91390482	99.7551262	99.59685589	99.43909144
230628A00061	6/28/2023	4.47	6/26/2026	105.20205	104.0112998	102.8476066	101.7100533	100.597765	99.50990561	98.44567542	97.40430941	96.38507531
230628A00063	6/28/2023	4.47	6/29/2026	105.24217	104.0427433	102.8707496	101.7252577	100.6053751	99.51024874	98.43906317	97.39103846	96.3654282
230628A00068	6/28/2023	4.29	6/28/2027	109.87158	107.6272969	105.4406736	103.309812	101.232895	99.20817951	97.23399328	95.30873093	93.43085087
230629A00008	6/29/2023	4.34	6/29/2028	114.59904	111.2507718	108.0198296	104.9013883	101.8908564	98.98386037	96.17623245	93.46399957	90.84337289
230629A00019	6/29/2023	4.51	6/24/2027	110.29887	108.0613215	105.881016	103.7560842	101.6847296	99.66522891	97.69592793	95.77523854	93.90163535
230629A00025	6/29/2023	4.7	6/24/2026	105.44334	104.2567177	103.0969221	101.9630513	100.8542416	99.76966742	98.70853889	97.67010031	96.65362816
230629A00037	6/29/2023	4.69	6/29/2026	105.50162	104.3005615	103.1269682	101.9799021	100.8584699	99.76181786	98.68913001	97.63962577	96.61255817
230629A00041	6/29/2023	5.09	6/30/2025	100.78978	100.6199937	100.4507804	100.2821337	100.1140508	99.94652882	99.77956505	99.61315671	99.44730104
230629A00042	6/29/2023	4.69	6/29/2026	105.50162	104.3005615	103.1269682	101.9799021	100.8584699	99.76181786	98.68913001	97.63962577	96.61255817
230629A00045	6/29/2023	4.69	6/29/2026	105.50162	104.3005615	103.1269682	101.9799021	100.8584699	99.76181786	98.68913001	97.63962577	96.61255817
230629A00046	6/29/2023	4.51	6/29/2027	110.36777	108.115081	105.9202938	103.7814995	101.696872	99.66465955	97.68318172	95.75082534	93.86604143
230629A00070	6/29/2023	5.09	6/30/2025	100.78978	100.6199937	100.4507804	100.2821337	100.1140508	99.94652882	99.77956505	99.61315671	99.44730104
230629A00071	6/29/2023	4.41	6/29/2028	114.73933	111.4003849	108.1798801	105.0728559	102.0745974	99.18061851	96.38664946	93.6886244	91.08267027
230629A00072	6/29/2023	4.69	6/29/2026	105.50162	104.3005615	103.1269682	101.9799021	100.8584699	99.76181786	98.68913001	97.63962577	96.61255817
230629A00076	6/29/2023	4.51	6/29/2027	110.36777	108.115081	105.9202938	103.7814995	101.696872	99.66465955	97.68318172	95.75082534	93.86604143
230629A00094	6/29/2023	4.41	6/29/2028	114.73933	111.4003849	108.1798801	105.0728559	102.0745974	99.18061851	96.38664946	93.6886244	91.08267027
230629A00097	6/29/2023	4.41	6/29/2028	114.73933	111.4003849	108.1798801	105.0728559	102.0745974	99.18061851	96.38664946	93.6886244	91.08267027
230629A00120	6/29/2023	5.03	6/27/2025	100.74127	100.579885	100.4190175	100.2586684	100.098835	99.93951491	99.78070567	99.62240481	99.46460989
230630A00003	6/30/2023	4.54	6/30/2027	110.4475	108.1910456	105.9926388	103.8503639	101.7623884	99.72695455	97.74237617	95.80703469	93.91937599
230630A00028	6/30/2023	4.42	6/30/2027	110.3673	108.1081475	105.9071834	103.7624842	101.6722112	99.63460076	97.64796108	95.71066834	93.82116344
230630A00030	6/30/2023	4.23	6/30/2028	114.53104	111.1744008	107.9356108	104.8098213	101.7924119	98.87898189	96.0653381	93.34748356	90.72160697
230630A00043	6/30/2023	4.6	6/30/2026	105.50535	104.2999898	103.1222777	101.9712684	100.84606	99.74579074	98.66963715	97.6168115	96.58656008
230630A00046	6/30/2023	4.6	6/30/2026	105.50535	104.2999898	103.1222777	101.9712684	100.84606	99.74579074	98.66963715	97.6168115	96.58656008
230630A00055	6/30/2023	4.35	6/30/2028	114.64374	111.2918479	108.0574848	104.935813	101.9222301	99.01235217	96.20200196	93.48719735	90.86414102

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230630A00061	6/30/2023	5	7/11/2025	100.916	100.7156209	100.5160511	100.3172858	100.11932	99.92214899	99.72576777	99.53017158	99.33535564
230630A00062	6/30/2023	4.6	6/30/2026	105.50535	104.2999898	103.1222777	101.9712684	100.84606	99.74579074	98.66963715	97.6168115	96.58656008
230630A00079	6/30/2023	4.65	6/30/2026	105.46832	104.2646595	103.0885832	101.9391505	100.8154624	99.7166597	98.64192113	97.59046126	96.5615285
230630A00080	6/30/2023	5.02	6/30/2025	100.77792	100.608154	100.4389557	100.2703239	100.1022559	99.9347488	99.76779984	99.60140625	99.43556531
230630A00086	6/30/2023	4.72	6/30/2026	105.55107	104.3468846	103.1702969	102.020361	100.8961776	99.79688727	98.72166855	97.66973582	96.6403373
230630A00088	6/30/2023	4.54	6/30/2027	110.4475	108.1910456	105.9926388	103.8503639	101.7623884	99.72695455	97.74237617	95.80703469	93.91937599
230630A00094	6/30/2023	4.42	6/30/2027	110.3673	108.1081475	105.9071834	103.7624842	101.6722112	99.63460076	97.64796108	95.71066834	93.82116344
230703A00013	7/3/2023	4.34	7/3/2028	114.64779	111.2874315	108.0451499	104.9160745	101.8955714	98.97922732	96.16283729	93.44239348	90.81407453
230703A00015	7/3/2023	4.34	7/3/2028	114.64779	111.2874315	108.0451499	104.9160745	101.8955714	98.97922732	96.16283729	93.44239348	90.81407453
230703A00018	7/3/2023	4.61	7/3/2026	105.55945	104.3453153	103.1592255	102.0002155	100.8673643	99.75979206	98.67665816	97.61715888	96.58052545
230703A00019	7/3/2023	4.61	7/3/2026	105.55945	104.3453153	103.1592255	102.0002155	100.8673643	99.75979206	98.67665816	97.61715888	96.58052545
230703A00021	7/3/2023	4.99	7/3/2025	100.82535	100.6470857	100.4694516	100.2924493	100.1160754	99.94032658	99.76519945	99.59069069	99.41679702
230703A00025	7/3/2023	4.73	7/3/2026	105.60547	104.392527	103.2075717	102.0496446	100.9178271	99.81124178	98.72905017	97.67045067	96.63467645
230703A00028	7/3/2023	5.11	7/3/2025	100.83266	100.6545334	100.4770356	100.3001675	100.1239257	99.9483069	99.77330772	99.5989249	99.42515517
230703A00029	7/3/2023	4.89	2/3/2026	103.64676	102.8640064	102.093105	101.3337916	100.5858063	99.84889638	99.12281697	98.40733025	97.70220531
230703A00043	7/3/2023	4.53	7/6/2027	110.50566	108.231923	106.0170164	103.8589902	101.7559746	99.70617738	97.70787932	95.75943098	93.85924908
230705A00006	7/5/2023	4.26	7/5/2028	114.68835	111.3151217	108.0607313	104.9202657	101.8890495	98.96263041	96.13676714	93.40741767	90.77072859
230705A00008	7/5/2023	4.63	7/6/2026	105.62571	104.4027194	103.2081701	102.0410805	100.9005101	99.78556066	98.69537453	97.6291318	96.58604846
230705A00019	7/5/2023	4.44	7/6/2027	110.49138	108.2141717	105.9959478	103.8347544	101.7287151	99.67603099	97.67497688	95.72389755	93.82120423
230705A00033	7/5/2023	5.12	7/7/2025	100.88722	100.6979483	100.5094008	100.3215693	100.1344496	99.94803749	99.76232907	99.57732024	99.39300702
230705A00034	7/5/2023	4.75	7/6/2026	105.67204	104.4502413	103.2568369	102.0908396	100.9513116	99.8373572	98.74812084	97.68278478	96.64056703
230705A00035	7/5/2023	5.03	8/8/2025	101.28612	101.0075687	100.7305595	100.4550802	100.1811179	99.90866006	99.63769427	99.36820819	99.10018965
230705A00040	7/5/2023	4.38	7/5/2028	114.80135	111.4329176	108.1829858	105.0466665	102.0193025	99.09645854	96.2739094	93.54762816	90.91377554
230705A00042	7/5/2023	4.42	7/5/2028	114.93075	111.5602234	108.3082586	105.1699595	102.1406671	99.21594448	96.39156471	93.66349924	91.02790725
230705A00103	7/5/2023	4.56	7/6/2027	110.57211	108.2976283	106.0819894	103.9232458	101.8195275	99.76904155	97.77006853	95.82095855	93.92012795
230705A00111	7/5/2023	4.9	1/6/2026	103.26279	102.559589	101.8659962	101.1818131	100.5068488	99.84091751	99.18383855	98.53543591	97.89553825
230706A00006	7/6/2023	4.59	7/6/2028	115.49346	112.1110392	108.8476036	105.6982376	102.6582637	99.72322734	96.88888509	94.15119278	91.50629482
230706A00014	7/6/2023	4.99	7/6/2038	153.05814	137.8170038	124.3704952	112.4924254	101.9864549	92.68200176	84.43073144	77.10354094	70.58796642
230706A00034	7/6/2023	5.18	7/7/2025	100.89854	100.7092601	100.5206976	100.3328511	100.1457165	99.95928951	99.77356624	99.58854262	99.40421464
230707A00021	9/1/2023	4.61	8/30/2030	125.08027	119.2222304	113.6831543	108.4439416	103.4867289	98.7948066	94.35253938	90.14529137	86.15935762
230707A00022	9/1/2023	4.61	8/30/2030	125.08027	119.2222304	113.6831543	108.4439416	103.4867289	98.7948066	94.35253938	90.14529137	86.15935762
230707A00023	9/1/2023	4.61	8/30/2030	125.08027	119.2222304	113.6831543	108.4439416	103.4867289	98.7948066	94.35253938	90.14529137	86.15935762
230707A00031	7/7/2023	4.84	7/7/2026	105.79442	104.5690396	103.3721892	102.2028829	101.0601759	99.94316606	98.85099196	97.78283017	96.73789341

Classification | Public

	Parallel-Shift Sensitivity Analysis											
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230710A00013	7/10/2023	4.55	7/10/2029	120.01998	115.489148	111.1593481	107.020495	103.0630721	99.27809385	95.65707286	92.19198912	88.87526135
230710A00053	7/10/2023	4.98	7/10/2025	100.91473	100.7169512	100.519966	100.3237656	100.128345	99.93369962	99.73982473	99.54671568	99.35436787
230710A00066	7/10/2023	5	7/10/2025	100.90314	100.7055482	100.5087422	100.3127183	100.1174718	99.92299795	99.72929217	99.53634982	99.34416633
230711A00012	7/11/2023	5.07	7/11/2025	100.92999	100.7295934	100.5300044	100.3312199	100.1332351	99.936045	99.73964481	99.5440297	99.34919489
230711A00013	7/11/2023	4.78	7/13/2026	105.80835	104.5660023	103.3529779	102.1682491	101.0108321	99.87978834	98.77422192	97.6932771	96.63613614
230711A00027	7/11/2023	5.07	7/11/2025	100.92999	100.7295934	100.5300044	100.3312199	100.1332351	99.936045	99.73964481	99.5440297	99.34919489
230711A00038	7/11/2023	4.89	10/10/2025	102.06103	101.6061793	101.1553948	100.708625	100.2658163	99.82691586	99.39187205	98.960634	98.53315177
230711A00087	7/11/2023	5.04	6/16/2025	100.60197	100.4712611	100.3409102	100.2109126	100.0812666	99.95197091	99.82302399	99.69442442	99.56617074
230712A00002	7/12/2023	4.31	7/12/2028	114.65893	111.273177	108.0071492	104.85588	101.8146401	98.8789268	96.0444519	93.3071298	90.66306637
230712A00009	7/12/2023	4.89	6/16/2025	100.58239	100.4517057	100.3213744	100.1913963	100.0617698	99.93249355	99.80356602	99.6749858	99.54675142
230712A00014	7/12/2023	4.62	7/13/2026	105.61345	104.372352	103.1605642	101.977052	100.8208319	99.69096611	98.58655907	97.50675556	96.45073832
230712A00015	7/12/2023	4.62	7/13/2026	105.61345	104.372352	103.1605642	101.977052	100.8208319	99.69096611	98.58655907	97.50675556	96.45073832
230712A00016	7/12/2023	4.45	7/12/2027	110.40727	108.1179976	105.8883151	103.7162312	101.5998398	99.53731434	97.52690359	95.56692772	93.6557749
230712A00017	7/12/2023	4.45	7/12/2027	110.40727	108.1179976	105.8883151	103.7162312	101.5998398	99.53731434	97.52690359	95.56692772	93.6557749
230712A00018	7/12/2023	4.31	7/12/2028	114.65893	111.273177	108.0071492	104.85588	101.8146401	98.8789268	96.0444519	93.3071298	90.66306637
230712A00019	7/12/2023	4.31	7/12/2028	114.65893	111.273177	108.0071492	104.85588	101.8146401	98.8789268	96.0444519	93.3071298	90.66306637
230712A00020	7/12/2023	4.31	7/12/2028	114.65893	111.273177	108.0071492	104.85588	101.8146401	98.8789268	96.0444519	93.3071298	90.66306637
230712A00021	7/12/2023	4.31	7/12/2028	114.65893	111.273177	108.0071492	104.85588	101.8146401	98.8789268	96.0444519	93.3071298	90.66306637
230712A00035	1/12/2024	4.36	1/12/2026	102.96164	102.2429428	101.5343059	100.8355182	100.1463749	99.46667689	98.79623065	98.13484781	97.48234511
230712A00039	7/12/2023	4.62	7/13/2026	105.61345	104.372352	103.1605642	101.977052	100.8208319	99.69096611	98.58655907	97.50675556	96.45073832
230712A00040	7/12/2023	4.45	7/12/2027	110.40727	108.1179976	105.8883151	103.7162312	101.5998398	99.53731434	97.52690359	95.56692772	93.6557749
230712A00041	7/12/2023	4.31	7/12/2028	114.65893	111.273177	108.0071492	104.85588	101.8146401	98.8789268	96.0444519	93.3071298	90.66306637
230712A00046	7/12/2023	4.52	7/13/2026	105.49163	104.2513205	103.0403057	101.8575538	100.7020818	99.57295222	98.46926979	97.3901796	96.33486469
230712A00048	7/12/2023	4.95	7/14/2025	100.94417	100.735438	100.5275886	100.3206117	100.1145019	99.90925362	99.70486135	99.50131969	99.29862326
230712A00051	7/12/2023	4.62	7/13/2026	105.61345	104.372352	103.1605642	101.977052	100.8208319	99.69096611	98.58655907	97.50675556	96.45073832
230712A00056	7/12/2023	4.22	7/12/2028	114.36604	110.9850335	107.7236335	104.5768704	101.540019	98.60858062	95.77827093	93.04500799	90.40490123
230713A00014	7/13/2023	4.2	7/13/2028	114.31264	110.9297079	107.6665365	104.5181524	101.4798202	98.54703224	95.71549556	92.98112022	90.34000816
230713A00019	7/13/2023	4.51	7/13/2026	105.47945	104.2392174	103.0282798	101.8456039	100.6902068	99.56115083	98.45754086	97.37852201	96.32327733
230713A00021	7/13/2023	4.44	7/13/2026	105.39418	104.1544954	102.9440989	101.7619552	100.6070818	99.47854111	98.37543836	97.29691883	96.24216579
230713A00023	7/13/2023	4.2	7/13/2028	114.31264	110.9297079	107.6665365	104.5181524	101.4798202	98.54703224	95.71549556	92.98112022	90.34000816
230713A00025	7/13/2023	4.82	7/14/2025	100.9171	100.7084094	100.5005982	100.2936595	100.0875876	99.88237721	99.6780227	99.47451867	99.27185976
230713A00026	7/13/2023	4.49	7/13/2026	105.45508	104.2150111	103.0042281	101.8217043	100.6664568	99.53754806	98.434083	97.35520681	96.3001026
230713A00031	7/13/2023	4.49	7/13/2026	105.45508	104.2150111	103.0042281	101.8217043	100.6664568	99.53754806	98.434083	97.35520681	96.3001026

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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
230713A00058	7/13/2023	4.08	7/13/2028	114.19816	110.8104114	107.5427599	104.390212	101.3480137	98.41164	95.57678152	92.83933302	90.19538206
230714A00019	7/14/2023	4.85	7/14/2025	100.92334	100.7146468	100.5068267	100.2998792	100.0937986	99.88857946	99.68421623	99.48070352	99.27803596
230714A00020	7/14/2023	4.52	7/14/2026	105.50524	104.2620381	103.0482592	101.86287	100.7048811	99.5733485	98.4673714	97.38608936	96.3286803
230714A00022	7/14/2023	4.36	7/14/2027	110.23217	107.9393421	105.7063194	103.5311032	101.4117762	99.3465013	97.33351722	95.37113491	93.45773373
230714A00023	7/14/2023	4.18	7/14/2028	114.25914	110.8742736	107.6093338	104.4593316	101.4195218	98.48538742	95.65262688	92.91714225	90.27502801
230714A00026	7/14/2023	4.18	7/14/2028	114.25914	110.8742736	107.6093338	104.4593316	101.4195218	98.48538742	95.65262688	92.91714225	90.27502801
230714A00030	7/14/2023	4.52	7/17/2026	105.54609	104.2941886	103.0721144	101.8788114	100.7132702	99.57452846	98.46166767	97.37381104	96.31012102
230714A00034	7/14/2023	4.37	7/16/2027	110.28037	107.9814498	105.7426062	103.5618285	101.4371867	99.3668315	97.34899048	95.38196382	93.46412085
230714A00036	7/14/2023	4.37	7/12/2030	123.29737	117.6261189	112.2576049	107.1739362	102.3583827	97.79529083	93.47000769	89.3688115	85.47884706
230714A00042	7/14/2023	4.58	7/14/2026	105.5785	104.3348216	103.1205769	101.9347295	100.7762898	99.64431364	98.53789993	97.45618811	96.39835589
230717A00022	7/17/2023	4.59	7/17/2026	105.63214	104.3796786	103.157054	101.9632095	100.7971356	99.65786964	98.54449301	97.45612864	96.39193878
230717A00061	7/17/2023	4.93	7/17/2025	100.97799	100.7609031	100.5447624	100.3295638	100.1153011	99.90196805	99.68955856	99.47806657	99.26748608
230717A00088	7/17/2023	4.43	7/19/2027	110.4542	108.1449678	105.8962515	103.7060149	101.572308	99.49326293	97.46708934	95.49207079	93.56656082
230718A00013	7/18/2023	4.54	7/17/2026	105.57068	104.3186143	103.0963829	101.9029251	100.7372318	99.59834023	98.48533205	97.39733035	96.33349753
230718A00014	7/18/2023	4.37	7/19/2027	110.31912	108.0114279	105.7642229	103.5754663	101.4432093	99.36558461	97.3408029	95.3671485	93.44297575
230718A00015	7/18/2023	4.19	7/18/2028	114.33841	110.9410532	107.6643965	104.5034025	101.4532818	98.50947653	95.66764669	92.92365847	90.27357285
230718A00016	7/18/2023	4.54	7/17/2026	105.57068	104.3186143	103.0963829	101.9029251	100.7372318	99.59834023	98.48533205	97.39733035	96.33349753
230718A00023	7/18/2023	4.54	7/20/2026	105.6117	104.3509258	103.1203926	101.919016	100.7457667	99.59966347	98.47977022	97.38519354	96.31508027
230718A00038	7/18/2023	4.46	11/13/2026	107.09564	105.5190252	103.9738804	102.4593391	100.974563	99.51874446	98.09110434	96.69089115	95.3173797
230718A00065	7/18/2023	4.3	7/18/2033	118.18782	113.6402417	109.3497036	105.2988598	101.4716797	97.85334064	94.4301279	91.18934401	88.11922592
230718A00070	7/18/2023	4.06	7/18/2028	114.19068	110.7890205	107.5083782	104.343704	101.2901903	98.34326198	95.49856295	92.75194432	90.0994529
230718A00093	7/18/2023	4.06	7/18/2028	114.19068	110.7890205	107.5083782	104.343704	101.2901903	98.34326198	95.49856295	92.75194432	90.0994529
230719A00006	7/19/2023	4.54	7/20/2026	105.6117	104.3509258	103.1203926	101.919016	100.7457667	99.59966347	98.47977022	97.38519354	96.31508027
230719A00015	7/19/2023	4.37	7/19/2027	110.31912	108.0114279	105.7642229	103.5754663	101.4432093	99.36558461	97.3408029	95.3671485	93.44297575
230719A00027	7/19/2023	4.92	7/18/2025	100.98846	100.7685859	100.5496819	100.3317433	100.1147639	99.89873713	99.68365675	99.46951644	99.25631
230719A00034	7/19/2023	4.19	7/19/2028	114.35007	110.9497293	107.6702714	104.5066544	101.4540782	98.50797445	95.66399377	92.91799345	90.26602613
230719A00035	7/19/2023	4.92	7/18/2025	100.98846	100.7685859	100.5496819	100.3317433	100.1147639	99.89873713	99.68365675	99.46951644	99.25631
230719A00081	12/16/2024	3.6	12/18/2026	106.16092	104.4946019	102.8627925	101.2644827	99.69870595	98.16453285	96.66106925	95.18745463	93.74286051
230719A00091	11/13/2023	4.56	11/14/2025	102.34659	101.7938715	101.2471408	100.7063009	100.1712568	99.64191527	99.11818542	98.59997807	98.08720597
230719A00096	12/18/2023	4.46	12/19/2025	102.72854	102.0773937	101.4345233	100.7997732	100.1729898	99.55402347	98.94272832	98.3389621	97.74258601
230719A00101	10/16/2023	4.65	10/17/2025	102.0403	101.5661084	101.0963377	100.630929	100.1698215	99.71295579	99.26027316	98.81171621	98.36722854
230720A00037	7/20/2023	4.55	7/20/2026	105.72477	104.4616945	103.2289355	102.0254061	100.8500738	99.70195426	98.58010849	97.48364037	96.41169415
230720A00038	7/20/2023	4.55	7/20/2026	105.72477	104.4616945	103.2289355	102.0254061	100.8500738	99.70195426	98.58010849	97.48364037	96.41169415

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230720A00039	7/20/2023	4.68	7/20/2026	105.78496	104.5230579	103.2914092	102.0889355	100.9146071	99.7674421	98.64650406	97.55089912	96.47977366
230721A00003	7/21/2023	4.67	7/21/2026	105.78662	104.521889	103.2875472	102.0825072	100.9057325	99.75623516	98.63307275	97.53534592	96.46219588
230721A00006	7/21/2023	4.32	7/21/2028	114.79975	111.3864532	108.0946065	104.9191373	101.8552173	98.89825187	96.04386675	93.28789598	90.62637032
230721A00028	7/21/2023	5.03	7/21/2025	101.05141	100.8231169	100.5958723	100.3696648	100.1444872	99.92033233	99.69719327	99.47506304	99.25393475
230721A00029	7/21/2023	4.67	7/21/2026	105.78662	104.521889	103.2875472	102.0825072	100.9057325	99.75623516	98.63307275	97.53534592	96.46219588
230721A00031	7/21/2023	5.03	7/21/2025	101.05141	100.8231169	100.5958723	100.3696648	100.1444872	99.92033233	99.69719327	99.47506304	99.25393475
230721A00032	7/21/2023	5.03	7/21/2025	101.05141	100.8231169	100.5958723	100.3696648	100.1444872	99.92033233	99.69719327	99.47506304	99.25393475
230721A00038	7/21/2023	4.67	7/21/2026	105.78662	104.521889	103.2875472	102.0825072	100.9057325	99.75623516	98.63307275	97.53534592	96.46219588
230721A00043	7/21/2023	4.98	7/21/2025	101.04002	100.8117527	100.5845254	100.3583351	100.1331746	99.90903683	99.68591481	99.46380155	99.24269018
230724A00037	7/24/2023	4.29	7/24/2028	114.73721	111.3165078	108.0177931	104.8359519	101.7661245	98.80368687	95.94423728	93.18358419	90.51773448
230724A00063	7/24/2023	5.08	7/24/2025	101.10202	100.8653307	100.6297583	100.3952958	100.1619353	99.92966895	99.69848908	99.46838802	99.23935819
230724A00064	7/24/2023	4.53	7/19/2027	110.67934	108.3675342	106.1162992	103.9235958	101.7874726	99.70606013	97.67756673	95.70027459	93.77253594
230724A00065	7/24/2023	4.37	7/18/2028	114.92722	111.5202632	108.2342581	105.0641625	102.0051788	99.05274066	96.20250037	93.45031661	90.79224315
230724A00066	7/24/2023	4.71	8/18/2026	106.22886	104.8935776	103.5856467	102.304233	101.0485371	99.81779213	98.61126181	97.42823916	96.2680449
230725A00004	7/25/2023	5.06	7/25/2025	101.11032	100.870845	100.6325091	100.3953075	100.1592322	99.92427516	99.69042838	99.45768397	99.22603412
230725A00016	7/25/2023	4.75	7/31/2026	106.02843	104.7339099	103.4711539	102.2389998	101.0363434	99.8621328	98.71536567	97.5950864	96.50038326
230725A00018	7/25/2023	4.4	7/25/2028	115.11114	111.6814957	108.3741893	105.1840893	102.1063196	99.13624065	96.26943644	93.50170172	90.8290305
230725A00023	7/25/2023	4.57	4/9/2027	109.37473	107.3617911	105.3966077	103.477751	101.6038456	99.77356613	97.9856353	96.23882168	94.5319378
230725A00028	7/25/2023	4.46	7/25/2030	123.90536	118.18135	112.7644666	107.6364618	102.7802755	98.17995168	93.82056081	89.68812757	85.76956443
230725A00071	7/25/2023	4.4	7/25/2028	115.11114	111.6814957	108.3741893	105.1840893	102.1063196	99.13624065	96.26943644	93.50170172	90.8290305
230726A00011	7/26/2023	4.24	7/26/2028	114.87672	111.4413121	108.1287162	104.9337758	101.8515864	98.87748188	96.00702156	93.23597704	90.56032068
230726A00012	7/26/2023	4.24	7/26/2028	114.87672	111.4413121	108.1287162	104.9337758	101.8515864	98.87748188	96.00702156	93.23597704	90.56032068
230726A00023	7/26/2023	4.24	7/26/2028	114.87672	111.4413121	108.1287162	104.9337758	101.8515864	98.87748188	96.00702156	93.23597704	90.56032068
230726A00058	7/26/2023	4.99	7/28/2025	101.15153	100.9034427	100.6565787	100.4109271	100.166479	99.92322568	99.68115827	99.44026813	99.20054665
230726A00060	7/26/2023	4.99	7/28/2025	101.15153	100.9034427	100.6565787	100.4109271	100.166479	99.92322568	99.68115827	99.44026813	99.20054665
230727A00016	7/27/2023	4.51	7/27/2033	134.16896	124.9491533	116.461159	108.6423356	101.4357381	94.78957324	88.65670686	82.99422102	77.76301538
230727A00020	7/27/2023	4.39	7/27/2028	115.10268	111.6675538	108.35513	105.1602589	102.0780426	99.10382144	96.2331605	93.46183699	90.7858285
230727A00033	7/27/2023	4.82	7/27/2026	106.43205	105.0892035	103.7712429	102.4775128	101.2073779	99.96022516	98.73546275	97.53251911	96.35084208
230727A00037	7/27/2023	4.82	7/27/2026	106.43205	105.0892035	103.7712429	102.4775128	101.2073779	99.96022516	98.73546275	97.53251911	96.35084208
230727A00063	7/27/2023	4.38	7/27/2028	115.35088	111.9048525	108.5820333	105.3772469	102.2855709	99.30232249	96.42304479	93.64349443	90.95962956
230727A00070	7/27/2023	4.75	7/27/2026	105.9714	104.6885348	103.4368885	102.2153267	101.0227723	99.85819903	98.72062855	97.60912777	96.52280617
230727A00073	7/27/2023	4.81	7/27/2026	106.04682	104.7634574	103.5113183	102.289272	101.0962411	99.93119909	98.79316749	97.681213	96.59444488
230727A00075	7/27/2023	4.5	7/27/2028	115.46528	112.0241935	108.705971	105.505455	102.4177426	99.43816892	96.56229414	93.78589075	91.10493187

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230728A00004	7/28/2023	4.77	7/28/2026	106.01085	104.7249066	103.4703161	102.2459421	101.0507007	99.88355907	98.74353292	97.62968342	96.54111471
230728A00005	7/28/2023	4.59	7/28/2027	110.93619	108.5963878	106.3184118	104.1001582	101.9396167	99.83486262	97.7840523	95.78541883	93.83726821
230728A00006	7/28/2023	4.46	7/28/2028	115.34585	111.9039077	108.5849657	105.3838549	102.2956629	99.31571653	96.43956803	93.66298259	90.98192651
230728A00017	7/28/2023	5.15	7/22/2025	101.09199	100.8608688	100.6308125	100.4018176	100.1738765	99.94698198	99.7211268	99.49630375	99.27250572
230731A00012	7/31/2023	4.5	7/31/2029	120.05587	115.4645698	111.0793509	106.8897549	102.8859166	99.0585287	95.39880659	91.89845573	88.54964102
230731A00036	7/31/2023	5.1	7/31/2025	101.19867	100.9423955	100.6874178	100.4337251	100.1813077	99.93015605	99.68026064	99.43161212	99.1842012
230731A00037	7/31/2023	4.74	7/31/2026	106.01575	104.7213131	103.4586406	102.2265687	101.0239931	99.84986189	98.70317289	97.58297048	96.48834299
230801A00001	8/1/2023	5.14	8/1/2025	101.22235	100.9632781	100.7055265	100.4490901	100.1939586	99.94012239	99.68757145	99.4362961	99.18628671
230801A00021	8/1/2023	4.49	8/1/2028	115.49483	112.0391793	108.7073381	105.4940973	102.394503	99.4038426	96.5176311	93.7315986	91.04167823
230801A00022	8/1/2023	4.65	8/2/2027	111.14108	108.7849947	106.4914468	104.2583104	102.0835512	99.96522082	97.90145302	95.89045889	93.93052317
230801A00024	8/1/2023	4.82	8/3/2026	106.15997	104.8580088	103.587083	102.3460875	101.1339675	99.94971732	98.79237767	97.66103305	96.55480923
230801A00028	8/1/2023	5.14	8/1/2025	101.22235	100.9632781	100.7055265	100.4490901	100.1939586	99.94012239	99.68757145	99.4362961	99.18628671
230802A00017	8/2/2023	4.79	8/3/2026	106.12168	104.8199715	103.5492995	102.3085535	101.0966787	99.91266963	98.75556718	97.62445591	96.51846167
230802A00022	9/8/2023	4.41	9/8/2028	115.6981	112.13126	108.6956341	105.385701	102.1962001	99.12211889	96.15867993	93.30132852	90.54572116
230802A00023	10/16/2023	4.37	10/16/2028	116.02594	112.3446566	108.8026744	105.3939585	102.1127702	98.95364977	95.91140135	92.98107851	90.15797101
230804A00030	8/4/2023	4.88	8/4/2027	106.05033	104.8030139	103.5822343	102.3871899	101.217114	100.0712695	98.94894792	97.84946769	96.77217306
230807A00010	8/7/2023	4.4	8/7/2028	115.27035	111.8015207	108.457523	105.2331099	102.1232905	99.12331522	96.22866216	93.43502481	90.73830012
230807A00018	8/7/2023	4.65	8/7/2026	105.99811	104.6884899	103.4089052	102.1583183	100.935742	99.74023405	98.57089407	97.42686169	96.30731417
230807A00024	8/7/2023	5.03	8/7/2025	101.27296	100.9971943	100.7229445	100.4501934	100.1789286	99.90913795	99.64080931	99.37393077	99.10849053
230807A00025	8/7/2023	4.69	8/7/2026	106.04961	104.7396451	103.4597165	102.2087916	100.9858831	99.79004831	98.62038698	97.4760385	96.35617997
230807A00033	8/7/2023	4.57	8/7/2026	105.99995	104.6886777	103.4075021	102.1553864	100.9313404	99.73441925	98.56372003	97.41838	96.29757414
230807A00087	11/7/2023	4.75	11/7/2025	102.35899	101.825639	101.2978619	100.7755696	100.2586768	99.74709995	99.24075712	98.73956813	98.24345442
230807A00093	2/7/2024	4.49	2/6/2026	103.3759	102.5859568	101.8081147	101.0420972	100.2876358	99.54446997	98.81234715	98.09102215	97.38025702
230808A00008	8/8/2023	4.67	4/24/2026	104.56304	103.5525173	102.5615973	101.5897144	100.636323	99.700898	98.78293427	97.88194536	96.99746275
230808A00010	8/8/2023	4.95	8/8/2025	101.26391	100.9854023	100.7084324	100.4329922	100.1590688	99.8866498	99.61572264	99.34627504	99.07829482
230808A00014	8/8/2023	4.6	8/7/2026	105.93373	104.6245459	103.345391	102.0952266	100.8730658	99.67796622	98.50902793	97.36539069	96.24623193
230808A00029	8/8/2023	4.6	8/7/2026	105.93373	104.6245459	103.345391	102.0952266	100.8730658	99.67796622	98.50902793	97.36539069	96.24623193
230808A00054	8/8/2023	4.19	8/8/2028	114.86662	111.3947495	108.0481262	104.8214766	101.7097876	98.70828853	95.81243743	93.01790865	90.32058095
230808A00057	8/8/2023	4.19	8/8/2028	114.86662	111.3947495	108.0481262	104.8214766	101.7097876	98.70828853	95.81243743	93.01790865	90.32058095
230808A00060	8/8/2023	4.19	8/8/2028	114.86662	111.3947495	108.0481262	104.8214766	101.7097876	98.70828853	95.81243743	93.01790865	90.32058095
230809A00020	8/9/2023	4.51	11/9/2026	107.11641	105.5509773	104.0166756	102.512647	101.0380681	99.59214452	98.17411017	96.78322583	95.41877792
230809A00026	8/9/2023	4.59	8/7/2026	105.92085	104.6117571	103.3326882	102.0826083	100.8605305	99.66551265	98.4966547	97.35309649	96.23401548
230809A00034	8/9/2023	4.59	8/10/2026	105.96171	104.6457794	103.3591391	102.1008075	100.8698485	99.66536737	98.48650828	97.33245245	96.20241599

Classification | Public

Parallel-Shift Sensitivity Analysis

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				Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230810A00010	8/10/2023	4.62	8/10/2026	106.00059	104.6843926	103.3974912	102.1389031	100.9076918	99.70296261	98.52385959	97.36956382	96.23929129
230810A00013	8/10/2023	4.34	8/10/2028	115.10694	111.632387	108.2831499	105.0539686	101.9398344	98.93597974	96.03786484	93.24116539	90.54176077
230810A00024	8/10/2023	4.34	8/7/2028	115.07072	111.6052044	108.2644269	105.0431479	101.9363796	98.93937499	96.0476152	93.25679629	90.56281771
230810A00025	8/10/2023	4.37	5/8/2028	114.04829	110.8574171	107.7745557	104.7954351	101.9159754	99.13228217	96.44063612	93.83748442	91.31943212
230810A00026	8/10/2023	4.4	1/10/2028	112.63871	109.8091868	107.0664488	104.4072615	101.8285383	99.32732995	96.90081673	94.54630204	92.26120589
230810A00046	8/10/2023	4.88	11/18/2025	102.5764	102.0118512	101.4535378	100.9013563	100.3552058	99.81498778	99.28060558	98.75196481	98.22897305
230810A00053	8/10/2023	4.82	1/20/2026	103.39971	102.6569998	101.9249963	101.2034688	100.4921929	99.79095099	99.09953125	98.41772797	97.74534111
230810A00057	8/10/2023	4.62	8/10/2026	106.00059	104.6843926	103.3974912	102.1389031	100.9076918	99.70296261	98.52385959	97.36956382	96.23929129
230811A00017	8/11/2023	4.78	8/11/2026	106.22209	104.902191	103.6113657	102.348651	101.113127	99.90391397	98.72017032	97.56109037	96.42590251
230811A00018	8/11/2023	5.1	8/11/2025	101.34563	101.0586631	100.7733366	100.4896344	100.2075427	99.92704756	99.6481354	99.37079275	99.09500628
230814A00028	8/14/2023	4.86	8/14/2026	106.3691	105.0416188	103.7424883	102.4708018	101.2256902	100.0063215	98.81189845	97.64165705	96.49486456
230814A00029	8/14/2023	4.71	2/12/2027	108.82772	106.9802583	105.1735899	103.406503	101.6778298	99.98644711	98.33127464	96.7112727	95.12544034
230815A00031	8/15/2023	5.14	8/13/2025	101.384	101.0914276	100.8005552	100.511371	100.2238602	99.93800809	99.65380035	99.37122266	99.09026092
230815A00037	8/15/2023	4.53	8/15/2028	115.80371	112.3034592	108.9297846	105.6773757	102.5411787	99.51638177	96.59840155	93.78287082	91.06562698
230815A00038	8/15/2023	4.57	8/16/2027	111.34047	108.9391247	106.6024182	104.3281901	102.1143699	99.95897087	97.86008589	95.81588385	93.82460586
230815A00084	8/15/2023	5.14	8/15/2025	101.41094	101.1127734	100.8163738	100.5217267	100.2288165	99.93762765	99.64814497	99.36035337	99.07423796
230816A00025	8/16/2023	4.62	4/16/2027	109.73804	107.6983685	105.7075866	103.7642154	101.8668321	100.0140667	98.20459948	96.43715843	94.71051763
230817A00036	8/17/2023	4.91	8/17/2026	106.47799	105.1431708	103.8359819	102.5555667	101.3011077	100.071821	98.86695434	97.68578581	96.52762207
230817A00054	5/17/2024	4.5	5/15/2026	104.67356	103.6036725	102.5557399	101.5290894	100.5230763	99.53708159	98.57051107	97.62279372	96.69338077
230818A00005	8/18/2023	5.01	8/18/2025	101.43566	101.1288592	100.8239299	100.5208554	100.2196187	99.92020292	99.62259155	99.32676815	99.03271651
230818A00007	8/18/2023	4.73	8/18/2026	106.36273	105.0248306	103.7143595	102.4304794	101.1723881	99.93931603	98.73052446	97.54530393	96.38297289
230818A00024	8/18/2023	4.81	8/18/2026	106.36068	105.0244819	103.7156521	102.4333549	101.1767905	99.94519149	98.73782135	97.55397266	96.39296575
230818A00025	8/18/2023	4.68	8/18/2027	111.42885	109.0248066	106.6855172	104.408823	102.1926567	100.0350337	97.93404863	95.88787129	93.89474319
230818A00064	8/18/2023	5.09	8/18/2025	101.43608	101.129549	100.8248838	100.5220687	100.2210866	99.92192091	99.62455505	99.32897272	99.03515779
230818A00065	8/18/2023	4.82	8/18/2026	106.37386	105.0375724	103.7286527	102.4462671	101.1896158	99.95793143	98.75047731	97.56654601	96.40545784
230821A00006	8/21/2023	4.66	8/21/2028	116.31695	112.7911472	109.3932937	106.1180258	102.9602402	99.91507601	96.97790119	94.14430086	91.4100656
230821A00074	8/21/2023	5.18	8/21/2025	101.5043	101.1893107	100.8762928	100.5652242	100.2560866	99.94886204	99.64353264	99.34008083	99.03848924
230821A00085	8/21/2023	5.04	2/23/2026	104.0518	103.2114801	102.3847874	101.5713874	100.7709609	99.98319874	99.20780162	98.44447957	97.69295165
230823A00036	8/23/2023	4.87	8/24/2026	106.52617	105.1756524	103.8510422	102.551621	101.2766936	100.0255905	98.79766672	97.59230074	96.40889333
230823A00066	8/23/2023	4.68	8/23/2027	111.49731	109.0784986	106.7251339	104.43505	102.2061687	100.0364938	97.92410704	95.86716491	93.86389491
230824A00008	8/24/2023	4.69	8/24/2028	113.94509	110.9476974	108.0553888	105.2638183	102.5688423	99.96651218	97.453064	95.02490877	92.67862326
230824A00031	8/24/2023	4.49	8/24/2028	116.07082	112.5335738	109.1251457	105.8401404	102.6734153	99.62007099	96.6754386	93.83506751	91.09471382
230824A00043	8/24/2023	4.89	8/24/2026	106.55287	105.2021622	103.8773679	102.5777656	101.3026602	100.0513821	98.8232862	97.61775092	96.43417695

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230824A00061	8/24/2023	4.61	8/24/2028	116.18712	112.6550054	109.251349	105.9707708	102.8081487	99.75860229	96.81748079	93.98035042	91.24298314
230825A00005	8/25/2023	5.14	11/21/2025	102.76479	102.1912991	101.6242289	101.0634738	100.5089283	99.96048965	99.418057	98.88153188	98.35081796
230825A00009	8/25/2023	4.91	8/25/2026	106.59408	105.2408853	103.9133632	102.6108113	101.3325517	100.0779314	98.84632072	97.6371124	96.4497207
230825A00010	8/25/2023	4.62	8/25/2028	116.23372	112.6979929	109.2909337	106.0071571	102.8415328	99.7891729	96.84541891	94.00582952	91.2661693
230825A00037	8/25/2023	4.91	8/25/2026	106.59408	105.2408853	103.9133632	102.6108113	101.3325517	100.0779314	98.84632072	97.6371124	96.4497207
230825A00043	8/25/2023	4.89	8/25/2026	106.56733	105.2143206	103.8869835	102.5846133	101.3065325	100.0520879	98.82065003	97.61161172	96.42438726
230825A00044	8/25/2023	5.2	8/25/2025	101.5651	101.2388942	100.9147888	100.5927671	100.2728088	99.95489418	99.63900359	99.32511772	99.01321745
230825A00062	8/25/2023	5.21	8/25/2025	101.56835	101.2421349	100.9180231	100.5959948	100.2760301	99.95810897	99.64221197	99.32831971	99.01641309
230828A00036	8/28/2023	4.8	8/28/2026	106.59944	105.2378828	103.9013214	102.5891057	101.3006092	100.0352267	98.79237368	97.57148516	96.37201493
230828A00047	8/28/2023	4.92	8/28/2026	106.65108	105.2908874	103.9556382	102.6446857	101.3574054	100.0931938	98.85146807	97.63166463	96.43323874
230828A00055	8/28/2023	5.24	8/28/2025	101.61932	101.2846716	100.952227	100.6219683	100.2938742	99.96792333	99.64409475	99.32236777	99.00272195
230828A00056	8/28/2023	4.92	8/28/2026	106.65108	105.2908874	103.9556382	102.6446857	101.3574054	100.0931938	98.85146807	97.63166463	96.43323874
230829A00006	8/29/2023	5.21	8/29/2025	101.62299	101.2855542	100.9503584	100.6173829	100.2866058	99.95800528	99.63155995	99.30724864	98.98505048
230830A00028	8/30/2023	4.45	8/30/2027	111.24676	108.8073693	106.4345053	104.1259795	101.8796927	99.69362644	97.56583938	95.49446415	93.47770384
230830A00029	8/30/2023	4.45	8/30/2027	111.24676	108.8073693	106.4345053	104.1259795	101.8796927	99.69362644	97.56583938	95.49446415	93.47770384
230830A00034	8/30/2023	4.44	8/30/2028	115.68755	112.146885	108.7355912	105.4482566	102.279724	99.22507837	96.27963391	93.43892215	90.69868076
230830A00051	8/30/2023	4.45	8/30/2027	111.24676	108.8073693	106.4345053	104.1259795	101.8796927	99.69362644	97.56583938	95.49446415	93.47770384
230830A00055	8/30/2023	4.47	8/30/2028	115.17577	111.7650423	108.4795069	105.3138564	102.2630351	99.32222922	96.48685335	93.75253859	91.11512099
230831A00001	8/31/2023	4.77	8/31/2026	106.49155	105.1259073	103.7844493	102.4665908	101.1717613	99.89940802	98.64899582	97.42000589	96.21193545
230831A00006	8/31/2023	4.61	8/31/2027	111.44085	109.000381	106.6264309	104.3168248	102.0694679	99.88234537	97.75351945	95.68112554	93.66336921
230831A00007	8/31/2023	4.48	8/31/2028	115.83567	112.2896865	108.873333	105.5811882	102.4080855	99.34910047	96.39953823	93.55492128	90.81097852
230831A00016	8/31/2023	4.65	8/31/2026	106.43949	105.0724775	103.7297006	102.410571	101.1145162	99.84098233	98.5894324	97.35934628	96.15021983
230831A00041	8/31/2023	4.48	8/31/2028	115.83567	112.2896865	108.873333	105.5811882	102.4080855	99.34910047	96.39953823	93.55492128	90.81097852
230831A00066	8/31/2023	4.77	8/31/2026	106.49155	105.1259073	103.7844493	102.4665908	101.1717613	99.89940802	98.64899582	97.42000589	96.21193545
230831A00069	8/31/2023	4.61	8/31/2027	111.44085	109.000381	106.6264309	104.3168248	102.0694679	99.88234537	97.75351945	95.68112554	93.66336921
230831A00070	8/31/2023	4.48	8/31/2028	115.83567	112.2896865	108.873333	105.5811882	102.4080855	99.34910047	96.39953823	93.55492128	90.81097852
230831A00079	8/30/2024	4.28	8/29/2031	126.49684	119.5461306	113.0354492	106.9344865	101.2151771	95.85151898	90.81941157	86.0965075	81.66207669
230901A00007	9/1/2023	4.55	9/1/2027	111.31209	108.8702958	106.4951425	104.1844439	101.9360992	99.74808801	97.61846713	95.5453669	93.52698812
230901A00016	9/1/2023	4.6	8/3/2026	105.98309	104.6806942	103.4093788	102.168037	100.9556114	99.77109411	98.61352376	97.4819828	96.3755951
230901A00037	9/1/2023	4.3	9/1/2028	115.5267	111.975891	108.5551974	105.2591686	102.0826084	99.02056462	96.06831637	93.22136185	90.47540714
230901A00044	9/1/2023	4.55	9/1/2027	111.31209	108.8702958	106.4951425	104.1844439	101.9360992	99.74808801	97.61846713	95.5453669	93.52698812
230905A00030	9/5/2023	4.55	9/5/2028	116.13773	112.5721298	109.1373259	105.8278316	102.6384154	99.56409227	96.60010997	93.74193753	90.98525347
230905A00033	9/5/2023	4.71	9/4/2026	106.58029	105.2009681	103.8462861	102.5156343	101.208427	99.92409706	98.66209523	97.42188948	96.20296428

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230906A00020	9/6/2023	5.19	9/8/2025	101.75358	101.3881792	101.0254126	100.6652529	100.3076718	99.95264159	99.60013497	99.25012497	98.90258505
230907A00012	9/7/2023	5.17	9/8/2025	101.74631	101.3809239	101.0181734	100.6580295	100.3004642	99.94544979	99.59295882	99.24296441	98.89543999
230907A00050	9/7/2023	5.05	9/5/2025	101.69054	101.3332569	100.9784965	100.6262284	100.2764266	99.92906492	99.58411794	99.24156042	98.90136751
230907A00051	9/7/2023	4.79	9/8/2026	106.74997	105.35812	103.9913105	102.6489205	101.3303505	100.0350202	98.76236769	97.51184882	96.28293649
230908A00009	9/8/2023	4.55	9/8/2028	115.85702	112.3462305	108.965811	105.7101832	102.5740385	99.55232396	96.64022848	93.8331697	91.12678195
230908A00010	9/8/2023	4.73	9/9/2030	114.12631	111.0478974	108.0935804	105.2572493	102.5331446	99.91583079	97.40017631	94.9813341	92.65472406
230911A00010	9/11/2023	4.9	9/11/2026	106.83439	105.4352418	104.0613692	102.712148	101.3869705	100.0852482	98.80641171	97.54990948	96.31520732
230911A00014	9/11/2023	4.61	9/11/2028	116.4206	112.8327432	109.377065	106.0479889	102.8402063	99.74865947	96.76852847	93.89521852	91.12434837
230911A00026	9/11/2023	5.08	9/11/2025	101.75395	101.3802434	101.0092903	100.641065	100.2755374	99.91267775	99.55245688	99.1948459	98.8398164
230911A00030	9/11/2023	5.09	9/11/2025	101.75767	101.3839539	101.0129925	100.6447589	100.2792231	99.91635525	99.55612624	99.19850715	98.84346959
230912A00026	9/12/2023	4.84	9/14/2026	106.79629	105.3889403	104.0071504	102.6502863	101.3177302	100.0088844	98.72317021	97.46002739	96.21891345
230912A00036	9/12/2023	4.57	9/12/2028	116.29655	112.7079031	109.251581	105.9219995	102.7138399	99.62203489	96.64175567	93.76839921	90.99757656
230912A00053	9/12/2023	4.74	9/7/2027	111.84751	109.3820351	106.984247	104.6519098	102.3828765	100.1750831	98.02654494	95.93535308	93.8996709
230913A00013	9/13/2023	4.87	9/14/2026	106.83809	105.4304322	104.0483425	102.6911838	101.3583381	100.0492075	98.76321316	97.49979482	96.25840982
230913A00030	9/13/2023	5.16	9/15/2025	101.83841	101.4534242	101.071361	100.6921902	100.3158789	99.94239479	99.57170587	99.20378071	98.83858836
230913A00031	9/13/2023	4.91	9/15/2026	106.90901	105.4980089	104.1126791	102.7523823	101.4164969	100.1044215	98.81557408	97.54939111	96.3053269
230913A00032	9/13/2023	4.74	9/15/2027	111.95994	109.4700849	107.0491619	104.6948766	102.4050244	100.1774868	98.01022733	95.90128787	93.84878528
230913A00046	9/13/2023	4.91	9/14/2026	106.89382	105.4857547	104.1032654	102.7457139	101.4124819	100.1029716	98.81660377	97.55281807	96.31107165
230913A00049	9/13/2023	4.74	9/13/2027	111.93183	109.4480753	107.0329391	104.6841428	102.3994965	100.1768952	98.01431552	95.90981177	93.86151245
230913A00050	9/13/2023	4.6	9/13/2028	116.41242	112.8188833	109.3579377	106.0239802	102.8116779	99.71595037	96.73195645	93.85508144	91.0809254
230914A00027	9/14/2023	4.76	1/8/2027	108.39232	106.6489044	104.9423952	103.2716871	101.6357174	100.0334654	98.46395084	96.9262314	95.41940104
230914A00031	9/14/2023	5.08	9/15/2025	101.80777	101.4228561	101.0408631	100.6617621	100.2855203	99.91210526	99.54148503	99.17362821	98.80850382
230914A00050	9/14/2023	4.67	9/14/2027	111.77715	109.2924001	106.876383	104.5268114	102.2414893	100.0183062	97.85523354	95.75032042	93.70169068
230914A00051	9/14/2023	4.84	9/14/2026	106.79629	105.3889403	104.0071504	102.6502863	101.3177302	100.0088844	98.72317021	97.46002739	96.21891345
230914A00059	7/26/2024	4.39	7/24/2026	105.47908	104.2079294	102.9675364	101.7567925	100.5746421	99.42007936	98.2921451	97.18992421	96.1125431
230914A00069	7/26/2024	4.34	7/26/2027	110.34139	108.0140187	105.7480566	103.5414253	101.3921314	99.29826609	97.2580008	95.26958288	93.33133183
230914A00070	7/26/2024	4.3	7/26/2028	114.79403	111.3667884	108.0619229	104.8743041	101.7990497	98.83151443	95.96727712	93.20212778	90.5320561
230914A00125	9/16/2024	4.46	9/16/2031	127.81442	120.7701943	114.1744103	107.9960014	102.2062064	96.77839093	91.68787984	86.91180374	82.42895804
230915A00026	9/15/2023	4.57	9/15/2028	116.3354	112.7373658	109.2722972	105.9345719	102.7188338	99.61998091	96.63315158	93.75371217	90.97724499
230915A00030	9/15/2023	4.7	9/8/2027	111.76581	109.2984515	106.8989078	104.5649385	102.2943901	100.0851927	97.93535573	95.84296486	93.80617829
230915A00054	9/15/2023	4.88	9/15/2026	106.86713	105.4564348	104.0714059	102.7114048	101.3758102	100.0640207	98.77545442	97.50954802	96.26575589
230915A00055	9/15/2023	4.7	9/15/2027	111.86341	109.37473	106.9549595	104.6018018	102.3130532	100.086596	97.92039413	95.81249038	93.76100218
230915A00057	9/15/2023	4.75	6/15/2027	110.69245	108.4764117	106.3165804	104.2111308	102.1583161	100.1564596	98.2039514	96.29924483	94.44085376

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230918A00008	9/18/2023	4.91	9/18/2026	106.9546	105.5347697	104.1409149	102.7723797	101.4285322	100.1087611	98.81247483	97.53910087	96.28808484
230918A00010	9/18/2023	4.72	9/18/2029	121.61921	116.8525518	112.3053733	107.9663884	103.8249501	99.8710107	96.09508538	92.48821735	89.04194596
230918A00011	9/18/2023	4.91	9/18/2026	106.9546	105.5347697	104.1409149	102.7723797	101.4285322	100.1087611	98.81247483	97.53910087	96.28808484
230918A00013	9/18/2023	4.74	9/18/2030	125.99154	120.05333	114.4410389	109.1349866	104.1167803	99.36922543	94.87624148	90.62278449	86.594775
230918A00018	9/18/2023	5.01	3/18/2026	104.36071	103.4547086	102.5645074	101.6896963	100.8298778	99.98466798	99.15369599	98.33660348	97.53304403
230918A00023	9/18/2023	4.91	9/18/2026	106.9546	105.5347697	104.1409149	102.7723797	101.4285322	100.1087611	98.81247483	97.53910087	96.28808484
230918A00027	9/18/2023	5.11	9/30/2025	102.02231	101.5952393	101.171743	100.7517768	100.3352967	99.92225934	99.5126223	99.10634371	98.70338242
230918A00030	9/18/2023	5.01	9/17/2027	106.44469	105.1500042	103.8834828	102.6442739	101.4315578	100.2445461	99.08248097	97.94463301	96.83030036
230919A00010	9/19/2023	4.76	9/20/2027	112.07876	109.5730509	107.1370694	104.7684854	102.4650574	100.2246321	98.04513973	95.92459099	93.8610729
230919A00029	9/19/2023	4.63	9/19/2028	116.59404	112.9799315	109.4997453	106.1478032	102.9186956	99.80727052	96.80861943	93.91806466	91.13114722
230919A00043	9/19/2023	4.62	9/19/2028	116.55957	112.9460498	109.4664386	106.1150555	102.8864919	99.77559596	96.77745991	93.8874065	91.10097721
230919A00044	9/19/2023	4.93	9/21/2026	107.02844	105.5995726	104.1969824	102.8200033	101.4679929	100.14033	98.83641322	97.55566093	96.29750989
230919A00047	9/19/2023	4.98	8/19/2026	106.59948	105.2594263	103.9465255	102.6599578	101.39894	100.1627205	98.95057706	97.76181587	96.59576999
230919A00055	9/19/2023	4.65	9/19/2028	116.66299	113.0476948	109.5663589	106.2132985	102.9831032	99.87061965	96.87093848	93.97938099	91.19148724
230920A00002	9/20/2023	4.47	10/2/2028	116.50502	112.8472766	109.3265996	105.9371068	102.673204	99.52956655	96.50112401	93.58304724	90.7707353
230920A00025	9/20/2023	5.14	9/16/2025	101.84437	101.456599	101.0717913	100.6899175	100.3109439	99.93483733	99.56156528	99.19109561	98.82339674
230920A00026	9/20/2023	4.9	9/16/2026	106.91022	105.4963774	104.1083072	102.7453636	101.4069217	100.0923769	98.80114392	97.53265635	96.28636564
230921A00021	9/21/2023	4.62	9/21/2028	116.88224	113.2499747	109.7526328	106.3844784	103.1400489	100.0141422	97.00180285	94.09830903	91.29916019
230921A00028	9/21/2023	5.07	9/21/2026	107.22621	105.7958873	104.3918605	103.0134693	101.6600708	100.3310429	99.02578381	97.74371124	96.48426137
230921A00032	5/31/2024	5.03	5/30/2025	100.45365	100.3663399	100.2791791	100.192164	100.1052943	100.0185697	99.93198979	99.84555424	99.75926269
230921A00033	6/7/2024	5.01	6/6/2025	100.53885	100.4312328	100.3238471	100.216691	100.1097637	100.0030643	99.89659226	99.79034671	99.68432691
230921A00034	6/14/2024	4.98	6/13/2025	100.62195	100.4940561	100.3664894	100.2392486	100.1123323	99.98573926	99.85946819	99.73351781	99.60788688
230921A00035	6/21/2024	4.96	6/20/2025	100.70545	100.5572865	100.4095514	100.2622461	100.1153687	99.96891722	99.82288991	99.67728485	99.53210018
230921A00036	6/28/2024	4.94	6/27/2025	100.7882	100.6197711	100.4518903	100.284551	100.1177505	99.95148624	99.78575562	99.6205561	99.45588513
230922A00022	9/22/2023	4.99	9/22/2026	107.12862	105.6961787	104.2901251	102.9097895	101.5545258	100.2237091	98.91673459	97.63301731	96.37199086
230922A00025	9/22/2023	5.18	9/22/2025	101.94219	101.537539	101.1361105	100.737868	100.3427734	99.95078949	99.56187951	99.1760073	98.79313725
230925A00003	9/25/2023	4.99	9/25/2026	107.17488	105.7335906	104.3189902	102.9303981	101.5671576	100.2286335	98.91421168	97.62329775	96.35531648
230925A00004	9/25/2023	4.74	9/25/2028	117.0538	113.4142808	109.9101628	106.5356799	103.2853409	100.1539171	97.1364279	94.22812811	91.42449531
230925A00057	9/25/2023	5.19	9/30/2025	102.05628	101.62912	101.2055382	100.7854869	100.3689221	99.95580077	99.5460802	99.13971858	98.73667476
230925A00080	9/25/2023	5.07	9/30/2025	102.03896	101.6114526	101.1875279	100.7671416	100.3502495	99.93680825	99.5267751	99.12010804	98.71676574
230925A00114	9/25/2023	5.09	3/25/2026	104.53563	103.6091785	102.6992199	101.8053168	100.927046	100.0639994	99.2157829	98.38201583	97.56233052
230925A00121	9/25/2023	5.2	9/25/2025	101.9916	101.5784944	101.1687462	100.7623122	100.359152	99.95922635	99.5624962	99.16892334	98.77847012
230926A00010	9/26/2023	4.74	9/26/2028	117.06723	113.4245538	109.9174995	106.5402839	103.2874031	100.1536164	97.13393214	94.2235948	91.41807217

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
230926A00020	9/26/2023	5.2	9/26/2025	102.00538	101.5894682	101.1769522	100.7677933	100.3619506	99.95938384	99.56005338	99.16392028	98.77094621
230926A00021	9/26/2023	4.73	9/26/2028	117.03256	113.3904831	109.8840101	106.5073597	103.2550287	100.1217768	97.10261313	94.19278241	91.38775299
230926A00048	9/26/2023	5.2	9/26/2025	102.00538	101.5894682	101.1769522	100.7677933	100.3619506	99.95938384	99.56005338	99.16392028	98.77094621
230926A00076	9/26/2023	4.73	9/26/2028	117.03256	113.3904831	109.8840101	106.5073597	103.2550287	100.1217768	97.10261313	94.19278241	91.38775299
230927A00020	9/27/2023	5.01	10/16/2026	107.5227	106.0207576	104.5476698	103.102673	101.6850321	100.2940375	98.92900338	97.58926714	96.27418823
230927A00021	9/27/2023	4.96	1/29/2027	109.05555	107.2481204	105.479907	103.7496971	102.0563304	100.398694	98.77572037	97.186385	95.62970392
230927A00032	9/27/2023	5.02	9/23/2026	107.18659	105.7508815	104.3416694	102.9582772	101.600055	100.2663746	98.95662786	97.6702265	96.4066011
230927A00033	9/27/2023	4.78	9/25/2028	117.19237	113.5504557	110.0440162	106.6672758	103.4147411	100.281181	97.2616129	94.35128966	91.5456869
230927A00034	9/27/2023	4.82	9/27/2028	117.35823	113.7076081	110.1929595	106.8084818	103.5486538	100.4082186	97.38216916	94.46573553	91.65437188
230928A00001	9/28/2023	4.91	9/28/2026	107.22398	105.7719258	104.3469254	102.9482863	101.5753389	100.2274361	98.90395177	97.60428047	96.32783627
230928A00014	9/28/2023	4.9	9/28/2027	112.53461	110.0001905	107.5368581	105.1422178	102.8139665	100.5498921	98.34786947	96.20585644	94.12189013
230928A00016	9/28/2023	4.83	9/28/2028	117.4066	113.7522206	110.2340444	106.8462594	103.5833309	100.4399897	97.4112172	94.4922323	91.67847898
230928A00017	9/28/2023	4.83	9/28/2028	117.4066	113.7522206	110.2340444	106.8462594	103.5833309	100.4399897	97.4112172	94.4922323	91.67847898
230928A00033	9/28/2023	5.03	9/28/2026	107.27843	105.8278568	104.4042827	103.0070159	101.6353886	100.2887556	98.96649266	97.66799592	96.39268111
230928A00047	9/28/2023	5.21	9/29/2025	102.05096	101.6265922	101.205759	100.7884129	100.3745106	99.96400973	99.55686844	99.15304562	98.75250081
230928A00051	9/28/2023	5.04	9/28/2026	107.62101	106.1089657	104.6265066	103.1728396	101.7471962	100.3488349	98.9770399	97.63111984	96.31040701
230928A00058	9/28/2023	5.04	9/28/2026	107.62101	106.1089657	104.6265066	103.1728396	101.7471962	100.3488349	98.9770399	97.63111984	96.31040701
230928A00059	9/28/2023	4.84	9/28/2028	117.1002	113.5108339	110.0565632	106.7315238	103.5301393	100.4471063	97.47737867	94.61615416	91.85886089
230928A00060	9/28/2023	4.84	9/28/2028	117.1002	113.5108339	110.0565632	106.7315238	103.5301393	100.4471063	97.47737867	94.61615416	91.85886089
230928A00061	9/28/2023	4.84	9/28/2028	117.1002	113.5108339	110.0565632	106.7315238	103.5301393	100.4471063	97.47737867	94.61615416	91.85886089
230928A00064	9/28/2023	4.78	9/30/2027	112.47595	109.932195	107.4600338	105.0570382	102.7208819	100.4493308	98.24023901	96.09154457	94.00126592
230929A00018	9/29/2023	5.14	9/29/2025	102.02143	101.5971397	101.1763804	100.7591078	100.3452786	99.93485029	99.52778116	99.12403006	98.72355655
230929A00031	9/29/2023	5.14	9/29/2025	102.02143	101.5971397	101.1763804	100.7591078	100.3452786	99.93485029	99.52778116	99.12403006	98.72355655
230929A00033	9/29/2023	4.92	9/29/2026	107.13612	105.6837767	104.2585129	102.8596339	101.4864692	100.1383704	98.81471054	97.51488327	96.23830173
230929A00046	9/29/2023	4.66	9/29/2027	112.16694	109.6299187	107.1642492	104.7675155	102.437401	100.171681	97.9682184	95.82495985	93.7399318
230929A00049	9/29/2023	4.87	9/30/2030	113.94166	110.9855977	108.1466361	105.4190689	102.797514	100.2768905	97.85239918	95.51950533	93.27392223
230929A00059	9/29/2023	5.14	9/29/2025	102.02143	101.5971397	101.1763804	100.7591078	100.3452786	99.93485029	99.52778116	99.12403006	98.72355655
230929A00061	9/29/2023	4.92	9/29/2026	107.13612	105.6837767	104.2585129	102.8596339	101.4864692	100.1383704	98.81471054	97.51488327	96.23830173
230929A00062	9/29/2023	4.78	9/29/2027	112.25483	109.7209813	107.2583049	104.8643949	102.5369428	100.2737318	98.07263218	95.93159756	93.84866101
231002A00018	10/2/2023	4.87	10/1/2027	112.50393	109.9613224	107.4902584	105.0883208	102.7531843	100.4826162	98.27447173	96.12669014	94.03729092
231002A00042	10/2/2023	4.73	10/2/2028	117.41204	113.738563	110.2025904	106.7982257	103.5198598	100.3621531	97.32002158	94.38862267	91.56334272
231003A00005	10/3/2023	4.84	10/3/2028	117.50866	113.8381787	110.3050012	106.9032437	103.6273071	100.4718617	97.43183269	94.50238609	91.67891642
231003A00011	10/3/2023	4.89	10/15/2027	112.74943	110.1646738	107.6537128	105.2140113	102.843136	100.5387524	98.2986191	96.12058415	94.00258062

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4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
231003A00036	10/3/2023	4.84	10/3/2028	117.50866	113.8381787	110.3050012	106.9032437	103.6273071	100.4718617	97.43183269	94.50238609	91.67891642
231004A00006	10/4/2023	4.88	10/4/2028	117.66154	113.985575	110.447201	107.0405137	103.7598991	100.6000131	97.55576743	94.62231575	91.79504077
231005A00003	10/5/2023	5.14	10/6/2025	102.11849	101.6745629	101.2345081	100.7982736	100.3658095	99.93706702	99.5119982	99.0905558	98.67269347
231005A00035	10/5/2023	4.98	10/5/2026	107.31279	105.8426058	104.4001207	102.9846223	101.5954173	100.2318362	98.89323148	97.57897702	96.28846726
231005A00037	10/5/2023	4.88	10/5/2027	112.5845	110.0297285	107.5471499	105.1343065	102.7888428	100.5084968	98.2910964	96.13455503	94.03686757
231005A00039	10/5/2023	5.16	10/6/2025	102.12731	101.6833645	101.2432868	100.8070296	100.3745429	99.94577804	99.52068693	99.0992224	98.68133806
231005A00040	10/5/2023	4.98	10/5/2026	107.31279	105.8426058	104.4001207	102.9846223	101.5954173	100.2318362	98.89323148	97.57897702	96.28846726
231005A00054	10/5/2023	4.98	10/5/2026	107.31279	105.8426058	104.4001207	102.9846223	101.5954173	100.2318362	98.89323148	97.57897702	96.28846726
231006A00009	10/6/2023	4.98	10/15/2027	112.97417	110.3865804	107.8728494	105.4304385	103.056913	100.7499363	98.50726537	96.3267467	94.20631173
231006A00010	10/6/2023	4.93	10/16/2028	117.99869	114.2828619	110.7073058	107.2659529	103.9530307	100.7630473	97.69077592	94.73124055	91.87970265
231006A00032	10/6/2023	5.08	10/6/2026	107.47327	105.9991277	104.5528088	103.1335943	101.7407869	100.3737127	99.03172049	97.71418036	96.4204832
231006A00033	10/6/2023	4.98	10/6/2027	112.84569	110.2848706	107.7964682	105.3780179	103.0271545	100.741607	98.51919457	96.35782234	94.25547741
231010A00007	10/10/2023	4.83	10/12/2027	112.55803	109.9840639	107.4833672	105.0534328	102.6918521	100.3963136	98.1645978	95.99457357	93.88419361
231010A00030	10/10/2023	4.88	10/15/2026	107.31525	105.8176507	104.3487756	102.9078656	101.4941903	100.1070442	98.74574578	97.4096364	96.0980793
231010A00031	10/10/2023	5.08	10/10/2025	102.14697	101.6918922	101.2408809	100.7938857	100.3508531	99.9117302	99.47646534	99.04500764	98.61730714
231010A00057	10/10/2023	4.66	10/10/2028	117.27229	113.5785674	110.0239624	106.6024709	103.3083845	100.136271	97.08095979	94.13752739	91.3012846
231010A00068	10/10/2023	4.83	10/8/2027	112.50261	109.9404933	107.4510132	105.0316889	102.6801426	100.3940918	98.17134464	96.00979606	93.90742338
231010A00075	10/10/2023	4.78	10/10/2028	117.39144	113.7032155	110.1536975	106.7369146	103.4471812	100.2790869	97.22748102	94.2874593	91.45435025
231010A00076	10/10/2023	4.66	10/10/2028	117.27229	113.5785674	110.0239624	106.6024709	103.3083845	100.136271	97.08095979	94.13752739	91.3012846
231010A00101	10/10/2023	4.78	10/10/2028	117.39144	113.7032155	110.1536975	106.7369146	103.4471812	100.2790869	97.22748102	94.2874593	91.45435025
231010A00129	10/10/2023	4.93	10/13/2026	107.35942	105.8669593	104.4030263	102.9668675	101.5577597	100.1750045	98.81792718	97.48587547	96.17821878
231011A00004	10/11/2023	4.81	10/8/2027	112.45306	109.8915621	107.4026884	104.9839572	102.6329911	100.347508	98.12531658	95.96431192	93.86247179
231011A00016	10/11/2023	4.75	10/11/2028	117.29932	113.6098704	110.0592975	106.6416124	103.3511185	100.1823949	97.13028147	94.18986472	91.35646483
231011A00028	10/11/2023	4.92	10/9/2026	107.28518	105.8042545	104.3514299	102.925978	101.5271908	100.1543846	98.80689843	97.48409344	96.18535173
231011A00029	10/11/2023	4.81	10/8/2027	112.45306	109.8915621	107.4026884	104.9839572	102.6329911	100.347508	98.12531658	95.96431192	93.86247179
231011A00030	10/11/2023	4.75	10/11/2028	117.29932	113.6098704	110.0592975	106.6416124	103.3511185	100.1823949	97.13028147	94.18986472	91.35646483
231012A00016	10/12/2023	5.14	10/14/2025	102.22974	101.7633433	101.3012238	100.8433198	100.3895736	99.93992855	99.49432896	99.05272026	98.61504879
231012A00027	10/12/2023	4.78	10/16/2028	117.47027	113.7636998	110.1971367	106.7645258	103.4601038	100.2783873	97.21415773	94.26244715	91.41852453
231013A00017	10/13/2023	5.13	10/14/2025	102.2251	101.7587217	101.2966147	100.8387231	100.3849892	99.93535635	99.48976892	99.04817228	98.61051281
231013A00020	10/13/2023	4.98	10/13/2026	107.43311	105.9400861	104.4755967	103.038891	101.6292457	100.2459621	98.88836519	97.55580252	96.24764327
231016A00016	10/16/2023	5.01	10/16/2026	107.5227	106.0207576	104.5476698	103.102673	101.6850321	100.2940375	98.92900338	97.58926714	96.27418823
231016A00047	10/16/2023	4.98	2/10/2027	109.28473	107.4391211	105.6341528	103.8686057	102.1413097	100.4511401	98.79701578	97.17789658	95.5927816
231016A00049	10/16/2023	4.95	7/19/2027	111.62492	109.3023133	107.0404995	104.8374356	102.6911638	100.5998084	98.56157181	96.57473058	94.63763143

Classification | Public

	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
231017A00008	10/17/2023	5.26	10/17/2025	102.32806	101.8530755	101.3825184	100.9163286	100.4544453	99.9968088	99.54336052	99.09404294	98.64879961
231017A00017	10/17/2023	5.11	10/16/2026	107.67092	106.1678332	104.6936204	103.247518	101.8287905	100.4367277	99.07064324	97.72987412	96.41377932
231017A00029	10/17/2023	4.99	10/17/2028	117.88954	114.2290867	110.7080062	107.3201694	104.0597559	100.9212343	97.89934564	94.98908833	92.18570412
231017A00032	10/17/2023	4.99	10/17/2028	117.88954	114.2290867	110.7080062	107.3201694	104.0597559	100.9212343	97.89934564	94.98908833	92.18570412
231017A00033	10/17/2023	4.99	10/17/2028	117.88954	114.2290867	110.7080062	107.3201694	104.0597559	100.9212343	97.89934564	94.98908833	92.18570412
231017A00034	10/17/2023	4.99	10/17/2028	117.88954	114.2290867	110.7080062	107.3201694	104.0597559	100.9212343	97.89934564	94.98908833	92.18570412
231017A00035	10/17/2023	4.99	10/17/2028	117.88954	114.2290867	110.7080062	107.3201694	104.0597559	100.9212343	97.89934564	94.98908833	92.18570412
231017A00036	10/17/2023	4.99	10/17/2028	117.88954	114.2290867	110.7080062	107.3201694	104.0597559	100.9212343	97.89934564	94.98908833	92.18570412
231017A00037	10/17/2023	4.99	10/17/2028	117.88954	114.2290867	110.7080062	107.3201694	104.0597559	100.9212343	97.89934564	94.98908833	92.18570412
231017A00039	10/17/2023	5.12	10/16/2026	108.03472	106.4669409	104.9304655	103.4244235	101.9479775	100.5003207	99.08067499	97.68829024	96.32244258
231017A00040	10/17/2023	5.12	10/16/2026	108.03472	106.4669409	104.9304655	103.4244235	101.9479775	100.5003207	99.08067499	97.68829024	96.32244258
231017A00041	10/17/2023	5.12	10/16/2026	108.03472	106.4669409	104.9304655	103.4244235	101.9479775	100.5003207	99.08067499	97.68829024	96.32244258
231017A00046	10/17/2023	5.26	10/17/2025	102.32806	101.8530755	101.3825184	100.9163286	100.4544453	99.9968088	99.54336052	99.09404294	98.64879961
231018A00026	10/18/2023	5.28	1/7/2026	103.54245	102.8353824	102.1380103	101.4501331	100.7715573	100.1020949	99.44156284	98.78978282	98.14658141
231019A00006	10/19/2023	5.29	10/20/2025	102.38518	101.9017027	101.4228128	100.9484427	100.4785284	100.0130072	99.55181754	99.09489888	98.64219194
231019A00007	10/19/2023	5.19	10/19/2026	107.83637	106.3237649	104.8403605	103.3853855	101.9580922	100.5577588	99.18368827	97.83520692	96.51166373
231019A00009	10/19/2023	5.14	10/19/2027	113.4326	110.828014	108.2980452	105.8401182	103.4517634	101.1306117	98.87438902	96.68091251	94.54808577
231019A00031	1/22/2024	5.12	1/30/2026	103.76621	102.9940731	102.2334656	101.4841259	100.7458046	100.0182598	99.30125644	98.59456642	97.8979681
231019A00036	10/19/2023	5.27	10/20/2025	102.37558	101.8921284	101.4132652	100.9389215	100.4690335	100.0035385	99.54237468	99.08548178	98.63280043
231019A00041	10/19/2023	5.08	10/19/2028	118.56904	114.8346863	111.2415257	107.7834332	104.4545881	101.2494529	98.16275823	95.18948811	92.32486634
231019A00043	10/19/2023	5.19	10/19/2026	107.83637	106.3237649	104.8403605	103.3853855	101.9580922	100.5577588	99.18368827	97.83520692	96.51166373
231019A00044	10/19/2023	5.14	10/19/2027	113.4326	110.828014	108.2980452	105.8401182	103.4517634	101.1306117	98.87438902	96.68091251	94.54808577
231020A00041	10/20/2023	5.19	10/20/2025	102.33717	101.8538313	101.3750746	100.9008368	100.431054	99.96566331	99.50460326	99.0478134	98.59523439
231020A00048	10/20/2023	5.08	10/20/2026	107.68773	106.1735327	104.6886187	103.2322137	101.8035668	100.4019532	99.02667252	97.67704846	96.35242721
231020A00049	10/20/2023	5.03	10/20/2027	113.1711	110.5670283	108.0376524	105.5803966	103.1927859	100.8724457	98.61709725	96.42455294	94.29271213
231020A00051	10/20/2023	5.02	10/20/2028	118.37098	114.6372597	111.0448471	107.5876063	104.2597071	101.0556033	97.97001736	94.99792576	92.13454532
231020A00069	10/20/2023	5.08	10/15/2026	107.61113	106.111254	104.6401369	103.1970237	101.7811829	100.391908	99.02851641	97.69034861	96.37676692
231020A00070	10/20/2023	5.19	10/15/2025	102.26695	101.7976833	101.3327403	100.8720633	100.4155936	99.96327354	99.51504646	99.0708568	98.63064999
231023A00029	10/23/2023	5.19	10/23/2025	102.3793	101.8875106	101.4004592	100.9180804	100.440307	99.96707294	99.49831374	99.03396596	98.57396736
231023A00034	4/23/2024	4.95	4/23/2026	104.82744	103.8183049	102.8286856	101.8580199	100.905766	99.97140266	99.05442814	98.15435936	97.27073097
231024A00017	10/24/2023	4.97	10/25/2027	113.09168	110.4746081	107.9330008	105.4642419	103.065818	100.7353188	98.47043133	96.26893575	94.12870097
231024A00029	10/24/2023	4.97	10/25/2027	113.09168	110.4746081	107.9330008	105.4642419	103.065818	100.7353188	98.47043133	96.26893575	94.12870097
231024A00030	10/24/2023	4.96	10/24/2028	118.2135	114.4711887	110.8709497	107.4066011	104.0722637	100.8623455	97.77152624	94.7947427	91.9271745

Classification | Public

	Parallel-Shift Sensitivity Analysis												
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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
231024A00039	10/24/2023	5.06	10/26/2026	107.74947	106.2182912	104.7170352	103.2448953	101.8010973	100.3848939	98.99556354	97.63240938	96.29475815
231024A00046	10/24/2023	4.96	10/24/2028	118.2135	114.4711887	110.8709497	107.4066011	104.0722637	100.8623455	97.77152624	94.7947427	91.9271745
231024A00079	10/24/2023	5.18	10/24/2025	102.38843	101.8938379	101.4040346	100.9189552	100.4385314	99.96269641	99.49138447	99.02453119	98.56207337
231024A00082	10/24/2023	5.05	10/23/2026	107.68865	106.1661973	104.6733443	103.2092992	101.7732997	100.3646097	98.98251847	97.62633954	96.29540951
231025A00003	10/25/2023	5.07	10/24/2025	102.37332	101.8782987	101.3880787	100.9025927	100.4217723	99.94555021	99.47386054	99.00663864	98.54382109
231025A00004	10/25/2023	5.07	10/24/2025	102.37332	101.8782987	101.3880787	100.9025927	100.4217723	99.94555021	99.47386054	99.00663864	98.54382109
231025A00013	10/25/2023	5.08	10/26/2026	107.77967	106.2482542	104.7467649	103.2743958	101.8303726	100.4139478	99.02439977	97.66103158	96.32316986
231025A00018	10/25/2023	5.19	10/27/2025	102.43548	101.9324052	101.4342869	100.9410481	100.4526172	99.96892422	99.48990023	99.01547779	98.54559076
231025A00024	10/25/2023	5	10/25/2028	118.36906	114.6211621	111.015629	107.5462599	104.2071598	100.9927222	97.89761295	94.91675584	92.04531837
231025A00036	10/25/2023	5.08	10/21/2026	107.70305	106.1859872	104.6983121	103.2392475	101.8080386	100.4039568	99.02629828	97.67438327	96.34755474
231027A00015	10/27/2023	5.08	2/23/2026	104.08498	103.2445112	102.4176698	101.6041228	100.8035509	100.015645	99.24010575	98.47664311	97.72497613
231027A00019	10/27/2023	4.99	10/27/2026	107.65884	106.1256266	104.622426	103.1484298	101.7028601	100.2849662	98.89402321	97.52933125	96.1902141
231027A00021	10/27/2023	5.13	10/30/2025	102.44714	101.9356903	101.4293553	100.9280561	100.4317177	99.94026679	99.45363137	98.97174089	98.49452618
231027A00028	10/27/2023	4.92	10/23/2028	118.05817	114.3214305	110.7264776	107.2671421	103.9375603	100.7321548	97.64561937	94.67290347	91.80919895
231027A00035	10/27/2023	4.99	10/30/2026	107.70406	106.1622414	104.6507552	103.1687812	101.7155297	100.2902386	98.89217217	97.52062016	96.17489639
231027A00036	10/27/2023	5.13	11/3/2025	102.5036	101.9809012	101.4635436	100.9514452	100.444526	99.94270752	99.44591305	98.95406731	98.46709651
231027A00043	10/27/2023	4.99	10/27/2026	107.65884	106.1256266	104.622426	103.1484298	101.7028601	100.2849662	98.89402321	97.52933125	96.1902141
231030A00035	10/30/2023	4.85	10/30/2028	118.21114	114.4440371	110.8207671	107.3350335	103.9808524	100.7525343	97.64466751	94.65210339	91.76994167
231031A00021	10/31/2023	5.18	10/30/2025	102.47253	101.9610048	101.4545956	100.9532226	100.456811	99.9652874	99.4785798	98.99661766	98.5193318
231031A00022	10/31/2023	5.04	10/30/2026	107.78012	106.2376966	104.7256188	103.2430636	101.7892409	100.3633883	98.96476999	97.59267527	96.2464178
231031A00033	10/31/2023	5.05	10/30/2026	107.79533	106.2527877	104.7405915	103.2579201	101.8039831	100.3780183	98.97928955	97.60708629	96.26072208
231031A00040	4/30/2024	5.1	10/31/2025	102.4457	101.9314858	101.4224387	100.9184792	100.4195316	99.92552126	99.4363752	98.95202181	98.47239093
231101A00016	11/1/2023	4.99	11/3/2025	102.47209	101.9489836	101.4312291	100.9187446	100.4114498	99.90926583	99.4121158	98.91992413	98.43261681
231102A00022	11/2/2023	4.91	11/10/2026	107.75141	106.1780279	104.6359477	103.1243118	101.6422905	100.1890839	98.7639204	97.36605555	95.9947708
231102A00024	11/2/2023	4.78	11/2/2028	117.69458	113.9357104	110.3205449	106.8427835	103.4964412	100.2758275	97.17553055	94.19040154	91.31554045
231102A00025	11/2/2023	4.9	12/8/2026	108.16466	106.5087731	104.8867623	103.2976579	101.7405241	100.2144603	98.71859991	97.25210801	95.81418039
231102A00026	11/2/2023	4.9	1/12/2027	108.69283	106.935713	105.2159622	103.532454	101.8841066	100.2698813	98.68878075	97.13984661	95.62215756
231102A00027	11/2/2023	4.89	2/9/2027	109.10596	107.2650642	105.4646618	103.7035319	101.9805055	100.2944589	98.64431225	97.02902685	95.44760349
231102A00028	11/2/2023	4.88	3/9/2027	109.52577	107.5978872	105.71392	103.8726088	102.0727373	100.3131317	98.59265884	96.91022475	95.2647728
231102A00029	11/2/2023	4.88	4/13/2027	110.0449	108.0137809	106.0310784	104.0953392	102.2051615	100.3591949	98.55613797	96.79473671	95.07378191
231102A00030	11/2/2023	4.87	5/11/2027	110.43821	108.3237402	106.2612897	104.249237	102.2860243	100.370153	98.50018167	96.67472281	94.89244076
231102A00031	11/2/2023	5.1	11/3/2025	102.48803	101.9653814	101.4480701	100.9360176	100.429144	99.92737076	99.43062122	98.93882009	98.45189359
231102A00032	11/2/2023	4.91	11/2/2026	107.62805	106.0784111	104.5593686	103.0700923	101.6097817	100.1776643	98.77299494	97.39505392	96.04314638

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
231102A00033	11/2/2023	4.83	11/2/2027	112.84992	110.2133568	107.6534272	105.1674521	102.7528593	100.4071825	98.12805656	95.913212	93.76047097
231102A00039	11/2/2023	4.91	10/28/2026	107.55266	106.0175418	104.5125196	103.0367879	101.5895653	100.1700977	98.77765711	97.41154057	96.07106892
231102A00064	1/22/2024	5.01	1/22/2026	103.56798	102.8190038	102.0809044	101.3534418	100.6363868	99.92951674	99.23261536	98.5454724	97.86788349
231102A00070	2/15/2024	4.86	2/16/2027	109.16367	107.3008468	105.4793553	103.6979792	101.9555488	100.2509383	98.58306354	96.95088036	95.35338246
231103A00002	11/3/2023	4.67	11/29/2027	112.81641	110.1020711	107.4682641	104.9120983	102.4308084	100.0217466	97.68237633	95.41026729	93.20308977
231103A00005	11/3/2023	5.12	5/5/2025	100.07	100.0560862	100.0421849	100.0282972	100.0144232	100.0005627	99.98671586	99.97288254	99.95906274
231103A00007	11/3/2023	5.05	8/4/2025	101.23879	100.9713862	100.7054026	100.4408251	100.1776425	99.91584391	99.65541826	99.39635478	99.13864276
231103A00008	11/3/2023	4.97	11/3/2025	102.42058	101.8981288	101.381018	100.8691646	100.3624885	99.86091143	99.36435662	98.87274881	98.38601425
231103A00029	11/3/2023	4.75	11/3/2026	107.39831	105.8476541	104.327653	102.8374687	101.376298	99.94336613	98.5379252	97.1592534	95.80665368
231103A00034	11/3/2023	4.49	11/3/2028	116.97879	113.2219115	109.6090522	106.1338884	102.7904093	99.57290084	96.47592887	93.49432415	90.62316774
231106A00007	11/6/2023	4.78	11/5/2027	112.76503	110.1208796	107.5537681	105.0609923	102.6399597	100.2881851	98.00328492	95.78297302	93.62505549
231106A00020	11/6/2023	5.02	11/6/2025	102.48819	101.9572223	101.431769	100.911746	100.3970692	99.88765649	99.38342709	98.88430206	98.39020403
231107A00008	11/7/2023	5.17	5/7/2025	100.09668	100.0771987	100.0577381	100.0382978	100.0188775	99.99947739	99.98009732	99.96073729	99.94139726
231107A00009	11/7/2023	5.03	11/7/2025	102.50738	101.9735802	101.4453547	100.9226174	100.4052829	99.89326757	99.38648951	98.88486847	98.38832584
231107A00011	11/7/2023	4.84	11/9/2026	107.62756	106.0580218	104.5196803	103.0116828	101.5332037	100.0834468	98.66164429	97.26705523	95.89896436
231108A00011	11/8/2023	5.06	5/8/2025	100.10883	100.0865545	100.0642993	100.0420679	100.0198604	99.99767657	99.97551653	99.95338019	99.93126748
231108A00015	11/8/2023	4.83	11/9/2026	107.61207	106.0426568	104.5044378	102.9965605	101.5181995	100.0685588	98.64687053	97.25239373	95.88441325
231108A00026	11/8/2023	5.04	11/7/2025	102.51268	101.9788638	101.4506223	100.9278691	100.4105188	99.89848785	99.39169424	98.89005776	98.39349982
231108A00028	11/8/2023	4.83	11/9/2026	107.61207	106.0426568	104.5044378	102.9965605	101.5181995	100.0685588	98.64687053	97.25239373	95.88441325
231109A00014	5/17/2024	5.03	5/16/2025	100.27876	100.2321803	100.1856597	100.1391989	100.0927978	100.0464562	100.0001741	99.95395128	99.90778767
231109A00025	11/9/2023	4.75	11/9/2028	116.95028	113.3232539	109.835306	106.4802627	103.2522583	100.1457222	97.15536168	94.27614684	91.50329546
231109A00026	11/9/2023	5.19	5/9/2025	100.12313	100.098086	100.0730676	100.0480765	100.0231126	99.99817596	99.97326649	99.94838414	99.92352887
231113A00034	11/13/2023	5.16	11/13/2025	102.66195	102.1110148	101.5660201	101.0268651	100.4934563	99.96570165	99.44351152	98.92679792	98.4154748
231113A00036	11/13/2023	5.3	5/15/2025	100.20592	100.1641747	100.1224869	100.0808515	100.0392684	99.99773755	99.95625883	99.91483213	99.87345734
231113A00038	11/13/2023	4.97	11/13/2026	107.89129	106.3082272	104.7567533	103.2359938	101.7451076	100.2832839	98.849741	97.44372456	96.0645068
231114A00006	11/14/2024	4.67	11/14/2031	129.7236	122.4488041	115.6467128	109.2838639	103.3293406	97.75456356	92.53310238	87.6405032	83.05413091
231114A00007	11/14/2024	4.89	11/14/2034	141.76985	130.8647384	120.9374932	111.8938516	103.6491424	96.12726652	89.25978648	82.98511757	77.24780793
231114A00046	11/14/2023	4.62	11/14/2028	117.28138	113.4947307	109.8539606	106.3526309	102.984621	99.74411415	96.62558097	93.62376307	90.73365839
231114A00072	11/14/2023	4.67	11/15/2027	112.62243	109.951194	107.3583935	104.841248	102.3970955	100.0233849	97.7176712	95.47760986	93.30095228
231114A00074	11/14/2023	4.6	11/14/2028	117.20931	113.4239441	109.784427	106.2843148	102.9174881	99.67813146	96.5607166	93.55998631	90.67093962
231115A00039	11/15/2023	4.85	11/16/2026	107.74985	106.1593893	104.6007577	103.0730728	101.5754831	100.107168	98.6673362	97.25522473	95.87009739
231117A00001	11/17/2023	4.99	11/12/2025	102.55521	102.0073931	101.4654453	100.9292763	100.3987939	99.87390769	99.35452924	98.84057194	98.331951
231117A00002	11/17/2023	4.76	11/12/2026	107.54866	105.9712221	104.4252316	102.9098241	101.4241633	99.96744339	98.53888681	97.13774365	95.76329018

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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
231117A00003	11/17/2023	4.59	11/17/2028	117.21253	113.4183284	109.7705739	106.2627884	102.8888165	99.64280905	96.51920641	93.51272208	90.61832773
231121A00015	11/21/2023	4.75	11/30/2026	107.80278	106.1719551	104.5742167	103.008627	101.4742824	99.97031305	98.49588085	97.0501784	95.6324274
231122A00029	11/22/2023	5.05	11/24/2025	102.75552	102.1737102	101.5985092	101.0298027	100.467481	99.91143687	99.36156533	98.81776388	98.27993223
231122A00032	11/22/2023	5.2	5/22/2025	100.29305	100.2318439	100.1707297	100.1097042	100.0487672	99.98791853	99.92715794	99.86648526	99.80590032
231122A00035	11/22/2023	5.2	5/22/2025	100.29305	100.2318439	100.1707297	100.1097042	100.0487672	99.98791853	99.92715794	99.86648526	99.80590032
231127A00024	11/27/2023	4.78	11/27/2026	107.80579	106.1835047	104.5940339	103.0364537	101.5098718	100.0134288	98.54629683	97.10767795	95.69680295
231127A00025	11/27/2023	4.68	11/29/2027	112.84264	110.1279527	107.4938071	104.9373104	102.4556971	100.046319	97.70663952	95.43422802	93.2267546
231127A00026	11/27/2023	4.61	11/27/2028	117.41622	113.5890384	109.9104308	106.3737798	102.9728051	99.70154099	96.55431903	93.52575126	90.61071459
231127A00065	11/27/2023	5.03	11/26/2025	102.77181	102.1843836	101.6036881	101.0296082	100.462031	99.90084645	99.34594682	98.79722681	98.25458347
231128A00002	11/28/2023	4.41	11/30/2028	117.03936	113.202145	109.5144147	105.9694959	102.5610501	99.28305791	96.12980056	93.09584327	90.17601928
231128A00003	11/28/2023	4.41	11/30/2028	117.03936	113.202145	109.5144147	105.9694959	102.5610501	99.28305791	96.12980056	93.09584327	90.17601928
231128A00009	11/28/2023	4.73	12/14/2026	107.97538	106.3045483	104.6681289	103.0651227	101.4945713	99.95555282	98.44718029	96.9685998	95.51898903
231129A00006	11/29/2023	4.25	11/29/2028	116.44233	112.6188751	108.944387	105.4122187	102.0160552	98.74989905	95.60805227	92.58509975	89.6758933
231129A00039	11/29/2023	4.97	5/30/2025	100.37829	100.2948673	100.2115813	100.1284346	100.0454268	99.96255761	99.87982672	99.79723376	99.71477841
231129A00073	11/29/2023	4.81	5/29/2025	100.35922	100.2785147	100.1979431	100.1175048	100.0371993	99.9570264	99.87698573	99.79707697	99.7172998
231130A00072	11/30/2023	4.83	12/1/2025	102.72236	102.1211923	101.5270725	100.9398749	100.3594789	99.78576696	99.21862387	98.65793725	98.10359722
231130A00073	11/30/2023	4.61	11/30/2026	107.57775	105.9487938	104.3528967	102.7891158	101.2565483	99.75432517	98.28160916	96.83759368	95.42150119
231130A00074	11/30/2023	4.45	11/30/2028	116.87188	113.0457602	109.368534	105.8335591	102.4345283	99.16545162	96.02063788	92.99467823	90.08243034
231201A00024	12/1/2023	4.36	12/1/2028	116.55554	112.7323297	109.0580475	105.5260434	102.1300041	98.86393383	95.72213616	92.69919756	89.78997142
231201A00026	12/1/2023	4.51	12/1/2026	107.43101	105.8005403	104.2031898	102.6380215	101.1041297	99.60064198	98.12671849	96.68154982	95.26435591
231201A00034	12/1/2023	4.62	3/2/2026	103.79674	102.9380578	102.0936159	101.2630649	100.4460638	99.64228238	98.85140145	98.07311184	97.30711422
231205A00025	12/5/2023	4.61	12/15/2025	102.824	102.1829742	101.5499713	100.9248376	100.3074267	99.69759573	99.09520539	98.50011975	97.91220617
231206A00012	12/6/2023	4.31	12/6/2028	116.43242	112.5973485	108.9121375	105.3700766	101.9647935	98.69023754	95.54066156	92.51060457	89.59487585
231206A00016	12/6/2023	4.74	6/6/2025	100.45101	100.348068	100.2453494	100.1428511	100.0405723	99.93851242	99.83667061	99.73504615	99.63363833
231206A00044	12/8/2023	4.71	12/8/2025	102.74386	102.1232069	101.5100687	100.9043134	100.3058081	99.71442268	99.13003056	98.55250792	97.9817339
231206A00046	12/6/2023	4.39	12/6/2027	112.17082	109.445385	106.8013089	104.2356531	101.7456067	99.32847876	96.98169279	94.7027806	92.48937713
231206A00047	12/6/2023	4.31	12/6/2028	116.43242	112.5973485	108.9121375	105.3700766	101.9647935	98.69023754	95.54066156	92.51060457	89.59487585
231206A00070	12/6/2023	4.71	12/8/2025	102.74386	102.1232069	101.5100687	100.9043134	100.3058081	99.71442268	99.13003056	98.55250792	97.9817339
231207A00010	12/7/2023	4.38	12/7/2027	112.15699	109.4289484	106.7824089	104.2144244	101.7221765	99.30296769	96.95421484	94.67344376	92.4582837
231207A00011	12/7/2023	4.28	12/7/2028	116.33427	112.4981616	108.8120663	105.2692583	101.863355	98.58829611	95.43832536	92.40797355	89.49204225
231207A00014	12/7/2023	4.7	12/8/2025	102.7377	102.1170688	101.5039518	100.8982176	100.299733	99.70836832	99.1239967	98.54649438	97.97574052
231207A00016	12/7/2023	4.47	12/7/2026	107.45001	105.8028921	104.1894563	102.6087332	101.0597938	99.54174397	98.05372309	96.59490223	95.16448274
231207A00034	12/7/2023	4.7	12/5/2025	102.69789	102.0857165	101.4808557	100.8831784	100.292557	99.70886689	99.13198636	98.56179657	97.99818144

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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
231207A00035	12/7/2023	4.47	12/7/2026	107.45001	105.8028921	104.1894563	102.6087332	101.0597938	99.54174397	98.05372309	96.59490223	95.16448274
231208A00020	3/15/2024	4.85	6/16/2025	100.57717	100.446491	100.3161649	100.186192	100.0565707	99.92729959	99.79837723	99.66980216	99.54157293
231208A00021	3/15/2024	4.75	9/15/2025	101.68139	101.2967624	100.9150591	100.5362463	100.160291	99.78716092	99.4168241	99.04924914	98.68440509
231208A00022	3/15/2024	4.69	12/15/2025	102.82425	102.1838724	101.5514964	100.9269732	100.3101568	99.70090498	99.09907874	98.50454263	97.91716443
231208A00023	3/15/2024	4.61	3/16/2026	103.97648	103.0779185	102.1949453	101.3271543	100.4741557	99.63557281	98.8110417	98.00021062	97.2027395
231211A00057	12/11/2023	4.58	12/11/2029	121.99452	116.975624	112.1983395	107.6496708	103.3173961	99.19001507	95.25670229	91.50726358	87.93209578
231212A00009	12/12/2023	5.01	6/12/2025	100.54713	100.4275697	100.3083056	100.1893392	100.0706695	99.95229527	99.83421533	99.71642857	99.59893386
231212A00016	12/12/2023	4.59	12/7/2026	107.64523	105.9964738	104.3814234	102.7991144	101.248617	99.72903629	98.23951098	96.77921139	95.3473382
231212A00018	12/12/2023	4.5	12/6/2027	112.46148	109.7321785	107.0843246	104.5149771	102.0213224	99.60066695	97.25043183	94.96814647	92.75144353
231212A00067	12/12/2023	4.82	12/12/2025	102.86604	102.2338434	101.6094484	100.9927062	100.3834765	99.78162216	99.18700959	98.59950832	98.01899101
231213A00019	12/13/2023	4.97	6/13/2025	100.55498	100.4326339	100.3106045	100.1888864	100.0674785	99.94637951	99.82558821	99.7051034	99.58492387
231213A00049	12/13/2023	4.14	12/13/2028	115.88922	112.0443328	108.3504274	104.8007072	101.3887239	98.10835659	94.95379261	91.91951042	89.00026303
231214A00003	12/14/2023	4.7	6/16/2025	100.5576	100.4269357	100.2966291	100.1666757	100.0370739	99.90782223	99.77891926	99.65036354	99.52215361
231214A00036	12/14/2023	4.19	12/14/2026	107.08634	105.4230805	103.7940937	102.1983874	100.635007	99.10303421	97.6015853	96.12980967	94.68688812
231214A00058	12/14/2023	4.69	6/13/2025	100.52077	100.3984584	100.2764615	100.154776	100.0334005	99.91233387	99.79157489	99.67112232	99.55097498
231214A00074	12/14/2023	4.69	6/13/2025	100.52077	100.3984584	100.2764615	100.154776	100.0334005	99.91233387	99.79157489	99.67112232	99.55097498
231214A00075	12/14/2023	4.49	12/15/2025	102.69718	102.0572528	101.425326	100.801248	100.1848729	99.57605852	98.97466594	98.38055974	97.79360779
231215A00004	12/15/2023	4.07	12/15/2028	115.65371	111.807511	108.1125659	104.562061	101.1495275	97.86882583	94.71412598	91.67989035	88.76085713
231215A00018	12/15/2023	4.19	12/15/2027	111.75091	109.0059904	106.3436268	103.760811	101.2546689	98.82245017	96.46152263	94.16936574	91.94356527
231218A00023	12/18/2023	4.76	6/18/2025	100.5895	100.453257	100.317401	100.1819266	100.0468324	99.91211659	99.77777762	99.64381386	99.5102237
231218A00046	12/18/2023	4.76	6/18/2025	100.5895	100.453257	100.317401	100.1819266	100.0468324	99.91211659	99.77777762	99.64381386	99.5102237
231218A00052	12/18/2023	4.54	12/18/2025	102.76743	102.11892	101.4786189	100.8463715	100.2220261	99.60543491	98.99645379	98.39494219	97.80076296
231219A00016	12/19/2023	4.27	12/18/2026	107.27144	105.5956122	103.9544606	102.3469755	100.7721859	99.22915792	97.71699311	96.23482689	94.78182681
231219A00017	12/19/2023	4.26	1/15/2027	107.62735	105.8714695	104.1530948	102.4710901	100.8243648	99.21187227	97.63260752	96.08560511	94.56993712
231219A00018	12/19/2023	4.25	2/16/2027	108.05066	106.1982657	104.387007	102.6156742	100.8831028	99.18817211	97.52980302	95.90695599	94.31862929
231219A00019	12/19/2023	4.17	12/15/2027	111.69756	108.9533563	106.2916922	103.7095599	101.2040857	98.77251994	96.41223072	94.120698	91.89550797
231219A00020	12/19/2023	4.16	2/1/2028	112.24244	109.3568806	106.5614703	103.8527908	101.2275795	98.68272122	96.21524105	93.82229622	91.50116936
231219A00021	12/19/2023	4.14	3/15/2028	112.70808	109.6907808	106.7712038	103.9456576	101.2106106	98.56268316	95.99864073	93.51538641	91.10995444
231219A00022	12/19/2023	4.13	4/14/2028	113.02916	109.9222948	106.9186957	104.0143583	101.2054549	98.48832757	95.85947951	93.31556708	90.85339214
231219A00023	12/19/2023	4.12	6/15/2028	113.72481	110.4310585	107.2517183	104.1821349	101.2178724	98.35470261	95.58859408	92.91570157	90.33235614
231219A00025	12/19/2023	4.06	12/15/2028	115.61681	111.7712818	108.0769928	104.527125	101.1152104	97.83510989	94.68099433	91.64732666	88.72884563
231219A00060	12/19/2023	4.22	6/21/2027	109.62731	107.4057877	105.2409867	103.131052	101.0742088	99.06875411	97.11305341	95.20553701	93.34469701
231220A00028	12/20/2023	4.13	12/20/2027	111.65033	108.8928375	106.2186043	103.624589	101.1078806	98.66569439	96.29536571	93.99434361	91.76018522

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
231220A00030	12/20/2023	4.48	12/22/2025	102.77946	102.1197857	101.468605	100.8257504	100.1910627	99.56438682	98.94557132	98.33446875	97.7309353
231220A00031	12/20/2023	4.23	12/21/2026	107.24485	105.5610068	103.9121156	102.2971572	100.7151489	99.1651457	97.64623866	96.15755326	94.69824765
231220A00032	12/20/2023	4.57	12/19/2025	102.79965	102.1482464	101.5051209	100.8701178	100.2430837	99.62386884	99.01232739	98.40831701	97.8116989
231221A00003	12/21/2023	4.39	12/22/2025	102.72053	102.0610716	101.4101049	100.7674624	100.1329849	99.5065173	98.88790823	98.27701026	97.6736796
231221A00006	12/21/2023	4.14	12/21/2026	107.09493	105.4123708	103.7647467	102.1510329	100.570247	99.02144476	97.50371782	96.01619219	94.55802656
231221A00008	12/21/2023	3.99	12/21/2028	115.42444	111.5655861	107.8590721	104.2980094	100.8758595	97.58641729	94.4237924	91.38239094	88.45689875
231221A00014	12/21/2023	4.14	6/21/2027	109.45345	107.2338501	105.070931	102.96284	100.9078036	98.90411977	96.95015507	95.04434075	93.18516987
231221A00022	12/21/2023	4.01	12/21/2028	114.16631	110.6353908	107.2418028	103.9793145	100.8420211	97.82432257	94.92090614	92.12672925	89.43700409
231221A00039	12/21/2023	3.99	12/21/2028	115.42444	111.5655861	107.8590721	104.2980094	100.8758595	97.58641729	94.4237924	91.38239094	88.45689875
231221A00086	12/21/2023	4.48	6/23/2025	100.61948	100.4692111	100.3194055	100.1700574	100.0211649	99.87272577	99.72473792	99.57719927	99.43010775
231221A00103	12/21/2023	4.3	12/30/2025	102.81275	102.1300104	101.4563493	100.7915854	100.1355431	99.48805156	98.84894424	98.21805898	97.59523773
231221A00104	12/21/2023	4.3	12/30/2025	102.81275	102.1300104	101.4563493	100.7915854	100.1355431	99.48805156	98.84894424	98.21805898	97.59523773
231222A00004	12/22/2023	4	12/22/2028	115.47254	111.6099867	107.9000058	104.3356899	100.9104869	97.61817943	94.45286532	91.40893986	88.48107876
231222A00039	12/22/2023	4.44	12/22/2025	102.75326	102.0936905	101.4426049	100.7998446	100.1652504	99.53866703	98.91994328	98.30893165	97.70548832
231226A00016	12/26/2023	3.92	12/26/2028	115.09354	111.315095	107.6870703	104.2025482	100.854972	97.63812772	94.54612324	91.5733696	88.71456329
231226A00024	12/26/2023	4.03	12/26/2028	115.62827	111.751597	108.0283926	104.4516906	101.0148858	97.71171145	94.53621929	91.48276163	88.54597409
231226A00027	12/26/2023	4.22	12/28/2026	107.32068	105.6169194	103.9487951	102.3152512	100.7152765	99.14789944	97.61218576	96.10723704	94.63218876
231226A00043	12/26/2023	4.46	12/26/2025	102.81679	102.1458563	101.4836996	100.8301449	100.1850252	99.54817758	98.91944362	98.29866873	97.68570227
231226A00095	12/26/2023	4.22	12/28/2026	107.32068	105.6169194	103.9487951	102.3152512	100.7152765	99.14789944	97.61218576	96.10723704	94.63218876
231226A00098	12/26/2023	4.67	6/26/2025	100.67152	100.5129927	100.3549693	100.1974482	100.0404271	99.88390346	99.72787504	99.57233945	99.41729436
231227A00005	12/27/2023	4.17	12/28/2026	107.23641	105.5333858	103.8659816	102.2331449	100.6338649	99.06717014	97.5321269	96.02783703	94.55343631
231227A00013	12/27/2023	4.44	6/27/2025	100.65895	100.4975286	100.336629	100.1762494	100.0163871	99.85703977	99.69820479	99.53987973	99.38206211
231227A00014	12/27/2023	4.29	12/26/2025	102.75655	102.0851585	101.4225598	100.7685788	100.123048	99.48580428	98.85668848	98.23554563	97.62222464
231227A00023	12/27/2023	3.98	12/27/2028	115.45317	111.5769227	107.8542472	104.2781722	100.8420835	97.53970566	94.36508285	91.31256019	88.37676674
231227A00026	12/27/2023	4.6	6/27/2025	100.67203	100.5107264	100.3499421	100.189676	100.0299253	99.87068779	99.71196086	99.55374209	99.39602905
231227A00027	12/27/2023	4.42	12/26/2025	102.79015	102.1193205	101.4572622	100.8038048	100.1587816	99.52202957	98.89339033	98.27270931	97.65983589
231227A00030	12/27/2023	4.44	6/27/2025	100.65895	100.4975286	100.336629	100.1762494	100.0163871	99.85703977	99.69820479	99.53987973	99.38206211
231227A00039	12/27/2023	4.6	6/27/2025	100.67203	100.5107264	100.3499421	100.189676	100.0299253	99.87068779	99.71196086	99.55374209	99.39602905
231228A00022	12/28/2023	4.61	6/27/2025	100.67364	100.5123347	100.3515485	100.1912804	100.0315279	99.87228842	99.71355957	99.5553389	99.39762396
231228A00023	12/28/2023	4.4	12/26/2025	102.77683	102.1060527	101.4440434	100.7906348	100.1456597	99.50895556	98.88036369	98.25972961	97.6469027
231228A00024	12/28/2023	4.15	12/28/2026	107.2027	105.4999723	103.8328562	102.2003024	100.6013002	99.03487841	97.50010336	95.99607703	94.52193533
231228A00025	12/28/2023	4.05	12/28/2027	111.52919	108.751047	106.0573175	103.4448965	100.9108132	98.45222682	96.06642008	93.75079253	91.50285479
231215A00026	1/17/2025	3.71	1/15/2027	106.67285	104.9255002	103.2155028	101.5417233	99.90307523	98.2985161	96.72704482	95.18769969	93.67955646

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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
231228A00026	12/28/2023	3.96	12/28/2028	115.3896	111.5117167	107.7875735	104.2101871	100.772932	97.46952234	94.29399238	91.24067827	88.30420067
231229A00017	12/29/2023	4.42	12/29/2025	102.82764	102.1483229	101.4779946	100.8164761	100.1635945	99.51918124	98.88307228	98.2551077	97.6351317
231229A00065	12/29/2023	4.6	7/29/2025	101.04749	100.7970107	100.547776	100.2997748	100.0529979	99.80743625	99.56308095	99.31992311	99.07795394
231229A00066	12/29/2023	4.6	7/29/2025	101.04749	100.7970107	100.547776	100.2997748	100.0529979	99.80743625	99.56308095	99.31992311	99.07795394
231229A00067	12/29/2023	4.6	7/29/2025	101.04749	100.7970107	100.547776	100.2997748	100.0529979	99.80743625	99.56308095	99.31992311	99.07795394
231229A00068	12/29/2023	4.42	12/29/2025	102.82764	102.1483229	101.4779946	100.8164761	100.1635945	99.51918124	98.88307228	98.2551077	97.6351317
231229A00070	12/29/2023	4.42	12/29/2025	102.82764	102.1483229	101.4779946	100.8164761	100.1635945	99.51918124	98.88307228	98.2551077	97.6351317
231229A00071	12/29/2023	4.42	12/29/2025	102.82764	102.1483229	101.4779946	100.8164761	100.1635945	99.51918124	98.88307228	98.2551077	97.6351317
240102A00029	1/2/2024	4.66	7/2/2025	100.74079	100.5655428	100.3909062	100.2168778	100.0434544	99.87063288	99.69841012	99.52678298	99.35574838
240102A00055	1/2/2024	4.23	1/4/2027	107.43005	105.7061209	104.0185346	102.3662079	100.7480999	99.16321051	97.61057887	96.08928122	94.5984291
240103A00003	1/3/2024	4.71	7/3/2025	100.76159	100.5835533	100.4061469	100.22937	100.0532191	99.87769095	99.70278217	99.52848949	99.35480965
240103A00004	1/3/2024	4.48	1/5/2026	102.95749	102.2582507	101.5685279	100.8881291	100.2168657	99.55455436	98.90101672	98.25607897	97.61957195
240103A00005	1/3/2024	4.28	1/4/2027	107.51529	105.7906126	104.1022902	102.4492408	100.8304228	99.24483607	97.69151931	96.16954843	94.67803467
240103A00010	1/3/2024	4.84	1/18/2039	152.51204	136.7793565	122.9651954	110.819389	100.1258885	90.69793353	82.37393217	75.01393961	68.4966461
240103A00011	1/3/2024	4.84	1/18/2039	152.51204	136.7793565	122.9651954	110.819389	100.1258885	90.69793353	82.37393217	75.01393961	68.4966461
240103A00018	1/3/2024	4.28	1/4/2027	107.51529	105.7906126	104.1022902	102.4492408	100.8304228	99.24483607	97.69151931	96.16954843	94.67803467
240103A00023	3/29/2024	4.45	7/29/2025	101.01001	100.7595989	100.5104263	100.2624868	100.0157714	99.77027101	99.52597673	99.28287968	99.04097108
240103A00025	1/3/2024	4.48	1/2/2026	102.91904	102.2282782	101.5467981	100.8744176	100.2109552	99.55623429	98.91008269	98.27233284	97.6428215
240103A00026	1/3/2024	4.28	1/4/2027	107.51529	105.7906126	104.1022902	102.4492408	100.8304228	99.24483607	97.69151931	96.16954843	94.67803467
240103A00032	3/29/2024	4.45	7/29/2025	101.01001	100.7595989	100.5104263	100.2624868	100.0157714	99.77027101	99.52597673	99.28287968	99.04097108
240103A00033	3/29/2024	4.45	7/29/2025	101.01001	100.7595989	100.5104263	100.2624868	100.0157714	99.77027101	99.52597673	99.28287968	99.04097108
240103A00034	3/29/2024	4.45	7/29/2025	101.01001	100.7595989	100.5104263	100.2624868	100.0157714	99.77027101	99.52597673	99.28287968	99.04097108
240103A00035	3/29/2024	4.45	7/29/2025	101.01001	100.7595989	100.5104263	100.2624868	100.0157714	99.77027101	99.52597673	99.28287968	99.04097108
240103A00039	6/28/2024	4.11	10/29/2025	101.91815	101.4110308	100.908963	100.4118678	99.91967155	99.43230199	98.94968839	98.47176135	97.99845283
240103A00042	6/28/2024	4.11	10/29/2025	101.91815	101.4110308	100.908963	100.4118678	99.91967155	99.43230199	98.94968839	98.47176135	97.99845283
240103A00043	6/28/2024	4.11	10/29/2025	101.91815	101.4110308	100.908963	100.4118678	99.91967155	99.43230199	98.94968839	98.47176135	97.99845283
240103A00044	6/28/2024	4.11	10/29/2025	101.91815	101.4110308	100.908963	100.4118678	99.91967155	99.43230199	98.94968839	98.47176135	97.99845283
240103A00045	6/28/2024	4.11	10/29/2025	101.91815	101.4110308	100.908963	100.4118678	99.91967155	99.43230199	98.94968839	98.47176135	97.99845283
240103A00047	6/28/2024	4.05	1/29/2026	102.93821	102.1723512	101.4178951	100.6745924	99.94219697	99.22046979	98.50917886	97.80809887	97.11701094
240103A00049	6/28/2024	4.05	1/29/2026	102.93821	102.1723512	101.4178951	100.6745924	99.94219697	99.22046979	98.50917886	97.80809887	97.11701094
240103A00050	6/28/2024	4.05	1/29/2026	102.93821	102.1723512	101.4178951	100.6745924	99.94219697	99.22046979	98.50917886	97.80809887	97.11701094
240103A00051	6/28/2024	4.05	1/29/2026	102.93821	102.1723512	101.4178951	100.6745924	99.94219697	99.22046979	98.50917886	97.80809887	97.11701094
240103A00052	6/28/2024	4.05	1/29/2026	102.93821	102.1723512	101.4178951	100.6745924	99.94219697	99.22046979	98.50917886	97.80809887	97.11701094

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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	104.61715	103.4216361	102.2534956	101.1117963	99.9956468	98.90419584	97.83662942	96.79216902	95.77006963
240103A00056	6/28/2024	3.94	6/29/2026	104.61715	103.4216361	102.2534956	101.1117963	99.9956468	98.90419584	97.83662942	96.79216902	95.77006963
240103A00057	6/28/2024	3.94	6/29/2026	104.61715	103.4216361	102.2534956	101.1117963	99.9956468	98.90419584	97.83662942	96.79216902	95.77006963
240103A00058	6/28/2024	3.94	6/29/2026	104.61715	103.4216361	102.2534956	101.1117963	99.9956468	98.90419584	97.83662942	96.79216902	95.77006963
240103A00059	6/28/2024	3.94	6/29/2026	104.61715	103.4216361	102.2534956	101.1117963	99.9956468	98.90419584	97.83662942	96.79216902	95.77006963
240104A00068	1/4/2024	4.76	7/3/2025	100.77048	100.5924258	100.415008	100.2382197	100.0620575	99.88651795	99.71159787	99.53729392	99.36360284
240104A00070	12/13/2024	3.83	3/5/2027	107.50102	105.6036384	103.7493249	101.9368513	100.1650307	98.43271734	96.73880501	95.08222533	93.46194626
240105A00017	1/5/2024	4.29	1/5/2027	107.54571	105.8180175	104.1267901	102.4709378	100.8494146	99.26121595	97.70537666	96.18096881	94.68710002
240105A00028	1/5/2024	4.76	7/7/2025	100.81925	100.6300773	100.44162	100.2538783	100.0668481	99.88052538	99.69490601	99.50998597	99.32576128
240108A00020	1/8/2024	4.68	7/8/2025	100.81612	100.6241841	100.4329862	100.2425259	100.0527988	99.86380056	99.67552701	99.48797389	99.30113702
240108A00022	1/8/2024	4.46	1/8/2026	102.9819	102.2742344	101.5763192	100.8879528	100.20894	99.53909078	98.87822015	98.22614817	97.58269966
240108A00023	1/8/2024	4.27	1/8/2027	107.5515	105.8155199	104.1163143	102.4527778	100.8238511	99.22851738	97.66579949	96.13475843	94.63449133
240108A00037	1/8/2024	4.69	7/8/2025	100.81804	100.6260971	100.4348967	100.2444338	100.0547041	99.86570336	99.67742728	99.48987163	99.30303225
240108A00038	1/8/2024	4.13	1/8/2029	116.14752	112.224718	108.4583549	104.8412735	101.3666898	98.0281705	94.81961257	91.735224	88.76950593
240108A00040	1/8/2024	4.13	1/8/2029	116.14752	112.224718	108.4583549	104.8412735	101.3666898	98.0281705	94.81961257	91.735224	88.76950593
240108A00041	1/9/2024	4.13	1/9/2029	116.15879	112.2329749	108.4638103	104.8441289	101.3671331	98.026377	94.81574598	91.72943715	88.76194159
240109A00006	1/9/2024	4.71	7/9/2025	100.83393	100.6391945	100.4452278	100.2520208	100.0595689	99.86786757	99.67691244	99.48669907	99.29722308
240109A00025	1/9/2024	4.47	1/9/2026	103.00171	102.291187	101.590495	100.8994277	100.2177873	99.54538171	98.88202369	98.22753122	97.58172709
240109A00031	1/9/2024	4.73	7/9/2025	100.83781	100.6430759	100.449104	100.2558917	100.0634346	99.87172808	99.68076777	99.49054924	99.3010681
240109A00042	1/9/2024	3.99	1/9/2029	115.95349	112.0230628	108.2497204	104.6262597	101.1458565	97.80204006	94.58867247	91.49992927	88.53028129
240109A00048	1/9/2024	4.12	1/9/2029	116.12119	112.1960722	108.427588	104.808567	101.3322123	97.99207893	94.78205279	91.6963317	88.72940734
240110A00001	1/10/2024	4.42	1/9/2026	102.96647	102.2560896	101.5555341	100.8646019	100.1830954	99.51082231	98.84759559	98.19323316	97.54755786
240110A00010	1/10/2024	4.42	1/12/2026	103.00442	102.2855553	101.5767511	100.8777976	100.1884902	99.50862964	98.83802243	98.17648016	97.52381955
240110A00021	1/10/2024	4.13	1/10/2028	111.89887	109.0795333	106.3467432	103.6972717	101.1280397	98.63610478	96.21865412	93.87299756	91.59656137
240110A00029	1/10/2024	4.5	7/10/2025	100.8201	100.6224588	100.4256025	100.2295305	100.034238	99.83972024	99.64597264	99.45299049	99.26076918
240111A00016	1/11/2024	4.63	7/11/2025	100.84204	100.6417662	100.442298	100.2436339	100.0457691	99.84869863	99.65241772	99.45692152	99.26220528
240111A00021	1/11/2024	4.47	7/11/2025	100.8258	100.6253715	100.4257598	100.2269547	100.0289514	99.83174482	99.63533019	99.43970262	99.2448573
240111A00025	1/11/2024	4.19	1/11/2027	107.4535	105.7101514	104.0038716	102.3335397	100.6980838	99.09647462	97.52772384	95.99088165	94.48503497
240111A00031	1/11/2024	4.19	1/11/2027	107.4535	105.7101514	104.0038716	102.3335397	100.6980838	99.09647462	97.52772384	95.99088165	94.48503497
240111A00046	12/13/2024	3.68	3/19/2027	107.38045	105.4458838	103.5560384	101.7096163	99.90536298	98.14206834	96.41856481	94.73372557	93.0864629
240112A00022	1/12/2024	4.24	1/12/2026	102.87608	102.1577177	101.4494157	100.7509594	100.0621443	99.3827714	98.71264709	98.05158311	97.39939624
240112A00033	1/12/2024	4.46	7/11/2025	100.80806	100.607833	100.4084114	100.2097938	100.0119754	99.81495116	99.61871634	99.42326609	99.22859565
240112A00034	1/12/2024	4.46	7/11/2025	100.80806	100.607833	100.4084114	100.2097938	100.0119754	99.81495116	99.61871634	99.42326609	99.22859565

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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
240112A00036	1/12/2024	4.07	1/12/2027	107.25934	105.5149743	103.8077489	102.1365391	100.5002692	98.89790682	97.3284603	95.7909769	94.28454075
240112A00040	1/12/2024	4.24	1/12/2026	102.87608	102.1577177	101.4494157	100.7509594	100.0621443	99.3827714	98.71264709	98.05158311	97.39939624
240112A00044	1/12/2024	4.24	1/12/2026	102.87608	102.1577177	101.4494157	100.7509594	100.0621443	99.3827714	98.71264709	98.05158311	97.39939624
240112A00047	1/12/2024	4.46	7/14/2025	100.84214	100.6335608	100.4258555	100.2190224	100.0130558	99.80795023	99.60370027	99.40030047	99.19774545
240112A00050	1/12/2024	4.3	7/11/2025	100.79181	100.5914347	100.3918696	100.1931111	99.99515417	99.7979939	99.6016254	99.40604381	99.21124434
240112A00052	1/12/2024	4.07	1/12/2027	107.25934	105.5149743	103.8077489	102.1365391	100.5002692	98.89790682	97.3284603	95.7909769	94.28454075
240116A00006	1/16/2024	4.5	7/16/2025	100.87341	100.6592467	100.4460046	100.2336809	100.0222695	99.81176453	99.60215999	99.39345009	99.18562902
240116A00083	1/16/2024	4.53	7/16/2025	100.87983	100.6656501	100.4523989	100.2400659	100.0286454	99.8181312	99.60851754	99.39979854	99.19196842
240117A00021	1/17/2024	4.06	1/17/2029	116.30774	112.3481431	108.5475136	104.8985304	101.3942548	98.02810937	94.79385722	91.68558159	88.69766743
240117A00023	1/17/2024	4.13	1/19/2027	107.59683	105.8277131	104.0966087	102.4023572	100.7438467	99.12001	97.52982311	95.97230242	94.44650288
240117A00054	1/17/2024	4.22	1/18/2028	112.24164	109.3952977	106.6368705	103.9630582	101.3707119	98.85682365	96.41851925	94.05305079	91.75779027
240118A00020	1/18/2024	4.25	2/18/2027	108.07923	106.2204786	104.4031085	102.625908	100.8877124	99.1874002	97.5238909	95.89614322	94.3031533
240119A00003	1/19/2024	4.68	7/21/2025	100.97173	100.7435673	100.5164436	100.2903566	100.065299	99.84126383	99.618244	99.3962326	99.17522272
240119A00007	1/19/2024	4.23	1/19/2029	116.65037	112.6872314	108.8831322	105.2307424	101.7231206	98.35368735	95.11620353	92.00475048	89.01371138
240119A00024	1/19/2024	4.49	1/20/2026	103.15709	102.4153638	101.6843361	100.9637745	100.2534548	99.55315954	98.86267709	98.18180187	97.51033399
240119A00028	1/19/2024	4.48	1/13/2026	103.06002	102.3381539	101.6264306	100.9246358	100.2325624	99.550009	98.87677973	98.21268408	97.55753669
240119A00029	1/19/2024	4.3	1/13/2027	107.66997	105.9192047	104.2057463	102.5284672	100.8862853	99.27816237	97.70310115	96.16014352	94.64836851
240119A00044	1/23/2024	4.23	1/23/2029	116.69658	112.7213069	108.9059454	105.2431082	101.7257992	98.34738772	95.10158726	91.9824351	88.98427343
240122A00002	1/22/2024	4.66	7/22/2025	100.97909	100.7481437	100.5182606	100.2894382	100.0616691	99.83494588	99.60926142	99.38460851	99.16098002
240122A00005	1/22/2024	4.45	1/22/2026	103.15315	102.4058726	101.6694532	100.9436536	100.2282447	99.52300428	98.82771623	98.14217059	97.46616327
240122A00006	1/22/2024	4.25	1/22/2027	107.70283	105.9270224	104.189462	102.4889799	100.8244536	99.19480642	97.59900507	96.03605728	94.50500983
240122A00016	1/22/2024	4.66	7/22/2025	100.97909	100.7481437	100.5182606	100.2894382	100.0616691	99.83494588	99.60926142	99.38460851	99.16098002
240122A00050	1/22/2024	4.25	1/22/2027	107.70283	105.9270224	104.189462	102.4889799	100.8244536	99.19480642	97.59900507	96.03605728	94.50500983
240123A00037	1/23/2024	4.2	1/17/2029	116.51378	112.5588359	108.7624303	105.1172667	101.6164334	98.25337851	95.02188867	91.91606917	88.9303255
240123A00057	1/23/2024	4.48	1/23/2026	103.18819	102.4379853	101.6987197	100.9701523	100.2520518	99.5441935	98.84635896	98.15833603	97.47991849
240125A00007	1/25/2024	4.27	1/25/2027	107.77789	105.9931439	104.2469747	102.5381963	100.8656726	99.22831359	97.62507356	96.05494846	94.51697396
240125A00040	1/25/2024	4.24	12/15/2026	107.18192	105.5151021	103.8826632	102.2836086	100.716979	99.1818523	97.67734087	96.20259044	94.75677832
240125A00061	1/25/2024	4.64	7/25/2025	101.01006	100.7707381	100.532561	100.2955177	100.0596	99.82480001	99.59110971	99.35852122	99.12702672
240125A00068	1/25/2024	4.11	1/25/2028	112.25362	109.3824305	106.6005354	103.9045597	101.2912827	98.75762937	96.30066217	93.91757401	91.60568116
240125A00069	1/25/2024	4.11	1/25/2028	112.25362	109.3824305	106.6005354	103.9045597	101.2912827	98.75762937	96.30066217	93.91757401	91.60568116
240126A00031	1/26/2024	4.31	1/26/2026	103.15869	102.3994569	101.6514251	100.914345	100.1879771	99.47208893	98.7664545	98.07085436	97.3850753
240126A00032	1/26/2024	4.31	1/26/2026	103.15869	102.3994569	101.6514251	100.914345	100.1879771	99.47208893	98.7664545	98.07085436	97.3850753
240129A00049	1/29/2024	4.48	7/29/2025	101.03714	100.7864697	100.537041	100.2888492	100.0418851	99.79613965	99.55160379	99.30826862	99.06612529

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240130A00034	1/30/2024	4.43	10/30/2025	102.13185	101.6208443	101.1149548	100.6141055	100.1182211	99.62722804	99.14105427	98.659629	98.18288289
240130A00044	1/30/2024	4.14	1/30/2029	116.43373	112.443705	108.6149309	104.9399262	101.411605	98.02325335	94.7685078	91.64133417	88.63600842
240130A00047	1/30/2024	4.01	1/30/2029	116.26377	112.2683079	108.4345657	104.7550263	101.2225749	97.83047087	94.57232576	91.4420821	88.43399408
240130A00057	1/30/2024	4.15	1/29/2027	107.764	105.9657955	104.2066833	102.4854566	100.8009569	99.15207364	97.53774119	95.95693696	94.40867902
240130A00059	1/30/2024	4.33	1/30/2026	103.22423	102.4535692	101.6944322	100.9465622	100.2097097	99.4836322	98.76809453	98.06286818	97.36773127
240130A00068	1/30/2024	4.17	1/30/2029	116.5483	112.5561088	108.7252313	105.0481858	101.5178836	98.12760895	94.87099599	91.74200854	88.73492059
240130A00070	1/30/2024	4.33	1/30/2026	103.22423	102.4535692	101.6944322	100.9465622	100.2097097	99.4836322	98.76809453	98.06286818	97.36773127
240130A00089	1/30/2024	4.17	1/30/2029	116.5483	112.5561088	108.7252313	105.0481858	101.5178836	98.12760895	94.87099599	91.74200854	88.73492059
240131A00013	1/31/2024	4.13	2/1/2027	107.62255	105.8196786	104.0561099	102.3306276	100.6420687	98.989318	97.37130552	95.78700418	94.23542761
240131A00014	1/31/2024	4.04	1/31/2029	116.06285	112.0770379	108.2524834	104.5816941	101.057578	97.6734159	94.42283966	91.29981087	88.29860175
240131A00015	1/31/2024	4.02	1/31/2029	111.06752	108.3275226	105.6821982	103.1274805	100.6595089	98.27461766	95.96932434	93.74031938	91.58445606
240131A00022	3/1/2024	4.13	3/1/2027	108.01183	106.1205252	104.271906	102.4647626	100.6979248	98.97026241	97.28068442	95.6281367	94.01160085
240131A00033	1/31/2024	4.18	1/30/2026	103.10975	102.33957	101.5809104	100.8335129	100.0971278	99.37151296	98.65643315	97.95165998	97.25697164
240131A00034	1/31/2024	4	1/29/2027	107.49764	105.7018668	103.9451444	102.2262636	100.5440673	98.89744591	97.28533506	95.70671324	94.16059955
240131A00036	1/31/2024	4.51	7/31/2025	101.048	100.7919785	100.5372541	100.2838137	100.0316476	99.78074625	99.53110021	99.28270008	99.0355366
240131A00039	1/31/2024	4.22	7/31/2026	105.35629	104.0662794	102.8079518	101.5801512	100.3817754	99.21177457	98.06914839	96.95294308	95.86224874
240131A00059	1/31/2024	4.57	7/31/2025	101.06332	100.8072751	100.552525	100.2990589	100.0468673	99.79594047	99.54626907	99.29784368	99.05065503
240131A00076	1/31/2024	4.35	1/30/2026	103.17873	102.409069	101.6509095	100.903992	100.1680676	99.44289486	98.72823916	98.02387279	97.32957452
240131A00080	1/31/2024	4.16	1/29/2027	107.63598	105.8415184	104.0860284	102.3683089	100.6872058	99.04161271	97.4304681	95.85275318	94.30748961
240201A00003	2/1/2024	4.17	2/2/2026	103.13885	102.3602098	101.5933417	100.83798	100.0938669	99.36075236	98.63839358	97.92655495	97.22500766
240201A00023	2/1/2024	4.5	8/1/2025	101.05714	100.7983426	100.5408704	100.2847121	100.0298579	99.77629767	99.52402173	99.2730203	99.02328376
240201A00027	2/1/2024	3.83	2/1/2029	115.59768	111.6089359	107.7819796	104.1092846	100.5837258	97.19855284	93.9473679	90.82410486	87.82300973
240201A00029	2/1/2024	4.52	8/1/2025	101.0623	100.8034968	100.5460159	100.2898489	100.034986	99.7814172	99.52913266	99.27812267	99.0283776
240201A00038	2/1/2024	4.3	2/2/2026	103.17768	102.399698	101.6334654	100.8787174	100.135197	99.40265474	98.6808487	97.96954386	97.26851207
240201A00040	2/1/2024	4.08	2/1/2030	120.17208	115.0479562	110.1775125	105.5467365	101.1424706	96.95235648	92.96478121	89.16882795	85.55422993
240201A00042	2/1/2024	4.24	2/1/2033	130.49766	121.9256362	114.0009283	106.6707549	99.88692069	93.60539408	87.78592602	82.39170552	77.3890484
240201A00043	2/1/2024	4.27	2/1/2034	133.64919	123.919685	115.0057763	106.8339706	99.33779352	92.45708016	86.13734434	80.32921391	74.98792506
240201A00052	2/1/2024	4.5	8/1/2025	101.05714	100.7983426	100.5408704	100.2847121	100.0298579	99.77629767	99.52402173	99.2730203	99.02328376
240201A00056	2/1/2024	4.3	2/2/2026	103.17768	102.399698	101.6334654	100.8787174	100.135197	99.40265474	98.6808487	97.96954386	97.26851207
240201A00061	2/1/2024	4.5	8/1/2025	101.05714	100.7983426	100.5408704	100.2847121	100.0298579	99.77629767	99.52402173	99.2730203	99.02328376
240201A00064	2/1/2024	4.51	8/1/2025	101.05972	100.8009197	100.5434431	100.2872805	100.0324219	99.77885743	99.52657719	99.27557148	99.02583068
240201A00065	2/1/2024	4.33	2/2/2026	103.20082	102.4227381	101.6564082	100.901564	100.1579484	99.42531194	98.70341266	97.99201555	97.29089243
240201A00072	8/1/2024	4.1	7/31/2025	100.98686	100.7222557	100.458988	100.1970496	99.93643051	99.67712082	99.41911071	99.16239049	98.90695055

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240202A00014	2/2/2024	4.51	8/1/2025	101.08001	100.8209499	100.5632199	100.3068078	100.0517035	99.79789698	99.54537834	99.29413781	99.04416571
240202A00016	2/2/2024	4.25	2/2/2027	107.85076	106.0427624	104.2742209	102.5439201	100.8506961	99.19343253	97.57105802	95.98254393	94.42690215
240202A00017	2/2/2024	4.23	8/3/2026	105.51053	104.2113197	102.9431384	101.7048774	100.4954807	99.31394203	98.15930125	97.03064222	95.92709008
240202A00029	2/2/2024	4.15	2/2/2029	116.50793	112.5074906	108.6690282	104.9850212	101.4483472	98.05225796	94.79035658	91.65657716	88.64516529
240202A00030	2/2/2024	4.32	2/3/2031	124.95581	118.648572	112.70922	107.1141881	101.8415484	96.87088986	92.18320534	87.76078681	83.58712961
240206A00017	2/6/2024	4.33	8/6/2027	110.45898	108.0997224	105.8033655	103.5677822	101.3909355	99.2708736	97.20572545	95.19369694	93.23306683
240206A00026	2/6/2024	4.59	8/6/2025	101.16147	100.8884397	100.6168879	100.3468071	100.0781852	99.81101037	99.54527087	99.28095507	99.01805146
240207A00006	2/7/2024	4.06	2/7/2029	116.5529	112.5273512	108.6655505	104.9598854	101.4031471	97.98850393	94.70947897	91.5599295	88.53402745
240207A00022	2/7/2024	4.25	2/7/2028	112.57091	109.6628875	106.8461415	104.1172287	101.4728568	98.90988024	96.42529316	94.01622169	91.67991719
240207A00025	2/8/2024	4.2	1/8/2029	116.41055	112.4828481	108.7117294	105.0900319	101.6109662	98.26809412	95.05530777	91.96681062	88.99709946
240207A00039	2/7/2024	4.55	8/7/2025	101.16264	100.8868375	100.6125464	100.3397571	100.0684574	99.79863497	99.53027765	99.26337345	98.99791052
240207A00040	2/7/2024	4.55	8/7/2025	101.16264	100.8868375	100.6125464	100.3397571	100.0684574	99.79863497	99.53027765	99.26337345	98.99791052
240208A00053	2/8/2024	4.58	2/9/2026	103.48582	102.6870591	101.9006615	101.1263436	100.3638281	99.61284616	98.87313711	98.14444809	97.42653375
240208A00055	2/8/2024	4.37	2/8/2027	108.15269	106.3236838	104.5348823	102.7850756	101.0730986	99.39783259	97.75820211	96.15317329	94.58175162
240209A00007	2/9/2024	4.5	12/9/2025	102.67646	102.0526345	101.4364147	100.8276578	100.2262284	99.63199464	99.04482755	98.46460135	97.89119323
240209A00019	2/9/2024	4.39	2/9/2027	108.20341	106.3708867	104.5786999	102.8256342	101.1105246	99.43225164	97.78973937	96.1819529	94.60789662
240209A00020	2/9/2024	4.58	2/9/2026	103.48582	102.6870591	101.9006615	101.1263436	100.3638281	99.61284616	98.87313711	98.14444809	97.42653375
240212A00029	2/12/2024	4.58	2/12/2026	103.52533	102.7180455	101.9233877	101.1410627	100.3707846	99.61227608	98.86526852	98.12950127	97.40472154
240213A00022	2/13/2024	4.6	8/13/2026	106.01561	104.6927524	103.3984482	102.1317748	100.8918471	99.67781823	98.48887698	97.32424628	96.18318126
240214A00001	2/14/2024	4.79	11/10/2025	102.41994	101.8780892	101.3419869	100.811544	100.2866712	99.76728064	99.25328669	98.7446053	98.2411542
240214A00007	2/14/2024	4.7	2/17/2026	103.68873	102.8667923	102.0579287	101.2618279	100.4781889	99.70672036	98.94713979	98.19917346	97.46255597
240214A00019	2/15/2024	4.41	1/26/2029	117.41666	113.4193429	109.5829829	105.9001318	102.3637378	98.96711852	95.70393885	92.56819067	89.55417365
240215A00013	2/15/2024	4.82	8/15/2025	101.3159	101.0179132	100.7216905	100.4272195	100.1344846	99.84347036	99.5541615	99.26654297	98.98059987
240215A00026	2/15/2024	4.48	2/10/2027	108.38079	106.5435754	104.746847	102.9893878	101.2700318	99.58765868	97.94119099	96.32959248	94.75186588
240215A00033	2/15/2024	4.35	2/16/2027	108.38381	106.5256002	104.7086852	102.9318533	101.1939345	99.49380279	97.83037381	96.20260316	94.60948448
240215A00046	4/1/2024	4.49	4/1/2027	109.10667	107.1191889	105.178353	103.2827842	101.4311534	99.62217933	97.85462649	96.12730338	94.43906048
240216A00012	2/16/2024	4.53	8/16/2027	111.05203	108.6580167	106.32839	104.0610005	101.8537875	99.70477359	97.61206073	95.57382622	93.58831924
240220A00031	2/20/2024	4.68	2/20/2026	103.71282	102.8824057	102.0653347	101.2612828	100.4699401	99.69100642	98.92419116	98.16921262	97.42579779
240221A00014	2/21/2024	4.53	2/22/2027	108.65194	106.7756024	104.9412217	103.1475891	101.3935369	99.67793939	97.99971099	96.3578045	94.75120948
240221A00015	2/21/2024	4.48	2/22/2028	113.41964	110.4547727	107.5840636	104.8039879	102.1111756	99.50240235	96.97458199	94.52475996	92.15010674
240223A00007	2/23/2024	4.81	8/22/2025	101.42567	101.1077841	100.791904	100.4780108	100.1660856	99.85610982	99.54806519	99.24193356	98.93769706
240226A00010	2/26/2024	4.53	7/15/2027	110.6259	108.3258158	106.0857671	103.9037392	101.777806	99.70612185	97.68691768	95.71849682	93.7992315
240226A00025	2/26/2024	4.43	2/26/2027	108.68041	106.7888134	104.9397739	103.1320754	101.3645452	99.63605177	97.94550289	96.29184404	94.67405684

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240227A00021	2/27/2024	4.97	8/27/2025	101.5164	101.184742	100.8552514	100.5279117	100.2027019	99.87960105	99.55858882	99.23964492	98.92274939
240229A00026	2/29/2024	4.74	2/27/2026	103.8574	103.006791	102.1701564	101.3471489	100.537437	99.74070029	98.95662825	98.18492034	97.42528547
240229A00027	2/29/2024	4.54	2/26/2027	108.73074	106.8414379	104.9945889	103.1889854	101.4234585	99.69688043	98.00816249	96.3562535	94.74013826
240301A00001	3/1/2024	5.03	6/2/2025	100.42165	100.3298842	100.2382926	100.1468711	100.0556191	99.96453611	99.87362173	99.78287547	99.69229684
240301A00023	3/1/2024	4.17	3/1/2029	117.25379	113.1464071	109.2084201	105.431955	101.8095441	98.33410313	94.9989101	91.79758449	88.72406837
240301A00024	3/1/2024	4.17	3/1/2029	117.25379	113.1464071	109.2084201	105.431955	101.8095441	98.33410313	94.9989101	91.79758449	88.72406837
240301A00025	3/1/2024	4.45	3/1/2027	108.6073	106.7103108	104.8561134	103.0434961	101.2712856	99.53834929	97.84359313	96.18596051	94.56443051
240305A00008	3/5/2024	4.84	9/5/2025	101.58796	101.2312256	100.8770015	100.5252627	100.1759829	99.82913641	99.48469775	99.14264185	98.80294399
240305A00010	3/5/2024	4.66	3/5/2026	103.87145	103.0040605	102.1512028	101.312512	100.4876369	99.67623742	98.87798494	98.09256125	97.31965842
240305A00011	3/5/2024	4.55	9/4/2026	106.25035	104.8751616	103.5245071	102.1977884	100.8944227	99.61384574	98.35551099	97.118889	95.90346669
240306A00006	3/6/2024	4.65	9/5/2025	101.54841	101.1914435	100.8369908	100.4850289	100.1355315	99.78847286	99.44382729	99.10156965	98.76167508
240306A00010	3/6/2024	4.22	3/6/2029	117.16995	113.0591345	109.1182041	105.3392411	101.7147412	98.23758663	94.901024	91.698644	88.62436199
240307A00022	3/7/2024	4.09	3/7/2029	117.00854	112.8889665	108.9400087	105.1536999	101.5224899	98.03921828	94.69709184	91.48966414	88.41081585
240308A00005	3/8/2024	4.03	3/8/2029	116.78406	112.6660304	108.7187078	104.9341172	101.304699	97.82328363	94.48306983	91.2776036	88.20075869
240308A00009	3/8/2024	4.74	9/8/2025	101.58998	101.2249353	100.8625287	100.5027269	100.1455019	99.79082598	99.43867176	99.08901235	98.74182119
240308A00011	3/8/2024	4.54	3/9/2026	103.82157	102.9432753	102.0798829	101.2310197	100.3963205	99.57543227	98.76801375	97.97373477	97.19227589
240308A00027	3/8/2024	4.23	3/8/2027	108.44432	106.5268027	104.6529921	102.8216384	101.031531	99.28150193	97.57042359	95.89720722	94.26080129
240308A00031	3/8/2024	4.46	9/16/2026	106.29475	104.8854177	103.5017774	102.143188	100.8090268	99.49869107	98.21159758	96.94718172	95.70489673
240311A00006	3/11/2024	4.6	3/11/2026	103.90051	103.0162635	102.1471174	101.2926883	100.4526038	99.62650429	98.81404193	98.01488044	97.22869448
240311A00009	3/11/2024	4.38	3/11/2027	108.61099	106.6864269	104.8058524	102.9680006	101.1716503	99.41562249	97.69877968	96.02002343	94.37829301
240311A00011	3/11/2024	4.89	7/11/2025	100.89401	100.6936641	100.4941245	100.2953893	100.0974535	99.90031239	99.703961	99.50839453	99.31360823
240311A00012	3/11/2024	4.8	9/11/2025	101.64983	101.2763486	100.9056285	100.537635	100.172338	99.80970771	99.44971496	99.09233089	98.73752711
240312A00009	3/12/2024	4.68	3/12/2026	103.98407	103.0966308	102.2243988	101.3669803	100.5239994	99.695093	98.87991008	98.07811117	97.28936794
240312A00013	3/12/2024	4.68	3/12/2026	103.98407	103.0966308	102.2243988	101.3669803	100.5239994	99.695093	98.87991008	98.07811117	97.28936794
240312A00015	3/12/2024	4.13	3/12/2029	117.22236	113.0845051	109.1185291	105.3163837	101.6704406	98.17346624	94.81859972	91.59933115	88.50948211
240312A00019	3/12/2024	4.87	9/12/2025	101.68873	101.3123966	100.9388614	100.5680939	100.2000632	99.83473915	99.47209167	99.11209134	98.75470912
240312A00020	3/12/2024	4.82	11/3/2025	102.34275	101.8205297	101.3036502	100.7920264	100.2855783	99.7842276	99.28789747	98.79651272	98.30999963
240312A00028	3/12/2024	4.87	9/12/2025	101.68873	101.3123966	100.9388614	100.5680939	100.2000632	99.83473915	99.47209167	99.11209134	98.75470912
240313A00007	3/13/2024	4.88	9/12/2025	101.69248	101.3161347	100.9425911	100.5718152	100.2037762	99.83844383	99.4757881	99.11577956	98.75838917
240313A00023	3/13/2024	4.68	3/13/2026	103.9977	103.1074152	102.2324247	101.3723406	100.5267834	99.69538669	98.87779616	98.0736693	97.28267484
240314A00012	3/14/2024	4.62	3/13/2026	104.01585	103.1244907	102.248465	101.3873771	100.5408464	99.7085055	98.88999893	98.0849832	97.29312609
240314A00013	3/14/2024	4.62	3/13/2026	104.01585	103.1244907	102.248465	101.3873771	100.5408464	99.7085055	98.88999893	98.0849832	97.29312609
240315A00015	3/15/2024	4.8	3/16/2026	104.14516	103.2457889	102.362013	101.4934291	100.639647	99.80028995	98.97499377	98.16340656	97.36518807

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240318A00014	3/18/2024	4.67	3/18/2026	104.12903	103.2231456	102.3330839	101.4584301	100.598786	99.7537668	98.9230008	98.10612886	97.30280384
240318A00015	3/18/2024	4.47	2/20/2029	117.97094	113.8865518	109.9692454	106.2112692	102.6052771	99.14430192	95.8217343	92.63130189	89.5670504
240318A00020	3/18/2024	4.48	3/19/2029	116.72604	112.9236136	109.277108	105.7791855	102.4228917	99.20163759	96.10917785	93.13959134	90.28726224
240319A00003	3/19/2024	4.65	3/19/2026	104.12494	103.2162768	102.3235341	101.4462922	100.5841494	99.73671743	98.90362135	98.08449892	97.27899999
240319A00004	3/19/2024	4.47	3/19/2027	109.0487	107.0949077	105.1862635	103.3214572	101.4992214	99.71833349	97.97761388	96.27592434	94.6121661
240319A00011	3/19/2024	5.12	5/1/2025	100.01868	100.0158927	100.0131119	100.0103334	100.0075574	100.0047838	100.0020126	99.99924383	99.99647745
240319A00012	3/19/2024	4.77	4/14/2026	104.52273	103.5404125	102.5766328	101.6308717	100.7026263	99.79141227	98.89676314	98.01822922	97.15537703
240319A00014	3/19/2024	4.44	3/19/2029	118.1873	114.0199855	110.0261152	106.1975477	102.5265654	99.00585117	95.62846574	92.38782624	89.2776859
240319A00021	3/19/2024	4.83	9/19/2025	101.79419	101.3978544	101.0046172	100.6144451	100.227302	99.84315281	99.46196261	99.08369717	98.70832278
240320A00010	3/20/2024	4.77	3/20/2036	144.56952	132.1315684	120.9433954	110.8705037	101.7936006	93.60680841	86.21609104	79.53787197	73.49781999
240321A00006	3/21/2024	4.88	9/22/2025	101.82147	101.4171098	101.0159704	100.6180152	100.2232063	99.83150642	99.44287885	99.05728744	98.6746966
240321A00007	3/21/2024	4.7	3/23/2026	104.15225	103.2332873	102.3305964	101.44375	100.572333	99.71594439	98.87419725	98.0467177	97.23314457
240321A00019	3/21/2024	4.88	9/22/2025	101.82147	101.4171098	101.0159704	100.6180152	100.2232063	99.83150642	99.44287885	99.05728744	98.6746966
240321A00026	3/21/2024	5.03	5/19/2025	100.24485	100.1920011	100.1392197	100.0865104	100.0338732	99.98130799	99.9288145	99.87639264	99.82404224
240322A00007	3/22/2024	4.67	3/23/2026	104.12504	103.2062041	102.3036454	101.4169295	100.5456414	99.68938015	98.84775882	98.02040358	97.20695329
240322A00008	3/22/2024	4.65	4/22/2026	104.5158	103.5111313	102.5258471	101.5593924	100.6112302	99.68084381	98.76773587	97.87142745	96.99145717
240322A00013	3/22/2024	4.18	3/22/2029	117.53433	113.3620733	109.3641767	105.5324215	101.8590241	98.33660648	94.95817263	91.71708709	88.60705432
240322A00014	3/22/2024	4.51	5/22/2026	104.86477	103.7729075	102.7038629	101.656929	100.6314237	99.62669299	98.64210904	97.67706924	96.73099482
240322A00015	3/22/2024	4.65	11/21/2025	102.53128	101.9579766	101.3911082	100.8305622	100.2762332	99.72801784	99.18581512	98.64952631	98.11905482
240322A00018	3/22/2024	4.34	3/22/2027	108.84065	106.8805936	104.9660142	103.0955851	101.2680248	99.4820975	97.73661106	96.03041521	94.36239973
240322A00029	3/22/2024	4.36	3/22/2027	108.87907	106.9186337	105.0036836	103.1328909	101.3049738	99.51869632	97.77286618	96.0663329	94.39798613
240322A00032	3/22/2024	4.67	3/23/2026	104.12504	103.2062041	102.3036454	101.4169295	100.5456414	99.68938015	98.84775882	98.02040358	97.20695329
240325A00023	3/25/2024	4.71	9/25/2025	101.82282	101.4097469	101.0000388	100.5936501	100.1905404	99.79067013	99.39400016	99.00049215	98.61010831
240325A00024	3/25/2024	4.71	9/25/2025	101.82282	101.4097469	101.0000388	100.5936501	100.1905404	99.79067013	99.39400016	99.00049215	98.61010831
240325A00027	4/1/2024	4.91	10/1/2025	101.95066	101.5210073	101.0949746	100.6725186	100.2535944	99.83815772	99.42616523	99.01757421	98.61234265
240325A00028	4/1/2024	4.91	10/1/2025	101.95066	101.5210073	101.0949746	100.6725186	100.2535944	99.83815772	99.42616523	99.01757421	98.61234265
240325A00040	3/25/2024	4.46	4/30/2027	109.44646	107.3728774	105.3498857	103.3759319	101.4495183	99.56920366	97.73360042	95.94137241	94.19123251
240325A00060	3/25/2024	4.57	3/25/2026	104.13459	103.2090892	102.3000926	101.40716	100.5298674	99.66780602	98.82058107	97.98781129	97.16912843
240326A00013	3/26/2024	4.91	9/26/2025	101.88547	101.4698516	101.0576301	100.6487639	100.2432122	99.84093471	99.44189183	99.04604462	98.65335476
240326A00042	3/26/2024	4.71	3/26/2026	104.2025	103.2748976	102.3638668	101.4689653	100.5897669	99.7258603	98.87684837	98.04234773	97.22198802
240327A00008	3/27/2024	4.72	10/1/2025	101.90329	101.4733552	101.0470533	100.6243354	100.2051566	99.78947247	99.37723943	98.96841461	98.56295585
240327A00014	3/27/2024	4.88	9/24/2025	101.84727	101.4372952	101.0306309	100.627236	100.2270711	99.83009746	99.43627689	99.04557187	98.65794546
240327A00016	3/27/2024	4.56	3/27/2026	104.15253	103.2213384	102.3068502	101.4086156	100.5262036	99.65919806	98.80719757	97.96981447	97.14667438

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240327A00025	3/27/2024	4.35	3/26/2027	108.91408	106.9422239	105.0163513	103.1351115	101.2972025	99.50136888	97.74639989	96.03112751	94.35442468
240327A00028	3/27/2024	4.4	3/27/2028	113.61569	110.5515032	107.5874779	104.719788	101.9447798	99.25895873	96.6589817	94.14164942	91.70389948
240328A00017	3/28/2024	4.6	3/30/2026	104.23021	103.2902327	102.3672526	101.4608151	100.5704778	99.69581401	98.83641211	97.99187469	97.16181804
240328A00018	3/28/2024	4.39	3/29/2027	109.03237	107.0510256	105.1160609	103.2261043	101.3798378	99.57599107	97.81333891	96.09069965	94.40693314
240328A00022	3/28/2024	4.3	3/28/2028	113.5826	110.5103848	107.5388005	104.6639993	101.8823032	99.19019505	96.58431015	94.061429	91.61847008
240328A00023	3/28/2024	4.22	3/28/2029	117.7627	113.5689432	109.5510669	105.7007515	102.0101184	98.4717008	95.07842019	91.82356417	88.7007655
240328A00026	3/28/2024	4.6	3/27/2026	104.18927	103.2579031	102.3432343	101.4448213	100.5622331	99.69505359	98.84288122	98.00532831	97.18202044
240328A00027	3/28/2024	4.39	3/29/2027	109.03237	107.0510256	105.1160609	103.2261043	101.3798378	99.57599107	97.81333891	96.09069965	94.40693314
240328A00031	3/28/2024	4.92	9/24/2025	101.86359	101.4535733	101.0468694	100.6434352	100.2432312	99.84621863	99.45235941	99.06161596	98.67395135
240328A00052	3/28/2024	4.34	3/28/2029	117.8972	113.7101064	109.6983523	105.853654	102.1681661	98.63445311	95.24546555	91.99451818	88.87526911
240328A00061	3/28/2024	4.35	3/28/2029	117.93698	113.7491074	109.7365944	105.8911605	102.2049593	98.67055451	95.2808958	92.02929717	88.90941596
240328A00063	3/28/2024	4.47	3/28/2030	122.69047	117.3416756	112.2646138	107.444003	102.8655033	98.51565046	94.38179744	90.45206099	86.71527155
240328A00064	3/28/2024	4.48	3/28/2031	126.40127	119.8947111	113.7758834	108.0195231	102.6021428	97.50189617	92.69845518	88.17289724	83.90760102
240328A00065	7/16/2024	4.46	7/16/2032	130.48907	122.4827766	115.0431239	108.1266315	101.6933885	95.70674248	90.13301585	84.94124913	80.10296753
240401A00003	4/1/2024	4.81	10/1/2025	101.94176	101.5117272	101.0853278	100.6625131	100.243238	99.8274582	99.41513007	99.00621074	98.60065804
240401A00004	4/1/2024	4.81	10/1/2025	101.94176	101.5117272	101.0853278	100.6625131	100.243238	99.8274582	99.41513007	99.00621074	98.60065804
240401A00006	4/1/2024	4.32	4/2/2029	117.27574	113.2736964	109.4395235	105.7651913	102.2430963	98.8660395	95.62720301	92.52012752	89.53869147
240401A00009	4/1/2024	4.79	4/1/2026	104.35952	103.414362	102.4863782	101.5751045	100.6800921	99.80090785	98.93713417	98.08836789	97.25421982
240401A00016	4/1/2024	4.47	4/1/2027	109.22938	107.2376926	105.2927961	103.3933061	101.537888	99.72525537	97.9541678	96.2234291	94.53188528
240401A00024	4/1/2024	4.97	10/1/2025	101.9763	101.5465835	101.120486	100.6979655	100.2789771	99.86347674	99.45142092	99.04276695	98.63747284
240401A00027	4/1/2024	4.82	4/1/2026	104.38749	103.4421872	102.5140641	101.6026529	100.7075047	99.82818645	98.96428036	98.11538328	97.28110602
240402A00015	4/2/2024	4.61	11/15/2027	112.46741	109.7981907	107.2073629	104.6921458	102.2498788	99.87801204	97.5741018	95.3358048	93.16087358
240402A00044	4/2/2024	4.83	4/2/2026	104.41096	103.4627532	102.5318246	101.6177084	100.7199514	99.83811681	98.9717831	98.12054358	97.28400569
240403A00002	4/3/2024	5.01	10/3/2025	102.02049	101.585124	101.1534786	100.7255067	100.3011617	99.88039748	99.46316884	99.04943128	98.63914107
240403A00006	4/3/2024	4.71	4/3/2026	104.3883	103.4363424	102.5018059	101.584214	100.6831081	99.79804632	98.92860221	98.07436446	97.23493607
240403A00008	4/3/2024	4.67	4/2/2027	109.47149	107.4775266	105.5304091	103.6287527	101.7712204	99.95652405	98.18342125	96.45071401	94.75724661
240403A00010	4/3/2024	4.54	4/5/2027	109.42259	107.4175515	105.4598754	103.5481472	101.6810088	99.85715127	98.07531314	96.33427797	94.63287252
240403A00013	4/3/2024	4.58	4/17/2028	114.42086	111.284384	108.2522687	105.3204573	102.4850745	99.74241672	97.0889444	94.52127317	92.03616632
240403A00018	4/3/2024	4.67	4/5/2027	109.51443	107.5114884	105.5557981	103.6459549	101.7806051	99.95844392	98.17821388	96.43870226	94.73873941
240403A00022	4/3/2024	4.53	4/3/2029	118.72707	114.5063868	110.4629657	106.5884032	102.8747419	99.31444176	95.90035584	92.62570769	89.48407021
240404A00004	4/4/2024	4.45	4/4/2029	118.41966	114.2021477	110.1619442	106.2906431	102.5802781	99.02330085	95.61255709	92.34126359	89.20298715
240404A00012	4/4/2024	4.46	4/4/2029	118.45964	114.2413369	110.2003672	106.3283236	102.6172386	99.05956328	95.6481423	92.37619173	89.23727758
240404A00014	4/4/2024	4.78	4/6/2026	104.42028	103.4608498	102.5191181	101.5945966	100.6868158	99.79532316	98.91968247	98.05947288	97.21428836

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240404A00015	4/4/2024	4.6	4/5/2027	109.37734	107.3757718	105.421428	103.5129055	101.6488513	99.82796146	98.04897903	96.31069197	94.61193127
240404A00019	6/3/2024	4.55	6/1/2027	110.06677	107.8976935	105.7829474	103.7207981	101.7095821	99.74770132	97.83362004	95.96586192	94.1430072
240404A00020	6/3/2024	4.55	6/1/2027	110.06677	107.8976935	105.7829474	103.7207981	101.7095821	99.74770132	97.83362004	95.96586192	94.1430072
240404A00021	4/4/2024	4.57	4/1/2031	123.99225	118.219055	112.7795816	107.6522893	102.8171541	98.2555505	93.95014674	89.88480772	86.04450613
240404A00022	4/4/2024	4.78	4/6/2026	104.42028	103.4608498	102.5191181	101.5945966	100.6868158	99.79532316	98.91968247	98.05947288	97.21428836
240404A00023	4/4/2024	4.51	4/24/2028	114.29988	111.1449841	108.0957344	105.1479979	102.2978273	99.54145174	96.87526803	94.29583232	91.79985189
240405A00004	4/5/2024	4.99	10/6/2025	102.0523	101.6085512	101.1686678	100.7326035	100.3003087	99.87173437	99.44683266	99.02555634	98.60785905
240405A00005	4/5/2024	4.81	4/6/2026	104.44866	103.4890872	102.5472125	101.6225497	100.7146294	99.82299909	98.94722242	98.08687853	97.24156135
240405A00006	4/5/2024	4.63	4/5/2027	109.43609	107.4339361	105.4790152	103.5699267	101.7053172	99.88388252	98.10436539	96.36555353	94.66627762
240405A00017	4/5/2024	4.5	4/5/2027	109.34419	107.3399375	105.3830322	103.4720601	101.6056633	99.78253357	98.0014096	96.26107539	94.56035806
240408A00015	4/8/2024	4.54	4/5/2029	118.79194	114.5641501	110.5141389	106.6334746	102.9141664	99.34864288	95.92972798	92.65061824	89.5048614
240408A00018	4/8/2024	4.87	10/6/2025	102.03429	101.59017	101.1499287	100.7135149	100.2808787	99.85197105	99.42674373	99.00514941	98.58714152
240408A00020	4/8/2024	4.86	4/8/2026	104.52444	103.5588911	102.6112523	101.68103	100.7677463	99.87094065	98.99016927	98.12500404	97.27503203
240408A00025	4/8/2024	5.03	10/8/2025	102.09716	101.6477468	101.2023075	100.7607854	100.3231289	99.88928733	99.4592107	99.03285005	98.6101572
240408A00026	4/8/2024	4.86	4/8/2026	104.52444	103.5588911	102.6112523	101.68103	100.7677463	99.87094065	98.99016927	98.12500404	97.27503203
240409A00021	4/9/2024	4.83	4/9/2026	104.51005	103.5417763	102.5915194	101.658778	100.7430702	99.84393146	98.96091427	98.09358696	97.24153321
240409A00035	4/9/2024	4.66	4/9/2027	109.55199	107.5372683	105.5703347	103.6497615	101.7741723	99.94224071	98.15268863	96.40428378	94.69583789
240410A00007	4/10/2024	4.64	4/10/2028	114.76407	111.6368379	108.613091	105.6888281	102.8602263	100.1236317	97.4755508	94.91264272	92.43171139
240410A00008	4/10/2024	4.56	4/10/2029	119.28304	115.021421	110.9397409	107.0294265	103.2823569	99.69083985	96.24758647	92.945688	89.77859387
240412A00017	4/12/2024	4.84	4/10/2026	104.61117	103.6384839	102.6839591	101.7470926	100.8273968	99.92440185	99.03765491	98.16671942	97.31117436
240415A00060	4/15/2024	5.06	4/15/2026	104.81833	103.8316667	102.8636698	101.9138124	100.9815869	100.0665047	99.16809498	98.28590401	97.41949451
240416A00017	4/16/2024	5.17	10/16/2025	102.27162	101.7995609	101.3318817	100.8685187	100.409412	99.95450295	99.503734	99.05704861	98.61439125
240416A00018	4/16/2024	5.04	4/16/2026	104.81365	103.8242082	102.8535392	101.9011106	100.9664105	100.0489463	99.14824336	98.2638443	97.39530837
240416A00019	4/16/2024	4.91	4/16/2027	110.14928	108.1085199	106.1165988	104.1720448	102.2734384	100.4194121	98.6086487	96.83987867	95.11187831
240416A00020	4/16/2024	4.85	4/17/2028	115.23465	112.0858993	109.0418194	106.0983415	103.2515802	100.4978227	97.83352019	95.25527973	92.75985624
240416A00030	4/16/2024	4.78	4/16/2027	110.05655	108.0136443	106.0196855	104.0731987	102.1727596	100.3169963	98.50458741	96.73425958	95.0047853
240417A00015	4/17/2024	4.76	4/16/2027	110.01674	107.9742348	105.9806732	104.0345758	102.1345186	100.2791301	98.46708892	96.69712193	94.96800184
240417A00016	4/17/2024	4.63	4/17/2029	119.65538	115.3657724	111.2580532	107.3235182	103.5539236	99.94146223	96.47873859	93.15874458	89.9748372
240417A00017	4/17/2024	4.63	4/17/2029	119.65538	115.3657724	111.2580532	107.3235182	103.5539236	99.94146223	96.47873859	93.15874458	89.9748372
240418A00004	4/18/2024	4.87	4/18/2031	128.96018	122.3169445	116.0720063	110.1992131	104.674268	99.4745858	94.57916447	89.9684657	85.62430585
240418A00012	4/18/2024	5.19	10/17/2025	102.29504	101.8201449	101.349678	100.8835778	100.4217836	99.96423551	99.51087508	99.06164479	98.61648818
240418A00019	4/18/2024	5.05	4/17/2026	104.83816	103.8457835	102.872291	101.9171419	100.9798201	100.0598288	99.15668944	98.26994106	97.39913937
240419A00026	4/23/2024	5.07	4/1/2026	104.62054	103.6740633	102.7447798	101.832223	100.9359435	100.0555081	99.19049857	98.34051158	97.50515763

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240422A00038	4/22/2024	5.03	10/22/2025	102.32603	101.836704	101.3520748	100.8720761	100.3966418	99.92570656	99.45920672	98.99707957	98.53926367
240422A00040	4/22/2024	4.85	10/22/2026	107.49662	105.9764017	104.4857187	103.0237857	101.5898423	100.1831546	98.80301375	97.44873508	96.11965702
240422A00041	4/22/2024	4.92	4/22/2026	104.86348	103.8558027	102.8675803	101.8982504	100.9472739	100.0141321	99.09832585	98.19937428	97.31681427
240423A00025	4/23/2024	5.28	6/30/2025	100.82195	100.6521299	100.482876	100.3141888	100.1460654	99.97850316	99.8114992	99.64505079	99.47915516
240423A00027	4/23/2024	4.93	3/31/2027	109.94843	107.9554185	106.0090798	104.1080397	102.2509701	100.4365908	98.66366715	96.93100859	95.23746632
240423A00028	4/23/2024	5.08	3/31/2026	104.61501	103.6713596	102.7447946	101.834857	100.9411016	100.063099	99.20043474	98.35270892	97.51953537
240423A00032	4/23/2024	5.06	4/20/2026	104.89231	103.8912416	102.9093751	101.9461605	101.0010689	100.0735913	99.16323738	98.26953516	97.39202976
240423A00034	4/23/2024	4.92	4/19/2027	110.21422	108.1642059	106.163451	104.2104612	102.303799	100.4420803	98.62397184	96.8481889	95.11349332
240424A00030	4/24/2024	4.89	4/21/2027	110.18416	108.1287255	106.1228135	104.1649184	102.2535913	100.3874372	98.56511242	96.78532254	95.04682002
240425A00010	4/25/2024	4.83	4/26/2027	110.30623	108.2320575	106.2082403	104.2332374	102.3055645	100.4237933	98.58654803	96.79250404	95.04038497
240425A00021	4/25/2024	4.83	4/26/2027	110.30623	108.2320575	106.2082403	104.2332374	102.3055645	100.4237933	98.58654803	96.79250404	95.04038497
240425A00028	4/25/2024	4.9	4/25/2028	115.49693	112.3209585	109.2512831	106.2837445	103.41437	100.6393647	97.95510259	95.35811811	92.84509782
240425A00029	4/25/2024	4.85	4/25/2029	120.29876	115.9823664	111.8495879	107.8916022	104.1000567	100.4670435	96.98507315	93.64705043	90.4462511
240425A00030	4/25/2024	4.85	4/25/2029	120.29876	115.9823664	111.8495879	107.8916022	104.1000567	100.4670435	96.98507315	93.64705043	90.4462511
240425A00032	4/25/2024	4.92	4/25/2030	125.28095	119.7859708	114.5734302	109.6272301	104.9322794	100.4744215	96.24037165	92.21765863	88.39457085
240425A00033	4/25/2024	4.96	4/27/2026	104.97689	103.9545535	102.9522153	101.9692914	101.0052209	100.0594641	99.1315019	98.22083474	97.32698149
240425A00034	4/25/2024	4.96	4/27/2026	104.97689	103.9545535	102.9522153	101.9692914	101.0052209	100.0594641	99.1315019	98.22083474	97.32698149
240426A00011	4/26/2024	5.17	10/27/2025	102.42549	101.9224448	101.4243552	100.931145	100.4427425	99.95907765	99.48008162	99.00568695	98.53582749
240426A00012	4/26/2024	4.92	4/27/2026	104.9367	103.9145789	102.9124549	101.9297423	100.9658803	100.0203292	99.09256998	98.18210314	97.2884476
240426A00024	4/26/2024	4.79	4/26/2029	119.05938	114.9594698	111.0332052	107.2721869	103.6684712	100.2145427	96.90328872	93.72797498	90.68222348
240426A00026	4/26/2024	5.05	4/30/2026	105.03016	104.0002806	102.9906872	102.0007819	101.0299919	100.0777666	99.14357639	98.22691161	97.32728165
240426A00029	4/26/2024	5.19	10/27/2025	102.43548	101.9324052	101.4342869	100.9410481	100.4526172	99.96892422	99.48990023	99.01547779	98.54559076
240426A00044	4/26/2024	4.78	4/26/2027	110.2053	108.132165	106.1093678	104.1353652	102.2086734	100.3278643	98.49156308	96.69844538	94.94723534
240429A00006	4/29/2024	4.86	10/29/2026	107.61624	106.0758159	104.5656748	103.0850025	101.633011	100.2089398	98.81205472	97.44164699	96.09703189
240429A00007	4/29/2024	5.04	10/29/2025	102.42782	101.9187294	101.4147038	100.9156723	100.4215608	99.93229678	99.4478091	98.96802797	98.49288498
240429A00008	4/29/2024	4.93	4/29/2026	104.97609	103.9481348	102.9403922	101.9522704	100.9831997	100.0326321	99.10004059	98.18491793	97.28677588
240429A00045	4/29/2024	5.1	8/5/2025	101.28665	101.0161637	100.7471319	100.4795411	100.2133798	99.9486363	99.68529937	99.4233577	99.16280017
240429A00052	4/29/2024	4.91	5/3/2027	110.40315	108.3113184	106.2706029	104.2794302	102.3362826	100.4396995	98.58827522	96.7806562	95.01553886
240430A00016	4/30/2024	5.08	10/30/2025	102.46199	101.9500088	101.4431526	100.9413435	100.4445063	99.95256731	99.46545428	98.98309643	98.50542431
240430A00017	4/30/2024	5.08	10/30/2025	102.46199	101.9500088	101.4431526	100.9413435	100.4445063	99.95256731	99.46545428	98.98309643	98.50542431
240430A00031	4/30/2024	5.36	5/1/2025	100.01961	100.0168234	100.014042	100.011263	100.0084865	100.0057123	100.0029406	100.0001712	99.9974043
240430A00034	4/30/2024	4.69	4/30/2029	120.06875	115.7325432	111.5817055	107.6072901	103.8008276	100.1543013	96.66012094	93.31109748	90.10041959
240430A00035	4/30/2024	4.94	4/30/2027	110.41998	108.3363094	106.3034357	104.3197927	102.3838773	100.4942429	98.64949678	96.84829802	95.08935477

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240501A00017	5/1/2024	5.13	5/1/2026	105.12628	104.0930786	103.0802812	102.087286	101.1135154	100.1584141	99.22144808	98.30210347	97.39988568
240501A00018	12/23/2024	4.83	12/23/2026	108.27418	106.5759485	104.9130204	103.2843626	101.68898	100.1259159	98.59425034	97.09309826	95.6216077
240501A00054	5/6/2024	4.79	5/4/2029	120.173	115.8329863	111.6786258	107.700947	103.8914603	100.2421308	96.74535122	93.39391683	90.18100203
240502A00013	5/2/2024	4.68	5/2/2028	115.1826	111.9851718	108.8955488	105.9094774	103.0229009	100.2319456	97.53291153	94.92226364	92.39662323
240502A00017	5/2/2024	4.81	5/2/2028	115.31918	112.1257192	109.0397805	106.0571273	103.1737178	100.3856927	97.68936543	95.08121352	92.55787016
240502A00030	5/2/2024	4.75	5/2/2029	119.98403	115.653545	111.5081514	107.5389157	103.7373814	100.0955445	96.6058262	93.26104878	90.05441146
240502A00048	5/2/2024	4.89	5/3/2027	110.36242	108.2710114	106.2307108	104.239945	102.2971964	100.4010047	98.54996423	96.74272185	94.97797411
240503A00009	5/3/2024	4.61	5/3/2029	119.42582	115.1037261	110.9665955	107.0054864	103.2119414	99.57795598	96.09595153	92.7587504	89.55955242
240503A00016	5/3/2024	4.72	5/3/2028	115.05741	111.865132	108.780438	105.7990868	102.9170309	100.1304059	97.43552014	94.82884676	92.30701477
240503A00022	5/3/2024	5.22	5/5/2025	100.07148	100.0575685	100.0436661	100.0297773	100.0159021	100.0020405	99.98819247	99.974358	99.96053706
240503A00023	5/3/2024	5.13	8/4/2025	101.26011	100.9926673	100.726647	100.4620329	100.1988139	99.93697902	99.67651724	99.41741777	99.15966991
240503A00024	5/3/2024	5.04	11/3/2025	102.4569	101.9343417	101.417123	100.9051624	100.3983799	99.89669722	99.40003756	98.90832565	98.42148774
240503A00029	10/21/2024	4.85	10/21/2025	102.18705	101.7013578	101.2202947	100.7437984	100.271804	99.8042476	99.34106674	98.88220001	98.42758717
240503A00035	5/3/2024	4.92	5/1/2026	104.91303	103.8809934	102.8693434	101.8774799	100.9048257	99.95082569	99.01494626	98.09667386	97.19551421
240503A00052	5/3/2024	5.22	5/1/2025	100.09465	100.0917282	100.0888134	100.0859012	100.0829914	100.0800843	100.0771796	100.0742775	100.0713778
240506A00011	5/6/2024	4.46	5/4/2029	119.18014	114.8504067	110.7063621	106.7390161	102.9398631	99.30085388	95.81436841	92.47319039	89.27048379
240506A00012	5/6/2024	5.04	11/6/2025	102.49874	101.9677343	101.4422493	100.9221948	100.4074868	99.89804305	99.39378284	98.89462724	98.40049885
240506A00016	5/6/2024	5.23	5/6/2025	100.08477	100.0680665	100.0513844	100.034719	100.0180704	100.0014387	99.98482362	99.9682253	99.95164367
240506A00020	5/6/2024	4.73	5/6/2027	110.0791	107.9822987	105.936883	103.941262	101.993905	100.0933391	98.23814703	96.42696422	94.65847681
240506A00031	5/6/2024	5.08	5/6/2025	100.08342	100.0667103	100.0500169	100.0333405	100.016681	100.0000384	99.98341269	99.96680386	99.95021185
240506A00040	5/6/2024	5.21	5/6/2025	100.08441	100.0677153	100.0510334	100.0343684	100.0177201	100.0010886	99.9844738	99.96787575	99.9512944
240507A00017	5/7/2024	4.51	5/8/2028	114.74001	111.5324117	108.4334353	105.4387819	102.5443459	99.7462084	97.04062682	94.42402634	91.89299111
240507A00019	5/7/2024	4.51	5/8/2028	114.74001	111.5324117	108.4334353	105.4387819	102.5443459	99.7462084	97.04062682	94.42402634	91.89299111
240507A00020	5/7/2024	4.6	5/7/2027	109.99779	107.895829	105.8454889	103.8451636	101.8933121	99.98845197	98.1291569	96.31405384	94.54182076
240507A00021	5/7/2024	4.77	5/7/2026	104.92901	103.8788729	102.8498464	101.8412951	100.8526111	99.88321039	98.93253188	98.00003592	97.0852035
240507A00034	5/7/2024	4.9	5/7/2026	104.97953	103.930334	102.9022048	101.8945127	100.9066514	99.93803863	98.98811465	98.05634125	97.14220078
240507A00042	5/7/2024	4.57	5/7/2029	119.31203	114.9808405	110.8354151	106.8667577	103.0663567	99.42615705	95.93853355	92.59626531	89.39251208
240507A00043	5/7/2024	4.9	5/7/2026	104.97953	103.930334	102.9022048	101.8945127	100.9066514	99.93803863	98.98811465	98.05634125	97.14220078
240507A00048	5/7/2024	4.73	5/7/2027	110.09327	107.9935458	105.9453173	103.9469923	101.9970348	100.0939672	98.23636758	96.42286731	94.65214835
240507A00049	5/7/2024	4.64	5/8/2028	114.87793	111.6743077	108.5790254	105.5877975	102.6965338	99.90132975	97.19845641	94.58435172	92.05561188
240507A00051	5/7/2024	4.57	5/7/2029	119.31203	114.9808405	110.8354151	106.8667577	103.0663567	99.42615705	95.93853355	92.59626531	89.39251208
240508A00005	5/8/2024	4.59	5/8/2031	127.99759	121.3051221	115.0183423	109.1103431	103.5561458	98.33254895	93.41799331	88.79243708	84.4372414
240508A00006	5/8/2024	4.92	5/8/2026	105.0147	103.9625054	102.9314964	101.9210352	100.9305108	99.95933615	99.00694712	98.07280134	97.15637717

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240509A00005	5/9/2024	4.62	5/9/2029	119.54151	115.1999743	111.044792	107.0669276	103.2578351	99.60942777	96.11405055	92.76445486	89.55377461
240509A00007	5/9/2024	5.22	5/8/2025	100.18594	100.1626044	100.1392916	100.1160036	100.0927404	100.0695019	100.0462881	100.0230989	99.99993432
240509A00008	5/9/2024	4.6	5/10/2027	110.03994	107.9291875	105.8703949	103.8619448	101.9022809	99.98990636	98.1233812	96.30131941	94.52238674
240509A00010	5/9/2024	4.6	5/10/2027	110.03994	107.9291875	105.8703949	103.8619448	101.9022809	99.98990636	98.1233812	96.30131941	94.52238674
240509A00022	5/9/2024	4.66	5/9/2028	114.95248	111.744897	108.6458445	105.6510308	102.7563558	99.95790543	97.25194216	94.63489558	92.1033541
240509A00023	5/9/2024	4.6	5/9/2029	119.45959	115.1197163	110.9661397	106.9898306	103.1822452	99.53529837	96.04133707	92.69311441	89.48376593
240509A00039	5/9/2024	4.87	11/10/2025	102.50572	101.9630776	101.4261998	100.8949958	100.3693755	99.84925115	99.3345365	98.82514726	98.32100086
240510A00015	5/10/2024	4.91	11/10/2025	102.52726	101.9845481	101.4476044	100.9163349	100.3906497	99.87046085	99.3556822	98.84622944	98.34201999
240510A00016	5/10/2024	4.91	11/10/2025	102.52726	101.9845481	101.4476044	100.9163349	100.3906497	99.87046085	99.3556822	98.84622944	98.34201999
240510A00020	5/10/2024	4.63	5/10/2027	110.10167	107.9902728	105.9308451	103.9217724	101.961498	100.0485248	98.18141239	96.3587745	94.57927655
240513A00020	5/13/2024	5.23	5/13/2025	100.17669	100.1405193	100.1043881	100.0683003	100.0322559	99.99625479	99.96029686	99.92438204	99.88851025
240513A00022	5/13/2024	4.92	5/13/2026	105.08733	104.0207139	102.9758606	101.9521038	100.9488078	99.96536232	99.0011812	98.05570114	97.12838064
240513A00024	5/13/2024	4.74	5/13/2027	110.19897	108.0814461	106.0161176	104.0013519	102.0355822	100.1173021	98.24506214	96.41746778	94.63317643
240513A00025	5/13/2024	4.67	5/12/2028	115.02262	111.805494	108.697425	105.694091	102.7913641	99.98530375	97.27214774	94.64830249	92.11033468
240513A00026	5/13/2024	4.6	5/14/2029	119.52173	115.1663294	110.9983733	107.0087483	103.1888371	99.5304864	96.02597989	92.66801191	89.44966345
240513A00041	5/13/2024	5.06	11/13/2025	102.60728	102.0565241	101.5116987	100.9727119	100.4394699	99.91188088	99.38985507	98.87330457	98.36214333
240513A00045	5/17/2024	4.73	6/17/2027	110.67809	108.4564681	106.2912925	104.180734	102.1230346	100.1165067	98.15953015	96.2505488	94.38806742
240514A00049	5/14/2024	4.84	2/5/2026	103.69819	102.9088107	102.1314843	101.3659381	100.6119054	99.86912755	99.13735348	98.41633959	97.70584942
240514A00065	5/14/2024	4.59	5/14/2029	119.48063	115.1260663	110.9589182	106.970076	103.1509231	99.49330735	95.98951324	92.63223602	89.4145575
240515A00002	5/15/2024	4.4	11/13/2028	116.78491	113.0021821	109.365369	105.8680259	102.5040261	99.26754708	96.15305418	93.15528416	90.2692305
240515A00003	5/15/2024	4.36	5/15/2029	118.90342	114.5478676	110.3802616	106.391443	102.5727543	98.9160058	95.41344698	92.05774089	88.84193955
240515A00014	5/15/2024	4.81	11/17/2025	102.56816	102.0058703	101.4497645	100.8997442	100.3557098	99.81756353	99.28520998	98.7585557	98.23750925
240515A00023	5/15/2024	4.51	5/15/2029	119.16402	114.81304	110.6494896	106.6642545	102.8487117	99.19470299	95.69450749	92.34081568	89.12670511
240515A00024	5/15/2024	4.59	5/15/2028	114.81463	111.5922434	108.4793404	105.4715641	102.5647618	99.75497001	97.03840498	94.41145303	91.87066198
240515A00026	5/15/2024	4.64	5/17/2027	110.04823	107.9211682	105.8467211	103.8232343	101.8491216	99.92285829	98.04297781	96.2080692	94.41677454
240515A00027	5/15/2024	4.5	5/19/2027	109.95813	107.8231623	105.7411521	103.7104331	101.7294039	99.79652504	97.9103162	96.06935335	94.27226618
240515A00034	5/15/2024	5.2	5/15/2025	100.20169	100.1599559	100.1182715	100.0766396	100.03506	99.99353256	99.95205729	99.91063402	99.86926267
240515A00035	5/15/2024	4.57	5/15/2028	114.75278	111.5313535	108.4193819	105.4125133	102.506596	99.69766709	96.98194359	94.35581251	91.81582234
240515A00036	5/17/2024	4.63	6/17/2027	110.46189	108.2426384	106.0797916	103.971515	101.9160518	99.91171577	97.95688806	96.05001369	94.18959861
240515A00037	5/15/2024	4.5	5/15/2029	119.1229	114.77275	110.6100088	106.6255575	102.810774	99.1575011	95.65801889	92.30501868	89.09157888
240515A00038	5/15/2024	4.5	5/15/2029	119.1229	114.77275	110.6100088	106.6255575	102.810774	99.1575011	95.65801889	92.30501868	89.09157888
240515A00039	5/15/2024	4.57	5/15/2030	123.72496	118.2110061	112.98363	108.026334	103.3236613	98.86112215	94.62512807	90.60293116	86.78256756
240515A00041	7/1/2024	4.69	7/1/2027	110.79105	108.5279884	106.3231744	104.1746913	102.0806981	100.0394294	98.0491914	96.1083585	94.2153699

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240515A00043	5/15/2024	5.2	5/15/2025	100.20169	100.1599559	100.1182715	100.0766396	100.03506	99.99353256	99.95205729	99.91063402	99.86926267
240515A00044	5/15/2024	4.97	11/14/2025	102.57184	102.018414	101.4709821	100.9294464	100.3937118	99.86368508	99.33927521	98.82039296	98.30695103
240515A00048	7/1/2024	4.55	7/2/2029	119.92385	115.4177596	111.1107344	106.9928372	103.0546841	99.28741239	95.6826482	92.23247649	88.92941312
240515A00050	7/1/2024	4.55	7/2/2029	119.92385	115.4177596	111.1107344	106.9928372	103.0546841	99.28741239	95.6826482	92.23247649	88.92941312
240515A00052	7/1/2024	4.79	7/3/2034	139.63766	129.2101549	119.6877891	110.9860353	103.0287191	95.74714977	89.07934701	82.96935221	77.36661314
240515A00066	6/28/2024	4.8	6/29/2026	105.63134	104.4294705	103.2550775	102.1072243	100.9850173	99.88760243	98.81416343	97.76391943	96.73612315
240515A00067	6/28/2024	4.8	6/29/2026	105.63134	104.4294705	103.2550775	102.1072243	100.9850173	99.88760243	98.81416343	97.76391943	96.73612315
240515A00068	6/28/2024	4.8	6/29/2026	105.63134	104.4294705	103.2550775	102.1072243	100.9850173	99.88760243	98.81416343	97.76391943	96.73612315
240515A00089	5/15/2024	4.5	5/15/2029	119.1229	114.77275	110.6100088	106.6255575	102.810774	99.1575011	95.65801889	92.30501868	89.09157888
240516A00025	5/17/2024	4.55	10/16/2028	116.66004	112.9676512	109.4148774	105.995671	102.7042825	99.53524184	96.48334317	93.5436306	90.71138475
240516A00026	5/16/2024	5.21	5/20/2025	100.2675	100.2118624	100.1562976	100.1008105	100.0454007	99.9900681	99.93481261	99.87963403	99.8245322
240516A00030	5/16/2024	5	11/17/2025	102.62982	102.0678826	101.5121177	100.962427	100.4187109	99.88087211	99.34881556	98.82244808	98.30167852
240516A00038	5/16/2024	4.9	5/18/2026	105.13871	104.0577781	102.9991859	101.9622411	100.9462831	99.95067825	98.97481791	98.01811768	97.08001604
240517A00011	5/17/2024	4.61	5/17/2028	114.90239	111.6730114	108.5534781	105.5394197	102.626664	99.8112296	97.08931545	94.4572919	91.91169175
240517A00017	5/17/2024	4.4	5/17/2029	119.09244	114.727326	110.5507221	106.5534355	102.7267752	99.06251981	95.55288981	92.19052098	88.96843999
240517A00026	5/17/2024	4.68	5/17/2027	110.13125	108.0033127	105.9280049	103.9036742	101.9287342	100.0016597	98.12098352	96.28529439	94.49323395
240517A00034	5/17/2024	5.02	11/17/2025	102.64098	102.0790014	101.5232013	100.9734756	100.4297248	99.89185171	99.35976106	98.83335973	98.31255658
240520A00011	5/20/2024	5.25	5/20/2025	100.26974	100.2140972	100.1585306	100.1030416	100.0476299	99.99229554	99.93703822	99.88185781	99.82675414
240520A00012	5/20/2024	5.18	7/21/2025	101.08555	100.8572096	100.6299132	100.403654	100.178425	99.95421883	99.73102867	99.50884752	99.28766848
240520A00016	5/20/2024	4.57	8/16/2027	111.34047	108.9391247	106.6024182	104.3281901	102.1143699	99.95897087	97.86008589	95.81588385	93.82460586
240520A00017	5/20/2024	4.94	4/15/2026	104.7018	103.715749	102.7483533	101.7990892	100.8674493	99.95294514	99.05510606	98.17347852	97.30762535
240520A00018	5/20/2024	4.84	10/15/2026	107.25607	105.7589301	104.2905033	102.850034	101.4367917	100.0500714	98.68919166	97.35349396	96.04234177
240520A00020	5/20/2024	4.79	1/15/2027	108.54714	106.7830399	105.0565925	103.3666617	101.7121529	100.0920155	98.50524067	96.95085941	95.4279403
240520A00025	5/20/2024	4.75	4/15/2027	109.81649	107.7819633	105.7960815	103.8573749	101.9644314	100.1158908	98.31044273	96.54682427	94.82381793
240520A00027	5/20/2024	4.7	10/15/2027	112.27498	109.6962041	107.1910912	104.7571092	102.3918291	100.0929198	97.85814364	95.68535211	93.57248161
240520A00031	5/20/2024	4.96	9/19/2025	101.84543	101.448973	101.0556153	100.6653234	100.2780612	99.89379357	99.51248558	99.13410302	98.75861216
240520A00040	5/20/2024	4.89	11/20/2025	102.65406	102.083151	101.5186096	100.9603342	100.4082206	99.8621668	99.3220733	98.78784261	98.25937939
240520A00041	5/20/2024	4.83	11/25/2026	107.85533	106.2383388	104.6539935	103.1013743	101.5795961	100.0878064	98.62518389	97.19093682	95.78430184
240521A00005	5/21/2024	5.04	11/21/2025	102.70791	102.134603	101.5677155	101.0071416	100.4527759	99.90451555	99.36225984	98.8259103	98.29537058
240521A00006	5/21/2024	4.9	5/21/2026	105.18212	104.0925257	103.025614	101.9806831	100.9570574	99.95408886	98.97115537	98.00765967	97.06302807
240522A00012	5/22/2024	4.67	5/22/2028	115.15391	111.9065041	108.7698874	105.7396318	102.8115161	99.9815127	97.24577731	94.60063968	92.04259445
240522A00027	5/22/2024	4.62	5/21/2027	110.2363	108.0928002	106.0025402	103.9638451	101.9751016	100.0347588	98.14132591	96.2933687	94.48950734
240522A00037	5/22/2024	5.11	5/22/2025	100.29226	100.2310056	100.1698451	100.1087739	100.0477918	99.98689858	99.92609403	99.86537795	99.80475015

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
240522A00039	5/22/2024	4.76	5/24/2027	110.39712	108.2468642	106.1500836	104.1050903	102.1102604	100.1640335	98.26490922	96.4114446	94.60225145
240523A00021	5/23/2024	4.96	11/24/2025	102.74951	102.1671448	101.5914051	101.0221736	100.4593401	99.90279705	99.35243914	98.80816351	98.26986953
240523A00025	5/23/2024	4.96	11/18/2025	102.66579	102.1004065	101.541271	100.9882827	100.4413404	99.90034513	99.36519989	98.83580992	98.31208248
240523A00027	5/23/2024	4.49	5/24/2029	119.55032	115.1558129	110.9516751	106.9285909	103.0777553	99.39084137	95.85997131	92.47768949	89.2369375
240523A00033	5/24/2024	4.8	12/24/2027	113.50199	110.7082731	107.9989931	105.3710586	102.8215105	100.3475188	97.94637557	95.61548898	93.3523774
240523A00035	5/24/2024	4.78	11/24/2027	113.0341	110.3313976	107.7085616	105.1627368	102.6911927	100.2913136	97.9605937	95.69663112	93.49712317
240523A00037	5/24/2024	4.78	1/24/2028	113.87015	110.9843532	108.1879607	105.4776031	102.8500646	100.3022743	97.83129829	95.4343326	93.10869614
240523A00043	5/24/2024	4.81	2/24/2028	114.39212	111.4072957	108.5173128	105.7186304	103.0078583	100.3817524	97.83720697	95.37124805	92.98102715
240524A00001	5/24/2024	4.98	11/24/2025	102.76105	102.1786523	101.602875	101.0336062	100.4707357	99.9141559	99.36376158	98.81944982	98.28111999
240524A00011	5/24/2024	5.02	5/19/2026	105.28103	104.1964853	103.1344026	102.0940887	101.0748776	100.0761306	99.09723449	98.13760026	97.19666216
240524A00020	5/24/2024	5.31	5/19/2025	100.33415	100.2787174	100.2233653	100.1680889	100.1128881	100.0577627	100.0027125	99.94773751	99.89283743
240524A00027	5/24/2024	4.82	6/30/2027	111.06304	108.7997073	106.5945638	104.4456894	102.3512476	100.3094769	98.31868732	96.37725676	94.48362768
240125A00058	1/16/2025	3.85	6/11/2027	108.70388	106.5210437	104.3934725	102.3193805	100.297056	98.32485587	96.40120191	94.52457779	92.69352609
240131A00019	1/16/2025	3.69	6/12/2026	104.13181	102.9868165	101.8670405	100.7716542	99.69986639	98.65091946	97.62408813	96.61867751	95.6340216
240208A00030	1/16/2025	4.05	1/23/2026	102.86847	102.1195763	101.3816101	100.6543289	99.93750151	99.23090344	98.53431653	97.84752881	97.17033427
240118A00057	3/14/2025	3.81	5/14/2027	108.29067	106.1904809	104.1421932	102.1441869	100.1949014	98.29283583	96.43654681	94.62464522	92.85579402
ADV1006436	5/28/2024	5.272	6/30/2025	100.821	100.6511779	100.4819257	100.31324	100.1451183	99.9775575	99.810555	99.644108	99.47821374
ADV1006437	5/28/2024	4.799	6/28/2027	110.98808	108.7313349	106.5325021	104.3896793	102.3010422	100.2648409	98.27939635	96.3430969	94.45439473
ADV1006438	5/28/2024	4.644	5/29/2029	119.89116	115.4853484	111.270552	107.2374169	103.3770981	99.68123132	96.14190395	92.75162831	89.50331618
ADV1006450	5/28/2024	5.047	5/28/2026	105.44412	104.3333125	103.2460279	102.1815219	101.1390829	100.1180285	99.11770433	98.13748258	97.17676046
ADV1006451	5/28/2024	5.204	11/28/2025	102.90239	102.3089386	101.7223469	101.1424959	100.5692698	100.0025553	99.44224179	98.88822127	98.340388
ADV1006454	5/28/2024	5.333	5/28/2025	100.3817	100.3038107	100.2260454	100.1484058	100.0708916	99.99350267	99.91623857	99.83909903	99.76208376
ADV1006464	5/28/2024	5.174	5/28/2025	100.37535	100.2974051	100.2195843	100.1418901	100.0643221	99.98687998	99.90956346	99.83237223	99.75530599
ADV1006474	5/28/2024	5.044	5/28/2026	105.44085	104.3300601	103.2427943	102.1783068	101.135886	100.1148495	99.11454313	98.13433885	97.17363396
ADV1006478	5/28/2024	4.775	5/30/2028	115.5884	112.3115781	109.1470661	106.0903558	103.1371461	100.2833345	97.5250068	94.85842665	92.28002679
ADV1006508	5/29/2024	4.746	9/12/2028	116.90002	113.3010727	109.8347366	106.4954148	103.2777787	100.1767519	97.18749674	94.30540169	91.52606965
ADV1006512	5/29/2024	4.762	7/17/2028	116.19645	112.771609	109.4680871	106.2808327	103.2050406	100.236137	97.36976667	94.60178095	91.92822631
ADV1006529	5/29/2024	5.175	5/29/2025	100.38863	100.3078983	100.2273023	100.1468396	100.0665098	99.98631261	99.90624769	99.82631472	99.74651338
ADV1006532	5/29/2024	5.092	2/27/2026	104.15349	103.3015211	102.4635327	101.639187	100.8281524	100.030108	99.24474311	98.47175686	97.71085788
ADV1006538	5/29/2024	4.952	11/25/2026	108.04993	106.4313215	104.8453889	103.2912104	101.7679001	100.2746048	98.81050243	97.37480057	95.96673518
ADV1006544	5/29/2024	5.306	5/29/2025	100.39294	100.3122725	100.2317359	100.1513318	100.0710599	99.99091974	99.91091112	99.8310337	99.75128716
ADV1006559	5/29/2024	4.894	7/30/2027	111.65719	109.3034786	107.0120268	104.7807201	102.6075304	100.4905163	98.42781804	96.4176538	94.4583152
ADV1006562	5/29/2024	4.768	6/29/2029	120.81148	116.2954233	111.9783303	107.8502848	103.9019282	100.1244203	96.50940743	93.04899261	89.73570788

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1006570	5/29/2024	4.908	5/28/2027	110.76609	108.6007129	106.4893459	104.4302785	102.4218642	100.4625207	98.55072734	96.68502182	94.86399759
ADV1006582	5/30/2024	5.037	5/29/2026	105.44768	104.3340592	103.2440765	102.1769837	101.1320638	100.1086298	99.10602275	98.12361036	97.1607858
ADV1006583	5/30/2024	4.859	5/28/2027	110.66269	108.4984305	106.3881598	104.3301669	102.3228059	100.3644952	98.45371455	96.58900227	94.76895235
ADV1006589	5/30/2024	5.268	5/30/2025	100.40312	100.3196711	100.2363645	100.1531972	100.0701689	99.98727926	99.9045279	99.82191452	99.73943878
ADV1006595	5/30/2024	5.031	5/29/2026	105.44112	104.3275383	103.2375934	102.1705377	101.1256545	100.1022566	99.0996851	98.1173078	97.15451784
ADV1006596	5/30/2024	4.859	5/28/2027	110.66269	108.4984305	106.3881598	104.3301669	102.3228059	100.3644952	98.45371455	96.58900227	94.76895235
ADV1006598	5/30/2024	4.783	5/30/2028	115.6131	112.3358901	109.171001	106.1139239	103.1603572	100.3061982	97.54753206	94.88062226	92.30190118
ADV1006599	5/30/2024	4.695	5/30/2029	120.11522	115.7019543	111.4800778	107.4402119	103.5734908	99.87153121	96.3264028	92.93060119	89.6770226
ADV1006606	5/30/2024	4.579	5/30/2029	118.20791	114.1834188	110.3307672	106.6415227	103.1077207	99.72183419	96.47674648	93.3657266	90.38240582
ADV1006633	5/31/2024	4.653	5/28/2027	110.40466	108.2397994	106.1290199	104.0706023	102.0628962	100.1043157	98.19333667	96.32849373	94.50837728
ADV1006634	5/31/2024	4.572	5/31/2028	115.23214	111.9517726	108.784094	105.7245731	102.7688858	99.91290845	97.1527067	94.48452565	91.90478051
ADV1006649	5/31/2024	5.135	5/30/2025	100.47062	100.3831534	100.2958305	100.2086543	100.1216246	100.0347409	99.94800296	99.86141034	99.77496269
ADV1006650	5/31/2024	4.854	5/29/2026	105.33634	104.2220559	103.1314471	102.0637658	101.0182935	99.99434117	98.99124834	98.00838123	97.04513152
ADV1006651	5/31/2024	5.134	5/30/2025	100.47053	100.3830569	100.2957348	100.2085595	100.1215306	100.0346478	99.94791063	99.86131884	99.77487202
ADV1006652	5/31/2024	4.854	5/29/2026	105.33634	104.2220559	103.1314471	102.0637658	101.0182935	99.99434117	98.99124834	98.00838123	97.04513152
ADV1006656	5/31/2024	4.99	5/29/2026	105.3963	104.2829787	103.1932917	102.12649	101.0818572	100.0587061	99.0563778	98.0742403	97.11168677
ADV1006657	5/31/2024	4.811	5/28/2027	110.56159	108.3984147	106.2892069	104.2322559	102.2259161	100.2686067	98.35880798	96.49505876	94.67595354
ADV1006659	5/31/2024	4.732	5/31/2028	115.46656	112.1888189	109.0235119	105.9661188	103.0123307	100.158038	97.39931935	94.73243246	92.15380412
ADV1006680	6/3/2024	4.924	6/3/2026	105.40181	104.2744132	103.1712517	102.0915463	101.0345534	99.99956038	98.98588442	97.9928706	97.01989061
ADV1006681	6/3/2024	4.731	6/3/2027	110.4833	108.3040142	106.1793899	104.107684	102.087219	100.116384	98.19363095	96.3174717	94.48647542
ADV1006683	6/3/2024	4.637	6/5/2028	115.23954	111.9508451	108.7753879	105.7085976	102.7461185	99.88379698	97.11767092	94.44395954	91.85905384
ADV1006703	6/3/2024	5.223	6/3/2025	100.45761	100.3630127	100.2686004	100.1743703	100.080322	99.98645479	99.89276822	99.79926175	99.70593483
ADV1006721	6/4/2024	5.207	6/4/2025	100.46936	100.3719754	100.2747882	100.1777956	100.0809968	99.9843914	99.88797868	99.7917581	99.69572904
ADV1006724	6/4/2024	4.536	6/4/2027	110.26034	108.0771755	105.9488973	103.8737485	101.8500413	99.87615463	97.95053129	96.07167441	94.23814483
ADV1006733	6/4/2024	5.194	6/4/2025	100.46808	100.3707009	100.2735149	100.1765234	100.0797259	99.98312163	99.88671011	99.79049071	99.69446284
ADV1006734	6/4/2024	4.987	12/4/2025	102.86296	102.2529706	101.6502342	101.0546207	100.4660042	99.88426169	99.30927319	98.74092135	98.17909157
ADV1006742	6/4/2024	4.992	12/4/2025	102.86599	102.2559893	101.6532425	101.0576188	100.4689922	99.88723965	99.31224119	98.74387948	98.18203991
ADV1006757	6/5/2024	4.883	12/5/2025	102.86214	102.248759	101.6427142	101.0438734	100.4521085	99.86729433	99.28930874	98.7180324	98.15334877
ADV1006759	6/5/2024	4.502	6/5/2029	119.3916	114.9757271	110.7521603	106.7114419	102.8446317	99.14327785	95.59938695	92.20539668	88.95414997
ADV1006762	6/5/2024	5.197	6/5/2025	100.48162	100.3814534	100.2814904	100.1817344	100.0821846	99.98284045	99.88370128	99.78476641	99.68603521
ADV1006779	6/5/2024	5.052	6/5/2025	100.47478	100.374535	100.2744999	100.1746729	100.0750531	99.97563998	99.87643279	99.77743089	99.6786336
ADV1006780	6/5/2024	4.435	6/1/2029	119.06339	114.6660127	110.4597888	106.4353334	102.5837773	98.89673442	95.36627277	91.98488694	88.74547283
ADV1006781	6/5/2024	4.998	10/31/2025	102.39837	101.8843049	101.3754008	100.8715833	100.3727763	99.87890536	99.38989755	98.90568125	98.4261863

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1006791	6/6/2024	5.171	6/6/2025	100.49198	100.3890249	100.28629	100.1837747	100.0814782	99.97939977	99.87753866	99.77589416	99.67446557
ADV1006792	6/6/2024	4.967	12/8/2025	102.9067	102.2854438	101.6717113	101.0653671	100.4662781	99.87431448	99.28934928	98.71125868	98.13992174
ADV1006793	6/6/2024	4.835	6/8/2026	105.37493	104.2336449	103.1172016	102.0247938	100.9556499	99.90903092	98.88422913	97.88056603	96.89739109
ADV1006802	6/6/2024	4.287	6/6/2029	118.86762	114.4495029	110.2242846	106.1824549	102.315029	98.61351362	95.06987721	91.67652219	88.42625884
ADV1006838	6/7/2024	4.941	1/7/2026	103.36554	102.6583759	101.9609253	101.2729837	100.5943574	99.92485762	99.26430078	98.6125082	97.96930593
ADV1006844	6/7/2024	4.772	6/7/2027	110.62805	108.4356779	106.2984999	104.2147423	102.1827042	100.2007523	98.26731775	96.38089254	94.54002709
ADV1006845	6/7/2024	4.686	6/7/2028	115.42054	112.1231634	108.9394553	105.8648241	102.8948915	100.0254828	97.25261606	94.57249197	91.98148404
ADV1006846	6/7/2024	4.579	6/7/2029	119.73766	115.3087643	111.0728774	107.0204955	103.1426383	99.43081643	95.87700156	92.47359884	89.21342082
ADV1006860	6/10/2024	4.544	6/10/2030	124.33868	118.7189895	113.3949818	108.3494275	103.5661974	99.03018461	94.72723413	90.64407749	86.76827248
ADV1006862	6/10/2024	4.698	6/12/2028	115.52499	112.2113761	109.0123761	105.9233436	102.9398481	100.0576666	97.27277171	94.58132138	91.97964926
ADV1006864	6/10/2024	4.684	6/10/2030	124.60667	118.9949005	113.6778697	108.6384236	103.8605058	99.32907588	95.03004014	90.95018645	87.07712444
ADV1006866	6/10/2024	4.751	6/10/2032	132.27342	124.3077534	116.8979124	110.0017917	103.5807021	97.59907246	92.02418264	86.82592059	81.97656118
ADV1006868	6/10/2024	4.737	6/10/2031	128.6748	121.8861223	115.5131186	109.5279371	103.9047395	98.61954671	93.65009497	88.97570449	84.5771583
ADV1006872	6/10/2024	4.778	6/10/2027	110.68352	108.4819116	106.3358832	104.2436414	102.2034681	100.2137137	98.2727935	96.37918512	94.53142509
ADV1006873	6/10/2024	4.612	6/4/2029	119.83666	115.4145509	111.1848027	107.1379652	103.2651029	99.5577676	96.00796942	92.6081488	89.35115096
ADV1006874	6/11/2024	4.614	6/1/2029	119.80699	115.3943181	111.1732821	107.1344832	103.2690338	99.56852981	96.02502233	92.63098978	89.37931261
ADV1006899	6/11/2024	5.276	5/12/2025	100.23378	100.1988953	100.164056	100.1292575	100.0944999	100.0597831	100.025107	99.99047152	99.95587657
ADV1006901	6/11/2024	5.24	6/11/2025	100.56478	100.4478851	100.3312791	100.2149578	100.09892	99.98316478	99.86769094	99.75249746	99.63758327
ADV1006912	6/11/2024	4.816	6/11/2026	105.48728	104.3354897	103.208976	102.1069095	101.028499	99.97298733	98.93964918	97.92778967	96.93674275
ADV1006931	6/12/2024	4.404	6/12/2029	119.06614	114.6364204	110.4004411	106.3486329	102.4719537	98.76185781	95.21026494	91.80953259	88.55242954
ADV1006934	6/12/2024	4.933	12/12/2025	102.94027	102.3077519	101.6830293	101.0659631	100.4564128	99.8542413	99.25931495	98.67150318	98.09067861
ADV1006935	6/12/2024	4.796	6/12/2026	105.3872	104.2345722	103.1072841	102.0045011	100.9254289	99.86930715	98.83540777	97.8230332	96.83151485
ADV1006936	6/12/2024	4.561	6/14/2027	110.2741	108.0654876	105.9128566	103.8143988	101.7683755	99.77311798	97.82702374	95.92855329	94.07622722
ADV1006937	6/12/2024	4.656	6/12/2026	105.32052	104.166919	103.0387009	101.9350325	100.8551175	99.79819335	98.76353022	97.75042875	96.75821867
ADV1006940	6/12/2024	5.018	10/1/2025	102.00025	101.5704724	101.1443155	100.7217356	100.3026879	99.88712829	99.47501327	99.06630016	98.66094695
ADV1006942	6/12/2024	4.955	11/28/2025	102.75892	102.1659719	101.579878	101.00052	100.4277822	99.86155155	99.30171746	98.74817191	98.20080927
ADV1006943	6/12/2024	5.018	10/1/2025	102.00025	101.5704724	101.1443155	100.7217356	100.3026879	99.88712829	99.47501327	99.06630016	98.66094695
ADV1006944	6/12/2024	5.018	10/1/2025	102.00025	101.5704724	101.1443155	100.7217356	100.3026879	99.88712829	99.47501327	99.06630016	98.66094695
ADV1006945	6/12/2024	5.018	10/1/2025	102.00025	101.5704724	101.1443155	100.7217356	100.3026879	99.88712829	99.47501327	99.06630016	98.66094695
ADV1006946	6/12/2024	5.143	6/12/2025	100.5665	100.4468252	100.3274541	100.2083812	100.0896052	99.97112505	99.85293957	99.73504763	99.61744809
ADV1006947	6/12/2024	5.018	10/1/2025	102.00025	101.5704724	101.1443155	100.7217356	100.3026879	99.88712829	99.47501327	99.06630016	98.66094695
ADV1006948	6/12/2024	4.955	11/28/2025	102.75892	102.1659719	101.579878	101.00052	100.4277822	99.86155155	99.30171746	98.74817191	98.20080927
ADV1006949	6/12/2024	4.955	11/28/2025	102.75892	102.1659719	101.579878	101.00052	100.4277822	99.86155155	99.30171746	98.74817191	98.20080927

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ADV1006950	6/12/2024	4.952	11/28/2025	102.75715	102.1642111	101.578123	100.9987709	100.4260388	99.8598139	99.29998548	98.74644555	98.19908848
ADV1006953	6/12/2024	4.55	6/14/2027	110.25041	108.042049	105.8896725	103.7914639	101.745685	99.75066697	97.80480753	95.90656732	94.05446706
ADV1006954	6/12/2024	4.466	6/12/2028	114.78926	111.4872961	108.2996409	105.2216599	102.2489331	99.3772467	96.60258247	93.92110721	91.32916296
ADV1006955	6/12/2024	4.371	6/12/2029	118.92782	114.5009632	110.2677541	106.2186277	102.3445455	98.63696497	95.08780928	91.68943892	88.43462561
ADV1006956	6/12/2024	4.382	6/12/2029	118.97393	114.5461156	110.3119831	106.2619627	102.3870149	98.67859592	95.12862783	91.72947014	88.47389359
ADV1006960	6/12/2024	4.668	6/12/2026	105.33412	104.1804365	103.0521375	101.9483894	100.8683959	99.81139445	98.77665515	97.76347863	96.77119458
ADV1006962	6/12/2024	4.822	6/12/2026	105.41665	104.2638463	103.1363831	102.0334277	100.9541857	99.89789663	98.86383243	97.85129545	96.85961705
ADV1006965	6/17/2024	4.601	7/1/2027	110.59708	108.3361993	106.1335241	103.9871348	101.8951917	99.85593064	97.86765916	95.92875283	94.03765197
ADV1006966	6/12/2024	4.44	6/12/2029	119.21704	114.7841918	110.5451905	106.4904567	102.6109446	98.89810454	95.34385293	91.94054387	88.68094291
ADV1006967	6/12/2024	4.643	6/14/2027	110.45076	108.2402114	106.0856838	103.9853675	101.9375229	99.94048005	97.99263547	96.0924487	94.23843937
ADV1006968	6/12/2024	5.195	6/12/2025	100.57274	100.4530623	100.3336844	100.2146047	100.095822	99.97733518	99.859143	99.74124438	99.62363817
ADV1006980	6/13/2024	4.665	6/15/2026	105.37299	104.2106374	103.0740469	101.9623633	100.8747731	99.81049759	98.76879136	97.7489406	96.75026131
ADV1006988	6/13/2024	4.393	6/13/2029	119.03192	114.5999746	110.3619831	106.3083598	102.4300477	98.71848708	95.16558518	91.76368767	88.50555243
ADV1006989	6/13/2024	4.955	12/15/2025	102.99583	102.3547793	101.7217355	101.0965509	100.4790796	99.86917904	99.26671021	98.67153753	98.08352871
ADV1006999	6/13/2024	4.935	12/15/2025	102.98311	102.3421047	101.7091061	101.0839663	100.4665394	99.85668288	99.25425769	98.65912827	98.07116234
ADV1007000	6/13/2024	4.793	6/15/2026	105.42642	104.2651381	103.1295677	102.0188578	100.9321968	99.86880829	98.82794873	97.80890614	96.81099828
ADV1007001	6/13/2024	4.268	6/13/2029	117.79782	113.5972545	109.5795209	105.7355331	102.0567095	98.53494551	95.16258368	91.93238613	88.83750896
ADV1007016	6/13/2024	4.324	6/13/2028	114.62108	111.3124571	108.1186227	105.034909	102.0568692	99.1802649	96.40105441	93.71538266	91.11957115
ADV1007017	6/13/2024	4.543	8/4/2027	110.92556	108.5664192	106.2700309	104.0342642	101.8570825	99.73653482	97.67075192	95.65794153	93.69638472
ADV1007019	6/13/2024	4.42	6/14/2027	110.1498	107.9390577	105.7844264	103.6840859	101.6362923	99.63937125	97.69171537	95.79178042	93.9380825
ADV1007020	6/13/2024	4.251	2/2/2029	117.22599	113.2032654	109.3434849	105.6390797	102.0828802	98.66809367	95.38828143	92.23733814	89.20947223
ADV1007052	6/14/2024	4.323	6/14/2029	118.75002	114.3209779	110.0859426	106.0353137	102.160026	98.45151192	94.90167179	91.50284501	88.24778385
ADV1007059	6/14/2024	5.015	6/16/2025	100.61196	100.4810628	100.3505191	100.2203303	100.090495	99.96101158	99.83187866	99.70309476	99.57465839
ADV1007060	6/14/2024	4.361	5/21/2029	118.62445	114.2673843	110.0987317	106.1092914	102.2903667	98.63373178	95.13160322	91.7766138	88.56178785
ADV1007061	6/14/2024	4.959	12/15/2025	102.99819	102.3571204	101.724062	101.0988632	100.4813777	99.87146322	99.26898066	98.67379445	98.08577229
ADV1007063	6/14/2024	4.804	6/15/2026	105.43879	104.2774272	103.1417764	102.0309876	100.944249	99.88078409	98.83984945	97.82073301	96.82275249
ADV1007066	6/14/2024	4.562	6/14/2027	110.27592	108.0672659	105.9146008	103.8161097	101.770054	99.77476498	97.82863998	95.93013955	94.07778426
ADV1007068	6/18/2024	4.512	11/1/2027	112.02834	109.4052225	106.8583641	104.3850943	101.9828552	99.64919406	97.38175819	95.17829043	93.03662447
ADV1007075	6/14/2024	4.422	6/14/2027	110.15395	107.9431526	105.7884695	103.6880785	101.6402354	99.64326603	97.69556284	95.79558159	93.94183835
ADV1007076	6/14/2024	4.562	6/14/2027	110.27592	108.0672659	105.9146008	103.8161097	101.770054	99.77476498	97.82863998	95.93013955	94.07778426
ADV1007096	6/17/2024	4.852	6/17/2026	105.5215	104.3540157	103.2124998	102.0960888	101.0039594	99.93532401	98.88942869	97.86555163	96.86300126
ADV1007098	6/17/2024	4.614	6/17/2027	110.42926	108.2103157	106.0477707	103.9397899	101.8846166	99.88056475	97.92601568	96.01941451	94.15926734
ADV1007099	6/17/2024	4.522	6/20/2028	115.06964	111.7399643	108.5261676	105.4235199	102.4275159	99.5338621	96.73846577	94.03742373	91.42701246

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1007100	6/17/2024	4.415	6/18/2029	119.18376	114.7340026	110.4794816	106.4105225	102.5179855	98.79323377	95.22810321	91.81487328	88.54624045
ADV1007107	6/17/2024	4.278	6/18/2029	118.97181	114.5162183	110.2564348	106.1827439	102.2859677	98.55743428	94.98894676	91.57275416	88.30152466
ADV1007114	6/17/2024	4.74	6/18/2029	116.47496	112.9410909	109.5519274	106.3005049	103.1802377	100.1848988	97.3085981	94.54576174	91.89111316
ADV1007146	6/18/2024	4.482	6/20/2028	114.94191	111.6142668	108.4024528	105.3017365	102.307614	99.41579377	96.62218457	93.92288478	91.31417236
ADV1007153	6/20/2024	4.502	2/25/2028	113.52458	110.5492138	107.668564	104.8790916	102.1774114	99.5602835	97.02460594	94.56740822	92.18584486
ADV1007157	6/18/2024	4.969	12/18/2025	103.04566	102.3960742	101.7547119	101.1214133	100.4960267	99.87840415	99.26840128	98.66587739	98.0706952
ADV1007160	6/18/2024	4.638	1/19/2027	108.3427	106.5693314	104.8340035	103.1355586	101.4728851	99.84491617	98.25062786	96.68903668	95.15919768
ADV1007162	6/18/2024	5.159	6/18/2025	100.6459	100.5095264	100.3735318	100.2379194	100.1026875	99.96783443	99.83335866	99.69925853	99.56553243
ADV1007163	6/18/2024	5.032	6/18/2025	100.63926	100.5027798	100.3666841	100.230972	100.0956419	99.96069216	99.82612114	99.69192718	99.55810866
ADV1007164	6/18/2024	5.032	6/18/2025	100.63926	100.5027798	100.3666841	100.230972	100.0956419	99.96069216	99.82612114	99.69192718	99.55810866
ADV1007166	6/18/2024	4.965	12/18/2025	103.04308	102.3935071	101.7521541	101.1188647	100.4934872	99.87587365	99.26587972	98.66336469	98.06819129
ADV1007167	6/18/2024	4.805	6/18/2026	105.48192	104.3118666	103.1678979	102.0491486	100.9547898	99.88402841	98.83610556	97.81029465	96.8058996
ADV1007168	6/18/2024	4.556	6/18/2027	110.31774	108.0971494	105.9330578	103.8236257	101.7670914	99.76176396	97.80602025	95.89830119	94.03710887
ADV1007173	6/18/2024	4.389	6/20/2034	121.39457	115.9883364	110.9245811	106.1777905	101.72457	97.54345055	93.61471676	89.92025061	86.44339067
ADV1007196	6/20/2024	5.165	6/20/2025	100.67284	100.5308866	100.3893429	100.2482106	100.107488	99.96717311	99.82726423	99.68775956	99.5486573
ADV1007211	6/20/2024	4.562	9/27/2027	111.69482	109.1736723	106.7232292	104.3411096	102.0250242	99.77277436	97.58224762	95.45141406	93.37832236
ADV1007218	6/20/2024	4.777	8/20/2026	106.3473	105.0067629	103.69309	102.4054863	101.1431875	99.90545933	98.69159622	97.50091983	96.3327777
ADV1007219	6/20/2024	4.682	12/21/2026	107.99963	106.3092388	104.653921	103.0326511	101.4444429	99.88834848	98.36345597	96.86888795	95.40379984
ADV1007220	6/20/2024	4.59	6/21/2027	110.43318	108.2027069	106.029135	103.9106069	101.8453426	99.83163421	97.86784246	95.95239303	94.08377361
ADV1007227	6/20/2024	4.835	6/22/2026	105.57375	104.3918996	103.2366373	102.1070761	101.0023636	99.92168462	98.86425958	97.82934214	96.8162177
ADV1007228	6/20/2024	4.588	6/21/2027	110.42883	108.1984077	106.0248829	103.9064009	101.8411818	99.82751772	97.8637694	95.94836255	94.07978488
ADV1007230	6/20/2024	4.494	6/20/2028	114.98006	111.6518028	108.4393908	105.338092	102.3434024	99.4510297	96.6568822	93.95705782	91.34783406
ADV1007258	6/21/2024	5.154	6/23/2025	100.71048	100.5601727	100.4103277	100.260939	100.1120046	99.96352229	99.8154901	99.66790592	99.52076772
ADV1007267	6/21/2024	4.49	6/21/2028	114.98002	111.6488626	108.4337267	105.3298751	102.3327933	99.4381796	96.64193334	93.94014406	91.32908142
ADV1007274	6/21/2024	5.144	6/23/2025	100.70897	100.5586719	100.4088286	100.2594418	100.1105091	99.96202862	99.81399822	99.66641582	99.51927939
ADV1007285	12/24/2024	4.775	12/24/2025	103.00012	102.3340533	101.676622	101.0276617	100.3870092	99.75450525	99.12999498	98.51332723	97.90435468
ADV1007300	6/24/2024	5.141	6/24/2025	100.72045	100.5673913	100.4148037	100.2626878	100.1110411	99.95986171	99.8091473	99.65889575	99.5091049
ADV1007306	6/24/2024	5.14	6/24/2025	100.7203	100.5672386	100.4146513	100.2625355	100.110889	99.9597098	99.80899556	99.65874419	99.50895352
ADV1007310	6/24/2024	5.207	5/27/2025	100.42567	100.3472465	100.2689471	100.1907721	100.1127214	100.0347944	99.95699111	99.87931108	99.80175405
ADV1007317	6/25/2024	4.989	12/26/2025	103.16961	102.4973334	101.8338478	101.1789767	100.5325529	99.89441343	99.26439952	98.64235645	98.0281334
ADV1007329	6/25/2024	4.377	6/25/2029	119.10659	114.6379231	110.3661064	106.2813424	102.3743815	98.63648577	95.05939737	91.63530908	88.35683712
ADV1007332	6/25/2024	5.15	6/25/2025	100.73494	100.5790861	100.4237193	100.2688395	100.1144444	99.96053183	99.80709945	99.65414502	99.50166631
ADV1007335	6/25/2024	5.154	6/25/2025	100.73556	100.5797078	100.4243401	100.2694596	100.1150638	99.96115046	99.80771734	99.65476218	99.50228273

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1007336	6/25/2024	5.155	6/25/2025	100.73572	100.5798632	100.4244954	100.2696146	100.1152186	99.96130512	99.80787182	99.65491647	99.50243684
ADV1007342	6/25/2024	4.995	12/26/2025	103.1736	102.5013144	101.837814	101.1829283	100.53649	99.89833615	99.268308	98.64625081	98.03201377
ADV1007349	6/25/2024	5.141	6/25/2025	100.73354	100.5776875	100.4223223	100.2674442	100.1130508	99.9591399	99.80570918	99.65275641	99.50027935
ADV1007351	6/25/2024	4.983	12/26/2025	103.16561	102.4933524	101.8298816	101.1750251	100.5286158	99.89049071	99.26049105	98.63846209	98.02425302
ADV1007352	6/25/2024	4.827	6/25/2026	105.60627	104.4157987	103.252295	102.1148517	101.0025986	99.91470403	98.85037272	97.80884357	96.78938804
ADV1007353	6/25/2024	4.575	6/25/2027	110.45518	108.2129933	106.0282179	103.8989718	101.8234515	99.79992729	97.82673882	95.9022922	94.02505653
ADV1007356	6/25/2024	5.141	6/25/2025	100.73354	100.5776875	100.4223223	100.2674442	100.1130508	99.9591399	99.80570918	99.65275641	99.50027935
ADV1007378	6/26/2024	4.529	6/26/2030	123.97191	118.3291056	112.9850727	107.9222988	103.1243912	98.5760032	94.26276142	90.17119863	86.28869153
ADV1007379	6/26/2024	4.573	6/26/2031	127.8041	120.994737	114.6053588	108.6076392	102.9753122	97.68401423	92.71113611	88.03568747	83.6381723
ADV1007380	6/26/2024	4.622	6/28/2032	131.5104	123.5187706	116.0886829	109.1773264	102.7453864	96.75673663	91.17816426	85.97912015	81.13149149
ADV1007385	6/26/2024	4.302	6/26/2029	119.16817	114.6849502	110.3995834	106.3022057	102.3835059	98.63468848	95.04744204	91.61390955	88.32666078
ADV1007401	6/27/2024	5.164	6/27/2025	100.76343	100.6019787	100.4410522	100.2806441	100.1207521	99.96137351	99.80250599	99.64414705	99.48629425
ADV1007406	6/27/2024	4.515	6/27/2028	115.13677	111.7856673	108.5517496	105.4302085	102.4164658	99.50616007	96.69513472	93.979427	91.35525752
ADV1007409	6/27/2024	5.168	6/27/2025	100.76407	100.6026225	100.4416951	100.2812863	100.1213934	99.96201408	99.80314577	99.64478604	99.48693245
ADV1007410	6/27/2024	4.998	12/29/2025	103.21789	102.537099	101.8653051	101.2023347	100.5480147	99.90217622	99.26465511	98.63529124	98.01392859
ADV1007413	6/27/2024	4.827	6/29/2026	105.66373	104.4616535	103.2870531	102.1389957	101.0165875	99.91897453	98.84534036	97.79490402	96.76691822
ADV1007414	6/27/2024	4.997	12/29/2025	103.21722	102.5364273	101.8646359	101.201668	100.5473504	99.90151439	99.26399571	98.63463424	98.01327398
ADV1007421	7/1/2024	4.411	6/18/2029	119.16993	114.7205883	110.4664713	106.3979025	102.5057426	98.78135531	95.21657699	91.80368762	88.53538416
ADV1007425	6/27/2024	4.798	7/31/2026	106.08985	104.7949189	103.5317595	102.2992085	101.0961615	99.92156627	98.77442055	97.65376848	96.55869822
ADV1007426	6/27/2024	4.473	6/28/2027	110.45659	108.2021918	106.0057422	103.8653344	101.7791409	99.74540884	97.76245625	95.82866879	93.94249622
ADV1007429	6/27/2024	4.826	6/29/2026	105.66255	104.4604815	103.2858884	102.1378381	101.015437	99.91783093	98.84420359	97.79377398	96.76579481
ADV1007433	6/27/2024	5.178	6/27/2025	100.76568	100.6042319	100.4433025	100.2828917	100.1229968	99.96361551	99.80474521	99.64638351	99.48852796
ADV1007447	6/28/2024	4.576	6/28/2027	110.49907	108.2477803	106.0542871	103.9166953	101.8331837	99.8020056	97.82148479	95.89001236	94.00604324
ADV1007449	6/28/2024	4.391	6/28/2029	119.20174	114.7222912	110.4404688	106.3464236	102.4308555	98.68497972	95.10049489	91.66955352	88.38473445
ADV1007452	6/28/2024	4.403	6/28/2029	119.25257	114.7720558	110.4892051	106.3941648	102.4776334	98.73082477	95.14543634	91.71361948	88.42795192
ADV1007460	6/28/2024	5.027	6/30/2025	100.79285	100.6229279	100.453573	100.2847867	100.116566	99.94890833	99.78181072	99.61527041	99.44928463
ADV1007484	6/28/2024	5.035	6/30/2025	100.79421	100.6242818	100.4549251	100.2861371	100.1179148	99.95025535	99.78315605	99.61661405	99.45062659
ADV1007487	6/28/2024	5.085	9/30/2025	102.01208	101.5850384	101.1615687	100.7416288	100.3251747	99.91216315	99.50255167	99.09629839	98.69336217
ADV1007489	6/28/2024	4.799	8/14/2026	106.28974	104.9627938	103.6641922	102.3930242	101.1484212	99.92955131	98.73561775	97.56585674	96.41953584
ADV1007515	7/1/2024	5.041	1/2/2026	103.30905	102.6167968	101.9338402	101.2599975	100.5950868	99.93893134	99.29135871	98.65220112	98.02129514
ADV1007518	7/1/2024	5.194	7/1/2025	100.82652	100.653919	100.481912	100.3104926	100.1396576	99.9694043	99.79972959	99.63063058	99.46210433
ADV1007520	7/1/2024	5.064	7/1/2025	100.81758	100.6448499	100.4727136	100.3011669	100.1302068	99.95983021	99.79003423	99.62081586	99.45217215
ADV1007522	7/1/2024	4.894	7/1/2026	105.7768	104.5684104	103.3877707	102.2339283	101.1059766	100.00305	98.9243207	97.86899738	96.83632276

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1007541	7/1/2024	5.18	7/1/2025	100.82409	100.6514969	100.479493	100.3080766	100.1372448	99.96699448	99.79732283	99.62822687	99.45970366
ADV1007585	7/2/2024	4.518	7/2/2029	119.79274	115.2894849	110.9852011	106.8699566	102.9343711	99.16958543	95.56722881	92.1193893	88.81858567
ADV1007586	7/2/2024	4.518	7/2/2029	119.79274	115.2894849	110.9852011	106.8699566	102.9343711	99.16958543	95.56722881	92.1193893	88.81858567
ADV1007610	7/3/2024	4.582	7/6/2027	110.62521	108.3501322	106.1339164	103.9746078	101.8703359	99.8193075	97.81980276	95.87017148	93.9688297
ADV1007622	7/3/2024	4.58	7/6/2027	110.62078	108.34575	106.129583	103.9703222	101.8660972	99.81511473	97.81565501	95.86606786	93.96476934
ADV1007623	7/8/2024	4.946	1/8/2026	103.32719	102.6181167	101.9188112	101.2290689	100.5486941	99.87749659	99.21529119	98.56189769	97.9171407
ADV1007648	7/5/2024	4.367	7/5/2029	118.5052	114.1596318	110.0067314	106.036785	102.2406325	98.60962821	95.13560841	91.81086165	88.62810078
ADV1007651	7/5/2024	4.224	7/5/2029	118.94532	114.4408845	110.1362842	106.0215101	102.0871108	98.32416145	94.72423139	91.27935327	87.98199501
ADV1007658	7/5/2024	5.098	7/7/2025	100.8879	100.6985887	100.510002	100.3221315	100.1349729	99.94852229	99.7627755	99.57772852	99.39337735
ADV1007660	7/5/2024	4.343	7/6/2029	119.09464	114.5946665	110.2941391	106.1830699	102.2520321	98.49212405	94.89493654	91.45252236	88.15736818
ADV1007673	7/5/2024	4.194	7/5/2029	118.81742	114.3156739	110.013675	105.9014181	101.9694553	98.20886502	94.61121967	91.16855487	87.87334134
ADV1007693	7/8/2024	4.357	4/9/2029	118.11124	113.8852938	109.8376838	105.95992	102.2439627	98.68219531	95.26740055	91.99273678	88.85171668
ADV1007695	7/8/2024	4.378	1/10/2029	117.10698	113.1606762	109.3717589	105.7330241	102.2376419	98.87913597	95.65136285	92.5484925	89.56499027
ADV1007696	7/8/2024	4.411	9/13/2028	115.76773	112.1852181	108.7349868	105.4114507	102.2092872	99.12342581	96.14903479	93.28150851	90.51645576
ADV1007702	7/8/2024	4.744	1/8/2026	103.24118	102.5317145	101.8320325	101.14193	100.4612111	99.78968482	99.12716548	98.47347237	97.82842962
ADV1007703	7/8/2024	4.366	7/8/2027	110.35727	108.0759927	105.8539351	103.6891252	101.579675	99.52377487	97.51968949	95.56575404	93.66037076
ADV1007706	7/8/2024	4.973	7/8/2025	100.89149	100.6992239	100.5077057	100.3169281	100.1268868	99.93757736	99.74899555	99.5611371	99.37399778
ADV1007707	7/8/2024	4.973	7/8/2025	100.89149	100.6992239	100.5077057	100.3169281	100.1268868	99.93757736	99.74899555	99.5611371	99.37399778
ADV1007720	7/9/2024	4.76	1/9/2026	103.26606	102.5537108	101.8512203	101.1583858	100.4750086	99.80089569	99.13585921	98.47971633	97.83228911
ADV1007722	7/9/2024	4.984	7/9/2025	100.90644	100.7113851	100.5170932	100.3235642	100.1307933	99.9387762	99.74750828	99.55698511	99.36720228
ADV1007723	7/9/2024	4.593	7/9/2026	105.62717	104.3956834	103.1930345	102.0182217	100.870285	99.74830794	98.6514156	97.57877188	96.52957755
ADV1007732	7/9/2024	4.894	1/9/2026	103.30442	102.592654	101.8907277	101.198439	100.5155898	99.84198769	99.1774453	98.52178038	97.8748155
ADV1007736	7/9/2024	4.517	7/9/2027	110.52045	108.2382023	106.0151766	103.8494048	101.7389988	99.68214868	97.67711874	95.72224401	93.81592655
ADV1007757	7/10/2024	4.96	7/10/2025	100.91416	100.7163228	100.5192748	100.3230119	100.1275293	99.93282216	99.7388859	99.54571583	99.35330734
ADV1007761	7/10/2024	4.57	7/10/2026	105.61284	104.3786252	103.1733834	101.9961012	100.8458122	99.72159381	98.62256547	97.54788574	96.49675034
ADV1007766	7/10/2024	5.108	7/9/2025	100.97148	100.7679897	100.5653033	100.3634118	100.1623105	99.96199474	99.76245984	99.56370117	99.36571414
ADV1007770	7/10/2024	4.353	7/12/2027	110.38013	108.0874546	105.854526	103.6793466	101.5600033	99.49466308	97.48156837	95.51903354	93.60544119
ADV1007771	7/10/2024	4.96	7/10/2025	100.91416	100.7163228	100.5192748	100.3230119	100.1275293	99.93282216	99.7388859	99.54571583	99.35330734
ADV1007786	7/11/2024	4.084	7/11/2029	118.41317	113.9028925	109.5935107	105.4749244	101.5375982	97.77253033	94.17121917	90.72563235	87.42817794
ADV1007787	7/11/2024	4.357	7/12/2027	110.20271	107.915716	105.6882678	103.5183724	101.4041253	99.34370107	97.33534958	95.37739224	93.46821832
ADV1007788	7/11/2024	4.292	7/11/2028	114.59133	111.2094623	107.9471063	104.799309	101.7613524	98.82874462	95.99720767	93.26266536	90.62123245
ADV1007789	7/11/2024	4.221	7/11/2029	118.62942	114.12506	109.8210093	105.707207	101.7741574	98.01289531	94.41495333	90.97233076	87.67746512
ADV1007791	7/11/2024	4.996	7/11/2025	100.91859	100.7181406	100.5184964	100.3196572	100.121618	99.9243739	99.72792007	99.53225167	99.33736394

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1007793	7/11/2024	4.233	5/9/2029	117.95932	113.6498169	109.5256542	105.5778366	101.7978566	98.17766404	94.70963897	91.38656611	88.20161119
ADV1007797	7/11/2024	4.612	6/30/2026	105.42656	104.2231777	103.0473767	101.8982141	100.7747909	99.67624808	98.60176453	97.55055495	96.52186792
ADV1007801	7/11/2024	4.829	11/28/2025	102.68472	102.0920186	101.5061706	100.9270566	100.3545608	99.78857009	99.22897406	98.67566465	98.12853627
ADV1007810	7/12/2024	4.851	7/14/2025	100.94325	100.7342762	100.5261882	100.3189759	100.1126337	99.90715602	99.70253735	99.49877221	99.29585518
ADV1007814	7/12/2024	4.764	1/12/2026	103.25297	102.5330549	101.8232076	101.1232221	100.4328937	99.75202282	99.08041582	98.41788409	97.76424417
ADV1007817	7/12/2024	4.381	7/9/2027	110.21745	107.938625	105.7189527	103.5564652	101.4492765	99.39557844	97.39363739	95.44179012	93.53844044
ADV1007827	7/12/2024	4.093	7/12/2029	118.46268	113.9485194	109.6355279	105.5135853	101.5731384	97.80516897	94.20116015	90.75306546	87.45327988
ADV1007828	7/12/2024	4.233	7/12/2029	118.69182	114.1833133	109.8753983	105.7579927	101.8215826	98.05718628	94.4563208	91.01097111	87.71356141
ADV1007829	7/12/2024	4.234	7/12/2029	118.69609	114.1874984	109.8794962	105.7620062	101.8255144	98.06103904	94.46009697	91.0146731	87.71719152
ADV1007830	7/12/2024	4.234	7/12/2029	118.69609	114.1874984	109.8794962	105.7620062	101.8255144	98.06103904	94.46009697	91.0146731	87.71719152
ADV1007834	7/12/2024	4.965	7/14/2025	100.95066	100.7418573	100.5339308	100.3268772	100.1206912	99.91536703	99.71089934	99.50728267	99.30451165
ADV1007857	7/15/2024	4.945	7/15/2025	100.95862	100.747021	100.5363229	100.326521	100.1176093	99.9095823	99.70243416	99.49615929	99.2907521
ADV1007865	7/15/2024	4.703	1/15/2026	103.24921	102.5209513	101.8030029	101.0951439	100.397162	99.70885119	99.03001102	98.36044654	97.69996815
ADV1007874	7/15/2024	4.332	7/15/2027	110.18482	107.8897123	105.6545311	103.4772708	101.3560081	99.28890034	97.27418097	95.31015594	93.39519996
ADV1007889	7/15/2024	4.252	3/12/2027	108.54129	106.6117516	104.7264289	102.8840414	101.0833588	99.32319371	97.60240048	95.91987297	94.27454311
ADV1007906	7/16/2024	4.081	7/16/2029	118.4545	113.9291666	109.6059499	105.4746593	101.5256759	97.74992095	94.13882162	90.68427975	87.37864257
ADV1007913	7/16/2024	4.594	1/16/2026	103.24118	102.5094145	101.7880562	101.076884	100.3756826	99.68424302	99.00236191	98.32984161	97.66648988
ADV1007923	7/16/2024	4.075	7/16/2029	118.42874	113.9039496	109.5812606	105.4504804	101.501991	97.72671422	94.11607793	90.66198455	87.35678188
ADV1007924	7/16/2024	4.075	7/16/2029	118.42874	113.9039496	109.5812606	105.4504804	101.501991	97.72671422	94.11607793	90.66198455	87.35678188
ADV1007925	7/16/2024	4.545	7/16/2026	105.56559	104.3163055	103.0967252	101.9057943	100.7425102	99.60591631	98.49509988	97.40918941	96.34735232
ADV1007926	7/16/2024	4.942	7/16/2025	100.9705	100.7561075	100.5426449	100.3301017	100.1184717	99.90774905	99.69792782	99.48900216	99.28096626
ADV1007927	7/16/2024	4.54	7/16/2026	105.55945	104.3102102	103.0906691	101.8997768	100.7365307	99.59997414	98.48919447	97.40332019	96.34151872
ADV1007928	7/16/2024	4.295	1/18/2028	112.45112	109.6018363	106.8405379	104.1639218	101.568837	99.05227354	96.6113551	94.24333191	91.94557408
ADV1007938	7/16/2024	4.927	7/16/2025	100.96728	100.7528981	100.5394405	100.3269021	100.1152769	99.90455909	99.69474267	99.4858218	99.27779068
ADV1007939	7/16/2024	4.527	7/16/2026	105.5435	104.2943624	103.0749232	101.8841313	100.7209839	99.58452449	98.47384041	97.38806021	96.32635137
ADV1007941	7/16/2024	4.12	7/17/2028	114.37769	110.9757575	107.6947394	104.529595	101.4755248	98.52796086	95.68255409	92.93516187	90.28183685
ADV1007944	7/16/2024	4.512	7/16/2026	105.5251	104.2760764	103.056755	101.8660789	100.7030453	99.56669797	98.45612418	97.37045254	96.30885058
ADV1007957	7/17/2024	4.221	7/19/2027	110.17321	107.8634198	105.6142479	103.4236505	101.2896724	99.2104404	97.18415966	95.20910919	93.28363832
ADV1008000	7/23/2024	4.195	7/2/2029	118.4174	113.9428942	109.6664294	105.5781049	101.6685771	97.92902151	94.35110068	90.92693422	87.64907103
ADV1008001	7/18/2024	4.526	7/20/2026	105.59629	104.3355633	103.1050772	101.903748	100.7305462	99.58449054	98.46464497	97.370116	96.30005042
ADV1008006	7/18/2024	4.957	7/18/2025	100.99862	100.7786602	100.5596694	100.3416446	100.1245794	99.90846745	99.69330231	99.47907773	99.26578748
ADV1008009	7/18/2024	4.713	1/20/2026	103.32302	102.5805607	101.848803	101.1275195	100.4164859	99.71548437	99.02430334	98.34273701	97.67058537
ADV1008011	7/18/2024	4.532	7/20/2026	105.60371	104.3429428	103.1124089	101.9110325	100.7377844	99.59168318	98.47179276	97.37721965	96.30711062

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1008031	7/19/2024	4.252	7/19/2027	110.24308	107.9324908	105.682536	103.491172	101.3564429	99.27647518	97.24947351	95.27371647	93.34755301
ADV1008032	7/19/2024	4.839	7/21/2025	101.02784	100.7993363	100.5718763	100.3454567	100.1200702	99.8957097	99.67236815	99.45003855	99.22871393
ADV1008041	7/19/2024	4.968	7/21/2025	101.03935	100.8110155	100.5837276	100.357477	100.1322566	99.90805926	99.684878	99.46270586	99.24153593
ADV1008042	7/19/2024	4.77	1/20/2026	103.36495	102.6223209	101.8903939	101.1689426	100.457743	99.75657722	99.0652335	98.3835061	97.71119497
ADV1008099	7/23/2024	4.563	7/23/2026	105.68261	104.4128798	103.1737997	101.9642654	100.7832274	99.62968544	98.50268554	97.40131752	96.32471241
ADV1008100	7/23/2024	4.955	7/23/2025	101.06109	100.8271823	100.5943651	100.3626335	100.1319799	99.90239684	99.67387677	99.44641227	99.219996
ADV1008102	7/23/2024	4.373	7/23/2027	110.37875	108.0592301	105.8007405	103.6012147	101.458678	99.37123903	97.33708587	95.35448141	93.42175982
ADV1008103	7/23/2024	4.746	1/23/2026	103.38724	102.6361657	101.8960366	101.1666152	100.44767	99.73897601	99.04031481	98.351474	97.67224719
ADV1008104	7/23/2024	4.563	7/23/2026	105.68261	104.4128798	103.1737997	101.9642654	100.7832274	99.62968544	98.50268554	97.40131752	96.32471241
ADV1008109	7/23/2024	4.252	7/23/2029	117.7851	113.5055665	109.4161753	105.5073628	101.7700986	98.19585424	94.77657197	91.50463664	88.37284875
ADV1008134	7/24/2024	4.357	7/24/2026	105.53987	104.2667156	103.0243926	101.811788	100.627843	99.47154889	98.3419435	97.23810906	96.15916945
ADV1008145	7/24/2024	4.328	7/26/2027	110.31465	107.9875605	105.7218782	103.515521	101.3664957	99.27289362	97.23288631	95.24472133	93.30671831
ADV1008146	7/24/2024	4.302	11/29/2027	111.85171	109.1501159	106.5287557	103.9847539	101.5153542	99.11791714	96.78991435	94.52892323	92.33262158
ADV1008164	7/25/2024	4.773	10/24/2025	102.18908	101.695026	101.2057632	100.7212207	100.2413303	99.76602515	99.29523956	98.82890917	98.36697083
ADV1008166	7/25/2024	4.782	7/25/2025	101.06327	100.8236358	100.5851467	100.3477952	100.1115732	99.87647244	99.64248501	99.40960294	99.17781836
ADV1008181	7/25/2024	4.945	6/26/2025	100.77074	100.6058138	100.4414106	100.2775305	100.114171	99.95132967	99.789004	99.62719154	99.46588988
ADV1008182	7/25/2024	4.912	7/25/2025	101.07554	100.8360913	100.5977833	100.3606096	100.1245621	99.8896329	99.65581389	99.42309723	99.1914751
ADV1008183	7/25/2024	4.912	7/25/2025	101.07554	100.8360913	100.5977833	100.3606096	100.1245621	99.8896329	99.65581389	99.42309723	99.1914751
ADV1008184	7/25/2024	4.912	7/25/2025	101.07554	100.8360913	100.5977833	100.3606096	100.1245621	99.8896329	99.65581389	99.42309723	99.1914751
ADV1008185	7/25/2024	4.918	7/25/2025	101.07697	100.8375221	100.5992117	100.3620357	100.125986	99.89105447	99.6572332	99.42451428	99.1928899
ADV1008186	7/25/2024	4.918	7/25/2025	101.07697	100.8375221	100.5992117	100.3620357	100.125986	99.89105447	99.6572332	99.42451428	99.1928899
ADV1008192	7/25/2024	4.92	7/25/2025	101.07745	100.837999	100.5996879	100.3625111	100.1264606	99.89152833	99.6577063	99.42498663	99.1933615
ADV1008195	7/25/2024	4.41	7/26/2027	110.50088	108.1716403	105.9038571	103.6954424	101.5444019	99.44882575	97.40688421	95.41682371	93.47696281
ADV1008196	7/25/2024	4.232	7/26/2027	110.28609	107.9555655	105.6866065	103.4771273	101.3251276	99.22869195	97.18598546	95.19524958	93.25479821
ADV1008198	7/25/2024	4.133	7/25/2029	118.77599	114.218312	109.8651301	105.7060826	101.7313931	97.93183643	94.29870486	90.8237752	87.49927892
ADV1008199	7/25/2024	4.931	7/25/2025	101.08008	100.840622	100.6023066	100.3651257	100.129071	99.89413456	99.66030836	99.42758455	99.19595528
ADV1008208	7/26/2024	4.678	1/26/2026	103.37605	102.616684	101.8685068	101.1312687	100.4047308	99.68866097	98.98283393	98.28703066	97.60103844
ADV1008214	7/26/2024	4.775	7/28/2025	101.09894	100.8509266	100.6041298	100.3585452	100.114164	99.87097724	99.62897621	99.38815221	99.14849665
ADV1008216	7/26/2024	4.284	7/26/2029	117.89309	113.5477113	109.3963917	105.4293329	101.6372831	98.01150595	94.54374923	91.22621513	88.05153287
ADV1008218	7/26/2024	4.53	7/26/2033	134.32758	125.1041412	116.6124593	108.7899154	101.5795896	94.92970941	88.79315817	83.12703222	77.89224289
ADV1008219	7/26/2024	4.588	7/26/2035	140.9005	129.3158925	118.8379949	109.3534732	100.7612181	92.97096787	85.90209023	79.48250644	73.64774137
ADV1008220	7/26/2024	4.464	7/26/2032	130.60521	122.5666811	115.0988742	108.1578594	101.7033216	95.69824768	90.10863846	84.90324784	80.05334532
ADV1008221	7/26/2024	4.2	7/26/2029	118.70287	114.1545561	109.8101769	105.6593993	101.6924789	97.90022075	94.27394527	90.80545567	87.48700814

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1008223	7/26/2024	4.252	7/26/2028	114.63644	111.2117587	107.9093921	104.7242059	101.6513201	98.68609186	95.82410198	93.06114252	90.39320514
ADV1008224	7/26/2024	4.252	7/26/2028	114.63644	111.2117587	107.9093921	104.7242059	101.6513201	98.68609186	95.82410198	93.06114252	90.39320514
ADV1008225	7/26/2024	4.588	7/26/2035	140.9005	129.3158925	118.8379949	109.3534732	100.7612181	92.97096788	85.90209023	79.48250644	73.64774137
ADV1008226	7/26/2024	4.2	7/26/2029	118.70287	114.1545561	109.8101769	105.6593993	101.6924789	97.90022075	94.27394527	90.80545567	87.48700814
ADV1008228	7/26/2024	4.498	7/26/2034	128.43306	120.8209942	113.804195	107.3302228	101.351635	95.82547757	90.71283315	85.97841758	81.59021859
ADV1008229	7/26/2024	4.903	7/28/2025	101.11115	100.863326	100.6167174	100.3713177	100.1271181	99.88410955	99.64228355	99.40163142	99.16214463
ADV1008231	7/26/2024	4.099	11/26/2029	119.98315	115.0414715	110.3368643	105.8566451	101.5888751	97.52231621	93.64638566	89.95111443	86.42710815
ADV1008232	7/26/2024	4.673	1/26/2026	103.37229	102.6129398	101.864778	101.1275552	100.4010325	99.68497766	98.97916546	98.2833769	97.59739923
ADV1008233	7/26/2024	4.475	7/27/2026	105.62622	104.3456306	103.0962156	101.8768482	100.6864522	99.52400219	98.38852098	97.2790763	96.1947785
ADV1008245	7/29/2024	4.292	7/29/2027	110.27065	107.9357556	105.6626528	103.4492424	101.2935124	99.19353652	97.14746976	95.15354398	93.21006412
ADV1008247	7/29/2024	4.465	7/29/2026	105.64024	104.3539371	103.0990837	101.8745339	100.6791981	99.51203841	98.37206554	97.25833611	96.16994994
ADV1008249	7/29/2024	4.664	1/29/2026	103.40515	102.637314	101.8809096	101.135679	100.4013758	99.67776069	98.9646013	98.26167197	97.56875349
ADV1008250	7/29/2024	4.466	7/29/2026	105.6415	104.3551914	103.1003296	101.8757717	100.6804279	99.51326031	98.3732797	97.25954263	96.17114896
ADV1008251	7/29/2024	4.752	7/29/2026	103.09934	102.4174579	101.7471607	101.0881184	100.4400159	99.80255031	99.17543072	98.55837727	97.95112079
ADV1008257	7/29/2024	4.184	7/30/2029	118.67749	114.1184263	109.7642379	105.6045193	101.6294601	97.82980483	94.19681792	90.72225089	87.39831221
ADV1008260	7/29/2024	4.444	7/29/2032	130.48379	122.4411659	114.9702122	108.0268716	101.5707236	95.56466191	89.97460488	84.76923345	79.91975264
ADV1008263	7/31/2024	4.308	5/25/2027	109.46314	107.3200738	105.2304013	103.1924304	101.2045377	99.26516313	97.372807	95.52602697	93.72343552
ADV1008275	7/30/2024	4.123	7/31/2028	114.5495	111.1054045	107.7849156	104.5828204	101.4941644	98.51423538	95.63854918	92.86283728	90.18303457
ADV1008283	11/1/2024	4.589	10/31/2025	102.21351	101.683504	101.1588399	100.6394417	100.1252305	99.6161291	99.1120617	98.61295408	98.11873346
ADV1008320	7/31/2024	4.126	7/30/2027	110.09455	107.7551322	105.477767	103.2603419	101.1008323	98.99729983	96.94788832	94.95081908	93.00438708
ADV1008323	7/31/2024	4.191	7/31/2028	114.49339	111.0570612	107.7439164	104.5487644	101.4666728	98.49295002	95.62313131	92.8529664	90.17840738
ADV1008348	8/1/2024	4.031	2/1/2029	116.04489	112.0563943	108.2293767	104.556336	101.0301702	97.6441504	94.39189854	91.26736689	88.26481855
ADV1008352	8/1/2024	4.511	2/2/2026	103.3454	102.5667051	101.7997696	101.0443263	100.300118	99.56689525	98.84441589	98.13244481	97.43075374
ADV1008361	8/1/2024	4.307	8/3/2026	105.50988	104.2123102	102.9457062	101.7089583	100.5010137	99.32086876	98.16756619	97.04019237	95.93787486
ADV1008370	8/1/2024	4.912	5/1/2025	100.06887	100.0659996	100.0631274	100.0602577	100.0573905	100.0545258	100.0516636	100.0488039	100.0459467
ADV1008371	11/15/2024	4.35	11/14/2025	102.2337	101.6812678	101.1348226	100.5942666	100.0595047	99.53044391	99.00699313	98.48906325	97.97656705
ADV1008374	8/1/2024	4.355	2/2/2026	103.28639	102.5071259	101.739639	100.9836653	100.2389468	99.50523325	98.78228188	98.0698569	97.3677294
ADV1008382	8/2/2024	4.49	8/4/2025	101.09434	100.8271672	100.5614139	100.2970659	100.0341121	99.77254136	99.5123428	99.25350559	98.99601904
ADV1008387	8/2/2024	3.946	8/3/2026	105.15202	103.8552326	102.5894341	101.3535135	100.1464164	98.96713747	97.81471782	96.6882424	95.58683741
ADV1008388	8/2/2024	4.208	2/2/2026	103.11121	102.3334995	101.5675387	100.8130599	100.0698061	99.33752798	98.61598351	97.90493777	97.20416265
ADV1008389	8/2/2024	3.794	8/2/2029	117.02419	112.4920484	108.1643293	104.0306321	100.0811506	96.30663311	92.69834803	89.24805083	85.94795398
ADV1008391	8/2/2024	3.99	9/16/2026	105.64158	104.2370415	102.8581198	101.5041684	100.1745667	98.86871419	97.58602975	96.32595067	95.08793212
ADV1008394	8/2/2024	4.446	8/4/2025	101.08257	100.815416	100.5496832	100.2853556	100.0224221	99.76087155	99.50069311	99.24187595	98.98440936

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1008396	8/2/2024	3.86	8/2/2028	113.42416	109.9999276	106.6987749	103.5155144	100.4452162	97.48319062	94.62497457	91.86631866	89.20317555
ADV1008398	8/2/2024	3.791	8/2/2029	117.01119	112.4793231	108.1518727	104.0184354	100.0692052	96.29493108	92.68688154	89.23681242	85.93693649
ADV1008399	8/2/2024	4.399	8/4/2025	101.09093	100.8235328	100.5575586	100.2929937	100.0298267	99.76804647	99.50764211	99.24860269	98.99091745
ADV1008404	8/2/2024	3.886	8/2/2027	109.3953	107.0595137	104.7858409	102.5721657	100.4164658	98.31680491	96.27132786	94.27825669	92.33588661
ADV1008405	8/2/2024	4.049	8/3/2026	105.1801	103.884748	102.6203201	101.3857102	100.1798668	99.00178729	97.85051548	96.72513868	95.62478537
ADV1008406	8/2/2024	4.505	8/4/2025	101.09835	100.8311732	100.565413	100.3010581	100.0380973	99.77651971	99.51631428	99.25747024	98.99997689
ADV1008407	8/2/2024	3.891	8/2/2027	109.40675	107.0708384	104.7970353	102.5832325	100.4274077	98.3276245	96.28202758	94.28883896	92.34635377
ADV1008409	8/2/2024	4.031	8/3/2026	105.1571	103.8619066	102.5976309	101.3631708	100.1574747	98.97954003	97.82841066	96.70317399	95.60295858
ADV1008410	8/2/2024	3.883	8/2/2027	109.38842	107.052719	104.7791243	102.5655256	100.4099007	98.31031316	96.26490803	94.27190733	92.32960632
ADV1008411	8/2/2024	3.804	8/2/2029	117.06753	112.534466	108.2058514	104.071288	100.1209684	96.34563989	92.73656967	89.28551219	85.98467895
ADV1008413	8/2/2024	4.029	8/3/2026	105.15455	103.8593686	102.5951099	101.3606665	100.1549867	98.97706811	97.82595457	96.70073347	95.60053338
ADV1008415	8/2/2024	4.033	8/3/2026	105.15966	103.8644445	102.600152	101.3656752	100.1599627	98.98201194	97.83086675	96.70561451	95.60538378
ADV1008416	8/2/2024	3.874	8/2/2027	109.3678	107.0323346	104.7589744	102.5456053	100.3902052	98.29083791	96.24564854	94.25285925	92.31076543
ADV1008417	8/2/2024	3.857	8/2/2028	113.41421	109.9901492	106.6891563	103.5060512	100.4359043	97.47402617	94.61595368	91.85743762	89.19443078
ADV1008418	8/2/2024	3.791	8/2/2029	117.01119	112.4793231	108.1518727	104.0184354	100.0692052	96.29493108	92.68688154	89.23681242	85.93693649
ADV1008419	8/2/2024	3.865	8/2/2027	109.34717	107.0119503	104.7388245	102.525685	100.3705097	98.27136266	96.22638904	94.23381117	92.29192454
ADV1008420	8/2/2024	4.48	8/4/2025	101.09166	100.8244965	100.5587478	100.2944045	100.0314553	99.76988913	99.50969514	99.25086249	98.99338048
ADV1008424	8/2/2024	3.748	8/2/2028	113.33282	109.9032615	106.5971379	103.4092444	100.3346314	97.36859079	94.50664183	91.74451886	89.07815918
ADV1008425	8/2/2024	4.221	2/2/2026	103.12125	102.3434973	101.5774943	100.8229737	100.0796786	99.34735955	98.6257746	97.91468881	97.21387404
ADV1008426	8/2/2024	3.679	8/2/2029	116.89734	112.3572299	108.0222138	103.8818443	99.92627124	96.14620256	92.53286875	89.07799027	85.77374697
ADV1008432	8/5/2024	3.693	8/5/2027	108.98542	106.6461083	104.3692046	102.1525926	99.99424762	97.89222984	95.84468017	93.84981611	91.90592785
ADV1008437	8/5/2024	4.732	5/5/2025	100.11309	100.0987345	100.0843955	100.0700706	100.0557598	100.041463	100.0271801	100.0129113	99.9986564
ADV1008438	8/5/2024	4.458	8/12/2025	101.17789	100.8884325	100.6006447	100.3145118	100.0300194	99.74715351	99.46589997	99.18624493	98.90817471
ADV1008441	8/5/2024	3.734	8/6/2029	116.80238	112.2637282	107.9302962	103.7916377	99.83790166	96.05979361	92.44854021	88.995857	85.6939181
ADV1008442	8/5/2024	3.826	8/7/2028	113.36422	109.9270181	106.6137909	103.4193256	100.3386601	97.36707223	94.50006651	91.7333616	89.06287861
ADV1008443	8/5/2024	3.838	9/7/2027	109.6945	107.2550722	104.8827701	102.5753744	100.3307544	98.14686188	96.02172707	93.95345545	91.94022431
ADV1008444	8/5/2024	3.836	10/5/2027	110.01032	107.48767	105.0365025	102.6543856	100.3389842	98.08805635	95.89944896	93.77109377	91.70100336
ADV1008448	8/5/2024	3.892	8/5/2027	109.44308	107.0984342	104.8163092	102.5945849	100.4312335	98.32431199	96.27195832	94.27238713	92.32388585
ADV1008449	8/5/2024	3.821	8/6/2029	117.18043	112.6336826	108.2924203	104.1461886	100.185126	96.3999279	92.78181136	89.32248279	86.01410761
ADV1008450	8/5/2024	3.892	8/5/2027	109.44308	107.0984342	104.8163092	102.5945849	100.4312335	98.32431199	96.27195832	94.27238713	92.32388585
ADV1008451	8/5/2024	4.008	8/5/2031	124.57091	117.7481077	111.354341	105.3601865	99.73839598	94.46372557	89.51277711	84.86385347	80.49682583
ADV1008452	8/5/2024	3.976	8/5/2026	105.2142	103.9126196	102.6415335	101.3998717	100.1866133	99.00078436	97.84145524	96.70773811	95.59878464
ADV1008462	8/7/2024	3.893	8/2/2027	109.4106	107.0746329	104.8007803	102.5869283	100.4310546	98.3312227	96.28557741	94.29234071	92.34980775

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1008468	8/5/2024	4.047	8/5/2026	105.20131	103.9014443	102.6320089	101.3919341	100.1802017	98.9958407	97.83792405	96.70556639	95.59792176
ADV1008469	8/5/2024	4.42	8/5/2025	101.10773	100.8375109	100.5687463	100.301422	100.0355261	99.77104729	99.50797414	99.24629541	98.98599996
ADV1008471	8/5/2024	4.406	8/5/2025	101.10394	100.8337343	100.5649765	100.2976588	100.0317696	99.76729737	99.50423081	99.24255864	98.98226972
ADV1008472	8/5/2024	3.867	8/5/2027	109.38558	107.0416094	104.7601402	102.5390583	100.3763358	98.27003031	96.21828016	94.21930032	92.27137856
ADV1008476	8/5/2024	4.474	8/5/2025	101.10116	100.8311903	100.5626664	100.2955787	100.0299155	99.76566561	99.50281756	99.24136022	98.9812825
ADV1008502	8/6/2024	4.121	8/6/2026	105.30841	104.0056415	102.7330633	101.4896284	100.2743353	99.08622823	97.9243946	96.78796249	95.67609845
ADV1008503	10/4/2024	3.864	10/4/2027	110.06833	107.5477144	105.0984485	102.7181023	100.4043476	98.15494917	95.96776021	93.84071835	91.77184176
ADV1008505	8/6/2024	4.334	2/6/2026	103.25781	102.4683398	101.6909624	100.9254052	100.1713998	99.42868579	98.69701055	97.97612898	97.2658032
ADV1008506	10/4/2024	3.867	10/4/2027	110.07573	107.5550242	105.1056681	102.7252336	100.4113927	98.16190978	95.97463815	93.84751535	91.77855952
ADV1008508	8/6/2024	4.559	8/6/2025	101.13581	100.8630077	100.5916822	100.321824	100.053421	99.78646154	99.52093382	99.25682631	98.9941276
ADV1008509	8/6/2024	4.127	8/6/2026	105.31613	104.0133038	102.7406742	101.4971887	100.2818458	99.09368985	97.93180812	96.79532868	95.68341808
ADV1008510	8/6/2024	3.806	8/6/2029	117.48867	112.9245696	108.5669402	104.4052673	100.4296332	96.63068056	92.99957747	89.52798441	86.20802389
ADV1008511	8/6/2024	3.955	8/6/2027	109.59948	107.2502461	104.9636992	102.7377214	100.5702816	98.45943386	96.40331288	94.40012988	92.44816882
ADV1008512	8/6/2024	3.806	8/6/2029	117.48867	112.9245696	108.5669402	104.4052673	100.4296332	96.63068056	92.99957747	89.52798441	86.20802389
ADV1008517	8/6/2024	4.462	8/6/2025	101.13071	100.8576817	100.5861337	100.3160569	100.0474393	99.78026899	99.5145342	99.25022331	98.98732483
ADV1008522	8/6/2024	4.109	8/7/2026	105.30527	104.0003402	102.7253607	101.4792957	100.2611605	99.07001507	97.90496161	96.76514191	95.64973534
ADV1008523	8/6/2024	3.939	8/6/2027	109.56264	107.2138351	104.927709	102.7021432	100.5351069	98.42465439	96.36892055	94.36611688	92.41452758
ADV1008531	8/7/2024	4.353	2/9/2026	103.31015	102.5121098	101.7264278	100.9528183	100.1910042	99.4407166	98.70169511	97.97368691	97.25644674
ADV1008545	8/7/2024	4.577	8/7/2025	101.15246	100.8768523	100.6027573	100.3301606	100.0590498	99.78941271	99.52123733	99.2545117	98.98922401
ADV1008546	8/7/2024	4.17	8/7/2026	105.38371	104.0782453	102.8027343	101.556146	100.3374955	99.14584266	97.98028934	96.8399772	95.72408545
ADV1008547	8/7/2024	3.99	8/9/2027	109.71521	107.3563296	105.0605624	102.8257853	100.6499606	98.53113542	96.46743681	94.45706804	92.49830476
ADV1008557	8/7/2024	4.096	8/7/2026	105.28836	103.983544	102.7086701	101.4627082	100.2446735	99.05362629	97.88866871	96.74894267	95.63362763
ADV1008570	8/8/2024	3.887	8/8/2029	117.86167	113.2838845	108.9133229	104.7394277	100.752245	96.94238266	93.30097533	89.8196515	86.49050307
ADV1008577	8/8/2024	4.076	8/10/2026	105.40421	104.0904199	102.805908	101.5496965	100.3208487	99.11846927	97.94170201	96.78972774	95.66176223
ADV1008595	8/9/2024	3.986	8/9/2027	109.70567	107.3468824	105.0512089	102.8165237	100.6407893	98.52205264	96.45844099	94.44815765	92.48947832
ADV1008596	8/9/2024	4.59	8/11/2025	101.20347	100.9167018	100.6315725	100.348067	100.0661713	99.78587159	99.50715433	99.230006	98.95441328
ADV1008597	8/9/2024	4.591	8/11/2025	101.20376	100.916988	100.6318582	100.3483521	100.0664558	99.78615564	99.50743786	99.230289	98.95469577
ADV1008598	8/9/2024	4.551	9/19/2025	101.65675	101.2610684	100.8684791	100.478946	100.0924335	99.70890625	99.32832974	98.95066986	98.57589306
ADV1008612	8/12/2024	4.364	2/12/2026	103.35574	102.5491348	101.7551481	100.9734879	100.2038682	99.44601185	98.69965026	97.96452288	97.24037703
ADV1008616	8/12/2024	4.385	8/12/2026	102.89485	102.2181105	101.5529229	100.8989645	100.2559217	99.62349344	99.00138997	98.38933276	97.78705374
ADV1008617	8/12/2024	4.497	8/12/2025	101.21066	100.9208406	100.6326991	100.3462176	100.0613818	99.77817722	99.49658987	99.21660579	98.93821117
ADV1008618	8/12/2024	4.287	2/12/2026	103.3581	102.5506217	101.7557889	100.9733077	100.2028916	99.44426237	98.69715072	97.96129532	97.23644274
ADV1008646	8/13/2024	3.838	8/13/2029	117.32286	112.7533062	108.3910234	104.2254544	100.2466442	96.44519773	92.8122452	89.33940958	86.0187763

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1008647	8/13/2024	3.885	8/13/2027	109.51758	107.1499239	104.8458719	102.6032895	100.4201328	98.29444169	96.22433537	94.20800848	92.24372756
ADV1008648	8/15/2024	3.881	8/16/2027	109.54238	107.1661398	104.8539111	102.603554	100.4130185	98.28033781	96.20362396	94.18106395	92.21091628
ADV1008666	8/14/2024	4.249	2/17/2026	103.32471	102.5043407	101.6970275	100.9024604	100.1203388	99.35037162	98.59227663	97.84578035	97.11061767
ADV1008670	8/14/2024	4.054	8/14/2026	105.31809	103.9977998	102.705732	101.4409794	100.2026769	98.98999622	97.80214384	96.63835911	95.49791264
ADV1008677	8/14/2024	4.411	8/14/2025	101.20876	100.9134056	100.619789	100.3278964	100.0377124	99.749222	99.4624102	99.17726226	98.89376362
ADV1008678	8/14/2024	4.496	8/14/2025	101.21071	100.9156059	100.6222383	100.3305901	100.0406461	99.75239141	99.46581103	99.18089035	98.89761487
ADV1008686	8/14/2024	3.893	8/16/2027	109.57049	107.193922	104.8813742	102.6307045	100.4398629	98.30688233	96.22987459	94.20702655	92.23659653
ADV1008713	8/15/2024	3.965	8/15/2029	117.19715	112.7829774	108.569099	104.545303	100.7019486	97.02993502	93.52066805	90.16602955	86.95834846
ADV1008716	8/15/2024	4.461	12/18/2025	102.71913	102.0707411	101.4305614	100.7984347	100.1742093	99.55773754	98.94887517	98.34748164	97.75341983
ADV1008717	8/15/2024	4.437	1/15/2026	103.05718	102.3296914	101.6125062	100.9054027	100.2081689	99.52059885	98.84249215	98.173654	97.51389493
ADV1008720	8/15/2024	4.228	8/17/2026	105.58331	104.2546515	102.9535082	101.6790281	100.430397	99.206834	98.00759021	96.83194658	95.67921266
ADV1008743	8/16/2024	4.747	6/17/2025	100.62504	100.4868927	100.3491254	100.2117389	100.0747313	99.93810113	99.80184679	99.66596668	99.53045923
ADV1008766	8/26/2024	4.144	8/26/2026	105.58231	104.2340299	102.9110528	101.6126969	100.3383058	99.08724629	97.85890757	96.65270011	95.46805483
ADV1008768	8/26/2024	3.971	8/26/2027	109.8674	107.4596472	105.1173301	102.838294	100.6204663	98.4618554	96.36054686	94.31469984	92.32254388
ADV1008771	8/19/2024	3.982	8/19/2027	109.81235	107.4246096	105.101353	102.8404315	100.6397873	98.49744513	96.41150797	94.38015351	92.40163062
ADV1008800	8/20/2024	3.845	8/20/2029	117.42224	112.8308244	108.4484298	104.2644092	100.2687141	96.45185947	92.80488891	89.31934223	85.98722524
ADV1008819	8/20/2024	4.106	8/20/2026	105.45881	104.1244655	102.8168831	101.5352667	100.2788547	99.04691571	97.83874682	96.65367221	95.49104191
ADV1008825	8/21/2024	4.509	8/21/2025	101.29537	100.980728	100.6680528	100.3573256	100.0485281	99.74164234	99.43665048	99.13353495	98.83227837
ADV1008826	8/21/2024	4.509	8/21/2025	101.29537	100.980728	100.6680528	100.3573256	100.0485281	99.74164234	99.43665048	99.13353495	98.83227837
ADV1008827	8/21/2024	4.231	2/23/2026	103.38215	102.5448317	101.7210979	100.9106237	100.1130905	99.32818975	98.55562274	97.79510006	97.04634131
ADV1008829	8/21/2024	4.056	8/21/2026	105.40458	104.0684412	102.7588059	101.4749032	100.2159893	98.9813492	97.77029548	96.58216685	95.41632692
ADV1008832	8/21/2024	3.867	8/23/2027	109.58883	107.1926898	104.861513	102.5931479	100.3855302	98.23667713	96.14468351	94.10771821	92.1240207
ADV1008837	8/21/2024	4.507	8/21/2025	101.29474	100.9801013	100.6674274	100.3567014	100.0479052	99.74102063	99.43603	99.13291569	98.83166033
ADV1008842	8/21/2024	4.074	8/21/2026	105.42847	104.0921581	102.7823587	101.4982948	100.2392223	99.00442633	97.79321926	96.60493977	95.43895139
ADV1008843	8/21/2024	4.244	2/23/2026	103.39294	102.5555712	101.7317889	100.9212667	100.1236861	99.33873853	98.56612519	97.80555668	97.0567526
ADV1008845	11/21/2024	4.228	8/21/2025	101.22996	100.9081554	100.5883712	100.2705838	99.95477424	99.64092417	99.32901528	99.01902953	98.7109491
ADV1008846	8/21/2024	4.493	8/21/2025	101.29035	100.9757145	100.6630493	100.352332	100.0435445	99.73666863	99.43168661	99.12858086	98.82733403
ADV1008861	8/22/2024	4.111	8/24/2026	105.51427	104.1708318	102.853173	101.5605796	100.29236	99.04784837	97.82640297	96.62740549	95.4502598
ADV1008862	8/22/2024	3.953	8/23/2027	109.79073	107.3921863	105.0586548	102.7879848	100.5781107	98.42704825	96.33289092	94.29380626	92.30803247
ADV1008867	8/22/2024	4.765	5/21/2025	100.30227	100.2420025	100.1818235	100.1217302	100.0617224	100.0017999	99.94196247	99.88221001	99.8225423
ADV1008875	8/22/2024	4.288	2/23/2026	103.4293	102.5917551	101.7678066	100.9571202	100.1593773	99.37426925	98.60149734	97.84077209	97.09181305
ADV1008895	8/23/2024	4.498	8/25/2025	101.33833	101.0125374	100.68885	100.3672444	100.0477003	99.73019807	99.414718	99.10124081	98.7897474
ADV1008903	8/23/2024	4.418	8/25/2025	101.33783	101.0117558	100.6877867	100.3659044	100.046089	99.72832035	99.41257888	99.09884513	98.78709993

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1008905	8/23/2024	3.952	8/24/2026	105.41015	104.0657337	102.7471454	101.4536663	100.184603	98.93928788	97.71707771	96.51735267	95.33951518
ADV1008938	8/26/2024	3.994	8/26/2026	105.38123	104.034367	102.7127834	101.4157974	100.1427531	98.89301803	97.66598193	96.4610559	95.27767138
ADV1008945	8/26/2024	3.761	8/26/2027	109.56816	107.1599986	104.8173866	102.5381561	100.320229	98.16160813	96.06037402	94.01468104	92.0227542
ADV1008946	8/26/2024	3.841	8/26/2027	109.56092	107.1568192	104.818083	102.5425518	100.3281554	98.17290436	96.07488628	94.03226234	92.04326401
ADV1008967	8/26/2024	4.397	8/26/2025	101.34196	101.013115	100.6864081	100.3618219	100.0393358	99.71892943	99.40058267	99.08427562	98.76998866
ADV1008970	8/26/2024	4.476	8/26/2025	101.34212	101.0135665	100.6871449	100.3628388	100.0406275	99.72049086	99.40240878	99.08636149	98.77232948
ADV1008974	8/26/2024	4.187	2/26/2026	103.38092	102.5352695	101.7034712	100.8851894	100.0800965	99.28787517	98.5082183	97.74082845	96.98541751
ADV1009003	8/26/2024	3.951	8/26/2026	105.43236	104.0834266	102.7598339	101.4609002	100.1859674	98.93440086	97.70558841	96.49893924	95.313883
ADV1009012	8/26/2024	4.489	8/26/2025	101.34638	101.0178168	100.6913865	100.3670717	100.0448518	99.72470651	99.40661587	99.09056007	98.77651959
ADV1009013	8/26/2024	4.034	8/26/2026	105.43485	104.0876104	102.7656552	101.4683039	100.1949005	98.94481223	97.71742877	96.51216102	95.3284403
ADV1009014	8/26/2024	3.869	8/26/2027	109.62693	107.2220437	104.8825362	102.6062501	100.3911147	98.23513997	96.13641317	94.09309503	92.1034166
ADV1009023	8/26/2024	4.492	8/26/2025	101.34737	101.0187976	100.6923653	100.3680485	100.0458266	99.72567935	99.40758674	99.09152898	98.77748654
ADV1009026	8/26/2024	4.206	2/26/2026	103.39684	102.5511181	101.7192476	100.9008945	100.0957311	99.30344009	98.52371429	97.75625628	97.00077793
ADV1009074	8/27/2024	3.885	8/27/2027	109.67612	107.2678821	104.925166	102.6458173	100.4277629	98.26901002	96.16764315	94.12182006	92.12976871
ADV1009082	8/27/2024	4.187	8/26/2033	131.70874	122.5046386	114.0396685	106.2500271	99.0777414	92.47011112	86.37920363	80.76140004	75.57698649
ADV1009083	8/27/2024	4.027	8/27/2026	105.43753	104.0880845	102.7636821	101.463657	100.187371	98.93420796	97.70357311	96.49489203	95.30760973
ADV1009084	8/27/2024	3.811	8/27/2029	117.34137	112.7319918	108.3332748	104.1344728	100.1254485	96.29663089	92.63898075	89.14395853	85.803494
ADV1009085	8/27/2024	3.854	8/25/2028	113.64707	110.1548302	106.7900724	103.5474532	100.4218829	97.40851217	94.50271929	91.70009836	88.99644783
ADV1009086	8/27/2024	3.817	8/1/2029	116.05434	111.7999682	107.7357594	103.852129	100.1400239	96.590893	93.19665634	89.94967686	86.84273389
ADV1009087	10/1/2024	3.806	10/1/2027	109.89281	107.3826697	104.9433697	102.5725052	100.2677719	98.02695692	95.84793478	93.72866326	91.66717966
ADV1009092	8/27/2024	4.029	8/27/2026	105.44021	104.0907521	102.7663311	101.4662877	100.1899836	98.93680286	97.70615057	96.49745233	95.31015315
ADV1009097	8/27/2024	3.831	8/28/2028	113.60134	110.1014856	106.7296607	103.4805006	100.3488949	97.32997418	94.4190965	91.61183604	88.90397161
ADV1009134	8/28/2024	3.914	8/28/2026	105.40653	104.0534119	102.7251401	101.4210706	100.1405811	98.88307039	97.64795759	96.43468134	95.2426989
ADV1009139	8/28/2024	3.999	8/28/2026	105.41174	104.0603039	102.733659	101.4311623	100.1521935	98.89615307	97.66246208	96.45056076	95.25990791
ADV1009152	8/29/2024	4.198	2/27/2026	103.40193	102.55341	101.7188348	100.8978631	100.0901639	99.29541719	98.51331287	97.74355085	96.9858404
ADV1009154	8/29/2024	3.884	8/30/2027	109.70787	107.2909653	104.9399987	102.6528089	100.427316	98.26152025	96.1534982	94.10139946	92.10344346
ADV1009155	8/29/2024	3.862	8/29/2028	113.71674	110.2121503	106.8358286	103.5824054	100.4467618	97.42401936	94.50952757	91.69885211	88.98776348
ADV1009156	8/29/2024	3.808	8/29/2029	117.34761	112.7324791	108.3284926	104.1248828	100.1114856	96.2787047	92.61747626	89.11923716	85.77589463
ADV1009168	8/29/2024	4.039	8/31/2026	105.5017	104.1430976	102.8085629	101.4975098	100.2093711	98.94359727	97.69965603	96.47703154	95.27522379
ADV1009169	8/29/2024	3.827	8/29/2029	117.43138	112.8144255	108.4086796	104.203369	100.188327	96.353955	92.69118698	89.19145774	85.84667251
ADV1009198	8/30/2024	4.425	8/29/2025	101.42728	101.0781952	100.731443	100.3869976	100.0448361	99.7049357	99.36727413	99.03182932	98.69857949
ADV1009199	8/30/2024	4.049	8/31/2026	105.51509	104.1563917	102.8217628	101.5106172	100.2223877	98.95652466	97.71249583	96.48978529	95.287893
ADV1009202	8/30/2024	3.898	8/30/2027	109.74088	107.3235789	104.9722243	102.684655	100.4587907	98.29263159	96.18425382	94.1318068	92.13350975

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1009206	8/30/2024	4.054	8/31/2026	105.52186	104.1631151	102.8284388	101.5172467	100.2289714	98.96306338	97.71899028	96.49623619	95.29430106
ADV1009228	9/3/2024	3.768	9/3/2027	109.6795	107.2476159	104.8824381	102.5817693	100.3434989	98.16559744	96.04611316	93.98316852	91.97495693
ADV1009240	9/3/2024	3.792	9/4/2029	117.34005	112.7079706	108.2885449	104.070901	100.0447762	96.20048167	92.52886751	89.02128984	85.66958049
ADV1009244	9/3/2024	3.868	9/3/2027	109.71978	107.2914463	104.9296405	102.6321754	100.396948	98.22193647	96.10519591	94.04485546	92.03911484
ADV1009248	9/3/2024	3.937	12/16/2026	106.6984	105.032975	103.4019485	101.8043229	100.2391372	98.70546734	97.20242404	95.72915151	94.28482564
ADV1009249	9/3/2024	3.843	12/15/2027	110.82893	108.0964176	105.4461698	102.875192	100.3806183	97.95970707	95.6098339	93.32848599	91.11325649
ADV1009261	9/4/2024	4.365	9/4/2025	101.41189	101.0582662	100.7071143	100.3584064	100.0121171	99.66822116	99.32669381	98.98751059	98.65064739
ADV1009270	9/4/2024	4.291	9/4/2025	101.41344	101.0594987	100.7080328	100.359017	100.0124255	99.66823323	99.32641517	98.98694677	98.64980378
ADV1009271	9/4/2024	4.291	9/4/2025	101.41344	101.0594987	100.7080328	100.359017	100.0124255	99.66823323	99.32641517	98.98694677	98.64980378
ADV1009291	9/5/2024	3.683	12/5/2028	114.12761	110.3372858	106.6954085	103.195324	99.83071528	96.59558437	93.48423407	90.49125101	87.61148974
ADV1009297	9/5/2024	3.631	9/5/2029	117.01668	112.3776938	107.9521914	103.7292309	99.69849065	95.85022749	92.17524095	88.6648405	85.31081468
ADV1009298	9/5/2024	3.617	9/5/2029	116.95456	112.3169315	107.8927406	103.6710479	99.64153349	95.79445593	92.12061644	88.61132604	85.25837477
ADV1009305	9/5/2024	3.995	3/5/2026	103.37408	102.5080451	101.6565461	100.8192168	99.99570518	99.18567091	98.38878472	97.60472799	96.83319234
ADV1009308	9/5/2024	3.871	9/8/2026	105.37613	103.9959695	102.6406177	101.3094638	100.0019148	98.71739672	97.45535353	96.21524682	94.99655495
ADV1009312	9/5/2024	3.873	9/8/2026	105.37889	103.9987046	102.6433333	101.3121602	100.0045923	98.72005561	97.45799414	96.21786946	94.9991599
ADV1009314	9/5/2024	3.781	1/5/2028	110.89218	108.1005506	105.3943589	102.7704352	100.2257514	97.75741283	95.36265187	93.03882093	90.78338645
ADV1009327	9/6/2024	4.029	3/6/2026	103.34602	102.4782803	101.6251357	100.7862213	99.9611829	99.14967785	98.35137473	97.56595287	96.79310194
ADV1009332	9/6/2024	4.267	9/8/2025	101.42189	101.0571816	100.6951035	100.3356288	99.97872941	99.62437757	99.27254599	98.92320776	98.57633635
ADV1009336	9/6/2024	3.698	9/8/2026	105.24931	103.8682851	102.5121118	101.1801768	99.87188567	98.58666282	97.32395103	96.08321057	94.8639186
ADV1009337	9/6/2024	3.786	9/4/2026	105.21063	103.8428829	102.499541	101.1800105	99.88371199	98.61008452	97.35858473	96.12868621	94.91987883
ADV1009353	9/9/2024	3.541	9/10/2029	116.66444	112.0186789	107.5874429	103.3597014	99.32505181	95.47367587	91.79630421	88.28418274	84.92904141
ADV1009354	9/9/2024	3.541	9/10/2029	116.66444	112.0186789	107.5874429	103.3597014	99.32505181	95.47367587	91.79630421	88.28418273	84.92904141
ADV1009355	9/9/2024	3.541	9/10/2029	116.66444	112.0186789	107.5874429	103.3597014	99.32505181	95.47367587	91.79630421	88.28418273	84.92904141
ADV1009390	9/10/2024	3.564	9/10/2029	116.38589	111.7573316	107.3422817	103.1297764	99.10947161	95.27160424	91.60695617	88.10682121	84.76297413
ADV1009392	9/10/2024	4.128	10/10/2025	101.71918	101.2651882	100.8152572	100.3693356	99.92736992	99.48930753	99.0550967	98.62468664	98.19802745
ADV1009393	9/10/2024	4.128	10/10/2025	101.71918	101.2651882	100.8152572	100.3693356	99.92736992	99.48930753	99.0550967	98.62468664	98.19802745
ADV1009394	9/10/2024	3.563	9/10/2029	116.38145	111.7529859	107.33803	103.1256155	99.10539854	95.2676161	91.60305019	88.10299475	84.75922463
ADV1009395	9/10/2024	4.122	10/10/2025	101.71647	101.2624775	100.8125537	100.3666393	99.92468078	99.48662549	99.05242172	98.62201867	98.19536644
ADV1009397	9/10/2024	4.2	9/10/2025	101.41854	101.0482903	100.6807557	100.315905	99.95370889	99.59413825	99.23716452	98.88275953	98.5308955
ADV1009404	9/10/2024	3.947	3/10/2026	103.32094	102.4421848	101.5784011	100.7292114	99.89424768	99.07315404	98.26558648	97.47121228	96.68970957
ADV1009405	9/10/2024	3.947	3/10/2026	103.32094	102.4421848	101.5784011	100.7292114	99.89424768	99.07315404	98.26558648	97.47121228	96.68970957
ADV1009406	9/10/2024	3.947	3/10/2026	103.32094	102.4421848	101.5784011	100.7292114	99.89424768	99.07315404	98.26558648	97.47121228	96.68970957
ADV1009407	9/10/2024	3.95	9/10/2026	105.50896	104.1221952	102.7604487	101.4231009	100.1095518	98.81922039	97.55154433	96.30597894	95.08199661

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1009409	9/10/2024	3.95	9/10/2026	105.50896	104.1221952	102.7604487	101.4231009	100.1095518	98.81922039	97.55154433	96.30597894	95.08199661
ADV1009418	9/11/2024	4.04	12/11/2025	102.36827	101.7405547	101.1205514	100.5081201	99.90312239	99.30542316	98.71489069	98.13139638	97.55481468
ADV1009420	9/11/2024	3.627	3/11/2027	107.19129	105.2804367	103.4133122	101.5886576	99.8052586	98.06194328	96.3575805	94.69107817	93.06138164
ADV1009421	9/11/2024	3.91	3/11/2026	103.30019	102.4187442	101.5523685	100.7006774	99.86329933	99.03987517	98.23005772	97.43351123	96.64991094
ADV1009423	9/11/2024	3.892	3/11/2026	103.35467	102.4719996	101.6044292	100.7515765	99.91306863	99.08854542	98.2776586	97.48007141	96.6954581
ADV1009445	9/12/2024	4.26	9/12/2025	101.46309	101.0871923	100.7140962	100.3437659	99.97617056	99.6112798	99.24906372	98.88949288	98.53253824
ADV1009446	9/12/2024	3.779	9/14/2026	105.3207	103.9240684	102.5528194	101.2063166	99.88394711	98.58511781	97.30925468	96.05580189	94.82422113
ADV1009447	9/12/2024	3.644	9/13/2027	109.29546	106.8437759	104.4600142	102.1419195	99.88732206	97.69413623	95.56035719	93.4840571	91.46338171
ADV1009462	9/12/2024	3.629	9/13/2027	109.25934	106.8080895	104.4247583	102.1070849	99.85289966	97.6601174	95.52673349	93.45082033	91.43052391
ADV1009463	9/12/2024	3.626	9/12/2028	113.06326	109.5297432	106.1270338	102.8496001	99.69217521	96.64974163	93.71751802	90.89094686	88.16568279
ADV1009481	9/13/2024	4.073	9/13/2034	133.51271	123.1612829	113.7320524	105.1370691	97.29722629	90.14132562	83.60524913	77.63122164	72.16715349
ADV1009482	9/13/2024	4.294	9/13/2039	146.71175	130.7371271	116.8037774	104.6338485	93.98892081	84.66422192	76.48371204	69.29590943	62.97034105
ADV1009483	9/13/2024	4.073	9/15/2025	101.4549	101.0703837	100.6887982	100.3101079	99.93427955	99.5612808	99.19107956	98.8236443	98.45894394
ADV1009485	9/13/2024	4.158	9/15/2025	101.45734	101.0731648	100.6919151	100.3135537	99.93804775	99.5653648	99.19547299	98.82834091	98.46393764
ADV1009486	9/13/2024	3.937	3/13/2026	103.34681	102.4595752	101.5876023	100.7305006	99.88789118	99.0594083	98.24469831	97.44341929	96.65524058
ADV1009487	9/13/2024	3.722	9/14/2026	105.2411	103.8450517	102.4743688	101.1284223	99.80659988	98.50830856	97.23297456	95.98004229	94.74897368
ADV1009492	9/13/2024	3.58	9/13/2029	116.48498	111.8456093	107.4206017	103.1989275	99.17018488	95.32455716	91.65277662	88.14609113	84.79623283
ADV1009493	9/13/2024	3.602	9/13/2028	112.99109	109.4559335	106.0517596	102.7730216	99.61444174	96.57099215	93.63788197	90.81054479	88.08462689
ADV1009494	9/13/2024	3.577	9/13/2027	109.13396	106.6842378	104.3023944	101.9861769	99.73341678	97.54202964	95.41001178	93.33543644	91.31645042
ADV1009495	9/13/2024	4.158	9/15/2025	101.45734	101.0731648	100.6919151	100.3135537	99.93804775	99.5653648	99.19547299	98.82834091	98.46393764
ADV1009496	9/13/2024	3.583	9/13/2027	109.14841	106.6985122	104.3164965	102.0001105	99.74718548	97.55563691	95.423461	93.34873087	91.32959326
ADV1009502	9/13/2024	3.563	9/13/2027	109.10025	106.6509311	104.2694894	101.9536651	99.70128979	97.51027934	95.37863028	93.30441608	91.28578378
ADV1009506	9/13/2024	3.587	6/14/2027	108.1756	105.9899711	103.8598639	101.7834764	99.75908319	97.78502814	95.85972079	93.98163335	92.14929765
ADV1009507	9/13/2024	3.566	9/13/2027	109.10747	106.6580683	104.2765405	101.9606319	99.70817415	97.51708297	95.38535488	93.3110633	91.2923552
ADV1009508	9/13/2024	3.569	12/13/2027	110.07604	107.3591054	104.7239097	102.1674817	99.68697788	97.27967709	94.94297462	92.67437626	90.47149278
ADV1009539	9/16/2024	4.402	6/16/2025	100.55848	100.4240872	100.290064	100.1564043	100.0231065	99.89016927	99.757591	99.62537021	99.49350543
ADV1009545	9/16/2024	3.674	9/16/2026	105.1973	103.7959458	102.4201525	101.0692766	99.74269867	98.43981977	97.16005999	95.90285795	94.66767006
ADV1009546	9/16/2024	3.542	9/16/2027	109.0814	106.6237839	104.2344955	101.9112519	99.65186338	97.45422591	95.31631701	93.23619217	91.21198138
ADV1009547	9/16/2024	3.57	9/18/2028	112.93166	109.383204	105.9667299	102.6766302	99.50756749	96.45445794	93.51245837	90.67695335	87.94354329
ADV1009550	9/16/2024	3.67	9/16/2026	105.1917	103.7903895	102.4146366	101.0638003	99.73726138	98.43442081	97.15469872	95.89753377	94.66238236
ADV1009552	9/16/2024	3.676	9/16/2026	105.2001	103.7987239	102.4229105	101.0720147	99.74541732	98.44251925	97.16274062	95.90552004	94.67031391
ADV1009554	9/16/2024	4.127	9/16/2025	101.45578	101.0688374	100.6848568	100.3038058	99.92565081	99.55035878	99.17789717	98.80823389	98.44133738
ADV1009561	9/17/2024	4.119	9/17/2025	101.46301	101.0732962	100.686585	100.3028447	99.92204094	99.54414011	99.16910892	98.79691463	98.42752502

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1009579	9/17/2024	3.902	3/24/2026	103.44141	102.5231222	101.6211681	100.7351099	99.86452975	99.00902409	98.1682034	97.34169149	96.52912491
ADV1009582	9/17/2024	4.388	6/17/2025	100.56729	100.4300674	100.2932195	100.1567498	100.0206566	99.88493822	99.74959318	99.61461988	99.48001674
ADV1009583	9/17/2024	4.14	9/17/2025	101.47118	101.0814447	100.6947143	100.3109548	99.93013206	99.5522123	99.17716229	98.80494929	98.43554107
ADV1009588	9/17/2024	4.061	9/17/2025	101.47107	101.0809833	100.6939059	100.3098064	99.92865056	99.55040438	99.17503449	98.80250802	98.43279261
ADV1009589	9/17/2024	3.82	3/17/2026	103.35952	102.4601097	101.5763764	100.7079146	99.85433058	99.01524372	98.19028646	97.37910355	96.58135159
ADV1009590	9/17/2024	3.63	9/17/2026	105.26065	103.8542157	102.4735057	101.1178714	99.7866881	98.47935134	97.19527614	95.93389626	94.69466341
ADV1009591	9/17/2024	3.571	9/17/2029	116.48152	111.8307193	107.3953101	103.1641908	99.12688655	95.27351275	91.59473909	88.08175552	84.72624062
ADV1009597	9/17/2024	4.391	6/17/2025	100.56772	100.4304911	100.2936403	100.1571675	100.0210713	99.88534996	99.75000195	99.61502568	99.48041957
ADV1009601	9/17/2024	4.143	9/17/2025	101.47235	101.0826088	100.6958756	100.3121134	99.93128793	99.55336547	99.17831277	98.8060971	98.43668622
ADV1009610	9/18/2024	4.149	9/18/2025	101.48555	101.0930112	100.703518	100.3170377	99.93353503	99.55297573	99.17532582	98.80055192	98.42862112
ADV1009613	9/18/2024	3.635	9/20/2027	109.34961	106.8773435	104.4740835	102.1375156	99.86541946	97.65566198	95.50619314	93.4150423	91.38031464
ADV1009619	9/18/2024	4.172	9/18/2025	101.49456	101.1019993	100.7124847	100.3259831	99.94245933	99.56187902	99.18420822	98.80941353	98.43746208
ADV1009620	9/18/2024	3.927	3/18/2026	103.39486	102.4934882	101.6078577	100.7375626	99.88220634	99.04140616	98.21479223	97.40200717	96.60270553
ADV1009621	9/18/2024	3.762	9/18/2026	105.34401	103.9359723	102.5537044	101.1965582	99.86390732	98.55514573	97.26968689	96.00696306	94.76642452
ADV1009625	9/18/2024	3.596	9/18/2029	116.6025	111.9461568	107.5055576	103.2695751	99.22771213	95.37006385	91.68728086	88.17053543	84.81148969
ADV1009628	9/18/2024	3.804	3/18/2026	103.3567	102.4545072	101.568095	100.6970471	99.84096603	98.99946789	98.17218183	97.3587495	96.5588245
ADV1009629	9/18/2024	3.639	9/18/2026	105.28517	103.8757457	102.4921401	101.1337071	99.79981824	98.48986587	97.20326177	95.93943665	94.6978393
ADV1009631	9/18/2024	3.804	3/18/2026	103.3567	102.4545072	101.568095	100.6970471	99.84096603	98.99946789	98.17218183	97.3587495	96.5588245
ADV1009637	9/18/2024	4.054	9/18/2025	101.47918	101.0863004	100.6964723	100.309664	99.92584028	99.54496659	99.16700883	98.79193348	98.41970749
ADV1009638	9/18/2024	3.651	9/18/2026	105.30204	103.8924886	102.5087609	101.1502078	99.81620104	98.50613264	97.21941445	95.9554771	94.71376935
ADV1009640	9/18/2024	4.045	9/18/2025	101.47566	101.0827826	100.6929629	100.306163	99.92234754	99.54148207	99.16353251	98.78846529	98.4162474
ADV1009641	9/18/2024	3.641	9/18/2026	105.28798	103.8785362	102.4949102	101.1364572	99.80254871	98.492577	97.20595389	95.94211006	94.70049431
ADV1009656	9/19/2024	4.077	9/19/2025	101.46802	101.0727495	100.6805694	100.2914435	99.9053362	99.52221224	99.14203703	98.76477653	98.39039717
ADV1009658	9/19/2024	3.859	3/19/2026	103.34545	102.4415293	101.5534475	100.680791	99.82315973	98.98016764	98.15144168	97.33662139	96.53535841
ADV1009662	9/19/2024	3.613	9/20/2027	109.2962	106.8245895	104.4219708	102.0860304	99.81454831	97.60539186	95.45651142	93.36593672	91.33177328
ADV1009663	9/19/2024	3.613	9/20/2027	109.2962	106.8245895	104.4219708	102.0860304	99.81454831	97.60539186	95.45651142	93.36593672	91.33177328
ADV1009675	9/19/2024	3.692	11/19/2026	105.97129	104.3867803	102.8341034	101.3123759	99.82074212	98.3583776	96.9244876	95.51830579	94.13909298
ADV1009678	9/19/2024	3.707	10/19/2026	105.62746	104.1319621	102.665366	101.2269083	99.81584965	98.43147573	97.07309674	95.74004615	94.43167974
ADV1009680	9/19/2024	4.076	9/19/2025	101.46763	101.0723559	100.6801768	100.2910519	99.90494547	99.52182243	99.14164815	98.76438856	98.39001011
ADV1009688	9/19/2024	3.858	3/19/2026	103.34455	102.4406371	101.5525596	100.6799074	99.82228034	98.97929242	98.15057056	97.33575434	96.53449537
ADV1009728	9/20/2024	3.503	9/20/2027	109.23037	106.7554106	104.349621	102.0106792	99.73635743	97.52451519	95.37309564	93.28012163	91.24369217
ADV1009744	9/23/2024	3.597	10/23/2029	117.3173	112.5347473	107.9784428	103.6364669	99.49759057	95.55123236	91.78741729	88.19673905	84.77032459
ADV1009746	9/23/2024	4.057	9/23/2025	101.50198	101.0955699	100.6924202	100.2924931	99.89575001	99.50215296	99.11166453	98.72424791	98.33986689

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1009752	9/23/2024	3.597	9/23/2027	109.2894	106.809342	104.3987311	102.0552321	99.77660361	97.56069258	95.40543005	93.30882745	91.268973
ADV1009762	9/23/2024	4.22	7/16/2025	100.84937	100.6292116	100.4100048	100.1917436	99.97442166	99.75803293	99.5425713	99.32803076	99.11440533
ADV1009763	9/23/2024	4.131	8/20/2025	101.19862	100.877826	100.5590252	100.2421985	99.92732748	99.61439405	99.30338027	98.99426842	98.68704102
ADV1009764	9/23/2024	4.064	9/19/2025	101.49388	101.0865248	100.6823614	100.2813536	99.88346443	99.48865761	99.09689729	98.70814825	98.32237578
ADV1009770	9/23/2024	3.596	9/23/2027	109.28696	106.8069361	104.3963545	102.0528842	99.77428383	97.55840029	95.40316468	93.30658844	91.26675979
ADV1009789	9/24/2024	3.584	9/24/2027	109.26801	106.7853891	104.3723616	102.0265853	99.74581174	97.52788114	95.37071831	93.27232874	91.230795
ADV1009792	9/24/2024	4.101	8/25/2025	101.24166	100.9065494	100.5736056	100.2428079	99.91413563	99.58756834	99.26308581	98.94066809	98.62029549
ADV1009793	9/24/2024	3.611	3/24/2027	107.3053	105.3577421	103.4555052	101.5972581	99.78172167	98.00766263	96.2738912	94.57925945	92.9226595
ADV1009796	9/24/2024	3.931	9/24/2025	101.49276	101.0832498	100.6770556	100.2741336	99.8744442	99.47794857	99.08460843	98.69438614	98.30724463
ADV1009801	9/24/2024	4.252	6/24/2025	100.62077	100.4637279	100.3071764	100.1511092	99.99552411	99.8404188	99.68579107	99.5316387	99.37795949
ADV1009802	9/24/2024	4.015	9/24/2025	101.49485	101.0857122	100.6798808	100.277314	99.87797239	99.48181737	99.08881078	98.69891515	98.31209356
ADV1009804	9/24/2024	4.022	9/24/2025	101.4977	101.0885616	100.6827232	100.2801495	99.88080103	99.48463917	99.09162578	98.70172338	98.31489507
ADV1009805	9/24/2024	3.791	3/24/2026	103.33919	102.4214185	101.5199678	100.6344069	99.76431797	98.90929772	98.06895671	97.24291886	96.43082082
ADV1009813	9/24/2024	3.936	9/24/2025	101.4948	101.0852855	100.6790863	100.2761593	99.87646503	99.47996451	99.08661951	98.69639238	98.30924606
ADV1009833	9/25/2024	4.031	9/25/2025	101.51192	101.0999722	100.6913719	100.2860791	99.88405359	99.48525595	99.08964736	98.69718964	98.30784518
ADV1009834	9/25/2024	3.664	9/25/2026	105.28733	103.8600807	102.4592749	101.084241	99.73432873	98.40890936	97.10737459	95.82913584	94.57362347
ADV1009835	9/25/2024	3.941	9/25/2025	101.50736	101.0950415	100.6860817	100.280437	99.87806695	99.47893207	99.08299334	98.6902124	98.30055151
ADV1009836	9/25/2024	3.705	3/25/2026	103.34515	102.423541	101.5183821	100.6292397	99.75569098	98.89732802	98.05375692	97.22459734	96.40948188
ADV1009839	9/25/2024	3.939	9/25/2025	101.50654	101.0942217	100.6852639	100.2796212	99.87725318	99.47812028	99.08218352	98.68940454	98.2997456
ADV1009840	9/25/2024	3.701	3/25/2026	103.3415	102.4199061	101.514765	100.6256403	99.75210903	98.89376329	98.05020921	97.22106643	96.40596759
ADV1009841	9/25/2024	3.577	9/25/2026	105.27901	103.8499596	102.4474165	101.0707039	99.71916976	98.39218311	97.08913384	95.80943158	94.55250499
ADV1009842	9/25/2024	3.585	9/25/2026	105.29041	103.8612728	102.4586461	101.0818515	99.73023662	98.40317062	97.10004331	95.8202643	94.56326221
ADV1009853	9/25/2024	3.941	9/25/2025	101.50736	101.0950415	100.6860817	100.280437	99.87806695	99.47893207	99.08299334	98.6902124	98.30055151
ADV1009857	9/25/2024	3.597	9/25/2026	105.3075	103.8782426	102.4754906	101.0985729	99.74683691	98.41965187	97.11640751	95.83651339	94.57939805
ADV1009867	9/26/2024	3.668	9/26/2029	116.99987	112.3117225	107.8417025	103.5785115	99.51149236	95.63059203	91.92632387	88.38973293	85.01236341
ADV1009868	9/26/2024	3.558	9/27/2027	109.44008	106.942582	104.5153865	102.1561147	99.8624863	97.63231125	95.46348569	93.35398792	91.30187472
ADV1009872	9/26/2024	3.719	9/28/2026	105.4013	103.9647768	102.5550039	101.1713013	99.81300792	98.4794846	97.17011317	95.88429558	94.62145312
ADV1009875	9/26/2024	3.644	9/27/2027	109.44731	106.9539367	104.5306624	102.1751236	99.88504875	97.6582561	95.49264967	93.38621521	91.33701655
ADV1009876	9/26/2024	3.64	9/28/2026	105.40448	103.9660521	102.5544418	101.1689627	99.80895165	98.4737674	97.16278983	95.87541905	94.61107456
ADV1009880	9/26/2024	3.727	9/28/2026	105.41276	103.9761491	102.5662919	101.1825064	99.8241315	98.49052805	97.18107782	95.89518274	94.63226404
ADV1009882	9/26/2024	3.658	9/1/2027	109.15784	106.7460857	104.4017819	102.122651	99.90650589	97.75124627	95.65485456	93.61539218	91.63099598
ADV1009896	9/26/2024	3.656	9/27/2027	109.47668	106.982937	104.5593075	102.2034211	99.91300618	97.68588072	95.51994851	93.4131951	91.36368412
ADV1009897	9/26/2024	3.687	9/26/2028	113.41705	109.8373101	106.3914395	103.0737207	99.87871002	96.8012244	93.83632741	90.97931619	88.22570912

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1009908	9/27/2024	3.634	9/27/2027	109.42284	106.9297699	104.5067916	102.1515424	99.86175089	97.63523559	95.46990064	93.36373196	91.31479358
ADV1009916	9/27/2024	3.624	9/27/2029	116.81194	112.1250628	107.656434	103.3947406	99.32931275	95.45008544	91.74756133	88.21277567	84.83726373
ADV1009921	9/27/2024	3.546	9/27/2028	113.23113	109.6443625	106.1920349	102.868388	99.66794495	96.58549141	93.61606183	90.754926	87.99757667
ADV1009927	9/27/2024	4.059	9/26/2025	101.56538	101.1379231	100.7139746	100.2934881	99.87642148	99.46273301	99.05238184	98.64532771	98.24153101
ADV1009930	9/27/2024	3.605	9/27/2027	109.35188	106.8596859	104.4375661	102.0831568	99.7941871	97.5684761	95.40392844	93.29853056	91.25034695
ADV1009933	9/27/2024	3.522	9/27/2027	109.3519	106.8554954	104.4293679	102.0711408	99.77853467	97.54936006	95.38151377	93.27297474	91.22180032
ADV1009935	9/27/2024	3.525	9/27/2027	109.35925	106.8627527	104.4365361	102.078222	99.78553064	97.55627266	95.38834476	93.27972584	91.22847319
ADV1009937	9/27/2024	3.522	9/27/2027	109.3519	106.8554954	104.4293679	102.0711408	99.77853467	97.54936006	95.38151377	93.27297474	91.22180032
ADV1009938	9/27/2024	3.676	9/29/2028	113.41027	109.822042	106.3683061	103.0433036	99.84155386	96.75783933	93.78719121	90.92487636	88.16638483
ADV1009939	9/27/2024	3.676	9/22/2028	113.33711	109.7702316	106.336357	103.0298183	99.84522226	96.77743323	93.82155912	90.97293861	88.227129
ADV1009941	9/27/2024	3.675	9/15/2028	113.26051	109.7150377	106.3010824	103.0130704	99.8456953	96.79390271	93.8528766	91.0180269	88.2849777
ADV1009942	9/27/2024	3.674	9/8/2028	113.18395	109.6598595	106.2658071	102.9963134	99.84615778	96.81036633	93.88419837	91.06313446	88.34286486
ADV1009943	9/27/2024	4.023	9/29/2025	101.55072	101.1276105	100.7080224	100.2919137	99.87924139	99.46996296	99.06403672	98.66142162	98.26207729
ADV1009958	9/30/2024	4.053	9/30/2025	101.57352	101.1475902	100.725225	100.3063829	99.89102003	99.47909313	99.07055978	98.6653782	98.26350731
ADV1009965	9/30/2024	4.056	9/30/2025	101.5748	101.1488608	100.7264924	100.3076471	99.89228099	99.48035094	99.07181445	98.66662976	98.26475577
ADV1009970	9/30/2024	3.7	11/3/2028	113.84927	110.155732	106.6041563	103.1882995	99.90223275	96.74031958	93.69719993	90.76777488	87.94719242
ADV1009971	9/30/2024	3.7	11/10/2028	113.92346	110.2084377	106.636787	103.2021797	99.8986032	96.72034289	93.66196585	90.71830513	87.88444521
ADV1009973	9/30/2024	3.7	11/17/2028	113.99766	110.2611216	106.6693805	103.2160152	99.89492855	96.70032722	93.62670472	90.66882553	87.82171007
ADV1009975	9/30/2024	3.7	11/17/2028	113.99766	110.2611216	106.6693805	103.2160152	99.89492855	96.70032722	93.62670472	90.66882553	87.82171007
ADV1009984	9/30/2024	4.102	9/30/2025	101.59433	101.1683422	100.7459246	100.3270303	99.91161564	99.49963726	99.09105275	98.68582031	98.28389887
ADV1009987	9/30/2024	3.6	9/30/2027	109.57589	107.0681582	104.631229	102.262699	99.96026482	97.72171474	95.54492417	93.42785179	91.36853581
ADV1009989	9/30/2024	3.6	9/30/2027	109.57589	107.0681582	104.631229	102.262699	99.96026482	97.72171474	95.54492417	93.42785179	91.36853581
ADV1010009	10/1/2024	3.613	10/1/2026	105.40448	103.9577333	102.5381043	101.144893	99.77742555	98.43505049	97.11713798	95.8230788	94.55228354
ADV1010014	10/1/2024	3.62	10/2/2028	113.2493	109.6555073	106.196751	102.8672321	99.66143521	96.57411054	93.60025916	90.73511982	87.97415631
ADV1010017	10/1/2024	3.694	10/1/2026	105.40424	103.9593913	102.5415936	101.1501522	99.78439549	98.44367409	97.12736012	95.83484624	94.56554483
ADV1010020	10/1/2024	4.045	10/1/2025	101.58546	101.1567351	100.7316293	100.3100943	99.89208545	99.47755856	99.0664703	98.65877801	98.25443974
ADV1010021	10/1/2024	3.817	4/1/2026	103.4567	102.5160962	101.5926114	100.6857799	99.79515415	98.92030221	98.06080749	97.21626797	96.38629552
ADV1010023	10/1/2024	3.703	10/1/2026	105.41721	103.972268	102.5543744	101.1628387	99.79698932	98.45617678	97.13977319	95.84717117	94.57778306
ADV1010032	10/30/2024	3.564	10/29/2027	109.58277	106.9993829	104.4910935	102.055281	99.68943084	97.39113133	95.15806913	92.9880244	90.87886649
ADV1010033	10/30/2024	3.564	10/29/2027	109.58277	106.9993829	104.4910935	102.055281	99.68943084	97.39113133	95.15806913	92.9880244	90.87886649
ADV1010040	10/2/2024	3.63	10/18/2027	109.63845	107.084694	104.6043275	102.1948194	99.8537396	97.57875619	95.36763116	93.2182159	91.12844709
ADV1010081	10/3/2024	4.114	10/10/2025	101.71394	101.259987	100.8100976	100.3642173	99.92229246	99.48427042	99.05009952	98.61972897	98.19310886
ADV1010084	10/3/2024	3.638	10/4/2027	109.7158	107.1953121	104.7462807	102.366269	100.0529429	97.80406108	95.61747133	93.49110607	91.42297862

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1010086	10/3/2024	3.641	10/3/2029	117.33422	112.6074306	108.101678	103.8054551	99.70791128	95.79881409	92.06851058	88.5078916	85.10835836
ADV1010107	10/3/2024	3.82	10/5/2026	105.63256	104.1751023	102.7451254	101.34192	99.96479899	98.6130982	97.28617565	95.9834105	94.70420223
ADV1010108	10/3/2024	3.82	10/5/2026	105.63256	104.1751023	102.7451254	101.34192	99.96479899	98.6130982	97.28617565	95.9834105	94.70420223
ADV1010118	10/4/2024	4.004	10/5/2026	105.89984	104.4403493	103.008381	101.6032186	100.2241738	98.87058168	97.54179939	96.23720523	94.95619786
ADV1010124	10/4/2024	3.91	10/4/2027	110.18182	107.6597979	105.2091492	102.8274502	100.512372	98.26167847	96.07322188	93.94493908	91.87484747
ADV1010127	10/4/2024	4.326	10/6/2025	101.76344	101.3204089	100.8812448	100.4458955	100.0143114	99.58644357	99.16224411	98.74166588	98.32466255
ADV1010129	10/4/2024	3.951	10/5/2026	105.94107	104.4793572	103.0452294	101.6379753	100.2569041	98.90134882	97.57066426	96.26422672	94.98143292
ADV1010130	10/4/2024	3.864	10/4/2028	114.41627	110.7892133	107.2986198	103.938622	100.7036354	97.58834531	94.5876914	91.69685465	88.91124429
ADV1010146	10/7/2024	3.988	10/7/2027	110.40849	107.8753355	105.4140835	103.0222812	100.6975752	98.43770638	96.24050521	94.1038879	92.02585229
ADV1010149	10/7/2024	4.086	10/8/2026	106.0563	104.5874496	103.1464429	101.7325531	100.3450806	98.98334916	97.64670535	96.3345173	95.04617394
ADV1010157	10/7/2024	4.119	7/10/2026	104.96926	103.7407035	102.5409936	101.3691189	100.2241175	99.10507119	98.01110346	96.94137676	95.89509054
ADV1010172	10/8/2024	4.484	10/8/2036	142.71669	129.8223096	118.2842504	107.9500619	98.68525891	90.37112112	82.90276875	76.18748177	70.14323087
ADV1010179	10/8/2024	3.997	10/8/2027	110.44215	107.9058063	105.4415292	103.0468576	100.7194302	98.45698054	96.2573322	94.11839471	92.03815968
ADV1010188	10/8/2024	4.34	9/2/2025	101.40873	101.0502969	100.6943262	100.3407968	99.98968383	99.64096256	99.29460862	98.950598	98.608907
ADV1010189	10/8/2024	4.412	6/30/2025	100.71007	100.5359015	100.3623167	100.1893138	100.0168898	99.8450418	99.67376703	99.50306263	99.33292577
ADV1010199	10/9/2024	4.245	10/9/2025	101.79678	101.3449228	100.8970874	100.4532229	100.0132763	99.57719577	99.14493036	98.71642997	98.2916454
ADV1010211	10/9/2024	4.122	8/14/2026	105.40779	104.0869048	102.794256	101.5289351	100.2900765	99.07685143	97.8884659	96.72415892	95.5832007
ADV1010214	10/9/2024	4.281	10/9/2025	101.813	101.3610953	100.9132169	100.4693095	100.0293204	99.59319767	99.1608903	98.73234822	98.30752222
ADV1010218	10/9/2024	4	10/9/2029	118.62527	113.8643413	109.3261494	104.9990803	100.8721843	96.93513675	93.17819899	89.59218203	86.16841272
ADV1010223	10/10/2024	4.254	10/10/2025	101.81202	101.3573506	100.906757	100.4601834	100.0175762	99.5788824	99.14405009	98.71302829	98.28576686
ADV1010225	10/10/2024	4.003	10/10/2029	117.87816	113.3048643	108.9454191	104.7885794	100.8237508	97.04095163	93.43077413	89.98434808	86.6933073
ADV1010250	10/11/2024	3.987	10/13/2026	106.09242	104.6077039	103.1514067	101.7227838	100.3211145	98.94570239	97.59587466	96.27098108	94.97039298
ADV1010259	10/11/2024	3.99	4/11/2029	116.6598	112.4568474	108.4318235	104.5762351	100.8820437	97.34163498	93.94779442	90.69368372	87.5728194
ADV1010279	10/11/2024	4.218	10/14/2025	101.84198	101.3761438	100.9145863	100.4572477	100.0040698	99.55499603	99.10997051	98.66893846	98.23184612
ADV1010330	10/15/2024	3.881	10/15/2027	110.4404	107.8803578	105.3936774	102.9778324	100.6303993	98.34905237	96.13155956	93.97577761	91.87964813
ADV1010335	10/15/2024	4.22	10/15/2025	101.854	101.3853472	100.9210249	100.4609717	100.0051285	99.55343772	99.10584244	98.66228696	98.22271655
ADV1010339	10/16/2024	3.955	1/18/2028	111.51168	108.6754423	105.9268745	103.2626904	100.6797486	98.17504807	95.74572133	93.38902695	91.10234314
ADV1010340	10/15/2024	4.219	10/15/2025	101.85353	101.3848816	100.9205606	100.4605086	100.0046668	99.55297722	99.10538318	98.66182893	98.22225976
ADV1010352	10/16/2024	4.269	10/16/2025	101.85135	101.3803736	100.9137711	100.451478	99.99343468	99.53958247	99.08986385	98.64422235	98.20260252
ADV1010353	10/16/2024	4.117	4/16/2026	103.91701	102.9322075	101.9661147	101.0182029	100.0879619	99.17489992	98.27854368	97.39843697	96.53414014
ADV1010398	10/18/2024	4.245	11/24/2025	102.29271	101.7123882	101.1386608	100.5714161	100.0105446	99.45593911	98.9074949	98.36510958	97.82868301
ADV1010402	10/18/2024	4.299	10/20/2025	101.91123	101.4290254	100.9513941	100.4782744	100.0096024	99.54531553	99.08535218	98.62965201	98.17815579
ADV1010403	10/18/2024	4.038	10/19/2026	106.12098	104.6216382	103.1512728	101.7091112	100.2944121	98.90645946	97.54456194	96.20805136	94.89628196

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1010404	10/18/2024	4.141	4/20/2026	103.9889	102.9925657	102.0153685	101.0567619	100.1162183	99.19322989	98.28730775	97.39798105	96.52479608
ADV1010445	10/21/2024	4.121	4/21/2026	104.06075	103.0600994	102.0787359	101.1161079	100.171682	99.2449446	98.33540149	97.44257668	96.56601162
ADV1010446	10/21/2024	4.363	9/22/2025	101.64335	101.2274438	100.8148623	100.4055663	99.99951661	99.59667475	99.19700273	98.8004632	98.40701938
ADV1010447	10/21/2024	4.411	7/21/2025	100.94245	100.7083311	100.4752808	100.2432961	100.0123694	99.78249364	99.55366145	99.32586573	99.09909939
ADV1010448	10/21/2024	4.483	5/21/2025	100.27084	100.2111305	100.1515093	100.091973	100.0325214	99.97315428	99.9138715	99.85467286	99.79555819
ADV1010449	10/21/2024	3.958	10/21/2027	110.70199	108.1219918	105.6163715	103.1825497	100.8180546	98.52051479	96.28765499	94.11729105	92.00732593
ADV1010450	10/21/2024	4.021	10/21/2026	106.24206	104.7343307	103.2558632	101.8058802	100.3836295	98.9883854	97.61944669	96.27613611	94.95779918
ADV1010451	10/21/2024	4.34	10/21/2025	101.94229	101.4572219	100.9767839	100.5009089	100.0295318	99.56258904	99.10001801	98.64175739	98.18774697
ADV1010455	10/21/2024	4.042	10/21/2027	110.70322	108.1276059	105.6261579	103.1963059	100.8355876	98.54164093	96.31219905	94.14508601	92.03821245
ADV1010470	10/22/2024	4.234	3/30/2026	103.8176	102.8807453	101.9608301	101.0573973	100.1700065	99.2982329	98.44166639	97.59991125	96.77258538
ADV1010487	10/23/2024	4.191	7/23/2026	105.21901	103.9523435	102.7162708	101.5096939	100.3315646	99.18088392	98.05669928	96.95810168	95.88422335
ADV1010488	10/23/2024	4.143	10/23/2026	106.32775	104.8159023	103.3334644	101.8796539	100.4537134	99.05491145	97.68254206	96.33592303	95.01439522
ADV1010507	10/23/2024	4.276	10/23/2025	101.97267	101.4815172	100.9951079	100.5133741	100.0362486	99.56366514	99.09555903	98.63186668	98.1725257
ADV1010522	10/25/2024	4.07	10/15/2027	110.70228	108.1433132	105.6575748	103.2425418	100.895798	98.61502465	96.39799623	94.24257561	92.14671027
ADV1010530	10/25/2024	4.072	10/25/2027	110.82468	108.2364626	105.7230745	103.2819107	100.9104769	98.60638097	96.36732753	94.19111369	92.07562461
ADV1010541	10/25/2024	4.141	10/25/2029	109.94488	107.5424552	105.2220081	102.9800348	100.813211	98.71837815	96.69253378	94.73282289	92.83652959
ADV1010543	10/25/2024	4.153	10/26/2026	106.38036	104.8599287	103.369226	101.907456	100.4738497	99.06766428	97.68818305	96.33471355	95.00658683
ADV1010545	10/25/2024	4.521	5/27/2025	100.34053	100.2637395	100.1870728	100.110528	100.0341047	99.95780274	99.88162177	99.80556153	99.72962173
ADV1010586	10/29/2024	4.219	10/29/2026	106.51849	104.988784	103.4891402	102.0187477	100.5768251	99.16261829	97.77539916	96.41446471	95.07913585
ADV1010587	10/29/2024	4.204	10/29/2027	111.20611	108.601942	106.0733388	103.6176634	101.2323874	98.91508575	96.66343258	94.47519579	92.34823294
ADV1010594	10/29/2024	4.246	10/1/2029	117.6542	113.3814544	109.3030686	105.4089898	101.68974	98.13638271	94.74048919	91.49410632	88.38972738
ADV1010598	10/29/2024	4.188	10/29/2031	116.08861	112.093382	108.2973318	104.6886093	101.2561619	97.98967438	94.87951433	91.91668262	89.09276732
ADV1010603	10/30/2024	4.18	10/30/2029	119.65864	114.8153846	110.2011683	105.8039096	101.6122264	97.61539431	93.80330518	90.16642823	86.69577406
ADV1010604	10/30/2024	4.127	10/30/2026	106.51548	104.9810267	103.4768059	102.0020054	100.5558374	99.1375414	97.74638364	96.38165546	95.04267239
ADV1010613	10/30/2024	4.207	10/30/2028	115.61323	111.8998921	108.3285973	104.8931292	101.5875761	98.40631675	95.34400445	92.39555219	89.55611839
ADV1010630	10/31/2024	4.42	10/31/2025	102.09852	101.5853316	101.0773041	100.574357	100.0764145	99.58340194	99.09524657	98.61187684	98.13322265
ADV1010632	10/31/2024	4.195	10/31/2029	119.34967	114.6670033	110.2054553	105.9532791	101.8994168	98.03345692	94.34559334	90.8265863	87.46772664
ADV1010643	10/31/2024	4.363	1/30/2026	103.18865	102.4189457	101.6607449	100.9137865	100.1778216	99.45260881	98.73791348	98.03350787	97.33917078
ADV1010651	10/31/2024	4.321	10/31/2025	102.08834	101.5746956	101.0662181	100.5628318	100.0644605	99.57102966	99.08246601	98.59869779	98.11965464
ADV1010655	10/31/2024	4.239	10/30/2026	106.56168	105.0289045	103.5263032	102.0530593	100.6083872	99.19152903	97.80175294	96.43835239	95.10064487
ADV1010656	11/1/2024	4.228	11/1/2029	119.90507	115.0505967	110.4258738	106.018765	101.8178433	97.81234293	93.99211716	90.34759948	86.86976739
ADV1010663	10/31/2024	4.483	7/31/2025	101.07134	100.8086283	100.5472462	100.287184	100.0284316	99.7709792	99.5148171	99.25993565	99.0063253
ADV1010673	11/1/2024	4.513	6/2/2025	100.40634	100.3125284	100.2188874	100.1254203	100.0321265	99.93900568	99.84605725	99.75328076	99.66067572

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1010689	11/1/2024	4.324	11/3/2025	102.1312	101.6091157	101.0923719	100.5808907	100.0745919	99.5733969	99.07722873	98.58601195	98.09967261
ADV1010704	11/4/2024	4.171	12/15/2026	107.20731	105.537971	103.9031007	102.301699	100.7328037	99.19548918	97.68886509	96.2120743	94.76429146
ADV1010711	11/8/2024	4.255	6/15/2027	109.62856	107.4241884	105.2757831	103.1815291	101.1396862	99.14858422	97.20661917	95.31225045	93.46399758
ADV1010761	11/7/2024	4.317	11/9/2026	106.82126	105.2581842	103.7261897	102.224428	100.7520765	99.30834201	97.89245943	96.50369048	95.14132255
ADV1010774	11/7/2024	4.321	11/9/2026	106.82746	105.2643337	103.7322902	102.2304803	100.7580815	99.31430046	97.89837216	96.50955826	95.14714612
ADV1010775	11/7/2024	4.274	11/8/2027	111.5138	108.8771393	106.3175795	103.832409	101.4190249	99.07493235	96.79773913	94.58515083	92.43496613
ADV1010794	11/8/2024	4.27	11/8/2027	111.50339	108.8668448	106.3074076	103.822357	101.4090902	99.06511242	96.78803155	94.57555324	92.42547623
ADV1010801	11/8/2024	4.385	4/9/2026	104.08902	103.1228726	102.1747109	101.2440385	100.330374	99.43325345	98.55222971	97.68687166	96.83676346
ADV1010815	11/13/2024	4.286	10/1/2029	119.83142	115.0662437	110.5226388	106.1891119	102.0548266	98.10956186	94.34367371	90.74805966	87.31412551
ADV1010846	11/12/2024	4.567	6/12/2025	100.52417	100.4019648	100.2800692	100.1584783	100.0371909	99.9162057	99.79552162	99.67513747	99.5550521
ADV1010859	11/12/2024	4.402	11/12/2027	111.89372	109.2405794	106.6652319	104.164924	101.7370214	99.37899916	97.08843701	94.86301393	92.70050348
ADV1010902	11/14/2024	4.54	5/14/2025	100.18998	100.1503099	100.110686	100.0711109	100.0315844	99.99210642	99.95267692	99.91329578	99.87396292
ADV1010905	11/14/2024	4.541	5/14/2025	100.19003	100.1503553	100.1107312	100.0711558	100.0316291	99.99215096	99.95272127	99.91333994	99.87400688
ADV1010907	11/14/2024	4.497	7/14/2025	100.87799	100.6644587	100.4518261	100.2400877	100.0292378	99.81927063	99.61018071	99.40196243	99.19461027
ADV1010912	11/14/2024	4.371	11/14/2025	102.28898	101.7358334	101.1886862	100.6474423	100.1120063	99.58228462	99.05818602	98.53962103	98.02650209
ADV1010926	11/15/2024	4.595	5/15/2025	100.20382	100.1613056	100.1188422	100.0764322	100.0340756	99.99177208	99.9495217	99.90732431	99.86517979
ADV1010939	11/15/2024	4.383	11/15/2027	111.88343	109.2217691	106.638325	104.1303262	101.6951169	99.33015238	97.03299346	94.80130135	92.63283291
ADV1010947	11/15/2024	4.391	10/20/2026	106.66135	105.1551065	103.6780072	102.2292814	100.8081819	99.41398737	98.046001	96.70354962	95.38598264
ADV1010982	11/18/2024	4.362	11/18/2025	102.33237	101.7679857	101.2098446	100.6578435	100.1118812	99.57185879	99.03767938	98.50924829	97.98647287
ADV1011003	11/19/2024	4.354	11/19/2025	102.34015	101.772962	101.2120758	100.6573892	100.1087995	99.56620644	99.02951177	98.49861946	97.97343554
ADV1011011	11/19/2024	4.532	8/19/2025	101.30391	100.9870804	100.6721978	100.3592487	100.0482152	99.73907969	99.43182468	99.12643299	98.82288763
ADV1011013	11/19/2024	4.412	5/19/2026	104.63511	103.5541851	102.4956701	101.4588736	100.4431311	99.44780476	98.47228252	97.51597647	96.57832185
ADV1011015	11/19/2024	4.448	11/19/2025	102.34843	101.7817708	101.2213981	100.667212	100.1191102	99.57699278	99.04076179	98.51032155	97.98557841
ADV1011018	11/19/2024	4.357	11/19/2026	107.02014	105.4270393	103.8659274	102.3359134	100.8361374	99.36577115	97.9240161	96.5101023	95.12328705
ADV1011019	11/19/2024	4.313	11/19/2027	111.75331	109.0818064	106.4890634	103.9722749	101.5287578	99.15594131	96.85136206	94.61265838	92.43756562
ADV1011040	11/20/2024	4.303	11/20/2026	107.07796	105.4793725	103.9129508	102.3777943	100.8730363	99.39784221	97.95140738	96.53295609	95.14174018
ADV1011071	11/21/2024	4.492	11/4/2025	102.20938	101.6694453	101.1350801	100.6062008	100.0827234	99.56456549	99.0516463	98.54388672	98.04120924
ADV1011077	11/21/2024	4.823	12/15/2042	148.58285	134.2754672	121.8121643	110.9252399	101.3886823	93.0113449	85.6312853	79.11106157	73.33381744
ADV1011092	11/22/2024	4.417	12/30/2025	102.89332	102.2102828	101.5363237	100.8712641	100.2149286	99.5671461	98.92775016	98.29657855	97.67347319
ADV1011094	11/22/2024	4.581	5/22/2025	100.28223	100.2198916	100.1576395	100.0954778	100.0334063	99.97142468	99.90953284	99.84773055	99.78601761
ADV1011101	11/22/2024	4.419	11/24/2025	102.43855	101.8571682	101.2823999	100.7141321	100.1522549	99.59666073	99.04724442	98.50390318	97.96653645
ADV1011108	11/25/2024	4.464	10/26/2026	106.85001	105.3258874	103.8315559	102.3662204	100.9291097	99.51947982	98.13661216	96.7798128	95.44841131
ADV1011109	11/25/2024	4.439	1/25/2027	108.07641	106.2889312	104.5400811	102.8286711	101.1535632	99.5136664	97.90793357	96.33535949	94.79497862

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1011110	11/25/2024	4.414	5/25/2027	109.68603	107.5405651	105.448536	103.4082553	101.4180982	99.47650347	97.58197004	95.73305446	93.92836805
ADV1011134	11/25/2024	4.596	5/22/2025	100.28263	100.2203024	100.1580691	100.0959261	100.0338732	99.97191023	99.91003699	99.84825328	99.78655891
ADV1011135	11/25/2024	4.533	10/24/2025	102.09464	101.5868737	101.0840447	100.5860853	100.0929252	99.604495	99.12072703	98.64155471	98.16691275
ADV1011162	11/25/2024	4.483	11/25/2025	102.4412	101.8576226	101.2807043	100.7103328	100.146397	99.58878821	99.03740027	98.49212938	97.952874
ADV1011163	11/25/2024	4.303	11/24/2027	111.79019	109.1038127	106.4969308	103.9666998	101.5104	99.12542672	96.80928429	94.55958079	92.37402301
ADV1011238	11/27/2024	4.257	11/29/2027	111.73368	109.0336437	106.4138071	103.8712945	101.4033505	99.00733659	96.68072556	94.42109568	92.22612567
ADV1011268	11/29/2024	4.567	5/29/2025	100.36011	100.2779538	100.1959306	100.1140424	100.0322887	99.95066932	99.86918385	99.78783201	99.70661345
ADV1011274	11/29/2024	4.275	11/30/2026	107.03943	105.4149623	103.8234712	102.2640181	100.7357024	99.23765699	97.76904679	96.32906704	94.91694206
ADV1011275	11/29/2024	4.209	11/29/2027	111.60746	108.9090852	106.2908758	103.7499539	101.2835653	98.88907248	96.56394926	94.3057749	92.11222908
ADV1011292	12/2/2024	4.237	12/4/2028	116.14598	112.3218136	108.6469599	105.114735	101.7187966	98.45312199	95.31199018	92.28996469	89.38187774
ADV1011313	12/2/2024	4.377	12/2/2025	102.51682	101.9129793	101.3162599	100.7265371	100.1436881	99.5675932	98.9981354	98.43520037	97.87867638
ADV1011321	12/2/2024	4.457	9/3/2025	101.45163	101.0922907	100.7354459	100.3810698	100.0291368	99.6796217	99.33249961	98.98774605	98.64533682
ADV1011368	12/4/2024	4.502	6/4/2025	100.42125	100.3221405	100.223232	100.1245215	100.0260083	99.92769202	99.82957189	99.73164735	99.6339178
ADV1011380	12/5/2024	4.386	11/5/2025	102.16312	101.6216764	101.0858561	100.5555671	100.0307241	99.51124346	98.9970434	98.48804371	97.98416581
ADV1011382	12/5/2024	4.47	7/7/2025	100.78862	100.5956392	100.4033973	100.2118865	100.0211025	99.83104122	99.6416984	99.45306995	99.2651518
ADV1011392	12/18/2024	4.187	12/20/2027	111.80494	109.04532	106.3690137	103.7729731	101.2542855	98.8101649	96.43794514	94.13507397	91.89910721
ADV1011393	12/18/2024	4.187	12/20/2027	111.80494	109.04532	106.3690137	103.7729731	101.2542855	98.8101649	96.43794514	94.13507397	91.89910721
ADV1011411	12/6/2024	4.254	12/8/2025	102.51584	101.8953283	101.2823427	100.6767494	100.0784149	99.48720905	98.90300469	98.32567773	97.755107
ADV1011423	12/9/2024	4.266	12/9/2025	102.53505	101.9116745	101.2958949	100.6875749	100.0865793	99.49277597	98.90603622	98.32623422	97.75324718
ADV1011430	12/9/2024	4.385	9/9/2025	101.49384	101.1177165	100.7443386	100.3736732	100.0056906	99.64036174	99.27765793	98.91755085	98.56001262
ADV1011439	12/9/2024	4.261	12/9/2025	102.53195	101.9085869	101.2928181	100.6845087	100.0835237	99.48973092	98.90300157	98.32320989	97.75023308
ADV1011440	12/9/2024	4.258	12/9/2025	102.53009	101.9067343	101.290972	100.6826691	100.0816904	99.48790388	98.90118078	98.32139529	97.74842462
ADV1011478	12/11/2024	4.231	12/11/2025	102.53726	101.9083215	101.2871138	100.6734992	100.0673386	99.46849647	98.8768406	98.29224187	97.71457426
ADV1011498	12/12/2024	4.326	12/12/2025	102.55924	101.9280724	101.3046897	100.6889516	100.0807179	99.47985164	98.88621922	98.29969029	97.72013763
ADV1011504	12/12/2024	4.244	12/12/2025	102.55762	101.9258223	101.3018294	100.685497	100.0766845	99.47525443	98.88107281	98.29400885	97.71393492
ADV1011513	12/12/2024	4.263	12/14/2026	107.20947	105.5451284	103.9150763	102.3183237	100.7539152	99.22093211	97.71849022	96.24573841	94.80185702
ADV1011514	12/12/2024	4.239	12/13/2027	111.86012	109.1192902	106.4607498	103.8815114	101.3787147	98.94962266	96.59161512	94.30218313	92.07892326
ADV1011537	12/13/2024	4.483	12/6/2030	125.35989	119.2096265	113.4092486	107.9368743	102.7721045	97.89591779	93.29057012	88.93950194	84.82725312
ADV1011538	12/13/2024	4.486	12/13/2030	125.44334	119.2707485	113.4502907	107.9598778	102.7789275	97.88825179	93.26995476	88.90733867	84.7848174
ADV1011539	12/13/2024	4.486	12/13/2030	125.44334	119.2707485	113.4502907	107.9598778	102.7789275	97.88825179	93.26995476	88.90733867	84.7848174
ADV1011540	12/13/2024	4.487	12/20/2030	125.51546	119.3209121	113.4807233	107.9726091	102.7758042	97.87095413	93.24001139	88.8661402	84.73362869
ADV1011555	12/13/2024	4.369	1/13/2026	102.9834	102.2617713	101.5502821	100.84872	100.1568777	99.47455399	98.80155292	98.137684	97.48276189
ADV1011557	12/13/2024	4.372	2/13/2026	103.37457	102.5650924	101.768327	100.983973	100.2117415	99.45135258	98.70253493	97.9650254	97.23856881

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1011571	12/16/2024	4.316	12/16/2026	107.32307	105.6522423	104.015915	102.4130834	100.842784	99.30409006	97.79611	96.31798561	94.86889055
ADV1011572	12/16/2024	4.36	12/16/2025	102.62924	101.9867121	101.3522537	100.7257106	100.1069351	99.49578296	98.89211366	98.29579005	97.70667835
ADV1011583	12/16/2024	4.309	12/16/2025	102.64741	102.0041764	101.3690236	100.7418032	100.1223669	99.51057019	98.90627195	98.30933461	97.71962395
ADV1011591	12/16/2024	4.307	12/16/2025	102.64614	102.0029033	101.3677551	100.7405392	100.1211074	99.50931512	98.90502129	98.30808832	97.71838199
ADV1011606	12/16/2024	4.463	5/16/2025	100.2024	100.1572485	100.1121507	100.0671108	100.0221288	99.97720452	99.93233787	99.88752872	99.84277696
ADV1011635	12/17/2024	4.398	8/18/2025	101.24526	100.9326522	100.6219535	100.3131462	100.0062131	99.70113701	99.39790101	99.0964884	98.79688269
ADV1011675	12/18/2024	4.419	6/18/2025	100.5649	100.4263013	100.2880937	100.1502749	100.012843	99.87579659	99.73913386	99.6028532	99.46695298
ADV1011700	12/19/2024	4.431	5/19/2025	100.2335	100.1798859	100.1263479	100.0728831	100.0194914	99.96617271	99.91292679	99.85975352	99.80665274
ADV1011701	12/19/2024	4.416	6/20/2025	100.58639	100.4421365	100.2982986	100.1548792	100.0118764	99.8692884	99.72711331	99.58534933	99.44399464
ADV1011702	12/19/2024	4.404	7/21/2025	100.92965	100.6971773	100.4657667	100.235414	100.006112	99.7778535	99.55063124	99.32443816	99.09926721
ADV1011711	12/19/2024	4.443	5/8/2025	100.11179	100.0892387	100.0667121	100.0442094	100.0217307	99.99927582	99.97684482	99.95443762	99.93205418
ADV1011712	12/19/2024	4.406	12/11/2025	102.59583	101.9673309	101.346552	100.7333515	100.1275908	99.52913486	98.93785187	98.35361311	97.77629296
ADV1011714	12/19/2024	4.391	12/10/2026	107.36438	105.709726	104.0890136	102.5012668	100.9455454	99.42094464	97.92659379	96.46165439	95.02531875
ADV1011735	12/20/2024	4.469	6/18/2025	100.57156	100.4329573	100.2947491	100.1569296	100.0194972	99.88245012	99.74578679	99.60950553	99.47360471
ADV1011739	12/20/2024	4.365	12/21/2026	107.47143	105.7855911	104.1347409	102.5178586	100.9339602	99.38209996	97.86136799	96.37088888	94.90981992
ADV1011749	12/20/2024	4.385	12/22/2025	102.71892	102.0594283	101.4084207	100.765738	100.1312211	99.50471479	98.8860677	98.27513239	97.67176504
ADV1011751	12/20/2024	4.411	6/20/2025	100.58547	100.4412315	100.2974144	100.1540158	100.0110337	99.8684663	99.72631179	99.58456832	99.44323409
ADV1011793	12/23/2024	4.422	6/23/2025	100.61972	100.4670039	100.3147585	100.1629771	100.0116578	99.86079826	99.71039652	99.56045044	99.41095792
ADV1011862	12/27/2024	4.32	6/29/2026	105.16151	103.9611158	102.788212	101.6418572	100.5211565	99.42525481	98.35333451	97.30461372	96.2783442
ADV1011868	12/27/2024	4.326	6/29/2026	105.16859	103.9681514	102.7952038	101.648806	100.528063	99.43211962	98.36015828	97.31139707	96.28508774
ADV1011882	12/30/2024	4.383	12/31/2029	121.7067	116.6247282	111.7902246	107.1897359	102.8106141	98.64096673	94.66960711	90.88600853	87.28026134
ADV1011884	12/30/2024	4.361	5/13/2026	104.50106	103.4377372	102.3961282	101.3755699	100.3754277	99.39509233	98.43397862	97.49152427	96.56718873
ADV1011885	12/30/2024	4.356	5/13/2026	104.49581	103.4325227	102.3909428	101.3704131	100.3702991	99.38999152	98.42890526	97.48647797	96.56216912
ADV1011886	12/30/2024	4.362	4/15/2026	104.14053	103.1574119	102.192912	101.2465057	100.3176864	99.40596652	98.51087608	97.63196236	96.76878892
ADV1011887	12/30/2024	4.362	4/15/2026	104.14053	103.1574119	102.192912	101.2465057	100.3176864	99.40596652	98.51087608	97.63196236	96.76878892
ADV1011888	12/30/2024	4.348	7/15/2026	105.30838	104.0636376	102.8484351	101.6617274	100.5025191	99.36986054	98.26284569	97.18060918	96.12232427
ADV1011889	12/30/2024	4.348	7/15/2026	105.30838	104.0636376	102.8484351	101.6617274	100.5025191	99.36986054	98.26284569	97.18060918	96.12232427
ADV1011890	12/30/2024	4.345	8/12/2026	105.67008	104.3517746	103.0622337	101.8005116	100.5657074	99.35695895	98.17344136	97.01436449	95.87897134
ADV1011891	12/30/2024	4.345	8/12/2026	105.67008	104.3517746	103.0622337	101.8005116	100.5657074	99.35695895	98.17344136	97.01436449	95.87897134
ADV1011892	12/30/2024	4.341	10/14/2026	106.50457	105.0159577	103.5558525	102.123508	100.7182005	99.33923091	97.98592381	96.65762643	95.35370765
ADV1011893	12/30/2024	4.341	10/14/2026	106.50457	105.0159577	103.5558525	102.123508	100.7182005	99.33923091	97.98592381	96.65762643	95.35370765
ADV1011901	12/30/2024	4.402	7/15/2025	100.86006	100.6449779	100.4308156	100.2175656	100.0052219	99.79377878	99.58323035	99.37357089	99.1647947
ADV1011902	12/30/2024	4.382	8/15/2025	101.20386	100.9003468	100.5986413	100.2987242	100.0005794	99.70419128	99.40954414	99.1166226	98.82541144

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1011903	12/30/2024	4.364	9/15/2025	101.55091	101.1585327	100.7691463	100.3827173	99.99921208	99.61859745	99.24084071	98.86590967	98.49377259
ADV1011904	12/30/2024	4.357	10/15/2025	101.89549	101.4166248	100.9421935	100.4721326	100.0063818	99.54488191	99.08757488	98.63440362	98.18531211
ADV1011905	12/30/2024	4.357	11/14/2025	102.23506	101.6826956	101.136312	100.5958167	100.0611144	99.53211217	99.00871901	98.49084582	97.97840537
ADV1011906	12/30/2024	4.43	12/29/2028	117.15344	113.2401114	109.4816906	105.8711395	102.4017853	99.06729752	95.86166825	92.77919342	89.81445552
ADV1011916	12/30/2024	4.291	12/30/2027	112.4336	109.6325923	106.916839	104.2831953	101.7286542	99.25034118	96.84550646	94.51151917	92.24586101
ADV1011920	12/30/2024	4.273	6/30/2026	105.11862	103.9156922	102.7403721	101.5917168	100.4688254	99.37083726	98.29692974	97.246316	96.21824323
ADV1011926	12/30/2024	4.262	12/30/2026	107.55696	105.8432329	104.1654592	102.5225706	100.9135435	99.33739431	97.79317781	96.27998492	94.79694106
ADV1011927	12/30/2024	4.291	12/30/2027	112.4336	109.6325923	106.916839	104.2831953	101.7286542	99.25034118	96.84550646	94.51151917	92.24586101
ADV1011953	12/31/2024	4.577	9/13/2030	125.04622	119.1480516	113.5732029	108.3021859	103.3167845	98.59996658	94.13580148	89.90938337	85.9067602
ADV1011954	12/31/2024	4.577	9/13/2030	125.04622	119.1480516	113.5732029	108.3021859	103.3167845	98.59996658	94.13580148	89.90938337	85.9067602
ADV1011955	12/31/2024	4.579	9/20/2030	125.12973	119.2087551	113.6134061	108.3239913	103.3221089	98.5905572	94.11325075	89.87514204	85.86214961
ADV1011956	12/31/2024	4.579	9/20/2030	125.12973	119.2087551	113.6134061	108.3239913	103.3221089	98.5905572	94.11325075	89.87514204	85.86214961
ADV1011964	12/31/2024	4.347	7/14/2027	110.20309	107.9105858	105.6778867	103.5029874	101.3839708	99.319	97.30631397	95.34422379	93.43110899
ADV1011966	12/31/2024	4.347	7/14/2027	110.20309	107.9105858	105.6778867	103.5029874	101.3839708	99.319	97.30631397	95.34422379	93.43110899
ADV1011968	12/31/2024	4.35	8/10/2027	110.55609	108.1845942	105.8765564	103.6298416	101.4424045	99.31228418	97.23759983	95.21654698	93.24739357
ADV1011969	12/31/2024	4.35	8/10/2027	110.55609	108.1845942	105.8765564	103.6298416	101.4424045	99.31228418	97.23759983	95.21654698	93.24739357
ADV1011970	12/31/2024	4.35	8/10/2027	110.55609	108.1845942	105.8765564	103.6298416	101.4424045	99.31228418	97.23759983	95.21654698	93.24739357
ADV1011974	12/31/2024	4.248	12/31/2026	107.54679	105.830402	104.1500597	102.5046925	100.893273	99.3148139	97.76836629	96.25301774	94.76789049
ADV1011979	12/31/2024	4.341	12/31/2025	102.79893	102.1141686	101.4385366	100.7718522	100.1139384	99.46462306	98.82373827	98.19112059	97.56661075
ADV1009328	1/16/2025	3.548	2/5/2027	106.63613	104.8302261	103.0639144	101.3359916	99.64529992	97.99072783	96.37120797	94.78571483	93.23326268
ADV1009592	1/17/2025	3.644	1/20/2026	102.53663	101.7973734	101.0687926	100.3506537	99.64273304	98.94481325	98.25668324	97.57813777	96.90897731
ADV1009593	1/17/2025	3.43	1/19/2027	106.23229	104.4779201	102.7612401	101.0811036	99.43640833	97.82609666	96.24915335	94.70460337	93.19150987
ADV1011076	1/30/2025	4.562	1/30/2032	129.69654	122.2024411	115.2087552	108.6791061	102.5799578	96.88037987	91.5518314	86.56796332	81.90443852
ADV1011669	1/2/2025	4.337	1/2/2030	121.09784	116.0371053	111.2228988	106.6418068	102.281227	98.1293101	94.17491018	90.40753906	86.8173235
ADV1011670	1/2/2025	4.337	1/2/2030	121.09784	116.0371053	111.2228988	106.6418068	102.281227	98.1293101	94.17491018	90.40753906	86.8173235
ADV1011671	1/2/2025	4.337	1/2/2030	121.09784	116.0371053	111.2228988	106.6418068	102.281227	98.1293101	94.17491018	90.40753906	86.8173235
ADV1012359	1/15/2025	4.358	12/15/2025	102.6158	101.9761015	101.3443975	100.720541	100.1043862	99.49579075	98.89461581	98.30072597	97.71398907
ADV1012847	1/31/2025	4.294	1/29/2027	107.87376	106.0771242	104.3195031	102.5996914	100.9165342	99.26892381	97.65579785	96.07613651	94.52896051
ADV1012503	1/21/2025	4.35	12/22/2025	102.69583	102.0364143	101.3854878	100.7428856	100.1084485	99.48202128	98.86345269	98.25259524	97.64930512
ADV1012851	1/31/2025	4.474	5/1/2025	100.02638	100.0235726	100.0207726	100.017975	100.0151799	100.0123872	100.0095969	100.006809	100.0040236
ADV1012277	1/13/2025	4.432	6/13/2025	100.50654	100.3825175	100.2588085	100.1354156	100.0123373	99.88957256	99.76712002	99.64497849	99.52314674
ADV1012768	1/29/2025	4.263	1/31/2028	112.75423	109.859228	107.0546455	104.3370511	101.7031681	99.14986858	96.67416554	94.27320524	91.94426011
ADV1012843	1/31/2025	4.315	1/30/2026	103.15202	102.3824779	101.6244297	100.8776223	100.1418069	99.41674191	98.70219292	97.99793217	97.30373845

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1012149	1/7/2025	4.383	7/7/2025	100.76565	100.5735276	100.382135	100.1914702	100.001529	99.8123073	99.62380091	99.43600573	99.24891771
ADV1012642	1/24/2025	4.241	1/26/2026	103.10728	102.3482404	101.6003961	100.863502	100.1373184	99.42161292	98.71615953	98.02073885	97.33513768
ADV1012830	1/31/2025	4.471	5/1/2025	100.02636	100.0235542	100.0207542	100.0179566	100.0151615	100.0123688	100.0095785	100.0067907	100.0040053
ADV1012803	1/30/2025	4.395	7/30/2025	101.02101	100.7641356	100.5085486	100.2542404	100.0012016	99.74942251	99.49889394	99.24960658	99.00155124
ADV1012498	1/21/2025	4.373	10/21/2025	101.9703	101.475288	100.985021	100.4994261	100.0184366	99.54198729	99.07001391	98.60245358	98.13924457
ADV1012526	1/21/2025	4.44	5/21/2025	100.25035	100.191315	100.1323676	100.0735042	100.0147244	99.95602826	99.89741546	99.83888586	99.78043927
ADV1012254	1/13/2025	4.414	10/14/2025	101.90824	101.432853	100.961835	100.4951305	100.0326803	99.57442644	99.1203118	98.67028039	98.22427721
ADV1012757	1/29/2025	4.42	7/29/2025	101.01633	100.7622393	100.5094086	100.2578313	100.0074981	99.7583998	99.51052729	99.26387157	99.01842371
ADV1012264	1/13/2025	4.42	8/13/2025	101.19017	100.8928112	100.5971857	100.3032802	100.0110796	99.72056892	99.43173358	99.14455894	98.85903064
ADV1012278	1/13/2025	4.418	8/13/2025	101.18958	100.8922245	100.5966024	100.3027002	100.010503	99.71999566	99.43116363	99.14399229	98.85846726
ADV1012111	1/6/2025	4.414	5/6/2025	100.08546	100.0685916	100.0517374	100.0349003	100.01808	100.0012768	99.98449045	99.967721	99.9509684
ADV1012361	1/15/2025	4.327	1/15/2026	102.97776	102.2505989	101.5337293	100.8269383	100.1300139	99.44275014	98.76494675	98.09640897	97.43694736
ADV1012605	1/23/2025	4.327	1/23/2026	103.07559	102.3257951	101.5869374	100.8587744	100.1410748	99.43361384	98.7361732	98.04854075	97.37051031
ADV1012618	1/23/2025	4.326	1/26/2026	103.11201	102.3537425	101.6066494	100.8704841	100.1450078	99.42998863	98.72520142	98.0304274	97.345454
ADV1012488	1/21/2025	4.437	5/21/2025	100.25016	100.1911295	100.1321827	100.0733198	100.0145407	99.9558451	99.89723289	99.83870386	99.78025785
ADV1012490	1/21/2025	4.418	7/21/2025	100.92731	100.69573	100.4652139	100.2357517	100.007336	99.77995981	99.55361586	99.32829711	99.10399654
ADV1012174	1/8/2025	4.344	9/8/2025	101.462	101.0901779	100.7210468	100.3545765	99.9907381	99.62950327	99.27084406	98.91473295	98.56114277
ADV1012604	1/23/2025	4.345	11/24/2025	102.3498	101.7692829	101.1953592	100.62792	100.0668557	99.51205924	98.96342576	98.42085286	97.88424038
ADV1012395	1/16/2025	4.377	1/19/2027	107.88722	106.1179659	104.3866772	102.6921978	101.0334179	99.40927283	97.8187405	96.26083926	94.73462594
ADV1012621	1/23/2025	4.44	5/23/2025	100.27226	100.2076083	100.1430538	100.0785947	100.0142309	99.94996219	99.88578829	99.821709	99.75772413
ADV1012115	1/6/2025	4.376	7/7/2025	100.76446	100.5723187	100.3809099	100.190229	100.0002718	99.81103409	99.62251176	99.43470072	99.24759689
ADV1012452	1/17/2025	4.371	10/17/2025	101.92287	101.4391889	100.9600398	100.4853558	100.0150748	99.54913551	99.08747797	98.63004324	98.17677348
ADV1012192	1/9/2025	4.368	7/9/2025	100.78462	100.5868744	100.3899094	100.193717	99.99829246	99.80363128	99.60972891	99.41658085	99.22418267
ADV1012497	1/21/2025	4.437	5/21/2025	100.25016	100.1911295	100.1321827	100.0733198	100.0145407	99.9558451	99.89723289	99.83870386	99.78025785
ADV1012153	1/10/2025	4.442	1/10/2028	112.75684	109.9256661	107.1813169	104.5205561	101.9402959	99.4375859	97.00960519	94.65365609	92.36715757
ADV1012650	1/24/2025	4.503	1/24/2030	122.13096	116.9832841	112.0888201	107.4336462	103.0046909	98.78967304	94.77704918	90.95596479	87.31620896
ADV1012751	1/29/2025	4.291	1/29/2026	103.12158	102.3549416	101.5997153	100.8556505	100.1225009	99.40002752	98.68799813	97.98618729	97.29437597
ADV1012441	1/17/2025	4.351	1/20/2026	103.05672	102.3153467	101.5846648	100.8644461	100.1544667	99.45450875	98.76436089	98.08381753	97.4126788
ADV1012226	1/10/2025	4.459	1/11/2027	107.92043	106.1728862	104.4624889	102.7881142	101.1486881	99.54317936	97.97059769	96.42999138	94.92044555
ADV1012826	2/3/2025	4.332	2/3/2028	112.75434	109.8556513	107.047624	104.3268248	101.689977	99.13395139	96.65575897	94.25254295	91.92157207
ADV1012846	1/31/2025	4.301	7/31/2026	105.45901	104.1683135	102.9093091	101.6808432	100.4818132	99.31116894	98.1679099	97.05108196	95.95977496
ADV1012505	1/21/2025	4.31	1/21/2026	103.03858	102.2944954	101.5611844	100.8384127	100.1259538	99.4235879	98.73110112	98.04828576	97.37493987
ADV1012230	1/10/2025	4.377	11/10/2025	102.21269	101.6590529	101.1113166	100.5693872	100.0331727	99.50258282	98.9775295	98.45792632	97.94368871

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1012401	1/16/2025	4.532	1/16/2030	122.18222	117.0561279	112.1811683	107.5435886	103.1304739	98.92968662	94.9298152	91.12012611	87.49051959
ADV1012852	1/31/2025	4.474	5/1/2025	100.02638	100.0235726	100.0207726	100.017975	100.0151799	100.0123872	100.0095969	100.006809	100.0040236
ADV1012221	1/10/2025	4.524	10/25/2027	111.96862	109.3658656	106.838264	104.3831997	101.9981691	99.68077073	97.42870045	95.23974688	93.11178705
ADV1012440	1/17/2025	4.387	8/15/2025	101.20255	100.8996739	100.598603	100.2993168	100.0017991	99.70603441	99.41200705	99.11970166	98.82910305
ADV1012152	1/10/2025	4.442	1/10/2028	112.75684	109.9256661	107.1813169	104.5205561	101.9402959	99.4375859	97.00960519	94.65365609	92.36715757
ADV1012372	1/15/2025	4.44	6/16/2025	100.54061	100.4081255	100.2760004	100.1442336	100.0128237	99.88176917	99.75106852	99.6207203	99.49072304
ADV1012086	1/6/2025	4.349	9/8/2025	101.46413	101.0922134	100.7229836	100.3564153	99.99247952	99.63114805	99.2723929	98.91618652	98.56250176
ADV1012855	1/31/2025	4.406	7/29/2025	101.01248	100.7584659	100.5057132	100.2542134	100.0039574	99.7549359	99.50713982	99.26056015	99.01518796
ADV1012373	1/15/2025	4.361	12/11/2025	102.56838	101.9399691	101.3192741	100.7061569	100.100479	99.50210533	98.91090407	98.3267465	97.74950702
ADV1012398	1/16/2025	4.544	1/16/2030	122.23982	117.11237	112.2361006	107.5972578	103.1829246	98.98096145	94.97995489	91.16916965	87.53850433
ADV1012534	1/21/2025	4.401	8/21/2025	101.27454	100.9546541	100.6367741	100.3208789	100.0069498	99.69496853	99.38491688	99.07677691	98.77053092
ADV1012257	1/13/2025	4.429	6/13/2025	100.50617	100.3821408	100.2584334	100.1350419	100.0119652	99.88920196	99.76675093	99.64461091	99.52278067
ADV1012298	1/14/2025	4.361	1/14/2026	102.98999	102.2655541	101.5513371	100.8471233	100.152703	99.46787259	98.792434	98.12619459	97.46896695
ADV1012610	1/23/2025	4.326	1/23/2026	103.07484	102.3250543	101.5861997	100.8580397	100.1403431	99.43288505	98.73544732	98.04781776	97.36979018
ADV1012501	1/21/2025	4.364	11/21/2025	102.32489	101.7527647	101.1870469	100.627634	100.0744206	99.52730397	98.9861835	98.45096082	97.92153969
ADV1012356	1/15/2025	4.457	5/15/2025	100.18539	100.1432119	100.1010907	100.0590226	100.0170073	99.97504476	99.93313491	99.89127761	99.84947278
ADV1012394	1/16/2025	4.327	1/16/2026	102.98999	102.2599982	101.5403794	100.8309157	100.1313927	99.44160216	98.7613416	98.0904141	97.42862814
ADV1012057	1/2/2025	4.35	11/28/2025	102.40429	101.8125398	101.2276339	100.6494544	100.0778856	99.51281464	98.95413104	98.40172689	97.85549671
ADV1012722	1/28/2025	4.291	1/28/2026	103.10945	102.3456393	101.5931587	100.8517614	100.1212034	99.40124827	98.69166603	97.9922335	97.30273382
ADV1012427	1/16/2025	4.327	7/16/2026	105.29809	104.0505493	102.8326797	101.6434315	100.4818027	99.34683756	98.23762406	97.15329134	96.0930075
ADV1012550	1/22/2025	4.357	1/22/2027	107.89197	106.1144009	104.3751162	102.6729414	101.0067531	99.37547379	97.77806925	96.21354645	94.68095138
ADV1012431	1/16/2025	4.348	10/16/2025	101.90039	101.4196251	100.9433347	100.4714574	100.003932	99.54069834	99.08169752	98.62687156	98.1761636
ADV1012611	1/23/2025	4.289	7/23/2026	105.44236	104.1726459	102.9336155	101.7241668	100.5432479	99.38985639	98.26303651	97.16187614	96.0855046
ADV1012706	1/28/2025	4.292	1/28/2027	107.85716	106.0634181	104.3085793	102.5914466	100.9108697	99.26574536	97.6550152	96.07766338	94.53271432
ADV1012228	1/10/2025	4.541	1/10/2028	113.02818	110.1932721	107.4452739	104.7809492	102.1972076	99.69109602	97.25979109	94.90059275	92.61091767
ADV1012087	1/3/2025	4.464	1/3/2030	121.71316	116.6351757	111.80449	107.207651	102.8320156	98.66569586	94.69751036	90.91693737	87.31407231
ADV1012510	1/21/2025	4.391	9/22/2025	101.63867	101.2271407	100.8189042	100.4139186	100.0121452	99.61354572	99.21808275	98.82571928	98.43641892
ADV1012500	1/21/2025	4.42	6/23/2025	100.61446	100.4622807	100.3105669	100.1593157	100.0085248	99.8581922	99.70831576	99.55889338	99.40992298
ADV1012814	1/30/2025	4.396	7/30/2025	101.02127	100.76439	100.5088018	100.2544923	100.0014522	99.74967194	99.49914214	99.24985355	99.00179699
ADV1012397	1/16/2025	4.504	1/16/2029	117.6538	113.6802751	109.8657137	106.2028092	102.6846405	99.30464594	96.05660273	92.93460677	89.93305433
ADV1012232	1/10/2025	4.454	5/12/2025	100.1526	100.1188523	100.0851421	100.0514715	100.0178404	99.9842488	99.95069657	99.91718364	99.88370994
ADV1012775	1/30/2025	4.239	1/31/2028	112.68682	109.7927615	106.989104	104.2724131	101.6394126	99.0869752	96.61211456	94.21197754	91.88383715
ADV1012214	1/10/2025	4.451	5/15/2025	100.18595	100.1437492	100.1016032	100.0595103	100.0174702	99.97548296	99.9335484	99.89166644	99.84983696

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1012531	1/21/2025	4.36	12/9/2025	102.54211	101.9193535	101.3041836	100.6964571	100.0960392	99.50279852	98.91660655	98.33733798	97.76487042
ADV1012424	1/16/2025	4.396	7/16/2025	100.8672	100.6497218	100.4331835	100.2175792	100.0029028	99.78914826	99.57630951	99.36438063	99.15335572
ADV1012566	1/22/2025	4.364	7/23/2026	105.43477	104.166685	102.9292158	101.7212655	100.5417853	99.3897756	98.26428321	97.16439858	96.08925338
ADV1012059	1/2/2025	4.345	12/29/2025	102.7817	102.1025752	101.4324347	100.7711021	100.1184044	99.47417319	98.8382444	98.21045818	97.59065872
ADV1012302	1/14/2025	4.461	11/16/2026	107.14249	105.5569171	104.0030912	102.4801273	100.9871763	99.5234196	98.08806827	96.68036126	95.29956436
ADV1012494	1/21/2025	4.4	8/21/2025	101.27422	100.954339	100.6364608	100.3205674	100.0066401	99.69466065	99.38461078	99.07647258	98.77022835
ADV1012581	1/22/2025	4.234	1/22/2026	103.0534	102.305693	101.5688653	100.8426762	100.1268961	99.42130191	98.72567704	98.03981088	97.36349877
ADV1012276	1/13/2025	4.426	7/14/2025	100.85171	100.6398019	100.4287904	100.2186661	100.0094236	99.80105717	99.59356125	99.38693032	99.1811589
ADV1012144	1/7/2025	4.4	5/22/2025	100.26118	100.1992312	100.1373767	100.0756119	100.0139367	99.95235087	99.89085421	99.82944654	99.76812766
ADV1012396	1/16/2025	4.443	1/18/2028	112.86005	110.0050901	107.2382502	104.5562225	101.9558519	99.43412462	96.9881604	94.61520583	92.31262755
ADV1012774	1/30/2025	4.391	1/30/2030	121.65584	116.5023764	111.6033089	106.9446108	102.5131081	98.29642636	94.28293676	90.46170697	86.822455
ADV1012825	2/3/2025	4.332	2/3/2028	112.75434	109.8556513	107.047624	104.3268248	101.689977	99.13395139	96.65575897	94.25254295	91.92157207
ADV1012117	1/6/2025	4.52	1/7/2030	122.02488	116.9281879	112.0801145	107.4671059	103.0764298	98.89611622	94.9149079	91.12221314	87.50806277
ADV1012374	1/15/2025	4.371	12/10/2026	107.33234	105.6779484	104.0574953	102.4700034	100.9145324	99.39017788	97.89606908	96.43136768	94.9952661
ADV1012575	1/22/2025	4.316	1/22/2026	103.05521	102.3082771	101.5722003	100.8467404	100.1316685	99.42676225	98.73180558	98.04658858	97.37090721
ADV1012672	1/27/2025	4.303	7/27/2026	105.40999	104.1308333	102.8828322	101.6648549	100.4758259	99.31472051	98.18056208	97.07241894	95.98940202
ADV1012288	1/14/2025	4.352	1/14/2026	102.98352	102.2591073	101.544916	100.8407275	100.1463324	99.46152686	98.78611291	98.1198979	97.46269443
ADV1008844	2/21/2025	4.012	8/21/2025	101.14693	100.8288363	100.5127365	100.1986104	99.88643951	99.57620546	99.26789023	98.96147597	98.65694509
ADV1009275	2/10/2025	3.681	6/12/2026	104.12416	102.9791644	101.8593845	100.7639954	99.69220581	98.64325809	97.61642687	96.61101721	95.62636304
ADV1011667	2/3/2025	4.647	2/1/2035	140.09419	129.0451189	119.0081817	109.8838425	101.5829019	94.02536675	87.1394542	80.86070729	75.13121067
ADV1011668	2/3/2025	4.647	2/1/2035	140.09419	129.0451189	119.0081817	109.8838425	101.5829019	94.02536675	87.1394542	80.86070729	75.13121067
ADV1012737	2/28/2025	4.332	3/1/2028	113.09914	110.1151644	107.2266311	104.4299743	101.7217853	99.09880043	96.55789417	94.0960724	91.71046622
ADV1012740	2/28/2025	4.418	3/1/2030	122.1421	116.8834695	111.8884974	107.1425574	102.631908	98.34363518	94.26559841	90.38638041	86.69524058
ADV1012739	2/28/2025	4.418	3/1/2030	122.1421	116.8834695	111.8884974	107.1425574	102.631908	98.34363518	94.26559841	90.38638041	86.69524058
ADV1013278	2/20/2025	4.355	2/25/2028	113.10282	110.1335274	107.2587985	104.4751046	101.7790651	99.16744442	96.63714491	94.18520011	91.80876844
ADV1013496	2/26/2025	4.15	2/28/2028	112.5509	109.580599	106.7051988	103.9211565	101.2250832	98.61373457	96.0840035	93.63291387	91.25761406
ADV1013132	2/13/2025	4.418	11/10/2025	102.22985	101.6782525	101.1325373	100.5926076	100.0583716	99.52973964	99.00662373	98.48893786	97.97659776
ADV1013323	2/21/2025	4.503	5/21/2025	100.24904	100.1902206	100.1314863	100.0728356	100.0142683	99.95578424	99.89738328	99.83906521	99.78082986
ADV1013330	2/21/2025	4.335	2/23/2026	103.46846	102.6307473	101.8066256	100.9957679	100.1978556	99.41258001	98.63964229	97.87875299	97.12963163
ADV1013343	2/21/2025	4.48	6/23/2025	100.61863	100.4669908	100.3158135	100.1650972	100.0148395	99.86503857	99.71569214	99.56679816	99.41835457
ADV1012934	2/5/2025	4.277	3/5/2027	108.34188	106.436426	104.5741923	102.7539471	100.9744995	99.23469943	97.53343696	95.86963996	94.24227278
ADV1013487	2/26/2025	4.205	2/28/2028	112.70914	109.7365616	106.8589335	104.0727171	101.3745217	98.76110116	96.22934697	93.77628139	91.39905134
ADV1012975	2/6/2025	4.487	5/6/2025	100.08173	100.0649181	100.0481241	100.031347	100.0145868	99.99784348	99.98111703	99.96440742	99.9477146

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1012999	2/7/2025	4.289	2/9/2026	103.32269	102.5237397	101.7371788	100.9627157	100.2000723	99.44897917	98.7091749	97.98040598	97.26242643
ADV1013086	2/12/2025	4.355	2/12/2026	103.4125	102.6047813	101.8097117	101.0269964	100.2563486	99.4974903	98.75015201	98.01407238	97.28899795
ADV1012996	2/10/2025	4.395	2/10/2028	113.02199	110.0986089	107.2671786	104.5242314	101.8664565	99.29069037	96.7939085	94.37321858	92.02585354
ADV1013084	2/12/2025	4.503	5/12/2025	100.14884	100.1152246	100.081646	100.0481068	100.014607	99.98114645	99.94772516	99.91434303	99.88099997
ADV1013100	2/12/2025	4.52	9/27/2028	116.32042	112.6877521	109.1905536	105.8230425	102.5797151	99.45533081	96.44489869	93.54366379	90.74709484
ADV1013229	2/18/2025	4.465	8/18/2025	101.25574	100.9453708	100.6368925	100.3302922	100.0255526	99.72265677	99.42158788	99.12232935	98.8248648
ADV1013318	2/21/2025	4.507	5/5/2025	100.06825	100.0542671	100.0402983	100.0263433	100.0124019	99.99847425	99.98456019	99.97065975	99.95677291
ADV1012993	2/10/2025	4.426	2/12/2029	117.69846	113.644242	109.7550439	106.0232091	102.4414838	99.00299163	95.70121119	92.52995581	89.48335418
ADV1012953	2/5/2025	4.289	2/7/2028	112.68491	109.7752867	106.956979	104.2265421	101.5806823	99.01625315	96.53024758	94.11979064	91.7821327
ADV1013087	2/12/2025	4.355	2/12/2026	103.4125	102.6047813	101.8097117	101.0269964	100.2563486	99.4974903	98.75015201	98.01407238	97.28899795
ADV1013175	2/14/2025	4.435	8/14/2025	101.20114	100.9020549	100.6047274	100.309146	100.0152954	99.72316032	99.43272563	99.14397644	98.85689801
ADV1013396	2/24/2025	4.459	7/31/2025	101.04479	100.7857732	100.5280692	100.2716665	100.0165551	99.76272546	99.51016796	99.25887307	99.00883141
ADV1013131	2/13/2025	4.396	1/13/2026	103.00274	102.2810383	101.5694728	100.867835	100.1759179	99.49352008	98.82044561	98.156504	97.50150989
ADV1012991	2/10/2025	4.39	2/10/2027	108.22114	106.3853637	104.5900484	102.8339763	101.1159826	99.43494743	97.78979425	96.17948743	94.6030304
ADV1013032	2/10/2025	4.483	6/10/2025	100.47462	100.3594517	100.2445541	100.1299305	100.01558	99.90150141	99.78769382	99.67415622	99.56088761
ADV1013423	2/24/2025	4.505	5/27/2025	100.31649	100.2408535	100.1653337	100.089934	100.014654	99.93949351	99.86445221	99.78952983	99.71472609
ADV1012917	2/4/2025	4.348	11/4/2025	102.12117	101.5866432	101.0576299	100.5340476	100.015813	99.50284469	98.9950626	98.49238846	97.99474551
ADV1013156	2/14/2025	4.485	5/15/2025	100.18161	100.1395871	100.0976172	100.0557001	100.0138357	99.97202383	99.93026447	99.88855748	99.84690276
ADV1013002	2/7/2025	4.296	4/7/2027	108.97516	106.9688937	105.0101601	103.0975444	101.2296792	99.40524747	97.62297943	95.88165105	94.18008188
ADV1013377	2/24/2025	4.507	5/20/2025	100.23746	100.1814727	100.1255594	100.0697242	100.0139668	99.95828718	99.9026851	99.84716041	99.79171294
ADV1012954	2/5/2025	4.347	11/5/2025	102.13252	101.5951689	101.0633896	100.5370998	100.0162149	99.50065201	98.99032984	98.48516883	97.98509099
ADV1013130	2/13/2025	4.448	8/13/2025	101.19362	100.8973252	100.6027558	100.3099002	100.0187434	99.72927058	99.44146705	99.15531831	98.87081001
ADV1012964	2/6/2025	4.388	9/8/2025	101.47379	101.1031356	100.7351657	100.3698481	100.0071542	99.64705565	99.28952462	98.93453367	98.58205573
ADV1012997	2/11/2025	4.395	2/11/2028	113.03512	110.1085637	107.2741349	104.5283611	101.8679269	99.28966393	96.79054291	94.36766654	92.01826282
ADV1012992	2/10/2025	4.408	2/10/2028	113.05875	110.1348445	107.3029052	104.5594612	101.9012012	99.32496138	96.8277168	94.40657482	92.05876805
ADV1013528	2/27/2025	4.503	5/29/2025	100.33844	100.2572085	100.1761138	100.0951525	100.0143243	99.93362873	99.85306563	99.77263463	99.69233542
ADV1013512	2/27/2025	4.515	5/5/2025	100.06735	100.0533827	100.0394241	100.0254793	100.0115481	99.99763053	99.98372663	99.96983633	99.95595962
ADV1013280	2/20/2025	4.352	8/2/2027	110.46018	108.1120102	105.8262104	103.6006596	101.433328	99.32227223	97.26563032	95.26161772	93.3085233
ADV1012874	2/3/2025	4.354	2/3/2026	103.23602	102.4549925	101.6858072	100.9281921	100.1818873	99.44664043	98.72220699	98.00834939	97.30483703
ADV1012963	2/6/2025	4.489	5/6/2025	100.08177	100.0649577	100.0481635	100.0313863	100.0146261	99.99788269	99.98115616	99.96444646	99.94775356
ADV1013135	2/14/2025	4.46	2/14/2029	117.85564	113.7921729	109.8942869	106.1543048	102.564948	99.11931565	95.81086281	92.63337984	89.58097319
ADV1013083	2/12/2025	4.503	5/12/2025	100.14884	100.1152246	100.081646	100.0481068	100.014607	99.98114645	99.94772516	99.91434303	99.88099997
ADV1013186	2/14/2025	4.489	5/14/2025	100.17052	100.1313068	100.0921373	100.0530159	100.0139426	99.97491734	99.93593996	99.89701039	99.85812853

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1012919	2/4/2025	4.333	12/4/2025	102.46676	101.8581319	101.2567427	100.662465	100.0751731	99.49474415	98.92105821	98.35399814	97.7934495
ADV1013121	2/13/2025	4.42	2/16/2027	104.06949	103.1338664	102.2156528	101.3143547	100.4294999	99.56063388	98.70731947	97.86913556	97.04567653
ADV1013276	2/20/2025	4.458	8/20/2025	101.2764	100.9604196	100.6464004	100.3343257	100.0241774	99.71593757	99.40958859	99.10511303	98.80249365
ADV1013344	2/21/2025	4.455	7/21/2025	100.93096	100.7002106	100.4705176	100.2418747	100.0142748	99.78771048	99.56217479	99.33766063	99.11416101
ADV1013325	2/21/2025	4.508	5/2/2025	100.03431	100.0287146	100.0231283	100.017547	100.0119707	100.0063994	100.0008331	99.99527179	99.98971546
ADV1013403	2/24/2025	4.301	1/21/2026	103.03095	102.2869334	101.5536918	100.8309882	100.1185964	99.41629628	98.72387424	98.04112255	97.36783929
ADV1013224	2/18/2025	4.508	5/19/2025	100.22722	100.1739921	100.1208386	100.0677579	100.0147497	99.96181388	99.90895038	99.856159	99.8034396
ADV1012994	2/11/2025	4.38	2/11/2027	108.2177	106.3789078	104.5806928	102.8218391	101.1011817	99.41760061	97.77001883	96.15739995	94.57874649
ADV1013296	2/20/2025	4.278	2/22/2027	108.34178	106.4655846	104.6314059	102.8380255	101.0842731	99.36902061	97.69118011	96.04970226	94.44357457
ADV1013453	2/25/2025	4.142	2/25/2026	103.39836	102.5544975	101.7244321	100.9078257	100.1043525	99.31369724	98.53555477	97.76962943	97.01563485
ADV1013489	2/26/2025	4.135	2/26/2027	108.134	106.2475849	104.4036244	102.6009101	100.838272	99.11458135	97.42874826	95.77972064	94.16648239
ADV1013085	2/12/2025	4.503	5/12/2025	100.14884	100.1152246	100.081646	100.0481068	100.014607	99.98114645	99.94772516	99.91434303	99.88099997
ADV1012951	2/5/2025	4.288	2/5/2027	107.96587	106.1476886	104.3693342	102.6295913	100.9272957	99.26133006	97.63062116	96.03413798	94.47088946
ADV1013005	2/7/2025	4.416	12/17/2029	121.29476	116.2749945	111.4977962	106.9500761	102.6195253	98.49456401	94.56429428	90.81845586	87.24738527
ADV1012942	2/5/2025	4.223	2/5/2026	103.22104	102.4336763	101.6583446	100.8947724	100.1426932	99.40184866	98.67198814	97.95286833	97.24425312
ADV1013096	2/12/2025	4.498	2/12/2030	122.76242	117.5288595	112.5554927	107.8279194	103.3326209	99.05689673	94.9888103	91.11713882	87.43132652
ADV1013394	2/24/2025	4.492	6/20/2025	100.58614	100.44301	100.3002939	100.157993	100.0161055	99.87462945	99.73356314	99.59290474	99.45265244
ADV1013541	2/28/2025	4.513	5/9/2025	100.11249	100.0873304	100.0622012	100.0370993	100.0120248	99.98697768	99.96195784	99.93696523	99.91199982
ADV1013413	2/24/2025	4.344	11/24/2025	102.34857	101.7680698	101.1941706	100.6267555	100.065715	99.51094195	98.96233159	98.41978151	97.88319153
ADV1012871	2/3/2025	4.341	2/3/2026	103.22594	102.4449603	101.6758177	100.9182446	100.1719814	99.43677571	98.71238302	97.99856575	97.29509331
ADV1013557	2/28/2025	4.218	2/27/2026	103.41858	102.5699934	101.7353507	100.9143121	100.1065467	99.31173444	98.52956523	97.75973896	97.00196489
ADV1012952	2/5/2025	4.29	10/5/2026	106.31527	104.8526352	103.4175718	102.0093673	100.6273324	99.27080056	97.93912759	96.63169051	95.34788672
ADV1013000	2/7/2025	4.3	8/7/2026	105.65589	104.3469311	103.0680256	101.8181354	100.5962718	99.40149131	98.23289241	97.08961362	95.97083116
ADV1013457	2/25/2025	4.246	2/25/2026	103.41812	102.5750818	101.7458128	100.9299763	100.1272476	99.33731233	98.55986617	97.79461431	97.0412712
ADV1013395	2/24/2025	4.304	4/1/2026	103.90696	102.9640825	102.0383514	101.1293017	100.2364851	99.35946923	98.49783692	97.65118559	96.81912661
ADV1013093	2/12/2025	4.364	2/12/2026	103.4197	102.6119495	101.8168485	101.0341022	100.2634238	99.50453517	98.75716688	98.02105758	97.29595379
ADV1013550	2/28/2025	4.515	5/5/2025	100.06718	100.0532133	100.0392565	100.0253134	100.011384	99.99746815	99.98356597	99.9696774	99.95580241
ADV1013254	2/19/2025	4.374	2/19/2026	103.45077	102.6242529	101.8109786	101.0106268	100.2228907	99.44747339	98.68408705	97.93245283	97.19230043
ADV1013317	2/21/2025	4.503	5/21/2025	100.24904	100.1902206	100.1314863	100.0728356	100.0142683	99.95578424	99.89738328	99.83906521	99.78082986
ADV1013275	2/20/2025	4.479	7/21/2025	100.93664	100.7058379	100.4760943	100.2474011	100.019751	99.79313679	99.56755141	99.34298778	99.11943892
ADV1012998	2/11/2025	4.426	2/12/2029	117.69846	113.644242	109.7550439	106.0232091	102.4414838	99.00299163	95.70121119	92.52995581	89.48335418
ADV1013347	2/21/2025	4.402	9/22/2025	101.63848	101.2284337	100.8216704	100.4181462	100.0178227	99.62066163	99.22662575	98.83567819	98.44778268
ADV1012995	2/11/2025	4.395	2/11/2028	113.03512	110.1085637	107.2741349	104.5283611	101.8679269	99.28966393	96.79054291	94.36766654	92.01826282

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1013452	2/25/2025	4.222	2/25/2026	103.39807	102.5551285	101.72595	100.910203	100.1075628	99.31771505	98.5403554	97.7751891	97.0219306
ADV1012944	2/5/2025	4.223	2/5/2026	103.22104	102.4336763	101.6583446	100.8947724	100.1426932	99.40184866	98.67198814	97.95286833	97.24425312
ADV1013253	2/19/2025	4.462	8/19/2025	101.26624	100.9530591	100.6418094	100.3324709	100.0250258	99.71945685	99.41574671	99.11387839	98.81383509
ADV1013495	2/26/2025	4.495	5/27/2025	100.31539	100.2397661	100.1642669	100.0888877	100.0136282	99.93848814	99.86346727	99.78856528	99.71378189
ADV1013327	2/21/2025	4.249	2/22/2028	113.00191	110.0375756	107.1675403	104.3882699	101.6963854	99.08865376	96.56198069	94.1134041	91.74008736
ADV1013136	2/14/2025	4.486	2/14/2030	122.29903	117.0834445	112.1272107	107.4159881	102.9363072	98.67551253	94.62170871	90.76371064	87.09099722
ADV1013342	2/21/2025	4.499	5/21/2025	100.2488	100.1899778	100.131244	100.0725939	100.0140271	99.95554368	99.89714328	99.83882579	99.780591
ADV1013129	2/13/2025	4.484	5/13/2025	100.15924	100.1228182	100.086445	100.0501155	100.0138297	99.97758743	99.94138865	99.90523328	99.86912123
ADV1012976	2/6/2025	4.28	2/6/2030	121.62749	116.4400654	111.5100615	106.8232381	102.3662276	98.12647339	94.09217569	90.2522415	86.59623815
ADV1013549	2/28/2025	4.502	5/30/2025	100.34948	100.2654571	100.1815708	100.0978247	100.0142186	99.93075202	99.84742476	99.76423643	99.6811867
ADV1013277	2/20/2025	4.352	3/25/2027	108.74626	106.7817478	104.8629453	102.9885134	101.1571606	99.3676416	97.61875525	95.90934267	94.23828547
ADV1013142	2/13/2025	4.436	9/15/2025	101.57187	101.1814081	100.7939195	100.409374	100.027738	99.64897844	99.27306288	98.89995923	98.52963595
ADV1013367	2/24/2025	4.508	5/27/2025	100.31673	100.2410851	100.1655647	100.0901644	100.0148839	99.93972283	99.86468096	99.78975801	99.7149537
ADV1012935	2/5/2025	4.306	1/5/2026	102.8409	102.1420796	101.4527698	100.7727804	100.1019231	99.44001444	98.78687612	98.1423344	97.50622014
ADV1012888	2/3/2025	4.394	9/3/2025	101.41875	101.0622519	100.7082269	100.356651	100.0074988	99.66074547	99.31636624	98.97433682	98.63463322
ADV1012945	2/5/2025	4.302	2/5/2026	103.22051	102.4339847	101.659465	100.8966806	100.1453661	99.40526387	98.67612389	97.95770364	97.2497677
ADV1012950	2/5/2025	4.283	4/5/2027	108.76061	106.7652098	104.8169157	102.9143275	101.0560955	99.24091889	97.46754362	95.73476056	94.04140344
ADV1013393	2/24/2025	4.514	5/8/2025	100.10186	100.07949	100.0571433	100.0348203	100.0125211	99.99024562	99.96799377	99.94576554	99.92356088
ADV1013321	2/21/2025	4.487	6/23/2025	100.6197	100.4680538	100.316873	100.1661532	100.015892	99.86608755	99.71673763	99.56784018	99.41939312
ADV1013095	2/12/2025	4.444	10/21/2025	102.0015	101.5075319	101.0182981	100.5337266	100.0537508	99.57830554	99.10732683	98.64075187	98.17851906
ADV1012943	2/5/2025	4.223	2/5/2026	103.22104	102.4336763	101.6583446	100.8947724	100.1426932	99.40184866	98.67198814	97.95286833	97.24425312
ADV1013220	2/18/2025	4.509	5/20/2025	100.23859	100.1825583	100.1266032	100.0707262	100.0149271	99.95920578	99.9035621	99.84799585	99.7925069
ADV1013279	2/20/2025	4.357	2/20/2026	103.44923	102.6199427	101.803981	101.0010268	100.2107703	99.43291159	98.66716024	97.9132347	97.17086216
ADV1013494	2/26/2025	4.199	2/26/2030	121.03191	115.8091743	110.8482369	106.1345821	101.6545685	97.39537648	93.34495462	89.4919696	85.82575994
ADV1013345	2/21/2025	4.428	8/21/2025	101.27833	100.9595866	100.6428388	100.3280687	100.0152577	99.70438764	99.3954403	99.08839783	98.7832426
ADV1013089	2/12/2025	4.416	1/14/2026	103.02988	102.3052961	101.5909329	100.8865741	100.1920102	99.50703731	98.83145749	98.16507806	97.5077116
ADV1012882	2/3/2025	4.268	2/3/2026	103.23108	102.4492464	101.6792795	100.9209062	100.1738658	99.43790535	98.7127795	97.99824997	97.29408549
ADV1013172	2/14/2025	4.488	5/14/2025	100.17048	100.1312652	100.0920957	100.0529745	100.0139013	99.97487611	99.93589883	99.89696936	99.8580876
ADV1012873	2/3/2025	4.351	2/3/2026	103.23369	102.4526773	101.683502	100.9258966	100.1796013	99.44436396	98.71993992	98.00609163	97.30258848
ADV1013134	2/14/2025	4.46	2/14/2029	117.85564	113.7921729	109.8942869	106.1543048	102.564948	99.11931565	95.81086281	92.63337984	89.58097319
ADV1013379	2/24/2025	4.515	5/5/2025	100.06787	100.0538906	100.0399269	100.0259768	100.0120404	99.99811769	99.9842086	99.97031312	99.95643122
ADV1012962	2/6/2025	4.378	10/6/2025	101.79363	101.3427183	100.8957578	100.4526918	100.0134694	99.5780409	99.14635713	98.71836992	98.29403193
ADV1013173	2/14/2025	4.435	8/14/2025	101.20114	100.9020549	100.6047274	100.309146	100.0152954	99.72316032	99.43272563	99.14397644	98.85689801

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1013424	2/24/2025	4.486	6/24/2025	100.63032	100.4759081	100.321979	100.1685261	100.0155472	99.86304002	99.71100244	99.55943226	99.40832731
ADV1013055	2/11/2025	4.462	9/25/2029	120.55328	115.7895844	111.2464246	106.9124021	102.7767712	98.82939411	95.060703	91.46166539	88.02375131
ADV1013328	2/21/2025	4.304	2/21/2030	121.9203	116.6785389	111.6989167	106.9668972	102.4688281	98.19188136	94.12399902	90.25384303	86.57074844
ADV1013177	2/14/2025	4.386	11/14/2025	102.25366	101.7011654	101.1546531	100.6140306	100.0792028	99.55007666	99.02656109	98.50856697	97.99600708
ADV1009311	3/3/2025	3.668	4/3/2026	103.33894	102.3933604	101.4650966	100.5536764	99.65864396	98.77955999	97.91600066	97.06755704	96.23383449
ADV1009444	3/3/2025	3.417	3/12/2027	106.80612	104.8963026	103.0302615	101.206735	99.42450569	97.68239896	95.97928108	94.31405751	92.68567127
ADV1013398	4/1/2025	4.341	4/1/2030	122.09255	116.7470886	111.6739515	106.8577886	102.2841961	97.93965115	93.81145414	89.88767388	86.15709749
ADV1013399	4/1/2025	4.267	3/31/2028	113.27515	110.2048881	107.2353673	104.3627258	101.583276	98.89349198	96.29000083	93.76957539	91.32912704
ADV1013400	4/1/2025	4.267	3/31/2028	113.27515	110.2048881	107.2353673	104.3627258	101.583276	98.89349198	96.29000083	93.76957539	91.32912704
ADV1013401	4/1/2025	4.253	3/31/2028	113.2336	110.1639585	107.1950394	104.3229847	101.5441075	98.85488212	96.25193622	93.73204303	91.29211435
ADV1013465	3/17/2025	4.172	3/17/2028	112.82671	109.8020614	106.8755301	104.0434013	101.3021233	98.64829797	96.07867303	93.59013495	91.17970225
ADV1013466	3/17/2025	4.214	3/19/2029	117.29562	113.1457171	109.1687222	105.3565165	101.7014021	98.19608077	94.83363143	91.60748835	88.51142123
ADV1013468	3/17/2025	4.216	3/18/2030	121.32165	116.0347227	111.0154707	106.2489059	101.7209573	97.41840892	93.32884369	89.4405908	85.74267734
ADV1013478	3/17/2025	4.219	3/18/2030	121.33656	116.0492691	111.0296669	106.2627646	101.7344908	97.43162902	93.3417615	89.45321701	85.75502215
ADV1013479	3/17/2025	4.216	3/19/2029	117.30353	113.1534697	109.1763249	105.3639738	101.7087184	98.20326037	94.84067833	91.61440647	88.51821433
ADV1014920	4/25/2025	3.88	4/26/2027	108.22213	106.1725515	104.1727807	102.221289	100.3166092	98.457329	96.64208838	94.8695775	93.13853434
ADV1014945	4/28/2025	4.531	5/12/2025	100.13706	100.1037545	100.0704871	100.0372587	100.0040693	99.97091888	99.93780732	99.90473454	99.87170047
ADV1014337	4/3/2025	3.959	4/3/2026	103.68754	102.7391228	101.8080845	100.8939464	99.996251	99.11455721	98.24843954	97.39748747	96.56130485
ADV1014411	4/4/2025	3.676	4/4/2028	111.81274	108.7469937	105.7825031	102.915367	100.1418591	97.45841711	94.86163442	92.34825231	89.91515271
ADV1014198	3/28/2025	4.435	6/27/2025	100.65063	100.4884188	100.326732	100.1655667	100.0049204	99.84479048	99.68517454	99.52607011	99.36747472
ADV1014344	4/3/2025	4.503	5/5/2025	100.06119	100.0472777	100.0333801	100.0194961	100.0056257	99.99176886	99.97792563	99.96409594	99.95027978
ADV1013900	3/14/2025	4.45	6/13/2025	100.49904	100.3759082	100.2530908	100.1305872	100.008396	99.88651601	99.76494601	99.64368478	99.52273109
ADV1014622	4/15/2025	4.467	7/14/2025	100.84575	100.6361649	100.4274666	100.219646	100.0126974	99.80661533	99.6013942	99.39702858	99.19351306
ADV1014618	4/15/2025	3.954	4/15/2027	108.23767	106.2191225	104.2489019	102.3255552	100.4476787	98.61392056	96.82297806	95.07359588	93.36456384
ADV1013937	3/17/2025	4.453	7/7/2025	100.76813	100.5775467	100.3876865	100.1985482	100.0101278	99.82242112	99.635424	99.44913242	99.26354232
ADV1014795	4/22/2025	3.888	10/22/2026	106.055	104.5459982	103.0663412	101.6152429	100.1919484	98.79572857	97.42587949	96.08172114	94.7625964
ADV1014210	3/28/2025	4.011	3/28/2028	112.47761	109.4274766	106.4772548	103.6231313	100.8614563	98.1887392	95.60164062	93.09696518	90.6716543
ADV1014361	4/3/2025	3.853	4/2/2027	107.88196	105.9038695	103.9723177	102.0859292	100.2433759	98.44337712	96.68469856	94.96614957	93.28658164
ADV1014746	4/21/2025	4.441	4/23/2035	127.89868	120.3981177	113.5020077	107.1547489	101.306296	95.91157153	90.92993983	86.32474039	82.0628725
ADV1014374	4/3/2025	3.746	4/3/2028	112.01052	108.9447001	105.9800172	103.1125835	100.3386808	97.65475395	95.05740332	92.54337658	90.1095617
ADV1015013	4/29/2025	3.821	4/30/2029	116.17686	111.928699	107.8627814	103.9702988	100.2429144	96.67273769	93.25229754	89.97451802	86.8326951
ADV1013958	3/18/2025	4.13	3/18/2027	108.22947	106.2892964	104.3938867	102.5419399	100.7322019	98.96346309	97.23455644	95.54435548	93.89177279
ADV1014364	4/3/2025	4.11	3/28/2031	124.18122	117.7398921	111.6834595	105.9868119	100.6266014	95.58111338	90.83014352	86.35488563	82.13782805

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1014871	4/24/2025	4.483	6/24/2025	100.62026	100.4669765	100.3141632	100.1618226	100.0099526	99.85855092	99.70761542	99.55714393	99.4071343
ADV1014661	4/17/2025	4.454	7/17/2025	100.87672	100.6587597	100.4417571	100.225702	100.0105881	99.79640924	99.58315921	99.37083193	99.15942133
ADV1014934	4/25/2025	3.933	10/26/2026	106.04813	104.5303117	103.0421759	101.5829282	100.1518007	98.748052	97.37096632	96.01985235	94.69404219
ADV1014646	4/16/2025	3.89	11/16/2026	106.37429	104.7928245	103.2430672	101.7241377	100.2351868	98.77539638	97.34397752	95.94016949	94.56323832
ADV1013890	3/14/2025	4.45	6/16/2025	100.53253	100.4009741	100.2697733	100.1389284	100.0084378	99.87830017	99.74851392	99.61907762	99.48998982
ADV1014910	4/25/2025	4.448	7/25/2025	100.96468	100.724451	100.4853698	100.2474288	100.0106196	99.77493428	99.54036473	99.30690303	99.07454133
ADV1014957	4/28/2025	4.3	10/28/2025	102.00172	101.4925393	100.9884146	100.4892742	99.99504469	99.50565387	99.021031	98.54110672	98.06581301
ADV1014717	4/21/2025	4.484	7/18/2025	100.894	100.6733264	100.4536273	100.2348989	100.0171348	99.80032851	99.58447367	99.36956395	99.1555931
ADV1013608	3/3/2025	4.164	3/3/2026	103.42579	102.5660333	101.7205968	100.8891221	100.0712651	99.26669286	98.47508338	97.69612485	96.92951545
ADV1013830	3/12/2025	4.026	9/14/2026	105.77831	104.3765338	103.0002527	101.6488309	100.3216521	99.0181198	97.73765675	96.47970403	95.2437204
ADV1013641	3/4/2025	4.098	3/4/2027	107.99401	106.0946483	104.2383237	102.4238123	100.6499293	98.91553131	97.21951412	95.56081135	93.9383928
ADV1014994	4/30/2025	4.094	3/2/2026	103.35019	102.4935729	101.6511754	100.8226451	100.0076413	99.20583451	98.4169058	97.64054646	96.87645759
ADV1014042	3/21/2025	4.023	3/14/2028	112.35634	109.3469459	106.4349777	103.6167542	100.8887569	98.24761871	95.69011684	93.21316556	90.81380975
ADV1014907	4/25/2025	4.449	7/25/2025	100.96492	100.7246892	100.4856075	100.2476658	100.0108561	99.77517014	99.5406	99.30713772	99.07477544
ADV1014200	3/28/2025	3.988	9/28/2026	105.90306	104.460889	103.0456032	101.6565119	100.2929501	98.95427493	97.63986471	96.34911796	95.08145269
ADV1013624	3/4/2025	4.256	12/4/2025	102.42011	101.8116448	101.2104142	100.6162938	100.0291578	99.44888353	98.87535094	98.30844296	97.74804515
ADV1013927	3/17/2025	4.13	5/31/2029	117.78078	113.4126242	109.2345447	105.2372082	101.4117934	97.74995965	94.24381761	90.88590234	87.66914798
ADV1013802	3/11/2025	4.483	6/11/2025	100.48111	100.3635386	100.2462556	100.129259	100.0125478	99.89612093	99.7799773	99.66411584	99.54853548
ADV1013596	3/14/2025	4.111	3/14/2029	116.83391	112.7071096	108.751804	104.9599621	101.3239698	97.83660738	94.4910269	91.28073097	88.19955312
ADV1014332	4/3/2025	4.499	5/5/2025	100.06113	100.0472181	100.0333205	100.0194366	100.0055662	99.99170946	99.97786628	99.96403664	99.95022053
ADV1014142	3/27/2025	4.266	3/22/2030	121.60993	116.3046331	111.2683943	106.48612	101.9436423	97.627656	93.52566155	89.62591218	85.91736483
ADV1014358	4/3/2025	3.849	4/3/2028	112.06713	109.0062076	106.0461365	103.1830395	100.413213	97.73311578	95.13936125	92.62870941	90.19805986
ADV1014377	4/3/2025	3.828	4/5/2027	107.86909	105.8826228	103.943086	102.0490873	100.1992818	98.39237321	96.6271119	94.90229294	93.21675412
ADV1014321	4/2/2025	4.157	4/2/2026	103.78616	102.8410983	101.9132838	101.0022425	100.1075221	99.22868642	98.36531487	97.51700146	96.68335433
ADV1014860	4/24/2025	3.975	10/26/2026	106.11156	104.5932386	103.1046127	101.6448835	100.2132828	98.80906889	97.43152588	96.07996222	94.7537098
ADV1014559	4/14/2025	4.509	5/12/2025	100.1387	100.1053386	100.0720132	100.0387269	100.0054798	99.97227159	99.93910235	99.90597196	99.87288036
ADV1014650	4/16/2025	4.374	9/10/2025	101.48127	101.1080001	100.7374765	100.3696654	100.004537	99.64206195	99.28221134	98.92495663	98.57026974
ADV1014963	4/28/2025	3.956	4/28/2026	103.98035	102.9605825	101.9608501	100.9805632	100.0191578	99.07609188	98.15084387	97.24291183	96.35181252
ADV1014725	4/21/2025	4.546	5/8/2025	100.09303	100.0708153	100.0486237	100.0264557	100.0043114	99.98219053	99.96009318	99.93801928	99.91596879
ADV1014391	4/4/2025	3.661	4/4/2028	111.51815	108.4625501	105.5077799	102.6499624	99.88539036	97.21051934	94.62195958	92.11646837	89.69094284
ADV1014470	4/8/2025	3.82	4/10/2028	112.05689	108.9760851	105.9974294	103.1169754	100.3309483	97.63573989	95.02790044	92.50413074	90.06127461
ADV1015016	4/29/2025	4.101	4/29/2031	124.3829	117.8434041	111.700104	105.9267826	100.4990946	95.39442141	90.59174075	86.07150541	81.81553264
ADV1014413	4/4/2025	3.784	4/4/2030	119.76395	114.4532873	109.4147966	104.63307	100.0936529	95.78297857	91.6883089	87.79767949	84.09984886

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1014931	4/25/2025	4.506	5/16/2025	100.18202	100.1375759	100.0931904	100.048862	100.0045905	99.96037583	99.91621788	99.87211652	99.82807164
ADV1015026	4/29/2025	4.537	5/6/2025	100.06864	100.0519956	100.0353711	100.0187634	100.0021725	99.98559828	99.96904075	99.95249988	99.93597563
ADV1014310	4/2/2025	4.493	5/2/2025	100.02736	100.0217936	100.0162351	100.0106816	100.005133	99.99958947	99.99405088	99.98851725	99.98298857
ADV1014917	4/25/2025	4.902	4/25/2040	157.20334	139.9104295	124.8832475	111.8041633	100.4020516	90.44524263	81.73557646	74.10338067	67.40322429
ADV1014902	4/25/2025	4.116	4/27/2026	104.04824	103.0320702	102.0357857	101.0588094	100.1005833	99.16057094	98.23825597	97.33314153	96.44474918
ADV1015079	4/30/2025	3.7	7/30/2027	108.93218	106.6100099	104.3494407	102.1483745	100.0048023	97.91680059	95.8825274	93.90021757	91.96817896
ADV1013587	3/3/2025	4.479	5/30/2025	100.34702	100.263027	100.1791765	100.0954661	100.0118956	99.92846468	99.84517296	99.76202012	99.67900581
ADV1015048	4/30/2025	3.727	4/30/2027	107.95983	105.9016364	103.8937352	101.9345776	100.0226742	98.15659171	96.33495036	94.55642142	92.81972497
ADV1014504	4/10/2025	4.073	4/10/2026	103.80242	102.8349578	101.8855673	100.9537471	100.0390121	99.1408948	98.25894472	97.39272753	96.54182433
ADV1014995	4/30/2025	4.024	4/30/2026	103.99113	102.9669118	101.9628967	100.9784931	100.0131302	99.06625898	98.13735154	97.22589978	96.33141463
ADV1014203	3/28/2025	3.94	3/29/2027	108.15947	106.1867958	104.2603272	102.3787046	100.5406144	98.74479084	96.99001291	95.27510304	93.59892501
ADV1014369	4/3/2025	3.869	4/3/2030	119.74595	114.4523483	109.4295144	104.6621445	100.1358821	95.83725104	91.75359664	87.8730318	84.1843864
ADV1014929	4/25/2025	4.527	5/2/2025	100.02363	100.0180794	100.0125368	100.0069991	100.0014664	99.99593865	99.99041586	99.98489802	99.97938512
ADV1014663	4/18/2025	4.5	5/19/2025	100.21684	100.1640021	100.1112373	100.0585447	100.0059241	99.95337543	99.9008985	99.84849316	99.79615927
ADV1013722	3/7/2025	4.25	11/19/2025	102.23877	101.6725075	101.1125348	100.558745	100.0110358	99.46930739	98.93346186	98.40340358	97.87903895
ADV1013727	3/7/2025	4.007	3/7/2028	112.23314	109.2450301	106.3530833	103.5536939	100.8434084	98.21892133	95.67706771	93.21481647	90.829264
ADV1013630	3/18/2025	4.037	9/18/2029	118.57157	113.8719144	109.3894701	105.1130471	101.0320895	97.13663637	93.41728501	89.86515701	86.47186627
ADV1015091	4/30/2025	4.518	6/30/2025	100.69277	100.522787	100.3533754	100.1845316	100.0162528	99.84853619	99.68137904	99.51477853	99.34873192
ADV1014073	3/24/2025	4.382	9/9/2025	101.47617	101.1047129	100.7359612	100.3698884	100.0064651	99.64566277	99.28745291	98.93180762	98.57869933
ADV1013691	3/6/2025	4.226	1/6/2026	102.79729	102.0958542	101.4040082	100.7215556	100.0483058	99.38407335	98.72867762	98.08194291	97.4436981
ADV1013689	3/6/2025	4.101	4/15/2027	108.53113	106.5096516	104.5365647	102.6104063	100.7297713	98.89330604	97.0997067	95.34771648	93.63612391
ADV1014145	3/27/2025	4.031	3/27/2028	112.77484	109.7173795	106.7600803	103.8991104	101.130811	98.4516826	95.85837767	93.34769283	90.91656197
ADV1013756	3/17/2025	4.041	9/17/2026	105.72316	104.3151502	102.9328593	101.5756434	100.2428782	98.93395973	97.64830329	96.38534301	95.14453091
ADV1014943	4/28/2025	4.518	5/27/2025	100.30692	100.2318717	100.1569398	100.0821269	100.0074329	99.93285744	99.85840024	99.78406103	99.70983953
ADV1014923	4/25/2025	4.51	5/16/2025	100.1822	100.1377543	100.0933687	100.0490402	100.0047686	99.96055381	99.91639575	99.87229429	99.82824931
ADV1014838	4/23/2025	4.209	2/11/2026	103.21788	102.4146969	101.6240417	100.8456212	100.0791528	99.32436214	98.58098348	97.84875901	97.12743864
ADV1014855	4/24/2025	3.917	1/18/2028	111.40505	108.570309	105.8232036	103.1604474	100.5788999	98.07556154	95.64756569	93.29217196	91.00675955
ADV1014620	4/15/2025	4.519	5/15/2025	100.17294	100.1312259	100.0895651	100.0479567	100.0064006	99.96489662	99.92344478	99.88204492	99.84069695
ADV1014346	4/3/2025	3.906	4/3/2030	119.93151	114.6333442	109.6061154	104.8345128	100.3041726	96.00161141	91.91416808	88.0299492	84.33777868
ADV1014293	4/1/2025	3.972	4/15/2027	108.27552	106.2566667	104.2861536	102.3625195	100.4843605	98.65032445	96.85910874	95.10945786	93.40016153
ADV1013600	3/3/2025	4.374	9/3/2025	101.40748	101.0522075	100.6993971	100.3490274	100.0010732	99.65550959	99.31231193	98.97145602	98.63291794
ADV1014283	4/1/2025	4.09	4/1/2030	120.83511	115.5205448	110.4771566	105.689646	101.1436587	96.82571958	92.7231735	88.82413179	85.11742179
ADV1013810	3/11/2025	4.32	9/25/2025	101.63665	101.2190987	100.8049506	100.3941638	99.98669737	99.58251121	99.18156582	98.78382234	98.3892425

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1014916	4/25/2025	4.82	4/25/2039	152.98046	136.9535064	122.9136696	110.5975452	99.77822256	90.26004259	81.87413493	74.47461365	67.93533041
ADV1014852	4/24/2025	3.938	2/16/2027	107.48184	105.6347666	103.8287248	102.0625121	100.3349669	98.6449711	96.99144801	95.37336056	93.78970938
ADV1014331	4/3/2025	3.804	10/5/2026	105.72742	104.2673213	102.834787	101.4290987	100.0495669	98.69552482	97.36632824	96.06135409	94.77999971
ADV1013892	3/14/2025	4.371	8/14/2025	101.17789	100.8798868	100.5836416	100.2891362	99.99635533	99.70528369	99.41590626	99.1282082	98.84217481
ADV1014637	4/16/2025	4.5	5/16/2025	100.18327	100.1387781	100.094343	100.049965	100.005644	99.96137983	99.91717248	99.87302179	99.82892765
ADV1014992	4/29/2025	3.756	10/12/2027	109.88529	107.3448976	104.8770396	102.4792242	100.1490646	97.88427029	95.682642	93.5420679	91.46051936
ADV1014778	4/22/2025	4.512	5/20/2025	100.22814	100.1725416	100.1170229	100.0615817	100.0062178	99.95093108	99.89572139	99.84058854	99.78553237
ADV1015031	4/29/2025	4.453	7/29/2025	101.01056	100.759195	100.5090767	100.2601984	100.0125508	99.76612482	99.52091154	99.27690198	99.03408733
ADV1014242	3/31/2025	4.496	5/1/2025	100.01643	100.0136435	100.0108637	100.0080864	100.0053114	100.0025389	99.99976881	99.99700111	99.99423582
ADV1014873	4/24/2025	4.501	5/27/2025	100.30632	100.2312285	100.1562602	100.0814111	100.0066809	99.9320693	99.85757601	99.78320077	99.70894331
ADV1015041	4/30/2025	4.554	5/14/2025	100.1604	100.1215408	100.0827326	100.0439721	100.0052592	99.96659392	99.92797609	99.88940562	99.85088243
ADV1013867	3/13/2025	4.102	3/15/2027	104.15215	103.1299496	102.1273314	101.1437372	100.1786338	99.23150811	98.30186597	97.38923145	96.49314594
ADV1014076	3/24/2025	4.156	3/26/2029	117.1433	112.9766662	108.9844503	105.1584239	101.4907886	97.97415289	94.6015088	91.36620996	88.26195101
ADV1014245	3/31/2025	4.363	6/1/2032	129.39117	121.5525846	114.2611946	107.4755945	101.157732	95.27261563	89.78805377	84.67441625	79.90441781
ADV1015046	4/30/2025	4.542	5/30/2025	100.34264	100.259243	100.1759866	100.0928694	100.0098911	99.92705135	99.84434985	99.76178623	99.67936017
ADV1015054	4/30/2025	4.541	5/30/2025	100.34256	100.2591597	100.1759034	100.0927863	100.0098081	99.92696839	99.84426696	99.76170341	99.67927741
ADV1014666	4/17/2025	4.502	5/19/2025	100.21711	100.1642704	100.1114989	100.0587996	100.0061724	99.95361706	99.90113351	99.84872155	99.79638106
ADV1014831	4/23/2025	3.882	4/23/2027	108.3565	106.3109287	104.3149109	102.3669375	100.4655529	98.60935562	96.79699603	95.0271741	93.29863715
ADV1014140	3/27/2025	4.265	3/15/2030	121.53315	116.2495695	111.2330134	106.4685551	101.9421798	97.64072276	93.55181363	89.6638245	85.9658216
ADV1013723	3/7/2025	4.198	1/14/2026	102.87387	102.1499442	101.4362265	100.7325064	100.0385745	99.35422714	98.67926643	98.01349979	97.35673993
ADV1013774	3/17/2025	4.096	3/15/2030	120.69589	115.432702	110.4357854	105.6902482	101.182108	96.89823075	92.82627517	88.9546409	85.27242035
ADV1015008	4/29/2025	4.474	7/10/2025	100.79941	100.6014056	100.4041915	100.2077624	100.0121135	99.81724019	99.6231377	99.42980144	99.23722681
ADV1014486	4/9/2025	4.569	5/9/2025	100.10712	100.0820832	100.0570777	100.0320994	100.0071484	99.98222466	99.95732802	99.9324585	99.90761603
ADV1015028	4/29/2025	4.537	5/6/2025	100.06864	100.0519956	100.0353711	100.0187634	100.0021725	99.98559828	99.96904075	99.95249988	99.93597563
ADV1014723	4/21/2025	4.292	10/21/2025	101.9179	101.4283241	100.9434403	100.4631772	99.9874691	99.51625122	99.04946017	98.58703372	98.1289108
ADV1015012	4/29/2025	3.756	4/28/2028	112.0557	108.9234013	105.8966495	102.971295	100.1433758	97.40910804	94.7648768	92.20722766	89.73285848
ADV1014782	4/22/2025	4.511	5/22/2025	100.25075	100.1895787	100.1284994	100.0675088	100.0066066	99.94579271	99.88506686	99.82442887	99.76387856
ADV1014926	4/25/2025	4.083	4/27/2026	104.0151	102.9991015	102.0029937	101.0261917	100.0681376	99.12829488	98.20614735	97.30119815	96.41296889
ADV1014911	4/25/2025	4.513	5/7/2025	100.08026	100.0608353	100.0414291	100.022043	100.002677	99.98333106	99.9640051	99.94469912	99.92541308
ADV1013963	3/18/2025	4.463	6/18/2025	100.556	100.4188834	100.2821541	100.1458093	100.0098475	99.8742669	99.73906592	99.60424294	99.46979632
ADV1014826	4/23/2025	4.509	5/28/2025	100.31841	100.2405237	100.162763	100.0851281	100.0076186	99.93023432	99.85297486	99.77583996	99.69882932
ADV1015018	4/29/2025	4.512	5/23/2025	100.26097	100.1970661	100.1332617	100.0695517	100.0059358	99.94241384	99.87898563	99.81565095	99.75240959
ADV1014252	3/31/2025	4.271	3/31/2031	125.17031	118.691397	112.599638	106.8697606	101.4782673	96.40330522	91.62454304	87.12305737	82.88122846

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1013629	3/18/2025	4.037	9/18/2029	118.57157	113.8719144	109.3894701	105.1130471	101.0320895	97.13663637	93.41728501	89.86515701	86.47186627
ADV1014775	4/22/2025	4.147	4/19/2030	121.29848	115.9200778	110.8185974	105.9782701	101.3843081	97.02283767	92.88083818	88.94608491	85.20709653
ADV1013605	3/3/2025	4.368	9/3/2025	101.40537	101.0501089	100.6973091	100.3469499	99.99900617	99.6534529	99.31026553	98.96941984	98.63089191
ADV1014502	4/10/2025	4.532	5/9/2025	100.10599	100.0809618	100.0559602	100.0309858	100.0060387	99.98111882	99.95622607	99.93136043	99.90652184
ADV1013764	3/18/2025	4.011	9/20/2027	110.26243	107.7789572	105.3647366	103.0174446	100.7348537	98.51482394	96.35529884	94.25430141	92.20993073
ADV1013897	3/14/2025	4.089	3/14/2028	112.5501	109.5378621	106.6231201	103.8021911	101.0715542	98.42784021	95.86782421	93.3884185	90.98666601
ADV1014260	3/31/2025	4.005	3/31/2028	112.49322	109.4345205	106.4762669	103.6146149	100.8458865	98.16656423	95.57328367	93.0628257	90.63210945
ADV1015045	4/30/2025	4.595	4/30/2037	145.25034	131.655379	119.5478822	108.7539073	99.12083014	90.51462312	82.8174985	75.92586033	69.7485244
ADV1014748	4/21/2025	3.844	4/21/2027	108.09032	106.0562607	104.0713044	102.1339597	100.242789	98.39640841	96.59348489	94.83273417	93.11291857
ADV1014309	4/2/2025	4.494	5/2/2025	100.02736	100.0218002	100.0162417	100.0106882	100.0051396	99.99959607	99.99405747	99.98852384	99.98299516
ADV1013875	3/13/2025	4.103	9/5/2029	118.72628	114.0610415	109.6097348	105.361423	101.3057848	97.43307579	93.7340939	90.20014594	86.82301715
ADV1014107	3/25/2025	4.449	6/25/2025	100.63106	100.4744097	100.3182483	100.1625769	100.0073932	99.85269501	99.69847995	99.54474576	99.3914902
ADV1015007	4/29/2025	4.503	6/11/2025	100.47539	100.3585236	100.2419453	100.1256518	100.0096419	99.89391466	99.77846895	99.66330372	99.5484179
ADV1013724	3/7/2025	4.17	2/11/2026	103.18936	102.3862878	101.5957459	100.8174379	100.051081	99.29640101	98.55313214	97.82101659	97.0998043
ADV1014770	4/22/2025	4.512	5/22/2025	100.25081	100.18964	100.1285607	100.06757	100.0066678	99.94585386	99.88512795	99.82448991	99.76393955
ADV1013777	3/12/2025	4.022	8/31/2028	114.28388	110.7641658	107.373357	104.1060615	100.9571374	97.92168378	94.99502818	92.17271472	89.45049292
ADV1014434	4/7/2025	4.163	11/25/2025	102.25877	101.6758119	101.0995137	100.5297569	99.96643031	99.40942552	98.85863639	98.31395917	97.77529243
ADV1014238	3/31/2025	4.506	5/30/2025	100.34465	100.2609443	100.1773789	100.0939533	100.010667	99.92751988	99.84451148	99.76164147	99.67890953
ADV1014367	4/3/2025	3.84	2/5/2027	107.16175	105.3509852	103.579911	101.8473142	100.1520345	98.49295803	96.8690152	95.27917828	93.7224594
ADV1014405	4/4/2025	3.679	2/4/2028	111.16672	108.2822104	105.4882641	102.7814518	100.1584958	97.61626609	95.15177252	92.76215727	90.44468804
ADV1014396	4/4/2025	3.643	4/4/2030	119.05499	113.7618084	108.7401407	103.9746153	99.45080596	95.15517291	91.07500335	87.19835704	83.51401534
ADV1013799	3/11/2025	4.331	9/11/2025	101.4821	101.1044568	100.7296141	100.3575365	99.98819325	99.62155427	99.25758983	98.89627065	98.53756788
ADV1014552	4/14/2025	4.511	5/13/2025	100.1501	100.113956	100.0778508	100.0417891	100.0057707	99.96979552	99.93386352	99.89797461	99.8621287
ADV1014259	3/31/2025	3.999	9/30/2027	110.35148	107.8383568	105.3960469	103.0221492	100.7143629	98.4704789	96.28837482	94.16601149	92.10142901
ADV1014595	4/15/2025	4.519	5/15/2025	100.17294	100.1312259	100.0895651	100.0479567	100.0064006	99.96489662	99.92344478	99.88204492	99.84069695
ADV1014648	4/16/2025	4.505	5/7/2025	100.08164	100.0621899	100.0427619	100.0233541	100.0039664	99.98459867	99.96525103	99.94592339	99.92661572
ADV1014700	4/21/2025	4.537	5/19/2025	100.2183	100.1654799	100.1127333	100.0600589	100.0074564	99.95492588	99.90246705	99.85007979	99.79776394
ADV1014793	4/22/2025	3.968	10/22/2026	106.05284	104.5458595	103.0681545	101.6189411	100.1974666	98.80300441	97.43485278	96.09233382	94.77479244
ADV1015027	4/29/2025	4.514	5/29/2025	100.32913	100.2485182	100.1680345	100.0876833	100.007464	99.92737657	99.84742052	99.76759558	99.68790144
ADV1015019	4/29/2025	4.498	6/17/2025	100.54263	100.4090069	100.2757553	100.1428718	100.010355	99.87820318	99.74641487	99.61498852	99.48392261
ADV1014564	4/14/2025	4.451	7/14/2025	100.84257	100.6329672	100.4242517	100.2164139	100.0094482	99.80334905	99.59811095	99.39372842	99.19019606
ADV1014908	4/25/2025	4.135	3/25/2026	103.6644	102.7422348	101.8365075	100.9467835	100.0726407	99.21367203	98.36948436	97.53969805	96.72394637
ADV1014616	4/15/2025	3.87	4/15/2027	108.23491	106.2133252	104.2401961	102.3140619	100.4335137	98.59719484	96.80379816	95.05206396	93.34077793

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1014959	4/28/2025	4.515	5/27/2025	100.3067	100.2316467	100.156715	100.0819023	100.0072085	99.93263319	99.85817617	99.78383714	99.70961582
ADV1014404	4/4/2025	3.977	4/6/2026	103.66437	102.708775	101.7708302	100.8500476	99.94595868	99.05811202	98.18607222	97.32941939	96.48774838
ADV1014319	4/2/2025	4.078	4/2/2026	103.78745	102.8413263	101.9124796	101.0004404	100.1047552	99.22498642	98.36071232	97.51152575	96.67703377
ADV1013832	3/12/2025	4.46	6/25/2025	100.63489	100.4779796	100.3215651	100.1656415	100.0102064	99.85525757	99.70079264	99.54680936	99.39330549
ADV1014044	3/21/2025	4.047	10/10/2028	114.82293	111.1794736	107.6734687	104.2989882	101.0503901	97.92230545	94.90962367	92.00747843	89.21123474
ADV1013765	3/18/2025	4.018	3/20/2028	112.40961	109.3827305	106.4543424	103.6207053	100.8782446	98.22354063	95.65332076	93.16445253	90.75393667
ADV1013728	3/7/2025	4.081	3/7/2029	116.64002	112.5366934	108.6031647	104.8315118	101.2142274	97.74419108	94.41464757	91.21918577	88.15171969
ADV1014424	4/7/2025	4.502	5/7/2025	100.08311	100.0636406	100.0441908	100.0247612	100.0053518	99.98596239	99.96659307	99.94724377	99.92791445
ADV1013631	3/14/2025	3.983	9/14/2027	110.12356	107.658923	105.2625825	102.9322655	100.6657888	98.46105384	96.31604367	94.2288187	92.19751352
ADV1014469	4/8/2025	4.503	5/8/2025	100.09427	100.0720216	100.0497945	100.027591	100.0054111	99.98325485	99.9611221	99.93901283	99.916927
ADV1014399	4/4/2025	4.503	5/5/2025	100.06102	100.0471088	100.0332129	100.0193307	100.005462	99.99160691	99.9777654	99.96393744	99.950123
ADV1014089	3/24/2025	4.38	9/17/2025	101.56745	101.1732152	100.7820327	100.3938633	100.008672	99.62642467	99.24708744	98.87062714	98.49701102
ADV1014442	4/7/2025	4.018	4/7/2026	103.7148	102.756147	101.8152538	100.8916258	99.98479042	99.09429217	98.21969187	97.360566	96.51650596
ADV1013699	3/6/2025	4.07	3/6/2028	112.40461	109.4167938	106.5250306	103.7257204	101.015417	98.39082162	95.84877551	93.38625356	91.00035767
ADV1014753	4/21/2025	4.537	5/21/2025	100.24111	100.1827176	100.1244103	100.066186	100.0080446	99.94998575	99.8920094	99.83411534	99.7763034
ADV1013669	3/5/2025	4.078	9/8/2026	105.66128	104.2790546	102.9216793	101.5885365	100.2790321	98.99259109	97.72865677	96.4866898	95.26616773
ADV1014868	4/24/2025	3.835	4/26/2027	108.29812	106.2446251	104.2410826	102.28596	100.3777843	98.51513755	96.6966548	94.92102119	93.18696999
ADV1014292	4/1/2025	3.976	4/1/2027	108.11016	106.1326332	104.2015606	102.315569	100.4733344	98.67358054	96.91507679	95.19663629	93.517114
ADV1014751	4/21/2025	4.192	12/22/2025	102.59232	101.9332862	101.2827375	100.6405096	100.0064433	99.38038368	98.76217935	98.15168291	97.54875061
ADV1014263	3/31/2025	4.051	3/31/2026	103.7334	102.7931253	101.8699215	100.9633236	100.0728863	99.19818009	98.33879047	97.49431742	96.66437475
ADV1014375	4/3/2025	3.845	4/5/2027	107.9024	105.9155986	103.9757345	102.081415	100.2312946	98.42407711	96.65851265	94.93339613	93.2475652
ADV1014305	4/2/2025	4.494	5/2/2025	100.02736	100.0218002	100.0162417	100.0106882	100.0051396	99.99959607	99.99405747	99.98852384	99.98299516
ADV1014492	4/9/2025	3.963	5/1/2028	112.72279	109.5718458	106.5272482	103.5848064	100.7405202	97.99056961	95.33130591	92.75924256	90.27104717
ADV1014007	3/20/2025	4.041	4/11/2028	112.72856	109.634809	106.6436447	103.7511018	100.9533869	98.24687476	95.62809918	93.09374541	90.64064249
ADV1014989	4/29/2025	4.517	5/29/2025	100.32938	100.2487596	100.1682758	100.0879243	100.0077049	99.92761726	99.84766102	99.76783588	99.68814154
ADV1014965	4/28/2025	4.535	5/5/2025	100.05737	100.0435027	100.0296483	100.0158074	100.0019802	99.98816644	99.97436624	99.96057954	99.94680632
ADV1014312	4/2/2025	4.493	5/2/2025	100.02736	100.0217936	100.0162351	100.0106816	100.005133	99.99958947	99.99405088	99.98851725	99.98298857
ADV1015024	4/29/2025	4.527	5/13/2025	100.14814	100.1120561	100.0760183	100.0400239	100.0040727	99.9681647	99.93229977	99.89647785	99.86069885
ADV1014857	4/24/2025	3.935	7/14/2028	113.46089	110.0889974	106.8366819	103.6989711	100.6711313	97.74865642	94.92725562	92.20284104	89.57151687
ADV1013859	3/13/2025	4.44	6/13/2025	100.49796	100.37482	100.2519907	100.1294752	100.0072721	99.88538034	99.76379855	99.64252556	99.52156014
ADV1014952	4/28/2025	4.305	10/28/2025	102.00423	101.4950369	100.9908996	100.4917469	99.99750506	99.50810206	99.02346714	98.54353092	98.06822539
ADV1013659	3/5/2025	4.486	6/5/2025	100.41487	100.3140588	100.2134607	100.1130708	100.0128887	99.91291348	99.81314464	99.71358147	99.61422331
ADV1013811	3/11/2025	4.097	3/25/2026	103.63205	102.7100583	101.8045056	100.9149534	100.0409799	99.18217786	98.33815431	97.50852966	96.69293724

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1014436	4/7/2025	4.02	3/25/2026	103.56247	102.6408398	101.7356382	100.8464328	99.97280173	99.11433798	98.27064858	97.44135405	96.6260878
ADV1015058	4/30/2025	3.648	4/30/2027	107.96703	105.9056015	103.8946017	101.9324742	100.017724	98.14891287	96.32465601	94.54362006	92.80452064
ADV1014247	3/31/2025	4.102	3/29/2030	120.86119	115.5544345	110.5180235	105.7367318	101.1962704	96.88322326	92.78499011	88.88973233	85.18632325
ADV1014851	4/24/2025	3.948	1/13/2027	107.0615	105.3161536	103.6080108	101.9359505	100.2988937	98.69580438	97.12568792	95.58758856	94.08058765
ADV1014299	4/1/2025	3.996	10/30/2026	106.19644	104.6665961	103.1668688	101.6964487	100.2545515	98.84042069	97.45332565	96.09256107	94.75744565
ADV1014041	3/21/2025	4.022	1/18/2028	111.69605	108.8572427	106.106175	103.4395497	100.8542233	98.34719325	95.91559025	93.55667127	91.26781294
ADV1014574	4/14/2025	4.189	6/14/2030	122.07006	116.5112662	111.2458766	106.2567626	101.5278879	97.04423484	92.79173318	88.75719558	84.92825727
ADV1014961	4/28/2025	4.523	5/15/2025	100.1709	100.1292543	100.0876611	100.0461203	100.0046317	99.96319512	99.92181059	99.88047796	99.83919713
ADV1014472	4/8/2025	3.997	4/8/2030	120.43564	115.1105628	110.0583499	105.2635513	100.7116685	96.38909376	92.2830515	88.38154266	84.67329378
ADV1014370	4/3/2025	3.82	4/5/2027	107.85342	105.8671048	103.9277219	102.0338743	100.184217	98.37745372	96.61233508	94.88765615	93.2022548
ADV1013833	3/12/2025	4.478	6/12/2025	100.4916	100.3712323	100.2511709	100.1314094	100.0119469	99.89278208	99.77391382	99.65534099	99.53706243
ADV1015097	4/30/2025	4.587	5/2/2025	100.0231	100.0175564	100.0120172	100.006483	100.0009538	99.99542947	99.98991014	99.98439574	99.97888628
ADV1014547	4/14/2025	4.503	6/11/2025	100.47786	100.3607822	100.2439863	100.1274757	100.0112494	99.89530615	99.779645	99.66426485	99.54916462
ADV1014614	4/15/2025	4.324	10/15/2025	101.86441	101.391563	100.9230894	100.4589312	99.99902908	99.5433245	99.09176009	98.64427952	98.20082746
ADV1015065	4/30/2025	4.517	6/30/2025	100.6926	100.522618	100.3532066	100.1843631	100.0160846	99.84836829	99.68121142	99.51461119	99.34856486
ADV1013591	3/3/2025	4.194	3/3/2026	103.45137	102.591495	101.745941	100.9143502	100.0963784	99.29169279	98.49997114	97.72090171	96.95418265
ADV1014619	4/15/2025	4.519	5/15/2025	100.17294	100.1312259	100.0895651	100.0479567	100.0064006	99.96489662	99.92344478	99.88204492	99.84069695
ADV1014742	4/21/2025	4.535	5/21/2025	100.24099	100.1826004	100.1242932	100.066069	100.0079277	99.94986893	99.89189267	99.83399871	99.77618686
ADV1014372	4/3/2025	3.873	4/3/2030	119.76601	114.4719155	109.4486064	104.6807789	100.1540757	95.85501973	91.77095572	87.88999584	84.20096935
ADV1013599	3/14/2025	4.101	3/14/2029	116.79451	112.6684789	108.7139179	104.9227979	101.2875058	97.80082272	94.45590138	91.24624523	88.1656885
ADV1014861	4/24/2025	3.924	4/26/2027	108.31088	106.26039	104.2597229	102.3073523	100.4018105	98.54168474	96.7256146	94.95228977	93.22044779
ADV1013570	3/3/2025	4.214	3/3/2026	103.46842	102.6084695	101.7628372	100.931169	100.1131207	99.30835941	98.51656298	97.73741962	96.97062745
ADV1013771	3/18/2025	4.009	3/20/2028	112.38318	109.3566934	106.4286845	103.5954173	100.8533175	98.19896572	95.62908968	93.14055714	90.73036909
ADV1015021	4/29/2025	3.755	4/29/2027	108.005	105.9491659	103.9434993	101.986456	100.0765524	98.21236049	96.39250561	94.61566386	92.88055992
ADV1014558	4/14/2025	4.507	5/14/2025	100.16128	100.1223469	100.0834618	100.0446245	100.005835	99.96709305	99.9283987	99.88975181	99.8511523
ADV1014962	4/28/2025	4.528	5/12/2025	100.13696	100.1036543	100.0703869	100.0371586	100.0039693	99.97081886	99.93770734	99.9046346	99.87160057
ADV1013619	3/4/2025	4.52	5/2/2025	100.03252	100.0269312	100.0213524	100.0157786	100.0102098	100.004646	99.99908718	99.99353335	99.98798449
ADV1014190	3/28/2025	4.474	5/15/2025	100.17406	100.1322589	100.0905068	100.0488072	100.00716	99.96556516	99.92402248	99.88253191	99.84109333
ADV1013750	3/10/2025	4.126	3/10/2026	103.477	102.597504	101.7329881	100.883075	100.0473964	99.22559622	98.41733033	97.62226585	96.84008074
ADV1014508	4/10/2025	4.514	5/12/2025	100.13955	100.1061713	100.0728292	100.0395261	100.0062622	99.97303731	99.93985136	99.90670429	99.87359602
ADV1014157	3/27/2025	4.125	3/27/2026	103.75337	102.8241486	101.9115993	101.0152796	100.1347591	99.26962204	98.41946756	97.58390841	96.76257066
ADV1015072	4/30/2025	3.71	4/28/2028	111.91549	108.7853359	105.7606729	102.8373548	100.0114212	97.2790899	94.63674761	92.08094141	89.60837064
ADV1014715	4/21/2025	4.546	5/5/2025	100.05873	100.0448497	100.030983	100.0171299	100.0032904	99.98946439	99.97565197	99.96185307	99.94806766

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1013725	3/7/2025	4.102	4/8/2026	103.80671	102.8448043	101.9007664	100.9740992	100.0643259	99.1709869	98.29363926	97.43185576	96.5852243
ADV1015082	4/30/2025	4.544	5/30/2025	100.34281	100.2594094	100.1761529	100.0930356	100.0100571	99.92721727	99.84451563	99.76195187	99.67952567
ADV1015043	4/30/2025	3.791	12/16/2026	106.45347	104.7901234	103.1611403	101.565522	100.0023083	98.47057608	96.96943718	95.49803661	94.05555113
ADV1013717	3/7/2025	4.132	3/19/2026	103.59209	102.6870124	101.7977924	100.9240108	100.0652673	99.22117558	98.39136234	97.57546692	96.77314074
ADV1014905	4/25/2025	4.502	5/27/2025	100.30622	100.2311457	100.1561867	100.0813468	100.0066259	99.93202348	99.8575394	99.78317336	99.70892507
ADV1014996	4/30/2025	3.837	10/30/2026	105.95018	104.4222448	102.9243994	101.4558286	100.0157491	98.60340489	97.21806649	95.85902929	94.52561277
ADV1015055	4/30/2025	4.541	5/30/2025	100.34256	100.2591597	100.1759034	100.0927863	100.0098081	99.92696839	99.84426696	99.76170341	99.67927741
ADV1014880	4/24/2025	4.511	5/1/2025	100.01237	100.0095945	100.006823	100.0040539	100.0012873	99.99852306	99.99576122	99.99300178	99.99024473
ADV1015052	4/30/2025	4.563	5/7/2025	100.08038	100.060966	100.0415718	100.0221976	100.0028436	99.98350951	99.96419546	99.94490138	99.92562722
ADV1014732	4/21/2025	4.535	5/21/2025	100.24099	100.1826004	100.1242932	100.066069	100.0079277	99.94986893	99.89189267	99.83399871	99.77618686
ADV1014664	4/17/2025	4.502	5/19/2025	100.21711	100.1642704	100.1114989	100.0587996	100.0061724	99.95361706	99.90113351	99.84872155	99.79638106
ADV1015020	4/29/2025	3.81	12/29/2026	106.64191	104.9413076	103.2763301	101.6459199	100.0490648	98.48479214	96.9521668	95.4502895	93.97829498
ADV1013575	3/3/2025	4.376	9/3/2025	101.40819	101.052907	100.7000931	100.3497199	100.0017623	99.65619516	99.31299407	98.97213474	98.63359328
ADV1013772	3/18/2025	4.095	3/15/2030	120.69093	115.4278611	110.4310609	105.6856358	101.1776037	96.89383059	92.82197547	88.95043811	85.26831108
ADV1013753	3/10/2025	4.022	3/10/2027	107.92521	106.0099973	104.1385315	102.3095521	100.5218458	98.77424187	97.06561017	95.39485953	93.76093617
ADV1015060	4/30/2025	3.707	4/30/2029	116.06074	111.8052926	107.7326703	103.8340276	100.1009913	96.52563689	93.10046165	89.81836007	86.6726006
ADV1014948	4/28/2025	4.516	5/28/2025	100.31812	100.2402796	100.1625669	100.08498	100.0075184	99.93018189	99.85297015	99.7758829	99.69891983
ADV1014412	4/4/2025	4.429	7/3/2025	100.71565	100.5367291	100.358447	100.1807981	100.0037792	99.82738675	99.6516175	99.47646813	99.30193533
ADV1014402	4/4/2025	3.778	4/3/2030	119.28957	114.0071964	108.9951714	104.2382115	99.72197855	95.43301337	91.35867769	87.48709982	83.80712429
ADV1014067	3/24/2025	4.468	6/24/2025	100.62299	100.4691214	100.3157284	100.16281	100.0103639	99.85838789	99.70687986	99.5558376	99.40525895
ADV1013956	3/18/2025	4.148	11/18/2026	106.6772	105.0897401	103.5341369	102.0094986	100.5149704	99.04972883	97.6129798	96.20395771	94.82192395
ADV1015092	4/30/2025	3.784	10/30/2026	105.86956	104.3422623	102.845044	101.3770893	99.93761517	98.52586614	97.1411128	95.78265088	94.44980008
ADV1014448	4/7/2025	3.876	4/7/2027	107.98705	105.9937283	104.0476229	102.14733	100.2914925	98.47880296	96.70800105	94.97787161	93.28724271
ADV1014919	4/25/2025	4.48	6/25/2025	100.63089	100.4748257	100.3192477	100.1641579	100.0095541	99.8554338	99.70179489	99.54863507	99.39595208
ADV1014336	4/3/2025	4.08	3/19/2026	103.54575	102.6409105	101.7519212	100.8783674	100.0198489	99.17597943	98.34638576	97.53070729	96.72859547
ADV1014014	3/20/2025	4.481	5/8/2025	100.09698	100.0746796	100.0524005	100.0301451	100.0079134	99.98570533	99.96352083	99.94135987	99.91922242
ADV1014288	4/1/2025	4.451	7/1/2025	100.6974	100.5240279	100.3512457	100.1790543	100.0074508	99.83643221	99.66599549	99.49613771	99.32685595
ADV1013755	3/14/2025	4.101	3/14/2030	120.71166	115.4509151	110.4561786	105.7125796	101.206156	96.92379286	92.85316618	88.98269154	85.301476
ADV1014796	4/22/2025	3.832	4/22/2027	108.2439	106.2023207	104.2101435	102.2658601	100.3680211	98.51523127	96.70614686	94.93947338	93.21396344
ADV1014617	4/15/2025	4.092	4/15/2026	103.8807	102.8988751	101.9356542	100.9905112	100.0629398	99.15245265	98.25858007	97.38086963	96.51888516
ADV1014967	4/28/2025	3.855	10/28/2026	105.95402	104.4314984	102.9388521	101.475281	100.0400095	98.63228918	97.25139755	95.89663682	94.56733292
ADV1014373	4/3/2025	3.761	4/5/2027	107.89934	105.90957	103.9668635	102.0698184	100.2170845	98.40736098	96.63939357	94.91197307	93.22393316
ADV1014745	4/21/2025	4.258	4/23/2035	120.9835	115.4646529	110.3125563	105.4983514	100.9957142	96.78061246	92.83108875	89.12706557	85.65017006

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1014362	4/3/2025	4.059	4/3/2026	103.70598	102.7585338	101.8284323	100.9151978	100.018374	99.13752109	98.27221475	97.42204564	96.58661864
ADV1013768	3/17/2025	4.018	3/17/2028	112.37583	109.3577931	106.4377132	103.6118784	100.8767421	98.22891117	95.66513796	93.18231351	90.7774607
ADV1014490	4/9/2025	4.008	4/9/2026	103.80559	102.8398029	101.8920239	100.9617513	100.0485028	99.15181348	98.27123537	97.40633646	96.5567001
ADV1013671	3/5/2025	4.087	3/5/2027	107.98602	106.0839819	104.2250998	102.4081434	100.6319234	98.89529174	97.19713987	95.5363973	93.9120299
ADV1013972	3/18/2025	4.1	3/15/2028	112.59293	109.5772847	106.6593248	103.8353564	101.1018491	98.45542464	95.89284948	93.41102787	91.00699515
ADV1013598	3/14/2025	4.061	3/14/2028	112.46835	109.4573088	106.5437334	103.7239425	100.9944163	98.35178635	95.79282867	93.31445634	90.9137131
ADV1015010	4/29/2025	4.016	4/29/2026	103.97129	102.9499578	101.948727	100.9670037	100.0042214	99.05983528	98.13332139	97.22417544	96.33191197
ADV1015000	4/30/2025	4.514	5/30/2025	100.34031	100.2569124	100.1736579	100.0905427	100.0075663	99.92472851	99.84202893	99.75946723	99.67704308
ADV1015073	4/30/2025	3.79	4/30/2029	116.05052	111.804897	107.7414419	103.8513452	100.1262733	96.5583383	93.14007188	89.86440065	86.72462308
ADV1015085	4/30/2025	4.563	5/7/2025	100.08038	100.060966	100.0415718	100.0221976	100.0028436	99.98350951	99.96419546	99.94490138	99.92562722
ADV1014870	4/24/2025	4.502	5/27/2025	100.30639	100.2313036	100.1563353	100.0814861	100.0067558	99.93214416	99.8576508	99.78327549	99.70901796
ADV1014828	4/23/2025	4.407	9/19/2025	101.5966	101.1980552	100.8026343	100.4103008	100.0210185	99.63475187	99.25146583	98.87112593	98.4936982
ADV1014643	4/16/2025	3.921	4/16/2027	108.18419	106.1633413	104.1909504	102.2655504	100.3857323	98.55013903	96.75746297	95.00644415	93.29586796
ADV1014592	4/15/2025	4.515	5/15/2025	100.17277	100.1310572	100.0893965	100.0477882	100.0062322	99.96472842	99.92327672	99.881877	99.84052916
ADV1014913	4/25/2025	4.617	4/25/2036	143.14684	130.6840816	119.485937	109.4150601	100.3497745	92.18220806	84.81665924	78.16816468	72.16124164
ADV1013633	3/4/2025	4.006	3/4/2027	107.82196	105.9242428	104.0695364	102.2566127	100.4842881	98.75141985	97.05690453	95.39967653	93.77870639
ADV1014836	4/23/2025	4.447	8/26/2025	101.33259	101.0020268	100.6736146	100.3473357	100.0231693	99.70109482	99.38109213	99.06314126	98.74722249
ADV1014047	3/21/2025	3.942	3/21/2028	112.44463	109.4088096	106.4719656	103.6303375	100.8803265	98.2184897	95.64153272	93.14630252	90.7297804
ADV1014500	4/10/2025	4.527	5/12/2025	100.14	100.106614	100.0732714	100.039968	100.0067037	99.97347846	99.94029213	99.90714467	99.87403602
ADV1013621	3/4/2025	4.006	9/17/2026	105.6762	104.2685892	102.8866885	101.5298558	100.197467	98.88891833	97.60362533	96.34102228	95.10056136
ADV1014718	4/21/2025	4.484	7/18/2025	100.894	100.6733264	100.4536273	100.2348989	100.0171348	99.80032851	99.58447367	99.36956395	99.1555931
ADV1013895	3/14/2025	4.113	9/14/2026	105.78596	104.3859202	103.0113192	101.6615216	100.3359131	99.03389909	97.754904	96.49837061	95.26375927
ADV1013766	3/18/2025	4.072	3/19/2029	116.7342	112.5952795	108.6289306	104.8270464	101.1819415	97.68632979	94.33330146	91.11630176	88.02911079
ADV1014430	4/7/2025	3.734	10/7/2026	105.649	104.1840494	102.7468474	101.3366758	99.95283769	98.59465975	97.26149114	95.95270257	94.66768545
ADV1014906	4/25/2025	4.511	5/2/2025	100.02354	100.0179875	100.0124449	100.0069072	100.0013745	99.99584681	99.99032404	99.98480621	99.97929333
ADV1013896	3/14/2025	4.097	3/15/2027	108.12943	106.198495	104.3119374	102.4684777	100.6668773	98.90594106	97.18451588	95.50148848	93.85578406
ADV1013715	3/7/2025	3.924	3/8/2027	107.87194	105.9599303	104.0915259	102.265477	100.4805758	98.73565708	97.02959582	95.36130577	93.72973785
ADV1013775	3/18/2025	4.095	3/15/2030	120.69093	115.4278611	110.4310609	105.6856358	101.1776037	96.89383059	92.82197547	88.95043811	85.26831108
ADV1014423	4/7/2025	3.683	4/7/2027	107.76972	105.7755699	103.828722	101.9277638	100.0713344	98.25812281	96.48686537	94.75634374	93.06538299
ADV1014872	4/24/2025	4.513	5/8/2025	100.09177	100.0695679	100.047385	100.0252257	100.00309	99.98097776	99.95888905	99.93682378	99.9147819
ADV1014713	4/21/2025	4.478	7/22/2025	100.93828	100.7063601	100.4755118	100.2457305	100.0170086	99.78933893	99.56271407	99.33712681	99.11257
ADV1015053	4/30/2025	3.77	4/30/2030	119.93098	114.5406586	109.4303848	104.5840853	99.98669315	95.62408006	91.48299311	87.5509958	83.81641358
ADV1015093	4/30/2025	3.784	10/30/2026	105.86956	104.3422623	102.845044	101.3770893	99.93761517	98.52586614	97.1411128	95.78265088	94.44980008

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1014127	3/26/2025	4.448	6/24/2025	100.61959	100.4657639	100.3124162	100.1595429	100.0071417	99.85521055	99.70374719	99.55274947	99.40221522
ADV1015009	4/29/2025	3.761	4/29/2027	108.01715	105.9611926	103.9554029	101.9982388	100.0882167	98.22390854	96.40393966	94.62698607	92.89177235
ADV1013634	3/4/2025	3.989	3/6/2028	112.17006	109.1856575	106.2972257	103.5011661	100.7940352	98.17253654	95.63351395	93.1739446	90.79093262
ADV1013754	3/14/2025	4.021	3/15/2027	107.985	106.0554645	104.1702865	102.3281805	100.5279084	98.76827591	97.04813051	95.36635964	93.7218891
ADV1014781	4/22/2025	4.469	7/22/2025	100.93605	100.7041596	100.4733449	100.243597	100.0149084	99.78727186	99.56067996	99.33512552	99.11060138
ADV1014409	4/4/2025	3.767	4/15/2027	107.86753	105.8527994	103.8863211	101.966644	100.0923663	98.26213803	96.47465862	94.72867451	93.02297731
ADV1015011	4/29/2025	3.757	4/29/2027	108.00905	105.9531748	103.9474672	101.9903836	100.0804405	98.21620984	96.39631696	94.61943793	92.88429739
ADV1013752	3/10/2025	4.046	9/10/2026	105.64171	104.2539816	102.8912891	101.5530113	100.2385479	98.94731752	97.67875728	96.43232216	95.20748416
ADV1013672	3/5/2025	4.085	3/6/2028	112.44823	109.459788	106.5674163	103.7675122	101.056629	98.43146755	95.88886866	93.42580678	91.03938343
ADV1013971	3/18/2025	4.103	9/9/2027	110.35073	107.8976361	105.5121381	103.1919995	100.9350706	98.73928494	96.60265573	94.52327207	92.49929568
ADV1014566	4/14/2025	4.11	4/1/2030	118.54123	113.844378	109.3804112	105.1362906	101.099781	97.25939819	93.60435806	90.12453032	86.81039528
ADV1013812	3/11/2025	4.062	6/25/2026	104.71484	103.5299248	102.371888	101.2398252	100.1328687	99.05018887	97.99099261	96.95452083	95.94004695
ADV1014702	4/21/2025	4.485	7/21/2025	100.92848	100.6993655	100.4713019	100.244281	100.0182955	99.79333845	99.56940264	99.34648113	99.12456696
ADV1013807	3/11/2025	4.024	9/11/2026	105.62402	104.2336049	102.868319	101.5275383	100.2106592	98.91709703	97.64628607	96.39767838	95.1707432
ADV1014856	4/24/2025	4.501	5/27/2025	100.30632	100.2312285	100.1562602	100.0814111	100.0066809	99.9320693	99.85757601	99.78320077	99.70894331
ADV1014532	4/11/2025	4.514	6/6/2025	100.42291	100.3197674	100.2168415	100.1141357	100.0116492	99.90938121	99.80733105	99.70549799	99.60388131
ADV1014973	4/28/2025	4.516	5/27/2025	100.30677	100.2317217	100.1567899	100.0819772	100.0072833	99.93270794	99.85825086	99.78391177	99.70969039
ADV1014912	4/25/2025	4.561	4/25/2035	139.91947	128.6399145	118.4160782	109.1420334	100.7230452	93.07433698	86.11999534	79.79200023	74.02936604
ADV1014829	4/23/2025	4.223	1/16/2026	102.9135	102.1838463	101.4645655	100.7554358	100.0562431	99.36677909	98.68684139	98.01623316	97.35476295
ADV1014285	4/1/2025	4.489	5/1/2025	100.01623	100.0134457	100.0106663	100.0078893	100.0051148	100.0023426	99.99957288	99.99680555	99.99404061
ADV1014854	4/24/2025	4.501	5/27/2025	100.30632	100.2312285	100.1562602	100.0814111	100.0066809	99.9320693	99.85757601	99.78320077	99.70894331
ADV1014772	4/22/2025	4.144	4/5/2030	121.14258	115.8087617	110.7475724	105.9436071	101.3824082	97.05040487	92.93485412	89.0237863	85.3059541
ADV1014435	4/7/2025	4.12	12/26/2025	102.59399	101.9238981	101.2625676	100.6098311	99.96552184	99.32947708	98.7015384	98.08155137	97.46936548
ADV1013767	3/17/2025	4.011	9/17/2027	110.22637	107.7519106	105.3462352	103.0070436	100.7321301	98.51937535	96.36674245	94.27227293	92.23408349
ADV1015069	4/30/2025	3.633	4/30/2027	107.93658	105.8754695	103.8647791	101.9029549	99.9885022	98.11998283	96.29601219	94.51525707	92.77643324
ADV1014141	3/27/2025	4.05	9/28/2026	105.99206	104.5492284	103.1332883	101.7435538	100.3793596	99.04006267	97.72504086	96.4336925	95.16543533
ADV1013814	3/11/2025	4.034	3/11/2027	107.96028	106.0419804	104.167551	102.335729	100.5452962	98.795077	97.08393665	95.41077963	93.77454799
ADV1014390	4/4/2025	3.661	4/4/2028	111.51815	108.4625501	105.5077799	102.6499624	99.88539036	97.21051934	94.62195958	92.11646837	89.69094284
ADV1014842	4/23/2025	4.468	7/23/2025	100.94703	100.7123581	100.4787841	100.2463011	100.0149015	99.78457772	99.55532221	99.32712751	99.09998621
ADV1014475	4/8/2025	4.412	6/30/2025	100.67832	100.507913	100.3380783	100.1688128	100.0001138	99.8319783	99.66440367	99.49738708	99.33092577
ADV1014174	3/27/2025	4.46	6/27/2025	100.65485	100.4926048	100.3308881	100.169693	100.0090169	99.84885742	99.68921196	99.53007809	99.37145336
ADV1014010	3/20/2025	4.058	7/11/2028	113.82907	110.4595625	107.2092451	104.073169	101.0466271	98.12513817	95.30443426	92.58044884	89.94930592
ADV1014462	4/8/2025	4.035	4/8/2026	103.81936	102.8562983	101.9111394	100.9833878	100.0725652	99.17821066	98.29987997	97.43714468	96.58959151

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1013954	3/18/2025	4.214	5/18/2026	104.4115	103.3346527	102.2800805	101.2470992	100.2350494	99.24329874	98.27123979	97.31828937	96.38388708
ADV1015098	4/30/2025	3.629	4/30/2027	107.92846	105.8674343	103.8568264	101.8950831	99.98070972	98.11226815	96.28837384	94.5076936	92.76894326
ADV1014877	4/24/2025	4.048	4/19/2030	120.79689	115.4309393	110.3414471	105.5126619	100.9298164	96.57905642	92.44737961	88.52257871	84.79318891
ADV1013721	3/7/2025	4.125	3/10/2026	103.47691	102.5974314	101.7329331	100.8830373	100.0473755	99.22559185	98.41734213	97.62229348	96.84012387
ADV1013770	3/18/2025	4.019	3/18/2027	108.01761	106.0795069	104.1861294	102.3361762	100.5283946	98.76157584	97.03455393	95.34620337	93.69543766
ADV1013776	3/18/2025	4.095	3/15/2030	120.69093	115.4278611	110.4310609	105.6856358	101.1776037	96.89383059	92.82197547	88.95043811	85.26831108
ADV1014882	4/24/2025	4.424	8/25/2025	101.31343	100.9857622	100.6602095	100.3367554	100.0153795	99.69606191	99.37878276	99.06352257	98.7502621
ADV1013906	3/14/2025	4.05	9/14/2026	105.81148	104.4094512	103.0329199	101.6812524	100.3538321	99.05006252	97.76936623	96.51118423	95.27497514
ADV1014294	4/1/2025	4.009	9/17/2029	118.43871	113.7449981	109.2681346	104.996951	100.9209142	97.03008421	93.31507803	89.76703547	86.37758742
ADV1014528	4/11/2025	4.507	5/12/2025	100.13914	100.1057674	100.0724296	100.0391309	100.0058714	99.97265083	99.93946922	99.90632649	99.87322255
ADV1013936	3/17/2025	4.481	6/9/2025	100.45738	100.3455111	100.2338993	100.122547	100.0114534	99.9006175	99.79003834	99.67971502	99.56964661
ADV1014862	4/24/2025	3.927	4/24/2028	112.53175	109.4036699	106.3805574	103.4583044	100.632985	97.90084937	95.25831421	92.70195479	90.2284968
ADV1013579	3/3/2025	4.126	9/3/2026	105.66234	104.2941638	102.9503605	101.6303312	100.3334984	99.05930272	97.80720246	96.57667276	95.36720494
ADV1014849	4/24/2025	4.502	5/22/2025	100.24986	100.1887058	100.1276422	100.0666672	100.0057807	99.94498237	99.8842721	99.82364968	99.7631149
ADV1014191	3/28/2025	4.467	5/22/2025	100.25221	100.1908587	100.1295929	100.068416	100.0073279	99.94632824	99.88541693	99.82459375	99.76385853
ADV1013757	3/17/2025	4.021	3/17/2028	112.38461	109.3664477	106.4462421	103.6202847	100.8850288	98.23708104	95.67319384	93.19025808	90.78529658
ADV1014009	3/20/2025	4.041	4/11/2028	112.72856	109.634809	106.6436447	103.7511018	100.9533869	98.24687476	95.62809918	93.09374541	90.64064249
ADV1014950	4/28/2025	4.53	5/12/2025	100.13703	100.1037211	100.0704537	100.0372253	100.004036	99.97088554	99.93777399	99.90470122	99.87166717
ADV1014976	4/28/2025	4.534	5/5/2025	100.05736	100.0434888	100.0296343	100.0157935	100.0019662	99.98815249	99.97435229	99.96056559	99.94679238
ADV1014282	4/1/2025	4.489	5/1/2025	100.01623	100.0134457	100.0106663	100.0078893	100.0051148	100.0023426	99.99957288	99.99680555	99.99404061
ADV1014030	3/21/2025	4.482	5/9/2025	100.10809	100.0829974	100.0579347	100.0328994	100.0078914	99.98291068	99.95795717	99.93303084	99.90813163
ADV1013965	3/18/2025	4.368	9/18/2025	101.57513	101.1777933	100.783547	100.3923581	100.0041911	99.61901104	99.23678337	98.85747419	98.48105007
ADV1015081	4/30/2025	3.756	4/30/2027	108.01865	105.9598437	103.9513456	101.9916025	100.0791251	98.2124795	96.39028576	94.61121484	92.87398652
ADV1014158	3/27/2025	4.462	6/25/2025	100.63278	100.4761576	100.3200294	100.164391	100.0092403	99.85457492	99.70039259	99.54669103	99.393468
ADV1014209	3/28/2025	4.023	3/29/2027	108.1603	106.1905639	104.2669205	102.3880081	100.5525182	98.75918917	97.00680447	95.29419049	93.62021487
ADV1014859	4/24/2025	4.501	5/1/2025	100.01234	100.0095644	100.006793	100.0040239	100.0012573	99.99849302	99.99573119	99.99297175	99.99021471
ADV1014822	4/23/2025	3.953	4/23/2027	108.33303	106.2908089	104.2980134	102.3531332	100.4547179	98.60137123	96.79174839	95.02455398	93.2985397
ADV1013726	3/7/2025	4.123	3/9/2026	103.46308	102.5864397	101.724691	100.8774525	100.0443594	99.22505911	98.41921054	97.62648392	96.84656014
ADV1013891	3/14/2025	4.41	7/14/2025	100.83888	100.6285176	100.4190397	100.2104428	100.0027211	99.79586908	99.58988129	99.38475221	99.18047639
ADV1013760	3/17/2025	4.089	9/17/2029	118.79295	114.0913369	109.6068362	105.3282726	101.245102	97.34737428	93.62569667	90.07119967	86.67550532
ADV1014249	3/31/2025	4.102	3/29/2030	120.86119	115.5544345	110.5180235	105.7367318	101.1962704	96.88322326	92.78499011	88.88973233	85.18632325
ADV1015056	4/30/2025	4.541	5/30/2025	100.34256	100.2591597	100.1759034	100.0927863	100.0098081	99.92696839	99.84426696	99.76170341	99.67927741
ADV1014535	4/11/2025	4.134	4/13/2026	103.89753	102.9212008	101.963268	101.0232128	100.1005374	99.19476218	98.30542527	97.43208141	96.57430129

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1013864	3/13/2025	4.458	5/13/2025	100.15353	100.1172363	100.0809901	100.0447875	100.0086284	99.97251273	99.93644039	99.90041131	99.86442539
ADV1013644	3/4/2025	4.088	3/5/2029	116.64579	112.5479906	108.619533	104.8525338	101.2395145	97.77338183	94.44740541	91.25519762	88.19069424
ADV1015042	4/30/2025	4.54	5/30/2025	100.34247	100.2590765	100.1758202	100.0927032	100.009725	99.92688544	99.84418407	99.76162059	99.67919466
ADV1014964	4/28/2025	3.796	4/28/2028	112.17764	109.0434769	106.014907	103.0877802	100.2581329	97.52217981	94.8763046	92.31705151	89.84111713
ADV1013593	3/3/2025	4.105	3/1/2030	120.60532	115.3839193	110.4248066	105.7134214	101.2360808	96.97992641	92.93287032	89.0835452	85.42125784
ADV1013576	3/3/2025	4.019	3/3/2027	107.98797	106.0886208	104.2323021	102.4177873	100.6438925	98.90947473	97.21343045	95.55469379	93.9322351
ADV1014306	4/2/2025	4.494	5/2/2025	100.02736	100.0218002	100.0162417	100.0106882	100.0051396	99.99959607	99.99405747	99.98852384	99.98299516
ADV1014129	3/26/2025	4.132	3/26/2026	103.74746	102.821058	101.9112343	101.0175456	100.139565	99.27688055	98.42909458	97.59582308	96.77669516
ADV1014365	4/3/2025	4.112	4/3/2031	124.24165	117.78145	111.7082483	105.9967325	100.6233722	95.56628631	90.80512024	86.32093129	82.09608404
ADV1014194	3/28/2025	4.435	6/27/2025	100.65063	100.4884188	100.326732	100.1655667	100.0049204	99.84479048	99.68517454	99.52607011	99.36747472
ADV1014378	4/3/2025	3.808	4/4/2028	111.95601	108.8938839	105.9327492	103.0687244	100.298097	97.61731773	95.022992	92.51187257	90.08085216
ADV1015095	4/30/2025	4.564	5/7/2025	100.0804	100.0609855	100.0415912	100.0222171	100.002863	99.98352893	99.96421488	99.94492079	99.92564663
ADV1014988	4/29/2025	4.517	5/29/2025	100.32938	100.2487596	100.1682758	100.0879243	100.0077049	99.92761726	99.84766102	99.76783588	99.68814154
ADV1014363	4/3/2025	3.852	4/5/2027	107.91612	105.9291769	103.9891781	102.0947263	100.2444764	98.43713166	96.67144237	94.94620332	93.26025211
ADV1014949	4/28/2025	4.516	5/27/2025	100.30677	100.2317217	100.1567899	100.0819772	100.0072833	99.93270794	99.85825086	99.78391177	99.70969039
ADV1014527	4/11/2025	4.449	7/9/2025	100.78603	100.5904049	100.3955527	100.2014648	100.0081366	99.8155635	99.62374109	99.4326649	99.24233054
ADV1013769	3/17/2025	4.085	9/17/2029	118.7751	114.0738804	109.5897588	105.3115615	101.2287451	97.3313599	93.6100136	90.05583717	86.66045308
ADV1014437	4/7/2025	4.283	10/7/2025	101.75427	101.3039194	100.8575337	100.4150628	99.97645537	99.54166089	99.11062974	98.68331317	98.25966326
ADV1015084	4/30/2025	3.699	4/30/2027	107.90304	105.8454362	103.8381115	101.8795191	99.96816992	98.10263109	96.28152307	94.50351742	92.7673345
ADV1014503	4/10/2025	4.527	5/12/2025	100.14	100.106614	100.0732714	100.039968	100.0067037	99.97347846	99.94029213	99.90714467	99.87403602
ADV1014953	4/28/2025	3.812	4/28/2027	108.10867	106.0545948	104.0505709	102.0950617	100.186589	98.32372981	96.50511425	94.72942294	92.99538486
ADV1014147	3/27/2025	4.132	3/27/2026	103.75981	102.8305482	101.9179672	101.0216163	100.1410649	99.27589736	98.42571276	97.59012386	96.7687567
ADV1014388	4/4/2025	3.661	4/4/2028	111.51815	108.4625501	105.5077799	102.6499624	99.88539036	97.21051934	94.62195958	92.11646837	89.69094284
ADV1014591	4/15/2025	4.515	5/15/2025	100.17277	100.1310572	100.0893965	100.0477882	100.0062322	99.96472842	99.92327672	99.881877	99.84052916
ADV1014029	3/21/2025	4.488	5/2/2025	100.02937	100.023798	100.0182312	100.0126695	100.0071127	100.0015609	99.99601403	99.99047218	99.98493529
ADV1014311	4/2/2025	4.493	5/2/2025	100.02736	100.0217936	100.0162351	100.0106816	100.005133	99.99958947	99.99405088	99.98851725	99.98298857
ADV1014240	3/31/2025	4.117	3/30/2029	117.03215	112.8564484	108.8560201	105.0225693	101.3482401	97.82558793	94.44755541	91.2074502	88.09892427
ADV1014960	4/28/2025	4.515	5/27/2025	100.3067	100.2316467	100.156715	100.0819023	100.0072085	99.93263319	99.85817617	99.78383714	99.70961582
ADV1013620	3/4/2025	4.433	3/5/2035	138.2613	127.2035794	117.1696102	108.0578745	99.7774497	92.24685561	85.39302923	79.15041507	73.460158
ADV1014204	3/28/2025	3.947	3/29/2027	108.17306	106.2002445	104.2736437	102.3918911	100.5536736	98.75772505	97.00282445	95.28779416	93.61149791
ADV1014998	4/29/2025	4.458	7/29/2025	101.01181	100.7604407	100.5103193	100.2614379	100.0137872	99.76735817	99.52214182	99.27812922	99.03531153
ADV1014850	4/24/2025	4.21	1/13/2026	102.86723	102.1461228	101.4351448	100.7340881	100.0427456	99.36091598	98.68840358	98.02501795	97.37057385
ADV1013626	3/14/2025	4.024	9/14/2028	114.45031	110.8873577	107.456277	104.151489	100.9676801	97.89978867	94.94299159	92.09269183	89.34450657

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1014126	3/26/2025	4.446	6/26/2025	100.64158	100.4821399	100.3232041	100.1647741	100.0068474	99.84942156	99.69249426	99.53606311	99.38012577
ADV1014360	4/3/2025	3.842	4/3/2028	112.0463	108.9856869	106.0259183	103.1631164	100.3935776	97.71376129	95.12028085	92.60989655	90.17950821
ADV1014354	4/3/2025	3.769	4/3/2028	112.07905	109.0122056	106.0465264	103.178121	100.4032704	97.71841866	95.12016545	92.6052577	90.17058268
ADV1013589	3/3/2025	4.374	9/3/2025	101.40748	101.0522075	100.6993971	100.3490274	100.0010732	99.65550959	99.31231193	98.97145602	98.63291794
ADV1014428	4/7/2025	4.474	5/30/2025	100.34079	100.257159	100.1736702	100.0903211	100.0071112	99.92404022	99.84110788	99.75831382	99.67565769
ADV1014119	3/26/2025	4.393	8/13/2025	101.17117	100.876403	100.5833548	100.2920116	100.0023584	99.71438043	99.42806317	99.14339214	98.8603531
ADV1014621	4/15/2025	4.468	7/15/2025	100.85733	100.644934	100.4334474	100.2228616	100.0131709	99.80436947	99.59645156	99.38941151	99.1832437
ADV1014012	3/20/2025	4.481	5/8/2025	100.09698	100.0746796	100.0524005	100.0301451	100.0079134	99.98570533	99.96352083	99.94135987	99.91922242
ADV1013969	3/18/2025	4.227	3/18/2026	103.663	102.760318	101.8734006	101.0018341	100.1452218	99.30318064	98.47534047	97.66134363	96.86084437
ADV1014081	3/24/2025	4.114	3/24/2028	112.73635	109.6935311	106.750019	103.9020335	101.1459591	98.4783375	95.89585987	93.39535934	90.97380423
ADV1014615	4/15/2025	3.923	10/15/2026	106.02221	104.5325705	103.0715434	101.6383784	100.2323472	98.85274659	97.49889704	96.17014194	94.86584655
ADV1014395	4/4/2025	3.57	4/4/2028	111.49662	108.4355934	105.4757029	102.6130532	99.84392174	97.16474984	94.57213426	92.06281962	89.63369101
ADV1014400	4/4/2025	3.729	4/5/2027	107.67512	105.6905875	103.752956	101.8608262	100.0128542	98.20774459	96.44424874	94.72116262	93.03732493
ADV1014368	4/3/2025	3.816	7/1/2027	108.87088	106.6293247	104.4455818	102.3177397	100.2439701	98.22251934	96.25170537	94.32991371	92.45559427
ADV1014239	3/31/2025	4.064	3/31/2028	112.66825	109.6069448	106.6461556	103.7820305	101.0108894	98.32921282	95.73363453	93.22093358	90.78802737
ADV1014555	4/14/2025	4.506	5/14/2025	100.16124	100.1223075	100.0834224	100.0445851	100.0057956	99.96705373	99.92835941	99.88971256	99.85111307
ADV1014946	4/28/2025	4.534	5/5/2025	100.05736	100.0434888	100.0296343	100.0157935	100.0019662	99.98815249	99.97435229	99.96056559	99.94679238
ADV1014639	4/16/2025	3.954	4/14/2028	112.50228	109.403304	106.4073997	103.5105665	100.7089827	97.99899656	95.37711699	92.84000588	90.38447035
ADV1014987	4/29/2025	4.535	5/6/2025	100.0686	100.0519622	100.0353377	100.0187301	100.0021391	99.98556491	99.96900738	99.95246652	99.93594228
ADV1014188	3/28/2025	4.442	6/27/2025	100.65176	100.4895513	100.3278617	100.1666936	100.0060444	99.84591173	99.686293	99.52718579	99.36858762
ADV1014645	4/16/2025	4.497	5/20/2025	100.22831	100.172672	100.1171124	100.0616304	100.0062259	99.95089851	99.89564822	99.84047483	99.78537818
ADV1014438	4/7/2025	4.433	7/7/2025	100.76099	100.570901	100.3815367	100.1928925	100.0049642	99.81774778	99.63123909	99.44543409	99.26032875
ADV1015075	4/30/2025	3.706	4/30/2027	107.91724	105.8594862	103.8520174	101.8932837	99.98179599	98.11612125	96.29487989	94.51674342	92.78043212
ADV1014318	4/2/2025	4.165	4/2/2026	103.79364	102.8485488	101.9206969	101.0096187	100.1148618	99.2359902	98.3725831	97.52423458	96.69055277
ADV1014516	4/10/2025	4.462	7/10/2025	100.80008	100.6016149	100.4039452	100.2070623	100.0109614	99.81563788	99.62108696	99.42730404	99.23428451
ADV1014551	4/14/2025	4.511	5/13/2025	100.1501	100.113956	100.0778508	100.0417891	100.0057707	99.96979552	99.93386352	99.89797461	99.8621287
ADV1013928	3/17/2025	4.092	3/17/2028	112.59248	109.5712727	106.6480928	103.8192335	101.0811461	98.4304347	95.86384962	93.37827965	90.9707456
ADV1014389	4/4/2025	3.661	4/4/2028	111.51815	108.4625501	105.5077799	102.6499624	99.88539036	97.21051934	94.62195958	92.11646837	89.69094284
ADV1014993	4/29/2025	4.523	5/15/2025	100.17073	100.1290897	100.0875017	100.0459661	100.0044826	99.96305129	99.92167195	99.88034451	99.83906885
ADV1014036	3/21/2025	4.005	3/21/2028	112.38236	109.3530945	106.4224852	103.5867826	100.8424031	98.1859185	95.61404842	93.12365283	90.71172544
ADV1015002	4/29/2025	4.453	7/28/2025	100.99923	100.75068	100.5033501	100.2572347	100.0123251	99.76861232	99.52608761	99.28474232	99.04456786
ADV1014380	4/3/2025	3.876	4/4/2030	119.79036	114.492773	109.4662878	104.6955741	100.1662511	95.86481961	91.77860435	87.89569897	84.20491573
ADV1014904	4/25/2025	4.502	5/27/2025	100.30622	100.2311457	100.1561867	100.0813468	100.0066259	99.93202348	99.8575394	99.78317336	99.70892507

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1013786	3/10/2025	4.395	3/1/2035	128.84245	120.8263385	113.4696119	106.7112277	100.49624	94.77515652	89.5033645	84.64061934	80.15059
ADV1014070	3/24/2025	4.468	6/24/2025	100.62299	100.4691214	100.3157284	100.16281	100.0103639	99.85838789	99.70687986	99.5558376	99.40525895
ADV1014043	3/21/2025	4.043	9/12/2028	114.49153	110.933656	107.5072607	104.2067875	101.0269468	97.96269898	95.0092419	92.16199797	89.41660261
ADV1014999	4/29/2025	4.529	5/13/2025	100.14821	100.1121283	100.0760905	100.0400961	100.0041449	99.96823684	99.93237189	99.89654994	99.86077091
ADV1013759	3/17/2025	4.076	3/19/2029	116.75002	112.6107848	108.644136	104.8419611	101.1965742	97.70068897	94.34739526	91.130138	88.042697
ADV1014401	4/4/2025	3.693	4/4/2028	111.61347	108.5564459	105.6002902	102.7411214	99.97523126	97.29907409	94.70925915	92.20254275	89.77582106
ADV1014947	4/28/2025	4.462	7/28/2025	101.00161	100.7530244	100.5056586	100.2595077	100.0145626	99.77081447	99.52825464	99.28687439	99.04666514
ADV1014218	3/31/2025	4.03	3/30/2029	116.68554	112.5166722	108.5228644	104.6958309	101.0277239	97.51110638	94.13892802	90.90450339	87.801491
ADV1013773	3/17/2025	4.096	3/15/2030	120.69589	115.432702	110.4357854	105.6902482	101.182108	96.89823075	92.82627517	88.9546409	85.27242035
ADV1015061	4/30/2025	4.553	5/14/2025	100.16036	100.1215019	100.0826937	100.0439332	100.0052204	99.96655511	99.92793729	99.88936684	99.85084367
ADV1014125	3/26/2025	4.47	5/27/2025	100.3088	100.233447	100.1582121	100.0830967	100.0081006	99.93322353	99.85846522	99.78382537	99.70930371
ADV1014300	4/1/2025	3.979	5/3/2027	108.51154	106.4394027	104.4179968	102.4457562	100.5211739	98.64279957	96.80923743	95.01914352	93.27122346
ADV1014011	3/20/2025	4.06	8/8/2028	114.15197	110.6988823	107.3703079	104.1610147	101.0660221	98.08058992	95.20020509	92.42056935	89.73758737
ADV1013886	3/14/2025	4.169	3/16/2026	103.58751	102.69077	101.8095981	100.9435873	100.0923482	99.25550459	98.43269284	97.62356159	96.82777111
ADV1014832	4/23/2025	4.141	4/23/2026	104.02501	103.0201088	102.0346711	101.0681316	100.1199497	99.18960538	98.27659797	97.38044553	96.50068379
ADV1014342	4/3/2025	3.856	4/3/2028	112.08796	109.0267283	106.0663547	103.2029627	100.4328483	97.75247026	95.15844165	92.64752227	90.21661152
ADV1013663	3/5/2025	4.485	6/11/2025	100.48233	100.3646747	100.2473044	100.1302208	100.0134227	99.89690923	99.78067918	99.66473151	99.54906515
ADV1013595	3/14/2025	4.07	3/14/2028	112.49462	109.4832009	106.5692505	103.7490938	101.0192106	98.37623223	95.81693438	93.33822989	90.93716225
ADV1013597	3/14/2025	4.091	3/15/2027	108.11803	106.1872031	104.3007544	102.4574016	100.655906	98.89507276	97.17374861	95.49082041	93.84521341
ADV1013670	3/7/2025	4.134	3/7/2030	120.80714	115.5638854	110.5847671	105.8550778	101.3610004	97.08955274	93.028533	89.16646893	85.49257063
ADV1014914	4/25/2025	4.677	4/27/2037	146.20831	132.5663852	120.4145273	109.5787097	99.9062063	91.26288157	83.53083568	76.60635928	70.39815515
ADV1013986	3/19/2025	4.413	7/23/2025	100.93966	100.7040272	100.4694943	100.2360569	100.0037075	99.7724382	99.54224159	99.31311013	99.08503642
ADV1014774	4/22/2025	4.147	4/19/2030	121.29848	115.9200778	110.8185974	105.9782701	101.3843081	97.02283767	92.88083818	88.94608491	85.20709653
ADV1015076	4/30/2025	3.797	4/30/2029	116.07901	111.8328181	107.7688076	103.878173	100.1525797	96.58413924	93.16538279	89.88923631	86.7489977
ADV1014431	4/7/2025	3.672	4/7/2027	107.74809	105.7541562	103.8075217	101.9067726	100.0505484	98.23753819	96.46647833	94.73615062	93.04538024
ADV1013779	3/14/2025	4.017	7/31/2028	113.92032	110.4934751	107.1895556	104.0033813	100.9300284	97.96481355	95.10328002	92.34118512	89.67448825
ADV1013758	3/17/2025	4.047	9/18/2028	114.57448	110.997857	107.5539943	104.2372579	101.0422833	97.9639614	94.99742442	92.13803352	89.38136662
ADV1013622	3/4/2025	4.008	3/4/2030	120.1564	114.9373867	109.9810972	105.2729188	100.7991226	96.54680825	92.50384978	88.65884536	85.00107043
ADV1014848	4/24/2025	4.062	4/24/2030	119.12456	114.2086258	109.5418732	105.1101168	100.9000607	96.89923666	93.09594775	89.47921663	86.03873714
ADV1013761	3/18/2025	4.115	3/18/2026	103.56289	102.6607016	101.7742646	100.9031727	100.0470294	99.2054515	98.37806913	97.56452468	96.76447254
ADV1014548	4/14/2025	4.513	5/13/2025	100.15018	100.1140293	100.0779241	100.0418623	100.0058439	99.96986864	99.93393659	99.89804762	99.86220165
ADV1013714	3/7/2025	3.924	3/8/2027	107.87194	105.9599303	104.0915259	102.265477	100.4805758	98.73565708	97.02959582	95.36130577	93.72973785
ADV1014334	4/3/2025	3.881	4/5/2027	107.97294	105.9854297	104.0448727	102.1498735	100.2990865	98.49121479	96.72500834	94.9992617	93.31281218

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1015096	4/30/2025	3.629	4/30/2027	107.92846	105.8674343	103.8568264	101.8950831	99.98070972	98.11226815	96.28837384	94.5076936	92.76894326
ADV1013594	3/14/2025	4.091	3/15/2027	108.11803	106.1872031	104.3007544	102.4574016	100.655906	98.89507276	97.17374861	95.49082041	93.84521341
ADV1015062	4/30/2025	4.475	7/31/2025	101.03868	100.7816996	100.5260204	100.2716323	100.0185254	99.76669017	99.51611708	99.26679669	99.01871968
ADV1013908	3/14/2025	4.115	3/16/2026	103.61095	102.7131145	101.8308722	100.9638233	100.1115772	99.27375658	98.44999672	97.63994525	96.84326145
ADV1014649	4/16/2025	4.403	8/27/2025	101.33066	100.9970297	100.6655935	100.3363264	100.0092073	99.68421508	99.36132916	99.04052907	98.72179463
ADV1013577	3/3/2025	4.099	3/3/2027	107.98327	106.0867592	104.2331683	102.4212746	100.6498985	98.91790106	97.22418247	95.56768057	93.94736918
ADV1014944	4/28/2025	4.462	7/28/2025	101.00161	100.7530244	100.5056586	100.2595077	100.0145626	99.77081447	99.52825464	99.28687439	99.04666514
ADV1014741	4/21/2025	4.535	5/21/2025	100.24099	100.1826004	100.1242932	100.066069	100.0079277	99.94986893	99.89189267	99.83399871	99.77618686
ADV1013673	3/5/2025	4.165	3/5/2030	120.94063	115.6998051	110.7226798	105.9945863	101.5017446	97.23120666	93.17080178	89.30908619	85.63529603
ADV1013970	3/18/2025	4.123	3/18/2027	108.21611	106.2760664	104.3807849	102.5289638	100.7193492	98.95073146	97.22194367	95.5318594	93.8793913
ADV1014410	4/4/2025	3.73	4/4/2029	115.88621	111.709494	107.7091635	103.8768298	100.2045479	96.68479039	93.31042369	90.07468493	86.9711609
ADV1015022	4/29/2025	3.747	10/29/2027	110.04705	107.4577081	104.9436044	102.5021067	100.1306964	97.82695814	95.5885749	93.41332336	91.2990695
ADV1013751	3/10/2025	4.046	3/10/2026	103.47731	102.5968427	101.7313903	100.8805705	100.0440139	99.22136341	98.4122739	97.61641151	96.83345329
ADV1014371	4/3/2025	3.805	4/3/2028	111.93619	108.8772203	105.9190507	103.0578082	100.2897909	97.61145901	95.01942729	92.51045715	90.08144946
ADV1013762	3/18/2025	4.021	3/18/2027	108.02143	106.0832868	104.1898727	102.3398837	100.5320668	98.76521345	97.03815758	95.34977368	93.69897523
ADV1014991	4/29/2025	4.518	5/20/2025	100.22729	100.1717426	100.1162722	100.0608792	100.0055636	99.95032502	99.8951634	99.84007856	99.78507033
ADV1014824	4/23/2025	4.512	5/21/2025	100.2393	100.18093	100.1226384	100.0644299	100.0063041	99.94826101	99.89030034	99.83242194	99.77462564
ADV1014578	4/14/2025	4.499	5/30/2025	100.34172	100.2581655	100.1747462	100.0914664	100.0083258	99.92532396	99.84246066	99.75973552	99.67714821
ADV1014915	4/25/2025	4.745	4/26/2038	149.39814	134.5780981	121.4878419	109.9115679	99.66164412	90.57479208	82.5088044	75.33972011	68.95939147
ADV1014221	3/31/2025	4.503	5/29/2025	100.33309	100.2521851	100.1714114	100.0907705	100.0102621	99.92988593	99.84964167	99.76952899	99.68954757
ADV1013718	3/7/2025	4.215	1/7/2026	102.80154	102.0973085	101.4027432	100.7176463	100.0418248	99.37509097	98.71726219	98.06816059	97.42761307
ADV1015077	4/30/2025	4.544	5/30/2025	100.34281	100.2594094	100.1761529	100.0930356	100.0100571	99.92721727	99.84451563	99.76195187	99.67952567
ADV1014662	4/17/2025	4.497	5/22/2025	100.25073	100.189521	100.1284045	100.0673766	100.0064373	99.94558622	99.88482328	99.82414827	99.76356098
ADV1014038	3/21/2025	4.477	5/21/2025	100.24277	100.1841617	100.1256333	100.0671883	100.0088264	99.95054752	99.89235139	99.83423787	99.77620676
ADV1013632	3/18/2025	4.037	9/18/2029	118.57157	113.8719144	109.3894701	105.1130471	101.0320895	97.13663637	93.41728501	89.86515701	86.47186627
ADV1014143	3/27/2025	4.047	9/28/2026	105.98776	104.5449612	103.1290528	101.7393495	100.3751859	99.03591905	97.72092683	96.42960757	95.16137903
ADV1015003	4/29/2025	4.537	5/2/2025	100.023	100.0174503	100.0119104	100.0063755	100.0008456	99.99532063	99.98980061	99.98428554	99.97877541
ADV1015049	4/30/2025	4.54	5/30/2025	100.34247	100.2590765	100.1758202	100.0927032	100.009725	99.92688544	99.84418407	99.76162059	99.67919466
ADV1013933	3/17/2025	4.166	8/31/2029	118.94928	114.2937126	109.8509399	105.6101181	101.5610105	97.69395104	93.9998096	90.46995963	87.09624787
ADV1014291	4/1/2025	4.488	5/8/2025	100.09511	100.0728439	100.0505977	100.0283752	100.0061763	99.98400107	99.96184934	99.93972113	99.91761638
ADV1014986	4/29/2025	4.532	5/8/2025	100.09134	100.0691519	100.0469828	100.0248372	100.0027153	99.9806168	99.9585418	99.93649023	99.91446204
ADV1014863	4/24/2025	4.501	5/28/2025	100.31762	100.2397428	100.1619924	100.0843678	100.0068685	99.92949445	99.8522452	99.7751205	99.69812005
ADV1014008	3/20/2025	4.041	4/11/2028	112.72856	109.634809	106.6436447	103.7511018	100.9533869	98.24687476	95.62809918	93.09374541	90.64064249

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4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1014752	4/21/2025	4.423	8/21/2025	101.26769	100.9512178	100.6367238	100.3241934	100.0136083	99.70495023	99.39820121	99.09334352	98.79035962
ADV1014491	4/9/2025	3.958	4/17/2028	112.54929	109.4410502	106.4364592	103.5314867	100.7222796	98.0051564	95.37659812	92.83324044	90.37186581
ADV1015017	4/29/2025	4.2	4/29/2032	127.9514	120.2558892	113.0927822	106.4221704	100.2073434	94.41451507	89.01257676	83.9728715	79.26898906
ADV1014921	4/25/2025	3.873	4/26/2028	112.39009	109.2584181	106.2320451	103.3068365	100.4788472	97.74430925	95.09962248	92.54134624	90.06619129
ADV1014151	3/27/2025	4.117	4/5/2028	112.88474	109.8058772	106.8285377	103.9488172	101.1629821	98.46746304	95.85884652	93.33386724	90.88940074
ADV1014441	4/7/2025	4.254	10/7/2025	101.74138	101.2910922	100.8447709	100.4023638	99.96381968	99.52908792	99.09811896	98.67086404	98.24727526
ADV1014264	3/31/2025	3.924	3/31/2027	108.15284	106.17473	104.2430695	102.3564889	100.5136646	98.71332091	96.95422788	95.23519908	93.55508996
ADV1014830	4/23/2025	3.962	4/23/2027	108.35111	106.3087034	104.315726	102.3706674	100.4720772	98.61855886	96.80876764	95.04140801	93.31523157
ADV1014281	4/1/2025	4.073	4/2/2029	116.89458	112.7130839	108.7074776	104.8694259	101.1910293	97.66480261	94.283651	91.04084728	87.93001108
ADV1014163	3/31/2025	4.207	3/29/2030	121.38622	116.0665803	111.0177649	106.2245255	101.6725522	97.34840958	93.23947854	89.33390289	85.62053921
ADV1014858	4/24/2025	4.503	5/27/2025	100.30647	100.2313787	100.1564103	100.0815611	100.0068308	99.93221902	99.85772559	99.78335022	99.70909261
ADV1014534	4/11/2025	4.136	4/13/2026	103.89946	102.9231232	101.9651804	101.0251154	100.1024302	99.19664548	98.30729914	97.43394595	96.57615663
ADV1014901	4/25/2025	3.911	4/26/2027	108.28466	106.2344377	104.2340354	102.2819245	100.3766374	98.51676146	96.7009364	94.92785205	93.19624609
ADV1014208	3/28/2025	4.046	9/28/2026	105.8695	104.4294671	103.0162458	101.6291541	100.2675293	98.9307307	97.61813855	96.32915338	95.06319509
ADV1014955	4/28/2025	4.514	5/28/2025	100.31796	100.240124	100.1624116	100.0848247	100.0073633	99.93002688	99.85281527	99.77572814	99.69876521
ADV1014317	4/2/2025	4.027	4/3/2028	112.59729	109.5284833	106.5607265	103.6901338	100.9129952	98.22576379	95.62504701	93.10759941	90.67031527
ADV1015015	4/29/2025	3.904	4/29/2030	120.16191	114.782776	109.6824772	104.8450354	100.2554757	95.89975466	91.76469704	87.83793804	84.10786904
ADV1014951	4/28/2025	4.494	6/30/2025	100.68903	100.519012	100.3495652	100.1806864	100.0123727	99.84462134	99.67742951	99.51079445	99.3447134
ADV1013894	3/14/2025	4.469	5/14/2025	100.16499	100.125906	100.086873	100.047888	100.008951	99.97006178	99.9312203	99.89242647	99.85368018
ADV1014990	4/29/2025	4.505	6/13/2025	100.49827	100.3758206	100.2536855	100.1318624	100.0103499	99.88914696	99.76825227	99.64766463	99.52738283
ADV1014471	4/8/2025	3.91	4/9/2029	116.31752	112.127168	108.1140402	104.2696953	100.5861349	97.05578236	93.67145803	90.42635634	87.31402436
ADV1014575	4/14/2025	4.214	7/30/2030	122.64424	116.9390436	111.5411384	106.4322055	101.5951269	97.01389542	92.67353686	88.56003672	84.66027336
ADV1014084	3/24/2025	4.439	7/24/2025	100.95626	100.7179266	100.4807167	100.2446265	100.009648	99.77577338	99.54299476	99.31130445	99.0806948
ADV1014776	4/22/2025	4.075	4/22/2026	103.94753	102.9458312	101.9634836	100.9999269	100.0546251	99.12706219	98.21674162	97.32318523	96.44593236
ADV1014103	3/25/2025	4.451	6/25/2025	100.63138	100.4747224	100.3185602	100.162888	100.0077036	99.85300459	99.69878874	99.54505378	99.39179744
ADV1015059	4/30/2025	3.646	4/28/2028	111.97642	108.8393701	105.8081705	102.8786505	100.0468327	97.30891853	94.66127921	92.10044732	89.62310847
ADV1013625	3/4/2025	4.136	3/4/2026	103.41404	102.551556	101.7034809	100.8694578	100.0491392	99.24218887	98.44828172	97.66710296	96.89834792
ADV1014875	4/24/2025	4.484	6/24/2025	100.62042	100.4671291	100.3143156	100.1619747	100.0101045	99.85870254	99.70776678	99.55729504	99.40728516
ADV1014833	4/23/2025	3.966	4/23/2027	108.35914	106.3166565	104.3235983	102.3784604	100.4797924	98.62619781	96.81633176	95.04889869	93.32265018
ADV1014379	4/3/2025	3.852	4/4/2029	116.03252	111.8622501	107.8678267	104.0408982	100.373553	96.8582952	93.4880202	90.25599238	87.15582394
ADV1015044	4/30/2025	3.876	4/29/2030	120.01932	114.643759	109.5468912	104.7127522	100.1263728	95.77371517	91.64160938	87.71769558	83.99036992
ADV1013930	3/17/2025	4.029	3/17/2027	108.18169	106.2418548	104.3467718	102.4951378	100.6856996	98.91724823	97.18861734	95.49868111	93.84635271
ADV1014366	4/3/2025	3.84	4/5/2027	107.89261	105.9058999	103.966132	102.0719068	100.2218791	98.41475243	96.64927713	94.92424813	93.23850312

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1014522	4/10/2025	4.523	5/9/2025	100.10576	100.0807302	100.0557288	100.0307546	100.0058077	99.98088795	99.95599538	99.93112992	99.90629151
ADV1014788	4/22/2025	4.516	5/6/2025	100.06948	100.0528269	100.0361879	100.0195657	100.0029603	99.98637162	99.96979963	99.95324431	99.93670563
ADV1014985	4/29/2025	4.529	5/13/2025	100.14821	100.1121283	100.0760905	100.0400961	100.0041449	99.96823684	99.93237189	99.89654994	99.86077091
ADV1014296	4/1/2025	4.111	4/1/2026	103.73109	102.7891057	101.864255	100.956075	100.0641176	99.18795056	98.32715703	97.4813346	96.65009482
ADV1014647	4/16/2025	3.9	4/17/2028	112.3734	109.2677683	106.2657214	103.3632304	100.5564444	97.84168367	95.21543125	92.67432459	90.21514788
ADV1014154	3/27/2025	4.111	3/29/2027	108.33108	106.3596572	104.434353	102.5538114	100.7167229	98.92182512	97.16790054	95.45377484	93.77831489
ADV1014924	4/25/2025	3.886	7/26/2028	113.43095	110.0260707	106.7429689	103.576536	100.5219098	97.57446445	94.72979697	91.98371507	89.33222534
ADV1014563	4/14/2025	4.508	5/14/2025	100.16132	100.1223864	100.0835012	100.0446639	100.0058743	99.96713237	99.92843799	99.88979107	99.85119152
ADV1014817	4/23/2025	4.512	5/23/2025	100.26197	100.1980277	100.1341755	100.0704177	100.0067541	99.94318455	99.87970879	99.81632662	99.75303784
ADV1014539	4/11/2025	4.473	7/11/2025	100.81348	100.6122254	100.4117869	100.2121577	100.0133329	99.81530745	99.61807661	99.42163548	99.22597925
ADV1014284	4/1/2025	4.489	5/1/2025	100.01623	100.0134457	100.0106663	100.0078893	100.0051148	100.0023426	99.99957288	99.99680555	99.99404061
ADV1013627	3/14/2025	4.038	9/14/2029	118.53416	113.8469539	109.3758816	105.1098379	101.0383418	97.1515015	93.43997864	89.89495409	86.5080967
ADV1014853	4/24/2025	3.914	10/15/2027	110.31271	107.7586574	105.2777213	102.867385	100.5252356	98.24895761	96.03632826	93.88521335	91.79356306
ADV1014883	4/24/2025	4.095	4/24/2026	103.99079	102.9833105	101.9953927	101.026472	100.0760034	99.14346285	98.22834605	97.33016733	96.44845896
ADV1014432	4/7/2025	3.684	4/7/2028	111.86871	108.7935181	105.82016	102.9447059	100.1633981	97.47264488	94.86901173	92.34921387	89.91010867
ADV1015089	4/30/2025	4.384	9/24/2025	101.64406	101.2316851	100.8226546	100.416923	100.0144507	99.61519833	99.21912746	98.82620012	98.43637896
ADV1014773	4/22/2025	4.146	4/12/2030	121.22303	115.8668682	110.785481	105.9632806	101.3856448	97.0388518	92.91002006	88.98705278	85.25858591
ADV1014243	3/31/2025	4.506	5/30/2025	100.34465	100.2609443	100.1773789	100.0939533	100.010667	99.92751988	99.84451148	99.76164147	99.67890953
ADV1014045	3/21/2025	4.051	11/14/2028	115.2322	111.4821999	107.8770365	104.4103021	101.0759131	97.8680881	94.78133144	91.81041706	88.95037378
130416A00025	4/16/2013	2.27	4/18/2028	100.1596	100.0762965	99.84063166	99.030604	97.77693111	96.37435476	94.97760001	93.61340883	92.28210283
151223A00007	12/23/2015	3.76	12/23/2030	100.26355	100.193731	100.0975744	99.55694198	97.61182528	94.34950953	90.47921431	86.55431835	82.81203233
161012A00020	10/11/2016	2.96	10/14/2031	100.21708	100.1262298	99.64668069	97.63300297	94.09737512	89.79063252	85.41421118	81.23821297	77.31255939
170515A00052	5/15/2017	3.78	5/15/2042	100.00307	100.0003511	99.72861982	97.47453765	93.03465805	87.45302276	81.74867253	76.41542047	71.57674685
170519A00006	5/19/2017	3	5/19/2032	100.22042	100.137058	99.96671569	98.96189824	96.77101389	93.90888667	90.92994151	88.04990777	85.30520898
170705A00037	7/5/2017	2.85	7/6/2032	105.84063	103.7408495	101.482588	98.92218376	96.00178069	92.8459205	89.69484118	86.67339995	83.80164648
170802A00074	8/2/2017	2.92	8/2/2027	99.993989	99.99133639	99.96656345	99.45875823	98.1908663	96.48271541	94.67146644	92.89024513	91.1539714
170809A00042	8/9/2017	2.35	8/9/2027	100.16627	100.0829573	99.90456735	99.26822311	98.27504653	97.16386183	96.05375666	94.96543916	93.89924571
171004A00022	10/4/2017	2.74	10/4/2027	100.19876	100.1154155	99.99556382	99.34468684	97.96325373	96.15467085	94.26239202	92.40736208	90.60212813
171005A00047	10/5/2017	3.29	10/5/2032	100.24457	100.1611964	99.92596297	98.52430309	95.52816185	91.60131141	87.47372504	83.49939514	79.76520589
180105A00005	1/5/2018	3.07	1/5/2028	100.22625	100.1428887	100.0537205	99.7498404	98.91231552	97.72262701	96.43457654	95.15925143	93.91252858
180105A00006	1/5/2018	3.07	1/5/2028	100.22625	100.1428887	100.0537205	99.7498404	98.91231552	97.72262701	96.43457654	95.15925143	93.91252858
180130A00087	1/30/2018	2.92	1/31/2028	100.21376	100.1304027	100.0340375	99.6544712	98.74128366	97.51879254	96.22560263	94.95124001	93.70565035
180302A00003	3/2/2018	3.89	3/2/2033	100.29456	100.2111397	100.0945364	99.29537901	96.76261779	92.7745529	88.18200273	83.5839445	79.25578404

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4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
180315A00030	3/15/2018	3.76	3/15/2033	100.00301	100.0002957	99.94274471	98.87907583	95.85590854	91.48445341	86.655889	81.91497137	77.47252388
180504A00024	5/4/2018	3.62	5/4/2028	100.27109	100.1848912	100.0988337	99.88254799	98.90486259	97.04391211	94.72110433	92.32921166	90.00699052
180627A00005	6/27/2018	3.63	6/30/2033	100.2729	100.1894985	100.0962381	99.60256509	97.83613229	94.96183956	91.6683932	88.3894135	85.2714207
180703A00033	7/3/2018	3.4	7/3/2028	100.24709	100.1637758	100.0806029	99.85447849	99.05764745	97.76511773	96.28133604	94.79419701	93.34355108
190111A00040	1/11/2019	3.74	1/11/2034	100.00291	100.0001772	99.94044667	98.86010291	95.85898235	91.59173452	86.93636904	82.39405812	78.14632738
190116A00015	1/16/2019	3.61	1/17/2034	100.26457	100.1812482	100.0713052	99.37862114	97.28231257	94.12989007	90.62809918	87.18902418	83.93304459
190204A00054	2/4/2019	3.98	2/6/2034	100.29477	100.2120427	100.0748169	99.05816236	96.16598336	91.81476701	86.89668568	82.02460954	77.46636808
190222A00023	2/22/2019	3.66	2/22/2034	103.21587	102.112892	100.61206	98.13493258	94.19600513	89.12652709	83.7361832	78.54072782	73.72039473
190301A00015	3/1/2019	3.86	3/1/2034	103.24734	102.2647575	100.9547907	98.77711856	95.20869588	90.41441013	85.18226887	80.06498698	75.30221991
190409A00016	4/9/2019	2.91	4/9/2029	100.21292	100.1295659	99.99789451	99.16380199	97.27539197	94.7289027	92.02628499	89.38543924	86.84496415
190409A00017	4/9/2019	3.01	4/9/2029	100.22125	100.1378891	100.0116666	99.21200639	97.25939777	94.52817236	91.57988385	88.68762853	85.90865379
190430A00020	4/30/2019	3.41	4/28/2034	103.08843	101.8655612	100.1471736	97.31373107	93.09543558	87.9986899	82.77996238	77.83082117	73.25849029
190520A00018	5/20/2019	3.7	5/20/2044	100.27153	100.1549296	99.29380608	96.1823791	91.05613945	85.06303032	79.13767732	73.68350927	68.78008981
190530A00044	5/30/2019	2.85	5/30/2034	100.20792	100.1241752	99.69170985	97.88485885	94.79200552	91.15822472	87.5300435	84.08284085	80.83620205
190807A00041	8/7/2019	2.27	8/7/2034	100.1596	99.96780424	98.74488942	95.95650142	92.31265501	88.51953103	84.88433492	81.46198679	78.24464089
190807A00044	8/7/2019	2.27	8/7/2034	100.1596	99.96780424	98.74488942	95.95650142	92.31265501	88.51953103	84.88433492	81.46198679	78.24464089
190827A00044	8/27/2019	1.9	8/27/2029	100.12878	100.0193851	99.43689038	98.01950935	96.13534577	94.16089674	92.23155434	90.36334873	88.55470062
190930A00079	9/30/2019	2.04	10/1/2029	100.14044	100.0409249	99.55880217	98.22742467	96.35434054	94.34987532	92.38258933	90.4778763	88.63481673
190930A00083	9/30/2019	2.04	10/1/2029	100.14044	100.0409249	99.55880217	98.22742467	96.35434054	94.34987532	92.38258933	90.4778763	88.63481673
191007A00012	10/7/2019	2	10/5/2029	100.13046	100.0213259	99.43518762	97.98578055	96.04583619	94.00741929	92.01572789	90.08884011	88.225151
191007A00013	10/7/2019	2	10/5/2029	100.13046	100.0213259	99.43518762	97.98578055	96.04583619	94.00741929	92.01572789	90.08884011	88.225151
191028A00015	10/28/2019	2.49	10/27/2034	100.17793	100.0452226	99.1128305	96.59311772	93.02932594	89.19304267	85.47972895	81.9808356	78.69440845
191031A00036	10/31/2019	2.9	10/31/2039	100.20543	99.96163108	98.36245975	94.64387285	89.65932645	84.40027147	79.40726523	74.82003778	70.62656285
191031A00037	10/31/2019	2.59	10/30/2034	100.17961	100.0489409	99.13449221	96.6267808	93.05797414	89.20420337	85.47091387	81.95362572	78.65108525
191220A00029	12/20/2019	2.57	12/19/2031	100.17794	100.0888873	99.67715859	98.14071373	95.65135656	92.81371352	89.99967115	87.30228402	84.7267069
200108A00009	1/8/2020	2.4	1/8/2035	99.999213	99.91562364	98.65502983	95.62825098	91.64574807	87.48333073	83.49820805	79.7610599	76.26367539
200108A00040	1/8/2020	2.52	1/8/2030	100.17377	100.0771789	99.56199665	97.7478489	94.83372325	91.48177757	88.13909764	84.93230692	81.87250473
200110A00012	1/10/2020	2.57	1/10/2035	100.17794	100.0401998	99.05712473	96.45881252	92.81418667	88.90509733	85.12736816	81.57248949	78.23782623
200115A00023	1/15/2020	2.16	1/15/2030	100.14379	100.0445576	99.55530201	98.16512361	96.18199822	94.04830151	91.95371721	89.92922381	87.97407345
200306A00021	3/6/2020	1.16	3/6/2030	100.04544	99.55038191	98.06688084	95.95462322	93.71795704	91.53446858	89.42768876	87.39574622	85.43536919
200309A00013	3/9/2020	1.1	3/8/2030	100.03636	99.49151553	97.94908869	95.81515578	93.5768998	91.39628309	89.29259833	87.26365551	85.30617803
200316A00030	3/16/2020	1.35	3/15/2030	100.08277	99.76979169	98.54713806	96.56110043	94.33720293	92.13865788	90.01477408	87.96635171	85.99017693
200316A00032	3/16/2020	1.35	3/15/2030	100.08277	99.76979169	98.54713806	96.56110042	94.33720293	92.13865788	90.01477408	87.96635171	85.99017693

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4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
200318A00015	3/18/2020	1.69	3/18/2030	99.997275	99.9142049	98.98838922	97.09908604	94.78648747	92.43835271	90.16360393	87.97170563	85.85951365
200326A00035	3/26/2020	1.68	3/26/2030	100.1038	99.91112051	98.94783578	97.11966596	94.93426363	92.73026834	90.59556223	88.53637905	86.54976053
200423A00008	4/23/2020	1.59	4/23/2030	99.997008	99.60426642	97.67072941	94.36847993	90.53472777	86.71030459	83.05368758	79.57844437	76.27568862
200423A00009	4/23/2020	1.59	4/23/2030	99.997008	99.60426642	97.67072941	94.36847993	90.53472777	86.71030459	83.05368758	79.57844437	76.27568862
200423A00010	4/23/2020	1.59	4/23/2030	99.997008	99.60426642	97.67072941	94.36847993	90.53472777	86.71030459	83.05368758	79.57844437	76.27568862
200430A00021	4/30/2020	1.2	4/30/2030	100.05057	99.57640597	98.10541305	95.97493837	93.70513853	91.4868707	89.34739193	87.28500565	85.29630494
200505A00010	5/5/2020	0.89	5/6/2030	100.01257	99.31659318	97.59279599	95.3443138	93.0350775	90.79495176	88.63670322	86.55734677	84.55332626
200512A00023	5/12/2020	1.78	5/11/2035	100.00819	98.60504931	95.17211051	90.3994183	85.28589415	80.37944789	75.83255697	71.6451752	67.78762534
200609A00003	6/9/2020	1.66	6/8/2035	99.829953	97.69856861	93.48041271	87.97878172	82.25276702	76.82392792	71.82973284	67.25938204	63.07520837
200612A00001	6/12/2020	0.75	6/12/2030	100.0215	99.11459958	97.2397686	94.91964599	92.57834476	90.31451222	88.134898	86.03603768	84.01424091
201022A00008	10/22/2020	1.02	10/22/2035	99.854361	97.62828498	93.94388483	89.65397903	85.42400227	81.44721441	77.73741704	74.27612047	71.04363038
201029A00008	10/29/2020	0.92	10/29/2030	100.26531	99.18189871	97.25073963	94.81867063	92.34541165	89.95490078	87.65771031	85.45004059	83.32761164
201030A00025	10/30/2020	2.02	10/28/2050	99.329662	95.64071565	89.40341468	81.83265642	74.24500039	67.36064525	61.35445401	56.15290896	51.63314113
201116A00019	11/16/2020	1.32	11/15/2030	100.50109	99.06929775	96.38299593	92.70058117	88.79216428	85.0088362	81.41991926	78.02137825	74.80208004
201118A00015	11/18/2020	1.66	11/18/2036	101.61352	97.0198934	91.30204402	84.8718377	78.42646415	72.41996225	66.97143141	62.05150759	57.60578712
201118A00017	11/18/2020	1.66	11/18/2036	101.61352	97.0198934	91.30204402	84.8718377	78.42646415	72.41996225	66.97143141	62.05150759	57.60578712
201118A00018	11/18/2020	1.85	11/18/2036	102.10071	97.64136647	92.05820998	85.71636052	79.28141092	73.24796471	67.76428983	62.81023609	58.3324014
201202A00016	12/2/2020	1.32	12/3/2035	100.27702	98.21170894	94.7574602	90.50466217	86.21265387	82.15579484	78.37136184	74.8432356	71.55101303
201202A00017	12/2/2020	1.32	12/3/2035	100.27702	98.21170894	94.7574602	90.50466217	86.21265387	82.15579484	78.37136184	74.8432356	71.55101303
201229A00003	12/29/2020	1.28	12/30/2030	100.44004	98.92334512	96.11257242	92.33049138	88.35887097	84.52767875	80.89811176	77.46442469	74.21491358
201230A00018	12/30/2020	1.52	12/28/2035	101.56539	97.00260792	91.40551371	85.17070089	78.94910717	73.14294549	67.85056618	63.04408522	58.67607552
210108A00007	1/8/2021	1.65	1/8/2036	100.15965	97.38574656	92.81685689	87.07499455	81.16241609	75.59305494	70.49319237	65.84563025	61.60783915
210225A00010	2/25/2021	2.02	2/25/2041	100.82489	98.35924005	94.20813495	88.77772415	83.06266485	77.66215611	72.73530747	68.26663422	64.20891735
210405A00013	4/5/2021	1.82	4/7/2036	101.38554	99.48627062	96.49321606	92.45331434	88.07422194	83.83750697	79.87452204	76.18545541	72.74938721
210622A00004	6/22/2021	2.42	6/20/2036	102.08265	99.71027175	96.00927817	90.85884049	84.97255001	79.14218436	73.72853753	68.79334173	64.30373193
210623A00024	6/23/2021	1.56	6/23/2026	99.990282	99.93337467	99.35099978	98.36340094	97.28841516	96.22761311	95.1896811	94.17402796	93.17994298
210910A00009	9/10/2021	1.77	9/10/2036	102.03124	99.68225311	96.37335863	92.15729267	87.64024336	83.27869162	79.20788786	75.4276615	71.91515384
210924A00016	9/24/2021	1.91	9/24/2036	102.31048	100.0678083	96.9106124	92.81151791	88.31779047	83.93399045	79.83202279	76.021792	72.48140068
211019A00005	10/19/2021	2.49	10/20/2036	102.98934	100.3478945	96.51085711	91.33693645	85.38886325	79.44019465	73.9002824	68.8561788	64.27781574
211110A00017	11/10/2021	2.01	11/10/2036	102.79114	100.4306301	97.22770215	93.12681273	88.60070873	84.15755642	79.99549788	76.1319806	72.54531012
211116A00012	11/16/2021	2.22	12/18/2034	103.2594	101.2410316	98.64834067	95.29522831	91.44719146	87.55707373	83.85495131	80.37846764	77.11617224
211124A00008	11/24/2021	2.62	11/22/2041	103.53528	100.8915316	97.16710308	92.1767506	86.43617548	80.70011232	75.38124961	70.55886779	66.1974737
211215A00020	12/15/2021	1.85	12/15/2031	102.90469	101.1034498	98.96077841	96.36271955	93.4954639	90.62490387	87.86660722	85.23332393	82.71917906

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
211227A00012	12/27/2021	2.39	12/29/2036	106.30358	101.4671096	95.89285008	89.67191187	83.17422673	76.87031429	71.05871418	65.79863769	61.0489244
220217A00024	2/17/2022	2.43	2/17/2027	99.992639	99.98998824	99.84926959	99.01153538	97.63733771	96.05994344	94.47714279	92.92722292	91.41108737
220617A00069	6/17/2022	4.06	6/17/2027	100.91312	100.66262	100.4128161	100.1412772	99.65066207	98.59028589	97.05223646	95.35851078	93.68880334
220831A00108	8/31/2022	4.07	8/31/2027	101.8755	101.3597878	100.8461701	100.3039883	99.57051244	98.33082717	96.6160292	94.75167647	92.91992999
221212A00004	12/12/2022	4.36	12/10/2032	110.85532	108.3697367	105.883392	103.3429647	100.6721054	97.79545103	94.73581774	91.58551257	88.5294746
221214A00057	12/14/2022	4.65	12/14/2027	103.40083	102.6107594	101.8301146	101.0431671	100.1709674	98.96359102	97.17529284	94.95081114	92.69262499
221222A00137	12/22/2022	5.4	12/22/2037	114.08702	111.2403132	108.3226038	105.2359525	101.8257404	97.94100763	93.57482425	88.86376064	84.22318631
240403A00012	4/3/2024	4.82	4/3/2029	110.21287	108.0986078	106.0157968	103.9342054	101.7919545	99.48302096	96.94096222	94.13568212	91.29014885
ADV1007645	7/5/2024	4.781	7/5/2029	109.85649	107.8037818	105.7785729	103.7501025	101.6614445	99.4162425	96.96360903	94.27191065	91.54096145
ADV1007841	7/12/2024	0	7/12/2029	98.927253	96.16580342	92.50170375	88.76749477	85.17787636	81.74825351	78.47159289	75.34029113	72.34716223
ADV1007842	7/12/2024	0	7/12/2029	98.927253	96.16580342	92.50170375	88.76749477	85.17787636	81.74825351	78.47159289	75.34029113	72.34716223
ADV1007970	7/17/2024	0	7/17/2029	98.929383	96.15226651	92.47416589	88.72875146	85.1293357	81.69083437	78.40610867	75.26749288	72.26774416
ADV1008036	7/19/2024	0	7/19/2029	98.930394	96.14684244	92.46314907	88.71326028	85.10992925	81.66788011	78.37993217	75.23839488	72.23600279
ADV1008090	7/23/2024	0	7/23/2029	98.932005	96.13598045	92.44111229	88.68228844	85.0711332	81.62199454	78.3276086	75.18023535	72.17256431
ADV1008152	7/24/2024	0	7/24/2029	98.932433	96.13326196	92.43560244	88.67454766	85.0614377	81.61052793	78.31453383	75.16570306	72.15671391
ADV1008200	7/25/2024	0	7/25/2029	98.932858	96.13054221	92.43009239	88.66680774	85.05174359	81.59906323	78.30146152	75.15117381	72.14086719
ADV1008212	7/26/2024	0	7/26/2029	98.933411	96.12782116	92.42458254	88.65906869	85.04205088	81.58760044	78.28839165	75.1366476	72.12502416
ADV1008308	7/31/2024	0	7/31/2029	98.934404	96.11379445	92.39697056	88.62038168	84.99360828	81.53031514	78.22307907	75.06406205	72.04586426
ADV1008367	8/1/2024	0	8/1/2029	98.879834	96.08908376	92.38753023	88.61226948	84.98382506	81.51878575	78.20997654	75.04955353	72.03010623
ADV1008427	8/2/2024	0	8/2/2029	98.880553	96.08632492	92.38194892	88.60444231	84.97404877	81.50725832	78.19687648	75.03504804	72.01435186
ADV1008515	8/6/2024	0	8/6/2029	98.882072	96.07527113	92.3596233	88.57314222	84.9349579	81.46116801	78.14450092	74.97705642	71.95137086
ADV1008530	8/7/2024	0	8/7/2029	98.882514	96.07250409	92.35404202	88.56531945	84.92518876	81.44965028	78.1314132	74.96256609	71.93563473
ADV1008591	8/9/2024	0	8/9/2029	98.883661	96.06696748	92.34287972	88.5496767	84.90565476	81.42662064	78.10524516	74.93359454	71.90417341
ADV1008654	8/13/2024	0	8/13/2029	98.885115	96.05588233	92.32055596	88.51840224	84.86660396	81.3805846	78.05293867	74.87568779	71.8412945
ADV1008769	8/19/2024	0	8/20/2029	98.887898	96.0364448	92.28149128	88.46370721	84.79832012	81.30009609	77.96149713	74.77446749	71.73139654
ADV1008780	8/19/2024	0	8/20/2029	98.887898	96.0364448	92.28149128	88.46370721	84.79832012	81.30009609	77.96149713	74.77446749	71.73139654
ADV1008881	8/22/2024	0	8/22/2029	98.888853	96.03088221	92.27033034	88.44808826	84.77882332	81.27711678	77.93539313	74.74557461	71.70002985
ADV1008893	8/23/2024	0	8/23/2029	98.889537	96.0280994	92.26475022	88.44028013	84.76907706	81.26563002	77.92234482	74.73113271	71.68435195
ADV1008894	8/23/2024	0	8/23/2029	98.889537	96.0280994	92.26475022	88.44028013	84.76907706	81.26563002	77.92234482	74.73113271	71.68435195
ADV1008939	8/26/2024	0	8/27/2029	98.890707	96.01695761	92.24243236	88.40905664	84.73010628	81.21970232	77.87017614	74.67339528	71.62167667
ADV1008940	8/26/2024	0	8/27/2029	98.890707	96.01695761	92.24243236	88.40905664	84.73010628	81.21970232	77.87017614	74.67339528	71.62167667
ADV1009099	8/27/2024	0	8/27/2029	98.890851	96.01695761	92.24243236	88.40905664	84.73010628	81.21970232	77.87017614	74.67339528	71.62167667
ADV1009133	8/28/2024	0	8/28/2029	98.891246	96.01416949	92.23685352	88.40125301	84.72036715	81.20822522	77.85714012	74.65896847	71.60601693

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1009166	8/29/2024	0	8/29/2029	98.891508	96.01133402	92.23126886	88.39344977	84.71062945	81.19675006	77.84410654	74.64454468	71.59036081
ADV1009167	8/29/2024	0	8/29/2029	98.891508	96.01133402	92.23126886	88.39344977	84.71062944	81.19675006	77.84410654	74.64454468	71.59036081
ADV1009212	8/30/2024	0	8/30/2029	98.891606	96.00848262	92.22568067	88.38564733	84.70089316	81.18527682	77.83107543	74.6301239	71.57470832
ADV1009568	9/17/2024	0	9/17/2029	98.84462	95.93654482	92.12130104	88.2440692	84.52402414	80.97643454	77.59346004	74.36668914	71.28817713
ADV1009810	9/24/2024	0	9/24/2029	98.847693	95.91720539	92.08225905	88.18918474	84.45532914	80.89533031	77.50119514	74.2644142	71.17695329
ADV1009878	9/26/2024	0	9/26/2029	98.848564	95.91167509	92.07110556	88.17351215	84.43571511	80.87217544	77.4748564	74.23522074	71.14520883
ADV1010064	10/2/2024	0	10/2/2029	98.797778	95.87269642	92.03324115	88.12586565	84.3767207	80.80274498	77.39604853	74.14801582	71.05050994
ADV1010067	10/2/2024	0	10/2/2029	98.797778	95.87269642	92.03324115	88.12586565	84.3767207	80.80274498	77.39604853	74.14801582	71.05050994
ADV1010068	10/2/2024	0	10/2/2029	98.797778	95.87269642	92.03324115	88.12586565	84.3767207	80.80274498	77.39604853	74.14801582	71.05050994
ADV1010126	10/4/2024	4.138	10/4/2029	109.91425	107.5751432	105.2567058	102.9143411	100.4795947	97.87160375	95.09419624	92.21793228	89.40749916
ADV1010140	10/7/2024	0	10/9/2029	98.799317	95.8516971	91.99259154	88.06986101	84.3075472	80.72180214	77.30456509	74.04711841	70.94123247
ADV1010151	10/7/2024	0	10/9/2029	98.799317	95.8516971	91.99259154	88.06986101	84.3075472	80.72180214	77.30456509	74.04711841	70.94123247
ADV1010158	10/7/2024	0	10/9/2029	98.799317	95.8516971	91.99259154	88.06986101	84.3075472	80.72180214	77.30456509	74.04711841	70.94123247
ADV1010203	10/9/2024	0	10/9/2029	98.799929	95.85169865	91.99259154	88.06986101	84.3075472	80.72180214	77.30456509	74.04711841	70.94123247
ADV1010205	10/9/2024	0	10/9/2029	98.799929	95.85169865	91.99259154	88.06986101	84.3075472	80.72180214	77.30456509	74.04711841	70.94123247
ADV1010208	10/9/2024	0	10/9/2029	98.799929	95.85169865	91.99259154	88.06986101	84.3075472	80.72180214	77.30456509	74.04711841	70.94123247
ADV1010209	10/9/2024	0	10/9/2029	98.799929	95.85169865	91.99259154	88.06986101	84.3075472	80.72180214	77.30456509	74.04711841	70.94123247
ADV1010210	10/9/2024	0	10/9/2029	98.799929	95.85169865	91.99259154	88.06986101	84.3075472	80.72180214	77.30456509	74.04711841	70.94123247
ADV1010261	10/11/2024	0	10/11/2029	98.801438	95.84569213	91.98097524	88.05386821	84.28779669	80.69869347	77.27844943	74.01831797	70.91004312
ADV1010356	10/16/2024	0	10/16/2029	98.802024	95.83064861	91.95192977	88.01390301	84.23844643	80.64095647	77.21320391	73.94637005	70.83213342
ADV1010407	10/18/2024	0	10/18/2029	98.803224	95.8246256	91.94030948	87.99792361	84.21871672	80.61787553	77.18712314	73.91761215	70.800995
ADV1010414	10/18/2024	0	10/18/2029	98.803224	95.8246256	91.94030948	87.99792361	84.21871672	80.61787553	77.18712314	73.91761215	70.800995
ADV1010416	10/18/2024	0	10/18/2029	98.803224	95.8246256	91.94030948	87.99792361	84.21871672	80.61787553	77.18712314	73.91761215	70.800995
ADV1010510	10/24/2024	0	10/24/2029	98.804353	95.80652119	91.90544947	87.95000812	84.15956319	80.54868021	77.10894058	73.83141128	70.70766689
ADV1010633	10/31/2024	5.44	10/29/2049	122.79169	117.832448	112.6915058	107.3093747	101.5404862	95.31306601	88.67958104	81.95116315	75.62299543
ADV1012378	1/15/2025	0	1/15/2030	98.675585	95.48996623	91.41019099	87.28113852	83.33132043	79.57632126	76.00668303	72.61233833	69.38381413
ADV1012454	1/17/2025	0	1/17/2030	98.677837	95.48355693	91.39812395	87.26473462	83.31118836	79.55285707	75.98023379	72.58322199	69.35232232
ADV1012574	1/22/2025	0	1/22/2030	98.677191	95.46741171	91.36796075	87.22374311	83.26088589	79.49423327	75.91415662	72.51048697	69.27365948
ADV1012601	1/23/2025	0	1/23/2030	98.677417	95.46418624	91.36192877	87.21554792	83.25083014	79.48251479	75.90094905	72.49594953	69.25793834
ADV1012603	1/23/2025	0	1/23/2030	98.677417	95.46418624	91.36192877	87.21554792	83.25083014	79.48251479	75.90094905	72.49594953	69.25793834
ADV1012608	1/23/2025	0	1/23/2030	98.677417	95.46418624	91.36192877	87.21554792	83.25083014	79.48251479	75.90094905	72.49594953	69.25793834
ADV1012631	1/24/2025	0	1/24/2030	98.678848	95.46098161	91.35589699	87.20735378	83.24077597	79.47079841	75.8877441	72.48141528	69.242221
ADV1012660	1/27/2025	0	1/28/2030	98.677922	95.44803882	91.33177175	87.17458775	83.20057509	79.42395377	75.83495051	72.42331008	69.17938969

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1012688	1/27/2025	4.945	1/15/2030	108.7814	106.9963796	105.2167778	103.3865577	101.3953666	99.02168469	96.13005677	92.65348301	89.015674
ADV1013119	2/13/2025	0	2/13/2030	98.635233	95.37890027	91.23506957	87.04422416	83.03797376	79.23240191	75.61769267	72.18336	68.91953928
ADV1013181	2/14/2025	0	2/14/2030	98.637966	95.37612742	91.22933719	87.03611808	83.0277959	79.22038343	75.60404377	72.16827597	68.90320147
ADV1013281	2/20/2025	4.459	3/15/2028	112.45704	109.6907961	107.00209	104.3815503	101.8154109	99.2828504	96.77415795	94.28922439	91.8642958
ADV1013282	2/20/2025	5	1/7/2030	108.72058	106.9646096	105.2151707	103.420466	101.4720885	99.15792111	96.33351891	92.90468982	89.28227043
ADV1013283	2/20/2025	0	2/20/2030	98.639328	95.35913305	91.19495301	86.98750486	82.96676288	79.14831867	75.52220891	72.07784372	68.80526101
ADV1013471	2/25/2025	4.715	3/2/2032	122.885	117.5397699	112.3064684	107.1613107	102.0695339	96.99796237	91.97981599	87.03394853	82.30426779
ADV1013551	2/28/2025	0	2/28/2030	98.646779	95.33828427	91.149455	86.92277487	82.88547701	79.05235514	75.41325184	71.95745896	68.67490393
ADV1015005	4/29/2025	0	4/29/2030	98.555042	95.08630009	90.76440331	86.41613708	82.26984042	78.33990704	74.6151735	71.08395824	67.73529525
ADV1013643	3/4/2025	0	3/4/2030	98.59817	95.30187515	91.12015907	86.88873748	82.8445204	79.00497626	75.36016952	71.89933649	68.61234614
ADV1014406	4/4/2025	0	4/4/2030	98.55345	95.17255981	90.92166457	86.62766067	82.52748967	78.63821531	74.949354	71.44965142	68.12852766
ADV1014512	4/10/2025	0	4/10/2030	98.552634	95.15187036	90.88390771	86.5768306	82.46555718	78.56649513	74.86899461	71.36169747	68.03392993
ADV1014034	3/21/2025	0	3/21/2030	98.601571	95.24362607	91.01366564	86.74583579	82.67079117	78.80400209	75.13504688	71.65288952	68.34715423
ADV1014513	4/10/2025	0	4/10/2030	98.552634	95.15187036	90.88390771	86.5768306	82.46555718	78.56649513	74.86899461	71.36169747	68.03392993
ADV1013661	3/5/2025	0	3/5/2030	98.598296	95.29846806	91.11390372	86.88032453	82.8342879	78.99313696	75.34690564	71.88481392	68.59671621
ADV1013623	3/4/2025	0	3/4/2030	98.59817	95.30187515	91.12015907	86.88873748	82.8445204	79.00497626	75.36016952	71.89933649	68.61234614
211124A00005	11/26/2021	4.73	11/26/2025	100.06125	100.0570183	100.0526257	100.0469624	100.0400653	100.0319704	100.0227126	100.0123257	100.0008423
211124A00006	11/26/2021	4.78	11/25/2026	100.35703	99.95141601	99.96831295	99.97557051	99.97363705	99.96293979	99.94388603	99.91686411	99.88224448
220608A00012	6/8/2022	5.11	6/8/2029	101.04379	100.7272698	100.7539183	100.7510007	100.7210756	100.6665038	100.5894638	100.4919655	100.375864
220913A00024	9/13/2022	4.81	5/12/2025	100.02173	100.0186818	100.0156388	100.0126046	100.0095793	100.0065627	100.0035549	100.0005559	99.9975656
220929A00039	9/29/2022	5.15	9/28/2029	101.12793	100.891981	100.9192381	100.915951	100.8848618	100.828491	100.7491554	100.648985	100.529938
221115A00039	11/15/2022	4.93	11/16/2026	100.43822	100.1861876	100.2013054	100.2070697	100.2039368	100.1923404	100.172693	100.1453869	100.1107952
221216A00018	12/16/2022	4.93	12/16/2026	100.48196	100.1903265	100.2057887	100.2109411	100.2062623	100.1922086	100.1692153	100.1376981	100.0980534
230215A00013	2/15/2023	4.81	8/21/2025	100.08987	100.0865098	100.0824973	100.0778417	100.0725536	100.0666432	100.0601209	100.0529965	100.04528
230307A00025	3/7/2023	4.93	3/7/2028	100.84036	100.1494829	100.1758044	100.1816737	100.1685453	100.1377784	100.0906439	100.0283301	99.95194777
230313A00111	3/13/2023	5.08	2/13/2026	100.31582	100.3121707	100.3068309	100.299863	100.291327	100.2812807	100.2697794	100.2568763	100.2426226
230313A00120	3/13/2023	5.08	4/13/2026	100.34907	100.3452969	100.3400648	100.3328251	100.3236646	100.3126666	100.29991	100.2854704	100.2694195
230313A00124	3/13/2023	5.08	5/13/2026	100.36899	100.3579639	100.3537534	100.3479862	100.3407254	100.3320314	100.3219616	100.310571	100.297912
230410A00022	4/10/2023	5.04	4/10/2028	100.92455	100.4597075	100.4826821	100.4841779	100.4657858	100.4289884	100.375168	100.3056134	100.2215262
230511A00058	5/11/2023	5	5/11/2028	100.89328	100.3355401	100.3612351	100.3646787	100.3475262	100.3113203	100.2574983	100.1874004	100.1022756
230816A00019	8/16/2023	4.98	8/16/2028	100.87458	100.2394191	100.2725798	100.2823909	100.2705721	100.2387278	100.1883547	100.1208496	100.0375161
230914A00009	9/14/2023	4.9	9/14/2028	100.8144	99.96184763	100.0009433	100.0163548	100.009874	99.98316783	99.93778792	99.87517844	99.79668391
230922A00036	9/22/2023	4.87	9/22/2028	100.7943	99.85723378	99.89825066	99.9154711	99.91069727	99.88560578	99.84175678	99.78060227	99.70349386

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
231025A00027	10/25/2023	4.9	10/25/2028	100.80646	99.94472537	99.99462094	100.0253844	100.0384699	100.0352302	100.0169239	99.98472217	99.93971509
231106A00009	11/6/2023	4.87	10/15/2026	100.35462	100.0976643	100.1125967	100.1189796	100.1172451	100.1078033	100.0910433	100.0673343	100.037027
231115A00005	11/15/2023	4.86	11/16/2026	100.39067	100.0774485	100.093552	100.1002869	100.0981109	100.0874594	100.0687461	100.0423645	100.0086891
231215A00007	12/15/2023	4.85	12/1/2026	100.40788	100.061689	100.0774805	100.0835506	100.0803546	100.0683263	100.0478793	100.0194079	99.98328839
240112A00017	1/12/2024	4.92	1/12/2029	100.80719	99.99009488	100.033297	100.0498624	100.0418537	100.0111898	99.9596561	99.88891412	99.80051003
240116A00030	1/16/2024	4.8	1/15/2027	100.43743	99.96997005	99.98969526	99.99796305	99.99531786	99.98227873	99.95934061	99.92697564	99.88563426
240215A00011	2/15/2024	4.78	2/16/2027	100.48279	99.9381732	99.95588707	99.96118523	99.95473541	99.9371706	99.909091	99.87106589	99.82363535
240314A00006	3/14/2024	4.88	3/14/2029	100.78059	99.83280425	99.87494528	99.8888687	99.8769491	99.84137971	99.78418649	99.70724108	99.61227274
240315A00011	3/15/2024	4.76	3/15/2027	100.51404	99.90062465	99.91707894	99.92042577	99.91144007	99.8908532	99.85935559	99.81759923	99.76619994
240327A00032	3/27/2024	4.74	3/26/2027	100.51431	99.85803934	99.87574391	99.87992975	99.87140765	99.85094227	99.81925499	99.77702657	99.72489952
240328A00053	3/28/2024	4.87	3/28/2029	100.76581	99.78669829	99.83073139	99.84602626	99.83502775	99.79999163	99.7429995	99.66597237	99.57068336
240415A00006	4/15/2024	4.73	4/15/2027	100.53186	99.83200652	99.85036094	99.85450741	99.84532439	99.82363902	99.7902303	99.74583214	99.69113607
240417A00013	4/17/2024	5.06	4/17/2031	100.2939	99.91016503	99.96868361	99.9834717	99.95940144	99.90085557	99.81177646	99.69571023	99.55584623
240515A00015	5/15/2024	4.72	5/17/2027	100.55839	99.79361382	99.81398633	99.81948081	99.81100021	99.78939546	99.75546869	99.70997623	99.6536314
ADV1006428	5/28/2024	4.732	5/28/2027	100.5737	99.80959254	99.8307755	99.83697359	99.8290676	99.80788923	99.77422403	99.72881417	99.67236095
ADV1006699	6/3/2024	4.751	6/3/2027	100.58942	99.84537824	99.86641086	99.87241945	99.86428008	99.8428203	99.80882205	99.76302437	99.70612591
ADV1006738	6/4/2024	4.428	6/4/2025	100.01598	100.0131641	100.0102812	100.0073291	100.0043083	100.0012191	99.99806196	99.99483729	99.99154545
ADV1006870	6/10/2024	4.767	6/10/2027	100.60614	99.87550783	99.89624471	99.90191992	99.89341032	99.87154433	99.83710484	99.79083188	99.73342516
ADV1007038	6/14/2024	4.774	6/14/2027	100.61444	99.88846274	99.90909592	99.914647	99.90599226	99.88395971	99.84933192	99.80284877	99.7452099
ADV1007043	6/14/2024	4.834	6/14/2029	100.70758	99.59563167	99.64633836	99.66666115	99.6591924	99.62632513	99.57026859	99.49306244	99.39658992
ADV1007203	6/20/2024	4.773	6/21/2027	100.62118	99.8830829	99.9038611	99.9095007	99.90087914	99.87882571	99.84412433	99.79751628	99.73970263
ADV1007514	7/1/2024	4.785	7/1/2027	100.6383	99.90434295	99.92512975	99.93068051	99.92187528	99.89954599	99.86447927	99.81741912	99.75906936
ADV1007965	7/17/2024	4.782	7/19/2027	100.64708	99.88483041	99.90779752	99.9152954	99.90820838	99.88737309	99.85358118	99.80758195	99.75008472
ADV1008702	8/15/2024	4.813	8/16/2027	100.68021	99.93499934	99.95991134	99.9690413	99.96333359	99.94367915	99.91091873	99.8658459	99.80920986
ADV1008824	8/21/2024	4.813	8/23/2027	100.68358	99.93010261	99.95564027	99.96534348	99.96018008	99.94106201	99.90884864	99.86435009	99.80833017
ADV1009264	9/4/2024	4.83	9/7/2027	100.70223	99.96093215	99.9867329	99.99661352	99.99156865	99.97253422	99.94039111	99.89596861	99.84004764
ADV1010016	10/1/2024	4.808	10/1/2026	100.30134	100.0140169	100.027989	100.0334666	100.0308865	100.0206623	100.0031868	99.97883233	99.94795263
ADV1010293	10/15/2024	4.847	10/15/2027	100.73176	99.98336298	100.0161896	100.0363709	100.0447191	100.0419976	100.0289238	100.0061721	99.97437696
ADV1010616	10/30/2024	4.818	10/30/2026	100.33829	100.0155445	100.0364032	100.050666	100.0586773	100.0607637	100.0572351	100.0483858	100.0344953
ADV1010836	11/12/2024	4.858	11/12/2027	100.75055	99.99649184	100.0305164	100.051438	100.0600887	100.0572517	100.0436638	100.0200186	99.9869691
ADV1010941	11/15/2024	4.863	11/15/2027	100.75595	100.0083973	100.0422001	100.0628214	100.0710978	100.0678163	100.0537179	100.0295	99.99581941
ADV1011265	11/29/2024	4.562	12/1/2025	100.05305	100.032524	100.0297035	100.0264103	100.022657	100.0184559	100.0138189	100.0087577	100.0032835
ADV1011500	12/12/2024	4.836	12/13/2027	100.75182	99.92649645	99.96192254	99.98331453	99.99155599	99.9874795	99.97186974	99.94546641	99.90896685

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1012110	1/6/2025	4.831	1/6/2028	100.75339	99.89792264	99.93540964	99.95808135	99.96686864	99.96264945	99.94625187	99.91845707	99.88000202
ADV1013208	2/18/2025	4.78	2/18/2028	100.73808	99.7339736	99.77361058	99.79723278	99.80594573	99.80078502	99.78272088	99.75266251	99.711462
ADV1014071	3/24/2025	4.607	11/24/2025	99.999133	99.98831978	99.98627209	99.98376124	99.98079924	99.97739779	99.9735682	99.96932146	99.96466826
ADV1013888	3/14/2025	4.787	3/14/2028	100.74805	99.73544068	99.76854749	99.78081243	99.77372394	99.74867249	99.70695726	99.64979241	99.57831278
ADV1014315	4/2/2025	4.649	6/2/2026	100.09821	99.89168127	99.89517696	99.89933072	99.90408296	99.90937813	99.91516442	99.92139351	99.92802031
ADV1014403	4/4/2025	4.708	8/4/2026	100.18283	99.90388803	99.91329399	99.92484246	99.93834757	99.95363672	99.97054959	99.98893721	100.0086611
ADV1014613	4/15/2025	4.877	4/17/2028	100.80415	99.97928647	100.0163939	100.0359563	100.039295	100.0276407	100.0021397	99.96385962	99.91379556
ADV1014146	3/27/2025	4.816	3/27/2028	100.7639	99.80863638	99.84153854	99.85316237	99.84504978	99.81863977	99.7752756	99.71621133	99.64261802
ADV1009630	9/18/2024	4.975	9/18/2029	100.15342	100.0096885	100.0069042	100.0041223	100.0013428	99.99856566	99.99227273	99.89004631	99.78712496
ADV1010025	10/1/2024	4.986	10/1/2029	100.13291	100.0097269	100.0069479	100.0041712	100.001397	99.99862521	99.99585578	99.91863532	99.81507617
ADV1010137	10/7/2024	4.979	10/9/2029	100.13953	100.1034597	100.0069342	100.0041599	100.001388	99.99861846	99.9992885	99.89414324	99.78886219
ADV1010509	10/24/2024	4.996	10/24/2029	100.1664	100.0097655	100.0069953	100.0042274	100.001462	99.99869897	99.99593831	99.9477616	99.84356306
ADV1010723	11/5/2024	5.056	11/5/2029	100.15714	100.0159804	100.0130826	100.0101938	100.0073141	100.0044434	100.0015817	99.99872903	99.9958853
ADV1010727	11/5/2024	4.865	8/5/2026	100.01631	100.0134043	100.0105124	100.0076295	100.0047556	100.0018908	99.9990349	99.99618805	99.99335017
ADV1010729	11/5/2024	4.855	5/5/2026	100.01617	100.013266	100.0103743	100.0074918	100.0046183	100.0017537	99.99889822	99.99605172	99.99321417
ADV1010935	11/15/2024	5.009	5/15/2029	100.12155	100.0294874	100.0263601	100.023237	100.0201181	100.0170035	100.0138932	100.010787	99.93954555
ADV1010936	11/15/2024	4.935	2/15/2028	100.02957	100.0264487	100.0233287	100.0202129	100.0171012	100.0139938	100.0108907	99.98680855	99.91417942
ADV1010937	11/15/2024	4.915	11/15/2027	100.02874	100.0256185	100.0225005	100.0193867	100.0162771	100.0131717	100.0100706	99.9892229	99.92764528
ADV1010971	11/18/2024	4.881	2/16/2027	100.0284	100.0252576	100.0221215	100.0189874	100.0158553	100.0127252	100.0095974	99.97868518	99.92843052
ADV1011039	11/20/2024	5.016	11/20/2029	100.15667	100.0365776	100.0333408	100.0300943	100.026838	100.0235722	100.0202972	99.99493831	99.89028153
ADV1011270	11/29/2024	4.996	11/20/2029	100.14985	100.1233762	100.0681018	100.0289927	100.0257391	100.0224761	100.0202305	99.928722	99.82246996
ADV1011569	12/16/2024	5.001	12/14/2029	100.13243	100.1342545	100.0829889	100.0657444	100.0582486	100.0557054	100.0304575	99.92550158	99.81795549
ADV1011573	12/16/2024	4.989	9/14/2029	100.14887	100.1275249	100.0763424	100.0628588	100.0561122	100.0492049	100.0354418	99.93720461	99.83472638
ADV1011770	12/23/2024	4.971	6/21/2029	100.14796	100.1252394	100.0729859	100.0669794	100.0615959	100.0521396	100.011706	99.91189442	99.81067861
ADV1012634	1/24/2025	4.974	1/24/2030	100.19251	100.0651268	99.98776307	100.0177973	100.0136125	100.0413887	99.98861576	99.80786183	99.69323365
ADV1012369	1/15/2025	4.957	7/16/2029	100.16462	100.0885891	100.0301553	100.0543985	100.0506784	100.0254552	99.95621224	99.85829663	99.75130564
ADV1012496	1/21/2025	4.961	10/22/2029	100.17419	100.0619929	99.99563812	100.023738	100.0236219	99.99916306	99.9290526	99.83302239	99.72562087
ADV1012665	1/27/2025	4.907	1/29/2029	100.14931	100.0237432	99.93192648	99.94945513	99.95478684	99.91825815	100.044743	99.77765221	99.6855251
ADV1012173	1/8/2025	4.992	11/21/2029	100.20889	100.1384858	100.0899142	100.1036119	100.1032862	100.0971338	100.0192657	99.91671472	99.81043651
ADV1012341	1/15/2025	4.9	4/17/2028	100.15628	100.065266	100.0168003	100.0279559	100.0213968	99.99142966	99.9406462	99.8668101	99.78664617
ADV1012552	1/22/2025	4.937	1/22/2029	100.18992	100.0852455	100.0244849	100.0457306	100.0482011	100.0231233	100.0669139	99.87337701	99.78250444
ADV1012499	1/21/2025	4.961	10/22/2029	100.17419	100.0619929	99.99563812	100.023738	100.0236219	99.99916306	99.9290526	99.83302239	99.72562087
ADV1012365	1/15/2025	4.978	1/15/2030	100.18355	100.0703692	100.0062199	100.0348697	100.03352	100.0054781	99.95551329	99.82651832	99.7142796

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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
ADV1012639	1/24/2025	4.953	4/24/2029	100.17938	100.1087913	100.0557985	100.0709339	100.0675758	100.0423214	100.0126043	99.87905677	99.77557786
ADV1012350	1/15/2025	4.933	1/16/2029	100.194	100.0782725	100.0138937	100.034252	100.0381454	100.010325	100.0609315	99.86309276	99.77189031
ADV1012360	1/15/2025	4.808	1/15/2027	100.07361	99.98089224	99.95124019	99.95753966	99.95392585	99.93946189	99.91481716	99.87944179	99.83562363
ADV1012593	1/23/2025	4.972	1/23/2030	100.19072	100.0643714	99.98070412	100.0105598	100.0070197	100.0433246	99.98192045	99.79973378	99.686433
ADV1012408	1/16/2025	4.769	10/16/2026	100.06263	99.94487187	99.91316833	99.91808696	99.91690371	99.90764127	99.89087703	99.86667806	99.83483448
ADV1012349	1/15/2025	4.852	7/15/2027	100.08943	100.0349276	100.0037957	100.018014	100.008138	99.98687291	99.95114439	99.89605537	99.83474925
ADV1012351	1/15/2025	4.887	1/18/2028	100.10052	100.0557467	100.0134084	100.0273784	100.0250464	100.0027492	99.9630817	99.89561935	99.82540004
ADV1012446	1/17/2025	4.724	4/17/2026	100.05598	99.97366125	99.95638691	99.95038742	99.94203083	99.93123878	99.91815161	99.90291082	99.88619175
ADV1012486	1/21/2025	4.867	10/20/2027	100.09975	100.0402615	100.0000875	100.0129998	100.0119299	99.99368013	99.96203452	99.90278966	99.84210706
ADV1012355	1/15/2025	4.763	7/15/2026	100.06093	99.9657558	99.93697512	99.94051057	99.94543071	99.9509354	99.95212262	99.9380886	99.92093078
ADV1012562	1/22/2025	4.809	1/22/2027	100.07926	99.98297646	99.95424309	99.95845945	99.95528842	99.94061416	99.91553232	99.87945141	99.83470649
ADV1012668	1/27/2025	4.818	7/26/2027	100.08462	99.98316728	99.93345589	99.94685743	99.93426239	99.91278887	99.87797926	99.82964883	99.76652082
ADV1012345	1/15/2025	4.978	1/15/2030	100.18355	100.0703692	100.0062199	100.0348697	100.03352	100.0054781	99.95551329	99.82651832	99.7142796
ADV1012406	1/16/2025	4.903	7/17/2028	100.16586	100.0480632	99.9856393	100.0005813	99.99539257	99.96645686	99.91678864	99.96659189	99.75881942
ADV1012477	1/21/2025	4.959	10/22/2029	100.17336	100.0582272	99.98817275	100.016617	100.0164543	100.0362142	99.92132319	99.82519796	99.71871284
ADV1012485	1/21/2025	4.883	1/20/2028	100.10268	100.0498787	100.0046172	100.0176569	100.0153595	99.99182593	99.95034937	99.88556141	99.81511621
ADV1012596	1/23/2025	4.902	4/24/2028	100.15175	100.069366	100.0196155	100.0311873	100.0243864	99.99456821	99.94398197	99.8706447	99.7896843
ADV1012358	1/15/2025	4.808	1/15/2027	100.07361	99.98089224	99.95124019	99.95753966	99.95392585	99.93946189	99.91481716	99.87944179	99.83562363
ADV1012344	1/15/2025	4.978	1/15/2030	100.18355	100.0703692	100.0062199	100.0348697	100.03352	100.0054781	99.95551329	99.82651832	99.7142796
ADV1012368	1/15/2025	4.978	1/15/2030	100.18355	100.0703692	100.0062199	100.0348697	100.03352	100.0054781	99.95551329	99.82651832	99.7142796
ADV1012475	1/21/2025	4.83	4/20/2027	100.08691	100.0123284	99.98506678	99.99518758	99.98294509	99.95915575	99.92243084	99.8731303	99.81464908
ADV1012474	1/21/2025	4.807	1/20/2027	100.07268	99.98030424	99.95593577	99.9554732	99.95209506	99.93753597	99.91261208	99.87682208	99.83240669
ADV1012364	1/15/2025	4.87	10/15/2027	100.0958	100.0445153	100.0079829	100.020609	100.01953	100.0016985	99.96600088	99.90930481	99.84831883
ADV1012480	1/21/2025	4.961	10/22/2029	100.17419	100.0619929	99.99563812	100.023738	100.0236219	99.99916306	99.9290526	99.83302239	99.72562087
ADV1012348	1/15/2025	4.978	1/15/2030	100.18355	100.0703692	100.0062199	100.0348697	100.03352	100.0054781	99.95551329	99.82651832	99.7142796
ADV1012554	1/22/2025	4.936	1/22/2029	100.18593	100.0846011	100.0217907	100.0428606	100.0444006	100.0194716	100.0664453	99.87054224	99.77947911
ADV1012353	1/15/2025	4.735	4/15/2026	100.05729	99.98349753	99.96856197	99.96183739	99.95324641	99.94219924	99.92883698	99.91326981	99.89654446
ADV1012363	1/15/2025	4.939	4/16/2029	100.17122	100.0821529	100.0138836	100.0335119	100.0417465	99.99813833	100.0007898	99.83188504	99.7280997
ADV1012502	1/21/2025	4.961	10/22/2029	100.17419	100.0619929	99.99563812	100.023738	100.0236219	99.99916306	99.9290526	99.83302239	99.72562087
ADV1012367	1/15/2025	4.832	4/15/2027	100.0837	100.014699	99.98888615	99.99847132	99.98687563	99.96310126	99.92631195	99.87692119	99.81832813
ADV1012560	1/22/2025	4.974	1/22/2030	100.19005	100.0656844	99.98859801	100.0191386	100.015808	100.0215017	99.98971851	99.80881334	99.69443233
ADV1012218	1/10/2025	4.981	7/10/2029	100.16868	100.1300395	100.0988291	100.08489	100.0810804	100.0686794	100.0309754	99.93579404	99.83211831
ADV1012346	1/15/2025	4.978	1/15/2030	100.18355	100.0703692	100.0062199	100.0348697	100.03352	100.0054781	99.95551329	99.82651832	99.7142796

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1012447	1/17/2025	4.805	1/19/2027	100.07562	99.97697839	99.94788813	99.95194842	99.94860636	99.93410553	99.9093325	99.87390834	99.82955978
ADV1012482	1/21/2025	4.961	10/22/2029	100.17419	100.0619929	99.99563812	100.023738	100.0236219	99.99916306	99.9290526	99.83302239	99.72562087
ADV1012559	1/22/2025	4.869	10/22/2027	100.10095	100.0433048	100.0035676	100.0167384	100.0156097	99.99780672	99.96517291	99.90673095	99.84593742
ADV1012594	1/23/2025	4.855	7/23/2027	100.09551	100.038816	100.0072407	100.0178412	100.0129698	99.99216624	99.95538004	99.90102174	99.8402705
ADV1012473	1/21/2025	4.961	10/22/2029	100.17419	100.0619929	99.99563812	100.023738	100.0236219	99.99916306	99.9290526	99.83302239	99.72562087
ADV1012476	1/21/2025	4.961	10/22/2029	100.17419	100.0619929	99.99563812	100.023738	100.0236219	99.99916306	99.9290526	99.83302239	99.72562087
ADV1012357	1/15/2025	4.782	10/15/2026	100.06451	99.96020846	99.93219647	99.93721394	99.93581351	99.92632626	99.90935148	99.885919	99.85275257
ADV1012640	1/24/2025	4.974	1/24/2030	100.19251	100.0651268	99.98776307	100.0177973	100.0136125	100.0413887	99.98861576	99.80786183	99.69323365
ADV1012557	1/22/2025	4.924	10/20/2028	100.20758	100.0749802	100.0111669	100.0331232	100.0279229	100.0073539	100.025754	99.87676047	99.79413842
ADV1012352	1/15/2025	4.887	1/18/2028	100.10052	100.0557467	100.0134084	100.0273784	100.0250464	100.0027492	99.9630817	99.89561935	99.82540004
ADV1012370	1/15/2025	4.9	4/17/2028	100.15628	100.065266	100.0168003	100.0279559	100.0213968	99.99142966	99.9406462	99.8668101	99.78664617
ADV1012362	1/15/2025	4.923	10/16/2028	100.20255	100.0698623	100.008071	100.0320615	100.0256455	100.004632	100.0255457	99.87388357	99.79134719
ADV1012366	1/15/2025	4.978	1/15/2030	100.18355	100.0703692	100.0062199	100.0348697	100.03352	100.0054781	99.95551329	99.82651832	99.7142796
ADV1012492	1/21/2025	4.774	10/20/2026	100.06584	99.95016181	99.91867191	99.92379019	99.92291357	99.9138955	99.89732923	99.87275304	99.84115048
ADV1012491	1/21/2025	4.753	7/20/2026	100.06169	99.95188268	99.92172878	99.92586354	99.93165549	99.93817488	99.94165079	99.92867973	99.91213024
ADV1012558	1/22/2025	4.924	10/20/2028	100.20758	100.0749802	100.0111669	100.0331232	100.0279229	100.0073539	100.025754	99.87676047	99.79413842
ADV1012479	1/21/2025	4.867	10/20/2027	100.09975	100.0402615	100.0000875	100.0129998	100.0119299	99.99368013	99.96203452	99.90278966	99.84210706
ADV1012478	1/21/2025	4.961	10/22/2029	100.17419	100.0619929	99.99563812	100.023738	100.0236219	99.99916306	99.9290526	99.83302239	99.72562087
ADV1012342	1/15/2025	4.912	7/17/2028	100.1683	100.0665106	100.0084927	100.0235018	100.020042	99.99337539	99.94401801	99.90527531	99.78342696
ADV1012553	1/22/2025	4.924	10/20/2028	100.20758	100.0749802	100.0111669	100.0331232	100.0279229	100.0073539	100.025754	99.87676047	99.79413842
ADV1012671	1/27/2025	4.818	7/26/2027	100.08462	99.98316728	99.93345589	99.94685743	99.93426239	99.91278887	99.87797926	99.82964883	99.76652082
ADV1012563	1/22/2025	4.974	1/22/2030	100.19005	100.0656844	99.98859801	100.0191386	100.015808	100.0215017	99.98971851	99.80881334	99.69443233
ADV1012147	1/7/2025	4.973	10/29/2029	100.1976	100.091196	100.0307721	100.061149	100.0633903	100.0374167	99.97243834	99.8658843	99.76384833
ADV1012663	1/27/2025	4.86	4/25/2028	100.14178	99.9869122	99.91084015	99.95386744	99.90791212	99.87652966	99.8421814	99.7762226	99.68247018
ADV1012489	1/21/2025	4.867	10/20/2027	100.09975	100.0402615	100.0000875	100.0129998	100.0119299	99.99368013	99.96203452	99.90278966	99.84210706
ADV1012472	1/21/2025	4.922	10/20/2028	100.20724	100.0711882	100.0054038	100.0269495	100.0219314	100.0011569	100.0416957	99.87093192	99.78801578
ADV1012445	1/17/2025	4.954	1/17/2030	100.17874	100.0168322	99.91697276	99.94680741	99.94006463	99.92654804	99.90661567	99.73148312	99.61966501
ADV1012471	1/21/2025	4.961	10/22/2029	100.17419	100.0619929	99.99563812	100.023738	100.0236219	99.99916306	99.9290526	99.83302239	99.72562087
ADV1012556	1/22/2025	4.936	1/22/2029	100.18593	100.0846011	100.0217907	100.0428606	100.0444006	100.0194716	100.0664453	99.87054224	99.77947911
ADV1013290	2/20/2025	4.897	1/15/2030	100.25265	99.85803038	99.70385604	99.85625989	99.7445292	99.66779722	99.8850238	99.51476214	99.41550908
ADV1013288	2/20/2025	4.897	1/22/2030	100.25932	99.85829231	99.69677619	99.92784044	99.73798254	99.66264273	99.71211493	99.50959898	99.41011909
ADV1013289	2/20/2025	4.887	7/16/2029	100.20184	99.92157022	99.79614516	99.80450204	99.81048494	99.76270911	100.0015325	99.61145411	99.51826187
ADV1013162	2/14/2025	4.913	2/14/2030	100.18106	99.89013869	99.74531052	99.97080252	99.78078327	99.70460777	99.83795894	99.55763227	99.43320418

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REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1013251	2/19/2025	4.918	2/19/2030	100.18663	99.90370653	99.76331639	99.9834874	99.76803092	99.72029463	99.95868682	99.58252015	99.44053054
ADV1014605	4/15/2025	5.011	1/15/2030	100.30869	100.1680449	100.1297121	100.1429475	100.1370652	100.1408388	100.0486548	99.9440043	99.83326452
ADV1014597	4/15/2025	5.02	4/15/2030	100.32989	100.1522055	100.1128333	100.1299017	100.1176591	100.1288363	100.0909864	99.89556752	99.7747948
ADV1014821	4/23/2025	5.031	4/22/2030	100.33055	100.1835513	100.1493657	100.1537589	100.1459193	100.1517129	100.1323446	99.93354479	99.81382362
ADV1014712	4/21/2025	5.042	1/22/2030	100.30416	100.2400311	100.191815	100.1748774	100.1664233	100.1569224	100.1237767	100.0463637	99.93987291
ADV1014611	4/15/2025	5.02	4/15/2030	100.32989	100.1522055	100.1128333	100.1299017	100.1176591	100.1288363	100.0909864	99.89556752	99.7747948
ADV1014736	4/21/2025	5.042	1/22/2030	100.30416	100.2400311	100.191815	100.1748774	100.1664233	100.1569224	100.1237767	100.0463637	99.93987291
ADV1014466	4/8/2025	4.951	8/15/2028	100.29199	100.1351667	100.1081914	100.1205774	100.1178292	100.1007411	100.0498138	99.97175636	99.88807232
ADV1014608	4/15/2025	5.001	10/15/2029	100.25977	100.1728806	100.1391624	100.1462007	100.140825	100.139444	100.0671282	99.96805813	99.86480279
ADV1014733	4/21/2025	5.042	1/22/2030	100.30416	100.2400311	100.191815	100.1748774	100.1664233	100.1569224	100.1237767	100.0463637	99.93987291
ADV1013687	3/6/2025	4.829	2/15/2028	100.17785	99.94855306	99.88360199	99.8737193	99.8610934	99.83498559	99.79698868	99.76206893	99.66142644
ADV1014720	4/21/2025	5.016	7/20/2029	100.29877	100.2140304	100.1800842	100.1656439	100.1561863	100.1464758	100.1187968	100.0446628	99.94590682
ADV1014728	4/21/2025	5.042	1/22/2030	100.30416	100.2400311	100.191815	100.1748774	100.1664233	100.1569224	100.1237767	100.0463637	99.93987291
ADV1014710	4/21/2025	4.949	4/20/2028	100.2278	100.1559283	100.1247573	100.1341239	100.1265208	100.1110682	100.0674096	99.99081916	99.91011908
ADV1014730	4/21/2025	5.042	1/22/2030	100.30416	100.2400311	100.191815	100.1748774	100.1664233	100.1569224	100.1237767	100.0463637	99.93987291
ADV1014739	4/21/2025	5.017	4/20/2029	100.30188	100.2217087	100.1742285	100.1667249	100.1582269	100.1492169	100.1286844	100.0659289	99.97462998
ADV1014740	4/21/2025	5.017	4/20/2029	100.30188	100.2217087	100.1742285	100.1667249	100.1582269	100.1492169	100.1286844	100.0659289	99.97462998
ADV1014484	4/9/2025	5.069	4/17/2028	100.3216	100.2024257	100.1950917	100.1886171	100.1808567	100.1718316	100.1615672	100.1510662	100.13517
ADV1014820	4/23/2025	4.926	4/24/2028	100.24379	100.1203084	100.081438	100.0927583	100.0855361	100.0609357	100.0083104	99.93294953	99.85096576
ADV1014819	4/23/2025	4.898	10/25/2027	100.1714	100.0892794	100.064614	100.0789457	100.0780849	100.0664154	100.0274866	99.96748806	99.90551837
ADV1014738	4/21/2025	5.056	1/22/2030	100.32386	100.2663381	100.1979252	100.1827558	100.1732994	100.1642613	100.1436454	100.0793491	99.9870771
ADV1014612	4/15/2025	5.02	4/15/2030	100.32989	100.1522055	100.1128333	100.1299017	100.1176591	100.1288363	100.0909864	99.89556752	99.7747948
ADV1014869	4/24/2025	4.861	5/7/2027	100.17563	100.0535406	100.0360353	100.0444104	100.0393725	100.0187513	99.98119168	99.92926076	99.87216679
ADV1014607	4/15/2025	5.001	10/15/2029	100.25977	100.1728806	100.1391624	100.1462007	100.140825	100.139444	100.0671282	99.96805813	99.86480279
ADV1014735	4/21/2025	5.042	1/22/2030	100.30416	100.2400311	100.191815	100.1748774	100.1664233	100.1569224	100.1237767	100.0463637	99.93987291
ADV1014609	4/15/2025	4.944	7/17/2028	100.25802	100.1285777	100.0984403	100.1084245	100.1035394	100.084649	100.0327169	100.0511073	99.87112953
ADV1014771	4/22/2025	5.06	4/22/2030	100.36768	100.2573458	100.2106559	100.1833539	100.174549	100.1670295	100.1556634	100.037821	99.92205177
ADV1014734	4/21/2025	5.042	1/22/2030	100.30416	100.2400311	100.191815	100.1748774	100.1664233	100.1569224	100.1237767	100.0463637	99.93987291
ADV1014721	4/21/2025	5.016	7/20/2029	100.29877	100.2140304	100.1800842	100.1656439	100.1561863	100.1464758	100.1187968	100.0446628	99.94590682
ADV1013887	3/14/2025	4.903	10/15/2029	100.24011	99.92167198	99.79287631	99.89554302	99.83549744	99.77129809	99.76114447	99.61419958	99.51793656
ADV1014729	4/21/2025	5.042	1/22/2030	100.30416	100.2400311	100.191815	100.1748774	100.1664233	100.1569224	100.1237767	100.0463637	99.93987291
ADV1014709	4/21/2025	5.042	1/22/2030	100.30416	100.2400311	100.191815	100.1748774	100.1664233	100.1569224	100.1237767	100.0463637	99.93987291
ADV1014598	4/15/2025	5.02	4/15/2030	100.32989	100.1522055	100.1128333	100.1299017	100.1176591	100.1288363	100.0909864	99.89556752	99.7747948

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	Parallel-Shift Sensitivity Analysis												
4/30/2025				Price									
REFERENCE	SETTLEMENT	Rate	MATURITY	-400	-300	-200	-100	Base	100	200	300	400
ADV1014707	4/21/2025	5.042	1/22/2030	100.30416	100.2400311	100.191815	100.1748774	100.1664233	100.1569224	100.1237767	100.0463637	99.93987291
ADV1013957	3/18/2025	4.868	10/17/2028	100.22818	99.94064853	99.84338668	99.89259334	99.85328347	99.82735702	99.80771732	99.7663248	99.66897857
ADV1014724	4/21/2025	5.042	1/22/2030	100.30416	100.2400311	100.191815	100.1748774	100.1664233	100.1569224	100.1237767	100.0463637	99.93987291
ADV1014726	4/21/2025	5.042	1/22/2030	100.30416	100.2400311	100.191815	100.1748774	100.1664233	100.1569224	100.1237767	100.0463637	99.93987291
ADV1014610	4/15/2025	5.02	4/15/2030	100.32989	100.1522055	100.1128333	100.1299017	100.1176591	100.1288363	100.0909864	99.89556752	99.7747948
ADV1014708	4/21/2025	5.042	1/22/2030	100.30416	100.2400311	100.191815	100.1748774	100.1664233	100.1569224	100.1237767	100.0463637	99.93987291
ADV1014737	4/21/2025	5.042	1/22/2030	100.30419	100.2400311	100.19182	100.175076	100.1666757	100.1570973	100.1243313	100.0464566	99.93987488
ADV1014601	4/15/2025	5.02	4/15/2030	100.32989	100.1522055	100.1128333	100.1299017	100.1176591	100.1288363	100.0909864	99.89556752	99.7747948
ADV1014711	4/21/2025	4.935	1/20/2028	100.18238	100.1391282	100.1176938	100.1265543	100.120663	100.1069902	100.071622	100.0051043	99.93407808
ADV1014599	4/15/2025	5.02	4/15/2030	100.32989	100.1522055	100.1128333	100.1299017	100.1176591	100.1288363	100.0909864	99.89556752	99.7747948
ADV1014714	4/21/2025	5.042	1/22/2030	100.30416	100.2400311	100.191815	100.1748774	100.1664233	100.1569224	100.1237767	100.0463637	99.93987291
ADV1014602	4/15/2025	5.02	4/15/2030	100.32989	100.1522055	100.1128333	100.1299017	100.1176591	100.1288363	100.0909864	99.89556752	99.7747948
ADV1014727	4/21/2025	5.042	1/22/2030	100.30416	100.2400311	100.191815	100.1748774	100.1664233	100.1569224	100.1237767	100.0463637	99.93987291
ADV1014604	4/15/2025	4.914	1/18/2028	100.17016	100.1042592	100.0770405	100.0911491	100.0874119	100.070922	100.0267302	99.9588937	99.88794737
ADV1014032	3/21/2025	4.899	4/20/2029	100.24083	99.98460137	99.8868312	99.89784948	99.9202251	99.8523067	100.0600136	99.70011167	99.637816
ADV1014716	4/21/2025	5.001	4/20/2029	100.29538	100.2054457	100.1701344	100.1589757	100.1508437	100.1389086	100.1068679	100.0247565	99.92621143

Classification | Public