

Year	Period	Coupon payment		YTM (6-month)		Price	Spot rate (6-month)	Spot rate (BEY)	Spot rate (EAR)	$P_{0,t}$	PV of all but last CF
		Coupon rate (6-month)	YTM (BEY)	month	Price						
1	1	0.000%	0	0.19%	0.095%	0.99905	0.095%	0.190%	0.190%	0.9991	0
1	2	0.000%	0	0.30%	0.150%	0.99701	0.150%	0.300%	0.300%	0.9970	0
	3	0.565%	0.002825	0.57%	0.283%	1.00000	0.283%	0.566%	0.567%	0.9916	0.0056
2	4	0.875%	0.004375	0.83%	0.415%	1.00089	0.416%	0.833%	0.834%	0.9835	0.01
	5	1.080%	0.0054	1.08%	0.540%	1.00000	0.543%	1.085%	1.088%	0.9733	0.0214
3	6	1.375%	0.006875	1.33%	0.665%	1.00132	0.670%	1.340%	1.345%	0.9607	0.03
	7	1.563%	0.0078125	1.56%	0.781%	1.00000	0.789%	1.578%	1.584%	0.9465	0.0461
4	8	1.795%	0.008975	1.80%	0.898%	1.00000	0.909%	1.818%	1.826%	0.9302	0.06
	9	2.028%	0.0101375	2.03%	1.014%	1.00000	1.030%	2.061%	2.071%	0.9119	0.0789
5	10	2.375%	0.011875	2.26%	1.130%	1.00541	1.154%	2.308%	2.322%	0.8916	0.10
	11	2.450%	0.01225	2.45%	1.225%	1.00000	1.254%	2.508%	2.524%	0.8719	0.1174
6	12	2.640%	0.0132	2.64%	1.320%	1.00000	1.356%	2.712%	2.731%	0.8507	0.14
	13	2.830%	0.01415	2.83%	1.415%	1.00000	1.460%	2.920%	2.941%	0.8283	0.1600
7	14	3.000%	0.015	3.02%	1.510%	0.99875	1.565%	3.129%	3.154%	0.8046	0.18
	15	3.118%	0.0155917	3.12%	1.559%	1.00000	1.618%	3.237%	3.263%	0.7860	0.2018
8	16	3.217%	0.0160833	3.22%	1.608%	1.00000	1.673%	3.345%	3.373%	0.7669	0.22
	17	3.315%	0.016575	3.32%	1.658%	1.00000	1.728%	3.455%	3.485%	0.7474	0.2402
9	18	3.413%	0.0170667	3.41%	1.707%	1.00000	1.783%	3.567%	3.599%	0.7275	0.26
	19	3.512%	0.0175583	3.51%	1.756%	1.00000	1.840%	3.680%	3.714%	0.7072	0.2804
10	20	3.625%	0.018125	3.61%	1.805%	1.00125	1.898%	3.796%	3.832%	0.6866	0.30
	21	3.634%	0.01817	3.63%	1.817%	1.00000	1.909%	3.817%	3.854%	0.6723	0.3155
11	22	3.658%	0.01829	3.66%	1.829%	1.00000	1.920%	3.840%	3.877%	0.6581	0.33
	23	3.682%	0.01841	3.68%	1.841%	1.00000	1.932%	3.863%	3.901%	0.6440	0.3441
12	24	3.706%	0.01853	3.71%	1.853%	1.00000	1.944%	3.887%	3.925%	0.6300	0.36
	25	3.730%	0.01865	3.73%	1.865%	1.00000	1.956%	3.912%	3.950%	0.6161	0.3724
13	26	3.754%	0.01877	3.75%	1.877%	1.00000	1.969%	3.938%	3.976%	0.6024	0.39
	27	3.778%	0.01889	3.78%	1.889%	1.00000	1.982%	3.964%	4.003%	0.5887	0.4002
14	28	3.802%	0.01901	3.80%	1.901%	1.00000	1.995%	3.990%	4.030%	0.5751	0.41
	29	3.826%	0.01913	3.83%	1.913%	1.00000	2.009%	4.017%	4.058%	0.5617	0.4275
15	30	3.850%	0.01925	3.85%	1.925%	1.00000	2.023%	4.045%	4.086%	0.5484	0.44
	31	3.874%	0.01937	3.87%	1.937%	1.00000	2.037%	4.074%	4.115%	0.5352	0.45
16	32	3.898%	0.01949	3.90%	1.949%	1.00000	2.051%	4.102%	4.145%	0.5222	0.47
	33	3.922%	0.01961	3.92%	1.961%	1.00000	2.066%	4.132%	4.175%	0.5092	0.48
17	34	3.946%	0.01973	3.95%	1.973%	1.00000	2.081%	4.162%	4.205%	0.4964	0.49

	35	3.970%	0.01985	3.97%	1.985%	1.00000	2.096%	4.193%	4.237%	0.4838	0.51
18	36	3.994%	0.01997	3.99%	1.997%	1.00000	2.112%	4.224%	4.268%	0.4712	0.52
	37	4.018%	0.02009	4.02%	2.009%	1.00000	2.128%	4.256%	4.301%	0.4589	0.53
19	38	4.042%	0.02021	4.04%	2.021%	1.00000	2.144%	4.288%	4.334%	0.4466	0.54
	39	4.066%	0.02033	4.07%	2.033%	1.00000	2.160%	4.321%	4.368%	0.4345	0.56
20	40	4.090%	0.02045	4.09%	2.045%	1.00000	2.177%	4.355%	4.402%	0.4225	0.57
	41	4.114%	0.02057	4.11%	2.057%	1.00000	2.194%	4.389%	4.437%	0.4107	0.58
21	42	4.138%	0.02069	4.14%	2.069%	1.00000	2.212%	4.424%	4.473%	0.3990	0.59
	43	4.162%	0.02081	4.16%	2.081%	1.00000	2.230%	4.459%	4.509%	0.3874	0.60
22	44	4.186%	0.02093	4.19%	2.093%	1.00000	2.248%	4.496%	4.546%	0.3760	0.62
	45	4.210%	0.02105	4.21%	2.105%	1.00000	2.266%	4.533%	4.584%	0.3648	0.63
23	46	4.234%	0.02117	4.23%	2.117%	1.00000	2.285%	4.571%	4.623%	0.3537	0.64
	47	4.258%	0.02129	4.26%	2.129%	1.00000	2.305%	4.609%	4.663%	0.3427	0.65
24	48	4.282%	0.02141	4.28%	2.141%	1.00000	2.324%	4.649%	4.703%	0.3319	0.66
	49	4.306%	0.02153	4.31%	2.153%	1.00000	2.345%	4.689%	4.744%	0.3212	0.67
25	50	4.330%	0.02165	4.33%	2.165%	1.00000	2.365%	4.731%	4.787%	0.3107	0.68
	51	4.354%	0.02177	4.35%	2.177%	1.00000	2.386%	4.773%	4.830%	0.3004	0.69
26	52	4.378%	0.02189	4.38%	2.189%	1.00000	2.408%	4.816%	4.874%	0.2901	0.70
	53	4.402%	0.02201	4.40%	2.201%	1.00000	2.430%	4.861%	4.920%	0.2801	0.71
27	54	4.426%	0.02213	4.43%	2.213%	1.00000	2.453%	4.906%	4.966%	0.2702	0.72
	55	4.450%	0.02225	4.45%	2.225%	1.00000	2.476%	4.953%	5.014%	0.2604	0.73
28	56	4.474%	0.02237	4.47%	2.237%	1.00000	2.500%	5.001%	5.063%	0.2508	0.74
	57	4.498%	0.02249	4.50%	2.249%	1.00000	2.525%	5.050%	5.114%	0.2414	0.75
29	58	4.522%	0.02261	4.52%	2.261%	1.00000	2.550%	5.101%	5.166%	0.2321	0.76
	59	4.546%	0.02273	4.55%	2.273%	1.00000	2.576%	5.153%	5.219%	0.2229	0.77
30	60	4.625%	0.023125	4.57%	2.285%	1.00893	2.607%	5.215%	5.283%	0.2134	0.79

Year	Spot Rate ( Year 1 Implied Yield Volatility	
1	0.0030023	0
2	0.0083448	0.08
3	0.0134466	0.12
4	0.0182649	0.14
5	0.0232166	0.16
6	0.0273084	0.13
7	0.0315395	0.1
8	0.0337323	0.1066667
9	0.0359858	0.1133333
10	0.0383224	0.12

11	0.0387673	0.118
12	0.0392515	0.116
13	0.0397633	0.114
14	0.0403004	0.112
15	0.0408614	0.11
16	0.0414457	0.108
17	0.0420532	0.106
18	0.0426841	0.104
19	0.0433393	0.102
20	0.0440199	0.1
21	0.0447272	0.098
22	0.045463	0.096
23	0.0462296	0.094
24	0.0470294	0.092
25	0.0478656	0.09
26	0.0487418	0.088
27	0.0496621	0.086
28	0.0506316	0.084
29	0.0516563	0.082
30	0.0528279	0.08

	Year 1
Implied 6-month forward rate volatility	implied yield
0.095%	0.00%
0.205%	0.00%
0.549%	0.00%
0.818%	8.00%
1.050%	10.00%
1.309%	12.00%
1.506%	13.00%
1.754%	14.00%
2.006%	15.00%
2.275%	16.00%
2.258%	14.50%
2.488%	13.00%
2.712%	11.50%
2.938%	10.00%
2.374%	10.33%
2.488%	10.67%
2.611%	11.00%
2.737%	11.33%
2.866%	11.67%
3.007%	12.00%
2.119%	11.90%
2.158%	11.80%
2.189%	11.70%
2.221%	11.60%
2.254%	11.50%
2.287%	11.40%
2.321%	11.30%
2.355%	11.20%
2.390%	11.10%
2.426%	11.00%
2.463%	10.90%
2.500%	10.80%
2.539%	10.70%
2.578%	10.60%