

II. Term structure of interest rates in the debt securities market *

a) Term structure of interest rates in the debt securities market - estimated values, listed Federal securities

% per annum

		Interest rate at a residual maturity of ... years										
End of year or month or trading day		1	2	3	4	5	6	7	8	9	10	
2013		0.13	0.24	0.44	0.69	0.95	1.21	1.47	1.70	1.92	2.11	
2014		0.10	0.10	0.10	0.06	0.02	0.12	0.24	0.36	0.49	0.60	
2015		0.39	0.35	0.26	0.14	0.01	0.13	0.28	0.42	0.56	0.70	
2016		0.84	0.80	0.76	0.65	0.51	0.35	0.18	0.03	0.10	0.22	
2017		0.72	0.64	0.50	0.34	0.18	0.02	0.12	0.25	0.37	0.48	
2018		0.70	0.65	0.56	0.44	0.31	0.18	0.06	0.06	0.16	0.25	
2019		0.69	0.63	0.58	0.54	0.49	0.44	0.37	0.31	0.25	0.19	
2020		0.73	0.75	0.77	0.77	0.75	0.72	0.68	0.65	0.61	0.57	
2021		0.73	0.68	0.62	0.56	0.50	0.44	0.38	0.33	0.28	0.24	
2022		2.39	2.59	2.55	2.50	2.47	2.47	2.48	2.50	2.51	2.53	
2023		2.97	2.35	2.04	1.91	1.87	1.88	1.92	1.96	2.01	2.06	
2023	Jan.	2.65	2.59	2.43	2.31	2.25	2.23	2.23	2.25	2.27	2.28	
	Feb.	3.17	3.11	2.92	2.78	2.69	2.65	2.63	2.63	2.64	2.65	
	Mar.	2.82	2.65	2.53	2.44	2.39	2.36	2.34	2.34	2.34	2.35	
	Apr.	2.90	2.69	2.49	2.37	2.32	2.31	2.31	2.32	2.34	2.35	
	May	2.97	2.71	2.53	2.41	2.33	2.28	2.26	2.25	2.26	2.28	
	June	3.43	3.14	2.86	2.66	2.55	2.48	2.45	2.43	2.43	2.43	
	July	3.39	3.07	2.80	2.62	2.53	2.48	2.47	2.48	2.50	2.52	
	Aug.	3.34	2.98	2.70	2.54	2.47	2.44	2.44	2.46	2.48	2.51	
	Sep.	3.58	3.19	2.92	2.80	2.76	2.76	2.78	2.80	2.84	2.87	
	Oct.	3.47	3.00	2.74	2.63	2.61	2.63	2.66	2.71	2.76	2.80	
	Nov.	3.26	2.77	2.48	2.32	2.26	2.26	2.29	2.34	2.40	2.45	
	Dec.	2.97	2.35	2.04	1.91	1.87	1.88	1.92	1.96	2.01	2.06	
2024	Jan.	3.12	2.53	2.24	2.11	2.07	2.08	2.11	2.15	2.19	2.24	
	Feb.	3.40	2.97	2.70	2.55	2.47	2.44	2.44	2.45	2.48	2.51	
	Mar.	3.29	2.82	2.54	2.37	2.29	2.26	2.26	2.27	2.30	2.33	
	Apr.	3.34	2.97	2.73	2.59	2.52	2.49	2.48	2.50	2.53	2.56	
	May	3.36	3.07	2.88	2.76	2.69	2.65	2.65	2.66	2.68	2.71	
	June	3.12	2.78	2.57	2.45	2.39	2.38	2.39	2.42	2.45	2.49	
2024	June	3	3.34	3.03	2.83	2.70	2.63	2.59	2.60	2.62	2.65	
		4	3.30	2.97	2.75	2.61	2.54	2.51	2.50	2.52	2.57	
		5	3.30	2.97	2.75	2.61	2.54	2.50	2.49	2.50	2.56	
		6	3.28	2.96	2.74	2.60	2.52	2.49	2.48	2.49	2.54	
		7	3.32	3.00	2.79	2.65	2.58	2.54	2.53	2.54	2.58	
		10	3.33	3.04	2.84	2.71	2.64	2.60	2.59	2.60	2.65	
		11	3.32	3.03	2.83	2.71	2.64	2.61	2.60	2.62	2.67	
		12	3.30	2.98	2.78	2.65	2.58	2.54	2.54	2.55	2.61	
		13	3.28	2.95	2.74	2.61	2.53	2.50	2.49	2.51	2.56	
		14	3.16	2.78	2.54	2.40	2.33	2.31	2.32	2.34	2.41	
		17	3.13	2.77	2.54	2.41	2.34	2.32	2.33	2.35	2.42	
		18	3.16	2.81	2.59	2.46	2.38	2.35	2.35	2.37	2.44	
		19	3.14	2.79	2.56	2.42	2.35	2.32	2.33	2.35	2.41	
		20	3.16	2.82	2.60	2.46	2.40	2.37	2.37	2.39	2.45	
		21	3.09	2.74	2.52	2.38	2.32	2.29	2.30	2.32	2.39	
		24	3.11	2.77	2.55	2.42	2.35	2.33	2.34	2.36	2.44	
		25	3.12	2.78	2.56	2.43	2.36	2.34	2.35	2.37	2.44	
		26	3.12	2.79	2.57	2.45	2.38	2.36	2.36	2.39	2.46	
		27	3.12	2.79	2.58	2.46	2.40	2.38	2.39	2.42	2.50	
		28	3.12	2.78	2.57	2.45	2.39	2.38	2.39	2.42	2.49	
	July	1	3.18	2.88	2.68	2.57	2.51	2.50	2.51	2.53	2.61	
Memo item: yields, derived from the term structure of interest rates, on listed Federal securities with annual coupon payments												
2024	June	28	3.12	2.79	2.58	2.46	2.40	2.39	2.40	2.42	2.45	2.49
Parameters for calculating the term structure of interest rates												
		Beta0	Beta1	Beta2	Beta3	Tau1	Tau2					
2024	June	25	1.63742	1.99420	-17.74059	17.50768	4.78065	6.03536				
		26	1.65002	1.96904	-30.00000	29.73061	5.04046	5.77331				
		27	1.76062	1.86263	-28.47143	28.07605	4.88032	5.60482				
		28	1.85201	1.78570	-20.70437	20.10891	4.63818	5.58017				
	July	1	1.64090	1.99646	-29.45686	29.73711	5.20956	6.01382				

* Interest rates on (theoretical) zero coupon bonds without a default risk, estimated according to the procedure outlined in the explanatory notes. The estimates are based on the prices of Federal bonds, five-year Federal notes and Federal Treasury notes with

a residual maturity of at least three months. The interest rates are estimated using a non-linear, parametric approach.

II. Term structure of interest rates in the debt securities market *

still: a) Term structure of interest rates in the debt securities market - estimated values, listed Federal securities

% per annum

		Interest rate at a residual maturity of ... years									
End of year or month or trading day		11	12	13	14	15	16	17	18	19	20
2013		2.28	2.42	2.55	2.66	2.75	2.82	2.87	2.92	2.95	2.97
2014		0.71	0.81	0.90	0.98	1.05	1.12	1.18	1.23	1.27	1.32
2015		0.82	0.94	1.04	1.14	1.22	1.30	1.36	1.41	1.46	1.50
2016		0.33	0.42	0.49	0.56	0.62	0.67	0.72	0.76	0.80	0.83
2017		0.57	0.66	0.74	0.81	0.87	0.92	0.97	1.02	1.06	1.10
2018		0.33	0.40	0.47	0.52	0.57	0.62	0.66	0.69	0.73	0.76
2019		–	0.14	–	0.04	–	0.00	0.07	0.11	0.13	0.16
2020		–	0.53	–	0.46	–	0.43	–	0.35	–	0.32
2021		–	0.20	–	0.13	–	0.10	–	0.03	–	0.01
2022		2.55	2.56	2.57	2.57	2.58	2.58	2.57	2.57	2.56	2.55
2023		2.11	2.15	2.19	2.22	2.25	2.27	2.28	2.30	2.30	2.31
2023	Jan.	2.30	2.32	2.33	2.34	2.34	2.35	2.34	2.34	2.33	2.32
	Feb.	2.66	2.67	2.67	2.68	2.68	2.68	2.68	2.67	2.67	2.66
	Mar.	2.36	2.38	2.39	2.40	2.42	2.42	2.43	2.44	2.44	2.44
	Apr.	2.37	2.38	2.39	2.40	2.41	2.41	2.42	2.43	2.43	2.44
	May	2.30	2.32	2.35	2.37	2.40	2.42	2.43	2.45	2.46	2.46
	June	2.43	2.43	2.43	2.43	2.44	2.44	2.44	2.44	2.44	2.44
	July	2.54	2.56	2.58	2.59	2.61	2.62	2.63	2.63	2.63	2.63
	Aug.	2.53	2.56	2.58	2.60	2.62	2.63	2.64	2.65	2.65	2.65
	Sep.	2.90	2.92	2.95	2.97	2.99	3.00	3.02	3.02	3.03	3.03
	Oct.	2.84	2.88	2.92	2.95	2.98	3.00	3.02	3.04	3.05	3.06
	Nov.	2.51	2.56	2.60	2.64	2.66	2.69	2.70	2.71	2.71	2.72
	Dec.	2.11	2.15	2.19	2.22	2.25	2.27	2.28	2.30	2.30	2.31
2024	Jan.	2.28	2.32	2.35	2.38	2.41	2.43	2.44	2.46	2.47	2.47
	Feb.	2.54	2.57	2.60	2.62	2.64	2.65	2.66	2.67	2.68	2.68
	Mar.	2.36	2.39	2.42	2.44	2.46	2.48	2.49	2.50	2.50	2.50
	Apr.	2.59	2.63	2.65	2.68	2.70	2.71	2.72	2.73	2.73	2.73
	May	2.74	2.77	2.80	2.83	2.85	2.87	2.88	2.89	2.89	2.89
	June	2.53	2.57	2.60	2.63	2.65	2.67	2.68	2.69	2.70	2.70
2024	June	3	2.69	2.72	2.75	2.77	2.80	2.82	2.83	2.84	2.84
		4	2.61	2.64	2.67	2.70	2.72	2.74	2.75	2.76	2.77
		5	2.59	2.63	2.66	2.68	2.71	2.72	2.74	2.75	2.75
		6	2.58	2.61	2.64	2.66	2.69	2.71	2.72	2.73	2.74
		7	2.61	2.65	2.67	2.70	2.72	2.74	2.75	2.76	2.77
		10	2.68	2.71	2.74	2.77	2.79	2.81	2.83	2.84	2.85
		11	2.70	2.74	2.77	2.79	2.82	2.83	2.85	2.86	2.86
		12	2.64	2.68	2.71	2.74	2.76	2.78	2.80	2.81	2.82
		13	2.60	2.63	2.66	2.69	2.71	2.73	2.75	2.76	2.76
		14	2.45	2.49	2.52	2.55	2.58	2.59	2.61	2.62	2.62
		17	2.45	2.49	2.51	2.54	2.56	2.57	2.58	2.59	2.59
		18	2.47	2.51	2.54	2.56	2.59	2.60	2.62	2.63	2.63
		19	2.45	2.48	2.52	2.54	2.57	2.58	2.60	2.61	2.61
		20	2.49	2.52	2.55	2.58	2.60	2.62	2.63	2.64	2.64
		21	2.43	2.47	2.50	2.53	2.56	2.58	2.59	2.60	2.61
		24	2.48	2.52	2.55	2.58	2.60	2.62	2.64	2.65	2.65
		25	2.48	2.52	2.55	2.58	2.61	2.63	2.64	2.65	2.66
		26	2.50	2.53	2.57	2.60	2.62	2.64	2.65	2.66	2.67
		27	2.54	2.57	2.61	2.63	2.66	2.68	2.69	2.70	2.70
		28	2.53	2.57	2.60	2.63	2.65	2.67	2.68	2.69	2.70
	July	1	2.65	2.69	2.72	2.75	2.78	2.80	2.81	2.82	2.83
Memo item: yields, derived from the term structure of interest rates, on listed Federal securities with annual coupon payments											
2024	June	28	2.52	2.56	2.58	2.61	2.63	2.65	2.66	2.66	2.67
Parameters for calculating the term structure of interest rates											
		Beta0	Beta1	Beta2	Beta3	Tau1	Tau2				
2024	June	25	1.63742	1.99420	– 17.74059	17.50768	4.78065	6.03536			
		26	1.65002	1.96904	– 30.00000	29.73061	5.04046	5.77331			
		27	1.76062	1.86263	– 28.47143	28.07605	4.88032	5.60482			
		28	1.85201	1.78570	– 20.70437	20.10891	4.63818	5.58017			
	July	1	1.64090	1.99646	– 29.45686	29.73711	5.20956	6.01382			

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a residual maturity of at least three months. The interest rates are estimated using a non-linear, parametric approach.

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still: a) Term structure of interest rates in the debt securities market - estimated values, listed Federal securities

% per annum												
Interest rate at a residual maturity of ... years												
End of year or month or trading day	21	22	23	24	25	26	27	28	29	30		
2013	2.99	2.99	2.99	2.98	2.97	2.96	2.94	2.92	2.89	2.86		
2014	1.36	1.39	1.43	1.46	1.48	1.51	1.53	1.55	1.57	1.59		
2015	1.53	1.56	1.57	1.59	1.59	1.60	1.60	1.59	1.59	1.58		
2016	0.86	0.89	0.91	0.94	0.96	0.98	1.00	1.01	1.03	1.04		
2017	1.13	1.16	1.19	1.22	1.24	1.26	1.28	1.30	1.32	1.34		
2018	0.78	0.81	0.83	0.85	0.87	0.89	0.90	0.92	0.93	0.95		
2019	0.21	0.23	0.25	0.26	0.28	0.29	0.31	0.32	0.33	0.34		
2020	–	0.26	–	0.25	–	0.21	–	0.17	–	0.15	–	0.14
2021	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.12	0.12	
2022	2.53	2.52	2.50	2.48	2.47	2.45	2.43	2.41	2.39	2.36	2.36	
2023	2.31	2.31	2.30	2.30	2.29	2.28	2.27	2.25	2.24	2.22	2.22	
2023 Jan.	2.31	2.30	2.28	2.26	2.24	2.22	2.20	2.18	2.16	2.13	2.13	
Feb.	2.65	2.63	2.62	2.60	2.58	2.57	2.55	2.53	2.51	2.48	2.48	
Mar.	2.43	2.42	2.41	2.40	2.39	2.37	2.36	2.34	2.32	2.29	2.29	
Apr.	2.44	2.44	2.45	2.45	2.45	2.46	2.46	2.46	2.46	2.46	2.46	
May	2.47	2.47	2.46	2.46	2.44	2.43	2.42	2.40	2.38	2.36	2.36	
June	2.44	2.44	2.45	2.45	2.45	2.45	2.45	2.45	2.45	2.45	2.45	
July	2.63	2.62	2.62	2.61	2.60	2.58	2.57	2.56	2.54	2.52	2.52	
Aug.	2.65	2.65	2.64	2.63	2.62	2.61	2.60	2.59	2.57	2.56	2.56	
Sep.	3.03	3.03	3.03	3.02	3.02	3.01	3.00	2.99	2.98	2.96	2.96	
Oct.	3.07	3.07	3.07	3.07	3.06	3.06	3.05	3.04	3.03	3.02	3.02	
Nov.	2.71	2.71	2.70	2.69	2.68	2.67	2.66	2.65	2.63	2.62	2.62	
Dec.	2.31	2.31	2.30	2.30	2.29	2.28	2.27	2.25	2.24	2.22	2.22	
2024 Jan.	2.48	2.48	2.47	2.47	2.46	2.45	2.44	2.43	2.41	2.40	2.40	
Feb.	2.67	2.67	2.66	2.65	2.64	2.63	2.62	2.60	2.59	2.57	2.57	
Mar.	2.50	2.50	2.49	2.49	2.48	2.47	2.45	2.44	2.43	2.41	2.41	
Apr.	2.73	2.72	2.71	2.70	2.69	2.68	2.66	2.65	2.63	2.62	2.62	
May	2.89	2.89	2.88	2.86	2.85	2.83	2.82	2.80	2.78	2.76	2.76	
June	2.70	2.69	2.68	2.67	2.66	2.65	2.64	2.62	2.61	2.59	2.59	
2024 June 3	2.84	2.84	2.83	2.81	2.80	2.79	2.77	2.75	2.73	2.71	2.71	
4	2.77	2.76	2.75	2.74	2.73	2.71	2.70	2.68	2.66	2.64	2.64	
5	2.75	2.75	2.74	2.73	2.72	2.70	2.69	2.67	2.65	2.63	2.63	
6	2.73	2.73	2.72	2.71	2.70	2.69	2.67	2.66	2.64	2.62	2.62	
7	2.77	2.76	2.75	2.74	2.73	2.71	2.69	2.68	2.66	2.64	2.64	
10	2.84	2.84	2.83	2.82	2.80	2.79	2.77	2.75	2.73	2.71	2.71	
11	2.86	2.86	2.85	2.84	2.82	2.81	2.79	2.77	2.76	2.74	2.74	
12	2.82	2.81	2.80	2.79	2.78	2.77	2.75	2.74	2.72	2.70	2.70	
13	2.76	2.75	2.75	2.74	2.72	2.71	2.69	2.68	2.66	2.64	2.64	
14	2.62	2.62	2.61	2.60	2.59	2.58	2.57	2.55	2.54	2.52	2.52	
17	2.59	2.58	2.58	2.57	2.56	2.55	2.54	2.52	2.51	2.50	2.50	
18	2.63	2.63	2.61	2.60	2.58	2.57	2.55	2.55	2.54	2.52	2.52	
19	2.60	2.60	2.59	2.58	2.57	2.55	2.54	2.52	2.51	2.49	2.49	
20	2.64	2.64	2.63	2.62	2.61	2.60	2.58	2.57	2.55	2.54	2.54	
21	2.61	2.60	2.59	2.59	2.57	2.56	2.55	2.53	2.52	2.50	2.50	
24	2.65	2.65	2.64	2.63	2.62	2.60	2.59	2.57	2.56	2.54	2.54	
25	2.65	2.65	2.64	2.63	2.62	2.61	2.59	2.58	2.56	2.54	2.54	
26	2.67	2.66	2.65	2.64	2.63	2.62	2.61	2.59	2.57	2.56	2.56	
27	2.70	2.69	2.69	2.68	2.66	2.65	2.64	2.62	2.61	2.59	2.59	
28	2.70	2.69	2.68	2.67	2.66	2.65	2.64	2.62	2.61	2.59	2.59	
July 1	2.82	2.82	2.81	2.80	2.78	2.77	2.75	2.74	2.72	2.70	2.70	
Memo item: yields, derived from the term structure of interest rates, on listed Federal securities with annual coupon payments												
2024 June 28	2.67	2.67	2.66	2.66	2.65	2.64	2.63	2.62	2.61	2.60	2.60	
Parameters for calculating the term structure of interest rates												
	Beta0	Beta1	Beta2	Beta3	Tau1	Tau2						
2024 June 25	1.63742	1.99420	– 17.74059	17.50768	4.78065	6.03536						
26	1.65002	1.96904	– 30.00000	29.73061	5.04046	5.77331						
27	1.76062	1.86263	– 28.47143	28.07605	4.88032	5.60482						
28	1.85201	1.78570	– 20.70437	20.10891	4.63818	5.58017						
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a residual maturity of at least three months. The interest rates are estimated using a non-linear, parametric approach.