

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										
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
2024			2.17		2.02		2.02		2.06		2.13		2.20		2.27		2.33		2.38		2.43
2025			2.02		2.11		2.21		2.32		2.44		2.55		2.66		2.76		2.85		2.94
2024 Nov.			2.23		1.95		1.88		1.88		1.91		1.96		2.01		2.06		2.11		2.15
Dec.			2.17		2.02		2.02		2.06		2.13		2.20		2.27		2.33		2.38		2.43
2025 Jan.			2.20		2.10		2.09		2.13		2.19		2.26		2.33		2.40		2.46		2.51
Feb.			2.07		1.97		1.97		2.02		2.08		2.15		2.23		2.30		2.36		2.42
Mar.			2.01		1.97		2.03		2.13		2.25		2.37		2.48		2.58		2.67		2.75
Apr.			1.75		1.70		1.78		1.89		2.01		2.13		2.24		2.35		2.44		2.52
May			1.78		1.77		1.85		1.96		2.08		2.20		2.31		2.41		2.50		2.59
June			1.82		1.84		1.92		2.03		2.15		2.26		2.37		2.47		2.56		2.65
July			1.90		1.95		2.04		2.14		2.25		2.36		2.47		2.57		2.66		2.75
Aug.			1.89		1.92		2.00		2.10		2.21		2.33		2.45		2.56		2.67		2.76
Sep.			1.96		2.01		2.08		2.18		2.28		2.39		2.49		2.59		2.69		2.78
Oct.			1.92		1.97		2.05		2.14		2.24		2.34		2.44		2.54		2.63		2.71
Nov.			1.96		2.01		2.09		2.18		2.28		2.38		2.48		2.58		2.68		2.77
Dec.			2.02		2.11		2.21		2.32		2.44		2.55		2.66		2.76		2.85		2.94
2026 Jan.			2.00		2.07		2.16		2.27		2.38		2.50		2.61		2.72		2.82		2.92
Feb.			2.00		2.02		2.08		2.16		2.25		2.36		2.46		2.57		2.66		2.76
Mar.			2.51		2.62		2.62		2.65		2.72		2.79		2.88		2.96		3.03		3.10
Apr.			2.59		2.71		2.73		2.75		2.80		2.88		2.96		3.04		3.11		3.18
2026 Apr. 7			2.54		2.63		2.63		2.66		2.71		2.78		2.86		2.93		3.01		3.07
8			2.40		2.49		2.51		2.54		2.59		2.67		2.75		2.84		2.92		3.00
9			2.45		2.55		2.57		2.61		2.66		2.74		2.83		2.91		2.99		3.07
10			2.46		2.55		2.58		2.63		2.70		2.78		2.87		2.96		3.04		3.11
13			2.50		2.61		2.63		2.67		2.73		2.82		2.90		2.99		3.07		3.15
14			2.47		2.58		2.61		2.65		2.72		2.80		2.89		2.98		3.06		3.13
15			2.42		2.53		2.56		2.61		2.68		2.76		2.86		2.95		3.04		3.11
16			2.40		2.51		2.55		2.60		2.67		2.76		2.85		2.94		3.03		3.11
17			2.40		2.51		2.55		2.60		2.67		2.76		2.85		2.95		3.03		3.11
20			2.35		2.45		2.49		2.55		2.63		2.72		2.81		2.91		2.99		3.07
21			2.36		2.46		2.50		2.55		2.62		2.70		2.80		2.89		2.97		3.05
22			2.41		2.51		2.55		2.59		2.66		2.74		2.83		2.92		3.00		3.08
23			2.45		2.57		2.60		2.64		2.71		2.78		2.87		2.95		3.03		3.11
24			2.49		2.58		2.61		2.66		2.72		2.80		2.88		2.96		3.04		3.11
27			2.42		2.54		2.57		2.61		2.67		2.76		2.84		2.93		3.01		3.09
28			2.49		2.61		2.64		2.67		2.73		2.81		2.90		2.98		3.06		3.14
29			2.55		2.67		2.69		2.72		2.77		2.84		2.92		3.01		3.08		3.15
30			2.59		2.71		2.73		2.75		2.80		2.88		2.96		3.04		3.11		3.18
May 4			2.55		2.66		2.67		2.70		2.75		2.83		2.91		2.99		3.06		3.13
Memo item: yields, derived from the term structure of interest rates, on listed Federal securities with annual coupon payments																					
2026 Apr. 30			2.59		2.71		2.72		2.75		2.80		2.87		2.94		3.01		3.08		3.15
Parameters for calculating the term structure of interest rates																					
		Beta0		Beta1		Beta2		Beta3		Tau1		Tau2									
2026 Apr. 28		3.97709		- 2.02622		13.81097		- 15.32875		1.41507		1.65505									
29		3.95849		- 1.99434		14.10791		- 15.43180		1.38867		1.62855									
30		3.96610		- 1.99154		5.20650		- 6.69340		1.18900		1.78464									
May 4		3.93226		- 2.01226		2.96663		- 4.77241		1.02498		1.95567									

* 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.

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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		11	12	13	14	15	16	17	18	19	20
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	-	0.09	-	0.04	-	0.00	0.04	0.07
2020		-	0.53	-	0.50	-	0.46	-	0.43	-	0.40
2021		-	0.20	-	0.16	-	0.13	-	0.10	-	0.07
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
2024		2.48	2.52	2.55	2.58	2.60	2.62	2.63	2.64	2.65	2.65
2025		3.02	3.09	3.16	3.22	3.27	3.31	3.35	3.38	3.41	3.44
2024 Nov.		2.19	2.22	2.25	2.28	2.30	2.31	2.33	2.34	2.35	2.35
Dec.		2.48	2.52	2.55	2.58	2.60	2.62	2.63	2.64	2.65	2.65
2025 Jan.		2.56	2.60	2.64	2.67	2.70	2.72	2.73	2.75	2.76	2.76
Feb.		2.47	2.52	2.56	2.59	2.62	2.64	2.66	2.67	2.68	2.69
Mar.		2.82	2.87	2.92	2.96	2.99	3.02	3.04	3.05	3.06	3.07
Apr.		2.60	2.66	2.72	2.76	2.80	2.84	2.86	2.89	2.90	2.91
May		2.66	2.73	2.79	2.84	2.88	2.92	2.95	2.98	3.00	3.01
June		2.72	2.78	2.84	2.89	2.93	2.97	3.00	3.02	3.04	3.06
July		2.82	2.89	2.94	2.99	3.03	3.07	3.10	3.12	3.14	3.15
Aug.		2.85	2.93	2.99	3.05	3.10	3.15	3.18	3.21	3.24	3.26
Sep.		2.86	2.93	2.99	3.04	3.09	3.13	3.17	3.20	3.22	3.25
Oct.		2.79	2.86	2.92	2.98	3.03	3.07	3.11	3.14	3.16	3.18
Nov.		2.85	2.92	2.99	3.05	3.10	3.15	3.19	3.23	3.26	3.28
Dec.		3.02	3.09	3.16	3.22	3.27	3.31	3.35	3.38	3.41	3.44
2026 Jan.		3.00	3.08	3.15	3.21	3.27	3.32	3.36	3.40	3.43	3.46
Feb.		2.84	2.92	2.99	3.06	3.12	3.17	3.21	3.25	3.28	3.31
Mar.		3.16	3.21	3.25	3.29	3.32	3.35	3.38	3.40	3.43	3.45
Apr.		3.24	3.30	3.35	3.39	3.43	3.46	3.49	3.52	3.54	3.56
2026 Apr.	7	3.13	3.18	3.23	3.27	3.30	3.34	3.37	3.39	3.41	3.43
	8	3.06	3.12	3.17	3.22	3.26	3.30	3.33	3.36	3.38	3.41
	9	3.13	3.19	3.24	3.28	3.32	3.35	3.38	3.41	3.43	3.46
	10	3.17	3.23	3.28	3.33	3.37	3.41	3.44	3.47	3.49	3.52
	13	3.21	3.27	3.32	3.37	3.41	3.44	3.47	3.50	3.53	3.55
	14	3.20	3.26	3.31	3.36	3.40	3.44	3.47	3.50	3.52	3.54
	15	3.18	3.24	3.30	3.35	3.39	3.42	3.46	3.49	3.51	3.54
	16	3.18	3.24	3.30	3.35	3.39	3.43	3.46	3.49	3.52	3.54
	17	3.18	3.25	3.30	3.35	3.39	3.43	3.47	3.50	3.52	3.55
	20	3.15	3.21	3.26	3.31	3.36	3.40	3.43	3.46	3.49	3.51
	21	3.12	3.18	3.24	3.29	3.33	3.37	3.40	3.43	3.46	3.48
	22	3.15	3.21	3.26	3.31	3.35	3.39	3.42	3.45	3.48	3.50
	23	3.17	3.23	3.28	3.33	3.37	3.40	3.43	3.46	3.49	3.51
	24	3.17	3.23	3.28	3.32	3.36	3.40	3.43	3.46	3.48	3.51
	27	3.16	3.22	3.27	3.32	3.36	3.39	3.43	3.46	3.48	3.51
	28	3.20	3.26	3.31	3.36	3.40	3.44	3.47	3.49	3.52	3.54
	29	3.22	3.27	3.32	3.37	3.41	3.44	3.47	3.50	3.52	3.54
	30	3.24	3.30	3.35	3.39	3.43	3.46	3.49	3.52	3.54	3.56
May	4	3.19	3.25	3.30	3.34	3.38	3.41	3.44	3.47	3.49	3.52
Memo item: yields, derived from the term structure of interest rates, on listed Federal securities with annual coupon payments											
2026 Apr.	30	3.20	3.25	3.29	3.33	3.36	3.39	3.41	3.43	3.45	3.47
Parameters for calculating the term structure of interest rates											
		Beta0	Beta1	Beta2	Beta3	Tau1	Tau2				
2026 Apr.	28	3.97709	-2.02622	13.81097	-15.32875	1.41507	1.65505				
	29	3.95849	-1.99434	14.10791	-15.43180	1.38867	1.62855				
	30	3.96610	-1.99154	5.20650	-6.69340	1.18900	1.78464				
May	4	3.93226	-2.01226	2.96663	-4.77241	1.02498	1.95567				

* 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.

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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						
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	-	0.23	-	0.21	-	0.19	-	0.17	-	0.16	-	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						
2022		2.53	2.52	2.50	2.48	2.47	2.45	2.43	2.41	2.39	2.36						
2023		2.31	2.31	2.30	2.30	2.29	2.28	2.27	2.25	2.24	2.22						
2024		2.65	2.65	2.65	2.64	2.64	2.63	2.62	2.61	2.60	2.59						
2025		3.46	3.48	3.49	3.50	3.51	3.52	3.53	3.53	3.53	3.54						
2024 Nov.		2.35	2.35	2.35	2.35	2.34	2.33	2.32	2.32	2.30	2.29						
Dec.		2.65	2.65	2.65	2.64	2.64	2.63	2.62	2.61	2.60	2.59						
2025 Jan.		2.76	2.76	2.76	2.76	2.75	2.74	2.73	2.72	2.71	2.69						
Feb.		2.69	2.69	2.69	2.69	2.68	2.67	2.66	2.65	2.64	2.62						
Mar.		3.08	3.08	3.08	3.08	3.08	3.07	3.07	3.06	3.05	3.05						
Apr.		2.92	2.93	2.93	2.92	2.92	2.91	2.90	2.89	2.87	2.86						
May		3.02	3.03	3.04	3.04	3.04	3.03	3.03	3.02	3.01	3.00						
June		3.07	3.08	3.08	3.08	3.08	3.08	3.07	3.07	3.06	3.05						
July		3.16	3.17	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.17						
Aug.		3.28	3.30	3.31	3.32	3.33	3.33	3.34	3.34	3.34	3.35						
Sep.		3.26	3.28	3.29	3.29	3.30	3.30	3.31	3.31	3.31	3.31						
Oct.		3.20	3.22	3.23	3.23	3.24	3.24	3.25	3.25	3.25	3.25						
Nov.		3.30	3.32	3.33	3.35	3.35	3.36	3.37	3.37	3.37	3.37						
Dec.		3.46	3.48	3.49	3.50	3.51	3.52	3.53	3.53	3.53	3.54						
2026 Jan.		3.48	3.50	3.52	3.54	3.55	3.56	3.57	3.57	3.58	3.58						
Feb.		3.34	3.36	3.38	3.39	3.41	3.42	3.43	3.43	3.44	3.44						
Mar.		3.46	3.48	3.49	3.51	3.52	3.53	3.54	3.55	3.56	3.57						
Apr.		3.58	3.60	3.61	3.63	3.64	3.65	3.67	3.68	3.69	3.70						
2026 Apr.	7	3.45	3.47	3.49	3.50	3.51	3.53	3.54	3.55	3.56	3.57						
	8	3.43	3.45	3.47	3.48	3.50	3.51	3.52	3.53	3.55	3.56						
	9	3.48	3.49	3.51	3.52	3.54	3.55	3.56	3.57	3.58	3.59						
	10	3.54	3.56	3.58	3.60	3.61	3.62	3.64	3.65	3.66	3.67						
	13	3.57	3.59	3.60	3.62	3.63	3.65	3.66	3.67	3.68	3.69						
	14	3.56	3.58	3.60	3.62	3.63	3.65	3.66	3.67	3.68	3.69						
	15	3.56	3.58	3.59	3.61	3.63	3.64	3.65	3.66	3.68	3.69						
	16	3.57	3.59	3.60	3.62	3.64	3.65	3.66	3.68	3.69	3.70						
	17	3.57	3.59	3.61	3.63	3.64	3.66	3.67	3.68	3.69	3.70						
	20	3.54	3.56	3.57	3.59	3.61	3.62	3.64	3.65	3.66	3.67						
	21	3.51	3.53	3.54	3.56	3.58	3.59	3.60	3.62	3.63	3.64						
	22	3.53	3.55	3.56	3.58	3.60	3.61	3.62	3.64	3.65	3.66						
	23	3.53	3.55	3.57	3.58	3.60	3.61	3.62	3.63	3.64	3.65						
	24	3.53	3.55	3.57	3.58	3.60	3.61	3.63	3.64	3.65	3.66						
	27	3.53	3.55	3.56	3.58	3.60	3.61	3.62	3.63	3.65	3.66						
	28	3.56	3.58	3.60	3.62	3.63	3.64	3.66	3.67	3.68	3.69						
	29	3.56	3.58	3.60	3.61	3.63	3.64	3.65	3.66	3.67	3.68						
	30	3.58	3.60	3.61	3.63	3.64	3.65	3.67	3.68	3.69	3.70						
May	4	3.54	3.55	3.57	3.58	3.60	3.61	3.62	3.63	3.64	3.65						
Memo item: yields, derived from the term structure of interest rates, on listed Federal securities with annual coupon payments																	
2026 Apr.	30	3.49	3.50	3.51	3.53	3.54	3.55	3.55	3.56	3.57	3.58						
Parameters for calculating the term structure of interest rates																	
		Beta0	Beta1	Beta2	Beta3	Tau1	Tau2										
2026 Apr.	28	3.97709	-2.02622	13.81097	-15.32875	1.41507	1.65505										
	29	3.95849	-1.99434	14.10791	-15.43180	1.38867	1.62855										
	30	3.96610	-1.99154	5.20650	-6.69340	1.18900	1.78464										
May	4	3.93226	-2.01226	2.96663	-4.77241	1.02498	1.95567										

* 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.