

II. Euro foreign exchange reference rates of the European Central Bank *

3. End-of-year rates and annual averages

EUR 1 = CU ...

EU member countries									
	Bulgaria	Croatia ¹	Czechia	Denmark	Estonia ¹	Hungary	Latvia ¹	Lithuania ¹	Poland
Period	Bulgarian lev BGN	Kuna HRK	Czech koruna CZK	Danish krone DKK	Estonian kroon EEK	Hungarian forint HUF	Latvian lats LVL	Lithuanian litas LTL	Polish zloty PLN
End of year									
2010	1.9558	7.3830	25.061	7.4535	15.6466	277.95	0.709400	3.4528	3.9750
2011	1.9558	7.5370	25.787	7.4342	–	314.58	0.699500	3.4528	4.4580
2012	1.9558	7.5575	25.151	7.4610	–	292.30	0.697700	3.4528	4.0740
2013	1.9558	7.6265	27.427	7.4593	–	297.04	0.702804	3.4528	4.1543
2014	1.9558	7.6580	27.735	7.4453	–	315.54	–	3.4528	4.2732
2015	1.9558	7.6380	27.023	7.4626	–	315.98	–	–	4.2639
2016	1.9558	7.5597	27.021	7.4344	–	309.83	–	–	4.4103
2017	1.9558	7.4400	25.535	7.4449	–	310.33	–	–	4.1770
2018	1.9558	7.4125	25.724	7.4673	–	320.98	–	–	4.3014
2019	1.9558	7.4395	25.408	7.4715	–	330.53	–	–	4.2568
2020	1.9558	7.5519	26.242	7.4409	–	363.89	–	–	4.5597
2021	1.9558	7.5156	24.858	7.4364	–	369.19	–	–	4.5969
2022	1.9558	7.5365	24.116	7.4365	–	400.87	–	–	4.6808
2023	1.9558	–	24.724	7.4529	–	382.80	–	–	4.3395
Annual averages +									
2010	1.9558	7.2891	25.284	7.4473	15.6466	275.48	0.7087	3.4528	3.9947
2011	1.9558	7.4390	24.590	7.4506	–	279.37	0.7063	3.4528	4.1206
2012	1.9558	7.5217	25.149	7.4437	–	289.25	0.6973	3.4528	4.1847
2013	1.9558	7.5786	25.980	7.4579	–	296.87	0.7015	3.4528	4.1975
2014	1.9558	7.6344	27.536	7.4548	–	308.71	–	3.4528	4.1843
2015	1.9558	7.6137	27.279	7.4587	–	310.00	–	–	4.1841
2016	1.9558	7.5333	27.034	7.4452	–	311.44	–	–	4.3632
2017	1.9558	7.4637	26.326	7.4386	–	309.19	–	–	4.2570
2018	1.9558	7.4182	25.647	7.4532	–	318.89	–	–	4.2615
2019	1.9558	7.4180	25.670	7.4661	–	325.30	–	–	4.2976
2020	1.9558	7.5384	26.455	7.4542	–	351.25	–	–	4.4430
2021	1.9558	7.5284	25.640	7.4370	–	358.52	–	–	4.5652
2022	1.9558	7.5349	24.566	7.4396	–	391.29	–	–	4.6861
2023	1.9558	–	24.004	7.4509	–	381.85	–	–	4.5420

EU member countries (cont'd)		Other European and non-European countries						
	Romania	Sweden	Australia	Brazil	Canada	China	Hong Kong	Iceland
Period	Romanian leu RON	Swedish krona SEK	Australian dollar AUD	Brazilian real BRL	Canadian dollar CAD	Yuan (renminbi) CNY	Hong Kong dollar HKD	Icelandic krona ISK ²
End of year								
2010	4.2620	8.9655	1.3136	2.2177	1.3322	8.8220	10.3856	–
2011	4.3233	8.9120	1.2723	2.4159	1.3215	8.1588	10.0510	–
2012	4.4445	8.5820	1.2712	2.7036	1.3137	8.2207	10.2260	–
2013	4.4710	8.8591	1.5423	3.2576	1.4671	8.3491	10.6933	–
2014	4.4828	9.3930	1.4829	3.2207	1.4063	7.5358	9.4170	–
2015	4.5240	9.1895	1.4897	4.3117	1.5116	7.0608	8.4376	–
2016	4.5390	9.5525	1.4596	3.4305	1.4188	7.3202	8.1751	–
2017	4.6585	9.8438	1.5346	3.9729	1.5039	7.8044	9.3720	–
2018	4.6635	10.2548	1.6220	4.4440	1.5605	7.8751	8.9675	133.20
2019	4.7830	10.4468	1.5995	4.5157	1.4598	7.8205	8.7473	135.80
2020	4.8683	10.0343	1.5896	6.3735	1.5633	8.0225	9.5142	156.10
2021	4.9490	10.2503	1.5615	6.3101	1.4393	7.1947	8.8333	147.60
2022	4.9495	11.1218	1.5693	5.6386	1.4440	7.3582	8.3163	151.50
2023	4.9756	11.0960	1.6263	5.3618	1.4642	7.8509	8.6314	150.50
Annual averages +								
2010	4.2122	9.5373	1.4423	2.3314	1.3651	8.9712	10.2994	–
2011	4.2391	9.0298	1.3484	2.3265	1.3761	8.9960	10.8362	–
2012	4.4593	8.7041	1.2407	2.5084	1.2842	8.1052	9.9663	–
2013	4.4190	8.6515	1.3777	2.8687	1.3684	8.1646	10.3016	–
2014	4.4437	9.0985	1.4719	3.1211	1.4661	8.1857	10.3025	–
2015	4.4454	9.3535	1.4777	3.7004	1.4186	6.9733	8.6014	–
2016	4.4904	9.4689	1.4883	3.8561	1.4659	7.3522	8.5922	–
2017	4.5688	9.6351	1.4732	3.6054	1.4647	7.6290	8.8045	–
2018	4.6540	10.2583	1.5797	4.3085	1.5294	7.8081	9.2559	127.89
2019	4.7453	10.5891	1.6109	4.4134	1.4855	7.7355	8.7715	137.28
2020	4.8383	10.4848	1.6549	5.8943	1.5300	7.8747	8.8587	154.59
2021	4.9215	10.1465	1.5749	6.3779	1.4826	7.6282	9.1932	150.15
2022	4.9313	10.6296	1.5167	5.4399	1.3695	7.0788	8.2451	142.24
2023	4.9467	11.4788	1.6288	5.4010	1.4595	7.6600	8.4650	149.13

* See Explanatory notes, p. 48. + Averages: Bundesbank calculations based on the daily euro foreign exchange reference rates published by the ECB. ¹ Accession to the euro

area, see p. 7 (Table I. 1.). ² The ECB did not fix euro foreign exchange reference rates for the Icelandic krona from 4 December 2008 to 31 January 2018.

II. Euro foreign exchange reference rates of the European Central Bank *

3. End-of-year rates and annual averages (cont'd)

EUR 1 = CU ...

Other European and non-European countries (cont'd)									
India	Indonesia	Israel	Japan	Korea, Republic of	Malaysia	Mexico	New Zealand	Norway	
Indian rupee INR	Indonesian rupiah IDR	New shekel ILS †	Japanese yen JPY	South Korean won KRW	Malaysian ringgit MYR	Mexican peso MXN	New Zealand dollar NZD	Norwegian krone NOK	
End of year									
2010	59.7580	12,002.14	4.7321	108.65	1,499.06	4.0950	16.5475	1.7200	7.8000
2011	68.7130	11,731.47	4.9453	100.20	1,498.69	4.1055	18.0512	1.6737	7.7540
2012	72.5600	12,713.97	4.9258	113.61	1,406.23	4.0347	17.1845	1.6045	7.3483
2013	85.3660	16,764.78	4.7880	144.72	1,450.93	4.5221	18.0731	1.6762	8.3630
2014	76.7190	15,076.10	4.7200	145.23	1,324.80	4.2473	17.8679	1.5525	9.0420
2015	72.0215	15,039.99	4.2481	131.07	1,280.78	4.6959	18.9145	1.5923	9.6030
2016	71.5935	14,173.43	4.0477	123.40	1,269.36	4.7287	21.7719	1.5158	9.0863
2017	76.6055	16,239.12	4.1635	135.01	1,279.61	4.8536	23.6612	1.6850	9.8403
2018	79.7298	16,500.00	4.2972	125.85	1,277.93	4.7317	22.4921	1.7056	9.9483
2019	80.1870	15,595.60	3.8845	121.94	1,296.28	4.5953	21.2202	1.6653	9.8638
2020	89.6605	17,240.76	3.9447	126.49	1,336.00	4.9340	24.4160	1.6984	10.4703
2021	84.2292	16,100.42	3.5159	130.38	1,346.38	4.7184	23.1438	1.6579	9.9888
2022	88.1710	16,519.82	3.7554	140.66	1,344.09	4.6984	20.8560	1.6798	10.5138
2023	91.9045	17,079.71	3.9993	156.33	1,433.66	5.0775	18.7231	1.7504	11.2405
Annual averages +									
2010	60.5878	12,041.70	4.9457	116.24	1,531.82	4.2668	16.7373	1.8377	8.0043
2011	64.8859	12,206.51	4.9775	110.96	1,541.23	4.2558	17.2877	1.7600	7.7934
2012	68.5973	12,045.73	4.9536	102.49	1,447.69	3.9672	16.9029	1.5867	7.4751
2013	77.9300	13,857.50	4.7948	129.66	1,453.91	4.1855	16.9641	1.6206	7.8067
2014	81.0406	15,748.92	4.7449	140.31	1,398.14	4.3446	17.6550	1.5995	8.3544
2015	71.1956	14,870.39	4.3122	134.31	1,256.54	4.3373	17.6157	1.5930	8.9496
2016	74.3717	14,720.83	4.2489	120.20	1,284.18	4.5835	20.6673	1.5886	9.2906
2017	73.5324	15,118.01	4.0622	126.71	1,276.74	4.8527	21.3286	1.5897	9.3270
2018	80.7332	16,803.22	4.2423	130.40	1,299.07	4.7634	22.7054	1.7065	9.5975
2019	78.8361	15,835.27	3.9901	122.01	1,305.32	4.6374	21.5565	1.6998	9.8511
2020	84.6392	16,627.37	3.9258	121.85	1,345.58	4.7959	24.5194	1.7561	10.7228
2021	87.4392	16,920.72	3.8208	129.88	1,354.06	4.9015	23.9852	1.6724	10.1633
2022	82.6864	15,625.25	3.5345	138.03	1,358.07	4.6279	21.1869	1.6582	10.1026
2023	89.3001	16,479.62	3.9880	151.99	1,412.88	4.9320	19.1830	1.7622	11.4248

Other European and non-European countries (cont'd)									
Philippines	Russian Federation	Singapore	South Africa	Switzerland	Thailand	Turkey	United Kingdom	United States	
Philippine peso PHP	Russian rouble RUB ‡	Singapore dollar SGD	South African rand ZAR	Swiss franc CHF	Thai baht THB	Turkish lira TRY	Pound sterling GBP	US dollar USD	
End of year									
2010	58.300	40.8200	1.7136	8.8625	1.2504	40.170	2.0694	0.86075	1.3362
2011	56.754	41.7650	1.6819	10.4830	1.2156	40.991	2.4432	0.83530	1.2939
2012	54.107	40.3295	1.6111	11.1727	1.2072	40.347	2.3551	0.81610	1.3194
2013	61.289	45.3246	1.7414	14.5660	1.2276	45.178	2.9605	0.83370	1.3791
2014	54.436	72.3370	1.6058	14.0353	1.2024	39.910	2.8320	0.77890	1.2141
2015	50.999	80.6736	1.5417	16.9530	1.0835	39.248	3.1765	0.73395	1.0887
2016	52.268	64.3000	1.5234	14.4570	1.0739	37.726	3.7072	0.85618	1.0541
2017	59.795	69.3920	1.6024	14.8054	1.1702	39.121	4.5464	0.88723	1.1993
2018	60.113	79.7153	1.5591	16.4594	1.1269	37.052	6.0588	0.89453	1.1450
2019	56.900	69.9563	1.5111	15.7773	1.0854	33.415	6.6843	0.85080	1.1234
2020	59.125	91.4671	1.6218	18.0219	1.0802	36.727	9.1131	0.89903	1.2271
2021	57.763	85.3004	1.5279	18.0625	1.0331	37.653	15.2335	0.84028	1.1326
2022	59.320	–	1.4300	18.0986	0.9847	36.835	19.9649	0.88693	1.0666
2023	61.283	–	1.4591	20.3477	0.9260	37.973	32.6531	0.86905	1.1050
Annual averages +									
2010	59.739	40.2629	1.8055	9.6984	1.3803	42.014	1.9965	0.85784	1.3257
2011	60.260	40.8846	1.7489	10.0970	1.2326	42.429	2.3378	0.86788	1.3920
2012	54.246	39.9262	1.6055	10.5511	1.2053	39.928	2.3135	0.81087	1.2848
2013	56.428	42.3370	1.6619	12.8330	1.2311	40.830	2.5335	0.84926	1.3281
2014	58.979	50.9518	1.6823	14.4037	1.2146	43.147	2.9065	0.80612	1.3285
2015	50.522	68.0720	1.5255	14.1723	1.0679	38.028	3.0255	0.72584	1.1095
2016	52.556	74.1446	1.5275	16.2645	1.0902	39.043	3.3433	0.81948	1.1069
2017	56.973	65.9383	1.5588	15.0490	1.1117	38.296	4.1206	0.87667	1.1297
2018	62.210	74.0416	1.5926	15.6186	1.1550	38.164	5.7077	0.88471	1.1810
2019	57.985	72.4553	1.5273	16.1757	1.1124	34.757	6.3578	0.87777	1.1195
2020	56.615	82.7248	1.5742	18.7655	1.0705	35.708	8.0547	0.88970	1.1422
2021	58.299	87.1527	1.5891	17.4766	1.0811	37.837	10.5124	0.85960	1.1827
2022	57.314	–	1.4512	17.2086	1.0047	36.856	17.4088	0.85276	1.0530
2023	60.163	–	1.4523	19.9551	0.9718	37.631	25.7597	0.86979	1.0813

* See Explanatory notes, p. 48. + Averages: Bundesbank calculations based on the daily euro foreign exchange reference rates published by the ECB. † Up to December 2010,

ECB indicative rates. ‡ The ECB has suspended the publication of the euro foreign exchange reference rate against the Russian rouble with effect from 2 March 2022.