

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

1. End-of-month and daily rates

EUR 1 = CU ...

Period		EU member countries						
		Bulgaria Bulgarian lev BGN	Czechia Czech koruna CZK	Denmark Danish krone DKK	Hungary Hungarian forint HUF	Poland Polish zloty PLN	Romania Romanian leu RON	Sweden Swedish krona SEK
2023	Oct.	1.9558	24.558	7.4647	382.13	4.4405	4.9659	11.8275
	Nov.	1.9558	24.292	7.4548	380.75	4.3490	4.9718	11.4308
	Dec.	1.9558	24.724	7.4529	382.80	4.3395	4.9756	11.0960
2024	Jan.	1.9558	24.891	7.4550	384.90	4.3330	4.9758	11.2682
	Feb.	1.9558	25.363	7.4540	393.48	4.3208	4.9706	11.2150
	Mar.	1.9558	25.305	7.4580	395.26	4.3123	4.9735	11.5250
	Apr.	1.9558	25.140	7.4583	390.68	4.3178	4.9759	11.7530
	May	1.9558	24.709	7.4588	388.83	4.2645	4.9767	11.4210
	June	1.9558	25.025	7.4575	395.10	4.3090	4.9773	11.3595
	July	1.9558	25.457	7.4621	395.78	4.2908	4.9749	11.6125
	Aug.	1.9558	25.031	7.4589	392.53	4.2763	4.9768	11.3355
	Sep.	1.9558	25.184	7.4560	396.88	4.2788	4.9753	11.3000
	Oct.	1.9558	25.327	7.4601	408.28	4.3508	4.9749	11.6308
2024	Oct. 28	1.9558	25.348	7.4585	404.83	4.3500	4.9738	11.4710
	29	1.9558	25.372	7.4588	405.23	4.3480	4.9749	11.5170
	30	1.9558	25.377	7.4606	408.38	4.3463	4.9747	11.5660
	31	1.9558	25.327	7.4601	408.28	4.3508	4.9749	11.6308
	Nov. 1	1.9558	25.330	7.4562	407.75	4.3543	4.9745	11.6115
	4	1.9558	25.288	7.4578	407.83	4.3423	4.9750	11.6445
	5	1.9558	25.343	7.4586	409.25	4.3580	4.9756	11.6665
	6	1.9558	25.339	7.4570	410.08	4.3493	4.9755	11.6515
	7	1.9558	25.262	7.4574	404.58	4.3253	4.9759	11.5990
	8	1.9558	25.208	7.4573	406.68	4.3255	4.9748	11.5900
	11	1.9558	25.339	7.4574	409.63	4.3440	4.9749	11.5920
	12	1.9558	25.390	7.4591	410.70	4.3503	4.9763	11.5420
	13	1.9558	25.295	7.4598	408.70	4.3425	4.9764	11.5895
	14	1.9558	25.305	7.4593	407.05	4.3383	4.9764	11.6030
	15	1.9558	25.286	7.4590	407.23	4.3200	4.9768	11.5905
	18	1.9558	25.282	7.4591	408.70	4.3278	4.9765	11.6000
	19	1.9558	25.284	7.4591	407.45	4.3303	4.9769	11.5840
	20	1.9558	25.286	7.4592	409.60	4.3308	4.9765	11.6050
	21	1.9558	25.346	7.4588	410.50	4.3418	4.9770	11.6070

Period		Other European and non-European countries						
		Australia Australian dollar AUD	Brazil Brazilian real BRL	Canada Canadian dollar CAD	China Yuan (renminbi) CNY	Hong Kong Hong Kong dollar HKD	Iceland Icelandic krona ISK	India Indian rupee INR
2023	Oct.	1.6739	5.3743	1.4712	7.7686	8.3079	147.50	88.4195
	Nov.	1.6542	5.3984	1.4870	7.8008	8.5384	150.70	91.1143
	Dec.	1.6263	5.3618	1.4642	7.8509	8.6314	150.50	91.9045
2024	Jan.	1.6468	5.3749	1.4558	7.7789	8.4734	148.30	90.0010
	Feb.	1.6684	5.4054	1.4719	7.7888	8.4735	149.30	89.7458
	Mar.	1.6607	5.4032	1.4672	7.8144	8.4594	150.30	90.1365
	Apr.	1.6423	5.4928	1.4672	7.7609	8.3817	150.30	89.4155
	May	1.6315	5.6418	1.4804	7.8577	8.4838	149.10	90.5255
	June	1.6079	5.8915	1.4670	7.7748	8.3594	148.90	89.2495
	July	1.6635	6.0874	1.4977	7.8194	8.4589	149.90	90.6250
	Aug.	1.6301	6.2155	1.4941	7.8585	8.6455	152.90	92.9485
	Sep.	1.6166	6.0504	1.5133	7.8511	8.6933	150.70	93.8130
	Oct.	1.6559	6.2635	1.5134	7.7436	8.4598	148.90	91.4930
2024	Oct. 28	1.6372	6.1550	1.5030	7.7099	8.4072	149.10	90.9580
	29	1.6423	6.1613	1.4981	7.6895	8.3716	148.70	90.5700
	30	1.6460	6.2564	1.5072	7.7054	8.4050	148.50	90.9430
	31	1.6559	6.2635	1.5134	7.7436	8.4598	148.90	91.4930
	Nov. 1	1.6530	6.2813	1.5144	7.7403	8.4660	149.10	91.4955
	4	1.6516	6.3344	1.5155	7.7363	8.4761	148.90	91.7180
	5	1.6452	6.3039	1.5128	7.7405	8.4687	148.90	91.6565
	6	1.6301	6.2127	1.4893	7.6779	8.3167	148.30	90.1810
	7	1.6196	6.0988	1.4960	7.7159	8.3818	148.30	90.9355
	8	1.6259	6.2034	1.4983	7.7233	8.3745	148.70	90.8900
	11	1.6186	6.1877	1.4848	7.6719	8.2812	148.30	89.8935
	12	1.6206	6.1131	1.4799	7.6781	8.2586	147.90	89.5888
	13	1.6299	6.1031	1.4840	7.6626	8.2682	147.90	89.6915
	14	1.6285	6.1122	1.4759	7.6267	8.1975	146.30	88.9645
	15	1.6345	6.1335	1.4861	7.6492	8.2385	145.70	89.3465
	18	1.6352	6.1030	1.4873	7.6442	8.2140	144.30	89.0765
	19	1.6264	6.1212	1.4833	7.6578	8.2335	145.30	89.2935
	20	1.6225	6.0975	1.4767	7.6528	8.2208	145.50	89.1025
	21	1.6141	6.1277	1.4700	7.6204	8.1921	145.90	88.9158

* See Explanatory notes, p. 48.

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

1. End-of-month and daily rates (cont'd)

EUR 1 = CU ...

Other European and non-European countries (cont'd)								
Period	Indonesia Indonesian rupiah IDR	Israel New shekel ILS	Japan Japanese yen JPY	Korea, Republic of South Korean won KRW	Malaysia Malaysian ringgit MYR	Mexico Mexican peso MXN	New Zealand New Zealand dollar NZD	Norway Norwegian krone NOK
2023 Oct.	16,868.28	4.2756	160.30	1,434.66	5.0594	19.1551	1.8224	11.8735
Nov.	16,981.14	4.0597	161.19	1,418.78	5.0933	19.0235	1.7762	11.7200
Dec.	17,079.71	3.9993	156.33	1,433.66	5.0775	18.7231	1.7504	11.2405
2024 Jan.	17,076.29	3.9431	160.19	1,444.63	5.1259	18.5817	1.7705	11.3510
Feb.	17,038.18	3.8736	162.53	1,447.43	5.1375	18.4969	1.7807	11.4920
Mar.	17,157.87	3.9799	163.45	1,458.67	5.1168	17.9179	1.8092	11.6990
Apr.	17,422.11	4.0172	168.27	1,479.67	5.1130	18.1895	1.8035	11.8150
May	17,641.72	4.0342	170.52	1,501.11	5.1080	18.4387	1.7696	11.3830
June	17,487.21	4.0200	171.94	1,474.86	5.0501	19.5654	1.7601	11.3965
July	17,634.43	4.0822	162.76	1,485.96	4.9749	20.3317	1.8289	11.8175
Aug.	17,180.03	4.0245	161.19	1,478.60	4.7901	21.7581	1.7709	11.6620
Sep.	16,975.88	4.1491	159.82	1,469.11	4.6167	21.9842	1.7616	11.7645
Oct.	17,105.85	4.0441	166.30	1,500.05	4.7652	21.8087	1.8220	11.9385
2024 Oct. 28	17,016.01	4.0327	165.18	1,496.45	4.7177	21.6223	1.8059	11.9120
29	16,993.40	4.0298	165.66	1,496.40	4.7172	21.5719	1.8076	11.8415
30	16,966.73	4.0214	165.91	1,493.02	4.7359	21.8174	1.8099	11.8785
31	17,105.85	4.0441	166.30	1,500.05	4.7652	21.8087	1.8220	11.9385
Nov. 1	17,132.28	4.0681	165.54	1,498.21	4.7660	21.7247	1.8164	11.9600
4	17,190.86	4.0879	165.47	1,497.97	4.7678	21.9187	1.8196	11.9465
5	17,180.21	4.0828	165.93	1,503.71	4.7353	21.9579	1.8169	11.9600
6	16,976.60	4.0115	165.05	1,500.90	4.7095	22.0755	1.7997	11.9090
7	16,889.15	4.0094	165.71	1,495.78	4.7492	21.3897	1.7932	11.7485
8	16,801.68	4.0240	164.18	1,495.41	4.7208	21.5349	1.7970	11.7735
11	16,750.08	3.9832	163.82	1,489.97	4.6971	21.8559	1.7857	11.7865
12	16,770.14	3.9820	163.71	1,492.15	4.7139	21.6428	1.7848	11.7385
13	16,716.39	3.9774	164.71	1,487.40	4.7278	21.7942	1.7941	11.7645
14	16,803.82	3.9374	164.24	1,478.78	4.7193	21.7209	1.7958	11.7590
15	16,810.00	3.9586	164.36	1,476.23	4.7311	21.5697	1.8015	11.6990
18	16,732.73	3.9468	163.74	1,474.49	4.7278	21.5023	1.8062	11.7170
19	16,759.52	3.9611	162.71	1,472.84	4.7315	21.4956	1.7949	11.6595
20	16,790.04	3.9413	164.42	1,474.40	4.7228	21.3036	1.7947	11.6440
21	16,732.97	3.9291	162.53	1,471.60	4.6999	21.4444	1.7924	11.6200

Other European and non-European countries (cont'd)								
Period	Philippines Philippine peso PHP	Singapore Singapore dollar SGD	South Africa South African rand ZAR	Switzerland Swiss franc CHF	Thailand Thai baht THB	Turkey Turkish lira TRY	United Kingdom Pound sterling GBP	United States US dollar USD
2023 Oct.	60.295	1.4525	19.9507	0.9607	38.266	30.0455	0.87366	1.0619
Nov.	60.623	1.4602	20.5703	0.9562	38.494	31.5441	0.86368	1.0931
Dec.	61.283	1.4591	20.3477	0.9260	37.973	32.6531	0.86905	1.1050
2024 Jan.	61.023	1.4517	20.3238	0.9348	38.461	32.8984	0.85435	1.0837
Feb.	60.858	1.4570	20.9007	0.9534	38.909	33.8067	0.85655	1.0826
Mar.	60.797	1.4587	20.5226	0.9766	39.412	34.9487	0.85510	1.0811
Apr.	61.830	1.4593	20.0682	0.9787	39.732	34.7045	0.85478	1.0718
May	63.604	1.4663	20.2927	0.9818	39.925	34.9691	0.85365	1.0852
June	62.560	1.4513	19.4970	0.9634	39.319	35.1868	0.84638	1.0705
July	63.218	1.4491	19.7400	0.9533	38.629	35.9085	0.84380	1.0828
Aug.	62.309	1.4441	19.5358	0.9416	37.541	37.7651	0.84120	1.1087
Sep.	62.740	1.4342	19.2258	0.9439	36.107	38.2693	0.83543	1.1196
Oct.	63.364	1.4377	19.1869	0.9412	36.754	37.2680	0.83753	1.0882
2024 Oct. 28	62.969	1.4302	19.1877	0.9367	36.538	37.1009	0.83290	1.0818
29	62.857	1.4287	19.1063	0.9369	36.400	36.9491	0.83020	1.0774
30	63.010	1.4329	19.1535	0.9393	36.522	37.0855	0.83425	1.0815
31	63.364	1.4377	19.1869	0.9412	36.754	37.2680	0.83753	1.0882
Nov. 1	63.525	1.4392	19.1111	0.9427	36.873	37.3758	0.83998	1.0885
4	63.762	1.4356	19.1248	0.9410	36.736	37.4528	0.84063	1.0904
5	63.553	1.4351	19.0277	0.9402	36.652	37.4292	0.83920	1.0897
6	62.949	1.4281	18.9842	0.9368	36.705	36.6357	0.83223	1.0695
7	63.100	1.4258	18.7328	0.9432	36.798	36.9319	0.83185	1.0785
8	62.850	1.4251	18.8777	0.9393	36.695	37.0104	0.83188	1.0772
11	62.461	1.4197	19.0171	0.9369	36.703	36.5670	0.82680	1.0651
12	62.273	1.4204	19.1584	0.9354	36.942	36.5039	0.82835	1.0617
13	62.327	1.4214	19.1406	0.9379	36.861	36.5216	0.83413	1.0629
14	61.972	1.4175	19.3136	0.9369	36.887	36.1969	0.83158	1.0533
15	62.162	1.4187	19.2353	0.9389	36.861	36.4294	0.83455	1.0583
18	61.929	1.4186	19.0768	0.9364	36.758	36.4467	0.83560	1.0552
19	62.314	1.4163	19.0970	0.9329	36.521	36.5558	0.83638	1.0578
20	62.282	1.4173	19.1266	0.9342	36.581	36.4025	0.83380	1.0562
21	62.116	1.4144	19.0284	0.9294	36.467	36.2958	0.83273	1.0526

* See Explanatory notes, p. 48.

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

2. Annual and monthly averages +

EUR 1 = CU ...

EU member countries								
Period	Bulgaria Bulgarian lev BGN	Croatia ¹ Kuna HRK	Czechia Czech koruna CZK	Denmark Danish krone DKK	Hungary Hungarian forint HUF	Poland Polish zloty PLN	Romania Romanian leu RON	Sweden Swedish krona SEK
2022	1.9558	7.5349	24.566	7.4396	391.29	4.6861	4.9313	10.6296
2023	1.9558	–	24.004	7.4509	381.85	4.5420	4.9467	11.4788
2022 Sep.	1.9558	7.5222	24.576	7.4366	404.19	4.7414	4.9097	10.7840
Oct.	1.9558	7.5298	24.528	7.4389	418.31	4.8040	4.9259	10.9503
Nov.	1.9558	7.5426	24.369	7.4387	406.68	4.6964	4.9142	10.8798
Dec.	1.9558	7.5448	24.269	7.4377	407.68	4.6832	4.9224	10.9859
2023 Jan.	1.9558	–	23.958	7.4383	396.03	4.6974	4.9242	11.2051
Feb.	1.9558	–	23.712	7.4447	384.91	4.7415	4.9087	11.1725
Mar.	1.9558	–	23.683	7.4456	385.01	4.6893	4.9263	11.2276
Apr.	1.9558	–	23.437	7.4518	375.34	4.6320	4.9365	11.3370
May	1.9558	–	23.595	7.4485	372.37	4.5345	4.9477	11.3697
June	1.9558	–	23.695	7.4492	370.60	4.4608	4.9600	11.6766
July	1.9558	–	23.892	7.4508	379.04	4.4431	4.9411	11.6343
Aug.	1.9558	–	24.108	7.4522	385.05	4.4601	4.9411	11.8117
Sep.	1.9558	–	24.380	7.4566	386.43	4.5981	4.9656	11.8417
Oct.	1.9558	–	24.584	7.4604	385.33	4.5124	4.9682	11.6472
Nov.	1.9558	–	24.485	7.4581	379.19	4.4020	4.9703	11.5475
Dec.	1.9558	–	24.478	7.4556	381.80	4.3335	4.9707	11.2028
2024 Jan.	1.9558	–	24.716	7.4572	382.04	4.3648	4.9749	11.2834
Feb.	1.9558	–	25.232	7.4550	388.04	4.3256	4.9746	11.2500
Mar.	1.9558	–	25.292	7.4566	395.09	4.3069	4.9708	11.3054
Apr.	1.9558	–	25.278	7.4596	392.41	4.3026	4.9730	11.5910
May	1.9558	–	24.819	7.4606	387.18	4.2796	4.9754	11.6186
June	1.9558	–	24.779	7.4592	394.76	4.3209	4.9767	11.2851
July	1.9558	–	25.299	7.4606	392.84	4.2817	4.9730	11.5324
Aug.	1.9558	–	25.179	7.4614	394.70	4.2917	4.9766	11.4557
Sep.	1.9558	–	25.099	7.4600	394.86	4.2761	4.9744	11.3577
Oct.	1.9558	–	25.298	7.4593	401.90	4.3170	4.9750	11.4048

Other European and non-European countries								
Period	Australia Australian dollar AUD	Brazil Brazilian real BRL	Canada Canadian dollar CAD	China Yuan (renminbi) CNY	Hong Kong Hong Kong dollar HKD	Iceland Icelandic krona ISK	India Indian rupee INR	Indonesia Indonesian rupiah IDR
2022	1.5167	5.4399	1.3695	7.0788	8.2451	142.24	82.6864	15,625.25
2023	1.6288	5.4010	1.4595	7.6600	8.4650	149.13	89.3001	16,479.62
2022 Sep.	1.4820	5.1791	1.3187	6.9508	7.7738	140.35	79.4558	14,847.40
Oct.	1.5474	5.1658	1.3477	7.0687	7.7128	141.50	80.9180	15,172.93
Nov.	1.5455	5.3846	1.3708	7.3171	7.9873	146.98	83.3384	15,975.07
Dec.	1.5685	5.5589	1.4379	7.3859	8.2434	150.76	87.3381	16,503.30
2023 Jan.	1.5523	5.6047	1.4474	7.3173	8.4217	154.06	88.1441	16,427.04
Feb.	1.5514	5.5386	1.4400	7.3244	8.4077	153.11	88.5004	16,232.58
Mar.	1.6034	5.5784	1.4649	7.3807	8.4026	149.89	88.1159	16,364.98
Apr.	1.6389	5.4995	1.4792	7.5561	8.6093	149.62	89.9311	16,313.20
May	1.6346	5.4092	1.4687	7.5948	8.5167	150.47	89.4602	16,116.84
June	1.6157	5.2695	1.4414	7.7653	8.4899	149.35	89.1134	16,194.88
July	1.6423	5.3099	1.4618	7.9482	8.6437	146.79	90.8395	16,639.99
Aug.	1.6818	5.3427	1.4703	7.9096	8.5370	143.87	90.3518	16,639.40
Sep.	1.6622	5.2770	1.4458	7.7967	8.3640	144.46	88.7372	16,424.67
Oct.	1.6637	5.3509	1.4474	7.7200	8.2648	146.50	87.8937	16,646.67
Nov.	1.6634	5.2963	1.4828	7.8087	8.4380	151.44	90.0102	16,853.56
Dec.	1.6321	5.3428	1.4653	7.7870	8.5152	150.55	90.8009	16,910.33
2024 Jan.	1.6422	5.3569	1.4631	7.8201	8.5244	149.43	90.6347	17,049.43
Feb.	1.6533	5.3559	1.4564	7.7651	8.4432	148.68	89.5608	16,898.59
Mar.	1.6586	5.4157	1.4726	7.8297	8.5049	149.04	90.2515	17,063.66
Apr.	1.6469	5.4975	1.4661	7.7658	8.4006	150.35	89.4676	17,258.77
May	1.6317	5.5529	1.4780	7.8206	8.4458	150.00	90.1573	17,375.67
June	1.6206	5.7884	1.4750	7.8051	8.4023	149.36	89.8106	17,595.94
July	1.6257	6.0053	1.4868	7.8750	8.4684	149.43	90.6557	17,623.29
Aug.	1.6559	6.1193	1.5049	7.8736	8.5849	151.84	92.4062	17,347.75
Sep.	1.6398	6.1528	1.5037	7.8611	8.6528	152.21	93.0808	17,020.23
Oct.	1.6250	6.1195	1.4993	7.7276	8.4726	149.07	91.6266	16,988.19

* 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 on 1 January 2023.

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

2. Annual and monthly averages + (cont'd)

EUR 1 = CU ...

Other European and non-European countries (cont'd)									
	Israel	Japan	Korea, Republic of	Malaysia	Mexico	New Zealand	Norway	Philippines	
Period	New shekel ILS	Japanese yen JPY	South Korean won KRW	Malaysian ringgit MYR	Mexican peso MXN	New Zealand dollar NZD	Norwegian krone NOK	Philippine peso PHP	
2022	3.5345	138.03	1,358.07	4.6279	21.1869	1.6582	10.1026	57.314	
2023	3.9880	151.99	1,412.88	4.9320	19.1830	1.7622	11.4248	60.163	
2022 Sep.	3.4181	141.57	1,381.71	4.5005	19.8718	1.6691	10.1697	57.074	
Oct.	3.4823	144.73	1,403.51	4.6127	19.6481	1.7299	10.3919	57.738	
Nov.	3.5488	145.12	1,384.19	4.7002	19.8393	1.6828	10.3357	58.655	
Dec.	3.6562	142.82	1,370.59	4.6721	20.7608	1.6660	10.4480	58.888	
2023 Jan.	3.7126	140.54	1,341.38	4.6589	20.4573	1.6851	10.7149	59.162	
Feb.	3.7975	142.38	1,368.77	4.6794	19.9543	1.7016	10.9529	58.743	
Mar.	3.8742	143.01	1,398.25	4.7816	19.7242	1.7242	11.2858	58.581	
Apr.	3.9877	146.51	1,452.07	4.8561	19.8195	1.7673	11.5187	60.807	
May	3.9863	148.93	1,442.31	4.9119	19.2755	1.7481	11.7330	60.604	
June	3.9502	153.15	1,406.43	5.0208	18.6993	1.7686	11.7164	60.475	
July	4.0546	155.94	1,419.16	5.0754	18.7085	1.7758	11.3474	60.690	
Aug.	4.0861	157.96	1,443.24	5.0294	18.5202	1.8195	11.4127	61.461	
Sep.	4.0793	157.80	1,424.53	5.0024	18.4757	1.8012	11.4525	60.665	
Oct.	4.2034	158.04	1,427.33	5.0142	19.0882	1.7916	11.6284	59.994	
Nov.	4.1118	161.84	1,412.57	5.0667	18.7877	1.8033	11.7958	60.285	
Dec.	4.0057	157.21	1,423.13	5.0826	18.7665	1.7556	11.5333	60.593	
2024 Jan.	4.0493	159.46	1,447.18	5.1105	18.6268	1.7673	11.3501	61.090	
Feb.	3.9345	161.38	1,437.37	5.1468	18.4425	1.7618	11.3843	60.486	
Mar.	3.9442	162.77	1,448.12	5.1272	18.2610	1.7869	11.5214	60.736	
Apr.	4.0240	165.03	1,469.42	5.1139	18.0066	1.7992	11.6828	61.171	
May	4.0062	168.54	1,474.96	5.0971	18.1549	1.7819	11.5988	62.523	
June	4.0074	169.81	1,485.38	5.0680	19.6134	1.7539	11.4178	63.177	
July	3.9902	171.17	1,499.62	5.0737	19.6397	1.7985	11.7160	63.416	
Aug.	4.1079	161.06	1,488.61	4.8605	21.0823	1.8112	11.7895	62.710	
Sep.	4.1452	159.08	1,478.72	4.7341	21.7625	1.7845	11.7852	62.256	
Oct.	4.1020	163.20	1,484.59	4.6883	21.4603	1.7917	11.7907	62.655	

Other European and non-European countries (cont'd)							
	Singapore	South Africa	Switzerland	Thailand	Turkey	United Kingdom	United States
	Singapore dollar SGD	South African rand ZAR	Swiss franc CHF	Thai baht THB	Turkish lira TRY	Pound sterling GBP	US dollar USD
2022	1.4512	17.2086	1.0047	36.856	17.4088	0.85276	1.0530
2023	1.4523	19.9551	0.9718	37.631	25.7597	0.86979	1.0813
2022 Sep.	1.3999	17.3828	0.9640	36.670	18.1465	0.87463	0.9904
Oct.	1.4003	17.8214	0.9791	37.286	18.2655	0.87058	0.9826
Nov.	1.4144	17.8328	0.9842	37.087	18.9877	0.86892	1.0201
Dec.	1.4313	18.3036	0.9865	36.817	19.7613	0.86950	1.0589
2023 Jan.	1.4283	18.4320	0.9961	35.840	20.2312	0.88212	1.0769
Feb.	1.4262	19.1765	0.9905	36.486	20.1981	0.88550	1.0715
Mar.	1.4354	19.5602	0.9908	36.912	20.3491	0.88192	1.0706
Apr.	1.4609	19.9205	0.9846	37.549	21.2267	0.88115	1.0968
May	1.4555	20.6864	0.9751	37.166	21.4918	0.87041	1.0868
June	1.4596	20.3033	0.9764	37.852	25.7697	0.85861	1.0840
July	1.4753	20.1074	0.9663	38.243	29.3212	0.85856	1.1058
Aug.	1.4735	20.4723	0.9588	38.195	29.3788	0.85892	1.0909
Sep.	1.4562	20.2780	0.9600	38.301	28.8643	0.86158	1.0684
Oct.	1.4462	20.1390	0.9547	38.549	29.4506	0.86798	1.0563
Nov.	1.4575	20.0397	0.9634	38.327	30.9786	0.87045	1.0808
Dec.	1.4533	20.3373	0.9441	38.176	31.7243	0.86168	1.0903
2024 Jan.	1.4569	20.5161	0.9368	38.401	32.8165	0.85873	1.0905
Feb.	1.4513	20.5082	0.9462	38.709	33.2644	0.85466	1.0795
Mar.	1.4573	20.4955	0.9656	39.079	34.8229	0.85524	1.0872
Apr.	1.4554	20.2378	0.9761	39.454	34.6926	0.85658	1.0728
May	1.4606	19.9079	0.9830	39.607	34.8605	0.85564	1.0812
June	1.4547	19.8144	0.9616	39.492	35.0667	0.84643	1.0759
July	1.4602	19.7950	0.9676	39.324	35.6969	0.84332	1.0844
Aug.	1.4488	19.8651	0.9450	38.263	37.1098	0.85150	1.1012
Sep.	1.4396	19.5634	0.9414	37.012	37.8238	0.84021	1.1106
Oct.	1.4283	19.1609	0.9386	36.411	37.3473	0.83496	1.0904

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

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

3. End-of-year rates and annual averages

EUR 1 = CU ...

Period	EU member countries								
	Bulgaria Bulgarian lev BGN	Croatia ¹ Kuna HRK	Czechia Czech koruna CZK	Denmark Danish krone DKK	Estonia ¹ Estonian kroon EEK	Hungary Hungarian forint HUF	Latvia ¹ Latvian lats LVL	Lithuania ¹ Lithuanian litas LTL	Poland 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

Period	EU member countries (cont'd)		Other European and non-European countries					
	Romania Romanian leu RON	Sweden Swedish krona SEK	Australia Australian dollar AUD	Brazil Brazilian real BRL	Canada Canadian dollar CAD	China Yuan (renminbi) CNY	Hong Kong Hong Kong dollar HKD	Iceland 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 1	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 2	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. 1 Up to December 2010, ECB indicative rates. 2 The ECB has suspended the publication of the euro foreign exchange reference rate against the Russian rouble with effect from 2 March 2022.

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

4. Exchange rates of major currencies



* See explanatory notes, p. 48. ¹ Bundesbank calculations based on the daily euro foreign exchange reference rates published by the ECB.