

X. Exchange rates

1. Bilateral exchange rates

Annual averages

Exchange rates for the Deutsche Mark								
Period	US dollar ¹	Pound sterling	Japanese yen ^{2,3}	Swiss franc	Canadian dollar ⁴	Danish krone	Swedish krona ⁵	Norwegian krone
1 Deutsche Mark = ... units of currency								
1948	0.3000	.	.	.	.	.	.	.
1949	0.2791	.	.	.	.	.	.	.
1950	0.2381	0.0850	.	1.0411	.	1.6445	1.2318	1.7007
1951	0.2381	0.0850	.	1.0411	.	1.6445	1.2318	1.7007
1952	0.2381	0.0850	.	1.0411	.	1.6445	1.2318	1.7007
1953	0.2381	0.0853	.	1.0323	0.2347	1.6512	1.2353	1.7013
1954	0.2381	0.0852	.	1.0212	0.2317	1.6544	1.2380	1.7055
1955	0.2375	0.0852	.	1.0178	0.2342	1.6495	1.2336	1.7047
1956	0.2379	0.0854	.	1.0197	0.2341	1.6527	1.2365	1.7076
1957	0.2380	0.0852	.	1.0202	0.2282	1.6523	1.2337	1.7035
1958	0.2386	0.0854	.	1.0226	0.2315	1.6510	1.2361	1.7076
1959	0.2393	0.0852	.	1.0339	0.2294	1.6489	1.2381	1.7054
1960	0.2398	0.0854	.	1.0356	0.2324	1.6526	1.2390	1.7103
1961	0.2486	0.0887	.	1.0737	0.2516	1.7163	1.2846	1.7756
1962	0.2501	0.0891	.	1.0815	0.2673	1.7260	1.2894	1.7852
1963	0.2509	0.0896	.	1.0840	0.2706	1.7316	1.3015	1.7932
1964	0.2516	0.0901	.	1.0865	0.2714	1.7397	1.2958	1.8005
1965	0.2504	0.0896	.	1.0833	0.2699	1.7309	1.2913	1.7899
1966	0.2501	0.0896	.	1.0820	0.2694	1.7276	1.2920	1.7882
1967	0.2508	0.0912	.	1.0857	0.2706	1.7502	1.2947	1.7935
1968	0.2505	0.1046	.	1.0810	0.2699	1.8745	1.2943	1.7891
1969	0.2548	0.1066	97.0403	1.0989	0.2744	1.9158	1.3173	1.8204
1970	0.2743	0.1145	98.2029	1.1820	0.2860	2.0563	1.4220	1.9591
1971	0.2874	0.1176	100.0400	1.1823	0.2902	2.1266	1.4665	2.0166
1972	0.3136	0.1254	94.9307	1.1971	0.3106	2.1776	1.4913	2.0654
1973	0.3761	0.1535	102.0929	1.1904	0.3760	2.2704	1.6405	2.1616
1974	0.3862	0.1652	112.5113	1.1493	0.3776	2.3510	1.7138	2.1341
1975	0.4060	0.1835	120.4674	1.0499	0.4129	2.3337	1.6869	2.1230
1976	0.3973	0.2196	117.6471	0.9926	0.3915	2.4006	1.7300	2.1671
1977	0.4307	0.2469	115.3270	1.0326	0.4575	2.5843	1.9232	2.2918
1978	0.4979	0.2595	103.8853	0.8856	0.5666	2.7444	2.2494	2.6085
1979	0.5456	0.2572	118.7085	0.9072	0.6389	2.8676	2.3383	2.7620
1980	0.5507	0.2366	124.0079	0.9219	0.6434	3.1013	2.3287	2.7186
1981	0.4423	0.2195	97.5134	0.8677	0.5302	3.1511	2.2348	2.5396
1982	0.4117	0.2357	102.3961	0.8353	0.5078	3.4319	2.5711	2.6516
1983	0.3914	0.2583	92.9023	0.8223	0.4822	3.5809	3.0035	2.8579
1984	0.3514	0.2638	83.5143	0.8252	0.4550	3.6391	2.9082	2.8659
1985	0.3399	0.2642	81.0504	0.8332	0.4635	3.6015	2.9274	2.9231
1986	0.4607	0.3141	77.4294	0.8270	0.6403	3.7293	3.2842	3.4038
1987	0.5561	0.3400	80.4117	0.8293	0.7372	3.8059	3.5285	3.7471
1988	0.5687	0.3201	72.9554	0.8329	0.6990	3.8330	3.4904	3.7117
1989	0.5316	0.3246	73.2172	0.8693	0.6294	3.8885	3.4283	3.6724
1990	0.6188	0.3476	89.4214	0.8584	0.7223	3.8285	3.6645	3.8734
1991	0.6020	0.3418	80.9979	0.8640	0.6896	3.8562	3.6468	3.9093
1992	0.6412	0.3632	81.2150	0.8993	0.7742	3.8656	3.7158	3.9773
1993	0.6045	0.4027	66.9120	0.8933	0.7799	3.9203	4.7063	4.2913
1994	0.6166	0.4030	63.0120	0.8424	0.8415	3.9196	4.7590	4.3512
1995	0.6975	0.4421	65.3894	0.8248	0.9576	3.9108	4.9712	4.4220
1996	0.6650	0.4259	72.2648	0.8204	0.9069	3.8543	4.4575	4.2933
1997	0.5764	0.3520	69.5507	0.8368	0.7979	3.8097	4.4018	4.0803
1998	0.5684	0.3432	74.1620	0.8236	0.8415	3.8084	4.5192	4.2924
Euro foreign exchange reference rates of the European Central Bank								
Period	US dollar	Pound sterling	Japanese yen	Swiss franc	Canadian dollar	Danish krone	Swedish krona	Norwegian krone
1 euro = ... units of currency								
1999	1.0658	0.65874	121.32	1.6003	1.5840	7.4355	8.8075	8.3104
2000	0.9236	0.60948	99.47	1.5579	1.3706	7.4538	8.4452	8.1129
2001	0.8956	0.62187	108.68	1.5105	1.3864	7.4521	9.2551	8.0484
2002	0.9456	0.62983	118.06	1.4670	1.4838	7.4305	9.1611	7.5086
2003	1.1312	0.69199	130.97	1.5212	1.5817	7.4307	9.1242	8.0033
2004	1.2439	0.67866	134.44	1.5438	1.6167	7.4399	9.1243	8.3697
2005	1.2441	0.68380	136.85	1.5483	1.5087	7.4518	9.2822	8.0092
2006	1.2556	0.68173	146.02	1.5729	1.4237	7.4591	9.2544	8.0472
2007	1.3705	0.68434	161.25	1.6427	1.4678	7.4506	9.2501	8.0165
2008	1.4708	0.79628	152.45	1.5874	1.5594	7.4560	9.6152	8.2237
2009	1.3948	0.89094	130.34	1.5100	1.5850	7.4462	10.6191	8.7278
2010	1.3257	0.85784	116.24	1.3803	1.3651	7.4473	9.5373	8.0043
2011	1.3920	0.86788	110.96	1.2326	1.3761	7.4506	9.0298	7.7934
2012	1.2848	0.81087	102.49	1.2053	1.2842	7.4437	8.7041	7.4751
2013	1.3281	0.84926	129.66	1.2311	1.3684	7.4579	8.6515	7.8067
2014	1.3285	0.80612	140.31	1.2146	1.4661	7.4548	9.0985	8.3544
2015	1.1095	0.72584	134.31	1.0679	1.4186	7.4587	9.3535	8.9496
2016	1.1069	0.81948	120.20	1.0902	1.4659	7.4452	9.4689	9.2906
2017	1.1297	0.87667	126.71	1.1117	1.4647	7.4386	9.6351	9.3270
2018	1.1810	0.88471	130.40	1.1550	1.5294	7.4532	10.2583	9.5975
2019	1.1195	0.87777	122.01	1.1124	1.4855	7.4661	10.5891	9.8511
2020	1.1422	0.88970	121.85	1.0705	1.5300	7.4542	10.4848	10.7228
2021	1.1827	0.85960	129.88	1.0811	1.4826	7.4370	10.1465	10.1633
2022	1.0530	0.85276	138.03	1.0047	1.3695	7.4396	10.6296	10.1026
2023	1.0813	0.86979	151.99	0.9718	1.4595	7.4509	11.4788	11.4248

Sources: Bank deutscher Länder, Frankfurt Exchange, European Central Bank and Bundesbank calculations. 1 1948: Average from 21 June to 31 December. 2 1969: Average from 1 to 31 December. 3 Quotation suspended from 7 September 1971 to 5 January 1972. 4 1953: Average from 11 May to 31 December. 5 Quotation suspended from 26 January to 16 February 1990.

X. Exchange rates

2. Effective exchange rates of the euro*

Q1 1999 = 100

Effective exchange rates of the euro vis-à-vis the currencies of the					
extended EER group of trading partners ¹			broad EER group of trading partners ²		
Period	Nominal	In real terms based on consumer price indices	Nominal	In real terms based on consumer price indices	
1993	96.8	107.4	75.7	107.5	
1994	99.1	107.2	84.8	105.9	
1995	104.9	111.2	94.5	109.4	
1996	105.4	110.1	96.5	107.0	
1997	98.3	100.2	91.5	97.3	
1998	99.9	100.3	96.9	99.1	
1999	96.2	96.1	96.5	95.9	
2000	87.0	86.8	88.0	86.1	
2001	87.4	87.1	90.1	86.9	
2002	89.7	90.3	94.4	90.5	
2003	100.5	101.6	106.5	101.7	
2004	104.3	105.6	111.0	105.6	
2005	102.9	104.3	109.1	103.2	
2006	102.9	104.3	109.3	102.6	
2007	106.5	107.3	112.9	104.8	
2008	110.4	110.3	117.8	107.3	
2009	111.9	111.1	120.8	108.3	
2010	104.6	103.3	112.1	99.3	
2011	104.4	102.4	112.9	98.8	
2012	98.6	97.0	107.6	94.0	
2013	102.2	100.1	112.4	97.0	
2014	102.4	99.5	114.7	97.4	
2015	92.5	89.6	106.1	88.7	
2016	95.2	91.6	110.1	90.7	
2017	97.5	93.6	112.5	92.0	
2018	100.0	95.8	117.3	95.2	
2019	98.1	93.3	115.5	92.5	
2020	99.7	93.7	119.2	93.9	
2021	99.6	93.7	120.5	94.3	
2022	95.3	90.8	116.1	90.9	
2023	98.1	94.0	121.8	94.7	

* Geometrically weighted effective exchange rates of the euro. Weighting scheme drawn up on the basis of foreign trade in the field of manufacturing (SITC 5 to 8) as well as services. ¹ Extended EER group of trading partners: Australia, Bulgaria, Canada, China, Czechia, Denmark, Hong Kong, Hungary, Japan, Norway, Poland, Republic Korea, Romania, Sweden, Switzerland, Singapore, United Kingdom and United States. ² Includes countries belonging to the extended EER group of trading partners and additionally Algeria, Argentina, Brazil, Chile, Colombia, Iceland, India, Indonesia, Israel, Malaysia, Mexico, Morocco, New Zealand, Peru, Philippines, Russian Federation, Saudi Arabia, South Africa, Taiwan, Thailand, Turkey, Ukraine and the United Arab Emirates.

X. Exchange rates

3. Price competitiveness*

Q1 1999 = 100

Period	Vis-à-vis selected industrial countries ¹				
	Vis-à-vis USA	Total	of which:		
			Euro area countries	Non-euro area countries	
1961	73.6	101.6	101.5	101.8	
1962	75.2	100.9	100.6	101.3	
1963	76.8	100.1	99.0	101.7	
1964	77.7	98.8	96.8	101.5	
1965	78.5	97.1	94.6	100.5	
1966	78.9	96.8	94.8	99.6	
1967	78.4	95.9	93.7	98.9	
1968	76.2	96.4	94.0	99.8	
1969	75.0	96.5	94.7	99.0	
1970	78.8	102.7	101.8	104.0	
1971	83.5	104.6	103.9	105.6	
1972	93.0	106.7	104.2	110.2	
1973	112.7	116.2	111.0	123.6	
1974	111.3	114.8	110.4	121.0	
1975	113.8	109.5	103.2	118.4	
1976	109.4	110.1	105.4	116.8	
1977	115.6	112.1	106.8	119.6	
1978	127.6	113.0	107.9	120.1	
1979	130.6	112.4	105.7	122.0	
1980	122.5	106.4	100.5	114.8	
1981	95.2	97.4	97.6	97.2	
1982	87.6	98.8	100.1	97.0	
1983	83.5	100.0	102.7	96.7	
1984	73.6	95.7	99.6	90.8	
1985	70.4	93.1	97.1	88.1	
1986	93.1	98.5	97.9	99.4	
1987	108.6	101.8	98.7	106.2	
1988	108.3	99.4	97.7	101.7	
1989	99.1	97.0	95.7	98.8	
1990	112.4	99.1	94.3	106.0	
1991	109.0	97.2	94.0	101.6	
1992	116.7	100.4	95.8	107.0	
1993	110.8	104.6	102.5	107.5	
1994	113.1	105.2	103.6	107.5	
1995	126.7	109.8	106.3	114.7	
1996	118.8	106.2	102.0	112.0	
1997	102.7	101.4	101.1	101.9	
1998	100.3	101.0	100.7	101.3	
1999	94.7	98.3	100.1	96.1	
2000	80.4	93.1	99.0	86.1	
2001	77.2	93.0	98.1	86.9	
2002	81.2	93.5	96.9	89.4	
2003	96.1	97.0	95.7	99.0	
2004	104.7	98.5	95.4	102.9	
2005	103.4	98.5	95.2	103.2	
2006	102.9	98.6	94.8	104.0	
2007	111.7	100.9	95.1	109.6	
2008	118.6	102.4	94.5	114.6	
2009	113.0	101.9	94.4	113.5	
2010	107.1	98.8	94.0	105.7	
2011	111.6	98.2	93.7	104.8	
2012	103.2	95.9	93.2	99.5	
2013	106.8	98.1	93.3	105.2	
2014	105.9	98.2	93.6	104.8	
2015	88.9	94.3	94.1	94.4	
2016	87.9	95.0	94.1	96.1	
2017	89.3	96.3	94.2	99.2	
2018	93.0	97.7	94.4	102.5	
2019	87.7	96.4	94.3	99.3	
2020	88.6	96.4	94.2	99.5	
2021	90.7	97.4	94.8	101.0	
2022	81.2	95.9	94.5	97.7	
2023	84.9	98.0	95.2	101.9	

* Indicators of the German economy's price competitiveness based on the consumer price indices. ¹ Euro area countries (from 2001 including Greece, from 2007 including Slovenia, from 2008 including Malta and Cyprus, from 2009 including Slovakia, from 2011 including Estonia, from 2014 including Latvia, from 2015 including Lithuania, from 2023 including Croatia) as well as Denmark, Japan, Canada, Norway, Sweden, Switzerland, United Kingdom and United States.