COMMERZBANK

Disclosure Report as at 31 December 2023

in accordance with the Capital Requirements Regulation (CRR)

The bank at your side

Contents

Due to rounding, numbers and percentages presented throughout this report may not add up precisely to the totals provided.

Introduction

Commerzbank

Commerzbank is the leading bank for SMEs (the Mittelstand) and a partner to some 25,500 corporate client groups and almost 11 million private and small-business customers in Germany. The Bank offers a comprehensive portfolio of financial services in two business segments – Private and Small-Business Customers and Corporate Clients.

In its corporate client business, Commerzbank focuses on German SMEs, large companies and institutional customers. In international business, the Bank supports clients that have a connection to Germany, Austria and/or Switzerland or belong to future-orientated industries. In the Private and Small-Business Customers segment, the Bank serves its customers through the Commerzbank and comdirect brands: via online and mobile channels, in the advisory center and personally in its branches. The Polish subsidiary mBank is an innovative digital bank. It serves around 5.8 million private and corporate customers, mainly in Poland but also in the Czech Republic and Slovakia.

The two segments Private and Small-Business Customers and Corporate Clients are each managed by a member of the Board of Managing Directors. All staff and management functions are contained in Group Management: Group Audit, Group Communications, Group Finance, Group Human Resources, Group Investor Relations, Group Legal, Group Research, Group Strategy, Transformation & Sustainability, Group Tax, Group Treasury and the central risk functions. The support functions, including in particular IT, organisational, security and processing services, are provided by Group Services. The staff, management and support functions are combined in the Others and Consolidation division for external reporting purposes.

On the domestic market, Commerzbank Aktiengesellschaft is headquartered in Frankfurt am Main, from where it manages its branch network and its advisory center. Its most important German subsidiary is Commerz Real AG. Outside of Germany, as at the reporting date Commerzbank has – including through mBank in Poland – 4 material subsidiaries, 15 operational foreign branches and 27 representative offices in over 40 countries and is represented in all major financial centers, such as London, New York, Tokyo and Singapore. In these locations we offer tailor-made solutions for local corporate and institutional customers and support local export-oriented companies worldwide. However, the focus of the Bank's international activities is on Europe.

Further information on the management of the Commerzbank Group and its management bodies can be found in Annex 3 and on the Commerzbank website under Commerzbank, Investor Relations, Corporate Governance.

Objective of the Disclosure Report

This report is intended to give the reader a detailed insight into Commerzbank's current risk profile and risk management. In particular, it contains information on:

- the Commerzbank Group's structure from both a regulatory and accounting perspective,
- the Group's capital structure,
- the Commerzbank Group's general risk management system and
- the risk management in respect of specific types of risk.

The report may also be seen as complementary to the Annual Report pursuant to the German Commercial Code (Handelsgesetzbuch – HGB), since in contrast to the Annual Report it focuses primarily on the supervisory perspective.

In this report Commerzbank Aktiengesellschaft as the ultimate parent company of the regulated banking group is complying with the disclosure requirements of Articles 431 – 455 of regulation (EU) 2019/876 (CRR II) of the European parliament and of the Council of 20 May 2019 amending the Regulation (EU) No. (CRR I) – as of 31 December 2023. The regulation is supplemented by the final draft implementing technical standards EBA EBA/ITS/2020/04 from 24 June 2020, which specify the tables integrated in the report. The names of the predefined tables are indicated by the table names provided with the prefix EU.

Article 449a CRR requires the disclosure of information on environmental, social and governance risks (ESG risks). With the Implementing Regulation (EU) 2022/2453 by the Commission from 30 November 2022 amending the implementing technical standards laid down in Implementing Regulation (EU) 2021/637 with regard to the disclosure of environmental, social and governance risks, EBA has specified the requirements. These are be published in Annex 4 of this report.

Scope

This Disclosure Report is based on the group of companies consolidated for regulatory purposes. The companies consolidated for regulatory purposes only include those carrying out banking and other financial business. The consolidated group consists of a domestic parent company and its affiliated companies. The aim of regulatory consolidation is to prevent multiple use of capital that in fact exists only once by subsidiary companies in the financial sector. The companies consolidated under IFRS, by contrast, comprise all the companies controlled by the ultimate parent company.

In the context of the disclosure requirements (Article 431 (3) CRR), besides the Disclosure Report itself, all policies and processes have to be documented as a main component to fulfil the Pillar 3 requirements of the Basel framework. The appropriateness and practicality of the Bank's disclosure practice has to be reviewed on a regular basis. For this purpose, Commerzbank has defined guidelines for the Disclosure Report which regulate the overarching, strategic part of the instructions. The operative targets and responsibility are additionally defined in separate documents.

The Group's Disclosure Report complies with applicable legal and regulatory requirements and is prepared in accordance with the Group's internal policies, procedures, systems and internal controls.

The Group's Board of Managing Directors has approved this report for publication and confirmed that Commerzbank complies with the requirements of Article 431 (3) CRR.

Commerzbank is a large institution in accordance with Article 4 (1) No. 146 CRR, thus implementing the frequency requirements of Article 433a CRR.

Waiver rule pursuant to Article 7 CRR

According to Article 7 CRR in conjunction with section 2a (1) KWG, parent companies within the group of companies consolidated for regulatory purposes are also entitled to this exemption. The opportunity this offers for Commerzbank Aktiengesellschaft as the ultimate parent company of the Commerzbank Group to be exempted from the requirements at single entity level pursuant to Article 7(3) CRR has been utilised since 2007.

Utilisation of the waiver rule was reported at the outset to BaFin and the Bundesbank with evidence of compliance with the requirements.

Subordinate companies of the institute group do not currently make use of the waiver rule.

Equity capital, capital requirement and RWA

Key metrics

In order to facilitate market participants' access to the most important equity and liquidity ratios of the institutions, Table KM1 with key parameters was introduced from June 2021.

The table shows the information required by Articles 447(a) to (g) and 438 (b) CRR. In particular, these include the available own funds, risk-weighted exposure amounts, capital ratios, combined capital buffers, leverage ratio and liquidity ratios, as well as some additional own funds requirements in order to obtain an overall overview of Commerzbank.

Common Equity Tier 1 (CET1) capital amounted to €25.7bn as of the reporting date, compared to €25.4bn as of 30 September 2023. The improvement was mainly due to earnings in the fourth quarter of 2023 (taking into account accruals for dividends, share buybacks and AT1 interest). A further CET1 increase is due to lower regulatory deductions or adjustments and an improvement in other comprehensive income.

The Common Equity Tier 1 capital ratio was 14.7% as of the reporting date, compared with 14.6% as of 30 September 2023. The Tier 1 capital ratio was 16.5% as of the reporting date and remained unchanged as of 30 September 2023. Tier 2 capital increased by €0.1bn compared to the previous quarter €4.9bn. The capital-raising effect of a new issue was partially reduced by maturity, amortization and currency effects.

The total capital ratio was 19.3% as of the reporting date and improved by 0.1 percentage points compared to the previous quarter. Own funds increased by €0.5bn compared to 30 September 2023. As of the reporting date, they amounted to €33.9bn.

The leverage ratio shows the ratio of Tier 1 capital to leverage ratio exposure, consisting of the non risk-weighted assets plus off-balance sheet positions. The way in which exposure to derivatives, securities financing transactions and off-balance sheet positions is calculated is laid down by regulators. As a non risk-sensitive figure the leverage ratio is intended to supplement risk-based measures of capital adequacy. The leverage ratio was stable at 4.9% as of 31 December 2023. This is due to a slight increase in leverage ratio exposure, offset by an increase in Tier 1 capital.

At 136.2% (average of the last 12 month-end values), Commerzbank was well above the minimum 100% level required for the Liquidity Coverage Ratio (LCR). Commerzbank's liquidity situation as at the end of the quarter was therefore comfortable given its conservative and forward-looking funding strategy.

The Net Stable Funding Ratio (NSFR) as of 31 December 2023 underlines the solid funding position of Commerzbank Group. It reflects the customer-focused business model with a high contribution to the Available Stable Funding (ASF) from customer deposits. The main share of the Required Stable Funding (RSF) results from the loan business, and the main share of the ASF results from customer deposits.

The NSFR rose from 127.0% to 130.2% in the fourth quarter of 2023 due to an increased ASF. This is due to the increase in retail deposits.

EU KM1: Key metrics

		a	b	c	d	e
Line	**€m | %**	**31.12.2023**	**30.9.2023**	**30.6.2023**	**31.3.2023**	**31.12.2022**
Available own funds (amounts)						
1	Common Equity Tier 1 (CET1) capital	25,720	25,369	25,116	24,368	23,854
2	Tier 1 capital	28,926	28,585	28,336	27,592	27,074
3	Total capital	33,859	33,369	33,093	32,487	31,928
Risk-weighted exposure amounts						
4	Total risk-weighted exposure amount	175,114	173,626	173,977	171,528	168,731
Capital ratios (as a percentage of risk-weighted exposure amount)						
5	Common Equity Tier 1 ratio (%)	14.69	14.61	14.44	14.21	14.14
6	Tier 1 ratio (%)	16.52	16.46	16.29	16.09	16.05
7	Total capital ratio (%)	19.34	19.22	19.02	18.94	18.92
Additional own funds requirements to address risks other than the risk of excessive leverage (as a percentage of risk-weighted exposure amount)						
EU 7a	Additional own funds requirements to address risks other than the risk of excessive leverage (%)	2.00	2.00	2.00	2.00	2.00
EU 7b	of which: to be made up of CET1 capital (percentage points)	1.13	1.13	1.13	1.13	1.13
EU 7c	of which: to be made up of Tier 1 capital (percentage points)	1.50	1.50	1.50	1.50	1.50
EU 7d	Total SREP own funds requirements (%)	10.00	10.00	10.00	10.00	10.00
Combined buffer requirement (as a percentage of risk-weighted exposure amount)						
8	Capital conservation buffer (%)	2.50	2.50	2.50	2.50	2.50
EU 8a	Conservation buffer due to macro-prudential or systemic risk identified at the level of a Member State (%)	–	–	–	–	–
9	Institution specific countercyclical capital buffer (%)	0.64	0.63	0.58	0.54	0.10
EU 9a	Systemic risk buffer (%)	0.10	0.10	0.10	0.10	–
10	Global Systemically Important Institution buffer (%)	–	–	–	–	–
EU 10a	Other Systemically Important Institution buffer (%)	1.25	1.25	1.25	1.25	1.25
11	Combined buffer requirement (%)	4.49	4.48	4.43	4.39	3.85
EU 11a	Overall capital requirements (%)	14.49	14.48	14.43	14.39	13.85
12	CET1 available after meeting the total SREP own funds requirements (%)	9.02	8.96	8.79	8.58	8.51
Leverage ratio						
13	Total exposure measure	592,257	585,843	580,420	571,883	547,702
14	Leverage ratio (%)	4.88	4.88	4.88	4.82	4.94
Additional own funds requirements to address the risk of excessive leverage (as a percentage of total exposure measure)						
EU 14a	Additional own funds requirements to address the risk of excessive leverage (%)	–	–	–	–	–
EU 14b	of which: to be made up of CET1 capital (percentage points)	–	–	–	–	–
EU 14c	Total SREP leverage ratio requirements (%)	3.00	3.00	3.00	3.00	3.00
Leverage ratio buffer and overall leverage ratio requirement (as a percentage of total exposure measure)						
EU 14d	Leverage ratio buffer requirement (%)	–	–	–	–	–
EU 14e	Overall leverage ratio requirements (%)	3.00	3.00	3.00	3.00	3.00

		a	b	c	d	e
Line	**€m | %**	**31.12.2023**	**30.9.2023**	**30.6.2023**	**31.3.2023**	**31.12.2022**
Liquidity Coverage Ratio						
15	Total high-quality liquid assets (HQLA) (Weighted value - average)	122,676	120,163	120,430	118,336	113,227
EU 16a	Cash outflows - Total weighted value	111,164	107,932	107,052	105,924	104,222
EU 16b	Cash inflows - Total weighted value	20,731	20,330	20,305	22,198	24,089
16	Total net cash outflows (adjusted value)	90,030	87,602	86,748	83,727	80,133
17	Liquidity Coverage Ratio (%)	136.2	137.3	138.8	141.3	141.1
Net Stable Funding Ratio						
18	Total available stable funding	340,083	327,819	323,369	314,701	314,538
19	Total required stable funding	261,246	258,070	257,865	247,500	245,063
20	NSFR ratio (%)	130.2	127.0	125.4	127.2	128.3

Capital structure

The main rules governing compliance with minimum regulatory capital ratios for solvency purposes in the EU are contained in the Capital Requirements Directive (CRD) IV, the Capital Requirements Regulation (CRR), a European regulation which, unlike the CRD IV Directive, has direct legal effect for all European banks, together with the SSM Regulation (Council Regulation No. 1024/2013 of 15 October 2013 conferring specific tasks on the European Central Bank concerning policies relating to the prudential supervision of credit institutions). This legislation is supplemented at national level in Germany by further provisions in the German Banking Act, the German Solvency Regulation and other regulations. In addition, other regulatory issues are interpreted by Implementing Technical Standards (ITS) and Regulatory Technical Standards (RTS).

Parts of the requirements are subject to well-defined transitional provisions (with transitional provisions). The CRR in its current version provides for transitional provisions for capital deductions, Additional Tier 1 capital and Tier 2 capital. This will reduce the recognition of capital issues that do not meet the requirements of the current CRR by June 2025.

For the Commerzbank Group, the transitional provisions laid down in Article 468 CRR and Article 473a shall not apply. We have received approval from the supervisor for the application of the transitional regime to IFRS 9 in accordance with Article 473a CRR. However, this transitional arrangement will not apply as of 31 December 2023.

Common Equity Tier 1 (CET1) capital consists largely of subscribed capital plus reserves and non-controlling interests. Adjustments to this figure may be necessitated by any number of causes, for example intangible assets, write-downs of assets (if assets are not valued cautiously enough in the regulator's view), shortfalls due to the comparison of expected losses (EL) with the provisions recognised for them and the correction of tax loss carry-forwards. Adding Additional Tier 1 capital (AT1), which can contain subordinated debt instruments with certain conditions, produces Tier 1 capital. Tier 2 capital consists largely of subordinated debt instruments which are not eligible as Additional Tier 1 capital. The eligibility of these capital components has been reduced, as over the final five years of their life they may now only be amortised on a straight-line basis.

Commerzbank seeks to achieve the following objectives in managing its capital:

- adherence to the statutory minimum capital requirements at Group level and in all companies included in the regulatory Group,
- ensuring that the planned capital ratios are met, including the ECB/EBA requirements,
- provision of sufficient reserves to guarantee the Bank's freedom of action at all times,
- strategic allocation of Tier 1 capital to business segments and divisions in order to exploit growth opportunities.

At Commerzbank, the Common Equity Tier 1 capital is a key management target. The Bank's specifications for the capital ratios far exceed the minimum statutory requirements. The Bank's risk-bearing capacity and market expectations play an important role in determining the internal capital ratio targets. For this reason, Commerzbank has stipulated minimum ratios for regulatory capital.

CET1 capital is allocated via a regular process that takes account of the Bank's strategic direction, profitable new business opportunities in the core business of each business segment as well as aspects of risk-bearing capacity.

Measures relating to the Bank's capital are approved by the full Board of Managing Directors, subject to the authorisation granted by the annual general meeting. During the past year, Commerzbank met the minimum statutory capital requirements as well as the requirements of the ECB and EBA at all times.

The evaluations in the tables below comprehensively illustrate the total own funds available for the entire Commerzbank Group. These own funds are also the basis for the calculation of the equity capital adequacy as reported to the Bundesbank.

Details of the issued capital instruments of Commerzbank Group according to Article 437 (1) b) and c) CRR and using Table EU CCA in Annex VII to the Regulation (EU) 2021/637 can be found in Annex 6 and on the Commerzbank website in the section Debt holder information/Capital instruments. The Commerzbank Group is not obliged to disclose under Article 437a CRR (eligible liabilities).

Table EU CC1 shows the composition of regulatory own funds and the capital ratios as defined in Article 437 a), d), e) and f) CRR and Annex VII of Regulation (EU) 2021/637 as of 31 December 2023:

EU CC1: Composition of regulatory own funds

Line €m		(a) Amounts	(b) Source based on reference numbers/ letters of the balance sheet under the regulatory scope of consolidation
Common Equity Tier 1 capital: instruments and reserves			
1	Capital instruments and the related share premium accounts	11,327	j+k
1a	of which: subscribed capital	1,240	j
1b	of which: share premium	10,087	k
2	Retained earnings	15,918	l
3	Accumulated other comprehensive income (and other reserves)	–592	n
EU-3a	Funds for general banking risk	–	
4	Amount of qualifying items referred to in Article 484 (3) and the related share premium accounts subject to phase out from CET1	–	
5	Minority interests (amount allowed in consolidated CET1)	542	q
EU-5a	Independently reviewed interim profits net of any foreseeable charge or dividend	1,015	m
6	Common Equity Tier 1 (CET1) capital before regulatory adjustments	28,212	
Common Equity Tier 1 (CET1) capital: regulatory adjustments			
7	Additional value adjustments (negative amount)	–442	
8	Intangible assets (net of related tax liability) (negative amount)	–535	a+d
10	Deferred tax assets that rely on future profitability excluding those arising from temporary differences (net of related tax liability where the conditions in Article 38 (3) are met) (negative amount)	–212	c
11	Fair value reserves related to gains or losses on cash flow hedges of financial instruments that are not valued at fair value	52	o
12	Negative amounts resulting from the calculation of expected loss amounts	–112	
13	Any increase in equity that results from securitised assets (negative amount)	–	
14	Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	70	
15	Defined-benefit pension fund assets (negative amount)	–565	f+e
16	Direct and indirect holdings by an institution of own CET1 instruments (negative amount)	–1	
17	Direct, indirect and synthetic holdings of the CET 1 instruments of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)	–	
18	Direct, indirect and synthetic holdings by the institution of the CET1 instruments of financial sector entities where the institution does not have a significant investment in those entities (amount above 10% threshold and net of eligible short positions) (negative amount)	–	
19	Direct, indirect and synthetic holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities (amount above 10% threshold and net of eligible short positions) (negative amount)	–	
EU-20a	Exposure amount of the following items which qualify for a RW of 1250%, where the institution opts for the deduction alternative	–117	
EU-20b	of which: qualifying holdings outside the financial sector (negative amount)	–	
EU-20c	of which: securitisation positions (negative amount)	–117	
EU-20d	of which: free deliveries (negative amount)	0	

Line €m		(a) Amounts	(b) Source based on reference numbers/ letters of the balance sheet under the regulatory scope of consolidation
21	Deferred tax assets arising from temporary differences (amount above 10% threshold, net of related tax liability where the conditions in Article 38 (3) are met) (negative amount)	–	b
22	Amount exceeding the 17.65% threshold (negative amount)	–	
23	of which: direct, indirect and synthetic holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities	–	
25	of which: deferred tax assets arising from temporary differences	–	
EU-25a	Losses for the current financial year (negative amount)	–	m
EU-25b	Foreseeable tax charges relating to CET1 items except where the institution suitably adjusts the amount of CET1 items insofar as such tax charges reduce the amount up to which those items may be used to cover risks or losses (negative amount)	–	
27	Qualifying AT1 deductions that exceed the AT1 items of the institution (negative amount)	–	
27a	Other regulatory adjustments	–629	
28	Total regulatory adjustments to Common Equity Tier 1 (CET1)	–2,492	
29	Common Equity Tier 1 (CET1) capital	25,720	
Additional Tier 1 (AT1) capital: instruments			
30	Capital instruments and the related share premium accounts	3,114	p
31	of which: classified as equity under applicable accounting standards	3,114	p
32	of which: classified as liabilities under applicable accounting standards	–	
33	Amount of qualifying items referred to in Article 484 (4) CRR and the related share premium accounts subject to phase out from AT1	–	
EU-33a	Amount of qualifying items referred to in Article 494a(1) subject to phase out from AT1	–	
EU-33b	Amount of qualifying items referred to in Article 494b(1) subject to phase out from AT1	–	
34	Qualifying Tier 1 capital included in consolidated AT1 capital (including minority interests not included in row 5) issued by subsidiaries and held by third parties	92	
35	of which: instruments issued by subsidiaries subject to phase out	–	
36	Additional Tier 1 (AT1) capital before regulatory adjustments	3,207	
Additional Tier 1 (AT1) capital: regulatory adjustments			
37	Direct and indirect holdings by an institution of own AT1 instruments (negative amount)	–	
38	Direct, indirect and synthetic holdings of the AT1 instruments of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)	–	
39	Direct, indirect and synthetic holdings of the AT1 instruments of financial sector entities where the institution does not have a significant investment in those entities (amount above 10% threshold and net of eligible short positions) (negative amount)	–	
40	Direct, indirect and synthetic holdings by the institution of the AT1 instruments of financial sector entities where the institution has a significant investment in those entities (net of eligible short positions) (negative amount)	–	
42	Qualifying T2 deductions that exceed the T2 items of the institution (negative amount)	–	
42a	Other regulatory adjustments to AT1 capital	–	
43	Total regulatory adjustments to Additional Tier 1 (AT1) capital	–	
44	Additional Tier 1 (AT1) capital	3,207	
45	Tier 1 capital (T1 = CET1 + AT1)	28,926	

Line €m		(a) Amounts	(b) Source based on reference numbers/ letters of the balance sheet under the regulatory scope of consolidation
Tier 2 (T2) capital: instruments			
46	Capital instruments and the related share premium accounts	4,670	g+i
47	Amount of qualifying items referred to in Article 484 (5) and the related share premium accounts subject to phase out from T2 as described in Article 486 (4) CRR	–	
EU-47a	Amount of qualifying items referred to in Article 494a (2) subject to phase out from T2	–	
EU-47b	Amount of qualifying items referred to in Article 494b (2) subject to phase out from T2	27	h
48	Qualifying own funds instruments included in consolidated T2 capital (including minority interests and AT1 instruments not included in rows 5 or 34) issued by subsidiaries and held by third parties	164	
49	of which: instruments issued by subsidiaries subject to phase out	–	
50	Credit risk adjustments	102	
51	Tier 2 (T2) capital before regulatory adjustments	4,963	
Tier 2 (T2) capital: regulatory adjustments			
52	Direct and indirect holdings by an institution of own T2 instruments and subordinated loans (negative amount)	−30	
53	Direct, indirect and synthetic holdings of the T2 instruments and subordinated loans of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)	–	
54	Direct and indirect holdings of the T2 instruments and subordinated loans of financial sector entities where the institution does not have a significant investment in those entities (amount above 10% threshold and net of eligible short positions) (negative amount)	–	
55	Direct and indirect holdings by the institution of the T2 instruments and subordinated loans of financial sector entities where the institution has a significant investment in those entities (net of eligible short positions) (negative amount)	–	
EU-56a	Qualifying eligible liabilities deductions that exceed the eligible liabilities items of the institution (negative amount)	–	
EU-56b	Other regulatory adjustments to T2 capital	–	
57	Total regulatory adjustments to Tier 2 (T2) capital	−30	
58	Tier 2 (T2) capital	4,933	
59	Total capital (TC = T1 + T2)	33,859	
60	Total risk exposure amount	175,114	
Capital ratios and requirements including buffers (%)			
61	Common Equity Tier 1	14.69	
62	Tier 1	16.52	
63	Total capital	19.34	
64	Institution CET1 overall capital requirements	10.11	
65	of which: capital conservation buffer requirement	2.50	
66	of which: countercyclical capital buffer requirement	0.64	
67	of which: systemic risk buffer requirement	0.10	
EU-67a	of which: Global Systemically Important Institution (G-SII) or Other Systemically Important Institution (O-SII) buffer requirement	1.25	
EU-67b	of which: additional own funds requirements to address the risks other than the risk of excessive leverage	1.13	
68	Common Equity Tier 1 capital (as a percentage of risk exposure amount) available after meeting the minimum capital requirements	9.02	

Line €m		(a) Amounts	(b) Source based on reference numbers/ letters of the balance sheet under the regulatory scope of consolidation
Amounts below the thresholds for deduction (before risk weighting)			
72	Direct and indirect holdings of own funds and eligible liabilities of financial sector entities where the institution does not have a significant investment in those entities (amount below 10% threshold and net of eligible short positions)	243	
73	Direct and indirect holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities (amount below 17.65% thresholds and net of eligible short positions)	389	
75	Deferred tax assets arising from temporary differences (amount below 17.65% threshold, net of related tax liability where the conditions in Article 38 (3) are met)	2,435	
Applicable caps on the inclusion of provisions in Tier 2			
76	Credit risk adjustments included in T2 in respect of exposures subject to standardised approach (prior to the application of the cap)	–	
77	Cap on inclusion of credit risk adjustments in T2 under standardised approach	423	
78	Credit risk adjustments included in T2 in respect of exposures subject to internal ratings-based approach (prior to the application of the cap)	102	
79	Cap for inclusion of credit risk adjustments in T2 under internal ratings-based approach	631	
Capital instruments subject to phase-out arrangements (only applicable between 1 Jan 2014 and 1 Jan 2022)			
80	Current cap on CET1 instruments subject to phase out arrangements	–	
81	Amount excluded from CET1 due to cap (excess over cap after redemptions and maturities)	–	
82	Current cap on AT1 instruments subject to phase out arrangements	–	
83	Amount excluded from AT1 due to cap (excess over cap after redemptions and maturities)	–	
84	Current cap on T2 instruments subject to phase out arrangements	–	
85	Amount excluded from T2 due to cap (excess over cap after redemptions and maturities)	–	

Connection between balance-sheet and regulatory positions

For Commerzbank as a banking group as defined in section 10a KWG and Article 11 CRR the capital relevant to the determination of regulatory capital is based on the consolidated financial statements under FINREP which is prepared based on the Group balance sheet according to IFRS. To reconcile the requirements for regulatory capital with the slightly different amounts reported in the financial statements, capital as determined under IFRS was adjusted with the aid of so-called prudential filters.

There was no under-capitalisation of subsidiaries subject to the deduction method during the period under review. Nor are there any obstacles to the transfer of own funds or the repayment of liabilities in accordance with Article 436 f) CRR between Commerzbank AG and the main subsidiaries in the reporting period.

In the year under review, there were no subsidiaries not included in the consolidation with lower own resources than the required amount.

Regarding the use of the exemption under Article 7 CRR, see section "Waiver rule pursuant to Article 7 CRR" in the chapter "Introduction". The consolidation at single entity level under Article 9 CRR was not used.

Intra-group business and business with related companies and persons have no material impact on the risk profile of the consolidated group.

In accordance with Article 437 a) CRR and the Implementing Regulation (EU) 2021/637, Table EU CC2 shows a comparison of the published balance sheet (column a) with the carrying amounts under the regulatory scope of consolidation (column b) and a reference (column c) of the balance sheet items to regulatory own funds shown in Table EU CC1.

EU CC2: Reconciliation of regulatory own funds to balance sheet in the audited financial statements

		a	b	c
	€m	**As reported in published financial statements**	**Under the regulatory scope of consolidation**	**Reference**
		31.12.2023	**31.12.2023**	
Assets				
1	Cash on hand and cash on demand	93,126	93,049	
2	Financial assets - Amortised Cost	298,689	316,112	
3	Financial assets - Fair Value OCI	40,143	40,143	
4	Financial Assets - Fair Value Option	–	–	
5	Financial Assets - Mandatorily Fair Value P&L	48,359	48,233	
6	Financial Assets - Held for Trading	28,334	28,559	
7	Value adjustment on portfolio fair value hedges	−2,305	−2,305	
8	Positive fair values of derivative hedging instruments	1,497	1,497	
9	Holdings in companies accounted for using the equity method	142	142	
10	Intangible assets	1,394	1,392	a
11	Fixed assets	2,352	2,350	
12	Investment properties	53	53	
13	Non-current assets held for sale and disposal groups	62	62	
14	Current tax assets	138	138	
15	Deferred tax assets	2,505	2,525	
16	of which: deferred tax assets arising from temporary differences	2,415	2,435	b
17	of which: deferred tax assets do not arise from temporary differences	212	212	c
18	of which: deferred tax liabilities arising from intangible assets	−99	−99	d
19	of which: deferred tax liabilities arising from defined benefit pension fund assets	−89	−89	e
20	Other assets	2,677	2,645	
21	of which: Asset surplus of pension plan assets	655	655	f
22	**Total assets**	**517,166**	**534,595**	

EU CC2_part2: Reconciliation of regulatory own funds to balance sheet in the audited financial statements

		a	b	c
	€m	**As reported in published financial statements**	**Under the regulatory scope of consolidation**	**Reference**
		31.12.2023	**31.12.2023**	
Liabilities				
23	Financial Liabilities - Amortised Cost	419,809	420,262	
24	of which: eligible Tier 2 issuances	3,265	3,265	g
25	of which: eligible AT1 and Tier 2 issuances subject to transitional provisions	52	52	h
26	Financial Liabilities - Fair Value Option	36,941	36,941	
27	of which: eligible Tier 2 issuances	2,603	2,603	i
28	Financial Liabilities - Held for Trading	18,927	18,927	
29	Value adjustment on portfolio fair value hedges	−3,311	−3,311	
30	Negative fair values of derivative hedging instruments	3,100	3,100	
31	Provisions	3,553	3,550	
32	Current tax liabilities	535	535	
33	Deferred tax liabilities	3	1	
34	Liabilities of disposal groups	–	–	
35	Other liabilities	4,599	21,589	
36	**Total liabilities**	**484,157**	**501,595**	
37	Subscribed capital	1,240	1,240	j
38	Capital reserve	10,087	10,087	k
39	Retained earnings	15,802	15,794	l
40	Distributable profit/loss from current year	2,224	2,224	m
41	Accumulated other comprehensive income (and other reserves)	−475	−468	n
42	thereof Valuation of cash flow hedges	−52	−52	o
43	Additional equity components	3,114	3,114	
44	thereof eligible AT1 issues	3,114	3,114	p
45	Non-controlling interests	1,016	1,007	q
46	**Total Equity**	**33,009**	**33,000**	
47	**Total liabilities**	**517,166**	**534,595**	

Explanation of the differences between risk exposure amounts for accounting and regulatory purposes

In table EU LI1, there is in total a difference of €17.4bn between the carrying values according to the group of consolidated companies reported in the balance sheet (column a) and the carrying values according to the regulatory group of consolidated companies (column b). The difference is mainly due to the different treatment of individual companies in the balance sheet and regulatory scope of consolidation of the Commerzbank Group, as well as the resulting differences in consolidation. The companies where the consolidation methods for accounting and regulatory purposes differ are listed entity by entity in table EU LI3 in Annex 1.

Table EU LI2 shows the main reasons for the differences between the carrying values for financial reporting in the balance sheet and the regulatory risk exposure amounts (exposure in the standard approach and EaD in the IRB approach). The carrying values are reconciled to the regulatory risk exposure amounts. Row 1 of table EU LI2 comprises the carrying values of assets and row 2 the carrying values of liabilities for the regulatory group of companies in accordance with the allocation of table EU LI1. Column a of rows 1 and 2 corresponds to the total of column b in table EU LI1 less the total of column g in table EU LI1. Row 3 is the difference between row 1 and row 2.

The target figures to be reconciled (row 12) are the input values for the RWA calculation. The target figure includes both on-balance-sheet and off-balance-sheet positions after credit risk mitigation methods (CRM) and after application of the credit conversion factors (CCF). The target figure for market risk is at present not clearly defined in functional terms. In the internal model, risk parameters such as VaR, SVaR and IRC and the RWAs calculated from them are relevant. By contrast, exposure values are not considered separately here for the regulatory reporting. For this reason, a reconciliation of the values for market risk to the exposure taken into account for regulatory purposes has been dispensed within table EU LI2. As a result, no total has been calculated for rows 5 to 12 in column a.

Row 4 “Off-balance-sheet amounts” shows the off-balance-sheet amounts before taking into account credit conversion factors (CCFs).

Row 5 „Differences in valuations“ discloses the valuation differences between the carrying amounts in the balance sheet and regulatory exposures attributable to the additional value adjustments (premiums for prudent valuation). The premiums are applied to the categories of market price uncertainty, position close-out costs, model risk, concentrated positions, future administrative costs, early contract termination and operational risk.

Row 6 “Differences resulting from different netting rules, other than those already included in row 2” shows the effects from the different regulatory netting rules compared with those for accounting purposes, taking into account the netting effect in accordance with row 2. In terms of counterparty credit risk, effects result from derivatives and SFTs.

Row 7 “Differences due to the consideration of allowances” shows the value adjustments to the IRBA positions for credit risk. The carrying values on the balance sheet are net carrying values (after loan loss provisions). Under the IRB approach the risk exposure amount is in general the carrying values in the balance sheet; credit risk adjustments such as valuation allowances are not deducted. Value adjustments deducted from the carrying value of assets when drawing up the financial statements are added back as part of the reconciliation.

Row 8 “Differences caused by the use of credit risk mitigation techniques (CRMs)” reports the collateralisation effects that are included in the calculation of the exposure value after collateralisation.

Row 9 “Differences caused by credit conversation factors” reports the amount by which off-balance sheet exposures are included in the risk exposure amounts considered for regulatory purposes.

Row 10 shows the amount for synthetically securitised credit exposures that continue to be reported in the balance sheet item Financial assets - amortised cost, but are no longer included in the regulatory credit risk exposure due to the transfer of risk.

In row 11 “Others”, the other reconciliation effects not already included in reconciliation rows 5 to 10 are reported.

EU LI1: Differences between accounting and regulatory scopes of consolidation and the mapping of financial statement categories with regulatory risk categories

	a	b	c	d	e	f	g
			Carrying values of items				
€m	Carrying values as reported in published financial statements	Carrying values under scope of prudential consolidation	Subject to the credit risk framework	Subject to the CCR framework	Subject to the securitisation framework	Subject to the market risk framework	Not subject to own funds requirements or subject to deduction from own funds
Assets							
Cash on hand and cash on demand	93,126	93,049	93,049	0	0	27,602	0
Financial assets - Amortised Cost	298,689	316,112	296,369	9,972	9,771	70,791	0
Financial assets - Fair Value OCI	40,143	40,143	39,170	0	974	13,353	0
Financial Assets - Mandatorily Fair Value P&L	48,359	48,233	603	42,965	4,648	44,078	17
Financial Assets - Held for Trading	28,334	28,559	0	20,486	40	23,812	1
Value adjustment on portfolio fair value hedges	–2,305	–2,305	–2,305	0	0	0	0
Positive fair values of derivative hedging instruments	1,497	1,497	0	1,497	0	598	0
Holdings in companies accounted for using the equity method	142	142	142	0	0	0	0
Intangible assets	1,394	1,392	757	0	0	0	635
Fixed assets	2,352	2,350	2,350	0	0	0	0
Investment properties	53	53	53	0	0	0	0
Non-current assets held for sale and disposal groups	62	62	62	0	0	0	0
Current tax assets	138	138	138	0	0	0	0
Deferred tax assets	2,505	2,525	2,503	0	0	0	22
Other assets	2,677	2,645	1,852	0	0	138	655
Total assets	**517,166**	**534,595**	**434,742**	**74,919**	**15,433**	**180,372**	**1,329**
Liabilities							
Financial Liabilities - Amortised Cost	419,809	420,262	0	9,269	0	160,646	410,993
Financial Liabilities - Fair Value Option	36,941	36,941	0	29,287	0	29,357	7,654
Financial Liabilities - Held for Trading	18,927	18,927	0	16,887	0	39,363	3
Value adjustment on portfolio fair value hedges	–3,311	–3,311	0	0	0	0	–3,311
Negative fair values of derivative hedging instruments	3,100	3,100	0	3,100	0	260	0
Provisions	3,553	3,550	0	0	0	0	3,550
Current tax liabilities	535	535	0	0	0	0	535
Deferred tax liabilities	3	1	0	0	0	0	1
Liabilities of disposal groups	0	0	0	0	0	0	0
Other liabilities	4,599	21,589	0	0	0	0	21,589
Equity	33,009	33,000	0	0	0	0	33,000
Total liabilities and equity	**517,166**	**534,595**	**0**	**58,544**	**0**	**229,627**	**474,014**

EU LI2: Main sources of differences between regulatory exposure amounts and carrying values in Group financial statements

		a	b	c	d	e
	€m	Total	Items subject to			
			Credit risk framework	CCR framework	Securitisation framework	Market risk framework
1	Assets carrying value amount under the scope of prudential consolidation (as per template LI1)	533,265	434,742	74,919	15,433	180,372
2	Liabilities carrying value amount under the scope of prudential consolidation (as per template LI1)	60,581	0	58,544	0	229,627
3	Total net amount under the scope of prudential consolidation	472,685	434,742	16,375	15,433	−49,254
4	Off-balance-sheet amounts	184,117	184,117	0	0	31,533
5	Differences in valuations		0	442	0	
6	Differences due to different netting rules, other than those already included in row 2		0	18,763	0	
7	Differences due to consideration of allowances		3,791	0	0	
8	Differences caused by the use of credit risk mitigation techniques (CRMs)		−908	0	0	
9	Differences caused by credit conversation factors		−12,423	0	0	
10	Differences caused by securitisations with risk transfer		−13,889	0	13,889	
11	Others		235	0	0	
12	Exposure amounts considered for regulatory purposes		595,663	35,580	29,322	

Table PV1 gives an overview of the valuation measures according to article 436 e) CRR within the framework of the Prudent Valuation according to EBA/RTS/2020/04 as of 31 December 2023. The individual valuation adjustments are classified in a granular way according to risk categories as well as their classification in the banking or trading book.

EU PV1: Prudent valuation adjustments (PVA):

		a	b	c	d	e	EU e1	EU e2	f	g	h
€m		Risk category					Category level AVA - Valuation uncertainty		Total category level post-diversification		
Line	Category level AVA	Equity	Interest Rates	Foreign exchange	Credit	Commodities	Unearned credit spreads AVA	Investment and funding costs AVA		Of which: Total core approach in the trading book	Of which: Total core approach in the banking book
1	Market price uncertainty	222	111	13	6	2	6	5	182	31	151
3	Close-out cost	0	28	12	2	1	17	17	39	31	8
4	Concentrated positions	85	53	0	10	0	0	0	148	6	141
5	Early termination	0	0	0	0	0	0	0	0	0	0
6	Model risk	1	3	0	0	0	31	20	27	22	5
7	Operational risk	11	8	2	0	0	0	0	22	6	16
10	Future administrative costs	3	15	1	0	6	0	0	24	22	2
12	Total Additional Valuation Adjustments (AVAs)								442	119	323

Capital requirement and RWA

The capital requirements set out below relate to the Commerzbank Group and the figures are the same with regard to content as in the capital adequacy reports submitted to the Deutsche Bundesbank under Basel 3 Pillar 1.

The countercyclical capital buffer (CCyB) is part of a set of macroprudential instruments, designed to help counteract procyclicality of the financial system. Capital should be accumulated when cyclical systemic risk is considered to be rising, creating buffers that increase the resilience of the banking sector during periods of stress when losses materialize. This will help maintain the credit supply and dampen the downturn of the financial cycle. The CCyB can also help dampen excessive credit growth during the upswing of the financial cycle.

Table EU CCyB1 shows the geographical distribution of the exposures relevant for the calculation of the countercyclical buffer, as defined in Article 440 a) CRR as of 31 December 2023. The credit risk, market risk and securitisations are highlighted separately.

The countries listed below cover more than 99% of Commerzbank's own funds requirements. The further breakdown of the countries listed under line "Other" is omitted for reasons of materiality.

EU CCyB1: Geographical distribution of credit exposures relevant for the calculation of the countercyclical buffer

		a	b	c	d	e	f	g	h	i	j	k	l	m
		General credit exposures		Relevant credit exposures – Market risk		Securitisation exposures Exposure value for non-trading book	Total exposure value	Own fund requirements				Risk-weighted exposure amounts	Own fund require-ments weights (in %)	Counter-cyclical buffer rate (%)
Line	Countries €m	Exposure value under the standar-dised approach	Exposure value under the IRB approach	Sum of long and short positions of trading book exposures for SA	Value of trading book exposures for internal models			Relevant credit risk exposures - Credit risk	Relevant credit exposures – Market risk	Relevant credit exposures – Securitisation positions in the non-trading book	Total			
001	DE (Germany)	20,940	199,039	0	106	13,005	233,091	5,687	25	130	5,843	73,034	57.9	0.75
002	PL (Poland)	5,219	21,145	0	0	4,564	30,927	1,110	0	51	1,161	14,508	11.5	
003	US (United States of America)	1,361	12,722	0	469	4,337	18,888	536	21	92	649	8,113	6.4	
004	GB (United Kingdom of Great Britain and Northern Ireland)	6,919	5,624	0	32	1,442	14,016	504	18	24	545	6,817	5.4	2.0
005	FR (France)	291	5,488	0	21	3,929	9,729	217	18	63	299	3,733	3.0	0.5
006	NL (Netherlands)	950	3,992	0	17	836	5,796	204	16	12	232	2,903	2.3	1.0
007	LU (Luxembourg)	1,544	3,068	0	3	99	4,714	196	0	2	198	2,471	2.0	0.5
008	CH (Switzerland)	409	4,292	0	67	0	4,767	163	25	0	188	2,356	1.9	
009	AT (Austria)	287	2,484	0	4	0	2,775	110	0	0	110	1,380	1.1	
010	CZ (Czechia)	1,526	1,216	0	0	0	2,741	99	0	0	99	1,236	1.0	2.0
011	IT (Italy)	94	1,450	0	31	218	1,793	68	17	11	97	1,213	1.0	
012	ES (Spain)	19	2,086	0	6	0	2,111	92	0	0	92	1,156	0.9	
013	BE (Belgium)	141	1,295	0	2	162	1,600	52	0	1	54	672	0.5	
014	SK (Slovakia)	661	233	0	0	0	894	48	0	0	48	599	0.5	1.5
015	KY (Cayman Islands)	511	166	0	0	0	677	47	0	0	48	594	0.5	
016	HK (Hong Kong)	1	609	0	36	0	646	34	4	0	39	483	0.4	1.0
017	IE (Ireland)	162	749	0	3	0	915	37	0	0	37	458	0.4	1.0
018	SE (Sweden)	83	740	0	2	0	825	33	0	0	33	413	0.3	2.0

		a	b	c	d	e	f	g	h	i	j	k	l	m
		General credit exposures		**Relevant credit exposures – Market risk**		**Securitisation exposures Exposure value for non-trading book**	**Total exposure value**	**Own fund requirements**				**Risk-weighted exposure amounts**	**Own fund requirements weights (in %)**	**Counter-cyclical buffer rate (%)**
Line	**Countries €m**	**Exposure value under the standardised approach**	**Exposure value under the IRB approach**	**Sum of long and short positions of trading book exposures for SA**	**Value of trading book exposures for internal models**			**Relevant credit risk exposures - Credit risk**	**Relevant credit exposures – Market risk**	**Relevant credit exposures – Securitisation positions in the non-trading book**	**Total**			
019	CN (China)	11	648	0	0	0	659	33	0	0	33	408	0.3	
020	SG (Singapore)	162	769	0	1	0	932	29	0	0	29	364	0.3	
021	RU (Russian Federation)	227	288	0	0	0	516	27	0	0	28	345	0.3	
022	JP (Japan)	29	1,110	0	0	0	1,138	25	0	0	25	308	0.2	
023	DK (Denmark)	20	514	0	1	0	535	22	0	0	22	276	0.2	2.5
024	BM (Bermuda)	271	49	0	0	0	320	20	0	0	20	249	0.2	
025	FI (Finland)	55	468	0	2	50	576	17	0	0	17	215	0.2	
026	CA (Canada)	1,145	233	0	20	0	1,398	9	4	0	13	161	0.1	
027	KR (Korea, Republic of)	168	60	0	84	0	312	3	8	0	11	142	0.1	
028	HU (Hungary)	21	177	0	0	0	198	11	0	0	11	141	0.1	
029	AU (Australia)	12	391	0	2	0	405	10	0	0	10	124	0.1	1.0
030	LR (Liberia)	250	80	0	0	0	330	10	0	0	10	120	0.1	
031	Other	2,767	1,529	0	17	0	4,312	87	7	0	94	1,178	0.9	12.0
032	**Total**	**46,255**	**272,712**	**0**	**927**	**28,642**	**348,535**	**9,541**	**165**	**388**	**10,094**	**126,170**	**100.0**	

Table EU CCyB2 shows the countercyclical capital buffer according to article 440 b) CRR as of 31 December 2023.

EU CCyB2: Amount of institution-specific countercyclical capital buffer

		a
Line	€m | %	**31.12.2023**
010	Total risk exposure amount	175,114
020	Institution specific countercyclical capital buffer rate	0.6392
030	Institution specific countercyclical capital buffer requirement	1,119.38

Capital requirements by risk type

As required by Article 438 d), Table EU OV1 shows an overview of risk-weighted assets (RWA) and the associated capital requirements by risk type.

Of the overall capital requirement 73.5% relates to credit risk positions (excluding counterparty credit risk). Commerzbank uses the Advanced Internal Ratings Based Approach (advanced IRBA; in the following referred to as IRBA) to determine the regulatory capital required. Article 150 CRR gives the option of partial use. The Standardised Approach to Credit Risk (SACR) may be used for part of the portfolios.

Commerzbank Group and accordingly the group companies included in the disclosure are, as IRBA banks as defined in Article 147 CRR, generally obliged to value investments in accordance with the IRBA rules. The CRR allows items to be permanently exempted from the IRBA. Commerzbank applies Article 150 CRR and values all investment positions using the permanent partial use according to the SACR, provided that the individual equity position is not measured in the SACR anyway. Investments that are linked to particularly high risks as defined in Article 128 CRR, such as private equity in-vestments or venture capital exposures, are shown in the corresponding SACR exposure class.

Of the overall capital requirement 7.1% relates to counterparty credit risk. Based on the EBA requirements, credit value adjustments (CVAs) are also assigned to this credit risk category.

Securitised positions in the banking book are also shown as a separate credit risk category subject to a capital requirement in the table EU OV1 below (2.8% of total capital requirement).

Pursuant to Article 92 (3) b) and c) CRR, adequate capital must be set aside for market risk positions. As of 31 December 2023, capital requirements here are 3.6% of total requirements. Commerzbank uses an internal market risk model to calculate the regulatory capital requirement. This affects both the equity price and interest rate-related risk positions in the trading book as well as the total of currency positions and commodity positions. The standar dised approaches are applied for smaller units in Commerzbank Group in accordance with the partial use option.

Commerzbank uses the standardized approach (SA) to calculate the capital adequacy requirement for operational risks. This risk category accounts for 13.0% of the total capi-tal requirements.

EU OV1: Overview of RWAs as of 31 December 2023

		a	b	c
		Risk-weighted exposure amounts		Total own funds requirements
	€m	31.12.2023	30.9.2023	31.12.2023
1	Credit risk (excluding CCR)	128,723	127,603	10,298
2	thereof: standard approach	31,453	32,127	2,516
3	thereof: the foundation IRB (F-IRB) approach	–	–	–
4	thereof: slotting approach	985	845	79
EU 4a	thereof: equities under the simple risk weighted approach	–	–	–
5	thereof: the advanced IRB (A-IRB) approach	96,285	94,631	7,703
6	Counterparty credit risk - CCR	12,450	13,514	996
7	thereof: standard approach	1,229	1,272	98
8	thereof: internal model method (IMM)	8,216	8,793	657
EU 8a	thereof: exposures to a CCP	293	343	23
EU 8b	thereof: credit valuation adjustment - CVA	1,975	2,097	158
9	thereof: other CCR	738	1,008	59
15	Settlement risk	2	0	0
16	Securitisation exposures in the non-trading book (after the cap)	4,844	5,108	388
17	thereof: SEC-IRBA	1,754	2,146	140
18	thereof SEC-ERBA (incl. IAA)	2,370	2,287	190
19	thereof: SEC-SA	721	675	58
EU 19a	thereof: 1250% / deduction (for information)	1,458	1,123	117
20	Position, foreign exchange and commodities risks (Market risk)	6,306	6,603	504
21	thereof: standard approach	1,021	828	82
22	thereof: IMA	5,285	5,775	423
EU 22a	Large exposures	–	–	–
23	Operational risk	22,790	20,797	1,823
EU 23a	thereof: basic indicator approach	–	–	–
EU 23b	thereof: standard approach	22,790	20,797	1,823
EU 23c	thereof: advanced measurement approach	–	–	–
24	Amounts below the thresholds for deduction (subject to 250% risk weight) (for information)	7,060	6,511	565
29	**Total**	**175,114**	**173,626**	**14,009**

As of 31 December 2023 risk assets were up €1.5bn to €175.1bn compared to the previous quarter. The largest increase was in operational risks, driven by the increase in provisional earnings in 2023. Further increases in credit risk are due to changes in risk parameters, a change in method and the acquisition of a majority stake. In contrast, RWA declines in counterparty default risk are mainly due to shifts in the asset classes at institutions, resulting in changes in risk weights and a slight rise in the US dollar. The decline in market risk in the internal model is mainly due to changes in position in the Corporate Clients segment.

The overviews of the development of risk-weighted assets (RWA) by main drivers EU CR8: RWA flow statements of credit risk exposures under the IRB approach, EU CCR7: RWA flow statements of CCR exposures under the IMM as well as EU MR2-B: RWA flow statements of market risk exposures under the IMA are given in the chapters on the respective risk types.

Disclosure of indicators of global systemic importance

To identify institutions that might have global systemic importance, the Basel Committee on Banking Supervision (BCBS) collects indicators of size, cross-border activity, interconnectedness, substitutability and complexity once a year from potentially global systemically important banks. According to last year's survey, Commerzbank Group does not belong to the group classified as global systemically important banks (G-SIBs).

Commerzbank was requested by Deutsche Bundesbank in a letter dated January 2024 to participate in this year's survey as a potentially systemically important bank.

The detailed information on the indicators of systemic importance pursuant to Article 441 CRR can be found in Annex 2.

Leverage Ratio

Leverage ratio

The leverage ratio shows the ratio of Tier 1 capital to leverage ratio exposure, consisting of the non-risk-weighted assets plus off-balance sheet positions. The way in which exposure to derivatives, securities financing transactions and off-balance sheet positions is calculated is laid down by regulators. As a non-risk-sensitive figure the leverage ratio is intended to supplement risk-based measures of capital adequacy.

Avoiding the risk of excessive leverage is an integral part of Commerzbank's balance sheet management. Commerzbank has set up a quantitative and qualitative framework to calculate, monitor and manage the leverage ratio.

Group Finance is responsible for quantifying the leverage ratio based on regulatory requirements and provides regulators with quarterly reports.

In June 2021 with CRR II the leverage ratio became effective as a minimum capital requirement and must be fulfilled at all times. In order to ensure the fulfillment, leverage ratio exposure limits have been implemented for each segment incl. Others and Consolidation (containing Treasury as well as the liquidity reserve portfolios). Additionally, the group must report daily averages of securities financing transactions (SFT).

Commerzbank has set an internal target for the leverage ratio which supplements the targets for the risk-based capital ratios.

Developments in the segment-specific leverage ratio exposures relative to guidelines are monitored monthly. Group Finance reports regularly the Group's leverage ratio to the Central Asset Liability Committee (ALCO) and thus to the Board of Managing Directors.

Future development of the leverage ratio exposure and the leverage ratio is forecasted in the Bank's internal multiyear planning process. Furthermore, Group Finance monitors anticipated changes in regulatory requirements and performs impact analyses of such changes on the leverage ratio.

Key decisions on management and monitoring of the leverage ratio are taken by ALCO, subject to confirmation by the Board of Managing Directors.

The leverage ratio was 4.9% as of 31 December 2023 (as of 30 September 2023: 4.9%).

The leverage ratio remained stable because of the increase in both leverage ratio exposure as well as regulatory Tier 1 capital. As at the reporting date, the leverage ratio exposure was €592.3bn; as of 30 September 2023, it was €585.8bn. The leverage ratio exposure increased by €6.4bn mainly due to the rise in cash reserve and SFT balance sheet volume.

The increase in cash reserve was due to the growth in deposits in the fourth quarter. The deposit growth was caused by the additional interest rate increase in September 2023, which was partially passed through to the customers in the form of attractive terms for deposit products. The reverse repo business is usually a subject to seasonal fluctuations – but this year the quarter values were less volatile. These effects had an indirect impact on the leverage ratio.

Table EU LR1 shows the summary reconciliation of accounting assets and leverage ratio exposures in accordance with Article 451 (1) b) CRR as of 31 December 2023. Where the value "Total assets as per published financial statements" corresponds to total assets according to Table EU CC2, line 22, column a. After all discretionary margins have been disclosed in the assessment according to the balance sheet or risk view, the leverage ratio total exposure measure is shown in line 13.

EU LR1: LRSum – Summary reconciliation of accounting assets and leverage ratio exposures

		a
	€m	Applicable amount
1	**Total assets as per published financial statements**	**517,166**
2	Adjustment for entities which are consolidated for accounting purposes but are outside the scope of prudential consolidation	17,429
3	(Adjustment for securitised exposures that meet the operational requirements for the recognition of risk transference)	–
4	(Adjustment for temporary exemption of exposures to central banks (if applicable))	–
5	(Adjustment for fiduciary assets recognised on the balance sheet pursuant to the applicable accounting framework but excluded from the total exposure measure in accordance with point (i) of Article 429a (1) CRR)	–
6	Adjustment for regular-way purchases and sales of financial assets subject to trade date accounting	−142
7	Adjustment for eligible cash pooling transactions	738
8	Adjustments for derivative financial instruments	6,923
9	Adjustment for securities financing transactions (SFTs)	2,271
10	Adjustment for off-balance sheet items (i.e. conversion to credit equivalent amounts of off-balance sheet exposures)	50,993
11	(Adjustment for prudent valuation adjustments and specific and general provisions which have reduced Tier 1 capital)	–
EU-11a	(Adjustment for exposures excluded from the total exposure measure in accordance with point (c) of Article 429a (1) CRR)	–
EU-11b	(Adjustment for exposures excluded from the total exposure measure in accordance with point (j) of Article 429a (1) CRR)	–
12	Other adjustments	−3,121
13	**Total exposure measure**	**592,257**

Table EU LR2 shows the individual components for the calculation the leverage ratio referred to in Article 451 CRR as of 31 December 2023:

EU LR2: LRCom – Leverage ratio common disclosure

		CRR leverage ratio exposures	
		a	b
	€m	31.12.2023	30.6.2023
On-balance sheet exposures (excluding derivatives and SFTs)			
1	On-balance sheet items (excluding derivatives, SFTs, but including collateral)	483,484	478,703
2	Gross-up for derivatives collateral provided where deducted from the balance sheet assets pursuant to the applicable accounting framework	–	–
3	(Deductions of receivables assets for cash variation margin provided in derivatives transactions)	–11,496	–15,154
4	(Adjustment for securities received under securities financing transactions that are recognised as an asset)	–	–
5	(General credit risk adjustments to on-balance sheet items)	–	–
6	(Asset amounts deducted in determining Tier 1 capital)	–1,748	–1,844
7	Total on-balance sheet exposures (excluding derivatives and SFTs)	470,240	461,705
Derivative exposures			
8	Replacement cost associated with SA-CCR derivatives transactions (i.e. net of eligible cash variation margin)	18,821	24,864
EU-8a	Derogation for derivatives: replacement costs contribution under the simplified standardised approach	–	–
9	Add-on amounts for potential future exposure associated with SA-CCR derivatives transactions	19,102	18,752
EU-9a	Derogation for derivatives: Potential future exposure contribution under the simplified standardised approach	–	–
EU-9b	Exposure determined under Original Exposure Method	–	–
10	(Exempted CCP leg of client-cleared trade exposures) (SA-CCR)	–11,119	–15,929
EU-10a	(Exempted CCP leg of client-cleared trade exposures) (simplified standardised approach)	–	–
EU-10b	(Exempted CCP leg of client-cleared trade exposures) (original Exposure Method)	–	–
11	Adjusted effective notional amount of written credit derivatives	5,979	6,981
12	(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	–3,878	–4,552
13	Total derivatives exposures	28,906	30,115
Securities financing transaction (SFT) exposures			
14	Gross SFT assets (with no recognition of netting), after adjustment for sales accounting transactions	89,248	70,378
15	(Netted amounts of cash payables and cash receivables of gross SFT assets)	–43,863	–30,059
16	Counterparty credit risk exposure for SFT assets	2,271	1,729
EU-16a	Derogation for SFTs: Counterparty credit risk exposure in accordance with Articles 429e (5) and 222 CRR	–	–
17	Agent transaction exposures	–	–
EU-17a	(Exempted CCP leg of client-cleared SFT exposure)	–	–
18	Total securities financing transaction exposures	47,655	42,048
Other off-balance sheet exposures			
19	Off-balance sheet exposures at gross notional amount	181,407	181,190
20	(Adjustments for conversion to credit equivalent amounts)	–130,414	–129,832
21	(General provisions deducted in determining Tier 1 capital and specific provisions associated with off-balance sheet exposures)	–	–
22	Off-balance sheet exposures	50,993	51,359

	€m	CRR leverage ratio exposures a 31.12.2023	 b 30.6.2023
Excluded exposures			
EU-22a	(Exposures excluded from the total exposure measure in accordance with point (c) of Article 429a(1) CRR)	–	–
EU-22b	(Exposures exempted in accordance with point (j) of Article 429a (1) CRR (on and off-balance sheet))	–	–
EU-22c	(Excluded exposures of public development banks (or units) - Public sector investments)	–	–
EU-22d	(Excluded exposures of public development banks (or units) - Promotional loans)	–	–
EU-22e	(Excluded passing-through promotional loan exposures by non-public development banks (or units))	–	–
EU-22f	(Excluded guaranteed parts of exposures arising from export credits)	−5,538	−4,807
EU-22g	(Excluded excess collateral deposited at triparty agents)	–	–
EU-22h	(Excluded CSD related services of CSD/institutions in accordance with point (o) of Article 429a (1) CRR)	–	–
EU-22i	(Excluded CSD related services of designated institutions in accordance with point (p) of Article 429a (1) CRR)	–	–
EU-22j	(Reduction of the exposure value of pre-financing or intermediate loans)	–	–
EU-22k	(Total exempted exposures)	−5,538	−4,807
Capital and total exposure measure			
23	Tier 1 capital fully loaded	28,926	28,336
23	Tier 1 capital with transitional provisions	28,926	28,336
24	Total exposure measure	592,257	580,420
Leverage ratio			
25	Leverage ratio fully loaded (%)	4.88	4.88
25	Leverage ratio with transitional provisions (%)	4.88	4.88
EU-25	Leverage ratio (excluding the impact of the exemption of public sector investments and promotional loans) (%)	4.88	4.88
25a	Leverage ratio (excluding the impact of any applicable temporary exemption of central bank reserves) with transitional provisions (%)	4.88	4.88
26	Regulatory minimum leverage ratio requirement (%)	3.00	3.00
EU-26a	Additional own funds requirements to address the risk of excessive leverage (%)	–	–
EU-26b	of which: to be made up of CET1 capital (percentage points)	–	–
27	Leverage ratio buffer requirement (%)	–	–
EU-27a	Overall leverage ratio requirement (%)	–	–
Choice on transitional arrangements and relevant exposures			
EU-27b	Choice on transitional arrangements for the definition of the capital measure	Applying the transitional arrangements and fully loaded	Applying the transitional arrangements and fully loaded

		CRR leverage ratio exposures	
		a	b
	€m	31.12.2023	30.6.2023
Disclosure of mean values			
28	Mean of daily values of gross SFT assets, after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables	59,394	
29	Quarter-end value of gross SFT assets, after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables	45,384	
30	Total exposure measure (including the impact of any applicable temporary exemption of central bank reserves) incorporating mean values from row 28 of gross SFT assets (after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables)	606,266	
30a	Total exposure measure (excluding the impact of any applicable temporary exemption of central bank reserves) incorporating mean values from row 28 of gross SFT assets (after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables)	606,266	
31	Leverage ratio with transitional provisions (including the impact of any applicable temporary exemption of central bank reserves) incorporating mean values from row 28 of gross SFT assets (after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables)	4.77	
31a	Leverage ratio with transitional provisions (excluding the impact of any applicable temporary exemption of central bank reserves) incorporating mean values from row 28 of gross SFT assets (after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables)	4.77	

Table EU LR3 shows the split up of on-balance exposures in trading and banking book according to Article 451 (1) b) CRR as of 31 December 2023.

EU LR3: LRSpl – Split-up of on balance sheet exposures (excluding derivatives, SFTs and exempted exposures)

		a
		CRR leverage ratio exposures
	€m	31.12.2023
EU-1	**Total on-balance sheet exposures (excluding derivatives, SFTs, and exempted exposures), of which:**	**481,279**
EU-2	Trading book exposures	37,437
EU-3	Banking book exposures, of which:	443,842
EU-4	Covered bonds	8,248
EU-5	Exposures treated as sovereigns	141,633
EU-6	Exposures to regional governments, MDB, international organisations and PSE, not treated as sovereigns	6,083
EU-7	Institutions	19,716
EU-8	Secured by mortgages of immovable properties	86,052
EU-9	Retail exposures	56,594
EU-10	Corporates	69,273
EU-11	Exposures in default	2,276
EU-12	Other exposures (e.g. equity, securitisations, and other non-credit obligation assets)	53,967

Risk-oriented overall bank management

Commerzbank defines risk as the danger of possible losses or prof-its foregone due to internal or external factors. In risk management, we normally distinguish between quantifiable and nonquantifiable types of risk. Quantifiable risks are those to which a value can normally be attached in financial statements or in regulatory capital requirements, while non-quantifiable risks, for example, include compliance and reputational risk.

Risk statement

According to Article 435 (1) e) and f) CRR, the risk statement is a declaration approved by the management body providing assurance that the risk management systems put in place are adequate and giving a description of the institution's general risk profile associated with the business strategy. The approval by the Board of Managing Directors was given together with the approval of the Disclosure Report.

Commerzbank is the leading bank for SMEs (the Mittelstand) and a partner to some 25,500 corporate client groups and almost 11 million private and small-business customers in Germany. The Bank offers a comprehensive portfolio of financial services in two business segments – Private and Small-Business Customers and Corporate Clients. In its corporate client business, Commerzbank focuses on German SMEs, large companies and institutional customers. In international business, the Bank supports clients that have a connection to Germany, Austria and/or Switzerland or belong to future-orientated industries. In the Private and Small-Business Customers segment, the Bank serves its customers through the Commerzbank and comdirect brands: via online and mobile channels, in the advisory center and personally in its branches.

Now that we have successfully implemented a far-reaching restructuring of Commerzbank and set up a new business model with the "Strategy 2024" programme, our text task is to establish our new business model in the market and thereby further improve our profitability. Our "Strategy 2027" programme is based on three pillars: growth, excellence, and responsibility. The Bank intends to support its customers with relevant products and solutions and to further improve the customer experience across all channels, i.e. in branches, in the advisory center, and via digital access. The revenue base will be strengthened primarily through expanded fee business. To increase its efficiency, the Bank will focus on simplifying digital processes. The cost income ratio is also to be improved on this basis. Sustainability continues to be a key component of the strategy. The Bank will continue to actively shape the sustainable transformation of the German economy.

In the Private and Small-Business Customers (PSBC) segment, the range of optimised and digital banking solutions is being expanded. With its holistic approach and its two brands, Commerzbank and comdirect, it will meet all customer needs – whether online or mobile, in its advisory center or in person. Commerzbank wants to offer every customer the right model for their everyday banking needs. To this end, it will, among other things, further develop its account and card offerings as well as its payment transaction solutions. As a premium provider, Commerzbank aims to be the first point of contact for discerning customers. It will consistently expand its offering with a focus on securities and the lending business. Commerzbank sees opportunities particularly in asset and wealth management. The Bank wants to increase its customer growth among small-business customers while focusing on specific target groups. comdirect will strengthen its position as the digital primary bank with an expanded product range and its excellent brokerage platform. With its attractive and digital business model, mBank will build on its leading position among private customers. As the leading German Mittelstandsbank, Commerzbank will continue to provide close support to its corporate clients in their ongoing transformations. The Bank will continue to drive forward its strategy to date in the corporate customer business through targeted investments in products and digital solutions up to 2027. Commerzbank will therefore strengthen its transaction banking by investing in new systems and technologies and thereby secure its leading position in payment transactions and in the German trade finance business. In international business, the Bank supports clients that have a connection to Germany, Austria and/or Switzerland or belong to future-orientated industries. In its lending business, its focus is on growth in Germany and on financing green infrastructure projects worldwide. Commerzbank will rely on its centers of competence for renewable energies in Hamburg, Singapore and New York to achieve this. In the capital markets area, the Bank wants to expand its offering in the digital currency business and to open its central online trading platform to additional asset classes. Another focus will be on expanding the bonds business.

The Group Risk Strategy, together with the business strategy, regulates the strategic risk management guidelines for the development of Commerzbank's investment portfolio. With acceptance from its business model arising inherent existential threats the Group Risk Strategy takes into account exogenous factors, such as risks from the macroeconomic environment, as well as new regulatory requirements and endogenous factors. The starting point for the risk strategic orientation are the results of the annual risk inventory. In the risk inventory process, all economically significant quantifiable and unquantifiable risks arising from our business activities are determined in terms of their materiality for risk management. Based on the results of the risk inventory 2023 we classified default risk (with the main sub-risk types credit risk, issuer risk, counterparty risk, reserve risk, legal verity risk and country and transfer risk), market risk, operational risk, compliance risk, cyber risk, physical asset risk, business risk, reputational risk, liquidity risk and model risk as material types of risk for the Commerzbank Group.

The scope and management of credit risk, counterparty credit risk, securitisations, market risk, liquidity risk and operational risk are presented in the relevant chapters of this report. The chapter "Other risks" provides information on other types of risk classified as material.

Our portfolio is clearly dominated by default risks, which account for 68% of economically required capital. Of the on-balance sheet exposures, more than 50% are attributable to our home market in Germany and just under a third to other European countries. The Group's exposure at default increased from €517bn to €536bn in 2023. The risk density likewise rose over the same period, going up from 17 basis points to 21 basis points. Market risk in the trading book increased slightly in 2023. Value at Risk (VaR) rose slightly from €13m to €14m in 2023. Operational risk increased year on year. The total charge for OpRisk events rose from €951m to €1,176m compared with the previous year. Risk appetite, determined by Group Risk Strategy, refers to the maximum risk, in terms of both the amount and structure, which the Bank is willing and able to incur in pursuing its business objectives, without exposing itself to existential threats (beyond inherent risks). The guiding principle regarding risk appetite is to ensure that the Commerzbank Group has sufficient economic and regulatory capital and liquidity resources on a sustained basis. It is quantified in terms of risk limits for capital and liquidity management with defined escalation mechanisms, and by means of quantitative and qualitative early warning systems. Those risks assessed as being material are included in the Group Risk Strategy. The sub-risk strategies determine further details, e.g. limits and guidelines are broken down across segments and portfolios and they are specified and implemented via policies, regulations and operating instructions/ guidelines. They form an integral part of ongoing management and monitoring. In addition, from the perspective of risk concentrations regular portfolio-specific scenario analyses are carried out. The annual update of the risk-bearing capacity concept ensures, that the main types of risk are adequately taken into account in the risk-bearing capacity calculation.

The core functions of banks as transformers of liquidity and risk give rise to inevitable threats that can in extreme cases endanger the continued existence of the institution. For Commerzbank, the existential threats inherent in its business model include, for example, the default of Germany, the disintegration of the eurozone and a default of one or more of the other major European countries or a default of the United States, a collapse of the financial markets in connection with loss of the basic functionalities of the ECB, or a bank run that entails threats going beyond the components transferable to Commerzbank as a result of currently known events, a collapse or a massive malfunction in global clearing houses, as well as extreme cyber attacks on states and institutions due to increasing digitalisation and geopolitical tensions.

A key component of liquidity risk management is the daily calculation of the liquidity gap profile. The liquidity gap profile shows the deterministic or stochastic inflows and outflows expected in the future on a given reporting date and across all portfolios. This forms the basis for calculating liquidity requirements or excess liquidity per maturity band. Based on the liquidity gap profile, management mechanisms such as recovery and early warning indicators are limited and monitored accordingly. The liquidity gap profile is limited in the maturity bands up to 1 year. The Group limits are broken down into individual Group units and currencies.

In order to meet the minimum requirements for the regulatory liquidity coverage ratio (LCR), the Bank has established appropriate limits and early warning indicators. In 2023, Commerzbank significantly exceeded the minimum ratio of 100% stipulated for that year on every reporting date. As at the end of 2023, the average month-end value of the LCR over the last twelve months was 136,2%. The net stable funding ratio (NSFR) describes the regulatory requirement of stable refinancing as a ratio of the amount of the available stable refinancing and the amount of the required stable refinancing over a one-year horizon. The NSFR itself is defined as the ratio of the weighted available stable refinancing and the necessary weighted stable refinancing. It must be at least 100%. As of 31 December 2023, the NSFR was 130.2% and is thus well above the minimum ratio. The leverage ratio shows the ratio of Tier 1 capital to leverage ratio exposure, consisting of the non-risk-weighted assets plus off-balance-sheet positions, in accordance with CRR. On 31 December 2023, the leverage ratio was 4.9%.

To ensure an adequate capital backing, compliance with economic risk-bearing capacity requirements and the regulatory capital ratios is reviewed by means of an early warning system in both a forecast scenario and an adverse stress scenario.

The risk-bearing capacity (RBC) ratio, measured by means of the RBC ratio, is clearly met at 191%. The Common Equity Tier 1 ratio was 14.7% at €175.1bn RWA and €25.7bn common equity tier at the end of 2023. Commerzbank's target for its Common Equity Tier 1 capital ratio is based on the capital requirements resulting from the Supervisory Review and Evaluation Process (SREP). This minimum requirement culminates in the MDA threshold, which was 10.34% at the beginning of 2024. This compares with a CET1 ratio of 14.7% at the end of 2023. Commerzbank thus has a significant capital buffer above the regulatory minimum requirements. Commerzbank is still expecting a CET1 ratio of more than 14% for 2024. This target already takes into account a planned distribution of at least 70% of net income after deduction of fully discretionary AT1 coupons for the 2024 financial year.

There are numerous risk factors that could nonetheless affect the 2024 profit forecast to a considerable, though not reliably quantifiable extent, should events take an unfavorable turn. These still include high global economic risks. However, geopolitical risks, such as the Russia-Ukraine war, which could significantly accelerate existing inflationary trends through the massive increase in raw material prices, also have the potential to weaken the expected economic recovery and thus have an impact on our business performance. Moreover, trade disputes between the economic blocs Europe, North America and Asia, triggered by political tensions, remain possible. Other risk factors include a further tightening of the competitive situation in Germany. Along with inflation-related cost increases, a fall in margins to levels that are unattractive from a risk-return perspective could also delay and/or limit the effectiveness of the expected positive effects of the measures to increase Commerzbank's profitability over the coming years.

The risk result relating to the Group's lending business in 2023 amounted to €–618m. Commerzbank expects a charge from the risk result of less than €–800m for 2024. This expectation takes into account at least partial utilisation of the top-level adjustment (TLA). With a non performing exposure ratio (NPE ratio) of only 0.8%, the quality of the credit book was still high at the end of 2023.

Comprehensive, timely, transparent and methodologically sound risk measurement is the basic prerequisite for ensuring that the Commerzbank Group has sufficient liquidity and capital resources at all times. The processes we deploy make our business and risk strategy measurable, transparent and controllable. The methods and models we use to measure risk are in line with current, common banking industry standards and are subject to regular review by Risk Controlling, Internal Audit, our external auditors and the German and European supervisory authorities. In our assessment, the processes are well suited to safeguarding risk-bearing capacity and permanent solvency on a lasting basis. We consider our risk management methods and processes and our risk management system as a whole to be appropriate and effective.

Risk management organisation

Commerzbank regards risk management as a task for the whole Bank. The Chief Risk Officer (CRO) is responsible for developing and implementing the Group's risk policy guidelines for quantifiable risks, laid down by the Board of Managing Directors, as well as for measuring these risks. The CRO regularly reports to the Board of Managing Directors and the Supervisory Board's Risk Committee on the overall risk situation within the Group. In 2023, five regular and one extraordinary meetings of the Risk Committee took place.

The risk management organisation comprises Group Credit Risk Management, Group Risk Control, Group Cyber Risk & Information Security, Group Big Data & Advanced Analytics and Group Validation.

In addition, the CRO is responsible for Group Compliance. It is Group Compliance's responsibility to establish appropriate governance, procedures and systems to allow the Bank to avoid unintentional endangerment as a consequence of compliance risks. Group Compliance is led by the Chief Compliance Officer.

All divisions have a direct reporting line to the CRO.

The Board of Managing Directors has exclusive responsibility for fundamental strategic decisions. The Board of Managing Directors has delegated operative risk management to committees. Under the relevant rules of procedure, these are: the Group Credit Committee, the Group Market Risk Committee, the Group OpRisk Committee, the Group Cyber Risk & Information Security Committee and the Group Strategic Risk Committee, which decides on risk issues of an overarching nature. The CRO chairs all these committees and has the right of veto. The CRO is also a member of the Group Asset Liability Committee. Here the CRO also has a right of veto on certain topics (e.g. liquidity risk issues).

The tasks and competencies of the respective committees are described below:

The **Supervisory Board's Risk Committee** is the Bank's highest risk committee. It comprises at least five Supervisory Board members. The Risk Committee's tasks include monitoring the risk management system and dealing with risks such as market, credit and operational risk, reputational risk and cyber risks (including information security at the Bank). The Risk Committee determines the type, scope, format and frequency of the information that must be presented to the Board of Managing Directors about strategy and risk.

The **Group Credit Committee** is the decision-making committee for operative credit risk management, comprising two representatives each from the back office and front office. The Group Credit Committee takes decisions in line with the competencies delegated to it by the Board of Managing Directors and is responsible for managing all credit risks. It acts on the basis of the prevailing Group credit risk strategy.

The **Group Market Risk Committee** monitors market risk in the interests of the Bank as a whole and manages limit requirements in line with risk-bearing capacity. To do this, all material market risks from the trading and banking book are analysed to identify risks early and for active risk management purposes. The focus here is on optimising the risk/return profile.

The **Group OpRisk Committee** (OpRiskCo) is responsible for managing operational risks within the Group and in this regard acts as the highest escalation and decision-making committee below the Board of Managing Directors. The OpRiskCo also addresses all important regulatory issues that arise in connection with the management of operational risks within the Group. In addition, it deals with standards on governance and assessing the functioning of the Internal Control System (ICS) within the Commerzbank Group.

The **Cyber Risk & Information Security Committee** (CRISCo) monitors and manages cyber and information security risks in the overall interests of the Bank. In this respect, it acts as the highest decision-making and escalation committee below the Board of Managing Directors. The CRISCo addresses all regulatory aspects relevant to cyber and information security issues and has the aim of ensuring appropriate risk management in this regard in accordance with internationally recognised standards.

The **Group Strategic Risk Committee** acts as the discussion and decision-making committee for all types of risk, and its main objective is to monitor and manage risks at portfolio level. This covers risk measurement, risk transparency and risk management.

The **Group Asset Liability Committee** (Group ALCO) is the Commerzbank Group committee responsible for the Group-wide and integrated management of financial resources, namely capital, liquidity and balance sheet structure as well as net interest income, in accordance with the regulatory framework. The Group ALCO monitors in particular the Group's risk-bearing capacity and as such plays an important part in the Internal Capital Adequacy Assessment Process (ICAAP). The Group ALCO resolves the recovery plan. Resolutions of the Group ALCO are presented to the Board of Managing Directors for confirmation. In case of violation of a recovery plan indicator, the Group ALCO plays a central role regarding the escalation, the estimation of the situation and the introduction of measures.

Moreover, risk issues are dealt with in other committees listed below:

The **Group Risk Management Executive Committee** acts as the discussion and decision-making committee within Group Risk Management and is responsible in particular for the organisation and strategic development of risk management as well as the creation and maintenance of a uniform risk culture. It also ensures that the Group risk strategy and the resolutions of the Board of Managing Directors are implemented in the risk function.

Compliance topics are dealt with in the **Global Compliance Board** (GCB). The GCB has been established as a forum to share updates on major compliance topics and supervisory actions regarding compliance in the Bank. Furthermore, the GCB serves as an information platform for segments and functions about compliance culture, changes in compliance regulations, updates of compliance-related policies and their implications.

Risk strategy and risk management

The overall risk strategy, in line with the business strategy, governs the strategic risk focus of the Commerzbank Group. It sets the risk appetite as the maximum risk that the Bank is prepared and able to accept while following its business objectives without exposing itself to existential threats over and above the risks inherent in the business. The guiding idea is to ensure that the Group holds sufficient liquidity and capital. That also includes ensuring that the "Moving forward" business strategy can be implemented through a risk profile that is commensurate with the leeway determined by regulatory and capital market factors. Based on these requirements, suitable limits are defined for the risk resources of capital and liquidity available to the Group. The overarching limits of the overall risk strategy are consistent with the indicator thresholds of the recovery plan.

Key strategic measures have already been successfully implemented under the "Strategy 2024" programme, thereby reducing the remaining implementation risk. However, there are still significant idiosyncratic business risks that arise from ongoing challenges to the business model. These are essentially associated with technological advances, customer expectations and regulation. The "strategy 2027" systematically focuses on the key stakeholders – customers, employees and investors – and their expectations in what continues to be a very volatile and challenging environment. The growth path embarked upon will continue to be pursued while simultaneously boosting profitability and the Bank's attractiveness as an employer. Commerzbank has defined the three pillars of its current strategy as excellence, responsibility and growth. With regard to risk costs, the aim is to cover them through operational business at all times.

The core functions of banks as transformers of liquidity and risk give rise to inevitable threats that can in extreme cases endanger the continued existence of the institution. These depend on the bank's particular business model and are accepted in the pursuit of business objectives. The basis for Commerzbank's strategic alignment is its business strategy. In the event of a sustained change in the assessment of the inherent and existential threats to Commerzbank, the Board of Managing Directors may have to adjust the business model and thus the business and risk strategy in the medium and long term. A distinction can be made between the types of risk accepted on the basis of two fundamental threat scenarios. The occurrence of an inherent, existential threat jeopardises the continued existence of Commerzbank. In this case, rescuing Commerzbank would hardly be feasible without state measures or significant regulatory support measures (e.g. protective guarantees, tolerance of significant deviations from regulatory capital requirements, rescue merger) or activation of the Single Resolution Mechanism (SRM).

However, mitigation strategies are developed to counter these inherent existential threats in order, as far as possible, to reduce the probability of damage or the extent thereof. On the other hand, if a threat materialises that is inherent in the business model but not existential, there is always the possibility of mitigation through, among other things, capital measures available on the market or the use of appropriate capital buffers. It is therefore not necessary to activate the Single Resolution Mechanism (SRM) in this threat scenario. For Commerzbank, the existential threats inherent in its business model include, for example, the default of Germany, the disintegration of the eurozone and a default of one or more of the other major European countries or a default of the United States, a collapse of the financial markets in connection with loss of the basic functionalities of the ECB, or a bank run that entails threats going beyond the components transferable to Commerzbank as a result of currently known events, a collapse or a massive malfunction in global clearing houses, as well as extreme cyber attacks on states and institutions due to increasing digitalisation and geopolitical tensions.

When pursuing its business targets, the Bank accepts threats inherent in its business model (non-existential threats). These include the default of one or a small number of large (peripheral) eurozone countries without significant systemic consequences and a deep recession lasting several years with severe effects on the German economy and the resulting consequences such as huge loan defaults, excessive drawing of lines of credit by customers or a significant outflow of customer deposits with effects on the liquidity situation. If geopolitical crises ensue, such as that currently resulting from Russia's ongoing war against Ukraine, or trade wars, for example between the USA and China, this may have a huge impact on global markets and threaten Commerzbank's business model as an international institution. The measures taken by Commerzbank with a view to managing market, liquidity, credit and operational risk in response to the specific requirements of the geopolitical crisis – i.e. the measures taken to adjust to the new scenario following the invasion of Ukraine by the Russian army – remain in place. However, the observed effects on value chains and commodity prices also show that the impact is still ongoing and remains difficult to assess given the additional uncertainty surrounding further developments in the Middle East. In general, the geopolitical risk profile needs to be taken into account when defining the risk appetite in the sense of a forward-looking determination of the (country) risk disposition for possible geopolitical crises (e.g. with regard to China). As the digitalisation of the business environment continues to increase and Commerzbank undertakes its own digital transformation, cyber risk is an inherent threat that must be accepted. Depending on the severity and impact of a cyber attack, cyber risk can also be considered an existential threat, which is why Commerzbank is continuously working to improve its cyber resilience. The further evolution and possible consequences of mBank's situation in connection with loans indexed in Swiss francs and with the additional credit holidays granted by the national regulator in combination with a default by Poland pose political risks. These may significantly threaten Commerzbank and could require special mitigating capital market measures.

Environmental risk represents another inherent threat. By this we mean both climate-related and biodiversity risk, each of which can be further subdivided into physical and transition risk. We do not regard environmental risk as a separate type of risk, but as a "horizontal" risk that might materialise in the form of the familiar types of risk such as credit risk or market risk. The transition aspects in particular pose risks (as well as opportunities) in the short term that are difficult to assess. Identifying and mitigating this threat to Commerzbank is one of the objectives of risk strategy. Accordingly, Commerzbank undertakes an annual process to determine for each type of risk whether environmental risks are a key driver.

The need to record and manage the environmental risks was already established as a fundamental part of the assessment of risk-bearing capacity. Furthermore, the carbon emissions intensities of the customer portfolio continued to be reported within Commerzbank's environmental, social and governance (ESG) framework on the basis of explicit and externally communicated sector targets (SBTi), and an initial control system has been set up. On this basis, the management of climate-related risk in connection with the sustainability strategy being pursued will be further expanded and operationalised, including the ongoing improvement of data and methods.

To the extent that it is able to do so, Commerzbank makes early preparations in anticipation of forthcoming changes in regulatory requirements and accounting standards. Such changes and their (retrospective) interpretation may have lasting implications for – and even threaten the survival of – Commerzbank's business model. Commerzbank accepts these regulatory risks because there are many cases where there is no option to mitigate or manage them.

The overall risk strategy covers all material risks to which Commerzbank is currently exposed as listed in the risk inventory. It is updated annually or on an ad hoc basis as required and set out in further detail in the form of sub-risk strategies for the risk types which are material. These are then specified and made operational through policies, regulations and instructions/guidelines. By means of the upstream risk inventory process, Commerzbank aims to ensure that all risk types of relevance to the Group are identified and their materiality assessed. The assessment of the materiality of a risk is based on whether its occurrence could have a major direct or indirect impact on the Bank's risk-bearing capacity.

As part of the planning process, the Board of Managing Directors decides how much of the risk coverage potential of the Group should be utilised. On that basis, individual types of quantifiable risk contributing to the capital requirements are limited in a second stage. A capital framework is allocated to the management-relevant units through the planning process. Compliance with limits and guidelines is monitored during the year, and management measures are put in place where required. In addition, further early warning thresholds are established in the overall risk strategy. Potential negative developments can be identified at an early stage with the help of these indicators.

One of the primary tasks of risk management is the avoidance of risk concentrations. These can arise from the synchronous movement of risk positions both within a single risk type (intra-risk concentrations) and across different risk types (inter-risk concentrations). The latter result from common risk drivers or from interactions between different risk drivers of different risk types.

By establishing risk management and controlling processes, Commerzbank provides for the identification, assessment, management, monitoring and communication of material risks and related risk concentrations. This ensures that all Commerzbank-specific risk concentrations are taken into account in its risk management. Scenario analyses are regularly used to ensure transparency regarding risk concentrations. The structure of the scenarios and the integrated approach ensure that the impact of adverse scenarios on portfolio priorities and risk concentrations is examined in a targeted manner. Management is regularly informed about the results of the analyses so that the potential risk of losses can be avoided in good time.

The Group Risk & Capital Monitor is the monthly risk report, designed for management purposes, on capital, credit risk, market risk, liquidity risk, environmental risk and OpRisk topics within Commerzbank risk management. It shows all the above risk types, including economic and regulatory risk-bearing capacity, for the Commerzbank Group. The report's aims include providing the Board of Managing Directors and the Supervisory Board's Risk Committee with transparent and comprehensive information, highlighting important developments from a risk perspective and setting management measures. The report is also used in particular to monitor limits and guidelines within the overall risk strategy. Responsibility for approving the overall risk strategy and the Group Risk & Capital Monitor lies with the Board of Managing Directors.

Commerzbank has adopted a code of conduct that defines binding minimum standards for Commerzbank's corporate responsibility, its dealings with customers, business partners and colleagues, and its day-to-day business. It goes without saying that the Bank complies with relevant laws, regulatory requirements, industry standards and internal rules, and this therefore forms a particularly important part of its risk culture. It actively requires employees to behave appropriately, courageously, with integrity and in compliance with rules, and any failure to comply with rules is penalised. Expanded procedures ensure that misconduct is evaluated in a uniform and fair manner, strengthening consequence management on a long-term basis.

The main pillar of the Bank's overall risk management and culture is the concept of three lines of defence (3 LoD), which is a core element of the Corporate Charter. Under the three lines of defence principle, protecting against undesirable risks is an activity that is not restricted to the risk function. Each unit (segment or function) forms the first line of defence within its area of operational responsibility and is directly responsible for identifying and managing risks within it while complying with the prescribed risk standards and policies. For example, the front office forms the first line of defence in all business decisions and has to take risk aspects into account in reaching them. The second line of defence for each type of risk lays down standards for appropriate management of risks of that type, monitors this and ensures the application of such standards, and analyses and evaluates the risks. The risk function forms the second line of defence against credit and market risks associated with business decisions. Particularly for credit risk, this includes involvement in the credit decision process by means of a second vote. Units outside the risk function (e.g. Group Communications) also operate as the second line of defence for certain risk types. The third line of defence is Internal Audit.

Corporate governance information pursuant to Article 435 (2) CRR

Corporate governance information pursuant to Article 435 (2) CRR can be found in Annex 3 as well as on the Commerzbank internet pages under Commerzbank, Investor Relations, Corporate Governance.

Environmental, social and governance (ESG) risks pursuant to Article 449a CRR

Information on environmental, social and governance (ESG) risks pursuant to Article 449a CRR can be found in Annex 4. Further information on sustainability can also be found in our comprehensive sustainability reporting in accordance with international standards (e.g. TCFD, GRI) and the ESG framework of Commerzbank in the Sustainability Portal on the Commerzbank internet pages under Commerzbank, Investor Relations, Sustainability.

Remuneration information pursuant to Article 450 CRR

Commerzbank AG, as a significant institution, is required under Art. 16 (1) of the German Remuneration Ordinance for Institutions (InstitutsVergV) in conjunction with Article 450 of Regulation (EU) No. 575/2013 to disclose information on remuneration structures and, pursuant to Art. 27 (1) sentence 3, further information in the Group context. In addition to the remuneration policy in general, the disclosure includes, in particular, explanations of the remuneration systems, remuneration governance, and quantitative information on the total amount of all remuneration, in particular the remuneration for so-called risk takers.

The remuneration regulations for credit and financial institutions are set out at European level in the EU Capital Requirements Directive (CRD) and the EU Capital Requirements Regulation (CRR), among other places.

Remuneration information pursuant to Article 450 CRR is shown in the Remuneration Report in Annex 5. The Remuneration Report for the Board of Managing Directors and the Supervisory Board is published separately on the Commerzbank internet pages under Investor Relations, Publications and events, Financial reports.

Risk-bearing capacity and stress testing

Risk-bearing capacity analysis is a key part of overall bank management and Commerzbank's ICAAP. The purpose is to ensure that sufficient capital is held at all times. The risk-bearing capacity concept is reviewed and optimised annually. The risk-bearing capacity encompasses a normative (regulatory) perspective and an economic perspective. For information about the key figures for the normative perspective, see Note 60 (Selected key regulatory figures) of the Group financial statements.

When determining the economically required capital, allowance is made for potential unexpected fluctuations in value. Where such fluctuations exceed forecasts, they must be covered by the available economic capital to absorb unexpected losses (risk coverage potential). Only the economic value of equity components that absorb losses in the going concern approach is taken into account in determining the economic risk coverage potential.

The capital requirement for the risks taken is quantified using the internal economic capital model. All risk types of the Commerzbank Group classified as significant and quantifiable within the annual risk inventory are taken into account when determining the economically required capital. The economic risk approach therefore also comprises risk types that are not included in the regulatory requirements for banks' capital adequacy. The model also reflects diversification effects incorporating all types of risk. The confidence level for the calculation of economically required capital is 99.90% and is harmonised with the going concern approach. The quantifiable significant risks in the economic capital model are divided into default risk, market risk, operational risk and (not separately disclosed in the following table) business risk and property value change risk. Furthermore, reserve risk is included in the risk-bearing capacity calculation by means of a corresponding risk buffer. Business risk is the risk of a potential loss resulting from deviations in actual income and expense from the respective budgeted figures. Business risk is used to substantiate a higher-level management buffer that ensures the responsiveness of capital management. Physical asset risk is the risk of an unexpected fall in the value of owned property which is either already recognised as an asset in the Group's balance sheet or which can be recognised during the next 12 months under contractually assured obligations with option character (especially real estate). Environmental risks are defined as horizontal risks within Commerzbank that are manifested in existing risk categories, with both transition and physical risks being considered. The annual materiality assessment of environmental risks provides a comprehensive overview of the impact on existing material risk types identified in the risk inventory. Environmental risks are reflected in Commerzbank's risk-bearing capacity analysis through a risk buffer for default and market risks, which are materially affected by environmental risks.

The results of the risk-bearing capacity analysis are shown using the risk-bearing capacity ratio (RBC ratio), indicating the excess of the risk coverage potential in relation to the economically required capital. Risk-bearing capacity is monitored and managed monthly at Group level. The RBC ratio was 191% as of 31 December 2023. The rise in risk coverage potential compared with December 2022 is mainly attributable to the Bank's earnings performance and to a market-induced decline in hidden liabilities. The decline in market risk reflects a reduced level of market volatility. The RBC ratio remains at a high level.

RBC1: Risk-bearing capacity Group

Risk-bearing capacity Group I €bn	31.12.2023	31.12.2022
Economic risk coverage potential	24	22
Economically required capital[1]	13	13
thereof for credit risk[2]	9	8
thereof for market risk[3]	3	4
thereof for operational risk[4]	2	2
thereof diversification effects	−2	−2
RBC ratio[5]	**191%**	**163%**

[1] Including physical asset risk, risk of unlisted investments and the risk buffer for reserve risk, for the quantification of potential fluctuations in value of intangibles and for environmental risks.
[2] Including buffers for planned changes in methods.
[3] Including deposit model risk.
[4] Including cyber and compliance risk.
[5] RBC ratio = economic risk coverage potential/economically required capital (including risk buffer). Change in the ratio as of 31 December 2022 due to changes in market risk figures.

Commerzbank uses macroeconomic stress tests to review the risk-bearing capacity in the event of assumed adverse changes in the economic environment. The underlying scenarios take into account the interdependence of the development of the real economy and the financial economy. They are updated quarterly and approved by the Group ALCO. The scenarios describe an extraordinary but plausible adverse development in the economy, focusing in particular on portfolio priorities (e.g. export-based sectors in Germany) and business strategies of relevance to Commerzbank. Current adverse developments (e.g. high energy costs) are also taken into account when creating the scenarios. Stress tests in the economic perspective cover a time horizon of 12 months. The scenario simulation is run quarterly at Group level using the input parameters of the economic capital requirements calculation for all material and quantifiable risk types. In addition to the capital required, the income statement is also subjected to a stress test based on the macroeconomic scenarios. Based on this, changes in the risk coverage potential are simulated. Whereas the RBC ratio is embedded into Commerzbank's limit system, guidelines for risk-bearing capacity are set as an early warning system in the stressed environment. The ongoing monitoring of the limits and guidelines is a key part of internal reporting. Defined escalations are triggered if the limits are breached.

The risk-bearing capacity and stress testing concept is subject to an annual internal review and is refined on an ongoing basis. The development of the regulatory environment is also taken into account. In addition to the regular stress tests, reverse stress tests are implemented annually at Group level. Unlike regular stress testing, the result of the simulation – a sustained threat to the Bank – is determined in advance. The aim of the analysis process in the reverse stress test is to improve the transparency of Bank-specific risk potential and interactions of risk by identifying and assessing extreme scenarios and events. On this basis, for instance, action fields in risk management including the regular stress tests can be identified and taken into account in the ongoing development efforts. Commerzbank carries out various environmental risk-related scenario analyses and stress tests every year. All material risk types are analysed in terms of the degree to which they are impacted by environmental risk, while risk types materially affected by environmental risk undergo a stress test. Commerzbank also takes part in supervisory stress tests – in particular it participated in the EBA's "One-off Fit-for-55 climate risk scenario analysis" in 2023 and 2024.

A. Credit risk

Credit risk (default risk from credit risk) is defined as the risk of losses sustained or profits foregone due to the default of a counterparty. It is a quantifiable material risk and includes the sub-risk types of credit default risk, issuer risk, counterparty credit risk, country and transfer risk, dilution risk and reserve risk. The default risk from counterparty risk is shown separately in the section on counterparty credit risk in this report.

Risk management

Strategy and organisation

The credit risk strategy is the sub-risk strategy for default risks and is derived from the overall risk strategy. It is embedded in the ICAAP process of the Commerzbank Group and forms a link between the Bank's overall risk management across all risk types and the operationalisation of default risk management. The overriding aim is to ensure the adequate quality of the credit portfolio. To this end, the credit risk strategy defines the credit risk tolerance, specifies risk strategy priorities, provides an overview of the material credit risk management concepts and thereby plays an integral part in maintaining the Group's risk-bearing capacity. The credit risk strategy makes use of quantitative and qualitative management tools that are intended to give decision-makers clear guidance on both portfolio management and decisions in specific cases.

The environment remained a challenging one in 2023, which was manifested in particular in signs of a recession, energy shortages and changing trade corridors. The resulting impact on Commerzbank's loan portfolio was to be seen primarily in sectors that were particularly affected by this environment. In its credit risk management, Commerzbank continues to be guided by the principle of seeking a low-risk profile while limiting cluster risks and undertaking portfolio-specific risk management. A further focal point in this connection is financing the transformation of the German economy with a view to achieving the objectives of the Paris Agreement. Both the front office and the risk function are involved in credit risk management as the first and second lines of defence, based on a uniform Group-wide credit risk culture.

Credit risk management is a joint task of the front office and the risk function, based on a standardised Group-wide credit risk culture. Impeccable moral and ethical conduct in compliance with the law and regulations is a key element of a culture of integrity and core to the credit risk culture. Default risks are assessed against uniform standards, regardless of segment limits. In line with the three lines of defence principle, the front office is the first line of defence and must take risk aspects into account when taking business decisions. The risk function (back office and Risk Controlling) is the second line of defence, its fundamental task being to manage, limit and monitor risks. The third line of defence is Internal Audit. It is tasked with independently auditing the Bank's processes and safeguards, and as such also assesses the activities of the first and second lines of defence.

The Group Credit Committee is the highest decision-making committee for operative credit risk management, comprising two representatives each from the back office and front office. It takes decisions in line with the competencies delegated to it by the Board of Managing Directors and is responsible for managing all credit risks. In so doing, the Group Credit Committee operates on the basis of the valid credit risk strategy. Reporting to the Group Credit Committee are sub-credit committees, which operate on the basis of their respective rules of procedure and within the competencies approved by the Board of Managing Directors. They comprise at least two representatives from the segments and two representatives from Group Risk Management. The sub-credit committees are responsible for managing all credit risks in the sub-portfolios within their respective remit and are entitled, in turn, to sub-delegate certain credit decisions within their prescribed competencies.

Discrete back-office areas are responsible for operational credit risk management at portfolio level and on a case-by-case basis. The responsibilities are separated between the performing loan area on the one hand and Intensive Care on the other. All credit decisions in the performing loan area are risk/return decisions. The front and back office take joint responsibility for risk and return from an exposure, with the front office having primary responsibility for the return, and the back office for the risk. Accordingly, neither office can be overruled in its primary responsibility in the credit decision process. Since the risk management function cannot be overruled in the credit decision-making process, the third-line-of-defence concept is adhered to.

Higher-risk customers are handled by specialist Intensive Care areas. The customers are moved to these areas as soon as they meet defined criteria for assignment or mandatory transfer. The principal reasons for assignment to Intensive Care areas are criteria relating to number of days overdrawn, together with event-related criteria such as rating, third-party enforcement measures or credit fraud. The Intensive Care function decides on further action based on the circumstances of individual cases. Customers must be transferred to Intensive Care if they are in default (for example due to insolvency). This graduated approach ensures that higher-risk customers can continue to be managed promptly by specialists in a manner appropriate to the risks involved and in defined standardised processes.

Risk management

Commerzbank manages default risk using a comprehensive risk management system. The management framework comprises an organisational structure, methods and models, quantitative and qualitative management tools and regulations and processes. The risk management system ensures that the entire portfolio and the sub-portfolios, right down to individual exposure level, are managed consistently and thoroughly on a top-down basis.

The ratios and measures required for the operational process of risk management are based on the overarching Group objectives. The principle of seeking a low-risk profile in all business decisions is closely combined here with the risk function's aim of providing support for business that is appropriate in terms of risk. Preference is given to transactions and products with a low level of complexity. Another focus is on the responsiveness of a credit line or exposure.

Quantitative credit risk strategy guidelines limit risks with regard to poorer credit ratings and exposures with high loss-at-default contributions (concentration management) and for selected sub-portfolios with a high risk weight or regulatory importance, and, as applicable, for individual products with a high portfolio share. Detailed arrangements for operationalising the guidelines for selected sub-portfolios are set out in separate portfolio policies. In addition, qualitative management guidelines in the form of credit policies define the target business of the Bank. At the level of individual transactions, they regulate the transaction type for which the available risk resources are to be used. These credit policies are firmly embedded in the credit process: transactions which do not meet the requirements are escalated through a fixed competence regulation.

Group-wide guiding principles are based on risk-oriented analyses of trends (e.g. of the development of weaker credit ratings over time) combined with an assessment of external framework conditions and internal rules. Risk-oriented analyses on key dates (e.g. rating profile of individual asset classes) are used in particular to derive portfolio guiding principles. Trend analyses of product-specific risk drivers are key factors for determining product guiding principles (e.g. loan-to-value of mortgage lending). In contrast, credit and portfolio policies are primarily produced through a multi-level coordination process involving the product and portfolio managers from the front and back offices, combined with an assessment of internal and external information sources.

To monitor compliance with credit risk strategic rules, continuous monitoring and reporting has also been set up at whole Group level and at segment or sub-portfolio level. Asset quality reviews as part of the second line of defence make an important contribution to quality assurance. The focus of these reviews is on regular spot checks of selected dual-control lending processes. Ad hoc reporting processes have been established. In addition, crisis events may pose a risk to the Bank's capital and liquidity adequacy and thereby to its risk-bearing capacity. In a crisis, the Risk Mitigation Task Force will manage decisions flexibly in a coordinated, Group-wide process. For example, the Russia-Ukraine war prompted the establishment of the Task Force at the beginning of 2022, and continued its work in 2023, in order to identify effects on the Group portfolio as quickly as possible and to be able to take countermeasures. As part of the process, emergency action plans ensure that risk-mitigation measures are implemented quickly and efficiently.

The avoidance of risk concentrations is a core strategy of risk management. Risk concentrations are actively managed in order to identify at an early stage and contain the increased potential for loss from the synchronous movement of risk positions. In addition to exposure-related credit risk concentrations (bulk risks), default risk also includes country and sector concentrations. Segment-specific features are taken into account here.

Management and the Supervisory Board's Risk Committee are regularly informed about the results of the analyses.

Management of economic capital commitment

Economic capital commitment is managed in order to ensure that the Commerzbank Group holds sufficient capital. To this end, all relevant risk types in the overall risk strategy for economic risk capital are given limits on a Group-wide basis, with, in particular, a CVaR limit being specified. Due to the systematically restricted options for reducing default risk on a short-term basis, it is important to take account of expected trends (medium-term and long-term) in order to manage credit risk. For this reason, forecast values of credit risk parameters play a key role in ongoing management. At segment and business area level, changes to forecasts are monitored and adjustments made when necessary. There is no cascaded capital limit concept for credit risk below Group level.

Country risk management

In establishing country risk, transfer risks are recognised that arise from the economic and political situation of a country and to which all economic entities in the country are subject. Country risks are managed on the basis of transfer risk limits defined at country level. Country exposures which are significant for Commerzbank due to their size are handled by the Credit Committee on a separate basis.

The regional breakdown of the exposure corresponds to the Bank's strategic direction and reflects the main areas of its global business activities.

Overview of management instruments and levels

Risk strategies and policies	Limit and guideline systems	Portfolio monitoring and reporting	Structures of organisation and committees
Group			
Overall risk strategy plus sub-risk strategies for significant risk types Establishment of a general risk understanding and creation of a uniform risk culture	Definition of Group limits (across all risk types) for capital and liquidity management Additional definition of guidelines as key points of the aspired target portfolio	Group Risk & Capital Monitor plus risk type specific Group formats (including flash reporting) Uniform, consolidated data repository as basis for Group reporting	Ensuring exchange of information and networking in committees that operate across all risk types Retaining qualified staff in line with progressive product innovation or regulatory adjustments
Sub-portfolios			
Clear formulation of risk policy in guidelines (portfolios, asset classes, etc.) Differenciated credit authorities based on compliance of transactions with the Bank's risk policy	Performance metrics on level of risk categories and sub-portfolios Expansion of Group-wide performance metrics using sub-portfolio-specific indicators	Portfolio batches as per established portfolio calendar* Asset quality review and analysis of High Attention Parts (HAP) Trigger monitoring with clear escalation and reporting lines	Interdisciplinary composition of segment committees Ensuring uniform economic opinions
Individual exposures			
Rating-dependent and bulk-sensitive credit authority regulations with clear escalation processes	Limitation of bulk risk	Limit monitoring at individual exposure level Monthly report to the Board of Managing Directors on the development of bulk risks Review of individual custom-ers/exposures resulting from asset quality review or HAP analyses	Deal team structures Institutionalized exchange within the risk function, also taking account of economic developments Sector-wise organization of domestic corporate business

Credit risk model

The quantification of default risks takes place through the implementation of a Group-wide credit risk model, which consists of internally developed rating systems and a loan portfolio model. The rating systems calculate the risk parameters of probability of default (PD), exposure at default (EaD[1]) and loss given default (LGD) for every credit risk position. This enables the expected loss and risk-weighted assets to be calculated for each individual position pursuant to the IRB approach, insofar as the underlying positions do not fall within the scope of the standardised approach.

The loan portfolio model also produces probability statements on losses from credit defaults and rating changes at portfolio level. Unexpected loss (credit value at risk – CVaR) is quantified on a risk horizon of one year. The model measures the extent of potential credit risk losses over and above the expected loss and must be backed by equity capital within the internal capital adequacy assessment process (ICAAP).

Commerzbank's loan portfolio model is an in-house model which, as with the CreditMetrics or Moody's KMV model, is based on the asset value approach. A Monte Carlo simulation simulates potential realisations of borrowers' assets and thus associated rating changes or defaults. Possible future losses at portfolio level are calculated and statistically analysed on this basis.

The loan portfolio model requires transaction and customer data: level of exposure, creditworthiness, expected loss given default, country and sector classification.

Dependencies between possible default events are also modelled through around 60 systematic risk factors. Specific model parameters (correlations) measure the connection of individual borrowers to these system factors and the correlation between system factors. This way they quantify potential diversification effects between different sectors and countries.

Commerzbank's rating systems are thus both the basis for the determination of risk-weighted assets and, together with the loan portfolio model, an essential component of the internal risk and capital management of the Group's portfolio.

Rating procedures

A key component of Commerzbank's rating architecture is the use of single point of methodology rating procedures, taking advantage of a central suite of computation kernels. This uniform process architecture not only facilitates risk management and monitoring but also supports consistent rating assignments within the Commerzbank Group. The rating processes are in turn embedded in rating systems. In addition to the conventional methods of assessing creditworthiness and risk, these comprise all the processes for preparing data, calculating ratings and implementing monitoring and management measures.

The use of rating processes is an essential component of risk assessment in the Commerzbank Group, irrespective of regulatory requirements. The resulting ratings are then used in front and back-office credit decision-making processes, the determination of loan loss provisions under IFRS and internal measurement of CVaR and risk-bearing capacity, respectively. Rating processes are also further revised and improved. These improvements make risk forecasts more accurate and improve management mechanisms.

The tables below show the rating processes used in the IRBA in the individual asset classes according to the CRR and their main elements as at the reporting date. The R-SCR, R-LRG, RS-CRE, RS-CFD and NBFI models have no longer been used in the IRB approach for the purposes of RWA determination since the introduction of the revised model strategy in 2022. These portfolios are subject to the credit standard approach (SACR).

Further models are in use at mBank. Details are given in section 5.3 of the mBank disclosure report on their English internet page (About mBank → Capital Adequacy Information Policy).

[1] Economic EaD: Exposure at default amount taking into account a potential (partial) drawing of open lines and contingent liabilities that will adversely affect risk-bearing capacity in the event of default.

VAL-A: Material IRBA rating procedures by exposure class

Exposure class	Name of the material rating procedures
Institutions	RFI-BANK, R-CORP/COSCO
Corporates - SMEs	R-CORP/COSCO
Corporates - specialised lending	RS-REN
Corporates - other	R-CORP/COSCO, RFI-BANK, CORES,RS-REN
Retail - secured by mortgages / SMEs	CORES
Retail - secured by mortgages / non-SMEs	CORES
Retail - qualifying revolving	CORES
Retail - other / SMEs	CORES, R-CORP/COSCO
Retail - other / non-SMEs	CORES

VAL-B: Core components of IRBA rating procedures

Scope	Procedure	Hard facts	Soft facts	Overruling
Banks	RFI-BANK	▪	▪	▪
Corporate customers	R-CORP/COSCO	▪	▪	▪
Private customers	CORES	▪		
Renewable energies	RS-REN	▪	▪	▪

In the rating procedures, various analysis areas are evaluated, which can be divided into hard facts and soft facts. Hard facts refer to system-based factors which are used in the rating process and allow no scope for interpretation. For instance, these may be data from companies' annual financial statements, the income of a private individual, or the age of the documents being used.

Soft facts refer to structured areas of analysis where the rating analyst needs to make an assessment and where there is therefore scope for discretion on a case-by-case basis. Examples include an assessment of management or the competitive situation of the customer being rated.

Overruling is a downstream area of analysis where there is a further opportunity for the analyst to assess circumstances separately based on his or her personal judgement. The system result can be adjusted upwards or downwards. The relevant reason for the decision is adequately documented. Overruling should particularly be used when there are strongly fluctuating developments (e.g. market changes) such that an adequate assessment of a company's situation based on the analysis of statistical information (e.g. annual financial statements) is not sufficient to give a future-oriented probability of default. Due to the degree of freedom this gives the rating process, overruling is subject to strict standards and regular monitoring, especially in case of upgrades.

The Commerzbank rating method comprises 25 rating classes for customers not in default (1.0 to 5.8) and five default classes (6.1 to 6.5). The Commerzbank master scale allocates precisely one rating class, stable over time, to each probability of default. The rating methods are validated annually and recalibrated where necessary so that they reflect the latest assessment based on all actual observed defaults.

The probability of default ranges assigned to the ratings are the same for all portfolios. This ensures internal comparability consistent with the master scale method. For guidance and indicative purposes, the Commerzbank master scale also shows external ratings as well as credit quality steps in accordance with Article 136 CRR. However, a direct reconciliation is not possible, because external ratings of different portfolios show fluctuating default rates from year to year.

The credit decision, which is based, among other things, on the rating result, includes the credit competencies of individual employees as well as the competencies of the committees (Board of Managing Directors, credit committee, credit sub-committees) are graduated by a range of factors including size of exposure and rating class.

Commerzbank master scale

Commerzbank AG rating	PD and EL mid-point %	PD and EL range %	S&P scale		Credit quality steps in accordance with Article 136 CRR[1]	
1.0	0	0	AAA	AAA		
1.2	0.01	0 – 0.02			I	
1.4	0.02	0.02 – 0.03	AA+	AA		
1.6	0.04	0.03 – 0.05	AA, AA–			
1.8	0.07	0.05 – 0.08	A+, A	A	II	Investment Grade
2.0	0.11	0.08 – 0.13	A–			
2.2	0.17	0.13 – 0.21	BBB+			
2.4	0.26	0.21 – 0.31	BBB	BBB	III	
2.6	0.39	0.31 – 0.47				
2.8	0.57	0.47 – 0.68	BBB–			
3.0	0.81	0.68 – 0.96	BB+			
3.2	1.14	0.96 – 1.34	BB			
3.4	1.56	1.34 – 1.81		BB	IV	Sub-investment grade
3.6	2.10	1.81 – 2.40				
3.8	2.74	2.40 – 3.10	BB–			
4.0	3.50	3.10 – 3.90	B+			
4.2	4.35	3.90 – 4.86				
4.4	5.42	4.86 – 6.04	B	B	V	
4.6	6.74	6.04 – 7.52				Non-investment grade
4.8	8.39	7.52 – 9.35				
5.0	10.43	9.35 – 11.64	B–			
5.2	12.98	11.64 – 14.48	CCC+	CCC		
5.4	16.15	14.48 – 18.01	CCC, CCC–		VI	
5.6	20.09	18.01 – 22.41	CC, C	CC, C		
5.8	47.34	22.41 – 99.99				
6.1		> 90 days past due				
6.2		Imminent insolvency				
6.3	100	Restructuring with recapitalisation	D			Default
6.4		Termination without insolvency				
6.5		Insolvency				

[1] CRR = Capital Requirements Regulation (EU) No 575/2013.

The following table EU CR6-A shows the scope of the use of IRB and SA approaches pursuant Article 452 b) CRR as of 31 December 2023:

EU CR6-A: Scope of the use of IRB and SA approaches

		a	b	c	d	e
	€m	**Exposure value as defined in Article 166 CRR for exposures subject to IRB approach**	**Total exposure value for exposures subject to the Standardised approach and to the IRB approach**	**Percentage of total exposure value subject to the permanent partial use of the SA (%)**	**Percentage of total exposure value subject to a roll-out plan (%)**	**Percentage of total exposure value subject to IRB Approach (%)**
1	Central governments or central banks	1,146	141,212	100%	0%	0
1.1	Of which Regional governments or local authorities		16,800	100%	0%	0
1.2	Of which Public sector entities		3,192	100%	0%	0
2	Institutions	30,932	36,636	21%	79%	0
3	Corporates	113,337	117,519	14%	86%	0
3.1	Of which Corporates - Specialised lending, excluding slotting approach		6,037	0%	100%	0
3.2	Of which Corporates - Specialised lending under slotting approach		1,448	0%	100%	0
4	Retail	149,256	138,025	5%	95%	0
4.1	thereof secured by mortgages / SMEs		15,218	0%	100%	0
4.2	thereof secured by mortgages / non-SMEs		78,437	0%	100%	0
4.3	thereof qualifying revolving		2,997	0%	100%	0
4.4	thereof other / SME		15,689	2%	98%	0
4.5	thereof other / non-SMEs		25,683	24%	76%	0
5	Equity IRB	0	564	100%	0%	0
6	Other non-credit obligation assets	4,013	7,987	28%	72%	0
7	**Total**	**298,683**	**441,943**	**40%**	**60%**	**0**

The credit conversion factor according to SACR is used to determine the leverage ratio; this results in parts of column b in lower figures compared to column a.

Risk parameters

In addition to classifying the probability of default (PD) within the scope of the rating process, correctly assessing loss severity is essential for a reliable and holistic risk assessment. The loss severity is determined firstly by the exposure at default (EaD) and secondly by the loss given default (LGD).

In general, modelling the probabilities of default is based on the Bank's internal long-standing empirical default data. Should this data not be sufficient for specific portfolios (low-default portfolios), different approaches are used to model the probabilities of default. Shadow rating procedures are one option. Comparing the Bank's internal risk factors with the ratings of external agencies gives indications of how the Bank's credit rating estimates should be classified in relative terms. The shadow rating procedures are calibrated based on empirical default rates over many years for the rating classes used by external rating agencies. In rating procedures for special funding, the customer's credit rating derives principally from the cash flows generated by the rating object. Typically, the rating procedures are therefore based on cash flow simulations using stochastic processes. The procedures are normally used in low default or low number portfolios for which only very few external benchmarks exist. The models are therefore causally derived. Calibration is either based on historical defaults or often with the help of expert knowledge. Wholly expert-based rating procedures are the final option. No external target criterion is available for these procedures and there are no cash flow simulations. Parameterisation of the models and their calibration are based wholly on expert knowledge.

When forecasting EaD unused credit lines and other contingent liabilities are included via credit conversion factors (CCFs). Depending on the transaction and the customer, the CCFs describe the probability of drawdown in the event of a default within the next twelve months.

The LGD is primarily determined by the expected proceeds from collateral and unsecured portions of loans. Proceeds from collateral are modelled via recovery rates representing a discount on the previously defined market value. The recovery rate depends on the characteristics of the collateral. For instance, when modelling for properties, the collateral is differentiated by property type and location. To determine the proceeds on unsecured portions of loans, the focus is primarily on the characteristics of the customer and the transaction. In addition, "recoveries" of previously defaulted customers, i.e. the continuation of the payment obligations by the customer, play an important role in the LGD estimation.

The CCF and LGD models are based on bank-internal empirical loss data. For this purpose, Commerzbank refers to a database of internal credit defaults since 1997. New defaults are recorded continuously and are made available for statistical analysis once processing is complete. For quality assurance purposes, the data collection process is monitored by a number of controls and automatic checking procedures.

Both the internal and regulatory requirements of the CRR are considered when developing statistical models for estimating EaD and LGD. Discussions with experts from back office and debt workout departments play an important role when identifying relevant factors and validating the results. In instances where there is only a small number of historical default or collateral utilisation cases, the empirical analyses are supplemented with expert assessments.

It is possible that a positive correlation of the risk parameters PD, LGD and CCF with one or more common macroeconomic risk factors may lead to a heightened systematic credit risk. It is for this reason that Art. 181 (1) b) CRR requires the use of LGD estimates that are appropriate even in an economic downturn (so-called downturn LGDs). Periods of an economic downturn are characterised by systemically high default rates above the long-term average. In downturn analyses, downturn years were determined and/or confirmed to estimate the risk parameters (CCF and LGD components). Statistical models, particularly regression models, are used to examine whether the downturn phases identified have a significant impact on the loss ratios; if applicable, an appropriate discount is determined.

All models are regularly validated and recalibrated based on the new findings, if necessary. Empirically-based PD, LGD and EaD parameters are used in all important internal processes at Commerzbank. The PD, LGD and EaD models employed by Commerzbank for natural persons, SMEs, corporates, banks and renewable energies are approved for the advanced IRB approach for the asset classes listed in Art. 452 c) i) to iv) CRR. The suitability of the models was verified by the Bundesbank, BaFin and the ECB as part of the inspection prior to the granting of authorisation for the advanced IRB approach and ex post reviews.

Finally, combining the above components yields an assessment of the expected loss (EL = EaD*PD*LGD) and the risk density as a ratio of EL to EaD (EL to EaD in basis points). The internal master scale is used to clearly allocate borrower PDs (customer ratings) to the Bank's internal rating classes.

Validation

Pursuant to Article 185 CRR, all risk classification procedures are subject to a regular validation and calibration of parameters. The credit risk control unit is the relevant unit for model development and parameter calibration. The relevant models are validated at least once a year and the results recorded in validation reports. Responsibility for this lies with the independent validation unit. Independence is ensured by a separate department below the Board of Managing Directors.

All validation results together with the need for action resulting from them are presented for approval to a validation committee in which senior management is represented. A summary of the validation committee's results as well as any irregularities and necessary changes are presented to the Bank's Strategic Risk Committee;

approval is required if there are any red validation traffic lights. Regular monitoring of procedures is an additional system control element. To check the quality of the rating procedures, specialist personnel within Internal Audit regularly review the methods and processes used and inspect validation and monitoring methods. In the event of changes to the rating systems in accordance with Article 143 CRR, an independent formal investigation is carried out to establish whether the relevant quantitative and qualitative criteria were considered during categorisation, together with the resulting categorisation.

Validation concepts are defining which analyses have to be carried out rotationally for the rating systems as well as for CCF and LGD models. The material analysis results are grouped and evaluated using a traffic-light system. If the standards and limits that have been defined in the validation concept are not met, it must be clarified if there is a need for action. In this case, concrete steps must be defined along with a timetable for implementing them. These steps may include, for instance, measures to improve data quality or a revision of the process in question.

Generally, a distinction is to be made between the method validation and the process validation of the models. Data quality aspects and statistical analyses are of specific interest for the method validation. This involves comparing the model forecasts with the reality over the course of the assessment period. The quality of the forecasts is verified using mathematical/statistical methods. Assessing the discriminatory power of rating procedures may involve using Gini coefficients, concordance indices and hit rate analyses, for instance. The calibration of procedures may be checked using various statistical tests, such as the Spiegelhalter or binomial test. Validation and model development do not take into account any regulatory floors for PD. These are only taken into account during the regulatory capital calculation to determine RWA.

Depending on the type of model a different validation procedure to back-test each single model has to be applied, as described in the following:

- **Default/non-default rating procedure:** In default/non-default models, ratio selection, parameter estimates and calibration are mainly based on internal default periods. A check is therefore made during validation to ascertain whether the internally measured default rates tally with the predicted probabilities of default. Discriminatory power is also checked by calculating the AUC value, and the Gini coefficient respectively.
- **Hybrid models:** Hybrid models are basically mixtures of default/non–default models and shadow rating procedures. For the latter, external ratings are the target criterion. An internal data history is now available for some low-default portfolios. While this alone, aat the time of development, was not sufficient to develop a default/non-default model, the available data history is yet being incorporated for validation or development purposes. In these procedures the validation techniques of default/non-default models are combined with the additional techniques of the shadow rating procedures.
- **Cash flow-based procedures**: In rating procedures for special funding, the customer’s credit rating derives principally from the cash flows generated by the rating object. Typically, the rating procedures are therefore based on cash flow simulations using stochastic processes. The procedures are normally used in low default and low number respectively portfolios for which only very few external benchmarks exist. The models are therefore causally produced and often calibrated using expert knowledge. Direct comparisons of the predicted PDs with realised default rates and discriminatory power analyses using the AUC are usually fraught with considerable uncertainty due to the low number of defaults. The statistical testing of CCF and LGD predictions of these models are likewise difficult. Key elements of the validation of these procedures are descriptive analyses of the input data and comparisons of the cash flows and volatilities predicted by the users with actual cash flows.

- **CCF and LGD models**: On the basis of additional default and loss data full-sample and out-of-sample tests are carried out through statistical backtests. In this context the validity of existing parameter differentiations and the discriminatory power of the applied risk factors have always to be analysed. Data quality and the representativeness of observations for future loss events are also important subjects of analyses.

The following table VAL1 gives an overview of the quantitative model approaches used for the individual rating procedures. The scope of application of the rating procedures is presented in the section on rating procedures in tables VAL-A and VAL-B.

VAL1: Overview on IRBA rating procedures of Commerzbank AG

	PD validation		CCF / LGD validation	
Rating procedure	**Methodology**	**Data history Years**	**Methodology**	**Data history Years**
RFI-BANK	Shadowrating, Default/non-default	12	Calibrated empirically	24
R-CORP/COSCO	Default/non-default	14	Calibrated empirically	24
CORES	Default/non-default	15	Calibrated empirically	24
RS-REN	Cash flow simulation	11	Cash flow simulation	16

Process validation is carried out in collaboration with the risk model users. This includes compliance of the procedures with regulations, overruling analyses and general user acceptance. For CCF and LGD procedures the precise technical implementation of parameters in all using systems has to be verified. Asset Quality Reviews established in credit risk management also guarantee a continuously reliable data quality and the implementation of the model true to the process. Monthly reporting of rating coverage to the Board of Managing Directors ensures that the portfolios are valued using up-to-date and valid rating analyses.

The validations performed in 2023 show largely unremarkable findings. The validation results for all separately calibrated IRBA parameters and/or sub-models are summarised in the tables below and broken down by PD, LGD and CCF method. This shows the cases in which the tolerance limits set by the corresponding validation concepts were exceeded, as a result of which adjustments are recommended.

It should be noted that the scope of the models shown in Table VAL1 is limited to the IRBA application area. These are in different phases of the approval process as a result of extensive revisions. CORES and R-CORP/COSCO are already in productive use, while RFI-BANK and RS-REN are still in use in their previous version. The validation reflects this status.

There were no abnormalities with recommended customization requirements based on the internal validation standards. However, CORES and R-CORP/COSCO require adaptation due to the associated approval tests.

There was a significant need for adjustment from the current validations in the LGD parameters for private clients and a sub-portfolio of corporate clients. The validations of the CCF models revealed a need for adjustments in the Retail segment.

VAL2: Validation results per calibration segment (validation based on data basis 2023)

	PD		LGD		CCF	
Validation	**Number**	**EaD in %**	**Number**	**EaD in %**	**Number**	**EaD in %**
Adequate	12	100	287	81	24	85
Too conservative - adjustment recommended	0	0	8	18	6	13
Too progressive - adjustment recommended	0	0	3	1	2	3
Total	**12**	**100**	**298**	**100**	**32**	**100**

An overview of the PD validation results as of 31 December 2022 for the relevant rating systems by IRBA asset class is provided in table EU CR9. The basis for this is the rating systems that were productive at the time; the above-mentioned fundamental revision was not taken into account here. mBank operates independent retail and corporate rating procedures, which can be found in section 5.3 of the disclosure report of mBank on the bank's English-language homepage (at About mBank → Capital Adequacy Information Policy).

Extensive internal investigations as part of the IRBA revision found that the transition to the current default definition, which was put into production on November 18, 2019, had no significant impact on the previous definition, which justifies disregarding this in the historical default rates in Table EU CR 9. Furthermore, it was shown that debtors with short-term contracts under 12 months do not significantly influence the default rates, since they are in good approximation equally distributed over the year and only have a low single-digit percentage at the beginning of the one-year observation windows. There were also no significant effects of the coronavirus pandemic.

This knowledge gained at model level is also transferred to the asset classes. A key point here is the new model strategy: Apart from the rating procedures listed in VAL1, no major revision was carried out and all other models were transferred to the KSA with effect from 30 November 2022. As a result, the IRBA exposure class "central governments or central banks" is no longer relevant. The "institutions" exposure class is now completely determined by RFI-BANK, as is the "corporates – thereof specialized lendings" exposure class of RS-REN.

The asset classes from the retail and corporate sectors are defined by CORES and R-CORP/COSCO and the corresponding mBank procedures. An exception to this is the exposure class "Retail other /SMEs"; R-CORP/COSCO also plays a role here.

The default rates reflect the deteriorating economic environment in Germany, whereby it must also be taken into account that the default rates of mBank generally exceed those of Commerzbank. As a result, some PD bands are underestimated. The main reason for this observation is the fact that, as already mentioned, the evaluation was based on the productive models at the time of the data collection. The extensive revisions resulting from increased IRBA requirements have not yet been taken into account. This situation applies to both Commerzbank and mBank.

EU CR9_part 1: IRB approach – Backtesting of PD per exposure class

a	b	c	d	e	f	g	h
	PD scale	Number of obligors at the end of the previous year	of which: number of obligors which defaulted during the year	Observed average default rate (%)	Exposures weighted average PD (%)	Average PD (%)	Average historical annual default rate %
Central governments or central banks	0.00 to < 0.15	0	0	-	-	-	-
	0.00 to <0.10	0	0	-	-	-	-
	0.10 to <0.15	0	0	-	-	-	-
	0.15 to < 0.25	0	0	-	-	-	-
	0.25 to < 0.50	0	0	-	-	-	-
	0.50 to < 0.75	0	0	-	-	-	-
	0.75 to < 2.50	0	0	-	-	-	-
	0.75 to <1.75	0	0	-	-	-	-
	1.75 to <2.50	0	0	-	-	-	-
	2.50 to 10.00	0	0	-	-	-	-
	2.5 to <5	0	0	-	-	-	-
	5 to <10	0	0	-	-	-	-
	10.00 to < 100.00	0	0	-	-	-	0.02
	10 to <20	0	0	-	-	-	0.02
	20 to <30	0	0	-	-	-	-
	30 to <100	0	0	-	-	-	-
	100.00 (default)	0	0	-	-	-	-
Institutions	0.00 to < 0.15	1,301	1	0.08	0.07	0.07	0.02
	0.00 to <0.10	1,023	1	0.10	0.05	0.06	0.02
	0.10 to <0.15	278	0	-	0.12	0.12	0.00
	0.15 to < 0.25	206	0	-	0.19	0.18	0.00
	0.25 to < 0.50	405	1	0.25	0.33	0.38	0.17
	0.50 to < 0.75	234	0	-	0.61	0.61	0.00
	0.75 to < 2.50	616	0	-	1.34	1.49	0.09
	0.75 to <1.75	374	0	-	1.14	1.11	0.07
	1.75 to <2.50	242	0	-	2.08	2.16	0.22
	2.50 to 10.00	448	0	-	4.72	3.80	0.20
	2.5 to <5	328	0	-	3.39	3.40	0.00
	5 to <10	120	0	-	6.98	6.33	0.61
	10.00 to < 100.00	154	3	1.95	40.51	46.80	0.77
	10 to <20	13	3	23.08	12.36	11.83	6.84
	20 to <30	12	0	-	22.99	25.10	0.00
	30 to <100	129	0	-	58.96	54.59	0.01
	100.00 (default)	13	0	-	100.00	100.00	0.00

EU CR9_part 2: IRB approach – Backtesting of PD per exposure class

a	b	c	d	e	f	g	h
	PD scale	Number of obligors at the end of the previous year	of which: number of obligors which defaulted during the year	Observed average default rate (%)	Exposures weighted average PD (%)	Average PD (%)	Average historical annual default rate %
Corporates, thereof SMEs	0.00 to < 0.15	571	1	-	0.10	0.10	0.12
	0.00 to <0.10	326	1	-	0.06	0.07	0.21
	0.10 to <0.15	245	0	-	0.13	0.13	0.00
	0.15 to < 0.25	540	0	-	0.20	0.20	0.12
	0.25 to < 0.50	986	8	0.81	0.35	0.35	0.31
	0.50 to < 0.75	635	6	0.94	0.62	0.60	0.41
	0.75 to < 2.50	2,332	43	1.84	1.37	1.34	1.24
	0.75 to <1.75	1,774	29	1.63	1.18	1.14	1.09
	1.75 to <2.50	558	14	2.51	2.08	2.09	1.77
	2.50 to 10.00	1,143	75	6.56	4.76	4.80	3.59
	2.5 to <5	880	47	5.34	3.46	3.51	2.27
	5 to <10	263	28	10.65	7.02	7.20	7.17
	10.00 to < 100.00	112	12	10.71	25.64	16.94	7.81
	10 to <20	74	11	14.86	12.54	12.65	8.79
	20 to <30	12	1	-	23.41	23.90	10.64
	30 to <100	26	0	-	57.26	57.00	4.51
	100.00 (default)	289	0	-	100.00	100.00	-
Corporates, thereof specialised lending	0.00 to < 0.15	401	1	0.25	0.04	0.04	0.08
	0.00 to <0.10	395	1	0.25	0.03	0.04	0.09
	0.10 to <0.15	6	0	-	0.12	0.12	0.00
	0.15 to < 0.25	22	0	-	0.17	0.19	0.00
	0.25 to < 0.50	24	0	-	0.40	0.36	0.06
	0.50 to < 0.75	21	0	-	0.57	0.59	-
	0.75 to < 2.50	28	0	-	1.45	1.09	0.29
	0.75 to <1.75	27	0	-	1.20	1.09	0.35
	1.75 to <2.50	1	0	-	1.98	1.98	0.02
	2.50 to 10.00	11	0	-	3.23	3.70	0.35
	2.5 to <5	8	0	-	3.22	3.65	0.03
	5 to <10	3	0	-	5.23	5.70	1.09
	10.00 to < 100.00	2	1	50.00	85.92	32.08	20.69
	10 to <20	0	0	-	0.00	0.00	0.01
	20 to <30	0	0	-	0.00	0.00	0.04
	30 to <100	2	1	50.00	85.92	32.08	20.85
	100.00 (default)	10	0	-	100.00	100.00	0.00

EU CR9_part 3: IRB approach – Backtesting of PD per exposure class

a	b	c	d	e	f	g	h
	PD scale	Number of obligors at the end of the previous year	of which: number of obligors which defaulted during the year	Observed average default rate (%)	Exposures weighted average PD (%)	Average PD (%)	Average historical annual default rate %
Corporates, thereof other	0.00 to < 0.15	5,892	15	0.25	0.10	0.10	0.06
	0.00 to <0.10	3,045	2	0.07	0.07	0.07	0.02
	0.10 to <0.15	2,847	13	0.46	0.12	0.12	0.10
	0.15 to < 0.25	6,154	8	0.13	0.20	0.20	0.06
	0.25 to < 0.50	10,297	9	0.09	0.35	0.36	0.12
	0.50 to < 0.75	5,037	11	0.22	0.61	0.60	0.12
	0.75 to < 2.50	10,412	45	0.43	1.23	1.34	0.29
	0.75 to <1.75	7,857	33	0.42	1.09	1.06	0.23
	1.75 to <2.50	2,555	12	0.47	2.01	1.89	0.41
	2.50 to 10.00	4,611	69	1.50	4.10	4.20	1.66
	2.5 to <5	3,592	52	1.45	3.36	3.67	1.06
	5 to <10	1,019	17	1.67	6.51	6.58	2.93
	10.00 to < 100.00	1,542	21	1.36	20.28	17.44	2.18
	10 to <20	540	21	3.89	13.99	14.02	3.05
	20 to <30	209	0	-	23.45	23.89	4.39
	30 to <100	793	0	-	46.02	48.51	0.73
	100.00 (default)	1,028	0	-	100.00	100.00	0.00
Retail secured by mortgages / SMEs	0.00 to < 0.15	24,988	34	0.14	0.06	0.06	0.07
	0.00 to <0.10	21,213	24	0.11	0.05	0.05	0.06
	0.10 to <0.15	3,775	10	0.26	0.12	0.12	0.10
	0.15 to < 0.25	10,653	25	0.23	0.20	0.20	0.10
	0.25 to < 0.50	15,035	46	0.31	0.36	0.37	0.17
	0.50 to < 0.75	6,475	42	0.65	0.60	0.61	0.23
	0.75 to < 2.50	6,597	129	1.96	1.24	1.24	0.80
	0.75 to <1.75	5,609	101	1.80	1.10	1.10	0.70
	1.75 to <2.50	988	28	2.83	2.06	2.07	1.37
	2.50 to 10.00	1,518	99	6.52	4.53	4.65	3.21
	2.5 to <5	974	52	5.34	3.36	3.36	2.50
	5 to <10	544	47	8.64	6.97	7.07	4.53
	10.00 to < 100.00	535	127	23.74	21.14	21.21	11.50
	10 to <20	284	92	32.39	13.56	13.24	11.02
	20 to <30	137	21	-	23.69	23.00	8.34
	30 to <100	114	14	-	43.63	40.88	10.81
	100.00 (default)	686	0	-	100.00	100.00	0.00

EU CR9_part 4: IRB approach – Backtesting of PD per exposure class

a	b	c	d	e	f	g	h
	PD scale	Number of obligors at the end of the previous year	of which: number of obligors which defaulted during the year	Observed average default rate (%)	Exposures weighted average PD (%)	Average PD (%)	Average historical annual default rate %
Retail secured by mortgages / non-SMEs	0.00 to < 0.15	272,389	336	0.12	0.06	0.06	0.05
	0.00 to <0.10	216,295	228	0.11	0.05	0.05	0.04
	0.10 to <0.15	56,094	108	0.19	0.12	0.12	0.08
	0.15 to < 0.25	134,383	243	0.18	0.20	0.20	0.07
	0.25 to < 0.50	111,199	252	0.23	0.35	0.35	0.10
	0.50 to < 0.75	28,017	166	0.59	0.59	0.59	0.25
	0.75 to < 2.50	19,492	367	1.88	1.20	1.20	0.78
	0.75 to <1.75	16,522	270	1.63	1.06	1.06	0.67
	1.75 to <2.50	2,970	97	3.27	2.08	2.08	1.46
	2.50 to 10.00	6,973	424	6.08	4.94	4.77	2.85
	2.5 to <5	4,111	173	4.21	3.45	3.39	1.99
	5 to <10	2,862	251	8.77	7.07	7.03	4.05
	10.00 to < 100.00	3,759	814	21.65	22.54	22.90	10.23
	10 to <20	1,961	573	29.22	13.64	13.86	10.44
	20 to <30	977	143	-	23.84	23.84	6.69
	30 to <100	821	98	-	45.79	46.33	8.98
	100.00 (default)	3,404	0	-	100.00	100.00	0.00
Retail qualifying revolving	0.00 to < 0.15	1,708,963	902	0.05	0.04	0.04	0.02
	0.00 to <0.10	1,581,719	677	0.04	0.04	0.04	0.02
	0.10 to <0.15	127,244	225	0.18	0.12	0.12	0.08
	0.15 to < 0.25	195,663	424	0.22	0.20	0.20	0.12
	0.25 to < 0.50	230,520	783	0.34	0.36	0.36	0.21
	0.50 to < 0.75	95,219	605	0.64	0.62	0.62	0.36
	0.75 to < 2.50	227,371	3,643	1.60	1.41	1.42	0.80
	0.75 to <1.75	165,749	2,224	1.34	1.17	1.17	0.69
	1.75 to <2.50	61,622	1,419	2.30	2.08	2.08	1.13
	2.50 to 10.00	140,788	6,643	4.72	4.70	4.70	2.44
	2.5 to <5	101,108	3,244	3.21	3.51	3.51	1.63
	5 to <10	39,680	3,399	8.57	6.98	6.99	4.39
	10.00 to < 100.00	33,652	7,825	23.25	22.76	23.57	10.07
	10 to <20	20,180	5,290	26.21	13.38	13.44	9.14
	20 to <30	6,427	1,425	-	24.38	24.46	6.67
	30 to <100	7,045	1,110	-	46.50	47.30	9.52
	100.00 (default)	11,399	0	-	100.00	100.00	0.00

EU CR9_part 5: IRB approach – Backtesting of PD per exposure class

a	b	c	d	e	f	g	h
	PD scale	Number of obligors at the end of the previous year	of which: number of obligors which defaulted during the year	Observed average default rate (%)	Exposures weighted average PD (%)	Average PD (%)	Average historical annual default rate %
Retail other / SME	0.00 to < 0.15	121,912	128	0.10	0.07	0.07	0.05
	0.00 to <0.10	100,571	73	0.07	0.05	0.05	0.04
	0.10 to <0.15	21,341	55	0.26	0.13	0.12	0.11
	0.15 to < 0.25	37,681	144	0.38	0.20	0.20	0.15
	0.25 to < 0.50	78,908	381	0.48	0.35	0.36	0.24
	0.50 to < 0.75	40,016	263	0.66	0.60	0.60	0.35
	0.75 to < 2.50	89,519	1,754	1.96	1.32	1.32	0.93
	0.75 to <1.75	68,791	1,141	1.66	1.13	1.13	0.78
	1.75 to <2.50	20,728	613	2.96	2.07	2.08	1.42
	2.50 to 10.00	57,906	3,545	6.12	4.81	4.72	3.18
	2.5 to <5	36,377	1,713	4.71	3.47	3.48	2.38
	5 to <10	21,529	1,832	8.51	6.96	6.95	4.34
	10.00 to < 100.00	20,792	3,901	18.76	21.33	20.85	10.75
	10 to <20	11,558	2,335	20.20	13.64	13.92	8.87
	20 to <30	5,203	583	-	23.41	23.53	8.96
	30 to <100	4,031	983	-	43.53	44.00	10.67
	100.00 (default)	18,266	0	-	100.00	100.00	0.00
Retail other / non-SME	0.00 to < 0.15	170,086	210	0.12	0.06	0.06	0.05
	0.00 to <0.10	148,046	143	0.10	0.04	0.04	0.04
	0.10 to <0.15	22,040	67	0.30	0.12	0.12	0.13
	0.15 to < 0.25	54,855	130	0.24	0.21	0.21	0.10
	0.25 to < 0.50	93,628	305	0.33	0.35	0.35	0.15
	0.50 to < 0.75	60,017	334	0.56	0.60	0.60	0.29
	0.75 to < 2.50	217,274	2,824	1.30	1.30	1.31	0.62
	0.75 to <1.75	166,330	1,676	1.01	1.11	1.12	0.49
	1.75 to <2.50	50,944	1,148	2.25	2.06	2.08	1.10
	2.50 to 10.00	138,968	5,484	3.95	4.65	4.38	2.23
	2.5 to <5	98,799	3,089	3.13	3.47	3.43	1.71
	5 to <10	40,169	2,395	5.96	6.80	6.87	3.25
	10.00 to < 100.00	40,958	8,511	20.78	23.45	23.23	9.17
	10 to <20	25,610	4,687	18.30	13.65	13.65	6.45
	20 to <30	7,304	1,784	-	24.28	24.45	7.29
	30 to <100	8,044	2,040	-	45.78	46.04	9.41
	100.00 (default)	40,299	0	-	100.00	100.00	-

Table EU CR9.1 is not presented as Commerzbank does not make any PD estimates under Article 180 (1) f) CRR.

Credit risk mitigation

At Commerzbank, risks are mitigated via a range of measures including collateral and netting.

The collateral mainly takes the form of mortgages, financial collateral, guarantees, indemnity letters, credit derivatives, life insurances, other registered liens and other real collateral. Within the scope of the IRBA assessments, this collateral was recognised by the regulator as eligible collateral.

In the IRBA, the Bank takes account of credit risk mitigating effects arising from the receipt of eligible guarantees (guarantees/sureties, comparable claims on third parties) by using the risk parameters (PD and LGD) of the guarantor. Under the SACR, the Bank uses the risk weightings laid down by the supervisory authority.

Regulatory setting-off provided, as part of the assessment of their declaration of liability, guarantors are subject to a review of their creditworthiness and rating in accordance with their sector and business. The aim of the creditworthiness check is to establish the guarantor's creditworthiness and maximum solvency.

In accordance with the CRR, the quality of the collateral recognised by the regulator is subject to rigorous review and is continuously monitored. In particular, this includes establishing the legal enforceability of the collateral and ensuring that it is valued regularly. Depending on the collateral type, this takes place at adequate intervals, in principle at least annually, in the case of real estate collaterals in accordance with the regulatory requirements, depending on the type and value of the property by monitoring the market values or by means of an annual review of the valuation as well as or as circumstances require. Positive correlations between the creditworthiness of the borrower and the value of the collateral or guarantee are established in the collateral processing and lending process and collateral instruments affected are not offset. Collateral is processed exclusively separated from the market side.

The Bank carries out collateral concentration analyses for all lending collateral (physical and personal collateral). Various aspects such as collateral category, borrower's rating class and regional allocation of the collateral are examined. With reference to these aspects, the Board of Managing Directors is kept informed on a regular basis of the development of the collateral pool and possible anomalies/concentrations. As of 31 December 2023, far more than three quarters of the calculated collateral of the hedged non-outstanding receivables were attributable to clients with an investment grade rating.

The valuation and processing of collateral are governed by universally applicable standards and collateral-specific instructions (guidelines, descriptions of processes, IT instructions). Collateral agreements are legally validated; as far as possible, standard contracts and samples are used. The standards established to hedge against or mitigate the risks of loans, which also take account of the regulatory requirements of CRR, include, amongst others:

- Legal and operational standards for documentation and data collection as well as valuation standards.
- The standardisation and updating of collateral valuations are ensured by laying down valuation processes, prescribing standardised valuation methods, parameters and defined discounts for collateral, clearly defining responsibilities for the processing and valuation process, and stipulating requirements for revaluations at regular intervals.
- Other standards for taking account of specific risks, e.g. operational risks, correlation and concentration risks, market price change risks (e.g. due to currency fluctuations), country risks, legal risks or risks of changes in the law, and risks of insufficient insurance cover.

For the vast majority of its default risk positions from counterparty credit risk, Commerzbank Group uses the internal model method (IMM) according to Article 283 CRR. The credit equivalent amounts are determined as expected future exposure through the simulation of various market scenarios, taking netting and collateral into account.

Also for securities repurchase, lending and comparable transactions involving securities or goods, the exposures are determined in accordance with Article 283 CRR in conjunction with Article 273 (2) CRR on the basis of an internal model method. Guarantees and credit derivatives are considered via the substitution approach. The double-default procedure defined under Article 153 (3) CRR is applied.

Details on the use of credit risk mitigation techniques in default risks from counterparty credit risk are set out in the section on counterparty credit risk.

The following table EU CR3 gives an overview of the extent of the use of credit risk mitigation techniques. The items shown in column c are mainly positions secured by mortgages.

The table refers to in Article 453 f) CRR as of 31 December 2023, i.e. loans and advances are shown separately as well as the defaulted risk positions.

EU CR3: Credit risk mitigation (CRM) techniques – overview

		a	b	c	d	e
	€m	**Exposures unsecured – Carrying amount**	**Exposures secured – Carrying amount**	**Exposures secured by collateral**	**Exposures secured by financial guarantees**	**Exposures secured by credit derivatives**
1	Loans and advances	247,315	157,115	146,746	10,369	0
2	Debt securities	91,120	0	0	0	
3	**Total**	**338,435**	**157,115**	**146,746**	**10,369**	**0**
4	Of which non-performing exposures	878	1,275	769	506	0
EU-5	Of which defaulted	878	1,275			

Credit risk and credit risk mitigation in the SACR

This chapter presents the effects of the credit risk mitigation on the Commerzbank Group's standardised approach (SACR) portfolio, divided by exposure classes and the risk weight used.

The portfolios currently excluded from the IRBA are measured in accordance with SACR regulations as permitted under partial use provisions. In contrast to the IRBA, the SACR is largely based on a flat risk weighting or external ratings. Commerzbank has nominated the rating agencies Standard & Poor’s Rating Services, Moody’s Investors Service and FitchRatings for the use of external ratings.

Where an external credit rating is available for a position, that external rating is used to determine the risk weighting. Commerzbank uses the standard mapping of external credit assessments to the relevant credit quality steps published by the EBA in accordance with Article 136 CRR. Where two or more external credit ratings are available for one position, the risk weighting is assigned in accordance with the provisions of Article 138 CRR.

For unrated positions, if the conditions set out in Articles 139 and 140 CRR are met, a risk weighting is calculated on the basis of a derived credit rating. In all other cases, the position is treated as an unrated exposure.

External ratings are used for central governments or central banks, regional and local governments, public-sector entities, multilateral development banks, institutions, companies and covered bonds. They are not used for positions in local currency in order to derive risk weightings for foreign currency exposures.

Under the SACR, guarantees are treated according to the substitution principle. This means that the borrower’s risk weighting is replaced by that of the guarantor. Consequently, the guaranteed amount is transferred from the borrower’s exposure class to that of the guarantor. This is why the exposure before CRM for assets guaranteed by central governments and central banks, for example, is less than after CRM. However, a transfer only takes place if the risk weighting of the guarantor is lower than that of the borrower. This can be seen in table EU CR4.

This table also shows the impact of the credit risk mitigation techniques used in the SACR portfolio in accordance with Chapter 4 of Title II of Part Three CRR and the conversion factors used in accordance with Article 111 CRR.

Table EU CR4 contains the information in accordance with articles 444 e) and 453 g), h) and i) CRR, i.e. the exposure values before and after conversion factors and credit risk mitigation, which are assigned to the individual credit ratings by exposure class, divided between balance sheet and off-balance sheet exposure values, and the exposure values deducted from own funds, as of 31 December 2023.

For the reported SACR exposure value, unlike the IRBA, the valuation allowances based on each of the positions are deducted. Table EU CR5 shows the distribution of exposure values after credit risk mitigation and conversion factors by exposure class and risk weight as of 31 December 2023, in accordance with Article 444 e) CRR.

EU CR4: Standardised approach – Credit risk exposure and CRM effects

		a	b	c	d	e	f
	Exposure classes	**Exposures before CCF and CRM**		**Exposures post CCF and CRM**		**RWAs and RWA density**	
	€m	**On-balance-sheet amount**	**Off-balance-sheet amount**	**On-balance-sheet amount**	**Off-balance-sheet amount**	**RWAs**	**RWA density**
1	Central governments or central banks	119,938	4,262	124,570	4,197	2,892	2.2%
2	Regional government or local authorities	22,032	387	23,627	15	1,511	6.4%
3	Public sector entities	3,780	135	5,105	13	212	4.2%
4	Multilateral development banks	1,721	0	2,329	89	0	0.0%
5	International organisations	903	0	903	0	0	-
6	Institutions	1,436	1,848	1,476	587	538	26.1%
7	Corporates	9,923	6,772	11,580	2,229	10,452	75.7%
8	Retail	4,865	4,020	4,694	84	3,557	74.5%
9	Secured by mortgages on immovable property	9,215	68	9,215	32	3,466	37.5%
10	Exposures in default	444	106	287	2	359	124.7%
11	Exposures associated with particularly high risk	628	64	625	14	959	150.0%
12	Covered bonds	0	0	0	0	0	-
13	Institutions and corporates with a short-term credit assessment	6	0	6	0	1	20.0%
14	Collective investment undertakings	2,559	0	2,559	0	953	37.2%
15	Equity	658	0	658	0	930	141.2%
16	Other items	2,412	0	2,412	0	5,622	233.1%
17	**Total**	**180,523**	**17,663**	**190,047**	**7,262**	**31,453**	**15.9%**

EU CR5: Standardised approach

	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
Exposure classes								**Risk weight**								**Total**	**Of which unrated**
€m	**0%**	**2%**	**4%**	**10%**	**20%**	**35%**	**50%**	**70%**	**75%**	**100%**	**150%**	**250%**	**370%**	**1250%**	**Others**		
Central governments or central banks	121,369	–0	308	0	5,529	0	336	0	0	763	2	295	0	0	166	128,767	2,835
Regional government or local authorities	17,489	0	0	0	5,243	0	850	0	0	0	0	0	0	0	60	23,642	22,026
Public sector entities	4,347	0	0	0	633	0	3	0	0	1	0	0	0	0	133	5,117	0
Multilateral development banks	2,418	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,418	1,721
International organisations	903	0	0	0	0	0	0	0	0	0	0	0	0	0	0	903	903
Institutions	5	37	243	0	1,366	0	318	0	0	95	0	0	0	0	0	2,063	0
Corporates	121	0	0	0	1,353	0	3,520	0	0	8,784	30	0	0	0	0	13,809	7
Retail	0	0	0	0	0	0	0	0	4,778	0	0	0	0	0	0	4,778	0
Secured by mortgages on immovable property	0	0	0	0	0	5,808	3,438	0	0	0	2	0	0	0	0	9,247	0
Exposures in default	0	0	0	0	0	0	0	0	0	146	142	0	0	0	0	288	0
Exposures associated with particularly high risk	0	0	0	0	0	0	0	0	0	0	639	0	0	0	0	639	419
Covered bonds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Institutions and corporates with a short-term credit assessment	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	6	0
Collective investment undertakings	765	0	0	0	642	0	910	0	0	178	54	0	0	9	0	2,559	0
Equity	0	0	0	0	0	0	0	0	0	477	0	181	0	0	0	658	658
Other items	0	0	0	0	0	0	0	0	0	272	0	2,140	0	0	0	2,412	115
Total	**147,417**	**37**	**552**	**0**	**14,773**	**5,808**	**9,374**	**0**	**4,778**	**10,717**	**870**	**2,616**	**0**	**9**	**359**	**197,308**	**28,685**

In order to mitigate credit risk in the SACR, the Commerzbank Group takes financial collateral and guarantees into consideration. These are dealt with separately in the section on risk mitigation. Furthermore, collateral in the form of property charges also reduces the risk weighting.

Past due positions are shown with a risk weighting of 150%. Depending on the impairments based on these positions in accordance with IFRS 9 or the collateral, a risk weighting of 100% can be applied or they may be shifted to another exposure class.

The amount of the exposures secured by collateral, financial guarantees or credit derivatives and the amount of unsecured exposures by asset class is shown in table EU CR3 in the section on credit risk mitigation. The effectively secured risk position values, i.e. taking into consideration all of the relevant haircuts for the collateral, are allocated to the SACR exposure class. In taking financial collateral into account as a credit risk mitigation technique, Commerzbank generally uses the comprehensive method as defined under Articles 223 to 228 CRR. In doing so, the risk exposure value for the default risk position is reduced by the value of the financial collateral.

Credit risk and credit risk mitigation in the IRBA

The credit risk of the Commerzbank Group's IRBA portfolio divided into the relevant IRBA asset classes and PD ranges is shown below. The information in table EU CR6 on on-balance-sheet gross receivables refers to the risk exposure values to be determined according to Article 166 CRR. These represent the expected amounts of the IRBA positions that will be exposed to a risk of loss. The off-balance-sheet claims are shown before taking into account credit risk adjustments and conversion factors. Exposure at default (regulatory EaD) shows the exposure values after taking into account credit risk mitigation. The risk parameters CCF, PD and LGD are calculated as EaD-weighted averages. The IRBA default definition is also used for internal purposes.

The companies in the Commerzbank Group use the IRBA approach. They may therefore use internal estimates of credit conversion factors (CCFs) for regulatory purposes, too. CCFs are necessary for off-balance-sheet transactions in order to assess the likely exposure in the event of a possible default on commitments that have not yet been drawn.

Tables EU CR6. EU CR7 and EU CR7-A show only portfolios which fall within the scope of IRBA and are rated with a rating process that has been approved by the supervisory authority. Positions in the risk exposure class other non-loan-related assets are not listed in table EU CR6. These assets amounting to €12.8bn do not have any creditworthiness risks and are therefore not relevant for the management of default risks. Table EU CR6 also does not include mBank S.A. positions of €1.0bn risk weighted assets, which are subject to the IRBA slotting approach in accordance with Article 153 (5) CRR and are shown in table EU CR10. Investment positions with a fixed risk weighting according to Article 155 (2) CRR are not relevant in the Commerzbank Group as of 31 December 2023 and are therefore not part of table EU CR10.

The securitisation exposures in the IRBA are presented separately in the section on securitisations in this report. Counterparty default risks are shown in the section on default risks from counterparty credit risks in this report.

The impact of credit derivatives used as credit risk mitigation techniques on the amount of RWA of credit risk in the IRBA portfolio as of 31 December 2023 comes to about 0.2% (see the next table EU CR7).

The risk exposure values shown in this section generally differ from the EaD values in the Annual Report (economic EaD) due to the following:

- According to the EBA disclosure requirements, credit risk and counterparty credit risk are presented separately in the Disclosure Report.
- Some transactions are not included in risk-weighted assets (RWA) for regulatory purposes but are included in the EaD of the Annual Report and Risk Report respectively.
- The figures shown in this Disclosure Report refer to the regulatory scope of consolidation. By contrast, the figures in the Annual Report refer to the IFRS scope of consolidation.

The amount of the exposures secured by collateral, financial guarantees or credit derivatives and the amount of unsecured exposures by asset class is shown in table EU CR3 in the section on credit risk mitigation. In addition to the collateral in the standardised approach to credit risk (hereinafter referred to as SACR), under the IRBA some physical and other collateral which is only eligible for recognition under the IRBA is also offset.

The calculation of collateral is based on market values weighted with recovery rates. These recovery rates are based on empirical data and form part of the LGD models. By definition, the rates cannot exceed 100%; therefore, the collateral values are normally lower than the market values. By contrast, under the IRBA the substitution approach is used to offset guarantees and credit derivatives. The protection therefore does not take effect in the LGD, as is the case with financial and other IRBA collateral, but via the substitution of the debtor's risk parameters with those of the guarantor. Alternatively, the double-default procedure may be used in the IRBA.

Table EU CR6 contains the information described above in accordance with Article 452 g) CRR as of 31 December 2023 for the AIRB portfolio. As Commerzbank does not have any F-IRB positions, a corresponding table is not required.

EU CR6_part 1: IRB approach – Credit risk exposures by exposure class and PD range

	a	b	c	d	e	f	g	h	i	j	k	l	m
A-IRB	PD scale	On-balance sheet exposures €m	Off-balance-sheet exposures pre-CCF €m	Exposure weighted average CCF	Exposure post CCF and post CRM €m	Exposure weighted average PD %	Number of obligors	Exposure weighted average LGD %	Exposure weighted average maturity years	Risk weighted exposure amount after supporting factors €m	Density of risk weighted exposure amount	Expected loss amount €m	Value adjustments and provisions €m
Central governments or central banks	0.00 to < 0.15	526	508	0.40	704	0.06	130	90.95	4.3	280	0.40	0.4	0.0
	0.00 to <0.10	376	280	0.43	467	0.04	91	94.71	4.3	173	0.37	0.2	0.0
	0.10 to <0.15	150	228	0.37	237	0.11	39	83.52	4.2	108	0.45	0.2	0.0
	0.15 to < 0.25	19	42	0.48	44	0.23	9	92.14	6.1	35	0.80	0.1	0.0
	0.25 to < 0.50	86	99	0.24	109	0.39	23	99.81	2.1	121	1.10	0.4	0.0
	0.50 to < 0.75	52	42	0.42	70	0.57	11	100.00	1.7	87	1.25	0.4	0.0
	0.75 to < 2.50	38	31	0.44	51	1.59	24	99.97	6.6	99	1.93	0.8	0.0
	0.75 to <1.75	30	24	0.46	42	1.40	16	99.98	7.0	75	1.80	0.6	0.0
	1.75 to <2.50	7	7	0.35	10	2.41	8	99.89	4.8	24	2.51	0.2	0.0
	2.50 to 10.00	67	80	0.42	99	6.30	54	99.97	5.4	298	3.01	6.0	0.0
	2.5 to <5	33	13	0.48	38	4.47	26	99.97	6.5	94	2.46	1.6	0.0
	5 to <10	33	67	0.40	61	7.45	28	99.97	4.7	203	3.35	4.4	0.0
	10.00 to < 100.00	36	16	0.48	43	45.27	39	99.99	2.9	159	3.67	17.8	0.0
	10 to <20	2	5	0.45	4	12.47	21	99.95	7.3	16	3.64	0.5	0.0
	20 to <30	0	3	0.45	1	22.08	2	100.00	9.5	6	4.42	0.3	0.0
	30 to <100	33	8	0.50	37	50.13	16	100.00	2.1	136	3.64	16.9	0.0
	100.00 (default)	4	0	0.20	0	100.00	6	35.00	5.4	0	0.61	0.1	0.0
	Subtotal	827	818	0.38	1,121	2.90	296	96.13	4.2	1,079	0.95	26.0	0.0
Institutions	0.00 to < 0.15	16,529	2,783	0.46	19,900	0.07	1,097	24.87	3.4	2,852	0.14	3.2	−1.2
	0.00 to <0.10	11,389	1,862	0.48	14,284	0.05	866	24.97	3.4	1,912	0.13	1.5	−0.4
	0.10 to <0.15	5,140	922	0.41	5,616	0.12	231	24.59	3.3	940	0.17	1.7	−0.8
	0.15 to < 0.25	2,292	1,118	0.29	2,127	0.19	201	25.03	3.7	492	0.23	1.1	−0.5
	0.25 to < 0.50	2,120	1,139	0.44	2,586	0.33	418	30.03	3.5	1,022	0.40	2.7	−1.1
	0.50 to < 0.75	1,939	755	0.45	2,152	0.61	250	35.89	2.6	1,159	0.54	4.7	−1.9
	0.75 to < 2.50	1,843	1,683	0.45	1,969	1.34	599	33.17	3.7	1,328	0.67	9.3	−6.1
	0.75 to <1.75	1,481	1,144	0.45	1,549	1.14	436	31.91	3.0	952	0.61	6.0	−4.2
	1.75 to <2.50	362	539	0.44	420	2.08	163	37.83	6.4	376	0.90	3.3	−1.9
	2.50 to 10.00	2,145	1,069	0.47	1,641	4.72	518	33.39	7.1	1,792	1.09	26.3	−15.5
	2.5 to <5	1,483	799	0.48	1,033	3.39	362	32.86	7.2	957	0.93	11.6	−4.1
	5 to <10	661	270	0.46	608	6.98	156	34.29	6.9	835	1.37	14.7	−11.4
	10.00 to < 100.00	186	268	0.46	207	40.51	146	22.84	3.9	240	1.16	17.6	−6.5
	10 to <20	68	14	0.49	75	12.36	31	24.94	3.4	90	1.19	2.3	−1.9
	20 to <30	0	18	0.47	9	22.99	11	6.55	8.1	4	0.40	0.1	0.0
	30 to <100	117	236	0.46	123	58.96	104	22.72	4.0	146	1.19	15.2	−4.6
	100.00 (default)	52	1	0.50	47	100.00	13	60.99	5.5	30	0.62	28.8	−19.2
	Subtotal	27,106	8,817	0.45	30,629	1.35	3,242	30.65	4.0	8,915	0.28	93.7	−52.0

EU CR6_part 2: IRB approach – Credit risk exposures by exposure class and PD range

	a	b	c	d	e	f	g	h	i	j	k	l	m
A-IRB	PD scale	On-balance sheet exposures €m	Off-balance-sheet exposures pre-CCF €m	Exposure weighted average CCF	Exposure post CCF and post CRM €m	Exposure weighted average PD %	Number of obligors	Exposure weighted average LGD %	Exposure weighted average maturity years	Risk weighted exposure amount after supporting factors | €m	Density of risk weighted exposure amount	Expected loss amount €m	Value adjustments and provisions €m
Corporates, thereof SMEs	0.00 to < 0.15	501	386	0.55	688	0.10	490	45.97	3.7	160	0.23	0.3	–0.2
	0.00 to <0.10	181	212	0.55	280	0.06	291	44.03	3.5	39	0.14	0.1	–0.1
	0.10 to <0.15	320	173	0.55	407	0.13	199	47.30	3.9	121	0.30	0.3	–0.1
	0.15 to < 0.25	606	402	0.45	731	0.20	426	40.42	3.7	200	0.27	0.6	–0.4
	0.25 to < 0.50	1,253	566	0.46	1,435	0.35	813	38.00	3.9	484	0.34	1.8	–1.2
	0.50 to < 0.75	640	381	0.45	776	0.62	573	39.55	4.0	360	0.46	1.9	–2.5
	0.75 to < 2.50	1,779	1,131	0.45	2,134	1.37	2,274	35.83	3.4	1,147	0.54	10.1	–10.2
	0.75 to <1.75	1,409	888	0.46	1,692	1.18	1,714	36.37	3.4	897	0.53	7.1	–6.8
	1.75 to <2.50	370	243	0.42	442	2.08	560	33.76	3.2	250	0.57	3.0	–3.4
	2.50 to 10.00	1,120	411	0.46	1,226	4.76	1,149	37.18	3.7	1,033	0.84	22.0	–27.6
	2.5 to <5	694	310	0.45	776	3.46	856	35.44	3.4	533	0.69	9.1	–11.1
	5 to <10	426	101	0.47	450	7.02	293	40.18	4.1	500	1.11	12.9	–16.6
	10.00 to < 100.00	219	38	0.40	178	25.64	173	38.50	4.8	211	1.19	16.8	–16.9
	10 to <20	116	30	0.36	116	12.54	127	37.22	4.7	128	1.11	5.2	–9.5
	20 to <30	54	3	0.69	13	23.41	16	58.18	3.9	28	2.19	1.7	–1.8
	30 to <100	49	5	0.43	49	57.26	30	36.33	5.1	54	1.11	9.9	–5.7
	100.00 (default)	382	74	0.38	366	100.00	302	52.45	5.5	290	0.79	192.1	–181.0
	Subtotal	6,500	3,389	0.43	7,533	9.99	6,200	66.00	5.3	3,884	0.55	245.7	–240.0
Corporates, thereof specialised lending	0.00 to < 0.15	4,149	500	0.35	4,324	0.04	324	32.18	5.7	530	0.12	0.6	–0.6
	0.00 to <0.10	3,969	476	0.35	4,135	0.03	319	30.54	5.8	450	0.11	0.4	–0.5
	0.10 to <0.15	181	24	0.33	189	0.12	5	68.02	4.1	79	0.42	0.2	–0.1
	0.15 to < 0.25	104	6	0.31	106	0.17	5	49.93	25.4	55	0.51	0.1	–0.2
	0.25 to < 0.50	258	250	0.37	350	0.40	14	55.83	3.3	188	0.54	0.8	–0.6
	0.50 to < 0.75	362	287	0.22	425	0.57	12	71.79	3.5	327	0.77	1.7	–0.7
	0.75 to < 2.50	625	288	0.47	761	1.45	19	55.24	3.2	687	0.90	6.2	–4.7
	0.75 to <1.75	457	110	0.57	520	1.20	15	53.94	3.5	471	0.91	3.4	–3.2
	1.75 to <2.50	168	178	0.41	241	1.98	4	58.02	2.6	216	0.90	2.8	–1.5
	2.50 to 10.00	42	35	0.51	59	3.23	7	53.86	3.9	72	1.22	1.0	–1.6
	2.5 to <5	41	35	0.51	59	3.22	6	53.72	3.9	72	1.22	1.0	–1.5
	5 to <10	0	0	0.00	0	5.23	1	75.01	1.2	1	1.38	0.0	0.0
	10.00 to < 100.00	0	0	0.00	0	85.92	1	35.65	1.0	0	0.43	0.1	–0.1
	10 to <20	0	0	0.00	0	0.00	0	0.00	0.0	0	0.00	0.0	0.0
	20 to <30	0	0	0.00	0	0.00	0	0.00	0.0	0	0.00	0.0	0.0
	30 to <100	0	0	0.00	0	85.92	1	35.65	1.0	0	0.43	0.1	–0.1
	100.00 (default)	70	65	0.30	90	100.00	4	42.25	1.8	19	0.21	37.8	–71.7
	Subtotal	5,611	1,432	0.35	6,117	1.77	386	39.85	5.4	1,878	0.28	48.3	–80.2

EU CR6_part 3: IRB approach – Credit risk exposures by exposure class and PD range

	a	b	c	d	e	f	g	h	i	j	k	l	m
A-IRB	PD scale	On-balance sheet exposures €m	Off-balance-sheet exposures pre-CCF €m	Exposure weighted average CCF	Exposure post CCF and post CRM €m	Exposure weighted average PD %	Number of obligors	Exposure weighted average LGD %	Exposure weighted average maturity years	Risk weighted exposure amount after supporting factors | €m	Density of risk weighted exposure amount	Expected loss amount €m	Value adjustments and provisions €m
Corporates, thereof other	0.00 to < 0.15	8,553	30,494	0.38	20,032	0.10	5,025	40.44	6.6	5,004	0.25	8.6	−4.3
	0.00 to <0.10	4,061	12,769	0.39	8,896	0.07	2,236	40.68	5.8	1,706	0.19	2.7	−1.3
	0.10 to <0.15	4,492	17,725	0.38	11,137	0.12	2,790	40.26	7.3	3,298	0.30	6.0	−3.0
	0.15 to < 0.25	8,588	30,705	0.38	18,696	0.20	6,058	40.95	6.8	7,724	0.41	16.8	−8.1
	0.25 to < 0.50	15,174	29,990	0.37	24,872	0.35	10,412	38.80	5.7	12,736	0.51	40.6	−16.5
	0.50 to < 0.75	7,290	11,382	0.38	10,077	0.61	5,261	38.62	6.0	6,570	0.65	27.5	−12.5
	0.75 to < 2.50	9,750	14,002	0.34	11,036	1.23	9,408	37.43	3.7	8,890	0.81	373.6	−37.8
	0.75 to <1.75	6,937	12,050	0.33	9,392	1.09	6,872	37.47	3.9	7,332	0.78	357.3	−25.8
	1.75 to <2.50	2,813	1,952	0.39	1,644	2.01	2,536	37.16	2.7	1,557	0.95	16.4	−12.0
	2.50 to 10.00	3,725	2,698	0.37	4,106	4.10	4,596	37.43	3.0	4,954	1.21	98.3	−50.0
	2.5 to <5	2,721	2,017	0.37	3,150	3.36	3,557	37.55	2.6	3,584	1.14	57.3	−31.2
	5 to <10	1,004	680	0.39	956	6.51	1,039	37.06	4.4	1,370	1.43	41.0	−18.8
	10.00 to < 100.00	358	400	0.34	367	20.28	1,493	36.34	6.6	742	2.02	151.8	−441.6
	10 to <20	240	218	0.38	237	13.99	525	35.04	5.6	443	1.87	34.5	−8.5
	20 to <30	67	119	0.25	82	23.45	177	37.69	3.1	188	2.28	16.4	−5.2
	30 to <100	50	63	0.41	48	46.02	791	40.45	17.7	112	2.34	100.8	−427.9
	100.00 (default)	1,536	493	0.32	1,392	100.00	1,112	54.21	4.6	896	0.64	876.4	−1,050.7
	Subtotal	54,974	120,163	0.38	90,579	2.65	43,365	44.87	6.0	47,515	0.53	1,593.7	−1,621.5
Retail secured by mortgages / SMEs	0.00 to < 0.15	6,293	46	1.00	6,339	0.06	40,411	14.30		118	0.02	0.6	−0.6
	0.00 to <0.10	5,182	31	1.00	5,213	0.05	34,103	14.12		79	0.02	0.4	−0.3
	0.10 to <0.15	1,110	15	1.00	1,126	0.12	6,308	15.12		39	0.03	0.2	−0.3
	0.15 to < 0.25	2,134	14	0.98	2,148	0.20	15,840	14.27		100	0.05	0.6	−0.7
	0.25 to < 0.50	3,286	36	0.97	3,320	0.36	21,314	15.17		254	0.08	1.8	−3.0
	0.50 to < 0.75	1,443	36	1.00	1,479	0.60	8,975	16.18		173	0.12	1.4	−2.3
	0.75 to < 2.50	1,418	45	1.19	1,472	1.24	8,813	17.46		299	0.20	3.2	−7.7
	0.75 to <1.75	1,206	42	1.14	1,254	1.10	7,488	17.46		237	0.19	2.4	−5.5
	1.75 to <2.50	212	3	1.83	218	2.06	1,325	17.51		62	0.28	0.8	−2.2
	2.50 to 10.00	366	8	1.09	374	4.53	2,297	17.82		165	0.44	3.0	−8.7
	2.5 to <5	244	7	1.11	252	3.36	1,472	17.60		95	0.38	1.5	−5.2
	5 to <10	121	1	0.95	122	6.97	825	18.29		70	0.57	1.6	−3.5
	10.00 to < 100.00	101	1	0.92	102	21.14	772	17.27		76	0.74	3.8	−4.7
	10 to <20	57	0	0.93	58	13.56	419	17.06		40	0.70	1.3	−1.9
	20 to <30	28	0	1.03	28	23.69	212	18.11		24	0.85	1.2	−1.7
	30 to <100	16	0	0.85	16	43.63	141	16.57		11	0.70	1.2	−1.0
	100.00 (default)	138	0	0.39	138	100.00	1,108	27.31		188	1.37	28.0	−24.7
	Subtotal	15,179	186	1.00	15,371	1.51	99,530	47.65		1,373	0.09	42.5	−52.4

EU CR6_part 4: IRB approach – Credit risk exposures by exposure class and PD range

	a	b	c	d	e	f	g	h	i	j	k	l	m
A-IRB	PD scale	On-balance sheet exposures €m	Off-balance-sheet exposures pre-CCF €m	Exposure weighted average CCF	Exposure post CCF and post CRM €m	Exposure weighted average PD %	Number of obligors	Exposure weighted average LGD %	Exposure weighted average maturity years	Risk weighted exposure amount after supporting factors | €m	Density of risk weighted exposure amount	Expected loss amount €m	Value adjustments and provisions €m
Retail secured by mortgages / non-SMEs	0.00 to < 0.15	34,299	312	0.89	34,577	0.06	356,887	16.19		917	0.0	3.3	–3.7
	0.00 to <0.10	29,311	257	0.90	29,542	0.05	293,532	16.09		664	0.0	2.3	–2.3
	0.10 to <0.15	4,988	54	0.87	5,035	0.12	63,355	16.76		253	0.0	1.0	–1.4
	0.15 to < 0.25	16,314	143	0.96	16,451	0.20	173,599	15.41		1,094	0.0	5.1	–5.3
	0.25 to < 0.50	18,177	301	0.99	18,473	0.35	144,027	16.40		1,947	0.1	10.7	–12.8
	0.50 to < 0.75	4,611	103	0.99	4,713	0.59	34,339	17.53		774	0.1	4.9	–7.7
	0.75 to < 2.50	3,023	35	0.98	3,057	1.20	24,737	17.72		799	0.2	6.5	–19.4
	0.75 to <1.75	2,608	32	0.98	2,639	1.06	21,096	17.81		647	0.2	5.0	–13.9
	1.75 to <2.50	415	3	0.99	418	2.08	3,641	17.11		152	0.3	1.5	–5.5
	2.50 to 10.00	1,001	5	0.93	1,006	4.94	10,058	17.19		586	0.5	8.5	–21.1
	2.5 to <5	585	4	0.96	589	3.45	5,661	17.32		292	0.5	3.5	–10.4
	5 to <10	415	1	0.84	416	7.07	4,397	17.00		294	0.7	5.0	–10.7
	10.00 to < 100.00	402	0	0.70	402	22.54	4,886	18.30		415	1.0	16.7	–19.1
	10 to <20	215	0	0.49	215	13.64	2,501	18.37		214	1.0	5.4	–8.2
	20 to <30	111	0	0.64	111	23.84	1,342	17.64		121	1.0	4.7	–5.5
	30 to <100	76	0	0.87	76	45.79	1,043	19.05		81	1.0	6.6	–5.3
	100.00 (default)	349	1	0.33	349	100.0	4,508	33.41		377	1.0	110.2	–100.6
	Subtotal	78,176	899	0.96	79,028	0.92	753,041	54.40		6,909	0.0	165.9	–189.6
Retail qualifying revolving	0.00 to < 0.15	271	11,37	0.75	8,775	0.04	2,839,57	65.61		170	0.0	2.4	–1.5
	0.00 to <0.10	227	10,84	0.75	8,336	0.04	2,624,69	65.71		149	0.0	2.0	–1.2
	0.10 to <0.15	44	532	0.74	440	0.12	214,872	63.75		21	0.0	0.3	–0.4
	0.15 to < 0.25	88	733	0.72	617	0.20	330,227	61.90		43	0.0	0.8	–1.0
	0.25 to < 0.50	181	825	0.70	762	0.36	429,023	63.12		89	0.1	1.7	–2.7
	0.50 to < 0.75	124	288	0.74	335	0.62	189,316	64.72		62	0.1	1.3	–2.5
	0.75 to < 2.50	421	500	0.75	794	1.41	468,015	66.72		282	0.3	7.5	–14.9
	0.75 to <1.75	288	396	0.75	583	1.17	341,500	66.46		179	0.3	4.5	–9.1
	1.75 to <2.50	133	105	0.75	211	2.08	126,515	67.45		102	0.4	3.0	–5.8
	2.50 to 10.00	332	151	0.76	447	4.70	271,392	68.52		380	0.8	14.4	–23.1
	2.5 to <5	210	111	0.76	293	3.51	187,352	68.40		209	0.7	7.1	–12.5
	5 to <10	122	40	0.78	153	6.98	84,040	68.75		172	1.1	7.4	–10.6
	10.00 to < 100.00	93	41	0.73	123	22.76	62,584	68.20		223	1.8	19.0	–14.8
	10 to <20	59	20	0.76	74	13.38	40,205	68.66		119	1.6	6.8	–6.7
	20 to <30	18	5	0.74	22	24.38	11,095	67.99		46	2.0	3.7	–2.8
	30 to <100	17	16	0.70	28	46.50	11,284	67.15		58	2.1	8.6	–5.3
	100.00 (default)	100	6	0.29	102	100.0	31,895	66.03		111	1.0	62.4	–59.5
	Subtotal	1,610	13,92	0.74	11,955	1.44	4,622,02	65.47		1,360	0.1	109.5	–119.9

EU CR6_part 5: IRB approach – Credit risk exposures by exposure class and PD range

	a	b	c	d	e	f	g	h	i	j	k	l	m
A-IRB	PD scale	On-balance sheet exposures €m	Off-balance-sheet exposures pre-CCF €m	Exposure weighted average CCF	Exposure post CCF and post CRM €m	Exposure weighted average PD %	Number of obligors	Exposure weighted average LGD %	Exposure weighted average maturity years	Risk weighted exposure amount after supporting factors | €m	Density of risk weighted exposure amount	Expected loss amount €m	Value adjustments and provisions €m
Retail other / SME	0.00 to < 0.15	3,325	2,920	0.68	5,264	0.07	255,255	34.85		283	0.05	1.3	– 1.3
	0.00 to <0.10	2,469	2,142	0.72	4,002	0.05	207,596	34.23		173	0.04	0.8	– 0.6
	0.10 to <0.15	856	778	0.57	1,261	0.13	47,659	36.82		110	0.09	0.6	– 0.7
	0.15 to < 0.25	1,246	2,116	0.52	2,251	0.20	90,644	43.22		317	0.14	1.9	– 2.1
	0.25 to < 0.50	2,459	3,433	0.49	3,979	0.35	180,472	42.10		794	0.20	5.9	– 6.5
	0.50 to < 0.75	1,401	1,223	0.52	1,987	0.60	95,357	40.60		524	0.26	4.7	– 5.8
	0.75 to < 2.50	3,067	1,626	0.54	3,840	1.32	227,577	40.02		1,388	0.36	19.6	– 35.3
	0.75 to <1.75	2,396	1,412	0.54	3,066	1.13	175,887	40.82		1,080	0.35	13.7	– 22.2
	1.75 to <2.50	671	213	0.55	774	2.07	51,690	36.86		308	0.40	5.9	– 13.1
	2.50 to 10.00	1,501	506	0.47	1,702	4.81	119,689	41.43		869	0.51	34.2	– 67.9
	2.5 to <5	902	372	0.45	1,046	3.47	79,202	40.20		496	0.47	14.5	– 28.9
	5 to <10	600	134	0.53	656	6.96	40,487	43.40		373	0.57	19.7	– 39.0
	10.00 to < 100.00	515	74	0.49	538	21.33	33,161	41.20		413	0.77	47.8	– 61.0
	10 to <20	293	39	0.46	303	13.64	19,511	42.89		214	0.71	17.4	– 29.5
	20 to <30	139	11	0.64	144	23.41	7,977	34.40		108	0.75	11.7	– 15.1
	30 to <100	82	23	0.48	91	43.53	5,673	46.32		91	1.00	18.7	– 16.3
	100.00 (default)	478	47	0.36	461	100.00	31,117	63.74		379	0.82	291.0	– 265.9
	Subtotal	13,992	11,944	0.56	20,022	3.87	1,033,272	51.16		4,967	0.25	406.4	– 445.7
Retail other / non-SME	0.00 to < 0.15	7,150	1,473	0.89	8,460	0.06	149,568	32.18		464	0.05	1.6	– 1.5
	0.00 to <0.10	6,050	1,304	0.88	7,203	0.04	124,746	31.85		327	0.05	1.0	– 0.9
	0.10 to <0.15	1,101	169	0.93	1,257	0.12	24,822	34.12		137	0.11	0.6	– 0.6
	0.15 to < 0.25	2,519	690	0.99	3,199	0.21	76,357	39.32		572	0.18	2.8	– 2.8
	0.25 to < 0.50	3,772	1,660	0.99	5,419	0.35	158,258	46.18		1,611	0.30	9.9	– 8.5
	0.50 to < 0.75	1,366	597	0.99	1,956	0.60	131,636	45.17		799	0.41	7.0	– 5.9
	0.75 to < 2.50	1,799	318	0.95	2,099	1.30	595,117	37.76		1,076	0.51	19.2	– 19.4
	0.75 to <1.75	1,441	257	0.96	1,686	1.11	438,968	37.95		827	0.49	13.2	– 13.0
	1.75 to <2.50	358	62	0.92	413	2.06	156,149	36.99		249	0.60	6.0	– 6.5
	2.50 to 10.00	740	23	0.92	761	4.65	290,604	40.46		557	0.73	26.6	– 29.3
	2.5 to <5	476	18	0.93	492	3.47	215,723	39.45		337	0.69	12.1	– 14.5
	5 to <10	264	6	0.90	269	6.80	74,881	42.31		220	0.82	14.5	– 14.8
	10.00 to < 100.00	170	3	0.80	172	23.45	67,817	49.64		220	1.28	40.8	– 21.5
	10 to <20	90	2	0.90	91	13.65	45,441	50.82		111	1.21	12.1	– 9.3
	20 to <30	43	0	0.80	43	24.28	13,443	50.26		58	1.37	14.2	– 6.1
	30 to <100	38	1	0.70	38	45.78	8,933	46.14		51	1.34	14.5	– 6.1
	100.00 (default)	239	3	0.54	240	100.00	58,059	57.55		255	1.07	145.0	– 109.3
	Subtotal	17,754	4,768	0.96	22,305	1.73	1,527,416	52.66		5,556	0.23	252.8	– 198.3

Table EU CR7 shows the effect of credit derivatives used as CRM techniques on RWA per exposure class as per Article 453 (j) CRR as of 31 December 2023.

The table shows that Commerzbank does not hold any exposures with a FIRB approach.

EU CR7: IRB approach – Effect on the RWAs of credit derivatives used as CRM techniques:

		a	b
	€m	**Pre-credit derivatives risk weighted exposure amount**	**Actual risk weighted exposure amount**
1	**Exposures under F-IRB**	**0**	**0**
2	Central governments or central banks	0	0
3	Institutions	0	0
4	Corporates	0	0
4.1	thereof SMEs	0	0
4.2	thereof specialised lending	0	0
5	**Exposures under A-IRB**	**84,219**	**84,425**
6	Central governments or central banks	1,079	1,079
7	Institutions	8,879	8,918
8	Corporates	54,097	54,263
8.1	thereof SMEs	3,884	3,884
8.2	thereof specialised lending	2,863	2,863
9	Retail	20,165	20,165
9.1	thereof secured by mortgages / SMEs	1,373	1,373
9.2	thereof secured by mortgages / non-SMEs	6,909	6,909
9.3	thereof qualifying revolving	1,360	1,360
9.4	thereof other / SME	4,967	4,967
9.5	thereof other / non-SMEs	5,556	5,556
10	**Total**	**84,219**	**84,425**

Table EU CR7-A shows pro rata the various hedges of the total risk position by exposure classes according to Article 453 g) CRR as of 31 December 2023 for the AIRB Portfolio. As Commerzbank does not have any F-IRB positions, a corresponding table is not required.

EU CR7-A: IRB approach – Disclosure of the extent of the use of CRM techniques

		a	b	c	d	e	f	g	h	i	j	k	l	m	n
A-IRB	€m	Total expo-sures	Credit risk Mitigation techniques											Credit risk Mitigation methods in the calculation of RWEAs	
			Funded credit Protection (FCP)									Unfunded credit Protection (UFCP)		RWEA without substitution effects (reduction effects only)	RWEA with substitution effects (both reduction and substitution effects)
			Part of exposures covered by Financial Collaterals (%)	Part of exposures covered by Other eligible collaterals (%)				Part of exposures covered by Other funded credit protection (%)				Part of exposures covered by Gua-rantees (%)	Part of exposures covered by Credit Deriva-tives (%)		
					Part of exposures covered by Immo-vable property Collaterals (%)	Part of exposures covered by Recei-vables (%)	Part of exposures covered by Other physical collateral (%)		Part of exposures covered by Cash on deposit (%)	Part of exposures covered by Life insurance policies (%)	Part of exposures covered by Instruments held by a third party (%)				
1	Central governments or central banks	1,121	0.00	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,070	1,079
2	Institutions	30,537	3.11	0.00	0.06	0.18	0.77	0.00	0.00	0.00	0.00	0.00	0.00	8,662	8,918
3	Corporates	105,710	1.74	6.62	4.15	0.71	1.77	0.03	0.00	0.03	0.00	1.22	0.00	50,648	54,263
3.1	thereof SMEs	7,533	3.47	27.90	21.93	2.54	3.43	0.39	0.00	0.39	0.00	13.17	0.00	3,924	3,884
3.2	thereof specialised lending	7,601	0.00	7.73	7.70	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,863	2,863
3.3	thereof other	90,576	1.74	4.76	2.37	0.62	1.78	0.01	0.00	0.01	0.00	0.33	0.00	43,861	47,515
4	Retail	148,682	1.86	50.55	50.46	0.04	0.04	0.42	0.00	0.42	0.00	0.00	0.00	19,792	20,165
4.1	thereof secured by mortgages / SMEs	15,371	1.22	67.74	67.74	0.00	0.00	0.75	0.00	0.75	0.00	0.00	0.00	1,373	1,373
4.2	thereof secured by mortgages / non-SMEs	79,028	1.35	70.89	70.89	0.00	0.00	0.33	0.00	0.33	0.00	0.00	0.00	6,909	6,909
4.3	thereof qualifying revolving	11,955	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,360	1,360
4.4	thereof other / SME	20,022	3.69	17.96	17.31	0.32	0.32	0.64	0.00	0.64	0.00	0.00	0.00	4,999	4,967
4.5	thereof other / non-SMEs	22,305	3.50	23.01	23.01	0.00	0.00	0.58	0.00	0.58	0.00	0.00	0.00	5,152	5,556
5	**Total**	**286,050**	**1.94**	**28.83**	**27.77**	**0.31**	**0.76**	**0.23**	**0.00**	**0.23**	**0.00**	**0.45**	**0.00**	**80,172**	**84,425**

Table EU CR8 below shows changes in the RWA of the credit risk in the IRBA portfolio of Commerzbank Group between 30 September 2023 and 31 December 2023.

The increase in credit risk in the fourth quarter of 2023 is due to changes in risk parameters, a change in method and the acquisition of a majority stake. In contrast, there are mainly RWA-reducing effects from a new one Securitisation transaction (considered under "Portfolio Size")

Table EU CR8 shows the information according to Article 438 h) CRR as of 31 December 2023:

EU CR8: RWA flow statements of credit risk exposures under the IRB approach

	€m	a Risk-weighted exposure amount (RWA)
1	**RWA as at the end of the previous reporting period**	**95,477**
2	Asset size	−825
3	Asset quality	1,372
4	Model updates	0
5	Methodology and policy	763
6	Acquisitions and disposals	501
7	Foreign exchange movements	−5
8	Other	−12
9	**RWA as at the end of the current reporting period**	**97,270**

In the following we show the portfolios with the simple risk-weight approach. The technical implementation standards provide for a subdivision into Specialised lending: Project finance (slotting approach), Income-producing real estate and high volatility com-mercial real estate (slotting approach), object finance (slotting approach) as well as commodities finance (slotting approach) and equity exposures under the simple risk-weighted approach. For Com-merzbank only the special financing of real estate is relevant as part of the slotting approach, so only Table EU CR10.2 is shown.

Table EU CR10.2 shows the information referred to in Article 438 e) CRR as of 31 December 2023:

EU CR10.2: Specialised lending: Income-producing real estate and high volatility commercial real estate (Slotting approach)

€m		a	b	c	d	e	f
Regulatory categories	**Remaining maturity**	**On-balance-sheet amount**	**Off-balance-sheet amount**	**Risk weight**	**Exposure amount**	**RWAs**	**Expected loss**
Category 1	Less than 2.5 years	10	0	50%	10	5	0
	Equal to or more than 2.5 years	16	0	70%	16	10	0
Category 2	Less than 2.5 years	459	196	70%	516	317	2
	Equal to or more than 2.5 years	661	20	90%	666	519	5
Category 3	Less than 2.5 years	78	0	115%	78	76	2
	Equal to or more than 2.5 years	77	0	115%	77	72	2
Category 4	Less than 2.5 years	0	0	250%	0	0	0
	Equal to or more than 2.5 years	0	0	250%	0	0	0
Category 5	Less than 2.5 years	107	0	-	107	0	54
	Equal to or more than 2.5 years	30	0	-	30	0	17
Total	**Less than 2.5 years**	**654**	**196**		**711**	**398**	**58**
	Equal to or more than 2.5 years	**784**	**20**		**790**	**601**	**24**

Loan loss provisions for default risks

Responsibility for processing non-performing loans is mainly carried out by Group Credit Risk Management. This division brings together the specific expert knowledge needed to support customers undergoing restructuring and to successfully process terminated commitments including collateral realisation.

IFRS 9 stipulates that impairments for credit risks from loans and securities that are not recognised at fair value through profit or loss must be recognised using a 3-stage model based on expected credit losses. In the Commerzbank Group, the following financial instruments are included in the scope of this impairment model:

- financial assets in the form of loans and advances as well as securitised debt instruments measured at amortised cost (AC);
- financial assets in the form of loans and advances as well as securitised debt instruments measured at fair value through other comprehensive income (FVOCI);
- lease receivables;
- irrevocable lending commitments which under IFRS 9 are not measured at fair value through profit or loss;
- financial guarantees within the scope of IFRS 9 that are not measured at fair value through profit or loss.

The Group determines the impairment using a 3-stage model based on the following requirements:

- In stage 1, as a rule all financial instruments are recognised if their risk of a loan loss (hereinafter default risk) has not risen significantly since their initial recognition. In addition, Commerzbank makes use of the option under IFRS 9 B 5.5.23 (so-called Low Credit Risk Excemption or LCRE) and classifies transactions that have a low default risk on the reporting date in Stage 1. These are securities and financial instruments with states, local or regional authorities of the OECD whose internal credit rating on the reporting date is in the investment grade range (corresponding to Commerzbank rating 2.8 or better). An impairment must be recognised for financial instruments in stage 1 in the amount of the expected credit losses from possible events of default over the term of the transaction, subject to a maximum of 12 months (12-month ECL).
- Stage 2 includes those financial instruments with default risk that has risen significantly since their initial recognition and which are not subject to LCRE at the financial reporting date. In addition to a customer-specific change in the PD, Commerzbank defines further qualitative criteria whose presence is assumed to denote a significant increase in default risk. Instruments are then allocated to stage 2 independently of the individual change in PD. Impairments in stage 2 are recognised in the amount of the financial instrument's lifetime expected credit loss (LECL). For financial instruments that are committed for an unlimited period (open transactions), a top-down approach is used to determine the LECL as a percentage of the current loss at default (LaD) on the basis of realised historical losses.
- Financial instruments that are classified as impaired as at the reporting date are allocated to stage 3. As the criterion for this, Commerzbank uses the definition of a default pursuant to Article 178 CRR as well as the supplementary EBA guidance on the application of the definition of default pursuant to Article 178 CRR. This approach is consistent because the ECL calculation also uses statistical risk parameters derived from the Basel IRB approach, which are modified to meet the requirements of IFRS 9. The following events are decisive in determining the default of a customer:

  - Overdraft (over 90 days past due)
  - Unlikely to pay (probability of settlement of the liabilities)
  - Restructuring / destressed Restructuring with concession
  - The Bank has demanded immediate repayment of its claims
  - The customer is in insolvency proceedings

The LECL is likewise used as the value of the required impairment for stage-3 financial instruments in default. When determining the LECL, the Group distinguishes in principle between significant and insignificant cases. The amount of the LECL for insignificant transactions (volumes up to €5m) is determined based on statistical risk parameters. The LECL for significant transactions (volumes greater than €5m) is the expected value of the losses derived from individual expert assessments of future cash flows based on several potential scenarios and their probability of occurrence. The scenarios and probabilities are based on assessments by recovery and resolution specialists. For each scenario – without regard to whether it is a continuation or sale scenario – the timing and amount of the expected future cash flows are estimated. Both the customer-specific and the macroeconomic situation are taken into account (for example currency restrictions, currency value fluctuations, commodity price developments), as well as the sector environment, with a view to the future. The estimate is also based on external information. Sources include indices (e.g. World Corruption Index), forecasts (e.g. by the IMF), information from global associations of financial service providers (e.g. the Institute of International Finance) and publications from rating agencies and auditing firms.

If a default criterion no longer applies, the financial instrument recovers and, after the applicable probation period has been adhered to, is no longer allocated to stage 3. After recovery, a new assessment is made based on the updated rating information to see if the default risk has increased significantly since initial recognition in the balance sheet and the instrument is allocated to stage 1 or stage 2 accordingly.

Financial instruments which when initially recognised are already considered impaired as per the aforementioned definition (purchased or originated credit-impaired, or POCI) are handled outside the three-stage impairment model and are therefore not allocated to any of the three stages. The initial recognition is based on fair value without recording an impairment, however using an effective interest rate that is adjusted for creditworthiness. The impairment recognised in the income statement impairment recognised in subsequent periods equals the cumulative change in the LECL since the initial recognition in the balance sheet. The LECL remains the basis for the measurement, even if the value of the financial instrument has risen.

Claims are written off in the balance sheet as soon as it is reasonable to assume that a financial asset is not realisable in full or in part and that the claims are therefore uncollectible. Uncollectability may arise in the settlement process for various objective reasons, such as the demise of the borrower without realisable assets in the estate or completion of insolvency proceedings without further prospect of payments. Moreover, loans are generally regarded as (partially) uncollectible at the latest 720 days after their due date and are (partially) written down to the expected recoverable amount within the framework of existing loan loss provisions. Such a (partial) write-down has no direct impact on ongoing debt collection measures.

Assessment of a significant increase in default risk

Commerzbank's rating systems combine into the Probability of Default (PD) all available quantitative and qualitative information relevant for forecasting the default risk. This metric is based primarily on a statistical selection and weighting of all available indicators. In addition, the PD adjusted in accordance with IFRS 9 requirements takes into account not only historical information and the current economic environment, but also, in particular, forward-looking information such as the forecast for the development of macroeconomic conditions.

Commerzbank generally uses the PD only as a frame of reference for assessing whether the default risk of a financial instrument has risen significantly since the date of its initial recognition. By anchoring the review of the relative transfer criterion in the robust processes and procedures of the Bank's Group-wide credit-risk-management framework (in particular, early identification of credit risk, controlling of overdrafts and the re-rating process), the Bank ensures that a significant increase in the default risk is identified in a reliable and timely manner based on objective criteria.

Commerzbank mainly applies additional qualitative criteria for the assignment to stage 2. These are:

- clients where a financial instrument is substantially past due for more than 20 days,
- clients in intensive care whose Commerzbank credit rating is 4.6 or worse on the reporting date;
- clients in intensive care whose Commerzbank credit rating on the reporting date is 4.0 or worse and whose external credit rating is 5.0 or worse;
- customers who are granted a forbearance measure according to Article 47b CRR that does not lead to a default (stage 3);
- Financial instruments whose PD on the reporting date has at least tripled compared to the PD when the balance sheet was accessed and whose credit rating on the reporting date is higher than 2.8. (Threefold PD).

The review to determine whether the default risk as at the financial reporting date has risen significantly since the initial recognition of the respective financial instrument is performed as at the end of the reporting period. This review compares the observed probability of default over the residual maturity of the financial instrument (lifetime PD) against the lifetime PD over the same period as expected on the date of initial recognition. In accordance with IFRS requirements, the comparison between original and current PD is made on the basis of the probability of default over a period of 12 months after the reporting date ("12-month PD"). In these cases, the Bank uses equivalence analyses to demonstrate that no material variances have occurred compared with an assessment using the lifetime PD.

A quantile and then thresholds in the form of rating levels are set using a statistical procedure in order to determine whether an increase in the PD compared with the initial recognition date is "significant". These thresholds, which are differentiated by rating models, represent a critical degree of variance from the expectation of the average PD development. If the current PD exceeds this threshold, a critical deviation is present and leads to an assignment to stage 2. In order to ensure an economically sound assignment of the stage, transaction-specific factors are taken into account, including the extent of the PD at the initial recognition date, the term to date and the remaining term of the transaction.

Commerzbank generally refrains from checking whether there is a significant increase in the default risk as at the reporting date compared to the time of acquisition of the relevant financial instrument for those transactions for which there is a low default risk as at the reporting date (IFRS 9 B 5.5.23 option). These are securities and financial instruments with states, local or regional authorities of the OECD whose internal credit rating on the reporting date is in the investment grade range (corresponding to Commerzbank rating 2.8 or better).

Financial instruments are retransferred from stage 2 to stage 1 if at the end of the reporting period the default risk is no longer significantly elevated compared with the initial recognition date.

Calculation of the expected credit loss

Commerzbank calculates the ECL as the probability-weighted, unbiased and discounted expected value of future loan losses over the total residual maturity of the respective financial instrument. The 12-month ECL used for the recognition of impairments in stage 1 is the portion of the LECL that results from default events which are expected to occur within twelve months following the end of the reporting period.

The ECL for stage 1 and stage 2 as well as for insignificant financial instruments in stage 3 is determined on an individual transaction basis taking into account statistical risk parameters. These parameters have been derived from the Basel IRB approach and modified to meet the requirements of IFRS 9. The significant main parameters used in this determination include the:

- customer-specific probability of default (PD);
- loss given default (LGD); and the
- exposure at default (EaD).

The Group derives the PD by applying an internal ratings procedure, which is based on the respective customer group. The determination includes a wide variety of qualitative and quantitative variables, which are taken into account or weighted based on the respective procedure. The allocation of the PD ranges to the internal rating categories and the reconciliation to external ratings can be found in the master scale contained in the section rating procedures in this report.

The LGD is the forecasted loss given default as a percentage of the exposure at default (EaD), taking into account collateral and the capital recovery potential on the unsecured portion. The Group's estimates, which are made specifically for different types of collateral and customer groups, are determined using both observed historical portfolio data and diverse external information, such as indices and data regarding the development of purchasing power. The EaD is the expected loan utilisation as at the default date, taking into account a (partial) drawing of open lines.

All risk parameters used from the Bank's internal models have been adjusted to meet the specific requirements of IFRS 9, and the forecast horizon has been extended accordingly to cover the entire term of the financial instruments. For example, the forecast for the development of the exposure over the entire term of the financial instrument therefore also includes, in particular, contractual and statutory termination rights.

In the case of loan products that consist of a utilised loan amount and an open credit line and for which in customary com-mercial practice the credit risk is not limited to the contractual notice period (in Commerzbank this relates primarily to revolving products without a contractually agreed repayment structure, such as overdrafts and credit card facilities), the LECL must be determined using a behavioral maturity, which typically exceeds the maximum contractual period. In order to ensure that the LECL for these products is determined in an empirically sound manner in compliance with IFRS 9 requirements, Commerzbank calculates the LECL directly for these products based on realised historical losses.

As a rule, the Group estimates the risk parameters specific to IFRS 9 based not only on historical default information but also, in particular, on the current economic environment (point-in-time perspective) and forward-looking information. This assessment primarily involves reviewing the effects which the Bank's macro-economic forecasts will have regarding the amount of the ECL, and including these effects in the determination of the ECL This is based on an expert estimate derived from the macroeconomic scenario, which takes account of factors such as GDP growth, inflation, long-term interest rate developments and the unemployment rate.

Potential effects from non-linear correlations between different macroeconomic scenarios and the ECL are corrected using a separately deter-mined adjustment factor. The baseline scenario and a pessimistic and an optimistic scenario are included in the determination of the factor. The weightings for the individual scenarios are also determined by relevant experts and are regulated within the framework of a policy.

IFRS 9 requires the inclusion of forward-looking information when determining the expected credit loss. However, the IFRS 9 ECL model result implemented at Commerzbank does not take into account forward-looking effects resulting from unforeseeable, singular events, such as natural disasters, material political decisions or military conflicts. Such risks are provided for by a top-level adjustment (TLA). The examination as to whether such TLAs with the involvement of senior management are necessary, as well as their possible implementation, are regulated in a policy.

In the 2023 financial year, such an adjustment of the IFRS 9 ECL model result was further deemed necessary because the expected negative impacts in the baseline scenario are not fully covered by the parameters used in the relevant models.

The methodology for determining the adaptation requirements of the ECL model result is the same as for the Corona TLA in the year 2021.

The tables on loan loss provisions below show the gross carrying values of all risk positions in default and not in default in the IFRS categories AC and FVOCI, including the associated stock of credit risk adjustments, the credit risk adjustment charges in the year 2022 as well as the accumulated write-offs.

The gross carrying values for risk positions not in default also include loans that are past due by at least one day up to 90 days but are not defined as in default by virtue of the minimum threshold (1.0% of the limit or €100 in the retail business or €500 in the individual business).

Commerzbank shall use its definition of default in accordance with Article 178 CRR and the supplementary EBA guideline on the application of the definition of default in accordance with Article 178 CRR as a criterion for this. Pursuant to section 315a.1 of the German Commercial Code, Commerzbank Group issues consolidated financial statements based on International Financial Reporting Standards (IFRS). Credit risk mitigation techniques applicable to mitigate risks for the purpose of determining the capital requirement are not relevant for the determination of the claim amount in terms of accounting.

The information in the tables below is structured mainly by risk exposure class. The breakdown by country and economic sector is shown in tables CQ4 and CQ5. The following definitions are used:

- Specific credit risk adjustments shall include the following items in accordance with Article 4 I(95) CRR and EU183/2014:
  - As general credit risk adjustments as defined in EU183/2014, the secondary effects TLA amounts to €453m.
  - The sum of Lifetime Expected Credit Loss (LECL) for significant claims in default, determined on the basis of individual cash flow estimates, taking into account various possible scenarios (loan loss provision stage 3 on-balance and off-balance, significant).
  - LECL for non-significant exposures in default, transaction-based determined on the basis of statistical risk parameters (stage 3 on balance and off balance, non-significant)
  - LECL for on- and off-balance exposures not in default showing a significant increase in credit risk as according to IFRS9 (stage 2 on- and off-balance) and
  - ECL for on- and off-balance exposures not in default and not showing a significant increase in credit risk as according to IFRS9 (stage 1 on- and off-balance).
- There are no general credit risk adjustments pursuant to the EBA's definition mentioned above.
- The column accumulated write-offs is the balance of write-ups and write-downs

The following section contains an overview of the total portfolio, which is subject to default from credit risk and various further evaluations according to the specifications of EBA ITS 2020/04.

Instruments with counterparty credit risk are not opposed to this chapter. The disclosure is carried out separately in the section default risk from counterparty credit risk.

The following tables also do not contain synthetic securitisation positions of Commerzbank with a regulatory recognized risk transfer in accordance with Articles 244 and 245 of the CRR, nor do they contain any securitisation positions from the sponsor or investor business. These items are shown in the separate chapter securitisations.

The gross carrying value of the defaulted risk positions is at €5.0bn as of 31 December 2023 (December 2022: €5.9bn). In addition to the loan loss provisions presented in the tables, the gross carrying values are also offset by collateral, which is taken into account accordingly in the calculation of the expected credit loss (specific credit risk adjustments).

The breakdown by gross carrying values reflects the Commerzbank Group's focus on Germany and selected markets throughout Europe. This means that the vast majority of the expected credit loss and the loan loss provisions, respectively, are attributable to borrowers based in these regions.

Commerzbank does not display table 9 on foreclosed assets, which is also required in the above-mentioned EBA guidelines, as it currently has no foreclosed assets in stock.

The following table EU CR1 shows the risk positions divided into performing and non-performing exposures, separated by the type of debt securities (Cash balances at central banks and other demand deposits, loans and advances, debt securities and off-balance-sheet exposure) and their counterparties as defined in Article 442 c) and f) CRR as of 31 December 2023:

EU CR1: Performing and non-performing exposures and related provisions

		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
		Gross carrying amount / nominal amount						Accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions						Accumulated partial write-offs	Collaterals and financial guarantees received	
		Performing Portfolio			Non-performing Portfolio			Performing Portfolio - accumulated impairment and provisions			Non-performing exposures - accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions				On performing exposures	On non-performing exposures
	€m		thereof Stage 1	thereof Stage 2		thereof Stage 2	thereof Stage 3		thereof Stage 1	thereof Stage 2		thereof Stage 2	thereof Stage 3			
005	**Cash balances at central banks and other demand deposits**	**91,940**	**91,498**	**443**	**0**	**0**	**0**	**−19**	**0**	**−19**	**0**	**0**	**0**		**0**	**0**
010	**Loans and advances**	**311,613**	**247,626**	**20,041**	**4,187**	**0**	**3,803**	**−1,236**	**−268**	**−966**	**−2,056**	**0**	**−1,959**	**−816**	**155,840**	**1,275**
020	Central banks	9,587	1,749	51	0	0	0	−1	−1	0	0	0	0	0	9,289	0
030	Central governments	15,628	15,505	124	131	0	119	−4	−2	−2	−5	0	−2	0	948	120
040	Credit institutions	33,827	15,150	616	64	0	60	−22	−9	−13	−19	0	−18	−3	20,884	6
050	Other financial corporations	30,190	12,575	489	39	0	16	−7	−3	−4	−11	0	−11	−1	18,713	0
060	Non-financial corporations	92,625	82,975	8,792	2,876	0	2,572	−657	−176	−480	−1,527	0	−1,446	−490	25,831	743
070	thereof SMEs	26,176	22,523	3,554	1,163	0	1,090	−262	−86	−175	−574	0	−569	−164	9,044	316
080	Households	129,756	119,673	9,970	1,078	0	1,035	−545	−77	−468	−494	0	−483	−323	80,174	407
090	**Debt securities**	**91,147**	**87,076**	**583**	**26**	**0**	**26**	**−48**	**−29**	**−19**	**−5**	**0**	**−5**	**0**	**0**	**0**
100	Central banks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	Central governments	30,626	28,112	564	0	0	0	−35	−17	−18	0	0	0	0	0	0
120	Credit institutions	20,146	19,819	0	0	0	0	−3	−3	0	0	0	0	0	0	0
130	Other financial corporations	34,830	33,896	7	0	0	0	−3	−3	0	0	0	0	0	0	0
140	Non-financial corporations	5,545	5,249	13	26	0	26	−8	−6	−2	−5	0	−5	0	0	0

		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
		Gross carrying amount / nominal amount						Accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions						Accumulated partial write-offs	Collaterals and financial guarantees received	
		Performing Portfolio			Non-performing Portfolio			Performing Portfolio - accumulated impairment and provisions			Non-performing exposures - accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions				On performing exposures	On non-performing exposures
	€m		thereof Stage 1	thereof Stage 2		thereof Stage 2	thereof Stage 3		thereof Stage 1	thereof Stage 2		thereof Stage 2	thereof Stage 3			
150	**Off-balance-sheet exposures**	**186,180**	**135,373**	**6,288**	**757**	**0**	**303**	**315**	**92**	**193**	**207**	**0**	**67**		**5,132**	**43**
160	Central banks	0	0	0	0	0	0	0	0	0	0	0	0		234	0
170	Central governments	1,828	1,339	198	99	0	99	0	0	0	1	0	1		1	0
180	Credit institutions	8,508	2,160	30	1	0	0	10	1	0	1	0	0		664	0
190	Other financial corporations	9,504	7,074	133	0	0	0	3	2	1	0	0	0		393	0
200	Non-financial corporations	139,224	98,904	4,846	637	0	189	229	71	138	199	0	60		2,858	42
210	Households	27,117	25,895	1,081	20	0	15	73	19	54	7	0	6		981	1
220	**Total**	**680,880**	**561,572**	**27,355**	**4,971**	**0**	**4,132**	**−1,599**	**−389**	**−1,178**	**−2,268**	**0**	**−2,031**	**−816**	**160,972**	**1,319**

In accordance with the EBA risk Dash Board's guidance, Commerzbank's NPE rate as of 31 December 2023 was 0.8%.

In Table EU CR1-A, the net exposure value for loans and advances and debt securities is broken down by maturity according to Article 442 g) CRR as of 31 December 2023.

EU CR1-A: Maturity of exposures

		a	b	c	d	e	f
		Net exposure values					
	€m	Can be terminated at any time	<= 1 year	> 1 year <= 5 years	> 5 years	No specified maturity	Total
1	Loans and advances	34,274	47,596	52,728	158,278	0	292,876
2	Debt securities	185	10,326	29,373	48,551	0	88,434
3	**Total**	**34,459**	**57,922**	**82,101**	**206,829**	**0**	**381,310**

Table EU CR2 shows the development of the stock of non-performing loans and advances required under Article 442 f) CRR as of 31 December 2023.

EU CR2: Changes in the stock of non-performing loans and advances

		a
	€m	Exposure at Default
010	**Initial stock of non-performing loans and advances**	**5,681**
020	Inflows to non-performing portfolios	1,039
030	Outflows from non-performing portfolios	−758
040	Outflows due to write-offs	−379
050	Outflow due to other situations	−738
060	**Final stock of non-performing loans and advances**	**4,845**

The following table EU CQ1 shows the credit quality of forborne exposures according to Article 442 c) CRR as of 31 December 2023, broken down by the type of debt instruments and its counterparties. The quality is assessed based on the measures initiated – shown for performing, defaulted and impaired exposures, as well as the provisions and the collateral, provide information on the quality of the forborne portfolio.

EU CQ1 Credit quality of forborne exposures

		a	b	c	d	e	f	g	h
		Gross carrying value of positions with forbearance measures				**Accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions**		**Collaterals and financial guarantees received on forborne exposures**	
		Performing Portfolio	**Non-performing Portfolio**			**On performing exposures with forbearance measures**	**On non-performing exposures with forbearance measures**		**Of which collateral and financial guarantees received on non-performing exposures with forbearance measures**
	€m			**Of which defaulted**	**Of which impaired**				
005	Cash balances at central banks and other demand deposits	0	0	0	0	0	0	0	0
010	Loans and advances	1,828	1,820	1,820	1,820	–47	–899	1,127	486
020	Central banks	0	0	0	0	0	0	0	0
030	Central governments	0	0	0	0	0	0	0	0
040	Credit institutions	11	0	0	0	0	0	0	0
050	Other financial corporations	68	0	0	0	–2	0	18	0
060	Non-financial corporations	1,350	1,583	1,583	1,582	–35	–829	747	375
070	Households	399	238	238	237	–9	–70	361	111
080	Debt securities	0	0	0	0	0	0	0	0
090	Loan commitments given	511	217	217	217	6	83	15	6
100	**Total**	**2,340**	**2,038**	**2,038**	**2,037**	**–53**	**–982**	**1,142**	**492**

EU CQ3: Credit quality of performing and non-performing exposures by past due days

		a	b	c	d	e	f	g	h	i	j	k	l
		Gross carrying amount / nominal amount											
		Performing Portfolio			Non-performing Portfolio								
	€m		Not past due or Past due ≤ 30 days	Past due > 30 days ≤ 90 days		Unlikely to pay that are not past-due or past-due ≤ 90 days	Past due > 90 days ≤ 180 days	Past due > 180 days ≤ 1 year	Past due > 1 year ≤ 2 years	Past due > 2 year ≤ 5 years	Past due > 5 year ≤ 7 years	Past due > 7 years	Of which: defaulted
005	**Cash balances at central banks and other demand deposits**	**91,940**	**91,940**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
010	**Loans and advances**	**311,613**	**311,276**	**337**	**4,187**	**1,812**	**274**	**605**	**1,047**	**294**	**53**	**103**	**4,187**
020	Central banks	9,587	9,587	0	0	0	0	0	0	0	0	0	0
030	Central governments	15,628	15,628	0	131	25	0	0	106	0	0	0	131
040	Credit institutions	33,827	33,816	11	64	52	0	8	0	0	0	4	64
050	Other financial corporations	30,190	30,190	1	39	36	0	0	0	0	1	0	39
060	Non-financial corporations	92,625	92,477	148	2,876	1,324	152	392	754	171	22	60	2,876
070	thereof SMEs	26,176	26,069	107	1,163	638	79	160	187	62	17	20	1,163
080	Households	129,756	129,579	177	1,078	374	121	205	187	122	30	38	1,078
090	**Debt securities**	**91,147**	**91,137**	**10**	**26**	**26**	**0**	**0**	**0**	**0**	**0**	**0**	**26**
100	Central banks	0	0	0	0	0	0	0	0	0	0	0	0
110	Central governments	30,626	30,626	0	0	0	0	0	0	0	0	0	0
120	Credit institutions	20,146	20,146	0	0	0	0	0	0	0	0	0	0
130	Other financial corporations	34,830	34,820	10	0	0	0	0	0	0	0	0	0
140	Non-financial corporations	5,545	5,545	0	26	26	0	0	0	0	0	0	26
150	**Off-balance-sheet exposures**	**186,180**			**757**								**757**
160	Central banks	0			0								0
170	Central governments	1,828			99								99
180	Credit institutions	8,508			1								1
190	Other financial corporations	9,504			0								0
200	Non-financial corporations	139,224			637								637
210	Households	27,117			20								20
220	**Total**	**680,880**	**494,353**	**347**	**4,971**	**1,838**	**274**	**605**	**1,047**	**294**	**53**	**103**	**4,971**

Table EU CQ4 shows the quality of the non-performing exposures by geography according to Article 442c) and e) CRR as of 31 December 2023. The countries listed in the table account for more than 90% of Commerzbank's total exposure (both balance and off-balance sheet). The remaining countries are summarized in the line "others".

EU CQ4: Quality of non-performing exposures by geography

		a	c	e	f	g
		Gross carrying amount / nominal amount		**Accumulated impairment**	**Provisions on off-balance sheet commitments and financial guarantee given**	**Accumulated negative changes in fair value due to credit risk on non-performing exposures**
	€m		**Of which defaulted**			
010	**On balance sheet exposures**	**406,974**	**4,214**	**–3,329**		**–16**
020	Germany	215,409	2,082	–1,805		0
030	Poland	38,114	1,070	–822		–15
040	United States of America	17,853	18	–23		0
050	United Kingdom of Great Britain and Northern Ireland	17,718	3	–29		0
060	Luxembourg	12,263	8	–48		0
070	Italy	11,719	16	–38		0
080	Cayman Islands	10,472	9	0		0
090	France	8,446	7	–3		0
100	Ireland	7,267	0	–2		0
110	Czechia	5,634	44	–35		0
120	Spain	5,502	4	–9		0
130	Netherlands	5,100	4	–19		0
140	Switzerland	4,621	65	–33		0
150	Other international organisations	3,723	0	–1		0
160	Canada	3,508	0	–1		0
170	Others	39,626	884	–461		0
180	**Off balance sheet exposures**	**186,937**	**757**		**523**	
190	Germany	108,078	478		386	
200	United States of America	15,109	0		5	
210	Poland	9,257	53		45	
220	France	7,799	0		2	
230	Switzerland	6,265	5		3	
240	United Kingdom of Great Britain and Northern Ireland	5,561	0		3	
250	Netherlands	5,237	35		9	
260	Spain	4,296	1		1	
270	Austria	2,706	0		3	
280	Italy	2,472	0		3	
290	Luxembourg	2,022	0		2	
300	Others	18,135	183		61	
310	**Total**	**593,911**	**4,971**	**–3,329**	**523**	**–16**

[1] The countries listed in the table cover more than 90% of Commerzbank's total exposure (both balance sheet and off-balance sheet). The following countries are located in the lines "others": China, Austria, Japan, Singapore, Croatia, Belgium, Sweden, Bahamas, Slovakia, South Korea, Australia, Norway, Egypt, Finland, Turkey, Hong Kong, Portugal, Chile, Bangladesh, Russia, United Arab Emirates, Greece, Uzbekistan, Denmark, Angola, Indonesia, Bermuda, Turkmenistan, Brazil, India, Egypt. The remaining countries, each with less than 0.1% of the total exposure, are not listed here for reasons of materiality.

Table EU CQ5 shows the credit quality of loans and advances by industries according to Article 442 c) and e) CRR as of 31 December 2023:

EU CQ5: Credit quality of loans and advances by industry

		a	b	c	d	e	f
		Gross carrying amount				**Accumulated impairment**	**Accumulated negative changes in fair value due to credit risk on non-performing exposures**
			of which: non-performing		**of which: loans and advances subject to impairment**		
	€m			**Of which defaulted**			
010	Agriculture, forestry and fishing	593	13	13	590	−9	−0
020	Mining and quarrying	1,199	219	219	1,199	−85	−0
030	Manufacturing	33,174	1,161	1,161	32,604	−921	−1
040	Electricity, gas, steam and air conditioning supply	9,618	73	73	9,618	−64	−0
050	Water supply	1,918	6	6	1,909	−5	−0
060	Construction	2,726	120	120	2,716	−104	−1
070	Wholesale and retail trade	12,499	439	439	12,428	−285	−3
080	Transport and storage	5,166	115	115	5,162	−56	−1
090	Accommodation and food service activities	848	38	38	846	−31	−0
100	Information and communication	4,902	87	87	4,811	−55	−0
110	Real estate activities	12,855	360	360	12,836	−359	−6
120	Financial and insurance actvities	0	0	0	0	0	0
130	Professional, scientific and technical activities	4,103	94	94	4,083	−86	−1
140	Administrative and support service activities	3,006	89	89	2,999	−34	−0
150	Public administration and defense, compulsory social security	13	0	0	13	−0	−0
160	Education	140	11	11	139	−6	−0
170	Human health services and social work activities	1,185	14	14	1,183	−32	−0
180	Arts, entertainment and recreation	515	4	4	514	−5	−0
190	Other services	1,040	30	30	1,000	−35	−0
200	**Total**	**95,501**	**2,876**	**2,876**	**94,648**	**−2,170**	**−13**

B. Counterparty credit risk

Risk management

Counterparty credit risk (default risk from counterparty default risk) is defined as the risk of losses sustained or profits foregone due to the default of a counterparty in the context of a derivative or securities financing transaction. In addition to market price risks, derivative positions also give rise to default risks when a claim arises against the counterparty in the form of positive market values.

Commerzbank also looks at what is known as correlation risk (wrong way risk). This occurs when a counterparty's exposure and credit quality (rating) are negatively correlated. Wrong way risk is therefore an additional risk source, as the credit exposure is generally measured independently from the counterparty's creditworthiness. Commerzbank has a clear definition of specific and general wrong way risk. There are guidelines to assist in identifying and quantifying wrong way risk. They also set out how the exposure must be adjusted to allow for the wrong way risk. In the case of secured transactions, the potential relationship between the performance of the collateral and the credit rating of the counterparty also has to be considered and captured according to the Commerzbank collateral matrix.[1]

The derivative positions shown in the tables below do not include securitisation positions as defined in the CRR as these are shown in the securitisations chapter. This means that interest rate and currency swaps or credit derivative transactions entered into with special-purpose securitisation companies are not included.

Risk appetite is operationally structured in the Group Risk Strategy through a consistent management system with limits, benchmarks for risk strategy positioning and supplementary guidelines. The specific risk appetite for the lending business is derived from this and structured further in the credit risk strategy. The risk strategy focus of the credit risk strategy thus adopts the cross-segment benchmarks of the Group Risk Strategy that are relevant for the default risk and specifies them specifically for the lending business of the individual segments. Furthermore, the limit concept of the Group Risk Strategy is supplemented by quantitative guidelines to limit risk concentrations and weaker credit ratings. Downstream policies operationalise the risk appetite at the level of selected sub-portfolios.

In order to minimise both the economic and the regulatory credit risk arising from these instruments, Commerzbank enters into master agreements (bilateral netting agreements) such as the 2002 ISDA Master Agreement or the German Master Agreement for Financial Futures with the respective counterparties. By means of such bilateral netting agreements, the positive and negative market values of the derivatives contracts included under a master agreement can be offset against one another, and the regulatory add-ons for future risks of these products can be reduced. This netting process reduces the credit risk to a single net claim on the contracting party (close-out netting). Table EU CCR5-A contains a detailed presentation of netting effects. The netting policy sets out the requirements for the external and internal netting of derivatives and repo transactions. For repo/lending transactions Commerzbank makes a distinction between "full netting" and "single transaction netting". Single transaction netting allows the netting of exposure and collateral in one transaction, while in full netting all transactions can be netted against each other.

For both regulatory reports and the internal measurement and monitoring of credit exposures, these risk-mitigating techniques are only used if Commerzbank considers them enforceable in the jurisdiction in question, should the counterparty become insolvent. Legal opinions are obtained from various international law firms in order to verify enforceability. Legal opinions are obtained from various international law firms in order to verify enforceability.

Similar to the master agreements are the collateral agreements (e.g. collateralisation annex for financial futures contracts, Credit Support Annex), which Commerzbank concludes with its business partners to secure the net claim or liability remaining after netting (receipt or provision of collateral). As a rule, this collateral management reduces credit risk by means of prompt, usually daily or weekly, measurement and adjustment of the customer exposure.

[1] Although in a regulatory context wrong way risk is normally mentioned in connection with counterparty risk, Commerzbank also considers it in connection with issuer risk (e.g. between the issuer of a bond and the guarantor).

Commerzbank only uses cash and securities pledged as collateral under master agreements. Table EU CCR5 gives a detailed list of collateral provided and received.

Regulations for risk mitigation measures are stipulated by the "Guideline for Collateralized Trading". The guideline covers legal aspects such as types of master agreements and the enforceability of netting transactions and collateral under master agreements. It describes the requirements governing the netting of collateral and the structuring of Credit Support Annexes.

The basis for determining the netting amounts for the default risk from derivative positions is not the positive market values but instead the so-called credit equivalent values. Credit equivalent values effectively correspond to the risk position values of balance-sheet default risk positions, as a credit conversion factor of 100% is applied to derivative positions.

To determine the assessment basis of derivative default risk positions, Commerzbank uses the internal model method (IMM) pursuant to Article 283 ff. CRR and the market valuation method pursuant to Article 274 CRR.

The approach to risk quantification under the IMM is generally based on a risk simulation which generates future market scenarios and creates portfolio valuations based on these scenarios. Netting and collateral agreements are taken into account.

In applying the internal model method, the EaD is defined per counterparty as the product of the alpha factor and the calculated effective expected positive exposure E*. Risks that are not taken into account when determining E*, correlation risks for example, are included in the capital adequacy calculation through the alpha factor. Banks can either estimate the alpha factor themselves or use the supervisory value. Commerzbank does not carry out its own estimation of the alpha factor and applies the value specified by the supervisory authority when determining the exposure at default.

The exposure values for the counterparty default risk from derivative positions and securities financing transactions – including exchange-traded derivatives – used to determine the (net) assessment basis amounted to €2,609m using the standardised approach (SA-CCR) and €26,542m using the internal model method (see table EU CCR1 – Analysis of counterparty credit risk by approach) as of 31 December 2023. The proportion of derivatives and securities financing transactions processed via central counterparties measured by exposure value according to credit risk mitigation techniques was 10%. Table EU CCR8 shows the exposures to central counterparties (CCPs). Table EU CCR4 provides an overview of the risk positions managed under the AIRB approach by exposure class and PD scale.

All operative units, branches and subsidiaries are, subject to compliance with the regulations, authorised to use credit derivatives to hedge credit risks in loan portfolios (i.e. purchase of hedges). This allows them to hedge credit risks with a credit derivative without having to sell or assign the loan. A detailed list of credit derivatives can be found in table EU CCR6 – Credit derivatives exposures.

Commerzbank creates credit reserves (credit valuation adjustments, CVA) for derivatives, securities financing transactions and money market transactions reported at fair value in order to account for the counterparty's expected default risk. The offsetting of credit reserves compensates for the fair values of the transaction calculated on the basis of risk-free parameters. The CVA are determined by the sum of the discounted expected exposures until the end of the contract period of the transaction, weighted by the marginal probability of default of the counterparty and in consideration of the expected loss upon default of the counterparty. In order to calculate the expected exposure, Commerzbank uses a Monte Carlo simulation based on a risk-neutral calibration.

As part of the regulatory requirements under Basel 3, since 2015 the Commerzbank Group has additionally calculated the capital requirements for credit value adjustments (CVA risk) according to Article 381 ff. CRR. For the portfolios of Commerzbank Aktiengesellschaft, CVA risk is calculated using the advanced method according to Article 383 CRR via a sensitivity-based approach. For the Group's subsidiaries, the standardised approach according to Article 384 CRR is applied. As of 31 December 2023, there were eligible hedges under Article 386 CRR: Single name CDS of €119m. The capital requirements for CVA risk amounted to €158m (€1,975m RWA, see table EU CCR2 – CVA capital charge) as of 31 December 2023 for the Group.

Table EU CCR1 shows the counterparty default risk as defined in Article 439 f), g), k) and m) CRR as of 31 December 2023:

Information on regulatory methods

EU CCR1: Analysis of CCR exposure by approach

		a	b	c	d	e	f	g	h
	€m	Replace-ment cost (RC)	Potential future exposure (PFE)	EEPE	Alpha used for computing regulatory exposure value	Exposure value pre-CRM	Exposure value post-CRM	Exposure value	RWAs
EU 1	EU - Original Exposure Method (for derivatives)	0	0		1.4	0	0	0	0
EU 2	EU - Simplified SA-CCR (for derivatives)	0	0		1.4	0	0	0	0
1	SA-CCR (for derivatives)	614	1,292		1.4	3,101	2,675	2,609	1,229
2	IMM (for derivatives and SFTs)			16,636	1.60	119,363	26,618	26,542	8,216
2a	Of which securities financing transactions			3,450		85,572	5,520	5,520	1,053
2b	Of which derivatives and long settlement transactions			13,186		33,791	21,098	21,022	7,163
2c	Of which from contractual cross-product netting			0		0	0	0	0
3	Financial collateral simple method (for SFTs)					0	0	0	0
4	Financial collateral comprehensive method (for SFTs)					21,725	2,358	2,432	738
5	VaR for SFTs					0	0	0	0
6	**Total**					**144,190**	**31,651**	**31,583**	**10,182**

Table EU CCR2 shows the own funds requirements for CVA risks, broken down by approach according to Article 439 h) CRR as of 31 December 2023:

EU CCR2: Transactions subject to own funds requirements for CVA risk

		a	b
	€m	Exposure value	RWAs
1	Total transactions subject to the Advanced method	10,423	1,485
2	(i) VaR component (including the 3× multiplier)		289
3	(ii) SVaR component (including the 3× multiplier)		1,195
4	Transactions subject to the Standardised method	821	490
EU4	Transactions subject to the Alternative approach (Based on the Original Exposure Method)	0	0
5	**Total transactions subject to own funds requirements for CVA risk**	**11,244**	**1,975**

Table EU CCR3 shows the allocation of credit counterparty risk in the standardized approach by exposure classes as defined in Articles 439 l) and 444 e) CRR as of 31 December 2023:

EU CCR3: Standardised approach – CCR exposures by regulatory exposure class and risk weights

		a	b	c	d	e	f	g	h	i	j	k	l
	Exposure classes | €m	**Risk weight**											
		0%	**2%**	**4%**	**10%**	**20%**	**50%**	**70%**	**75%**	**100%**	**150%**	**Other**	**Total**
1	Central governments or central banks	2,475	4	0	0	82	0	0	0	0	0	0	2,561
2	Regional governments or local authorities	354	0	0	0	0	0	0	0	0	0	0	354
3	Public sector entities	637	0	0	0	17	0	0	0	0	0	0	654
4	Multilateral development banks	152	0	0	0	6	0	0	0	0	0	0	159
5	International organisations	30	0	0	0	0	0	0	0	0	0	0	30
6	Institutions	0	1,664	302	0	2,845	1,093	0	0	0	0	0	5,904
7	Corporates	0	2,058	468	0	352	147	0	0	990	1	0	4,017
8	Retail	0	0	0	0	0	0	0	10	0	0	0	10
9	Institutions and corporates with a short-term credit assessment	0	0	0	0	0	0	0	0	0	0	0	0
10	Other items	0	0	0	0	0	0	0	0	12	1	0	13
11	**Total**	**3,648**	**3,726**	**770**	**0**	**3,302**	**1,240**	**0**	**10**	**1,003**	**1**	**0**	**13,700**

Information by regulatory risk-weighting approach

Table EU CCR4 shows the credit counterparty risk according to exposure classes and PD scale according to Articles 439 l) and 452 g) CRR as of 31 December 2023:

EU CCR4: IRB approach – CCR exposures by exposure class and PD scale

		a	b	c	d	e	f	g
	PD scale	Exposure value €m	Average PD %	Number of obligors	Average LGD %	Average maturity[1] years	RWAs €m	RWA density
Central governments or central banks	0.00 to < 0.15	100	0.00	13	100.00	1.1	34	33.5
	0.15 to < 0.25	3	0.00	3	100.00	1.4	3	81.9
	0.25 to < 0.50	15	0.27	7	100.00	0.5	13	91.2
	0.50 to < 0.75	1	0.16	3	100.00	1.5	1	152.8
	0.75 to < 2.50	5	0.11	5	100.00	1.0	8	166.3
	2.50 to < 10.00	5	0.08	7	100.00	0.7	14	314.3
	10.00 to < 100.00	1	0.00	4	100.00	1.0	1	154.8
	100.00 (Default)	0	0.00	0	-	-	0	0.0
	Subtotal	**129**	**0.04**	**42**	**100.00**	**1.0**	**75**	**57.9**
Institutions	0.00 to < 0.15	9,851	0.07	667	42.66	2.0	2,305	23.4
	0.15 to < 0.25	830	0.18	111	40.21	1.0	307	37.0
	0.25 to < 0.50	788	0.31	149	47.49	2.0	483	61.3
	0.50 to < 0.75	489	0.58	85	50.48	1.0	362	74.1
	0.75 to < 2.50	188	1.43	130	45.47	1.0	176	93.7
	2.50 to < 10.00	71	4.47	62	48.75	1.0	111	155.5
	10.00 to < 100.00	7	49.27	25	55.91	1.0	18	242.3
	100.00 (Default)	3	100.00	1	88.40	2.0	2	62.5
	Subtotal	**12,227**	**0.21**	**1,230**	**43.21**	**2.0**	**3,763**	**30.8**
Corporates	0.00 to < 0.15	2,252	0.11	756	41.67	2.1	577	25.6
	0.15 to < 0.25	3,873	0.20	745	41.10	1.5	1,274	32.9
	0.25 to < 0.50	1,664	0.42	1,263	44.52	2.3	828	49.7
	0.50 to < 0.75	549	0.58	705	42.22	1.7	373	68.0
	0.75 to < 2.50	823	1.09	1,048	41.75	1.6	653	79.4
	2.50 to < 10.00	168	4.25	368	42.72	1.8	221	131.2
	10.00 to < 100.00	39	18.45	47	40.63	1.2	73	188.0
	100.00 (Default)	6	100.00	40	46.54	1.1	4	64.6
	Subtotal	**9,374**	**0.53**	**4,972**	**42.00**	**1.8**	**4,002**	**42.7**
Retail	0.00 to < 0.15	100	0.05	635	50.85		7	7.0
	0.15 to < 0.25	8	0.20	174	51.41		2	21.1
	0.25 to < 0.50	13	0.37	282	50.03		4	28.8
	0.50 to < 0.75	6	0.61	178	52.30		3	41.0
	0.75 to < 2.50	6	1.19	276	53.48		4	64.7
	2.50 to < 10.00	15	3.85	202	53.28		11	74.8
	10.00 to < 100.00	2	52.21	18	53.50		2	128.5
	100.00 (Default)	0	100.00	11	40.53		0	62.5
	Subtotal	**149**	**1.18**	**1,776**	**51.23**		**32**	**21.4**
Total (all exposure classes)		**21,880**	**0.39**	**8,020**	**42.17**	**1.8**	**7,872**	**36.0**

[1]) Parameter is not subject to the RWA calculation for retail business. Hence, in compliance with EBA/GL/2016/11, no disclosure for retail business.

Table EU CCR5 shows the composition of the collateral for the credit counterparty risk in accordance with Article 439 e) CRR as of 31 December 2023.

EU CCR5: Composition of collateral for CCR exposures

		a	b	c	d	e	f	g	h
		Collateral used in derivative transactions				**Collateral used in SFTs**			
	€m	**Fair value of collateral received**		**Fair value of posted collateral**		**Fair value of collateral received**		**Fair value of posted collateral**	
		Segregated	Unsegregated	Segregated	Unsegregated	Segregated	Unsegregated	Segregated	Unsegregated
1	Cash – domestic currency	0	12,964	5	11,810	0	285	0	221
2	Cash – other currencies	0	1,845	72	1,793	0	243	0	180
3	Domestic sovereign debt	12	0	0	65	0	22,598	0	25,120
4	Other sovereign debt	573	133	297	1,445	0	62,643	0	57,203
5	Government agency debt	0	0	0	0	0	0	0	0
6	Corporate bonds	62	294	40	251	0	9,086	0	6,208
7	Equity securities	3	0	0	0	0	8	0	0
8	Other collateral	0	1	12	208	0	21,645	0	28,816
9	**Total**	**650**	**15,238**	**426**	**15,571**	**0**	**116,508**	**0**	**117,749**

Table EU CCR6 shows a summary of credit derivatives for hedging by product as per Article 439 j) CRR as of 31 December 2023:

EU CCR6: Credit derivatives exposures

		a	b
	€m	**Protection bought**	**Protection sold**
Notionals			
1	Single-name credit default swaps	5,400	2,284
2	Index credit default swaps	2,232	3,695
3	Total return swaps	2,079	0
4	Credit options	0	0
5	Other credit derivatives	0	0
6	**Total notionals**	**9,711**	**5,979**
Fair value			
7	Positive fair value (asset)	91	86
8	Negative fair value (liability)	−262	0

The following table EU CCR7 shows the development of RWA by main driver of credit counterparty risk according to the internal model method (IMM) in the fourth quarter of 2023 in accordance with Article 438 h) CRR.

The main drivers of the decline in RWA from CCR exposures in the fourth quarter of 2023 are shifts in the asset classes at 'institutions', resulting in changes in risk weights (shown in 'Other') and a slight rise in the US dollar.

EU CCR7: RWA flow statements of CCR exposures under the IMM

		a
	€m	**Risk-weighted assets (RWA)**
1	**RWA as at the end of the previous reporting period**	**8,793**
2	Asset size	−8
3	Credit quality of counterparties	−76
4	Model updates (IMM only)	−80
5	Methodology and policy (IMM only)	0
6	Acquisitions and disposals	0
7	Foreign exchange movements	−149
8	Other	−264
9	**RWA as at the end of the current reporting period**	**8,216**

Further information on counterparty credit risk

Table EU CCR8 shows the breakdown of risk positions by central counterparties as per Article 439 i) CRR as of 31 December 2023:

EU CCR8: Exposures to CCPs

		a	b
	€m	Exposure value	RWAs
1	**Exposures to QCCPs (total)**		**292.9**
2	Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	3,997	85.4
3	(i) OTC derivatives	1,404	33.5
4	(ii) Exchange-traded derivatives	1,155	23.1
5	(iii) SFTs	1,437	28.7
6	(iv) Netting sets where cross-product netting has been approved	0	0.0
7	Segregated initial margin	77	
8	Non-segregated initial margin	0	0.0
9	Prefunded default fund contributions	585	207.5
10	Unfunded default fund contributions	0	0.0
11	**Exposures to non-QCCPs (total)**		**0.0**
12	Exposures for trades at non-QCCPs (excluding initial margin and default fund contributions); of which	0	0.0
13	(i) OTC derivatives	0	0.0
14	(ii) Exchange-traded derivatives	0	0.0
15	(iii) SFTs	0	0.0
16	(iv) Netting sets where cross-product netting has been approved	0	0.0
17	Segregated initial margin	0	
18	Non-segregated initial margin	0	0.0
19	Prefunded default fund contributions	0	0.0
20	Unfunded default fund contributions	0	0.0

Contractual agreements that oblige Commerzbank to provide additional collateral to its counterparties in the event of a downgrading of its own rating exist primarily in the context of the secured and unsecured OTC derivatives business.

Within the stress testing, additional collateral requirements for a simultaneous downgrade of Commerzbank's rating by the rating agencies Standard & Poor's and Moody's by three grades are determined. The regular review of these additional collateral arrangements is based in particular on contractual information on unsecured and secured derivatives transactions (in the case of the latter, in particular on the collateral notes, the so-called credit support annexes, which are set up within the netting framework agreements of the OTC derivatives business).

addCCR1: Additional contractual obligations (in stress test)

Additional contractual obligations | €m	
Contractual derivative outflows and margin calls	350
thereof collateralised interest rate derivatives	150
thereof uncollateralised interest rate derivatives	200
Other contractual outflows and margin calls	70
Total 2023	**420**
Total 2022	420

C. Securitisations

In securitisation business Commerzbank performs the three roles provided for in regulatory legislation, namely originator, sponsor and investor.

› **Originator** Parts of the Bank's own loan portfolio are placed selectively on the capital markets through securitisation transactions. The transfer of the credit risk is by means of synthetic securitisations where the portfolio is hedged through credit derivative and financial guarantee contracts.

Commerzbank has in recent years securitised receivables from loans to the Bank's customers with a current volume of €14.7bn, primarily for capital management purposes (31 December 2022: €12.2bn.

As of 31 December 2023, of the outstanding securitisations of Commerzbank, risk exposures of €13.1bn (31 December 2022: €11.3bn) were retained. By far the largest portion of these positions is accounted for by €12.9bn of senior tranches, which are nearly all rated good or very good (December 2022: €11.2bn).

The assets securitized by Commerzbank are bank-owned receivables from medium-sized and large companies based in Europe, in particular in Germany.

In the year under review, Commerzbank has issued two synthetic STS (simple, transparent and standardized) securitisations with a volume of €1.75bn and €3.2bn, which are based on receivables from large and medium-sized enterprises mainly from Germany and other European countries.

In addition, the Polish subsidiary of Commerzbank mBank has issued a synthetic STS securitisation with a volume of €2.3bn based on receivables from private customers.

As part of the overall management of the Bank, the Commerzbank Group constantly reviews opportunities to securitise its own assets. This process is primarily influenced by the market conditions prevailing at any one time. Commerzbank AG and mBank have not planned any further own securitisation transactions for the first half of 2024.

In the reporting year, due to the structure of the transactions, Commerzbank did not hold any securitisation exposures for which additional capital was required as a result of an investor share to be taken into consideration by the originator under Article 246 (Regulation (EU) 2017/2401). In addition, during the reporting year Commerzbank provided no implicit support within the meaning of Article 250 (Regulation (EU) 2017/2401).

In the period under review, Commerzbank did not sell investment products resulting from its role as originator to companies that are managed or advised in investments by Commerzbank.

› **Sponsor** By securitising their own portfolios of receivables, i.e. selling their receivables on a non-recourse basis, Commerzbank's customers are able to tap alternative sources of funding on the capital markets (Conduit business). Structuring, arranging and securitising these receivables portfolios, particularly those of customers in the Corporate Clients segment, is a key component of the structured finance product range. Special purpose vehicles (purchasing entities) are typically established to manage these assets. The ABS conduit Silver Tower established by the bank primarily acts as the purchasing entity.

The refinancing of the purchases is regularly done through the issuance of short-term registered notes. As sponsor, the Bank is responsible for structuring and, as a rule, purchasing and refinancing the transactions. Commerzbank provides the special purpose vehicles with note purchase agreements to enable access to short-term liquidity through the purchase of registered notes.

These note purchase agreements are counted in full when determining the risk-weighted exposures. The mainly high diversified portfolios of receivables generally derive from customers' working capital, such as trade receivables and car, machinery and equipment leases. The receivables portfolios therefore reflect the differing businesses of those selling the receivables.

Commerzbank currently holds a derivative position to hedge interest rate risks with only one special purpose vehicle outside Silver Tower S.A.

The volume of sponsor securitisation positions in the Conduit business increased by €1.2bn to €4.5bn in 2023.

› **Investor** The Commerzbank Group invests under its regulatory banking book in securitisation positions. The Bank's internal credit risk strategy allows entering into new securitisation positions provided that the risk profile of each securitisation position is subjected to a differentiated analysis and documentation. This allows transaction risk drivers that may impact directly or indirectly on the securitised position's risk content to be taken into account. In the year under review Commerzbank invested in senior-ranking securitisation positions, mainly backed by pools of corporate loans.

Risk management

The internal processes for monitoring the risk profile of securitisation exposures are based on the provisions of Articles 5 (due diligence for institutional investors) and 7 (transparency requirements for originators, sponsors and SSPE) ((Regulation (2017/2402) amending Regulation (575/2013)) and on the principles of the Minimum Requirements for Risk Management (MaRisk) as amended. These apply equally to all securitisation positions, regardless of whether Commerzbank is an originator, sponsor or investor.

The processes put in place by the Bank take account of the individual risk profile of securitisation exposures on the basis of a wide range of information sources. They ensure that various risks directly and indirectly affecting the probability of default of the securitised positions are monitored in a continuous and timely manner. This also includes carrying out regular stress tests that take account of macroeconomic factors and the individual risk profile of the securitised positions.

› Originator The credit process for loans to customers does not distinguish between loans which the Bank will securitise at a later date and those for which it will continue to assume the risk. Transactions which allow reliefs in capital for regulatory purposes are subject to a monitoring process that ensures the continuous compliance with the regulations on significant risk transfer according to Articles 244 and 245 (Regulation (2017/2401)). The amount to be retained in securitisation transactions in accordance with Article 6 Regulation ((2017/2402) amending Regulation (575/2013)) is reviewed regularly and published in the Investor Report. A potential placement risk for Commerzbank's transactions is taken fully into account, as the receivables are included in full in the Bank's risk and capital management process up until the actual risk transfer by means of securitisation and placement.

› Sponsor The customer transactions funded via conduits are subject to an ongoing credit process. A risk analysis of the transactions is conducted when the transactions are structured and again in regular reviews which are carried out annually and as circumstances require. A rating is assigned using the Commerzbank`s own ABS rating systems (internal assessment approach). For this purpose we take into account all significant risk drivers of the securitised receivables portfolio (e.g. type of receivable, default rates, collateral provided, diversification, dilution risks, commingling risks) and of the securitisation structure (e.g. whether the creditor claims have a waterfall structure, credit enhancements). Qualitative risk drivers ascertained from regular on-site visits to the seller of receivables as well as the seller's financial position are also taken into account. For trade receivables, structure-inherent covers through credit insurance are taken into account in the rating model and credit analysis. Credit insurance is used in order to mitigate concentration risk. The main counterparties here are Euler Hermes Deutschland, the German branch of Euler Hermes SA and the German branch of Compagnie Française d'Assurance pour le Commerce Extérieur SA (Coface). Before any purchase of customer receivables, the minimum conditions agreed in the contract documentation are reviewed and any non-qualifying receivables are excluded. After the receivables have been bought, their quality is reviewed continuously. If any potential problems come to light another credit analysis of the structure is carried out.

› Investor Strict internal guidelines must be followed when acquiring a new securitisation position. Such positions are subject to a specific internal credit process that also ensures that the specific requirements for securitisation positions regarding due diligence and retention under Articles 5 and 6 ((Regulation (2017/2402) amending Regulation (575/2013)) are met. In the credit process applied to the Bank's securitisation portfolio, the risk profile of the securitisation positions is analysed quarterly or as circumstances require. In preparing a credit assessment, at the level of the individual tranche a securitisation-specific rating system is used which has been developed internally within the Bank, while external standard models are also applied. As with securitisation exposures, the ranking of the individual tranches contained in the pool within a securitisation structure are taken into account in this analysis, as are the specific features of the asset classes and of the different jurisdictions, in order to generate the expected aggregate cash flow. The results are then used to model the entire waterfall structure at the level of the tranche.

› Nature of other risks Commerzbank takes into account not only the original default risk of the securitised receivables but also secondary risks such as market value risk, liquidity risk, legal risk and operational risk insofar as they are relevant with a direct or indirect impact on the default risk. This process looks, for example, at the performance reports for the securitised receivables, changes in external ratings and movements in the market value of the securitisation exposures.

When determining market price risk, changes relating to interest rates, foreign currency rates or credit spreads, among others, are taken into account for the risk assessment of each tranche. In addition, the combination of various conventional risk measures (e.g. VaR) ensures the appropriate management of market risk concentrations at Group level.

Liquidity risk refers in this context to the risk that Commerzbank will be unable to meet its payment obligations on a day-to-day basis. Liquidity risks from securitisations are modelled conservatively in the internal liquidity risk model. In the case of variable-use transactions, it is assumed that the purchase facilities provided to the special-purpose vehicles must be funded by Commerzbank for the duration of their term almost completely and until the maturity date of the last funded claim. Securitisations only qualify as liquid assets if they are eligible for rediscount at the European Central Bank. These positions are only included in the liquidity risk calculation after applying conservative discounts.

Legal risk in the context of securitisation transactions is the risk that the Bank might suffer losses as a result of flaws in legal transaction structures or as a result of missing or flawed legal documentation. Commerzbank's independent Legal department and external law firms are responsible for examining legal structures and all transaction contracts. In terms of content, risks are divided into those arising from the sphere of the originator itself or those directly connected with the portfolio to be securitised. The subsequent refinancing and collateral structure are also a key element of legal structuring and risk assessment.

As well as being associated with legal risk as a risk type under the overall heading of operational risk, securitisation business is subject to the Group-wide management of operational risks. It therefore falls within the framework used by Commerzbank to measure operational risks.

Valuation methods and quantitative information

Regulatory valuation of securitisations

The EU securitisation regulation comprises of two regulations: the securitisation regulation (Regulation (EU)2017/2402) that for the first time creates a European framework for simple, transparent and standardised securitisations (STS) as well as regulation (EU) 2017/2401 where the necessary amendments regarding regulation (EU) No 575/2013 (Capital Requirements Regulation, CRR) are adapted.

The securitisation regulation regulates and harmonises the due diligence requirements for institutional investors, the transparency requirements and the specific requirements for the new STS-securitisations. STS-securitisations are considered to be of high quality and therefore receive a more benign capital treatment.

The hierarchy foresees the internal based approach (SEC-IRBA) at the top of the hierarchy if at least 95% of the underlying exposure amounts can be calculated with the SEC-IRBA. If this is not the case the standardised approach (SEC-SA) is to be used. Only if the SEC-SA is not applicable the SEC-ERBA which is based on eligible external ratings is relevant.

Securitisation positions in the banking book

› **Originator** Capital is held against synthetic securitisation tranches that have been placed on the market based on the risk weighting of the party providing the collateral. Counterparties to the hedging instruments used, e.g. financial guarantees, are institutional investors, whose deposits serve as collateral. For the transactions newly issued by Commerzbank AG and mBank in 2023, the credit risk is placed using Credit Linked Notes. For all own transactions the approach based on internal ratings (SEC-IRBA) is applied.

› **Sponsor** For capital requirements within the Conduit business the Standardised Approach according to the amendments to CRR (EU Regulation 2017/2401) applies. For purposes within the internal capital model, portfolio monitoring as well as setting limits (ICAAP-processes), Commerzbank's own rating systems (IAA) had been used for the receivables classes of trade receivables, car finance and leasing, equipment leasing and consumer lending. In addition, the internal assessment approach is subject to an annual validation by Commerzbank's risk function.

The approaches to modelling probability of default (PD) or expected loss (EL) for securitisation tranches differ depending on the type of the securitised asset class. They follow the guidelines of the rating agencies and include main risk drivers of the securitized portfolio as well as the special structural features of the securitisation position. Other quantitative and qualitative risk components that are regarded as material by Commerzbank are also included in the assessment. These include, in particular, seller risks and qualitative risk drivers that are evaluated via structured qualitative questionnaires. The result of the rating process is a tranche-specific rating derived from the quantitative and qualitative results of the assessment approach. Depending on the specific approach used, this rating is based on the probability of default or expected loss of the securitised tranche.

For the asset classes trade receivables, car finance and leasing, equipment leasing and consumer lending, a range of different stress factors used by the rating agencies are applied, depending on the main risk drivers for the relevant transactions. These are, for example, stress factors on concentration risks, default risks, dilution risks and interest rate risks. Quantitative and qualitative modelling components devised by the Bank are also used. When calculating loss buffers, stress factors are determined individually for different securitised asset types on the basis of the risk profiles of the securitisation transactions.

› **Investor** For investor positions, external ratings are generally available and lead to the SEC-ERBA according the CRR (Regulation 2017/2401). Commerzbank takes account of all available external ratings of securitisation positions issued by the rating agencies nominated by Commerzbank, namely Standard & Poor's, Moody's and FitchRatings. It does so irrespective of the type of receivables securitised and the type of securitisation exposure.

Companies which are consolidated within the Commerzbank Group for regulatory purposes may, as part of the Group-wide business and risk strategy, act as investors in securitisation transactions in which the Bank is acting as sponsor or originator.

Valuation and accounting procedures

In true sale or synthetic securitisation transactions via special purpose vehicles, IFRS accounting regulations require the Bank to review whether or not the securitising special purpose vehicles need to be consolidated in accordance with IFRS 10. This review process is centralised in the Commerzbank Group in the accounting department. The central unit is informed of the establishment or restructuring of a special purpose vehicle. On the basis of the information submitted, it carries out a review to determine whether or not the special purpose vehicle needs to be consolidated.

› **Originator** If the special purpose vehicle is consolidated as part of the Commerzbank Group, no further derecognition test is carried out under IFRS 9. The asset is not derecognised in this case. If the special purpose vehicle does not have to be consolidated, in true sale securitisations the possible derecognition of the securitised receivables from the balance sheet is assessed. Following an assessment of the risks and rewards of ownership as the primary derecognition criterion and the control concept as the secondary derecognition criterion according to IFRS 9.3.2, a derecognition or partial derecognition is reported where appropriate. In the case of synthetic securitisations, the underlying receivables remain on the balance sheet. As with securitised receivables in true sale securitisations that are not derecognised, they are reported in their original IFRS category.

These receivables continue to be accounted for in accordance with the rules for this IFRS category. Where securitised receivables are derecognised, any resultant gains or losses are recognised in the income statement. In some cases, the derecognition of receivables may lead to the first-time recognition of new exposures, for example bonds issued by special purpose vehicles. Under IFRS these exposures are categorised on the basis of the intention with which the securities were acquired and the type of securities according to IFRS 9 (FVTPL, Amortised Cost and FVOCI). Please refer to the notes to the IFRS Group financial statements (Annual Report 2023, Notes to the balance sheet, from page 295 onwards) for a detailed explanation of the classification rules and the related valuation procedures.

No securitisation transactions leading to derecognition of receivables were carried out in the period under review. As a result, no gains or losses were realised from the sale of receivables in connection with securitisation transactions during the reporting period. The transaction Coco Finance II–3 Ltd. founded in 2020 is consolidated in the year under review for accounting purposes but not consolidated for regulatory purposes. In addition, there were seven other synthetic securitisation transactions in the reporting period without the use of a securitisation special purpose vehicle.

If assets are earmarked for securitisation, this has no direct impact on their accounting treatment or measurement within the applicable IFRS categories.

› **Sponsor** Single compartments of Silver Tower S.A. are established for Silver Tower transactions instead of using purchasing entities. The Silver Tower S.A. and their compartments are not being consolidated.

› **Investor** Under IFRS, investor positions are categorised on the basis of the intention with which the securities were acquired and the type of securities according to IFRS 9 (FVTPL, Amortised Cost and FVOCI). For a detailed explanation, please refer to the notes to the IFRS Group financial statements (Annual Report 2023, Notes to the balance sheet, from page 295 onwards), which also explains the related valuation procedures. If the securitisation exposures are traded on liquid markets with observable pricing, they are valued on the basis of independent market prices. If direct measurement at market prices is not possible, the value of the securitisation exposure is determined using prices from external providers. In some cases, the value of the securitisation exposure is determined with the help of valuation models. This involves the application of a discounted cash flow approach, with the cash flows and other relevant parameters being based on data observable on the market. Moreover, the approach is calibrated with market data for application to similar securitisation structures. In many cases the prices estimated by external providers are used. There were no significant changes in the methods used to value securitisation positions in the period under review.

Quantitative information on securitisations

Securitisation positions in the banking book The following information relates to transactions for which risk-weighted exposures are determined in accordance with Articles 242–270 regulation amending CRR (EU Regulation 2017/2401). This also includes the Commerzbank Group's own securitisation transactions for which capital relief is available and made use of for regulatory purposes.

The total volume of all retained or acquired securitisation exposures (on- and off-balance-sheet) was €28.6bn as at the reporting date. This amount corresponds to the exposures after deducting eligible collateral.

The retained or purchased securitisation positions are presented below, broken down by type of underlying securitized exposures.

The following table EU SEC1 shows the total amount of securitisation positions in the banking book broken down by originator, sponsor and investor by asset class according to Article 449 j) CRR as of 31 December 2023.

EU SEC1: Securitisation exposures in the banking book as of 31 December 2023

		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
€m		Institution acts as originator							Institution acts as sponsor				Institution acts as investor			
		Traditional				Synthetic		Sub-total	Traditional		Synthetic	Sub-total	Traditional		Synthetic	Sub-total
		STS		Non-STS			of which SRT		STS	Non-STS			STS	Non-STS		
			of which SRT		of which SRT											
1	**Total exposures**	**0**	**0**	**0**	**0**	**13,037**	**13,037**	**13,037**	**3,236**	**1,348**	**0**	**4,584**	**1,608**	**9,409**	**0**	**11,017**
2	Retail (total)	0	0	0	0	2,108	2,108	2,108	1,234	334	0	1,568	1,443	1,897	0	3,340
3	residential mortgage	0	0	0	0	0	0	0	0	0	0	0	0	46	0	46
4	credit card	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	other retail exposures	0	0	0	0	2,108	2,108	2,108	1,234	334	0	1,568	1,443	1,850	0	3,293
6	re-securitisation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Wholesale (total)	0	0	0	0	10,928	10,928	10,928	2,002	1,014	0	3,016	165	7,513	0	7,678
8	loans to corporates	0	0	0	0	10,928	10,928	10,928	121	95	0	217	0	7,196	0	7,196
9	commercial mortgage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	lease and receivables	0	0	0	0	0	0	0	1,881	919	0	2,799	165	236	0	401
11	other wholesale	0	0	0	0	0	0	0	0	0	0	0	0	81	0	81
12	re-securitisation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

According to Article 449 j) CRR table EU SEC2 shows the securitisation positions in the trading book. Commerzbank had no IFRS trading book positions as of 31 December 2023.

In accordance with Article 449 k) (i) CRR, table EU SEC3 shows the securitisation positions in the non-trading book according to risk weights and the relevant supervisory calculation approaches for originator and sponsor positions as of 31 December 2023:

EU SEC3: Securitisation exposures in the banking book and associated regulatory capital requirements - institution acting as originator or as sponsor

		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	EU-p	EU-q
	€m	Exposure values (by RW bands/deductions)					Exposure values (by regulatory approach)				RWEA (by regulatory approach)				Capital charge after cap			
		≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW/ deductions	SEC-IRBA	SEC-ERBA (including IAA)	SEC-SA	1250% RW/ deductions	SEC-IRBA	SEC-ERBA (including IAA)	SEC-SA	1250% RW	SEC-IRBA	SEC-ERBA (including IAA)	SEC-SA	1250% RW
1	**Total exposures**	**17,399**	**126**	**95**	**0**	**100**	**13,037**	**0**	**4,584**	**100**	**1,754**	**0**	**618**	**100**	**140**	**0**	**49**	**100**
2	Traditional transactions	4,363	126	95	0	0	0	0	4,584	0	0	0	618	0	0	0	49	0
3	Securitisation	4,363	126	95	0	0	0	0	4,584	0	0	0	618	0	0	0	49	0
4	Retail underlying	1,568	0	0	0	0	0	0	1,568	0	0	0	184	0	0	0	15	0
5	Of which STS	1,234	0	0	0	0	0	0	1,234	0	0	0	123	0	0	0	10	0
6	Wholesale	2,794	126	95	0	0	0	0	3,016	0	0	0	434	0	0	0	35	0
7	Of which STS	2,561	0	0	0	0	0	0	2,002	0	0	0	200	0	0	0	16	0
8	Re-securitisation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Synthetic transactions	13,037	0	0	0	100	13,037	0	0	100	1,754	0	0	100	140	0	0	100
10	Securitisation	13,037	0	0	0	100	13,037	0	0	100	1,754	0	0	100	140	0	0	100
11	Retail underlying	2,108	0	0	0	0	2,108	0	0	0	355	0	0	0	28	0	0	0
12	Wholesale	10,928	0	0	0	100	10,928	0	0	100	1,399	0	0	100	112	0	0	100
13	Re-securitisation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table EU SEC4 shows the securitisation positions in the non-trading book according to risk weights and the relevant supervisory calculation approaches for investor positions according to Article 449 k) (ii) CRR as of 31 December 2023:

EU SEC4: Securitisation exposures in the non-trading book and associated regulatory capital requirements - institution acting as investor

		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	EU-p	EU-q
	€m	Exposure values (by RW bands/deductions)					Exposure values (by regulatory approach)				RWEA (by regulatory approach)				Capital charge after cap			
		≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW/ deductions	SEC-IRBA	SEC-ERBA (including IAA)	SEC-SA	1250% RW/ deduc-tions	SEC-IRBA	SEC-ERBA (including IAA)	SEC-SA	1250% RW	SEC-IRBA	SEC-ERBA (including IAA)	SEC-SA	1250% RW
1	**Total exposures**	**8,923**	**1,702**	**293**	**83**	**17**	**0**	**10,311**	**706**	**16**	**0**	**2,370**	**103**	**16**	**0**	**190**	**8**	**16**
2	Traditional	8,923	1,702	293	83	17	0	10,311	706	16	0	2,370	103	16	0	190	8	16
3	Securitisation	8,923	1,702	293	83	17	0	10,311	706	16	0	2,370	103	16	0	190	8	16
4	Retail underlying	1,326	1,702	293	3	17	0	3,034	305	16	0	815	51	16	0	65	4	16
5	Of which STS	1,292	151	0	0	0	0	1,138	305	0	0	114	51	0	0	9	4	0
6	Wholesale	7,597	0	0	81	0	0	7,277	401	0	0	1,555	52	0	0	124	4	0
7	Of which STS	165	0	0	0	0	0	0	165	0	0	0	17	0	0	0	1	0
8	Re-securitisation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Synthetic securitisation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Securitisation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Retail underlying	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Wholesale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Re-securitisation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table EU SEC5 shows the amount of the specific credit risk adjustments and the exposures in default from originator and sponsor transactions according to Article 449 l) CRR as of 31 December 2023:

EU SEC5: Exposures securitised by the institution - Exposures in default and specific credit risk adjustments

		a	b	c
		Exposures securitised by the institution - Institution acts as originator or as sponsor		
	€m	**Total outstanding nominal amount**		**Total amount of specific credit risk adjustments made during the period**
			Of which exposures in default	
1	**Total exposures**	**17,621**	**124**	**5.43**
2	Retail (total)	3,676	17	0.00
3	residential mortgage	0	0	0.00
4	credit card	0	0	0.00
5	other retail exposures	3,676	17	0.00
6	Re-securitisation	0	0	0.00
7	Wholesale (total)	13,945	107	5.43
8	loans to corporates	11,145	100	4.82
9	commercial mortgage	0	0	0.00
10	lease and receivables	2,799	7	0.61
11	other wholesale	0	0	0.00
12	Re-securitisation	0	0	0.00

Based on the country of the securitised claim, the securitisation exposures originate predominantly from Germany at 45% (2022: 49%), in Poland 16% and in the USA 15% (2022: 20%).

In the reporting period, portfolio losses from the originator transactions of mBank amounted to €22mn.

In the year under review, Commerzbank had no resecuritisation positions in its portfolio.

D. Market risk

Market risk is the risk of potential financial losses due to changes in market prices (interest rates, commodities, credit spreads, exchange rates and equity prices) or in parameters that affect prices such as volatilities and correlations. Losses may impact profit or loss directly, e.g. in the case of trading book positions. However, for banking book positions they are generally reflected in the revaluation reserve or in hidden liabilities/reserves.

Risk management

Strategy and organisation

Commerzbank's market risk strategy is derived from its Group Risk Strategy and the business strategies of the individual segments. It sets targets for market risk management in relation to Commerzbank's main business activities. The core market risk management tasks are the identification of all material market risks and drivers of market risk for the Group and the independent measurement and evaluation of these. The results and estimates serve as the basis for risk/return-oriented management.

The Board of Managing Directors of Commerzbank is responsible for ensuring the effective management of market risk throughout the Commerzbank Group. Specific levels of authority and responsibility in relation to market risk management have been assigned to the appropriate market risk committees.

In the Group Market Risk Committee, segment representatives, along with representatives from the risk function and finance area, discuss current risk positioning issues and decide on appropriate action. Chaired by the risk function, the Group Market Risk Committee, which meets monthly, deals with the Commerzbank Group's market risk position. Discussions centre on the monthly market risk report, which is also presented to the Board of Managing Directors for their consideration. The report summarises the latest developments on financial markets, the Bank's positioning and related risk ratios.

The risk management process involves the identification, measurement, management and monitoring of risks and reporting on them. It is the responsibility in functional terms of market risk management, which is independent of trading activities. Central market risk management is complemented by decentralised market risk management units at segment level and for regional units and subsidiaries. The close integration of central and local risk management with the business units means that the risk management process starts in the trading areas themselves. The trading units are responsible in particular for the active management of market risk positions, e.g. reduction measures or hedging.

Risk management

Commerzbank uses a wide range of quantitative and qualitative tools to manage and monitor market risk. Quantitative limits for sensitivities, value at risk (VaR) figures, stress tests, scenario analyses and ratios on economic capital limit the market risk. Our comprehensive rulebook, in the form of market risk policies and guidelines as well as restrictions on portfolio structure, new products, maturities and minimum ratings, establishes the qualitative framework for market risk management. The market risk strategy lays down the weighting of figures in each segment by reference to their relevance. Thereby allowance is made for the varying impact of the parameters for the management of the segments in line with the business strategy.

Market risk is managed internally at Group level, segment level and in the segment's reporting units. A comprehensive internal limit system broken down to portfolio level is implemented and forms a core part of internal market risk management.

The quantitative and qualitative factors limiting market price risk are determined by the market risk committees by reference to the Group's management of economic capital. The utilisation of these limits, together with the relevant net income figures, is reported daily to the Board of Managing Directors and the responsible heads of the Group divisions. Based on qualitative analyses and quantitative ratios, the market risk function identifies potential future risks, anticipates potential financial losses in collaboration with the finance function, and draws up proposals for further action, which are discussed with the market units. Voting on the proposed measures or exposures takes place in the above-mentioned market risk committee and is subsequently submitted to the Board of Managing Directors for approval.

Risk concentrations are restricted directly with specific limits or are indirectly avoided, for example using stress test limits. In addition, the combination of various conventional risk measures (e.g. VaR, sensitivities) ensures the appropriate management of concentration risks. Furthermore, risk drivers are analysed on a regular basis in order to identify concentrations. The risk management of existing concentrations is also reviewed using situation-driven analyses and, where necessary, supplemented by targeted measures such as limits.

Any limits that are breached are handled in a separate escalation procedure. After a limit breach has been identified, the front office and risk units design adequate countermeasures. If the limit breach cannot be remedied within a reasonable period, it will be escalated by the market risk function to the next hierarchical level.

Regulatory risk measures that are not included in economic risk-bearing capacity are limited and managed separately. These include, for example, stressed VaR and incremental risk charge.

Tradability and measurement of financial instruments

The criteria applicable within the Bank for the allocation of transactions to the trading book or banking book are set as part of a Group-wide policy which implements the regulatory requirements for the allocation of transactions to the trading book with regard to the bank-specific circumstances, particularly also with regard to organisation and the focus of business policy.

Commerzbank has various control processes in place to identify illiquid markets and trading restrictions, which provide indications to determine the procedures to adopt in such cases. In addition to this, the ability to hedge trading book positions and the assessment of the reliability of measuring these trading book positions are subject to regular reviews.

IFRS 13 standardizes the rules for measuring fair value. Under IFRS 13, the fair value of an asset is the amount for which it could be sold between knowledgeable, willing, independent parties in an arm's length transaction. The fair value therefore represents a realisable price.

The fair value of a liability is defined as the price at which the debt could be transferred to a third party as part of an orderly transaction. Furthermore, for the valuation of a debt one's own default risk has to be considered.

The most suitable measure of fair value is the quoted price for an identical instrument in an active market (fair value hierarchy level I). In cases where no quoted prices are available, valuation is based on quoted prices for similar instruments in active markets. In all other cases, fair value is derived using an appropriate valuation model where the data inputs are obtained, as far as possible, from verifiable market sources (fair value hierarchy level II).

Most valuation methods are based on data from verifiable market sources. However, some valuation models use inputs for which sufficient verifiable current market data is not available, and which therefore inherently include a greater level of expert or management judgement. These unobservable inputs may include data that is extrapolated or interpolated, or may be de-rived by approximation to correlated or historical data. Here, to a maximum extent, these inputs are market or third-party inputs and rely as little as possible on expert estimates or company-specific inputs (fair value hierarchy level III).

Valuation models must be consistent with accepted economic methodologies for pricing financial instruments. They must in-corporate all factors that market participants would consider ap-propriate in setting a price. In the Commerzbank Group, standards have been established in the form of internal controls and procedures for the independent verification and validation of all fair values including the creation of a valuation reserve. These controls and procedures are carried out by various units within the independent finance and risk functions, with a central supervisory function being exercised by the Valuation Group within the risk function. The models, inputs and resulting fair values are reviewed regularly by senior management, the finance and the risk function.

The fair value itself is determined in a two-step process. As a first step, the individual fair value components are calculated in accordance with the relevant rules; the second step involves combining the components on a monthly basis in a consolidated fair value report for reporting at Group level.

The independent price verification (IPV) process ensures the correctness of the prices and parameters used in the fair value calculation as a central, independent process for determining and verifying the fair value. The IPV process is based on a risk-oriented approach which takes into account internal factors such as changes in business strategy, the expansion or downsizing of business activities as well as external factors such as develop-ments in markets, products and valuation models. If a price is directly observable, e.g. the stock market price of a share, the products are valued at the bid or offer side, depending on whether they are a long or a short position. However, if a valuation model for determining fair value is applied, the respective input parameters at mid-market are used, e.g. interest rates and im-plied volatilities to value an interest rate option. This results in the positions affected being overvalued because their liquidation or hedging in the market would always be realised at a bid or offer price. Accordingly, "bid-offer reserves" - totaling ½ of the bid-offer spread in relation to the associated position - must be taken into account as liquidation or hedge costs for all positions valued at mid-market. Within the scope of Prudent Valuation, this approach is extended to the so-called close-out cost.

In the event of illiquid products or input parameters the availability of independent market data sources may be restricted. Where sufficient information is available for a solid independent estimate made by experts, a market value uncertainty reserve is set up within the scope of Prudent Valuation. Such estimates are usually based on comparable and available market data (mapping), so the corresponding reserve can be calculated on the basis of the standard deviation of this market data. However, if the applied valuation models use input parameters for which there is no market data or insufficient verifiable market data (see Level III above), a "Day-1 reserve" is set up on the day the transaction is executed. To this end, the profit or loss calculated by the valuation model on the first day of trading (Day1) is set aside and recognised on a pro-rata basis over the term of the transaction or the period during which the relevant market parameters are expected to be unobservable.

Should valuation models show theoretical deficits or be subject to certain restrictions in their practical application, it is necessary to set up model reserves that reflect these uncertainties. Here, a distinction is made between generic model reserves, which relate to all transactions measured using a specific model, and specific model reserves, which affect only individual transactions or particular model combinations. These reserves are usually estimated using a revaluation with alternative models.

In addition, valuation adjustments (summarised under the term xVA) for OTC derivatives have been taken into account. These valuation adjustments include the risk and funding profiles of counterparties and of the bank itself in the valuation. Thus, the credit valuation adjustment (CVA) describes the valuation adjustment of OTC derivatives for the default risk of the counterparty while the debit valuation adjustment (DVA) depicts the adjustment for own default risk. The funding valuation adjustment (FVA) for its part offsets differences in funding costs on account of the incomplete collateralisation of derivative transactions.

Market risk model

Value at Risk

A standardised value at risk model incorporating all positions is used for the internal management of market risk. VaR quantifies the potential loss from financial instruments due to changed market conditions over a predefined time horizon and with a specific probability.

Our VaR market risk model is based on a historical simulation with a one-year interval of historical market data. The historical simulation determines the profit and loss distribution of the current portfolio by means of revaluation using historical changes in market prices and volatility. This is done on the basis of independent market data which is quality-assured on a daily basis and fed into a central market database at a standard defined time. Market data is provided for all relevant positions in the asset classes interest rates, credit spreads, equities, foreign currencies and commodities. This market data takes the form of prices quoted directly on the market or market data such as yield and credit spread curves derived using internal methods. A proxy concept is used if no market data is available for individual exposures. In this case, prices are derived from those for comparable instruments.

For internal management purposes, a confidence level of 97.5% and a holding period of one day are assumed. The value at risk concept makes it possible to compare risks over a variety of business areas. It enables many positions to be aggregated, taking account of correlations between different assets. This ensures a consolidated view of the market risk at all times. A comprehensive internal limit system broken down to portfolio level is implemented and represents an important part of internal market risk management.

The VaR market risk model described above is also used to calculate regulatory required capital. This regulatory capital backing is required for trading book risks and for currency and commodity price risks in the banking book. A confidence level of 99% and a ten-day holding period are used for the regulatory capital adequacy requirement. These assumptions meet the requirements of the Basel Committee and other international standards on the management of market risk. For certain evaluations, such as backtesting, the VaR is also calculated on the basis of a one-day holding period.

Stress test

As the VaR concept gives a prediction of potential losses on the assumption of normal market conditions, it is supplemented by the calculation of stress tests. These stress tests measure the risk to which Commerzbank is exposed, based on unlikely but still plausible events. These events may be simulated using extreme movements on various financial markets. The key scenarios relate to major changes in credit spreads, interest rates and yield curves, exchange rates, share prices and commodities prices. Events simulated in stress tests include all stock prices falling by 15%, a parallel shift in the yield curve or changes to the curve's steepness.

Extensive Group-wide stress tests and scenario analyses are carried out as part of risk monitoring. The Bank-wide stress test calculation is based on a combination of short-term stress test scenarios and scenarios based on macro-economic variables. The stress test framework is completed by portfolio-specific stress tests and ad-hoc scenario analyses.

Stress tests are intended to simulate the impact of crises and extreme market conditions on the Bank's overall market risk position. The impact on the respective components of capital and the income statement is also quantified in these tests.

In order to manage and monitor risks, short-term scenarios are calculated daily, compared against fixed limits and reported to the Board of Managing Directors. The longer-term scenarios are calculated on a monthly basis and discussed in the respective committees.

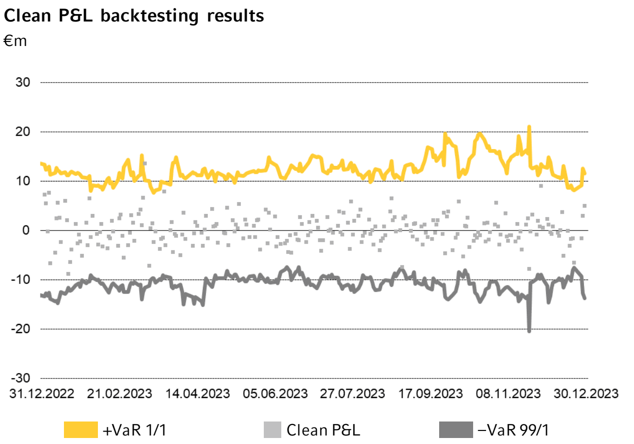
Model validation

The reliability of the internal model (historic simulation) is monitored in various ways, including by backtesting on a daily basis. The VaR calculated is set against actually occurring changes of the portfolio value (profits and losses). The process draws a distinction between variants „backtesting of hypothetical change of the portfolio value“ ("clean P&L") and „ backtesting of actual change of the portfolio value" ("dirty P&L") backtesting. In clean P&L backtesting, exactly the same positions in the income statement are used as were used for calculating the VaR. This means that the profits and losses result only from changes in market prices (hypothetical changes in the portfolio value). In dirty P&L backtesting, by contrast, profits and losses from newly concluded and expired transactions from the day under consideration are also included (actual profits and losses induced by portfolio value changes). Profits and losses from valuation adjustments and model reserves are factored into dirty and clean P&L according to the regulatory requirements.

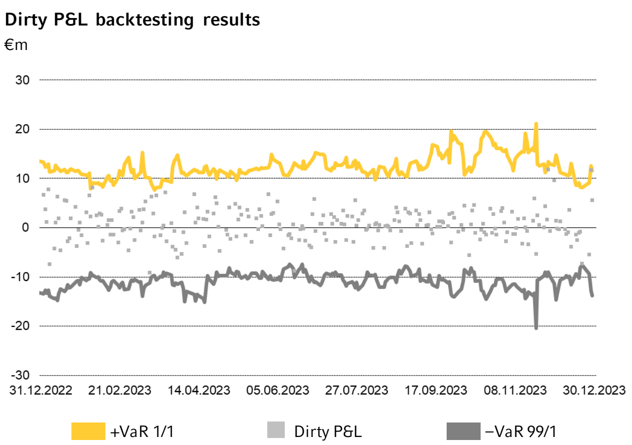
If the actual loss exceeds the VaR, it is described as a negative backtesting outlier. Analyzing the results of backtesting provides an informative basis for checking parameters and for potential improvement to the market risk model. In the year 2023 no negative Clean-P&L and no negative Dirty-P&L outliers were measured.

Backtesting is also used by the supervisory authorities for evaluating internal risk models. Negative outliers are classified by means of a traffic-light system laid down by the supervisory authorities. All negative backtesting outliers at Group level (from both clean P&L and dirty P&L) must be reported to the supervisory authorities, citing their extent and cause.

EU MR4: Comparison of VaR estimates with gains/losses (clean)



EU MR4: Comparison of VaR estimates with gains/losses (dirty)



The individual components of the internal model are regularly validated for their appropriateness for risk measurement. These include the underlying model assumptions and parameters and the proxies used. Validation analyses are planned and carried out based on the validation concept. The scope and frequency of the validations are defined in the validation concept by means of a materiality and risk-oriented prioritisation. The validation planning and progress is regularly presented to the Validation Committee, which discusses and approves the validation results.

The validation results are also reported to the Group Market Risk Committee on a quarterly basis. The identification and elimination of model weaknesses are of particular importance.

Quantitative information on market risks

Pursuant to Article 92 (3) b) and c) CRR, adequate capital must be set aside for market risk positions. Commerzbank uses an internal market risk model to calculate the regulatory capital requirement. This affects both the equity price and interest rate-related risk positions in the trading book as well as the currency positions and commodity positions. The standardised approaches are applied for smaller units in the Commerzbank Group in accordance with the partial use option.

Development of market risk assets in the standard approach

The standard approach is essentially used to include the market risk positions of investments/subsidiaries in the calculation of capital requirements. On 31 December 2023, the standard approach accounted for 16 % of all market risk assets. The risk-weighted assets for market risk positions in the standard approach increased to €1,021m in the year 2023 (previous year €291m). The increase is mainly due to changes in regulatory requirements.

Table EU MR1 contains RWA for market risks in the standardized approach according to Article 445 CRR as of 31 December 2023:

EU MR1: Marktrisiko beim Standardansatz

		a
	€m	RWAs
	Outright products	
1	Interest rate risk (general and specific)	303
2	Equity risk (general and specific)	0
3	Foreign exchange risk	709
4	Commodity risk	0
	Options	
5	Simplified approach	0
6	Delta-plus approach	8
7	Scenario approach	0
8	**Securitisation (specific risk)**	**0**
9	**Total**	**1021**

Market risk in the internal model approach

The internal model accounted for 84% of total market risk weighted assets as of 31 December 2023. Risk weighted assets for market risk positions in the internal model increased by €510m to €5,285m compared to the reporting date of the previous year .

The increase is mainly due to trading activities in the Corporate Clients segment in the context of hedging transactions for counterparty risks.

Table EU MR2-A contains the RWA for market risks based on internal models according to Article 455(e) CRR as of 31 December 2023:

EU MR2-A: Market risk under the internal Model Approach (IMA)

		a	b
	€m	RWAs	Own funds requirements
1	**VaR (higher of values a) and b))**	**1,363**	**109**
a)	Previous day's VaR (VaRt-1)		41
b)	Multiplication factor (mc) x average of previous 60 working days (VaRavg)		109
2	**sVaR (higher of values a) and b))**	**2,862**	**229**
a)	Latest available SVaR (SVaRt-1))		65
b)	Multiplication factor (ms) x average of previous 60 working days (sVaRavg)		229
3	**IRC (higher of values a) and b))**	**1,060**	**85**
a)	Most recent IRC measure		76
b)	12 weeks average IRC measure		85
4	**Comprehensive risk measure (higher of values a), b) and c))**	**0**	**0**
a)	Most recent risk measure of comprehensive risk measure		0
b)	12 weeks average of comprehensive risk measure		0
c)	Comprehensive risk measure Floor		0
5	**Other**	**0**	**0**
6	**Total**	**5,285**	**423**

The table EU MR2-B below shows the development of RWA by main market risk drivers according to the internal model-based approach (IMA) in the fourth quarter of 2023 according to Article 438(h) CRR.

The decrease of total RWA in the internal model for the fourth quarter of 2023 is mainly due to changes in positions of the Corporate Clients segment.

EU MR2-B: RWA flow statements of market risk exposures under the IMA

		a	b	c	d	e	f	g
	€m	VaR	SVaR	IRC	Comprehensive risk measure	Other	Total RWA	Total capital requirements
1	**RWA as at the end of the previous reporting period**	**1,258**	**3,252**	**1,265**	**0**	**0**	**5,775**	**462**
1a	Regulatory adjustment	0	0	0	0	0	0	0
1b	RWA as at the end of the previous reporting period (end of the day)	1,258	3,252	1,265	0	0	5,775	462
2	Movement in risk levels	106	–391	–206	0	0	–490	–39
3	Model updates/changes	–1	0	1	0	0	0	0
4	Methodology and policy	0	0	0	0	0	0	0
5	Acquisitions and disposals	0	0	0	0	0	0	0
6	Foreign exchange movements[1]	0	0	0	0	0	0	0
7	Other	0	0	0	0	0	0	0
8a	RWA at the end of the reporting period (end of the day)	1,363	2,862	1,060	0	0	5,285	423
8b	Regulatory adjustment	0	0	0	0	0	0	0
8	**RWA as at the end of the current reporting period**	**1,363**	**2,862**	**1,060**	**0**	**0**	**5,285**	**423**

[1] Changes of RWA which are due to foreign exchange movements are reported under „Movement in risk levels".

Market risk in the trading book

Below, we show how the regulatory market risk ratios of the trading book portfolio developed. Most of Commerzbank's trading book positions derive from the Corporate Clients segment and Treasury division.

The value at risk (10 days 99%) increased in the year 2023 from €42m to €44m.

The market risk profile is diversified across all asset classes, interest rate risk, foreign exchange risk as well as credit spread, commodity and inflation risks. The share of interest rate risks in total risk increased during the course of the year, while the share of commodity risks decreased.

Further risk ratios are calculated for regulatory capital adequacy. This includes the calculation of stressed VaR. Stressed VaR is calculated using the internal model on the basis of the VaR method described above. The main difference lies in the market data used to value the assets. Stressed VaR measures the risk in the present position in the trading book by reference to market movements from a specified crisis period in the past. The crisis observation period used for this is checked regularly through model validation and approval processes and adjusted where necessary. The crisis observation period remained the same in the course of the year.

The stressed VaR decreased by €11m in the course of 2023 to €67m. The decline compared to the previous year resulted from changes in position, particularly in trading activities with emission certificates.

In addition, the incremental risk charge and the equity event VaR figures quantify the risk of deterioration in creditworthiness and event risks in trading book positions.

Equity event VaR is conceptually part of the historical simulation taking into account empirical equity events over long observation periods. It is a component in the regulatory VaR calculation and included in the values of the following table EU MR3.

The incremental risk charge is based on the credit VaR model with historical data for rating migration and default probabilities and for recovery factors. The model shows current gains and losses on positions in the event of rating changes. In addition, in calculating the incremental risk charge, assumptions are made regarding liquidity (average regrouping/liquidity horizon). These liquidity horizons are set on a portfolio-specific basis, taking into account market structure and activity and concentrations of positions. The incremental risk charge increased from €39m compared to the end of 2022 to €76m. The increase is due to trading activities in the Corporate Clients segment in the context of hedging transactions for counterparty risks.

Commerzbank does not have an internal model for correlation trading activities.

Table EU MR3 shows the market risks in the trading book as per Article 455 d) CRR as of 31 December 2023:

EU MR3: IMA values for trading portfolios

	€m	a
	VaR (10 day 99%)	
1	Maximum value	65
2	Average value	35
3	Minimum value	24
4	Period end	44
	sVaR (10 day 99%)	
5	Maximum value	118
6	Average value	84
7	Minimum value	63
8	Period end	67
	IRC (99.9%)	
9	Maximum value	109
10	Average value	76
11	Minimum value	36
12	Period end	76
	Comprehensive risk measure (99.9%)	
13	Maximum value	0
14	Average value	0
15	Minimum value	0
16	Period end	0

addMR1: Incremental Risk Charge by sub-portfolio

Sub-portfolio	IRC[1] €m	Average regrouping horizon | months
Corporate Customers	37	6.5
Treasury	44	7.5

[1] Excluding diversification effects between sub-portfolios.

Market liquidity risk

The market liquidity risk is the risk of the Bank not being able to liquidate or hedge risky positions in a timely manner, to the desired extent and on acceptable terms as a result of insufficient liquidity in the market.

Market liquidity risk is taken into account in Commerzbank's risk-bearing capacity concept by scaling the value at risk to one year, i.e. the implicitly recognised liquidation period. Additional valuation adjustments for market liquidity risk are also reflected in the calculation of the risk coverage capital.

Interest rate risk in the banking book

Interest rate risk is one of the most significant financial risks posed by banking operations. This includes in particular the risk of value adjustments as a result of interest rate fluctuations over time. The maturity of interest rate positions and their refinancing structure are fundamental factors in the management of interest rate risks. In commercial business, the modelling of interest rate risk includes assumptions on early repayments and on investor behaviour when deposits are open-ended. The risk of a flattening or steepening in the yield curve is also covered. Interest rate risks may also arise if positions are closed as a result of hedging transactions with a different pricing type to the underlying transaction (basis risks). Interest rate risks relate to Commerzbank's banking book and trading book. The combined position of both books results in Commerzbank's overall interest rate risk.

Strategy and organisation

The interest rate risk in the Commerzbank Group's banking book primarily results from commercial business. Interest rate risks arise here if interest rate positions in customer business are not hedged or are only partially hedged. Interest rate risks also arise from the investment models used by the central ALCO (Asset Liability Committee), which comprise in particular the investment and/or refinancing of products without contractually fixed interest rates, e.g. for equity capital, savings and sight deposits.

In the Commerzbank Group, interest rate risk in the banking book is the responsibility of Group Treasury within the scope of the business strategy. In addition to the positions of the central Group Treasury division, the treasury activities of branches and all subsidiaries are also taken into consideration.

Treasury's main tasks include the management of the balance sheet structure and of liquidity risks. The aim is to generate a positive interest margin from interest income and refinancing expenses. This gives rise to interest rate risks if positions are not refinanced with matching maturities and matching currencies.

Management

Commerzbank jointly manages interest rate risk from both the trading and banking book, as well as managing this risk separately for the trading book and banking book. This is done strategically by means of risk policies and operationally by means of appropriate limit systems. The risks are consolidated in central risk management. Central risk management is supplemented by a risk management unit for Treasury within the market risk function.

Interest rate risks in the banking book are managed in line with the business strategy by means of maturity- and currency-congruent refinancing and the use of interest rate derivatives. For example, interest rate swaps with sufficient market liquidity enable a prompt response to management measures. However, some products without fixed maturities, such as sight and savings deposits or equity capital, are available to the Bank in the long term. Here the Bank uses appropriate models to manage interest rate risks and stabilise earnings performance. Our models are regularly monitored.

Quantitative information on interest rate risks in the banking book

The measurement of interest rate risk is completely integrated into the Bank's daily measurement and monitoring of risk. As with the measurement of trading book risks, risks in the banking book are also quantified using the value at risk method. Stress tests and scenario analyses are also calculated on a daily and monthly basis. The stress test calculations as mentioned above are used for this purpose. This standardised procedure is intended to ensure transparency of interest rate risks in both the trading and banking book.

A further control variable for interest rate risks in the banking book is interest rate sensitivities. These indicate how interest income varies following a change in interest rates, for example of one basis point. Interest rate sensitivities are also monitored on a daily and monthly basis. This monitoring takes place at both portfolio and segment level as well as for the Commerzbank Group. For management purposes, interest rate sensitivities are limited to the various maturity bands at both Group and segment level. The main focus is on interest rate sensitivities relating to long maturity periods.

To manage its commercial business Commerzbank uses interest rate risk models for the illustration of customer behavior risk on the asset side (early repayments of mortgage loans and consumer loans) and on the liabilities side (deposits without a fixed term).

Deposits are modeled using replication portfolios, depending on the product, segment and legal entity. The replication portfolios are intended to reflect the economic maturity of the deposit and ensure stable returns.

An economically expected repayment profile is derived for fixed-interest mortgage loans and consumer loans. Interest rate risk management is then operated on this basis.

The impact of an interest rate shock on the economic value of the Group's banking books is simulated monthly in compliance with regulatory requirements (according to EBA Guideline 2018/02). In accordance with the Banking Directive, the Federal Financial Supervisory Authority (BaFin) and the European Central Bank (ECB) have prescribed – amongst others – six scenarios for sudden and unexpected changes in interest rates (parallel- as well as rotation scenarios under consideration of a lower interest rate limit) to be used by all banks, which have to report on the results of this stress test every quarter.

On this basis, the scenario „Parallel Up" would give a potential loss of €2,132m as of 31 December 2023 (€2,035m as of 30 June 2023) and in the scenario „Parallel down" a potential economic gain of €1,306m as of 31 December 2023 (€1,047m as of 30 June 2023).

In principle, Commerzbank should not be classified as an institution with an increased interest rate risk, as the negative changes present value in relation to the regulatory parameters do not exceed the regulatory limits.

In addition, Commerzbank calculates and reports the ΔNII (Net interest income) according to regulatory requirements in the standard scenarios +/–200 basis points (also considering a lower interest rate limit).

EU IRRBB1: Impact of supervisory interest rate shock scenarios as of 31 December 2023

		a	b	c	d
Supervisory shock scenarios		Changes of the economic value of equity		Changes of the net interest income	
€m		Current period	Last period	Current period	Last period
1	Parallel up	–2,132	–2,035	1,462	847
2	Parallel down	1,306	1,047	–1,707	–821
3	Steepener	–164	–246		
4	Flattener	–311	–230		
5	Short rates up	–890	–708		
6	Short rates down	453	338		

E. Liquidity risk

We define liquidity risk in a narrower sense as the risk that Commerzbank will be unable to meet its payment obligations on a day-to-day basis. In a broader sense, liquidity risk describes the risk that future payments cannot be funded for the full amount, in the required currency or at standard market conditions, as and when they are due.

Risk management

Strategy and organisation

The Board of Managing Directors adopts the business strategy and the Bank's risk tolerance, which is associated with it. Liquidity risk tolerance is then operationalised by defining the liquidity reserve period and the limit framework. In order to ensure an appropriate liquidity risk management process, the Board of Managing Directors delegates certain competences and responsibilities in connection with the Group-wide liquidity risk strategy to the risk and treasury functions.

The central Asset Liability Committee (ALCO) is responsible for limiting, analysing and monitoring liquidity risk and for strategic liquidity positioning. ALCO is supported by various sub-committees in this.

Risk management

Commerzbank uses a wide range of tools to manage and monitor liquidity risks on the basis of its internal liquidity risk model. The stress scenario within the Bank that underlies the model and is relevant for management purposes allows for the impact of both a bank-specific stress event and a broader market crisis. Binding regulatory requirements are an integral component of the management mechanism.

Group Treasury is responsible for the Group's liquidity management operations. Group Treasury is represented in all major locations of the Group in Germany and abroad and has reporting lines into all subsidiaries.

Commerzbank manages its global liquidity centrally using cash pooling. This approach ensures liquidity resources are used efficiently and that this occurs across all time zones, as Group Treasury units are located in Frankfurt, London, New York and Singapore.

Additional information on this subject can be found in the section "Funding and liquidity of the Commerzbank Group" in the Annual Report 2023 from page 197.

Liquidity risk is monitored on the basis of the Bank's own liquidity risk model by the independent risk function.

The Bank has established early warning indicators for the purpose of managing liquidity risk. These ensure that appropriate steps can be taken in good time to secure long-term financial solidity.

Risk concentrations can lead to increased outflows of liquidity, particularly in a stress situation, and thus to increased liquidity risk. They can, for example, occur with regard to maturities, large individual creditors or currencies. By means of ongoing monitoring and reporting, emerging risk concentrations in funding can be recognised in a timely manner and mitigated through suitable measures.

This is also applicable for payment obligations in foreign currencies. In addition, the Bank also mitigates a concentration by continuously using broadly diversified sources of funding, particularly diverse customer deposits and capital market instruments.

Commerzbank also ensures that it monitors foreign exchange risks and fulfils the currency matching requirements for highly liquid assets and net liquidity outflows.

In the event of a market-driven and/or idiosyncratic liquidity crisis, the liquidity contingency plan provides for certain measures which, depending on the nature of the crisis, can be initiated either through Treasury's extended authority to act or through the recovery process of the recovery plan. The liquidity contingency plan is an independent part of emergency planning and upstream of the recovery plan. Both the liquidity contingency plan and the recovery plan at Commerzbank are updated at least once a year, whereas the individual liquidity emergency measures are checked regularly during the year for plausibility. The liquidity contingency plan also defines a clear allocation of responsibilities for the processes to be followed in emergency situations and gives details of any action that may need to be taken.

The internal regulations and the models used are reviewed at least once a year and regularly reviewed by the internal audit, the public auditor and the supervisory authority (ECB).

Information on the encumbrance of assets

The following disclosure is made pursuant to Article 100 in conjunction with Article 443 CRR, taking account of the recommendation of the European Systemic Risk Board on the funding of credit institutions (ESRB, 2012/2) and the harmonized disclosure requirements of the European Banking Authority (EBA/ITS/2020/04). According to the related guidelines of the European Banking Authority (GL/2014/03), an asset should be treated as encumbered if it has been pledged or is subject to any form of arrangement to secure, collateralise or credit-enhance any on-balance-sheet or off-balance-sheet transaction from which it cannot be freely withdrawn. Assets pledged that are subject to any restrictions in withdrawal, such as assets that require prior approval before withdrawal or replacement by other assets, should be considered encumbered.

In addition, the quality indicator (Extremely) High Quality Liquid Assets is reported for encumbered and unencumbered assets, collateral received, and own debt securities issued. Assets are classified as level 1 and level 2 in accordance with the requirements of delegated Regulation (EU) 2015/61 with regard to liquidity coverage requirement for Credit Institutions. Level 1 and level 2 assets are shown aggregated.

The Commerzbank Group offers a wide range of standardised and customer-specific financial services for private, corporate, public-sector and institutional customers. The main triggers for the encumbrance of the Bank's assets are therefore as follows:

- supplementing the funding of the Bank's lending business through covered bonds (particularly Pfandbriefe) and securitisations;
- securities lending and repo transactions to fund the Bank's securities business;
- derivatives business and associated posting of collateral;
- provision of collateral for third-party funds lent by development banks for assets eligible for development assistance.

OTC derivatives transactions are concluded based on internationally standardised master agreements such as the ISDA Master Agreement or the German Master Agreement for Financial Futures. The collateralisation under these agreements, in some cases stipulated by EU regulations and in others determined in accordance with the wishes of the parties, is fundamentally based on customary and bilaterally negotiated collateralisation arrangements. These arrangements in the derivatives business usually involve the collateralisation of the respective obligation from the totality of all transactions between the parties under a master agreement through the transfer of title over the collateral to the buyer of protection.

In contrast, the master agreements for securities lending and securities repurchase transactions usually do not require additional collateralisation because collateralisation is already an inherent component of the transaction. Commerzbank, in its capacity as a recipient of collateral, regularly has the right to realise or pledge such collateral provided that it returns equivalent securities when the transaction is concluded. As well as fulfilling the requirements of the German Pfandbrief legislation, covered bonds issued by the core bank must also meet the more stringent overcollateralisation requirements of the rating agencies. The overcollateralisation of covered bonds in programmes that are being wound down has been reduced to the requirements of the Pfandbrief legislation and disclosed publicly.

There are Pfandbriefe not externally issued yet which can be used amongst others for permanent ECB facilities.

In secured finance business, besides transactions in euros, there are no relevant foreign currency liabilities.

The table below contains information on encumbered and unencumbered assets of the Commerzbank Group according to CRR. The group of consolidated companies under CRR is not significantly different from the consolidated assets in accordance with the liquidity requirements under Part Six of EU Regulation 575/2013.

For the calculation of the figures published here, the median of the past four quarters in 2023 was used.

EU AE1: Encumbered and unencumbered assets

	31.12.2023	Carrying amount of encumbered assets		Fair value of encumbered assets		Carrying amount of unencumbered assets		Fair value of unencumbered assets	
	€m		of which notionally eligible EHQLA and HQLA		of which notionally eligible EHQLA and HQLA		of which EHQLA and HQLA		of which EHQLA and HQLA
		010	030	040	050	060	080	090	100
010	**Assets of the reporting institution**	**80,500**	**18,629**			**442,966**	**112,017**		
030	Equity instruments	36	0	36	0	1,906	104	1,906	104
040	Debt securities	25,244	18,629	25,276	18,658	67,658	26,507	66,127	24,725
050	of which: covered bonds	7,585	6,343	7,585	6,343	4,028	4,700	4,014	4,621
060	of which: securitisations	1,675	0	1,653	0	26,425	0	26,348	0
070	of which: issued by general governments	9,654	9,094	9,719	9,128	22,074	16,321	20,869	14,964
080	of which: issued by financial corporations	13,886	8,724	13,865	8,724	40,934	9,716	40,255	9,456
090	of which: issued by non-financial corporations	1,157	934	1,157	934	4,868	580	5,208	483
120	Other assets	56,563	0			372,189	85,553		

More than 50% of the unencumbered other assets may also be used to provide security or collateral. Assets that may not be encumbered include, in particular, loans secured by deposited securities, derivatives without collaterals and non-financial assets. Other assets mainly include loans and advances other than loans on demand of around €311,133m (thereof: €55,091m encumbered).

Pursuant to Article 443 CRR the breakdown of collateral received and own debt securities issued was as follows of 31 December 2023:

EU AE2: Collateral received and own debt securities issued

€m		Fair value of encumbered collateral received or own debt securities issued		Unencumbered Fair value of collateral received or own debt securities issued available for encumbrance	
			of which notionally eligible EHQLA and HQLA		of which EHQLA and HQLA
		010	030	040	060
130	Collateral received by the disclosing institution	56,777	49,109	17,347	9,618
140	Loans on demand	0	0	855	0
150	Equity instruments	0	0	180	0
160	Debt securities	56,776	49,109	16,099	9,586
170	of which: covered bonds	1,985	1,037	3,944	2,336
180	of which: securitisations	1,572	0	2,759	0
190	of which: issued by general governments	47,038	44,219	7,116	6,942
200	of which: issued by financial corporations	10,194	5,224	8,537	2,546
210	of which: issued by non-financial corporations	1,033	578	487	69
220	Loans and advances other than loans on demand	0	0	0	0
230	Other collateral received	0	0	0	0
240	Own debt securities issued other than own covered bonds or securitisations	0	0	488	0
241	Own covered bonds and securitisation issued and not yet pledged			10,928	0
250	Total collateral received and own debt securities issued	138,920	67,689		

Pursuant to Article 443 CRR the liabilities associated or secured with encumbered assets were as follows at of 31 December 2023:

EU AE3: Sources of encumbrance

		Matching liabilities, contingent liabilities or securities lent	Assets, collateral received and own debt securities issued other than covered bonds and securitisations encumbered
	€m	010	030
010	Carrying amount of selected financial liabilities	93,790	128,620

There are no material encumbrances of assets that are not related to recognised liabilities.

Based on median values, there is a slight reduction of the balance sheet sum and also in the encumbrance of assets compared to the previous year.

The information above relates to the consolidated assets of Commerzbank Group. As a result, no transactions carried out within the Group affect the information on encumbrance.

Liquidity risk model

A key component of liquidity risk management is the daily calculation of the liquidity gap profile. The liquidity gap profile shows the deterministic or stochastic inflows and outflows expected in the future on a given reporting date and across all portfolios. This forms the basis for calculating liquidity requirements or excess liquidity per maturity band. This also includes modelling the proportion of customer deposits that will be permanently available, known as the core deposit base.

The liquidity gap profile is also used to set the issuance strategy of the Commerzbank Group, which is operationalised by the Group Treasury division. The Group Finance division is responsible for calculating and allocating liquidity costs on the basis of the liquidity gap profile, which are then incorporated in the management of the segments' business activities.

Based on the methodology of the liquidity gap profile, management mechanisms such as recovery and early warning indicators are limited and monitored accordingly. The liquidity gap profile is limited in all maturity bands. The Group limits are broken down into individual Group units and currencies. The internal liquidity risk model is complemented by the regular analysis of additional adverse, reverse and historic stress scenarios.

More information on the current developments triggered by the Ukraine crisis and the coronavirus pandemic can be found in the section "Funding and Liquidity of the Commerzbank Group" in the Management Report of the Annual Report 2023 on pages197 et seq.

Quantification and stress testing

Commerzbank uses a wide range of tools to manage and monitor liquidity risks on the basis of its internal liquidity risk model. In addition to internal economic considerations, liquidity risk modelling also factors in the binding regulatory requirements under the Capital Requirements Regulation (CRR) and the requirements of the Minimum Requirements for Risk Management (MaRisk). Commerzbank incorporates this within its liquidity risk framework, thereby quantifying the liquidity risk appetite established by the full Board of Managing Directors.

The stress scenarios within the Bank that underlie the model and are relevant for management purposes allow for the impact of both a bank-specific stress event and a broader market crisis. The Commerzbank-specific idiosyncratic scenario simulates a stress situation arising from a rating downgrade of two notches, whereas the market-wide scenario is derived from experience of the subprime crisis and simulates an external, market-wide shock. The main liquidity risk drivers of both scenarios are a markedly increased outflow of short-term customer deposits, above-average drawdown of credit lines, extensions of lending business regarded as commercially necessary, the need to provide additional collateral for secured transactions and the application of higher risk discounts to the liquidation values of assets.

As a complement to the individual scenarios, the Bank also simulates the impact on the liquidity gap profile (net liquidity position) of a scenario that combines idiosyncratic and market-specific effects. The liquidity gap profile is shown for the whole of the modelling horizon across the full spectrum of maturities and follows a multi-level concept. This allows for a nuanced presentation of deterministic and modelled cash flows in existing business on the one hand and the inclusion of prolongations on the other.

The table below shows the liquidity gap profile after application of the respective stress scenarios for periods of one and three months. Significantly more liquidity flows out in a combined scenario compared with the individual scenarios. As at end-2023, in the one-month and three-month periods, the combined stress scenario leaves net liquidity of €27.0bn and €22.2bn respectively.

addLIQ: Liquidity gap profile in the stress scenarios

Net liquidity in the stress scenario | €bn		31.12.2023	31.12.2022
Idiosyncratic scenario	1 month	34.7	30.0
	3 months	32.2	31.4
Market-wide scenario	1 month	35.7	30.0
	3 months	30.9	29.6
Combined scenario	1 month	27.0	21.2
	3 months	22.2	20.9

Liquidity reserve

Significant factors in the liquidity risk appetite include the reserve period, the size of the liquidity reserve portfolio held to compensate for unexpected short-term liquidity outflows, and the limits in the various maturity bands. As the liquidity reserve portfolio consists of highly liquid assets, it functions as a buffer in stress situations. The liquidity reserve portfolio is funded in line with the liquidity risk appetite in order to ensure that it is kept at the required size throughout the entire reserve period stipulated by the Board of Managing Directors. A part of this liquidity reserve is held in a separate stress liquidity reserve portfolio managed by Group Treasury to cover liquidity outflows should a stress event occur and to ensure solvency at all times. The amount of the stress liquidity reserve portfolio is checked and, if necessary, adjusted as part of the daily liquidity risk calculation. The Bank also holds an intraday liquidity reserve portfolio. The total value of this portfolio was €6.1bn as at year-end 2023.

The liquidity reserves in the form of highly liquid assets consist of the following three components as of 31 December 2023:

addLIQ2: Liquidity reserves from highly liquid assets

Liquidity reserves from highly liquid assets €bn	31.12.2023	31.12.2022
Highly liquid assets	134.3	104.7
of which level 1	124.4	97.5
of which level 2A	9.2	6.8
of which level 2B	0.8	0.4

As at the end of 2023, the Bank had highly liquid assets of €134.3bn.

Liquidity ratios

Throughout the 2023 financial year, Commerzbank's internal liquidity ratios, including the regulatory liquidity coverage ratio (LCR), were above the limits set at least annually by the Board of Managing Directors. The same is true of compliance with the survival period calculation set down by MaRisk.

The LCR is calculated as the ratio of liquid assets to net liquidity outflows under stressed conditions. It is used to measure whether a bank has a large enough liquidity buffer to independently withstand any potential imbalance between inflows and outflows of liquidity under stressed conditions over a period of 30 calendar days.

In 2023, Commerzbank significantly exceeded the minimum ratio of 100% stipulated for that year on every reporting date. As at the end of 2023, the average month-end value of the LCR over the last 12 months was 136.2% (as at the end of 2022: 141.1%).

The Bank has established corresponding limits and early warning indicators to ensure the LCR minimum requirements are met. In accordance with the regulatory requirements, the Board of Managing Directors and Group Treasury are informed about the liquidity risk status by means of daily and monthly reporting.

Additional information on the LCR can be found in the "Funding and liquidity of the Commerzbank Group" section of the Group management report on pages 197 et seq.

Liquidity Coverage Ratio

The liquidity coverage ratio (LCR) is the regulatory minimum liquidity ratio. It is a measure of the near-term solvency of the Bank under a predetermined stress scenario. Based on the requirements of the Basel Committee, the EU Commission set out the legal foundation for the LCR in the Capital Requirements Regulation (CRR) and in Regulation (EU) No. 575/2013, in conjunction with Delegated Regulation EU/2015/61 (D-VO).

The ratio itself is defined as the relationship between high quality liquid assets (HQLA) and net liquidity outflows (NLOs) within a 30-day period. Commerzbank monitors the LCR as part of its daily liquidity risk calculation.

The Bank has established internal early warning indicators for the purpose of managing liquidity risk. These ensure that appropriate steps can be taken in good time to secure long-term financial solidity. Risk concentrations can lead to increased outflows of liquidity, particularly in a stress situation. They can, for example, occur with regard to maturities, large individual creditors or currencies. By means of ongoing monitoring and reporting, emerging risk concentrations in funding can be recognised in a timely manner and mitigated through suitable measures. This also applies to payment obligations in foreign currencies. The Bank also mitigates concentrations through the continuous use of the broadly diversified sources of funding available to it, particularly in the form of diverse customer deposits and capital market instruments.

Commerzbank manages its global liquidity centrally using cash pooling. This approach ensures liquidity resources are used efficiently across all time zones, as Commerzbank Treasury units are located in Frankfurt, London, New York and Singapore.

Further information on liquidity risk management and internal models can be found in the Management Report of the Annual Report 2023 in the chapter "Funding and liquidity of the Commerzbank Group" from page 197 as well as in the chapter 'liquidity risk' in the risk report of the annual report form page 245.

Liquidity Requirements

As required by Article 451a (2) CRR, Table EU LIQ1 below shows the calculation of the LCR for the previous four quarters. The averages of the 12 previous month-end values of the liquid assets and their cash inflows and outflows and finally the liquidity buffer and the liquidity coverage ratio are calculated for each quarter and can be found in the tables below. The values are rounded to a full-million amount in euros and are presented on a consolidated basis for the Commerzbank Group.

EU LIQ1: Quantitative information of LCR – unweighted

		a	b	c	d
	€m | %	Total unweighted value (average)			
EU 1a	Quarter ending on	31.3.2023	30.6.2023	30.9.2023	31.12.2023
EU 1b	Number of data points used in the calculation of averages	12	12	12	12
High-quality liquid assets					
1	Total high-quality liquid assets (HQLA), after application of haircuts in line with Article 9 of regulation (EU) 2015/61				
Cash Outflows					
2	Retail deposits and deposits from small business customers, of which:	161,284	162,137	163,643	165,612
3	Stable deposits	110,362	110,553	111,705	113,321
4	Less stable deposits	42,620	42,386	41,886	41,544
5	Unsecured wholesale funding	134,255	134,917	135,531	138,229
6	Operational deposits (all counterparties) and deposits in networks of cooperative banks	41,198	39,799	38,064	35,167
7	Non-operational deposits (all counterparties)	92,670	94,805	96,930	102,494
8	Unsecured debt	387	313	537	568
9	Secured wholesale funding				
10	Additional requirements	86,848	86,013	85,324	84,598
11	Outflows related to derivative exposures and other collateral requirements	6,517	6,414	6,420	6,289
12	Outflows related to loss of funding on debt products	193	197	223	347
13	Credit and liquidity facilities	80,138	79,402	78,680	77,962
14	Other contractual funding obligations	2,822	2,764	2,493	2,648
15	Other contingent funding obligations	104,981	105,977	106,611	107,630
16	Total cash outflows				
Cash Inflows					
17	Secured lending (e.g. reverse repos)	40,852	42,025	44,255	47,945
18	Inflows from fully performing exposures	23,000	22,604	22,021	22,012
19	Other cash inflows	5,130	3,221	3,157	3,244
EU-19a	(Difference between total weighted inflows and total weighted outflows arising from transactions in third countries where there are transfer restrictions or which are denominated in non-convertible currencies)				
EU-19b	(Excess inflows from a related specialised credit institution)				
20	Total cash inflows	68,982	67,850	69,433	73,200
EU-20a	Fully exempt inflows	0	0	0	0
EU-20b	Inflows subject to 90% cap	0	0	0	0
EU-20c	Inflows subject to 75% cap	65,745	64,136	65,087	68,144
Total Adjusted Value					
EU-21	Liquidity buffer				
22	Total net cash outflows				
23	Liquidity coverage ratio (%)				

EU LIQ1: Quantitative information of LCR – weighted

		a	b	c	d
	€m | %	Total weighted value (average)			
EU 1a	Quarter ending on	31.3.2023	30.6.2023	30.9.2023	31.12.2023
EU 1b	Number of data points used in the calculation of averages	12	12	12	12
High-quality liquid assets					
1	Total high-quality liquid assets (HQLA), after application of haircuts in line with Article 9 of regulation (EU) 2015/61	118,336	120,430	120,163	122,676
Cash Outflows					
2	Retail deposits and deposits from small business customers, of which:	10,229	10,303	10,428	10,553
3	Stable deposits	5,518	5,528	5,585	5,666
4	Less stable deposits	4,711	4,775	4,843	4,887
5	Unsecured wholesale funding	67,555	67,792	67,672	68,736
6	Operational deposits (all counterparties) and deposits in networks of cooperative banks	10,276	9,927	9,494	8,770
7	Non-operational deposits (all counterparties)	56,893	57,551	57,641	59,398
8	Unsecured debt	387	313	537	568
9	Secured wholesale funding	4,057	5,508	7,031	8,664
10	Additional requirements	17,099	16,898	16,869	17,041
11	Outflows related to derivative exposures and other collateral requirements	5,900	5,795	5,842	5,774
12	Outflows related to loss of funding on debt products	193	197	223	347
13	Credit and liquidity facilities	11,005	10,905	10,803	10,920
14	Other contractual funding obligations	2,144	2,137	1,870	2,000
15	Other contingent funding obligations	4,841	4,415	4,063	3,767
16	Total cash outflows	105,924	107,052	107,932	110,761
Cash Inflows					
17	Secured lending (e.g. reverse repos)	1,081	1,319	1,610	1,835
18	Inflows from fully performing exposures	16,009	15,786	15,589	15,679
19	Other cash inflows	5,108	3,200	3,130	3,216
EU-19a	(Difference between total weighted inflows and total weighted outflows arising from transactions in third countries where there are transfer restrictions or which are denominated in non-convertible currencies)	0	0	0	0
EU-19b	(Excess inflows from a related specialised credit institution)	0	0	0	0
20	Total cash inflows	22,198	20,305	20,330	20,731
EU-20a	Fully exempt inflows	0	0	0	0
EU-20b	Inflows subject to 90% cap	0	0	0	0
EU-20c	Inflows subject to 75% cap	22,198	20,305	20,330	20,731
Total Adjusted Value					
EU-21	Liquidity buffer	118,336	120,430	120,163	122,676
22	Total net cash outflows	83,727	86,748	87,602	90,030
23	Liquidity coverage ratio (%)	141.3%	138.8%	137.3%	136.2%

The average quarterly LCR values have been consistently high. As at each of the reporting dates, Commerzbank considerably surpassed the required minimum ratio of 100%. The composition of the highly liquid assets available to cover the liquidity outflows in the reporting period is set out below:

add LIQ3: Highly liquid assets in accordance with EU/2015/61

Average of the last 12 month-end values €m	31.3.2023	30.6.2023	30.9.2023	31.12.2023
Total	**118,336**	**120,430**	**120,163**	**122,676**
thereof: Level 1	112,022	114,182	113,226	114,921
thereof: Level 2A	5,985	5,911	6,571	7,362
thereof: Level 2B	329	336	366	392

Commerzbank also reports the LCR in US dollars and Polish zloty (PLN), as these are deemed to be significant foreign currencies under the CRR. In addition, the Bank ensures that foreign-exchange risk is monitored as well as limited and managed using an internal model.

When calculating the LCR, the Bank takes into account the liquidity inflows and outflows for derivatives over the next 30 days. When standardised master agreements are involved, the liquidity inflows and outflows are calculated on a net basis. Commerzbank also takes into account further items that could lead to additional outflows of liquidity. These items include variation margins for changes in the value of securities pledged as collateral and, in the event of a possible deterioration in credit rating, additional collateral furnished because of adverse market scenarios for derivatives transactions. For other contingent liabilities, since June 2019 Commerzbank has used additional outflows in accordance with Article 23 of Commission Delegated Regulation (EU) 2015/61 (D-VO).

In addition, there are no other items in the LCR calculation at Commerzbank that are not included in the LCR disclosure report but are considered relevant to the liquidity profile.

Net Stable Funding Ratio

Based on Regulation (EU) 2019/876 of 20 May 2019 (amendment of Regulation (EU) 575/2013) the Net stable funding ratio (NSFR) is the regulatory defined Structural liquidity ratio and was introduced as of 30 June 2021.

It sets the requirement of stable refinancing as a ratio of the amount of the available stable refinancing (ASF) and the amount of the required stable refinancing (RSF) over a one-year horizon.

The quota itself is defined as the ratio of the weighted available stable refinancing and the necessary weighted stable refinancing. The minimum quota is 100%.

The NSFR of 31 December 2023 underlines the sound financial situation of the Commerzbank Group. It reflects the customer-oriented business model with a high contribution to the ASF from customer deposits. The majority of the RSF is attributable to the credit business and the bulk of the ASF is attributable to customer deposits.

Table EU LIQ2 shows the information on the Net Stable Funding Ratio as of 31 December 2023 according to Article 451a (3) CRR. These include items of the available stable funding as well as items of the required stable funding.

EU LIQ2: Net Stable Funding Ratio

		a	b	c	d	e
		Unweighted value by residual maturity				Weighted value
€m		No maturity	< 6 months	6 months to < 1 year	≥ 1 year	
Available stable funding (ASF) Items						
1	Capital items and instruments	30,977	0	1	5,893	36,871
2	Own funds	30,977	0	1	4,962	35,939
3	Other capital instruments		0	0	931	931
4	Retail deposits		168,698	1,761	3,942	163,595
5	Stable deposits		123,369	1,433	2,722	121,284
6	Less stable deposits		45,328	328	1,219	42,310
7	Wholesale funding:		222,808	10,795	52,308	121,388
8	Operational deposits		25,641	0	0	1,298
9	Other wholesale funding		197,167	10,795	52,308	120,089
10	Interdependent liabilities		2,875	1,439	10,511	0
11	Other liabilities:	0	12,025	160	18,150	18,230
12	NSFR derivative liabilities	0				
13	All other liabilities and capital instruments not included in the above categories		12,025	160	18,150	18,230
14	Total available stable funding (ASF)					340,083
Required stable funding (RSF) Items						
15	Total high-quality liquid assets (HQLA)					6,061
EU-15a	Assets encumbered for a residual maturity of one year or more in a cover pool		3	3	31,716	26,964
16	Deposits held at other financial institutions for operational purposes		350	0	0	175
17	Performing loans and securities:		103,506	17,404	202,848	199,107
18	Performing securities financing transactions with financial customers collateralised by Level 1 HQLA subject to 0% haircut		36,901	554	4,450	4,726
19	Performing securities financing transactions with financial customer collateralised by other assets and loans and advances to financial institutions		18,377	3,067	13,137	16,033
20	Performing loans to non- financial corporate clients, loans to retail and small business customers, and loans to sovereigns, and PSEs, of which:		38,851	8,506	69,033	136,269
21	With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk		1,999	348	12,686	54,211
22	Performing residential mortgages, of which:		3,250	3,685	69,221	0
23	With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk		2,780	3,289	56,240	0
24	Other loans and securities that are not in default and do not qualify as HQLA, including exchange-traded equities and trade finance on-balance sheet products		6,127	1,592	47,008	42,078
25	Interdependent assets		2,875	1,439	10,511	0

		a	b	c	d	e
			Unweighted value by residual maturity			Weighted value
€m		No maturity	< 6 months	6 months to < 1 year	≥ 1 year	
26	Other assets		31,820	607	13,645	18,152
27	Physical traded commodities				138	117
28	Assets posted as initial margin for derivative contracts and contributions to default funds of CCPs		390	0	4,105	3,820
29	NSFR derivative assets		1,757			1,757
30	NSFR derivative liabilities before deduction of variation margin posted		6,681			334
31	All other assets not included in the above categories		22,992	607	9,403	12,123
32	Off-balance sheet items		113,137	13,745	61,452	10,789
33	**Total RSF**					**261,246**
34	**Net Stable Funding Ratio (%)**					**130.2**

F. Operational risk

Based on the Capital Requirements Regulation (CRR), Commerzbank defines operational risk (OpRisk) as the risk of loss resulting from the inadequacy or failure of internal processes, people and systems or from external events. This definition includes, among other things, legal risk, human resources risk, IT risk, outsourcing risk or tax risk, as well as product risk, conduct risk and risks in the area of environment, social and governance (ESG). In this definition the focus is not on strategic or reputational risk. In view of their increased economic significance, compliance risk and cyber risk are managed as separate risk types. However, losses from compliance risks and cyber risks are still incorporated into the model for determining the economic capital required for operational risks.

Risk management

Strategy and organisation

Within Commerzbank, OpRisk and governance issues of the Internal Control System (ICS) are closely connected in terms of both organisational structure and methodology and are continuously being enhanced. This is because many OpRisk cases are closely linked with failures in the control mechanisms. A properly functioning ICS thereby helps to reduce or avoid losses from operational risks and thus to low-er the amount of economic capital required to cover operational risks in the medium to long term. Conversely, the operational risk management systems enable the ICS to adapt itself consistently to them. The further development of the ICS structure is an essential aspect of the proactive reduction or prevention of operational risks where possible.

Chaired by the CRO, the Group OpRisk Committee meets at least four times a year and deals with the management of operational risks within the Commerzbank Group. It also acts as the escalation and decision-making committee for key OpRisk topics that span all areas. The Management Boards and/or the Segment Committees with responsibility for operational risk deal with the management of operational risk in the relevant units. They analyze OpRisk issues that affect them, such as loss events, and define subsequent measures or recommend action.

Commerzbank's OpRisk strategy is approved on an annual basis by the Board of Managing Directors after it has been discussed and voted upon in the Group OpRisk Committee. The OpRisk strategy describes the risk profile, key elements of the desired risk culture, its management framework and measures to be taken by Commerzbank to manage operational risk.

OpRisk management is based on three consecutive levels (three lines of defence) which, when taken together, are crucial for reaching the given strategic aims.

Risk management

Commerzbank takes an active approach to managing operational risk, aiming to systematically identify OpRisk profiles and risk concentrations and to define, prioritize and implement risk mitigation measures.

Operational risks are characterized by asymmetric distribution of losses. This means that most of the losses are relatively small, while isolated losses with a very low probability of occurrence have the potential to be large and devastating. This makes it necessary, not only to limit high loss potential but also to proactively manage losses that can be expected to occur frequently.

To do this, Commerzbank has set up a multi-stage system that brings together the defined limits on economic capital (risk capacity) and those set for operative risk management during the year (risk appetite/risk tolerance), complemented by rules on the transparent and conscious acceptance and approval of individual risks (risk acceptance).

OpRisk management includes an annual evaluation of the Bank's ICS key controls and a risk scenario assessment. Furthermore, OpRisk loss events are subjected to ongoing analysis and to ICS backtesting on an event-driven basis if relevant. Lessons learned activities are carried out after all material loss events.

A structured, centralized and decentralized reporting system ensures that the management of the Bank and its segments, members of the Group OpRisk Committee and the supervisory bodies are informed regularly, promptly and fully about operational risk. Detailed OpRisk reports are produced quarterly. They contain changes in OpRisk losses, the segments' main loss events, current risk analyses, changes in the capital requirement and the status of measures implemented. Operational risks are also part of the regular risk reporting process to the Board of Managing Directors and to the Supervisory Board's Risk Committee.

OpRisk capital requirements

Since the fourth quarter of 2021 Commerzbank has been measuring regulatory capital using the standardised approach (SA), while economic capital for operational risks is measured using a dedicated internal model (OpRisk ErC model).

Standardised approach – Pillar I

The standardised approach is applied throughout the Group. The calculation principle for this is the three-year average of the so-called "relevant indicator". This is calculated on the basis of regulatory income statement items (in particular net interest income, net commission income, net trading income and other operating income). The "relevant indicator" is broken down into eight different business areas and multiplied by different risk weightings.

OpRisk ErC Model – Pillar II

The ErC model determines a capital charge based on quantitative methods, which is supplemented by qualitative components. The internal model used for this corresponds to the previous advanced measurement approach (AMA).

Quantitative components

The OpRisk ErC model's quantitative components include internal and external OpRisk loss data along with mathematical/statistical modelling.

Group-wide internal OpRisk loss data is collected mandatory from a starting threshold of €10,000 in a Group-wide loss database. As the internally calculated loss data history cannot always reflect extreme OpRisk events adequately, external OpRisk events are also be factored into the OpRisk ErC model. For this purpose, relevant external loss data from the Operational Riskdata eXchange Association (ORX), Genf, an international data consortium is used. For mathematical/statistical modelling, the data is grouped by combinations of business line, event category and region. Loss frequency is modelled on the basis of internal loss data, while distribution is modelled on the basis of internal and external loss data.

Qualitative components

Qualitative methods (risk scenario assessment and business environment and control system) are used to complement the information from the quantitative model components.

The risk scenario assessment (RSA) is an ex-ante risk assessment of operational risks. Based on expert opinions and in accordance with the requirements of the Capital Requirement Regulation (CRR), they serve to identify exceptional but plausibly possible risk events which could jeopardise the Bank's existence or severely affect its results and incorporate these into modelling.

The business environment and control (BEC) system provides incentives to reduce operational risk and improve risk management. Business environment and internal control factors are shown in the OpRisk model in the form of add-ons and reductions to regulatory and economic OpRisk capital requirements. The BEC system takes into account the following qualitative OpRisk elements:

- Internal control system (ICS): As part of the annual ICS review, the company-wide ICS control mechanism is evaluated in terms of its functionality. To ensure that the internal control system factors are properly represented, the ICS as a BEC subject area consists of three components: ICS self-assessment (assessment by the units carrying out the controls), ICS testing (independent review by internal audit) and ICS documentation (modelling status in the Bank's process model).
- Human resources risk: The human resources risk report prepared by the Group Human Resources division takes into account current areas of human resources activity and presents risk information on the basis of set criteria.
- IT risk: The IT risk report prepared by the Group Cyber Risk and Information Security division brings together data relating to IT risk in the areas of IT security and incidents. The data cover the four IT security targets: confidentiality, integrity, availability and transparency. In addition, an assessment of the adequacy and implementation of emergency plans will be included in the BEC.
- Key risk indicators (KRIs): KRIs are used to manage operational risk proactively by means of early warning signals.
- OpRisk management: The OpRisk & ICS department evaluates the active OpRisk management of the material units on the basis of a uniform list of criteria. Information on the progress made towards processing audit findings is also included in the BEC system.
- Top-level adjustments (TLAs): TLAs are only used in well-founded exceptional cases to establish a risk buffer for extraordinary changes in the OpRisk environment and include this in the OpRisk capital requirement calculation at short notice.

Table EU OR1 shows the operational risk own funds requirements and risk-weighted exposure amounts in accordance with Articles 446 and 454 CRR as of 31 December 2023 as well as the relevant indicators:

EU OR1: Operational risk own funds requirements and risk-weighted exposure amounts

		a	b	c	d	e
Banking activities		Relevant indicator[1]			Own funds requirements	Risk exposure amount
€m		2020	2021	2022		
1	Banking activities subject to basic indicator approach (BIA)	0	0	0	0	0
2	Banking activities subject to standardised (TSA) / alternative standardised (ASA) approaches	9,252	10,721	11,890	1,823	22,790
3	Subject to TSA:	9,252	10,721	11,890		
4	Subject to ASA:	0	0	0		
5	Banking activities subject to advanced measurement approaches AMA	0	0	0	0	0

[1] At the time of the calculation of the relevant indicator, some underlying information is only provisional and the current value is therefore provisional. As a result, after final calculation, the previous year's figure shown here differs from last year's publication.

Stress testing and validation

As an integral part of risk management and the risk-bearing capacity concept, stress tests for operational risk are carried out on a regular basis. As a basis for the stress methodology, consistently the standard approach is used to determine the regulatory amount and the OpRisk ERC model is used to determine the economic amount. Regular validation is carried out to ensure the ongoing adequacy of the OpRisk framework and the methods used. The validation carried out in 2023 has confirmed its appropriateness.

Outlook

The Commerzbank framework for operational risk management is continuously reviewed and further developed. At present, the focus is on supporting the strategic measures of Commerzbank, the further development of the OpRisk ErC model and the integration of ESG aspects into risk management.

In the regulatory environment, the EU draft to implement the rules of the Basel Committee on Banking supervision further provides for the mandatory introduction of the standardized approach for calculating regulatory OpRisk capital requirements from 1 January 2025.

Sub-risk types of operational risk

The risks listed below are the sub-risk types of operational risk included in Commerzbank's risk inventory.

Legal risk

Legal risk primarily arises for the Commerzbank Group when the Bank's claims cannot be enforced for legal reasons or when claims can be made against the Bank because the underlying law was not observed or has changed since a transaction was concluded.

The operation of banking and financial services transactions that are subject to regulatory provisions may also result in legal risk. This risk may also take the form of orders or sanctions issued or imposed by one or more authorities whose supervision Commerzbank is subject to anywhere in the world. Legal risk also arises in realised losses or provisions due to or in connection with court cases brought against Commerzbank (passive proceedings). Cases brought by Commerzbank (active proceedings) generally represent a credit risk rather than an operational risk, so the risk of loss is already taken into account through write-downs. However, the costs of legal action (court and lawyers' costs) for active proceedings are classified as legal risk.

Organisation
Within Commerzbank, the functional management of legal risk throughout the Group is the responsibility of Group Legal as the second line of defence. All legal staff at the various Group Legal locations including the foreign branches as well as the legal staff of the legal departments of the domestic and foreign subsidiaries are as legal risk managers operationally responsible for the identification and management of the Group-wide legal risk within Commerzbank.

Risk management
The task of the Group's legal risk managers is to detect legal risks and all losses potentially resulting from them at an early stage, to highlight possible solutions that might avoid or minimise such losses, and to play an active part in reaching decisions concerning legal risks. They must ensure that they are always up to date with all legal changes or new findings within their area of responsibility and inform the business units affected about the impact on legal risk and any action that needs to be taken as a result.

The legal risk managers are responsible for arranging or adjusting legal provisions and look after and monitor new and ongoing court proceedings.

In the case of passive proceedings, provisions are recognised on the basis of the risk assessment carried out by the responsible legal risk manager. To determine the amount of the provisions for the claim, the legal risk manager makes the best possible estimate of the probable loss (in cash / cash outflow) from the proceedings. The provisions for the claim must be recognised in the amount of this expected loss if the outflow of resources is probable. The legal risk manager must review the probability of occurrence and the expected loss in the event of new findings, particularly after each significant stage of the proceedings, and adjust the provisions for the claim accordingly. In the case of active proceedings, provisions are usually only recognised for the expected court and lawyers' costs.

Group Legal provides information about all major court proceedings and risk trends in a quarterly litigation report. This report is sent to the Bank's management and Supervisory Board, the supervisory authority and the OpRisk Committee.

Operational and organisational risk

Through its written rules of procedure, Commerzbank has a defined framework for its organisational structure and processes. These rules are based on legal requirements, including the Minimum Requirements for Risk Management of Credit Institutions (MaRisk), section AT5 Organisational guidelines, and on Commerzbank's strategy and constitution.

The rules for the organisational structure include uniform and binding minimum requirements for the Bank's structure and they thereby allocate responsibilities clearly. The core elements are the assignment of responsibilities for the Board of Managing Directors, the business objectives with the descriptions of the tasks of the corporate units, and the administrative cost approval authorities for the different management levels.

For organisational processes, standards are set for the creation, regular updating, approval and documentation of instructions and processes as well as the systems to be used.

Regular reviews of up-to-date status are carried out for both components. The managers responsible for risk are involved through approval processes and are thus informed about any changes in risks.

This creates overall certainty for the work of all standard-setting functions and employees.

IT risk

In our internal definition, we define IT risk as risks to the security of information processed in our systems in terms of meeting the four IT security objectives set out below:

Confidentiality: Information is confidential if it is not accessible to, or capable of being reconstructed by, unauthorised persons, business processes or IT systems.

Integrity: Information possesses integrity if it has not been modified or destroyed by any unauthorised means. An information-processing system (IT system) possesses integrity if it can perform its intended functions without hindrance and free of unauthorised manipulations, whether deliberate or accidental.

Traceability: Actions and technologies applied to information are traceable if they themselves and their source can be traced back without any ambiguity.

Availability: Information is available if it is always capable of being used to a predefined extent by authorised persons, business processes and IT systems when it is required.

Commerzbank attaches great importance to the protection and security of its own information, of that entrusted to it by customers, and of the business processes and IT products used to process it. They form a permanent core element in our IT strategy. IT security requirements are based on the IT security objectives referred to above and are set down in policies and procedural instructions.

IT risks are identified, evaluated and regularly reviewed as part of IT governance processes. IT risk is covered in the quarterly IT risk report. Information security is also established as a principal objective for our Internal Control System. As a result of altered conditions, more attention has been given to consideration of the four IT security objectives for home office technologies.

Relevant IT risks are also evaluated as part of operational risk management through risk scenarios and considered in the Bank's ErC calculation. This includes the risk of a breakdown of critical IT, the risk of external attack on the Bank's systems or data and the risks of cloud sourcing (cyber risk and cloud scenarios), the theft of corporate data or the default of service providers and vendors. See also the description of cyber risk.

Given the major importance of IT security to Commerzbank, it is further developed and improved on an ongoing basis by means of strategic initiatives. We have taken into account the significance of the "human" factor in IT security and cyber security by introducing additional training and awareness-raising measures

The "IT Strategy 2024–2027" deals with the issues of IT risk management and IT security in general and with reference to the regulatory requirements of BaFin's Supervisory Requirements for IT in Financial Institutions (BAIT) and of MaRisk. IT security is one of the five goals of the IT strategy. In the IT Strategy 2024-2027, fields of activity and measures are derived from the status quo. With regard to cybersecurity, the Bank will be striving on an ongoing basis to optimise the zero trust model and the general application of zero trust principles. The associated measures and the measures derived from the Information Security Strategy contribute to IT risk management.

Human resources risk

The internal, management-oriented interpretation of this definition at Commerzbank AG includes the following elements in human resources risk.

Adjustment risk: Adjustment risk results when organisational and operational circumstances change (for example, restructuring, changes in management culture, qualification needs), these changes impact employees' scope of responsibilities and therefore require a greater willingness to change on the part of the staff.

Motivation risk: Motivation risk arises when demotivating factors are not eliminated and employees do not adequately perceive motivating factors such as management or remuneration. The effects (such as withheld performance by employees) can have a direct impact on the working environment and the organisation's productivity.

Departure risk: Departure risk takes into account the consequences of undesired employee departures (for example, if an employee resigns voluntarily), particularly when high performers are involved.

Supply risk: Supply risk reflects the consequences of insufficient staffing (for example, positions budgeted for but unfilled, inadequate development of young staff) and the resulting consequences (operating bottlenecks, increased workload, lower productivity and illness).

Strategy and organisation

Employees are a key resource for Commerzbank. With this in mind, all managers have a basic responsibility to keep an eye on the human resources risk within their own area of responsibility and to deal with any undesirable developments, if necessary with the involvement of Group Human Resources (GM-HR). Human resources risk is additionally and systematically managed by GM-HR with the aim of identifying, assessing and managing any changes in the risk situation, such as through the use of selected personnel tools.

The Group division GM-HR is the responsibility of the Group Human Resources division head, who reports directly to the member of the Board of Managing Directors responsible for human resources (CHRO).

Risk management

The strategic guidelines from the overarching Group risk strategy apply without limitation to human resources risk. The operational risk sub-risk strategy, as part of the overall risk strategy of Commerzbank, sets the risk strategy framework and contains a detailed description of human resources risk management in addition to strategic and organisational elements. In this context, GM-HR prepares a human resources risk report for Commerzbank AG and its largest subsidiaries every six months for the attention of the Board of Managing Directors in order to assess adjustment risk, motivation risk, departure risk and supply risk based on defined criteria and to identify current risk-relevant areas where action is needed.

Adjustment risk is countered through selected internal and external training, continuing education and change measures. Steps are taken to ensure that the qualification levels of our employees keep pace with the current requirements, that guidance is provided for structural changes and that our employees can fulfil their duties and responsibilities. The potential for a loss of expertise is countered with training aimed at reskilling and upskilling as well as the elaboration of a sustainable human resources development plan.

Motivation risk is captured by GM-HR by means of regular employee surveys. These enable us to respond swiftly to potential changes in employees' level of corporate loyalty and to initiate adequate measures. This includes the development of incentive systems to recognise individual achievements as well as measures for employee development and the reassignment of more demanding tasks to top performers.

With regard to departure risk, great care is taken to avoid lasting disruptions to operational processes caused by the absence or departure of employees. GM-HR monitors staff turnover on a regular basis from both a quantitative and a qualitative perspective. Another risk-mitigating measure is agreement on mutual consent for social plan instruments to prevent unwanted departures in the context of downsizing measures.

Supply risk is countered by appropriate staffing in quantitative and qualitative terms. The aim in this is to ensure that the internal operating requirements, business activities and prevailing strategy of Commerzbank AG can be implemented. In addition to strengthening the employer brand, this also includes modernising the recruitment process in Germany and at international locations. These steps can help ensure that an appropriate number of employees with the required qualifications are available.

Outsourcing risk

Outsourcing arrangements are defined at Commerzbank in accordance with the EBA Guidelines on outsourcing arrangements (EBA/GL/2019/02) and in line with Art. 25 a/b of the German Banking Act (KWG) and MaRisk AT9. The Group Outsourcing Policy is the basic framework used by the Group in its efforts to mitigate the risks from outsourcing in accordance with the outsourcing strategy. The principles and rules for all components of the Group Outsourcing Policy are binding on Commerzbank AG and its domestic and foreign subsidiaries and branches.

An essential part of the outsourcing process is determining the materiality of the outsourcing project. The classification of each outsourcing arrangement as "material" or "non-material" complies with regulatory requirements based on a structured risk analysis. Material outsourcing arrangements are subject to a more stringent control and monitoring system. The responsible first line of defence (Retained Organisation) must establish suitable control measures for every outsourcing arrangement, such as the checking of service quality, satisfaction with the service provider and regular evaluation of internal or external audits. In addition, the risk analyses must be reviewed and updated on a regular basis. For a material outsourcing arrangement, this must be carried out annually; for a non-material outsourcing arrangement, the review is carried out in a one, two or three-year cycle, depending on the individual risk. Regardless of this, the first line of defence must update the risk analysis outside the control cycle in the event of significant, unforeseen events.

Outsourcing relationships represent a subset of third-party relationships. Increasing complexity, from traditional arrangements to cloud outsourcing, requires a correspondingly comprehensive approach to supplier and outsourcing risk. Therefore, a holistic approach to managing risk across all types of third-party risk will be introduced in 2024.

[1] In the case of errors, it must be determined whether it was possible to evaluate/recognise the error as such at the time the tax return or notification was submitted. If legal regulations have been undeniably misinterpreted, incorrect information has been deliberately provided or existing procedures have not been followed, this must be viewed as erroneous. If there is a justifiable different interpretation of a legal regulation that leads to an adjustment as part of a tax audit, this is not construed as an error within the meaning of operational risk.

Supplier risk

The key points for supplier risk are the assessment and management of risks that arise from the relationship with suppliers. Supplier risk is already assessed as part of the structured selection process for suppliers, covering criteria such as performance and profitability.

In active relationships with suppliers, changes in supplier risk are regularly reviewed and, if necessary, risk mitigation measures are initiated. Efforts to optimise supplier risk using a risk-oriented approach will continue. A holistic approach to managing risk across all types of third-party risk will be introduced (see Outsourcing risk) in 2024.

Tax risk

Tax risk consists of the following components: the risk of submitting erroneous[1], incomplete or late tax returns, internally calculated tax returns and mandatory notifications of tax-relevant details/ information, or infringement against disclosure, reporting, notification or cooperation obligations.

This may result in the following costs: penalties for late execution and late payment surcharges due to non-compliance with statutory deadlines, interest expenses for back taxes and penalties in the form of coercive penalty payments or late payment surcharges for non-adherence to cooperation, documentation, archiving and retention periods (Principles for the proper keeping and storage of books, records and documents in electronic form and for data access; GoBD).

Tax risk also includes: fines or penalty interest arising from administrative and criminal tax offences, additional charges due to avoidable double taxation (e.g. including the same information in different tax contexts), avoidable tax/interest expenses or non-refund of taxes due to non-filing or improper filing of applications or examination of tax assessments, and additional expenses due to tax estimates.

In view of the above-mentioned tax risks and the zero-tolerance approach to criminal tax offences and to aiding and abetting criminal and administrative tax offences, Commerzbank has set up a Tax Compliance Management System (TCMS), which is continually analysed and optimised by the specialised GM-TAX Tax Compliance Management unit in collaboration with various units inside and outside GM-TAX.

Commerzbank reports known tax risks resulting from criminal tax offences quarterly to the Bank-wide Anti-Fraud & Corruption Committee (BAFCC) for Commerzbank AG including material foreign branches and relevant subsidiaries.

G. Other material risks

The risks listed below are the other material risks included in Commerzbank's risk inventory.

Compliance risk

Compliance risk falls within the definition of operational risk. Commerzbank acknowledges and understands the existence of inherent compliance risk in its areas of business, which are subject to the risk of abuse in general and in particular by financial crime. Compliance risk in this context comprises risks relating to money laundering, terrorist financing, sanctions/embargoes, markets compliance, other punishable actions such as fraud, bribery and corruption, as well as consideration of human rights and environmental risks in accordance with the German Supply Chain Due Diligence Act (LkSG).

In order to actively promote a compliance culture in the Bank, the Board of Managing Directors of Commerzbank has laid down and communicated corresponding values in the Code of Conduct.

Organisation

Group Compliance is led by the Divisional Board member for Group Compliance, who reports directly to the Board of Managing Directors. Pursuant to Art. 87 (5) of the German Securities Trading Act (WpHG) and BT 1.1 MaComp (minimum requirements of the compliance function), the Group Compliance division head is both the Group's Compliance Officer and, under Art. 25 h (7) of the German Banking Act (KWG) and Art. 7 and 9 of the German Anti-Money Laundering Act (GwG), the Anti-Money Laundering Officer, or Group Anti-Money Laundering Officer for the Group. The Group Compliance division head also assumes the role as human rights officer according to the German Supply Chain Due Diligence Act (LkSG).

Group Compliance is responsible for:

A. The five types/areas of compliance risk:

1) anti money laundering / fighting terrorist financing

2) sanctions and embargoes

3) combating fraud, bribery and corruption

4) markets compliance

5) consideration of human rights and environmental risks in accordance with the LkSG

as well as

B. Further responsibilities:

1) coordination of the requirements under MaRisk section 4.4.2 ("MaRisk compliance function"),

2) independent implementation of internal special investigations with compliance relevance.

Risk management

To prevent compliance risks, Commerzbank has implemented security systems and controls for its transactions, customers, products and processes. These procedures for ensuring compliance with material legal provisions and requirements are referred to in their entirety as a compliance management system. Commerzbank's compliance management system is based on international market standards and the regulatory requirements in the various countries which are relevant for Commerzbank's business activities. Commerzbank is constantly developing its compliance management system in order to meet its responsibilities and address the growing complexity and increasing regulatory requirements. Under the three lines of defence principle, protecting against undesirable compliance risks is an activity that is not restricted to the compliance function (Group Compliance). Instead, the organisational control and monitoring elements are aligned in three sequential levels. The units in the first line of defence (1st LoD) assume responsibility as part of their operational activities for identifying and managing risks and for complying with their own business rules; they are also responsible for setting up process-oriented control mechanisms. Group Compliance, the second line of defence (2nd LoD), sets standards for appropriate risk management, oversees the appropriateness and effectiveness of the procedures and controls in the first line of defence, and assesses and communicates any deficiencies found. In addition, Group Compliance carries out analyses and assessments of compliance risks and ensures that the risk management framework is implemented. Internal Audit, the third line of defence (3rd LoD), uses regular and independent audits to check that compliance in both the 1st LoD and 2nd LoD is appropriate and effective.

Compliance risks are managed in a control circuit with interacting elements. Commerzbank constantly monitors relevant regulatory requirements and ensures the definition or adjustment of corresponding internal standards intended to make sure it complies with the requirements. Regular internal training measures and consulting services from the compliance function support the effective implementation of these standards in the Group. Implementation encompasses setting up and carrying out suitable processes and controls in daily work, assuring their quality and testing their effectiveness in the 1st and 2nd LoD. Compliance risks are monitored and are the subject of regular internal reporting. Where necessary, matters are escalated according to their urgency and severity.

Risk analysis (compliance risk analysis) is one of the core elements of risk management. It assesses the inherent risk arising from doing business with different customer groups and products and compares this in the Control Assessment with an evaluation of the corresponding control environment for mitigating the inherent risk.

A residual risk is determined as the outcome. The Bank defines measures to further enhance risk management (e.g. introducing additional controls) as necessary and tracks implementation closely.

The compliance sub-risk strategy, as part of the overall risk strategy of Commerzbank, sets the risk strategy framework for dealing with compliance risks and contains a detailed description of compliance risk management in addition to strategic and organisational elements. In particular, the risk appetite per compliance risk type is specified and the strategic fields of action are defined. Group Compliance factors the Bank's Strategy 2027 into the sub-risk strategy.

Reputational risk

Reputational risk is the risk that stakeholders may lose confidence in Commerzbank or that its reputation may be damaged as a result of negative events in its business activities. Commerzbank's stakeholder groups include in particular the public and the media, non-governmental organisations and its customers. In the present-day competitive environment, a company's reputation is becoming more and more important. The main factor determining this is how companies handle environmental or social risks in their core business (intrinsic reputational risks). Companies are judged not only on the basis of people's personal experiences of them, but also on reports reaching the public, especially through the media. Reputational risk therefore goes hand in hand with communication risk.

Strategy and organisation

All employees and managers have a fundamental duty to protect and reinforce Commerzbank's good reputation as a significant element of its enterprise value. The segments and significant subsidiaries bear direct responsibility for reputational risk resulting from their particular business activity. Managing intrinsic reputational risk means in particular identifying and reacting to potential environmental and social risks at an early stage, thereby reducing any potential communication risk or even preventing it completely.

The Reputational Risk Management department is part of the central Group Communications division of the Commerzbank Group and focuses on intrinsic reputational risk that may directly lead to reputational damage among stakeholder groups. The department maintains close links with the relevant front office units. Management of intrinsic reputational risk is the responsibility of the Chairman of the Board of Managing Directors. It is a component of Commerzbank's overall risk strategy. Reputational Risk Management's tasks include identifying, evaluating and addressing intrinsic reputational risk in systematic processes at an early stage and suggesting or implementing appropriate measures (early warning function).

According to the risk inventory, reputational risk is one of the main non-quantifiable risk types in the Commerzbank Group. These must be limited and monitored in accordance with the overall risk strategy through a sub-risk strategy using suitable qualitative guidelines. Thus, the reputational risk management sub-risk strategy gives specific shape to the overall risk strategy through strategic management that is based on three main pillars:

- Firstly, strategic management of the intrinsic reputational risk aims to prevent reputational damage from arising from socially or environmentally questionable transactions, products and customer relationships. To this end, Commerzbank has created the clear governance structures described in this sub-risk strategy.
- Secondly, expected economic implications of reputational damage (lower business volumes) are factored directly into business planning and multi-year planning.
- Thirdly, the risk-bearing capacity analysis implicitly takes into account possible effects of reputational risks materialising unexpectedly in business risk or operational risk.

The global functional lead for managing intrinsic reputational risk in the Commerzbank Group lies with Group Communications/Public Affairs/Reputational Risk Management.

The strategy aims to ensure

- overall management of intrinsic reputational risk, as well as:
  - the consideration of environmental risk aspects considered material (currently greenwashing),
  - an annual scenario analysis on aspects of environmental risk relevant to reputational risk (climate-related and biodiversity risks),
- explicit integration of sustainability criteria into banking business,
- internal measures to raise the awareness of managers and employees for intrinsic reputational risk and the associated corporate responsibility,
- informing management through reputational risk reporting.

Management

Intrinsic reputational risks are essentially managed by the Reputational Risk Management department using a qualitative approach. As part of a structured process, transactions, products and customer relationships in connection with sensitive areas are assessed with reference to environmental and social risks on a qualitative five-point scale. This assessment can contain conditions and in some cases a negative verdict, which could lead to a rejection. In addition to the qualitative assessment of intrinsic reputational risks, an annual scenario-based ICAAP materiality analysis is used to quantitatively assess the impact of environmental risks (particularly climate-related and biodiversity risks) on reputational risks and to ensure appropriate ICAAP consideration via business risk.

The sensitive areas regularly and comprehensively analysed in Reputational Risk Management include armaments exports, and transactions and customer relationships relating to power generation and commodities extraction. Commerzbank's attitude towards these areas is laid down in positions, guidelines and the ESG framework that are binding for all employees. Commerzbank's Reputational Risk Management department regularly observes and analyses new environmental and social issues and informs the relevant parts of the Bank about these, if necessary. The reputational risks identified and addressed by the department are incorporated into the quarterly reputational risk report – part 1: non-quantifiable risks; part 2: high and major intrinsic reputational risks (sustainability issues) – which is prepared for the Board of Managing Directors and the Risk Committee of the Supervisory Board.

Cyber risk

Cyber risk comprises risks with direct relevance to security and risks that lead to relevance to security (with respect to cyber space). The part of cyber space of relevance to Commerzbank is all connected IT environments within the Bank and those outside the Bank that lead to customers, business partners and service providers. Cyber risk is therefore concerned with the digital representation of the Bank's assets (data, information) within cyber space.

The strategic guidelines from the overarching Group risk strategy, the Information Security Strategy and the cyber risk sub-risk strategy apply without limitation to cyber risk. In particular, this involves expanded identity and access management, the implementation of the zero-trust model, strengthening cyber resilience and continuing to implement extensive awareness measures.

Commerzbank manages cyber and information security risks via the Group division "Group Risk Management – Cyber Risk & Information Security" (GRM-CRIS), which reports to the Group Chief Information Security Officer (CISO). In addition to established security functions such as the ISO 27001 certified Information Security Management System (ISMS) as well as risk reporting on key risk indicators, GRM-CRIS focuses on managing cyber risk appropriately and on strengthening Commerzbank's cyber-resilience (including its information security incident management capabilities). It also addresses the interaction between cyber and information security risks and other types of material risk relating to areas such as operational risk.

The main factor in the current cyber risk situation – in which risk remains at a high level – is the geopolitical tension surrounding the Ukraine war. The Russia-Ukraine war continues to harbour a risk of attacks by state actors on critical infrastructure and resulting collateral effects on the Bank.

Ransomware has become one of the established attack vectors in organised cyber crime, and is a threat in particular to SMEs. With regard to distributed-denial-of-service (DDoS) attacks, we are observing an increasing shift from the network to the application level.

Steps have already been initiated to ensure improved protection from these threats by means of the agreed packages of capital investment and associated measures. Developments in the cyber context are observed on an ongoing basis at Commerzbank by an interdisciplinary task force (top management and specialists from GRM-CRIS and Group Technology Foundations – GS-TF).

By closely interlinking the first and second line of defence activities in the field of cyber threat analysis, including corresponding protective measures and incident management processes, the Bank aims to continue to be adequately protected against such attacks.

Business risk

Business risk is the risk of negative effects on the achievement of Commerzbank's projected results with a one-year risk horizon and the Bank's medium to long-term strategic goals, for example as a result of changes in the market or competitive environment, capital market requirements, regulatory/political factors or the inadequate implementation of the Group strategy (primary risk drivers).

Strategy and organisation
On the basis of external and internal factors, the Board of Managing Directors sets out a sustainable business strategy describing the major business activities and steps required to meet the targets.

The aim in managing and monitoring ongoing business risk is to make a prediction about possible adverse deviations in the development of the operating results from the planned figures over a 12-month time horizon and thus to take the volatility of the underlying income and expenses into account when planning business activities. The aim of medium to long-term business strategy risk management, on the other hand, is the appropriate implementation of Group strategy in order to achieve the announced business goals and, if necessary, early adjustment of the business strategy if changes in the environment become apparent.

Risk management
To ensure proper implementation of the Group strategy to achieve the business targets, strategic controls are carried out through regular monitoring of quantitative and qualitative targets in the Group and the segments. The bank has various instruments at its disposal to make deviations between actual performance and planned performance transparent at an early stage and to initiate countermeasures to limit business risk – including regular reporting on the earnings situation for the Group and the segments, including

monitoring KPIs and early warning indicators. Based on ongoing observations of the German and international market and competitive environment as well as the requirements of the regulator and the capital markets, the main changes and developments that are visible in the medium to long term are continuously analysed and the necessary measures are derived from this to ensure the Bank's long-term success. Strategy implementation is checked and tracked on an ongoing basis; this includes in particular regular monitoring of progress made with respect to the implementation of the delivery portfolio defined for the "Moving forward" strategy.

From an economic perspective, the management of business risk is closely linked to internally defined capital ratio requirements. The fulfilment of these requirements and the way in which business risk is taken into account when placing a limit on the risk-bearing capacity ratio ensure that sufficient capital backing is available at all times (risk coverage potential). If it becomes necessary to make adjustments to Commerzbank's risk appetite and/or initiate capital measures, this is done in line with general risk governance under the overall risk strategy. In the normative perspective, business risk is implicitly taken into account through the SREP P2G and P2R requirements as well as various scenario formats with a time horizon of up to three years.

Responsibility for strategic corporate management and for managing business risk as part of achieving the planned results lies with the Board of Managing Directors. Specific business policy decisions (acquisition and sale of equity holdings > €300m) also require the authorisation of the Supervisory Board's Risk Committee. In addition, all major initiatives and projects are decided by the Board of Managing Directors.

Property value risk

Property value risk is understood to be the risk that arises from
- the negative change in market values of Group properties that have already been recognised as assets in the next 12 months with a corresponding charge to the income statement,
- properties that may be recognised on the Group's balance sheet owing to contractually guaranteed obligations in the nature of options for certain dates and fixed redemption prices for investors and accordingly may have a negative impact on the income statement.

Property value risk results from real estate used for business purposes and from the business activities of Commerz Real.

Strategy and organisation

Property value risk is classified as a material risk type for Commerzbank and is included as a quantifiable risk in determining the economic capital requirement and thus directly in the risk-bearing capacity calculation. In the normative perspective of the ICAAP, property value risk is taken into account as part of the scenario analyses.

The property value risk resulting from real estate used for business purposes includes risk from the market environment, risk for business activities and risk from legal proceedings. The need for cost-effective provision of adequate premises for the Bank is factored into the desired risk structure as a key consideration. The multi-year planning for premises costs adopted in each case acts as a guide for mapping the financial opportunities and risks within the real estate portfolio. Commerz Real's property value risk results from directly held assets, assets from majority equity holdings, assets from minority equity holdings and outstanding residual values as well as tenant loans from real estate leasing contracts. The central asset classes are ships, real estate and infrastructure. Sustainably achievable cash flow is the central risk driver.

Risk management

When managing and controlling property value risk, a distinction is made between two different classes:
1. real estate used for business purposes
2. property value risk at Commerz Real

For the sake of completeness, the first class also includes property-related risks that arise from the perspective of a real estate operator and that go beyond the scope of the property value risk.

The Group value for property value risk is calculated each quarter and reported regularly in the Group Risk & Capital Monitor.

At Group level, property value risk is restricted overall by an economic limit, which is set and regularly monitored as part of the setting of economic limits under the overall risk strategy. If the limit is exceeded, defined escalation mechanisms under the overall risk strategy apply.

Model risk

Model risk is the risk of incorrect management decisions based upon an inaccurate depiction of reality by the models used. With regard to the causes of model risk we distinguish between model risk from exceeding model boundaries and model risk from model errors (manual errors in model development/implementation). In line with the focus of the Group risk strategy, namely to ensure that the Bank has adequate capital and liquidity, the models for assessing risk-bearing capacity (capital requirements under the Basel framework and economic capital requirements, respectively) and liquidity resources are central for risk management.

Model risk constitutes a material but non-quantifiable type of risk. Therefore, a qualitative management approach is applied: The basic principles of model risk management are the identification and avoidance of model risks and appropriate consideration of known model risks (e.g. through conservative calibration or consideration of margins of conservatism or model reserves). Model risks that are unknown and hence cannot be mitigated are accepted as an inherent risk in the complexity of the Commerzbank business model. In respect of the governance of model risk management, requirements relating to model validation, model development and model changes are established.

The war in the Ukraine and its geopolitical impact as well as the economic secondary effects from the coronavirus pandemic pose challenges for the risk models used. These factors are taken into account in ongoing management of model risks and in particular in regular validation work.

The strategically relevant credit risk models (PD, LGD, CCF for private and corporate customers, PD for banks and for renewable energy project financing) are currently being fundamentally revised. In this context, high standards in model development and initial validation play a major role. In addition, a project to consolidate the booking systems for financial products will be completed in 2024, with implications for the valuation models used for the corresponding products and therefore relevant from a model risk perspective.

List of the annexes

The annexes to the document contain the following topics and are available separately on the Commerzbank Disclosure Report website (Commerzbank AG – Disclosure Report):

Annex 1: Outline of the differences in the scopes of consolidation (entity by entity)

Annex 2: Disclosure of information on the indicators of global systemic importance pursuant to Article 441 CRR

Annex 3: Corporate governance information pursuant to Article 435 (2) CRR

Annex 4: Information on ESG according to Article 449a CRR

Annex 5: Remuneration information pursuant to Article 450 CRR

Annex 6: Main features of issued capital instruments as of 31 December 2023

Annex 7: Overview- Compliance with CRR requirements

List of abbreviations

ABS	Asset-backed Securities
AC	Amortised Cost
ALCO	Asset Liability Committee
AMA	Advanced Measurement Approach
ASF	Available Stable Funding
AUC	Area under the curve
BaFin	Bundesanstalt für Finanzdienstleistungsaufsicht / Federal Financial Supervisory Authority
BEC	Business Environment and Control System
CCF	Credit Conversion Factor
CCR	Counterparty Credit Risk
CR	Credit Risk
CRD	Capital Requirements Directive
CRM	Credit Risk Mitigation
CRO	Chief Risk Officer
CRR	Capital Requirements Regulation
CVA	Credit Valuation Adjustment
CVaR	Credit Value at Risk
EaD	Exposure at Default
EBA	European Banking Authority
ECB	European Central Bank
EEPE	Effected Expected Positive Exposure
EL	Expected Loss
ErC	Economically required Capital
FINREP	Financial Reporting
FVOCI	Fair Value through Other Comprehensive Income
FVTPL	Fair Value through P&L
GL	Guideline
HGB	Handelsgesetzbuch/German Commercial Code
IAA	Internal Assessment Approach
ICAAP	Internal Capital Adequacy Assessment Process
ICS	Internal Control System
IFRS	International Financial Reporting Standards
IMA	Internal Model Approach
IMM	Internal Model Method
IPV	Independent Price Verification
IRBA	Internal Ratings Based Approach
IRC	Incremental Risk Charge
ISDA	International Swaps and Derivatives Association
ITS	Implementing Technical Standards
KRI	Key Risk Indicators
KWG	Kreditwesengesetz / German Banking Act
LCR	Liquidity Coverage Ratio
LCRE	Low Credit Risk Excemption
LECL	Lifetime Expected Credit Loss
LGD	Loss Given Default
MaRisk	Mindestanforderungen an das Risikomanagement/ Minimum Requirements for Risk Management
MDA	Maximum Distributable Amount
MR	Market Risk
NPE	Non-performing Exposure

OpRisk	Operational Risk
OR	Operational Risk
ORX	Operational Riskdata eXchange Association, Genf
P&L	Profit & Loss
PD	Probability of Default
RBC	Risk-bearing capacity
RSA	Risk Scenario Assessment
RSF	Required Stable Funding
RTS	Regulatory Technical Standards
RW	Risk weight
RWA	Risk-weighted Assets
SACR	Standardised Approach to Credit Risk
SEC	Securitisations
SFT	Securities Financing Transactions
SME	Small and medium-sized enterprises
SREP	Supervisory Review and Evaluation Process
STS	Simple, transparent, standardised
sVaR	stressed Value-at-Risk
TLA	Top Level Adjustment
VaR	Value-at-Risk

Disclaimer

Commerzbank's internal risk measurement methods and models which form the basis for the calculation of the figures shown in this report are state-of-the-art and based on banking sector practice. The risk models produce results appropriate to the management of the Bank. The measurement approaches are regularly reviewed by risk control and internal audit and the German and European supervisory authorities. Despite being carefully developed and regularly monitored, models cannot cover all the influencing factors that have an impact in reality or illustrate their complex behaviour and interactions. These limits to risk modelling apply particularly in extreme situations. Supplementary stress tests and scenario analyses can only show examples of the risks to which a portfolio may be exposed in extreme market situations. However, stress testing all imaginable scenarios is not feasible. Stress tests cannot offer a final estimate of the maximum loss should an extreme event occur.

The interpretations with regard to CRR/CRD rules and Securitisation Regulation are still ongoing. Therefore requirements for adjustment may occur due, for example, to modified interpretations in the course of the Q&A-process with EBA or due to new binding Technical Standards or guidelines. Against this background we will continue to refine our methods and models in line with the interpretation of the rules. Thus, our measures may not be comparable with previously published measures and our competitors' measures published may differ from ours.

This Disclosure Report contains forward-looking statements on Commerzbank's business and earnings performance, which are based upon our current plans, estimates, forecasts and expectations. The statements entail risks and uncertainties, as there are a variety of factors that influence our business and to a great extent lie beyond our sphere of influence. Above all, these include the economic situation, the state of the financial markets worldwide and possible loan losses. Actual results and developments may, therefore, diverge considerably from our current assumptions, which, for this reason, are valid only at the time of publication. We undertake no obligation to revise our forwardlooking statements in the light of either new information or unexpected events.

The German version of this Report is the authoritative version.

For ease of reading only the masculine form is used to refer to people. This always refers to people of any gender identity.

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