ING Group

Additional Pillar III Report 2021

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General Information

Introduction

Basis of disclosure

The information in this report relates to ING Groep N.V. and all of its subsidiaries (hereafter ING Group). There are no differences between the scope of consolidation for prudential purposes and the scope of consolidation for accounting purposes as reported in the annual accounts in Note 1 'Basis of preparation and accounting policies', Note 48 'Principal subsidiaries' and Note 49 'Structured entities'.

Governance

The Pillar III disclosures have been subject to ING Group's internal control framework, to ensure compliance with laws and regulations. The Disclosure Committee (DisCom), responsible for all ING Group disclosures, assesses the accuracy of the content before reporting their conclusions to the Audit Committee (AC) for review and submission to the Supervisory Board for final approval. This report has not been audited by ING Group's external auditor.

Regulatory framework

In 2010, the Basel III framework was adopted and consequently translated in the European Union (EU) into regulation through the Capital Requirement Regulation (CRR) and Capital Requirement Directive IV (CRD IV). The CRR is binding for all EU member states and became effective per 1 January 2014.

On 16 April 2019, the European Parliament (EP) approved the final agreement on a package of reforms proposed by EC to strengthen the resilience and resolvability of European banks. The package of reforms comprises certain amendments to CRR and CRD IV commonly referred to as 'CRR II' and CRD V'. On 27 June 2019, the Banking Reform Package came into force, subject to various transitional and staged timetables.

The Basel Committee's framework is based on three pillars. Pillar I on minimum capital requirements, which defines the rules for the calculation of credit, market and operational risk. Pillar II is about Supervisory Review and Evaluation Process (SREP), which requires banks to undertake an internal capital adequacy assessment process (ICAAP) to identify and assess risks, also those not included in Pillar I, and maintain sufficient capital to face these risks, and an internal liquidity adequacy assessment process (ILAAP) focusing on maintaining sufficient liquidity (and funding) risk management. Pillar III is on market discipline and transparency, requiring disclosures to allow investors and other market participants to understand the risk profiles of individual banks.

ING Group prepares the Pillar III report in accordance with the CRR II and CRD V. ING Group's 'Additional Pillar III Report' contains disclosures for regulatory capital requirements, credit risk, including counterparty credit risk, securitisations and other non-credit obligation assets (ONCOA), market risk, liquidity risk, non-financial risk and compliance risk. Furthermore, the report discusses regulatory exposures and risk weighted assets. In order to comply to the CRR II disclosure requirements, ING is using in this report the EBA templates published in the final ITS on public disclosures (Pillar III) in June 2020. For qualitative information (templates), this is already part of the Annual Report. Therefore, this report should be read in conjunction with the Risk Management section of the Annual Report.

The Pillar III report is published on an annual basis. However, some capital requirements as laid down in Article 438 of the CRR as well as information on risk exposure or other items prone to rapid change are disclosed on a quarterly or semi-annual basis. Some subsidiaries publish information on capital and solvency on their websites or annual reports pursuant to local regulatory requirements.

Comparative figures

To give insight into movements during the year, we provide comparative figures for the previous year and analytical review of variances. Table name references and row numbering in tables identify those prescribed in the relevant EBA guidelines where applicable and where there is a value.

Where disclosures have been enhanced, or are new, we do not generally restate or provide prior year comparatives. Wherever specific rows and columns in the tables prescribed by the EBA are not applicable or immaterial to our activities, we omit them and follow the same approach for comparative disclosures.

Management attestation

Throughout the year, and to date, ING has operated a framework of disclosure controls and procedures to support the appropriateness of the Pillar 3 disclosures. In line with the ITS and the mapping tool as provided by EBA, the templates in this report have been aligned to other supervisory reporting and reconciliation were executed against regulatory reporting to ECB such as Corep, Finrep and TLAC. The Disclosure Committee is responsible for examining the reports and disclosures to ensure that they have been subject to adequate verification and comply with applicable standards and legislation.

Disclosure requirements changes in 2021

The following EBA final draft ITS have already been applied into our disclosures.

Final draft ITS on institutions' public disclosures of the information referred to in Titles II and III of Part Eight of Regulation (EU) No 575/2013

In June 2020, the EBA published the final draft ITS on public disclosures by institutions that implements changes introduced in the revised Capital Requirements Regulation (CRR II). The publication of the ITS is a major step forward towards promoting market discipline through enhanced and comparable public disclosures for stakeholders, and towards keeping the reporting requirements in line with the evolving needs for Supervisory Authorities' risk assessments.

The disclosure ITS optimise the Pillar III policy framework for credit institutions by providing a single overarching package that brings together all previous pieces of regulation and incorporates all prudential disclosures, thus facilitating implementation by institutions and improving clarity for users of such information. The ITS implement the disclosures in a way to ensure that market participants have sufficient and comparable information to assess the risk profiles of institutions, in line with the Basel Committee's Pillar 3 standards and with the increased standardisation of institutions' public disclosures. This reinforces the ultimate objective of market discipline. The CRR II definitions for 'small and less complex institutions' and 'large institutions' support proportionality of Pillar III disclosures. In addition, the ITS include thresholds to trigger additional disclosures for large banks based on their risk profiles. The ITS on disclosure have been developed in accordance with the mandate included in Article 434a of Regulation (EU) N0 575/2013.

Final draft ITS on Pillar 3 disclosure of institutions' exposures to interest rate risk on positions not held in the trading book (IRRBB)

In November 2021, the EBA published its final draft ITS on Pillar 3 disclosure of institutions' exposures to interest rate risk on positions not held in the trading book (IRRBB). The final draft ITS put forward comparable disclosures that will help stakeholders assess institutions' IRRBB risk management framework as well as the sensitivity of institutions' economic value of equity and net interest income to changes in interest rates. The standards will amend the comprehensive ITS on institutions' public disclosures, in line with the strategic objective of developing a single and comprehensive Pillar 3 package that should facilitate implementation by institutions and further promote market discipline.

The ITS put forward templates for the disclosure of information on institutions' IRRBB risk management objective and policy, institutions' internal assumptions for the calculation of their IRRBB exposure values, and the impact of changes in interest rates on institutions' economic value of equity and net interest income, with the objective to implement the disclosure requirements of Article 448 of the CRR.

In addition, given the ongoing EBA work on the policy framework for IRRBB, the standards also include transitional provisions that should facilitate institutions' disclosures while the policy framework is being finalised.
These disclosure requirements apply to large institutions and to other institutions except those that are not listed, in accordance with the provisions of Articles 433a and 433c of the CRR.

Capital requirements

Economic and Regulatory Capital

Economic Capital (EC) and Regulatory Capital (RC) are the main sources of capital allocation within ING. Both of these capital metrics are used to determine the amount of capital that a transaction or business unit requires to support the economic and regulatory-based risks it faces. The concept of EC differs from RC in the sense that RC is the mandatory amount of capital that is defined under Pillar I while EC is the best estimate of Pillar II capital that ING uses internally to manage its own risk. EC is a non-accounting measure that is inherently subject to dynamic changes and updated as a result of ING's portfolio mix and general market developments. ING continuously recalibrates the underlying assumptions behind its EC model, which may have an impact on the values of EC going forward. ING has started in 2019 with the implementation of a new EC Framework, for which the key design principles were adopted in November 2018. These design principles as well as an increased role of EC in business planning and decision making is currently gradually implemented.

EC is defined as the amount of capital that a transaction or business unit requires in order to support the economic risks it takes. EC focuses on the bank activities on an ING Bank consolidated level only and is therefore available per that scope. In general, EC is measured as the unexpected loss above the expected loss at a given confidence level. The EC calculation is used as part of the CRR II/CRD V Pillar II Internal Capital Adequacy Assessment Process (ICAAP) and is subject to the Supervisory Review and Evaluation Process (SREP) that is performed regularly by the supervisor.

The following fundamental principles and definitions have been established for the model:

- ING Bank uses a one-sided confidence level of 99.90% and a one-year time horizon to calculate EC;
- It is assumed that all currently known measurable sources of risk are included;
- The best estimate risk assumptions are as objective as possible and to the extent possible based on statistical analysis;
- The EC calculations reflect known embedded options and the influence of customer behaviour in banking products;
- The EC calculations are on a before tax basis and do not consider the effect of regulatory requirements on capital levels; and
- The framework does not include any franchise value of the business, discretionary management intervention or future business volumes and margins.

Capital Adequacy

The rules for required Regulatory Capital or Capital adequacy are defined by European Union regulation and directives.

The rules express the regulators' and legislators' opinion on how much capital a bank and other regulated institutions must retain in relation to the size and the type of risks it is taking, expressed in the form of Risk-Weighted Assets. The most significant component of the capital base is the shareholders' equity. In addition to equity, the institution may issue certain liabilities such as Tier 1 and Tier 2 instruments which can be included in the capital base. The legal minimum requirement (excluding buffers) stipulates that the capital base must correspond to at least 8% of the Risk-Weighted Assets (RWA).

The table below presents an overview of the Minimum capital requirements and the RWA at year-end 2021 per risk type and method of calculation. The largest part of the RWA is related to Credit risk (excluding counterparty credit risk) (77%), primarily to the portfolio with calculations based on the Advanced Internal Ratings Based (AIRB) approach. More information on credit RWA is given in the chapter "Credit risk".

EU OV1: Regulatory capital requirements

	RWA amounts		Minimum capital requirements	
	2021	2020	2021	2020
Credit risk (excluding CCR)	**240,627**	**233,408**	**19,250**	**18,673**
Of which the standardised approach	27,663	26,865	2,213	2,149
Of which the Foundation IRB (F-IRB) approach	30,050	15,025	2,404	1,202
Of which equities under the simple riskweighted approach	2,745	1,173	220	94
Of which the Advanced IRB (A-IRB) approach	180,169	190,345	14,413	15,228
Counterparty credit risk - CCR	**12,504**	**11,056**	**1,000**	**884**
Of which the standardised approach	10,005	10,325	800	826
Of which exposures to a CCP	298	152	24	12
Of which credit valuation adjustment - CVA	584	579	47	46
Of which other CCR	1,616		129	
Settlement risk	**15**	**450**	**1**	**36**
Securitisation exposures in the non-trading book (after the cap)	**2,341**	**1,903**	**187**	**152**
Of which SEC-IRBA approach	421	510	34	41
Of which SEC-ERBA (including IAA)	800	724	64	58
Of which SEC-SA approach	1,120	669	90	53
Position, foreign exchange and commodities risks (Market risk)	**8,835**	**8,747**	**707**	**700**
Of which the standardised approach	6	2	0	0
Of which IMA	8,829	8,746	706	700
Operational risk	**35,550**	**37,785**	**2,844**	**3,023**
Of which advanced measurement approach	35,550	37,785	2,844	3,023
Amounts below the thresholds for deduction (subject to 250% risk weight)	**9,392**	**9,162**	**751**	**733**
Other Risk Exposures	**3,800**	**3,813**	**304**	**305**
Total	**313,064**	**306,324**	**25,045**	**24,506**

The amount of RWA increased in 2021 by EUR 6.7 billion to EUR 313.1 billion. This increase is mainly triggered by a EUR 8.7 billion increase in Credit RWA, partially offset by a EUR 2.2 billion decrease in Operational RWA. For more information on Credit RWA see the credit risk chapter and for Market IMA see market risk chapter.

Key Metrics

As of 1 January 2014, the CRR/CRD IV capital rules entered into force. According to CRR/CRD IV capital adequacy rules, the Common Equity Tier 1 ratio has to be at least 4.5%, the Tier 1 ratio at least 6% and the total capital ratio at least 8% of all risk-weighted assets. This was not changed in the CRR/CRD.

ING Group's Common Equity Tier 1 ratio at year-end 2021 of 15.89% is well in excess of the 10.51% Common Equity Tier 1 MDA level for ING Group in 2021. This requirement is the sum of a 4.5% Pillar 1 requirement, a 0.98% Pillar 2 requirement, a 2.5% Capital Conservation Buffer, a 2.5% O-SII Buffer that is applied to systemically important Dutch banks by the Dutch Central Bank (DNB) as macro-prudential supervisor and 0.03% Countercyclical Buffer (CCyB).

EU KM1 - Key metrics template

	Total 2021 CRR II/CRD V	Total 2020 CRR II/CRD V
Available own funds (amounts)		
Common Equity Tier 1 (CET1) capital	49,760	47,333
Tier 1 capital	56,618	53,024
Total capital	65,801	61,537
Risk-weighted exposure amounts		
Total risk exposure amount	313,064	306,324
Capital ratios (as a percentage of risk-weighted exposure amount)		
Common Equity Tier 1 ratio (%)	15.89%	15.45%
Tier 1 ratio (%)	18.09%	17.31%
Total capital ratio (%)	21.02%	20.09%
Additional own funds requirements to address risks other than the risk of excessive leverage (as a percentage of risk-weighted exposure amount)		
Additional own funds requirements to address risks other than the risk of excessive leverage (%)	1.75%	1.75%
of which: to be made up of CET1 capital (percentage points)	0.98%	0.98%
of which: to be made up of Tier 1 capital (percentage points)	1.31%	1.31%
Total SREP own funds requirements (%)	9.75%	9.75%
Combined buffer and overall capital requirement (as a percentage of risk-weighted exposure amount)		
Capital conservation buffer (%)	2.50%	2.50%
Conservation buffer due to macro-prudential or systemic risk identified at the level of a Member State (%)		
Institution specific countercyclical capital buffer (%)	0.03%	0.02%
Systemic risk buffer (%)		
Global Systemically Important Institution buffer (%)	1.00%	1.00%
Other Systemically Important Institution buffer (%)	2.50%	2.50%
Combined buffer requirement (%)	5.03%	5.02%
Overall capital requirements (%)	14.78%	14.77%
CET1 available after meeting the total SREP own funds requirements	16,846	15,154
Leverage ratio		
Total exposure measure	952,931	1,101,771
Leverage ratio (%)	5.94%	4.81%
Additional own funds requirements to address the risk of excessive leverage (as a percentage of total exposure measure)		
Additional own funds requirements to address the risk of excessive leverage (%)		
of which: to be made up of CET1 capital (percentage points)		
Total SREP leverage ratio requirements (%)[1]	3.17%	
Leverage ratio buffer and overall leverage ratio requirement (as a percentage of total exposure measure)		
Leverage ratio buffer requirement (%)		
Overall leverage ratio requirement (%)	3.17%	
Liquidity Coverage Ratio		
Total high-quality liquid assets (HQLA) (Weighted value -average)	165,415	149,061
Cash outflows - Total weighted value	206,582	195,823
Cash inflows - Total weighted value	87,514	87,129
Total net cash outflows (adjusted value)	119,068	108,693
Liquidity coverage ratio (%)	139%	137%
Net Stable Funding Ratio		
Total available stable funding	710,847	
Total required stable funding	512,444	
NSFR ratio (%)	137%	

1 3.17% is the recalibrated Leverage Ratio minimum requirement by applying the formula stipulated in the Article 429a (7) of the CRR. The recalibrated Leverage Ratio minimum requirement will remain applicable for the duration of the relief measure, until the end of 1Q 2022.

EU KM2: key metrics - MREL and, where applicable, G-SII Requirement for own funds and eligible liabilities at the level of each resolution group		2021 Minimum requirement for own funds and eligible liabilities (MREL)	2021 G-SII Requirement for own funds and eligible liabilities (TLAC)
Own funds and eligible liabilities, ratios and components			
1	Own funds and eligible liabilities		95,821
EU-1a	Of which own funds and subordinated liabilities		
2	Total risk exposure amount of the resolution group (TREA)		313,064
3	Own funds and eligible liabilities as a percentage of TREA (row1/row2)		30.61%
EU-3a	Of which own funds and subordinated liabilities		
4	Total exposure measure of the resolution group		952,931
5	Own funds and eligible liabilities as percentage of the total exposure measure		10.06%
EU-5a	Of which own funds or subordinated liabilities		
6a	Pro-memo item - Aggregate amount of permitted non-subordinated eligible liabilities instruments If the subordination discretion as per Article 72b(3) CRR is applied (max 3.5% exemption)		
6b	Does the subordination exemption in Article 72(b)(4) of the CRR apply? (5% exemption)		No

Countercyclical buffer

As reaction to the Covid-19 pandemic, many regulators had reduced their CCyB requirement in 2020 in an attempt to avoid a related credit crunch. As the pandemic prolonged in 2021, they kept their CCyB low or at zero, except for Luxembourg, that raised it from 0.25% to 0.5% at the beginning of the year. As consequence, ING's countercyclical buffer requirement rose to 0.029% at the end of 2021 compared to 0.021% at the end of 2020. See below for an overview of the exposure distribution for the most relevant countries (having a share larger than 1% and/or having in place or announced a countercyclical buffer rate larger than 0%).

Countercyclical buffer

2021	General credit exposures		Relevant credit exposures – Market risk	Securitisation exposures	Total exposure value	Own funds requirements			Total	Risk-weighted exposure amounts	Own funds requirements weights	Counter-cyclical capital buffer rate
	Exposure value under the standardised approach	Exposure value under the IRB approach	Value of trading book exposures for internal models	Exposure value for non-trading book		Relevant credit risk exposures - Credit risk	Relevant credit exposures – Market risk	Relevant credit exposures – Securitisation positions in the non-trading book				
Netherlands	2,686	199,936		1,132	203,754	2,868	1	15	2,884	**36,056**	16.836%	
Belgium	1,338	91,312		246	92,897	2,518	1	10	2,528	**31,602**	14.757%	
Germany	515	120,710		3,206	124,431	2,427	1	38	2,465	**30,818**	14.390%	
Poland	17,716	16,207			33,924	1,432			1,432	**17,897**	8.357%	
United States	23	98,438		2,801	101,262	1,356	1	42	1,398	**17,479**	8.162%	
Spain	3,658	27,435			31,093	725			726	**9,071**	4.236%	
United Kingdom	86	20,690		407	21,182	641	1	9	651	**8,141**	3.802%	
Australia	3,112	46,862		146	50,120	532		2	534	**6,671**	3.115%	
France	3,047	25,129		1,052	29,227	515	1	11	526	**6,575**	3.070%	
Luxembourg	212	19,389	6	4,049	23,656	457	1	62	520	**6,505**	3.038%	0.500%
Italy	1,358	13,461	5	84	14,908	407		1	409	**5,108**	2.385%	
Turkey	3,124	1,716	14		4,854	303	2		305	**3,816**	1.782%	
Romania	4,428	2,550			6,978	304			304	**3,800**	1.774%	
Switzerland	9	20,205		380	20,593	223		5	228	**2,853**	1.332%	
Russian Federation		3,626	20	406	4,051	168	1	7	176	**2,197**	1.026%	
Hong Kong	58	6,969			7,027	117	1		118	**1,469**	0.686%	1.000%
Czechia	8	1,655			1,664	54			54	**677**	0.316%	0.500%
Sweden	18	2,718	11		2,746	50	1		51	**635**	0.296%	
Norway		2,754			2,754	43			43	**543**	0.254%	1.000%
Slovakia		913			914	43			43	**533**	0.249%	1.000%
Denmark	6	1,893		86	1,985	19		2	21	**266**	0.124%	
Bulgaria		411	3		413	18			18	**221**	0.103%	0.500%
Iceland		96			96	5			5	**57**	0.027%	
Estonia		33			33	2			2	**20**	0.009%	
Other countries	1,623	99,671	80	1,039	102,413	1,674	7	11	1,692	**21,149**	9.876%	
Total	**43,024**	**824,779**	**139**	**15,033**	**882,976**	**16,901**	**18**	**214**	**17,133**	**214,158**	**100.000%**	**0.029%**

Countercyclical buffer

2020	General credit exposures		Trading book exposures	Securitisation exposures		Own funds requirements					
	Exposure value for SA	Exposure value for IRB	Value of trading book exposures for internal models	Exposure value for SA	Exposure value for IRB	of which: General credit exposures	of which: Trading book exposures	of which: Securitisa-tion exposures	Total	Own funds requirements weights	Counter-cyclical capital buffer rate
Netherlands	2,907	195,077	96	658		3,066	1	12	3,079	17.425%	
Belgium	1,104	90,351		220		2,908	1	3	2,912	16.482%	
Germany	389	110,399		314	2,194	2,396		29	2,425	13.726%	
United States	1	93,550		3,068		1,328	1	47	1,376	7.788%	
Poland	14,936	14,030	0			1,220			1,220	6.907%	
Spain	3,622	24,205		1		700			700	3.963%	
United Kingdom	3,205	44,538		5		651			652	3.687%	
Australia	41	17,451		403		593	1	6	600	3.397%	
France	2,602	21,578		627		527	1	9	538	3.042%	
Luxembourg	201	16,101	12	2,499		479	1	39	519	2.937%	0.250%
Italy	1,548	13,906		81		443		1	445	2.516%	
Turkey	4,194	1,889	20			361	2		362	2.051%	
Romania	3,879	2,232				273			273	1.548%	
Switzerland	20	17,691		134		235		2	237	1.342%	
Russian Federation	57	7,598				123			123	0.697%	1.000%
Hong Kong		2,843				44			44	0.250%	1.000%
Czechia	4	1,298	3			39			39	0.222%	0.500%
Slovakia		844				35			35	0.195%	1.000%
Norway		570				27			27	0.152%	0.500%
Other countries	1,269	99,219	32	846	76	2,032	5	25	2,062	11.672%	
Total	**39,979**	**775,369**	**164**	**8,857**	**2,269**	**17,481**	**16**	**173**	**17,670**	**100.000%**	**0.021%**

Amount of institution-specific CCyB

	2021	2020
Total risk exposure amount	**313,064**	**306,324**
Institution specific countercyclical capital buffer rate	0.029%	0.021%
Institution specific countercyclical capital buffer requirement	91.3	63.2

Own funds

The CRR requires ING Group to disclose information on own funds in a specific format that was provided in the EBA Implementation Technical Standards. The EBA templates Annex I, II and Annex VI are disclosed as part of the "Additional Pillar 3 disclosures" excel file on the corporate website ing.com. https://www.ing.com/Investor-relations/Financial-performance/Annual-reports.htm

EU CC1 - Composition of regulatory own funds

		2021	
		Amounts	Source based on reference numbers/letters of the balance sheet under the regulatory scope of consolidation
Common Equity Tier 1 (CET1) capital: instruments and reserves			
1	Capital instruments and the related share premium accounts	17,144	CC2 - 26
	of which: Ordinary Shares	17,144	
2	Retained earnings	32,733	CC2 - 28
3	Accumulated other comprehensive income (and other reserves)	878	
5	Minority interests (amount allowed in consolidated CET1)	189	
EU-5a	Independently reviewed interim profits net of any foreseeable charge or dividend	3,208	
6	**Common Equity Tier 1 (CET1) capital before regulatory adjustments**	54,152	
Common Equity Tier 1 (CET1) capital: regulatory adjustments			
7	Additional value adjustments (negative amount)	-467	
8	Intangible assets (net of related tax liability) (negative amount)	-815	CC2 - 9
9	Not applicable		
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) CRR are met) (negative amount)	-257	CC2 - 11
11	Fair value reserves related to gains or losses on cash flow hedges of financial instruments that are not valued at fair value	153	
12	Negative amounts resulting from the calculation of expected loss amounts	-143	
14	Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	80	
15	Defined-benefit pension fund assets (negative amount)	-603	
16	Direct, indirect and synthetic holdings by an institution of own CET1 instruments (negative amount)	-1,612	
27a	Other regulatory adjustments	-728	
28	**Total regulatory adjustments to Common Equity Tier 1 (CET1)**	-4,392	
29	**Common Equity Tier 1 (CET1) capital**	49,760	
Additional Tier 1 (AT1) capital: instruments			
30	Capital instruments and the related share premium accounts	6,808	CC2 - 24
31	of which: classified as equity under applicable accounting standards		
32	of which: classified as liabilities under applicable accounting standards	6,808	
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	51	
36	**Additional Tier 1 (AT1) capital before regulatory adjustments**	6,860	
Additional Tier 1 (AT1) capital: regulatory adjustments			
42a	Other regulatory adjustments to AT1 capital	-1	
43	**Total regulatory adjustments to Additional Tier 1 (AT1) capital**	-1	
44	**Additional Tier 1 (AT1) capital**	6,858	
45	**Tier 1 capital (T1 = CET1 + AT1)**	56,618	
Tier 2 (T2) capital: instruments			
46	Capital instruments and the related share premium accounts	8,940	CC2 - 24
47	Amount of qualifying items referred to in Article 484(5) CRR and the related share premium accounts subject to phase out from T2 as described in Article 486(4) CRR	153	
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	19	
51	**Tier 2 (T2) capital before regulatory adjustments**	9,112	
Tier 2 (T2) capital: regulatory adjustments			
EU-56b	Other regulatory adjustments to T2 capital	70	
57	**Total regulatory adjustments to Tier 2 (T2) capital**	70	
58	**Tier 2 (T2) capital**	9,183	
59	**Total capital (TC = T1 + T2)**	65,801	
60	**Total Risk exposure amount**	313,064	
Capital ratios and requirements including buffers			

61	Common Equity Tier 1 capital	15.89%
62	Tier 1 capital	18.09%
63	Total capital	21.02%
64	Institution CET1 overall capital requirements	10.51%
65	of which: capital conservation buffer requirement	2.50%
66	of which: countercyclical capital buffer requirement	0.03%
EU-67a	of which: Global Systemically Important Institution (G-SII) or Other Systemically Important Institution (O-SII) buffer requirement	2.50%
EU-67b	of which: additional own funds requirements to address the risks other than the risk of excessive leverage	0.98%
68	Common Equity Tier 1 capital (as a percentage of risk exposure amount) available after meeting the minimum capital requirements	5.38%
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)	157
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)	3,125
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) CRR are met)	631
Applicable caps on the inclusion of provisions in Tier 2		
77	Cap on inclusion of credit risk adjustments in T2 under standardised approach	351
79	Cap for inclusion of credit risk adjustments in T2 under internal ratings-based approach	1,402
Capital instruments subject to phase-out arrangements (only applicable between		
84	Current cap on T2 instruments subject to phase out arrangements	744

EU CC2 - reconciliation of regulatory own funds to balance sheet in the audited financial statements

		2021	
		Balance sheet as in published financial statements	**Reference**
		31 December	
Assets - Breakdown by asset classes according to the balance sheet in the published financial statements			
1	Cash and balances with central banks	106,520	
2	Loans and advances to banks	23,592	
3	Financial assets at fair value through profit or loss	101,956	
4	Financial assets at fair value through other comprehensive income	30,635	
5	Securities at amortised cost	48,319	
6	Loans and advances to customers	627,508	
7	Investments in associates and joint ventures	1,587	
8	Property and equipment	2,515	
9	Intangible assets	1,156	CC1 -8
10	Current tax assets	549	
11	Deferred tax assets	957	CC1 - 10
12	Other assets	5,996	
13	Assets held for sale		
14	**Total assets**	**951,290**	
Liabilities - Breakdown by liability classes according to the balance sheet in the published financial statements			
15	Deposits from banks	85,092	
16	Customer deposits	617,296	
17	Financial liabilities at fair value through profit or loss	71,041	
18	Current tax liabilities	271	
19	Deferred tax liabilities	603	
20	Provisions	995	
21	Other liabilities	12,839	

22 Liabilities held for sale		
23 Debt securities in issue	91,784	
24 Subordinated loans	16,715	CC1 - 30, 46
25 Total liabilities	**896,635**	
Shareholders' Equity		
26 Share capital and share premium	17,144	CC1 - 1
27 Other reserves	–735	
28 Retained earnings (incl. profit for the period)	37,509	CC1 - 2
29 Shareholders' equity (parent)	53,919	
30 Non-controlling interests	736	
31 Total shareholders' equity	**54,654**	

Transitional arrangements for IFRS 9 or analogous ECLs

In January 2018, the EBA published its final guidelines on disclosure requirements of IFRS 9 or analogous expected credit losses (ECLs) transitional arrangements. The guidelines specify a uniform disclosure template institutions shall use when disclosing the information on own funds, capital and leverage ratios, with and without the application of transitional arrangements for IFRS 9 or ECLs. These guidelines have been drafted in accordance with article 473a, paragraph 10 of the CRR, which mandates the EBA to issue guidelines on the disclosure requirements laid down in the same article.

In 2018, ING Group initially decided not to apply the CRR transitional arrangements for mitigating the impact of the introduction of IFRS 9 impairment on own funds. Therefore, the capital and leverage ratios published as from reporting period 1 January 2018 fully reflected the impact of impairment requirements resulting from IFRS 9.

On 26 June 2020, the Regulation (EU) 2020/873 of the European Parliament and of the Council of 24 June 2020 amending Regulations (EU) No 575/2013 and (EU) 2019/876 (CRR II) as regards certain adjustments in response to the Covid-19 pandemic (CRR 'quick fix') was published. Part of that was the possibility to extend by 2 years the transitional arrangements for mitigating the impact on own funds of the introduction of IFRS 9 (Article 473a (8) of Regulation (EU) No 575/2013). During 2020, ING obtained supervisory permission to apply the dynamic component of transitional arrangements pursuant the CRR 'quick fix' (phasing in impact of increases in IFRS 9 Stage 1 and 2 provisions that have arisen since 1 January 2020). The next table illustrates the own funds, capital and leverage ratios with and without the application of transitional arrangements for IFRS 9 or analogous ECLs.

IFRS 9-FL: Comparison of institutions' own funds and capital and leverage ratios with and without the application of transitional arrangements for IFRS 9 or analogous ECLs

	2021
Available capital (amounts)	
Common Equity Tier 1 (CET1) capital	49,760
Common Equity Tier 1 (CET1) capital as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	49,737
Tier 1 capital	56,618
Tier 1 capital as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	56,595
Total capital	65,801
Total capital as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	65,778
Risk-weighted assets (amounts)	
Total risk-weighted assets	313,064
Total risk-weighted assets as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	313,042
Capital ratios	
Common Equity Tier 1 (as a percentage of risk exposure amount)	15.89%
Common Equity Tier 1 (as a percentage of risk exposure amount) as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	15.89%
Tier 1 (as a percentage of risk exposure amount)	18.09%
Tier 1 (as a percentage of risk exposure amount) as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	18.08%
Total capital (as a percentage of risk exposure amount)	21.02%
Total capital (as a percentage of risk exposure amount) as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	21.01%
Leverage ratio	
Leverage ratio total exposure measure	952,931
Leverage ratio	5.94%
Leverage ratio as if IFRS 9 or analogous ECLs transitional arrangements had not been applied	5.94%

Leverage ratio

The leverage ratio is a CRR/CRD IV measure indicating the level of the Tier 1 Capital compared to the total exposure. Its aim is to assess the risk of excessive leverage of the institution. In line with the regulatory requirements, ING Group will use the specific EBA templates as basis for the presentation of its Leverage ratio. These EBA templates reflect the Leverage Ratio as calculated under the requirements of the CCR/CRD. The Final Draft Implementing Technical Standards (ITS) on disclosure of the leverage ratio have been approved by the European Commission and published in the EU Official Journal early 2016. The official reporting of the Delegated Act Leverage ratio to the ECB has commenced per September 2016.

In 2021, the ECB decided to prolong the temporary exclusion until the end of March 2021 of certain central bank exposures from the leverage ratio in view of the Covid-19 pandemic. As a result, ING's leverage ratio on 31 December 2021 temporarily increased to 5.9% due to the exclusion of €88.2 billion of central bank balances from leverage exposure. Without the exclusion, the leverage ratio would have been 5.4% at 31 December 2021.

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

		2021
		CRR/CRD IV Applicable amounts
1	Total assets as per published financial statements	951,290
4	(Adjustment for temporary exemption of exposures to central banks (if applicable))	–88,175
6	Adjustment for regular-way purchases and sales of financial assets subject to trade date accounting	–1,254
7	Adjustment for eligible cash pooling transactions	371
8	Adjustment for derivative financial instruments	6,163
9	Adjustment for securities financing transactions (SFTs)	5,448
10	Adjustment for off-balance sheet items (ie conversion to credit equivalent amounts of off-balance sheet exposures)	89,308
12	Other adjustments	–10,220
13	**Total exposure measure**	**952,931**

EU LR2 - LRCom: Leverage ratio common disclosure

		2021
		CRR/CRD IV Applicable amounts
On-balance sheet exposures (excluding derivatives and SFTs)		
1	On-balance sheet items (excluding derivatives, SFTs, but including collateral)	878,039
3	(Deductions of receivables assets for cash variation margin provided in derivatives transactions)	–7,603
6	(Asset amounts deducted in determining Tier 1 capital)	–2,052
7	**Total on-balance sheet exposures (excluding derivatives and SFTs)**	**868,384**
Derivative exposures		
8	Replacement cost associated with SA-CCR derivatives transactions (ie net of eligible cash variation margin)	6,008
9	Add-on amounts for potential future exposure associated with SA-CCR derivatives transactions	19,573
EU-9b	Exposure determined under Original Exposure Method	
10	(Exempted CCP leg of client-cleared trade exposures) (SA-CCR)	–11
11	Adjusted effective notional amount of written credit derivatives	9,927
12	(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	–8,034
13	**Total derivatives exposures**	**27,463**
Securities financing transaction exposures		
14	Gross SFT assets (with no recognition of netting), after adjustment for sales accounting transactions	62,886
15	(Netted amounts of cash payables and cash receivables of gross SFT assets)	–11,564
16	Counterparty credit risk exposure for SFT assets	5,448
18	**Total securities financing transaction exposures**	**56,770**
Other off-balance sheet exposures		
19	Off-balance sheet exposures at gross notional amount	252,969
20	(Adjustments for conversion to credit equivalent amounts)	–163,661
22	**Off-balance sheet exposures**	**89,308**
Excluded exposures		
EU-22f	(Excluded guaranteed parts of exposures arising from export credits)	–818
	(Exposures excluded from the total exposure measure in accordance with point (n) of Article 429a(1) CRR)	–88,175
EU-22k	**(Total exempted exposures)**	**–88,994**
Capital and total exposures		
20	Tier 1 capital	56,618
21	**Total leverage ratio exposures (sum of lines 3, 11, 16, 19, EU-19a and EU-19b)**	**952,931**
Leverage ratio		
25	Leverage ratio (%)	5.94%
EU-25	Leverage ratio (excluding the impact of the exemption of public sector investments and promotional loans) (%)	5.94%
25a	Leverage ratio (excluding the impact of any applicable temporary exemption of central bank reserves) (%)	5.44%
26	Regulatory minimum leverage ratio requirement (%)	3.17%
EU-27a	Overall leverage ratio requirement (%)	3.17%
Choice on transitional arrangements and amount of derecognised fiduciary items		
EU-27b	Choice on transitional arrangements for the definition of the capital measure	
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 receivable	77,298
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	51,322
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)	978,907
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)	1,067,082
31	Leverage ratio (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)	0
31a	Leverage ratio (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)	5.31%

TLAC

Following the publication of the CRR II on 28 June 2019, TLAC requirements entered into force. Globally Systemic Important Institutions (G-SIIs), including ING Group, are currently required to hold own funds and eligible liabilities of at least the highest of 16% of RWA or 6% of the Leverage Ratio Exposure Amount (LREA). Per December 2021, the combined buffer requirement (5.03% of RWA) has been added to the RWA-based TLAC requirement as CRDV has been incorporated into Dutch law, resulting in a TLAC-MDA level of 21.03% of RWA. From January 2022, these requirements will increase to the highest of 18% of RWA (23.23% TLAC-MDA with a combined buffer requirement of 5.23%) or 6.75% of TLAC Leverage. Per 31 December 2021, the TLAC-RWA based requirement is EUR 65.8 million (2020: EUR 66.1 million).

Besides, the TLAC templates below, ING has published the template “EU CCA: Main features of regulatory own funds instruments and eligible instruments” to complement the TLAC templates below. The template is disclosed as part of the “Additional Pillar 3 disclosures” excel file on the corporate website ing.com. https://www.ing.com/Investor-relations/Financial-performance/Annual-reports.htm

EU TLAC1 - Composition - MREL and, where applicable, the G-SII Requirement for own funds and eligible

		2021	2021
		G-SII Requirement for own funds and eligible liabilities (TLAC)	**Memo item: Amounts eligible for the purposes of MREL, but not TLAC**
Own funds and eligible liabilities and adjustments			
1	Common Equity Tier 1 capital (CET1)	49,760	
2	Additional Tier 1 capital (AT1)	6,858	
6	Tier 2 capital (T2)	9,183	
11	Own funds for the purpose of Articles 92a CRR and 45 BRRD arising from regulatory capital instruments	65,801	
Own funds and eligible liabilities: Non-regulatory capital elements			
12	Eligible liabilities instruments issued directly by the resolution entity that are subordinated to excluded liabilities (not grandfathered)	29,500	
EU12b	Eligible liabilities instruments that are subordinated to excluded liabilities, issued prior to 27 June 2019 (subordinated grandfathered)	119	
EU12c	Tier 2 instruments with a residual maturity of at least one year to the extent they do not qualify as Tier 2 items	467	
17	Eligible liabilities items before adjustments	30,086	
EU-17a	Of which subordinated	30,086	
Own funds and eligible liabilities: Adjustments to non-regulatory capital elements			
18	Own funds and eligible liabilities items before adjustments	95,886	
19	(Deduction of exposures between MPE resolution groups)		
20	(Deduction of investments in other eligible liabilities instruments)	(65)	
22	Own funds and eligible liabilities after adjustments	95,821	
EU-22a	Of which own funds and subordinated		
Risk-weighted exposure amount and leverage exposure measure of the resolution group			
23	Total risk exposure amount adjusted as permitted by article 45h(2) of Directive 2014/59/EU	313,064	
24	Total exposure measure	952,931	
Ratio of own funds and eligible liabilities			
25	Own funds and eligible liabilities (as a percentage of total risk exposure amount)	30.61%	
EU-25a	Of which own funds and subordinated	30.61%	
26	Own funds and eligible liabilities (as a percentage of total exposure measure)	10.06%	
EU-26a	Of which own funds and subordinated	10.06%	
27	CET1 (as a percentage of TREA) available after meeting the resolution group’s requirements	10.41%	
28	Institution-specific combined buffer requirement	5.03%	
29	of which: capital conservation buffer requirement	2.50%	
30	of which: countercyclical buffer requirement	0.03%	
EU-31a	of which: Global Systemically Important Institution (G-SII) or Other Systemically Important Institution (O-SII) buffer	2.50%	

EU TLAC3: creditor ranking - resolution entity

								2021
		insolvency ranking						Sum of 1 to 9
		1	2	3	4	6	9	
		(most junior)					(most senior)	
1	Description of insolvency ranking (free text)	Common equity Tier 1 instruments	Additional Tier 1 instruments	Tier 2 capital instruments	Other subordinated debt that is not additional Tier 1 or Tier 2 capital	Other liabilities	Claims that have a preferential status by law	
2	Total liabilities and own funds	49,760	6,813	8,975	16	34,185	4	99,754
3	o/w excluded liabilities					46	4	50
4	Total liabilities and own funds less excluded liabilities	49,760	6,813	8,975	16	34,139		99,703
5	Subset of row 4 that are own funds and liabilities potentially eligible for meeting [choose as a appropriate: TLAC/ ~~MREL~~]	49,760	6,813	8,975		29,619		95,167
6	o/w residual maturity ≥ 1 year < 2 years					4,507		4,507
7	o/w residual maturity ≥ 2 year < 5 years					8,845		8,845
8	o/w residual maturity ≥ 5 years < 10 years			7,255		15,396		22,651
9	o/w residual maturity ≥ 10 years, but excluding perpetual securities			1,721		871		2,591
10	o/w perpetual securities	49,760	6,813					56,573

Credit Risk

Basis and scope of presentation

In the credit risk section of Pillar III, data included in the tables are related to ING's credit risk resulting from Lending (both on- and off-balance), Money Market activities, Investment Risks, Securities Financing and Derivatives. The Securities Financing and Derivatives portfolios are presented separately in the counterparty credit risk section.

The amounts presented in this section relate to amounts used for credit risk management purposes, which follow ING's internal interpretation of the definitions as prescribed under CRR/CRD IV. Therefore, the numbers can be different from the accounting numbers as reported in the annual accounts under IFRS-EU. An example is the treatment of ONCOA (Other Non-Credit Obligation Assets) items – while the accounting numbers include ONCOA, they are excluded from the credit risk section of Pillar III.

The majority of the tables included in this section are based on gross or net carrying value. The gross carrying value refers to the original exposure pre-credit conversion factors for the on- and off-balance sheet items. The net carrying value corresponds to the original exposure (on- and off-balance) pre-credit conversion factors corrected for allowances, impairments and provisions.

READ is the Regulatory Exposure at Default (READ) and credit risk weighted assets (RWA) under the CRR/CRD IV definitions. READ is the sum of the on-balance and off-balance sheet: Lending, Investment, Money Market and counterparty activities plus an estimated portion of the unused credit facilities extended to the obligor. The amounts associated with Investment and Lending activities are based on the original amount invested less repayments.

The Figures Securities Financing are based on the Financial Collateral Comprehensive Method applying supervisory volatility adjustments. The Derivatives figures are based on the Standardized Approach for Counterparty Credit Risk (SA-CCR). Under SA-CCR the exposure at default (EAD) estimate is based on two components; the current replacement cost (RC) and the potential future exposure (PFE). The RC reflects today's loss amount upon the default of a counterparty. The PFE reflects the future expected increase in loss amount. Both replacement cost and PFE are adjusted based on the underlying collateral and any legal netting or compensation that may be permitted under master agreement arrangements such as International Swaps and Derivatives Association (ISDA) master agreements and Credit Support Annexes (CSAs).

Off-balance sheet exposures include letters of credit and guarantees, which are associated with the Lending risk category and are included under 'credit risk outstanding'. Additionally, off-balance sheet exposures include a portion of the unused limits, which represent the expected value of the outstanding at the theoretical moment of default. These are not counted under 'credit risk outstanding' but they contribute to total exposure and READ.

Investments in a financial sector entity, determined following art. 43 of the CRR, are included in the item "amounts below the thresholds for deduction" of table EU-OV1 "ING Group Regulatory capital requirements" up to the level at which the combined significant investments are equal to 10% of the CET1 capital of ING Group. These exposures are subject to 250% risk weight.

A small part of the equity exposure of ING's portfolio is subject to the simple risk weight method for calculating the regulatory capital.

Credit risk approach

ING applies the Advanced Internal Ratings Based (AIRB) approach on the majority of its significant portfolios that contain credit risk in accordance with the required approvals granted by ECB and various local regulators. The AIRB approach is permitted by the regulator if there are regulatory approved rating models (PD, EAD and LGD) in place and if the (local) management understands and uses these rating models (Basel Use Test) in their credit decision-making processes. However, a small portion of the portfolio remains subject to the Standardised Approach (SA). The majority of SA portfolios at ING relate to subsidiaries where the home regulator does not have a robust AIRB framework or requirement.

Credit risk capital

Regulatory capital is the minimum amount of capital (based on 99.90% confidence level) that ING holds from a regulatory perspective as a cushion to be able to survive large unexpected losses.

RWA comparison
The differences in RWA among banks have been classified by the BIS in 3 categories:

- Risk based drivers that stem from the differences in underlying risk at the exposure/portfolio level and in business models/ strategies including asset class mix;
- Practice-based drivers including approaches to risk management and risk measurement; and
- Regulatory environment such as supervisory practices, implementing laws and regulations including national discretion and accounting standards.

Risk based drivers
ING's portfolio is dominated by secured lending especially in the areas of residential mortgages, leasing and commercial real estate. Secured lending tends to have a much lower LGD, given the collateral involved, which is a key driver of RWA calculations. Therefore the regulatory formula for residential mortgages tends to result in lower RWA, all other factors being equal.

Practice based drivers
ING has a proactive approach to non-performing exposures. Non-performing exposures are recognised early based on unlikely to pay triggers. For non-retail, ING typically classifies default based on a borrower rating and not a facility rating which means that a customer will only have one PD (probability of default) regardless of the type(s) of transactions done with ING. As a consequence, if one facility is in default, usually all facilities of the client are in default. Non-performing clients which were granted forbearance measures have an additional probation period of 1 year starting from the last moment they are classified as forborne, before returning to performing status.

Regulatory environment
ING's primary supervising entity is the ECB, which is supported by many host supervisors. The ECB supervises adherence to regulatory rules: the regulatory framework defined in CRR/CRD, implementing- and regulatory technical standards, European Banking Authority (EBA) guidelines and ECB guidance. Regulations require all 'significant changes' in internal models (PD, LGD and EAD) and policies to be reviewed and approved by the ECB, prior to implementation. Lower level model changes are either pre-notified or post-notified to the ECB.

Comparing capital levels across banks is a challenging exercise because of different risk profiles, differences in risk based drivers, practice based drivers and the regulatory environment (e.g. advanced internal rating based approach or the standardised approach). These factors have a substantial impact on the regulatory capital/RWA of a financial institution. ING continues to work with industry groups and strives to adhere to the latest BIS and EBA recommendations to improve the transparent reporting of the bank's capital calculations.

Economic capital
Economic capital reflects ING's own view on credit risk, which allows it to be used in decision-making processes at (sub) portfolio level. Credit risk and transfer risk capital are calculated for all portfolios which contain credit or transfer risk, including investment portfolios. Economic capital is the minimum amount of capital required to cover unexpected losses within a 99.9% confidence level and a 12 month time horizon. It is used throughout ING in the decision-making process (mainly wholesale banking), in risk adjusted counterparty and portfolio profitability measurement tools (wholesale and retail banking), in investment and divestment decisions, in the country risk framework and in concentration risk management, including risk appetite statements (RAS). Economic capital is calculated using the economic values of rating models (PD, EAD and LGD), in line with regulatory requirements.

An important characteristic of our IT systems and framework is that models are built for several purposes, including economic capital, regulatory capital and loan loss provisioning. These credit risk models are used throughout the organisation which is compliant with the Basel Use Test requirement and facilitates active feedback on the risk parameters by business units.

Credit risk measurement

There are two ways to measure credit risk for regulatory reporting purposes within ING's portfolio, depending on whether the exposure is booked under an ING office that is permitted by the ECB to use the advanced internal rating based (AIRB) approach, or if it falls under the standardised approach (SA).

Standardised approach
The SA applies a fixed risk weight to each asset as dictated by the CRR, and is based on the exposure class to which the exposure is assigned. As such, the SA is the least sophisticated of the regulatory capital methodologies and is not as sensitive as the risk-based approach. Where external rating agency ratings are available, they may be used as a substitute to using the fixed risk weightings assigned by the Financial Supervisory Authorities. Because the underlying obligors are relatively small for exposures treated under SA, with an exception for Governments and central banks, the underlying obligors tend not to have external ratings.

Advanced internal rating based approach
There are five main elements that drive the determination of risk-weighted assets under the AIRB approach.

- **Probability of Default (PD)**: The first is the borrower's probability of default, which measures a client's creditworthiness in terms of likelihood to go into default. It attempts to measure the senior, unsecured standalone creditworthiness of an organisation without consideration of structural elements of the underlying transactions, such as collateral, pricing, or maturity. Each borrower has a rating which translates into a specific PD.
- **Exposure at Default (EAD)**: The second element is the borrower's exposure at default. EAD models are intended to estimate the outstandings amount or obligation at the moment of default. Since the time in which a client may go into default is unknown, and the level of outstandings that may occur on that date is also unknown, ING uses a combination of statistical and hybrid models to estimate the EAD. With the exception of guarantees and letters of credit, the EAD is always equal to or higher than the associated credit risk outstandings, under the assumption that clients tend to absorb liquidity from available credit resources before financial problems become apparent to the clients' creditors. EAD is largely a function of the type of credit facility (overdraft, revolving, term) offered to the borrower.
- **Loss Given Default (LGD)**: The third element is loss given default. LGD models are intended to estimate the amount ING would lose after liquidating collateral pledged in association with a given loan or financial obligation, or alternatively, from liquidating the company as a whole as part of a workout process. LGD models are based on cover types, estimated recovery rates given orderly liquidation, and (in)direct cost of liquidation.
- **Maturity (M)**: The fourth element is the time to the maturity of the underlying financial obligation. Regulatory requirements (CRR/CRDIV) floor the maturity element at one year and cap it at five years.
- **Exposure Class**: The fifth element is the exposure class (a regulatory prescribed grouping of a common obligor type or product type) which is a driver for the correlation factor. To calculate risk-weighted assets the default correlation between a transaction and all other transactions in the portfolio is taken into account.

The expected loss (EL) provides a measure of the value of the credit losses that ING may reasonably expect to incur on its portfolio. In its basic form, the expected loss can be represented as:

EL = PD * EAD * LGD

Credit risk tools

Exposure classes

The BCBS has developed the concept of 'Exposure Classes', which has been transposed into CRR/CRDIV. These are essentially groupings of credit risks associated with a common client type, product type and/or cover type. For the AIRB Approach, most of the exposure classes have subcategories. ING has applied the following definitions to determine Exposure Classes:

- Sovereigns include Sovereign Government entities, Central Banks and recognised Local / Regional Authorities as well as Supranational Organisations;
- Institutions include Commercial Banks, non-Bank Financial Institutions, such as Funds and Fund Managers, and Insurance Companies, as well as local and regional government entities not classified as governments;

- Corporates includes all legal entities, that are not considered to be Governments, Institutions or Retail Other;
- Retail includes the following classes:
  - Retail – Secured by immovable property non-SME (hereafter residential mortgages) includes all retail loans which are covered by residential properties;
  - Retail - Secured by immovable property SME (included in tables with Other Retail) includes all retail loans which are covered by commercial properties; and
- Other Retail includes all other credit obligations related to Retail SMEs (such as partnerships and one-man businesses) and private individuals (such as consumer loans, car loans and credit cards). Under these exposure class definitions, it is possible for a private individual to have exposure classified as both residential mortgages and retail other.
- Securitisations include securitisation programs for which ING acts as an investor, sponsor or originator.

Models used for exposure classes

ING has developed PD, EAD and LGD models for Wholesale Banking and Retail Banking portfolios. These models are subject to Credit and Trading Risk Committee (CTRC) approval and changes which significantly impact the results require approval from the regulator before implementation. By nature, the above described exposure classes have different, specific characteristics. To capture these specific characteristics and to have suitable valuations and analyses in place, Model Development is continuously updating and developing models within each exposure class.

ING master scale

Internal rating grade and corresponding PD and external rating equivalent

Internal rating grade		PD range for each grade		External Rating Equivalent
Performing				
Investment grade	1	0.00 - 0.01%		AAA
	2	0.01 - 0.03%		AA+
	3	0.03 - 0.04%		AA
	4	0.04 - 0.05%		AA-
	5	0.05 - 0.06%		A+
	6	0.06 - 0.08%		A
	7	0.08 - 0.11%		A-
	8	0.11 - 0.17%		BBB+
	9	0.17 - 0.26%		BBB
	10	0.26 - 0.37%		BBB-
Non-investment grade	11	0.37 - 0.58%		BB+
	12	0.58 - 1.00%		BB
	13	1.00 - 1.77%		BB-
	14	1.77 - 3.23%		B+
	15	3.23 - 6.05%		B
	16	6.05 - 11.67%		B-
	17	11.67 - 20.20%		CCC
Sub-standard grade	18	20.20 - 29.58%		CC
	19	>29.58%-100%		C
Non-performing				
Non-performing grade	20		1	Default
	21		1	Default
	22		1	Default

AIRB models per exposure class

In the table below, the number of significant PD, EAD and LGD models per asset class are shown. Additionally a description of the model and methodology are provided per exposure class. The asset classes presented in this table do not align with the EBA Exposure classes as the scope has been redefined to better fit the scope of the model. SME exposure, for example, can be part of either corporate exposures or other retail depending on the size of the SME.

AIRB models and methodology

	Model Type	Number of significant models	Model description and methodology	Number of years of data
Government related entities	PD	1	The government related entities PD model is expert based and assigns ratings based on stand-alone credit fundamentals as well as degree of government support.	>7 years
	LGD	1	The LGD model for Government related entities is a secured/unsecured recovery model built on assessment of stand-alone fundamentals as well as geography.	>7 years
	EAD	1	The Low Default EAD model is a hybrid model that pools default information from multiple low default portfolios, including government related entities.	>7 years
Financial institutions	PD	3	The main PD model applied is Bank Commercial based upon financial, qualitative and country information. Other PD models for different types of financial institutions are built using a similar framework, but are more specialised for the specific characteristics of the financial institution.	>7 years
	LGD	1	This LGD model was developed based on expert judgement, supported by limited internal and external data. The developed LGD model is based on ultimate recovery rates.	>7 years
	EAD	1	The Low Default EAD model is a hybrid model used that pools default information from multiple low default portfolios, including financial institutions.	>7 years
Corporates - Specialized lending	PD	3	Expert based scorecards Models predict a rating for Commercial Property Finance, Project Finance, Trade and Commodity Finance.	>7 years
	LGD	3	Hybrid LGD Models predict loss given default for Commercial Property Finance, Project Finance, Trade and Commodity Finance.	>7 years
	EAD	1	There is a dedicated EAD model for commercial property finance due to the specificities of this portfolio.	>7 years
Large Corporates	PD	1	The Corporate Large model is a global hybrid model build on 13 years of data, including balance sheet and qualitative information as well as country risk and parent influence.	>7 years
	LGD	1	Loss Given Default for Large corporates are predicted by a dedicated hybrid LGD model using both no loss rates as well as secured/unsecured recovery rates.	>7 years
	EAD	1	The Low Default EAD model is a hybrid model used that pools default information from multiple low default portfolios, including large corporates.	>7 years
SME	PD	6	The SME PD models are estimated statistically and directly predict a PD. Most of these models are developed locally to reflect regional/jurisdiction circumstances.	>7 years
	LGD	6	Local statistical models or hybrid models use various data inputs on cure behaviour as well as cost and recovery.	>7 years
	EAD	6	Local statistical models that use various data inputs, including product type and geography.	>7 years
Secured by residential mortgages	PD	71	The PD mortgages models are all developed statistically and include borrower specific information, payment behaviour and product related information. These are statistical models that directly predict a PD.	>5 years[2]
	LGD	7	Local statistical models or hybrid models use various data inputs on cure behaviour as well as cost and recovery	>7 years
	EAD	7	Local statistical models that use various data inputs, including product type and geography.	>7 years
Private Individuals	PD	41	The PD models for private individuals are all developed statistically and include borrower specific information, payment behaviour and product related information. These are statistical models that directly predict a PD.	>5 years[2]
	LGD	4	Local statistical models use various data inputs on cure behaviour as well as cost and recovery.	>7 years
	EAD	4	Local statistical models that use various data inputs, including product type and geography.	>7 years
Other[1]	Other		(Covered Bonds, Structured assets)	

1 Belgian PD models provide a rating at a customer level, covering both secured and unsecured loans.

2 For retail PD modelling a minimum of 5 years is allowed based on ING's Modelling Standards, which are compliant with regulatory requirements.

Credit quality

This section focusses on non-performing loans, which are loans where there is a reasonable probability that ING may encounter a loss, unless ING intervenes with specific and significant actions. In other words, in this category an account or portfolio requires a more intensified approach, which may include renegotiation of terms and conditions and/or business/financial restructuring.

The credit quality of risk exposures is presented in several tables, that were introduced in 2021 due to changes in Pillar 3 regulations. The tables provide insight in the credit quality per exposure class, industry or counterparty type and geography. These tables present the gross carrying values, consisting of on- and off-balance sheet exposures, split over non-performing / performing, specific risk adjustments and impairments/allowances. The net carrying values are the result of specific risk adjustments and / or after impairments/allowances and are presented at the end of the tables.

On-balance sheet items include loans and debt securities. Off-balance sheet items include guarantees given and irrevocable loan commitments. Pre-settlement exposures are not included in this section.
More information on the definition of non-performing loans and allowances can be found in the credit quality section of the Risk Management paragraph of the Annual report.

This section provides a comprehensive picture of the credit quality of the banks' assets per exposure class. The data excludes Counterparty Credit Risk exposures, Securitisations, CVA RWA, Equities and ONCOA. The net carrying values correspond to the original exposure (on and off-balance) pre-credit conversion factors corrected for allowances, impairments and provisions.

Performing and Non-Performing Exposures and Related Provisions

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

2021	Gross carrying amount/nominal amount						Accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions						Accumulated partial write-off	Collateral and financial guarantees received	
	Performing exposures			Non-performing exposures			Performing exposures – 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
		Of which stage 1	Of which stage 2		Of which stage 2	Of which stage 3		Of which stage 1	Of which stage 2		Of which stage 2	Of which stage 3			
Cash balances at central banks and other demand deposits	106,551	106,535	16				–6	–6						20	
Loans and advances	683,864	601,033	40,626	11,520		11,367	–1,470	–460	–1,010	–3,827		–3,824	–114	512,416	5,800
Central banks	2,579	1,952												1,960	
General governments	10,878	10,397	344	84		84	–6	–2	–4	–5		–5		3,402	64
Credit institutions	39,469	19,811	177				–22	–18	–4					23,152	
Other financial corporations	59,686	37,236	1,799	470		470	–85	–18	–67	–140		–140		41,829	171
Non-financial corporations	226,005	198,847	25,851	5,909		5,871	–832	–211	–621	–2,532		–2,529	–80	127,441	2,178
Of which SMEs	33,272	28,451	4,812	1,232		1,231	–130	–39	–91	–480		–479	–14	26,861	650
Households	345,248	332,791	12,455	5,056		4,942	–525	–210	–314	–1,150		–1,149	–33	314,631	3,387
Debt securities	82,347	75,689					–31	–31							
Central banks	2,026	1,477													
General governments	59,526	56,859					–30	–30							
Credit institutions	14,636	14,588					–1	–1							
Other financial corporations	4,950	2,333													
Non-financial corporations	1,210	432													
Off-balance-sheet exposures	252,135	135,746	8,834	1,043		591	76	4	6	72		24		41,646	80
Central banks	510														
General governments	8,846	6,688	145											546	
Credit institutions	8,316	343												16	
Other financial corporations	27,076	17,182	674	133		126	1							7,755	1
Non-financial corporations	168,952	80,706	7,022	835		392	69	2	1	72		24		19,797	57
Households	38,434	30,828	992	75		73	6	2	4					13,532	23
Total	**1,124,897**	**919,003**	**49,476**	**12,563**		**11,957**	**–1,431**	**–492**	**–1,005**	**–3,756**		**–3,800**	**–114**	**554,083**	**5,880**

The overall exposure(EUR 1,156.5 billion) consists of manly non-financial corporations and households. Resulting the non-performing exposure (EUR 13.2 billion) 1.14% of the total exposure was mainly driven by these exposures: non-financial corporations (EUR 6.3 billion) and households (EUR 5.3 billion).

Maturity of Exposures

EU CR1-A: Maturity of exposures						
2021	Net exposure value					
	On demand	<= 1 year	> 1 year <= 5 years	> 5 years	No stated maturity	Total
Loans and advances	229,045	158,143	221,660	412,663		1,021,511
Debt securities		30,313	102,852	75,246		208,410
Total	**229,045**	**188,456**	**324,512**	**487,909**		**1,229,922**

Changes in the stock of non-performing loans and advances

This table identifies the changes in the stock of provisions held against loans and advances that are defaulted or impaired.

EU CR2: Changes in the stock of non-performing loans and advances	
	2021
	Gross carrying amount
Initial stock of non-performing loans and advances	**13,008**
Inflows to non-performing portfolios	5,911
Outflows from non-performing portfolios	-7,290
Outflows due to write-offs	-854
Outflow due to other situations	-6,436
Final stock of non-performing loans and advances	**11,520**

Forborne exposures

EU CQ1: Credit quality of forborne exposures

2021	Gross carrying amount/nominal amount of exposures with forbearance measures				Accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions		Collateral received and financial guarantees received on forborne exposures	
	Performing forborne	Non-performing forborne			On performing forborne exposures	On non-performing forborne exposures		Of which collateral and financial guarantees received on non-performing exposures with forbearance measures
			Of which defaulted	Of which impaired				
Loans and advances	13,793	6,023	5,909	5,909	–158	–1,695	12,592	3,338
General governments	26	39	39	39	–0	–1	64	38
Other financial corporations	385	331	331	331	–2	–142	306	74
Non-financial corporations	10,241	3,393	3,393	3,393	–137	–1,295	7,561	1,448
Households	3,142	2,260	2,145	2,145	–19	–257	4,661	1,778
Loan commitments given	3,190	194	194	194	16	14	1,017	96
Total	**16,983**	**6,217**	**6,102**	**6,102**	**–142**	**–1,681**	**13,609**	**3,434**

Total forborne exposures in 2021 was EUR 24.3 billion, mainly witnessed in loans and advances for non-financial corporations; performing forborne (EUR 11.0 billion) and non-performing forborne (EUR 3.6 billion).

Aging of past due exposures

The table below gives an insight into the ageing of the on and off-balance sheets exposures, including both performing and non-performing assets.

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

	Gross carrying amount/nominal amount											
	Performing exposures			Non-performing exposures								
2021		Not past due or past due ≤ 30 days	Past due > 30 days ≤ 90 days		Unlikely to pay that are not past due or are 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 years ≤ 5 years	Past due > 5 years ≤ 7 years	Past due > 7 years	Of which defaulted
Cash balances at central banks and other demand deposits	**106,551**	**106,551**										
Loans and advances	**683,864**	**682,860**	**1,004**	**11,520**	**7,323**	**512**	**705**	**1,143**	**1,364**	**221**	**251**	**11,520**
Central banks	2,579	2,579										
General governments	10,878	10,878		84	55	3	20	1			4	84
Credit institutions	39,469	39,469										
Other financial corporations	59,686	59,684	1	470	438	3	2	9	17		1	470
Non-financial corporations	226,005	225,474	531	5,909	3,853	159	233	633	776	125	131	5,909
Of which SMEs	33,272	33,194	78	1,232	739	52	74	108	194	16	50	1,232
Households	345,248	344,776	472	5,056	2,978	347	449	501	571	96	115	5,056
Debt securities	**82,347**	**82,347**										
Central banks	2,026	2,026										
General governments	59,526	59,526										
Credit institutions	14,636	14,636										
Other financial corporations	4,950	4,950										
Non-financial corporations	1,210	1,210										
Off-balance-sheet exposures	**252,135**			**1,043**								**1,043**
Central banks	510											
General governments	8,846											
Credit institutions	8,316											
Other financial corporations	27,076			133								133
Non-financial corporations	168,952			835								835
Households	38,434			75								75
Total	**1,124,897**	**871,758**	**1,004**	**12,563**	**7,323**	**512**	**705**	**1,144**	**1,364**	**221**	**251**	**12,563**

Non-performing by geography

EU CQ4: Quality of non-performing exposures by geography

2021	Gross carrying/nominal amount	Gross carrying/nominal amount – Of which non-performing	Gross carrying/nominal amount – Of which non-performing – Of which defaulted	Of which subject to impairment	Accumulated impairment	Provisions on off-balance-sheet commitments and financial guarantees given	Accumulated negative changes in fair value due to credit risk on non-performing exposures
On-balance-sheet exposures	**777,731**		**11,520**		**–5,329**		
Netherlands	174,349		1,960		–797		
Belgium & Luxembourg	113,327		3,218		–1,139		
Germany	120,101		964		–531		
UK	24,155		455		–181		
France	26,209		113		–92		
Spain	33,435		284		–264		
Poland	40,924		767		–606		
Italy	15,411		370		–170		
Other Europe	49,446		513		–423		
America	76,925		1,015		–557		
Africa	2,003		104		–17		
Asia	46,784		790		–434		
Australia	48,999		965		–117		
Other countries	5,663		1				
Off-balance-sheet exposures	**253,178**		**1,043**			**148**	
Netherlands	44,400		388			43	
Belgium & Luxembourg	34,059		352			68	
Germany	27,825		50			23	
UK	12,585		22				
France	10,192		23				
Spain	4,590						
Poland	9,924		7			1	
Italy	5,432						
Other Europe	29,090		12			6	
America	33,916		143				
Africa	1,089						
Asia	32,082		31			5	
Australia	7,877		15				
Other countries	118						
Total	**1,030,909**		**12,563**		**–5,329**	**148**	

Columns "Of which non-performing" and "of which subject to impairment" are kept empty (greyed) in line with the requirements for institutions with an NPL ratio lower than 5%.

In 2021, the on- and off-balance-sheet exposures on a total level gross carrying amount to EUR 1,031 billion, of which EUR 12.6 billion is in default. The defaulted exposure was mainly witnessed in the Netherlands and Belgium. For the Netherlands the defaulted exposure was mainly due to term loans and overdrafts. In Belgium the defaulted exposure was mainly witnessed in residential mortgages and term loans.

Loans and advances to non-financial corporations by industry

EU CQ5: Credit quality of loans and advances to non-financial corporations by industry

2021	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		
			Of which defaulted			
Agriculture, forestry and fishing	3,597		158		–48	
Mining and quarrying	10,581		975		–402	
Manufacturing	44,970		1,177		–676	
Electricity, gas, steam and air conditioning supply	16,720		181		–143	
Water supply	2,855		54		–28	
Construction	9,583		399		–186	
Wholesale and retail trade	40,868		1,259		–622	
Transport and storage	23,822		420		–221	
Accommodation and food service activities	2,462		251		–121	
Information and communication	12,237		189		–171	
Real estate activities*	34,207		298		–142	
Financial and insurance activities*	979					
Professional, scientific and technical activities	9,301		214		–208	
Administrative and support service activities	11,057		250		–203	
Public administration and defence, compulsory social security	931				–22	
Education	271		7		–7	
Human health services and social work activities	5,958		35		–88	
Arts, entertainment and recreation	715		27		–12	
Other services	802		18		–64	
Total	**231,914**		**5,909**		**–3,364**	

* Adjusted labelling compared to the first publication in March 2022.

Columns "Of which non-performing" and "Of which loans and advances subject to impairment" are kept empty (greyed) in line with the requirements for institutions with an NPL ratio lower than 5%

Exposures subject to measures applied in response to the Covid-19 crisis

In response to the need to address negative economic consequences of Covid-19 pandemic, the European Union (EU) and some Member States have introduced legislative moratoria on loan repayments granting the borrowers various forms of payment holidays on their existing loans. In other Member States similar measures have been introduced under individual institutions' industry-coordinated initiatives. Many Member States have also introduced various forms of public guarantees to be applied to new lending. Subsequently, the EBA issued guidelines covering (i) disclosure requirements for the exposures subject to the payment moratoria in accordance with the GL on moratoria and (ii) disclosure requirements for the new loans subject to the specific public guarantees set up to mitigate the effects of Covid-19 crisis.

The EBA Guidelines on legislative and non-legislative moratoria on loan repayments applied in the light of the Covid-19 crisis which clarifies a set of criteria and conditions under which such measures do not trigger forbearance classification and the assessment of distressed structuring of loans and advances benefiting from these moratoria and they do not automatically lead to default classification. The table below gives an insight into Information on loans and advances subject to legislative and non-legislative moratoria.

EBA Template 1 Covid-19: Information on loans and advances subject to legislative and non-legislative moratoria

2021	Gross carrying amount							Accumulated impairment, accumulated negative changes in fair value due to credit risk							Gross carrying amount
		Performing exposures			Non-performing exposures				Performing exposures			Non-performing exposures			Inflows to non-performing exposures
			Of which exposures with forbearance measures	Of which Instruments with significant increase in credit risk since initial recognition but not credit-impaired (Stage 2)		Of which exposures with forbearance measures	Of which: Unlikely to pay that are not past-due or past-due <= 90 days			Of which exposures with forbearance measures	Of which Instruments with significant increase in credit risk since initial recognition but not credit-impaired (Stage 2)		Of which exposures with forbearance measures	Of which: Unlikely to pay that are not past-due or past-due <= 90 days	
Loans and advances subject to moratorium	**38**	**38**	**2**	**21**	**1**			**-1**							
Households	23	22		5	1										
Of which: Collateralised by residential immovable property	16	15		1											
Non-financial corporations	15	15	2	15											
Of which: Small and Medium-sized Enterprises															
Of which: Collateralised by commercial immovable property	9	9		9											

Management overlays are not included in the provisions reported here.

EBA Template 2 Covid-19: Breakdown of loans and advances subject to legislative and non-legislative moratoria by residual maturity of moratoria

2021	Number of obligors	Gross carrying amount							
			Of which: legislative moratoria	Of which: expired	Residual maturity of moratoria				
					<= 3 months	> 3 months <= 6 months	> 6 months <= 9 months	> 9 months <= 12 months	> 1 year
Loans and advances for which moratorium was offered	**144,770**	**16,337**							
Loans and advances subject to moratorium (granted)	**137,547**	**15,346**	**4,136**	**15,308**	**33**	**3**			**2**
Households		6,771	3,277	6,748	23				
Of which: Collateralised by residential immovable property		5,390	2,887	5,374	16				
Non-financial corporations		7,933	796	7,918	11	3			2
Of which: Small and Medium-sized Enterprises		1,664	53	1,664					
Of which: Collateralised by commercial immovable property		5,333	600	5,324	9				

As part of the response to the Covid-19 pandemic, a number of Member States introduced public guarantee schemes to be applied to newly originated loans and advances. These public guarantee schemes may vary in their characteristics, such as in the level of guarantee given to different counterparties (e.g. households, SMEs and large corporates) and in the duration of the guarantee.

The table below gives an insight into Information on newly originated loans and advances provided under newly applicable public guarantee schemes introduced in response to Covid-19 crisis.

EBA Template 3 Covid-19: Information on newly originated loans and advances provided under newly applicable public guarantee schemes introduced in response to Covid-19 crisis

2021	Gross carrying amount		Maximum amount of the guarantee that can be considered	Gross carrying amount
		Of which: forborne	Public guarantees received	Inflows to non-performing exposures
Newly originated loans and advances subject to public guarantee schemes	**2,198**	**208**	**2,155**	**27**
Households	77			
Of which: Collateralised by residential immovable property	3			
Non-financial corporations	2,116	203	2,073	26
Of which: Small and Medium-sized Enterprises	1,001			13
Of which: Collateralised by commercial immovable property	539			6

Credit risk mitigation

ING's lending and investment businesses are subject to credit risk. As such, the creditworthiness of our customers and investments is continually monitored for their ability to meet their financial obligations to ING Bank. In addition to determining the credit quality and creditworthiness of the customer, ING uses various credit risk mitigation techniques and instruments to mitigate the credit risk associated with an exposure and to reduce the losses incurred subsequent to an event of default on an obligation a customer may have towards ING. The most common terminology used in ING for credit risk protection is 'cover'. While a cover can be an important method for mitigation of credit risk and an alternative source of repayment, generally it is ING's practice to lend on the basis of the customer's creditworthiness rather than exclusively relying on the value of the cover. Within ING, there are two distinct forms of covers: assets and third party obligations.

Cover forms Assets

The asset that has been pledged to ING as collateral or security gives ING the right to liquidate it in the event where the customer is unable to fulfil its financial obligation. As such, the proceeds can be applied towards full or partial payments of the customer's outstanding exposure. An asset can be tangible (such as cash, securities, receivables, inventory, plant & machinery and mortgages on real estate properties) or intangible (such as patents, trademarks, contract rights and licenses).

Third party obligation

Third Party Obligation, indemnification or undertaking (either by contract and/or by law) is a legally binding declaration by a third party that gives ING the right to expect and claim from that third party to pay an amount, if the customer fails on its obligations to ING. The most common examples are guarantees (such as parent guarantees and export credit insurances) and letters of comfort.

Cover valuation methodology

General guidelines for cover valuation are established to ensure consistency of the application within ING. These general guidelines also require that the value of the cover is monitored on a regular basis, in principle at least annually. Covers shall be revalued accordingly and whenever there is reason to believe that the market is subject to significant changes in conditions. The frequency of monitoring and revaluation depends on the type of covers.

The valuation method also depends on the type of covers. For asset collateral, the valuation sources can be the customer's balance sheet (e.g. inventory, machinery, and equipment), nominal value (e.g. cash, receivables), market value (e.g. securities and commodities), independent appraiser (commercial real estate) and market indices (residential real estate). For third party obligations, the valuation is based on the value that is attributed to the contract between ING and that third party.

For the determination of the Credit Risk applicable amount for Pre-Settlement transactions, ING first matches trades with similar characteristics to determine their eligibility for offset. This offsetting effect is called 'compensation'. Subsequently, ING reduces the amount by any legal netting that may be permitted under various types of Master Agreements (such as ISDAs and GMRAs). Lastly, the amount is further reduced by any collateral that is held by ING under CSAs or other similar agreements.

For the other risk types and especially lending, covers are received that are intended to reduce the losses incurred subsequent to an event of default on an obligation a customer may have towards ING. These are subdivided into four groups called collateral values mortgages, cover values cash, cover value guarantees and other physical covers.

The table below presents the ING portfolio excluding equities per loan type. Exposures represent the outstanding and a loan is presented as secured by collateral or a guarantee if such a cover exists on a facility type. The secured amounts represent the part of the loan that is covered by the collateral. If a loan has both collateral and a guarantee than these are both shown in the designated column.

Credit Risk Mitigations techniques – overview

The table below presents the extent of the use of CRM techniques. All collaterals and financial guarantees are included for all secured exposures, irrespective of whether the standardized approach or the IRB approach is used for RWA calculation. In the column Exposures unsecured – Carrying amount are the exposures (net of allowances/impairments) that do not benefit from a CRM technique.

In the column Exposures to be secured are the exposures that have at least one CRM mechanism (collateral, financial guarantees, credit derivatives) associated with them.

EU CR3 – CRM techniques overview: Disclosure of the use of credit risk mitigation techniques

2021	Unsecured carrying amount	Secured carrying amount	Of which secured by collateral	Of which secured by financial guarantees	Of which secured by credit derivatives
Loans and advances	283,719	518,216	460,212	58,005	
Debt securities	82,347				
Total	366,066	518,216	460,212	58,005	
Of which non-performing exposures	5,720	5,800	5,278	522	
Of which defaulted	5,720	5,800			

For more information on the covers, please see the section 'credit risk mitigation' part of the Risk Management section of the ING Group Annual Report 2021.

Collateral obtained by taking possession and execution processes

Table EU CQ7 provides information about the collateral that has been obtained within the reporting period. Collateral obtained by talking possession includes assets that were not pledged by the debtor as collateral, but obtained in exchange for the cancellation of debt.

The value at initial recognition reflects the gross carrying amount at the point in time of the initial recognition in the balance sheet, while accumulated negative changes reflect the difference between the value at initial recognition and the carrying amount at the reporting date.

EU CQ7: Collateral obtained by taking possession and execution processes

	Collateral obtained by taking possession	
	Value at initial recognition	Accumulated negative changes
Property, plant and equipment (PP&E)	10	–1
Other than PP&E	11	
Residential immovable property	2	
Commercial Immovable property	9	
Total	**21**	**–1**

Advanced Internal Rating Based approach (AIRB)

Development of credit risk RWA

The table below explains the changes in Credit RWA in the AIRB portfolio during the reporting period and provides additional information by linking the impact of changes in portfolio composition, model changes and shifts in the risk environment on Credit RWA. The table reconciles movements in Credit RWA for the period for each Credit RWA risk type of ING for the AIRB portfolio including securitisations excluding equity and ONCOA. It does not include counterparty credit risk exposures under the Internal Model Method (IMM), as ING has not yet received regulatory approval to use IMM.

EU CR8 – RWEA flow statements of credit risk exposures under the IRB approach

	2021	2020
	Risk weighted exposure amount	Risk weighted exposure amount
Risk weighted exposure amount as at the end of the previous reporting period	**193,977**	**207,080**
Asset size (+/-)	6,428	-5,056
Asset quality (+/-)	-15,511	-9,047
Model updates (+/-)	1,443	13,053
Methodology and policy (+/-)	-4,235	-4,982
Acquisitions and disposals (+/-)		
Foreign exchange movements (+/-)	3,708	-4,910
Other (+/-)	-1,822	-2,160
Risk weighted exposure amount as at the end of the reporting period	**183,989**	**193,977**

Over the year 2021 the credit RWA in the IRB portfolio decreased by EUR 10.0 billion from EUR 194.0 billion to EUR 184.0 billion.

- Asset Size impact of +€6.4 billion, mainly in Wholesale Banking €3.4 billion, partially explained by increased lending activities as a result of the TLTRO, in C&G €3.8 billion (Poland €2.1 billion, Spain €0.8 billion). In Market Leaders, net book size impact in 2021 amounted to -€0.5 billion;
- Asset quality improvements caused RWA to decrease by €15.5 billion as a result of risk profile changes across the business lines, in Wholesale Banking (-€7.8 billion), as a result of improvement in PD's / LGD's, but also in Market Leaders -€4.8 billion (both in the Netherlands €1.9 billion as well as in Belgium -€2.9 billion), as a result of developments in the housing markets, and finally in Challengers and Growth -€2.3 billion (of which Australia €1.7 billion, as a result of the developments in the housing market);
- Total Model / Methodology impact in 2021 is -€2.8 billion, which includes multiple items, i.e. updates in credit conversion factors for guarantees and letters of credit (-€3.4 billion), the implementation of the Infrastructure support factor (-€0.9 billion), change of PD multipliers for the rating systems Trade and Commodity Finance and Financial Institutions €0.6 billion, and changes to the haircuts for internal credit guarantees (ICG) and legal lending limit guarantees (LLLG) (+€0.7 billion);
- Apart from these, a number of smaller items were implemented, such as cover value corrections, haircut adjustments, and updates in the LGD for non-performing clients in SBF NL;
- In 2021, FX impact caused RWA to increase by €3.7 billion, mainly due to appreciation of the US dollar of 8.34% (+€3.8 billion), British Pound of 6.99% (+€0.4 billion), compensated by the Turkish Lira depreciation of 40.2% (-€ 0.8 billion);
- Other items decreased RWA by -€1.8 billion in 2021, mainly as a result of impact of non-performing portfolio's on RWA of -€2.0 billion (in Wholesale -€1.0 billion, in Market Leaders -€0.8 billion and in C&G -€0.3 billion).

Overall, RWA management has a high priority throughout ING Group in all aspects of our business. From product design to pricing, RWA allocation and consumption is extensively monitored, reported and managed at all levels of the organisation.

Scope of the use of IRB and SA approaches

EU CR6-A – Scope of the use of IRB and SA approaches
2021

PD Scale	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 (%)
Central governments or central banks	189,265	310,321	100.00		
Of which Regional governments or local authorities		44,689	100.00		
Of which Public sector entities		12,902	100.00		
Institutions	65,273	91,554	0.46	0	99
Corporates	479,757	541,164	0.90	1	98
Of which Corporates - Specialised lending, excluding slotting approach		124,673	0.03	2	98
Of which Corporates - Specialised lending under slotting approach					
Retail	382,788	384,407	3.97	5	91
of which Retail – Secured by real estate SMEs		13,968	0.80	4	96
of which Retail – Secured by real estate non-SMEs		326,462	0.85	4	95
of which Retail – Qualifying revolving					
of which Retail – Other SMEs		7,473	12.17	27	61
of which Retail – Other non-SMEs		36,504	31.45	8	61
Equity					
Other non-credit obligation assets					
Total	**1,117,084**	**1,327,447**	**24.93**	**2**	**73**

AIRB credit exposures by exposure class and PD range

The table below provides an overview of the main parameters used for the calculation of capital requirements for AIRB models. The on- and off-balance sheet exposures are shown by the four main exposure classes and according to PD grades to enable an assessment of the credit quality of the portfolio. The exposures are bucketed in PD Scales prescribed by EBA. This bucketing of PD scales is not used within ING. ING's Probability of Default (PD) rating models are based on a 1-22 scale, which corresponds to the same rating grades that are assigned by external rating agencies. Risk Ratings (PD) for performing loans (1-19) are calculated within ING with regulatory approved models. Risk Ratings for non-performing loans (20-22) are set on the basis of an approved discretionary methodology by the Global or Regional Restructuring unit. Overall the risk weights of the ING portfolio are a mixture of low risk weights for sovereigns and residential mortgages combined with higher risk weights for Corporates. Many central governments exposures receive a zero risk weight due to the high quality rating (permanent partial use of the SA rules). Mortgages generally benefit from large levels of (over)collateralisation.

The average Credit Conversion Factor (CCF), which is the conversion of off-balance sheet exposure into credit exposure equivalents, is calculated as the off-balance exposure post-CRM and post-CCF over the original off-balance sheet exposure. The CCF percentages are applied on product or transaction level and are regulatory driven.

EU CR6 – IRB approach – Credit risk exposures by exposure class and PD range

2021

PD Scale	On-balance sheet exposures	Off-balance-sheet exposures pre-CCF	Exposure weighted average CCF	Exposure post CCF and post CRM	Exposure weighted average PD (%)	Number of obligors	Exposure weighted average LGD (%)	Exposure weighted average maturity (years)	Risk weighted exposure amount after supporting factors	Density of risk weighted exposure amount	Expected loss amount	Value adjust-ments and provisions
Institutions												
0.00 to <0.15	29,074	52,587	0.05	31,726	0.06	2,735	26.43	2	4,213	0.13	5	–3
0.00 to <0.10	25,404	45,693	0.05	27,734	0.06	2,222	26.63	2	3,389	0.12	4	–3
0.10 to <0.15	3,670	6,894	0.05	3,992	0.12	513	25.02	2	824	0.21	1	
0.15 to <0.25	3,375	5,311	0.15	4,197	0.21	514	8.64	2	375	0.09	1	
0.25 to <0.50	5,650	7,182	0.28	7,629	0.35	975	7.33	2	928	0.12	2	–1
0.50 to <0.75	18	1	0.14	18	0.66	12	15.98	3	7	0.37		
0.75 to <2.50	804	1,780	0.13	1,041	1.53	456	16.10	3	384	0.37	2	–1
0.75 to <1.75	503	1,450	0.09	634	1.00	367	23.27	2	316	0.50	1	–1
1.75 to <2.5	301	330	0.32	407	2.36	89	4.94	4	68	0.17		
2.50 to <10.00	982	1,433	0.06	1,071	3.01	252	24.78	2	760	0.71	8	–8
2.5 to <5	978	1,010	0.08	1,064	2.98	195	24.78	2	752	0.71	8	–8
5 to <10	4	423	0.01	7	8.83	58	25.88	2	8	1.21		
10.00 to <100.00	18	1,019	0.02	36	17.38	4,470	40.38	2	83	2.34	2	–1
10 to <20	16	974	0.02	33	16.31	4,449	41.95	2	81	2.43	2	–1
20 to <30	1	45	0.00	1	24.92	13	22.03	3	1	1.36		
30.00 to <100.00	2		0.97	2	36.66	8	15.72	5	2	1.01		
100.00 (Default)	257	139	0.37	309	100.00	227	0.70	4	6	0.02	3	–3
sub-total	**40,176**	**69,452**	**0.08**	**46,027**	**0.91**	**9,639**	**21.20**	**2**	**6,756**	**0.15**	**24**	**–17**

EU CR6 – IRB approach – Credit risk exposures by exposure class and PD range

2021

PD Scale	On-balance sheet exposures	Off-balance-sheet exposures pre-CCF	Exposure weighted average CCF	Exposure post CCF and post CRM	Exposure weighted average PD (%)	Number of obligors	Exposure weighted average LGD (%)	Exposure weighted average maturity (years)	Risk weighted exposure amount after supporting factors	Density of risk weighted exposure amount	Expected loss amount	Value adjust-ments and provisions
Corporates Spec lending												
0.00 to <0.15	10,870	7,904	0.46	14,503	0.12	569	22.44	3	2,522	0.17	4	–1
0.00 to <0.10	3,110	3,536	0.55	5,065	0.08	159	27.24	3	783	0.15	1	
0.10 to <0.15	7,760	4,367	0.38	9,438	0.14	410	19.87	3	1,739	0.18	3	–1
0.15 to <0.25	18,829	15,345	0.23	22,346	0.21	915	21.07	2	4,576	0.20	10	–3
0.25 to <0.50	38,913	20,668	0.30	45,216	0.38	2,945	17.21	3	11,613	0.26	29	–11
0.50 to <0.75		10	0.98	10	0.71	90	23.93	3	7	0.65		
0.75 to <2.50	15,899	7,956	0.39	19,033	1.05	2,986	15.30	3	6,368	0.33	29	–12
0.75 to <1.75	14,664	7,708	0.39	17,664	0.95	2,606	15.54	3	5,941	0.34	25	–10
1.75 to <2.5	1,235	249	0.54	1,369	2.35	380	12.27	3	427	0.31	4	–2
2.50 to <10.00	2,607	2,329	0.20	3,065	5.47	560	14.75	3	1,616	0.53	23	–14
2.5 to <5	1,740	1,663	0.14	1,981	3.72	425	15.66	2	964	0.49	11	–7
5 to <10	866	666	0.33	1,083	8.65	135	13.08	3	652	0.60	12	–8
10.00 to <100.00	778	407	0.61	1,025	20.77	1,746	23.16	3	1,287	1.26	50	–36
10 to <20	429	257	0.54	568	16.67	1,654	24.55	3	758	1.34	24	–16
20 to <30	309	139	0.75	413	24.92	70	19.50	4	428	1.04	20	–18
30.00 to <100.00	40	11	0.30	43	34.90	22	39.68	2	101	2.32	6	–3
100.00 (Default)	1,864	502	0.37	2,050	100.00	203	22.45	2	1,677	0.82	767	–767
sub-total	**89,760**	**55,120**	**0.32**	**107,248**	**2.67**	**10,014**	**18.47**	**3**	**29,665**	**0.28**	**911**	**–844**

EU CR6 – IRB approach – Credit risk exposures by exposure class and PD range
2021

PD Scale	On-balance sheet exposures	Off-balance-sheet exposures pre-CCF	Exposure weighted average CCF	Exposure post CCF and post CRM	Exposure weighted average PD (%)	Number of obligors	Exposure weighted average LGD (%)	Exposure weighted average maturity (years)	Risk weighted exposure amount after supporting factors	Density of risk weighted exposure amount	Expected loss amount	Value adjust-ments and provisions
Corporates-SME												
0.00 to <0.15	2,409	1,169	0.45	2,937	0.12	6,850	25.45	3	394	0.13	1	
0.00 to <0.10	343	444	0.31	480	0.05	1,306	28.70	3	42	0.09	0	
0.10 to <0.15	2,066	724	0.54	2,457	0.13	5,544	24.82	3	352	0.14	1	
0.15 to <0.25	1,577	537	0.49	1,844	0.21	3,124	26.25	3	371	0.20	1	–1
0.25 to <0.50	4,723	1,710	0.44	5,488	0.37	8,482	24.63	3	1,416	0.26	5	–2
0.50 to <0.75	966	393	0.51	1,165	0.55	1,431	23.22	2	342	0.29	1	–1
0.75 to <2.50	9,639	2,615	0.46	10,894	1.36	13,327	23.94	3	5,125	0.47	35	–16
0.75 to <1.75	7,355	2,001	0.47	8,325	1.13	9,821	24.13	3	3,872	0.47	23	–10
1.75 to <2.5	2,284	615	0.43	2,569	2.10	3,506	23.35	3	1,253	0.49	13	–7
2.50 to <10.00	3,216	723	0.46	3,568	4.72	4,452	22.75	3	2,118	0.59	38	–23
2.5 to <5	2,419	587	0.46	2,699	3.67	3,377	22.80	3	1,500	0.56	22	–15
5 to <10	798	136	0.49	869	7.96	1,075	22.61	2	618	0.71	15	–9
10.00 to <100.00	1,024	149	0.53	1,112	20.73	1,532	20.40	3	998	0.90	48	–28
10 to <20	636	100	0.58	700	15.83	1,087	18.61	3	514	0.73	21	–13
20 to <30	200	30	0.49	215	22.97	213	24.21	2	252	1.17	12	–7
30.00 to <100.00	189	19	0.33	197	35.69	232	22.60	3	232	1.18	16	–9
100.00 (Default)	797	82	0.55	891	100.00	1,246	28.62	2	909	1.02	276	–276
sub-total	**24,352**	**7,377**	**0.46**	**27,900**	**5.28**	**40,443**	**24.22**	**3**	**11,674**	**0.42**	**405**	**–348**

EU CR6 – IRB approach – Credit risk exposures by exposure class and PD range
2021

PD Scale	On-balance sheet exposures	Off-balance-sheet exposures pre-CCF	Exposure weighted average CCF	Exposure post CCF and post CRM	Exposure weighted average PD (%)	Number of obligors	Exposure weighted average LGD (%)	Exposure weighted average maturity (years)	Risk weighted exposure amount after supporting factors	Density of risk weighted exposure amount	Expected loss amount	Value adjust-ments and provisions
Corporates-Other												
0.00 to <0.15	69,612	49,125	0.30	84,189	0.09	2,563	18.86	2	8,632	0.10	14	–3
0.00 to <0.10	37,011	27,332	0.26	44,060	0.07	679	19.38	2	3,824	0.09	5	–1
0.10 to <0.15	32,602	21,793	0.35	40,129	0.12	1,884	18.29	2	4,809	0.12	8	–2
0.15 to <0.25	94,207	39,852	0.32	106,851	0.19	2,728	11.55	1	11,010	0.10	24	–5
0.25 to <0.50	58,284	36,765	0.32	69,931	0.39	8,593	18.72	2	17,501	0.25	48	–15
0.50 to <0.75	1,103	433	0.52	1,330	0.59	1,035	26.60	2	693	0.52	2	–1
0.75 to <2.50	27,314	17,946	0.36	33,767	1.25	10,697	26.74	2	22,296	0.66	114	–51
0.75 to <1.75	23,762	16,027	0.35	29,341	1.10	8,609	25.99	2	17,865	0.61	82	–32
1.75 to <2.5	3,552	1,919	0.45	4,426	2.25	2,088	31.68	3	4,431	1.00	32	–18
2.50 to <10.00	12,053	6,210	0.30	13,928	4.20	4,834	22.50	2	11,121	0.80	148	–104
2.5 to <5	10,221	4,942	0.32	11,782	3.43	3,710	20.22	2	7,834	0.66	84	–55
5 to <10	1,832	1,269	0.25	2,147	8.42	1,124	35.05	2	3,288	1.53	63	–50
10.00 to <100.00	2,409	1,795	0.28	2,913	21.84	12,788	25.17	3	4,329	1.49	160	–110
10 to <20	1,203	1,205	0.25	1,504	16.81	12,140	23.44	3	1,998	1.33	59	–44
20 to <30	871	457	0.39	1,051	25.31	395	29.07	2	1,857	1.77	77	–53
30.00 to <100.00	336	133	0.17	358	32.77	253	20.99	2	474	1.32	24	–12
100.00 (Default)	3,132	522	0.41	3,447	100.00	3,172	33.70	2	3,211	0.93	1,458	–1,458
sub-total	**268,115**	**152,648**	**0.32**	**316,358**	**1.79**	**46,403**	**17.61**	**2**	**78,794**	**0.25**	**1,966**	**–1,747**

EU CR6 – IRB approach – Credit risk exposures by exposure class and PD range
2021

PD Scale	On-balance sheet exposures	Off-balance-sheet exposures pre-CCF	Exposure weighted average CCF	Exposure post CCF and post CRM	Exposure weighted average PD (%)	Number of obligors	Exposure weighted average LGD (%)	Exposure weighted average maturity (years)	Risk weighted exposure amount after supporting factors	Density of risk weighted exposure amount	Expected loss amount	Value adjust-ments and provisions
Retail - Secured by immovable property SME												
0.00 to <0.15	1,801	232	0.94	2,020	0.10	15,152	12.31		63	0.03		
0.00 to <0.10	303	56	0.94	356	0.05	4,678	10.95		6	0.02		
0.10 to <0.15	1,498	176	0.94	1,664	0.11	10,474	12.61		57	0.03		
0.15 to <0.25	1,910	142	0.95	2,046	0.18	10,334	11.86		95	0.05		
0.25 to <0.50	2,262	303	0.87	2,524	0.35	11,121	16.73		251	0.10	2	–1
0.50 to <0.75	1,083	111	0.84	1,176	0.61	5,038	16.15		183	0.16	1	–1
0.75 to <2.50	3,653	438	0.85	4,025	1.35	15,841	20.77		1,254	0.31	11	–6
0.75 to <1.75	3,228	381	0.83	3,546	1.21	14,107	20.51		1,035	0.29	9	–5
1.75 to <2.5	425	58	0.94	480	2.36	1,734	22.71		218	0.46	3	–1
2.50 to <10.00	861	105	0.91	956	4.50	3,657	18.11		512	0.53	8	–7
2.5 to <5	633	89	0.92	716	3.61	2,711	18.62		359	0.50	5	–4
5 to <10	228	15	0.80	240	7.19	946	16.59		153	0.64	3	–3
10.00 to <100.00	357	22	0.79	375	20.64	1,566	16.95		334	0.89	13	–10
10 to <20	247	17	0.77	261	14.62	1,076	17.41		234	0.90	7	–7
20 to <30	57	2	0.86	58	24.38	262	18.32		62	1.06	3	–1
30.00 to <100.00	54	2	0.87	56	44.86	228	13.35		38	0.68	3	–1
100.00 (Default)	368	10	0.88	386	100.00	1,936	19.12		510	1.32	46	–46
sub-total	**12,296**	**1,362**	**0.88**	**13,509**	**4.31**	**64,645**	**16.66**		**3,201**	**0.24**	**81**	**–70**

EU CR6 – IRB approach – Credit risk exposures by exposure class and PD range
2021

PD Scale	On-balance sheet exposures	Off-balance-sheet exposures pre-CCF	Exposure weighted average CCF	Exposure post CCF and post CRM	Exposure weighted average PD (%)	Number of obligors	Exposure weighted average LGD (%)	Exposure weighted average maturity (years)	Risk weighted exposure amount after supporting factors	Density of risk weighted exposure amount	Expected loss amount	Value adjust-ments and provisions
Retail - Secured by immovable property non-SME												
0.00 to <0.15	132,609	8,176	0.81	139,628	0.08	869,497	13.94		4,278	0.03	15	–2
0.00 to <0.10	67,651	5,220	0.94	72,910	0.05	493,267	15.62		1,882	0.03	6	–1
0.10 to <0.15	64,958	2,957	0.58	66,718	0.12	376,230	12.11		2,396	0.04	9	–1
0.15 to <0.25	60,853	3,075	0.59	62,681	0.18	358,668	18.66		4,889	0.08	20	–4
0.25 to <0.50	62,196	2,429	0.66	63,880	0.31	313,806	15.27		6,062	0.09	31	–5
0.50 to <0.75	17,905	888	0.68	18,540	0.57	97,960	21.00		3,921	0.21	21	–3
0.75 to <2.50	10,560	520	0.85	11,015	1.11	59,777	22.16		3,726	0.34	25	–8
0.75 to <1.75	10,000	512	0.84	10,445	1.07	57,652	22.67		3,575	0.34	24	–7
1.75 to <2.5	560	8	0.96	570	2.00	2,125	12.83		151	0.26	1	–1
2.50 to <10.00	5,910	107	0.80	6,001	4.88	34,129	20.33		4,016	0.67	52	–18
2.5 to <5	3,364	59	0.78	3,414	3.13	21,284	24.00		2,310	0.68	24	–6
5 to <10	2,546	48	0.82	2,587	7.18	12,845	15.48		1,705	0.66	28	–12
10.00 to <100.00	2,177	26	0.86	2,202	26.84	13,132	17.35		2,401	1.09	97	–34
10 to <20	873	22	0.88	892	14.50	5,486	20.85		1,074	1.20	27	–13
20 to <30	615	2	0.82	618	23.12	3,571	15.38		678	1.10	24	–7
30.00 to <100.00	689	2	0.75	691	46.09	4,075	14.57		649	0.94	47	–13
100.00 (Default)	3,246	33	0.90	3,289	100.00	17,849	16.87		4,837	1.47	225	–225
sub-total	**295,456**	**15,253**	**0.74**	**307,236**	**1.57**	**1,764,818**	**16.08**		**34,129**	**0.11**	**486**	**–300**

EU CR6 – IRB approach – Credit risk exposures by exposure class and PD range

2021

PD Scale	On-balance sheet exposures	Off-balance-sheet exposures pre-CCF	Exposure weighted average CCF	Exposure post CCF and post CRM	Exposure weighted average PD (%)	Number of obligors	Exposure weighted average LGD (%)	Exposure weighted average maturity (years)	Risk weighted exposure amount after supporting factors	Density of risk weighted exposure amount	Expected loss amount	Value adjust-ments and provisions
Retail Other SME												
0.00 to <0.15	454	396	0.55	674	0.10	40,893	47.08		68	0.10		
0.00 to <0.10	116	85	0.84	189	0.05	15,680	48.81		12	0.06		
0.10 to <0.15	338	310	0.46	484	0.12	25,213	46.41		56	0.12		
0.15 to <0.25	282	120	0.85	386	0.20	25,737	47.19		66	0.17		
0.25 to <0.50	578	632	0.84	1,113	0.36	47,875	54.87		337	0.30	2	–2
0.50 to <0.75	149	223	0.83	334	0.66	23,578	55.37		157	0.47	1	–2
0.75 to <2.50	958	654	0.87	1,532	1.37	83,562	51.08		820	0.53	11	–13
0.75 to <1.75	797	591	0.87	1,311	1.20	74,452	51.69		697	0.53	8	–11
1.75 to <2.5	161	64	0.93	221	2.37	9,110	47.42		122	0.55	2	–2
2.50 to <10.00	306	102	0.89	398	4.75	38,741	46.92		250	0.63	9	–16
2.5 to <5	196	78	0.90	267	3.75	31,224	46.85		162	0.61	5	–8
5 to <10	110	24	0.87	131	6.78	7,517	47.06		87	0.67	4	–9
10.00 to <100.00	139	38	0.86	173	19.17	18,567	46.02		157	0.91	15	–19
10 to <20	107	30	0.86	134	15.22	16,479	46.51		118	0.88	10	–13
20 to <30	18	5	0.85	23	24.27	983	48.04		24	1.07	3	–3
30.00 to <100.00	14	2	0.89	16	44.37	1,105	39.28		15	0.92	3	–3
100.00 (Default)	199	26	0.89	242	100.00	25,189	52.20		403	1.66	106	–106
sub-total	**3,066**	**2,191**	**0.80**	**4,852**	**6.66**	**304,141**	**50.91**		**2,258**	**0.47**	**145**	**–159**

EU CR6 – IRB approach – Credit risk exposures by exposure class and PD range
2021

PD Scale	On-balance sheet exposures	Off-balance-sheet exposures pre-CCF	Exposure weighted average CCF	Exposure post CCF and post CRM	Exposure weighted average PD (%)	Number of obligors	Exposure weighted average LGD (%)	Exposure weighted average maturity (years)	Risk weighted exposure amount after supporting factors	Density of risk weighted exposure amount	Expected loss amount	Value adjust-ments and provisions
Retail Other non-SME												
0.00 to <0.15	2,278	10,231	0.73	10,085	0.06	4,812,331	71.31		1,289	0.13	4	–3
0.00 to <0.10	431	8,449	0.76	7,018	0.03	3,682,686	72.85		613	0.09	2	–1
0.10 to <0.15	1,847	1,781	0.63	3,067	0.11	1,129,645	67.77		677	0.22	2	–2
0.15 to <0.25	2,530	395	0.57	2,759	0.21	301,080	73.61		1,049	0.38	4	–3
0.25 to <0.50	2,602	706	0.69	3,250	0.40	803,214	74.33		1,863	0.57	10	–7
0.50 to <0.75	1,816	301	0.55	1,983	0.64	250,040	71.10		1,456	0.73	9	–7
0.75 to <2.50	3,572	589	0.67	4,168	1.49	1,028,578	70.22		4,051	0.97	44	–44
0.75 to <1.75	2,476	432	0.59	2,853	1.19	688,701	66.44		2,452	0.86	22	–22
1.75 to <2.5	1,096	157	0.88	1,314	2.13	339,877	78.43		1,599	1.22	22	–21
2.50 to <10.00	939	221	0.47	1,107	4.85	294,205	42.12		822	0.74	23	–32
2.5 to <5	621	116	0.54	740	3.36	227,022	39.20		488	0.66	10	–19
5 to <10	318	105	0.38	367	7.87	67,183	48.03		335	0.91	13	–13
10.00 to <100.00	370	40	0.45	412	22.96	111,982	66.98		692	1.68	61	–42
10 to <20	193	28	0.54	228	13.04	80,197	71.36		333	1.46	21	–23
20 to <30	67	1	0.62	67	27.68	20,179	64.91		141	2.09	13	–12
30.00 to <100.00	110	11	0.23	116	39.69	11,606	59.60		218	1.87	28	–7
100.00 (Default)	595	32	0.09	604	100.00	209,146	73.54		2,469	4.08	278	–278
sub-total	**14,702**	**12,515**	**0.71**	**24,367**	**3.50**	**7,810,576**	**70.42**		**13,692**	**0.56**	**433**	**–415**

The PD, LGD, EAD and maturity are drivers of RWA and RWA density. RWA density is measured as the RWA over the EAD and increases with each PD scale. In several instances, the RWA Density is lower than one might expect due to the loans guaranteed by an Export Credit Agency (ECA). For instance in Corporates-Other, cashpool activities from BMG are included causing a low RWA density. These ECAs offer loans and insurance to help remove the risk of uncertainty of exporting to other countries and underwrite the political risk and commercial risks of overseas investments, and as such lower the LGD for these loans. With very low LGDs as a result the RWA is lower than would be assumed in a higher PD class.

The overall RWA amount was EUR 180.2 billion in 2021, mainly witnessed in Corporate others (EUR 78.8 billion). The RWA density was 21%, the highest density was in Retail-other SME 56%.

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

	2021	2020
	Pre-credit derivatives risk weighted exposure amount	Actual risk weighted exposure amount
Exposures under A-IRB	**180,692**	**180,169**
Central governments and central banks		
Institutions	6,787	6,756
Corporates	120,625	120,132
of which Corporates - SMEs	11,674	11,674
of which Corporates - Specialised lending	29,665	29,665
of which Corporates - Other	79,286	78,794
Retail	53,280	53,280
of which Retail – SMEs - Secured by immovable property collateral	3,201	3,201
of which Retail – non-SMEs - Secured by immovable property collateral	34,129	34,129
of which Retail – SMEs - Other	2,258	2,258
of which Retail – Non-SMEs- Other	13,692	13,692
TOTAL (including F-IRB exposures and A-IRB exposures)	**180,692**	**180,169**

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

		Credit risk Mitigation techniques											**Credit risk Mitigation methods in the calculation of RWEAs**	
		Funded credit Protection (FCP)									Unfunded credit Protection (UFCP)			
			Part of exposures covered by Other eligible collaterals (%)				Part of exposures covered by Other funded credit protection (%)							
2021	Total exposures	Part of exposures covered by Financial Collaterals (%)		Part of exposures covered by Immovable property Collaterals (%)	Part of exposures covered by Receivables (%)	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 (%)	Part of exposures covered by Guarantees (%)	Part of exposures covered by Credit Derivatives (%)	RWEA without substitution effects (reduction effects only)	RWEA with substitution effects (both reduction and sustitution effects)
Central governments and central banks														
Institutions	46,027	11.57%	87.17%	5.06%	79.58%	2.50%					10.98%	0.33%	6,756	6,756
Corporates	451,506	39.61%	55.76%	29.61%	6.18%	19.77%					15.69%	0.28%	120,132	120,132
Of which Corporates – SMEs	27,900	2.84%	145.55%	90.70%	7.93%	46.72%					16.73%		11,674	11,674
Of which Corporates – Specialised lending	107,248	4.26%	116.57%	75.27%	5.77%	34.80%					21.44%	0.00%	29,665	29,665
Of which Corporates – Other	316,358	54.83%	27.22%	8.74%	6.16%	12.30%					13.66%	0.40%	78,794	78,794
Retail	349,963	2.30%	193.03%	191.91%	0.16%	0.96%					7.15%		53,280	53,280
Of which Retail – Immovable property SMEs	13,509	1.72%	168.08%	156.77%	1.93%	9.38%					9.50%		3,201	3,201
Of which Retail – Immovable property non-SMEs	307,236	1.65%	211.79%	211.71%	0.07%	0.01%					7.31%		34,129	34,129
Of which Retail – Other SMEs	4,852	19.01%	43.43%		1.55%	41.88%					26.12%		2,258	2,258
Of which Retail – Other non-SMEs	24,367	7.44%	0.17%		0.02%	0.16%					0.14%		13,692	13,692
Total	**847,496**	**22.68%**	**114.15%**	**95.30%**	**7.68%**	**11.07%**					**11.91%**	**0.17%**	**180,169**	**180,169**

Backtesting of model parameters

ING has dedicated AIRB credit risk models per business line and geography. The performance and predictive power of the models is monitored by Model Development, that is part of the Financial Risk department. Moreover an independent Model Risk Management department periodically reviews all AIRB models. All models are backtested when possible by both the Model development and the independent Model Risk Management departments.

If a model is considered not to be robust or backtesting indicates insufficient performance, then the model is either re-calibrated or re-developed. All model recommendations from the Model Risk Management department are tracked via an internal database that management uses to track issues detected by the Internal Audit department, incidents and non-financial risk issues. All significant model changes are submitted to the ECB and implemented after regulatory approval.

PD backtesting

The PD backtesting is performed per exposure class and PD-range, corresponding to the internal rating scales 1 to 19, which are then mapped to comparable rating grades from Standard & Poor's. Securitisations and Equity exposures are not included in these tables.

The average PD as of 31 December 2021 per portfolio is split per exposure class and rating grade. Both the number and the amount-weighted predicted PD figures are shown for the performing portfolios. The number weighted predicted PD is also referred to as the arithmetic weighted PD, and the amount weighted PD is referred to as the EAD-weighted PD..

The Annual Average historical default rate is calculated over the last 6 years, from 2015 until 2020. The performing clients at the end of each year were followed through the following year (12 months) and their into-default moments were flagged each month. In case a client went into-default more than once within the 12-month observation period, the last (i.e. most recent) observed into-default moment was used. The annual average observed default rate represents the average of the 6 years observed number weighted default rates.

EU CR9.1 –IRB approach – Back-testing of PD per exposure class (only for PD estimates)
2021

PD Range	External rating equivalent	Number of obligors at the end of the year		Observed average default rate (%)	Average PD (%)	Average historical annual default (%)
			of which: number of obligors which defaulted during the year			
Institutions						
0.00 - 0.01	AAA	20			0.03	
0.01 - 0.02	AA+	17			0.03	
0.02 - 0.03	AA	70			0.03	0.82
0.03 - 0.04	AA-	124			0.04	
0.04 - 0.05	A+	1,289			0.05	0.11
0.05 - 0.07	A	651			0.06	0.03
0.07 - 0.11	A-	245			0.09	0.17
0.11 - 0.17	BBB+	472			0.14	0.24
0.17 - 0.27	BBB	394	1	0.25	0.21	0.71
0.27 - 0.44	BBB-	644			0.31	0.31
0.44 - 0.73	BB+	346	1	0.29	0.45	0.71
0.73 - 1.26	BB	204	3	1.47	0.79	1.69
1.26 - 2.24	BB-	210	8	3.81	1.41	2.43
2.24 - 4.09	B+	194	19	9.79	2.53	7.32
4.09 - 7.66	B	114	7	6.14	4.41	5.13
7.66 - 14.78	B-	61	8	13.11	8.54	8.43
14.78 - 22.73	CCC	84	4	4.76	16.51	4.99
22.73 - 29.58	CC	15	7	46.67	26.47	33.32
29.58 - 100.00	C	13	4	30.77	39.00	21.23

EU CR9.1 –IRB approach – Back-testing of PD per exposure class (only for PD estimates)
2021

PD Range	External rating equivalent	Number of obligors at the end of the year	of which: number of obligors which defaulted during the year	Observed average default rate (%)	Average PD (%)	Average historical annual default (%)
Corporates Spec lending						
0.00 - 0.01	AAA	2			0.03	
0.01 - 0.02	AA+					
0.02 - 0.03	AA	14			0.03	
0.03 - 0.04	AA-	15			0.04	
0.04 - 0.05	A+	21			0.05	0.09
0.05 - 0.07	A	38			0.06	
0.07 - 0.11	A-	120			0.09	0.08
0.11 - 0.17	BBB+	372			0.14	0.07
0.17 - 0.27	BBB	787			0.21	0.14
0.27 - 0.44	BBB-	1,128			0.31	0.26
0.44 - 0.73	BB+	1,295	1	0.08	0.45	0.22
0.73 - 1.26	BB	1,136	3	0.26	0.76	0.45
1.26 - 2.24	BB-	713	4	0.56	1.33	0.77
2.24 - 4.09	B+	272	2	0.74	2.39	1.18
4.09 - 7.66	B	142	3	2.11	4.43	2.54
7.66 - 14.78	B-	53	1	1.89	8.39	5.12
14.78 - 22.73	CCC	81	5	6.17	16.49	7.71
22.73 - 29.58	CC	60	14	23.33	24.83	17.39
29.58 - 100.00	C	6	1	16.67	38.81	37.27

EU CR9.1 –IRB approach – Back-testing of PD per exposure class (only for PD estimates)
2021

PD Range	External rating equivalent	Number of obligors at the end of the year	of which: number of obligors which defaulted during the year	Observed average default rate (%)	Average PD (%)	Average historical annual default (%)
Corporates-SME						
0.00 - 0.01	AAA					
0.01 - 0.02	AA+					
0.02 - 0.03	AA	1			0.03	
0.03 - 0.04	AA-	3			0.04	
0.04 - 0.05	A+	1,490	4	0.27	0.05	0.20
0.05 - 0.07	A	734	3	0.41	0.07	0.18
0.07 - 0.11	A-	1,344	6	0.45	0.11	0.30
0.11 - 0.17	BBB+	7,868	31	0.39	0.13	0.37
0.17 - 0.27	BBB	4,158	18	0.43	0.21	0.50
0.27 - 0.44	BBB-	5,730	30	0.52	0.30	0.61
0.44 - 0.73	BB+	6,892	43	0.62	0.44	0.59
0.73 - 1.26	BB	7,454	47	0.63	0.81	1.08
1.26 - 2.24	BB-	8,236	94	1.14	1.39	1.45
2.24 - 4.09	B+	5,609	111	1.98	2.42	2.58
4.09 - 7.66	B	4,498	134	2.98	4.36	4.02
7.66 - 14.78	B-	1,776	97	5.46	8.46	7.45
14.78 - 22.73	CCC	1,284	113	8.80	15.37	12.87
22.73 - 29.58	CC	243	34	13.99	23.64	18.31
29.58 - 100.00	C	333	86	25.83	40.46	28.54

EU CR9.1 –IRB approach – Back-testing of PD per exposure class (only for PD estimates)
2021

PD Range	External rating equivalent	Number of obligors at the end of the year	of which: number of obligors which defaulted during the year	Observed average default rate (%)	Average PD (%)	Average historical annual default (%)
Corporates-Other						
0.00 - 0.01	AAA	5			0.03	
0.01 - 0.02	AA+	14			0.03	
0.02 - 0.03	AA	34			0.03	0.49
0.03 - 0.04	AA-	42			0.04	
0.04 - 0.05	A+	276	2	0.72	0.05	0.39
0.05 - 0.07	A	288	1	0.35	0.07	0.10
0.07 - 0.11	A-	435	2	0.46	0.10	0.40
0.11 - 0.17	BBB+	2,701	15	0.56	0.14	0.49
0.17 - 0.27	BBB	2,541	14	0.55	0.22	0.40
0.27 - 0.44	BBB-	4,410	14	0.32	0.32	0.49
0.44 - 0.73	BB+	4,330	29	0.67	0.46	0.66
0.73 - 1.26	BB	5,101	36	0.71	0.82	0.91
1.26 - 2.24	BB-	5,286	74	1.40	1.40	1.64
2.24 - 4.09	B+	3,843	81	2.11	2.48	3.33
4.09 - 7.66	B	3,667	76	2.07	4.78	3.53
7.66 - 14.78	B-	1,172	102	8.70	8.59	8.31
14.78 - 22.73	CCC	1,482	131	8.84	15.25	14.81
22.73 - 29.58	CC	667	40	6.00	26.00	15.46
29.58 - 100.00	C	632	84	13.29	46.83	24.30

EU CR9.1 –IRB approach – Back-testing of PD per exposure class (only for PD estimates)
2021

PD Range	External rating equivalent	Number of obligors at the end of the year	of which: number of obligors which defaulted during the year	Observed average default rate (%)	Average PD (%)	Average historical annual default (%)
Retail - Secured by immovable property SME						
0.00 - 0.01	AAA					
0.01 - 0.02	AA+					
0.02 - 0.03	AA	868			0.03	
0.03 - 0.04	AA-	2,521	7	0.28	0.04	0.07
0.04 - 0.05	A+	1,262	4	0.32	0.06	0.16
0.05 - 0.07	A	200			0.07	
0.07 - 0.11	A-	7,597	31	0.41	0.10	0.19
0.11 - 0.17	BBB+	8,095	40	0.49	0.15	0.27
0.17 - 0.27	BBB	4,025	31	0.77	0.21	0.37
0.27 - 0.44	BBB-	6,786	65	0.96	0.33	0.54
0.44 - 0.73	BB+	5,782	63	1.09	0.50	0.74
0.73 - 1.26	BB	5,998	73	1.22	0.89	0.86
1.26 - 2.24	BB-	5,876	79	1.34	1.39	0.98
2.24 - 4.09	B+	3,400	85	2.50	2.60	1.98
4.09 - 7.66	B	1,550	62	4.00	4.78	3.43
7.66 - 14.78	B-	906	73	8.06	8.96	7.29
14.78 - 22.73	CCC	704	88	12.50	17.05	9.87
22.73 - 29.58	CC	180	44	24.44	26.31	17.84
29.58 - 100.00	C	219	71	32.42	41.63	32.07

EU CR9.1 –IRB approach – Back-testing of PD per exposure class (only for PD estimates)

2021

PD Range	External rating equivalent	Number of obligors at the end of the year	of which: number of obligors which defaulted during the year	Observed average default rate (%)	Average PD (%)	Average historical annual default (%)
Retail - Secured by immovable property non-SME						
0.00 - 0.01	AAA	57,013	9	0.02	0.03	0.01
0.01 - 0.02	AA+	62,946	57	0.09	0.03	0.08
0.02 - 0.03	AA	70,954	96	0.14	0.04	0.10
0.03 - 0.04	AA-	58,271	86	0.15	0.05	0.08
0.04 - 0.05	A+	35,714	41	0.11	0.05	0.07
0.05 - 0.07	A	108,436	126	0.12	0.06	0.08
0.07 - 0.11	A-	222,967	336	0.15	0.10	0.11
0.11 - 0.17	BBB+	249,087	950	0.38	0.13	0.32
0.17 - 0.27	BBB	303,512	800	0.26	0.18	0.22
0.27 - 0.44	BBB-	270,686	1,241	0.46	0.29	0.43
0.44 - 0.73	BB+	147,427	1,133	0.77	0.46	0.70
0.73 - 1.26	BB	39,640	463	1.17	0.79	1.06
1.26 - 2.24	BB-	34,771	615	1.77	1.26	1.42
2.24 - 4.09	B+	19,082	689	3.61	2.70	2.83
4.09 - 7.66	B	7,297	367	5.03	5.13	6.98
7.66 - 14.78	B-	12,096	566	4.68	8.03	5.95
14.78 - 22.73	CCC	5,522	563	10.20	14.90	12.45
22.73 - 29.58	CC	2,922	529	18.10	25.19	23.10
29.58 - 100.00	C	4,273	1,319	30.87	42.63	34.90

EU CR9.1 –IRB approach – Back-testing of PD per exposure class (only for PD estimates)

2021

PD Range	External rating equivalent	Number of obligors at the end of the year	of which: number of obligors which defaulted during the year	Observed average default rate (%)	Average PD (%)	Average historical annual default (%)
Retail Other SME						
0.00 - 0.01	AAA					
0.01 - 0.02	AA+					
0.02 - 0.03	AA	4,745	4	0.08	0.03	0.08
0.03 - 0.04	AA-	2,279	4	0.18	0.04	0.08
0.04 - 0.05	A+	7,493	10	0.13	0.06	0.15
0.05 - 0.07	A	2,520	7	0.28	0.07	0.15
0.07 - 0.11	A-	17,810	35	0.20	0.10	0.15
0.11 - 0.17	BBB+	24,649	121	0.49	0.14	0.40
0.17 - 0.27	BBB	26,059	135	0.52	0.21	0.36
0.27 - 0.44	BBB-	28,103	189	0.67	0.34	0.63
0.44 - 0.73	BB+	26,008	302	1.16	0.50	0.93
0.73 - 1.26	BB	31,000	745	2.40	0.88	2.24
1.26 - 2.24	BB-	35,532	3,250	9.15	1.39	6.31
2.24 - 4.09	B+	29,180	4,838	16.58	2.76	12.22
4.09 - 7.66	B	11,482	1,531	13.33	4.83	10.58
7.66 - 14.78	B-	5,539	700	12.64	8.97	10.54
14.78 - 22.73	CCC	3,367	557	16.54	17.19	24.41
22.73 - 29.58	CC	838	274	32.70	26.40	31.62
29.58 - 100.00	C	1,043	455	43.62	44.91	48.27

EU CR9.1 –IRB approach – Back-testing of PD per exposure class (only for PD estimates)
2021

PD Range	External rating equivalent	Number of obligors at the end of the year	of which: number of obligors which defaulted during the year	Observed average default rate (%)	Average PD (%)	Average historical annual default (%)
Retail Other non-SME						
0.00 - 0.01	AAA	1,995,653	2,171	0.11	0.03	0.05
0.01 - 0.02	AA+	843,278	2,283	0.27	0.03	0.13
0.02 - 0.03	AA	58,515	36	0.06	0.03	0.06
0.03 - 0.04	AA-	642,112	1,761	0.27	0.04	0.12
0.04 - 0.05	A+	15,573	9	0.06	0.06	0.08
0.05 - 0.07	A	11,749	14	0.12	0.08	0.08
0.07 - 0.11	A-	211,382	489	0.23	0.10	0.15
0.11 - 0.17	BBB+	952,019	3,852	0.40	0.13	0.20
0.17 - 0.27	BBB	384,144	1,192	0.31	0.23	0.21
0.27 - 0.44	BBB-	243,037	1,926	0.79	0.34	0.47
0.44 - 0.73	BB+	324,735	31,201	9.61	0.48	4.05
0.73 - 1.26	BB	309,371	3,156	1.02	0.76	0.70
1.26 - 2.24	BB-	470,155	11,545	2.46	1.50	1.83
2.24 - 4.09	B+	411,351	8,257	2.01	2.55	1.38
4.09 - 7.66	B	108,982	5,261	4.83	4.03	4.05
7.66 - 14.78	B-	94,018	8,293	8.82	8.06	8.29
14.78 - 22.73	CCC	46,053	6,152	13.36	16.44	11.51
22.73 - 29.58	CC	2,161	603	27.90	28.20	27.01
29.58 - 100.00	C	15,477	4,624	29.88	34.69	33.53

It should be noted that some of the observed values related to low number of observations (in particular for Sovereigns), hence the numbers should be interpreted with care. For some of the ratings, in particular for the Corporate exposures class, some of the observed values fall above the range of estimation. Until the models have been redeveloped and approved in the context of incorporating new regulations, this has been compensated by add-ons or other prudential measures. Overall, the EL backtest (see EU CR9) does not exhibit underestimations.

Simple risk weight method

A small part of the equity exposure of ING's portfolio is subject to the simple risk weight method for calculating the regulatory capital.

The table below shows more details on the equity exposure for which the simple risk weight method is used.

EU CR10.5 – Equity exposures under the simple risk-weighted approach

Equity exposures under the simple risk-weighted approach	On balance sheet amount		RW	Exposure amount		RWA		Capital requirements	
Categories	**2021**	**2020**		**2021**	**2020**	**2021**	**2020**	**2021**	**2020**
Private equity exposures	630	113	290%	630	113	1,828	329	146	26
Exchange-traded equity exposures	483	444	190%	483	444	917	844	73	68
Other equity exposures			370%						
Total	**1,113**	**558**		**1,113**	**558**	**2,745**	**1,173**	**220**	**94**

In 2021, the total value of ING Group equity investments reported under simple risk weighted approach increased by EUR 555 million to EUR 1,113million (2020: EUR 558 million). As a result, the total value of RWA under simple risk weight method and the total value of regulatory capital increased by EUR 1,572 million and EUR 126 million respectively.

Standardised Approach

Exposures before and after risk mitigation for the SA portfolio

The table below shows how credit risk mitigation (CRM) in the SA portfolio is distributed over the exposure classes. ING's exposure value is shown before and after credit risk mitigation. There are three principal methods for reducing or mitigating Credit Risk: i) by reduction of credit risk through the acceptance of pledged financial assets as collateral or mitigation or shifting of credit risks to a lower risk weighting group, ii) by accepting guarantees from unrelated third parties, or iii) secured by mortgages. ING uses these methods to take CRM effects into account. For financial markets collateral, ING uses the Financial Collateral Comprehensive Method to allow for mitigation effects.

The table below illustrates the effect of all CRM techniques applied in accordance with the Part Three, Title II, Chapter 4 of Regulation (EU) 575/2013 on the standardised approach capital requirements' calculations.

EU CR4 – standardised approach – Credit risk exposure and CRM effects

2021	Exposures before CCF and before CRM		Exposures post CCF and post CRM		RWAs and RWAs density	
Exposure classes	On-Balance Sheet exposures	Off-Balance Sheet exposures	On-Balance Sheet exposures	Off-Balance Sheet exposures	RWAs	RWAs density (%)
Central governments or central banks	167,513	194,640	167,630	2,882	2,403	1.41
Regional government or local authorities	40	29	41		29	69.36
Multilateral development banks	3,146	4,406	3,473	5		
International organisations	2,167	9,567	2,167	5		
Institutions	163	138	3,797	28	904	23.63
Corporates	5,055	4,273	5,260	475	5,222	91.05
Retail	12,741	4,531	9,732	1,505	7,943	70.69
Secured by mortgages on immovable property	20,245	1,793	20,196	710	10,293	49.23
Exposures in default	594	83	507	18	648	123.39
Exposures associated with particularly high risk	149	49	135	13	222	150.00
Total	**211,813**	**219,508**	**212,937**	**5,642**	**27,663**	**12.66**

The total SA exposure in 2021 was EUR 431.3 billion and was mainly witnessed in Central government or central banks with a zero or low risk weight. The overall RWA was EUR 27.7 billion which was mainly witnessed in the mortgages and retail exposure.

Risk weights per exposure class

The table below presents the breakdown, post conversion factor and post risk mitigation techniques, of exposures under the Standardised approach by exposure class and risk weight (corresponding to the riskiness attributed to the exposure according to SA approach). The risk weights presented encompass all those assigned to each credit quality step in Article 113 to Article 134 in Part Three, Title II, Chapter 2 of Regulation (EU) 575/2013.

EU CR5: Standardised approach Post-CCF and Post-CRM Techniques

2021	Risk weight							Total
Exposure classes	0%	20%	35%	50%	75%	100%	150%	
Central governments or central banks	167,792			641		2,071	7	170,512
Regional government or local authorities		7		14		20		41
Multilateral development banks	3,478							3,478
International organisations	2,172							2,172
Institutions		3,410		386		28		3,825
Corporates		322		130		5,283		5,735
Retail exposures			351		10,887			11,237
Exposures secured by mortgages on immovable property			13,227	3,799		3,880		20,906
Exposures in default						280	246	525
Exposures associated with particularly high risk							148	148
Total	**173,442**	**3,739**	**13,577**	**4,971**	**10,887**	**11,562**	**401**	**218,579**

Also here, the exposure of the SA portfolio is mainly witnessed in centrale governments or central banks with a low risk weight.

Counterparty Credit Risk

The main activities that qualify under counterparty credit risk are derivatives trading activities and securities financing. To mitigate the credit risk of these transactions, ING enters into master agreements such as ISDA master agreements and Global Master Repurchase Agreements (GMRAs) that ensures netting of the outstanding positions. To further eliminate the risk on the netted positions, both ING Bank and its counterparties may agree to pledge additional collateral to each other. Additionally ING started to exchange initial margin amounts with its trading partners in 2017. The actual amount that ING may be required to pledge varies based on ING's portfolio composition of both derivatives and securities pledged in securities financing transactions, market circumstances, the number of downgrade notches as well as the terms and conditions of future CSAs or other similar agreements.

CCR risk approach

Analysis of the counterparty credit risk exposure by approach

The main purpose of the derivatives portfolio of ING is to facilitate the hedging of the lending portfolio as well as hedging for clients. The portfolio consists mainly plain vanilla interest rate and foreign exchange derivatives. It must also be noted that - in line with regulatory requirement - ING novated the bulk of its new trades via qualifying central counterparties (CCPs), which compresses the exposure via the use of the large netting pool of a CCP.

In the tables below, ING's counterparty credit risk portfolio is presented. The tables are reported following the implementation of the updated reporting requirements under CRR2, as a result comparative numbers are not available for all the templates. Under Pillar 1 ING uses the Standardized Approach for Counterparty Credit Risk (SA-CCR) (in line with CRR art. 274). In June 2021 ING went live with the SA-CCR, which replaced the current exposure method (CEM)/ mark-to-market method. There are no exposures under the advanced, Internal Model Method (IMM) under Pillar1. Under Pillar 2 however, for FX and interest rate derivatives, ING uses a risk sensitive approach based on Monte Carlo simulations.

For the calculation of the collateral and securities financing transactions (SFT) exposures, ING uses the financial collateral comprehensive method. There is no contractual cross product netting applied.

Under Pillar 1, according to the SA-CCR, the regulatory exposure at default (READ) measure consists of the replacement cost and potential future exposure components. The exposure at default is calculated on a daily basis to take into account the changes in the MTM value due to market movements and changes in the portfolio composition. This calculation is done on:

- Gross basis (ignoring any collateral received and ignoring any netting between trades).
- Net basis (ignoring any collateral received, but applying netting between trades with a positive and negative MTM in case there is a legally enforceable netting agreement in place).
- Net basis after collateral (subtracting any post haircut value of collateral received, and applying netting between trades with a positive and negative MTM in case there is a legally enforceable netting agreement in place).

READ also takes into account the credit valuation adjustment (CVA) recognised as an incurred write-down in line with art. 273(6) CRR.

EU CCR1 – Analysis of CCR exposure by approach

2021		Replacement cost (RC)	Potential future exposure (PFE)	EEPE	Alpha used for computing regulatory exposure value	Exposure value pre-CRM	Exposure value post-CRM	Exposure value	RWEA
EU-1	EU - Original Exposure Method (for derivatives)				1.4				
EU-2	EU - Simplified SA-CCR (for derivatives)				1.4				
1	SA-CCR (for derivatives)	6,879	10,984		1.4	32,312	24,918	24,762	10,005
2	IMM (for derivatives and SFTs)								
2a	Of which securities financing transactions netting sets								
2b	Of which derivatives and long settlement transactions netting sets								
2c	Of which from contractual cross-product netting sets								
3	Financial collateral simple method (for SFTs)								
4	Financial collateral comprehensive method (for SFTs)					21,494	12,686	12,686	1,616
5	VaR for SFTs								
6	**Total**					**53,805**	**37,604**	**37,449**	**11,621**

Standardised approach – CCR exposures by regulatory portfolio and risk

The following table presents the CCR exposures that are calculated according the Standardised approach (SA), which is only an insignificant part of ING's portfolio.

EU CCR3: Standardised approach CCR exposures by regulatory portfolio and risk

2021		Risk Weight											
	Exposure Class	0%	2%	4%	10%	20%	50%	70%	75%	100%	150%	Others	**Total**
1	Central governments or central banks	2,260					9			201			**2,469**
4	Multilateral development banks	1,718											**1,718**
5	International organisations	80											**80**
6	Institutions		17			1	32						**50**
7	Corporates						4			231	1		**236**
8	Retail								2				**2**
11	**Total exposure value**	**4,058**	**17**			**1**	**45**		**2**	**433**	**1**		**4,556**

The 100% risk weight exposures to central governments or central banks contain mainly FX swaps with central monetary institutions.

IRB – CCR exposures by portfolio and PD scale

The following table shows all relevant parameters used for the calculation of CCR capital requirements for IRB models.

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

2021 **PD Scale**	**Exposure value**	**Exposure weighted average PD (%)**	**Number of obligors**	**Exposure weighted average LGD (%)**	**Exposure weighted average maturity (years)**	**RWEA**	**Density of risk weighted exposure amounts**
Corporates - Other							
0.00 to <0.15	6,388	0.10	743	33.30	1	1,165	0.18
0.15 to <0.25	1,877	0.20	730	40.35	2	708	0.38
0.25 to <0.50	2,097	0.38	1,454	48.05	2	1,314	0.63
0.50 to <0.75	2	0.59	69	51.35	1	1	0.83
0.75 to <2.50	1,028	1.13	1,275	42.42	2	937	0.91
2.50 to <10.00	447	4.64	577	59.98	1	809	1.81
10.00 to <100.00	19	18.51	386	41.75	2	43	2.25
100.00 (Default)	51	100.00	84	36.45	2	231	4.56
sub-total	**11,909**	**0.88**	**5,318**	**38.83**	**2**	**5,209**	**0.44**
Corporates - SME							
0.00 to <0.15	9	0.11	373	57.74	4	4	0.43
0.15 to <0.25	9	0.20	206	57.63	3	4	0.46
0.25 to <0.50	11	0.39	460	56.55	4	8	0.71
0.50 to <0.75	2	0.61	86	54.44	2	2	0.68
0.75 to <2.50	26	1.44	527	39.17	4	20	0.75
2.50 to <10.00	10	6.16	163	56.05	4	15	1.55
10.00 to <100.00	3	19.73	39	57.44	4	8	2.92
100.00 (Default)	0	100.00	23	52.24	4	3	6.68
sub-total	**71**	**2.86**	**1,877**	**50.29**	**4**	**64**	**0.89**
Corporates - Specialised lending							
0.00 to <0.15	1,672	0.11	146	28.74	3	508	0.30
0.15 to <0.25	790	0.21	261	41.66	3	423	0.54
0.25 to <0.50	1,771	0.39	565	38.09	3	1,084	0.61
0.75 to <2.50	222	1.11	239	58.48	3	301	1.35
2.50 to <10.00	84	5.15	31	43.93	4	164	1.95
10.00 to <100.00	46	19.94	45	35.78	5	103	2.26
100.00 (Default)	0	100.00	4	70.40	2	1	8.80
sub-total	**4,585**	**0.57**	**1,291**	**36.37**	**3**	**2,584**	**0.56**
Institutions							
0.00 to <0.15	15,150	0.07	1,090	35.51	1	2,721	0.18
0.15 to <0.25	682	0.21	163	37.58	1	217	0.32
0.25 to <0.50	304	0.35	355	44.11	1	173	0.57
0.50 to <0.75							
0.75 to <2.50	165	1.28	517	45.32	0	155	0.94
2.50 to <10.00	21	4.20	153	38.85	0	25	1.17

10.00 to <100.00	6	16.32	115	36.98	1	12	2.09
100.00 (Default)	0	100.00	3	38.13	1		4.77
sub-total	**16,328**	**0.11**	**2,396**	**35.86**	**1**	**3,304**	**0.20**
Retail - Other							
0.00 to <0.15	5	0.04	112	71.71		1	0.11
0.15 to <0.25	1	0.17	52	72.14		0	0.32
0.25 to <0.50	1	0.33	17	72.14			0.49
0.50 to <0.75	0		7				
0.75 to <2.50	2	1.44	56	70.70		2	1.00
2.50 to <10.00	0	3.04	6	72.14			1.23
10.00 to <100.00	0		71			0	
100.00 (Default)	0		1			0	
sub-total	**9**	**0.47**	**322**	**71.54**		**4**	**0.39**
Retail - SME							
0.00 to <0.15	3	0.10	101	64.93			0.14
0.15 to <0.25	1	0.17	64	64.19			0.20
0.25 to <0.50	0	0.36	168	60.19			0.33
0.50 to <0.75	0	0.71	26	54.36			0.48
0.75 to <2.50	2	1.04	167	60.78		1	0.60
2.50 to <10.00	0	3.82	73	56.23			0.80
10.00 to <100.00	0	15.69	79	65.15			1.21
100.00 (Default)	0		21				
sub-total	**7**	**0.97**	**699**	**62.76**		**2**	**0.34**
Total	**32,910**	**0.46**	**11,903**	**37.05**	**2**	**11,167**	**0.34**

All figures are in EUR millions, except for the number of obligors.
RWA density is the average risk weight.

Collateral held on exposure values

Collateral

The composition of collated ING posted/received used in CCR exposures and related to SFT transactions can be observed in the following table.

EU CCR5 – Composition of collateral for CCR exposures

2021	Collateral used in derivative transactions				Collateral used in SFTs			
	Fair value of collateral received		Fair value of posted collateral		Fair value of collateral received		Fair value of posted collateral	
Collateral type	Segregated	Un-segregated	Segregated	Un-segregated	Segregated	Un-segregated	Segregated	Un-segregated
Cash – domestic currency	1,054	2,656	2,111	4,179		452		1,840
Cash – other currencies	688	673	1,703	835		297		740
Domestic sovereign debt	865	68	2,300	1,615		18,264	116	18,968
Other sovereign debt	1,055	386	1,006	63		35,287	49	26,788
Government agency debt						326		319
Corporate bonds	67	38	57			9,194		35,532
Equity securities						25,641	76	23,918
Other collateral	28	380				10,135		57,456
Total	**3,757**	**4,202**	**7,177**	**6,692**		**99,596**	**241**	**165,560**

Excluding exposure class securitization

The bulk of collateral posted/received is in cash and government bonds for OTC derivatives. For SFT's the majority of collateral received is sovereign debt, while the collateral posted is predominately sovereign debt, corporate bonds and other collateral.

Central Counterparties

In line with EMIR regulation - for standard products - the use of Central Clearing Parties (CCPs) is mandatory and thus a large part of the portfolio has been shifted from bilateral trades to CCPs in recent years

The table below presents the exposures to central counterparties, broken down by qualified (QCCP) and non-qualified CCPs:

EU CCR8 – Exposures to CCPs

	2021	
	Exposure value	RWEA
Exposures to QCCPs (total)		295
Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	2,216	44
(i) OTC derivatives	1,586	32
(ii) Exchange-traded derivatives	112	2
(iii) SFTs	519	10
Prefunded default fund contributions	280	251

Notes:
(1) By definition segregated initial margin does not contribute to exposure
(2)The status "qualified" is based on the European Securities and Markets Authority (ESMA) qualification.

Note: ING reports CCPs as "qualified" CCPs (QCCPs) if they have files for the European Securities and Markets Authority (ESMA) approval, that enables credit institutions to calculate capital in a preferential way.

In 2021 the derivatives CCP exposure remains driven by interest rate derivatives with LCH Swap Clear Service and Eurex OTC Clear Service. The volume of trades with Eurex OTC Clear Service has increased over 2021.

CVA risk

The CRR/CRD IV introduced a regulatory capital charge for material increases in the Credit Valuation Adjustment (CVA), the market price of the counterparty credit risk of derivatives. In particular, as credit spreads of ING's counterparties increase, CVA will increase as well and ING will incur a loss.

ING follows the standardised approach for calculating the own fund requirement for CVA Risk. The scope of products and counterparties follows the European regulations (CRR and EMIR).

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

		2021	
		Exposure value	RWAs
4	Transactions subject to the Standardised method	6,606	584
5	**Total transactions subject to own funds requirements for CVA risk**	**6,606**	**584**

The CVA exposure value increased in 2021 following the implementation of the SA-CCR. ING rebalanced the hedges maintaining the CVA capital requirement on a low level.

Credit default swaps

ING participates in the credit risk derivative trading market, as a net purchaser of credit risk protection from other counterparties.

EU CCR6: Credit derivatives exposures

	2021	
	Protection bought	Protection sold
Notionals		
Single-name credit default swaps	11,722	7,279
Index credit default swaps	3,085	2,256
Total return swaps	3,967	
Total notionals	**18,774**	**9,535**
Negative fair value (liability)	178	132

For ING's credit derivative positions as of 31 December 2021, the largest notional is under single-name credit default swap (CDS).

Securitisations

The following is prepared taking into account the 'Industry Good Practice Guidelines on Pillar 3 disclosure requirements for securitisations' issued by the European Banking Federation and other industry associations on 31 January 2010 and the CRR/CRD IV disclosure requirements. It includes qualitative and quantitative disclosures addressing both the exposure securitised as well as securitisations positions held. While quantitative disclosures are limited to those securitisations that are used for the purpose of calculating the regulatory capital requirements under the CRR/CRD IV, qualitative information have a broader scope and give a view on ING's entire securitisation activity.

Depending on ING's role as investor, originator, or sponsor, the objectives, the involvement and the rules applied may be different. ING is primarily engaged in securitisation transactions in the role of investor (in securitisations arranged by others). ING is also an originator or sponsor of securitisations and the latter through its support of the ABCP conduit MontBlanc. ING does not re-securitise its securitisations exposure and even though ING hedges its securitisation positions, such instruments are not recognised as credit risk mitigation for regulatory capital purposes. ING does not engage in securitisation of any impaired assets from its own balance. Furthermore, ING does not have any securitisation position in its trading book.

Exposures associated with Securitisations (Asset Backed Financing, Commercial / Residential Mortgage Backed Securities) are shown separately because of their specific treatment. These amounts also relate to the amount invested prior to any impairment or mark-to-market adjustments. These amounts are also considered to be 'Credit Risk outstanding'.

Valuation and accounting policies

ING's activities regarding securitisations are described in Note 49 'Structured entities' in the annual accounts. The applicable accounting policies are included in Note 1 'Basis of preparation and accounting policies' in the ING Group Financial Statements. The most relevant accounting policies for ING's own originated securitisation programmes are 'Derecognition of financial assets' and 'Consolidation'. Where ING acts as investor in securitisation positions, the most relevant accounting policy is 'Classification and measurement of financial instruments'.

Regulatory capital methodology

ING has implemented SEC-IRB, SEC-SA, SEC-ERBA and SEC-IAA in line with of Regulation 2017/2401. This regulation became effective for securitisations originated as of 1 January 2019 and as of 1 January 2020 for all securitisation positions.

For securitisations originated before 1 January 2019, ING continued to use the AIRB approach for credit risk. For these positions ING uses the Rating Based Approach (RBA) for investments in tranches of asset-backed securities (ABS) and mortgage-backed securities (MBS) which have been rated by external rating agencies. Rating agencies which are used by ING under the RBA include Standard & Poor's, Fitch and Moody's.

Under the RBA, RWA are determined by multiplying the amount of the exposure by the appropriate regulatory risk weights, which depend on: the external rating or an available inferred rating, the seniority of the position and the granularity of the position.

ING uses the Internal Assessment Approach (IAA) for the liquidity support facilities it provides to Asset Backed Commercial Paper (ABCP) conduit Mont Blanc Capital Corp., based on externally published rating agency methodologies. Under the IAA approach, the unrated position is assigned by the institution to an internal rating grade. The individual liquidity facilities are then attributed a derived rating by mapping the internal rating grade to an externally published credit assessment corresponding to that rating grade.

For securitisations originated after 1 January 2019, ING applies the hierarchy of methods as introduced in Regulation 2017/2401. Following the prescribed hierarchy securitisation positions are reported under SEC-IRBA, SEC-SA, SEC-ERBA or SEC-IAA. As of 1-1-2020 all securitisation positions will be reported under the SEC-IRBA, SEC-SA, SEC-ERBA or SEC-IAA approach based on the regulatory hierarchy of methods.

Under all approaches in the hierarchy, the risk weight for STS-compliant securitizations is subject to a floor of 10% for senior tranches and 15% for non-senior tranches.

Investor securitisations

ING's goal is to maintain a portfolio of high quality liquid assets that meets the regulatory requirements of CRR/CRD IV and the Delegated Act of October 2014 regarding liquidity. ING invests in high quality Asset Backed Securities (ABS) keeping close track of the securitisation investment positions via monthly monitoring reports and weekly update calls. Additionally, ING invests in securitisation positions in order to facilitate client business from Wholesale Banking Securitisation department.

Sponsor securitisations

In the normal course of business, ING structures financing transactions for its clients by assisting them in obtaining sources of liquidity by selling the clients' receivables or other financial assets to a Special Purpose Vehicle (SSPE). The senior positions in these transactions are funded by the ING administered multi seller Asset Backed Commercial Paper (ABCP) conduit Mont Blanc Capital Corp. (rated A-1/P-1). Mont Blanc Capital Corp. funds itself externally in the ABCP markets.

In its role as administrative agent, ING facilitates these transactions by acting as administrative agent, swap counterparty and liquidity provider to Mont Blanc. ING also provides support facilities (liquidity) backing the transactions funded by the conduit. The types of asset currently in the Mont Blanc conduit include trade receivables, consumer finance receivables and car leases.

ING supports the commercial paper programmes by providing Mont Blanc Capital Corp. with short-term liquidity facilities. Once drawn these facilities bear normal credit risk.

The standby liquidity facilities are reported under irrevocable facilities. All facilities, which vary in risk profile, are granted to the SSPE subject to normal ING credit and liquidity risk analysis procedures. The fees received for services provided and for facilities are charged subject to market conditions. Mont Blanc is consolidated by ING. These transactions are therefore on-balance sheet arrangements.

In line with the Internal Assessment Approach, which has been approved for use by ECB for ING in relation to the ING sponsored ABCP conduit, Mont Blanc Capital Corp, the credit quality of the positions are internally assessed by following publicly available assessment methodology of external rating agencies. This includes differing stress factors for different asset classes as outlined by rating agencies as well as assessing the entire structure of the transaction including additional quantitative and qualitative features. This will result in the calculation of a certain credit enhancement. Other protections in a transaction (eligibility criteria, early amortization triggers, commingling protections etc.) are factored in and that then results in an internal rating. This rating is then directly mapped to an external rating, which is used to determine the RWA for the liquidity facilities provided by ING to support the transactions and is outlined in a defined approach. Any changes to rating agency methodology is tracked annually with a procedure in place with the credit risk measurement department verifying that any changes are captured in an update to the approach.

The credit approval process for individual transactions follows ING's standard credit approval procedures. At inception, initial data is required to be received outlining the historical performance of the assets. Due diligence is carried out on the underlying asset pool. Following ING policy, each transaction is reviewed (including reassessing the internal assessment approach analysis for that transaction) on a regular basis. The performance of each transaction is closely monitored on an ongoing basis through a.o. detailed transaction reports.

Originator securitisations

ING originates own securitisation transactions for economic and regulatory capital purposes, as well as liquidity and funding purposes.

The senior tranches in securitisations are used to obtain funding and/or provide contingent liquidity. To be eligible as collateral for central banks securitised exposures must be sold to a Securitisation Special Purpose Entity (SSPE) which, in turn, issues securitisation notes ('traditional securitisations') in two tranches, one subordinated tranche and one senior tranche, rated AAA by a rating agency. The AAA tranche can then be used by ING as (stand-by) collateral in the money market for secured borrowings. The assets awaiting securitisations are originated from a banking book and are valued in line with the respective accounting framework. In principle, loans that are securitised are valued at cost.

As long as the securitisation exposures created are not transferred to third parties, the regulatory capital remains unchanged. These are not detailed hereunder. Apart from the structuring and administration costs of these securitisations, these securitisations are profit / loss neutral.

Securitisaton Exposure

In the table below, the securitisations are given, broken down by underlying exposure. The total position of our securitisations in 2021 is EUR 13.7 billion. The underlying exposures are residential mortgages and Lease and receivables.

EU-SEC1: Securitisation exposures in the non-trading book

	Institution acts as originator							Institution acts as sponsor				Institution acts as investor			
	Traditional				Synthetic			Traditional				Traditional			
	STS		Non-STS			of which SRT	Sub-total	STS	Non-STS	Synthetic	Sub-total	STS	Non-STS	Synthetic	Sub-total
		of which SRT		of which SRT											
Total exposures					**2,805**	**2,805**	**2,805**	**1,931**	**3,435**		**5,366**	**2,328**	**3,228**		**5,556**
Retail (total)					2,805	2,805	2,805	615	1,663		2,278	939	33		972
residential mortgage					2,805	2,805	2,805	57	569		626	213			213
credit card								158	548		706				
other retail exposures								400	546		946	725	33		758
Wholesale (total)								1,316	1,772		3,088	1,389	3,195		4,585
commercial mortgage									4		4				
lease and receivables								1,316	1,768		3,084	1,389	3,145		4,534
other wholesale													50		50
re-securitisation															

As we do not have securitization exposures in the trading book, this template is not included in the Pillar 3 report.

The following tables provides the breakdown of current exposures by risk weight bands and by regulatory approach.

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

2021	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%/ deductions	SEC-IRBA	SEC-ERBA (including IAA)	SEC-SA	1250%/ deductions	SEC-IRBA	SEC-ERBA (including IAA)	SEC-SA	1250%/ deductions
Total exposures	**5,291**	**280**			**6**	**2,805**	**57**	**2,715**		**421**	**87**	**415**		**34**	**7**	**33**	
Traditional securitisation	2,486	280			6		57	2,715			87	415			7	33	
Securitisation	2,486	280			6		57	2,715			87	415			7	33	
Retail underlying	1,524	180						1,704				287				23	
Of which STS	615							615				62				5	
Wholesale	962	100			6		57	1,011			87	128			7	10	
Of which STS	647				6		36	617			83	63			7	5	
Synthetic securitisation	2,805					2,805				421				34			
Securitisation	2,805					2,805				421				34			
Retail underlying	2,805					2,805				421				34			

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

2021	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%/ deductions	SEC-IRBA	SEC-ERBA (including IAA)	SEC-SA	1250%/ deductions	SEC-IRBA	SEC-ERBA (including IAA)	SEC-SA	1250%/ deductions
Total exposures	**5,140**	**389**		**28**			**2,265**	**3,291**			**230**	**703**			**18**	**56**	
Traditional securitisation	5,140	389		28			2,265	3,291			230	703			18	56	
Securitisation	5,140	389		28			2,265	3,291			230	703			18	56	
Retail underlying	971	1					972				100				8		
Of which STS	939						939				94				8		
Wholesale	4,169	389		27			1,293	3,291			129	703			10	56	
Of which STS	1,389						1,293	96			129	14			10	1	
Re-securitisation																	

The table below provides the exposures in default for securitisations where ING acts as originator or as sponsor.

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

2021	Exposures securitised by the institution - Institution acts as originator or as sponsor		
	Total outstanding nominal amount		Total amount of specific credit risk adjustments made during the period
		Of which exposures in default	
Total exposures	40,553	447	
Retail (total)	13,184	129	
residential mortgage	8,491	111	
credit card	3,600		
other retail exposures	1,093	18	
re-securitisation			
Wholesale (total)	27,369	318	
loans to corporates	200		
commercial mortgage	87		
lease and receivables	27,081	318	
other wholesale			
re-securitisation			

Market Risk

Prudent Valuation Adjustments

The fair valued instruments of ING portfolio are subject to valuation adjustments, supported by a bank-wide valuation policy framework meeting IFRS and CRR requirements. Based on IFRS rules, the fair value adjustments booked through P&L or OCI reflect the fair exit price. Additionally, based on CRR Article 105 and Article 34, the Additional Valuation Adjustment (AVA) that captures the 90% confidence prudency in the fair value are deducted from the Common Equity Tier 1 capital.

EU PV1: Prudent valuation adjustments (PVA)

amounts in EUR thousands								2021			2020		
	Risk Category					Category level AVA - Valuation uncertainty							
	Equity	Interest Rates	Foreign exchange	Credit	Commodities	Unearned credit spreads AVA	Investment and funding costs AVA	Total category level post-diversification	Of which: Total core approach in the trading book	Of which: Total core approach in the banking book	Total category level post-diversification	Of which: in the trading book	Of which: in the banking book
Market price uncertainty		15,077	845	99,237		3,036	228	95,281	20,556	74,725	110,239	20,039	90,200
Close-out cost	4,486	8,088	320	2,144	2,283	5,116	318	22,234	21,591	643	22,032	20,704	1,328
Concentrated positions	14,339	7,603		7,659				29,601	1,533	28,068	24,236	5,238	18,999
Early termination													
Model risk	5,899	14,964	3	1,580	1,119	25,606		48,381	40,502	7,879	61,594	52,391	9,203
Operational risk													
Future administrative costs											103	103	
Total Additional Valuation Adjustments (AVAs)								**467,114**	**84,182**	**382,933**	**484,377**	**98,475**	**119,729**

The difference between the total AVA and the sum of the underlying components (internal models) is the fall-back approach.

As of 31 December 2021, the total Additional Valuation Adjustments (AVAs) is EUR 467.1 million (before tax) mainly driven by the market price uncertainty and model risk. This total amount contains EUR 271.6 million of portfolio under fall-back approach. On a quarterly basis the fair value adjustments and prudent valuation AVA are discussed and approved in the Global Pricing and Impairment Committee (GP&IC), who oversees the bank-wide valuation framework.

Market RWA under the internal model approach (IMA)

The table below explains the changes in Market RWA under the Internal Model Approach (IMA) during 2021 and provides additional information by linking the impact of changes in portfolio composition, model changes, and shifts in the risk environment on Market RWA.

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

						2021		2020	
		VaR	SVaR	IRC	Other	Total RWA	Total own funds requirements	Total RWA	Total own funds requirements
1	**RWA at previous year end**	**3,214**	**4,419**	**1,113**	**180**	**8,925**	**714**	**5,550**	**444**
1a	Regulatory adjustment	2,470	3,383			5,852	468	3,445	276
1b	RWA at previous year-end (end of the day)	744	1,036	1,113	180	3,073	246	2,105	168
2	Movement in risk levels	-477	370	57	20	-30	-2	788	63
3	Model updates/changes							180	14
8a	RWAs at the end of the reporting period (end of the day)	267	1,406	1,170	200	3,043	243	3,073	246
8b	Regulatory adjustment	912	4,930	144		5,986	479	5,852	468
8	**RWA at the end of the reporting period**	**1,179**	**6,336**	**1,314**	**200**	**9,029**	**722**	**8,925**	**714**

*It is required to fill in Rows 1a/1b and 8a/8b when the RWA/capital requirement for any of the columns (VaR, SVaR, IRC) is the 60-day average (for VaR and SVaR) or the 12-week average measure (for IRC) and not the RWA/capital requirement at the end of the period. According to regulatory guidelines the values in rows 1a/8b are calculated as differences between values in rows 1 and 1b and 8 and 8a, respectively.

**Movement in risk levels: Changes due to position changes between end-of-day values for two reporting periods in question.

Key changes

The ING Bank Market RWA under Internal Model Approach slightly increased to EUR 9.0 billion in 2021 from EUR 8.9 billion in 2020 (EUR 0.1 billion). The 10D HVaR decreased by EUR 1.4 billion while 10D SVaR increased by EUR 1.9 billion.

Interest rate risk in the banking book (IRRBB)

EU IRRBB1 - Interest rate risks of non-trading book activities

		2021			
		Changes of the economic value of equity		Changes of the net interest income*	
	Supervisory shock scenarios	Current period	Last period	Current period	Last period
1	Parallel up	-6,538	-6,686	232	227
2	Parallel down	962	959	-226	-212
3	Steepener	-1,522	-1,827		
4	Flattener	-452	-155		
5	Short rates up	-1,512	-1,396		
6	Short rates down	607	371		

* Change of the Net Interest Income (NII) measures the impact of changing interest rates on net interest income (before tax) of the banking book. This excludes credit spread sensitivity and fees. The reported figures reflect the outcome of ramped interest rate shocks (1-in-10 year scenario: ≈ +/- 100bps) based on dynamic balance sheet assumption with a time horizon of one year. This is in line with ING's internal management view, pending the publication by the EBA of the Implementation Technical Standards (ITS) on the Public Disclosure on IRRBB.

Table EU IRRBBA - Qualitative information on interest rate risks of non-trading book activities

(a)	A description of how the institution defines IRRBB for purposes of risk control and measurement.	Interest rate risk in the banking book is defined as the exposure of a bank's earnings, capital, and market value to adverse movements in interest rates originated from positions in the banking book. ING uses risk measures based on both an earnings and a value perspective. The following risk types are considered for the measurement of the interest rate risk in the banking book: Gap Risk, Customer Behaviour Risk, Tenor Basis Risk, Currency Diversion Risk, Vega Optionality Risk, Credit Spread Risk, IFRS P&L Volatility and Market Risk Economic Capital. ING recognises the importance of sound market risk management and bases its market risk management framework on the need to identify, assess, control and manage market risks. The approach consists of a cycle of five recurring activities: risk identification, risk assessment, risk control, risk monitoring and risk reporting. >>Risk identification is a joint effort of the first and second lines of defence. The goal of risk identification is to detect potential new risks and any changes in known risks; >> Identified risks are assessed and measured by means of various risk metrics to determine the importance of the risk to ING and subsequently to identify the control measures needed; >> Risk control measures used by ING include policies, procedures, minimum standards, limit frameworks, buffers and stress tests; >> Risk monitoring occurs to check if the implemented risk controls are executed, complied with across the organisation, and are effective; and >> Market risk management results and findings are reported to the necessary governing departments and approval bodies.	Article 448.1 (e), first paragraph

(b)	A description of the institution's overall IRRBB management and mitigation strategies.	The IRRBB strategy links the overarching ING business strategy to the acceptable level for IRRBB, expressed in the Risk Appetite Statements. The statements are translated into metrics and limits to enable allocation, implementation and monitoring. The IRRBB risk appetite is set or updated at least annually and must be based on strategic objectives, identified IRRBB risks and regulatory rules. The limits are defined at the consolidated level and across the different risk categories, and cascaded down into the organisation. The Management Board Bank has delegated this task to Asset and Liability Committee Bank (ALCO Bank). ALCO Bank discusses and steers, on a monthly basis, the overall risk profile of all ING Bank's balance sheet and capital management risks. This includes Net Interest Income-at-Risk, Net Present Value-at-Risk and Economic Value of Equity for the interest rate risk in the banking book. The management of interest rate risk follows the IRRBB framework as approved by ALCO Bank. This framework describes roles, responsibilities, risk metrics, and the policies and procedures related to interest rate risk management. As a result of this framework, ING centralises interest rate risk management from commercial books (that capture the interest rate risks in the products sold to clients) to globally managed interest rate risk books. The IRRBB framework distinguishes different views for the measurement of IRRBB that are applied: >> Sensitivity view: to measure all risk types, individually. The sensitivity view includes the IRRBB-specific regulatory measures and the risk measures used for internal management. >> Integrated view: all IRRBB risk types must be measured in coherence, from both an earnings and/or value perspective. This includes economic capital, internal stress testing as regulatory stress testing. >> Specific (for example product specific) stress testing. ING implements hedging and risk mitigation strategies that range from the use of traditional market instruments, such as interest rate swaps, to more sophisticated hedging strategies to address a combination of risk factors arising at the portfolio level. Furthermore, ING's model risk and related control structure is based on the three model lines of defence (MLoD) approach. This approach aims to provide a sound governance framework for model risk management by defining and implementing three different management layers with distinct roles and oversight responsibilities. In this structure, models used in the IRRBB domain, globally or locally, subject to regular validations/audits by Independent Model Validation (2nd MLOD) and Corporate Audit Service (3rd MLOD).	Article 448.1 (f)

(c)	The periodicity of the calculation of the institution's IRRBB measures, and a description of the specific measures that the institution uses to gauge its sensitivity to IRRBB.	>> **Net Interest Income-at-Risk** measures the impact of changing interest rates on net interest income (before tax) of the banking book with a time horizon of one year (expanding to a horizon of three years). This excludes credit spread sensitivity and fees. NII-at-Risk is measured and reported to ALCO Bank on a monthly basis. >> **Net Present Value-at-Risk** measures the impact of changing interest rates on value. The NPV-at-Risk is defined as the outcome of an instantaneous increase and decrease in interest rates from applying currency-specific scenarios. NPV-at-Risk is measured and reported to ALCO Bank on a monthly basis. >> **Economic Value of Equity** is a regulatory metric that measures changes in the net present value of the interest rate sensitive instruments. EVE is measured and reported to ALCO Bank on a quarterly basis. >> **Customer Behaviour Risk** measures the sensitivity of NII and NPV to differences between modelled customer behaviour and realized customer behaviour being assessed by shifting the parameters of behavioural models. CBR is measured and reported to ALCO Bank on a monthly basis. >> **Tenor basis risk** measures the sensitivity of NII and NPV to changes in the basis spread between different swap curves where the basis spreads relative to the most liquid swap curve are shifted. Tenor Basis Risk is measured and reported to ALCO Bank on a monthly basis. >> **Vega optionality risk** measures the impact of changes in interest rate volatilities on the NPV. Vega Optionality Risk is measured and reported to ALCO Bank on a monthly basis. >> **Currency diversion risk** measures the effect on the NII and NPV of a movement of the interest rates of a currency relative to the EUR. Currency diversion risk is measured and reported to ALCO Bank on a monthly basis. >> **Credit spread risk** from the banking book measures the sensitivity of the Fair Value portfolio to fluctuations in the level of credit spreads over the standard reference curve measured from a value perspective. Credit spread risk is measured and reported to ALCO Bank on a monthly basis, and more frequently (daily, weekly) for internal management purposes. >> **IFRS P&L Volatility** measures the fair value sensitivities of derivatives in the banking book. The measure provides insight in the P&L impact of fair market value changes of these instruments. IFRS P&L Volatility is measured and reported to ALCO Bank on a monthly basis. >> From an **Economic Capital** perspective, IRRBB is also measured as it is covered by Market Risk EC. This is measured and reported to ALCO Bank on a monthly basis.	Article 448.1 (e) (i) and (v); Article 448.2
(d)	A description of the interest rate shock and stress scenarios that the institution uses to estimate changes in the economic value and in net interest income (if applicable).	>> In total, 22 scenarios are defined for gap risk. **NII-at-Risk** scenarios consist of four parallel scenarios (up and down for internal and regulatory management each) and six non-parallel scenarios (short rate up, short rate down, long rate up, long rate down, flattening, steepening all for internal management). For **NPV-at-Risk**, six parallel scenarios (two up and down scenarios for internal management and up & down for regulatory management) and six non-parallel scenarios (short rate up, short rate down, long rate up, long rate down, flattening, steepening all for internal management). >> For the regulatory view, 6 scenarios are defined for **Economic Value of Equity**, two parallel scenarios (up and down), and four non-parallel scenarios (short rate up, short rate down, flattening, steepening). >> For both the earnings and the value perspectives each, two scenarios are defined for **Customer Behaviour Risk**: this includes up- and down scenarios for prepayment model. >> Two parallel scenarios are defined for **Tenor Basis Risk** to measure the sensitivity of NII and NPV each. >> For **Vega Optionality**, one scenario is applied in which a parallel increase of the normal volatility surface is considered to measure the sensitivity of Net Present Value. >> Two scenarios defined for **Currency diversion risk** are parallel increases and decreases of the swap curves for the specified dimensions.	Article 448.1 (e) (iii); Article 448.2

(e)	A description of the key modelling and parametric assumptions different from those used for disclosure of template EU IRRBB1 (if applicable).	The reported figures for NII are derived from internal measurement system. For this measure, the following key modelling and parametric assumptions are applied based on the management judgement and analysis: >> The NII-at-Risk figures are measured based on the assumption of the balance sheet development in line with the dynamic plan. >> Straight aggregation across currency is applied. >> For NII-at-Risk, it is assumed that the projections of the balance sheet development don't change under the alternative scenarios. >> Currency specific interest rate gradual movements (1-in-10 year scenario: ≈ +/- 100bps) are applied. >> NII-at-Risk is defined as the outcome of a ramped (i.e. gradual) increase and decrease in interest rates. >> Post-shock interest rate floors are not considered. >> The base case scenario for yield curve development is based on the assumption of a static yield curve.	Article 448.1 (e) (ii); Article 448.2
(f)	A high-level description of how the bank hedges its IRRBB, as well as the associated accounting treatment (if applicable).	ING uses derivatives for economic hedging purposes to manage its asset and liability portfolios and structural risk positions. The primary objective of ING's hedging activities is to manage the risks which arises from structural imbalances in the duration and other profiles of its assets and liabilities in accordance with its risk appetite. The main risks which are being hedged are interest rate risk and foreign currency exchange rate risk. These risks are primarily hedged with interest rate swaps, cross currency swaps and foreign exchange forwards/swaps. In its interest rate management ING used [interest rate] swaps. For these swaps different hedge accounting programs are used to align results of hedged items with the hedging derivatives. ING used the following hedge accounting programs in relation to IRRBB: >> **Fair Value Hedge Accounting**: ING's fair value hedges principally consist of interest rate swaps that are used to protect against changes in the fair value of fixed-rate instruments due to movements in market interest rates. ING applies fair value hedge accounting on micro level in which one hedged item is hedged with one or multiple hedging instruments as well as on macro level whereby a portfolio of items is hedged with multiple hedging instruments. >> **Cash Flow Hedge Accounting**: ING's cash flow hedges mainly consist of interest rate swaps and cross-currency swaps that are used to protect against the exposure to variability in future cash flows on non-trading assets and liabilities that bear interest at variable rates or are expected to be refunded or reinvested in the future.	Article 448.1 (e) (iv); Article 448.2
(g)	A description of key modelling and parametric assumptions used for the IRRBB measures in template EU IRRBB1 (if applicable).	The key modelling and parametric assumptions used, aim at: >> Reporting Economic Value of Equity in line with the regulatory requirements. Behavioural assumptions for savings (client rate and volume modelling) and Loans/Mortgages which are modelled based on interest rate dependent modelling. >> Modelling customer behaviour in relation to mortgages, loans, savings and demand deposits, based on extensive research. Per business unit and product type, exposures are typically segmented into different portfolios based on expected client behaviour. For the segments, model parameters for example for the pass-through rate and customer behaviour are determined based on historical data and expert opinion. >>Applying behavioural modelling to its non-maturity deposits that reflects the product characteristics of the deposits, such as rate-sensitivity, volume stability and depositor type. Additionally, a distinction in modelling approach exists between transactional, rate-insensitive deposits (primarily current accounts), which are modelled using an unconditional cash flow approach and non-transactional, rate-sensitive deposits (primarily savings), where the modelled cash flows are conditional on the interest rate scenario. >> Using behavioural modelling to estimate loan prepayments. The modelling approach is based on the incentive of clients to prepay their loans. A distinction in modelling approach exists between rate-insensitive loans (primarily floating rate loans), which are modelled using an unconditional cash flow approach, and rate-sensitive loans (primarily fixed rate loans), where the modelled cash flows are conditional on the interest rate scenario. Depending on the portfolio, there can be additional prepayment drivers such as seasonal patterns and the age of the loan.	Article 448.1 (c); Article 448.2

(h)	Explanation of the significance of the IRRBB measures and of their significant variations since previous disclosures	>> Over the reporting period, EVE sensitivity remained stable. The interest rate risk coming from balance sheet dynamics (in particular related to changes in the mortgage and savings portfolios) and interest rate changes were hedged as per risk strategy. >> Since the last disclosure, NII sensitivity remained stable and limited (less than 2% of the realized interest income over the year in the reported scenarios) in accordance with the risk strategy of the Bank. Periodical modelling updates as well as changes in the market rates environment were factored in the hedging activities aiming to ensure margin stability.	Article 448.1 (d)
(i)	Any other relevant information regarding the IRRBB measures disclosed in template EU IRRBB1 (optional)		
(1) (2)	Disclosure of the average and longest repricing maturity assigned to non-maturity deposits	The behavioural modelling outcomes of non-maturity deposits are translated into replicating portfolios, which represent the repricing maturities assigned to the non-maturity deposits. The volume-weighted average repricing maturity of non-maturity deposits in scope of behavioural modelling is 3.2 years. While it should be noted that the longest assigned repricing maturity depends on the characteristics of each individual segment, ING Group-wide the longest assigned repricing maturity is 15 years.	Article 448.1 (g)

Funding & Liquidity Risk

Funding and liquidity risk is the risk that ING Group or one of its subsidiaries cannot meet its financial liabilities when they come due, at reasonable cost and in a timely manner. ING ensures that long term obligations are adequately met with a diversity of stable funding instruments under both normal and stressed conditions. For more information, please refer to the Risk management paragraph of the ING Group Annual Report.

Asset encumbrance

As part of the liquidity buffer management, ING Group monitors the existing asset encumbrance. Encumbered assets represent the on- and off-balance sheet assets that are pledged or used as collateral for ING Group's liabilities. The presented numbers of ING Group's encumbered and unencumbered assets are based on the CRR (Part Eight) requirements.

In 2021, the median asset encumbrance ratio for ING Group is 21.7%.

EU AE1 - Encumbered and unencumbered assets

2021	Carrying amount of encumbered assets		Fair value of encumbered assets		Carrying amount of unencumbered assets		Fair value of unencumbered assets	
median in EUR million		Of which notionally eligible EHQLA and HQLA		Of which notionally eligible EHQLA and HQLA		Of which EHQLA and HQLA		Of which EHQLA and HQLA
Assets of the reporting institution	**147,554**	**23,858**			**830,651**	**147,233**		
Equity instruments	6,443	4,656	6,443	4,656	11,266	4,965	11,266	4,965
Debt securities	22,337	18,422	22,476	18,395	67,425	29,574	67,829	27,945
of which: covered bonds	3,054	3,054	3,095	3,054	3,925	3,430	3,760	3,441
of which: securitisations	209	196	209	196	5,539	4,963	5,488	4,963
of which: issued by general governments	11,234	9,780	11,278	9,834	53,311	14,907	53,739	14,984
of which: issued by financial corporations	9,318	5,894	9,246	5,894	11,108	9,775	11,010	9,809
of which: issued by non-financial corporations	775	670	794	670	338	162	341	165
Other assets	120,294	923			756,286	108,204		

EU AE2 - Collateral received and own debt securities issued

2021			Unencumbered	
	Fair value of encumbered collateral received or own debt securities issued		Fair value of collateral received or own debt securities issued available for encumbrance	
median in EUR million		Of which notionally eligible EHQLA and HQLA		Of which EHQLA and HQLA
Collateral received by the reporting institution	**88,375**	**68,527**	**27,125**	**22,825**
Loans on demand				
Equity instruments	21,309	8,753	5,143	3,248
Debt securities	67,668	60,324	21,997	19,577
of which: covered bonds	247	205	180	161
of which: securitisations	5,654	5,654	8	8
of which: issued by general governments	55,650	51,891	13,370	13,349
of which: issued by financial corporations	10,208	7,023	4,647	3,296
of which: issued by non-financial corporations	1,782	1,335	2,232	2,042
Loans and advances other than loans on demand				
Other collateral received				
Own debt securities issued other than own covered bonds or securitisations				
Own covered bonds and asset-backed securities issued and not yet pledged			**33,437**	
TOTAL ASSETS, COLLATERAL RECEIVED AND OWN DEBT SECURITIES ISSUED	**237,282**	**97,437**		

EU AE3 - Sources of encumbrance

	2021	
median in EUR million	Matching liabilities, contingent liabilities or securities lent	Assets, collateral received and own debt securities issued other than covered bonds and securitisations encumbered
Carrying amount of selected financial liabilities	**178,718**	**209,318**

EU AE4 - Accompanying narrative information

ING Group manages it balance sheet prudently whereby a variety of funding sources is readily available. Given this situation, the level of encumbrance of ING Group's balance sheet is relatively low.

The amounts are presented as the median of the four quarter end values of the reporting year. The median is calculated as the average of the two values in the middle of the order of four quarter end values.

Encumbered assets on ING Group's balance sheet comprise to a large extent mortgages and other loans which are used as cover pool for covered bond programs issued by subsidiaries in the Netherlands, Belgium and Germany, as well as external securitisations and other types of collateralised deposits. Of the total encumbered assets of the Group, EUR 120 billion are loans and advances, mostly mortgages, that serve as collateral for these type of liabilities. The cover pool assets are not considered encumbered when the securities are retained within ING Group. The issued securitisations and especially the covered bonds have over-collateralisation, meaning that the assets in the cover pool are higher than the issuance.

Furthermore, assets are encumbered as a result of the repo- and securities lending business and cash and securities collateral posted for derivative and clearing transactions in which pledging collateral is a requirement. As part of its normal securities financing and derivatives trading activities ING enters into standard master agreements such as ISDA and Global Master Repurchase Agreements (GMRA), which contain Credit Support Annexes (CSA) or other similar clauses. Under the terms of these contracts ING could be required to provide additional collateral in the event ING is downgraded by one of the established rating agencies. Refer to the paragraph Counterparty Credit Risk.

To optimise the usage of collateral between the entities of the group ING has significant intragroup encumbrance.

Liquidity coverage ratio

To protect ING and its depositors against liquidity risks, ING maintains a liquidity buffer based on the Delegated Act Liquidity coverage ratio (LCR). ALCO Bank ensures that sufficient liquidity is maintained, in accordance with Bank and regulatory rules and standards, including a buffer of unencumbered, high quality liquid assets.

EU LIQ1 - Quantitative information of LCR

		Total unweighted value					Total weighted value				
EU 1a	**Quarter ending on (31 December 2021)**	31 December 2021	30 September 2021	30 June 2021	31 March 2021	31 December 2020	31 December 2021	30 September 2021	30 June 2021	31 March 2021	31 December 2020
EU 1b	**Number of data points used in the calculation of averages**	12	12	12	12	12	12	12	12	12	12
HIGH-QUALITY LIQUID ASSETS											
1	Total high-quality liquid assets (HQLA)						165,415	162,965	156,904	153,950	149,061
CASH-OUTFLOWS											
2	Retail deposits and deposits from small business customers, of which:	472,613	470,634	465,781	457,917	445,202	32,825	32,897	32,698	32,201	31,473
3	*Stable deposits*	354,193	350,348	345,001	337,985	329,268	17,710	17,517	17,250	16,899	16,463
4	*Less stable deposits*	102,660	104,432	105,126	104,356	102,491	12,905	13,181	13,319	13,245	13,056
5	Unsecured wholesale funding	358,634	350,198	347,242	349,931	353,561	122,894	118,275	115,881	116,633	118,733
6	*Operational deposits (all counterparties) and deposits in networks of cooperative banks*	263,750	259,057	258,551	260,319	260,014	65,771	64,589	64,444	64,879	64,802
7	*Non-operational deposits (all counterparties)*	90,653	87,000	84,339	84,354	87,432	52,893	49,544	47,084	46,497	47,816
8	*Unsecured debt*	4,230	4,141	4,352	5,257	6,115	4,230	4,141	4,352	5,257	6,115
9	Secured wholesale funding						13,859	12,819	11,949	11,940	11,532
10	Additional requirements	123,147	119,496	115,639	113,147	111,661	25,418	25,003	24,712	24,684	24,566
11	*Outflows related to derivative exposures and other collateral requirements*	8,862	9,268	9,548	9,770	9,705	8,862	9,268	9,548	9,770	9,705
12	*Outflows related to loss of funding on debt products*	982	835	912	910	800	982	835	912	910	800
13	*Credit and liquidity facilities*	113,303	109,393	105,180	102,467	101,156	15,574	14,900	14,253	14,004	14,062
14	Other contractual funding obligations	6,197	5,178	4,660	4,408	4,999	5,442	4,425	3,911	3,662	4,255
15	Other contingent funding obligations	132,469	127,893	127,153	126,487	128,186	6,144	5,799	5,653	5,319	5,263
16	**TOTAL CASH OUTFLOWS**						**206,582**	**199,217**	**194,804**	**194,439**	**195,823**
CASH-INFLOWS											
17	Secured lending (e.g. reverse repos)	66,487	66,522	67,486	71,395	72,723	13,129	12,844	12,535	13,811	14,453
18	Inflows from fully performing exposures	36,234	35,193	34,148	33,546	34,360	28,153	27,169	26,206	25,492	26,083
19	Other cash inflows	218,861	213,054	212,677	216,822	223,437	46,231	44,821	44,529	45,284	46,593
20	**TOTAL CASH INFLOWS**	321,582	314,769	314,311	321,762	330,520	87,514	84,834	83,270	84,587	87,129
EU-20c	***Inflows Subject to 75% Cap***	317,772	310,420	309,375	315,773	323,566	87,514	84,834	83,270	84,587	87,129

			165,415	156,904	156,904		149,061
TOTAL ADJUSTED VALUE							
21	**LIQUIDITY BUFFER**		**165,415**	**162,965**	**156,904**	**153,950**	**149,061**
22	**TOTAL NET CASH OUTFLOWS**		**119,068**	**114,383**	**111,533**	**109,851**	**108,693**
23	**LIQUIDITY COVERAGE RATIO**		**139%**	**142%**	**141%**	**140%**	**137%**

EU LIQB	on qualitative information on LCR, which complements template EU LIQ1.	
(a)	Explanations on the main drivers of LCR results and the evolution of the contribution of inputs to the LCR's calculation over time	ING Group's consolidated LCR ratio was 136% in 4Q21. The change in this quarter can be explained by decrease of the liquid assets.
(b)	Explanations on the changes in the LCR over time	Over time, LCR decreased reflecting the use of liquidity for a higher volume of lending (both in loans and receivables and in assets with undefined contractual end date), partly offset by the effect of an increased volume of operational deposits.
(c)	Explanations on the actual concentration of funding sources	ING's funding and liquidity sources are diversified to ensure the Bank is able to fund its commercial activities both under normal and stressed market circumstances across various geographies, currencies and tenors. The Bank's funding mix is managed by Group Treasury and is monitored on a monthly basis by ALCO Bank. The three largest funding sources in Q4 are retail deposits covered by DGS (51%), corporate deposits (21%) and interbank funding which includes the TLTRO (9%).
(d)	High-level description of the composition of the institution`s liquidity buffer.	93% of liquidity buffer consists of Level 1 items of which almost two thirds is withdrawable central bank reserves. Approximately one quarter of Level 1 items is central government and central bank assets.
(e)	Derivative exposures and potential collateral calls	ING employs a Collateral Funding framework, where expected Collateral exposures are long term funded via the Matched Funding framework. The expected collateral exposures are generated using a risk neutral/ market implied information, and the resulting profiles are rebalancing on a monthly basis. ING covers the potential collateral calls in two ways: 1. Derivatives Funding Framework – where expected Collateral exposures are long term funded via the Matched Funding framework. The expected collateral exposures are generated using a statistical model, and the resulting profiles are rebalancing on a monthly basis 2. HLBA – Potential collateral calls, from unexpected shocks, are taken into account in LCR via the HLBA 24 month lookback approach
(f)	Currency mismatch in the LCR	First, ING reports and steers LCR above 100% in both all-ccy and USD, in line with Funding & Liquidity RAS and regulatory requirements. Second, additionally, ING reports to the regulator LCR specifically in EUR, RON and HUF. Third, ING monitors LCR per currency and manages any liquidity gap in significant currency positions. These three factors mitigate the risks for ING towards any undue currency mismatches.
(g)	Other items in the LCR calculation that are not captured in the LCR disclosure template but that the institution considers relevant for its liquidity profile	The LCR disclosure template only presents the consolidated LCR. However, ING also manages and reports LCR for subsidiaries, for material currencies, for foreign currencies of significant branches (RON, HUF and CZK) and for liquidity subgroup.

EU LIQ2: Net Stable Funding Ratio

2021		Unweighted value by residual maturity				Weighted value
		No maturity	< 6 months	6 months to < 1yr	≥ 1yr	
Available stable funding (ASF) Items						
1	Capital items and instruments	60,305			9,183	69,487
2	*Own funds*	60,305			9,183	69,487
3	*Other capital instruments*					
4	Retail deposits		466,058	1,708	3,251	442,209
5	*Stable deposits*		358,681	695	501	341,909
6	*Less stable deposits*		107,376	1,013	2,750	100,300
7	Wholesale funding:		234,734	6,954	132,163	197,482
8	*Operational deposits*		59,619			29,810
9	*Other wholesale funding*		175,115	6,954	132,163	167,673
10	Interdependent liabilities					
11	Other liabilities:		18,544	272	1,533	1,669
12	*NSFR derivative liabilities*					
13	*All other liabilities and capital instruments not included in the above categories*		18,544	272	1,533	1,669
14	**Total available stable funding (ASF)**					**710,847**
Required stable funding (RSF) Items						
15	Total high-quality liquid assets (HQLA)					8,256
EU-15a	Assets encumbered for a residual maturity of one year or more in a cover pool		470	593	60,385	52,231
16	Deposits held at other financial institutions for operational purposes					
17	Performing loans and securities:		141,964	40,212	468,323	425,627
18	*Performing securities financing transactions with financial customers collateralised by Level 1 HQLA subject to 0% haircut*		25,204	1,360	573	1,253
19	*Performing securities financing transactions with financial customer collateralised by other assets and loans and advances to financial institutions*		33,751	8,824	15,907	22,540
20	*Performing loans to non- financial corporate clients, loans to retail and small business customers, and loans to sovereigns, and PSEs, of which:*		51,130	21,931	193,328	202,301
21	*With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk*		6,267	2,734	31,114	30,750
22	*Performing residential mortgages, of which:*		4,176	4,474	238,945	177,510
23	*With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk*		3,437	3,968	210,789	152,811
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*		27,702	3,624	19,569	22,023
25	Interdependent assets					
26	Other assets:	387	37,614	636	14,464	23,716
27	*Physical traded commodities*				23	20

28	*Assets posted as initial margin for derivative contracts and contributions to default funds of CCPs*		981		394	1,169
29	*NSFR derivative assets*		3,908			3,908
30	*NSFR derivative liabilities before deduction of variation margin posted*		10,226			511
31	*All other assets not included in the above categories*		22,498	636	14,456	18,107
32	Off-balance sheet items		62,248	14,860	78,590	8,607
33	**Total RSF**					**518,437**
34	**Net Stable Funding Ratio (%)**					**137%**

Other risks

Non-financial risk

AMA

Article 446 of the CRR requests institutions to disclose information on the approaches for the management of operational risk that should help to understand the assessment of own funds requirements for operational risk. This information is disclosed in the 'Risk management' section of the annual report. The table below provides information on the calculation of own funds requirements for operational risk management.

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

	Relevant indicator				
Banking activities	Year-3	Year-2	Last year	Own funds requirements	Risk weighted exposure amount
Banking activities subject to basic indicator approach (BIA)					
Banking activities subject to standardised (TSA) / alternative standardised (ASA) approaches					
Subject to TSA:					
Subject to ASA:					
Banking activities subject to advanced measurement approaches AMA	18,032	18,384	18,061	2,844	35,550

Compliance risk

Whistleblower

ING deems it important that any employee can report, anonymously or not, alleged irregularities ('Concerns') regarding accounting or auditing matters, as well as Concerns of a general, operational and financial nature within the company, in accordance with its Whistleblower Policy. ING exercises the utmost care with regard to the confidentiality of such a report or the anonymity of the employee, within the limits as defined by applicable laws and regulations. ING will not discharge, demote, suspend, threaten, harass or in any other way harm the employment status of a whistle-blower who has reported a Concern in good faith or of an employee who participates or has participated in an investigation following a reported Concern.

Concerns are recorded in accordance with specific categories, as represented in the table below. These are limited to concerns reported through the dedicated whistle-blower channels as alternative to standard reporting and escalation channels. The Concerns are reported periodically (in numbers and on content, if necessary) via the Head of Compliance up to the level of the Supervisory Board.

Whistleblower concerns	
Number of cases reported	**2021**
Discrimination	10
Harassment	4
Sexual intimidation / harassment	1
Bullying	2
Violence	
Aggression	1
Work pressure / non-realistic targets	24
Other undesirable behaviour	22
Accounting, internal accounting controls or auditing matters	
Financial Economic Crime	3
Fraud / Theft	3
Market abuse / Insider trading	
Breach of data privacy or (client/employee) confidentiality	3
Bribery / Corruption	7
Conflicts of Interest	10
Anti-trust / competition law	
Retaliation	1
Unfair customer treatment	2
Other: (i) Breach of any external Law or Regulation or (ii) Breach of any ING Policy	16
Total	**109**

Whistleblower concerns	
Number of cases reported	**2020**
Discrimination	7
Harassment	3
Sexual intimidation/harassment	
Bullying	3
Violence	
Aggression	
Work pressure / non-realistic targets	16
Other undesirable behaviour	14
Accounting, internal accounting controls or auditing matters	2
Financial Economic Crime	5
Fraud / Theft	6
Market abuse / Insider trading	
Breach of data privacy or (client/employee) confidentiality	6
Bribery /Corruption	2
Conflicts of Interest	4
Anti-trust /Competition law	
Retaliation	
Unfair customer treatment	
Other: (i) Breach of any external Law or Regulation or (ii) Breach of any ING Policy	8
Total	**76**

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Disclaimer

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Actual results, performance or events may differ materially from those in such statements due to a number of factors, including, without limitation: (1) changes in general economic conditions, in particular economic conditions in ING's core markets, including changes affecting currency exchange rates and the regional and global economic impact of the invasion of Russia into Ukraine and the related international response measures (2) effects of the Covid-19 pandemic and related response measures, including lockdowns and travel restrictions, on economic conditions in countries in which ING operates, on ING's business and operations and on ING's employees, customers and counterparties (3) changes affecting interest rate levels (4) any default of a major market participant and related market disruption (5) changes in performance of financial markets, including in Europe and developing markets (6) fiscal uncertainty in Europe and the United States (7) discontinuation of or changes in 'benchmark' indices (8) inflation and deflation in our principal markets (9) changes in conditions in the credit and capital markets generally, including changes in borrower and counterparty creditworthiness (10) failures of banks falling under the scope of state compensation schemes (11) non-compliance with or changes in laws and regulations, including those financial services and tax laws, and the interpretation and application thereof (12) geopolitical risks, political instabilities and policies and actions of governmental and regulatory authorities, including in connection with the invasion of Russia into Ukraine and the related international response measures (13) legal and regulatory risks in certain countries with less developed legal and regulatory frameworks (14) prudential supervision and regulations, including in relation to stress tests and regulatory restrictions on dividends and distributions (also among members of the group) (15) regulatory consequences of the United Kingdom's withdrawal from the European Union, including authorizations and equivalence decisions (16) ING's ability to meet minimum capital and other prudential regulatory requirements (17) changes in regulation of US commodities and derivatives businesses of ING and its customers (18) application of bank recovery and resolution regimes, including write-down and conversion powers in relation to our securities (19) outcome of current and future litigation, enforcement proceedings, investigations or other regulatory actions, including claims by customers or stakeholders who feel misled or treated unfairly, and other conduct issues (20) changes in tax laws and regulations and risks of non-compliance or investigation in connection with tax laws, including FATCA (21) operational and IT risks, such as system disruptions or failures, breaches of security, cyber-attacks, human error, changes in operational practices or inadequate controls including in respect of third parties with which we do business (22) risks and challenges related to cybercrime including the effects of cyberattacks and changes in legislation and regulation related to cybersecurity and data privacy (23) changes in general competitive factors, including ability to increase or maintain market share (24) inability to protect our intellectual property and infringement claims by third parties (25) inability of counterparties to meet financial obligations or ability to enforce rights against such counterparties (26) changes in credit ratings (27) business, operational, regulatory, reputation and other risks and challenges in connection with climate change (28) inability to attract and retain key personnel (29) future liabilities under defined benefit retirement plans (30) failure to manage business risks, including in connection with use of models, use of derivatives, or maintaining appropriate policies and guidelines (31) changes in capital and credit markets, including interbank funding, as well as customer deposits, which provide the liquidity and capital required to fund our operations, and (32) the other risks and uncertainties detailed in the most recent annual report of ING Groep N.V. 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