

# Capital adequacy and liquidity disclosure requirements

Disclosure as at 31 December 2017

## Key abbreviations in disclosure

AT1	Additional Tier 1 capital
CCB	Countercyclical capital buffer
CaR	Capital at risk
CCF	Credit conversion factors
CCP	Central counterparty
CCR	Counterparty credit risk
CET1	Common Equity Tier 1 capital
CRM	Credit risk mitigation
CVA	Credit valuation adjustment
D-SIB	Domestic systemically important bank
EAD	Exposure at default
EL	Expected loss
CAO	Capital Adequacy Ordinance
G-SIB	Global systemically important bank
HQLA	High-quality liquid assets
IRB	Internal ratings-based approach
LCR	Liquidity coverage ratio
LGD	Loss given default
LRD	Leverage ratio denominator
PD	Probability of default
PONV	Point of non-viability
QCCP	Qualifying central counterparty
RWA	Risk-weighted assets
RWA density	RWA divided by total assets and off-balance-sheet exposures (post-CCF and post-CRM)
SA-BIS	International standardised approach for credit risk
SA-CCR	Standardised approach for measuring counterparty credit risk exposures
SFT	Securities financing transactions
Stressed VaR	Value at risk under a stress scenario
T2	Tier 2 capital
VaR	Value at risk

In case of any deviations resulting from the translation from German to English, the German version shall prevail.

**About the figures:** The amounts stated in this report have been rounded. The total may therefore vary from the sum of the individual values. The following rules apply to the tables:

- 0 (0 or 0.0) Figure that is smaller than half the unit of account used
- Figure not available, not meaningful or not applicable
- Blank No data available

Zürcher Kantonalbank is providing this information as at 31 December 2017 in accordance with the provisions of the Capital Adequacy Ordinance (CAO) and the disclosure requirements set out in FINMA Circular 2016/1 "Disclosure – banks".

### **Main changes from previous quarter**

Zürcher Kantonalbank switched from the international standardised approach (SA-BIS) to the foundation internal rating-based approach (F-IRB) for calculating capital adequacy requirements for credit risk with effect from 31 December 2017. For exposures where a model-based approach is not possible, the capital adequacy requirements for credit risks continue to be calculated in accordance with SA-BIS. Zürcher Kantonalbank also introduced the standardised approach for measuring counterparty credit risk exposures (SA-CCR) in place of the previous Current Exposure Method with effect from 31 December 2017.

### **Changes in regulatory capital adequacy under Basel III and in liquidity rules**

As at 31 December 2017, the capital base of Zürcher Kantonalbank comfortably exceeded the regulatory requirements on both a weighted and unweighted basis. The same applied to short-term liquidity with regard to the liquidity coverage ratio (LCR).

The total capital ratio on a group basis as at 31 December 2017 was 18.8 percent (2016: 17.5 percent). The Common Equity Tier 1 ratio was 16.5 percent (2016: 15.6 percent). These ratios reflect the solid capital base of Zürcher Kantonalbank.

Risk-based capital adequacy requirements as a systemically important bank (14.6 percent of risk-weighted assets (RWA)) as at 31 December 2017 stood at CHF 9,344 million (2016: CHF 9,691 million), compared to eligible capital in the group of CHF 12,019 million (2016: CHF 11,564 million). This is equivalent to a surplus cover of CHF 2,675 million (2016: CHF 1,873 million).

The minimum capital requirement (8.0 percent of RWA) as at 31 December 2017 amounted to CHF 5,106 million (2016: CHF 5,279 million). The minimum capital requirement was therefore CHF 173 million lower than in the previous year.

The main drivers of the changes in RWA and eligible capital compared to the previous year are the introduction of the IRB approach and the SA-CCR mentioned above as well as retained earnings. The introduction of the IRB approach reduced RWA for credit risk, whereas the switch to SA-CCR increased them. Overall, RWA for credit risks were lower. The requirements for market risks were a little lower than in the previous year, while those for operational risks increased slightly. The eligible capital of Zürcher Kantonalbank increased in the 2017 financial year, mainly due to retained earnings.

The leverage ratio was 6.8 percent at group level, well above the 3.5 percent required for a systemically important bank. This reflects the strong capital base at Zürcher Kantonalbank, also on an unweighted basis.

The average LCR on a group basis in the fourth quarter of 2017 was 153 percent (previous year: 132 percent), once again comfortably above the 100 percent required.

## About the company

In line with its public service mandate, the primary focus of Zürcher Kantonalbank is on customers in the Greater Zurich Area. The bank also conducts business in the rest of Switzerland and abroad, but to a limited extent.

Zürcher Kantonalbank is an independent public-law institution of the Canton of Zurich. The endowment capital provided by the Canton of Zurich forms part of Zürcher Kantonalbank's own funds. The canton also provides a cantonal guarantee for all the bank's non-subordinate liabilities should the bank's resources prove inadequate.

## Weighted capital adequacy requirements

Under Basel III, a selection of different approaches is available to banks for the calculation of capital adequacy requirements for credit, market and operational risks.

The capital requirement for credit risks is mainly calculated using the internal ratings-based approach (foundation IRB or F-IRB). For exposures where the IRB approach cannot be used, the capital requirement for credit risks is calculated using the international standardised approach (SA-BIS). The standardised approach for measuring counterparty credit risk exposures (SA-CCR) is used to determine the credit equivalent of derivatives. The capital requirement for the risk of credit value adjustments (CVA risk) due to the counterparty credit risk of derivatives is calculated in accordance with the standardised approach.

The capital requirement for market risk is still calculated based on the internal market risk model approach (the value-at-risk model) approved by FINMA. Capital requirements are based on the market risks in the trading book and the exchange rate, precious metals and commodity risks in the banking book. Besides the daily value-at-risk figures, weekly stressed VaR figures are also included in the calculation of capital requirements. The total risk is also calculated using the model approach, although the value changes in risk factors are based on data that were observed in a period with significant market stress for Zürcher Kantonalbank. The capital requirement for the specific risks of interest rate instruments is calculated using the standardised approach.

Zürcher Kantonalbank uses the basic indicator approach to determine the capital requirement for operational risks.

The capital requirements for systemically important institutions basically consist of capital adequacy requirements for the bank to continue its activities (going concern) and additional loss-absorbing measures (gone concern). The total requirement for the continuation of the bank's activities consists of a base requirement and additional requirements, calculated on the basis of market share and total exposure.

At the present time, requirements for additional loss-absorbing measures only apply to global systemically important banks (G-SIB) and are therefore not relevant to Zürcher Kantonalbank as a domestic systemically important bank (D-SIB). The structure of the gone-concern requirements for domestic systemically important banks has yet to be finalised. The Federal Council submitted an evaluation report on this issue on 28 June 2017, which was discussed in the parliamentary Committees for Economic Affairs and Taxation (EATC) in autumn/winter 2017/18. The consultation process (with parties, trade associations, etc.) on the proposed amendments to the CAO was launched on 23 February 2018. The current draft of the amended CAO stipulates gone-concern requirements of 40 percent of going-concern requirements for domestic systemically important banks, part of which can be met by an explicit cantonal guarantee. The consultation period runs until 30 May 2018 and the intention is that the revised CAO will come into effect on 1 January 2019, with a transitional period of seven years.

As at 31 December 2017, the capital adequacy requirement for Zürcher Kantonalbank as a domestic systemically important bank is 14.0 percent of risk-weighted assets, for both the parent company and the group, according to the individual decree issued by the Swiss Financial Market Supervisory Authority (FINMA). The countercyclical capital buffer (CCB) on mortgages secured on residential properties in Switzerland increases the requirement by a further CHF 408 million, or 0.6 percent, to 14.6 percent.

## Unweighted capital adequacy requirements (leverage ratio)

Under the transitional provisions in Article 148c of the Capital Adequacy Ordinance (CAO), the unweighted regulatory capital adequacy requirement (leverage ratio) rises in stages until 2019. At the end of 2017, it stood at 3.5 per cent for Zürcher Kantonalbank.

### Disclosure

The following gives an overview of the details on capital and liquidity which have to be disclosed as at 31 December 2017 under current regulations.

Table no. (refers to FINMA Circ. 16/1)	Basel framework reference code	Table name	Qualitative (QUAL) or quantitative with comments (QC)	Frequency (according to FINMA Circ. 16/1)		
				quarterly	semi-annually	annually
1		Composition of eligible capital / reconciliation	QC		X	
2		Composition of eligible regulatory capital / presentation of eligible regulatory capital	QC		X	
3	OVA	Bank risk management approach	QUAL			X
4	OV1	Overview of risk-weighted assets	QC		X	
5	LI1	Differences between accounting and regulatory scopes of consolidation and mapping of financial statement categories with regulatory risk categories	QC			X
6	LI2	Main sources of differences between regulatory exposure amounts and carrying values in consolidated financial statements	QC			X
7	LIA	Explanations of differences between accounting and regulatory exposure amounts	QUAL			X
8	CRA	Credit risk: general information	QUAL			X
9	CR1	Credit risk: credit quality of assets	QC		X	
10	CR2	Credit risk: changes in stock of defaulted loans and debt securities	QC		X	
11	CRB	Credit risk: additional disclosure related to the credit quality of assets	QUAL/QC			X
12	CRC	Credit risk: qualitative disclosure requirements related to mitigation techniques	QUAL			X
13	CR3	Credit risk: overview of mitigation techniques	QC		X	
14	CRD	Credit risk: qualitative disclosures of bank's use of external credit ratings under the standardised approach	QUAL			X
15	CR4	Credit risk: exposure and credit risk mitigation (CRM) effects under the standardised approach	QC		X	

Table no. (refers to FINMA Circ. 16/1)	Basel framework reference code	Table name	Qualitative (QUAL) or quantitative with comments (QC)	Frequency (according to FINMA Circ. 16/1)		
				quarterly	semi-annually	annually
16	CR5	Credit risk: exposures by exposure category and risk weights under the standardised approach	QC		X	
17	CRE	IRB: qualitative disclosures related to IRB models	QUAL			X
18	CR6	IRB: credit risk exposures by portfolio and PD range	QC		X	
19	CR7	IRB: effect on RWA of credit derivatives used as CRM techniques	QC		X	
20	CR8	IRB: RWA flow statements of credit risk exposures	QC		X	
21	CR9	IRB: backtesting of probability of default (PD) per portfolio	QC			X
22	CR10	IRB: specialised lending and equities under the simple risk weight method	QC		X	
23	CCRA	Counterparty credit risk: qualitative disclosure	QUAL			X
24	CCR1	Counterparty credit risk: analysis by approach	QC		X	
25	CCR2	Counterparty credit risk: credit valuation adjustment (CVA) capital charge	QC		X	
26	CCR3	Counterparty credit risk: standardised approach to CCR exposures by exposure category and risk weights	QC		X	
27	CCR4	IRB: CCR exposures by exposure category and PD scale	QC		X	
28	CCR5	Counterparty credit risk: composition of collateral for CCR exposure	QC		X	
29	CCR6	Counterparty credit risk: credit derivatives exposures	QC		X	
30	CCR7	Counterparty credit risk: RWA flow statements of CCR exposures under the IMM (EPE model method)	QC		X	
31	CCR8	Counterparty credit risk: exposures to central counterparties	QC		X	
32	SECA	Securitisations: qualitative disclosure requirements related to securitisation exposures	QUAL			X
33	SEC1	Securitisation: exposures in the banking book	QC		X	
34	SEC2	Securitisations: exposures in the trading book	QC		X	
35	SEC3	Securitisations: exposures in the banking book and associated regulatory capital requirements – bank acting as originator or as sponsor	QC		X	

Table no. (refers to FINMA Circ. 16/1)	Basel frame-work reference code	Table name	Qualitative (QUAL) or quantitative with comments (QC)	Frequency (according to FINMA Circ. 16/1)		
				quarterly	semi-annually	annually
36	SEC4	Securitisation: exposures in the banking book and associated capital requirements – bank acting as investor	QC		X	
37	MRA	Market risk: qualitative disclosure requirements	QUAL			X
38	MRB	Market risk: qualitative disclosures for banks using the Internal Model Approach (IMA)	QUAL			X
39	MR1	Market risk: minimum capital requirements under standardised approach	QC		X	
40	MR2	Market risk: RWA flow statements of market risk exposures under an IMA	QC		X	
41	MR3	Market risk: IMA values for trading portfolios	QC		X	
42	MR4	Market risk: comparison of VaR estimates with gains/losses	QC		X	
43		Qualitative disclosure requirements related to operational risks	QUAL			X
44		Interest rate risk in the banking book	QUAL/QC			X
45		Presentation of material features of regulatory capital instruments	QUAL		X	
46		Leverage ratio: comparison of accounting assets versus leverage ratio exposure measure	QC		X	
47		Leverage ratio: detailed presentation	QC		X	
48		Information about the liquidity coverage ratio	QC		X	
49 <sup>1</sup>		Additional requirements applicable to large banks: minimum disclosure requirements		X		
50 <sup>2</sup>		Disclosure requirements for systemically important banks: risk-based capital requirements based on capital ratios		X		
51 <sup>2</sup>		Disclosure requirements for systemically important banks: unweighted capital requirements based on the leverage ratio		X		

<sup>1</sup> According to the guidelines in Annex 4 of FINMA Circ. 16/1

<sup>2</sup> According to the guidelines in Annex 5 of FINMA Circ. 16/1

## Table 1: Composition of eligible capital / reconciliation

Balance sheet 31.12.2017 in CHF million	As in financial statements / Under regulatory scope of consolidation <sup>1</sup>	References
<b>Assets</b>		
Liquid assets	41'147	
Amounts due from banks	4'457	
Amounts due from securities financing transactions	14'326	
Amounts due from customers	7'832	
Mortgage loans	79'087	
Trading portfolio assets	8'922	
Positive replacement values of derivative financial instruments	1'535	
Other financial instruments at fair value		
Financial investments	4'740	
Accrued income and prepaid expenses	281	
Non-consolidated participations	130	
Tangible fixed assets	775	
Intangible assets	192	
of which goodwill	190	A
of which other intangibles	2	B
Other assets	458	
of which deferred tax assets that rely on future profitability	9	C
of which deferred tax assets arising from temporary differences		D
Capital not paid in		
<b>Total assets</b>	<b>163'881</b>	
<b>Liabilities</b>		
Amounts due to banks	35'393	
Liabilities from securities financing transactions	6'623	
Amounts due in respect of customer deposits	81'381	
Trading portfolio liabilities	1'859	
Negative replacement values of derivative financial instruments	867	
Liabilities from other financial instruments at fair value	2'869	
Cash bonds	191	
Bond issues	12'419	
Central mortgage institution loans	9'275	
Accrued expenses and deferred income	634	
Other liabilities	558	
Provisions	585	
of which deferred tax liabilities related to goodwill		E
of which deferred tax liabilities related to other intangible assets		F
of which deferred tax liabilities related to differences in valuations	0	G
<b>Total liabilities</b>	<b>152'652</b>	
of which subordinated liabilities eligible as Tier 2 capital (T2)	764	
of which high-trigger contingent capital		
of which low-trigger contingent capital	764	
of which subordinated liabilities eligible as Additional Tier 1 capital (AT1)	749	
of which high-trigger contingent capital	749	
of which low-trigger contingent capital		

**Balance sheet****31.12.2017**

in CHF million

As in financial statements /  
Under regulatory scope of  
consolidation <sup>1</sup>

References

Equity		
Reserves for general banking risks		
Bank's capital	2'425	
of which eligible as CET1	2'425	H
of which eligible as AT1		I
Statutory reserves / voluntary reserves / profits (losses) carried forward / profit (loss) for the period	8'803	
of which voluntary retained earnings reserve	8'026	
of which foreign currency translation reserve	-4	
of which profit (loss) for the current period	782	
of which planned dividend	363	
of which planned retained profit	419	
(Own shares)		
Minority interests		
of which eligible as CET1		J
of which eligible as AT1		K
<b>Total equity</b>	<b>11'228</b>	

<sup>1</sup> One completed column is sufficient at the level of the single-entity financial statement and consolidated financial statement provided that the scope of consolidation for accounting purposes is identical to that for regulatory purposes. This is applicable to Zürcher Kantonalbank.

**Scope of consolidation group**

The scope of consolidation used to calculate capital requirements is equal to the one used to draw up the consolidated financial statements. In addition to the parent company Zürcher Kantonalbank, the group's scope of consolidation includes all directly and indirectly held fully owned subsidiaries: Zürcher Kantonalbank Finance (Guernsey) Ltd., Zürcher Kantonalbank Österreich AG and Swissscanto, consisting of Swissscanto Holding AG, Swissscanto Management Company Ltd., Swissscanto Pensions Ltd., Swissscanto Funds Centre Ltd. and Swissscanto Asset Management International SA.

The representative office in São Paulo, a majority holding in Zürcher Kantonalbank Representações Ltda., is not material for accounting purposes and is not fully consolidated.

Equity instruments of companies in the financial sector are treated as described in Articles 33 - 40 CAO. The portion above a threshold is deducted directly from equity; the portion below the threshold is risk-weighted.

Table 5 proves that book values in the accounting and regulatory scopes of consolidation are the same.

**Scope of consolidation parent company**

The parent company's capital has been calculated on a solo consolidated basis since 31 December 2012. Under Art. 10 para. 3 CAO, FINMA can allow a bank to consolidate group companies operating in the financial sector at individual institution level (solo consolidation) on account of their particularly close relationship to the bank. FINMA has ruled that Zürcher Kantonalbank may consolidate the subsidiary Zürcher Kantonalbank Finance (Guernsey) Ltd. on a solo basis under the individual institution provisions since 2012. There are no other differences between the regulatory and accounting scopes of consolidation.

**Table 2: Composition of eligible regulatory capital / presentation of eligible regulatory capital**

	Net figures (after transitional arrangements have been taken into account)	Impact of transitional arrangements (phase in / phase out for minority interests)	References
<b>31.12.2017</b>			
<i>in CHF million</i>			
<b>Common equity (CET1)</b>			
1 Issued and paid-in capital, fully eligible	2'425		H
2 Retained earnings reserves, including reserves for general banking risks / profit (loss) carry forwards and profit (loss) for the period	8'808		
of which voluntary retained earnings reserve	8'026		
of which profit (loss) for the current period	782		
of which planned dividend	363		
of which planned retained profit	419		
3 Capital reserves and foreign currency translation reserve (+/-)	-4		
4 Issued and paid in capital, subject to phase-out			
5 Minority interests			J
6 = Common Equity Tier 1 capital before regulatory adjustments	10'865		
<b>CET1: regulatory adjustments</b>			
7 Prudential valuation adjustments			
8 Goodwill (net of related tax liability)	-190		A, E
9 Other intangibles other than mortgage servicing rights (net of related tax liability)	-2		B, F
10 Deferred tax assets that rely on future profitability	-9		C
11 Cash flow hedge reserve (-/+)			
12 IRB shortfall of provisions to expected losses	-158		
13 Securitisation gain on sale			
14 Gains or losses due to changes in own credit risk			
15 Defined-benefit pension fund net assets (net of related tax liability)			
16 Net long position in own CET1 instruments			
17 Reciprocal cross-holdings in common equity (CET1 instruments)			
17a Qualified participations where a controlling influence is exercised together with other owners (CET1 instruments)			
17b Participations to be consolidated (CET1 instruments)			
18 Non-qualified participations (max. 10% in the financial sector (amount above Threshold 1) (CET1 instruments)			
19 Other qualified participations in the financial sector (amount above Threshold 2) (CET1 instruments)			
20 Mortgage servicing rights (amount above Threshold 2)			
21 Other deferred tax assets arising from temporary differences (amount above Threshold 2)			D
22 Amount exceeding Threshold 3 (15%)			
23 of which other qualified participations			
24 of which mortgage servicing rights			
25 of which other deferred tax assets arising from temporary differences			
26 Expected losses on equity investments treated under the PD/LGD approach			
26a Other adjustments in the case of financial statements prepared in accordance with internationally recognised accounting standards			
26b Other deductions			
27 Amount by which the AT1 deductions exceed the AT1 capital			
28 = Total regulatory adjustments to CET1	-359		
<b>29 = Common Equity Tier 1 capital (net CET1)</b>	<b>10'506</b>		
<b>Additional Tier 1 capital (AT1)</b>			
30 Issued and paid in instruments, fully eligible	750		
31 of which classified as equity under applicable accounting standards			I
32 of which classified as liabilities under applicable accounting standards	750		
33 Issued and paid in instruments, subject to phase out			
34 Minority interests eligible as AT1			K
35 of which subject to phase out			
36 = Additional Tier 1 capital before regulatory adjustments	750		

	Net figures (after transitional arrangements have been taken into account)	Impact of transitional arrangements (phase in / phase out for minority interests)	References
<b>31.12.2017</b>			
<i>in CHF million</i>			
<b>Additional Tier 1 capital: regulatory adjustments</b>			
37	-1		
38			
38a			
38b			
39			
40			
41			
42			
Tier 1 ADJUSTMENTS BASED ON THE TRANSITIONAL ARRANGEMENTS			
OF WHICH FOR PRUDENTIAL VALUATION ADJUSTMENTS			
OF WHICH FOR OWN CET1 INSTRUMENTS			
OF WHICH FOR GOODWILL (NET OF RELATED TAX LIABILITY)			
OF WHICH FOR OTHER INTANGIBLES OTHER THAN MORTGAGE SERVICING RIGHTS (NET OF RELATED TAX LIABILITY)			
OF WHICH FOR CASH FLOW HEDGE RESERVE			
OF WHICH FOR IRB SHORTFALL			
OF WHICH FOR SECURITISATION GAIN ON SALE			
OF WHICH FOR GAINS (LOSSES) DUE TO CHANGES IN OWN CREDIT RISK			
OF WHICH FOR PARTICIPATIONS			
OF WHICH FOR EXPECTED LOSSES ON EQUITY INVESTMENTS TREATED UNDER THE PD/LGD APPROACH			
OF WHICH FOR MORTGAGE SERVICING RIGHTS			
42a			
43	-1		
44	749		
	749		
<b>45</b>	<b>11'255</b>		
<b>Tier 2 capital (T2)</b>			
46	770		
47			
48			
49			
50			
51	770		
<b>Tier 2 capital: regulatory adjustments</b>			
52	-6		
53			
53a			
53b			
54			
55			
56			
ADDITIONAL DEDUCTIONS IN RESPECT OF TRANSITIONAL ARRANGEMENTS (OTHER DEDUCTION OF EQUAL AMOUNTS («50/50 DEDUCTION METHOD») FROM AT1 AND T1, RESPECTIVELY)			
56a			
57	-6		
<b>58</b>	<b>764</b>		
	764		
	764		
<b>59</b>	<b>12'019</b>		
	749		
	764		
RISK-WEIGHTED ASSETS IN RESPECT OF AMOUNTS SUBJECT TO TRANSITIONAL ARRANGEMENTS (PHASE IN)			
<b>60</b>	<b>63'822</b>		

	Net figures (after transitional arrangements have been taken into account)	Impact of transitional arrangements (phase in / phase out for minority interests)	References
<b>31.12.2017</b>			
<i>in CHF million</i>			
<b>Capital ratios<sup>1</sup></b>			
61	CET1 ratio (item 29, as a percentage of risk-weighted assets)	16.5%	
62	T1 ratio (item 45, as a percentage of risk-weighted assets)	17.6%	
63	Regulatory capital ratio (item 59, as a percentage of risk-weighted assets)	18.8%	
64	CET1 requirements in accordance with the Basel minimum standards (minimum requirements + capital buffer + countercyclical buffer) plus the capital buffer for systemically important banks) (as a percentage of risk-weighted assets)	6.4%	
65	of which capital buffer in accordance with Basel minimum standards (as a percentage of risk-weighted assets)	1.3%	
66	of which countercyclical buffer in accordance with the Basel minimum standards (as a percentage of risk-weighted assets)	0.6%	
67	of which capital buffer for systemically important institutions in accordance with the Basel minimum standards (as a percentage of risk-weighted assets)	-	
68	CET1 available to meet minimum and buffer requirements as per the Basel minimum standards, after deduction of the AT1 and T2 requirements met by CET1 (as a percentage of risk-weighted assets)	15.3%	
68a	CET1 total requirement target in accordance with Annex 8 of the CAO plus the countercyclical buffer (as a percentage of risk-weighted assets)	-	
68b	CET1 available (as a percentage of risk-weighted assets)	-	
68c	T1 total requirement in accordance with Annex 8 of the CAO plus the countercyclical buffer (as a percentage of risk-weighted assets)	-	
68d	T1 available (as a percentage of risk-weighted assets)	-	
68e	Total requirement for regulatory capital as per Annex 8 of the CAO plus the countercyclical buffer (as a percentage of risk-weighted assets)	-	
68f	Regulatory capital available (as a percentage of risk-weighted assets)	-	
<b>Amounts below the thresholds for deduction (before risk-weighting)</b>			
72	Non-qualified participation in the financial sector	343	
73	Other qualified participations in the financial sector (CET1)	312	
74	Mortgage servicing rights		
75	Other deferred tax assets		
<b>Applicable caps on the inclusion of items in T2</b>			
76	Valuation adjustments eligible in T2 in the context of the SA-BIS approach		
77	Cap on inclusion of valuation adjustments in T2 in the context of the SA-BIS approach		
78	Valuation adjustments eligible in T2 in the context of the IRB approach		
79	Cap on inclusion of valuation adjustments in T2 in the context of the IRB approach		

<sup>1</sup> Systemically important banks can disregard Rows 68a – f as Annex 8 of the CAO does not apply to them.

### **Table 3 (OVA): Bank risk management approach**

Ongoing operations at a universal bank such as Zürcher Kantonalbank require comprehensive and systematic risk management, with monitoring and controlling units acting independently of the risk managers.

#### **Principles of risk management**

The objective of risk management is to support Zürcher Kantonalbank in generating added value while maintaining a first-class credit rating and reputation. Risk management is based on the following principles:

- Risk culture: the bank fosters a risk culture that is geared towards responsible behaviour. Risk managers bear responsibility for profits and losses generated on the risks entered into. In addition, they bear primary responsibility for identifying transactions and structures that entail particular business policy risks, conflicts of interest or particular effects on the bank's reputation.
- Separation of functions: for significant risks and to avoid conflicts of interest, the bank has established control processes that are independent of management.
- Risk identification and monitoring: the bank only enters into transactions if the risks are in accordance with its business strategy and can be appropriately identified, managed and monitored.
- Risk and return: the bank seeks to achieve a balanced relationship between risk and return for all transactions. Assessment of the risk/return profile takes account of quantifiable as well as non-quantifiable risks.
- Transparency: risk reporting and disclosure are guided by high industry standards in terms of objectivity, scope, transparency and timeliness.

#### **Internal control system (ICS)**

The ICS comprises all of the control structures and processes that constitute the basis for the achievement of the bank's business policy objectives and the proper operation of the group at all levels. The ICS comprises not only retrospective checks but also planning and management activities. An effective ICS includes control activities that are integrated into workflows, suitable risk management and compliance processes, and appropriate supervisory bodies for the size, complexity and risk profile of the institution, in particular an independent risk control and compliance function. The key elements of the ICS at Zürcher Kantonalbank are:

- the risk policy parameters of the Board of Directors for safeguarding the group's credit rating and reputation,
- systematic risk analysis and periodic monitoring of the appropriateness and effectiveness of internal controls by the Executive Board and Board of Directors,
- the group's established processes for risk management and compliance with applicable standards and
- the systematic process to ensure the appropriateness and effectiveness of internal controls by the individual business units and business processes.

Identifying and reducing the inherent risks involved in the business model are also an important aspect of the internal control system. For more information on the underlying processes, please see Table 8 (Credit risk), Table 23 (Counterparty credit risk), Table 37 (Market risks) and Table 43 (Operational risks).

For reporting on the effectiveness of the ICS, please see the section headed "Internal risk reporting" below these tables.

## Risk management process

Zürcher Kantonalbank divides the risk management process into the following stages:



<b>Identification</b>	The risks relevant to the group are identified on an ongoing basis, either through regular, systematic observation of the corporate environment and risk profile, or as the potential result of one of the following steps.
<b>Assessment</b>	Assessment of an identified risk includes qualitative assessment and quantification. In order to counter the limits to quantification of different types of risk, models or expert assessments are used depending on the type of risk to calculate the potential size of the loss, the probability of occurrence and the correlation with other risks.
<b>Steering</b>	Risk steering is assured via risk tolerance requirements. Risk tolerance includes both quantitative and qualitative considerations concerning the main risks the group is willing to accept to achieve its strategic business objectives given its capital and liquidity planning. Qualitative risk requirements are primarily issued in the form of regulations, directives or instructions, but also cover risk policy and aspects of strategy. Quantitative requirements are issued in the form of limits and benchmarks. At group level, these are chiefly the risk policy rules from the Board of Directors and the risk limits of the Executive Board (EB).
<b>Management</b>	Units managing risk perform their tasks within the risk tolerance set by the officer responsible. This includes taking countermeasures to avoid or limit risks or loss.
<b>Monitoring</b>	Risk monitoring takes the form of limit monitoring and ongoing monitoring of risk exposures by units independent of the risk manager. The risk organisation and the compliance function are examples of such units.
<b>Reporting</b>	Risk reporting supports all levels of the hierarchy in assessing and monitoring risks.

## Principles of compliance

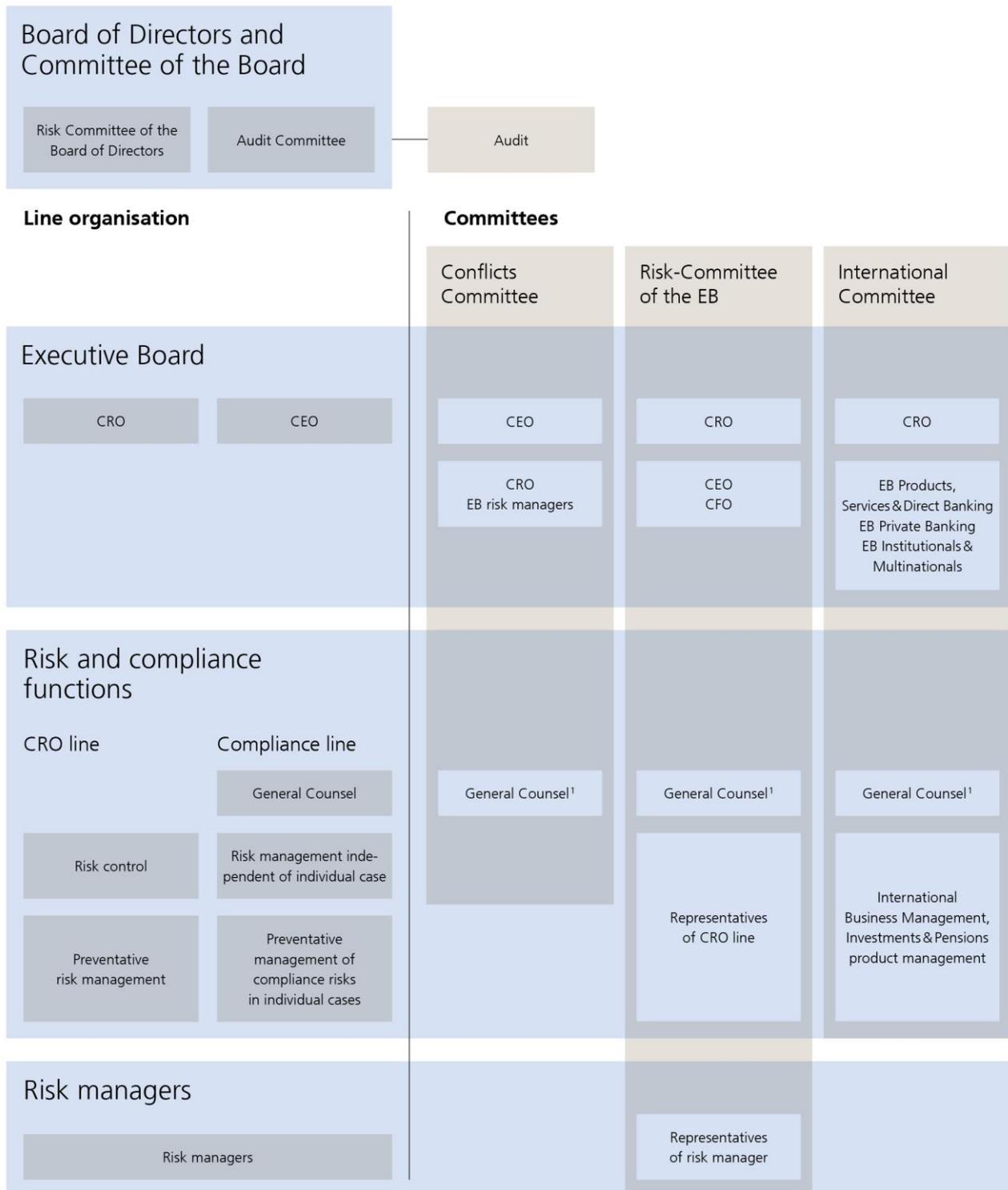
The objective of compliance is to ensure that Zürcher Kantonalbank conducts its business operations in accordance with legal and ethical norms. The principles of the compliance policy are as follows:

- conduct must be legal and ethical;
- core ethical and behavioural values are set out in a code of conduct;
- all employees and officers are obliged to comply with the law, regulatory standards, internal rules, normal market practice and professional principles and will be punished accordingly in the event of breaches thereof;
- a special reporting procedure applies when employees discover breaches of the rules (whistleblowing);
- the Executive Board has primary responsibility for compliance;
- compliance risk is assessed annually by means of a risk inventory and matching plan of activities;
- the compliance function is independent.

The most important principle of all is that Zürcher Kantonalbank conducts its banking operations in accordance with the statutory and regulatory provisions as well as recognised professional and ethical principles within the banking industry.

## Risk organisation

Risk organisation at Zürcher Kantonalbank is arranged so that the profit-oriented functions of taking and managing risk are always structurally separate at Executive Board level from the preventive risk management and risk control functions.



<sup>1</sup> General Counsel has the right of escalation to the Committee of the Board at any time.

## **Board of Directors**

The Board of Directors approves the principles for risk management and compliance, the code of conduct, the framework for group-wide risk management and the risk tolerance requirements at group level. It is responsible for the regulation, organisation and monitoring of an effective risk management system as well as the management of overall risks. The Board of Directors is responsible for assuring a suitable risk and control environment within the group and arranges for an effective internal control system (ICS). It also approves transactions involving major financial exposure. The Risk Committee and Audit Committee of the Board of Directors support the board in its tasks and duties in the areas of risk management and the internal control system.

## **Committee of the Board**

The Committee of the Board approves limits and deals with transactions involving particular business policy risks, conflicts of interest or particular effects on the group's reputation where these exceed the remit of the Executive Board and do not fall within the remit of the Board of Directors.

## **Audit**

Audit supports the Board of Directors in fulfilling its statutory supervisory and control tasks and discharges the monitoring tasks assigned to it by the Board of Directors. In particular, Audit independently and objectively evaluates the appropriateness and effectiveness of the internal control and risk management processes and contributes towards their improvement. Audit has unlimited rights of inspection, information and access within the entire group.

## **Executive Board**

The Executive Board (EB) issues provisions for the identification, evaluation, steering, management, monitoring and reporting of risks in the form of directives. The Executive Board is also responsible for approving transactions that entail particular business policy risks, conflicts of interest or particular effects on the reputation of Zürcher Kantonalbank, unless they are assigned to another officer under the applicable regulations.

## **Risk unit**

The Chief Risk Officer (CRO) is a member of the EB and heads the Risk unit. He has a right of intervention that permits measures to be assigned to the risk managers if required by the risk situation or to protect the bank. The CRO also enjoys direct access to the Committee of the Board at all times. The business unit consists of the Credit Risk, Market Risk, Operational Risk and Risk Control organisational units.

Risk Control is responsible for identifying and monitoring risks at portfolio level, monitoring compliance with the risk tolerance requirements set out by the Board of Directors, and integrated risk reporting to the Executive Board and Board of Directors. The risk control function is responsible for defining methods of risk measurement, model validation, as well as execution and quality assurance in relation to the risk measurement implemented.

Preventative risk management is responsible for the analysis and examination of transactions and systems prior to their conclusion or introduction in line with existing delineations of power and consultation duties, the definition of requirements at individual transaction or system level, the continuous local monitoring of risks, and the provision of support in the training of risk managers. Preventative risk management in terms of security takes place outside the Risk unit in Logistics.

## **Compliance function**

The General Counsel reports directly to the CEO and manages the Legal & Compliance unit. As a member of the Risk, Conflicts and International committees, he has a right of escalation to the Committee of the Board. He also enjoys direct access to the Committee of the Board at all times.

The Compliance function has the following duties: examining the compliance risk inventory on an annual basis and preparing the action plan with focal points relating to the management of compliance risks, formulating proposals and if necessary carrying out defined monitoring and control duties in the context of post-deal control, as well as defining risk management tools. Compliance also defines risk management measures independently of the individual case, such as the editing of directives in the context of the implementation of new directives and staging of training events. The Compliance function is further responsible for providing forward-looking legal advice with the objective of avoiding or minimising individual identified risks and threats arising from legal requirements. Legal advice is provided in the context of existing mandatory consultations, as a pre-deal consultation or on request.

### **Risk managers**

The risk managers bear responsibility for profits and losses generated on the risks entered into. They are responsible for the continuous, active management of risks and for constant compliance with internal risk policy regulations, relevant laws, ordinances, circulars and standards. The sales units are responsible for credit risks as risk managers and the Trading, Sales & Capital Markets organisational unit for market risks in the trading book. Interest rate risks in the banking book and liquidity risks are the responsibility of Treasury in the Finance unit. All units of the bank are responsible for managing operational and compliance risks.

### **Risk Committee of the Board of Directors**

The Risk Committee of the Board of Directors focuses on credit, market and liquidity risks, operational and compliance risks, and reputation risks. It performs the tasks set out in FINMA Circular 2017/1 "Corporate governance – banks". These are, in summary:

- To discuss and review the overall concept in place annually;
- To give preliminary consideration to the risk policy rules;
- To acknowledge and discuss risk reporting;
- To monitor implementation of the risk strategies to ensure they are compatible with the risk tolerance and risk limits set;
- To review the capital and liquidity planning;
- To assess measures taken as a result of audit recommendations;
- To assess the bank's compensation system for risk-related issues.

The Risk Committee of the Board of Directors also provides preliminary advice on major transactions that fall within the remit of the Board of Directors. The committee is also kept informed of transactions that fall within the remit of the Committee of the Board. The duties, competences and responsibility of the committee are set out in the Guidelines on the Duties and Powers of the Risk Committee of Zürcher Kantonalbank.

### **Audit Committee of the Board of Directors**

The Audit Committee is an audit committee as defined in FINMA Circular 2017/1 "Corporate governance – banks" and supports the Board of Directors at group and parent company level in monitoring internal and external auditing, the internal control system and the audit of the annual financial statements. The duties and powers of the Audit Committee of the Board of Directors include:

- analysing and discussing the general and annual planning;
- assessing the proper functioning of the internal control system and informing the Board of Directors about this;
- receiving and discussing the activity reports of the Compliance function and Risk Control.

The duties, competences and responsibilities of the committee are set out in the Guidelines on the Duties and Powers of the Audit Committee of Zürcher Kantonalbank.

### **Risk Committee of the Executive Board and committees**

The Risk Committee assists the EB in defining risk management processes. The committee is chaired by the CRO and approves the methods of risk measurement on the basis of the responsibilities delegated to it. The risk managers represented on four separate sub-committees (credit, trading, treasury and operational risk) and members of the risk and compliance organisation discuss the Risk Committee's business before formulating proposals for its attention.

### **Conflicts Committee**

Based on the responsibilities delegated to them, the members of the Executive Board represented on the Conflicts Committee take decisions regarding transactions that entail particular business policy risks, conflicts of interest or particular effects on the group's reputation. The Conflicts Committee is chaired by the CEO; its escalation body is the Committee of the Board.

### **International Committee**

The International Committee is chaired by the CRO and is tasked with defining the specific business policy requirements for transactions with an international dimension, monitoring and reporting on such transactions, and approving the permissible business activities per country.

### **Crisis organisation**

In the event of a crisis, in addition to the above committees, a Risk Crisis Team is set up, supported by divisional crisis teams. It has the task of ensuring that decisions are taken in an efficient and coordinated manner in the event of a crisis. The crisis team provides support to the EB during crises affecting the entire bank, such as systemic and financial market crises, which the emergency organisation cannot cover. The divisional crisis teams (banks, liquidity and investments/clients) cross reporting lines, with the aim of working with all units affected to identify and implement necessary and appropriate measures in their area of responsibility.

### **Business continuity management (BCM)**

The emergency organisation is led by the Head of Logistics and supports the bank in dealing with major disruptions and crises caused by operational risks that cannot be resolved by the normal line organisation. It is important to distinguish crisis management from the associated advance planning measures (which are part of business continuity management).

The emergency organisations in the business units/areas are responsible for dealing with major disruptions in their own unit/area caused by the occurrence of an operational risk which cannot be resolved by the normal line organisation. The Sales emergency organisation has responsibility for sales across business units.

## Risk categories

Zürcher Kantonalbank divides risks into the following categories:

### Credit risk

Definition	<b>Credit risk</b> constitutes the risk of financial losses that can arise if clients or counterparties do not fulfil contractual obligations that are falling due or do not fulfil them on time. Loans, promises of payment and trading transactions all involve credit risks.
Sub-categories	<b>Counterparty credit risks</b> (credit risks in trading transactions, e.g. OTC derivatives and SLB transactions). Trading transactions usually involve receivables too, which also depend on market parameters. Counterparty risks are also referred to as counterparty default risks. <b>Settlement risks:</b> The risk of losses in connection with transactions involving mutual payment and delivery obligations, where the bank must meet its delivery obligation without first being able to ensure that counter-payment will be made. <b>Country risks:</b> The risk of losses as the result of country-specific events, such as transfer risks (payment of a liability is restricted or prevented by a country) and risks arising from political and/or macroeconomic events.
Management	Sales units, Trading
Independent monitoring	Risk unit

### Market risk

Definition	<b>Market risks</b> comprise the risk of financial losses on securities and derivatives in the bank's own portfolio as a result of changes in market factors, such as share prices, interest rates, volatilities or exchange rates (general market risks), as well as for issuer-specific reasons (specific market risks).
Sub-categories	<b>Balance sheet interest rate risk</b> is the risk that changes in market interest rates will impact negatively on the financial situation of the banking book. As well as affecting current interest income, changes in interest rates have implications for future results. The interest rate risk is managed based on the market interest method. <b>Market liquidity risk</b> is the risk that a product can no longer be sold (or purchased) on a market without any problems. The higher the market liquidity, the greater the chance of purchasing or selling a product for an appropriate price at the desired time. <b>Issuer (default) risk</b> is a special form of specific market risks and is the risk that the issuer of a security is no longer able to meet its payment obligations. This risk represents the partial or even complete loss of the security holder's investment.
Management	Trading, Treasury
Independent monitoring	Risk unit

## Liquidity risk

Definition	<b>Liquidity</b> refers to the bank's capacity to settle its liabilities promptly and without restrictions. The <b>liquidity risk</b> is the risk that this capacity to pay will be impaired under institution or market-related stress conditions.
Sub-categories	<b>(Re)financing risk:</b> Refinancing refers to the procurement of funds for the financing of assets. Refinancing risk is the risk that the bank is not in a position to procure sufficient funds at appropriate conditions for the ongoing financing of its lending business. <b>Short-term liquidity</b> ensures that the bank is able to make payments over a short period of time in the event of a systemic or institution-specific liquidity crisis by holding a sufficiently large inventory of high-quality liquid and unencumbered assets as a financial precaution against a temporary liquidity gap. Often, 30 calendar days are used as the definition period. The regulatory indicator for short-term liquidity is the liquidity coverage ratio (LCR). <b>Structural liquidity</b> has a medium-term horizon and ensures that refinancing as per the liquidity profile of the assets takes place with stable liabilities. Structural liquidity requirements specify that illiquid assets such as loans to private individuals and companies, as well as parts of the trading portfolio, are to be refinanced through long-term liabilities. The regulatory indicator for structural liquidity is the net stable funding ratio (NSFR).
Management	Treasury and Money Trading
Independent monitoring	Risk unit

## Operational risk

Definition	<b>Operational risks</b> refer to potential damage caused by the inappropriateness or failure of persons, systems or procedures or due to external events.
Sub-categories	<b>Security risks</b> are operational risks with a negative effect on the security protection objectives (protection of the confidentiality, integrity and availability of data and functions in IT systems, protection of information, protection of persons and protection of assets). <b>IT risks</b> refer to potential damage caused by the loss of confidentiality, integrity and availability of data and functions in IT systems. <b>Cyber risks</b> comprise the risk of attacks from the Internet or similar networks (referred to as hacker attacks) on the confidentiality, integrity and availability of data and functions in IT systems.
Management	All employees, in line with their duties, competences and responsibilities in the group.
Independent monitoring	Risk unit

## Compliance risk

Definition	<b>Compliance risks</b> are behavioural risks. These are risks that are caused by breaches of the law, regulations or contracts and can result in legal and regulatory sanctions, financial losses and reputation damage. <b>Compliance</b> is the observance of legal, regulatory and internal regulations as well as the adherence to industry standards and codes of conduct. Compliance involves ensuring the behaviour and actions of Zürcher Kantonalbank and its employees meet applicable legal and ethical standards and also comprises all organisational measures designed to prevent violations of the law and breaches of rules and ethical norms by Zürcher Kantonalbank, its governing bodies and its employees.
Management	Group board members and all employees
Independent monitoring	Legal & Compliance

## Strategic risk

Definition	<b>Strategic risks</b> are all possible factors of influence, events and decisions that have the potential to endanger the long-term success of the company.
Management	Board of Directors and Executive Board
Independent monitoring	None (Board of Directors and EB act as the manager)

## Business risk

Definition	<b>Business risk</b> is the risk that lower business volumes and margins will reduce the group's operating income if the decline in income is not offset by a simultaneous drop in operating expenses. Business risks also include unplanned additional costs in the absence of correspondingly higher income. Business risks materialise when actual income falls short of the budgeted income. This can occur on a one-off and a recurring basis. Typical examples of business risks are unexpectedly decreasing margins and a lack of client demand following an economic downturn.
Management	All group employees, in line with their duties, competences and responsibilities.
Independent monitoring	Finance unit

## Reputation risk

Definition	<b>Reputation risks</b> involve the risk of damage to the bank's good reputation or, in extreme cases, the risk of losing the bank's good reputation altogether. Aligning business activities to the central core values of the company is the best way in which to guarantee that the company's excellent reputation is maintained and to prevent instances in which activities have a negative impact on the bank's reputation. <b>Reputation</b> denotes the image that a company enjoys among its stakeholders, i.e. the bank's standing in terms of its integrity, competency, performance and reliability from the perspective of stakeholders. Reputation damage occurs when the perception of a stakeholder group differs from its expectations. The trustworthiness and credibility of the bank as aspects of its reputation are negatively influenced by this difference. Reputation is determined by constantly comparing perceptions and expectations over a period of time and is reflected in the company's values and identity.
Management	Group board members and all employees
Independent monitoring	Entire bank team

## Risk tolerance

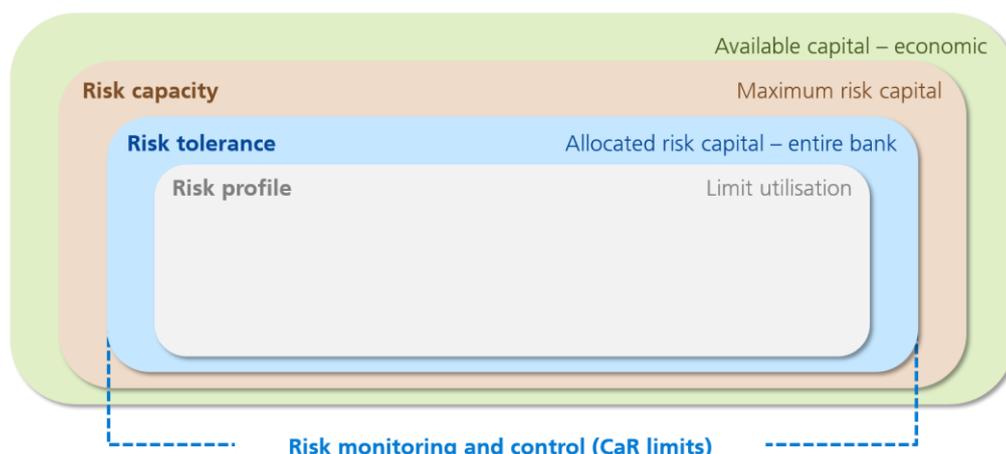
Risk tolerance includes both qualitative and quantitative considerations concerning the main risks the group is willing to accept to achieve its strategic business objectives, given its capital and liquidity planning. Risk tolerance is set for each risk category and at group level.

The qualitative elements of risk tolerance are mainly set in the form of regulations, directives and instructions. These are reviewed regularly and adjusted if necessary, but are largely medium and long-term in nature and at the strategic level, going well beyond the horizon of annual quantitative risk policy requirements.

At the Board of Directors level (strategic), the qualitative risk tolerance requirements include in particular the risk management principles set down in the risk and compliance regulations and the code of conduct, the business policy rules in the group strategy and the business policy rules in the special regulations on the individual business areas.

At the Executive Board level (operational), the qualitative requirements include in particular the policies for the individual business areas. Examples include the credit policy rules from the Executive Board (credit policy) or the trading mandates for the individual trading desks.

As part of the annual risk policy process the Board of Directors ensures that the risk limits and benchmarks it sets (quantitative risk tolerance) are consistent with the bank's risk capacity.



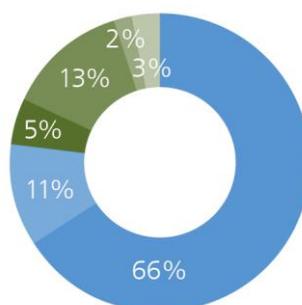
**Risk capacity** refers to the maximum possible total risk the bank can take without endangering its own credit rating target in a period of heavy stress lasting several years. Risk capacity in capital allocation refers to the maximum risk capital the Board of Directors can allocate on a one-year horizon. Risk capacity sets the framework for determining quantitative risk tolerance.

**Risk tolerance** refers to the total risk defined for all relevant business types the bank is willing to enter into, bearing in mind the strategic business objectives and the capital and liquidity planning. Risk tolerance is set annually by the Board of Directors, which approves the risk policy requirements for the following year. The Board of Directors ensures that risk tolerance is consistent with risk capacity. The allocation of capital at risk (CaR) to individual risk managers (e.g. Trading) is a key management instrument. Quantitative risk tolerance is set by the Board of Directors, mainly by allocating capital at risk to credit risk, market risk and operational risk; capital at risk for operational risk also covers compliance risk. The risk managers request risk capital from the Board of Directors based on the current risk profile, planned business activities and potential negative trends in the risk profile.

Of the CHF 11,564 million in eligible capital at the end of 2016, a total of CHF 5,280 million was allocated to the risk business in 2017. The percentage breakdown by risk category of the allocated capital is shown on the right.

The figure shows that the risk profile of Zürcher Kantonalbank is strongly influenced by credit risks.

Risk capital allocated by Board of Directors, by risk category



Credit risks: 66%  
 Operational risks: 11%  
 Market risks: 23%  
 of which trading activities: 5%  
 of which balance sheet structure: 13%  
 of which real estate: 2%  
 of which financial investments and participations: 3%

In the case of operational risks, there is no sub-allocation to risk managers. For credit risks the risk committee of the EB makes a sub-allocation to the risk management units in Sales by annually setting sub-portfolio limits.

Provided the total capital at risk requested (CaR limits) is below the previously determined risk capacity (maximum capital at risk), the Board of Directors can set risk tolerance at the level of the capital at risk requested. The process for allocating capital at risk ensures that the quantitative elements of risk tolerance and the capital strategy are mutually compatible.

In addition to capital at risk, the Board of Directors also sets every year the cost of capital rates for internal charging and other quantitative risk tolerance rules, including a limit for liquidity risk and the benchmark for the strategic investment of equity (equity benchmark).

The risk profile refers to the risk exposure taken at a given point in time, in the relevant risk categories and aggregated at bank level. The risk profile is reflected in a series of quantitative risk measurement variables and qualitative risk aspects. Limit utilisation is a major measurement and assessment criterion. Ongoing monitoring of the risk profile ensures that it remains within the risk tolerance.

For more information on how the business model interacts with the overall risk profile, please see Table 8 (Credit risk), Table 23 (Counterparty credit risk), Table 37 (Market risks) and Table 43 (Operational risks).

### **Internal risk reporting**

Internal and external risk reporting is guided by high industry standards in terms of objectivity, scope, transparency and timeliness. Risk transparency is fundamental if the recipients of reports are to assess risk properly. Reporting transparency is supported by having a risk reporter organisationally independent from the units managing risk. Risk reporting covers the entire Zürcher Kantonalbank group.

Reporting to the Executive Board and Board of Directors covers all risk categories. The internal reports are produced by the independent monitoring units. The main reports are:

- The quarterly report from the CRO covering events, the risk profile and monitoring of credit, market and liquidity risk, operational risk, compliance risk reported by the General Counsel and reputation risk reported by Corporate Communications.
- The quarterly report from the CRO on the financial position and earnings, along with reporting on business risks, the attainment of strategic objectives and an integrated risk/return perspective.
- The annual report on the suitability and effectiveness of the internal control system and the activities of Risk Control and Legal & Compliance.

When special developments or events occur, the Executive Board and Board of Directors are informed of changes in the risk profile in additional reports and analyses.

Monitoring reports support risk monitoring in the Risk unit and management controls in the organisational units managing risk. Monitoring reports are produced at higher frequencies for higher risk categories.

### **Risk data aggregation and systems**

The group structure at Zürcher Kantonalbank, with a relatively small number of subsidiaries and the parent bank regionally focused on the Canton of Zurich, means that risk data aggregation is much simpler than, for example, major banks with global activities. Relative size means that the risk profile of the Zürcher Kantonalbank group is dominated by the risks at the parent bank. Where risks at subsidiaries are material for the risk profile of the group, daily or real-time data updates to the parent bank systems ensure that a reliable and up-to-date picture of the group's risk profile is available at all times.

### **Risk systems for credit risks**

#### **Limit monitoring system**

The system is the entire bank's application for managing counterparty limits and risk management structures for market and default risk. The limit monitoring system contains all credit-risk related exposures, including counterparty risks on trading transactions. Default-related data are supplied by Trading in real time. Aggregated exposure is available by group company and also at group level. Exposures are calculated for different maturity ranges. This takes into account netting and collateral, using pre-defined rules. Exposures can be coded down to individual transaction level by drilling down. The system has a pre-deal function allowing simulation of the impact of potential transactions (e.g. in Trading) on limit utilisation.

- **Risk measurement: Credit Risk Portfolio Management System**  
Credit risks at portfolio level are measured in the Credit Risk Portfolio Management System. It calculates, among other things, capital at risk (CaR) and expected loss (EL). Based on these, the cost of capital and the standard risk cost are determined. Exposure data is provided to the system by the limit monitoring system. This data is then enhanced with collateral information. EL calculations are run at individual client level, CaR is calculated at portfolio level. Exposure data is updated daily. It is possible with the corresponding special rights to make flexible changes to portfolio data, e.g. for stress tests, impact analyses or scenario analyses. There is also an option to use a pre-deal check to add new positions to a portfolio to see the effect on CaR.
- **Reporting and analyses: Credit risk assessment platform**  
The application brings together data from various sources into a single database. The data is available to the Risk business unit as raw data at the individual transaction and limit level, and can be viewed both as a current portfolio and reflecting applications. In addition to exposures and limits, the platform also contains data on collateral down to the level of individual security, property, guarantee, etc. and information on clients' group structure. The data is used for regular reports and ad hoc assessments. It is normally downloaded monthly from upstream systems, but is also available for other reporting dates, including retrospectively. The assessments themselves are carried out using database query tools.

### Risk systems for market risks

- **Measurement of trading P&L**  
A business intelligence solution is used to support the risk organisation in its independent P&L and risk analysis of trading positions. P&L and risk data (valuation of trading positions, P&L attributions and risk sensitivities) and the relevant market data (interest rates, exchange rates, etc.) are obtained from the front office application used by Trading. The system used offers a full plausibilisation, analysis and reporting infrastructure for currencies and securities.
- **Market risk measurement**  
The market risk measurement system measures capital at risk and value at risk for trading positions. This is calculated at various levels of aggregation (desk, trading area, portfolio, etc.). The application allows model-based valuation of all instruments held in Trading and risk measurement with proprietary simulation models for both market risk and counterparty risk. The market movements for value at risk come from a Monte Carlo simulation. The model implemented in the market risk system is certified by FINMA for capital adequacy requirements for market risks in the general interest rates, currencies, general and specific equities, and commodities categories. Capital adequacy for specific market risks uses the standard approach. Stress tests are run directly in the trading application.
- **Interest rate risk measurement on the balance sheet**  
The ALM system is the application for managing the balance sheet structure in Treasury and in the Risk unit. Exposures in the banking book which are interest rate-sensitive are updated weekly, and the interest rate position is calculated based on this. The Treasury system is used by Treasury to manage interest rate risk under the market interest rate method and regulatory reporting. In terms of risk control, the ALM system is the basis for measuring interest rate risk from both the net present value and profit perspectives.

### Risk systems for liquidity risks

- **Liquidity risk system**  
The system is a scenario-based risk system customised for Zürcher Kantonalbank to measure liquidity risk. In the system, the data for all the bank's transactions that are relevant to liquidity risk measurement are processed, categorised as per the model and their impact on the bank's liquidity buffer simulated. The key indicator set by the Board of Directors is: "minimum liquidity reserve within 30 days under the standard stress scenario".

## Risk systems for operational risk and compliance risk

### ▪ **Operational risk and compliance risk application**

This application supports the business units plus Operational Risk and Legal & Compliance in defining and managing operational and compliance risks. The application is the central location for documenting risks and the associated countermeasures (such as control activities) and for classifying data, functions and systems. It is also a monitoring instrument for dealing with control activities, compliance measures and outstanding audit items.

## Risk systems for reputation risk, business risk and strategic risk

- No specific systems are used to measure reputation, business or strategic risk. The Finance unit mainly uses SAP systems for accounting and controlling.

## Stress testing

Stress tests are used to analyse the impact of shock events, changes to individual business parameters or longer lasting crisis scenarios on key target indicators. They are a way of analysing the ability to survive such stress events.

Zürcher Kantonalbank uses stress tests to:

- analyse the effect on the income statement, capital and liquidity of exceptional disruptions on financial markets or in the broader economy;
- perform plausibility checks and optimise capital and liquidity planning;
- develop crisis scenarios and plans to manage risk in stress situations;
- communicate risks for the entire bank using a stress perspective.

Stress scenarios are based on one or more of the following methodologies:

- extreme historic events;
- hypotheses/scenarios formulated by experts;
- sensitivity analyses for area-specific risk factors;
- insolvency scenarios (reverse stress).

Stress testing is an integral part of risk management at Zürcher Kantonalbank. When setting the risk tolerance, Risk Control ensures that the risk limits requested from the Board of Directors are consistent with the results of stress tests.

The stress test universe at Zürcher Kantonalbank mainly consists of two components:

- **Entire bank stress test:** Checking risk has been identified across all categories, taking into account the interactions between the different categories.
- **Area-specific stress tests for market, liquidity and credit risk** which are an integral part of individual risk measurement, for example to complement VaR as a largely model-free way of measuring market risk.

## Entire bank stress test: potential loss analysis

In the annual potential loss analysis, the Finance and Risk units jointly examine the potential impact of crisis scenarios lasting several years on profitability and the capital position. The aim of the analysis is to check the vulnerability of Zürcher Kantonalbank to crisis scenarios that are unlikely but possible. When measuring potential loss, the focus is on balance sheet and income statement items as well as the regulatory capital situation.

The starting point for the potential loss analysis is the development of scenarios by Economic Research in collaboration with the specialist areas. They draw up macro-economic scenarios which have as wide a range of impacts as possible on individual business areas. The scenarios are to an extent realistic and economically consistent, but exaggerate some trends in order to give the desired severity. Central macro-economic parameters are forecast for each scenario over a period of several years.

Based on these figures, the specialist areas estimate the impact on the group. This stage includes an analysis of the effects on the risk profile and a model-based or expert assessment of potential losses. The analyses and loss estimates produced by the specialist areas are combined in a report and validated. Finally, based on the figures from the annual financial planning, the impact on the income statement and capital is calculated and analysed over the entire horizon of the scenario. In medium-term planning, the scenario selected is used to critically review the stress reserves and capital position overall and define any action required.

### **Area-specific stress tests**

Zürcher Kantonalbank uses stress testing as a management and monitoring tool, among others, in the following areas:

- **Credit risk stress test**  
Risk Control runs sensitivity and scenario analyses as part of the process for setting the risk tolerance (CaR) for credit risk. The parameters in the credit risk portfolio model are varied to differing degrees and the impact on the estimated portfolio loss and risk capital requirement is analysed. Other stress tests are carried out on an ad hoc basis to analyse the credit risk profile of sub-portfolios.
- **Market risk stress test**  
Market risk in trading: stress testing is an integral part of measuring market risk. Losses on trading positions caused by extraordinary market movements are calculated, analysed and monitored. Historically observed stress events are a key element in defining and updating a broad set of stress scenarios. The matrix stress test measures the sensitivity of a trading position to large movements in a combination of individual market parameters. In addition to the value at risk calculated every day based on current market conditions, a stressed VaR is also calculated. Stressed VaR is based on the same model as VaR, but calibrated on the basis of changes in the value of the risk factors observed in a period of significant market stress.
- **Liquidity risk**  
For liquidity risk, the bank uses a stress scenario-based risk measure for short-term liquidity: the “minimum liquidity buffer up to day 30 under the standard stress scenario”. From a set of various stress scenarios, the one with the most serious liquidity deterioration is chosen as the basis for risk measurement: a bank-specific bank run. The starting point for the calculation is the existing buffer of liquid assets. Based on this, for each successive day, the internal model calculates inflows and outflows for various product groups, which increase or reduce the liquidity reserve. The scenario includes, for example, the loss of maturing funding, an outflow of liquidity from all liability items that threatens the existence of the bank and no renewals of term deposits. The liquidity left after the 30th day of the scenario is the internal risk measurement. The Board of Directors uses this to set the risk tolerance for liquidity risks.
- **Interest rates risks on the balance sheet**  
From the net present value perspective, the aim of stress testing is to limit potential losses in net present value resulting from a sudden and extreme interest rate scenario. The scenarios used are abrupt interest rate shocks and cover all relevant movements in the yield curve (parallel shifts, twists and steepening). From the income perspective, stress testing is based on extreme interest rate scenarios with a horizon of one year. The respective structural contribution over the simulation horizon is calculated for each scenario. The stress test indicator is calculated as the difference between the lowest structural contribution of all scenarios and that in the steady state scenario, in which the yield curve is kept unchanged across the entire simulation horizon.

For more information on risk management, strategies and processes, internal reporting and the internal control system, please see Table 8 (Credit risk), Table 23 (Counterparty credit risk), Table 37 (Market risks) and Table 43 (Operational risks).

**Table 4 (OV1): Overview of risk-weighted assets**

	a	b <sup>1</sup>	c
	RWA	RWA	Minimum capital requirements
<i>in CHF million</i>	<b>31.12.2017</b>	<b>30.06.2017</b>	<b>31.12.2017</b>
1 Credit risk (excluding CCR - counterparty credit risk) <sup>2</sup>	41'454	49'334	3'316
2 of which standardised approach (SA) <sup>2</sup>	5'816	49'334	465
3 of which IRB approach	35'638		2'851
4 Counterparty credit risk	10'547	7'373	844
5 of which standardised approach (SA-CCR) <sup>3</sup>	3'864		309
5a of which simplified standard approach (SSA-CCR)			
6 of which internal model method (IMM or EPE model methods)			
of which other CCR <sup>4</sup>	3'294	5'245	264
of which credit valuation adjustment (CVA)	3'390	2'128	271
7 Equity positions in banking book under market-based approach	371		30
8 Investments in managed collective assets - look-through approach			
9 Investments in managed collective assets - mandate-based approach			
10 Investments in managed collective assets - fall-back approach <sup>3</sup>	94		7
10a Investments in managed collective assets - simplified approach			
11 Settlement risk	1	0	0
12 Securitisation exposures in banking book			
13 of which ratings-based approach (RBA)			
14 of which Supervisory Formula Approach (SFA)			
15 of which SA/simplified supervisory formula approach (SSFA)			
16 Market risk	3'711	4'428	297
17 of which standardised approach	1'717	1'792	137
18 of which internal model method (IMM)	1'994	2'636	160
19 Operational risk	4'286	4'178	343
20 of which basic indicator approach	4'286	4'178	343
21 of which standardised approach			
22 of which Advanced Measurement Approach (AMA)			
23 Amounts below the thresholds for deduction (subject to 250% risk weight)	781	202	62
24 Floor adjustment	2'576		206
<b>25 Total</b>	<b>63'822</b>	<b>65'516</b>	<b>5'106</b>

<sup>1</sup> As per 30.06.2017, solely the international standard approach (SA-BIS) was used in the capital adequacy calculation for credit and counterparty credit risk.

<sup>2</sup> According to FINMA Circ. 16/1, non-counterparty-related risks are also to be taken into account in this row.

<sup>3</sup> Implemented as per 31.12.2017.

<sup>4</sup> Zürcher Kantonalbank uses the comprehensive approach for credit risk mitigation and the calculation of the credit equivalent for securities financing transactions (SFT). Until SA-CCR was implemented starting from 31.12.2017, Zürcher Kantonalbank calculated the credit equivalent of derivatives based on the current exposure method.

The main drivers of the changes in RWA compared to the previous period are the introduction of the IRB approach and the SA-CCR with effect from 31 December 2017. The introduction of the IRB approach reduced RWA for credit and counterparty credit risk, whereas the switch to SA-CCR increased the RWA for counterparty credit risk and the CVA. The overall result is lower RWA for credit risk and higher RWA for counterparty credit risk.

A further significant change is the floor adjustment when using the IRB approach, which increases total RWA as at 31 December 2017 compared to 30 June 2017.

**Table 5 (LI1): Differences between accounting and regulatory scopes of consolidation and mapping of financial statement categories with regulatory risk categories**

	a and b <sup>1,2</sup>	c	d	e	f	g
	Carrying values under the scope of accounting and regulatory consolidation	Carrying values of items subject to credit risk framework <sup>3</sup>	Carrying values of items subject to counterparty credit risk framework	Carrying values of items subject to securitisation framework	Carrying values of items subject to market risk framework	Not subject to capital requirements or subject to deduction from capital
<b>31.12.2017</b>						
<i>in CHF million</i>						
<b>Assets</b>						
Liquid assets	41'147	41'147				
Amounts due from banks	4'457	4'185	272			
Amounts due from securities financing transactions	14'326		14'326			
Amounts due from customers	7'832	7'391	440			
Mortgage loans	79'087	79'087				
Trading portfolio assets	8'922	1			8'921	
Positive replacement values of derivative financial instruments	1'535		1'535		1'535	
Other financial instruments at fair value						
Financial investments	4'740	4'472			268	
Accrued income and prepaid expenses	281	281				
Non-consolidated participations	130	130				
Tangible fixed assets	775	775				
Intangible assets	192					192
Other assets	458	449				9
<b>Total assets</b>	<b>163'881</b>	<b>137'916</b>	<b>16'574</b>		<b>10'725</b>	<b>201</b>
<b>Liabilities</b>						
Amounts due to banks	35'393		117			35'276
Liabilities from securities financing transactions	6'623		6'623			
Amounts due in respect of customer deposits	81'381		35			81'345
Trading portfolio liabilities	1'859				1'859	
Negative replacement values of derivative financial instruments	867		867		867	
Liabilities from other financial instruments at fair value	2'869				2'869	
Cash bonds	191					191
Bond issues	12'419					12'419
Central mortgage institution loans	9'275					9'275
Accrued expenses and deferred income	634					634
Other liabilities	558					558
Provisions	585					585
<b>Total liabilities</b>	<b>152'652</b>		<b>7'642</b>		<b>5'595</b>	<b>140'283</b>

<sup>1</sup> If a bank's scope of accounting consolidation and its scope of regulatory consolidation are exactly the same, columns a and b should be merged. This is applicable to Zürcher Kantonalbank.

<sup>2</sup> Where a single item attracts capital charges according to more than one risk category framework, it should be reported in all columns that it attracts a capital charge. As a consequence, the sum of amounts in columns c to g may be greater than the amount in column a and b.

<sup>3</sup> Includes liquid assets, trading portfolio assets, equities, accrued income and prepaid expenses and non-counterparty-related risks in the amount of CHF 42'841 million.

The positive and negative replacement values of derivative financial instruments are subject to both, counterparty credit and market risk requirements, and therefore, appear in Table 5 in both columns (d and f).

**Table 6 (LI2): Main sources of differences between regulatory exposure amounts and carrying values in consolidated financial statements**

	a	b	c	d	e
	Total	Positions subject to credit risk framework	Positions subject to counterparty credit risk framework	Positions subject to securitisation framework	Positions subject to market risk framework <sup>1</sup>
<b>31.12.2017</b>					
<i>in CHF million</i>					
1 Asset carrying value amount under regulatory scope of consolidation (as per Table 5)	165'215	137'916	16'574		10'725
2 Liabilities carrying value amount under regulatory scope of consolidation (as per Table 5)	13'237		7'642		5'595
3 Total net amount under regulatory scope of consolidation	151'978	137'916	8'932		5'130
4 Off-balance sheet amounts <sup>2</sup>	12'334	6'901			
5 Revocable commitments <sup>2</sup>	19'775	11'151			
6 Differences due to consideration of value adjustments and provisions	14	14			
7 Amounts below the thresholds for deduction (subject to 250% risk weight)	-312	-312			
8 Net position of central mortgage institution bonds and loans	-1'774	-1'774			
9 Consideration of financial collateral	-943	-943			
10 Differences due to the calculation of credit equivalents for derivatives	7'348		7'348		
11 Differences due to the use of the comprehensive approach for credit risk mitigation (for SFTs)	-899		-899		
12 Other differences	-5'095	-6			-5'089
<b>13 Exposure amounts considered for regulatory purposes</b>	<b>168'369</b>	<b>152'946</b>	<b>15'381</b>		<b>41</b>

<sup>1</sup> Exposure at default is only calculated for securitisation exposures in the trading book, resulting in a difference between carrying values and exposure amounts considered for regulatory purposes.

<sup>2</sup> According to FINMA Circ. 16/1, off-balance sheet original exposures are to be disclosed in column a and the amounts after application of the credit conversion factors (CCFs) in columns b to e. Hence, the total amount in column a does not equal the sum of positions from columns b to e. The same method is applied for revocable commitments.

**Table 7 (LIA): Explanations of differences between accounting and regulatory exposure amounts**

### Differences between accounting and regulatory exposure amounts

Table 6 shows the main differences between accounting and regulatory exposure amounts, which can be summarised as follows:

- Off-balance sheet amounts (line 4)
- Revocable commitments (line 5)
- Differences due to consideration of value adjustments and provisions (line 6)
- Amounts below the thresholds for deduction (subject to 250% risk weight) (line 7)
- Net position of central mortgage institution bonds and loans (line 8)
- Consideration of financial collateral (line 9)
- Differences due to the calculation of credit equivalents for derivatives (line 10)
- Differences due to the use of the comprehensive approach for credit risk mitigation (for SFTs) (line 11)
- Other differences (line 12)

### Trading portfolio assets and liabilities

These exposures are actively managed to benefit from market price movements, i.e. there is an ongoing willingness to increase, reduce, close out or hedge the risk position. The intention to make an arbitrage profit also counts as a trading portfolio asset. When a transaction is executed, it must be classified as a trading portfolio asset and documented accordingly.

Trading portfolio assets are always measured and recognised at fair value. Where, as an exception, no fair value is ascertainable, valuation and recognition must follow the principle of the lower of cost or market value.

The group handbook specifies the following rules for measuring balance sheet exposures which may contain trading portfolio assets measured at fair value:

<b>Balance sheet item</b>	<b>Content</b>	<b>Valuation rules</b>
Trading portfolio assets	All securities and precious metals (physical or in an account) held and owned by the bank for trading purposes. Money market receivables held for trading.	Recognised at fair value.
Positive replacement values of derivative financial instruments	Derivative financial instruments must be treated as trading portfolio assets unless used with structured products or for hedging.	Derivative financial instruments are valued at fair value and, in principle, represent trading portfolio assets. Hedging transactions are also measured at fair value, except for the derivative financial instruments used to hedge interest rate risk within the scope of asset and liability management. In this case, value changes are recognised in the Compensation account with no income effect.
Other financial instruments at fair value	Assets related to own issues of structured products with own debt instruments which satisfy the conditions for using the fair value option.	All recognised at fair value provided all the conditions in FINMA Circular 2015/1 "Accounting – banks" (ARB-FINMA) are met.
Trading portfolio liabilities	Short positions.	Recognised at fair value.
Negative replacement values of derivative financial instruments	Derivative financial instruments must be treated as trading portfolio assets unless used with structured products or for hedging.	Derivative financial instruments are valued at fair value and, in principle, represent trading portfolio assets.
Liabilities from other financial instruments at fair value	Liabilities related to own issues of structured products with own debt instruments which satisfy the conditions for using the fair value option.	All recognised at fair value provided all the conditions in ARB-FINMA are met.

The fair value used can either be a price set on a price-efficient and liquid market or a theoretical price determined on the basis of a valuation model. In the latter case, all of the following conditions for price calculation must be met:

- the bank's internal valuation and risk measurement models take appropriate account of all relevant risks;
- the input factors for the bank's internal valuation and risk measurement models are complete and appropriate;
- the bank's internal valuation and risk measurement models, including the inputs used, are scientifically sound, robust and consistently applied;
- controls are effective, especially the controls on model, measurement and the calculation of daily profit or loss carried out by an internal risk control unit that is independent from trading;
- the traders, independent controller and risk manager are close to the market and familiar with them.

#### **Systems and controls in connection with the valuation of trading portfolio assets**

The Trading unit enters trading portfolio assets in the Frontarena system. Settlement and position management is carried out in a designated position management system (the back office system WSA), which sources transactions from Frontarena. Accounting (secondary ledger) for all trading transactions is in SAP CFM.

Prices are checked for plausibility in the front office systems by Market Risk to calculate the ongoing trading P&L and reconcile the front office and back office systems every day.

Trading portfolio assets are valued using the prices and valuations in Frontarena. The valuation parameters for calculating the trading P&L are checked independently by Market Risk.

For financial reporting, the prices supplied by Frontarena are checked for plausibility by Accounting and monitored using consistency controls. Every month, the accounting gain or loss on trading is reconciled with the reported P&L by the Risk Control unit.

Positions in the trading book are priced using the data and data sources applied in Market Risk. These pricing rules are set by type of instrument, by Market Risk.

The following figure provides an overview of the valuation methods used for trading portfolio assets by type of instrument.

<b>Instrument</b>	<b>Valuation/price</b>
Bonds CHF/EUR	Market price
Swap CHF/non-CHF	Theoretical
Credit default swaps (CDS)	Theoretical
Equity securities/indices	Market price
Futures	Market price
Equity/index options	Theoretical
Commodities	Market price
PM futures	Market price
PM and commodity options	Theoretical
Gold and fund ETFs	Theoretical
FX options/warrants	Theoretical
Structured products	Theoretical

For further information on market risk management, please see Table 37 ff.

## **Table 8 (CRA): Credit risk: general information**

### **Strategy**

The strategy applied in the management of credit risks is set out in the internal lending policy. The strategy is revised and updated by the risk organisation as part of an annual, structured process and is approved by the Executive Board. The principles defined in the lending policy include the measurement and management of risks based on uniform, binding objectives and instruments, and the acceptance of risks based on objective, business-related criteria, in proportion to the bank's risk capacity, together with sustainable management of the quality of the credit portfolio.

The bank adopts a risk and cost-based pricing policy, with transparent credit decisions and a selective, quality-oriented strategy for the acquisition of financing business. Particular attention is paid to environmental and social risks in the credit assessment process. In recognition of the total commitment of owners, higher risks may deliberately be accepted on occasion for SMEs from the Greater Zurich Area.

## **Organisation and processes**

The risk managers bear responsibility for profits and losses generated on the risks entered into. They are responsible for the continuous, active management of risks and for constant compliance with internal risk policy regulations, relevant laws, ordinances, circulars and standards. The sales units in Corporate Clients, Institutionals & Multinationals, Private Banking and the support centre in Products, Services & Direct Banking are the risk managers responsible for credit risks.

The preventative risk management and risk control functions are separated from risk management at Executive Board level. Preventative risk management is responsible for defining lending policy requirements, analysing and examining transactions in line with existing delineations of power, continuous local monitoring of risks, and providing support in the training of risk managers. Risk Control is responsible for monitoring risks and risk reporting at portfolio level, as well as defining methods of risk measurement.

The Compliance function is a member of the Risk Committee of the Executive Board and also the Credit Committee, which considers in advance credit risk-related issues which fall within the remit of the Risk Committee.

Audit supports the Board of Directors in carrying out its legal duties to supervise and control. Audit independently evaluates the appropriateness and effectiveness of the internal control and risk management processes in credit risk management and contributes towards their improvement. Audit has unlimited rights of inspection, information and access within the entire group.

Credit risks are managed and limited by means of detailed parameters and areas of responsibility within the credit process at individual exposure level and by means of limiting the risk capital for the credit business in accordance with the capital-at-risk approach at portfolio level. Another key control element in credit risk management is risk-adjusted pricing, which includes expected losses (standard risk costs) as well as the cost of the risk capital to be retained in order to cover unexpected losses.

Expected losses are determined on the basis of the probability of default (PD), assumptions regarding the level of exposure at default (EAD) and the estimated loss given default (LGD). Rating models specific to individual segments are used to determine default probabilities. The rating system for retail and corporate clients as well as banks combines statistical procedures with many years of practical experience in the lending business and incorporates both qualitative and quantitative elements. Country ratings are in principle based on the ratings of external agencies (country ceiling ratings and sovereign default ratings).

A credit portfolio model is used as the basis for the modelling of unexpected losses. Besides default probabilities, exposures in the event of default and loss rates, correlations between debtors are particularly significant for the modelling of unexpected losses. In principle, the model covers balance-sheet and off-balance-sheet items.

## **Collateral**

The valuation of collateral for loans, and in particular the calculation of market and collateral values, is governed by an extensive set of internal rules setting out the relevant methods, procedures and responsibilities. These rules are continually reviewed and aligned with regulatory requirements and market changes. For the valuation of mortgage collateral, the bank uses recognised estimation methods that are tailored to the type of property, including hedonic models, income capitalisation approaches and expert appraisals, among others. The models used as well as the individual valuations are reviewed on a regular basis. The maximum loan-to-value ratio for mortgages depends on how realisable the collateral is and is influenced by factors such as location and type of property (family home or commercial property, for example). Realisable collateral (securities, precious metals, account balances, for example) is generally valued at current market prices. The lending of realisable collateral is subject to the deduction of specified margins. These margins differ primarily in terms of the realisable collateral's susceptibility to fluctuations in value.

### **Limiting and monitoring credit exposures**

Credit exposures are restricted by limits. In addition to the limits at counterparty and counterparty group level, limits are placed on sub-portfolios, for instance for foreign exposures. All credit and contingent exposures are monitored on a daily basis, exposures from trading transactions on a real-time basis. In the case of trading transactions, pre-deal checks can be undertaken to examine and ensure adherence to counterparty limits. Any breaches of limits are reported promptly to the officer responsible. An early-warning system identifies negative developments, which are communicated to the officers responsible. The rating of corporate clients is generally reviewed once a year on the basis of the annual financial statements. A supplementary review of ratings, limits and exposures in the retail and corporate client business is undertaken using risk-oriented criteria. Ratings, limits and exposures in the banking sector are reviewed periodically and on an extraordinary basis in the event of a deterioration in the credit rating of a particular institution.

### **Value adjustments**

As part of their risk management role, the bank's relationship managers constantly monitor all positions in the credit portfolio to identify any signs of depreciation. Should any signs be found, a standardised impairment test is used to determine whether a loan should be classified as impaired. Impaired loans are those where the borrower is unlikely to be able to meet his future obligations. Where it appears that the bank will be unable to collect all amounts due on a claim, the bank makes an allowance for the unsecured part of the loan, taking into account the borrower's creditworthiness. In determining the required value adjustment, mortgage collateral (including valuation discounts, settlement and holding costs) and realisable collateral (freely tradable securities as well as other easily realised assets such as deposits, precious metals, fiduciary investments, etc.) are considered at their current liquidation value. The recoverability of other collateral (e.g. leased assets, guarantees) has to be demonstrated in particular. The authority to approve the creation of new individual value adjustments rests with the risk managers. Above a certain amount, the approval of the risk organisation is also required.

Interest and associated commission payments that have not been received in full 90 days after becoming due are classified as past due. They are deemed to be impaired and fully adjusted if they are not covered by collateral. Collective individual valuation adjustments are made for overdrafts of up to CHF 30,000 and for interest and associated commission payments outstanding for more than 90 days; in all other cases, individual value adjustments are generally made.

A central, specialised unit manages impaired positions across all client segments. This unit steers the positions through the stabilisation and resolution process and ensures that existing value adjustments are regularly reviewed and adjusted where necessary.

### **Country risks**

The country risk of individual exposures is determined on the basis of the risk domicile, where this is not identical to the domicile of the borrower, in accordance with the Swiss Bankers Association's guidelines on the management of country risk. In the case of secured exposures, the domicile of the collateral is taken into account when determining the risk domicile. The risks for each country, total country risks and total country risks outside the best rating category (the bank's internal rating categories B to G) are subject to limits, adherence to which is monitored on a constant basis.

### **Settlement risks**

A settlement risk arises in the case of transactions with mutual payment and delivery obligations where Zürcher Kantonalbank must meet its obligations without being able to ensure that counter-payment is also being made. Settlement risk can occur in relation to foreign exchange transactions, securities lending and borrowing (SLB) and OTC repo transactions as well as transactions involving different payment systems and time zones in the interbank sector. Zürcher Kantonalbank is a member of the CLS Bank International Ltd. joint venture, a clearing centre for the settlement of foreign exchange transactions on a "delivery versus payment" basis, which helps ensure that a substantial element of the settlement risk arising as a result of foreign exchange trading is eliminated.

## **Risk concentration**

Zürcher Kantonalbank uses a systems-based method for monitoring concentration risks. Besides measurement for the purpose of preparing regulatory reports, concentration risks are limited at product and client level using benchmarks that are reflected in the corresponding powers of authorisation. Internal concentration risk reporting includes information on product, sector and individual position concentrations. Due to the bank's roots within the Greater Zurich Area, the biggest concentration risk in the credit portfolio takes the form of geographical concentration risk in the mortgage portfolio.

## **Reporting**

The CRO report is a quarterly report from the risk organisation, produced independently of the risk managers, informing the Executive Board and Board of Directors of events, the risk profile and credit risk monitoring. Information on the credit risk profile of the group is provided in tables, graphs and commentaries on trends in the individual sub-portfolios and credit risk overall. In addition to management reporting, there are also special reports on selected issues of special relevance and/or topicality. These reports are also seen by FINMA and the external auditor. In addition, every year, the Executive Board and Board of Directors receive reports on the suitability and effectiveness of internal controls in credit risk management. When special developments or events occur, the Executive Board and Board of Directors are informed on an ad hoc basis of changes in the risk profile in additional reports and analyses.

Apart from the management reporting, there are also various monitoring reports. These support risk monitoring in the Risk unit and management controls in the organisational units managing risk. Unlike the management reporting, the monitoring reports focus on a limited presentation of specific risks or portfolios, in some cases all the way down to counterparty level. Depending on their subject, these monitoring reports are produced at shorter intervals, as production is often more automated than for the management reporting described above.

## **Risk profile**

Zürcher Kantonalbank pursues a full-service banking strategy. This is directly derived from the Law on Zürcher Kantonalbank and the needs of the people and businesses in the Greater Zurich Area. In line with this strategic focus, the bank operates a broadly diversified business model strongly rooted in the Greater Zurich Area. In accordance with the business model the lending business, and especially the mortgage lending business, are central business areas for the bank. Mortgage receivables amount to CHF 79.1 billion, making them by far the largest item in the receivables on the balance sheet. Over 80 percent of mortgage receivables relate to the financing of residential property, of which two thirds are owner occupied. This is reflected in the bank's risk profile. Loan commitments are shown in Tables 15 (SA-BIS) and 18 (IRB) by exposure category under Basel III.

## **Investment portfolio**

### **Strategy, organisation and processes for the management of risks in the investment portfolio**

The risks in the investment portfolio comprise issuer risks on debt instruments in financial investments and market risks on equity securities. Because these are allocated to the banking book, they are included under credit risk for capital adequacy purposes. Real estate risk also comes under risks in the investment portfolio. According to the capital adequacy rules, these are non-counterparty related risks. They are disclosed under credit risk; please see Table 5. Interest rate risks are managed and limited as part of asset and liability risk management.

The basis of the investment portfolio is mainly operational. Debt securities in financial investments form part of the bank's liquidity buffer, participations mainly relate to financial market infrastructure companies, and the real estate position consists almost entirely of property in use by the bank.

The purchase of financial investments and real estate as well as the acquisition of participations are subject to detailed regulations and responsibilities. The investment strategy for the financial investments managed by Treasury is

laid down in the risk tolerance requirements approved by the Risk Committee of the Executive Board. Only debt instruments with a first-class credit rating that are considered high-quality liquid assets (HQLA) may be purchased. The Risk unit is responsible for the measurement and monitoring of risk as well as independent reporting on investment portfolio risks.

Risks relating to the investment portfolio are managed internally by assigning risk capital. For the determination of this risk capital for financial investments and participations, Zürcher Kantonalbank uses an internal default model that takes diversification effects into account. For real estate owned by the bank, risk capital is allocated based on regulatory minimum capital adequacy requirements.

### Risk profile

The carrying amount of debt securities in financial investments was CHF 4,412 million as at 31 December 2017 (2016: CHF 3,927 million). The portfolio consists of first-class bonds and is diversified in terms of counterparty groups and countries. Some debt instruments from banks have guarantees from central government. For risk mitigation techniques, please see Table 13.

**Table 9 (CR1): Credit risk: credit quality of assets**

	a	b	c	d
31.12.2017 in CHF million	Gross carrying values of defaulted exposures	Gross carrying values of non-defaulted exposures	Value adjustments / impairments	Net values (a + b - c)
1 Loans (excluding debt securities) <sup>1</sup>	561	90'280	177	90'664
2 Debt securities <sup>1</sup>		4'412		4'412
3 Off-balance-sheet exposures	73	12'261		12'334
<b>4 Total</b>	<b>633</b>	<b>106'953</b>	<b>177</b>	<b>107'410</b>

<sup>1</sup> According to FINMA Circ. 16/1, on-balance-sheet items include loans and debt securities. Hence, liquid assets, trading portfolio assets, equities, accrued income and prepaid expenses and non-counterparty-related risks in the amount of CHF 42'841 million are not included in this table.

For details of the internal definitions of default, please see Table 11.

**Table 10 (CR2): Credit risk: changes in stock of defaulted loans and debt securities**

Under FINMA Circular 2016/1 "Disclosure – banks", tables presenting a reconciliation between the figures of the previous reporting period and the reporting period need not be published if the figures of the previous reporting period refer to a time before the Circular was applied. Table 10 will be compiled and published for the first time as at 30 June 2018.

**Table 11 (CRB): Credit risk: additional disclosure related to the credit quality of assets**

### Breakdown of exposures by geographical area

31.12.2017 in CHF million	Carrying values
Switzerland	88'299
Rest of Europe	3'786
Americas	1'056
Asia and Oceania	1'897
Africa	38
<b>Total exposures</b>	<b>95'076</b>

## Breakdown of exposures by industry

31.12.2017

in CHF million

Carrying values

Agriculture	605
Manufacturing	3'621
Services	36'898
Individuals and other	53'951
<b>Total exposures</b>	<b>95'076</b>

## Breakdown of exposures by residual maturity

31.12.2017

in CHF million

Carrying values

Due up to 3 months	16'119
Due between 3 and 12 months	21'721
Due between 1 and 3 years	21'404
Due between 3 and 5 years	16'200
Due after more than 5 years	19'631
<b>Total exposures</b>	<b>95'076</b>

## Impaired loans/receivables

Accounting definition: For accounting purposes, loans are impaired when the borrower is unlikely to be able to meet future obligations and they are not covered by collateral. The assessment as to whether a loan is impaired is made on an individual basis.

As at the reporting date, impaired loans under the accounting definition came to CHF 472 million (2016: CHF 468 million). After deducting the estimated liquidation value of collateral, this equals net debt of CHF 197 million (2016: CHF 183 million).

## Identification of impaired loans

Please refer to the section headed "Value adjustments" in Table 8.

## Breakdown of impaired exposures by geographical area

31.12.2017

in CHF million

Impaired exposures  
(gross debt)

Allowances and  
write-offs

Switzerland	416	167
Rest of Europe	52	7
Americas		
Asia and Oceania	3	3
Africa		
<b>Total impaired exposures</b>	<b>472</b>	<b>177</b>

## Breakdown of impaired exposures by industry

31.12.2017

in CHF million

Impaired exposures  
(gross debt)

Allowances and  
write-offs

Agriculture	14	4
Manufacturing	93	50
Services	224	88
Individuals and other	141	35
<b>Total impaired exposures</b>	<b>472</b>	<b>177</b>

## Non-performing loans/receivables

For both, accounting and supervisory purposes, loans are classified as non-performing when interest, commission or amortisation payments or the repayment of the principal have not been received in full 90 days after becoming due. This also includes claims against borrowers in liquidation, and loans with special conditions arising from the borrower's financial standing. Non-performing loans are also often a component of impaired loans. The nominal value of non-performing loans amounted to CHF 139 million at the end of the reporting period (2016: CHF 128 million).

Loans that were non-performing but not impaired amounted to CHF 56 million. These are loans covered by collateral.

### Ageing analysis of accounting past-due exposures

31.12.2017 in CHF million	Past-due exposures (gross debt)	Allowances and write-offs
Past-due for up to 3 months	27	3
Past-due for 3 to 6 months	15	5
Past-due for 6 to 9 months	19	2
Past-due for 9 months to 1 year	6	1
Past-due for 1 to 3 years	39	8
Past-due for 3 to 5 years	15	6
Past-due for more than 5 years	19	7
<b>Total past-due exposures</b>	<b>139</b>	<b>33</b>

### Restructured exposures

Restructured exposures are all those on- or off-balance-sheet positions which are deemed in default and are being serviced by a dedicated team within the bank. Individual value adjustments or provisions are recognised for impaired default positions and off-balance-sheet positions with credit risk. Positions that have recovered are no longer flagged as being in default, but are generally only transferred from the dedicated team back to sales, once a degree of sustainability has been confirmed. Positions in sales do not count as restructured.

### Breakdown of restructured exposures

31.12.2017 in CHF million	Gross debt		Total
	Impaired	Not impaired	
<b>Restructured exposures</b>	<b>338</b>	<b>440</b>	<b>778</b>

### Defaulted loans/receivables

This is a regulatory definition. Under the standard approach, defaulted loans include both, impaired loans and non-performing loans, e.g. those more than 90 days in arrears. Under IRB, a model approach has been selected that uses the rating assigned to define "defaulted". If a counterparty is assigned the default rating (C19) under such definition, all receivables from that counterparty are deemed to be in default, regardless of whether they are covered by collateral or not.

## Table 12 (CRC): Credit risk: qualitative disclosure requirements related to mitigation techniques

### Core features of policies and processes for on- and off-balance-sheet netting

For accounting purposes, with the exception of the following instances, no netting takes place. Payables and receivables are offset if all the conditions below are met:

- payables and receivables arise from the same type of transactions with the same counterparty;
- have the same or earlier maturity for the receivable;
- are in the same currency; and
- cannot result in a counterparty risk.

Holdings of own bonds and cash bonds are offset against the corresponding liability items. Furthermore, positive and negative value adjustments with no income effect are offset in the compensation account.

For over-the-counter transactions, the positive and negative replacement values of derivative instruments as well as the related cash collaterals are offset. For this purpose, a relevant bilateral agreement with the affected counterparties must be in place. This agreement must be proven to be recognised and legally enforceable.

Netting on the balance sheet as at 31 December 2017 amounted to CHF 9.1 billion. No off-balance-sheet netting takes place.

### Core features of policies and processes for collateral evaluation and management

Bank guarantees are treated as other collateral. The loan-to-value ratio depends on the rating of the bank in question. Bank guarantees are checked by the sales unit for banks before acceptance. All other guarantees are classified simply as additional cover with no eligible collateral value (unsecured). Guarantees from other companies may only be taken into consideration where Risk Control has given its prior consent.

If the amount of a guarantee is a maximum including interest and other costs, it must be for at least 110 percent of the loan amount to be secured. The term of the credit exposure is measured in line with the maximum validity of the guarantee. The loan generally matures one month before the guarantee expires, so a claim can be made.

For the purposes of calculating capital adequacy, Zürcher Kantonalbank recognises bank guarantees (Zürcher Kantonalbank as direct beneficiary, callable on first request with no right of objection) using the substitution approach. State guarantees are also taken into account.

### Information about market or credit risk concentrations under the credit risk mitigation instruments used (i.e. by guarantor type, collateral and credit derivative protection providers)

Guarantees taken into account for credit exposures are included in internal risk measurement under the guarantor's credit exposure. This means that the value of guarantees is included automatically in concentration risk monitoring at the level of client, region and sector.

**Table 13 (CR3): Credit risk: overview of mitigation techniques <sup>1</sup>**

	a	b	c	d	e	f	g
	Exposures unsecured / carrying amount	Exposures secured by collateral <sup>2</sup>	Exposures secured by collateral, of which secured amount	Exposures secured by financial guarantees	Exposures secured by financial guarantees, of which secured amount	Exposures secured by credit derivatives	Exposures secured by credit derivatives, of which secured amount
<b>31.12.2017</b> <i>in CHF million</i>							
1 Loans (excluding debt securities)	10'188	80'475	80'205	719	719		
2 Debt securities	3'722	691	691	691	691		
<b>3 Total</b>	<b>13'910</b>	<b>81'166</b>	<b>80'896</b>	<b>1'409</b>	<b>1'409</b>		
4 of which defaulted	141	245	235	3	3		

<sup>1</sup> In order to ensure a consistent point of view without anticipating the IRB segmentation, the standardised approach was used to present the overview of mitigation techniques. We refer to the IRB tables in this report for IRB disclosures.

<sup>2</sup> Fully or partially secured by collateral (incl. secured by financial guarantees and credit derivatives)

This table has been produced for the first time as at 31 December 2017. Therefore, there are no prior period comparison figures.

## Table 14 (CRD): Credit risk: qualitative disclosures of bank's use of external credit ratings under the standardised approach

Capital adequacy requirements for credit risks are calculated using the IRB approach. However, some positions are still calculated using the international standard approach (SA-BIS). With respect to these positions, the risk weights of counterparties may be calculated on the basis of agency ratings.

For the corporate and public-sector entity categories, Zürcher Kantonalbank applies the ratings from the agencies Standard & Poor's and Moody's. The ratings of export credit agencies (ECAs) are not taken into account.

For banks and governments, Fitch ratings are also taken into account. No ratings are used in the categories retail, equity securities and other positions. For securities, the issue-specific ratings from Standard & Poor's and Moody's are used.

If two or more ratings exist with different risk weights, those ratings which correspond to the two lowest risk weights are taken into consideration and the higher of the two risk weights is used. For debt securities, top priority is given to the issue rating and second priority to the issuer rating.

There were no changes in this regard during the period under review.

## Table 15 (CR4): Credit risk: exposure and credit risk mitigation (CRM) effects under the standardised approach

Exposure class	a		b		c		d		e		f	
	Exposures before CCF and CRM				Exposures post CCF and CRM							
	On-balance sheet amount	Off-balance sheet amount	On-balance sheet amount	Off-balance sheet amount	On-balance sheet amount	Off-balance sheet amount	RWA	RWA density				
1 Central governments and central banks	695	18	1'783	9			0	0.0%				
2 Banks and securities firms	434	185	425	91			132	25.6%				
3 Other public sector entities and multilateral development banks	2'163	2'547	2'038	242			697	30.6%				
4 Corporates	2'355	6'412	1'935	1'364			2'430	73.7%				
5 Retail	2'039	1'254	1'640	121			1'355	77.0%				
6 Equity												
7 Other exposures <sup>1</sup>	42'525	453	42'509	45			1'202	2.8%				
<b>8 Total</b>	<b>50'211</b>	<b>10'869</b>	<b>50'329</b>	<b>1'871</b>			<b>5'816</b>	<b>11.1%</b>				

<sup>1</sup> According to FINMA Circ. 16/1, non-counterparty-related exposures are included in other exposures.

Credit risk positions under the standardised approach fell sharply compared to the prior period, as Zürcher Kantonalbank switched from SA-BIS to the IRB approach for calculating capital adequacy requirements for credit risk with effect from 31 December 2017.

**Table 16 (CR5): Credit risk: exposures by exposure category and risk weights under the standardised approach**

	a	b	c	d	e	f	g	h	i	j
31.12.2017										Total credit exposures amount (post-CCF and post-CRM)
in CHF million	0%	10%	20%	35%	50%	75%	100%	150%	Other	
Exposure class/risk weight										
1 Central governments and central banks	1'791						0	0		1'792
2 Banks and securities firms			454		51		0	10		516
3 Other public sector entities and multilateral development banks	494		779	14	910		81	0		2'279
4 Corporates			836	65	312	7	2'078	1		3'298
5 Retail				595		124	1'017	24		1'760
6 Equity										
7 Other exposures <sup>1</sup>	41'335			26			1'191	1		42'554
<b>8 Total</b>	<b>43'621</b>		<b>2'070</b>	<b>700</b>	<b>1'273</b>	<b>131</b>	<b>4'368</b>	<b>36</b>		<b>52'199</b>
9 of which, covered by mortgages				700		14	1'071			1'786
10 of which, past-due loans							26	26		52

<sup>1</sup> According to FINMA Circ. 16/1, non-counterparty-related exposures are included in other exposures.

Credit risk positions under the standardised approach fell sharply compared to the prior period, as Zürcher Kantonalbank switched from SA-BIS to the IRB approach for calculating capital adequacy requirements for credit risk with effect from 31 December 2017.

**Table 17 (CRE): IRB: qualitative disclosures related to IRB models**

In an order dated 8 January 2018, Zürcher Kantonalbank received permission from FINMA to use the IRB approach retrospectively from 31 December 2017 to calculate the capital adequacy requirement for credit risk. Model governance sets out the internal duties, competences and responsibilities within model management as follows:

### Model development

The model owner has the technical responsibility for developing and refining the model. Care must be taken to ensure it is appropriate for the area of use and that suitable allowance is made for model uncertainties. The model owner must compile and update the model documentation, describing relevant aspects in a way that can be understood by a knowledgeable third party.

The model owner also has the technical responsibility for regular model suitability tests to monitor that the model is methodologically appropriate (e.g. backtesting). Model suitability tests are defined in terms of method and procedure as part of model development, and are carried out on a regular basis.

### Model validation

Model validation acts as a supervisory body that is independent from the model owner, the manager of the specialist area and the model users. It ensures that models are appropriate and that material model uncertainties are taken into account.

New models undergo initial validation before going into operation. Models are revalidated in operation, either regularly or as required. Frequency is based on classification (annually, every three or five years), unless more frequent revalidation is required by the regulator.

The model owner or the manager of the specialist area (on his/her behalf) provides the information required for the model to be validated. This includes, in particular, full and up-to-date model documentation and, if necessary, access to model prototypes, a test environment or data from productive operation of the model. The model validators

may also use existing test results and arrange for the model owner to carry out further tests. The model validators must however scrutinise the tests and ensure all aspects necessary are investigated.

Reporting on model validation is provided in the internal quarterly report from the CRO and annually in the summary report of activities submitted by the Risk Control unit to the Executive Board and the Board of Directors. The model validators also submit an annual written assessment of aggregate model risk to Operational Risk.

### Authorisation of model approvals and model changes

When a new model goes into operation or a model is changed, depending on the situation, the model validators must give approval and the competency holder within the bank must also issue their authorisation. It may also be necessary to then seek authorisation from or inform FINMA. The model owner coordinates the approval and authorisation steps. Implementation of the model must also be accepted by the manager of the specialist area and any other model users.

### Internal control system and models

The heads of specialist areas are responsible for identifying models in their areas and including them in the risk management/ICS process. Every year, the model validators check the plausibility of the assessments of model risks issued as part of the risk management/ICS process.

The model owner also carries out a further management control of the effectiveness of model risk management. Specifically, this includes carrying out model suitability tests, model documentation, implementing conditions within the deadlines set and controlling compliance with restrictions on use.

The Head of Risk Control monitors the effectiveness of the model risk management through model validation. This includes in particular the risk classification, keeping of the model inventory, validation planning, quality of validation execution and documentation, and the suitability of approval decisions and conditions. For details of the role of Audit, please refer to the information presented under Table 3.

The rating models used for IRB purposes can be described individually as follows:

Model name	Model type	Area of application
<b>Bank rating model</b>	Statistical rating model	<p>The rating model for banks consists of two sequential sub-models.</p> <p>In a first step, the stand-alone model is used to categorise a bank according to its intrinsic financial strength. This involves determining a failure or stand-alone rating, which expresses the probability of the bank defaulting within a year. This takes no account of any potential external support from a banking group or government. Any rating improvement due to the willingness and ability of a banking group or government to provide support is only calculated in the second stage using the support model.</p> <p>When a support rating is calculated, this also takes the transfer and convertibility risk of the country of domicile into consideration. This may, however, lead to a lower rating. The end result is the final rating. Technically, the final stage is considered to form part of the support model.</p> <p>A shadow rating approach is used for the calibration, which takes agency ratings as target data. Replication is performed using a statistical regression model where the regression parameters for suitable influence factors are estimated (top-down approach).</p> <p>The support model, by contrast, is a mechanistic structural model that directly models the individual interactions (bottom-up approach).</p>
<b>Commercial rating model</b>	Statistical rating model	<p>The commercial rating model is used for loans to SMEs and key account customers. The model consists of various quantitative accounting variables such as profitability, debt and liquidity, and qualitative factors like management skills and stability.</p>

<b>Model name</b>	<b>Model type</b>	<b>Area of application</b>
<b>Retail client rating model</b>	Statistical rating model	The retail client rating model is used for retail real estate financing. It uses various factors such as disposable income, net loan to value and profession to calculate an overall score, which is presented as a probability of default (PD) via a calibration function.
<b>Real estate rating model</b>	Statistical rating model	<p>The real estate rating model is used for clients with rental property loans. The model consists of various sub-models (with the option to select various factors and weights) for different client groups:</p> <ul style="list-style-type: none"> <li>▪ Real estate balance sheet model/module 1: Profit-oriented companies (based on balance sheet data)</li> <li>▪ Real estate balance sheet model/module 2: Non-profit-oriented companies (e.g. cooperatives, based on balance sheet data)</li> <li>▪ Real estate tax model/module 3: Natural persons (based on tax return)</li> </ul> <p>These models also consist of a quantitative part with factors such as the debt ratio and the cost/income ratio, and a qualitative part that considers issues such as real estate expertise and management stability.</p>

Another major building block used by Zürcher Kantonalbank in the IRB universe is the loss given default (LGD) model in retail, where own LGD estimates are permitted. This model uses the following LGD drivers:

- Collateral recovery ratio: the percentage of the estimated value of collateral (e.g. real estate for a mortgage) that can be recovered on sale, reducing the loss; broken down by type of collateral and, for real estate, type of property.
- Unsecured recovery ratio: the percentage of the unsecured portion that can still be repaid by the borrower, reducing the loss;
- Cure rate: the percentage of cases where the borrower moves out of default status within a year without a write off, meaning there is ultimately no loss.
- Recovery costs: the cost of processing defaults, added to the loan loss.
- Calibration is in line with the requirements for a downturn, and hence are different from the calibration used internally. The internal collateral recovery ratio is reduced so the current portfolio has an average LGD equal to the maximum in the last real estate crisis.

### **Breakdown of EAD by different approaches as at 31 December 2017**

<b>EAD in percent</b>	<b>SA-BIS</b>	<b>IRB</b>
Central governments and central banks	100%	0%
Banks and securities firms	21%	79%
Other public-sector entities, multilateral development banks	100%	0%
Corporates	15%	85%
Retail: covered by mortgages	1%	99%
Retail: other retail exposures	100%	0%
Equity	0%	100%
Other exposures	100%	0%
<b>Total</b>	<b>14%</b>	<b>86%</b>

**Table 18 (CR6): IRB: credit risk exposures by portfolio and PD range**

	a	b	c	d	e	f	g	h	i	j	k	l
31.12.2017 in CHF million (unless stated otherwise)	Original on- balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF in %	EAD post CRM and post-CCF	Average PD in %	Number of obligors	Average LGD in %	Average maturity in years	RWA	RWA density in %	EL	Provisions
<b>1 Central governments and central banks (F-IRB) by PD range</b>												
0.00 to <0.15												
0.15 to <0.25												
0.25 to <0.50												
0.50 to <0.75												
0.75 to <2.50												
2.50 to <10.00												
10.00 to <100.00												
100.00 (Default)					-		-	-			-	
Sub-total												
<b>2 Central governments and central banks (A-IRB) by PD range</b>												
0.00 to <0.15												
0.15 to <0.25												
0.25 to <0.50												
0.50 to <0.75												
0.75 to <2.50												
2.50 to <10.00												
10.00 to <100.00												
100.00 (Default)					-		-	-			-	
Sub-total												
<b>3 Banks and securities firms (F-IRB) by PD range</b>												
0.00 to <0.15	2'279	933	68.5%	2'698	0.1%	108	45.0%	1.3	537	19.9%	1	
0.15 to <0.25	438	96	30.1%	401	0.2%	45	45.0%	1.0	143	35.8%	0	
0.25 to <0.50	150	58	40.8%	193	0.4%	47	45.0%	1.0	99	51.4%	0	
0.50 to <0.75	474	132	24.6%	455	0.7%	45	45.0%	1.0	331	72.7%	1	
0.75 to <2.50	653	88	21.1%	606	1.3%	77	45.0%	1.0	599	98.9%	4	
2.50 to <10.00	90	54	27.6%	84	3.2%	60	45.0%	0.9	101	119.9%	1	
10.00 to <100.00	78	64	20.1%	43	15.2%	34	45.0%	1.0	93	214.4%	3	
100.00 (Default)					-		-	-			-	
Sub-total	4'163	1'425	54.9%	4'482	0.5%	416	45.0%	1.2	1'904	42.5%	11	

	a	b	c	d	e	f	g	h	i	j	k	l
31.12.2017 in CHF million (unless stated otherwise)	Original on- balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF in %	EAD post CRM and post-CCF	Average PD in %	Number of obligors	Average LGD in %	Average maturity in years	RWA	RWA density in %	EL	Provisions
4 Banks and securities firms (A-IRB) by PD range												
0.00 to <0.15												
0.15 to <0.25												
0.25 to <0.50												
0.50 to <0.75												
0.75 to <2.50												
2.50 to <10.00												
10.00 to <100.00												
100.00 (Default)					-		-	-			-	
Sub-total												
5 Other public sector entities, multilateral development banks (F-IRB) by PD range												
0.00 to <0.15												
0.15 to <0.25												
0.25 to <0.50												
0.50 to <0.75												
0.75 to <2.50												
2.50 to <10.00												
10.00 to <100.00												
100.00 (Default)					-		-	-			-	
Sub-total												
6 Other public sector entities, multilateral development banks (A-IRB) by PD range												
0.00 to <0.15												
0.15 to <0.25												
0.25 to <0.50												
0.50 to <0.75												
0.75 to <2.50												
2.50 to <10.00												
10.00 to <100.00												
100.00 (Default)					-		-	-			-	
Sub-total												

	a	b	c	d	e	f	g	h	i	j	k	l
31.12.2017 in CHF million (unless stated otherwise)	Original on- balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF in %	EAD post CRM and post-CCF	Average PD in %	Number of obligors	Average LGD in %	Average maturity in years	RWA	RWA density in %	EL	Provisions
7 Corporates: specialised lending (F-IRB) by PD range												
0.00 to <0.15	1'230	1'194	75.4%	2'131	0.1%	23	42.2%	2.0	532	25.0%	1	
0.15 to <0.25	2'075	1'716	74.9%	3'360	0.2%	65	41.5%	2.0	1'118	33.3%	2	
0.25 to <0.50	7'656	4'016	74.6%	10'651	0.3%	562	39.1%	2.4	5'298	49.7%	13	
0.50 to <0.75	2'366	595	75.0%	2'811	0.7%	370	39.4%	2.4	2'007	71.4%	7	
0.75 to <2.50	2'300	577	74.9%	2'731	1.2%	525	40.4%	2.7	2'582	94.6%	13	
2.50 to <10.00	163	11	75.0%	171	2.8%	90	42.0%	3.4	232	135.8%	2	
10.00 to <100.00	2			2	10.3%	1	45.0%	1.0	4	189.0%	0	
100.00 (Default)	26	0	75.0%	22	-	8	-	-	24	106.0%	-	
<b>Sub-total</b>	<b>15'818</b>	<b>8'109</b>	<b>74.8%</b>	<b>21'879</b>	<b>0.4%</b>	<b>1'644</b>	<b>40.0%</b>	<b>2.4</b>	<b>11'798</b>	<b>53.9%</b>	<b>39</b>	<b>4</b>
8 Corporates: specialised lending (A-IRB) by PD range												
0.00 to <0.15												
0.15 to <0.25												
0.25 to <0.50												
0.50 to <0.75												
0.75 to <2.50												
2.50 to <10.00												
10.00 to <100.00												
100.00 (Default)												
<b>Sub-total</b>												
9 Corporates: other lending (F-IRB) by PD range												
0.00 to <0.15	927	2'348	74.8%	2'684	0.1%	70	44.9%	2.0	654	24.4%	1	
0.15 to <0.25	935	1'083	72.8%	1'724	0.2%	68	40.5%	2.0	551	32.0%	1	
0.25 to <0.50	2'057	2'324	72.8%	3'750	0.3%	895	39.0%	2.2	1'745	46.5%	5	
0.50 to <0.75	1'048	1'215	69.1%	1'890	0.7%	884	40.5%	2.1	1'249	66.1%	5	
0.75 to <2.50	2'780	1'500	73.0%	3'875	1.2%	1'980	40.4%	2.1	3'246	83.8%	19	
2.50 to <10.00	631	178	69.5%	754	3.3%	1'235	39.3%	2.2	784	104.0%	10	
10.00 to <100.00	20	2	71.9%	21	11.9%	49	37.3%	1.7	31	143.9%	1	
100.00 (Default)	239	126	66.0%	217	-	146	-	-	230	106.0%	-	
<b>Sub-total</b>	<b>8'636</b>	<b>8'775</b>	<b>72.7%</b>	<b>14'915</b>	<b>0.7%</b>	<b>5'327</b>	<b>40.2%</b>	<b>2.1</b>	<b>8'490</b>	<b>56.9%</b>	<b>42</b>	<b>105</b>

	a	b	c	d	e	f	g	h	i	j	k	l
31.12.2017 in CHF million (unless stated otherwise)	Original on- balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF in %	EAD post CRM and post-CCF	Average PD in %	Number of obligors	Average LGD in %	Average maturity in years	RWA	RWA density in %	EL	Provisions
10 Corporates: other lending (A-IRB) by PD range												
0.00 to <0.15												
0.15 to <0.25												
0.25 to <0.50												
0.50 to <0.75												
0.75 to <2.50												
2.50 to <10.00												
10.00 to <100.00												
100.00 (Default)					-		-	-			-	
Sub-total												
11 Retail: covered by mortgages by PD range												
0.00 to <0.15	16'364	560	75.0%	16'784	0.1%	37'761	17.4%	3.1	897	5.3%	2	
0.15 to <0.25	7'802	316	75.0%	8'039	0.2%	12'365	20.3%	3.1	919	11.4%	3	
0.25 to <0.50	18'377	865	75.0%	19'024	0.3%	20'964	22.2%	3.2	3'907	20.5%	14	
0.50 to <0.75	7'849	485	74.9%	8'212	0.7%	6'331	25.3%	3.1	2'915	35.5%	14	
0.75 to <2.50	5'831	413	74.9%	6'141	1.2%	5'060	26.8%	3.1	3'500	57.0%	20	
2.50 to <10.00	890	56	75.0%	932	3.2%	1'132	26.2%	3.0	1'009	108.3%	8	
10.00 to <100.00	45	1	76.8%	46	13.6%	57	25.2%	2.6	96	210.8%	2	
100.00 (Default)	206	3	74.8%	192	-	198	-	-	204	106.0%	-	
Sub-total	57'365	2'698	75.0%	59'370	0.4%	83'868	21.5%	3.1	13'446	22.6%	62	16
12 Retail: qualifying revolving exposures (QRRE) by PD range												
0.00 to <0.15												
0.15 to <0.25												
0.25 to <0.50												
0.50 to <0.75												
0.75 to <2.50												
2.50 to <10.00												
10.00 to <100.00												
100.00 (Default)					-		-	-			-	
Sub-total												

	a	b	c	d	e	f	g	h	i	j	k	l
<b>31.12.2017</b> <i>in CHF million</i> <i>(unless stated otherwise)</i>	Original on- balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF in %	EAD post CRM and post-CCF	Average PD in %	Number of obligors	Average LGD in %	Average maturity in years	RWA	RWA density in %	EL	Provisions
<b>13 Other retail exposures by PD range</b>												
0.00 to <0.15												
0.15 to <0.25												
0.25 to <0.50												
0.50 to <0.75												
0.75 to <2.50												
2.50 to <10.00												
10.00 to <100.00												
100.00 (Default)					-		-	-			-	
<b>Sub-total</b>												
<b>14 Equity (PD/LGD approach) by PD range</b>												
0.00 to <0.15												
0.15 to <0.25												
0.25 to <0.50												
0.50 to <0.75												
0.75 to <2.50												
2.50 to <10.00												
10.00 to <100.00												
100.00 (Default)					-		-	-			-	
<b>Sub-total</b>												
<b>Total (all portfolios)</b>	<b>85'983</b>	<b>21'007</b>	<b>72.6%</b>	<b>100'646</b>	<b>0.5%</b>	<b>91'255</b>	<b>23.0%</b>	<b>2.7</b>	<b>35'638</b>	<b>35.4%</b>	<b>153</b>	<b>124</b>

Zürcher Kantonalbank was not using any credit derivatives for hedging purposes on the reporting date under the credit risk rules. Therefore, there was no impact on RWA.

## Table 19 (CR7): IRB: effect on RWA of credit derivatives used as CRM techniques

Zürcher Kantonalbank was not using any credit derivatives for hedging purposes on the reporting date under the credit risk rules. Therefore, there was no impact on RWA.

## Table 20 (CR8): IRB: RWA flow statements of credit risk exposures

Under FINMA Circular 2016/1 “Disclosure – banks”, tables presenting a reconciliation between the figures of the previous reporting period and the reporting period need not be published if the figures of the previous reporting period refer to a time before the Circular was applied. Table 20 will be compiled and published for the first time as at 30 June 2018.

## Table 21 (CR9): IRB: backtesting of probability of default (PD) per portfolio

Under FINMA Circular 2016/1 “Disclosure – banks”, tables presenting a reconciliation between the figures of the previous reporting period and the reporting period need not be published if the figures of the previous reporting period refer to a time before the Circular was applied. Table 21 will be compiled and published for the first time as at 31 December 2018.

## Table 22 (CR10): IRB: specialised lending and equities under the simple risk weight method

Zürcher Kantonalbank does not use the supervisory slotting approach for special financing. Hence, only equity securities under the simplified risk weight method have to be disclosed in Table 22.

Equities under the simple risk weight approach					
31.12.2017 in CHF million (unless stated otherwise)	On-balance sheet amount	Off-balance sheet amount	Risk weight in %	Exposure amount	RWA
Exchange-traded equity exposures	57		300%	57	180
Private equity exposures	43		400%	43	181
Other equity exposures	1	1	400%	2	11
<b>Total</b>	<b>101</b>	<b>1</b>		<b>102</b>	<b>371</b>

In previous periods, Zürcher Kantonalbank weighted equity securities in the banking book using the international standard approach (SA-BIS). Following the switch to the IRB approach with effect from 31 December 2017, these are now subject to the simple risk weight method.

## Table 23 (CCRA): Counterparty credit risk: qualitative disclosure

### Relevant divisions

Trading activities at Zürcher Kantonalbank with counterparty credit risk include bilateral OTC derivatives, repos and SLB transactions. Zürcher Kantonalbank is also a clearing member of central counterparties for OTC derivatives, exchange traded derivatives (ETDs) and repos, and provides clearing services for clients. In some market segments, Zürcher Kantonalbank also uses access to central counterparties through a clearing broker. The client base includes financial institutions, corporates and public-sector entities.

## Organisation, processes and methods

In procedural and organisational terms, management of counterparty credit risk is integrated into that of credit risk. Counterparty credit risk is managed at the level of individual counterparties using limits monitored in real time. Compliance can be examined with a pre-deal check before a transaction is executed. When calculating limit utilisation, both, current exposure and potential future exposure in three maturity bands are taken into account.

Contractual collateralisation agreements are offset separately as risk reduction. In addition to the separate perspective, limit utilisation is also compared to all other credit exposures to a counterparty combined and to its overall credit risk limit. Counterparty credit risk is also included in credit risk measurement at portfolio level and in the calculation of capital at risk and expected loss in the Credit Risk Portfolio Management System. For central counterparties, both, potential future exposure and contributions to the default fund and the initial margin are also taken into account.

## Risk mitigation techniques and wrong way risk

With bilateral OTC derivatives, Zürcher Kantonalbank aims for collateralisation by means of netting agreements and collateral support annexes (CSAs), especially when dealing with financial institutions and large corporates. Where this is not possible, alternative collateral is often agreed, e.g. in the form of mortgages. Conservative rules apply as regards currency, quality and overcollateralisation (haircut) for collateral that Zürcher Kantonalbank accepts for derivative, repo and SLB transactions. Counterparties are expressly forbidden from posting their own bonds or equities as collateral.

## Impact of a rating downgrade on guarantees given

Zürcher Kantonalbank has been awarded the highest rating from the major rating agencies Standard & Poor's, Moody's and Fitch. A downgrade of Zürcher Kantonalbank would not mean an immediate and material increase in the collateral/guarantees demanded by counterparties in SLB, repo and derivatives business. Zürcher Kantonalbank mostly uses standard agreements for this business; these do not contain any clauses triggering the issue of more guarantees when the bank's own rating deteriorates.

**Table 24 (CCR1): Counterparty credit risk: analysis by approach**

	a	b	c	d	e	f
31.12.2017 in CHF million (unless stated otherwise)	Replacement cost	Potential future exposure	EEPE (effective expected positive exposure)	Alpha used for computing regulatory EAD	EAD post-CRM	RWA
1 SA-CCR (for derivatives)	1'585	3'550		1.4	7'189	3'838
2 IMM (for derivatives and SFTs)						
3 Simple approach for risk mitigation (for SFTs)						
4 Comprehensive approach for risk mitigation (for SFTs)					6'540	3'153
5 VaR for SFTs						
<b>6 Total</b>						<b>6'991</b>

Prior to the introduction of SA-CCR on 31 December 2017, Zürcher Kantonalbank used the Current Exposure Method to calculate the credit equivalent of derivatives (EAD post-CRM). The change in calculation method resulted in a higher EAD after CRM and therefore in higher RWA. There was no material change to the RWA for SFTs in the reporting period.

## Table 25 (CCR2): Counterparty credit risk: credit valuation adjustment (CVA) capital charge

31.12.2017		a	b
in CHF million		EAD post-CRM	RWA
Total portfolios subject to the Advanced CVA capital charge			
1	VaR component (including the 3 x multiplier)		
2	Stressed VaR component (including the 3 x multiplier)		
3	All portfolios subject to the standardised CVA capital charge	7'189	3'390
4	<b>Total subject to the standardised CVA capital charge</b>	<b>7'189</b>	<b>3'390</b>

Prior to the introduction of SA-CCR on 31 December 2017, Zürcher Kantonalbank used the Current Exposure Method to calculate the EAD of portfolios subject to the standardised CVA capital charge. The change in calculation method resulted in a higher EAD and therefore higher RWA.

## Table 26 (CCR3): Counterparty credit risk: standardised approach to CCR exposures by exposure category and risk weights

31.12.2017										
in CHF million		a	b	c	d	e	f	g	h	i
Exposure category / risk weight <sup>1</sup>		0%	10%	20%	50%	75%	100%	150%	Other	Total credit exposure
1	Central governments and central banks	64					159			222
2	Banks and securities firms			1'686	379					2'065
3	Other public sector entities and multilateral development banks	246		82	57		411			796
4	Corporates			109	328		2'717			3'154
5	Retail						469			469
6	Equity									
7	Other exposures						429			429
8 <sup>2</sup>										
9	<b>Total</b>	<b>310</b>		<b>1'877</b>	<b>764</b>		<b>4'185</b>			<b>7'135</b>

<sup>1</sup> According to FINMA-Circ. 16/1, the exposure category central counterparties (CCP) is not part of this table. We refer to Table 31 for disclosures with respect to exposures to central counterparties.

<sup>2</sup> Currently, Zürcher Kantonalbank does not have credit exposures that would be disclosed in row 8 of this table.

Prior to the introduction of SA-CCR on 31 December 2017, Zürcher Kantonalbank used the Current Exposure Method to calculate the credit equivalent of derivatives. The change in calculation method resulted in higher exposures. Nevertheless, counterparty credit risk positions under the standardised approach fell sharply compared to the prior period, as Zürcher Kantonalbank switched from SA-BIS to the IRB approach for calculating capital adequacy requirements for counterparty credit risk with effect from 31 December 2017.

**Table 27 (CCR4): IRB: CCR exposures by exposure category and PD scale**

31.12.2017 in CHF million (unless stated otherwise)	a	b	c	d	e	f	g
	EAD post-CRM	Average PD in %	Number of obligors	Average LGD in %	Average maturity in years	RWA	RWA density in %
<b>1 Central governments and central banks (F-IRB) by PD range</b>							
0.00 to <0.15							
0.15 to <0.25							
0.25 to <0.50							
0.50 to <0.75							
0.75 to <2.50							
2.50 to <10.00							
10.00 to <100.00							
100.00 (Default)		-		-		-	
<b>Subtotal</b>							
<b>2 Central governments and central banks (A-IRB) by PD range</b>							
0.00 to <0.15							
0.15 to <0.25							
0.25 to <0.50							
0.50 to <0.75							
0.75 to <2.50							
2.50 to <10.00							
10.00 to <100.00							
100.00 (Default)		-		-		-	
<b>Subtotal</b>							
<b>3 Banks and securities firms (F-IRB) by PD range</b>							
0.00 to <0.15	3'971	0.1%	101	45.0%	1.5	755	19.0%
0.15 to <0.25	1'121	0.2%	52	45.0%	1.0	384	34.2%
0.25 to <0.50	267	0.3%	56	45.0%	1.0	130	48.8%
0.50 to <0.75	76	0.7%	39	45.0%	1.1	55	72.6%
0.75 to <2.50	78	1.4%	52	45.0%	1.1	75	96.4%
2.50 to <10.00	5	4.0%	10	45.0%	1.0	6	130.4%
10.00 to <100.00	5	15.3%	9	45.0%	1.0	10	217.4%
100.00 (Default)		-		-		-	
<b>Subtotal</b>	<b>5'522</b>	<b>0.1%</b>	<b>319</b>	<b>45.0%</b>	<b>1.3</b>	<b>1'416</b>	<b>25.6%</b>
<b>4 Banks and securities firms (A-IRB) by PD range</b>							
0.00 to <0.15							
0.15 to <0.25							
0.25 to <0.50							
0.50 to <0.75							
0.75 to <2.50							
2.50 to <10.00							
10.00 to <100.00							
100.00 (Default)		-		-		-	
<b>Subtotal</b>							
<b>5 Other public sector entities, multilateral development banks (F-IRB) by PD range</b>							
0.00 to <0.15							
0.15 to <0.25							
0.25 to <0.50							
0.50 to <0.75							
0.75 to <2.50							
2.50 to <10.00							
10.00 to <100.00							
100.00 (Default)		-		-		-	
<b>Subtotal</b>							

31.12.2017

in CHF million

(unless stated otherwise)

	a	b	c	d	e	f	g
	EAD	Average	Number	Average	Average		RWA density
	post-CRM	PD in %	of obligors	LGD in %	maturity in years	RWA	in %
<b>6 Other public sector entities, multilateral development banks (A-IRB) by PD range</b>							
0.00 to <0.15							
0.15 to <0.25							
0.25 to <0.50							
0.50 to <0.75							
0.75 to <2.50							
2.50 to <10.00							
10.00 to <100.00							
100.00 (Default)		-		-	-		
<b>Subtotal</b>							
<b>7 Corporates: specialised lending (F-IRB) by PD range</b>							
0.00 to <0.15							
0.15 to <0.25	42	0.2%	5	45.0%	3.8	22	53.2%
0.25 to <0.50	203	0.4%	47	45.0%	4.7	178	87.7%
0.50 to <0.75	25	0.7%	7	45.0%	4.9	28	114.1%
0.75 to <2.50	18	1.2%	7	45.0%	4.7	24	134.7%
2.50 to <10.00							
10.00 to <100.00							
100.00 (Default)		-		-	-		
<b>Subtotal</b>	<b>287</b>	<b>0.4%</b>	<b>66</b>	<b>45.0%</b>	<b>4.6</b>	<b>252</b>	<b>87.8%</b>
<b>8 Corporates: specialised lending (A-IRB) by PD range</b>							
0.00 to <0.15							
0.15 to <0.25							
0.25 to <0.50							
0.50 to <0.75							
0.75 to <2.50							
2.50 to <10.00							
10.00 to <100.00							
100.00 (Default)		-		-	-		
<b>Subtotal</b>							
<b>9 Corporates: other lending (F-IRB) by PD range</b>							
0.00 to <0.15	332	0.1%	30	45.0%	2.1	70	21.2%
0.15 to <0.25	100	0.2%	23	45.0%	3.7	51	51.3%
0.25 to <0.50	170	0.3%	61	45.0%	2.6	99	58.5%
0.50 to <0.75	83	0.7%	31	45.0%	3.5	79	95.4%
0.75 to <2.50	75	1.1%	40	45.0%	1.7	67	88.2%
2.50 to <10.00	3	2.9%	10	45.0%	1.0	3	109.8%
10.00 to <100.00							
100.00 (Default)	0	-	2	-	-	0	106.0%
<b>Subtotal</b>	<b>762</b>	<b>0.3%</b>	<b>197</b>	<b>45.0%</b>	<b>2.5</b>	<b>369</b>	<b>48.4%</b>
<b>10 Corporates: other lending (A-IRB) by PD range</b>							
0.00 to <0.15							
0.15 to <0.25							
0.25 to <0.50							
0.50 to <0.75							
0.75 to <2.50							
2.50 to <10.00							
10.00 to <100.00							
100.00 (Default)		-		-	-		
<b>Subtotal</b>							

<b>31.12.2017</b> <i>in CHF million</i> <i>(unless stated otherwise)</i>	a	b	c	d	e	f	g
	EAD post-CRM	Average PD in %	Number of obligors	Average LGD in %	Average maturity in years	RWA	RWA density in %
<b>11 Retail: covered by mortgages by PD range</b>							
0.00 to <0.15	3	0.1%	33	56.3%	1.0	1	18.2%
0.15 to <0.25	4	0.2%	5	41.9%	1.0	1	20.0%
0.25 to <0.50	6	0.3%	20	48.4%	1.6	2	37.0%
0.50 to <0.75	6	0.7%	11	55.3%	2.4	5	79.6%
0.75 to <2.50	2	1.0%	3	56.3%	1.0	3	119.4%
2.50 to <10.00							
10.00 to <100.00							
100.00 (Default)	0	-	1	-	-	0	106.0%
<b>Subtotal</b>	<b>21</b>	<b>0.4%</b>	<b>73</b>	<b>50.6%</b>	<b>1.5</b>	<b>11</b>	<b>53.2%</b>
<b>12 Retail: qualifying revolving exposures (QRRE) by PD range</b>							
0.00 to <0.15							
0.15 to <0.25							
0.25 to <0.50							
0.50 to <0.75							
0.75 to <2.50							
2.50 to <10.00							
10.00 to <100.00							
100.00 (Default)		-		-	-		
<b>Subtotal</b>							
<b>13 Other retail exposures by PD range</b>							
0.00 to <0.15							
0.15 to <0.25							
0.25 to <0.50							
0.50 to <0.75							
0.75 to <2.50							
2.50 to <10.00							
10.00 to <100.00							
100.00 (Default)		-		-	-		
<b>Subtotal</b>							
<b>14 Equity (PD/LGD approach) by PD range</b>							
0.00 to <0.15							
0.15 to <0.25							
0.25 to <0.50							
0.50 to <0.75							
0.75 to <2.50							
2.50 to <10.00							
10.00 to <100.00							
100.00 (Default)		-		-	-		
<b>Subtotal</b>							
<b>Total (all portfolios)</b>	<b>6'593</b>	<b>0.2%</b>	<b>655</b>	<b>45.6%</b>	<b>1.6</b>	<b>2'049</b>	<b>31.1%</b>

Prior to the introduction of SA-CCR on 31 December 2017, Zürcher Kantonalbank used the Current Exposure Method to calculate the credit equivalent of derivatives (EAD post-CRM). The change in calculation method resulted in a higher exposure post-CRM and therefore in higher RWA. Zürcher Kantonalbank switched from SA-BIS to the IRB approach for calculating capital adequacy requirements for counterparty credit risk with effect from 31 December 2017. Because IRB is being used for the first time, no comparison figures for the previous period are available.

**Table 28 (CCR5): Counterparty credit risk: composition of collateral for CCR exposure**

	a		b		c		d		e		f	
	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		
	Segregated	Unsegregated	Segregated	Unsegregated	Segregated	Unsegregated	Segregated	Unsegregated	Segregated	Unsegregated	Segregated	Unsegregated
<b>31.12.2017</b>												
<i>in CHF million</i>												
Cash – CHF		1'340				1'434			133			3'697
Cash – other currencies		823				1'326			6'380			10'638
Swiss Confederation sovereign debt		25				25			3'409			3'269
Other domestic public authority debt									561			695
Foreign sovereign and public authority debt						74			13'042			12'259
Corporate bonds		124				26			15'442			12'118
Equity securities		268							10'580			7'049
Other collateral												
<b>Total</b>		<b>2'581</b>				<b>2'885</b>			<b>49'547</b>			<b>49'725</b>

This table has been produced for the first time as at 31 December 2017. Therefore, there are no prior period comparison figures.

**Table 29 (CCR6): Counterparty credit risk: credit derivatives exposures**

	a		b	
	Protection bought		Protection sold	
<b>31.12.2017</b>				
<i>in CHF million</i>				
<b>Notionals</b>				
Single-name CDSs		138		82
Index-CDSs		278		101
Total return swaps		153		
Credit options				
Other credit derivatives				
<b>Total Notionals</b>		<b>568</b>		<b>183</b>
<b>Fair values</b>				
Positive replacement value (asset)		3		6
Negative replacement value (liability)		13		

This table has been produced for the first time as at 31 December 2017. Therefore, there are no prior period comparison figures.

**Table 30 (CCR7): Counterparty credit risk: RWA flow statements of CCR exposures under the IMM approach (EPE model method)**

Zürcher Kantonalbank does not use the IMM approach.

**Table 31 (CCR8): Counterparty credit risk: exposures to central counterparties**

31.12.2017 in CHF million	a	b
	EAD (post-CRM)	RWA
<b>1 Exposures to QCCPs (total)</b>		<b>167</b>
2 Exposures for trades at QCCPs (excluding initial margin and default fund contributions)	1'017	20
3 of which OTC derivatives	417	8
4 of which exchange-traded derivatives	336	7
5 of which SFTs	265	5
6 of which netting sets where cross-product netting has been approved		
7 Segregated initial margin		
8 Non-segregated initial margin	556	11
9 Pre-funded default fund contributions	79	136
10 Unfunded default fund contributions		
<b>11 Exposures to non-QCCPs (total)</b>		
12 Exposures for trades at non-QCCPs (excluding initial margin and default fund contributions)		
13 of which OTC derivatives		
14 of which exchange-traded derivatives		
15 of which SFTs		
16 of which netting sets where cross-product netting has been approved		
17 Segregated initial margin		
18 Non-segregated initial margin		
19 Pre-funded default fund contributions		
20 Unfunded default fund contributions		

This table has been produced for the first time as at 31 December 2017. Therefore, there are no prior period comparison figures.

**Table 32 (SECA): Securitisations: qualitative disclosure requirements related to securitisation exposures**

Currently, Zürcher Kantonalbank does not have any securitisation positions in the banking book.

The bank holds securitisation positions in the trading book. These are solely positions arising from issuing securitisations for clients, as investments for money raised from issuing structured products and from market making. There is a gross limit of CHF 60 million for total securitisation positions in the trading book. Zürcher Kantonalbank acts only as an investor in such cases. All positions are traditional securitisations where the assets to be securitised are actually sold to the issuing company, the special purpose vehicle (SPV).

The positions are carried in the bank's trading portfolio. As with other trading transactions, they are therefore recognised at fair value. This is defined as the amount for which an asset could be exchanged or a liability settled between knowledgeable, willing and independent parties. This corresponds to the price set on a price-efficient and liquid market or a theoretical price determined on the basis of a valuation model. The conditions for calculating a price in this manner are listed in Table 7. Where, as an exception, no fair value is ascertainable, valuation and recognition follow the principle of the lower of cost or market value. Valuation differences are recognised in the income statement.

**Table 33 (SEC1): Securitisation: exposures in the banking book**

Currently, Zürcher Kantonalbank does not have any securitisation positions in the banking book.

**Table 34 (SEC2): Securitisations: exposures in the trading book**

31.12.2017 in CHF million	a		b	c			e			f	g	i		j	k
	Bank acts as originator			Bank acts as sponsor			Banks acts as investor								
	Traditional	Synthetic	Sub-total	Traditional	Synthetic	Sub-total	Traditional	Synthetic	Sub-total	Traditional	Synthetic	Sub-total	Traditional	Synthetic	Sub-total
<b>1 Retail (total)</b>															<b>41</b>
2 of which residential mortgage															9
3 of which credit card															8
4 of which other retail exposures															25
5 of which re-securitisation															25
<b>6 Wholesale (total)</b>															

This table has been produced for the first time as at 31 December 2017. Therefore, there are no prior period comparison figures.

**Table 35 (SEC3): Securitisations: exposures in the banking book and associated regulatory capital requirements – bank acting as originator or as sponsor**

Currently, Zürcher Kantonalbank does not have any securitisation positions in the banking book.

**Table 36 (SEC4): Securitisations: exposures in the banking book and associated capital requirements – bank acting as investor**

Currently, Zürcher Kantonalbank does not have any securitisation positions in the banking book.

## **Table 37 (MRA): Market risk: qualitative disclosure requirements**

### **Market risks in the trading book**

#### **Strategy**

In the trading business, Zürcher Kantonalbank pursues a strategy focused on client transactions. The individual desks hold trading mandates approved by the Risk Committee of the Executive Board, which set out the basic conditions in terms of the objectives pursued, instruments used for underlying and hedging transactions, the form of risk management, and the holding period.

#### **Organisation of the market risk management function**

The preventative risk management and risk control functions are separated from risk management at Executive Board level. The Market Risk unit is part of the Risk business unit, whereas Trading belongs to the Institutionals & Multinationals business unit. The responsibilities of the preventative risk management function, which is independent of Trading, and the risk control function downstream include the monitoring of compliance with risk limits and trading mandates, the calculation and analysis of the result from trading activities (P&L) and risk figures, as well as the preventative analysis of potentially high-risk transactions. The risk organisation is also responsible for defining and implementing methods of risk measurement, their independent validation, and internal and external risk reporting. In addition to the ongoing contact between Trading and the risk management units, there are also regular meetings which provide an institutionalised platform for communications between Trading, Risk and Compliance. In these meetings, the risk profile is scrutinised and trends in the P&L, the breakdown of the P&L and the positioning of Trading are discussed. Monitoring issues are also considered, such as compliance with limits or the checking of valuation parameters.

#### **Risk measurement and limitation**

Market risks are measured, managed and controlled on the one hand by assigning risk capital in accordance with the capital-at-risk approach and on the other hand by using value-at-risk limits. This is supplemented by the periodic performance of stress tests and by the monitoring of market liquidity risks. The value of trading positions is determined using the fair value method, whereby mark to market or mark to model, which is subject to stricter rules, is applied on a daily basis.

The capital at risk for market risks corresponds to the assigned risk capital for the market risks of trading transactions on a one-year horizon and at a confidence level of 99.9 percent. The modelling is based on a stressed value at risk (stressed VaR). Besides general market risks, the model also takes into account issuer default risks.

Zürcher Kantonalbank calculates the value at risk for a 10-day period and at a confidence level of 99 percent using a Monte Carlo simulation. The loss distribution is arrived at from the valuation of the portfolio using a large number of manufactured scenarios (full valuation). The necessary parameters for determining the scenarios are estimated on the basis of historical market data, whereby more recent observations are accorded a higher weight for the forecasting of volatility than less recent ones. As a result, value at risk responds rapidly to any changes in volatility on the markets. Value at risk is calculated on a daily basis for the entire trading book. The four risk factor groups – commodities, currencies, interest rates and equities – are calculated both separately and on a combined basis.

The bank uses different types of scenarios for stress-testing: in matrix scenarios, all market prices and their corresponding volatilities are heavily skewed. Such a scenario might include a 30 percent general fall in equity market prices with a simultaneous 70 percent increase in market volatility. This enables the risk of losses due to general changes in price and volatility to be identified. Non-linearity or asymmetry of risks can also be observed in the matrix scenarios. In addition to the matrix scenarios, Zürcher Kantonalbank further identifies probability-based scenarios which are accorded a 0.1 percent probability of occurring. These scenarios are calculated with increased correlations between risk factors so as to take account of the reduced diversification effect typically observed in an extreme situation. Stress tests are carried out for the whole of Trading, and also for trading areas.

The bank additionally monitors the market liquidity risk of individual portfolios. In the equity derivatives sector, the potential trading volume resulting from the hedging strategy in the event of a change in the key risk factors is compared with the total market volume. Hypothetical offsetting expenses are calculated for bonds and bond-type products, based on observed bid-ask spreads and taking into account additional pricing supplements/discounts. Large positions are examined regularly to ensure there is sufficient liquidity; valuation reserves are formed if necessary, causing a reduction in core capital in the context of capital adequacy.

The bank performs daily backtesting for the purpose of examining the forecast accuracy of the value at risk. Regulatory backtesting is based on a comparison of the value at risk for a holding period of one day with the backtesting result. Any breach of limits is reported to the units responsible immediately. For further information on the backtesting results, please see Table 42.

The market risk model is validated annually on the basis of a defined process. Validation includes quantitative as well as qualitative aspects. The quantitative validation focuses on the backtesting of the risk-factor distribution, while the qualitative validation focuses on aspects such as data quality, operation and further development of the model, as well as ongoing plausibility checks for the model results. In addition to the annual review of the model, risks not modelled in the value at risk are periodically analysed in a separate process and monitored with regard to materiality.

### **Reporting**

The CRO report is a quarterly report from the risk organisation, produced independently of the risk managers, informing the Executive Board and Board of Directors of events, the risk profile and market risk monitoring. Information is provided in tables, graphs and commentaries on trends in the individual sub-portfolios and risk factors as well as overall market risk in trading. In addition to management reporting, there are also special reports on selected issues of special relevance and/or topicality. These reports are also seen by FINMA and the external auditor. In addition, every year, the Executive Board and Board of Directors receive reports on the suitability and effectiveness of internal controls in market risk management. When special developments or events occur, the Executive Board and Board of Directors are informed on an ad hoc basis of changes in the risk profile in additional reports and analyses.

Apart from the management reporting, there are also various monitoring reports on the P&L and market risk measurement. These support risk monitoring in the Risk unit and in Trading. Unlike the management reporting, the monitoring reports focus on a limited presentation of specific risks or portfolios. Depending on their subject, these monitoring reports are produced at shorter intervals (in some cases several times a day), as the production of monitoring reports is often more automated than for the management reporting described above.

### **Risk measurement systems**

Details of the systems used are given in Table 3. For further information on the market risk model approach, please see Table 38.

### **Market risks in the banking book**

For further information on the market risks in the banking book, please see Table 44.

## **Table 38 (MRB): Market risk: qualitative disclosures for banks using the Internal Model Approach (IMA)**

Stressed VaR includes commodities, currencies, interest rates and equities as risk factor groups and is calculated for the entire trading book as well as for commodity and currency risk in the banking book. Capital adequacy for specific interest rate risks uses the standard approach, which covers residual interest rate risk and event (especially rating migration) and default risk. Therefore, there is no modelling of residual interest rate risk or calculation of an incremental risk charge (IRC) when calculating capital adequacy requirements under the model approach in VaR or stressed VaR. Thus, the capital adequacy requirement for market risk is the total of the capital adequacy requirement under the standard approach, which covers specific interest rate risk, plus that under the model approach, which covers general market risk. For internal risk management and monitoring the full model is used, which covers both, general market risk and residual interest rate risk.

VaR and stressed VaR are based on the same model across the group.

Zürcher Kantonalbank uses a Monte Carlo method to determine VaR and stressed VaR. The distribution of risk factors is parameterised by estimating a covariance matrix. The loss distribution in VaR and stressed VaR is arrived at from the valuation of the portfolio using a large number of manufactured scenarios with full valuation. Both VaR and stressed VaR are calculated directly on a 10-day horizon using a 99 percent confident interval, so no scaling is necessary. The assumption when calculating VaR is that the portfolio remains unchanged during the holding period and does not age, i.e. the residual maturity does not fall.

For VaR, market data used to value the portfolio in the basic scenario is obtained daily. The market data history to re-estimate the covariance matrix is obtained at least weekly.

The covariance matrix is estimated based on a one-year market data history. More recent observations are weighted more heavily than older ones when forecasting volatility.

Absolute risk factor changes are modelled for interbank rate curves and credit spread curves; relative risk factor changes are modelled for equity prices, equity index levels, implied volatility, exchange rates, precious metals prices and commodity prices.

The estimation period for stressed VaR is from 6 March 2008 to 6 March 2009. This was calculated using a delta-normal VaR model and is reviewed regularly.

Stress-testing mainly uses economic stress scenarios with probabilities that are very low but nevertheless relevant over the long term, plus stress scenarios as a sensitivity analysis. The economic scenarios include stress scenarios across risk factor groups. The stress tests use the same positions and risk factors as the VaR.

Backtesting is a central element in controlling value at risk calculated in the model procedure and acts as a quantitative validation of the risk model. Backtesting involves comparing the backtesting VaR on a one-day time horizon against the daily backtesting P&L. The backtesting P&L is calculated as the realised P&L including position changes as a result of intraday transactions, but excluding securities lending fees, commissions and issue proceeds. Unlike the VaR used to calculate capital adequacy requirements, backtesting VaR does not model residual interest rate risk. Therefore, it is consistent with the VaR used for internal risk management and monitoring and its comparator variable, the P&L.

## Table 39 (MR1): Market risk: minimum capital requirements under standardised approach

31.12.2017

in CHF million

a

RWA

Outright products		
1	Interest rate risk (general and specific)	1'709
2	Equity risk (general and specific)	
3	Foreign exchange risk	
4	Commodity risk	
Options		
5	Simplified approach	
6	Delta-plus method	
7	Scenario approach	
8	Securitisation	8
9	<b>Total</b>	<b>1'717</b>

There were no material changes in the capital adequacy requirements for market risk under the standard approach in the reporting period.

## Table 40 (MR2): Market risk: RWA flow statements of market risk exposures under an IMA

Under FINMA Circular 2016/1 "Disclosure – banks", tables presenting a reconciliation between the figures of the previous reporting period and the reporting period need not be published if the figures of the previous reporting period refer to a time before the Circular was applied. Table 40 will be compiled and published for the first time as at 30 June 2018.

## Table 41 (MR3): Market risk: IMA values for trading portfolios

Under FINMA Circular 2016/1 "Disclosure – banks", tables presenting a reconciliation between the figures of the previous reporting period and the reporting period need not be published if the figures of the previous reporting period refer to a time before the Circular was applied. Table 41 will be compiled and published for the first time as at 30 June 2018.

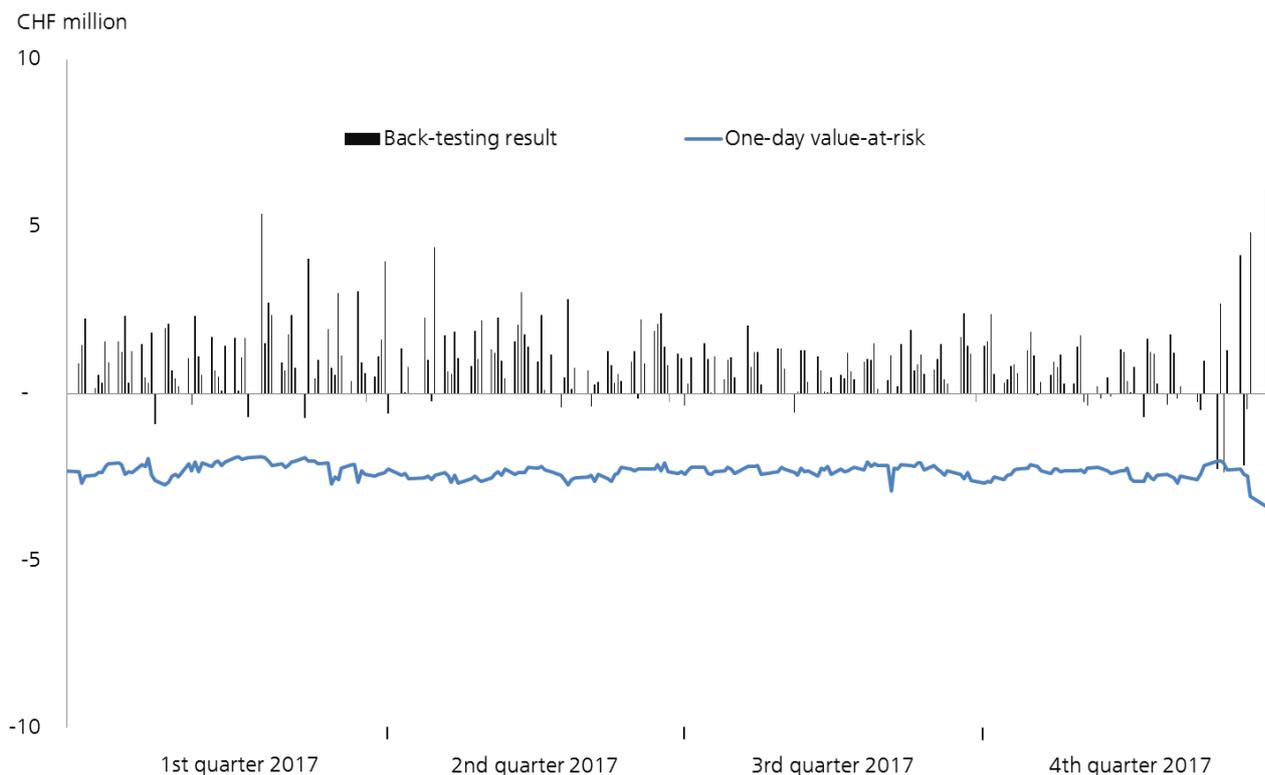
## Table 42 (MR4): Market risk: comparison of VaR estimates with gains/losses

The quality of the value-at-risk approach used is assessed by comparing the value at risk for a holding period of one day with the realised daily backtesting result. The backtesting result is based on the result from trading activities, adjusted for commission income. Unlike a hypothetical P&L, the backtesting result includes intraday trading income. In the case of a one-day holding period and 99-percent quantile, the value at risk is expected to be exceeded two to three times each year.

### Backtesting results 2017

In 2017, the value at risk was exceeded twice. Therefore, the backtesting result corresponds to the statistically expected figure. The two breaches resulted from extraordinarily large market movements in December in the short-term US dollar interest rates on the FX swap market. The backtesting VaR was exceeded by CHF 0.2 million on 13 December 2017, and by CHF 0.3 million on 15 December 2017.

The picture for 2017 was as follows:



**Table 43: Qualitative disclosure requirements related to operational risks**

### Strategy

The objective of Zürcher Kantonalbank’s management of operational risk is the risk-oriented protection of people, information, services and assets, and the maintenance and restoration of critical business functions in an operational emergency. Therefore, management of operational risk is an essential part of ensuring that the canton, clients, partners, public and regulator have confidence in the bank. The assessment of operational risks takes account of both, direct financial losses and the consequences of a loss of client confidence and reputation.

### Organisation and processes

The bank-wide inventory of operational risks constitutes the basis for the management of operational risks. Through periodic, systematic assessments, the operational risks of all of the bank’s staff, critical information, services and assets are identified, assessed and documented. Bank-wide security management constitutes an important component of the management of operational risks.

Security	Security protection objective
Business continuity management	Maintaining critical business functions in the event of serious events stemming from operational risks
Data security	Protecting the confidentiality, integrity and availability of data and functions in IT systems as well as physical information
Personal safety	Protecting people (life and limb)
Protection of property	Protecting physical infrastructures (power supply, buildings, systems) and tangible assets (cash, precious metals, physical securities and documents)

The measurement of operational risks is based on an estimate of potential claims and the probability of occurrence. To calculate the operational residual risks, inherent risks are set against existing risk-mitigating measures. If the re-

sidual risks exceed the risk tolerance, additional risk-mitigating measures are defined and implemented. The effectiveness of the risk-mitigating measures is monitored as part of the bank-wide internal control system (ICS). The specialist operational risk function of the Risk business unit specifies the processes and methods, and provides tools for monitoring the internal control system.

In terms of security, the specialist unit in the Logistics business unit has group-wide responsibility for setting rules. As the unit for preventive risk management, the specialist unit sets the security rules for individuals, systems and procedures. The greater the risk or risk classification, the more extensive the security rules that have to be implemented. The specialist unit for security supports line managers where required, providing advice on implementing technical security requirements. It also provides training and raises staff awareness of rules of conduct relating to security (security awareness).

### **Risk profile**

There was no material change in the bank's risk profile for operating risks compared with the previous year. Zürcher Kantonalbank continues to pay particular attention to the identification of operational risk scenarios in relation to cybercrime. The cybercrime sector is continuously becoming more specialised and professional. The bank's risk management teams are counteracting the heightened threat situation through the use of increasingly stringent security measures. In addition to technical and organisational measures, these in particular include internal and external information campaigns to raise awareness of cybersecurity among staff and customers.

### **Approach regarding capital adequacy requirements for operational risk**

Zürcher Kantonalbank uses the basic indicator approach to determine the capital requirement for operational risks.

## **Table 44: Interest rate risk in the banking book**

### **Strategy**

In managing the banking book, Zürcher Kantonalbank pursues a strategy focussed on medium-term optimisation of net interest income. The interest rate risk is managed based on the market interest method. For client deposits and loans with a variable interest rate, the interest rate risk is determined by taking into account the bank's presumed future rate-setting behaviour and client behaviour, and is reviewed at least once a year.

### **Organisation and processes**

The interest rate risk in the banking book is managed in strategic terms by the Board of Directors and in tactical terms by the CFO and Treasury. The strategic interest rate risk position is set by the Board of Directors on a periodic basis in the form of an investment strategy for equity (equity benchmark). The CFO and Treasury manage the deviation of the interest rate risk position in the banking book from the equity benchmark within the risk limits set by the Board of Directors. The Risk business unit is responsible for the measurement and monitoring of risk as well as independent reporting on interest rate risk.

Banking book products without defined interest rates and capital commitment are variable products. These include, in particular, savings and transaction accounts as well as to a comparatively low extent variable mortgages. These products are modelled by replicating these (real) variable products through synthetic products with defined fixed interest rates on the basis of econometric analyses and expert-based empirical values. A key component of this modelling approach is the definition of a "floor", which can be considered a non-interest-rate-sensitive partial volume in terms of capital commitment. The duration of the replication of the floor is determined by the assumed setting of conditions in the event of interest rate changes. The model is subject to an annual review and is approved by the Risk Committee of the Executive Board.

Interest rate risk management takes account of the present value as well as earnings prospects. With the present value perspective, interest rate risks are managed by allocating risk capital in accordance with the capital-at-risk approach (risk horizon one year, confidence level 99.9 percent) and by using value at risk limits (holding period 20 trading days, confidence level 99 percent). In addition, stress scenarios are simulated in order to analyse and limit the impact of extraordinary changes in the interest rate environment.

From the prospective earnings perspective, stress tests provide an indication of the structural contribution in the event of extraordinary changes in market interest rates with unchanged positioning over a one-year period. Besides the structural contribution, margin effects are particularly significant for client deposits with variable interest. This applies especially in an environment of negative market interest rates for balance sheet items such as retail client deposits on which no negative interest is charged. Additional monitoring tools allow such margin effects to be analysed for different interest rate scenarios over a period of several years.

## **Hedging**

Contractually-agreed client transactions, financial investments as well as debt financing in the banking book qualify as underlying transactions to be hedged. For the underlying transaction, a distinction is made between direct and indirect transactions. In direct transactions, Treasury has a direct influence on the timing and terms of the underlying transaction (purchase of financial investments, bond issues). Indirect transactions are understood to be all the transactions concluded by Sales and transferred to Treasury for interest risk management. For direct transactions, the result of individual transactions is taken into account, while for indirect transactions only the market value of the positions, based on changed market conditions (in particular the interest curve), is included.

Appropriate derivative financial instruments (mainly interest swaps) are used for hedging purposes. For each hedging relationship, a review is undertaken to determine whether they meet the conditions for the application of hedge accounting (e.g. the hedging transactions must be concluded with an external counterparty).

All hedging transactions are treated as direct transactions. Zürcher Kantonalbank hedges underlying transactions by means of a macro hedge. It optimises the total exposure on the basis of key rate sensitivities while adhering to the risk policy requirements.

The result from the hedging transactions runs counter to the result of the underlying transactions and indicates the economic risk assumption and cover. The hedge effectiveness is measured every six months as of the balance sheet date at the end of June and the end of December. It is based on the effects on the result from the interest exposures of the underlying transactions and the hedging transactions. Specifically, the result from the underlying transaction is compared to the result from the hedging transaction as of the balance sheet date.

The cumulative absolute amounts from the monthly result from the underlying and hedging transactions are compared for the aggregate view of the hedge effectiveness over the six-month horizon. The hedge is regarded as effective as long as the result from the hedging transactions does not exceed the result from the underlying transactions. If the result from the hedging transactions, accumulated over six months, exceeds the result from the underlying transactions, the excessive part of the hedge is regarded as ineffective. The transactions responsible for the ineffectiveness of the hedge are then identified in the hedging portfolio before being derecognised from the hedging portfolio and allocated to the trading portfolio. This is carried out until the hedge is effective in the period under review.

## Reporting

Interest rate risk in the banking book is monitored and managed on an ongoing basis. The Risk unit provides monitoring and reporting independently of the risk managers. Reporting on the risk profile of interest rate risk in the banking book takes the form of rate sensitivities and risk indicators with accompanying commentary, sent to the Executive Board and Board of Directors every quarter. Treasury Controlling within the Risk unit also produces extensive monthly reports for the risk managers and various controlling functions at the bank. Table 3 shows the system for risk measurement.

## Risk profile

The maturity-dependent sensitivity data shown in the table below indicate the change in value in Swiss francs when interest rates for each maturity band fall by one basis point (0.01 percentage points). The client deposits contained in the hedged item are represented via replicating portfolios with average maturities of between 15 and 26 months.

The interest rate sensitivity of the CHF banking book stood at CHF 8.0 million per basis point as at 31 December 2017, slightly down on the previous year (CHF 8.1 million). The interest rate exposure continues to serve as a strategic hedge against persistently low Swiss franc interest rates as well as the stabilisation of interest gains and is dominated (by more than two thirds) by the strategic interest rate risk position specified by the Board of Directors (equity benchmark). In the event of an interest rate rise, the positive margin effects successively compensate the anticipated losses in terms of the structural contribution. The euro and US dollar interest rate exposures are almost fully hedged as of the end of 2017.

Basis point sensitivity <sup>1</sup> in CHF million	up to 12 months	1 to 5 years	over 5 years	Total
Hedged item	-0	4	6	10
Hedge	0	-2	-0	-2
<b>Total as at 31.12.2017</b>	<b>0</b>	<b>2</b>	<b>6</b>	<b>8</b>

Basis point sensitivity <sup>1</sup> in EUR million	up to 12 months	1 to 5 years	over 5 years	Total
Hedged item	0	-0	-1	-1
Hedge	0	0	1	1
<b>Total as at 31.12.2017</b>	<b>0</b>	<b>-0</b>	<b>0</b>	<b>-0</b>

Basis point sensitivity <sup>1</sup> in USD million	up to 12 months	1 to 5 years	over 5 years	Total
Hedged item	0	0		0
Hedge	0	-0		-0
<b>Total as at 31.12.2017</b>	<b>0</b>	<b>0</b>		<b>0</b>

<sup>1</sup> Basis point sensitivity is measured as a cash profit/loss when the interest rate in the maturity band concerned falls by one basis point. A basis point is 0.01 percentage points.

**Table 45: Presentation of material features of regulatory capital instruments**

31.12.2017	Endowment capital	Tier 1 bond
1 Issuer	Zürcher Kantonalbank	Zürcher Kantonalbank
2 Unique identifier (ISIN)	n/a	CH0361532945
3 Governing law of the instrument	Swiss law	Swiss law
<b>Regulatory treatment</b>		
4 Under transitional Basel III rules (CET1 / AT1 / T2)	Common equity Tier 1 (CET1)	Additional Tier 1 capital (AT1)
5 Under post-transitional Basel III rules (CET1 / AT1 / T2)	Common equity Tier 1 (CET1)	Additional Tier 1 capital (AT1)
6 Eligible at single-entity, group / single-entity and group levels	Solo and group level	Solo and group level
7 Equity securities / debt securities / hybrid instruments / other instruments	Other instruments	Hybrid instrument (subordinated bond with conditional claim waiver)
8 Amount recognised in regulatory capital (as per most recent capital adequacy report)	CHF 2'425 million	CHF 749 million
9 Par value of instrument	CHF 2'425 million	CHF 750 million
10 Accounting classification	Corporate capital	Bonds
11 Original date of issuance	15.02.1870	30.06.2017
12 Perpetual or dated	Unlimited	Unlimited
13 Original maturity date	n/a	n/a
14 Issuer call (subject to prior approval from supervisory authority)	No	Yes
15 Optional call date /contingent call dates / redemption amount	n/a	First possible termination date 30.10.2023. Redemption amount: entire outstanding issue, no partial termination
16 Subsequent call dates, if applicable	n/a	Thereafter annually on interest date of 30 Oct
<b>Coupons / dividends</b>		
17 Fixed / floating rate / initially fixed and subsequently floating rate / initially floating rate and subsequently fixed	n/a	Fixed with reset on 30.10.2023; thereafter reset every 5 years
18 Coupon rate and any related index	n/a	Fixed at 2.215% until 30.10.2023; thereafter reset every 5 years based on 5-year mid-swap (minimum 0.00%) plus 2.125% risk premium
19 Existence of a dividend stopper (non-payment of dividend on the instrument prohibits the payment of dividends on common shares)	n/a	Yes. No distribution to canton and municipalities if coupon is not paid
20 Coupon payment / dividends: fully discretionary / partially discretionary / mandatory	Profit distribution fully discretionary	Payment of interest fully discretionary
21 Existence of step up or other incentive to redeem	No	No
22 Non-cumulative or cumulative	Non-cumulative	Non-cumulative
23 Convertible or non-convertible	Non-convertible	Non-convertible, write-off
24 If convertible, conversion trigger (including by PONV)	n/a	n/a
25 If convertible, fully in every case / fully or partially / partially in every case	n/a	n/a
26 If convertible, conversion rate	n/a	n/a
27 If convertible, mandatory / optional conversion	n/a	n/a
28 If convertible, specify instrument type convertible into	n/a	n/a
29 If convertible, specify issuer of instrument it converts into	n/a	n/a
30 Write-down feature	n/a	Partial write-down until trigger ratio (7%) is met again, full write-down if FINMA declares a PONV (point of non-viability)
31 Write-down trigger(s)	n/a	Common equity Tier 1 (CET1) capital ratio falls below 7% or FINMA declares PONV (point-of-non-viability)
32 Full / partial	n/a	Partial write-down until trigger ratio (7%) is met again, full write-down if FINMA declares a PONV (point of non-viability)
33 Permanent or temporary	n/a	Permanent
34 If temporary write-down: description of write-up mechanism	n/a	n/a
35 Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	Tier 1 bond	Subordinate to all other subordinated liabilities (if any) except pari passu instruments
36 Features that prevent full recognition under Basel III	No	No
37 If temporary write-down: description of write-up mechanism	n/a	n/a

1 Issuer	Zürcher Kantonalbank	Zürcher Kantonalbank
2 Unique identifier (ISIN)	CH0267596697	XS1245290181
3 Governing law of the instrument	Swiss law	Swiss law
<b>Regulatory treatment</b>		
4 Under transitional Basel III rules (CET1 / AT1 / T2)	Supplementary capital (Tier 2)	Supplementary capital (Tier 2)
5 Under post-transitional Basel III rules (CET1 / AT1 / T2)	Supplementary capital (Tier 2)	Supplementary capital (Tier 2)
6 Eligible at single-entity, group / single-entity and group levels	Solo and group level	Solo and group level
7 Equity securities / debt securities / hybrid instruments / other instruments	Hybrid instrument (subordinated bond with conditional claim waiver)	Hybrid instrument (subordinated bond with conditional claim waiver)
8 Amount recognised in regulatory capital (as per most recent capital adequacy report)	CHF 179 million	CHF 585 million
9 Par value of instrument	CHF 185 million	EUR 500 million
10 Accounting classification	Bonds	Bonds
11 Original date of issuance	02.03.2015	15.06.2015
12 Perpetual or dated	02.09.2025	15.06.2027
13 Original maturity date	n/a	n/a
14 Issuer call (subject to prior approval from supervisory authority)	Yes	Yes
15 Optional call date /contingent call dates / redemption amount	First possible termination date 02.09.2020. Redemption amount: entire outstanding issue, no partial termination	First possible termination date 15.06.2022. Redemption amount: entire outstanding issue, no partial termination
16 Subsequent call dates, if applicable	Thereafter annually on interest date of 02 Sep	n/a
<b>Coupons / dividends</b>		
17 Fixed / floating rate / initially fixed and subsequently floating rate / initially floating rate and subsequently	Fixed with reset every 5 years	Fixed with reset every 7 years
18 Coupon rate and any related index	Fixed at 1.0% until 02.09.2020; thereafter reset based on 5-year mid-swap (minimum 0.00%) plus 1.00% risk premium	Fixed at 2.625% until 15.06.2022; thereafter reset based on 5-year mid-swap plus 1.85% risk premium
19 Existence of a dividend stopper (non-payment of dividend on the instrument prohibits the payment of dividends on common shares)	No	No
20 Coupon payment / dividends: fully discretionary / partially discretionary / mandatory	Interest payment mandatory, except if write-off has occurred	Interest payment mandatory, except if write-off has occurred
21 Existence of step up or other incentive to redeem	No	No
22 Non-cumulative or cumulative	n/a	n/a
23 Convertible or non-convertible	Non-convertible, write-off	Non-convertible, write-off
24 If convertible, conversion trigger (including by PONV)	n/a	n/a
25 If convertible, fully in every case / fully or partially / partially in every case	n/a	n/a
26 If convertible, conversion rate	n/a	n/a
27 If convertible, mandatory / optional conversion	n/a	n/a
28 If convertible, specify instrument type convertible	n/a	n/a
29 If convertible, specify issuer of instrument it converts into	n/a	n/a
30 Write-down feature	Full write-down if trigger has occurred	Full write-down if trigger has occurred
31 Write-down trigger(s)	Common equity Tier 1 (CET1) capital ratio falls below 5% or FINMA declares PONV (point-of-non-viability)	Common equity Tier 1 (CET1) capital ratio falls below 5% or FINMA declares PONV (point-of-non-viability)
32 Full / partial	Full	Full
33 Permanent or temporary	Permanent	Permanent
34 If temporary write-down: description of write-up mechanism	n/a	n/a
35 Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	Has priority over lower-subordinated liabilities such as liabilities from Tier 1 bonds. Pari passu with similarly ranked instruments such as Tier 2 bonds. Subordinated to all other liabilities	Has priority over lower-subordinated liabilities such as liabilities from Tier 1 bonds. Pari passu with similarly ranked instruments such as Tier 2 bonds. Subordinated to all other liabilities
36 Features that prevent full recognition under Basel III	No	No
37 If temporary write-down: description of write-up mechanism	n/a	n/a

**Table 46: Leverage ratio: comparison of accounting assets versus leverage ratio exposure measure**

<i>in CHF million</i>		<b>31.12.2017</b>
1	Total assets as per published financial statements	163'881
2	Adjustment for investments in banking, financial, insurance or commercial entities that are consolidated for accounting purposes but outside the scope of regulatory consolidation (margin nos. 6-7 FINMA Circ. 15/3), as well as adjustment for assets deducted from Tier 1 capital (margin nos. 16-17 FINMA Circ. 15/3)	-359
3	Adjustment for fiduciary assets recognised on the balance sheet for accounting purposes, but excluded from the leverage ratio exposure measure (margin no. 15 FINMA Circ. 15/3)	
4	Adjustment for derivative financial instruments (margin nos. 21-51 FINMA Circ. 15/3)	3'655
5	Adjustment for securities financing transactions (SFTs) (margin nos. 52-73 FINMA Circ. 15/3)	1'846
6	Adjustment for off-balance-sheet items (i.e. conversion to credit equivalent amounts of off-balance-sheet exposures) (margin nos. 74-76 FINMA Circ. 15/3)	8'173
7	Other adjustments	
<b>8</b>	<b>Leverage ratio exposure (sum of Rows 1-7)</b>	<b>177'195</b>

**Table 47: Leverage ratio: detailed presentation**

<i>in CHF million</i>		<b>31.12.2017</b>
<b>On-balance-sheet exposures</b>		
1	On-balance sheet items (excluding derivatives and SFTs, but including collateral) (margin nos. 14-15 FINMA Circ. 15/3)	148'020
2	Assets that must be deducted in determining the eligible Tier 1 capital (margin nos. 7 and 16-17 FINMA Circ. 15/3)	-359
<b>3</b>	<b>Total on-balance sheet exposures within the leverage ratio framework, excluding derivatives and SFTs</b>	<b>147'660</b>
<b>Derivate</b>		
4	Replacement values associated with all derivatives transactions, including those with CCPs, taking into account the margin payments received and netting agreements in accordance with margin nos. 22-23 and 34-35 FINMA Circ. 15/3	1'617
5	Add-on amounts for PFE associated with all derivatives transactions (margin nos. 22 and 25 FINMA Circ. 15/3)	3'649
6	Gross up for derivatives collateral provided where deducted from the balance sheet assets pursuant to the operative accounting framework (margin no. 27 FINMA Circ. 15/3)	2'056
7	Deduction of receivables assets for cash variation margin provided in derivatives transactions, in accordance with margin no. 36 FINMA Circ. 15/3	-2'128
8	Deduction relating to exposures to QCCPs if there is no obligation to reimburse the client in the event of the QCCP defaulting (margin no. 39 FINMA Circ. 15/3)	-57
9	Adjusted effective notional amount of written credit derivatives, after deduction of negative replacement values (margin no. 43 FINMA Circ. 15/3)	174
10	Adjusted effective notional offsets of bought / written credit derivatives (margin nos. 44-50 FINMA Circ. 15/3) and add-on deductions for written credit derivatives (margin no. 51 FINMA Circ. 15/3)	-121
<b>11</b>	<b>Total derivative exposures</b>	<b>5'190</b>
<b>Securities financing transaction exposures (SFT)</b>		
12	Gross SFT assets with no recognition of netting (except in the case of novation with a QCCP as per margin no. 57 FINMA Circ. 15/3) including sale accounting transactions (margin no. 69 FINMA Circ. 15/3), less the items specified in margin no. 58 FINMA Circ. 15/3)	14'326
13	Netted amounts of cash payables and cash receivables relating to SFT counterparties (margin nos. 59-62 FINMA Circ. 15/3)	
14	CCR exposure for SFT assets (margin nos. 63-68 FINMA Circ. 15/3)	1'846
15	Agent transaction exposures (margin nos. 70-73 FINMA Circ. 15/3)	
<b>16</b>	<b>Total securities financing transaction exposures (SFT)</b>	<b>16'172</b>
<b>Other off-balance-sheet exposures</b>		
17	Off-balance-sheet exposure at gross national amounts before application of credit conversion factors	32'109
18	Adjustments for conversion to credit equivalent amounts (margin nos. 75-76 FINMA Circ. 15/3)	-23'937
<b>19</b>	<b>Total off-balance-sheet items</b>	<b>8'173</b>
<b>Eligible capital and total exposures</b>		
20	Tier 1 capital (margin no. 5 FINMA Circ. 15/3)	11'255
21	Total exposures (sum of Rows 3, 11, 16 and 19)	177'195
<b>Leverage Ratio</b>		
<b>22</b>	<b>Leverage ratio (margin nos. 3-4 FINMA Circ. 15/3) in %</b>	<b>6.4%</b>

The balance sheet items in line 1 of Table 47 are equal to total assets as reported less amounts due from securities transactions and the positive replacement value of derivative financial instruments.

There has been no material change to the leverage ratio since 30 June 2017.

## Table 48: Information about the liquidity coverage ratio

### Strategy

The aim of liquidity risk management is to ensure solvency, even under bank-specific or market-specific stress conditions. Zürcher Kantonalbank pursues a long-term refinancing policy that includes both cost and risk aspects.

Refinancing risks are managed via a deliberate diversification in terms of maturities, refinancing instruments used and markets to limit dependence on funding sources. For this purpose, Treasury uses both short- and long-term instruments, which are placed on the domestic and international markets. The diversified refinancing base is reflected in a broad product portfolio, comprising client deposits, bank deposits and money and capital market refinancing.

### Organisation and processes

The Treasury organisational unit, which reports to the CFO, is responsible for managing the liquidity risks and refinancing of Zürcher Kantonalbank. Treasury delegates operational liquidity management to the Money Trading unit, which ensures the efficient use of liquidity based on internal and regulatory rules. In line with the requirements of the risk policy, the Board of Directors defines the liquidity risk tolerance using an internal model. The risk organisation oversees compliance with the requirements and reports to the Board of Directors in this regard on a regular basis.

The measurement, management and control of short-term liquidity risks are based both, on the internal model and on the liquidity coverage ratio (LCR), a regulatory indicator. The internal model is based on a bank-specific stress scenario for balance-sheet and off-balance-sheet transactions. In this scenario, substantial outflows of varying intensity in the client and interbank business are assumed, among other things. The result of the liquidity risk measurement is an automatically produced daily report on the availability of liquid assets and securities eligible for repo transactions in financial investments and trading positions, liquidity inflows and outflows under the stress scenario as well the liquidity position left after the stress scenario. The related emergency plan constitutes a significant element of liquidity risk management. It supports the situationally appropriate conduct of the relevant functions in a crisis.

Zürcher Kantonalbank is subject to a minimum requirement of 100 percent for the LCR. The bank uses an internal model to divide wholesale deposits into operational and non-operational categories. Net outflows of funds from the collateralisation of derivatives due to changes in market values are calculated using the look-back method. Besides Swiss francs, which make up by far the largest part of the balance sheet of Zürcher Kantonalbank, the LCR is also monitored and periodically reported in other major currencies.

### Risk profile

The liquidity ratios increased year-on-year in 2017. The average LCR, which is calculated as a simple average of the end-of-day values of the business days during the quarter under review, lies between 125 percent and 153 percent. High-quality liquid assets (HQLA) average between CHF 38.6 billion and CHF 48.5 billion. These HQLA can be subdivided into Level 1 assets (cash, central bank deposits, tradeable securities) and Level 2 assets (tradeable securities with less strict criteria). The majority of Level 1 assets are held in the form of central bank deposits. The liquidity risk profile is actively managed, particularly through targeted management of time deposits, money-market instruments and SLB and repo transactions.

The liquidity coverage ratio (LCR) rose 6 percentage points to 153 percent in the fourth quarter of 2017 and thus remains significantly higher than the 100 percent required by FINMA. The rise is due to the fact that HQLA went up by CHF 2.2 billion while the net outflow of funds in the same period rose by only CHF 0.2 billion.

in CHF million	Quarterly averages Q3 17 <sup>1</sup>		Quarterly averages Q4 17 <sup>1</sup>	
	Unweighted values	Weighted values	Unweighted values	Weighted values
A. High-quality liquid assets (HQLA)				
<b>1 Total high quality liquid assets (HQLA)</b>		<b>46'251</b>		<b>48'491</b>
B. Cash outflows				
2 Retail deposits	53'701	5'608	53'957	5'600
3 of which stable deposits	5'960	298	5'957	298
4 of which less stable deposits	47'741	5'310	48'000	5'302
5 Unsecured wholesale funding	38'830	23'074	39'516	23'259
6 of which operational deposits (all counterparties)	3'776	944	3'817	954
7 of which non-operational deposits (all counterparties)	34'757	21'834	35'528	22'134
8 of which unsecured debt	296	296	171	171
9 Secured wholesale funding and collateral swaps		6'645		6'845
10 Other outflows	45'236	35'979	49'712	40'371
11 of which outflows related to deriva-tive exposures and other transactions	37'572	34'131	41'580	38'352
12 of which outflows of funds from mortgage bond loans			70	70
13 of which, outflows related to committed credit and liquidity facilities	7'664	1'847	8'062	1'949
14 Other contractual funding obligations	1'456	1'424	1'468	1'421
15 Other contingent funding obligations	26'542	350	27'062	342
<b>16 Total cash outflows</b>		<b>73'080</b>		<b>77'838</b>
C. Cash inflows				
17 Secured financing operations (e.g. reverse repo transactions) and security swaps	8'943	5'854	8'856	5'852
18 Inflows from fully performing exposures	2'670	2'638	2'879	2'831
19 Other cash inflows	33'140	33'140	37'474	37'474
<b>20 Total cash inflows</b>	<b>44'752</b>	<b>41'631</b>	<b>49'209</b>	<b>46'158</b>
Adjusted values				
<b>21 Total high-quality liquid assets (HQLA)</b>		<b>46'251</b>		<b>48'491</b>
<b>22 Total net cash outflows</b>		<b>31'449</b>		<b>31'680</b>
<b>23 Liquidity coverage ratio in %</b>		<b>147%</b>		<b>153%</b>

<sup>1</sup> The average is calculated based on the end of day values from the business days of the reported quarter: Q3 64 days included, Q4 63 days included.

**Table 49: Additional requirements applicable to large banks: Minimum disclosure requirements (group and parent company)**

31.12.2017

in CHF million (unless stated otherwise)

	Group	Parent company
1 Minimum required capital based on risk-based requirements	5'106	5'077
2 Eligible capital	12'019	11'827
3 of which common equity Tier 1 capital (CET1)	10'506	10'313
4 of which Tier 1 capital (T1)	11'255	11'062
5 Risk-weighted assets (RWA)	63'822	63'458
6 CET1 ratio (common equity T1 as % of RWA) <sup>1</sup>	16.5%	16.3%
7 Tier 1 ratio (T1 capital as % of RWA) <sup>1</sup>	17.6%	17.4%
8 Total capital ratio (as % of RWA) <sup>1</sup>	18.8%	18.6%
9 Countercyclical capital buffer (as % of RWA)	0.6%	0.6%
10 CET1-target ratio (in %) as per Annex 8 of the CAO plus the countercyclical capital buffer <sup>2</sup>	10.6%	10.6%
11 T1-target ratio (in %) as per Annex 8 of the CAO plus the countercyclical capital buffer <sup>2</sup>	13.6%	13.6%
12 Total capital target ratio (in %) as per Annex 8 of the CAO plus the counter-cyclical capital buffer <sup>2</sup>	14.6%	14.6%
13 Basel III Leverage Ratio (Tier 1 capital in % of the leverage ratio exposure measure)	6.4%	6.3%
14 Leverage ratio exposure measure	177'195	176'943
15 Short-term liquidity ratio, LCR (in %) in the reporting quarter <sup>3</sup>	153%	152%
16 LCR numerator: total of high-quality, liquid assets	48'491	48'469
17 LCR denominator: total net cash outflows	31'680	31'818

<sup>1</sup> Figures for capital are net values in accordance with the definitive Basel III provisions. Zürcher Kantonalbank chose not to make use of the transitional provisions under Art. 140 –142 CAO, which allow a gradual introduction of the new rules. The figures are calculated in accordance with the provisions of the CAO for non-systemically important banks.

<sup>2</sup> Derived from the FINMA ruling of August 2014, the CET1 target ratio for Zürcher Kantonalbank is 10.0%, the T1 target ratio is 13.0%, the total capital target ratio is 14.0%, plus a countercyclical buffer of 0.6% in each case.

<sup>3</sup> The average is calculated based on the end of day values from the business days of the reporting quarter: 63 days included.

## Table 50: Disclosure requirements for systemically important banks: Risk-based capital requirements based on capital ratios (group and parent company)

### Special disclosure obligations for systemically important financial groups and banks

Zürcher Kantonalbank has been deemed a domestic systemically important bank since November 2013.

The risk-weighted capital requirements for systemically important banks consist of a basic requirement (4.5 percent), the capital buffer (8.5 percent) plus the countercyclical capital buffer (0.6 percent as at 31 December 2017) and a progressive component (1.0 percent). This is calculated as the total of the add-on for domestic market share and the add-on for the size of the financial group; deductions may be made for measures to improve the ability of the financial group to recover or be liquidated. The value of the progressive component is set each year by the Swiss Financial Market Supervisory Authority FINMA.

31.12.2017		Group			
in CHF million and in % RWA		Transitional rules		Definitive rules (from 2020)	
Basis of assessment		CHF million		CHF million	
<b>Risk-weighted assets (RWA)</b>		<b>63'822</b>		<b>63'822</b>	
Risk-based capital requirements (going concern) based on capital ratios		CHF million	in % RWA	CHF million	in % RWA
<b>Total<sup>1</sup></b>		<b>9'344</b>	<b>14.6%</b>	<b>9'535</b>	<b>14.9%</b>
of which CET1: minimum		3'702	5.8%	2'872	4.5%
of which CET1: capital buffer		2'042	3.2%	2'591	4.1%
of which CET1: countercyclical capital buffer		408	0.6%	408	0.6%
of which CET1: additional capital pillar 2		638	1.0%	919	1.4%
of which Additional Tier 1: minimum		1'404	2.2%	2'234	3.5%
of which Additional Tier 1: capital buffer		511	0.8%	511	0.8%
of which Additional Tier 1: additional capital pillar 2		638	1.0%		
Eligible capital (going concern) <sup>2,3</sup>		CHF million	in % RWA	CHF million	in % RWA
<b>Core capital</b>		<b>12'019</b>	<b>18.8%</b>	<b>11'255</b>	<b>17.6%</b>
of which CET1		9'466	14.8%	8'511	13.3%
of which CET1 to cover additional Tier 1 requirements		1'039	1.6%	1'995	3.1%
of which additional Tier 1 high-trigger CoCos		749	1.2%	749	1.2%
of which additional Tier 1 low-trigger CoCos					
of which Tier 2 high-trigger CoCos					
of which Tier 2 low-trigger CoCos		764	1.2%		
Risk-based requirements for additional loss-absorbing capital (gone concern) based on capital ratios <sup>4</sup>		CHF million	in % RWA	CHF million	in % RWA
<b>Total (net)</b>					
Eligible additional loss-absorbing capital (gone concern)		CHF million	in % RWA	CHF million	in % RWA
<b>Total</b>					
of which bail-in bonds					
of which CET1 used to meet gone concern requirements					
of which additional Tier 1 used to meet gone concern requirements					

<sup>1</sup> Capital requirements are calculated as a percentage of risk-weighted assets. Derived from the FINMA ruling of August 2014, the CET1 target ratio for Zürcher Kantonalbank is 10.0%, the T1 target ratio is 13.0%, the total capital target ratio is 14.0%, plus a countercyclical buffer of 0.6% in each case.

<sup>2</sup> Figures for capital are net values in accordance with the definitive Basel III provisions. Zürcher Kantonalbank chose not to make use of the transitional provisions under Art. 140–142 CAO, which allow a gradual introduction of the new rules.

<sup>3</sup> Pursuant to the transitional provisions on the amendment of the CAO dated 11.05.2016 (Art. 148b CAO) with regard to capital quality for systemically important banks, low-trigger Tier 2 capital can be charged to core capital until the first capital call, at the latest by 31.12.2019.

<sup>4</sup> Currently, there are no gone concern capital requirements for D-SIBs (domestic systemically important banks).

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Parent Company <sup>5</sup>

in CHF million and in % RWA

Basis of assessment	Transitional rules		Definitive rules (from 2020)	
	CHF million		CHF million	
<b>Risk-weighted assets (RWA)</b>	<b>63'458</b>		<b>63'458</b>	
Risk-based capital requirements (going concern) based on capital ratios	CHF million	in % RWA	CHF million	in % RWA
<b>Total <sup>1</sup></b>	<b>9'293</b>	<b>14.6%</b>	<b>9'483</b>	<b>14.9%</b>
of which CET1: minimum	3'681	5.8%	2'856	4.5%
of which CET1: capital buffer	2'031	3.2%	2'576	4.1%
of which CET1: countercyclical capital buffer	408	0.6%	408	0.6%
of which CET1: additional capital pillar 2	635	1.0%	914	1.4%
of which Additional Tier 1: minimum	1'396	2.2%	2'221	3.5%
of which Additional Tier 1: capital buffer	508	0.8%	508	0.8%
of which Additional Tier 1: additional capital pillar 2	635	1.0%		
Eligible capital (going concern) <sup>2,3</sup>	CHF million	in % RWA	CHF million	in % RWA
<b>Core capital</b>	<b>11'827</b>	<b>18.6%</b>	<b>11'062</b>	<b>17.4%</b>
of which CET1	9'288	14.6%	8'334	13.1%
of which CET1 to cover additional Tier 1 requirements	1'025	1.6%	1'980	3.1%
of which additional Tier 1 high-trigger CoCos	749	1.2%	749	1.2%
of which additional Tier 1 low-trigger CoCos				
of which Tier 2 high-trigger CoCos				
of which Tier 2 low-trigger CoCos	764	1.2%		
Risk-based requirements for additional loss-absorbing capital (gone concern) based on capital ratios <sup>4</sup>	CHF million	in % RWA	CHF million	in % RWA
<b>Total (net)</b>				
Eligible additional loss-absorbing capital (gone concern)	CHF million	in % RWA	CHF million	in % RWA
<b>Total</b>				
of which bail-in bonds				
of which CET1 used to meet gone concern requirements				
of which additional Tier 1 used to meet gone concern requirements				

<sup>1</sup> Capital requirements are calculated as a percentage of risk-weighted assets. Derived from the FINMA ruling of August 2014, the CET1 target ratio for Zürcher Kantonalbank is 10.0%, the T1 target ratio is 13.0%, the total capital target ratio is 14.0%, plus a countercyclical buffer of 0.6% in each case.

<sup>2</sup> Figures for capital are net values in accordance with the definitive Basel III provisions. Zürcher Kantonalbank chose not to make use of the transitional provisions under Art. 140–142 CAO, which allow a gradual introduction of the new rules.

<sup>3</sup> Pursuant to the transitional provisions on the amendment of the CAO dated 11.05.2016 (Art. 148b CAO) with regard to capital quality for systemically important banks, low-trigger Tier 2 capital can be charged to core capital until the first capital call, at the latest by 31.12.2019.

<sup>4</sup> Currently, there are no gone concern capital requirements for D-SIBs (domestic systemically important banks).

<sup>5</sup> Zürcher Kantonalbank does not claim any relief on the basis of Art. 125 CAO.

## Table 51: Disclosure requirements for systemically important banks: Unweighted capital requirements based on the leverage ratio (group and parent company)

Under the transitional provisions in Article 148c of the Capital Adequacy Ordinance (CAO), the unweighted regulatory capital adequacy requirement (leverage ratio) rises in stages until 2019. At the end of 2017, it was 3.5 percent for Zürcher Kantonalbank, rising to 4.0 percent for the year 2018 and to 4.5 percent for the year 2019.

31.12.2017		Group			
<i>in CHF million and in % LRD</i>		Transitional rules		Definitive rules (from 2020)	
Basis of assessment		<i>CHF million</i>		<i>CHF million</i>	
<b>Leverage ratio exposure measure (leverage ratio denominator, LRD)</b>		<b>177'195</b>		<b>177'195</b>	
Unweighted capital requirements (going concern) based on the leverage ratio		<i>CHF million</i>	<i>in % LRD</i>	<i>CHF million</i>	<i>in % LRD</i>
<b>Total <sup>1</sup></b>		<b>6'202</b>	<b>3.5%</b>	<b>7'974</b>	<b>4.5%</b>
of which CET1: minimum		3'721	2.1%	2'658	1.5%
of which CET1: capital buffer		886	0.5%	2'658	1.5%
of which CET1: additional capital pillar 2					
of which Additional Tier 1: minimum		1'595	0.9%	2'658	1.5%
of which Additional Tier 1: additional capital pillar 2					
Eligible capital (going concern) <sup>2,3</sup>		<i>CHF million</i>	<i>in % LRD</i>	<i>CHF million</i>	<i>in % LRD</i>
<b>Core capital</b>		<b>12'019</b>	<b>6.8%</b>	<b>11'255</b>	<b>6.4%</b>
of which CET1		9'466	5.3%	8'511	4.8%
of which CET1 to cover additional Tier 1 requirements		1'039	0.6%	1'995	1.1%
of which additional Tier 1 high-trigger CoCos		749	0.4%	749	0.4%
of which additional Tier 1 low-trigger CoCos					
of which Tier 2 high-trigger CoCos					
of which Tier 2 low-trigger CoCos		764	0.4%		
Unweighted requirements for additional loss-absorbing capital (gone concern) based on the leverage ratio <sup>4</sup>		<i>CHF million</i>	<i>in % LRD</i>	<i>CHF million</i>	<i>in % LRD</i>
<b>Total (net)</b>					
Eligible additional loss-absorbing capital (gone concern)		<i>CHF million</i>	<i>in % LRD</i>	<i>CHF million</i>	<i>in % LRD</i>
<b>Total</b>					
of which bail-in bonds					
of which CET1 used to meet gone concern requirements					
of which additional Tier 1 used to meet gone concern requirements					

<sup>1</sup> Capital requirements are calculated as a percentage of risk-weighted assets. Derived from Art. 148c CAO the unweighted capital adequacy requirement in 2017 is 3.5%.

<sup>2</sup> Figures for capital are net values in accordance with the definitive Basel III provisions. Zürcher Kantonalbank chose not to make use of the transitional provisions under Art. 140–142 CAO, which allow a gradual introduction of the new rules.

<sup>3</sup> Pursuant to the transitional provisions on the amendment of the CAO of 11.05.2016 (Art. 148b CAO) with regard to capital quality for systemically important banks, low-trigger Tier 2 capital can be charged to core capital until the first capital call, at the latest by 31.12.2019.

<sup>4</sup> There are currently no gone concern capital requirements for D-SIBs (domestic systemically important banks).

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in CHF million and in % LRD

Parent Company <sup>5</sup>

Basis of assessment	Transitional rules		Definitive rules (from 2020)	
	CHF million		CHF million	
<b>Leverage ratio exposure measure (leverage ratio denominator, LRD)</b>	<b>176'943</b>		<b>176'943</b>	
Unweighted capital requirements (going concern) based on the leverage ratio	CHF million	in % LRD	CHF million	in % LRD
<b>Total <sup>1</sup></b>	<b>6'193</b>	<b>3.5%</b>	<b>7'962</b>	<b>4.5%</b>
of which CET1: minimum	3'716	2.1%	2'654	1.5%
of which CET1: capital buffer	885	0.5%	2'654	1.5%
of which CET1: additional capital pillar 2				
of which Additional Tier 1: minimum	1'592	0.9%	2'654	1.5%
of which Additional Tier 1: additional capital pillar 2				
Eligible capital (going concern) <sup>2,3</sup>	CHF million	in % LRD	CHF million	in % LRD
<b>Core capital</b>	<b>11'827</b>	<b>6.7%</b>	<b>11'062</b>	<b>6.3%</b>
of which CET1	9'288	5.2%	8'334	4.7%
of which CET1 to cover additional Tier 1 requirements	1'025	0.6%	1'980	1.1%
of which additional Tier 1 high-trigger CoCos	749	0.4%	749	0.4%
of which additional Tier 1 low-trigger CoCos				
of which Tier 2 high-trigger CoCos				
of which Tier 2 low-trigger CoCos	764	0.4%		
Unweighted requirements for additional loss-absorbing capital (gone concern) based on the leverage ratio <sup>4</sup>	CHF million	in % LRD	CHF million	in % LRD
<b>Total (net)</b>				
Eligible additional loss-absorbing capital (gone concern)	CHF million	in % LRD	CHF million	in % LRD
<b>Total</b>				
of which bail-in bonds				
of which CET1 used to meet gone concern requirements				
of which additional Tier 1 used to meet gone concern requirements				

<sup>1</sup> Capital requirements are calculated as a percentage of risk-weighted assets. Derived from Art. 148c CAO the unweighted capital adequacy requirement in 2017 is 3.5%.

<sup>2</sup> Figures for capital are net values in accordance with the definitive Basel III provisions. Zürcher Kantonalbank chose not to make use of the transitional provisions under Art. 140 –142 CAO, which allow a gradual introduction of the new rules.

<sup>3</sup> Pursuant to the transitional provisions on the amendment of the CAO of 11.05.2016 (Art. 148b CAO) with regard to capital quality for systemically important banks, low-trigger Tier 2 capital can be charged to core capital until the first capital call, at the latest by 31.12.2019.

<sup>4</sup> There are currently no gone concern capital requirements for D-SIBs (domestic systemically important banks).

<sup>5</sup> Zürcher Kantonalbank does not claim any relief on the basis of Art. 125 CAO.

## Corporate governance

For disclosures on corporate governance, please see the corporate governance section in our Annual Report 2017.