CREDIT SUISSE GROUP AG
Form 6-K
March 22, 2019
UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Form 6-K

REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16
UNDER THE SECURITIES EXCHANGE ACT OF 1934
March 22, 2019
Commission File Number 001-15244
CREDIT SUISSE GROUP AG
(Translation of registrant's name into English)
Paradeplatz 8, CH 8001 Zurich, Switzerland
(Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.
Form 20-F Form 40-F
Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1):
Note: Regulation S-T Rule 101(b)(1) only permits the submission in paper of a Form 6-K if submitted solely to provide an attached annual report to security holders.
Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7):
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Indicate by check mark whether the registrant by furnishing the information contained in this Form is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.
Yes No
If "Yes" is marked, indicate below the file number assigned to the registrant in connection with Rule 12g3-2(b): 82-.

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

CREDIT SUISSE GROUP AG
(Registrant)

Date: March 22, 2019
By:
/s/ Lara J. Warner
Lara J. Warner
Chief Risk Officer
By:
/s/ David R. Mathers
David R. Mathers
Chief Financial Officer

For purposes of this report, unless the context otherwise requires, the terms “Credit Suisse,” the “Group,” “we,” “us” and “our” mean Credit Suisse Group AG and its consolidated subsidiaries. The business of Credit Suisse AG, the direct bank subsidiary of the Group, is substantially similar to the Group, and we use these terms to refer to both when the subject is the same or substantially similar. We use the term the “Bank” when we are only referring to Credit Suisse AG and its consolidated subsidiaries.
Abbreviations are explained in the List of abbreviations in the back of this report.
Publications referenced in this report, whether via website links or otherwise, are not incorporated into this report.
In various tables, use of “–” indicates not meaningful or not applicable.

Pillar 3 and regulatory disclosures 4Q18
Credit Suisse Group AG

Introduction

General

This report as of December 31, 2018 for the Group is based on the revised Circular 2016/1 “Disclosure – banks” (FINMA circular) issued by the Swiss Financial Market Supervisory Authority FINMA (FINMA) on July 16, 2018. The revised FINMA circular includes the implementation of the revised Pillar 3 disclosure requirements issued by the Basel Committee on Banking Supervision (BCBS) in March 2017 and requires banks to gradually implement the new requirements from December 31, 2018 onwards.

This report is produced and published quarterly, in accordance with FINMA requirements. The reporting frequency for each disclosure requirement is either annual, semi-annual or quarterly. This document should be read in conjunction with the Pillar 3 and regulatory disclosures – Credit Suisse Group AG 2Q18 and 3Q18 and the Credit Suisse Annual Report 2018, which includes important information on regulatory capital, risk management (specific references have been made herein to these documents) and regulatory developments and proposals.

The highest consolidated entity in the Group to which the FINMA circular applies is Credit Suisse Group.

These disclosures were verified and approved internally in line with our board-approved policy on disclosure controls and procedures. The level of internal control processes for these disclosures is similar to those applied to the Group’s quarterly and annual financial reports. This report has not been audited by the Group’s external auditors.

For certain prescribed table formats where line items have zero balances, such line items have not been presented.

Other regulatory disclosures

In connection with the implementation of Basel III, certain regulatory disclosures for the Group and certain of its subsidiaries are required. The Group’s Pillar 3 disclosure, regulatory disclosures, additional information on capital instruments, including the main features of regulatory capital instruments and total loss-absorbing capacity (TLAC)-eligible instruments that form part of the eligible capital base and TLAC resources, G-SIB financial indicators, reconciliation requirements, leverage ratios and certain liquidity disclosures as well as regulatory disclosures for subsidiaries can be found on our website.

> Refer to credit-suisse.com/regulatorydisclosures for additional information.

Regulatory developments

In December 2018, BCBS published the finalized Pillar 3 disclosure requirements. These requirements, together with the updates published in January 2015 and March 2017, complete the Pillar 3 framework. The revised framework covers three elements. The first element, to be implemented by January 1, 2022, relates to revisions and additions arising from the finalization of the Basel III regulatory reforms in 2017. This element includes revised disclosure regarding credit risk, operational risk, the leverage ratio and credit valuation adjustment (CVA) risk, risk-weighted assets (RWA) as calculated by the bank’s internal models as compared to the standardized approaches and an overview of risk management, RWA and key prudential metrics. As a second element, the updated framework sets out new disclosure requirements on asset encumbrance designed to provide a preliminary overview of the extent to which a bank’s assets remain available to creditors in the event of an insolvency. As a third element, the revised framework introduces new disclosure requirements relating to constraints on capital distributions, when required by national supervisors at the jurisdictional level. The second and third elements must be implemented by end-2020.

Location of disclosures

This report provides the Pillar 3 and regulatory disclosures required by the FINMA circular for the Group to the extent that these disclosures are not included in the Credit Suisse Annual Report 2018 or in the regulatory disclosures on our website.

> Refer to “Annual Report” under credit-suisse.com/ar for disclosures included in the Credit Suisse Annual Report 2018.

Location of disclosures

FINMA disclosure requirements	Location	Page number
Overview of risk management, key prudential metrics and risk-weighted assets		
Key prudential metrics [Table KM1]	Qualitative disclosures: "Treasury, Risk, Balance sheet and Off-balance sheet"	117 - 136
Risk management approach [Table OVA]	"Risk management oversight"	143 - 147
	"Risk appetite framework"	147 - 150
	"Risk coverage and management"	150 - 180
Overview of risk-weighted assets [Table OV1]	Qualitative disclosures: "Risk-weighted assets"	131 - 133
Linkages between financial statements and regulatory exposures		
Valuation process [Table LIA]	"Fair valuations"	70
	"Critical accounting estimates - Fair value"	107
	"Note 35 - Financial instruments"	359 - 363
Composition of capital and TLAC		
Differences in basis of consolidation [Table CC2]	List of significant subsidiaries and associated entities: "Note 40 - Significant subsidiaries and equity method investments"	400 - 402
	Changes in scope of consolidation: "Note 3 - Business developments, significant shareholders and subsequent events"	288
Main features of regulatory capital instruments and TLAC-eligible instruments [Table CCA]	Refer to "Capital instruments" under credit-suisse.com/regulatorydisclosures [1]	
Macroprudential supervisor measures		
Disclosure of G-SIBs indicators [Table GSIB1]	Refer to "G-SIB Indicators" under credit-suisse.com/regulatorydisclosures [1]	
Credit risk		
General qualitative information [Table CRA]	"Credit risk"	158 - 161
Additional disclosure related to credit quality of assets [Table CRB a), b), c) and d)]	"Note 1 - Summary of significant accounting policies"	279 - 281
	"Note 19 - Loans, allowance for loan losses and credit quality"	300 - 306
Qualitative disclosure requirements related to credit	"Derivative instruments"	178 - 180
risk mitigation techniques [Table CRC a)]:	"Note 1 - Summary of significant accounting policies"	277 - 278
Netting	"Note 27 - Offsetting of financial assets and financial liabilities"	313 - 316
Counterparty credit risk		
Qualitative disclosure requirements [Table CCRA]	Transaction rating, credit limits and provisioning: "Credit risk"	158 - 161
	Effect of a credit rating downgrade: "Credit ratings"	120 - 121
Securitization		
Qualitative disclosure requirements [Table SECA]	"Note 34 - Transfers of financial assets and variable interest entities"	349 - 358
Market risk		
Qualitative disclosure requirements [Table MRA]	"Market risk"	155 - 158
	"Market risk review"	170 - 173
	"Note 1 - Summary of significant accounting policies"	277 - 278

	"Note 32 - Derivatives and hedging activities"	339 - 342
Leverage metrics		
Qualitative disclosures [Table LR2]	"Leverage metrics"	134
	"Swiss metrics"	135 - 136
Liquidity coverage ratio		
Liquidity risk management [Table LIQA]	"Liquidity and funding management"	114 - 121
Liquidity Coverage Ratio [Table LIQ1]	Qualitative disclosures: "Liquidity metrics"	116 - 117
Corporate Governance		
Corporate Governance [Appendix 5]	"Corporate Governance"	188 - 230
Remuneration		
Remuneration policy [Table REMA]	"Compensation"	232 - 263
Remuneration awarded during the financial year [table REM1] / Special payments [table REM2] /	Senior management: "Executive Board compensation for 2018"	241 - 250
		255 - 263
Deferred remuneration [table REM3]	Other material risk takers: "Group compensation"	
Operational risk		
Qualitative disclosures [Table ORA]	"Operational risk regulatory capital measurement"	165
Special duties of disclosure for systemically important financial institutions and stand-alone banks		
List and qualification of alleviations granted [Appendix 4]	"FINMA Decrees"	124

1 The disclosure will be available by the end of April 2019.

3

Swiss capital requirements

FINMA requires the Group to fully comply with the special requirements for systemically important financial institutions operating internationally. The following tables show the Swiss capital and leverage requirements and metrics as required by FINMA.

> Refer to “Swiss requirements” (pages 123 to 126) and “Swiss metrics” (pages 135 to 136) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Capital management – Regulatory framework in the Credit Suisse Annual Report 2018 for further information on general Swiss requirements and the related metrics.

Swiss capital requirements and metrics

		Phase-in		Look-through
end of 4Q18	CHF million	in % of RWA	CHF million	in % of RWA
Swiss risk-weighted assets				
Swiss risk-weighted assets	285,193	–	285,193	–
Risk-based capital requirements (going-concern) based on Swiss capital ratios				
Total	37,439	13.128	41,547	14.568
of which CET1: minimum	15,400	5.4	12,834	4.5
of which CET1: buffer	11,579	4.06	15,686	5.5
of which CET1: countercyclical buffers	763	0.268	763	0.268
of which additional tier 1: minimum	7,415	2.6	9,982	3.5
of which additional tier 1: buffer	2,282	0.8	2,282	0.8
Swiss eligible capital (going-concern)				
Swiss CET1 capital and additional tier 1 capital [1]	49,443	17.337	45,935	16.107
of which CET1 capital [2]	35,719	12.525	35,719	12.525
of which additional tier 1 high-trigger capital instruments	5,615	1.969	5,615	1.969
of which additional tier 1 low-trigger capital instruments [3]	4,601	1.613	4,601	1.613
of which tier 2 low-trigger capital instruments [4]	3,508	1.23	–	–
Risk-based requirement for additional total loss-absorbing capacity (gone-concern) based on Swiss capital ratios				
Total according to size and market share (going-concern requirements)	25,382[5]	8.9[5]	40,783	14.3
Reductions due to rebates in accordance with article 133 of the CAO	(4,061)	(1.424)	(6,525)	(2.288)
Reductions due to the holding of additional instruments in the form of convertible capital in accordance with Art. 132 para 4 CAO	0	0.0	(1,754)	(0.615)
Total, net	21,321	7.476	32,504	11.397
Eligible additional total loss-absorbing capacity (gone-concern)				
Total	35,678	12.51	37,909	13.292
of which tier 2 low-trigger capital instruments	509	0.178	4,017	1.409
of which non-Basel III-compliant tier 2 capital	1,277[6]	0.448	–	–

of which bail-in instruments	33,892	11.884	33,892	11.884

Rounding differences may occur.

1 Excludes tier 1 capital which is used to fulfill gone-concern requirements.

2 Excludes CET1 capital which is used to fulfill gone-concern requirements.

3 If issued before July 1, 2016, such capital instruments qualify as additional tier 1 high-trigger capital instruments until their first call date according to the transitional Swiss "Too Big to Fail" rules.

4 If issued before July 1, 2016, such capital instruments qualify as additional tier 1 high-trigger capital instruments no later than December 31, 2019 according to the transitional Swiss "Too Big to Fail" rules.

5 Consists of a base requirement of 8.18%, or CHF 23,329 million, and a surcharge of 0.72%, or CHF 2,053 million.

6 Non-Basel III-compliant tier 1/2 capital instruments are subject to phase-out requirements. The amount includes the amortization component of CHF 586 million and the unamortized component of CHF 691 million.

Swiss leverage requirements and metrics

		Phase-in		Look-through
end of 4Q18	CHF million	in % of LRD	CHF million	in % of LRD
Leverage exposure				
Leverage ratio denominator	881,386	–	881,386	–
Unweighted capital requirements (going-concern) based on Swiss leverage ratio				
Total	35,255	4.0	44,070	5.0
of which CET1: minimum	16,746	1.9	13,221	1.5
of which CET1: buffer	8,814	1.0	17,628	2.0
of which additional tier 1: minimum	9,695	1.1	13,221	1.5
Swiss eligible capital (going-concern)				
Swiss CET1 capital and additional tier 1 capital [1]	49,443	5.610	45,935	5.212
of which CET1 capital [2]	35,719	4.053	35,719	4.053
of which additional tier 1 high-trigger capital instruments	5,615	0.637	5,615	0.637
of which additional tier 1 low-trigger capital instruments [3]	4,601	0.522	4,601	0.522
of which tier 2 low-trigger capital instruments [4]	3,508	0.398	–	–
Unweighted requirements for additional total loss-absorbing capacity (gone-concern) based on Swiss leverage ratio				
Total according to size and market share (going-concern requirements)	26,442[5]	3.0[5]	44,069	5.0
Reductions due to rebates in accordance with article 133 of the CAO	(4,231)	(0.48)	(7,051)	(0.8)
Reductions due to the holding of additional instruments in the form of convertible capital in accordance with Art. 132 para 4 CAO	0	0.0	(1,754)	(0.199)
Total, net	22,211	2.52	35,264	4.001
Eligible additional total loss-absorbing capacity (gone-concern)				
Total	35,678	4.048	37,909	4.301
of which tier 2 low-trigger capital instruments	509	0.058	4,017	0.456
of which non-Basel III-compliant tier 2 capital	1,277[6]	0.145	–	–
of which bail-in instruments	33,892	3.845	33,892	3.845

Rounding differences may occur.

1
Excludes tier 1 capital which is used to fulfill gone-concern requirements.

2
Excludes CET1 capital which is used to fulfill gone-concern requirements.

3
If issued before July 1, 2016, such capital instruments qualify as additional tier 1 high-trigger capital instruments until their first call date according to the transitional Swiss

"Too Big to Fail" rules.

4 If issued before July 1, 2016, such capital instruments qualify as additional tier 1 high-trigger capital instruments no later than December 31, 2019 according to the transitional Swiss "Too Big to Fail" rules.

5 Consists of a base requirement of 2.75%, or CHF 24,238 million, and a surcharge of 0.25%, or CHF 2,204 million.

6 Non-Basel III-compliant tier 1/2 capital instruments are subject to phase-out requirements. The amount includes the amortization component of CHF 586 million and the unamortized component of CHF 691 million.

5

Overview of risk management

General

Fundamental to our business is the prudent taking of risk in line with our strategic priorities. The primary objectives of risk management are to protect our financial strength and reputation, while ensuring that capital is well deployed to support business activities. Our risk management framework is based on transparency, management accountability and independent oversight. Risk management is an integral part of our business planning process with strong involvement of senior management and the Board of Directors. Risk measurement models are reviewed by the Model Risk Management team, an independent validation function, and regularly presented to and approved by the relevant oversight committee.

> Refer to “Risk management oversight” (pages 143 to 147), “Risk appetite framework” (pages 147 to 150) and “Risk coverage and management” (pages 150 to 180) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management in the Credit Suisse Annual Report 2018 for information on risk management oversight including risk culture, risk governance, risk organization, risk types, risk appetite, risk limits, stress testing and strategies/processes to manage, hedge and mitigate risks.

Risk reporting

Risk reporting is performed regularly and there are numerous internal control procedures in place, in particular the standard operating procedures, risk and control assessment and independent report review. These ensure the reporting and measurement systems are up to date and are working as intended. They cover: validation and authorization of risk measurement data, status summary reports, data reconciliation, independent checks/validation and error reports to capture any failings. Senior management and the Board of Directors are informed about key risk metrics, including Value-at-Risk (VaR), Economic Risk Capital (ERC), key risks and top exposures with the monthly Group Risk Report.

Key risks

The Group is exposed to several key banking risks such as:

– Credit risk (refer to section “Credit risk” on pages 12 to 43);

– Counterparty credit risk (refer to section “Counterparty credit risk” on pages 44 to 53);

– Securitization risk (refer to section “Securitization risk” on pages 54 to 59);

– Market risk (refer to section “Market risk” on pages 60 to 63);

– Interest rate risk in the banking book (refer to section “Interest rate risk in the banking book” on pages 64 to 65); and

– Operational risk.

> Refer to “Operational risk regulatory capital measurement” (page 165) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk coverage and management in the Credit Suisse Annual Report 2018 for information on operational risk.

The Basel framework describes a range of options for determining the capital requirements in order to provide banks and supervisors the ability to select approaches that are most appropriate for their operations and their financial market infrastructure. In general, Credit Suisse has adopted the most advanced approaches, which align with the way risk is internally managed and provide the greatest risk sensitivity.

Risk-weighted assets

With the adoption of the revised FINMA circular RWA presented in this report, including prior period comparisons, are based on the Swiss capital requirements.

> Refer to “Swiss requirements” (pages 123 to 126) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Capital management – Regulatory framework in the Credit Suisse Annual Report 2018 for further information on Swiss capital requirements.

The following table provides an overview of total Swiss RWA forming the denominator of the risk-based capital requirements. Further breakdowns of RWA are presented in subsequent parts of this report.

RWA increased slightly to CHF 285.2 billion as of the end of 4Q18 compared to CHF 277.2 billion as of the end of 3Q18, mainly resulting from increases relating to movements in risk levels in credit risk, model and parameter updates in market risk and credit risk and methodology and policy changes in credit risk. These increases were partially offset by decreases relating to movements in risk levels in market risk and operational risk.

RWA flow statements for credit risk, counterparty credit risk and market risk are presented in subsequent parts of this report.

> Refer to “Risk-weighted assets” (pages 131 to 133) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Capital management in the Credit Suisse Annual Report 2018 for further information on risk-weighted assets movements in 2018.

OV1 – Overview of Swiss risk-weighted assets and capital requirements

	Risk-weighted assets			Capital requirement[1]
end of	4Q18	3Q18	4Q17	4Q18
CHF million				
Credit risk (excluding counterparty credit risk)	139,867	132,489	121,832	11,189
of which standardized approach (SA)	13,190	13,519	10,511	1,055
of which supervisory slotting approach	2,403	2,349	2,187	192
of which internal rating-based (IRB) approach [2]	124,274	116,621	109,134	9,942
Counterparty credit risk	17,613	18,472	19,117	1,409
of which standardized approach for counterparty credit risk (SA-CCR) [3]	2,469	2,533	2,390	198
of which internal model method (IMM) [4]	15,144	15,939	16,727	1,211
Credit valuation adjustments (CVA)	5,743	5,029	5,548	460
Equity positions in the banking book under the simple risk weight approach [2]	8,378	8,022	8,712	670
Settlement risk	259	242	150	21
Securitization exposures in the banking book	12,541	11,951	10,731[5]	1,003
of which securitization internal ratings-based approach (SEC-IRBA)	6,915	6,664	–	553
of which securitization external ratings-based approach (SEC-ERBA), including internal assessment approach (IAA)	1,727	1,752	–	138
of which securitization standardized approach (SEC-SA)	3,899	3,535	–	312
Market risk	18,643	17,878	21,290	1,491
of which standardized approach (SA)	2,393	2,345	3,765	191
	16,250	15,533	17,525	1,300

of which internal model approach (IMA)				
Operational risk	71,040	72,012	75,013	5,683
of which advanced measurement approach (AMA)	71,040	72,012	75,013	5,683
Amounts below the thresholds for deduction (subject to 250% risk weight)	11,109	11,101	11,043	889
Floor adjustment [6]	0	0	0	0
Total	**285,193**	**277,196**	**273,436**	**22,815**

1
Calculated as 8% of risk-weighted assets based on total capital minimum requirements excluding capital conservation buffer and G-SIB buffer requirements.
2
As of the end of 4Q18, a RWA scaling factor of 1.06 under the IRB approach has been applied to some additional portfolios. Prior period numbers have been restated to conform to the current presentation.
3
Calculated under the current exposure method.
4
Includes RWA relating to central counterparties.
5
In January 2018, a new securitization framework was implemented and has been phased in over 2018. The 4Q17 number was calculated in accordance with the previous methodology.
6
Credit Suisse is not subject to a floor adjustment because current capital requirements and deductions exceed 80% of those under Basel I.
7

Linkages between financial statements and regulatory exposures

This section shows the various sources of differences between the carrying values presented in the Group's financial statements prepared in accordance with accounting principles generally accepted in the US (US GAAP) and the exposure amounts used for regulatory purposes. The identification, classification and presentation of these sources of differences requires a significant amount of management judgement and is based on the information available at the time. As such, reclassifications have been made compared to the prior year. Management believes that the estimates and assumptions used in the preparation of these disclosures are prudent, reasonable and consistently applied.

The following table shows the differences between the scope of accounting consolidation and the scope of regulatory consolidation, broken down by how the amounts reported in the Group's financial statements correspond to regulatory risk categories.

LI1 - Differences between accounting and regulatory scopes of consolidation and mapping of financial statements with regulatory risk categories

	Carrying values		Carrying values of items subject to:				
end of 4Q18	Published financial statements	Regulatory scope of consolidation	Credit risk frame-work	Counter-party credit risk frame-work	Securiti-zation frame-work	Market risk frame-work	Not subject to capital require-ments or subject to deduction from capital
Assets (CHF million)							
Cash and due from banks	100,047	99,827	98,057	263	328	0	1,179
Interest-bearing deposits with banks	1,142	1,461	1,139	0	0	0	322
Central bank funds sold, securities purchased under resale agreements and securities borrowing transactions	117,095	117,095	0	115,534	0	88,913	0
Securities received as collateral, at fair value	41,696	41,696	0	41,696	0	0	0
Trading assets, at fair value [1]	132,203	126,936	9,337	18,943	1,154	122,859	1,644
Investment securities	2,911	1,479	1,471	0	8	0	0
Other investments	4,890	4,971	2,046	0	1,212	414	1,299
Net loans	287,581	288,215	268,940	0	18,039	1,291	0
Premises and equipment	4,838	4,904	4,904	0	0	0	0
Goodwill	4,766	4,770	0	0	0	0	4,770
Other intangible assets	219	219	25	0	0	0	194
Brokerage receivables	38,907	38,907	2,041	28,976	0	18,234	7,890
Other assets	32,621	31,843	11,991	8,200	1,197	3,781	6,674
Total assets	**768,916**	**762,323**	**399,951**	**213,612**	**21,938**	**235,492**	**23,972**
Liabilities (CHF million)							
Due to banks	15,220	16,032	0	0	0	0	16,032
Customer deposits	363,925	363,828	0	0	0	994	362,834
Central bank funds purchased, securities sold under repurchase	24,623	30,277	0	24,546	0	17,519	5,731

agreements and securities lending transactions							
Obligation to return securities received as collateral, at fair value	41,696	41,696	0	41,696	0	0	0
Trading liabilities, at fair value [1]	42,169	42,212	0	15,603	0	42,212	19,098
Short-term borrowings	21,926	16,536	0	0	0	16,437	99
Long-term debt	154,308	152,058	0	0	0	94,183	57,875
Brokerage payables	30,923	30,923	0	22,660	0	21,879	8,263
Other liabilities	30,107	24,635	0	7,498	0	514	17,137
Total liabilities	**724,897**	**718,197**	**0**	**112,003**	**0**	**193,738**	**487,069**

1

There are items in the table which attract capital charges according to more than one risk category framework. As an example, derivatives assets/liabilities held in the regulatory trading book are shown in the column about market risk and in the column about counterparty credit risk.

LI1 - Differences between accounting and regulatory scopes of consolidation and mapping of financial statements with regulatory risk categories (continued)

	Carrying values		Carrying values of items subject to:				
end of 4Q17	Published financial statements	Regulatory scope of consolidation	Credit risk frame-work	Counter-party credit risk frame-work	Securiti-zation frame-work	Market risk frame-work	Not subject to capital require-ments or subject to deduction from capital
Assets (CHF million)							
Cash and due from banks	109,815	109,457	107,477	239	0	0	1,768
Interest-bearing deposits with banks	726	1,146	723	0	0	0	423
Central bank funds sold, securities purchased under resale agreements and securities borrowing transactions	115,346	108,325	0	108,325	0	0	0
Securities received as collateral, at fair value	38,074	38,074	0	38,008	0	0	66
Trading assets, at fair value [1]	156,334	150,812	9,139	19,327	1,127	139,150	290
Investment securities	2,191	1,810	1,766	0	19	0	25
Other investments	5,964	5,799	3,160	105	441	867	1,226
Net loans	279,149	279,859	258,135	0	20,508	1,391	0
Premises and equipment	4,686	4,752	4,752	0	0	0	0
Goodwill	4,742	4,747	0	0	0	0	4,747
Other intangible assets	223	223	1	0	0	0	222
Brokerage receivables	46,968	46,968	2,686	28,546	0	29,869	12,911
Other assets	32,071	31,167	10,204	6,137	837	11,007	8,642
Total assets	**796,289**	**783,139**	**398,043**	**200,687**	**22,932**	**182,284**	**30,320**
Liabilities (CHF million)							
Due to banks	15,413	16,004	0	0	0	0	16,004
Customer deposits	361,162	361,255	0	0	0	0	361,255
Central bank funds purchased, securities sold under repurchase agreements and securities lending transactions	26,496	26,496	0	26,554	0	0	0
Obligation to return securities received as collateral, at fair value	38,074	38,074	0	38,008	0	0	66
Trading liabilities, at fair value [1]	39,119	39,161	0	12,568	0	39,161	0
Short-term borrowings	25,889	19,293	0	0	0	11,010	8,283
Long-term debt	173,032	171,989	0	0	0	51,464	120,525
Brokerage payables	43,303	43,303	0	26,728	0	0	16,575

Other liabilities	31,612	25,451	412	8,670	0	0	16,369
Total liabilities	**754,100**	**741,026**	**412**	**112,528**	**0**	**101,635**	**539,077**

1

There are items in the table which attract capital charges according to more than one risk category framework. As an example, derivatives assets/liabilities held in the regulatory trading book are shown in the column about market risk and in the column about counterparty credit risk.

For financial reporting purposes, our consolidation principles comply with US GAAP. For capital adequacy reporting purposes, however, entities that are not active in banking and finance are not subject to consolidation (i.e. insurance, commercial and certain real estate companies). Also, FINMA does not require consolidating private equity and other fund type vehicles for capital adequacy reporting. Further differences in consolidation principles between US GAAP and capital adequacy reporting relate to special purpose entities (SPEs) that are consolidated under a control-based approach for US GAAP but are assessed under a risk-based approach for capital adequacy reporting. In addition, FINMA requires us to consolidate companies which form an economic unit with Credit Suisse or if Credit Suisse is obliged to provide compulsory financial support to a company. The investments into such entities, which are not material to the Group, are treated in accordance with the regulatory rules and are either subject to a risk-weighted capital requirement or a deduction from regulatory capital.

All significant equity method investments represent investments in the capital of banking, financial and insurance (BFI) entities and are subject to a threshold calculation in accordance with the Basel framework and the Swiss Capital Adequacy Ordinance.

> Refer to “Note 40 – Significant subsidiaries and equity method investments” (pages 400 to 402) in VI – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2018 for a list of significant subsidiaries and associated entities.

9

In addition to the differences between accounting and regulatory scopes of consolidation as shown in table LI1 there are further main sources of differences between the financial statements' carrying value amounts and the exposure amounts used for regulatory purposes.

LI2 - Main sources of differences between regulatory exposure amounts and carrying values in financial statements

			Items subject to:	
end of	Credit risk frame-work	Counter-party credit risk frame-work	Securiti-zation frame-work	Market risk frame-work
4Q18 (CHF million)				
Asset carrying value amount under regulatory scope of consolidation	399,951	213,612	21,938	235,492
Liabilities carrying value amount under regulatory scope of consolidation	0	112,003	0	193,738
Total net amount under regulatory scope of consolidation	399,951	101,609	21,938	41,754
Off-balance sheet amounts	67,244	0	29,130	0
Differences due to consideration of provisions	(69)	0	0	0
Differences due to application of potential future exposures (SA-CCR)	0	3,298	0	0
Derivative transactions - differences due to application of internal model method (IMM)	0	(22,444)	0	0
Other differences not classified above	(809)	65	(2,902)	(39,361)
Exposure amounts considered for regulatory purposes	**466,317**	**82,528**	**48,166**	**2,393**
4Q17 (CHF million)				
Asset carrying value amount under regulatory scope of consolidation	398,043	200,687	22,932	182,284
Liabilities carrying value amount under regulatory scope of consolidation	412	112,528	0	101,635
Total net amount under regulatory scope of consolidation	397,631	88,159	22,932	80,649
Off-balance sheet amounts	64,143	0	20,158	0
Differences due to application of potential future exposures (SA-CCR)	0	2,529	0	0
Derivative transactions - differences due to application of internal model method (IMM)	0	13,552	0	0
SFT - differences due to application of internal model method (IMM)	0	(10,852)	0	0
Other differences not classified above	5,232	0	(1,925)	(76,884)
Exposure amounts considered for regulatory purposes	**467,006**	**93,388**	**41,165**	**3,765**

> Refer to "Comparison of the standardized and internal model approaches" (pages 19 to 23) in Credit risk – Credit risk under the standardized approach for further information on the origins of differences between carrying values and

amounts considered for regulatory purposes shown in the table above.

Valuation process

The Basel capital adequacy framework and the Swiss regulation provide guidance for systems and controls, valuation methodologies and valuation adjustments and reserves to provide prudent and reliable valuation estimates.

Financial instruments in the trading book are carried at fair value. The fair value of the majority of these financial instruments is marked to market based on quoted prices in active markets or observable inputs. Additionally, the Group holds financial instruments which are marked to models where the determination of fair values requires subjective assessment and varying degrees of judgment depending on liquidity, concentration, pricing assumptions and the risks affecting the specific instrument.

Control processes are applied to ensure that the reported fair values of the financial instruments, including those derived from pricing models, are appropriate and determined on a reasonable basis. These control processes include approval of new instruments, timely review of profit and loss, risk monitoring, price verification procedures and validation of models used to estimate the fair value. These functions are managed by senior management and personnel with relevant expertise, independent of the trading and investment functions.

In particular, the price verification function is performed by Product Control, independent from the trading and investment functions, reporting directly to the Chief Financial Officer, a member of the Executive Board.

The valuation process is governed by separate policies and procedures. To arrive at fair values, the following type of valuation adjustments are typically considered and regularly assessed for appropriateness: model, parameter, credit and exit-risk-related adjustments.

Management believes it complies with the relevant valuation guidance and that the estimates and assumptions used in valuation of financial instruments are prudent, reasonable and consistently applied.

> Refer to “Fair valuations” (page 70) in II – Operating and financial review – Credit Suisse – Other information, to “Fair value” (page 107) in II – Operating and financial review – Critical accounting estimates and to “Note 35 – Financial instruments” (pages 359 to 363) in VI – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2018 for further information on fair value.

Credit risk

General

This section covers credit risk as defined by the Basel framework. Counterparty credit risk, including those that are in the banking book for regulatory purposes, and all positions subject to the securitization framework are presented in separate sections.

> Refer to “Counterparty credit risk” (pages 44 to 53) for further information on the capital requirements relating to counterparty credit risk.

> Refer to “Securitization” (pages 54 to 59) for further information on the securitization framework.

The Basel framework permits banks to choose between two broad methodologies in calculating their capital requirements for credit risk: the standardized approach or the internal ratings-based (IRB) approach. Off-balance-sheet items are converted into credit exposure equivalents through the use of credit conversion factors (CCF).

The reported credit risk arises from the execution of the groups business strategy through the divisions, and is predominantly driven by cash and balances with central banks, loans and commitments provided to corporate and institutional clients, and loans to private clients including residential mortgages and lending against financial collateral.

Risk management objectives and policies for credit risk

> Refer to “Credit risk” (pages 158 to 161) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk coverage and management in the Credit Suisse Annual Report 2018 for information on risk management objectives and policies for credit risk, including our credit risk profile, the setting of credit risk limits, the structure and organization of credit risk management.

Credit risk reporting

Credit risk is subject to daily monitoring and reporting, and is governed by internal policies & procedures and a framework of limits and controls. The groups credit risk exposure is subject to formal monthly reporting through the Group Risk Report which provides summary information in relation to the credit risk portfolio composition, rating profile, and the largest single name loans and commitments. The Group Risk Report also provides qualitative commentary on key credit risk matters and developments, and is discussed at Board of Directors Risk Committee and distributed to the Board of Directors and Executive Board members.

Credit quality of assets

The amounts shown in the following tables are US GAAP carrying values according to the regulatory scope of consolidation that are subject to the credit risk framework.

The following tables present a breakdown of exposures by geographical areas, industry and residual maturity.

CRB - Geographic concentration of gross credit exposures

end of	Switzerland	Americas	Asia Pacific	EMEA	Total
4Q18 (CHF million)					
Loans, deposits with banks and other assets	193,418	61,706	41,011	97,926	394,061
Guarantees and commitments	81,016	70,178	23,779	95,100	270,073
Sub-total	**274,434**	**131,884**	**64,790**	**193,026**	**664,134**
Non-counterparty related risks					5,247
Total					**669,381**
4Q17 (CHF million)					
Loans, deposits with banks and other assets	199,628	56,732	40,841	96,626	393,827
Guarantees and commitments	76,171	68,824	21,295	98,181	264,471
Sub-total	**275,799**	**125,556**	**62,136**	**194,807**	**658,298**
Non-counterparty related risks					5,273
Total					**663,571**

The geographic distribution is based on the country of incorporation or the nationality of the counterparty, shown pre-substitution.

12

CRB - Industry concentration of gross credit exposures

end of	Financial institutions	Commercial	Consumer	Public authorities	Total
4Q18 (CHF million)					
Loans, deposits with banks and other assets	13,822	137,841	143,625	98,773	394,061
Guarantees and commitments	5,268	194,060	66,419	4,326	270,073
Sub-total	**19,090**	**331,901**	**210,044**	**103,099**	**664,134**
Non-counterparty related risks					5,247
Total					**669,381**
4Q17 (CHF million)					
Loans, deposits with banks and other assets	10,133	130,877	141,236	111,581	393,827
Guarantees and commitments	10,058	184,385	65,853	4,175	264,471
Sub-total	**20,191**	**315,262**	**207,089**	**115,756**	**658,298**
Non-counterparty related risks					5,273
Total					**663,571**

Exposures are shown pre-substitution.

CRB - Remaining contractual maturity of gross credit exposures

end of	within 1 year[1]	within 1-5 years	Thereafter	Total
4Q18 (CHF million)				
Loans, deposits with banks and other assets	168,266	174,337	51,458	394,061
Guarantees and commitments	198,280	64,387	7,406	270,073
Sub-total	**366,546**	**238,724**	**58,864**	**664,134**
Non-counterparty related risks				5,247
Total				**669,381**
4Q17 (CHF million)				
Loans, deposits with banks and other assets	175,155	168,315	50,357	393,827
Guarantees and commitments	188,490	66,979	9,002	264,471
Sub-total	**363,645**	**235,294**	**59,359**	**658,298**
Non-counterparty related risks				5,273
Total				**663,571**

1 Includes positions without agreed residual contractual maturity.

The following tables show the amounts of impaired exposures and related allowances and write-offs, broken down by geographical areas and industry.

CRB - Geographic concentration of allowances, impaired loans and write-offs

end of	Allowances individually evaluated for impairment	Allowances collectively evaluated for impairment	Total allowances	Impaired loans with specific allowances	Impaired loans without specific allowances	Total impaired loans	Gross write-offs
4Q18 (CHF million)							
Switzerland	475	180	655	1,046	710	1,756	221
EMEA	70	26	96	179	120	299	3
Americas	19	61	80	30	15	45	24
Asia Pacific	44	33	77	98	0	98	32
Total	**608**	**300**	**908**	**1,353**	**845**	**2,198**	**280**
4Q17 (CHF million)							
Switzerland	492	158	650	1,349	398	1,747	215
EMEA	62	16	78	165	43	208	0
Americas	48	39	87	75	2	77	95
Asia Pacific	52	16	68	87	0	87	1
Total	**654**	**229**	**883**	**1,676**	**443**	**2,119**	**311**

CRB - Industry concentration of allowances, impaired loans and write-offs

end of	Allowances individually evaluated for impairment	Allowances collectively evaluated for impairment	Total allowances	Impaired loans with specific allowances	Impaired loans without specific allowances	Total impaired loans	Gross write-offs
4Q18 (CHF million)							
Financial institutions	50	29	79	86	0	86	0
Commercial	412	224	636	736	693	1,429	184
Consumer	146	47	193	531	152	683	96
Total	**608**	**300**	**908**	**1,353**	**845**	**2,198**	**280**
4Q17 (CHF million)							
Financial institutions	37	17	54	46	0	46	0
Commercial	438	166	604	1,084	348	1,432	244
Consumer	179	46	225	545	95	640	67
Public authorities	0	0	0	1	0	1	0
Total	**654**	**229**	**883**	**1,676**	**443**	**2,119**	**311**

The following table provides a comprehensive picture of the credit quality of the Group's on and off-balance sheet assets.

CR1 – Credit quality of assets

end of	Defaulted exposures	Non-defaulted exposures	Gross exposures	Allowances/ impairments	Net exposures
4Q18 (CHF million)					
Loans [1]	3,127	365,192	368,319	(863)	367,456
Debt securities	9	15,330	15,339	0	15,339
Off-balance sheet exposures [2]	96	102,080	102,176	(160)	102,016
Total	**3,232**	**482,602**	**485,834**	**(1,023)**	**484,811**
2Q18 (CHF million)					
Loans [1]	2,685	378,552	381,237	(911)	380,326
Debt securities	10	14,806	14,816	0	14,816
Off-balance sheet exposures [2]	82	107,779	107,861	(142)	107,719
Total	**2,777**	**501,137**	**503,914**	**(1,053)**	**502,861**

1 Loans include cash and due from banks.

2 Revocable loan commitments which are excluded from the disclosed exposures can attract risk-weighted assets.

The definitions of "past due" and "impaired" are aligned between accounting and regulatory purposes. However, there are some exemptions for impaired positions related to troubled debt restructurings where the default definition is different for accounting and regulatory purposes.

> Refer to "Note 1 – Summary of significant accounting policies" (pages 279 to 281), "Note 19 – Loans, allowance for loan losses and credit quality" (pages 300 to 306) in VI – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2018 for further information on the credit quality of loans including past due and impaired loans.

The following table presents the changes in the Group's stock of defaulted loans, debt securities and off-balance sheet exposures, the flows between non-defaulted and defaulted exposure categories and reductions in the stock of defaulted exposures due to write-offs.

CR2 – Changes in stock of defaulted exposures

2H18

CHF million	
Defaulted exposures at beginning of period	**2,777**
Exposures that have defaulted since the last reporting period	904
Returned to non-defaulted status	(523)
Amounts written-off	(131)
Other changes	205
Defaulted exposures at end of period	**3,232**

The following table shows the aging analysis of accounting past-due exposures.

CRB - Aging analysis of accounting past-due exposures

	Current	Past due					
end of		Up to 30 days	31–60 days	61–90 days	More than 90 days	Total	Total
4Q18 (CHF million)							
Financial institutions	12,871	107	19	3	45	174	13,045
Commercial	104,361	461	101	83	861	1,506	105,867
Consumer	153,107	528	65	45	519	1,157	154,264
Public authorities	1,173	13	0	0	0	13	1,186
Gross loans held at amortized cost	**271,512**	**1,109**	**185**	**131**	**1,425**	**2,850**	**274,362**
Gross loans held at fair value							14,873
Gross loans							**289,235**
4Q17 (CHF million)							
Financial institutions	8,935	335	2	2	44	383	9,318
Commercial	100,836	484	54	216	593	1,347	102,183
Consumer	151,699	504	79	58	469	1,110	152,809
Public authorities	1,198	1	0	0	1	2	1,200
Gross loans held at amortized cost	**262,668**	**1,324**	**135**	**276**	**1,107**	**2,842**	**265,510**
Gross loans held at fair value							15,307
Gross loans							**280,817**

Loans that are modified in a troubled debt restructuring are reported as restructured loans. Generally, restructured loans would have been considered impaired and an associated allowance for loan losses would have been established prior to the restructuring. As of December 31, 2018, CHF 189 million were reported as restructured loans.

> Refer to “Note 19 – Loans, allowance for loan losses and credit quality” (page 306) in VI – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2018 for further information on restructured exposure.

Credit risk mitigation

Credit Suisse actively mitigates credit exposure through use of legal netting agreements, security over supporting financial and non-financial collateral or financial guarantees, and through the use of credit hedging techniques (primarily credit default swaps (CDS)). The recognition of credit risk mitigation (CRM) against exposures is governed by a robust set of policies and processes that ensure enforceability and effectiveness.

Netting

> Refer to “Derivative instruments” (pages 178 to 180) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk review and results and to “Note 1 – Summary of significant accounting policies” (pages 277 to 278) in VI – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2018 for information on policies and procedures for on- and off-balance sheet netting.

> Refer to “Note 27 – Offsetting of financial assets and financial liabilities” (pages 313 to 316) in VI – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2018 for further information on the offsetting of derivatives, reverse repurchase and repurchase agreements, and securities lending and borrowing transactions.

Collateral valuation and management

The policies and processes for collateral valuation and management are driven by:

– a legal document framework that is bilaterally agreed with our clients;

– a collateral management risk framework enforcing transparency through self-assessment and management reporting; and

– any prevailing regulatory terms which must be complied with.

For exposures collateralized by financial collateral (e.g. marketable securities), collateral valuations are performed on a daily basis and any requirement for additional collateral (e.g. frequency and process for margin calls) is governed by the legal documentation. The market prices used for daily collateral valuation are a combination of internal pricing sources, as well as market prices sourced from trading platforms and external service providers where appropriate.

For exposures collateralized by non-financial collateral (e.g. real estate, ships, aircraft), valuations are performed at the time of credit approval and periodically thereafter depending on the type of collateral and the loan-to-value (LTV) ratio in accordance with documented internal policies and controls. Valuations are based on a combination of internal and external reference price sources.

Primary types of collateral

The primary types of collateral are described below.

Collateral securing foreign exchange transactions and over-the-counter (OTC) trading activities primarily includes:

– Cash and US Treasury instruments; and

– G-10 government securities.

Collateral securing loan transactions primarily includes:

– Financial collateral pledged against loans collateralized by securities of clients of the private, corporate and institutional banking businesses (primarily cash and marketable securities);

– Real estate property for mortgages, mainly residential, but also multi-family buildings, offices and commercial properties; and

– Other types of lending collateral, such as accounts receivable, inventory, plant and equipment.

Concentrations within risk mitigation

Credit Suisse, primarily through its Global Markets division, is an active participant in the credit derivatives market and trades with a variety of market participants, principally commercial and investment banks. Credit derivatives are primarily used to mitigate investment grade credit exposures. Where required or practicable, these trades are cleared through central counterparties (CCP), reducing the potential risk against individual CRM providers.

As a result of a strong domestic franchise, Credit Suisse has a significant volume of residential mortgage lending in Switzerland and a resultant concentration of residential real estate collateral. Credit Suisse has clear underwriting standards with regard to mortgage lending and ensures that the composition of the real estate portfolio is subject to ongoing monitoring, periodic revaluation, and assessment of the geographical and borrower composition of the portfolio.

Credit Suisse provides loan facilities to private clients against financial collateral such as cash and marketable securities (e.g. equities, bonds, or funds). The financial collateral portfolio within risk mitigation is generally diversified and the portfolio is subject to ongoing monitoring and reporting to identify any concentrations. which may result in lower LTV ratios or other mitigating actions.

> Refer to “Credit risk review” (pages 178 to 180) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk review and results in the Credit Suisse Annual Report 2018 for further information on credit derivatives, including a breakdown by rating class.

CRM techniques – overview

The following table presents the extent of use of CRM techniques.

CR3 – CRM techniques

	Net exposures			Exposures secured by		
end of	Unsecured	Partially or fully secured	Total	Collateral	Financial guarantees	Credit derivatives
4Q18 (CHF million)						
Loans [1]	142,286	225,170	367,456	189,518	6,676	216
Debt securities	15,148	191	15,339	191	0	0
Total	**157,434**	**225,361**	**382,795**	**189,709**	**6,676**	**216**
of which defaulted	1,154	1,544	**2,698**	1,137	162	0
2Q18 (CHF million)						
Loans [1]	152,054	228,272	380,326	193,468	5,299	264
Debt securities	14,633	183	14,816	183	0	0
Total	**166,687**	**228,455**	**395,142**	**193,651**	**5,299**	**264**
of which defaulted	1,028	1,163	**2,191**	876	122	0

1 Excludes non-financial collateral which is used to reduce the capital requirements for investment banking businesses, and therefore the net exposures are classified as unsecured.

Loans include cash and due from banks.

Credit risk under the standardized approach

General

Under the standardized approach, risk weights are determined either according to credit ratings provided by recognized external credit assessment institutions (ECAI) or, for unrated exposures, by using the applicable regulatory risk weights. Less than 10% of our credit risk exposures are determined using the standardized approach.

Credit risk exposure and CRM effects

The following table illustrates the effect of CRM (comprehensive and simple approach) on the standardized approach capital requirements' calculations. RWA density provides a synthetic metric on riskiness of each portfolio.

CR4 – Credit risk exposure and CRM effects

	Exposures pre-CCF and CRM			Exposures post-CCF and CRM				
end of	On-balance sheet	Off-balance sheet	Total	On-balance sheet	Off-balance sheet	Total	RWA	RWA density
4Q18 (CHF million, except where indicated)								
Sovereigns	14,083	0	14,083	14,083	0	14,083	301	2%
Institutions - Banks and securities dealer	453	526	979	453	263	716	143	20%
Corporates	714	0	714	714	0	714	639	89%
Retail	1,037	114	1,151	1,037	114	1,151	1,052	91%
Other exposures	12,290	2,125	14,415	12,269	2,121	14,390	11,055	77%
of which non-counterparty related assets	5,247	0	5,247	5,247	0	5,247	5,247	100%
Total	**28,577**	**2,765**	**31,342**	**28,556**	**2,498**	**31,054**	**13,190**	**42%**
2Q18 (CHF million, except where indicated)								
Sovereigns	14,373	0	14,373	14,373	0	14,373	279	2%
Institutions - Banks and securities dealer	175	544	719	175	272	447	92	20%
Corporates	1,017	0	1,017	1,017	0	1,017	940	92%
Retail	329	79	408	329	79	408	355	87%
Other exposures	12,356	1,877	14,233	12,329	1,876	14,205	11,212	79%
of which non-counterparty related assets	5,273	0	5,273	5,273	0	5,273	5,273	100%
Total	**28,250**	**2,500**	**30,750**	**28,223**	**2,227**	**30,450**	**12,878**	**42%**

Exposures by asset classes and risk weights

The following table presents the breakdown of credit exposures under the standardized approach by asset class and risk weight, which correspond to the riskiness attributed to the exposure according to the standardized approach.

CR5 – Exposures by asset classes and risk weights

	Risk weight									
end of	0%	10%	20%	35%	50%	75%	100%	150%	Others	Exposures post-CCF and CRM
4Q18 (CHF million)										
Sovereigns	13,142	0	572	0	365	0	4	0	0	14,083
Institutions - Banks and securities dealer	0	0	716	0	0	0	0	0	0	716
Corporates	0	0	33	0	97	0	584	0	0	714
Retail	0	0	0	0	0	395	756	0	0	1,151
Other exposures of which non-counterparty related assets	3,366	0	1	0	0	0	11,012	0	11	14,390
	0	0	0	0	0	0	5,247	0	0	5,247
Total	**16,508**	**0**	**1,322**	**0**	**462**	**395**	**12,356**	**0**	**11**	**31,054**
2Q18 (CHF million)										
Sovereigns	13,485	0	556	0	328	0	4	0	0	14,373
Institutions - Banks and securities dealer	0	0	444	0	0	0	3	0	0	447
Corporates	0	0	44	0	82	0	891	0	0	1,017
Retail	0	0	0	0	0	213	195	0	0	408
Other exposures of which non-counterparty related assets	3,023	0	3	0	0	0	11,168	0	11	14,205
	0	0	0	0	0	0	5,273	0	0	5,273
Total	**16,508**		**– 1,047**	**0**	**410**	**213**	**12,261**	**0**	**11**	**30,450**

Comparison of the standardized and internal model approaches

Background

We have regulatory approval to use a number of internal models for calculating our Pillar 1 capital charge for credit risk (default risk). These include the advanced-internal ratings-based (A-IRB) approach for risk weights, Internal Models Method (IMM) for derivatives credit exposure, and repo VaR for Securities Financing Transactions (SFT). These modelled based approaches are used for the vast majority of credit risk exposures, with the standardized approaches used for only a relatively small proportion of credit exposures.

Regulators and investors are increasingly interested in the differences between capital requirements under modelled and standardized approaches. This is due, in part, to ongoing and future regulatory changes by the BCBS, such as the new standardized approaches for counterparty credit risk (SA-CCR) and credit risk as well as the restrictions on the use of internal models for certain portfolios in 2022. As such, FINMA requires us to disclose further information on differences between credit risk RWA computed under internal modelled approaches, and current standardized approaches. FINMA also requires us to disclose the differences between the exposure at default based on internal modelled approaches and the exposure at default (EAD) used in the Leverage ratio.

Key methodological differences

The differences between credit risk RWA calculated under the internal modelled approaches and the standardized approaches are driven by the risk weights applied to counterparties and the calculations used for measuring EAD.

Risk weights: Under the A-IRB approach, the maturity of a transaction, and internal estimates of the probability of default (PD) and downturn loss given default (LGD) are used as inputs to the Basel risk-weight formula for calculating RWA. In the standardized approach, risk weights are less granular and are driven by ratings provided by ECAI.

EAD calculations: Under the IMM and repo VaR methods, counterparty exposure is computed using monte-carlo simulation models or VaR models. These models allow for the recognition of netting impacts at exposure and collateral levels for each counterparty portfolio. The standardized approach is based on market values at the balance sheet date plus conservative add-ons to account for potential market movements. This approach gives very limited recognition to netting benefits and portfolio effects.

The following table provides a summary of the key conceptual differences between the internal models approach and the current standardized approach.

Key differences between the standardized approach and the internal model approach

	Standardized approach	Internal model approach	Key impact
EAD for derivatives	Current Exposure Method is simplistic (market value and add-on): BCBS to replace it with SA-CCR in 2020.	Internal Models Method (IMM) allows Monte-Carlo simulation to estimate exposure.	For large diversified derivatives portfolios, standardized EAD is higher than model EAD.
	No differentiation between margined and unmargined transactions.	Ability to net and offset risk factors within the portfolio (i.e. diversification).	Impact applies across all asset classes.
	Differentiates add-ons by five exposure types and three maturity buckets only.	Application of multiplier on IMM exposure estimate.	
	Limited ability to net.	Variability in holding period applied to collateralized transactions, reflecting liquidity risks.	
Risk weighting	Reliance on ECAIs: where no rating is available a 100% risk weight is applied (i.e. for most small and medium size enterprises and funds).	Reliance on internal ratings where each counterparty/transaction receives a rating.	Model approach produces lower RWA for high quality short-term transactions.
	Crude risk weight differentiation with 4 key weights: 20%, 50%, 100%, 150% (and 0% for AAA sovereigns; 35%, 75% or 100% for mortgages; 75% or 100% for retail).	Granular risk sensitive risk weights differentiation via individual PDs and LGDs.	Standardized approach produces lower RWA for non-investment grade and long-term transactions.
	No differentiation for transaction features.	LGD captures transaction quality features incl. collateralization. Application of a 1.06 scaling factor.	Impact relevant across all asset classes.
Risk mitigation	Limited recognition of risk mitigation.	Risk mitigation recognized via risk sensitive LGD or EAD.	Standardized approach RWA higher than model approach RWA for most collaterals.
	Restricted list of eligible collateral.	Wider variety of collateral types eligible.	Impact particularly relevant for lombard lending and securities financing transactions.
	Conservative and crude regulatory haircuts.	Repo VaR allows use of VaR models to estimate exposure and collateral for securities financing transactions. Approach permits full diversification and netting across all collateral types.	

Maturity in risk weight	No differentiation for maturity of transactions, except for interbank exposures in a coarse manner.	No internal modelling of maturity. Regulatory risk-weighted assets function considers maturity: the longer the maturity the higher the risk weight (see chart "Risk weight by maturity").	Model approach produces lower RWA for high quality short-term transactions.

The following chart shows standardized risk weights, and model based (A-IRB) risk weights for loans of varying maturity. The graphs are plotted for a AA-rated corporate senior unsecured loan with a LGD of 45% (consistent with Foundation-IRB, F-IRB), and a AA-rated corporate senior secured loan with a LGD of 36%. The graphs show that standardized risk weights are not sensitive to maturity, whereas A-IRB risk weights are sensitive to maturity. In particular, under A-IRB, lower maturity loans receive lower risk weights reflecting an increased likelihood of repayment for loans with a shorter maturity.

Key methodological differences between internally modelled EAD and EAD used in leverage ratio

The exposure measure used in the leverage ratio also differs from the exposure measure used in the internal modelled approach. The main methodological difference is that leverage ratio exposure estimates do not take into account physical or financial collateral, guarantees or other CRM techniques to reduce the credit risk. Leverage ratio exposures also do not fully reflect netting and portfolio diversification. As a result, leverage ratio exposures are typically larger than model based exposures.

The following table shows the internal model-based EAD, along with average risk weight, compared to an estimate of the exposure measure used in the leverage ratio calculation. Estimates are provided at Basel asset class level. As expected, leverage exposure measures exceed internal model-based EAD, with the largest differences for banks and corporates, where the impacts of netting, diversification, and CRM are largest.

Leverage exposure estimate

	Internal model approach		
	EAD	Risk weight	Leverage exposures[1]
Basel asset class (CHF billion, except where indicated)			
Corporates	186	52%	333
Banks	31	27%	81
Sovereigns	87	4%	80
Retail	194	16%	192

1 The leverage exposure estimate excludes trading book inventory, as credit risk capital for this business is capitalized under the market risk capital requirement. In addition, the estimate does not include Multilateral Development Banks (MDB), public sector entities and non-credit exposures. Asset class leverage ratio based exposures and standard approach calculations are approximate and provided on a best efforts basis.

It should be noted that credit risk capital requirements based of the internal model based approach are not directly comparable to capital requirements under the leverage ratio. The reason for this is that the 3% leverage ratio capital requirement can be met with total tier 1 capital, including capital for market risk and operational risk.

Risk-weighted assets under the standardized and internal model approaches

Credit risk RWA computed under the standardized approach are higher than those based on the internal models for which we have received regulatory approval. Higher risk-weights under the standardized approach rules are a material driver of the higher RWA for all Basel asset classes. The standardized exposure calculations also lead to some higher RWA, with the corporate and bank asset classes being most significantly affected.

Corporate asset class

The table “Leverage ratio estimate” shows that the EAD for corporates computed under the internal model approach is CHF 186 billion. The EAD for corporates under the standardized approach is significantly higher. This difference is driven mainly by the standardized exposure calculations for OTC derivatives and secured financing transactions. For these products, exposures calculated under the standardized approach are higher than the model based exposures because the standardized approach does not fully recognize the benefits of netting, portfolio diversification and collateral. The exposure calculated under the leverage ratio is higher than the EAD computed using internal models. This is because CRM, netting and portfolio diversification are not reflected in the leverage ratio exposure calculation. Another significant driver of the increase in credit risk RWA under the standardized approach is higher risk weights. The exposure weighted-average risk weight under the internal model approach is 52%. This is significantly lower than the risk weights assigned to corporates under the standardized approach.

The following graph shows the risk weights assigned to counterparties under the A-IRB approach and the standardized approach. For the IRB risk weight curve, an LGD value of 45% and a maturity adjustment of 2.5 years are chosen, as these are the Basel Foundation IRB parameters. For counterparties in the AAA to BB+ range (based on external ratings), higher risk weights (20%, 50% and 100%) are assigned under the standardized approach than under the A-IRB approach. For the corporate asset class, approximately three-quarters of the Group’s exposures are in this range (based on internal ratings), and this is a key driver for the higher RWA under the standardized approach. The

different treatments of loan maturity in the model based approach and standardized approach are not a material cause of RWA differences.

The Group’s exposure weighted-average maturity of its corporate portfolio is lower than the foundation IRB value of 2.5 years, and lower maturities would result in a lower model-based risk weight curve than shown in the graph. In addition, the PD for each rating shown in the graph are consistent with the Group’s PD masterscale.

An additional driver of higher risk weights within the corporate asset class are counterparties without an external rating. Under the standardized approach, counterparties without an external rating receive a fixed risk weight of 100%. This applies to a large proportion of the Group's exposures, among them non-banking financial institutions and specialized lending. This fixed standardized risk weight is typically higher than the model based risk weight with for example, the average model based risk weight of specialized lending being approximately 40%.

> Refer to "CR6 – Credit exposures by portfolio and PD range" (pages 28 to 35) for further information on EAD and risk weights for each credit rating for the corporate asset class.

Bank asset class

The table "Leverage ratio estimate" shows that the EAD for banks under the internal model approach is CHF 31 billion. The EAD for banks calculated under the standardized approach is significantly higher. This is driven predominantly by the exposure calculations for both OTC derivatives and secured financing transactions and, to a lesser extent, the exposure calculations for listed and centrally cleared derivatives. For these products, exposures calculated under the standardized approach are much higher than the model based exposures because the standardized approach does not fully recognize the benefits of netting, portfolio diversification and collateral. The exposures calculated under the leverage ratio are significantly higher than the EAD computed using internal models. This is because CRM, netting and portfolio diversification are not reflected in the leverage ratio exposure calculation.

In addition, there is a significant increase in credit risk RWA under the standardized approach due to higher credit risk-weights. The exposure weighted-average risk-weight under the internal model approach is 27%. This is significantly lower than the risk weights assigned to banks under the standardized approach where a significant amount of the Group's exposures would attract a risk weight of 50%.

The following graph shows the risk weights assigned to counterparties under the A-IRB approach and the standardized approach. For the IRB risk weight curve, an LGD value of 45% and a maturity adjustment of 2.5 years are chosen, as these are the Basel Foundation IRB parameters. The graph shows that counterparties in the AAA to BBB+ range (based on external ratings) attract higher risk weights (20% and 50%) under the standardized approach than under the A-IRB approach. In excess of three-quarters of the Group's exposures fall in this range (based on internal ratings) and this leads to higher RWA under the standardized approach for these counterparties. The different treatments of loan maturity in the model based approach and standardized approach are not a material cause of RWA differences.

> Refer to "CR6 – Credit exposures by portfolio and PD range" (pages 28 to 35) for further information on EAD and risk weights for each credit rating for the bank asset class.

The Group's exposure weighted-average maturity of its bank portfolio is lower than the foundation IRB value of 2.5 years, and lower maturities would result in a lower model based risk weight curve than shown in the graph. In addition, the PD for each rating shown in the graph are consistent with the Group's PD masterscale.

Sovereign asset class

The table "Leverage ratio estimate" shows that the EAD for sovereigns under the internal model approach is CHF 87 billion. This is comparable to the EAD calculated under the standardized approach and the leverage ratio exposure. This is because the majority of the sovereign exposure is in the form of uncollateralized loans, i.e. there are no material differences in the exposure calculation.

The impact of employing standardized credit risk weights to the sovereign portfolio is an overall increase in credit risk RWA. The exposure weighted-average risk weight under the internal model approach is less than 4%. This is lower than the risk weights assigned to counterparties under the standardized approach.

The following graph shows the risk weights assigned to counterparties under the A-IRB approach and the standardized approach. For the IRB risk weight curve, an LGD value of 45% and a maturity adjustment of 2.5 years are chosen, as these are the Basel Foundation IRB parameters. The graph shows that counterparties in the AAA to A range (based on external ratings) would attract lower risk weights (0% and 20%) under the standardized approach than under the A-IRB approach. The majority of the Group's exposures have extremely low risk-weights under the A-IRB approach and would attract risk weights of 0% under the standardized approach. The remaining exposures would receive higher risk weights under the standardized approach (20%, 50% or 100%) than under the A-IRB approach. Overall, this would lead to higher RWA under the standardized approach. The different treatments of loan maturity in the model based approach and standardized approach are not a material cause of RWA differences.

> Refer to “CR6 – Credit exposures by portfolio and PD range” (pages 28 to 35) for further information on EAD and risk weights for each credit rating for the sovereign asset class.

The Group's exposure weighted-average maturity of its sovereign portfolio is lower than the foundation IRB value of 2.5 years, and lower maturities would result in a lower model-based risk weight curve than shown in the following graph. In addition, the PD for each rating shown in the graph are consistent with the Group's PD masterscale.

Retail asset class

The EAD of the retail asset class under the internal model approach is CHF 194 billion, which is comparable to the EAD calculated under the standardized approach and the leverage ratio. This is because the majority of retail exposure is on-balance sheet exposure.

The application of the standardized approach would lead to higher credit risk RWA. The exposure weighted-average risk weight is 16% using internal model approach. This is lower than the risk weights assigned to counterparties under the standardized approach. The maturity of the loan has no impact on the modelled risk weights in the retail asset class.

The retail portfolio consists mainly of residential mortgage loans, lombard lending and other retail exposures, and further analysis for each of these portfolios is provided below:

Residential mortgages: Under the standardized approach, fixed risk weights are applied depending on the LTV, i.e. risk weight of 100% for LTV > 80%, risk weight of 75% for 80% > LTV > 67% and risk weight of 35% for LTV < 67%. The internal model-based approach however takes into account borrowers' ability to service debt more accurately, including mortgage affordability and calibration to large amounts of historic data. The Group's residential mortgage portfolio is focused on the Swiss market and the Group has robust review processes over borrowers' ability to repay. This results in the Group's residential mortgage portfolio having a low average LTV and results in an average risk weight of 17% under the A-IRB approach.

Lombard lending: For lombard lending, the average risk weight using internal models is 12%. RWA under the standardized approach and the model-based approach are comparable for these exposures.

Other retail exposures: Other retail exposures are risk-weighted at 75% or 100% under the standardized approach. This yields higher RWA compared to the A-IRB approach where the average risk-weight is 39%.

Conclusion

Overall, the Group's credit risk RWA would be significantly higher under the standardized approach than under the internal model based approach. For most Basel asset classes, this is due to standardized risk weights being much higher than the IRB risk weights for high quality investment grade lending, which is where the majority of the Group's exposures are. For certain asset classes, standardized exposure calculations also lead to significantly higher RWA. This is where the standardized exposure methods give limited recognition to economic offsetting and diversification for derivatives and SFTs at a portfolio level.

The credit risk RWA under the standardized approaches described above is not reflective of the capital charges under the new standardized approach for credit risk on which the BCBS published new rules in December 2017. This new standardized approach for credit risk is more risk sensitive and employs a different approach for incorporating external ratings. In addition, there is a new standardized approach for counterparty credit risk (SA-CCR), which prescribes a standardized calculation of EAD for derivative transactions. SA-CCR, which is to be implemented by 2020, will more accurately recognize the risk mitigating effect of collateral and the benefits from legal and economic offsetting. These regulatory changes could potentially lead to very different results to the ones described above.

The credit risk RWA computed under the internal model-based approach provide a more risk-sensitive indication of the credit risk capital requirements and are more reflective of the economic risk of the Group. The use of models produces a strong link between capital requirements and business drivers, and promotes a proactive risk culture at the origination of a transaction and strong capital consciousness within the organization. A rigorous monitoring and control framework also ensures compliance with internal as well as regulatory standards.

Credit risk under internal risk-based approaches

General

Under the IRB approach, risk weights are determined by using internal risk parameters and applying an asset value correlation multiplier uplift where exposures are to financial institutions meeting regulatory defined criteria. We have received approval from FINMA to use, and have fully implemented, the A-IRB approach whereby we provide our own estimates for PD, LGD and EAD.

PD parameters capture the risk of a counterparty defaulting over a one-year time horizon. PD estimates are mainly derived from models tailored to the specific business of the respective obligor. The models are calibrated to the long run average of annual internal or external default rates where applicable. For portfolios with a small number of empirical defaults, low default portfolio techniques are used.

LGD parameters consider seniority, collateral, counterparty industry and in certain cases fair value markdowns. LGD estimates are mainly based on an empirical analysis of historical loss rates. To reflect time value of money, recovered amounts on defaulted obligations are discounted to the time of default and to account for potential adverse outcomes in a downturn environment, final parameters are chosen such as they reflect periods where economic downturns have been observed and/or where increased losses manifested. For portfolios with low amount of statistical values available conservative values are chosen based on proxy analysis and expert judgement. For much of the private, corporate and institutional banking businesses loan portfolio, the LGD is primarily dependent upon the type and amount of collateral pledged. The credit approval and collateral monitoring process are based on LTV limits. For mortgages (residential or commercial), recovery rates are differentiated by type of property.

EAD is either derived from balance sheet values or by using models. EAD for a non-defaulted facility is an estimate of the expected exposure upon default of the obligor. Estimates are derived based on a CCF approach using default-weighted averages of historical realized conversion factors on defaulted loans by facility type. Estimates are calibrated to capture negative operating environment effects. To comply with regulatory guidance in deriving individual observed CCF values as basis for the estimation are floored at zero, i.e. it is assumed that drawn exposure can never become lower in the run to default.

> Refer to “Credit risk” (pages 158 to 161) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk coverage and management in the Credit Suisse Annual Report 2018 for further information on PD and LGD.

Risk weights are calculated using either the PD/LGD approach or the supervisory risk weights approach for certain types of specialized lending.

Reporting related to credit risk models

> Refer to “Model validation” (pages 25 to 26), “Use of internal ratings” (page 27) and “Credit Risk Review” (page 27) for further information on the scope and main content of the reporting related to credit risk models.

Rating models

The majority of the credit rating models used in Credit Suisse are developed internally by Credit Analytics, a specialized unit in Credit Risk Management. These models are independently validated by Model Risk Management team prior to use in the Basel III regulatory capital calculation, and thereafter on a regular basis. Credit Suisse also uses models purchased from recognized data and model providers (e.g. credit rating agencies). These models are owned by Credit Analytics and are validated internally and follow the same governance process as models developed internally.

All new or material changes to rating models are subject to a robust governance process. Post development and validation of a rating model or model change, the model is taken through a number of committees where model developers, validators and users of the models discuss the technical and regulatory aspects of the model. The relevant committees opine on the information provided and decide to either approve or reject the model or model change. The ultimate decision making committee is the Risk Processes & Standards Committee (RPSC). The responsible Executive Board Member for the RPSC is the Chief Risk Officer. The RPSC sub-group responsible for credit risk models is the Credit Methodology Steering Committee (CMSC). RPSC or CMSC also review and monitor the continued use of existing models on an annual basis.

The following table provides an overview of the main PD and LGD models used by Credit Suisse. It reflects the portfolio segmentation from a credit risk model point of view, showing the RWA, type and number of the most significant models, and the loss period available for model development by portfolio. As the table follows an internal

risk segmentation and captures the most significant models only, these figures do not match regulatory asset class or other A-IRB based segmentation.

Some of the portfolios shown in the table sum up multiple rating models. The distinction criteria determining which model applies, differs from portfolio to portfolio. Corporates, banks and non-banking financial institutions are split by turnover and geography. For funds, the distinction criteria is the different form of funds e.g. mutual-, hedge-funds etc., whereas for income producing real estate (IPRE), it is corporate vs. private counterparties. The distinction criteria for Sovereign is global governments vs. Swiss Canton vs. local governments (e.g. cities).

CRE - Main PD and LGD models used by Credit Suisse

				PD		LGD
Portfolio	Asset class	Risk-weighted assets (in CHF billion)	Number of years loss data	No. of models	Model comment	No. of models	Model comment
Corporates	Corporates, retail	46	>15 years	2	Statistical scorecards using e.g. balance sheet, profit & loss data and qualitative factors	3	Statistical and hybrid models using e.g. industry and counterparty segmentation, collateral types and amounts, seniority and other transaction specific factors with granularity enhancements by public research and expert judgement
Banks and other financial institutions	Banks, corporates	9	>30 years	5	Statistical scorecard and constrained expert judgement using e.g. balance sheet, profit & loss data and qualitative factors		
Funds	Corporates	10	>10 years	5	Statistical scorecards using e.g. net asset value, volatility of returns and qualitative factors		
Residential mortgages	Retail	11	>10 years	1	Statistical scorecard using e.g. LTV, affordability, assets and qualitative factors	1	Statistical model using e.g. counterparty segmentation, collateral types and amounts
Income producing real estate	Specialized lending, retail	18	>10 years	2	Statistical scorecards using e.g. LTV, debt service coverage and qualitative factors		
Commodity traders	Corporates, specialized lending	3	>10 years	1	Statistical scorecard using e.g. volume, liquidity and duration of financed commodity transactions		
Sovereign	Sovereign, corporates	3	>10 years	1	Statistical scorecards using e.g. GDP,	1	Statistical models using e.g. industry and counterparty

					financials and qualitative factors		segmentation, seniority and other transaction specific factors
Ship finance	Specialized lending	3	>10 years	1	Simulation model using e.g. freight rates, time charter agreements, operational expenses and debt service coverage	1	Simulation model using e.g. freight rates, time charter agreements, operational expenses and debt service coverage
Lombard, Securities Borrowing & Lending	Retail	15	>10 years	1	Merton type model using e.g. LTV, collateral volatility and counterparty attributes	1	Merton type model using e.g. LTV, collateral volatility and counterparty attributes

Model development

The techniques to develop models are carefully selected by Credit Analytics to meet industry standards in the banking industry as well as regulatory requirements. The models are developed to exhibit “through-the-cycle” characteristics, reflecting a PD in a 12 month period across the credit cycle.

All models have clearly defined model owners who have primary responsibility for development, enhancement, review, maintenance and documentation. The models have to pass statistical performance tests, where feasible, followed by usability tests by designated Credit Risk Management experts to proceed to formal approval and implementation. The development process of a new model is thoroughly documented and foresees a separate schedule for model updates.

The level of calibration of the models is based on a range of inputs, including internal and external benchmarks where available. Additionally, the calibration process ensures that the estimated calibration level accounts for variations of default rates through the economic cycle and that the underlying data contains a representative mix of economic states. Conservatism is incorporated in the model development process to compensate for any known or suspected limitations and uncertainties.

Model validation

Model validation for risk capital models is performed by the Model Risk Management function. Model governance is subject to clear and objective internal standards as outlined in the Model Risk Management policy and the Model Validation Policy. The governance framework ensures a consistent and meaningful approach for the validation of models in scope across the bank. All models whose outputs fall into the scope of the Basel internal model framework are subject to full independent validation. Externally developed models are subject to the same governance and validation standards as internal models.

The governance process requires each in scope model to be validated and approved before go-live; the same process is followed for material changes to an existing model. Existing models are subject to an ongoing governance process which requires each model to be periodically validated and the performance to be monitored annually. The validation process is a comprehensive quantitative and qualitative assessment with goals that include:

– to confirm that the model remains conceptually sound and the model design is suitable for its intended purpose;

– to verify that the assumptions are still valid and weaknesses and limitations are known and mitigated;

– to determine that the model outputs are accurate compared to realized outcome;

– to establish whether the model is accepted by the users and used as intended with appropriate data governance;
– to check whether a model is implemented correctly;
– to ensure that the model is fully transparent and sufficiently documented.

To meet these goals, models are validated against a series of quantitative and qualitative criteria. Quantitative analyses may include a review of model performance (comparison of model output against realized outcome), calibration accuracy against the longest time series available, assessment of a model's ability to rank order risk and performance against available benchmarks. Qualitative assessment typically includes a review of the appropriateness of the key model assumptions, the identification of the model limitations and their mitigation, and ensuring appropriate model use. The modeling approach is re-assessed in light of developments in the academic literature and industry practice. Results and conclusions are presented to senior risk management including the RPSC; shortcomings and required improvements identified during validation must be remediated within an agreed deadline. The Model Risk Management function is independent of model developers and users and has the final say on the content of each validation report.

Model governance at Credit Suisse follows the "three lines of defense" principle. Model developers and owners provide the first line of defense, Model Risk Management the second line, and Internal Audit the third line of defense. Organization independence ensures that these functions are able to provide appropriate oversight. For Credit Risk models, the development and validation functions are independent up to the Chief Risk Officer (Executive Board level). Internal Audit has fully independent reporting into the Chair of the Board of Directors Audit Committee.

Stress testing of parameters

The potential biases in PD estimates in unusual market conditions are accounted for by the use of long run average estimates. Credit Suisse additionally uses stress-testing when back-testing PD models. When predefined thresholds are breached during back-testing, a review of the calibration level is undertaken. For LGD/CCF calibration stress testing is applied in defining Downturn LGD/CCF values, reflecting potentially increased losses during stressed periods.

Descriptions of the rating processes

All counterparties that Credit Suisse is exposed to are assigned an internal credit rating. The rating is assigned at the time of initial credit approval and subsequently reviewed and updated regularly. Where available, Credit Risk Management employs rating models relative to the counterparty type that incorporate qualitative and quantitative factors. Expert judgement may further be applied through a well governed model override process in the assignment of a credit rating or PD, which measures the counterparty's risk of default over a one-year period.

Corporates (excluding corporates managed on the Swiss platform), banks and sovereigns (primarily in the investment banking businesses)

Where used, rating models are an integral part of the rating process. To ensure all relevant information is considered when rating a counterparty, experienced credit officers complement the outputs from the models with other relevant information not otherwise captured via a robust model-override framework. Other relevant information may include, but is not limited to peer analysis, industry comparisons, external ratings and research and the judgment of credit experts. This analysis emphasizes a forward looking approach, concentrating on economic trends and financial fundamentals. Where rating models are not used the assignment of credit ratings is based on a well-established expert judgment based process which captures key factors specific to the type of counterparty.

For structured and asset finance deals, the approach is more quantitative. The focus is on the performance of the underlying assets, which represent the collateral of the deal. The ultimate rating is dependent upon the expected performance of the underlying assets and the level of credit enhancement of the specific transaction. Additionally, a review of the originator and/or servicer is performed. External ratings and research (rating agency and/or fixed income and equity), where available, are incorporated into the rating justification, as is any available market information (e.g., bond spreads, equity performance).

Transaction ratings are based on the analysis and evaluation of both quantitative and qualitative factors. The specific factors analyzed include seniority, industry and collateral.

Corporates managed on the Swiss platform, mortgages and other retail (primarily in the private, corporate and institutional banking businesses)

For corporates managed on the Swiss platform and mortgage lending, the PD is calculated directly by proprietary statistical rating models, which are based on internally compiled data comprising both quantitative factors (primarily LTV ratio and the borrower's income level for mortgage lending and balance sheet information for corporates) and

qualitative factors (e.g., credit histories from credit reporting bureaus, management quality). In this case, an equivalent rating is assigned for reporting purposes, based on the PD band associated with each rating. Collateral loans (margin lending), which form the largest part of “Other retail”, is also following an individual PD and LGD approach. This approach is already rolled out for loans booked on the Swiss platform and for the majority of international locations; the remaining international locations follow a pool PD and pool LGD approach. Both approaches are calibrated to historical loss experience. Most of the collateral loans are loans collateralized by securities.

The internal rating grades are mapped to the Credit Suisse Internal Masterscale. The PDs assigned to each rating grade are reflected in the following table.

CRE - Credit Suisse counterparty ratings

Ratings	PD bands (%)	Definition	S&P	Fitch	Moody's	Details
AAA	0.000 - 0.021	Substantially risk free	AAA	AAA	Aaa	Extremely low risk, very high long-term stability, still solvent under extreme conditions
AA+	0.021 - 0.027	Minimal risk	AA+	AA+	Aa1	Very low risk, long-term stability, repayment
AA	0.027 - 0.034		AA	AA	Aa2	sources sufficient under lasting adverse
AA-	0.034 - 0.044		AA-	AA-	Aa3	conditions, extremely high medium-term stability
A+	0.044 - 0.056	Modest risk	A+	A+	A1	Low risk, short- and mid-term stability,
A	0.056 - 0.068		A	A	A2	small adverse
A-	0.068 - 0.097		A-	A-	A3	developments can be absorbed long term, short- and mid-term solvency preserved in the event of serious difficulties
BBB+	0.097 - 0.167	Average risk	BBB+	BBB+	Baa1	Medium to low risk, high short-term
BBB	0.167 - 0.285		BBB	BBB	Baa2	stability, adequate
BBB-	0.285 - 0.487		BBB-	BBB-	Baa3	substance for medium-term survival, very stable short term
BB+	0.487 - 0.839	Acceptable risk	BB+	BB+	Ba1	Medium risk, only short-term stability, only
BB	0.839 - 1.442		BB	BB	Ba2	capable of
BB-	1.442 - 2.478		BB-	BB-	Ba3	absorbing minor adverse developments in the medium term, stable in the short term, no increased credit risks expected within the year
B+	2.478 - 4.259	High risk	B+	B+	B1	Increasing risk, limited capability to absorb
B	4.259 - 7.311		B	B	B2	further unexpected negative developments
B-	7.311 - 12.550		B-	B-	B3	
CCC+	12.550 -	Very high	CCC+	CCC+	Caa1	High risk, very limited capability to absorb
CCC	21.543	risk	CCC	CCC	Caa2	further unexpected negative developments
CCC-	21.543 -		CCC-	CCC-	Caa3	
CC	100.00		CC	CC	Ca	
	21.543 - 100.00					
	21.543 - 100.00					
C	100	Imminent or	C	C	C	Substantial credit risk has materialized, i.e.
D1	Risk of default	actual loss	D	D		counterparty
D2	has					is distressed and/or non-performing.
	materialized					Adequate specific provisions must be made as further adverse developments will result directly in credit losses.

Transactions rated C are potential problem loans; those rated D1 are non-performing assets and those rated D2 are non-interest earning.

Use of internal ratings

Internal ratings play an essential role in the decision-making and the credit approval processes. The portfolio credit quality is set in terms of the proportion of investment and non-investment grade exposures.

Investment/non-investment grade is determined by the internal rating assigned to a counterparty.
Internal counterparty ratings (and associated PDs), transaction ratings (and associated LGDs) and CCF for loan commitments are inputs to RWA and ERC calculations. Model outputs are the basis for risk-adjusted-pricing or assignment of credit competency levels.
The internal ratings are also integrated into the risk management reporting infrastructure and are reviewed in senior risk management committees. These committees include the Chief Executive Officer, Chief Credit Officer (CCO), Regional CCO, RPSC and Capital Allocation & Risk Management Committee (CARMC).
Credit Risk Review
Governance and supervisory checks within credit risk management are supplemented by the credit risk review function. The credit risk review function is independent from credit risk management with a direct functional reporting line to the Risk Committee Chair, administratively reporting to the Group CRO. Credit risk review's primary responsibility is to provide timely and independent assessments of the Group's credit exposures and credit risk management processes and practices. Any findings and agreed actions are reported to senior management and, as necessary, to the Risk Committee.
EAD covered by the various approaches
The following table shows the part of EAD covered by the standardized and the A-IRB approach for each of the asset classes. The F-IRB approach is currently not applied.
CRE - EAD covered by the various approaches

end of 4Q18	Standardized approach	A-IRB approach
EAD (in %)		
Sovereigns	14	86
Institutions - Banks and securities dealer	4	96
Institutions - Other institutions	0	100
Corporates	1	99
Residential mortgages	0	100
Retail	1	99
Other exposures	100	0
Total	**7**	**93**

27

Credit risk exposures by portfolio and PD range

The following table shows the main parameters used for the calculation of capital requirements for IRB models.

CR6 – Credit risk exposures by portfolio and PD range

end of 4Q18	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF	Total exposures	Average CCF	EAD post-CRM and post-CCF[1]	Average PD	Number of obligors	Average LGD	Average maturity (years)	RWA[2]	RW densi
Sovereigns (CHF million, except where indicated)											
0.00% to <0.15%	81,810	509	82,319	88%	82,440	0.02%	68	4%	1.2	1,048	1
0.15% to <0.25%	92	16	108	0%	92	0.22%	9	51%	3.0	59	63
0.25% to <0.50%	530	0	530	100%	406	0.37%	7	51%	1.4	233	57
0.50% to <0.75%	32	0	32	0%	32	0.64%	24	42%	4.9	34	106
0.75% to <2.50%	44	18	62	25%	48	1.40%	11	42%	1.0	41	87
2.50% to <10.00%	1,305	5	1,310	79%	358	6.45%	24	51%	2.6	713	199
100.00% (Default)	593	0	593	0%	346	100.00%	2	58%	3.8	367	106
Sub-total	**84,406**	**548**	**84,954**	**88%**	**83,722**	**0.47%**	**145**	**5%**	**1.2**	**2,495**	**3**
Institutions - Banks and securities dealer											
0.00% to <0.15%	10,848	994	11,842	58%	12,870	0.06%	711	55%	0.6	2,014	16
0.15% to <0.25%	105	87	192	50%	320	0.22%	82	49%	1.2	153	48
0.25% to <0.50%	906	240	1,146	37%	980	0.37%	165	54%	1.4	645	66
0.50% to <0.75%	132	192	324	79%	226	0.60%	107	47%	0.6	166	73
0.75% to <2.50%	626	201	827	70%	626	1.25%	228	56%	0.8	620	99
2.50% to <10.00%	599	290	889	48%	487	4.92%	116	51%	0.8	764	157
10.00% to <100.00%	7	5	12	20%	8	16.44%	6	53%	0.2	21	255
100.00% (Default)	21	1	22	50%	22	100.00%	7	55%	1.5	23	106
Sub-total	**13,244**	**2,010**	**15,254**	**57%**	**15,539**	**0.44%**	**1,422**	**54%**	**0.7**	**4,406**	**28**
Institutions - Other institutions											
0.00% to <0.15%	533	2,008	2,541	92%	1,079	0.04%	428	43%	1.8	156	14
0.15% to <0.25%	19	15	34	100%	23	0.21%	21	36%	1.9	9	40
0.25% to <0.50%	18	1	19	85%	19	0.36%	11	49%	2.1	13	69
0.50% to	1	0	1	50%	1	0.58%	53	47%	1.2	1	72

<0.75%											
0.75% to <2.50%	0	1	1	100%	1	1.03%	19	41%	1.8	0	82
2.50% to <10.00%	29	137	166	100%	48	5.08%	4	9%	4.9	17	36
Sub-total	**600**	**2,162**	**2,762**	**92%**	**1,171**	**0.26%**	**536**	**42%**	**1.9**	**196**	**17**
Corporates - Specialized lending											
0.00% to <0.15%	7,198	2,210	9,408	100%	8,073	0.06%	854	28%	2.1	1,603	20
0.15% to <0.25%	5,722	2,025	7,747	96%	6,608	0.22%	748	28%	2.3	2,455	37
0.25% to <0.50%	3,252	1,470	4,722	95%	3,902	0.37%	559	28%	2.1	1,872	48
0.50% to <0.75%	4,713	3,293	8,006	76%	5,839	0.58%	407	21%	2.0	2,141	37
0.75% to <2.50%	9,558	3,173	12,731	74%	10,602	1.33%	792	18%	2.7	4,784	45
2.50% to <10.00%	1,226	232	1,458	87%	1,315	4.59%	93	17%	3.0	776	59
10.00% to <100.00%	100	0	100	0%	100	14.08%	4	18%	3.7	89	89
100.00% (Default)	642	16	658	89%	559	100.00%	45	17%	2.7	593	106
Sub-total	**32,411**	**12,419**	**44,830**	**87%**	**36,998**	**2.27%**	**3,502**	**24%**	**2.3**	**14,313**	**39**

1
CRM is reflected by shifting the counterparty exposure from the underlying obligor to the protection provider.
2
Reflects risk-weighted assets post CCF.

Total exposures decreased slightly compared to the end of 2Q18, primarily reflecting decreases in sovereigns and corporates without specialized lending.

CR6 – Credit risk exposures by portfolio and PD range (continued)

end of 4Q18	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF	Total exposures	Average CCF	EAD post-CRM and post-CCF[1]	Average PD	Number of obligors	Average LGD	Average maturity (years)	RWA[2]	RW densi
Corporates without specialized lending (CHF million, except where indicated)											
0.00% to <0.15%	16,554	47,886	64,440	58%	41,471	0.07%	2,885	41%	2.4	9,591	23
0.15% to <0.25%	5,059	9,556	14,615	63%	8,447	0.21%	1,267	38%	2.5	3,603	43
0.25% to <0.50%	7,934	7,026	14,960	61%	10,688	0.37%	1,759	39%	2.6	5,896	55
0.50% to <0.75%	6,317	8,072	14,389	49%	9,200	0.62%	1,352	41%	2.3	6,415	70
0.75% to <2.50%	11,124	10,877	22,001	63%	15,490	1.51%	2,958	41%	2.5	15,304	99
2.50% to <10.00%	9,672	20,179	29,851	52%	15,192	5.54%	2,428	35%	2.8	26,759	176
10.00% to <100.00%	847	525	1,372	69%	928	17.41%	85	28%	2.6	1,835	198
100.00% (Default)	887	169	1,056	61%	734	100.00%	209	38%	1.9	767	104
Sub-total	**58,394**	**104,290**	**162,684**	**58%**	**102,150**	**2.06%**	**12,943**	**39%**	**2.5**	**70,170**	**69**
Residential mortgages											
0.00% to <0.15%	30,432	1,593	32,025	100%	31,955	0.08%	46,406	15%	2.8	2,139	7
0.15% to <0.25%	30,579	1,812	32,391	100%	31,284	0.18%	40,134	15%	2.8	3,940	13
0.25% to <0.50%	36,045	2,291	38,336	100%	37,069	0.31%	48,313	15%	2.9	6,749	18
0.50% to <0.75%	6,113	626	6,739	100%	5,425	0.59%	6,757	17%	2.6	1,776	33
0.75% to <2.50%	4,728	854									