

Pillar 3 and regulatory disclosures

Credit Suisse Group AG

2016

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.

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Introduction

GENERAL

This report as of December 31, 2016 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). The FINMA circular includes the implementation of the revised Pillar 3 disclosure requirements issued by the Basel Committee on Banking Supervisions (BCBS) in January 2015. This document should be read in conjunction with the Credit Suisse Annual Report 2016, which includes important information on regulatory capital and risk management (specific references have been made herein to this document).

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

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.

These disclosures were verified and approved internally in line with our board-approved policy on disclosure controls and procedures. The information in this report is subject to the same level of internal control processes as the information provided by the

Group for its financial reporting. This report has not been audited by the Group's external auditors. However, it also includes information that is contained within the audited consolidated financial statements as reported in the Credit Suisse Annual Report 2016.

LOCATION OF DISCLOSURE

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 2016 or in the regulatory disclosures on our website.

► Refer to "Annual Report" under www.credit-suisse.com/ar for disclosures included in the Credit Suisse Annual Report 2016.

Certain regulatory disclosures required for Credit Suisse subsidiaries are available on our website at www.credit-suisse.com/regulatorydisclosures.

The following table provides an overview of the location of the required disclosures.

Location of disclosure

FINMA disclosure requirements	Pillar 3 and regulatory disclosures 2016	Credit Suisse Annual Report 2016
Composition of capital		
Reconciliation [Table 1]	"Balance sheet" (p. 51 – 52)	
Differences in basis of consolidation	Description of differences: "Principles of consolidation" (p. 8)	List of significant subsidiaries and associated entities: "Note 40 – Significant subsidiaries and equity method investments" (p. 383 – 385)
Restrictions on transfer of funds or regulatory capital		Changes in scope of consolidation: "Note 3 – Business developments, significant shareholders and subsequent events" (p. 271 – 273) "Liquidity and funding management" (p. 108 – 113) "Note 37 – Capital adequacy" (p. 372)
Composition of capital [Table 2]	"Composition of BIS regulatory capital" (p. 53 – 55)	
Overview of risk management and risk-weighted assets		
Risk management approach [Table 3 (OVA)]	Overview: "Overview of risk management" (p. 5)	Detailed information: "Risk management oversight" (p. 136 – 139) "Risk appetite framework" (p. 139 – 142) "Risk coverage and management" (p. 142 – 147)
Risk-weighted assets [Table 4 (OV1)]	Quantitative disclosures: "Risk-weighted assets" (p. 6)	Qualitative disclosures: "Risk-weighted assets" (p. 125 – 127)
Linkages between financial statements and regulatory exposures		
Differences between accounting and regulatory scope of consolidation and mapping of financial statements with regulatory risk categories [Table 5 (LI1)/ Table 7 (LIA a)]	"Differences between accounting and regulatory scope of consolidation" (p. 7 – 8)	
Main sources of differences between regulatory exposure amounts and carrying values in financial statements [Table 6 (LI2)/ Table 7 (LIA b)]	"Main sources of differences between regulatory exposure amounts and carrying values" (p. 8)	
Valuation process [Table 7 (LIA c)]	Overview: "Valuation process" (p. 9)	Detailed information: "Fair valuations" (p. 61 – 62) "Critical accounting estimates – Fair value" (p. 100) "Note 35 – Financial instruments" (p. 354 – 358)

Location of disclosure (continued)

FINMA disclosure requirements	Pillar 3 and regulatory disclosures 2016	Credit Suisse Annual Report 2016
Credit risk		
General information about credit risk		
General qualitative information about credit risk [Table 8 (CRA)]	Overview: "General" (p. 10)	Detailed information: "Credit risk" (p. 150 – 153)
Credit quality of assets [Table 9 (CR1)/ Table 11 (CRB)]	Quantitative disclosures [Table 9 (CR1)/11 (CRB e, f, g and h): "Credit quality of assets" (p. 10 – 12)	Qualitative disclosures [Table 11 (CRB a, b, c and d)]: "Note 1 – Summary of significant accounting policies" (p. 263 – 265) "Note 19 – Loans, allowance for loan losses and credit quality" (p. 286 – 292)
Changes in stock of defaulted loans and debt securities [Table 10 (CR2)]	- ¹	
Credit risk mitigation techniques [Table 12 (CRC)/Table 13 (CR3)]	Qualitative disclosures [Table 12 (CRC b, c)]: "Collateral valuation and management" (p. 12 – 13) "Primary types of collateral" (p. 13) "Concentrations within risk mitigation" (p. 13) Quantitative disclosures [Table 13 (CR3)]: "Credit risk mitigation techniques – overview" (p. 13)	Qualitative disclosures [Table 12 (CRC a)]: "Derivative instruments" (p. 168 – 170) "Note 1 – Summary of significant accounting policies" (p. 262) "Note 27 – Offsetting of financial assets and financial liabilities" (p. 299 – 302)
Credit risk under standardized approach		
Use of external credit ratings [Table 14 (CRD)]	"General" (p. 13)	
Credit risk exposure and Credit Risk Mitigation effects [Table 15 (CR4)]	"Credit risk exposure and CRM effects" (p. 13 – 14)	
Exposures by asset classes and risk weights [Table 16 (CR5)]	"Exposures by asset classes and risk weights" (p. 14)	
Credit risk under internal risk-based approach		
Qualitative disclosures [Table 17 (CRE)]	"Credit risk under internal risk-based approach" (p. 21 – 25)	
Credit risk exposures by portfolio and PD range [Table 18 (CR6)]	"Credit risk exposures by portfolio and PD range" (p. 25 – 29)	
Effect on risk-weighted assets of credit derivatives used as CRM techniques [Table 19 (CR7)]	"Effect of credit derivatives used as CRM techniques on risk-weighted assets" (p. 30)	
Risk-weighted assets flow statement of credit exposures [Table 20 (CR8)]	- ¹	
Backtesting of PD per portfolio [Table 21 (CR9)]	- ¹	
Specialized lending and equities under the simple risk-weight method [Table 22 (CR10)]	"Specialized lending and equities under the simple risk-weight method" (p. 30 – 31)	
Counterparty credit risk		
Qualitative disclosures [Table 23 (CCRA)]	"General" (p. 32 – 33)	Transaction rating, credit limits and provisioning: "Credit risk" (p. 150 – 153) Effect of a credit rating downgrade: "Credit ratings" (p. 115)
Analysis of counterparty credit risk exposure by approach [Table 24 (CCR1)]	"Analysis of counterparty credit risk exposure by approach" (p. 34)	
CVA capital charge [Table 25 (CCR2)]	"CVA capital charge" (p. 34)	
CCR exposures by regulatory portfolio and risk weights [Table 26 (CCR3)]	"CCR exposures by regulatory portfolio and risk weights - standardized approach" (p. 35)	
CCR exposures by portfolio and PD scale [Table 27 (CCR4)]	"CCR exposures by portfolio and PD scale - IRB models" (p. 36 – 37)	
Composition of collateral for CCR exposures [Table 28 (CCR5)]	"Composition of collateral for CCR exposures" (p. 38)	
Credit derivative exposures [Table 29 (CCR6)]	"Credit derivative exposures" (p. 38)	
Risk-weighted assets flow statement of CCR exposures under IMM [Table 30 (CCR7)]	- ¹	
Exposures to CCPs [Table 31 (CCR8)]	- ¹	

¹ In accordance with the FINMA circular, the disclosure of the table is not required in the Pillar 3 and regulatory disclosures 2016.

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Introduction

Location of disclosure (continued)

FINMA disclosure requirements	Pillar 3 and regulatory disclosures 2016	Credit Suisse Annual Report 2016
Securitization		
Qualitative disclosures [Table 32 (SECA)]	"General" (p. 39 – 41)	"Note 34 – Transfers of financial assets and variable entities" (p. 335 – 338)
Securitization exposures in the banking book [Table 33 (SEC1)]	"Securitization exposures in the banking book" (p. 41)	
Securitization exposures in the trading book [Table 34 (SEC2)]	"Securitization exposures in the trading book" (p. 41)	
Calculation of capital requirements – acting as originator or sponsor [Table 35 (SEC3)]	"Calculation of capital requirements" (p. 41 – 43)	
Calculation of capital requirements – acting as investor [Table 36 (SEC4)]	"Calculation of capital requirements" (p. 41 – 43)	
Market risk		
Qualitative disclosures [Table 37 (MRA)]	Overview: "General" (p. 44)	Detailed information: "Market risk" (p. 147 – 150) "Market risk review" (p. 160 – 163) "Note 1 – Summary of significant accounting policies" (p. 261 – 262) "Note 32 – Derivatives and hedging activities" (p. 325 – 328)
Market risk under standardized approach [Table 39 (MR1)]	"Market risk under standardized approach" (p. 44)	
Market risk under internal model approach		
Qualitative disclosures [Table 38 (MRB)]	"Market risk under internal model approach" (p. 44 – 46)	
Risk-weighted assets flow statements of market risk exposures [Table 40 (MR2)]	- ¹	
IMA values for trading portfolios [Table 41 (MR3)]	"Internal model approach values for trading portfolios" (p. 46 – 47)	
Comparison of VaR estimates with gains/losses [Table 42 (MR4)]	"Comparison of VaR estimates with gains/losses" (p. 47)	
Operational risk		
Qualitative disclosures [Table 43]	Overview: "Operational risk" (p. 48)	Detailed information: "Operational risk" (p. 153 – 156)
Interest rate risk in the banking book		
Qualitative disclosures [Table 44]	"Interest rate risk in the banking book" (p. 49 – 50)	
Quantitative disclosures [Table 44]		"Banking book" (p. 163 – 164)
Capital instruments		
Main features template and full terms and conditions [Table 45]	Refer to "Capital instruments" under www.credit-suisse.com/regulatorydisclosures	
Leverage metrics		
Reconciliation of consolidated assets to leverage exposure [Table 46]	"Leverage metrics" (p. 58)	
Detailed disclosures [Table 47]	Quantitative disclosure: "Leverage metrics" (p. 58)	Qualitative disclosures: "Leverage metrics" (p. 128)
Liquidity coverage ratio		
Liquidity Coverage Ratio [Table 48]	Quantitative disclosure: "Liquidity coverage ratio" (p. 59)	Qualitative disclosures: "Liquidity metrics" (p. 110 – 111)
Remuneration		
		"Compensation" (p. 215 – 248)
Additional requirements for large banks		
Minimum disclosure requirements [Appendix 4]	"Minimum disclosures for large banks" (p. 60)	
G-SIBs indicators [margin 48]	Refer to "G-SIB Indicators" under www.credit-suisse.com/regulatorydisclosures ²	
Special duties of disclosure for systemically relevant financial groups and stand-alone banks		
Risk-based capital requirements on capital ratios [Appendix 5 / Table 1]	"Swiss capital requirements" (p. 56)	
Unweighted capital requirements based on leverage ratios [Appendix 5 / Table 2]	"Swiss capital requirements" (p. 57)	
List and qualification of alleviations granted [margin 53]		"FINMA Decree" (p. 120 – 121)

¹ In accordance with the FINMA circular, the disclosure of the table is not required in the Pillar 3 and regulatory disclosures 2016.

² Available by the end of April 2017.

Overview of risk management

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.

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.

► Refer to "Risk management oversight" (pages 136 to 139), "Risk appetite framework" (pages 139 to 142) and "Risk coverage and management" (pages 142 to 147) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management in the Credit Suisse Annual Report 2016 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.

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

- Credit risk (refer to section "Credit risk" on pages 10 to 31);
- Counterparty credit risk (refer to section "Counterparty credit risk" on pages 32 to 38);
- Securitization risk (refer to section "Securitization risk" on pages 39 to 43);
- Market risk (refer to section "Market risk" on pages 44 to 47);
- Operational risk (refer to section "Operational risk" on page 48); and
- Interest rate risk in the banking book (refer to section "Interest rate risk in the banking book" on pages 49 to 50).

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

Our balance sheet positions and off-balance sheet exposures translate into risk-weighted assets (RWA). When assessing RWA, it is not the nominal size, but the nature (including risk mitigation such as collateral or hedges) of the balance sheet positions or off-balance sheet exposures that determines the RWA. Under Basel III, certain regulatory capital adjustments are dependent on the level of common equity tier 1 (CET1) capital (thresholds). The amount above the threshold is deducted from CET1 capital and the amount below the threshold is risk weighted.

► Refer to "Risk-weighted assets" (pages 125 to 127) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Capital management in the Credit Suisse Annual Report 2016 for information on risk-weighted assets movements in 2016.

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

Summary of BIS risk-weighted assets and capital requirements

end of 2016	RWA	Capital requirement ¹
CHF million		
Credit risk (excluding counterparty credit risk) (CCR)	117,325	9,386
of which standardized approach (SA)	11,916	953
of which internal rating-based (IRB) approach	105,409	8,433
Counterparty credit risk	31,859	2,549
of which standardized approach for counterparty credit risk (SA-CCR) ²	4,637	371
of which internal model method (IMM)	27,222	2,178
Equity positions in banking book under market-based approach	11,183	895
Equity investments in funds – look-through approach	–	–
Equity investments in funds – mandate-based approach	–	–
Equity investments in funds – fall-back approach	–	–
Settlement risk	279	22
Securitization exposures in banking book	10,089	807
of which IRB ratings-based approach (RBA)	1,500	120
of which IRB Supervisory Formula Approach (SFA)	5,087	407
of which SA/simplified supervisory formula approach (SSFA)	3,502	280
Market risk	23,248	1,860
of which standardized approach (SA)	3,965	317
of which internal model approaches (IMM)	19,283	1,543
Operational risk	66,055	5,284
of which Basic Indicator Approach	–	–
of which Standardized Approach	–	–
of which Advanced Measurement Approach	66,055	5,284
Amounts below the thresholds for deduction (subject to 250% risk weight)	11,334	907
Floor adjustment	0 ³	0
Total	271,372	21,710

¹ Calculated as 8% of risk-weighted assets based on BIS total capital minimum requirements excluding capital conservation buffer and G-SIB buffer requirements.

² For 2016 year-end reported under current exposure method.

³ Credit Suisse is not subject to a floor adjustment because current capital requirements and deductions exceed 80% of those under Basel I.

Linkages between financial statements and regulatory exposures

DIFFERENCES BETWEEN ACCOUNTING AND REGULATORY SCOPES OF CONSOLIDATION

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.

Balance sheet

	Carrying values			Carrying values of items subject to:			
	Published financial statements	Regulatory scope of consolidation	Credit risk framework	Counter-party credit risk framework	Securitization framework	Market risk framework	Not subject to capital requirements or subject to deduction from capital
end of 2016							
Assets (CHF million)							
Cash and due from banks	121,161	120,753	118,990	380	0	0	1,383
Interest-bearing deposits with banks	772	1,173	839	0	0	0	334
Central bank funds sold, securities purchased under resale agreements and securities borrowing transactions	134,839	129,495	0	129,495	0	0	0
Securities received as collateral, at fair value	32,564	32,564	0	32,509	0	0	55
Trading assets, at fair value ¹	165,150	160,627	12,766	27,967	1,003	160,451	2,745
Investment securities	2,489	1,978	1,934	0	19	0	25
Other investments	6,777	6,561	3,568	1,048	539	1,562	947
Net loans	275,976	276,578	250,666	0	23,773	2,288	0
Premises and equipment	4,711	4,781	4,755	0	0	0	26
Goodwill	4,913	4,913	0	0	0	0	4,913
Other intangible assets	213	213	2	0	0	0	211
Brokerage receivables	33,431	33,428	2,219	14,996	0	25,992	5,073
Other assets	36,865	35,008	15,725	8,479	954	11,846	17,008
Total assets	819,861	808,072	411,464	214,874	26,288	202,139	32,720
Liabilities (CHF million)							
Due to banks	22,800	23,400	0	0	0	0	23,400
Customer deposits	355,833	356,033	0	0	0	0	356,033
Central bank funds purchased, securities sold under repurchase agreements and securities lending transactions	33,016	33,016	0	16,600	0	0	16,732
Obligation to return securities received as collateral, at fair value	32,564	32,564	0	22,211	0	0	10,357
Trading liabilities, at fair value ¹	44,930	45,160	1,300	16,314	0	39,605	0
Short-term borrowings	15,385	10,201	0	0	0	0	10,201
Long-term debt	193,315	191,613	0	0	0	0	191,613
Brokerage payables	39,852	39,852	0	0	0	0	39,852
Other liabilities	39,855	34,140	31	11,099	0	0	23,010
Total liabilities	777,550	765,979	1,331	66,224	0	39,605	671,198

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.

8 Pillar 3 and regulatory disclosures

Linkages between financial statements and regulatory exposures

Principles of consolidation

For financial reporting purposes, our consolidation principles comply with accounting principles generally accepted in the US (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 383 to 385) in V – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2016 for a list of significant subsidiaries and associated entities.

MAIN SOURCES OF DIFFERENCES BETWEEN REGULATORY EXPOSURE AMOUNTS AND CARRYING VALUES

The following table provides information on the main sources of differences (other than due to different scope of consolidation) between the financial statements' carrying value amounts and the exposure amounts used for regulatory purposes.

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

	Total	Items subject to:			
		Credit risk framework	Counter-party credit risk framework	Securitization framework	Market risk framework
end of 2016					
CHF million					
Asset carrying value amount under regulatory scope of consolidation	854,765	411,464	214,874	26,288	202,139
Liabilities carrying value amount under regulatory scope of consolidation	107,160	1,331	66,224	0	39,605
Total net amount under regulatory scope of consolidation	747,605	410,133	148,650	26,288	162,534
Off-balance sheet amounts	87,526	74,979	85	12,462	0
Differences due to application of potential future exposures (SA-CCR)	2,374	0	2,374	0	0
Derivative transactions – differences due to application of internal model method (IMM)	34,341	0	34,341	0	0
SFT – differences due to application of internal model method (IMM)	(104,872)	0	(104,872)	0	0
Other differences not classified above	(161,468)	(5,442)	(6,741)	9,284	(158,569)
Exposure amounts considered for regulatory purposes	605,506	479,670	73,837	48,034	3,965

► Refer to "Comparison of the standardized and internal model approaches for calculating risk-weighted assets for credit risk" (pages 15 to 20) 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 FINMA circular 2016/1 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" (pages 61 to 62) in II – Operating and financial review – Credit Suisse – Information and developments, to "Fair value" (page 100) in II – Operating and financial review – Critical accounting estimates and to "Note 35 – Financial instruments" (pages 354 to 358) in V – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2016 for further information on fair value.

Credit risk

GENERAL

The scope of this credit risk section includes items subject to the credit risk Basel framework in the strict sense. Therefore all positions subject to the securitization framework, including those that are included in the banking book for regulatory purposes are excluded. The capital requirements relating to counterparty credit risk are also excluded.

- ▶ Refer to "Counterparty credit risk" (pages 32 to 38) for further information on the capital requirements relating to counterparty credit risk.
- ▶ Refer to "Securitization" (pages 39 to 43) for further information on the securitization framework.

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

The majority of our credit risk is with institutional counterparties (sovereigns, other institutions, banks and corporates) and arises from lending and trading activity in the investment banking businesses and the private, corporate and institutional banking businesses. The remaining credit risk is with retail counterparties and mostly arises in the private, corporate and institutional banking businesses from residential mortgage loans and other secured lending, including loans collateralized by securities.

Risk management objectives and policies for credit risk

- ▶ Refer to "Credit risk" (pages 150 to 153) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk coverage and management in the Credit Suisse Annual Report 2016 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 is performed daily and there are numerous internal control procedures in place. The monthly Group Risk Report covers credit risk areas such as top loans and commitments and exposures by rating, as well as qualitative commentary on key credit risk matters which is distributed to the Board of Directors and senior executive management team.

Credit quality of assets

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

Credit quality of assets

	Gross carrying values of			Net values
	Defaulted exposures	Non-defaulted exposures	Allowances/ impairments	
end of 2016				
CHF million				
Loans	3,269	292,243	1,536	293,976
Debt securities	6	11,217	0	11,223
Off-balance sheet exposures ¹	260	154,250	86	154,424
Total	3,535	457,710	1,622	459,623

¹ 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 "Loans" in "Note 1 – Summary of significant accounting policies" (pages 263 to 265) and "Note 19 – Loans, allowance for loan losses and credit quality" (pages 286 to 292) in V – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2016 for further information on the credit quality of loans including past due and impaired loans.

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

Geographic concentration of gross credit exposures

end of 2016	Switzerland	Americas	Asia Pacific	EMEA	Total
CHF million					
Loans, deposits with banks and other assets	207,162	104,578	35,910	113,848	461,498
Guarantees and commitments	66,402	18,241	17,785	68,592	171,020
Sub-total	273,564	122,819	53,695	182,440	632,518
Non-counterparty related risks					5,312
Total					637,830

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

Industry concentration of gross credit exposures

end of 2016	Financial institutions	Commercial	Consumer	Public authorities	Total
CHF million					
Loans, deposits with banks and other assets	10,217	196,638	134,950	119,693	461,498
Guarantees and commitments	3,929	107,520	55,954	3,617	171,020
Sub-total	14,146	304,158	190,904	123,310	632,518
Non-counterparty related risks					5,312
Total					637,830

Exposures are shown pre-substitution.

Remaining contractual maturity of gross credit exposures

end of 2016	within 1 year ¹	within 1-5 years	Thereafter	Total
CHF million				
Loans, deposits with banks and other assets	230,114	178,125	53,259	461,498
Guarantees and commitments	151,813	14,691	4,516	171,020
Sub-total	381,927	192,816	57,775	632,518
Non-counterparty related risks				5,312
Total				637,830

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.

Geographic concentration of allowances, impaired loans and write-offs

end of 2016	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
CHF million							
Switzerland	512	186	698	1,459	332	1,791	189
EMEA	10	11	21	62	38	100	2
Americas	121	40	161	334	23	357	88
Asia Pacific	57	5	62	230	0	230	4
Total	700	242	942	2,085	393	2,478	283

Industry concentration of allowances, impaired loans and write-offs

end of 2016	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
CHF million							
Financial institutions	46	19	65	126	5	131	0
Commercial	483	175	658	1,347	317	1,664	193
Consumer	171	48	219	598	71	669	90
Public authorities	0	0	0	14	0	14	0
Total	700	242	942	2,085	393	2,478	283

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

Aging analysis of accounting past-due exposures

end of 2016	Current					Past due		Total
		Up to 30 days	31–60 days	61–90 days	More than 90 days	Total		
CHF million								
Financial institutions	11,535	54	2	0	104	160	11,695	
Commercial	96,928	1,523	159	134	823	2,639	99,567	
Consumer	142,365	2,460	78	77	547	3,162	145,527	
Public authorities	1,269	45	1	0	14	60	1,329	
Gross loans held at amortized cost	252,097	4,082	240	211	1,488	6,021	258,118	
Gross loans held at fair value							19,528	
Gross loans							277,646	

Loans that are modified in a troubled debt restructuring are reported as restructured loans. Generally, a 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, 2016, CHF 201 million were reported as restructured loans.

► Refer to “Note 19 – Loans, allowance for loan losses and credit quality” (page 292) in V – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2016 for further information on restructured exposure.

CREDIT RISK MITIGATION

We actively mitigate our credit exposure utilizing a variety of techniques including netting, credit hedges (primarily through credit default swaps (CDS)), guarantees, and collateral. Recognizing credit risk mitigation (CRM) against exposures is governed by a robust set of policies and processes that ensure enforceability and effectiveness. We additionally monitor the exposure to credit mitigation providers as part of our overall credit risk exposure monitoring framework.

Netting

► Refer to “Derivative instruments” (pages 168 to 170) 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” (page 262) in V – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2016 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 299 to 302) in V – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2016 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; and
- a collateral management risk framework enforcing transparency through self-assessment and management reporting.

For collateralized portfolio by marketable securities, the valuation is performed daily. Exceptions are governed by the calculation frequency described in the legal documentation. The mark-to-market prices used for valuing collateral are a combination of firm and market prices sourced from trading platforms and service providers,

where appropriate. The management of collateral is standardized and centralized to ensure complete coverage of traded products.

For the mortgage lending portfolio of the private, corporate and institutional banking businesses, real estate property is valued at the time of credit approval and periodically afterwards, according to our internal policies and controls, depending on the type of loan (e.g., residential, commercial) and loan-to-value (LTV) ratio.

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.

CRM techniques – overview

	Exposures unsecured: carrying amount	Exposures to be secured	Exposures secured by collateral	Exposures secured by financial guarantees	Exposures secured by credit derivatives
end of 2016					
CHF million					
Loans	52,863	239,182	194,061	8,705	444
Debt securities	6,554	4,518	287	0	152
Total	59,417	243,700	194,348	8,705	596
of which defaulted	53	1,520	1,057	44	0

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 is determined using this approach.

Concentrations within risk mitigation

Our investment banking businesses are active participants in the credit derivatives market and trades with a variety of market participants, principally commercial banks and broker dealers. Credit derivatives are primarily used to mitigate investment grade counterparty exposures. Where required or practicable, these trades are cleared through central counterparties (CCP).

Concentrations in our lending portfolio of the private, corporate and institutional banking businesses arise due to a significant volume of mortgages in Switzerland. The financial collateral used to secure loans collateralized by securities worldwide is generally diversified and the portfolio is regularly analyzed to identify any underlying concentrations, which may result in lower loan-to-value ratios.

► Refer to "Credit risk review" (pages 168 to 170) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk review and results in the Credit Suisse Annual Report 2016 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.

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.

Comparison of the standardized and internal model approaches for calculating risk-weighted assets for credit risk

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, 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 approach for counterparty credit risk (SA-CCR), proposed changes to the standardized approach for credit risk and proposals to constrain the use of internal model approaches. As such, the 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 used in the Leverage ratio.

Key methodological differences between internal modelled approaches and standardized approaches

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 exposure at default (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.

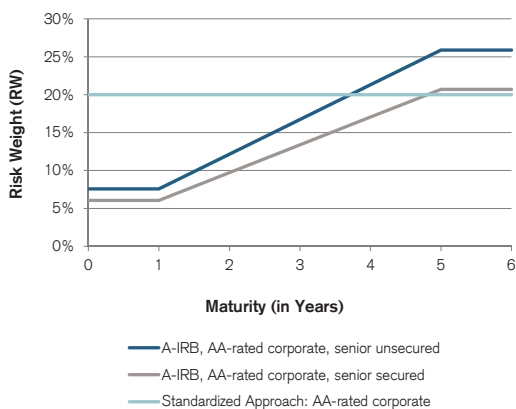
The following table provides a summary of the key conceptual differences between the internal models approach and the current standardized approach.

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 2018.	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. Limited ability to net.	Application of multiplier on IMM exposure estimate. Variability in holding period applied to collateralized transactions, reflecting liquidity risks.	
Risk weighting	Reliance on ECAs: 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.	Model approach produces lower RWA for high quality short-term transactions.
		Regulatory risk-weighted assets function considers maturity: the longer the maturity the higher the risk weight (see chart "Risk weight by maturity").	

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.

Risk weight by 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 credit risk mitigation 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 credit risk mitigation are largest.

Leverage exposure estimate

	Internal model approach		
	EAD	Risk weight	Leverage exposures ¹
Basel asset class (CHF billion, except where indicated)			
Corporates	184	44%	333
Banks	34	26%	89
Sovereigns	116	2%	124
Retail	186	15%	189

¹ The leverage exposure estimate excludes trading book inventory, as credit risk capital for this business is capitalised 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.

Comparison of credit risk risk-weighted assets under the internal models approach with risk-weighted assets computed under the standardized approach for credit risk

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 184 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 credit risk mitigation, netting and portfolio diversification are not reflected in the leverage ratio exposure calculation.

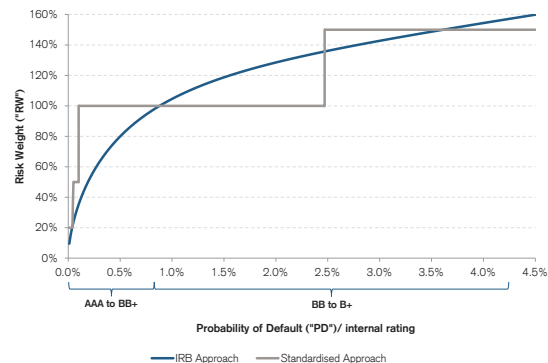
Another significant driver of the increase in credit risk RWA under the standardized approach are higher risk weights. The exposure weighted-average risk weight under the internal model approach is 44%. This is significantly lower than the risk weights assigned to corporates under the standardized approach.

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.

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 30%.

► Refer to “Credit exposures by portfolio and PD range” (pages 26 to 29) for further information on EAD and risk weights for each credit rating for the corporate asset class.

Corporates



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.

Bank asset class

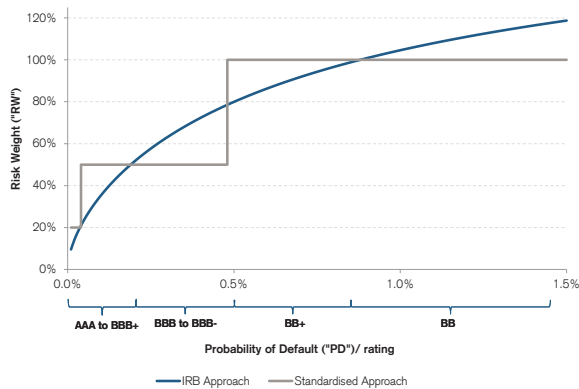
The table “Leverage ratio estimate” shows that the EAD for banks under the internal model approach is CHF 34 billion. The EAD for banks calculated under the standardized approach is significantly higher. This is driven predominantly by the exposure calculations for both OTC derivatives and secured financing 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 credit risk mitigation, 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 26%. 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. Approximately 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 "Credit exposures by portfolio and PD range" (pages 26 to 27) for further information on EAD and risk weights for each credit rating for the bank asset class.

Banks



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

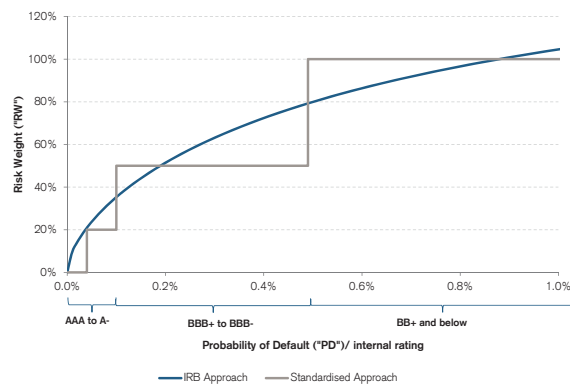
The table "Leverage ratio estimate" shows that the EAD for sovereigns under the internal model approach is CHF 116 billion. This is comparable to the EAD calculated under the standardized approach and the leverage ratio exposure. This is because the majority of the sovereign exposure is in the form of 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 2%. 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 "Credit exposures by portfolio and PD range" (pages 26 to 27) for further information on EAD and risk weights for each credit rating for the sovereign asset class.

Sovereigns



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 186 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 15% 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 13% under the A-IRB approach.

Lombard lending: For lombard lending, the average risk weight using internal models is 15%. 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 27%.

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 may not be reflective of the capital charges under the new standardized approach for credit risk on which the BCBS is expected to publish new rules in 2017. This new standardized approach for credit risk is likely to be more risk sensitive and employ 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 2018, 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 loan-to-value 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" (page 151) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk coverage and management in the Credit Suisse Annual Report 2016 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 22 to 23), "Use of internal ratings" (page 24) and "Credit Risk Review" (page 25) 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 subgroup 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).

Main PD and LGD models used by Credit Suisse

Portfolio	Asset class	Risk-weighted assets (in CHF billion)	Number of years loss data	No. of models	PD		LGD
					No. of models	Model comment	
Corporates	Corporates, retail	39	>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	8	>30 years	5	Statistical scorecard and constrained expert judgement using e.g. balance sheet, profit & loss data and qualitative factors		
Funds	Corporates	7	>10 years	5	Statistical scorecards using e.g. net asset value, volatility of returns and qualitative factors		
Residential mortgages	Retail	9	>10 years	1	Statistical scorecard using e.g. loan-to-value, affordability, assets and qualitative factors	1	Statistical model using e.g. counterparty segmentation, collateral types and amounts
Income producing real estate	Specialized lending, retail	15	>10 years	2	Statistical scorecards using e.g. loan-to-value, 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 and public entities	Sovereign, corporates	2	>10 years	3	Statistical scorecards and constrained expert judgement using e.g. GDP, financials and qualitative factors	2	Statistical models using e.g. industry and counterparty segmentation, collateral types and amounts, seniority and other transaction specific factors
Ship finance	Specialized lending	1	>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	Retail	13	>10 years	1	Merton type model using e.g. loan-to-value, collateral volatility and counterparty attributes	1	Merton type model using e.g. loan-to-value, 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.

Model performance

The A-IRB models are subject to a comprehensive backtesting process to demonstrate that model performance can be confirmed annually during the entire lifecycle of each model. As evidenced during model development and confirmed via annual performance monitoring, discriminatory power and calibration of credit models typically is well above industry standard.

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 on an ongoing basis. 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.

Counterparty and transaction rating process – 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.

Credit risk

Counterparty and transaction rating process – 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 loan-to-value 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.

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

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

Credit Risk Review (CRR) is a review function independent from Credit Risk Management with a direct reporting line to the Board's Risk Committee. Its objective is to provide regular assessments of the Group's credit exposures and credit risk management practices. In 2016, CRR further strengthened its global operations. In particular in Switzerland, a new team was established to emphasize the global coverage of the operating model within Swiss Universal Bank and International Wealth Management.

CRR is responsible for performing cycled and continuous credit monitoring activities, including:

- identifying credit exposures with potential weaknesses;
- assessing the accuracy and consistency of Group counterparty and transaction ratings;
- assessing compliance with internal and regulatory requirements for credit risk management;
- ensuring compliance with regulatory and supervisory statements where CRR is designated as a review function; and
- reporting trends and material review recommendations to the Risk Committee and senior management.

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.

EAD covered by the various approaches

end of 2016	Standardized approach	A-IRB approach
EAD (in %)		
Sovereigns	13	87
Institutions – Banks and securities dealer	2	98
Institutions – Other institutions	5	95
Corporates	0	100
Residential mortgages	0	100
Retail	0	100
Equity	0	100
Other exposures	100	0
Total	6	94

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.

Credit risk exposures by portfolio and PD range

end of 2016	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF	EAD post CRM and post-CCF ¹
Sovereigns (CHF million, except where indicated)				
0.00% to <0.15%	108,204	1,556	98%	108,914
0.15% to <0.25%	57	661	0%	57
0.25% to <0.50%	79	0	100%	79
0.50% to <0.75%	1	0	0%	1
0.75% to <2.50%	760	54	100%	808
2.50% to <10.00%	229	8	100%	232
10.00% to <100.00%	4	0	0%	4
100.00% (Default)	183	0	0%	183
Sub-total	109,517	2,279	98%	110,278
Institutions – Banks and securities dealer				
0.00% to <0.15%	5,928	9,617	73%	11,951
0.15% to <0.25%	209	311	59%	345
0.25% to <0.50%	1,114	118	26%	1,144
0.50% to <0.75%	276	55	26%	288
0.75% to <2.50%	908	176	45%	958
2.50% to <10.00%	106	220	38%	172
10.00% to <100.00%	2	12	29%	5
100.00% (Default)	38	34	55%	56
Sub-total	8,581	10,543	72%	14,919
Institutions – Other institutions				
0.00% to <0.15%	697	1,815	100%	1,053
0.15% to <0.25%	83	193	100%	138
0.25% to <0.50%	11	42	94%	11
0.50% to <0.75%	1	6	100%	4
0.75% to <2.50%	21	17	100%	28
2.50% to <10.00%	0	4	0%	0
10.00% to <100.00%	0	0	0%	0
100.00% (Default)	14	0	100%	14
Sub-total	827	2,077	100%	1,248
Corporates – Specialized lending				
0.00% to <0.15%	7,878	2,319	100%	8,907
0.15% to <0.25%	8,790	1,938	87%	9,646
0.25% to <0.50%	5,558	1,308	87%	6,068
0.50% to <0.75%	5,122	2,327	82%	5,982
0.75% to <2.50%	11,190	3,617	78%	12,445
2.50% to <10.00%	957	111	91%	1,002
10.00% to <100.00%	5	1	20%	5
100.00% (Default)	655	7	100%	658
Sub-total	40,155	11,628	86%	44,713

¹ CRM is reflected by shifting the counterparty exposure from the underlying obligor to the protection provider.

² Reflects risk-weighted assets post CCF.

Average PD	Number of obligors	Average LGD	Average maturity (years)	RWA ²	RWA density	Expected loss	Provisions
0.03%	71	2%	1.3	721	1%	1	–
0.22%	7	46%	2.7	30	52%	0	–
0.37%	14	44%	1.5	38	48%	0	–
0.58%	14	54%	2.4	1	92%	0	–
1.10%	17	45%	2.5	807	100%	4	–
6.63%	23	44%	2.8	384	165%	7	–
20.45%	2	44%	2.2	11	240%	0	–
100.00%	2	44%	4.3	194	106%	0	–
0.21%	150	2%	1.3	2,186	2%	12	0
0.06%	586	49%	2.0	1,759	15%	3	–
0.22%	72	47%	1.7	188	54%	0	–
0.37%	163	33%	2.8	483	42%	1	–
0.60%	140	69%	0.7	319	110%	1	–
1.31%	246	51%	1.4	957	100%	5	–
7.32%	73	41%	2.2	294	171%	5	–
21.50%	7	30%	0.3	7	143%	0	–
100.00%	9	27%	1.1	60	106%	2	–
0.65%	1,296	48%	2.0	4,067	27%	17	2
0.05%	357	38%	3.0	165	16%	0	–
0.17%	120	45%	1.5	50	37%	0	–
0.37%	21	44%	1.8	7	63%	0	–
0.58%	88	44%	1.1	2	59%	0	–
2.05%	30	24%	4.7	22	77%	0	–
3.25%	3	44%	0.3	0	107%	0	–
0.00%	0	0%	0.0	0	0%	0	–
100.00%	1	44%	1.0	15	106%	0	–
1.21%	620	38%	2.8	261	21%	0	0
0.06%	790	29%	2.3	1,547	17%	2	–
0.20%	855	31%	2.3	3,224	33%	6	–
0.37%	544	26%	2.5	2,072	34%	6	–
0.58%	450	24%	2.4	2,388	40%	8	–
1.23%	886	18%	3.0	4,900	39%	29	–
4.34%	83	17%	3.7	559	56%	8	–
14.47%	2	30%	2.1	8	162%	0	–
100.00%	39	18%	2.5	698	106%	148	–
2.10%	3,649	25%	2.5	15,396	34%	207	148

Credit risk

Credit risk exposures by portfolio and PD range (continued)

end of 2016	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF	EAD post CRM and post-CCF ¹
Corporates without specialized lending (CHF million, except where indicated)				
0.00% to <0.15%	13,643	56,782	55%	40,480
0.15% to <0.25%	3,661	8,797	68%	7,103
0.25% to <0.50%	4,918	7,231	56%	7,952
0.50% to <0.75%	4,280	4,328	65%	5,892
0.75% to <2.50%	12,574	9,000	65%	16,266
2.50% to <10.00%	5,740	12,258	50%	11,482
10.00% to <100.00%	1,785	605	61%	2,138
100.00% (Default)	1,773	149	74%	1,836
Sub-total	48,374	99,150	57%	93,149
Residential mortgages				
0.00% to <0.15%	29,503	1,910	100%	30,288
0.15% to <0.25%	47,068	2,438	100%	48,217
0.25% to <0.50%	14,009	666	100%	14,336
0.50% to <0.75%	5,920	947	100%	6,103
0.75% to <2.50%	5,087	485	100%	5,220
2.50% to <10.00%	574	33	100%	583
10.00% to <100.00%	46	0	100%	46
100.00% (Default)	244	4	100%	247
Sub-total	102,451	6,483	100%	105,040
Qualifying revolving retail				
0.75% to <2.50%	460	5,573	0%	484
10.00% to <100.00%	101	0	71%	101
100.00% (Default)	1	0	0%	1
Sub-total	562	5,573	71%	586
Other retail				
0.00% to <0.15%	51,388	99,504	89%	54,387
0.15% to <0.25%	4,153	7,223	73%	4,614
0.25% to <0.50%	6,934	3,703	93%	7,686
0.50% to <0.75%	1,235	921	93%	1,448
0.75% to <2.50%	4,571	1,333	94%	4,764
2.50% to <10.00%	2,974	576	96%	3,077
10.00% to <100.00%	317	26	91%	322
100.00% (Default)	440	25	84%	381
Sub-total	72,012	113,311	88%	76,679
Sub-total (all portfolios)				
0.00% to <0.15%	217,241	173,503	64%	255,980
0.15% to <0.25%	64,021	21,561	77%	70,120
0.25% to <0.50%	32,623	13,068	67%	37,276
0.50% to <0.75%	16,835	8,584	74%	19,718
0.75% to <2.50%	35,571	20,255	70%	40,973
2.50% to <10.00%	10,580	13,210	51%	16,548
10.00% to <100.00%	2,260	644	61%	2,621
100.00% (Default)	3,348	219	72%	3,376
Sub-total (all portfolios)	382,479	251,044	65%	446,612
Alternative treatment				
Exposures from free deliveries applying standardized risk weights or 100% under the alternative treatment	–	–	–	48
IRB – maturity and export finance buffer	–	–	–	–
Total (all portfolios and alternative treatment)				
Total (all portfolios and alternative treatment)	382,479	251,044	65%	446,660

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

Average PD	Number of obligors	Average LGD	Average maturity (years)	RWA ²	RWA density	Expected loss	Provisions
0.07%	2,601	43%	2.5	9,731	24%	11	–
0.21%	1,570	37%	2.4	2,629	37%	5	–
0.37%	1,219	36%	2.5	4,015	50%	10	–
0.61%	1,362	37%	2.5	3,915	66%	13	–
1.40%	2,481	38%	2.6	13,963	86%	82	–
5.02%	1,404	28%	2.9	14,194	124%	167	–
24.50%	99	12%	2.4	1,652	77%	49	–
100.00%	214	37%	1.7	1,947	106%	584	–
3.51%	10,950	38%	2.5	52,046	56%	921	595
0.08%	42,544	15%	2.9	1,590	5%	4	–
0.20%	68,926	15%	3.0	5,241	11%	14	–
0.37%	19,951	16%	2.8	2,600	18%	9	–
0.58%	8,510	17%	2.7	1,591	26%	6	–
1.21%	8,177	18%	2.6	2,231	43%	11	–
4.58%	857	15%	2.5	498	85%	4	–
17.22%	79	17%	1.9	76	164%	1	–
100.00%	275	16%	1.6	262	106%	22	–
0.53%	149,319	15%	2.9	14,089	13%	71	26
1.30%	767,143	50%	1.0	120	25%	3	–
45.00%	96,875	20%	0.2	65	64%	9	–
100.00%	189	20%	0.2	1	106%	8	–
9.01%	864,207	45%	0.9	186	32%	20	8
0.04%	50,538	63%	1.4	4,652	9%	15	–
0.21%	4,886	52%	1.5	1,084	23%	5	–
0.31%	8,467	23%	2.3	1,379	18%	6	–
0.58%	12,037	47%	1.6	560	39%	4	–
1.63%	80,689	48%	1.8	2,890	61%	37	–
5.28%	85,739	48%	2.7	2,324	76%	78	–
12.64%	261	57%	1.0	354	110%	23	–
100.00%	6,227	75%	1.4	404	106%	168	–
0.95%	248,844	57%	1.6	13,647	18%	336	168
0.05%	97,487	26%	1.8	20,165	8%	36	–
0.20%	76,436	22%	2.7	12,446	18%	30	–
0.36%	30,379	24%	2.6	10,594	28%	32	–
0.59%	22,601	28%	2.4	8,776	45%	32	–
1.34%	859,669	31%	2.6	25,890	63%	171	–
5.06%	88,182	31%	2.9	18,253	110%	269	–
23.68%	97,325	18%	2.1	2,173	83%	82	–
100.00%	6,956	36%	1.9	3,581	106%	932	–
1.32%	1,279,035	26%	2.1	101,878	23%	1,584	947
–	–	–	–	23	–	–	–
–	–	–	–	2,135	–	–	–
1.32%	1,279,035	26%	2.1	104,036	23%	1,584	947

Credit risk

Effect of credit derivatives used as CRM techniques on risk-weighted assets

The following table shows the effect of credit derivatives used as CRM techniques on the IRB approach capital requirements' calculations.

Effect on risk-weighted assets of credit derivatives used as CRM techniques

end of 2016	Pre-credit derivatives RWA	Actual RWA
CHF million		
Sovereigns – A-IRB	2,312	2,062
Institutions – Banks and securities dealers – A-IRB	8,687	3,843
Institutions – Other institutions – A-IRB	251	246
Corporates – Specialized lending – A-IRB	15,898	15,898
Corporates without specialized lending – A-IRB	50,082	49,116
Residential mortgages	13,291	13,291
Qualifying revolving retail	166	175
Other retail	15,995	12,874
Equities (PD/LGD approach)	0	0
Total	106,682	97,505

For exposures covered by recognized credit derivatives, the substitution approach is applied. Hence, the risk weight of the obligor is substituted with the risk-weight of the protection provider.

Specialized lending and equities under the simple risk-weight method**Specialized lending**

The following tables show the carrying values, exposure amounts and RWA for the Group's specialized lending.

Specialized lending – other than high-volatility commercial real estate

end of 2016	Remaining maturity	On- balance sheet amount	Off- balance sheet amount	Risk weight	Exposure amount ¹	RWA	Expected losses
Regulatory categories (CHF million, except where indicated)							
Strong	Less than 2.5 years	365	745	50%	738	370	0
	Equal to or more than 2.5 years	132	248	70%	269	188	1
Good	Less than 2.5 years	162	256	70%	296	207	4
	Equal to or more than 2.5 years	39	558	90%	389	350	3
Satisfactory		149	185	115%	215	247	6
Weak		27	4	250%	5	11	0
Default		177	–	–	125	0	88
Total		1,051	1,996		2,037	1,373	102

¹ Includes project finance, object finance, commodities finance and IPRE.

Specialized lending – high-volatility commercial real estate

end of 2016	Remaining maturity	On-balance sheet amount	Off-balance sheet amount	Risk weight	Exposure amount	RWA	Expected losses
Regulatory categories (CHF million, except where indicated)							
Strong	Less than 2.5 years	–	–	70%	–	–	–
	Equal to or more than 2.5 years	–	–	95%	–	–	–
Good	Less than 2.5 years	–	–	95%	–	–	–
	Equal to or more than 2.5 years	–	–	120%	–	–	–
Satisfactory		–	–	140%	–	–	–
Weak		–	–	250%	–	–	–
Default		12	–	–	12	–	6
Total		12	–		12	–	6

Equities under the simple risk-weight method

For equity type securities in the banking book, risk weights are determined using the simple risk-weight approach, which differentiates by equity sub-asset types (listed equity and all other equity positions).

Equities under the simple risk-weight approach

end of 2016	On-balance sheet amount	Off-balance sheet amount	Risk weight	Exposure amount	RWA
Categories (CHF million, except where indicated)					
Exchange-traded equity exposures	4	0	300%	4	13
Other equity exposures	2,793	0	400%	2,793	11,170
Total	2,797	0		2,797	11,183

Counterparty credit risk

GENERAL

Counterparty exposure

Counterparty credit risk (CCR) arises from OTC and exchange-traded derivatives, repurchase agreements, securities lending and borrowing and other similar products and activities. The subsequent credit risk exposures depend on the value of underlying market factors (e.g., interest rates and foreign exchange rates), which can be volatile and uncertain in nature.

We have received approval from FINMA to use the internal model method for measuring CCR for the majority of our derivative and secured financing exposures.

▶ Refer to “Credit risk” (pages 150 to 153) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk coverage and management in the Credit Suisse Annual Report 2016 for further information on counterparty credit risk, including transaction rating, credit approval process and provisioning.

▶ Refer to “Credit risk” (page 10) for information on our counterparty risk reporting.

Credit limits

All credit exposure is approved, either by approval of an individual transaction/facility (e.g., lending facilities), or under a system of credit limits (e.g., OTC derivatives). Credit exposure is monitored daily to ensure it does not exceed the approved credit limit. These credit limits are set either on a potential exposure basis or on a notional exposure basis. Moreover, these limits are ultimately governed by the Group Risk Appetite Framework. Potential exposure means the possible future value that would be lost upon default of the counterparty on a particular future date, and is taken as a high percentile of a distribution of possible exposures computed by our internal exposure models. Secondary debt inventory positions are subject to separate limits that are set at the issuer level.

▶ Refer to “Credit risk” (page 152) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk coverage and management in the Credit Suisse Annual Report 2016 for further information on credit limits.

Central counterparties risk

The Basel III framework provides specific requirements for exposures the Group has to CCP arising from OTC derivatives, exchange-traded derivative transactions and SFT. Exposures to CCPs which are considered to be qualifying CCPs by the regulator will receive a preferential capital treatment compared to exposures to non-qualifying CCPs.

The Group can incur exposure to CCPs as either a clearing member, or clearing through another member. Qualifying CCPs are expected to be subject to best-practice risk management, and sound regulation and oversight to ensure that they reduce risk, both for their participants and for the financial system. Most CCPs are benchmarked against standards issued by the Committee on Payment and Settlement Systems and the Technical Committee of

the International Organization of Securities Commissions, herein collectively referred to as “CPSS-IOSCO”.

The exposures to CCP (represented as “Central counterparties (CCP) risks”) consist of trade exposure, default fund exposure and contingent exposure based on trade replacement due to a clearing member default. While the trades exposure includes the current and potential future exposure of the clearing member (or a client) to a CCP arising from the underlying transaction and the initial margin posted to the CCP, the default fund exposure is arising from default fund contributions to the CCP.

The existing credit review process includes annual review of qualitative and quantitative factors for all counterparty types, including CCPs. As part of the credit review of each CCP counterparty, Credit Risk Management conducts due diligence and based on assessment by the Legal and Compliance Department determines whether (i) the CCP is a qualifying CCP and (ii) the collateral posted is considered bankruptcy remote.

The Credit Risk Management CCP Guidelines provide detailed guidance on how these flags should be assigned against the standards issued by “CPSS-IOSCO”. These include a review of collateral bankruptcy remoteness and that the CCPs holds securities in custody with entities that employ safekeeping procedures and internal controls that fully protect these securities. The review will include analysis of the CCPs policies with respect to account segregation and use of custodians. The determination is made in the context of “Authorization of CCP” (European Market Infrastructure Regulation (EMIR), Article 14) and “Third Countries” (EMIR, Article 25). This information will be appropriately reflected in the risk weightings within the capital calculations.

The Group monitors its daily exposure to the CCP as part of its ongoing limit and exposure monitoring process.

▶ Refer to “Credit risk” (page 10) for further information.

Credit valuation adjustment risk

Credit Valuation Adjustment (CVA) is a regulatory capital charge designed to capture the risk associated with potential mark-to-market losses associated with the deterioration in the creditworthiness of a counterparty.

Under Basel III, banks are required to calculate capital charges for CVA under either the Standardized CVA approach or the Advanced CVA approach (ACVA). The CVA rules stipulate that where banks have permission to use market risk VaR and counterparty risk IMM, they are to use the ACVA unless their regulator decides otherwise. FINMA has confirmed that the ACVA should be used for both IMM and non-IMM exposures.

The regulatory CVA capital charge applies to all counterparty exposures arising from OTC derivatives, excluding those with CCP. Exposures arising from SFT are not required to be included in the CVA charge unless they could give rise to a material loss. FINMA has confirmed that Credit Suisse can exclude these exposures from the regulatory capital charge.

Guarantees and other risk mitigants

- ▶ Refer to "Credit risk mitigation" (pages 12 to 13) in Credit risk for further information on policies relating to guarantees and other risk mitigants.

Wrong-way exposure

Wrong-way risk arises when we enter into a financial transaction where market rates are correlated to the financial health of the counterparty. In a wrong-way trading situation, our exposure to the counterparty increases while the counterparty's financial health and its ability to pay on the transaction diminishes.

Wrong-way risk requires the establishment of basic assumptions regarding correlations for a given trading product. As such we have multiple processes and methodologies to identify and quantify wrong-way risk.

Exposure adjusted risk calculation

Material trades that feature specific wrong-way risk are treated conservatively for the purposes of calculating exposure. The wrong-way risk framework applies to OTC, SFT and centrally cleared trades.

Wrong-way risk arises if the exposure the Group has against a counterparty is expected to be high when the probability of default of the counterparty is also high. Wrong-way risk can affect the exposure against a counterparty in two ways:

- The mark-to-market of a trade can be large if the counterparty's PD is high.
- The value of collateral pledged by that counterparty can be low if the counterparty's PD is high.

Regulatory guidance distinguishes two types of wrong-way risk, general and specific:

- General wrong-way risk arises when the probability of default of counterparties is positively correlated with general market risk factors.
- Specific wrong-way risk arises when the exposure to a particular counterparty is positively correlated with the probability of

default of the counterparty due to the nature of the transactions with the counterparty.

There are two variants of specific wrong-way risk:

- If there is a legal connection between the counterparty and the exposure, e.g. the Group buying a put from a counterparty on shares of that counterparty or a parent/subsidiary of that counterparty or a counterparty pledging its own shares or bonds as collateral.
- More general correlation driven specific wrong-way risk.

For those instances where a material wrong-way risk presence is detected, limit utilization and default capital are accordingly adjusted.

Regular reporting of wrong-way risk at both the individual trade and portfolio level allows wrong-way risk to be identified and corrective actions taken by Credit Risk Management.

The Front Office is responsible for identifying and escalating trades that could potentially give rise to wrong-way risk.

Any material wrong-way risk at portfolio or trade level should be escalated to senior Credit Risk Management executives and risk committees.

Effect of a credit rating downgrade

On a daily basis, we monitor the level of incremental collateral that would be required by derivative counterparties in the event of a Credit Suisse ratings downgrade. Collateral triggers are maintained by our collateral management department and vary by counterparty.

- ▶ Refer to "Credit ratings" (page 115) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Liquidity and funding management in the Credit Suisse Annual Report 2016 for further information on the effect of a one, two or three notch downgrade as of December 31, 2016.

The impact of downgrades in the Bank's long-term debt ratings are considered in the stress assumptions used to determine the conservative funding profile of our balance sheet and would not be material to our liquidity and funding needs.

34 Pillar 3 and regulatory disclosures

Counterparty credit risk

DETAILS OF COUNTERPARTY CREDIT RISK EXPOSURES

Analysis of counterparty credit risk exposure by approach

The following table provides a comprehensive view of the methods used to calculate CCR regulatory requirements and the main parameters used within each method.

Analysis of counterparty credit risk exposure by approach

end of 2016	Re- placement cost	PFE	EEPE	Alpha used for computing regulatory EAD	EAD post- CRM	RWA
CHF million, except where indicated						
SA-CCR (for derivatives) ¹	13,736	4,645	–	1.0	18,380	4,520
Internal Model Method (for derivatives and SFTs)	–	–	21,834	1.4 ²	30,568	9,341
Simple Approach for credit risk mitigation (for SFTs)	–	–	–	–	69	0
Comprehensive Approach for credit risk mitigation (for SFTs)	–	–	–	–	0	0
VaR for SFTs	–	–	–	–	24,820	4,224
Total	–	–	–	–	–	18,085

¹ For 2016 year-end reported under CEM.

² For a smaller portion of the derivative exposure an alpha of 1.6 is applied.

Credit valuation adjustment capital charge

The following table shows the CVA regulatory calculations with a breakdown by standardized and advanced approaches.

Credit valuation adjustment capital charge

end of 2016	EAD post- CRM	RWA
CHF million		
Total portfolios subject to the Advanced CVA capital charge	34,192	12,125
of which VaR component (including the 3 x multiplier)	–	4,437
of which stressed VaR component (including the 3 x multiplier)	–	7,688
All portfolios subject to the Standardized CVA capital charge	70	58
Total subject to the CVA capital charge	34,262	12,183

CCR exposures by regulatory portfolio and risk weights – standardized approach

The following table shows a breakdown of CCR exposures calculated according to the standardized approach by portfolio (type of counterparties) and by risk weight (riskiness attributed according to standardized approach).

CCR exposures by regulatory portfolio and risk weights – standardized approach

end of 2016	Risk weight								Total credit exposures amount (post CCF and post-CRM)
	0%	10%	20%	50%	75%	100%	150%	Others	
Regulatory portfolio (CHF million)									
Sovereigns	0	0	0	0	0	0	0	0	0
Institutions – Banks and securities dealer	0	0	0	0	0	0	0	0	0
Institutions – Other institutions	0	0	0	0	0	0	0	0	0
Corporates	0	0	0	0	0	0	0	0	0
Retail	0	0	0	0	0	0	0	0	0
Equity	0	0	0	0	0	0	0	0	0
Other exposures	69	0	0	0	0	77	0	0	146
Total	69	0	0	0	0	77	0	0	146

Counterparty credit risk

CCR exposures by portfolio and PD scale – IRB models

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

CCR exposures by portfolio and PD scale – IRB models

end of 2016	EAD post-CRM	Average PD	Number of obligors	Average LGD	Average maturity (years)	RWA	RWA density
Sovereigns (CHF million, except where indicated)							
0.00% to <0.15%	5,339	0.04%	66	51%	0.9	262	5%
0.15% to <0.25%	62	0.22%	3	44%	1.1	4	7%
0.25% to <0.50%	520	0.37%	4	29%	1.0	157	30%
0.50% to <0.75%	0	0.58%	1	53%	1.0	0	70%
0.75% to <2.50%	139	1.12%	3	52%	0.2	111	80%
2.50% to <10.00%	0	4.13%	2	46%	1.0	0	145%
10.00% to <100.00%	0	0.00%	0	0%	0.0	0	0%
100.00% (Default)	0	0.00%	0	0%	0.0	0	0%
Sub-total	6,060	0.09%	79	49%	0.9	534	9%
Institutions – Banks and securities dealer							
0.00% to <0.15%	16,802	0.06%	506	56%	0.7	3,136	19%
0.15% to <0.25%	771	0.22%	110	54%	0.8	354	46%
0.25% to <0.50%	374	0.37%	95	50%	1.2	219	58%
0.50% to <0.75%	178	0.64%	67	55%	0.3	126	71%
0.75% to <2.50%	534	1.19%	127	51%	0.6	492	92%
2.50% to <10.00%	113	5.43%	128	49%	0.8	183	161%
10.00% to <100.00%	14	16.81%	4	52%	1.0	37	265%
100.00% (Default)	0	100.00%	1	60%	1.0	0	0%
Sub-total	18,786	0.16%	1,038	55%	0.7	4,547	24%
Institutions – Other institutions							
0.00% to <0.15%	719	0.04%	46	46%	1.5	101	14%
0.15% to <0.25%	45	0.21%	9	46%	2.4	20	45%
0.25% to <0.50%	5	0.37%	2	49%	1.1	4	68%
0.50% to <0.75%	43	0.58%	5	44%	5.1	46	108%
0.75% to <2.50%	0	1.39%	1	44%	5.1	1	140%
2.50% to <10.00%	0	3.25%	2	47%	1.0	0	138%
10.00% to <100.00%	0	0.00%	0	0%	0.0	0	0%
100.00% (Default)	0	0.00%	0	0%	0.0	0	0%
Sub-total	812	0.08%	65	46%	1.8	172	21%
Corporates – Specialized lending							
0.00% to <0.15%	10	0.09%	13	17%	5.0	2	15%
0.15% to <0.25%	162	0.17%	34	70%	5.0	160	99%
0.25% to <0.50%	10	0.37%	14	32%	4.9	6	57%
0.50% to <0.75%	13	0.58%	13	34%	4.8	9	69%
0.75% to <2.50%	19	1.03%	28	27%	3.9	11	58%
2.50% to <10.00%	0	3.44%	3	47%	2.5	1	132%
10.00% to <100.00%	0	0.00%	0	0%	0.0	0	0%
100.00% (Default)	0	0.00%	0	0%	0.0	0	0%
Sub-total	214	0.28%	105	60%	4.9	189	87%

CCR exposures by portfolio and PD scale – IRB models (continued)

end of 2016	EAD post- CRM	Average PD	Number of obligors	Average LGD	Average maturity (years)	RWA	RWA density
Corporates without specialized lending (CHF million, except where indicated)							
0.00% to <0.15%	36,271	0.05%	10,899	50%	0.7	4,562	13%
0.15% to <0.25%	2,098	0.21%	1,321	47%	2.1	994	47%
0.25% to <0.50%	1,883	0.37%	652	55%	1.1	1,150	61%
0.50% to <0.75%	455	0.62%	550	49%	2.1	387	85%
0.75% to <2.50%	1,884	1.42%	1,644	64%	1.1	2,768	147%
2.50% to <10.00%	1,119	4.56%	1,773	50%	1.0	2,194	196%
10.00% to <100.00%	39	28.13%	12	39%	1.0	106	275%
100.00% (Default)	17	100.00%	11	46%	0.9	18	106%
Sub-total	43,766	0.32%	16,862	51%	0.8	12,179	28%
Residential mortgages							
Sub-total	0	0.00%	0	0%	0.0	0	0%
Qualifying revolving retail							
Sub-total	0	0.00%	0	0%	0.0	0	0%
Other retail							
0.00% to <0.15%	2,619	0.04%	2,864	39%	1.1	116	4%
0.15% to <0.25%	241	0.19%	364	24%	2.3	25	10%
0.25% to <0.50%	1,083	0.31%	390	20%	1.0	179	17%
0.50% to <0.75%	35	0.58%	781	37%	3.2	11	31%
0.75% to <2.50%	26	1.47%	146	47%	2.1	15	58%
2.50% to <10.00%	3	3.54%	27	57%	0.8	2	85%
10.00% to <100.00%	0	19.31%	4	65%	3.8	1	151%
100.00% (Default)	14	100.00%	8	66%	5.1	15	106%
Sub-total	4,021	0.49%	4,584	33%	1.2	364	9%
Sub-total (all portfolios)							
0.00% to <0.15%	61,760	0.05%	14,394	51%	0.7	8,179	13%
0.15% to <0.25%	3,379	0.21%	1,841	48%	2.0	1,557	46%
0.25% to <0.50%	3,875	0.35%	1,157	41%	1.1	1,715	44%
0.50% to <0.75%	724	0.62%	1,417	50%	1.9	579	80%
0.75% to <2.50%	2,602	1.35%	1,949	60%	1.0	3,398	131%
2.50% to <10.00%	1,235	4.64%	1,935	50%	1.0	2,380	192%
10.00% to <100.00%	53	25.06%	20	43%	1.0	144	271%
100.00% (Default)	31	100.00%	20	55%	2.8	33	106%
Sub-total (all portfolios)	73,659	0.26%	22,733	51%	0.8	17,985	24%
Alternative treatment							
Exposures from free deliveries applying standardized risk weights or 100% under the alternative treatment	–	–	–	–	–	0	–
Total (all portfolios and alternative treatment)							
Total (all portfolios and alternative treatment)	73,659	0.26%	22,733	51%	0.8	17,985	24%

► Refer to "Rating models" (pages 21 to 22) in Credit risk – Credit risk under internal risk-based approaches for further information on key models used at the group-wide level, explanation how the scope of models was determined and the risk-weighted assets covered by the models shown for each of the regulatory portfolios.

Counterparty credit risk

Composition of collateral for CCR exposure

The following table shows a breakdown of all types of collateral posted or received by banks to support or reduce the CCR exposures related to derivative transactions or to SFTs, including transactions cleared through a CCP.

Composition of collateral for CCR exposure

	Collateral used in derivative transactions				Collateral used in SFTs	
	Fair value of collateral received		Fair value of posted collateral		Fair value of collateral received	Fair value of posted collateral
	Segregated	Unsegregated	Segregated	Unsegregated		
end of 2016						
CHF million						
Cash – domestic currency	1	2,965	0	1,322	917	5,057
Cash – other currencies	1,299	42,166	1,359	45,839	272,621	366,533
Domestic sovereign debt	927	2,203	157	795	4,590	1,089
Other sovereign debt	2	7	1,596	216	325,827	218,278
Government agency debt	2,527	289	0	632	1,437	4,510
Corporate bonds	178	146	0	0	73,059	30,429
Equity securities	7,788	913	1,606	0	238,634	65,022
Other collateral	2,503	7,973	1,055	3,023	27,759	35,582
Total	15,225	56,662	5,773	51,827	944,844	726,500

Credit derivatives exposures

We enter into derivative contracts in the normal course of business for market making, positioning and arbitrage purposes, as well as for our own risk management needs, including mitigation of interest rate, foreign currency and credit risk. Derivative exposure also includes economic hedges, where the Group enters into derivative contracts for its own risk management purposes but where the contracts do not qualify for hedge accounting under US GAAP. Derivative exposures are calculated according to regulatory methods, using either the current exposures method or approved internal models method. These regulatory methods take into account potential future movements and as a result generate risk exposures that are greater than the net replacement values disclosed for US GAAP.

As of the end of 2016, no credit derivatives were utilized that qualify for hedge accounting under US GAAP.

► Refer to “Derivative instruments” (pages 168 to 170) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk review and results in the Credit Suisse Annual Report 2016 for further information on derivative instruments, including counterparties and their creditworthiness.

► Refer to “Note 32 – Derivative and hedging activities” (pages 325 to 330) in V – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2016 for further information on the fair value of derivative instruments and the distribution of current credit exposures by types of credit exposures.

► Refer to “Note 27 – Offsetting of financial assets and financial liabilities” (pages 299 to 302) in V – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2016 for further information on netting benefits, netted current credit exposures, collateral held and net derivatives credit exposure.

The following table shows the extent of the Group's exposures to credit derivative transactions broken down between derivatives bought or sold.

Credit derivatives exposures

end of 2016	Protection bought	Protection sold
Notionals (CHF billion)		
Single-name credit default swaps	124.6	102.4
Index credit default swaps	134.3	123.4
Total return swaps	6.7	1.1
Credit options	1.6	1.1
Other credit derivatives	52.1	11.4
of which credit default options	0.0	0.0
of which credit default swaptions	52.1	11.4
of which other credit instruments	0.0	0.0
of which first to default swaps	0.0	0.0
Total notionals	319.3	239.4
Fair values (CHF billion)		
Positive fair value (asset)	4.5	3.6
Negative fair value (liability)	5.5	3.7

Securitization

GENERAL

The following disclosures, which also considers the “Industry good practice guidelines on Pillar 3 disclosure requirements for securitization”, refer to traditional and synthetic securitizations held in the banking and trading book and regulatory capital on these exposures calculated according to the Basel framework for securitizations.

► Refer to “Note 34 – Transfers of financial assets and variable interest entities” (pages 335 to 338) in V – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2016 for further information on securitization, the various roles, the use of SPEs, the involvement of the Group in consolidated and non-consolidated SPEs, the accounting policies for securitization activities and methods and key assumptions applied in valuing positions retained/purchased and gains/losses relating to RMBS and CMBS securitization activity in 2016.

A traditional securitization is a structure where an underlying pool of assets is sold to an SPE which pays for the assets by issuing tranches collateralized by the underlying asset pool. A synthetic securitization is a tranching structure where the credit risk of an underlying pool of assets is transferred, in whole or in part, through the use of credit derivatives or guarantees that may serve to hedge the credit risk of the portfolio. Many synthetic securitizations are not accounted for as securitizations under US GAAP. In both traditional and synthetic securitizations, risk is dependent on the seniority of the retained interest and the performance of the underlying asset pool.

Roles and activities in connection with securitization

Securitization in the banking book

The Group is active in various roles in connection with securitization, including originator, investor and sponsor. As originator, the Group creates or purchases financial assets (e.g., commercial mortgages or corporate loans) and then securitizes them in a traditional or synthetic transaction that achieves significant risk transfer to third party investors. The Group acts as liquidity provider to Alpine Securitization Corp. (Alpine), a multi-seller commercial paper conduit administered by Credit Suisse.

In addition, the Group invests in securitization-related products created by third parties.

The Group has both securitization and re-securitization transactions in the banking book referencing different types of underlying assets including real estate loans (commercial and residential).

Securitization in the trading book

Within its mortgage business there are four key roles that the Group undertakes within securitization markets: issuer, underwriter, market maker and financing counterparty. The Group holds one of the top trading franchises in market making in all major securitized product types and is a top issuer and underwriter in the re-securitization market in the US as well as being one of the

top underwriters in asset-backed securities (ABS) securitization in the US. In addition the Group also has a relatively small correlation trading portfolio.

The Group’s key objective in relation to trading book securitization is to meet clients’ investment and divestment needs by making markets in securitized products across all major collateral types, including residential mortgages, commercial mortgages, asset finance (i.e. auto loans, credit card receivables, etc.) and corporate loans. The Group focuses on opportunities to intermediate transfers of risk between sellers and buyers.

The Group is also active in new issue securitization and re-securitization. The Group’s Asset Finance team provides short-term secured warehouse financing to clients who originate credit card, auto loan, and other receivables, and the Group sells asset-backed securities collateralized by these receivables to provide its clients long-term financing that matches the lives of their assets.

The Group purchases loans and bonds for the purpose of securitization and sells these assets to SPEs which in turn issue new securities. Re-securitizations of previously issued mortgage-backed securities (RMBS) securities occur when certificates issued out of an existing securitization vehicle are sold into a newly created and separate securitization vehicle.

Risks assumed and retained

Key risks retained while securities or loans remain in inventory are related to the performance of the underlying assets (real estate loans, commercial loans, credit card loans, etc.). These risks are summarized in the securitization pool level attributes: PD of underlying loans (default rate), the severity of loss and prepayment speeds. The transactions may also be exposed to general market risk, credit spread and counterparty credit risk.

The Group maintains models for both government-guaranteed and private label mortgage products. These models project the above risk drivers based on market interest rates and volatility as well as macro-economic variables such as housing price index, projected GDP and inflation, unemployment etc.

In its role as a market maker, the Group actively trades in and out of positions. Both Front Office and Risk Management continuously monitor liquidity risk as reflected in trading spreads and trading volumes. To address liquidity concerns a specific set of limits on the size of aged positions are in place for the securitized positions we hold.

The Group classifies securities within the transactions by the nature of the collateral (prime, sub-prime, Alt-A, commercial, etc.) and the seniority each security has in the capital structure (i.e. seniors, mezzanine, subordinate etc.), which in turn will be reflected in the transaction risk assessment. Risk Management monitors portfolio composition by capital structure and collateral type on a daily basis with subordinate exposure and each collateral type subject to separate risk limits. In addition, the Group’s internal

Securitization

risk methodology is designed such that risk charges are based on the place the particular security holds in the capital structure, the less senior the bond the higher the risk charges.

For re-securitization risk, the Group's risk management models take a 'look through' approach where they model the behavior of the underlying securities or constituent counterparties based on their own particular collateral and then transmit that to the re-securitized position. No additional risk factors are considered within the re-securitization portfolios in addition to those identified and measured within securitization risk.

With respect to both the wind-down corporate correlation trading portfolio and the on-going transactions the key risks that need to be managed includes default risk, counterparty credit risk, correlation risk and cross effects between spread and correlation. The impacts of liquidity risk for securitization products is embedded within the firm's historical simulation model through the incorporation of market data from stressed periods, and in the scenario framework through the calibration of price shocks to the same period.

Both correlation and first-to-default are valued using a correlation model which uses the market implied correlation and detailed market data such as constituent spread term structure and constituent recovery. The risks embedded in securitization and re-securitizations are similar and include spread risk, recovery risk, default risk and correlation risk. The risks for different seniority of tranches will be reflected in the tranche price sensitivities to each constituent in the pools. The complexity of the correlation portfolio's risk lies in the level of convexity and cross risk inherent, for example, the risks to large spread moves and the risks to spread and correlation moving together. The risk limit framework is carefully designed to address the key risks for the correlation trading portfolio.

Monitoring of changes in credit and market risk of securitization exposures

The Group has in place a comprehensive risk management process whereby the front office and Risk Management work together to monitor positions and position changes, portfolio structure and trading activity and calculate a set of risk measures on a daily basis using risk sensitivities and loss modeling methodologies.

For the mortgage business the Group also uses monthly remittance reports (available from public sources) to get up to date information on collateral performance (delinquencies, defaults, pre-payment etc.).

The Group has also put in place a set of key risk limits for the purpose of managing the Group's risk appetite framework in relation to securitizations and re-securitizations. These limits will cover exposure measures, risk sensitivities, VaR and capital measures with the majority monitored on a daily basis. In addition within the Group's risk management framework an extensive scenario analysis framework is in place whereby all underlying risk factors are stressed to determine portfolio sensitivity.

Re-securitized products in the mortgage business go through the same risk management process but looking through the structures with the focus on the risk of the underlying securities or constituent names.

Retained banking book exposures for mortgage, ABS and collateralized debt obligation (CDO) transactions are risk managed on the same basis as similar trading book transactions.

Risk mitigation

In addition to the strict exposure limits noted above, the Group uses a number of different risk mitigation approaches to manage risk appetite for its securitization and re-securitization exposures. Where true counterparty credit risk exposure is identified for a particular transaction, there is a requirement for it to be approved through normal credit risk management processes with collateral taken as required. The Group also may use various proxies including corporate single name and index hedges and equity hedges to mitigate the price and spread risks to which it is exposed. Hedging decisions are made by the trading desk based on current market conditions and will be made in consultation with Risk Management. Every trade has a trading mandate where unusual and material trades require approval under the Group's pre-trade approval governance process. International investment banks are the main counterparties to the hedges that are used across these business areas.

In the normal course of business, we may hold tranches which have a monoline guarantee. No benefit from these guarantees is currently included in the calculation of regulatory capital for trading book securitization.

There are no instances where the Group has applied credit risk mitigation approaches to banking book securitization or re-securitization exposures.

Affiliated entities

In the normal course of business it is possible for the Group's managed separate account portfolios and the Group's controlled investment entities, such as mutual funds, fund of funds, private equity funds and other fund linked products to invest in the securities issued by other vehicles sponsored by the Group engaged in securitization and re-securitization activities. To address potential conflicts, standards governing investments in affiliated products and funds have been adopted.

Regulatory capital treatment of securitization structures

Banking book securitization

For banking book securitizations, the regulatory capital requirements are calculated using IRB approaches (the ratings-based approach and the supervisory formula approach) and the standardized approach in accordance with the prescribed hierarchy of approaches in the Basel regulations. External ratings used in regulatory capital calculations for securitization risk exposures in the banking book are obtained from Fitch, Moody's, Standard & Poor's or Dominion Bond Rating Service.

Trading book securitization

We use the standardized measurement method (SMM) which is based on the ratings-based approach (RBA) and the supervisory formula approach (SFA) for securitization purposes and other supervisory approaches for trading book securitization positions covering the approach for nth-to-default products and portfolios covered by the weighted average risk weight approach.

SECURITIZATION EXPOSURES IN THE BANKING BOOK

The following table shows the Group's securitization exposures in its banking book.

Securitization exposures in the banking book

end of 2016	Bank acts as originator			Bank acts as sponsor			Bank acts as investor		
	Traditional	Synthetic	Total	Traditional	Synthetic	Total	Traditional	Synthetic	Total
CHF million									
Commercial mortgages	462	0	462	0	0	0	0	0	0
Residential mortgages	0	0	0	0	0	0	0	0	0
CDO/CLO	3,221	40,640	43,861	1,823	0	1,823	16,766	0	16,766
Other ABS	6,197	451	6,648	0	0	0	9,723	0	9,723
Total	9,880	41,091	50,971	1,823	0	1,823	26,489	0	26,489
of which retained interests			31,802			108			16,123

SECURITIZATION EXPOSURES IN THE TRADING BOOK

The following table shows the Group's securitization exposures in its trading book.

Securitization exposures in the trading book

end of 2016	Bank acts as originator			Bank acts as sponsor			Bank acts as investor		
	Traditional	Synthetic	Total	Traditional	Synthetic	Total	Traditional	Synthetic	Total
CHF million									
Commercial mortgages	48	294	342	0	0	0	921	136	1,057
Residential mortgages	118	33	151	0	0	0	3,025	70	3,095
Other ABS	0	0	0	0	0	0	509	0	509
CDO/CLO	0	11	11	0	0	0	203	0	203
Nth-to-default	0	640	640	0	0	0	0	0	0
Total	166	978	1,144	0	0	0	4,658	206	4,864

CALCULATION OF CAPITAL REQUIREMENTS

The following tables show the securitization exposures in the banking book and the associated regulatory capital requirements.

► Refer to "Market risk under standardized approach" (page 44) in Market risk for capital charges related to securitization positions in the trading book.

Securitization

**Securitization exposures in the banking book and associated regulatory capital requirements –
Credit Suisse acting as originator or as sponsor**

end of 2016	Exposure value (by RW band)				
	<=20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW
CHF million					
Total exposures	31,406	68	32	305	99
Traditional securitization	3,174	0	32	109	38
of which securitization	3,174	0	32	109	38
of which retail underlying	0	0	0	0	38
of which wholesale	3,174	0	32	109	0
of which re-securitization	0	0	0	0	0
of which senior	0	0	0	0	0
of which non-senior	0	0	0	0	0
Synthetic securitization	28,232	68	0	196	61
of which securitization	28,232	68	0	196	61
of which retail underlying	348	0	0	2	0
of which wholesale	27,884	68	0	194	61
of which re-securitization	0	0	0	0	0
of which senior	0	0	0	0	0
of which non-senior	0	0	0	0	0

**Securitization exposures in the banking book and associated regulatory capital requirements –
Credit Suisse acting as investor**

end of 2016	Exposure value (by RW band)				
	<=20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW
CHF million					
Total exposures	11,898	1,962	1,929	330	4
Traditional securitization	11,898	1,962	1,929	330	4
of which securitization	11,898	1,962	1,929	330	4
of which retail underlying	5,662	1,938	1,919	206	0
of which wholesale	6,236	24	10	124	4
of which re-securitization	0	0	0	0	0
of which senior	0	0	0	0	0
of which non-senior	0	0	0	0	0
Synthetic securitization	0	0	0	0	0
of which securitization	0	0	0	0	0
of which retail underlying	0	0	0	0	0
of which wholesale	0	0	0	0	0
of which re-securitization	0	0	0	0	0
of which senior	0	0	0	0	0
of which non-senior	0	0	0	0	0

Market risk

GENERAL

We use the advanced approach for calculating the market risk capital requirements for the majority of our market risk exposures. The percentage of RWA covered by internal models as of December 31, 2016 was 83%. In line with regulatory requirements, the standardized measurement method (SMM) is used for the specific risk of securitization exposures. Aside from securitization exposures the standardized approach is used to determine market risk capital for the remainder of positions of our market risk exposure.

► Refer to "Regulatory capital treatment of securitization structures" (pages 40 to 41) in Securitization – General for further information on the standardized measurement method and other supervisory approaches.

Risk management objectives and policies for market risk

► Refer to "Market risk" (pages 147 to 150) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk coverage and management in the Credit Suisse Annual Report 2016 for information on our risk management objectives and policies for market risk.

► Refer to "Note 1 – Summary of significant accounting policies" (pages 261 to 262) and "Note 32 – Derivatives and hedging activities" (pages 325 to 328) in V – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2016 for further information on policies for hedging risk and strategies/processes for monitoring the continuing effectiveness of hedges.

Market risk reporting is performed daily and there are documented internal control procedures. Senior management and the Board of Directors are informed about key market risk metrics, including VaR, ERC, key risks and top exposures with the monthly Group Risk Report.

Internal model approach – overview

	Regulatory VaR	Stressed VaR	IRC
Method applied	Historical simulation	Historical simulation	Expected portfolio loss simulation
Data set	2 years	Jan. 1, 2006 to present	–
Holding period	10 day	10 day	One-year liquidity horizon
Confidence level	99%	99%	99.9%
Population	Regulatory trading book and foreign exchange and commodity risks in the regulatory banking book	Regulatory trading book and foreign exchange and commodity risks in the regulatory banking book	Regulatory trading book subject to issuer risk (excl. securitizations and correlation trading)

MARKET RISK UNDER STANDARDIZED APPROACH

The following table shows the components of the capital requirement under the standardized approach for market risk.

Market risk under standardized approach

end of	2016
Risk-weighted assets (CHF million)	
Outright products	
Interest rate risk (general and specific)	0
Equity risk (general and specific)	0
Foreign exchange risk	0
Commodity risk	0
Options	
Simplified approach	0
Delta-plus method	0
Scenario approach	0
Securitization	3,965
Total risk-weighted assets	3,965

MARKET RISK UNDER INTERNAL MODEL APPROACH

General

The market risk IMA framework includes regulatory VaR, stressed VaR, risks not in VaR (RNIV) and Incremental Risk Charge (IRC). RNIV includes certain stressed RNIV. In 2014 Comprehensive Risk Measure was discontinued due to the small size of the correlation trading portfolio. We now use the standard rules for this portfolio.

The following table shows the main characteristics of the different models.

The following table shows a breakdown of RWA covered by each of the models.

IMA – Risk-weighted assets

end of 2016	CHF billion	in %
Risk-weighted assets		
Regulatory VaR	2.3	12
Stressed VaR	5.8	31
RNIV	8.6	44
IRC	2.6	13
Total risk-weighted assets	19.3	100

Regulatory VaR, stressed VaR and risks not in VaR

The regulatory VaR and stressed VaR models cover primarily the activities of Credit Suisse's business units that are held within trading books. The model is predominantly based on historical simulation and includes risk factors covering equity, currency, interest rate, commodity and credit market risks. The model is also used to capture foreign exchange and commodity risk within banking books where required.

In addition to the regulatory VaR and stressed VaR models Credit Suisse operates a RNIV framework. This is applied to the same activities as the VaR/stressed VaR model but covers risks that are not included in the model due e.g. to lack of historical data or other model constraints. The purpose of the RNIV framework is to ensure that capital is held to meet all risks which are not captured, or not captured adequately, by the firm's VaR and stressed VaR models. These include, but are not limited to missing and/or illiquid risk factors such as cross-risks, basis risks and higher-order risks. The RNIV framework is also intended to cover event risks that could adversely affect the relevant business.

The objective of Credit Suisse is to ensure the greatest consistency possible between the model used for Group and that used for subsidiaries and other legal entities. The model used in all instances is based on the same historical simulation approach but precise configuration and inclusion of risk factors may vary due to a variety of factors. These include timing differences in receiving the necessary approvals (in which case the differences may be temporary) or different supervisory requirements or interpretations (in which case the differences may be expected to remain).

The Group model is used for Credit Suisse AG, Credit Suisse (Schweiz) AG, Neue Aargauer Bank AG and Credit Suisse (Hong Kong) Ltd. The model used for the Credit Suisse Holdings (USA) and Credit Suisse Capital LLC is similar but is based on a straight percentile rather than expected shortfall. These models implement a responsive framework through the use exponential weighting. The model used for Credit Suisse International and Credit Suisse (Europe) Limited in the UK is also based on a straight percentile but implements responsiveness through the use of a volatility scalar and uses a longer historical lookback period of 3 years versus the 2 years used in other models. The intention of Credit Suisse is to align approaches where possible with the Group model and all assumptions are regularly reviewed.

The main approach of the model is to use historical simulation. This is a generally accepted approach to regulatory VaR. The stressed VaR model is based on a year observation period that relates to the significant financial stress. The market data in the model is updated on an at least weekly basis (some current rates/spreads required by the model are updated on a daily basis). Expected shortfall is the preferred tail measure where permitted and is calibrated to be equivalent to a 99% confidence level.

The risk management VaR model for the Group is similar to the regulatory VaR model with a few differences. Certain positions excluded from regulatory and stressed VaR can be included for risk management purposes, such as specific risk from securitization positions and certain banking book exposures. The holding period for risk management VaR is 1 day. The tail measure for risk management is a 98% confidence level rather than the regulatory 99%.

The regulatory VaR model for the Group uses a two-year look-back window and an exponential weighting scheme is applied. The exponential weighting is applied to the P&L vector prior to computing the tail estimate and the weight is selected based on portfolio analysis subject to constraints imposed by the regulations. The model does not use scaled 1-day returns but actual 10 day overlapping returns. These assumptions are tested periodically as well as testing antithetic variables for the stressed VaR calculation. The return methodology (e.g. absolute, proportional or another functional form) is documented and varies by risk type and it is reviewed on a periodic basis. The P&L vectors are generated using a variety of approaches; Taylor Series approximation, revaluation ladders and grids and full revaluation, depending on the complexity and linearity of the underlying risks.

The stressed VaR model for the Group uses an actual 10 day return calculated over a 1 year unweighted historical observation period. The underlying risk factors are simulated using the same approaches as for regulatory VaR; Taylor Series approximation, revaluation ladders and grids and full revaluation, depending on the complexity and linearity of the underlying risk factors. The 1 year period of stress is assessed on a monthly basis by calculating stressed VaR for different alternative 1 year periods across recent COB dates.

The model is an integrated approach to general and specific risk. Where regression approaches are used a residual component may be aggregated with the pure historical simulation approach using a Gaussian assumption (zero correlation). Alternative approaches to aggregation including RNIV may be used where the zero correlation assumption cannot be justified.

The performance of our internal models is regularly monitored and discussed at internal committees which review the regulatory backtesting in addition to internal metrics of model performance. Position information flowing into the VaR model is reviewed daily, historical market data is reviewed before going live on a weekly basis, and model parameters are reviewed regularly.

Due to the nature of the historical simulation approach there is comparably little reliance on exogenous modelling parameters, beyond the process to identify the correct stressed VaR period,

Market risk

and the calibration of the model data to that period. No additional stress testing of the model parameters is performed.

► Refer to “Market risk” (pages 147 to 150) and “Market risk review” (pages 160 to 163) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management in the Credit Suisse Annual Report 2016 for further information on VaR, including VaR limitations, VaR backtesting, stress testing, VaR governance and differences between the model used for risk management purposes and the model used for regulatory purposes.

Incremental Risk Charge

The IRC capitalizes issuer default and migration risk in the trading book, such as bonds or CDS, but excludes securitizations and correlation trading. We have received approval from FINMA, as well as from certain other regulators of our subsidiaries, to use our IRC model. We continue to receive regulatory approval for ongoing enhancements to the IRC methodology, and the IRC model is subject to regular reviews by regulators.

The IRC model assesses risk at 99.9% confidence level over a one year time horizon assuming that positions are sold and replaced one or more times, depending on their liquidity which is modelled by the liquidity horizon.

The IRC portfolio model is a Merton-type portfolio model designed to calculate the aggregate loss at the 99.9% confidence level based on aggregated exposures that are obtained from individual transactions according to an aggregation model. A key model feature is that defaults and rating migrations are correlated using a Gaussian copula. The model’s design is based on the same principles as industry standard credit portfolio models including the Basel II A-IRB model.

IRC parameters are based either on i) the A-IRB reference data sets used for the PD and LGD estimation (migration matrix including PDs, LGDs, LGD correlation and volatility), or ii) data used for indices published by Credit Suisse.

To achieve the required soundness standard, i.e. comparable to those under the IRB approach, Credit Suisse uses A-IRB LGD parameters calibrated to a downturn. The conservatism of this choice is being monitored and reported on a quarterly basis.

The liquidity horizon represents time required to sell the positions or hedge all material risk covered by the IRC model in a stressed market. Liquidity horizons are modelled according to the requirements imposed by current regulatory requirements.

The IRC model and liquidity horizon methodology have been validated by the Model Risk Management team in accordance with the firms validation umbrella policy and Risk Model Validation Sub-Policy for IRC.

As an outcome of these validation reviews Credit Suisse decided in 2016 to propose to use the Constant Position Assumption, i.e. a single liquidity horizon of one year; this corresponds to the most conservative assumption on liquidity that is available under the IRC regulatory rules. Pending regulatory approval, Credit Suisse holds, where required, capital add-ons to ensure adequate capitalization.

Internal model approach values for trading portfolios

The following table shows the values (maximum, minimum, average and period ending for the reporting period) resulting from the different types of models used for computing regulatory capital charge at the Group level, before any additional capital charge is applied.

Regulatory VaR, stressed VaR and Incremental Risk Charge

in / end of	2016
CHF million	
Regulatory VaR (10 day 99%)	
Maximum value	190
Average value	79
Minimum value	47
Period end	59
Stressed VaR (10 day 99%)	
Maximum value	336
Average value	171
Minimum value	119
Period end	144
IRC (99.9%)	
Maximum value	357
Average value	212
Minimum value	65
Period end	188

During 2016, there were several significant moves in regulatory VaR. The first occurred on January 6, 2016, and reached a maximum value of CHF 190 million. This was driven by the market volatility causing an increase in equity risk. The second occurred on February 11, 2016, and reached a maximum value of CHF 149 million. This was also driven by market volatility causing an increase in equity and credit risks. The last occurred on July 12, 2016, and reached a maximum value of CHF 99 million. This was also driven by market volatility causing an increase in equity risk.

For stressed VaR there were several significant moves during 2016. The first occurred on January 20, 2016, and reached a maximum value of CHF 336 million. This was driven by increased losses from additional long Italian stock exposures. The second occurred on March 1, 2016, and reached a maximum value of CHF 269 million. This was driven by movements on USD interest rate swap and Government bond exposures. The next occurred on April 18, 2016, and reached a maximum value of CHF 260 million. This was driven by movements in the USD interest rate swap exposure and increased long French stock exposures. The next occurred on July 6, 2016, and reached a maximum value of CHF 214 million. This was driven by movements in the GBP interest rate swap exposure and increased losses to EUR USD exposures. Another move occurred on July 21, 2016, and reached a maximum value of CHF 227 million. This was driven by increased losses to S&P 500 index and increased exposure to CHF. The last occurred on December 19, 2016, and reached a maximum value

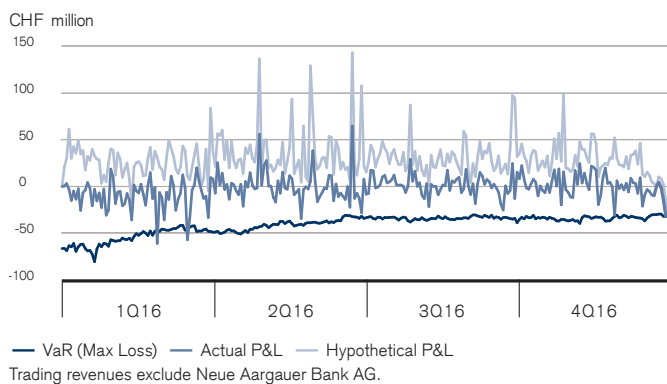
of CHF 180 million. This was driven by increased losses to S&P 500 index.

For IRC there were three significant moves during 2016. The first occurred on January 26, 2016, and reached a maximum value of CHF 357 million. This was driven by increased long bond exposure to Brazil and India. The second occurred on June 3, 2016, and caused a reduction of CHF 98 million. This was driven by reduced long bond exposure to India and reduced long US Government bond future exposure. The last occurred on July 29, 2016, and reached a maximum value of CHF 348 million. This was driven by increased long bond exposure to India, increased long Korea bond future and bond exposures and expiry of RWA hedges.

Comparison of VaR estimates with gains/losses

The following chart compares the results of estimates from the regulatory VaR model with both hypothetical and actual trading outcomes.

Backtesting VaR vs Actual/Hypothetical P&L



The key difference between hypothetical P&L and actual P&L is that actual P&L takes into account the P&L from intraday activity while hypothetical P&L does not. The dispersion of trading revenues indicates the day-to-day volatility in our trading activities.

In the 12-month period through ending December 31, 2016, we had two backtesting exceptions in our regulatory VaR model calculated using the subset of actual daily trading revenues. The first occurred on February 29, 2016, with a corresponding excess of CHF 15 million. This was caused by month-end price testing adjustment impacts across leveraged finance and equity derivatives and collateral adjusted valuation allocation process in Strategic Resolution Unit. The second exception occurred on March 17, 2016, with a corresponding excess of CHF 11 million. This was caused by market move losses mainly in Americas region across foreign exchange, yields and CDS spreads in Global Market Solutions.

Since there were fewer than five backtesting exceptions in the rolling 12-month periods ending December 31, 2016, 2015 and 2014, in line with BIS industry guidelines, the VaR model is deemed to be statistically valid. Reserves are included within the backtesting process, while fees and commissions are excluded from actual P&L.

For capital purposes, FINMA, in line with BIS requirements, uses a multiplier to impose an increase in market risk capital for every regulatory VaR backtesting exception over four in the prior rolling 12-month period calculated using the subset of the actual daily trading revenues.

Operational risk

We have used an internal model to calculate the regulatory capital requirement for operational risk under the Advanced Measurement Approach (AMA) since 2008. In 2014, we introduced an enhanced internal model that incorporated recent developments regarding operational risk measurement methodology and associated regulatory guidance. The revised model for calculating the regulatory capital requirement for operational risk was approved by FINMA with effect from January 1, 2014. We view the revised model as a significant enhancement to our capability to measure and understand the operational risk profile of the Group that is also more conservative than the previous approach.

The model is based on a loss distribution approach that uses historical data on internal and relevant external losses of peers to generate frequency and severity distributions for a range of potential operational risk loss scenarios, such as an unauthorized trading incident or a material business disruption. Business experts and senior management review, and may adjust, the parameters of these scenarios to take account of business environment and internal control factors, such as risk and control self-assessment results and risk and control indicators, to provide a forward-looking assessment of each scenario. Insurance mitigation is included

in the regulatory capital requirement for operational risk where appropriate, by considering the level of insurance coverage for each scenario and incorporating haircuts as appropriate. The internal model then uses the adjusted parameters to generate an overall loss distribution for the Group over a one-year time horizon. The AMA capital requirement represents the 99.9th percentile of this overall loss distribution. We use a risk-sensitive approach to allocating the AMA capital requirement to businesses that is designed to be forward-looking and incentivize appropriate risk management behaviors.

In 2016, we continued the maintenance of the model methodology, ensuring that it remains appropriate to capture the Bank's operational risk profile. We also continued the process of aligning the output of the operational risk model with other key components of the operational risk framework, as well as ensuring consistency with the stress scenario framework developed for enterprise-wide risk management purposes.

► Refer to "Operational risk" (pages 153 to 156) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk coverage and management in the Credit Suisse Annual Report 2016 for further information on operational risk.

Interest rate risk in the banking book

OVERVIEW

The Group monitors and manages interest rate risk in the banking book by established systems, processes and controls. Risk sensitivity figures are provided to estimate the impact of changes in interest rates, which is one of the primary ways in which these risks are assessed for risk management purposes. In addition, Risk Division confirms that the economic impacts of adverse parallel shifts in interest rates of 200 basis points and adverse interest rate shifts calibrated to a 1-year holding period with a 99% confidence level are significantly below the threshold of 20% of eligible regulatory capital used by the regulator to identify banks that potentially run excessive levels of non-trading interest rate risk. Given the low level of interest rate risk in the banking book, the Group does not have any regulatory requirement to hold capital against this risk.

MAJOR SOURCES OF INTEREST RATE RISK IN THE BANKING BOOK

The interest rate risk exposures in the non-trading positions (synonymously used to the term “banking book”) mainly arise from the retail banking activities, the positioning strategy with respect to our replicated non-interest bearing assets and liabilities (including the equity balance) and the outstanding capital instruments. The vast majority of interest rate risk in the banking book is managed by Treasury on a portfolio basis.

The interest rate risk from retail banking activities results from the transactions with repricing maturities that either are or are not contractually determined. For most parts of the latter, such as variable rate mortgages and some types of deposits, which do not have a direct link to market rates in their repricing behavior, it is more suitable to manage them on a portfolio basis rather than on individual trade level. The interest rate risk associated with these products, referred to as non-maturing products, is estimated using the methodology of replicating portfolios: Based on the historical behavior of interest rates and volume of these products it assigns the position balance associated with a non-maturing banking product to time bands that are presumed to reflect their empirical repricing maturities. The methodology is based, where reasonably possible, on the principle of finding a stable relationship between the changes of client rates of the non-maturing products and an underlying investment or funding portfolio. Where this is not possible, the maturity of the product is assessed based on volume stability only. These allocations to time bands can then be used to evaluate the products' interest rate sensitivity. The structure and parameters of the replicating portfolios are reviewed periodically to ensure continued relevance of the portfolios in light of changing market conditions and client behavior.

For managing parts of the interest rate risk of the corporate balance sheet with respect to our non-interest bearing assets and liabilities (including the equity balance) the Group assigns tenors to balance sheet positions that reflect a fair investment or funding

profile for the underlying balance sheet items. This strategy is implemented by Treasury and the resulting interest rate risk is measured against a pre-defined benchmark.

Changing market rates give rise to changes in the fair values of the outstanding capital instruments that have been issued for funding of the bank. To some extent, on an individual basis, this risk is being mitigated by using swaps to replace fixed payment obligations into floating ones. In addition to these transactions on individual basis, the residual interest rate risk is also managed holistically by Treasury.

GOVERNANCE OF MODELS AND LIMITS

The major part of interest rate risk in the banking book is managed centrally by Treasury within approved limits using hedging instruments such as interest rate swaps. The Board of Directors defines the risk appetite, i.e. a set of risk limits, for the Group on an annual basis. Limits to the divisions are governed by the CARMC; the divisional Risk Management Committees may assign limits on more granular levels for entities, businesses, books, collections of books. The models used for measuring risk are reviewed and approved by the RPSC, where the frequency depends on the criticality of the model. Operational decisions on the use of the models (e.g. in terms of maximum tenor and allocation of tranches to the time bands in the replicating portfolios) is governed by the CARMC. For interest rate risk in the banking book, Risk Division is responsible for monitoring the limit usage and escalating potential limit breaches.

RISK MEASUREMENT

The risks associated with the non-trading interest rate-sensitive portfolios are measured using a range of tools, including the following key metrics:

- Interest rate sensitivity (DV01): Expresses the linear approximation of the impact on a portfolio's fair value resulting from a one basis point (0.01%) parallel shift in yield curves, where the approximation tends to be closer to the true change in the portfolio's fair value for smaller parallel shifts in the yield curve. The DV01 is a transparent and intuitive indicator of linear directional interest rate risk exposure, which does not rely on statistical inference.
- VaR: Statistical indicator of the potential fair value loss, taking into account the observed interest rate moves across yield curve tenors and currencies. In addition, VaR takes into account yield curve risk, spread and basis risks, as well as foreign exchange and equity risk. For risk management purposes, the Group uses a VaR measure based on a one-day holding period with a 98% confidence level where the considered historical values are time-weighted using a weighting scheme that assigns lower weights to observations further in the past.
- ERC: ERC is a statistical risk indicator representing the capital the bank should hold to support the risks incurred. ERC is

calibrated to a 1-year holding period with a 99% confidence level for risk management purposes.

- Economic value scenario analysis: Expresses the impact of a pre-defined scenario (e.g. instantaneous changes in interest rates) on a portfolio's fair value. This metric does not rely on statistical inference.

The measures listed above focus on the impact on an economic value basis, taking into account the present value of all future cash flows associated with the current positions. More specifically, the metrics estimate the impact on the economic value of the current portfolio, ignoring dynamic aspects such as the time schedule of how changes in economic value materialize in accounting P&L (since most non-trading books are not marked-to-market) and the development of the portfolio over time. These measures are complemented by considering an Earnings-at-Risk approach to interest rate risk: For the major part of the banking books, this is accomplished by simulating the development of the net interest income over several years using scenarios of potential changes of the yield curves and product volumes. This scenario analysis also takes into account the earnings impact originating from fluctuations in short term interest rates, which are regarded as riskless when analyzing the impact on economic value. In addition to the dynamic aspects, this analysis allows to distinguish between the economic and the accounting view.

MONITORING AND REVIEW

The limits and flags defined by books, collections of books, businesses or legal entities relating to interest rate risk in the banking book are monitored by Risk Division at least on a monthly basis (if deemed necessary or suitable, the monitoring may be as frequent as daily), by using the metrics and methodologies outlined above. In case of breaches, this is escalated to the limit-setting body. The Group assesses compliance with regulatory requirements regarding appropriate levels of non-trading interest rate risk by estimating the economic impact of adverse 200 basis point parallel shifts in yield curves and adverse interest rate shifts and then relating those impacts to the total eligible regulatory capital. Consistent with regulatory requirements, Risk Division ensures that the economic value impact of this analysis is below the threshold of 20% of eligible regulatory capital in which case there are no requirements to hold additional capital. This analysis is performed for the Group and major legal entities, including the Bank, on a monthly basis.

RISK PROFILE

► Refer to "Banking book" (pages 163 to 164) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk review and results in the Credit Suisse Annual Report 2016 for information on the impact of a one basis point parallel increase of the yield curves and an adverse 200 basis point move in yield curves on the fair value of interest rate-sensitive banking book positions.

Reconciliation requirements

BALANCE SHEET

The following table shows the balance sheet as published in the consolidated financial statements of the Group and the balance sheet under the regulatory scope of consolidation. The reference indicates how such assets and liabilities are considered in the composition of regulatory capital.

► Refer to "Principles of consolidation" (page 8) in Linkages between financial statements and regulatory disclosures – Differences between accounting and regulatory scopes of consolidation for information on key differences between the accounting and the regulatory scope of consolidation.

Balance sheet

	Balance sheet		
	Financial statements	Regulatory scope of consolidation	Reference to composition of capital
end of 2016			
Assets (CHF million)			
Cash and due from banks	121,161	120,753	
Interest-bearing deposits with banks	772	1,173	
Central bank funds sold, securities purchased under resale agreements and securities borrowing transactions	134,839	129,495	
Securities received as collateral, at fair value	32,564	32,564	
Trading assets, at fair value	165,150	160,627	
Investment securities	2,489	1,978	
Other investments	6,777	6,561	
Net loans	275,976	276,578	
Premises and equipment	4,711	4,781	
Goodwill	4,913	4,913	a
Other intangible assets	213	213	
of which other intangible assets (excluding mortgage servicing rights)	76	76	b
Brokerage receivables	33,431	33,428	
Other assets	36,865	35,008	
of which tax charges deferred as other assets related to regulatory adjustments	1,356	1,356	c
of which deferred tax assets related to net operating losses	2,178	2,178	d
of which deferred tax assets from temporary differences	3,650	4,258	e
of which defined-benefit pension fund net assets	1,061	1,061	f
Total assets	819,861	808,072	

Reconciliation requirements

Balance sheet (continued)

	Balance sheet		
	Financial statements	Regulatory scope of consolidation	Reference to composition of capital
end of 2016			
Liabilities and equity (CHF million)			
Due to banks	22,800	23,400	
Customer deposits	355,833	356,033	
Central bank funds purchased, securities sold under repurchase agreements and securities lending transactions	33,016	33,016	
Obligation to return securities received as collateral, at fair value	32,564	32,564	
Trading liabilities, at fair value	44,930	45,160	
Short-term borrowings	15,385	10,201	
Long-term debt	193,315	191,613	
Brokerage payables	39,852	39,852	
Other liabilities	39,855	34,140	
Total liabilities	777,550	765,979	
of which additional tier 1 instruments, fully eligible	11,194	11,194	g
of which additional tier 1 instruments subject to phase-out	2,902	2,902	h
of which tier 2 instruments, fully eligible	4,932	4,932	i
of which tier 2 instruments subject to phase-out	4,422	4,422	j
Common shares	84	84	
Additional paid-in capital	32,131	32,131	
Retained earnings	25,954	25,914	
Treasury shares, at cost	0	4	
Accumulated other comprehensive income/(loss)	(16,272)	(16,247)	
Total shareholders' equity ¹	41,897	41,886	
Noncontrolling interests ²	414	207	
Total equity	42,311	42,093	
Total liabilities and equity	819,861	808,072	

¹ Eligible as CET1 capital, prior to regulatory adjustments.

² The difference between the accounting and regulatory scope of consolidation primarily represents private equity and other fund type vehicles, which FINMA does not require to consolidate for capital adequacy reporting.

COMPOSITION OF BIS REGULATORY CAPITAL

The following tables provide details on the composition of BIS regulatory capital and details on CET1 capital adjustments subject to phase-in as well as details on additional tier 1 capital and tier 2 capital.

Composition of BIS regulatory capital

end of	2016
Eligible capital (CHF million)	
Total shareholders' equity (US GAAP)	41,897
Regulatory adjustments	(694) ¹
Adjustments subject to phase-in	(4,627) ²
CET1 capital	36,576
Additional tier 1 instruments	11,096 ³
Additional tier 1 instruments subject to phase-out	2,899 ⁴
Deductions from additional tier 1 capital	(1,706) ⁵
Additional tier 1 capital	12,289
Tier 1 capital	48,865
Tier 2 instruments	4,879 ⁶
Tier 2 instruments subject to phase-out	2,083
Deductions from tier 2 capital	(99)
Tier 2 capital	6,863
Total eligible capital	55,728

¹ Includes regulatory adjustments not subject to phase-in, including a cumulative dividend accrual.

² Reflects 60% phase-in deductions, including goodwill, other intangible assets and certain deferred tax assets, and 40% of an adjustment primarily for the accounting treatment of pension plans pursuant to phase-in requirements.

³ Consists of high-trigger and low-trigger capital instruments. Of this amount, CHF 6.0 billion consists of capital instruments with a capital ratio write-down trigger of 7% and CHF 5.1 billion consists of capital instruments with a capital ratio write-down trigger of 5.125%.

⁴ Includes hybrid capital instruments that are subject to phase-out.

⁵ Includes 40% of goodwill and other intangible assets (CHF 2.0 billion) and other capital deductions, including the regulatory reversal of gains/(losses) due to changes in own credit risk on fair-valued financial liabilities, which will be deducted from CET1 once Basel III is fully implemented.

⁶ Consists of high-trigger and low-trigger capital instruments. Of this amount, CHF 0.7 billion consists of capital instruments with a capital ratio write-down trigger of 7% and CHF 4.2 billion consists of capital instruments with a capital ratio write-down trigger of 5%.

Reconciliation requirements

The following tables provide details on CET1 capital adjustments subject to phase-in and details on additional tier 1 capital and tier 2 capital. The column "Transition amount" represents the amounts that have been recognized in eligible capital as of December 31,

2016. The column "Amount to be phased in" represents those amounts that are still to be phased in as CET1 capital adjustments through year-end 2018.

Details on CET1 capital adjustments subject to phase-in

end of 2016	Balance sheet	Reference to balance sheet ¹	Regulatory adjustments	Total	Transition amount ²	Amount to be phased in
CET1 capital adjustments subject to phase-in (CHF million)						
Accounting treatment of defined benefit pension plans	–		–	–	1,246	(1,246)
Common share capital issued by subsidiaries and held by third parties	–		–	–	83	(83)
Goodwill	4,913	a	(48) ³	4,864	(2,919)	(1,946) ⁴
Other intangible assets (excluding mortgage-servicing rights)	76	b	(6) ⁵	70	(42)	(28) ⁴
Deferred tax assets that rely on future profitability (excluding temporary differences)	3,534	c, d	–	3,534	(2,120)	(1,414) ⁶
Shortfall of provisions to expected losses	–		–	–	(299)	(199) ⁷
Gains/(losses) due to changes in own credit on fair-valued liabilities	–		–	–	435	290 ⁸
Defined-benefit pension assets	1,061	f	(263) ⁵	798	(479)	(319) ⁶
Investments in own shares	–		–	–	(1)	(1) ⁴
Other adjustments ⁹	–		–	–	11	8 ⁴
Amounts above 10% threshold	4,258		(3,354)	904	(542)	(362)
of which deferred tax assets from temporary differences	4,258	e	(3,354) ¹⁰	904	(542)	(362) ⁶
Adjustments subject to phase-in to CET1 capital					(4,627)	(5,300)

Rounding differences may occur.

¹ Refer to the balance sheet under regulatory scope of consolidation in the table "Balance sheet". Only material items are referenced to the balance sheet.

² Reflects 60% phase-in deductions, including goodwill, other intangible assets and certain deferred tax assets, and 40% of an adjustment primarily for the accounting treatment of pension plans pursuant to phase-in requirements.

³ Represents related deferred tax liability and goodwill on equity method investments.

⁴ Deducted from additional tier 1 capital.

⁵ Represents related deferred tax liability.

⁶ Risk-weighted.

⁷ 50% deducted from additional tier 1 capital and 50% from tier 2 capital.

⁸ Includes CHF 360 million related to debt instruments deducted from additional tier 1 capital.

⁹ Includes cash flow hedge reserve.

¹⁰ Includes threshold adjustments of CHF (3,712) million and an aggregate of CHF 358 million related to the add-back of deferred tax liabilities on goodwill, other intangible assets, mortgage servicing rights and pension assets that are netted against deferred tax assets under US GAAP.

Details on additional tier 1 capital and tier 2 capital

end of 2016	Balance sheet	Reference to balance sheet ¹	Regulatory adjustments	Total	Transition amount
Additional tier 1 capital (CHF million)					
Additional tier 1 instruments ²	11,194	g	(98) ³	11,096	11,096
Additional tier 1 instruments subject to phase-out ²	2,902	h	(3)	2,899	2,899
Total additional tier 1 instruments					13,995
Deductions from additional tier 1 capital					
Goodwill					(1,946) ⁴
Other intangible assets (excluding mortgage-servicing rights)					(28) ⁴
Shortfall of provisions to expected losses					(99)
Gains/(losses) due to changes in own credit on fair-valued financial liabilities					360
Investments in own shares					(1)
Other deductions					8
Deductions from additional tier 1 capital					(1,706)
Additional tier 1 capital					12,289
Tier 2 capital (CHF million)					
Tier 2 instruments	4,932	i	(53) ³	4,879	4,879
Tier 2 instruments subject to phase-out	4,422	j	(2,339) ⁵	2,083	2,083
Total tier 2 instruments					6,962
Deductions from tier 2 capital					
Shortfall of provisions to expected losses					(99)
Deductions from tier 2 capital					(99)
Tier 2 capital					6,863

¹ Refer to the balance sheet under regulatory scope of consolidation in the table "Balance sheet". Only material items are referenced to the balance sheet.

² Classified as liabilities under US GAAP.

³ Includes the reversal of gains/(losses) due to changes in own credit spreads on fair valued capital instruments.

⁴ Net of related deferred tax liability.

⁵ Primarily includes the impact of the prescribed amortization requirements as instruments move closer to their maturity.

Additional information

end of	2016
Risk-weighted assets related to amounts subject to phase-in (CHF million)	
Adjustment for accounting treatment of pension plans	1,578
Defined-benefit pension assets	319
Deferred tax assets	175
Risk-weighted assets related to amounts subject to phase-in	2,072
Amounts below the thresholds for deduction (before risk weighting) (CHF million)	
Non-significant investments in BFI entities	
Significant investments in BFI entities	691
Mortgage servicing rights	108 ¹
Deferred tax assets arising from temporary differences	3,712 ¹
Applicable caps on the inclusion of provisions in tier 2 (CHF million)	
Cap on inclusion of provisions in tier 2 under standardized approach	91
Cap for inclusion of provisions in tier 2 under internal ratings-based approach	834

¹ Net of related deferred tax liability.

Additional regulatory disclosures

SWISS CAPITAL REQUIREMENTS

The FINMA circular requires certain additional disclosures for systemically relevant financial institutions and stand-alone banks. The following tables show the capital requirements based on capital ratios and leverage ratio.

Swiss capital requirements and metrics

end of 2016	Phase-in		Look-through	
	CHF million	in % of RWA	CHF million	in % of RWA
Swiss risk-weighted assets				
Swiss risk-weighted assets	272,090	–	268,762	–
Risk-based capital requirements (going-concern) based on Swiss capital ratios				
Total	29,669	10.904	38,851	14.456
of which CET1: minimum	16,802	6.175	12,094	4.5
of which CET1: buffer	5,306	1.95	14,782	5.5
of which CET1: countercyclical buffer	418	0.154	418	0.156
of which additional tier 1: minimum	4,966	1.825	9,407	3.5
of which additional tier 1: buffer	2,177	0.8	2,150	0.8
Swiss eligible capital (going-concern)				
Swiss CET1 capital and additional tier 1 capital ¹	52,392	19.3	42,410	15.8
of which CET1 capital ²	36,417	13.4	30,616	11.4
of which additional tier 1 high-trigger capital instruments	6,000	2.2	6,000	2.2
of which additional tier 1 low-trigger capital instruments ³	5,096	1.9	5,096	1.9
of which tier 2 high-trigger capital instruments ⁴	698	0.3	698	0.3
of which tier 2 low-trigger capital instruments ⁴	4,181	1.5	0	0.0
of which deductions from additional tier 1 capital	0	0.0	0	0.0
Risk-based requirement for additional total loss-absorbing capacity (gone-concern) based on Swiss capital ratios				
Total ⁵	9,523	3.5	38,433	14.3
Eligible additional total loss-absorbing capacity (gone-concern)				
Total	26,783 ⁶	9.8	26,340	9.8
of which bail-in instruments	22,159	8.1	22,159	8.2
of which CET1 capital used to fulfill gone-concern requirements	0	0.0	0	0.0
of which additional tier 1 capital used to fulfill gone-concern requirements	0	0.0	0	0.0

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 In accordance with Art. 133 and Art. 132 para 4 of the CAO, the disclosure of reductions to total loss-absorbing capacity relating to rebates and the disclosure of holding of additional instruments in the form of convertible capital, respectively, are not required in 2016.

⁶ Includes CHF 4,624 million of capital instruments (additional tier 1 instruments subject to phase-out, tier 2 instruments subject to phase-out, tier 2 amortization component and certain deductions) which, under the phase-in rules, continue to count as gone concern capital.

Swiss leverage requirements and metrics

end of 2016	Phase-in		Look-through	
	CHF million	in % of LRD	CHF million	in % of LRD
Leverage exposure				
Leverage ratio denominator	957,067	–	950,763	–
Unweighted capital requirements (going-concern) based on Swiss leverage ratio				
Total	28,712	3.0	47,537	5.0
of which CET1: minimum	22,013	2.3	14,261	1.5
of which CET1: buffer	0	0.0	19,015	2.0
of which additional tier 1: minimum	6,699	0.7	14,261	1.5
Swiss eligible capital (going-concern)				
Swiss CET1 capital and additional tier 1 capital ¹	52,392	5.5	42,410	4.5
of which CET1 capital ²	36,417	3.8	30,616	3.2
of which additional tier 1 high-trigger capital instruments	6,000	0.6	6,000	0.6
of which additional tier 1 low-trigger capital instruments ³	5,096	0.5	5,096	0.5
of which tier 2 high-trigger capital instruments ⁴	698	0.1	698	0.1
of which tier 2 low-trigger capital instruments ⁴	4,181	0.4	0	0.0
of which deductions from additional tier 1 capital	0	0.0	0	0.0
Unweighted requirements for additional total loss-absorbing capacity (gone-concern) based on Swiss leverage ratio				
Total ⁵	9,571	1.0	47,538	5.0
Eligible additional total loss-absorbing capacity (gone-concern)				
Total	26,783 ⁶	2.8	26,340	2.8
of which bail-in instruments	22,159	2.3	22,159	2.3
of which CET1 capital used to fulfill gone-concern requirements	0	0.0	0	0.0
of which additional tier 1 capital used to fulfill gone-concern requirements	0	0.0	0	0.0

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 In accordance with Art. 133 and Art. 132 para 4 of the CAO, the disclosure of reductions to total loss-absorbing capacity relating to rebates and the disclosure of holding of additional instruments in the form of convertible capital, respectively, are not required in 2016.

⁶ Includes CHF 4,624 million of capital instruments (additional tier 1 instruments subject to phase-out, tier 2 instruments subject to phase-out, tier 2 amortization component and certain deductions) which, under the phase-in rules, continue to count as gone concern capital.

Additional regulatory disclosures

LEVERAGE METRICS

Beginning in 1Q15, Credit Suisse adopted the Bank for International Settlements (BIS) leverage ratio framework, as issued by the BCBS and implemented in Switzerland by FINMA.

► Refer to "Leverage metrics" (page 128) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Capital management in the Credit Suisse Annual Report 2016 for further information on leverage metrics.

Reconciliation of consolidated assets to leverage exposure – Phase-in

end of	2016
Reconciliation of consolidated assets to leverage exposure (CHF million)	
Total consolidated assets as per published financial statements	819,861
Adjustment for investments in banking, financial, insurance or commercial entities that are consolidated for accounting purposes but outside the scope of regulatory consolidation ¹	(9,316)
Adjustment for fiduciary assets recognized on the balance sheet pursuant to the operative accounting framework but excluded from the leverage ratio exposure measure	0
Adjustments for derivatives financial instruments	88,656
Adjustments for SFTs (i.e. repos and similar secured lending)	(22,766)
Adjustments for off-balance sheet items (i.e. conversion to credit equivalent amounts of off-balance sheet exposures)	80,632
Other adjustments	0
Total leverage exposure	957,067

¹ Includes adjustments for investments in banking, financial, insurance or commercial entities that are consolidated for accounting purposes but outside the scope of regulatory consolidation and tier 1 capital deductions related to balance sheet assets.

BIS leverage ratio common disclosure template – Phase-in

end of	2016
Reconciliation of consolidated assets to leverage exposure (CHF million)	
On-balance sheet items (excluding derivatives and SFTs, but including collateral)	607,064
Asset amounts deducted from Basel III tier 1 capital	(6,548)
Total on-balance sheet exposures	600,516
Reconciliation of consolidated assets to leverage exposure (CHF million)	
Replacement cost associated with all derivatives transactions (i.e. net of eligible cash variation margin)	31,737
Add-on amounts for PFE associated with all derivatives transactions	84,685
Gross-up for derivatives collateral provided where deducted from the balance sheet assets pursuant to the operative accounting framework	34,120
Deductions of receivables assets for cash variation margin provided in derivatives transactions	(30,692)
Exempted CCP leg of client-cleared trade exposures	(11,291)
Adjusted effective notional amount of all written credit derivatives	227,461
Adjusted effective notional offsets and add-on deductions for written credit derivatives	(220,205)
Derivative Exposures	115,815
Securities financing transaction exposures (CHF million)	
Gross SFT assets (with no recognition of netting), after adjusting for sale accounting transactions	181,671
Netted amounts of cash payables and cash receivables of gross SFT assets	(31,365)
Counterparty credit risk exposure for SFT assets	9,798
Agent transaction exposures	0
Securities financing transaction exposures	160,104
Other off-balance sheet exposures (CHF million)	
Off-balance sheet exposure at gross notional amount	238,100
Adjustments for conversion to credit equivalent amounts	(157,468)
Other off-balance sheet exposures	80,632
Tier 1 capital (CHF million)	
Tier 1 capital	48,865
Leverage exposure (CHF million)	
Total leverage exposure	957,067
Leverage ratio (%)	
Basel III leverage ratio	5.1

LIQUIDITY COVERAGE RATIO

Our calculation methodology for the liquidity coverage ratio is prescribed by FINMA.

► Refer to "Liquidity metrics" (pages 110 to 111) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Liquidity and funding management in the Credit Suisse Annual Report 2016 for further information on the Group's liquidity management including high quality liquid assets, liquidity pool and liquidity coverage ratio.

Liquidity coverage ratio

end of 2016	Unweighted value ¹	Weighted value ²
High Quality Liquid Assets (CHF million)		
High quality liquid assets	–	190,642
Cash outflows (CHF million)		
Retail deposits and deposits from small business customers	150,044	18,811
of which stable deposits	0	0
of which less stable deposits	150,044	18,811
Unsecured wholesale funding	205,036	74,763
of which operational deposits (all counterparties) and deposits in networks of cooperative banks	45,765	11,441
of which non-operational deposits (all counterparties)	84,758	49,066
of which unsecured debt	13,575	13,575
Secured wholesale funding	–	63,312
Additional requirements	200,553	46,434
of which outflows related to derivative exposures and other collateral requirements	92,886	24,167
of which outflows related to loss of funding on debt products	1,966	1,966
of which credit and liquidity facilities	105,701	20,301
Other contractual funding obligations	66,300	66,300
Other contingent funding obligations	264,146	6,279
Total cash outflows	–	275,899
Cash inflows (CHF million)		
Secured lending	127,475	80,759
Inflows from fully performing exposures	57,726	30,234
Other cash inflows	70,618	70,618
Total cash inflows	–	181,611
Liquidity cover ratio		
High quality liquid assets (CHF million)	–	190,642
Net cash outflows (CHF million)	–	94,288
Liquidity coverage ratio (%)	–	202

Calculated using a three-month average.

¹ Calculated as outstanding balances maturing or callable within 30 days.

² Calculated after the application of haircuts for high quality liquid assets or inflow and outflow rates.

MINIMUM DISCLOSURES FOR LARGE BANKS

The following table shows the Group's minimum disclosure requirements for large banks prepared in accordance with Swiss CAO for non-systemically relevant financial institutions.

Key metrics for non-systemically relevant financial institutions

end of 2016	Phase-in
CHF million, except where indicated	
Minimum required capital (8% of risk-weighted assets)	21,767
Swiss total eligible capital	55,569
of which Swiss CET1 capital	36,417
of which Swiss tier 1 capital	48,706
Swiss risk-weighted assets	272,090
Swiss CET1 ratio (%)	13.4
Swiss tier 1 ratio (%)	17.9
Swiss total capital ratio (%)	20.4
Countercyclical buffer (%)	0.154
Swiss CET1 ratio requirement (%) ¹	8.354
Swiss tier 1 ratio requirement (%) ¹	10.354
Swiss total capital ratio requirement (%) ¹	12.954
Swiss leverage ratio based on tier 1 capital (%)	5.1
Leverage exposure	957,067
Liquidity coverage ratio (%) ²	202
Numerator: total high quality liquid assets	190,642
Denominator: net cash outflows	94,288

Reflects the view as if the Group was not a Swiss SIFI. Refer to "Swiss capital requirements and metrics" and "Swiss leverage requirements and metrics" tables for the Swiss SIFI view.

¹ The capital requirements are in accordance with Appendix 8 of the CAO, plus the countercyclical buffer.

² Calculated using a three-month average.

List of abbreviations

A		I	
ABS	Asset-backed securities	IMA	Internal Models Approach
ACVA	Advanced credit valuation adjustment approach	IMM	Internal Models Method
A-IRB	Advanced-Internal Ratings-Based Approach	IRB	Internal Ratings-Based Approach
AMA	Advanced Measurement Approach	IRC	Incremental Risk Charge
B		L	
BCBS	Basel Committee on Banking Supervision	LGD	Loss given default
BFI	Banking, financial and insurance	LRD	Leverage ratio denominator
BIS	Bank for International Settlements	LTV	Loan-to-value
C		M	
CAO	Capital Adequacy Ordinance	MDB	Multilateral Development Banks
CARMC	Capital Allocation & Risk Management Committee	O	
CCF	Credit Conversion Factor	OTC	Over-the-counter
CCO	Chief Credit Officer	P	
CCP	Central counterparties	PD	Probability of default
CCR	Counterparty credit risk	PFE	Potential future exposure
CDO	Collateralized debt obligation	R	
CDS	Credit default swap	RBA	Ratings-Based Approach
CET1	Common equity tier 1	RMBS	Residential mortgage-backed securities
CLO	Collateralized loan obligation	RNIV	Risks not in value-at-risk
CMBS	Commercial mortgage-backed securities	RPSC	Risk Processes & Standards Committee
CMSC	Credit Model Steering Committee	RW	Risk weight
CRM	Credit Risk Mitigation	RWA	Risk-weighted assets
CRR	Credit Risk Review	S	
CVA	Credit valuation adjustment	SA	Standardized Approach
E		SFA	Supervisory Formula Approach
EAD	Exposure at default	SFT	Securities Financing Transactions
ECAI	External credit assessment institutions	SIFI	Systemically Important Financial Institution
EEPE	Effective Expected Positive Exposure	SMM	Standardized Measurement Method
EMIR	European Market Infrastructure Regulation	SPE	Special purpose entity
ERC	Economic Risk Capital	U	
F		US GAAP	Accounting principles generally accepted in the US
FINMA	Swiss Financial Market Supervisory Authority FINMA	V	
F-IRB	Foundation-Internal Ratings-Based Approach	VaR	Value-at-Risk
G			
G-SIB	Global systemically important banks		

List of abbreviations

Cautionary statement regarding forward-looking information

This report contains statements that constitute forward-looking statements. In addition, in the future we, and others on our behalf, may make statements that constitute forward-looking statements. Such forward-looking statements may include, without limitation, statements relating to the following:

- our plans, objectives or goals;
- our future economic performance or prospects;
- the potential effect on our future performance of certain contingencies; and
- assumptions underlying any such statements.

Words such as “believes,” “anticipates,” “expects,” “intends” and “plans” and similar expressions are intended to identify forward-looking statements but are not the exclusive means of identifying such statements. We do not intend to update these forward-looking statements except as may be required by applicable securities laws.

By their very nature, forward-looking statements involve inherent risks and uncertainties, both general and specific, and risks exist that predictions, forecasts, projections and other outcomes described or implied in forward-looking statements will not be achieved. We caution you that a number of important factors could cause results to differ materially from the plans, objectives, expectations, estimates and intentions expressed in such forward-looking statements. These factors include:

- the ability to maintain sufficient liquidity and access capital markets;
- market volatility and interest rate fluctuations and developments affecting interest rate levels;
- the strength of the global economy in general and the strength of the economies of the countries in which we conduct our operations, in particular the risk of continued slow economic recovery or downturn in the US or other developed countries or in emerging markets in 2017 and beyond;
- the direct and indirect impacts of deterioration or slow recovery in residential and commercial real estate markets;
- adverse rating actions by credit rating agencies in respect of sovereign issuers, structured credit products or other credit-related exposures;
- the ability to achieve our strategic objectives, including cost efficiency, net new asset, pre-tax income/(loss), capital ratios and return on regulatory capital, leverage exposure threshold, risk-weighted assets threshold, and other targets and ambitions;

- the ability of counterparties to meet their obligations to us;
- the effects of, and changes in, fiscal, monetary, exchange rate, trade and tax policies, as well as currency fluctuations;
- political and social developments, including war, civil unrest or terrorist activity;
- the possibility of foreign exchange controls, expropriation, nationalization or confiscation of assets in countries in which we conduct our operations;
- operational factors such as systems failure, human error, or the failure to implement procedures properly;
- the risk of cyberattacks on our business or operations;
- actions taken by regulators with respect to our business and practices and possible resulting changes to our business organization, practices and policies in countries in which we conduct our operations;
- the effects of changes in laws, regulations or accounting policies or practices in countries in which we conduct our operations;
- the potential effects of proposed changes in our legal entity structure;
- competition in geographic and business areas in which we conduct our operations;
- the ability to retain and recruit qualified personnel;
- the ability to maintain our reputation and promote our brand;
- the ability to increase market share and control expenses;
- technological changes;
- the timely development and acceptance of our new products and services and the perceived overall value of these products and services by users;
- acquisitions, including the ability to integrate acquired businesses successfully, and divestitures, including the ability to sell non-core assets;
- the adverse resolution of litigation, regulatory proceedings, and other contingencies; and
- other unforeseen or unexpected events and our success at managing these and the risks involved in the foregoing.

We caution you that the foregoing list of important factors is not exclusive. When evaluating forward-looking statements, you should carefully consider the foregoing factors and other uncertainties and events, including the information set forth in “Risk factors” in I – Information on the company in our Annual Report 2016.



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