CREDIT SUISSE

# Pillar 3 and regulatory disclosures

Credit Suisse Group AG

4Q17

For purposes of this report, unless the context otherwise requires, the terms “Credit Suisse,” the “Group,” “we,” “us” and “our” mean Credit Suisse Group AG and its consolidated subsidiaries. The business of Credit Suisse AG, the direct bank subsidiary of the Group, is substantially similar to the Group, and we use these terms to refer to both when the subject is the same or substantially similar. We use the term the “Bank” when we are only referring to Credit Suisse AG and its consolidated subsidiaries.

Abbreviations are explained in the List of abbreviations in the back of this report.

Publications referenced in this report, whether via website links or otherwise, are not incorporated into this report.

In various tables, use of “–” indicates not meaningful or not applicable.

# Pillar 3 and regulatory disclosures 4Q17

Credit Suisse Group AG


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# Introduction

## GENERAL

This report as of December 31, 2017 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 Pillar 3 and regulatory disclosures – Credit Suisse Group AG 2Q17 and 3Q17 and the Credit Suisse Annual Report 2017, which includes important information on regulatory capital, risk management (specific references have been made herein to these documents) and regulatory developments and proposals.

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

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.

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

## OTHER REGULATORY DISCLOSURES

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

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

## 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 2017 or in the regulatory disclosures on our website.

▸ Refer to "Annual Report" under credit-suisse.com/ar for disclosures included in the Credit Suisse Annual Report 2017.

The following table provides an overview of the required disclosures included in the Credit Suisse Annual Report 2017 or on our website.

### Disclosure requirements included in the Credit Suisse Annual Report 2017 or on our website

| FINMA disclosure requirements | Location | Page number |
|---|---|---|
| **Composition of capital** | | |
| Reconciliation [Table 1] | | |
| Differences in basis of consolidation | List of significant subsidiaries and associated entities:<br>"Note 39 – Significant subsidiaries and equity method investments" | 383 – 385 |
| | Changes in scope of consolidation:<br>"Note 3 – Business developments, significant shareholders and subsequent events" | 273 – 274 |
| Restrictions on transfer of funds or regulatory capital | "Liquidity and funding management"<br>"Note 36 – Capital adequacy" | 110 – 115<br>372 |
| **Overview of risk management and risk-weighted assets** | | |
| Risk management approach [Table 3 (OVA)] | "Risk management oversight"<br>"Risk appetite framework"<br>"Risk coverage and management" | 140 – 143<br>144 – 147<br>147 – 151 |
| Overview of risk-weighted assets [Table 4 (OV1)] | Qualitative disclosures:<br>"Risk-weighted assets" | 128 – 130 |
| **Linkages between financial statements and regulatory exposures** | | |
| Valuation process [Table 7 (LIA c)] | "Fair valuations"<br>"Critical accounting estimates – Fair value"<br>"Note 34 – Financial instruments" | 65<br>102<br>354 – 358 |

## Disclosure requirements included in the Credit Suisse Annual Report 2017 or on our website (continued)

| FINMA disclosure requirements | Location | Page number |
|---|---|---|
| **Credit risk** | | |
| General qualitative information about credit risk [Table 8 (CRA)] | "Credit risk" | 155 – 157 |
| Additional disclosure related to credit quality of assets [Table 11 (CRB a, b, c and d)] | "Note 1 – Summary of significant accounting policies"<br>"Note 18 – Loans, allowance for loan losses and credit quality" | 265 – 267<br>285 – 291 |
| Qualitative disclosure requirements related to credit risk mitigation techniques [Table 12 (CRC a)] | Netting:<br>"Derivative instruments"<br>"Note 1 – Summary of significant accounting policies"<br>"Note 26 – Offsetting of financial assets and financial liabilities" | <br>173 – 175<br>263<br>298 – 301 |
| **Counterparty credit risk** | | |
| Qualitative disclosure requirements related to counterparty credit risk [Table 23 (CCRA)] | Transaction rating, credit limits and provisioning:<br>"Credit risk"<br><br>Effect of a credit rating downgrade:<br>"Credit ratings" | <br>155 – 157<br><br><br>117 |
| **Securitization** | | |
| Qualitative disclosure requirements related to securitization exposures [Table 32 (SECA)] | "Note 33 – Transfers of financial assets and variable entities" | 334 – 337 |
| **Market risk** | | |
| Qualitative disclosure requirements related to market risk [Table 37 (MRA)] | "Market risk"<br>"Market risk review<br>"Note 1 – Summary of significant accounting policies"<br>"Note 31 – Derivatives and hedging activities" | 151 – 154<br>165 – 169<br>263 – 264<br>324 – 327 |
| **Operational risk** | | |
| Qualitative disclosures [Table 43] | "Operational risk regulatory capital measurement" | 161 |
| **Interest rate risk in the banking book** | | |
| Quantitative disclosures [Table 44] | "Banking book" | 168 |
| **Capital instruments** | | |
| Main features template and full terms and conditions [Table 45] | Refer to "Capital instruments" under credit-suisse.com/regulatorydisclosures | |
| **Leverage metrics** | | |
| Detailed disclosures [Table 47] | Qualitative disclosures:<br>"Leverage metrics" | <br>131 |
| **Liquidity coverage ratio** | | |
| Liquidity Coverage Ratio [Table 48] | Qualitative disclosures:<br>"Liquidity metrics" | <br>112 – 113 |
| **Additional requirements for large banks** | | |
| G-SIBs indicators [margin 48] | Refer to "G-SIB Indicators" under credit-suisse.com/regulatorydisclosures [1] | |
| **Special duties of disclosure for systemically relevant financial groups and stand-alone banks** | | |
| List and qualification of alleviations granted [margin 53] | "FINMA Decrees" | 123 |
| **Corporate Governance** | | |
| Corporate Governance [Appendix 7] | "Corporate Governance" | 181 – 220 |
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[1] Available by the end of April 2018.

# 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 140 to 143), "Risk appetite framework" (pages 144 to 147) and "Risk coverage and management" (pages 147 to 151) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management in the Credit Suisse Annual Report 2017 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 43);
- Counterparty credit risk (refer to section "Counterparty credit risk" on pages 44 to 54);
- Securitization risk (refer to section "Securitization risk" on pages 55 to 59);
- Market risk (refer to section "Market risk" on pages 60 to 63);
- Interest rate risk in the banking book (refer to section "Interest rate risk in the banking book" on pages 64 to 65); and
- Operational risk.

▸ Refer to "Operational risk regulatory capital measurement" (page 161) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk coverage and management in the Credit Suisse Annual Report 2017 for information on operational risk.

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

# Risk-weighted assets

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

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

| | Risk-weighted assets | | | Capital requirement [1] |
|---|---|---|---|---|
| end of | **4Q17** | 3Q17 | 4Q16 | **4Q17** |
| **CHF million** | | | | |
| Credit risk (excluding counterparty credit risk) | 121,706 | 118,496 | 117,325 | 9,737 |
| of which standardized approach | 10,511 | 10,612 | 11,916 | 841 |
| of which internal rating-based approach | 111,195 | 107,884 | 105,409 | 8,895 |
| Counterparty credit risk | 24,664 | 27,477 | 31,859 | 1,973 |
| of which standardized approach for counterparty credit risk [2] | 2,390 | 2,968 | 3,214 | 191 |
| of which internal model method [3] | 22,274 | 24,509 | 28,645 | 1,782 |
| of which derivatives and SFTs | 14,983 | 16,596 | 14,871 | 1,199 |
| Equity positions in the banking book | 8,218 | 8,525 | 11,183 | 657 |
| Settlement risk | 150 | 186 | 279 | 12 |
| Securitization exposures in the banking book | 10,731 | 9,925 | 10,089 | 858 |
| of which ratings-based approach | 2,560 | 1,734 | 1,500 | 205 |
| of which supervisory formula approach | 3,862 | 3,952 | 5,087 | 309 |
| of which standardized approach/simplified supervisory formula approach | 4,309 | 4,239 | 3,502 | 344 |
| Amounts below the thresholds for deduction (subject to 250% risk weight) | 11,043 | 11,726 | 11,334 | 884 |
| **Total credit risk** | **176,512** | **176,335** | **182,069** | **14,121** |
| **Total market risk** | **21,290** | **19,080** | **23,248** | **1,703** |
| of which standardized approach | 3,765 | 3,683 | 3,965 | 301 |
| of which internal model approach | 17,525 | 15,397 | 19,283 | 1,402 |
| **Total operational risk** | **75,013** | **71,173** | **66,055** | **6,001** |
| of which advanced measurement approach | 75,013 | 71,173 | 66,055 | 6,001 |
| Floor adjustment [4] | 0 | 0 | 0 | 0 |
| **Total** | **272,815** | **266,588** | **271,372** | **21,825** |

[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] Reported under the current exposure method.
[3] Includes RWA relating to advanced credit valuation adjustment and central counterparties of CHF 7,177 million, CHF 7,808 million and CHF 13,717 million as of the end of 4Q17, 3Q17 and 4Q16, respectively.
[4] Credit Suisse is not subject to a floor adjustment because current capital requirements and deductions exceed 80% of those under Basel I.

### RWA movements in 4Q17

RWA increased slightly to CHF 272.8 billion as of the end of 4Q17 compared to CHF 266.6 billion as of the end of 3Q17, primarily driven by increased operational risk, reflecting methodology and policy changes, and increased market risk, mainly reflecting movements in risk levels.

The methodology and policy changes reflected the updated loss history and the revised methodology for the measurement of our RWA relating to operational risk, primarily in respect of our residential mortgage-backed securities (RMBS) settlements.

RWA flow statements for credit risk, counterparty credit risk (CCR) and market risk are presented below.

▸ Refer to "Risk-weighted assets" (pages 128 to 130) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Capital management in the Credit Suisse Annual Report 2017 for further information on risk-weighted assets movements in 2017.

# 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.

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

| | Carrying values | | Carrying values of items subject to: | | | | |
|---|---|---|---|---|---|---|---|
| end of 4Q17 | Published financial statements | Regulatory scope of consolidation | Credit risk frame-work | Counter-party credit risk frame-work | Securiti-zation frame-work | Market risk frame-work | Not subject to capital require-ments or subject to deduction from capital |
| **Assets (CHF million)** | | | | | | | |
| Cash and due from banks | 109,815 | 109,457 | 107,477 | 239 | 0 | 0 | 1,768 |
| Interest-bearing deposits with banks | 726 | 1,146 | 723 | 0 | 0 | 0 | 423 |
| Central bank funds sold, securities purchased under resale agreements and securities borrowing transactions | 115,346 | 108,325 | 0 | 108,325 | 0 | 0 | 0 |
| Securities received as collateral, at fair value | 38,074 | 38,074 | 0 | 38,008 | 0 | 0 | 66 |
| Trading assets, at fair value [1] | 156,334 | 150,812 | 9,139 | 19,327 | 1,127 | 139,150 | 290 |
| Investment securities | 2,191 | 1,810 | 1,766 | 0 | 19 | 0 | 25 |
| Other investments | 5,964 | 5,799 | 3,160 | 105 | 441 | 867 | 1,226 |
| Net loans | 279,149 | 279,859 | 258,135 | 0 | 20,508 | 1,391 | 0 |
| Premises and equipment | 4,686 | 4,752 | 4,752 | 0 | 0 | 0 | 0 |
| Goodwill | 4,742 | 4,747 | 0 | 0 | 0 | 0 | 4,747 |
| Other intangible assets | 223 | 223 | 1 | 0 | 0 | 0 | 222 |
| Brokerage receivables | 46,968 | 46,968 | 2,686 | 28,546 | 0 | 29,869 | 12,911 |
| Other assets | 32,071 | 31,167 | 10,204 | 6,137 | 837 | 11,007 | 8,642 |
| **Total assets** | **796,289** | **783,139** | **398,043** | **200,687** | **22,932** | **182,284** | **30,320** |
| **Liabilities (CHF million)** | | | | | | | |
| Due to banks | 15,413 | 16,004 | 0 | 0 | 0 | 0 | 16,004 |
| Customer deposits | 361,162 | 361,255 | 0 | 0 | 0 | 0 | 361,255 |
| Central bank funds purchased, securities sold under repurchase agreements and securities lending transactions | 26,496 | 26,496 | 0 | 26,554 | 0 | 0 | 0 |
| Obligation to return securities received as collateral, at fair value | 38,074 | 38,074 | 0 | 38,008 | 0 | 0 | 66 |
| Trading liabilities, at fair value [1] | 39,119 | 39,161 | 0 | 12,568 | 0 | 39,161 | 0 |
| Short-term borrowings | 25,889 | 19,293 | 0 | 0 | 0 | 11,010 | 8,283 |
| Long-term debt | 173,032 | 171,989 | 0 | 0 | 0 | 51,464 | 120,525 |
| Brokerage payables | 43,303 | 43,303 | 0 | 26,728 | 0 | 0 | 16,575 |
| Other liabilities | 31,612 | 25,451 | 412 | 8,670 | 0 | 0 | 16,369 |
| **Total liabilities** | **754,100** | **741,026** | **412** | **112,528** | **0** | **101,635** | **539,077** |

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

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

| | Carrying values | | Carrying values of items subject to: | | | | |
|---|---|---|---|---|---|---|---|
| end of 4Q16 | Published financial statements | Regulatory scope of consolidation | Credit risk frame-work | Counter-party credit risk frame-work | Securiti-zation frame-work | Market risk frame-work | Not subject to capital require-ments or subject to deduction from capital |
| **Assets (CHF million)** | | | | | | | |
| Cash and due from banks | 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.

### 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 39 – Significant subsidiaries and equity method investments" (pages 383 to 385) in VI – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2017 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.

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

| | Items subject to: | | | |
|---|---|---|---|---|
| end of | Credit risk framework | Counterparty credit risk framework | Securitization framework | Market risk framework |
| **4Q17 (CHF million)** | | | | |
| Asset carrying value amount under regulatory scope of consolidation | 398,043 | 200,687 | 22,932 | 182,284 |
| Liabilities carrying value amount under regulatory scope of consolidation | 412 | 112,528 | 0 | 101,635 |
| Total net amount under regulatory scope of consolidation | 397,631 | 88,159 | 22,932 | 80,649 |
| Off-balance sheet amounts | 64,143 | 0 | 20,158 | 0 |
| Differences due to application of potential future exposures (SA-CCR) | 0 | 2,529 | 0 | 0 |
| Derivative transactions – differences due to application of internal model method (IMM) | 0 | 13,552 | 0 | 0 |
| SFT – differences due to application of internal model method (IMM) | 0 | (10,852) | 0 | 0 |
| Other differences not classified above | 5,232 | 0 | (1,925) | (76,884) |
| **Exposure amounts considered for regulatory purposes** | **467,006** | **93,388** | **41,165** | **3,765** |
| **4Q16 (CHF million)** | | | | |
| Asset carrying value amount under regulatory scope of consolidation | 411,464 | 214,874 | 26,288 | 202,139 |
| Liabilities carrying value amount under regulatory scope of consolidation | 1,331 | 66,224 | 0 | 39,605 |
| Total net amount under regulatory scope of consolidation | 410,133 | 148,650 | 26,288 | 162,534 |
| Off-balance sheet amounts | 74,979 | 85 | 12,462 | 0 |
| Differences due to application of potential future exposures (SA-CCR) | 0 | 2,374 | 0 | 0 |
| Derivative transactions – differences due to application of internal model method (IMM) | 0 | 34,341 | 0 | 0 |
| SFT – differences due to application of internal model method (IMM) | 0 | (104,872) | 0 | 0 |
| Other differences not classified above | (5,442) | (6,741) | 9,284 | (158,569) |
| **Exposure amounts considered for regulatory purposes** | **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 17 to 22) in Credit risk – Credit risk under the standardized approach for further information on the origins of differences between carrying values and amounts considered for regulatory purposes shown in the table above.

## VALUATION PROCESS

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

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

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

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

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

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

▸ Refer to “Fair valuations” (page 65) in II – Operating and financial review – Credit Suisse – Information and developments, to “Fair value” (page 102) in II – Operating and financial review – Critical accounting estimates and to “Note 34 – Financial instruments” (pages 354 to 358) in VI – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2017 for further information on fair value.

# Credit risk

## GENERAL

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

▸ Refer to "Counterparty credit risk" (pages 44 to 54) for further information on the capital requirements relating to counterparty credit risk.

▸ Refer to "Securitization" (pages 55 to 59) for further information on the securitization framework.

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

The majority of the 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 155 to 157) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk coverage and management in the Credit Suisse Annual Report 2017 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 amounts shown in the following tables are US GAAP carrying values according to the regulatory scope of consolidation that are subject to the credit risk framework.

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

### CRB – Geographic concentration of gross credit exposures

| end of | Switzerland | Americas | Asia Pacific | EMEA | **Total** |
|---|---|---|---|---|---|
| **4Q17 (CHF million)** | | | | | |
| Loans, deposits with banks and other assets | 199,628 | 56,732 | 40,841 | 96,626 | 393,827 |
| Guarantees and commitments | 76,171 | 68,824 | 21,295 | 98,181 | 264,471 |
| **Sub-total** | **275,799** | **125,556** | **62,136** | **194,807** | **658,298** |
| Non-counterparty related risks | | | | | 5,273 |
| **Total** | | | | | **663,571** |
| **4Q16 (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.

## CRB – Industry concentration of gross credit exposures

| end of | Financial institutions | Commercial | Consumer | Public authorities | **Total** |
|---|---|---|---|---|---|
| **4Q17 (CHF million)** | | | | | |
| Loans, deposits with banks and other assets | 10,133 | 130,877 | 141,236 | 111,581 | 393,827 |
| Guarantees and commitments | 10,058 | 184,385 | 65,853 | 4,175 | 264,471 |
| **Sub-total** | **20,191** | **315,262** | **207,089** | **115,756** | **658,298** |
| Non-counterparty related risks | | | | | 5,273 |
| **Total** | | | | | **663,571** |
| **4Q16 (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.

## CRB – Remaining contractual maturity of gross credit exposures

| end of | within 1 year [1] | within 1-5 years | Thereafter | **Total** |
|---|---|---|---|---|
| **4Q17 (CHF million)** | | | | |
| Loans, deposits with banks and other assets | 175,155 | 168,315 | 50,357 | 393,827 |
| Guarantees and commitments | 188,490 | 66,979 | 9,002 | 264,471 |
| **Sub-total** | **363,645** | **235,294** | **59,359** | **658,298** |
| Non-counterparty related risks | | | | 5,273 |
| **Total** | | | | **663,571** |
| **4Q16 (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.

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

| end of | Allowances individually evaluated for impairment | Allowances collectively evaluated for impairment | **Total allowances** | Impaired loans with specific allowances | Impaired loans without specific allowances | **Total impaired loans** | **Gross write-offs** |
|---|---|---|---|---|---|---|---|
| **4Q17 (CHF million)** | | | | | | | |
| Switzerland | 492 | 158 | 650 | 1,349 | 398 | 1,747 | 215 |
| EMEA | 62 | 16 | 78 | 165 | 43 | 208 | 0 |
| Americas | 48 | 39 | 87 | 75 | 2 | 77 | 95 |
| Asia Pacific | 52 | 16 | 68 | 87 | 0 | 87 | 1 |
| **Total** | **654** | **229** | **883** | **1,676** | **443** | **2,119** | **311** |
| **4Q16 (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** |

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

| end of | Allowances individually evaluated for impairment | Allowances collectively evaluated for impairment | **Total allowances** | Impaired loans with specific allowances | Impaired loans without specific allowances | **Total impaired loans** | **Gross write-offs** |
|---|---|---|---|---|---|---|---|
| **4Q17 (CHF million)** | | | | | | | |
| Financial institutions | 37 | 17 | 54 | 46 | 0 | 46 | 0 |
| Commercial | 438 | 166 | 604 | 1,084 | 348 | 1,432 | 244 |
| Consumer | 179 | 46 | 225 | 545 | 95 | 640 | 67 |
| Public authorities | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| **Total** | **654** | **229** | **883** | **1,676** | **443** | **2,119** | **311** |
| **4Q16 (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 provides a comprehensive picture of the credit quality of the Group's on and off-balance sheet assets.

## CR1 – Credit quality of assets

| end of | Defaulted exposures | Non-defaulted exposures | **Gross exposures** | Allowances/ impairments | **Net exposures** |
|---|---|---|---|---|---|
| **4Q17 (CHF million)** | | | | | |
| Loans [1] | 2,402 | 369,226 | 371,628 | (883) | 370,745 |
| Debt securities | 1 | 14,350 | 14,351 | 0 | 14,351 |
| Off-balance sheet exposures [2] | 69 | 102,971 | 103,040 | (123) | 102,917 |
| **Total** | **2,472** | **486,547** | **489,019** | **(1,006)** | **488,013** |
| **2Q17 (CHF million)** [3] | | | | | |
| Loans [1] | 3,430 | 368,548 | 371,978 | (920) | 371,058 |
| Debt securities | 4 | 14,145 | 14,149 | 0 | 14,149 |
| Off-balance sheet exposures [2] | 138 | 102,091 | 102,229 | (90) | 102,139 |
| **Total** | **3,572** | **484,784** | **488,356** | **(1,010)** | **487,346** |

[1] Loans include cash and due from banks.
[2] Revocable loan commitments which are excluded from the disclosed exposures can attract risk-weighted assets.
[3] Prior period has been corrected.

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 265 to 267), "Note 18 – Loans, allowance for loan losses and credit quality" (pages 285 to 291) in VI – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2017 for further information on the credit quality of loans including past due and impaired loans.

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

## CR2 – Changes in stock of defaulted exposures

| **2H17** | |
|---|---|
| **CHF million** | |
| **Defaulted exposures at beginning of period** | **3,572** [1] |
| Exposures that have defaulted since the last reporting period | 429 |
| Returned to non-defaulted status | (1,141) |
| Amounts written-off | (56) |
| Other changes | (332) |
| **Defaulted exposures at end of period** | **2,472** |

[1] Prior period has been corrected.

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

## CRB – Aging analysis of accounting past-due exposures

| | Current | Past due | | | | |
|---|---|---|---|---|---|---|
| end of | | Up to 30 days | 31–60 days | 61–90 days | More than 90 days | Total | **Total** |
| **4Q17 (CHF million)** | | | | | | | |
| Financial institutions | 8,935 | 335 | 2 | 2 | 44 | 383 | 9,318 |
| Commercial | 100,836 | 484 | 54 | 216 | 593 | 1,347 | 102,183 |
| Consumer | 151,699 | 504 | 79 | 58 | 469 | 1,110 | 152,809 |
| Public authorities | 1,198 | 1 | 0 | 0 | 1 | 2 | 1,200 |
| **Gross loans held at amortized cost** | **262,668** | **1,324** | **135** | **276** | **1,107** | **2,842** | **265,510** |
| Gross loans held at fair value | | | | | | | 15,307 |
| **Gross loans** | | | | | | | **280,817** |
| **4Q16 (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, 2017, CHF 119 million were reported as restructured loans.

▸ Refer to "Note 18 – Loans, allowance for loan losses and credit quality" (page 291) in VI – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2017 for further information on restructured exposure.

## CREDIT RISK MITIGATION

Credit Suisse actively mitigates credit exposure utilizing a variety of techniques including netting and securing positions through collateral, financial guarantees and credit derivatives, primarily through credit default swaps (CDS). Recognizing credit risk mitigation (CRM) against exposures is governed by a robust set of policies and processes that ensure enforceability and effectiveness. Credit Suisse additionally monitors the exposure to credit mitigation providers as part of the overall credit risk exposure monitoring framework.

### Netting

▸ Refer to "Derivative instruments" (pages 173 to 175) 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 263) in VI – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2017 for information on policies and procedures for on- and off-balance sheet netting.

▸ Refer to "Note 26 – Offsetting of financial assets and financial liabilities" (pages 298 to 301) in VI – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2017 for further information on the offsetting of derivatives, reverse repurchase and repurchase agreements, and securities lending and borrowing transactions.

### Collateral valuation and management

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

- a legal document framework that is bilaterally agreed with our clients;
- a collateral management risk framework enforcing transparency through self-assessment and management reporting; and
- any prevailing regulatory terms which must be complied with.

For 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.

### Concentrations within risk mitigation

The 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 the 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 173 to 175) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk review and results in the Credit Suisse Annual Report 2017 for further information on credit derivatives, including a breakdown by rating class.

### CRM techniques – overview

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

## CR3 – Credit risk mitigation techniques

| | Net exposures | | | Exposures secured by | | |
|---|---|---|---|---|---|---|
| end of | Unsecured | Partially or fully secured | **Total** | Collateral | Financial guarantees | Credit derivatives |
| **4Q17 (CHF million)** | | | | | | |
| Loans [1] | 143,023 | 227,722 | 370,745 | 191,409 | 5,598 | 520 |
| Debt securities | 13,951 | 400 | 14,351 | 310 | 0 | 90 |
| **Total** | **156,974** | **228,122** | **385,096** | **191,719** | **5,598** | **610** |
| of which defaulted | **720** | **1,308** | **2,028** | **1,271** | **37** | **0** |
| **2Q17 (CHF million)** [2] | | | | | | |
| Loans [1] | 146,464 | 224,594 | 371,058 | 189,684 | 6,769 | 125 |
| Debt securities | 13,900 | 249 | 14,149 | 232 | 0 | 17 |
| **Total** | **160,364** | **224,843** | **385,207** | **189,916** | **6,769** | **142** |
| of which defaulted | **1,482** | **1,568** | **3,050** | **1,468** | **100** | **0** |

[1] Loans include cash and due from banks.

[2] Prior period has been corrected.

## CREDIT RISK UNDER THE STANDARDIZED APPROACH

### General

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

### Credit risk exposure and CRM effects

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

### CR4 – Credit risk exposure and CRM effects

| | Exposures pre-CCF and CRM | | | Exposures post-CCF and CRM | | | | |
|---|---|---|---|---|---|---|---|---|
| end of | On-balance sheet | Off-balance sheet | **Total** | On-balance sheet | Off-balance sheet | **Total** | RWA | RWA density |
| **4Q17 (CHF million, except where indicated)** | | | | | | | | |
| Sovereigns | 15,253 | 0 | 15,253 | 15,253 | 0 | 15,253 | 292 | 2% |
| Institutions – Banks and securities dealer | 0 | 544 | 544 | 0 | 272 | 272 | 55 | 20% |
| Institutions – Other institutions | 59 | 0 | 59 | 59 | 0 | 59 | 12 | 20% |
| Retail | 110 | 77 | 187 | 110 | 77 | 187 | 187 | 100% |
| Other exposures | 11,262 | 1,790 | 13,052 | 11,262 | 1,790 | 13,052 | 9,965 | 76% |
| of which non-counterparty related assets | 5,273 | 0 | 5,273 | 5,273 | 0 | 5,273 | 5,273 | 100% |
| **Total** | **26,684** | **2,411** | **29,095** | **26,684** | **2,139** | **28,823** | **10,511** | **36%** |
| **2Q17 (CHF million, except where indicated)** | | | | | | | | |
| Sovereigns | 15,030 | 0 | 15,030 | 15,030 | 0 | 15,030 | 316 | 2% |
| Institutions – Banks and securities dealer | 75 | 572 | 647 | 75 | 286 | 361 | 96 | 27% |
| Institutions – Other institutions | 58 | 0 | 58 | 58 | 0 | 58 | 12 | 20% |
| Retail | 247 | 131 | 378 | 247 | 131 | 378 | 378 | 100% |
| Other exposures | 11,366 | 1,655 | 13,021 | 11,356 | 1,655 | 13,011 | 10,052 | 77% |
| of which non-counterparty related assets | 5,173 | 0 | 5,173 | 5,173 | 0 | 5,173 | 5,173 | 100% |
| **Total** | **26,776** | **2,358** | **29,134** | **26,766** | **2,072** | **28,838** | **10,854** | **38%** |

### Exposures by asset classes and risk weights

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

## CR5 – Exposures by asset classes and risk weights

| | Risk weight | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| end of | 0% | 10% | 20% | 35% | 50% | 75% | 100% | 150% | Others | Exposures post-CCF and CRM |
| **4Q17 (CHF million)** | | | | | | | | | | |
| Sovereigns | 13,997 | 443 | 529 | 0 | 284 | 0 | 0 | 0 | 0 | 15,253 |
| Institutions – Banks and securities dealer | 0 | 0 | 272 | 0 | 0 | 0 | 0 | 0 | 0 | 272 |
| Institutions – Other institutions | 0 | 0 | 59 | 0 | 0 | 0 | 0 | 0 | 0 | 59 |
| Retail | 0 | 0 | 0 | 0 | 0 | 0 | 187 | 0 | 0 | 187 |
| Other exposures | 3,021 | 0 | 6 | 0 | 166 | 0 | 9,851 | 0 | 8 | 13,052 |
| of which non-counterparty related assets | 0 | 0 | 0 | 0 | 0 | 0 | 5,273 | 0 | 0 | 5,273 |
| **Total** | **17,018** | **443** | **866** | **0** | **450** | **0** | **10,038** | **0** | **8** | **28,823** |
| **2Q17 (CHF million)** | | | | | | | | | | |
| Sovereigns | 13,449 | 804 | 513 | 0 | 262 | 0 | 2 | 0 | 0 | 15,030 |
| Institutions – Banks and securities dealer | 1 | 0 | 286 | 0 | 71 | 0 | 3 | 0 | 0 | 361 |
| Institutions – Other institutions | 0 | 0 | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 58 |
| Retail | 0 | 0 | 0 | 0 | 0 | 0 | 378 | 0 | 0 | 378 |
| Other exposures | 2,977 | 0 | 3 | 0 | 0 | 0 | 10,024 | 0 | 7 | 13,011 |
| of which non-counterparty related assets | 0 | 0 | 0 | 0 | 0 | 0 | 5,173 | 0 | 0 | 5,173 |
| **Total** | **16,427** | **804** | **860** | **0** | **333** | **0** | **10,407** | **0** | **7** | **28,838** |

### 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 approaches for counterparty credit risk (SA-CCR) and credit risk as well as the restrictions on the use of internal models for certain portfolios in 2022. As such, 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.

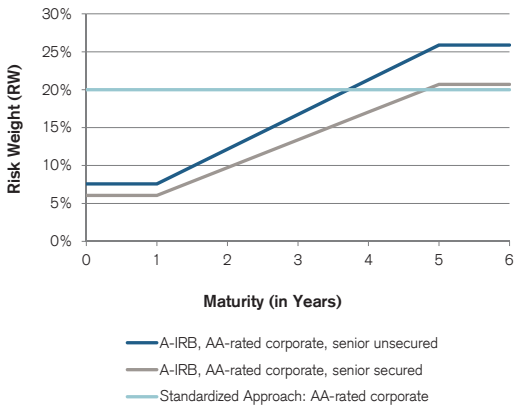
The following table provides a summary of the key conceptual differences between the internal models approach and the current standardized approach.

## 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 2020. | Internal Models Method (IMM) allows Monte-Carlo simulation to estimate exposure. | For large diversified derivatives portfolios, standardized EAD is higher than model EAD. |
| | No differentiation between margined and unmargined transactions. | Ability to net and offset risk factors within the portfolio (i.e. diversification). | Impact applies across all asset classes. |
| | Differentiates add-ons by five exposure types and three maturity buckets only. | Application of multiplier on IMM exposure estimate. | |
| | Limited ability to net. | Variability in holding period applied to collateralized transactions, reflecting liquidity risks. | |
| **Risk weighting** | Reliance on ECAIs: where no rating is available a 100% risk weight is applied (i.e. for most small and medium size enterprises and funds). | Reliance on internal ratings where each counterparty/transaction receives a rating. | Model approach produces lower RWA for high quality short-term transactions. |
| | Crude risk weight differentiation with 4 key weights: 20%, 50%, 100%, 150% (and 0% for AAA sovereigns; 35%, 75% or 100% for mortgages; 75% or 100% for retail). | Granular risk sensitive risk weights differentiation via individual PDs and LGDs. | Standardized approach produces lower RWA for non-investment grade and long-term transactions. |
| | No differentiation for transaction features. | LGD captures transaction quality features incl. collateralization. | Impact relevant across all asset classes. |
| | | Application of a 1.06 scaling factor. | |
| **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 | 182 | 48% | 347 |
| Banks | 37 | 24% | 79 |
| Sovereigns | 100 | 3% | 98 |
| Retail | 193 | 14% | 192 |

[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 182 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.

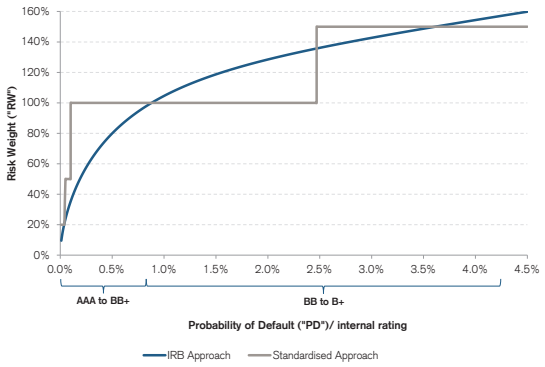
Another significant driver of the increase in credit risk RWA under the standardized approach are higher risk weights. The exposure weighted-average risk weight under the internal model approach is 48%. This is significantly lower than the risk weights assigned to corporates under the standardized approach.

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

## 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

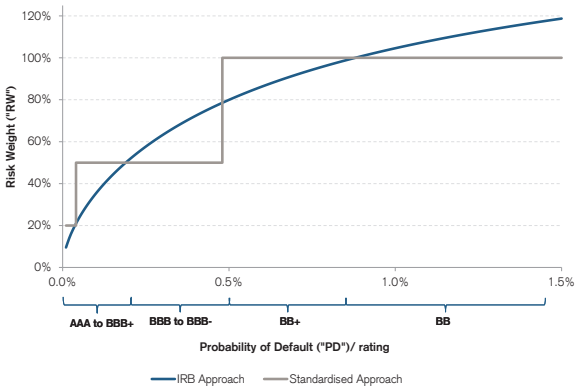
The table "Leverage ratio estimate" shows that the EAD for banks under the internal model approach is CHF 37 billion. The EAD for banks calculated under the standardized approach is significantly higher. This is driven predominantly by the exposure calculations for both OTC derivatives and secured financing 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 24%. This is significantly lower than the risk weights assigned to banks under the standardized approach where a significant amount of the Group's exposures would attract a risk weight of 50%.

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

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

## 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

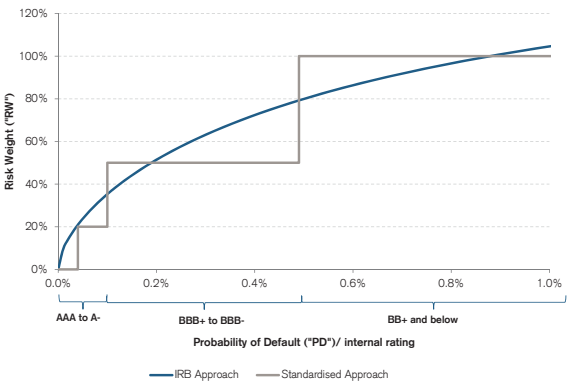
The table "Leverage ratio estimate" shows that the EAD for sovereigns under the internal model approach is CHF 100 billion. This is comparable to the EAD calculated under the standardized approach and the leverage ratio exposure. This is because the majority of the sovereign exposure is in the form of 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 3%. This is lower than the risk weights assigned to counterparties under the standardized approach.

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

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

## 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 193 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 14% 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 15% under the A-IRB approach.

**Lombard lending:** For lombard lending, the average risk weight using internal models is 11%. 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 35%.

Conclusion

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

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

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

## CREDIT RISK UNDER INTERNAL RISK-BASED APPROACHES

### General

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

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

LGD parameters consider seniority, collateral, counterparty industry and in certain cases fair value markdowns. LGD estimates are mainly based on an empirical analysis of historical loss rates. To reflect time value of money recovered amounts on defaulted obligations are discounted to the time of default and to account for potential adverse outcomes in a downturn environment final parameters are chosen such as they reflect periods where economic downturns have been observed and/or where increased losses manifested. For portfolios with low amount of statistical values available conservative values are chosen based on proxy analysis and expert judgement. For much of the private, corporate and institutional banking businesses loan portfolio, the LGD is primarily dependent upon the type and amount of collateral pledged. The credit approval and collateral monitoring process are based on 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" (pages 155 to 156) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk coverage and management in the Credit Suisse Annual Report 2017 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 24 to 25), "Use of internal ratings" (page 27) and "Credit Risk Review" (page 27) for further information on the scope and main content of the reporting related to credit risk models.

### Rating models

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

All new or material changes to rating models are subject to a robust governance process. Post development and validation of a rating model or model change, the model is taken through a number of committees where model developers, validators and users of the models discuss the technical and regulatory aspects of the model. The relevant committees opine on the information provided and decide to either approve or reject the model or model change. The ultimate decision making committee is the Risk Processes & Standards Committee (RPSC). The responsible Executive Board Member for the RPSC is the Chief Risk Officer. The RPSC 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).

## CRE – Main PD and LGD models used by Credit Suisse

| | | | | PD | | LGD | |
|---|---|---|---|---|---|---|---|
| Portfolio | Asset class | Risk-weighted assets (in CHF billion) | Number of years loss data | No. of models | Model comment | No. of models | Model comment |
| Corporates | Corporates, retail | 45 | >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 | 11 | >10 years | 5 | Statistical scorecards using e.g. net asset value, volatility of returns and qualitative factors | | |
| Residential mortgages | Retail | 10 | >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 | 16 | >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 | Sovereign, corporates | 3 | >10 years | 1 | Statistical scorecards using e.g. GDP, financials and qualitative factors | 1 | Statistical models using e.g. industry and counterparty segmentation, seniority and other transaction specific factors |
| Ship finance | Specialized lending | 2 | >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 | 15 | >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.

**Descriptions of the rating processes**

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

**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.

**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.

## CRE – Credit Suisse counterparty ratings

| Ratings | PD bands (%) | Definition | S&P | Fitch | Moody's | Details |
|---|---|---|---|---|---|---|
| AAA | 0.000 – 0.021 | Substantially risk free | AAA | AAA | Aaa | Extremely low risk, very high long-term stability, still solvent under extreme conditions |
| AA+<br>AA<br>AA- | 0.021 – 0.027<br>0.027 – 0.034<br>0.034 – 0.044 | Minimal risk | AA+<br>AA<br>AA- | AA+<br>AA<br>AA- | Aa1<br>Aa2<br>Aa3 | Very low risk, long-term stability, repayment sources sufficient under lasting adverse conditions, extremely high medium-term stability |
| A+<br>A<br>A- | 0.044 – 0.056<br>0.056 – 0.068<br>0.068 – 0.097 | Modest risk | A+<br>A<br>A- | A+<br>A<br>A- | A1<br>A2<br>A3 | 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 |
| BBB+<br>BBB<br>BBB- | 0.097 – 0.167<br>0.167 – 0.285<br>0.285 – 0.487 | Average risk | BBB+<br>BBB<br>BBB- | BBB+<br>BBB<br>BBB- | Baa1<br>Baa2<br>Baa3 | Medium to low risk, high short-term stability, adequate substance for medium-term survival, very stable short term |
| BB+<br>BB<br>BB- | 0.487 – 0.839<br>0.839 – 1.442<br>1.442 – 2.478 | Acceptable risk | BB+<br>BB<br>BB- | BB+<br>BB<br>BB- | Ba1<br>Ba2<br>Ba3 | 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 |
| B+<br>B<br>B- | 2.478 – 4.259<br>4.259 – 7.311<br>7.311 – 12.550 | High risk | B+<br>B<br>B- | B+<br>B<br>B- | B1<br>B2<br>B3 | Increasing risk, limited capability to absorb further unexpected negative developments |
| CCC+<br>CCC<br>CCC-<br>CC | 12.550 – 21.543<br>21.543 – 100.00<br>21.543 – 100.00<br>21.543 – 100.00 | Very high risk | CCC+<br>CCC<br>CCC-<br>CC | CCC+<br>CCC<br>CCC-<br>CC | Caa1<br>Caa2<br>Caa3<br>Ca | High risk, very limited capability to absorb further unexpected negative developments |
| C<br>D1<br>D2 | 100<br>Risk of default has materialized | Imminent or actual loss | C<br>D | C<br>D | 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. |

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 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, Credit Risk Review 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.

Credit Risk Review 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 Credit Risk Review 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.

## CRE – EAD covered by the various approaches

| end of 4Q17 | Standardized approach | A-IRB approach |
|---|---|---|
| **EAD (in %)** | | |
| Sovereigns | 14 | 86 |
| 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.

## CR6 – Credit risk exposures by portfolio and PD range

| end of 4Q17 | Original on-balance sheet gross exposure | Off-balance sheet exposures pre-CCF | **Total exposures** | Average CCF |
|---|---|---|---|---|
| **Sovereigns (CHF million, except where indicated)** | | | | |
| 0.00% to <0.15% | 93,859 | 702 | 94,561 | 87% |
| 0.15% to <0.25% | 88 | 75 | 163 | 0% |
| 0.25% to <0.50% | 104 | 0 | 104 | 100% |
| 0.50% to <0.75% | 144 | 0 | 144 | 0% |
| 0.75% to <2.50% | 427 | 71 | 498 | 88% |
| 2.50% to <10.00% | 1,300 | 66 | 1,366 | 99% |
| 10.00% to <100.00% | 0 | 0 | 0 | 0% |
| 100.00% (Default) | 90 | 0 | 90 | 0% |
| **Sub-total** | **96,012** | **914** | **96,926** | **87%** |
| **Institutions – Banks and securities dealer** | | | | |
| 0.00% to <0.15% | 7,611 | 1,722 | 9,333 | 62% |
| 0.15% to <0.25% | 328 | 131 | 459 | 58% |
| 0.25% to <0.50% | 584 | 280 | 864 | 32% |
| 0.50% to <0.75% | 120 | 82 | 202 | 43% |
| 0.75% to <2.50% | 913 | 310 | 1,223 | 76% |
| 2.50% to <10.00% | 166 | 301 | 467 | 47% |
| 10.00% to <100.00% | 0 | 4 | 4 | 34% |
| 100.00% (Default) | 8 | 19 | 27 | 64% |
| **Sub-total** | **9,730** | **2,849** | **12,579** | **62%** |
| **Institutions – Other institutions** | | | | |
| 0.00% to <0.15% | 653 | 1,678 | 2,331 | 100% |
| 0.15% to <0.25% | 39 | 210 | 249 | 100% |
| 0.25% to <0.50% | 13 | 40 | 53 | 100% |
| 0.50% to <0.75% | 0 | 9 | 9 | 100% |
| 0.75% to <2.50% | 31 | 8 | 39 | 100% |
| 2.50% to <10.00% | 0 | 63 | 63 | 81% |
| 10.00% to <100.00% | 0 | 0 | 0 | 0% |
| 100.00% (Default) | 1 | 0 | 1 | 100% |
| **Sub-total** | **737** | **2,008** | **2,745** | **98%** |
| **Corporates – Specialized lending** | | | | |
| 0.00% to <0.15% | 8,859 | 1,683 | 10,542 | 100% |
| 0.15% to <0.25% | 7,900 | 1,960 | 9,860 | 95% |
| 0.25% to <0.50% | 3,833 | 1,808 | 5,641 | 86% |
| 0.50% to <0.75% | 5,052 | 2,141 | 7,193 | 73% |
| 0.75% to <2.50% | 9,741 | 3,631 | 13,372 | 68% |
| 2.50% to <10.00% | 1,387 | 52 | 1,439 | 80% |
| 10.00% to <100.00% | 8 | 0 | 8 | 0% |
| 100.00% (Default) | 509 | 15 | 524 | 98% |
| Sub-total | **37,289** | **11,290** | **48,579** | **84%** |

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

Total exposures increased slightly compared to the end of 2Q17, primarily reflecting an increase in other retail, partially offset by a decrease in sovereigns.

| EAD post-CRM and post-CCF [1] | Average PD | Number of obligors | Average LGD | Average maturity (years) | RWA [2] | RWA density | Expected loss | Provisions |
|---|---|---|---|---|---|---|---|---|
| 94,657 | 0.02% | 71 | 3% | 1.3 | 834 | 1% | 1 | – |
| 88 | 0.22% | 10 | 45% | 2.8 | 46 | 52% | 0 | – |
| 104 | 0.37% | 8 | 45% | 1.2 | 50 | 48% | 0 | – |
| 69 | 0.64% | 21 | 44% | 5.0 | 76 | 111% | 0 | – |
| 528 | 1.10% | 20 | 44% | 3.3 | 574 | 109% | 3 | – |
| 282 | 6.28% | 26 | 41% | 2.7 | 409 | 145% | 7 | – |
| 0 | 0.00% | 0 | 0% | 0.0 | 0 | 0% | 0 | – |
| 89 | 10.00% | 2 | 44% | 3.4 | 94 | 106% | 0 | – |
| **95,817** | **0.14%** | **158** | **3%** | **1.3** | **2,083** | **2%** | **11** | **0** |
| 12,376 | 0.06% | 623 | 50% | 1.2 | 1,671 | 14% | 4 | – |
| 615 | 0.22% | 85 | 49% | 0.8 | 267 | 43% | 1 | – |
| 682 | 0.37% | 153 | 51% | 1.6 | 411 | 60% | 1 | – |
| 159 | 0.61% | 114 | 67% | 0.8 | 172 | 108% | 1 | – |
| 1,046 | 1.17% | 238 | 51% | 1.0 | 1,145 | 109% | 6 | – |
| 149 | 6.61% | 102 | 43% | 1.5 | 254 | 170% | 4 | – |
| 1 | 19.14% | 4 | 47% | 0.4 | 2 | 232% | 0 | – |
| 19 | 100.00% | 8 | 40% | 1.1 | 21 | 106% | 35 | – |
| **15,047** | **0.36%** | **1,327** | **50%** | **1.2** | **3,943** | **26%** | **52** | **35** |
| 997 | 0.05% | 338 | 38% | 2.8 | 170 | 17% | 0 | – |
| 81 | 0.19% | 102 | 40% | 1.5 | 27 | 33% | 0 | – |
| 26 | 0.37% | 26 | 44% | 1.7 | 14 | 53% | 0 | – |
| 2 | 0.58% | 82 | 44% | 1.1 | 1 | 59% | 0 | – |
| 34 | 1.94% | 25 | 14% | 4.6 | 13 | 40% | 0 | – |
| 31 | 7.03% | 5 | 23% | 5.0 | 36 | 116% | 1 | – |
| 0 | 0.00% | 0 | 0% | 0.0 | 0 | 0% | 0 | – |
| 1 | 100.00% | 1 | 44% | 1.0 | 1 | 106% | 0 | – |
| **1,172** | **0.36%** | **579** | **37%** | **2.8** | **262** | **22%** | **1** | **0** |
| 9,552 | 0.06% | 810 | 30% | 2.2 | 1,827 | 19% | 2 | – |
| 8,747 | 0.21% | 816 | 29% | 2.4 | 2,963 | 34% | 5 | – |
| 4,550 | 0.37% | 528 | 28% | 2.3 | 1,961 | 43% | 5 | – |
| 5,746 | 0.58% | 412 | 25% | 2.1 | 2,400 | 42% | 8 | – |
| 10,687 | 1.24% | 779 | 20% | 2.7 | 4,801 | 45% | 26 | – |
| 1,406 | 4.16% | 122 | 11% | 3.6 | 570 | 41% | 7 | – |
| 8 | 19.31% | 2 | 22% | 4.1 | 14 | 169% | 0 | – |
| 515 | 100.00% | 37 | 20% | 1.9 | 546 | 106% | 132 | – |
| **41,211** | **1.90%** | **3,506** | **25%** | **2.4** | **15,082** | **37%** | **185** | **132** |

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

| end of 4Q17 | Original on-balance sheet gross exposure | Off-balance sheet exposures pre CCF | **Total exposures** | Average CCF |
|---|---|---|---|---|
| **Corporates without specialized lending (CHF million, except where indicated)** | | | | |
| 0.00% to <0.15% | 11,884 | 48,871 | 60,755 | 62% |
| 0.15% to <0.25% | 5,482 | 11,910 | 17,392 | 66% |
| 0.25% to <0.50% | 6,567 | 8,107 | 14,674 | 60% |
| 0.50% to <0.75% | 4,440 | 5,070 | 9,510 | 64% |
| 0.75% to <2.50% | 12,577 | 9,654 | 22,231 | 57% |
| 2.50% to <10.00% | 6,380 | 17,181 | 23,561 | 50% |
| 10.00% to <100.00% | 782 | 751 | 1,533 | 68% |
| 100.00% (Default) | 781 | 93 | 874 | 8% |
| **Sub-total** | **48,893** | **101,637** | **150,530** | **60%** |
| **Residential mortgages** | | | | |
| 0.00% to <0.15% | 31,280 | 1,724 | 33,004 | 100% |
| 0.15% to <0.25% | 48,054 | 2,506 | 50,560 | 100% |
| 0.25% to <0.50% | 17,800 | 1,285 | 19,085 | 100% |
| 0.50% to <0.75% | 5,528 | 516 | 6,044 | 100% |
| 0.75% to <2.50% | 4,529 | 540 | 5,069 | 100% |
| 2.50% to <10.00% | 554 | 17 | 571 | 100% |
| 10.00% to <100.00% | 53 | 0 | 53 | 0% |
| 100.00% (Default) | 313 | 5 | 318 | 100% |
| **Sub-total** | **108,111** | **6,593** | **114,704** | **100%** |
| **Qualifying revolving retail** | | | | |
| 0.75% to <2.50% | 518 | 5,516 | 6,034 | 0% |
| 10.00% to <100.00% | 101 | 0 | 101 | 68% |
| 100.00% (Default) | 0 | 0 | 0 | 0% |
| **Sub-total** | **619** | **5,516** | **6,135** | **68%** |
| **Other retail** | | | | |
| 0.00% to <0.15% | 55,768 | 115,295 | 171,063 | 95% |
| 0.15% to <0.25% | 3,000 | 8,251 | 11,251 | 90% |
| 0.25% to <0.50% | 921 | 2,611 | 3,532 | 86% |
| 0.50% to <0.75% | 1,091 | 830 | 1,921 | 80% |
| 0.75% to <2.50% | 4,058 | 1,712 | 5,770 | 96% |
| 2.50% to <10.00% | 2,786 | 768 | 3,554 | 98% |
| 10.00% to <100.00% | 53 | 24 | 77 | 99% |
| 100.00% (Default) | 233 | 26 | 259 | 85% |
| **Sub-total** | **67,910** | **129,517** | **197,427** | **94%** |
| **Sub-total (all portfolios)** | | | | |
| 0.00% to <0.15% | 209,914 | 171,675 | 381,589 | 71% |
| 0.15% to <0.25% | 64,891 | 25,043 | 89,934 | 77% |
| 0.25% to <0.50% | 29,822 | 14,131 | 43,953 | 69% |
| 0.50% to <0.75% | 16,375 | 8,648 | 25,023 | 70% |
| 0.75% to <2.50% | 32,794 | 21,442 | 54,236 | 64% |
| 2.50% to <10.00% | 12,573 | 18,448 | 31,021 | 51% |
| 10.00% to <100.00% | 997 | 779 | 1,776 | 69% |
| 100.00% (Default) | 1,935 | 158 | 2,093 | 56% |
| **Sub-total (all portfolios)** | **369,301** | **260,324** | **629,625** | **69%** |
| **Alternative treatment** | | | | |
| Exposures from free deliveries applying standardized risk weights or 100% under the alternative treatment | – | – | – | – |
| IRB – maturity and export finance buffer | – | – | – | – |
| **Total (all portfolios and alternative treatment)** | | | | |
| **Total (all portfolios and alternative treatment)** | **369,301** | **260,324** | **629,625** | **69%** |

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

| EAD post-CRM and post-CCF [1] | Average PD | Number of obligors | Average LGD | Average maturity (years) | RWA [2] | RWA density | Expected loss | Provisions |
|---|---|---|---|---|---|---|---|---|
| 36,978 | 0.06% | 2,724 | 44% | 2.3 | 8,863 | 24% | 12 | – |
| 9,849 | 0.21% | 1,706 | 39% | 2.2 | 3,894 | 40% | 8 | – |
| 9,847 | 0.37% | 1,297 | 36% | 2.5 | 5,084 | 52% | 13 | – |
| 6,181 | 0.60% | 1,353 | 41% | 2.7 | 4,470 | 72% | 24 | – |
| 16,235 | 1.46% | 2,705 | 40% | 2.5 | 14,792 | 91% | 100 | – |
| 11,621 | 5.46% | 1,923 | 35% | 2.8 | 19,535 | 168% | 244 | – |
| 947 | 20.54% | 100 | 24% | 2.1 | 1,717 | 181% | 48 | – |
| 818 | 100.00% | 202 | 39% | 2.7 | 867 | 106% | 507 | – |
| **92,476** | **2.17%** | **12,010** | **40%** | **2.4** | **59,222** | **64%** | **956** | **527** |
| 31,450 | 0.08% | 42,771 | 15% | 2.9 | 1,843 | 6% | 4 | – |
| 48,933 | 0.20% | 69,443 | 15% | 3.0 | 5,938 | 12% | 15 | – |
| 18,318 | 0.35% | 20,747 | 17% | 2.8 | 3,535 | 19% | 11 | – |
| 5,709 | 0.58% | 7,969 | 17% | 2.7 | 1,614 | 28% | 5 | – |
| 4,722 | 1.21% | 7,472 | 17% | 2.6 | 2,240 | 47% | 10 | – |
| 564 | 4.67% | 800 | 15% | 2.2 | 540 | 96% | 4 | – |
| 53 | 17.85% | 80 | 17% | 1.8 | 98 | 186% | 2 | – |
| 317 | 100.00% | 200 | 18% | 1.4 | 336 | 106% | 36 | – |
| **110,066** | **0.57%** | **149,482** | **15%** | **2.9** | **16,144** | **15%** | **87** | **36** |
| 591 | 1.30% | 788,602 | 50% | 1.0 | 146 | 25% | 4 | – |
| 101 | 25.00% | 96,906 | 35% | 0.2 | 107 | 105% | 9 | – |
| 1 | 100.00% | 153 | 36% | 0.2 | 1 | 106% | 9 | – |
| **693** | **4.84%** | **885,661** | **48%** | **0.9** | **254** | **37%** | **22** | **9** |
| 64,749 | 0.04% | 49,560 | 63% | 1.4 | 5,155 | 8% | 16 | – |
| 3,883 | 0.19% | 5,040 | 42% | 1.5 | 667 | 17% | 3 | – |
| 1,246 | 0.37% | 4,339 | 23% | 1.5 | 185 | 15% | 1 | – |
| 1,255 | 0.58% | 11,947 | 43% | 1.2 | 444 | 35% | 3 | – |
| 4,398 | 1.63% | 78,724 | 44% | 2.0 | 2,443 | 56% | 31 | – |
| 2,965 | 5.72% | 85,657 | 40% | 3.0 | 1,925 | 65% | 70 | – |
| 63 | 15.95% | 283 | 52% | 1.8 | 65 | 104% | 5 | – |
| 180 | 100.00% | 5,821 | 76% | 1.6 | 191 | 106% | 167 | – |
| **78,739** | **0.61%** | **241,371** | **59%** | **1.5** | **11,075** | **14%** | **296** | **167** |
| 250,759 | 0.04% | 96,897 | 29% | 1.7 | 20,363 | 8% | 39 | – |
| 72,196 | 0.20% | 77,202 | 22% | 2.7 | 13,802 | 19% | 32 | – |
| 34,773 | 0.36% | 27,098 | 25% | 2.6 | 11,240 | 32% | 31 | – |
| 19,121 | 0.59% | 21,898 | 29% | 2.4 | 9,177 | 48% | 41 | – |
| 38,241 | 1.37% | 878,565 | 32% | 2.5 | 26,154 | 68% | 180 | – |
| 17,018 | 5.40% | 88,635 | 34% | 2.8 | 23,269 | 137% | 337 | – |
| 1,173 | 20.55% | 97,375 | 26% | 1.9 | 2,003 | 171% | 64 | – |
| 1,940 | 100.00% | 6,424 | 34% | 2.2 | 2,057 | 106% | 886 | – |
| **435,221** | **0.95%** | **1,294,094** | **28%** | **2.1** | **108,065** | **25%** | **1,610** | **906** |
| 77 | – | – | – | – | 66 | – | – | – |
| – | – | – | – | – | 1,002 | – | – | – |
| **435,298** | **0.95%** | **1,294,094** | **28%** | **2.1** | **109,133** | **25%** | **1,610** | **906** |

## CR6 – Credit risk exposures by portfolio and PD range

| end of 2Q17 | Original on-balance sheet gross exposure | Off-balance sheet exposures pre CCF | **Total exposures** | Average CCF |
|---|---|---|---|---|
| **Sovereigns (CHF million, except where indicated)** | | | | |
| 0.00% to <0.15% | 95,216 | 584 | 95,800 | 86% |
| 0.15% to <0.25% | 276 | 86 | 362 | 0% |
| 0.25% to <0.50% | 98 | 0 | 98 | 100% |
| 0.50% to <0.75% | 93 | 0 | 93 | 0% |
| 0.75% to <2.50% | 512 | 22 | 534 | 100% |
| 2.50% to <10.00% | 2,006 | 6 | 2,012 | 61% |
| 10.00% to <100.00% | 74 | 0 | 74 | 0% |
| 100.00% (Default) | 174 | 0 | 174 | 0% |
| **Sub-total** | **98,449** | **698** | **99,147** | **85%** |
| **Institutions – Banks and securities dealer** | | | | |
| 0.00% to <0.15% | 7,137 | 1,441 | 8,578 | 71% |
| 0.15% to <0.25% | 303 | 163 | 466 | 51% |
| 0.25% to <0.50% | 602 | 252 | 854 | 34% |
| 0.50% to <0.75% | 188 | 51 | 239 | 24% |
| 0.75% to <2.50% | 956 | 186 | 1,142 | 50% |
| 2.50% to <10.00% | 387 | 258 | 645 | 44% |
| 10.00% to <100.00% | 1 | 24 | 25 | 54% |
| 100.00% (Default) | 248 | 1 | 249 | 47% |
| **Sub-total** | **9,822** | **2,376** | **12,198** | **70%** |
| **Institutions – Other institutions** | | | | |
| 0.00% to <0.15% | 675 | 1,730 | 2,405 | 100% |
| 0.15% to <0.25% | 45 | 173 | 218 | 100% |
| 0.25% to <0.50% | 28 | 56 | 84 | 99% |
| 0.50% to <0.75% | 1 | 4 | 5 | 100% |
| 0.75% to <2.50% | 23 | 12 | 35 | 100% |
| 2.50% to <10.00% | 0 | 38 | 38 | 100% |
| 10.00% to <100.00% | 0 | 0 | 0 | 0% |
| 100.00% (Default) | 5 | 0 | 5 | 100% |
| **Sub-total** | **777** | **2,013** | **2,790** | **100%** |
| **Corporates – Specialized lending** | | | | |
| 0.00% to <0.15% | 8,443 | 2,227 | 10,670 | 100% |
| 0.15% to <0.25% | 8,159 | 1,649 | 9,808 | 89% |
| 0.25% to <0.50% | 4,461 | 1,340 | 5,801 | 91% |
| 0.50% to <0.75% | 4,631 | 2,728 | 7,359 | 68% |
| 0.75% to <2.50% | 9,908 | 2,626 | 12,534 | 77% |
| 2.50% to <10.00% | 1,275 | 67 | 1,342 | 91% |
| 10.00% to <100.00% | 41 | 5 | 46 | 20% |
| 100.00% (Default) | 601 | 21 | 622 | 100% |
| Sub-total | **37,519** | **10,663** | **48,182** | **85%** |

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

| | EAD post-CRM and post-CCF [1] | Average PD | Number of obligors | Average LGD | Average maturity (years) | RWA [2] | RWA density | Expected loss | Provisions |
|---|---|---|---|---|---|---|---|---|---|
| | 95,876 | 0.03% | 66 | 2% | 1.2 | 640 | 1% | 0 | – |
| | 54 | 0.22% | 8 | 46% | 2.3 | 26 | 48% | 0 | – |
| | 98 | 0.37% | 17 | 44% | 1.2 | 45 | 45% | 0 | – |
| | 3 | 0.63% | 18 | 46% | 4.5 | 3 | 107% | 0 | – |
| | 563 | 1.10% | 20 | 44% | 3.0 | 585 | 104% | 3 | – |
| | 325 | 6.79% | 25 | 42% | 3.0 | 517 | 159% | 9 | – |
| | 3 | 16.44% | 1 | 41% | 2.5 | 6 | 222% | 0 | – |
| | 173 | 100.00% | 1 | 44% | 3.7 | 184 | 106% | 0 | – |
| | **97,095** | **0.24%** | **156** | **3%** | **1.2** | **2,006** | **2%** | **12** | **0** |
| | 12,878 | 0.06% | 617 | 50% | 1.6 | 1,614 | 13% | 4 | – |
| | 543 | 0.22% | 83 | 49% | 0.8 | 231 | 43% | 1 | – |
| | 680 | 0.37% | 149 | 53% | 1.8 | 437 | 64% | 1 | – |
| | 205 | 0.60% | 118 | 72% | 0.8 | 245 | 119% | 1 | – |
| | 816 | 1.20% | 233 | 51% | 1.7 | 934 | 115% | 5 | – |
| | 190 | 7.89% | 93 | 39% | 1.8 | 299 | 158% | 6 | – |
| | 13 | 26.85% | 7 | 45% | 1.3 | 35 | 272% | 2 | – |
| | 248 | 100.00% | 11 | 51% | 1.9 | 263 | 106% | 89 | – |
| | **15,573** | **1.86%** | **1,311** | **50%** | **1.6** | **4,058** | **26%** | **109** | **91** |
| | 1,037 | 0.05% | 342 | 38% | 2.8 | 160 | 15% | 1 | – |
| | 90 | 0.19% | 117 | 41% | 1.7 | 31 | 35% | 0 | – |
| | 11 | 0.37% | 23 | 45% | 1.2 | 6 | 51% | 0 | – |
| | 3 | 0.58% | 82 | 47% | 0.8 | 2 | 66% | 0 | – |
| | 29 | 2.05% | 30 | 13% | 4.7 | 11 | 39% | 0 | – |
| | 17 | 5.17% | 3 | 7% | 1.0 | 4 | 21% | 0 | – |
| | 0 | 0.00% | 0 | 0% | 0.0 | 0 | 0% | 0 | – |
| | 5 | 100.00% | 1 | 44% | 1.0 | 6 | 106% | 0 | – |
| | **1,192** | **0.64%** | **598** | **38%** | **2.7** | **220** | **18%** | **1** | **0** |
| | 9,448 | 0.06% | 807 | 29% | 2.2 | 1,634 | 17% | 2 | – |
| | 8,892 | 0.20% | 814 | 31% | 2.4 | 3,108 | 35% | 5 | – |
| | 5,031 | 0.37% | 535 | 26% | 2.3 | 1,950 | 39% | 5 | – |
| | 5,458 | 0.58% | 441 | 25% | 2.1 | 2,190 | 40% | 8 | – |
| | 10,784 | 1.27% | 804 | 19% | 3.0 | 4,867 | 45% | 27 | – |
| | 1,300 | 3.90% | 79 | 9% | 3.8 | 413 | 32% | 5 | – |
| | 42 | 15.77% | 4 | 34% | 1.6 | 67 | 161% | 2 | – |
| | 610 | 100.00% | 43 | 18% | 2.2 | 647 | 106% | 154 | – |
| | **41,565** | **2.11%** | **3,527** | **25%** | **2.5** | **14,876** | **36%** | **208** | **154** |

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

| end of 2Q17 | Original on-balance sheet gross exposure | Off-balance sheet exposures pre CCF | **Total exposures** | Average CCF |
|---|---|---|---|---|
| **Corporates without specialized lending (CHF million, except where indicated)** | | | | |
| 0.00% to <0.15% | 14,130 | 49,153 | 63,283 | 58% |
| 0.15% to <0.25% | 6,023 | 10,911 | 16,934 | 67% |
| 0.25% to <0.50% | 5,343 | 8,327 | 13,670 | 57% |
| 0.50% to <0.75% | 4,563 | 5,674 | 10,237 | 63% |
| 0.75% to <2.50% | 12,629 | 7,727 | 20,356 | 67% |
| 2.50% to <10.00% | 5,695 | 17,058 | 22,753 | 48% |
| 10.00% to <100.00% | 1,560 | 809 | 2,369 | 65% |
| 100.00% (Default) | 1,087 | 178 | 1,265 | 48% |
| **Sub-total** | **51,030** | **99,837** | **150,867** | **58%** |
| **Residential mortgages** | | | | |
| 0.00% to <0.15% | 30,364 | 1,774 | 32,138 | 100% |
| 0.15% to <0.25% | 47,539 | 2,612 | 50,151 | 100% |
| 0.25% to <0.50% | 17,443 | 1,183 | 18,626 | 100% |
| 0.50% to <0.75% | 5,760 | 914 | 6,674 | 100% |
| 0.75% to <2.50% | 4,806 | 334 | 5,140 | 100% |
| 2.50% to <10.00% | 547 | 13 | 560 | 100% |
| 10.00% to <100.00% | 41 | 0 | 41 | 100% |
| 100.00% (Default) | 368 | 5 | 373 | 100% |
| **Sub-total** | **106,868** | **6,835** | **113,703** | **100%** |
| **Qualifying revolving retail** | | | | |
| 0.75% to <2.50% | 390 | 5,628 | 6,018 | 0% |
| 10.00% to <100.00% | 107 | 0 | 107 | 50% |
| 100.00% (Default) | 1 | 0 | 1 | 0% |
| **Sub-total** | **498** | **5,628** | **6,126** | **50%** |
| **Other retail** | | | | |
| 0.00% to <0.15% | 51,756 | 105,834 | 157,590 | 96% |
| 0.15% to <0.25% | 2,885 | 8,229 | 11,114 | 90% |
| 0.25% to <0.50% | 2,020 | 3,702 | 5,722 | 89% |
| 0.50% to <0.75% | 575 | 772 | 1,347 | 82% |
| 0.75% to <2.50% | 3,443 | 1,484 | 4,927 | 93% |
| 2.50% to <10.00% | 2,529 | 1,002 | 3,531 | 99% |
| 10.00% to <100.00% | 138 | 16 | 154 | 95% |
| 100.00% (Default) | 251 | 21 | 272 | 86% |
| **Sub-total** | **63,597** | **121,060** | **184,657** | **95%** |
| **Sub-total (all portfolios)** | | | | |
| 0.00% to <0.15% | 207,721 | 162,743 | 370,464 | 70% |
| 0.15% to <0.25% | 65,230 | 23,823 | 89,053 | 78% |
| 0.25% to <0.50% | 29,995 | 14,860 | 44,855 | 68% |
| 0.50% to <0.75% | 15,811 | 10,143 | 25,954 | 66% |
| 0.75% to <2.50% | 32,667 | 18,019 | 50,686 | 72% |
| 2.50% to <10.00% | 12,439 | 18,442 | 30,881 | 50% |
| 10.00% to <100.00% | 1,962 | 854 | 2,816 | 65% |
| 100.00% (Default) | 2,735 | 226 | 2,961 | 61% |
| **Sub-total (all portfolios)** | **368,560** | **249,110** | **617,670** | **69%** |
| **Alternative treatment** | | | | |
| Exposures from free deliveries applying standardized risk weights or 100% under the alternative treatment | – | – | – | – |
| IRB – maturity and export finance buffer | – | – | – | – |
| **Total (all portfolios and alternative treatment)** | | | | |
| **Total (all portfolios and alternative treatment)** | **368,560** | **249,110** | **617,670** | **69%** |

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

| EAD post-CRM and post-CCF [1] | Average PD | Number of obligors | Average LGD | Average maturity (years) | RWA [2] | RWA density | Expected loss | Provisions |
|---|---|---|---|---|---|---|---|---|
| 38,449 | 0.07% | 2,696 | 43% | 2.4 | 9,315 | 24% | 10 | – |
| 10,021 | 0.21% | 1,595 | 39% | 2.3 | 3,839 | 38% | 8 | – |
| 8,410 | 0.37% | 1,248 | 37% | 2.4 | 4,187 | 50% | 11 | – |
| 6,842 | 0.61% | 1,405 | 41% | 2.5 | 5,015 | 73% | 18 | – |
| 16,281 | 1.42% | 2,817 | 41% | 2.3 | 15,502 | 95% | 95 | – |
| 11,170 | 5.35% | 1,723 | 36% | 2.6 | 17,827 | 160% | 220 | – |
| 1,798 | 24.01% | 101 | 11% | 2.4 | 1,422 | 79% | 39 | – |
| 1,154 | 100.00% | 219 | 39% | 1.8 | 1,223 | 106% | 555 | – |
| **94,125** | **2.69%** | **11,804** | **40%** | **2.4** | **58,330** | **62%** | **956** | **571** |
| 31,103 | 0.08% | 42,657 | 15% | 2.9 | 1,778 | 6% | 4 | – |
| 48,659 | 0.20% | 69,318 | 15% | 3.0 | 5,786 | 12% | 14 | – |
| 17,983 | 0.35% | 20,761 | 17% | 2.9 | 3,443 | 19% | 11 | – |
| 5,938 | 0.58% | 8,197 | 17% | 2.7 | 1,673 | 28% | 6 | – |
| 4,950 | 1.21% | 7,793 | 17% | 2.6 | 2,293 | 46% | 10 | – |
| 555 | 4.58% | 813 | 15% | 2.3 | 516 | 93% | 4 | – |
| 41 | 17.37% | 72 | 15% | 1.9 | 67 | 163% | 1 | – |
| 372 | 100.00% | 294 | 17% | 1.8 | 395 | 106% | 38 | – |
| **109,601** | **0.62%** | **149,905** | **16%** | **2.9** | **15,951** | **15%** | **88** | **38** |
| 410 | 1.30% | 776,968 | 50% | 1.0 | 102 | 25% | 3 | – |
| 108 | 45.00% | 88,958 | 20% | 0.2 | 69 | 64% | 10 | – |
| 1 | 100.00% | 211 | 21% | 0.2 | 1 | 106% | 9 | – |
| **519** | **10.58%** | **866,137** | **44%** | **0.8** | **172** | **33%** | **22** | **9** |
| 59,319 | 0.04% | 50,348 | 63% | 1.4 | 4,932 | 8% | 16 | – |
| 3,724 | 0.19% | 4,974 | 44% | 1.5 | 673 | 18% | 3 | – |
| 1,690 | 0.37% | 4,439 | 31% | 1.5 | 343 | 20% | 2 | – |
| 692 | 0.58% | 12,116 | 31% | 1.0 | 179 | 26% | 1 | – |
| 4,412 | 1.55% | 80,620 | 47% | 1.6 | 2,462 | 56% | 29 | – |
| 2,785 | 5.06% | 86,240 | 39% | 3.0 | 1,714 | 62% | 56 | – |
| 151 | 13.31% | 272 | 47% | 1.3 | 141 | 94% | 10 | – |
| 195 | 100.00% | 6,130 | 76% | 1.6 | 207 | 106% | 148 | – |
| **72,968** | **0.64%** | **245,139** | **59%** | **1.5** | **10,651** | **15%** | **265** | **149** |
| 248,110 | 0.05% | 97,533 | 28% | 1.7 | 20,073 | 8% | 37 | – |
| 71,983 | 0.20% | 76,909 | 22% | 2.7 | 13,694 | 19% | 31 | – |
| 33,903 | 0.36% | 27,172 | 25% | 2.6 | 10,411 | 31% | 30 | – |
| 19,141 | 0.59% | 22,377 | 29% | 2.4 | 9,307 | 49% | 34 | – |
| 38,245 | 1.36% | 869,285 | 33% | 2.5 | 26,756 | 70% | 172 | – |
| 16,342 | 5.22% | 88,976 | 34% | 2.8 | 21,290 | 130% | 300 | – |
| 2,156 | 24.04% | 89,415 | 15% | 2.2 | 1,807 | 84% | 64 | – |
| 2,758 | 100.00% | 6,910 | 35% | 2.0 | 2,926 | 106% | 993 | – |
| **432,638** | **1.19%** | **1,278,577** | **28%** | **2.1** | **106,264** | **25%** | **1,661** | **1,012** |
| 40 | – | – | – | – | 31 | – | – | – |
| – | – | – | – | – | 311 | – | – | – |
| **432,678** | **1.19%** | **1,278,577** | **28%** | **2.1** | **106,606** | **25%** | **1,661** | **1,012** |

**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.

## CR7 – Effect on risk-weighted assets of credit derivatives used as CRM techniques

| | 4Q17 | | 2Q17 | |
|---|---|---|---|---|
| end of | Pre-credit derivatives RWA | Actual RWA | Pre-credit derivatives RWA | Actual RWA |
| **CHF million** | | | | |
| Sovereigns – A-IRB | 1,969 | 1,965 | 2,439 | 1,892 |
| Institutions – Banks and securities dealers – A-IRB | 5,422 | 3,723 | 6,557 | 3,830 |
| Institutions – Other institutions – A-IRB | 247 | 247 | 211 | 207 |
| Corporates – Specialized lending – A-IRB | 16,289 | 16,291 | 15,968 | 15,970 |
| Corporates without specialized lending – A-IRB | 56,088 | 55,928 | 53,701 | 55,057 |
| Residential mortgages | 15,231 | 15,231 | 15,135 | 15,048 |
| Qualifying revolving retail | 239 | 239 | 159 | 162 |
| Other retail | 10,448 | 10,448 | 10,454 | 10,049 |
| **Total** | **105,933** | **104,072** | **104,624** | **102,215** |

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.

**RWA flow statements of credit risk exposures under IRB**

The following table presents the definitions of the RWA flow statements components for credit risk and CCR.

## Definition of risk-weighted assets movement components related to credit risk and CCR

| Description | Definition |
|---|---|
| **Asset size** | Represents changes arising in the ordinary course of business (including new businesses) |
| **Asset quality/Credit quality of counterparties** | Represents changes in average risk weighting across credit risk classes |
| **Model and parameter updates** | Represents movements arising from updates to models and recalibrations of parameters |
| **Methodology and policy changes** | Represents movements due to methodology changes in calculations driven by regulatory policy changes, including both revisions to existing regulations and new regulations |
| **Acquisitions and disposals** | Represents changes in book sizes due to acquisitions and disposals of entities |
| **Foreign exchange impact** | Represents changes in exchange rates of the transaction currencies compared to the Swiss franc |
| **Other** | Represents changes that cannot be attributed to any other category |

### Credit risk RWA movements in 4Q17

The following table presents the 4Q17 flow statement explaining the variations in the credit risk RWA determined under an IRB approach.

## CR8 – Risk-weighted assets flow statements of credit risk exposures under IRB

| 4Q17 | RWA |
|---|---|
| CHF million | |
| **Risk-weighted assets at beginning of period** | **107,884** |
| Asset size | 1,457 |
| Asset quality | 61 |
| Model and parameter updates | 221 |
| Methodology and policy changes | 800 |
| Foreign exchange impact | 772 |
| **Risk-weighted assets at end of period** | **111,195** |

Credit risk RWA under IRB of CHF 111.2 billion increased CHF 3.3 billion compared to the end of 3Q17, primarily driven by increases related to asset size, mainly reflecting higher exposures, methodology and policy changes and a foreign exchange impact.

The increase in methodology and policy changes was mainly due to an additional phase-in of the multiplier on income producing real estate (IPRE) exposures and an additional phase-in of a multiplier on certain investment banking corporate exposures.

### 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.

The following table provides backtesting data to validate the reliability of PD calculations.

## CR9 – Backtesting of PD per portfolio

| | Master scale from CRM S&P | Master scale from CRM Fitch | Master scale from CRM Moody | Weighted average PD |
|---|---|---|---|---|
| **Sovereigns** | | | | |
| 0.00% to <0.15% | AAA to BBB+ | AAA to BBB+ | Aaa to Baa1 | 0.02% |
| 0.15% to <0.25% | BBB+ to BBB | BBB+ to BBB | Baa1 to Baa2 | 0.22% |
| 0.25% to <0.50% | BBB to BB+ | BBB to BB+ | Baa2 to Ba1 | 0.37% |
| 0.50% to <0.75% | BB+ | BB+ | Ba1 | 0.64% |
| 0.75% to <2.50% | BB+ to B+ | BB+ to B+ | Ba1 to B1 | 1.10% |
| 2.50% to <10.00% | B+ to B- | B+ to B- | B1 to B3 | 6.28% |
| 10.00% to <100.00% | B- to CCC | B- to CCC | B3 to Caa2 | 0.00% |
| **Institutions – Banks and securities dealer** | | | | |
| 0.00% to <0.15% | AAA to BBB+ | AAA to BBB+ | Aaa to Baa1 | 0.06% |
| 0.15% to <0.25% | BBB+ to BBB | BBB+ to BBB | Baa1 to Baa2 | 0.22% |
| 0.25% to <0.50% | BBB to BB+ | BBB to BB+ | Baa2 to Ba1 | 0.37% |
| 0.50% to <0.75% | BB+ | BB+ | Ba1 | 0.61% |
| 0.75% to <2.50% | BB+ to B+ | BB+ to B+ | Ba1 to B1 | 1.17% |
| 2.50% to <10.00% | B+ to B- | B+ to B- | B1 to B3 | 6.61% |
| 10.00% to <100.00% | B- to CCC | B- to CCC | B3 to Caa2 | 19.14% |
| **Institutions – Other institutions** | | | | |
| 0.00% to <0.15% | AAA to BBB+ | AAA to BBB+ | Aaa to Baa1 | 0.05% |
| 0.15% to <0.25% | BBB+ to BBB | BBB+ to BBB | Baa1 to Baa2 | 0.19% |
| 0.25% to <0.50% | BBB to BB+ | BBB to BB+ | Baa2 to Ba1 | 0.37% |
| 0.50% to <0.75% | BB+ | BB+ | Ba1 | 0.58% |
| 0.75% to <2.50% | BB+ to B+ | BB+ to B+ | Ba1 to B1 | 1.94% |
| 2.50% to <10.00% | B+ to B- | B+ to B- | B1 to B3 | 7.03% |
| **Corporates – Specialized lending** | | | | |
| 0.00% to <0.15% | AAA to BBB+ | AAA to BBB+ | Aaa to Baa1 | 0.06% |
| 0.15% to <0.25% | BBB+ to BBB | BBB+ to BBB | Baa1 to Baa2 | 0.21% |
| 0.25% to <0.50% | BBB to BB+ | BBB to BB+ | Baa2 to Ba1 | 0.37% |
| 0.50% to <0.75% | BB+ | BB+ | Ba1 | 0.58% |
| 0.75% to <2.50% | BB+ to B+ | BB+ to B+ | Ba1 to B1 | 1.24% |
| 2.50% to <10.00% | B+ to B- | B+ to B- | B1 to B3 | 4.16% |
| 10.00% to <100.00% | B- to CCC | B- to CCC | B3 to Caa2 | 19.31% |

Data represents an annual view, analyzed at September 30, 2017.

| | Arithmetic average PD by obligors | Number of obligors: End of previous year | Number of obligors: End of the year | Defaulted obligors in the year | of which: new defaulted obligors in the year | Average historical annual default rate |
|---|---|---|---|---|---|---|
| | 0.03% | 71 | 71 | 0 | 0 | 0.05% |
| | 0.13% | 7 | 10 | 0 | 0 | 0.00% |
| | 0.42% | 14 | 8 | 0 | 0 | 0.00% |
| | 0.59% | 14 | 21 | 0 | 0 | 0.00% |
| | 1.16% | 17 | 20 | 0 | 0 | 0.00% |
| | 7.58% | 23 | 26 | 2 | 0 | 1.61% |
| | 0.00% | 2 | 0 | 0 | 0 | 10.00% |
| | 0.18% | 586 | 623 | 0 | 0 | 0.04% |
| | 0.48% | 72 | 85 | 0 | 0 | 0.04% |
| | 0.54% | 163 | 153 | 1 | 0 | 0.30% |
| | 0.94% | 140 | 114 | 0 | 0 | 0.23% |
| | 1.32% | 246 | 238 | 2 | 0 | 0.08% |
| | 8.70% | 73 | 102 | 0 | 0 | 0.42% |
| | 29.56% | 7 | 4 | 0 | 0 | 1.39% |
| | 0.06% | 357 | 338 | 0 | 0 | 0.00% |
| | 0.19% | 120 | 102 | 0 | 0 | 0.00% |
| | 0.37% | 21 | 26 | 0 | 0 | 0.00% |
| | 0.58% | 88 | 82 | 0 | 0 | 0.09% |
| | 1.28% | 30 | 25 | 0 | 0 | 0.00% |
| | 7.26% | 3 | 5 | 0 | 0 | 0.00% |
| | 0.07% | 790 | 810 | 0 | 0 | 0.02% |
| | 0.20% | 855 | 816 | 0 | 0 | 0.04% |
| | 0.38% | 544 | 528 | 1 | 0 | 0.04% |
| | 0.60% | 450 | 412 | 1 | 0 | 0.17% |
| | 1.31% | 886 | 779 | 12 | 1 | 0.30% |
| | 4.49% | 83 | 122 | 3 | 1 | 3.59% |
| | 19.31% | 2 | 2 | 1 | 0 | 22.46% |

## CR9 – Backtesting of PD per portfolio (continued)

| | Master scale from CRM S&P | Master scale from CRM Fitch | Master scale from CRM Moody | Weighted average PD |
|---|---|---|---|---|
| **Corporates without specialized lending** | | | | |
| 0.00% to <0.15% | AAA to BBB+ | AAA to BBB+ | Aaa to Baa1 | 0.06% |
| 0.15% to <0.25% | BBB+ to BBB | BBB+ to BBB | Baa1 to Baa2 | 0.21% |
| 0.25% to <0.50% | BBB to BB+ | BBB to BB+ | Baa2 to Ba1 | 0.37% |
| 0.50% to <0.75% | BB+ | BB+ | Ba1 | 0.60% |
| 0.75% to <2.50% | BB+ to B+ | BB+ to B+ | Ba1 to B1 | 1.46% |
| 2.50% to <10.00% | B+ to B- | B+ to B- | B1 to B3 | 5.46% |
| 10.00% to <100.00% | B- to CCC | B- to CCC | B3 to Caa2 | 20.54% |
| **Residential mortgages** | | | | |
| 0.00% to <0.15% | AAA to BBB+ | AAA to BBB+ | Aaa to Baa1 | 0.08% |
| 0.15% to <0.25% | BBB+ to BBB | BBB+ to BBB | Baa1 to Baa2 | 0.20% |
| 0.25% to <0.50% | BBB to BB+ | BBB to BB+ | Baa2 to Ba1 | 0.35% |
| 0.50% to <0.75% | BB+ | BB+ | Ba1 | 0.58% |
| 0.75% to <2.50% | BB+ to B+ | BB+ to B+ | Ba1 to B1 | 1.21% |
| 2.50% to <10.00% | B+ to B- | B+ to B- | B1 to B3 | 4.67% |
| 10.00% to <100.00% | B- to CCC | B- to CCC | B3 to Caa2 | 17.85% |
| **Qualifying revolving retail** | | | | |
| 0.75% to <2.50% | BB+ to B+ | BB+ to B+ | Ba1 to B1 | 1.30% |
| 10.00% to <100.00% | B- to CCC | B- to CCC | B3 to Caa2 | 25.00% |
| **Other retail** | | | | |
| 0.00% to <0.15% | AAA to BBB+ | AAA to BBB+ | Aaa to Baa1 | 0.04% |
| 0.15% to <0.25% | BBB+ to BBB | BBB+ to BBB | Baa1 to Baa2 | 0.19% |
| 0.25% to <0.50% | BBB to BB+ | BBB to BB+ | Baa2 to Ba1 | 0.37% |
| 0.50% to <0.75% | BB+ | BB+ | Ba1 | 0.58% |
| 0.75% to <2.50% | BB+ to B+ | BB+ to B+ | Ba1 to B1 | 1.63% |
| 2.50% to <10.00% | B+ to B- | B+ to B- | B1 to B3 | 5.72% |
| 10.00% to <100.00% | B- to CCC | B- to CCC | B3 to Caa2 | 15.95% |

Data represents an annual view, analyzed at September 30, 2017.

| | | Number of obligors | | | | |
|---|---|---|---|---|---|---|
| | Arithmetic average PD by obligors | End of previous year | End of the year | Defaulted obligors in the year | of which: new defaulted obligors in the year | Average historical annual default rate |
| | 0.07% | 2,601 | 2,724 | 0 | 0 | 0.02% |
| | 0.21% | 1,570 | 1,706 | 1 | 0 | 0.05% |
| | 0.39% | 1,219 | 1,297 | 0 | 0 | 0.12% |
| | 0.60% | 1,362 | 1,353 | 3 | 0 | 0.28% |
| | 1.37% | 2,481 | 2,705 | 19 | 1 | 0.68% |
| | 8.05% | 1,404 | 1,923 | 32 | 2 | 1.80% |
| | 26.53% | 99 | 100 | 20 | 1 | 12.79% |
| | 0.08% | 42,544 | 42,771 | 6 | 2 | 0.02% |
| | 0.20% | 68,926 | 69,443 | 17 | 2 | 0.02% |
| | 0.37% | 19,951 | 20,747 | 9 | 0 | 0.06% |
| | 0.58% | 8,510 | 7,969 | 7 | 0 | 0.15% |
| | 1.23% | 8,177 | 7,472 | 14 | 1 | 0.28% |
| | 4.47% | 857 | 800 | 37 | 1 | 3.57% |
| | 17.49% | 79 | 80 | 8 | 0 | 19.35% |
| | 1.30% | 767,143 | 788,602 | 5,055 | 0 | 1.09% |
| | 25.00% | 96,875 | 96,906 | 17,176 | 0 | 22.31% |
| | 0.04% | 50,538 | 49,560 | 0 | 0 | 0.07% |
| | 0.20% | 4,886 | 5,040 | 3 | 0 | 0.50% |
| | 0.37% | 8,467 | 4,339 | 138 | 0 | 0.95% |
| | 0.58% | 12,037 | 11,947 | 0 | 0 | 0.00% |
| | 1.66% | 80,689 | 78,724 | 578 | 0 | 0.44% |
| | 5.44% | 85,739 | 85,657 | 2,712 | 167 | 3.69% |
| | 17.17% | 261 | 283 | 0 | 0 | 0.00% |

### 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.

## CR10 – Specialized lending

| end of 4Q17 | Remaining maturity | On-balance sheet amount | Off-balance sheet amount | Risk weight | Exposure amount [1] | RWA | Expected losses |
|---|---|---|---|---|---|---|---|
| **Other than high-volatility commercial real estate (CHF million)** | | | | | | | |
| **Regulatory categories** | | | | | | | |
| Strong | Less than 2.5 years | 453 | 793 | 50% | 870 | 435 | 0 |
| | Equal to or more than 2.5 years | 374 | 429 | 70% | 610 | 427 | 2 |
| Good | Less than 2.5 years | 86 | 53 | 70% | 167 | 117 | 1 |
| | Equal to or more than 2.5 years | 400 | 205 | 90% | 542 | 488 | 4 |
| Satisfactory | | 313 | 175 | 115% [2] | 377 | 433 | 11 |
| Weak | | 4 | 1 | 250% | 4 | 11 | 0 |
| Default | | 176 | 0 | – | 176 | – | 88 |
| **Total** | | **1,806** | **1,656** | **–** | **2,746** | **1,911** | **106** |
| **High-volatility commercial real estate (CHF million)** | | | | | | | |
| **Regulatory categories** | | | | | | | |
| Good | Equal to or more than 2.5 years | 0 | 0 | 120% | 126 | 151 | 0 |
| Default | | 12 | 0 | – | 13 | 0 | 6 |
| **Total** | | **12** | **0** | **–** | **139** | **151** | **6** |
| | | | | | | | |
| end of 2Q17 | | | | | | | |
| **Other than high-volatility commercial real estate (CHF million)** | | | | | | | |
| **Regulatory categories** | | | | | | | |
| Strong | Less than 2.5 years | 401 | 746 | 50% | 855 | 427 | 0 |
| | Equal to or more than 2.5 years | 180 | 481 | 70% | 445 | 311 | 2 |
| Good | Less than 2.5 years | 105 | 126 | 70% | 198 | 139 | 1 |
| | Equal to or more than 2.5 years | 445 | 284 | 90% | 604 | 544 | 5 |
| Satisfactory | | 238 | 343 | 115% [2] | 424 | 494 | 8 |
| Weak | | 26 | 1 | 250% | 9 | 23 | 1 |
| Default | | 173 | 0 | – | 0 | – | 86 |
| **Total** | | **1,568** | **1,981** | **–** | **2,535** | **1,938** | **103** |
| **High-volatility commercial real estate (CHF million)** | | | | | | | |
| **Regulatory categories** | | | | | | | |
| Default | | 12 | 0 | – | 12 | 0 | 6 |
| **Total** | | **12** | **0** | **–** | **12** | **0** | **6** |

[1] Includes project finance, object finance, commodities finance and IPRE.
[2] For a portion of the exposure, a risk weight of 120% is applied.

### Equity positions in the banking book

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, such as exchange-traded and other equity exposures.

RWA relating to equities under the simple risk-weight approach decreased CHF 1.4 billion compared to the end of 2Q17, mainly due to a reduction in hedge fund and private equity investments.

## CR10 – Equity positions in the banking book under the simple risk-weight approach

| end of | On-balance sheet amount | Off-balance sheet amount | Risk weight | Exposure amount | RWA |
|---|---|---|---|---|---|
| **4Q17 (CHF million, except where indicated)** | | | | | |
| Exchange-traded equity exposures | 32 | 0 | 300% | 32 | 95 |
| Other equity exposures | 2,031 | 0 | 400% | 2,031 | 8,123 |
| **Total** | **2,063** | **0** | – | **2,063** | **8,218** |
| **2Q17 (CHF million, except where indicated)** | | | | | |
| Exchange-traded equity exposures | 9 | 0 | 300% | 9 | 28 |
| Other equity exposures | 2,389 | 0 | 400% | 2,389 | 9,553 |
| **Total** | **2,398** | **0** | – | **2,398** | **9,581** |

# 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.

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

▸ Refer to "Credit risk" (pages 155 to 157) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk coverage and management in the Credit Suisse Annual Report 2017 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 the internal exposure models. Secondary debt inventory positions are subject to separate limits that are set at the issuer level.

▸ Refer to "Credit risk" (pages 156 to 157) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk coverage and management in the Credit Suisse Annual Report 2017 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 General Counsel 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 14 to 15) in Credit risk for further information on policies relating to guarantees and other risk mitigants.

### Wrong-way exposure

Wrong-way risk arises when Credit Suisse enters into a financial transaction in which exposure is adversely correlated to the creditworthiness of the counterparty. In a wrong-way situation, the exposure to the counterparty increases while the counterparty's financial condition and its ability to pay on the transaction diminishes.

#### Exposure adjusted risk calculation

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.

Capturing wrong-way risk requires checking if there is a legal relationship or a correlation between the trade/collateral and the counterparty.

The management of wrong-way risk is integrated within Credit Suisse's overall credit risk assessment approach and is subject to a framework for identification and treatment of wrong-way risk, which includes multiple processes, methodologies, governance, reporting, review and escalation. A conservative treatment for the purpose of calculating exposure profiles is applied to material trades with wrong-way risk features. The wrong-way risk framework applies to OTC, securities financing transactions and centrally cleared trades.

In instances where a material wrong-way risk has been identified, limit utilization and default capital are accordingly adjusted through more conservative exposure calculations. These adjustments cover both transactions and collateral and form part of the daily credit exposure calculation process, resulting in a higher utilization of the counterparty credit limit.

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 as a first line of defense for identifying and escalating trades that could potentially give rise to wrong-way risk. Any material wrong-way risk at portfolio or trade level would 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 117) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Liquidity and funding management in the Credit Suisse Annual Report 2017 for further information on the effect of a one, two or three notch downgrade as of December 31, 2017.

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.

## 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.

## CCR1 – Analysis of counterparty credit risk exposure by approach

| end of | Re-placement cost | PFE | EEPE | Alpha used for computing regulatory EAD | EAD post-CRM | RWA |
|---|---|---|---|---|---|---|
| **4Q17 (CHF million, except where indicated)** | | | | | | |
| SA-CCR (for derivatives) [1] | 3,871 | 3,226 | – | 1.0 | 8,846 | 2,390 |
| Internal Model Method (for derivatives and SFTs) | – | – | 25,883 | 1.4 [2] | 36,236 | 10,550 |
| Simple Approach for credit risk mitigation (for SFTs) | – | – | – | – | 50 | 0 |
| Comprehensive Approach for credit risk mitigation (for SFTs) | – | – | – | – | 35 | 7 |
| VaR for SFTs | – | – | – | – | 33,359 | 4,433 |
| **Total** | **–** | **–** | **–** | **–** | **78,526** | **17,380** |
| **2Q17 (CHF million, except where indicated)** | | | | | | |
| SA-CCR (for derivatives) [1] | 5,147 | 3,453 | – | 1.0 | 8,923 | 2,869 |
| Internal Model Method (for derivatives and SFTs) | – | – | 24,572 | 1.4 [2] | 34,400 | 9,305 |
| Simple Approach for credit risk mitigation (for SFTs) | – | – | – | – | 27 | 0 |
| VaR for SFTs | – | – | – | – | 29,731 | 4,640 |
| **Total** | **–** | **–** | **–** | **–** | **73,081** | **16,814** |

[1] Reported under current exposure method.
[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 credit valuation adjustment (CVA) regulatory calculations with a breakdown by standardized and advanced approaches.

## CCR2 – Credit valuation adjustment capital charge

| | **4Q17** | | 2Q17 | |
|---|---|---|---|---|
| end of | EAD post-CRM | RWA | EAD post-CRM | RWA |
| **CHF million** | | | | |
| Total portfolios subject to the advanced CVA capital charge | 34,790 | 5,441 | 41,368 [1] | 7,229 |
| of which VaR component (including the 3 x multiplier) | – | 1,306 | – | 2,206 |
| of which stressed VaR component (including the 3 x multiplier) | – | 4,135 | – | 5,023 |
| All portfolios subject to the standardized CVA capital charge | 64 | 107 | 65 | 111 |
| **Total subject to the CVA capital charge** | **34,854** | **5,548** | **41,433** | **7,340** |

[1] Prior period has been corrected.

RWA decreased CHF 1.8 billion compared to the end of 2Q17, mainly due to a reduction in risk levels resulting from a decrease in exposures and an increase in hedging benefits.

**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).

## CCR3 – CCR exposures by regulatory portfolio and risk weights – standardized approach

| | Risk weight | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| end of | 0% | 10% | 20% | 50% | 75% | 100% | 150% | Others | Exposures post-CCF and CRM |
| **4Q17 (CHF million)** | | | | | | | | | |
| Retail | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 0 | 27 |
| Other exposures | 50 | 0 | 0 | 0 | 0 | 184 | 0 | 0 | 234 |
| **Total** | **50** | **0** | **0** | **0** | **0** | **211** | **0** | **0** | **261** |
| **2Q17 (CHF million)** | | | | | | | | | |
| Retail | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 16 |
| Other exposures | 27 | 0 | 0 | 0 | 0 | 185 | 0 | 0 | 212 |
| **Total** | **27** | **0** | **0** | **0** | **0** | **201** | **0** | **0** | **228** |

**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.

▸ Refer to "Rating models" (pages 23 to 24) 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.

## CCR4 – CCR exposures by portfolio and PD scale – IRB models

| end of 4Q17 | 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% | 3,532 | 0.03% | 65 | 46% | 0.5 | 171 | 5% |
| 0.15% to <0.25% | 904 | 0.22% | 3 | 44% | 1.0 | 293 | 32% |
| 0.25% to <0.50% | 10 | 0.37% | 2 | 45% | 0.9 | 4 | 45% |
| 0.50% to <0.75% | 0 | 0.64% | 1 | 44% | 1.0 | 0 | 55% |
| 0.75% to <2.50% | 64 | 1.10% | 2 | 52% | 0.2 | 52 | 81% |
| 2.50% to <10.00% | 119 | 9.50% | 3 | 52% | 0.2 | 235 | 197% |
| 10.00% to <100.00% | 0 | 16.44% | 1 | 42% | 1.0 | 0 | 209% |
| **Sub-total** | **4,629** | **0.32%** | **77** | **46%** | **0.6** | **755** | **16%** |
| **Institutions – Banks and securities dealer** | | | | | | | |
| 0.00% to <0.15% | 19,520 | 0.06% | 574 | 55% | 0.8 | 3,042 | 16% |
| 0.15% to <0.25% | 1,185 | 0.22% | 101 | 54% | 0.7 | 518 | 44% |
| 0.25% to <0.50% | 460 | 0.37% | 93 | 53% | 1.0 | 280 | 61% |
| 0.50% to <0.75% | 182 | 0.64% | 67 | 52% | 0.5 | 123 | 67% |
| 0.75% to <2.50% | 854 | 1.14% | 118 | 54% | 0.7 | 858 | 100% |
| 2.50% to <10.00% | 119 | 5.91% | 108 | 49% | 0.9 | 196 | 164% |
| 10.00% to <100.00% | 5 | 25.79% | 6 | 41% | 1.0 | 10 | 225% |
| 100.00% (Default) | 48 | 100.00% | 3 | 58% | 1.0 | 50 | 106% |
| **Sub-total** | **22,373** | **0.37%** | **1,070** | **55%** | **0.8** | **5,077** | **23%** |
| **Institutions – Other institutions** | | | | | | | |
| 0.00% to <0.15% | 591 | 0.04% | 40 | 44% | 1.4 | 81 | 14% |
| 0.15% to <0.25% | 19 | 0.19% | 8 | 41% | 3.5 | 9 | 47% |
| 0.25% to <0.50% | 4 | 0.37% | 4 | 48% | 1.8 | 3 | 70% |
| 0.50% to <0.75% | 37 | 0.58% | 2 | 44% | 5.1 | 40 | 108% |
| 0.75% to <2.50% | 0 | 0.90% | 2 | 44% | 4.5 | 1 | 118% |
| 2.50% to <10.00% | 0 | 3.25% | 2 | 44% | 1.0 | 0 | 119% |
| **Sub-total** | **651** | **0.08%** | **58** | **44%** | **1.7** | **134** | **20%** |
| **Corporates – Specialized lending** | | | | | | | |
| 0.00% to <0.15% | 126 | 0.06% | 18 | 47% | 5.1 | 52 | 41% |
| 0.15% to <0.25% | 21 | 0.21% | 28 | 36% | 4.3 | 9 | 45% |
| 0.25% to <0.50% | 8 | 0.37% | 14 | 39% | 4.3 | 5 | 62% |
| 0.50% to <0.75% | 8 | 0.58% | 8 | 38% | 5.1 | 6 | 79% |
| 0.75% to <2.50% | 12 | 1.02% | 19 | 24% | 4.7 | 7 | 57% |
| 2.50% to <10.00% | 0 | 4.03% | 2 | 24% | 2.7 | 0 | 63% |
| **Sub-total** | **175** | **0.19%** | **89** | **43%** | **4.9** | **79** | **45%** |

## CCR4 – CCR exposures by portfolio and PD scale – IRB models (continued)

| end of 4Q17 | 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% | 37,212 | 0.05% | 11,334 | 52% | 0.5 | 4,308 | 12% |
| 0.15% to <0.25% | 1,941 | 0.21% | 1,285 | 47% | 1.8 | 886 | 46% |
| 0.25% to <0.50% | 982 | 0.37% | 619 | 51% | 1.5 | 621 | 63% |
| 0.50% to <0.75% | 686 | 0.63% | 466 | 54% | 1.6 | 634 | 92% |
| 0.75% to <2.50% | 1,346 | 1.61% | 1,439 | 63% | 1.0 | 1,945 | 144% |
| 2.50% to <10.00% | 991 | 4.67% | 2,128 | 53% | 1.0 | 2,199 | 222% |
| 10.00% to <100.00% | 18 | 27.25% | 12 | 51% | 1.0 | 72 | 400% |
| 100.00% (Default) | 34 | 100.00% | 15 | 45% | 1.3 | 36 | 106% |
| **Sub-total** | **43,210** | **0.32%** | **17,298** | **52%** | **0.7** | **10,701** | **25%** |
| **Other retail** | | | | | | | |
| 0.00% to <0.15% | 2,702 | 0.06% | 2,747 | 58% | 1.0 | 282 | 10% |
| 0.15% to <0.25% | 193 | 0.20% | 358 | 28% | 2.2 | 24 | 12% |
| 0.25% to <0.50% | 63 | 0.37% | 235 | 39% | 1.5 | 16 | 25% |
| 0.50% to <0.75% | 14 | 0.58% | 777 | 32% | 2.9 | 4 | 26% |
| 0.75% to <2.50% | 59 | 0.98% | 131 | 48% | 1.3 | 29 | 50% |
| 2.50% to <10.00% | 3 | 4.63% | 36 | 42% | 1.2 | 2 | 64% |
| 10.00% to <100.00% | 2 | 19.24% | 4 | 19% | 5.0 | 1 | 44% |
| 100.00% (Default) | 3 | 100.00% | 2 | 100% | 5.1 | 4 | 106% |
| **Sub-total** | **3,039** | **0.23%** | **4,290** | **55%** | **1.1** | **362** | **12%** |
| **Sub-total (all portfolios)** | | | | | | | |
| 0.00% to <0.15% | 63,683 | 0.05% | 14,778 | 53% | 0.6 | 7,936 | 12% |
| 0.15% to <0.25% | 4,263 | 0.22% | 1,783 | 47% | 1.3 | 1,739 | 41% |
| 0.25% to <0.50% | 1,527 | 0.37% | 967 | 51% | 1.3 | 929 | 61% |
| 0.50% to <0.75% | 927 | 0.63% | 1,321 | 53% | 1.5 | 807 | 87% |
| 0.75% to <2.50% | 2,335 | 1.40% | 1,711 | 58% | 0.9 | 2,892 | 124% |
| 2.50% to <10.00% | 1,232 | 5.26% | 2,279 | 53% | 0.9 | 2,632 | 214% |
| 10.00% to <100.00% | 25 | 26.34% | 23 | 46% | 1.3 | 83 | 339% |
| 100.00% (Default) | 85 | 100.00% | 20 | 55% | 1.3 | 90 | 106% |
| **Sub-total (all portfolios)** | **74,077** | **0.33%** | **22,882** | **53%** | **0.7** | **17,108** | **23%** |
| **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)** | **74,077** | **0.33%** | **22,882** | **53%** | **0.7** | **17,108** | **24%** |

EAD post-CRM increased CHF 5.4 billion compared to the end of 2Q17, reflecting higher OTC derivatives exposures primarily in corporates without specialized lending, banks and securities dealers and sovereigns.

## CCR4 – CCR exposures by portfolio and PD scale – IRB models

| end of 2Q17 | 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% | 2,613 | 0.03% | 70 | 51% | 0.7 | 175 | 7% |
| 0.15% to <0.25% | 652 | 0.22% | 3 | 44% | 1.0 | 206 | 32% |
| 0.25% to <0.50% | 80 | 0.37% | 3 | 31% | 1.0 | 26 | 32% |
| 0.50% to <0.75% | 0 | 0.63% | 2 | 45% | 1.0 | 0 | 26% |
| 0.75% to <2.50% | 130 | 1.10% | 2 | 52% | 0.1 | 103 | 80% |
| 2.50% to <10.00% | 0 | 5.58% | 1 | 52% | 1.0 | 0 | 201% |
| 10.00% to <100.00% | 0 | 28.23% | 1 | 42% | 1.0 | 0 | 233% |
| **Sub-total** | **3,475** | **0.11%** | **82** | **49%** | **0.7** | **510** | **15%** |
| **Institutions – Banks and securities dealer** | | | | | | | |
| 0.00% to <0.15% | 18,383 | 0.06% | 484 | 55% | 0.8 | 2,730 | 15% |
| 0.15% to <0.25% | 1,202 | 0.22% | 115 | 54% | 0.5 | 492 | 41% |
| 0.25% to <0.50% | 281 | 0.37% | 95 | 46% | 1.1 | 137 | 49% |
| 0.50% to <0.75% | 166 | 0.64% | 64 | 55% | 0.3 | 116 | 70% |
| 0.75% to <2.50% | 451 | 1.18% | 125 | 54% | 0.6 | 440 | 98% |
| 2.50% to <10.00% | 98 | 5.65% | 148 | 50% | 0.8 | 154 | 157% |
| 10.00% to <100.00% | 3 | 17.35% | 4 | 41% | 1.0 | 6 | 207% |
| 100.00% (Default) | 0 | 100.00% | 3 | 52% | 1.0 | 0 | 106% |
| **Sub-total** | **20,584** | **0.13%** | **1,038** | **55%** | **0.8** | **4,075** | **20%** |
| **Institutions – Other institutions** | | | | | | | |
| 0.00% to <0.15% | 614 | 0.04% | 41 | 45% | 1.5 | 85 | 14% |
| 0.15% to <0.25% | 20 | 0.20% | 9 | 41% | 3.8 | 10 | 50% |
| 0.25% to <0.50% | 6 | 0.37% | 2 | 49% | 1.4 | 4 | 70% |
| 0.50% to <0.75% | 39 | 0.58% | 3 | 44% | 5.1 | 42 | 108% |
| 0.75% to <2.50% | 0 | 1.21% | 2 | 44% | 4.7 | 1 | 130% |
| 2.50% to <10.00% | 0 | 3.25% | 1 | 52% | 1.0 | 0 | 168% |
| 10.00% to <100.00% | 0 | 28.23% | 1 | 52% | 1.0 | 0 | 322% |
| **Sub-total** | **679** | **0.08%** | **59** | **45%** | **1.8** | **142** | **21%** |
| **Corporates – Specialized lending** | | | | | | | |
| 0.00% to <0.15% | 148 | 0.09% | 13 | 72% | 4.5 | 111 | 75% |
| 0.15% to <0.25% | 31 | 0.22% | 32 | 32% | 4.7 | 13 | 41% |
| 0.25% to <0.50% | 2 | 0.37% | 11 | 32% | 3.8 | 1 | 52% |
| 0.50% to <0.75% | 18 | 0.58% | 10 | 34% | 5.1 | 14 | 75% |
| 0.75% to <2.50% | 9 | 1.06% | 22 | 28% | 4.3 | 6 | 63% |
| 2.50% to <10.00% | 0 | 5.18% | 3 | 37% | 1.7 | 0 | 94% |
| **Sub-total** | **208** | **0.20%** | **91** | **60%** | **4.5** | **145** | **69%** |

## CCR4 – CCR exposures by portfolio and PD scale – IRB models (continued)

| end of 2Q17 | 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% | 33,818 | 0.05% | 10,904 | 53% | 0.6 | 4,240 | 13% |
| 0.15% to <0.25% | 1,890 | 0.21% | 1,370 | 47% | 2.0 | 882 | 47% |
| 0.25% to <0.50% | 1,373 | 0.37% | 630 | 53% | 1.1 | 817 | 60% |
| 0.50% to <0.75% | 480 | 0.62% | 526 | 51% | 2.1 | 419 | 87% |
| 0.75% to <2.50% | 1,797 | 1.50% | 7,721 | 61% | 1.0 | 2,401 | 134% |
| 2.50% to <10.00% | 1,110 | 4.50% | 2,710 | 54% | 0.9 | 2,414 | 218% |
| 10.00% to <100.00% | 46 | 27.75% | 17 | 23% | 1.9 | 80 | 173% |
| 100.00% (Default) | 39 | 100.00% | 13 | 45% | 1.1 | 41 | 106% |
| **Sub-total** | **40,553** | **0.39%** | **23,891** | **53%** | **0.7** | **11,294** | **28%** |
| **Other retail** | | | | | | | |
| 0.00% to <0.15% | 2,834 | 0.06% | 3,095 | 59% | 1.0 | 306 | 11% |
| 0.15% to <0.25% | 188 | 0.19% | 396 | 31% | 2.7 | 25 | 13% |
| 0.25% to <0.50% | 68 | 0.37% | 293 | 18% | 1.5 | 8 | 12% |
| 0.50% to <0.75% | 24 | 0.58% | 977 | 27% | 2.2 | 5 | 22% |
| 0.75% to <2.50% | 42 | 1.77% | 112 | 45% | 1.1 | 25 | 60% |
| 2.50% to <10.00% | 3 | 5.89% | 36 | 53% | 1.5 | 3 | 85% |
| 10.00% to <100.00% | 5 | 12.70% | 6 | 14% | 1.0 | 1 | 27% |
| 100.00% (Default) | 4 | 100.00% | 1 | 100% | 5.1 | 4 | 106% |
| **Sub-total** | **3,168** | **0.24%** | **4,916** | **56%** | **1.1** | **377** | **12%** |
| **Sub-total (all portfolios)** | | | | | | | |
| 0.00% to <0.15% | 58,410 | 0.05% | 14,607 | 54% | 0.7 | 7,647 | 13% |
| 0.15% to <0.25% | 3,983 | 0.22% | 1,925 | 48% | 1.5 | 1,628 | 41% |
| 0.25% to <0.50% | 1,810 | 0.37% | 1,034 | 49% | 1.2 | 993 | 55% |
| 0.50% to <0.75% | 727 | 0.62% | 1,582 | 50% | 1.9 | 596 | 82% |
| 0.75% to <2.50% | 2,429 | 1.42% | 7,984 | 59% | 1.0 | 2,976 | 123% |
| 2.50% to <10.00% | 1,211 | 4.60% | 2,899 | 54% | 0.9 | 2,571 | 212% |
| 10.00% to <100.00% | 54 | 25.92% | 29 | 23% | 1.8 | 87 | 162% |
| 100.00% (Default) | 43 | 100.00% | 17 | 49% | 1.5 | 45 | 106% |
| **Sub-total (all portfolios)** | **68,667** | **0.29%** | **30,077** | **53%** | **0.8** | **16,543** | **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)** | **68,667** | **0.29%** | **30,077** | **53%** | **0.8** | **16,543** | **24%** |

### 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 central counterparty (CCP). By their nature, various components of the SFT business do not attract haircuts on a trade-by-trade basis, and as such a contractual haircut cannot be uniformly derived for the entire collateral population. For disclosure purposes, the SFT collateral values are presented as the market value of the collateral without regulatory or contractual haircuts.

## CCR5 – 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 |
| end of | Segregated | Unsegregated | Total | Segregated | Unsegregated | Total | | |
| **4Q17 (CHF million)** | | | | | | | | |
| Cash – domestic currency | 1 | 2,371 | 2,372 | 0 | 2,962 | 2,962 | 953 | 4,751 |
| Cash – other currencies | 1,393 | 27,012 | 28,405 | 816 | 31,139 | 31,955 | 246,869 | 319,137 |
| Domestic sovereign debt | 0 | 3 | 3 | 0 | 45 | 45 | 3,714 | 1,278 |
| Other sovereign debt | 5,098 | 6,495 | 11,593 | 6,499 | 5,286 | 11,785 | 284,648 | 203,318 |
| Government agency debt | 17 | 69 | 86 | 0 | 0 | 0 | 2,386 | 5,600 |
| Corporate bonds | 1,210 | 1,624 | 2,834 | 73 | 786 | 859 | 70,203 | 28,587 |
| Equity securities | 1,635 | 64 | 1,699 | 0 | 871 | 871 | 254,738 [1] | 67,363 [1] |
| Other collateral | 6,399 | 323 | 6,722 | 0 | 0 | 0 | 27,359 | 34,699 |
| **Total** | **15,753** | **37,961** | **53,714** | **7,388** | **41,089** | **48,477** | **890,870** | **664,733** |
| **2Q17 (CHF million)** [2] | | | | | | | | |
| Cash – domestic currency | 1 | 2,314 | 2,315 | 0 | 2,253 | 2,253 | 1,355 | 5,816 |
| Cash – other currencies | 1,383 | 30,734 | 32,117 | 678 | 31,686 | 32,364 | 251,554 | 344,796 |
| Domestic sovereign debt | 13 | 6 | 19 | 0 | 0 | 0 | 3,942 | 921 |
| Other sovereign debt | 5,426 | 6,883 | 12,309 | 5,603 | 2,597 | 8,200 | 309,618 | 214,975 |
| Government agency debt | 88 | 44 | 132 | 0 | 0 | 0 | 3,068 | 6,426 |
| Corporate bonds | 1,248 | 1,309 | 2,557 | 100 | 848 | 948 | 79,955 | 32,364 |
| Equity securities | 1,471 | 43 | 1,514 | 0 | 1,074 | 1,074 | 251,753 [1] | 62,744 [1] |
| Other collateral | 6,721 | 793 | 7,514 | 0 | 0 | 0 | 23,328 | 31,453 |
| **Total** | **16,351** | **42,126** | **58,477** | **6,381** | **38,458** | **44,839** | **924,573** | **699,495** |

[1] The Equity Prime Brokerage business consists of clients acquiring long and short positions in the market in a Credit Suisse account along with the appropriate margins. In the case of a counterparty default, Credit Suisse gains control over the long positions and are free to sell them to cover the exposure and the long positions are thus considered as 'collateral received'. On the other hand, the short positions are considered as 'trades' and are not reported in the disclosure as 'posted collateral'.

[2] Prior period has been corrected to exclude intercompany balances of OTC collaterals in accordance with the guidance provided by FINMA.

The fair value of collateral received on SFTs decreased CHF 33.7 billion compared to the end of 2Q17 mainly relating to other sovereign debt, corporate bonds and cash – other currencies. The fair value of collateral posted for SFTs decreased CHF 34.8 billion compared to the end of 2Q17 mainly related to cash – other currencies, other sovereign debt and corporate bonds. These changes were primarily due to changes in product portfolios.

### 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 4Q17, no credit derivatives were utilized that qualify for hedge accounting under US GAAP.

▸ Refer to "Derivative instruments" (pages 173 to 175) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk review and results in the Credit Suisse Annual Report 2017 for further information on derivative instruments, including counterparties and their creditworthiness.

▸ Refer to "Note 31 – Derivative and hedging activities" (pages 324 to 329) in VI – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2017 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 26 – Offsetting of financial assets and financial liabilities" (pages 298 to 301) in VI – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2017 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.

## CCR6 – Credit derivatives exposures

| | 4Q17 | | 2Q17 | |
|---|---|---|---|---|
| end of | Protection bought | Protection sold | Protection bought | Protection sold |
| **Notionals (CHF billion)** | | | | |
| Single-name credit default swaps | 106.0 | 85.5 | 112.8 | 93.4 |
| Index credit default swaps | 122.5 | 109.1 | 105.6 | 97.0 |
| Total return swaps | 3.5 | 3.2 | 4.8 | 2.6 |
| Credit options | 0.7 | 0.1 | 1.1 | 0.3 |
| Other credit derivatives | 75.4 | 18.9 | 53.7 | 18.0 |
| of which credit default swaptions | 75.4 | 18.9 | 51.2 | 15.4 |
| of which other credit instruments | 0.0 | 0.0 | 2.4 | 2.6 |
| **Total notionals** | **308.1** | **216.8** | **278.0** | **211.3** |
| **Fair values (CHF billion)** | | | | |
| Positive fair value (asset) | 2.5 | 5.2 | 4.1 | 3.9 |
| Negative fair value (liability) | 6.7 | 2.2 | 5.7 | 3.3 |

Protection bought increased CHF 30.1 billion compared to the end of 2Q17 primarily relating to credit default swaptions and index CDS. Protection sold increased CHF 5.5 billion compared to the end of 2Q17 primarily relating to index CDS.

▸ Refer to "Note 31 – Derivative and hedging activities" (pages 328 to 329) in VI – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2017 for further information on credit protection bought and credit protection sold.

### RWA flow statements of CCR exposures under IMM

The following table presents the 4Q17 flow statement explaining changes in CCR RWA determined under the Internal Model Method (IMM) for CCR (derivatives and SFTs).

## CCR7 – Risk-weighted assets flow statements of CCR exposures under IMM

| 4Q17 | RWA |
|---|---|
| CHF million | |
| **Risk-weighted assets at beginning of period** | **16,596** |
| Asset size | (1,910) |
| Credit quality of counterparties | (24) |
| Methodology and policy changes | 181 |
| Foreign exchange impact | 140 |
| **Risk-weighted assets at end of period** | **14,983** |

CCR RWA under IMM of CHF 15.0 billion decreased CHF 1.6 billion compared to the end of 3Q17, primarily driven by decreases relating to asset size due to reductions in exposures.

▸ Refer to "RWA flow statements of credit risk exposures under IRB" (page 36) in Credit risk for the definitions of the RWA flow statements components.

### Exposures to central counterparties

The following table provides a comprehensive picture of the Group's exposure to CCPs.

## CCR8 – Exposures to central counterparties

| | 4Q17 | | 2Q17 | |
|---|---|---|---|---|
| | EAD (post-CRM) | RWA | EAD (post-CRM) | RWA |
| CHF million | | | | |
| **Exposures to QCCPs (total)** | **–** | **1,641** | **–** | **1,478** |
| Exposures for trades at QCCPs | 14,789 | 487 | 17,298 | 594 |
| of which OTC derivatives | 4,226 | 85 | 3,723 | 74 |
| of which exchange-traded derivatives | 9,446 | 380 | 13,575 | 516 |
| of which securities financing transactions | 1,116 | 22 | 0 | 0 |
| Segregated initial margin | 153 | – | 162 | – |
| Non-segregated initial margin | 0 | 0 | 70 | 32 |
| Pre-funded default fund contributions | 0 | 1,154 | 0 | 852 |
| **Exposures to non-QCCPs (total)** | **–** | **95** | **–** | **89** |
| Exposures for trades at non-QCCPs | 73 | 76 | 65 | 70 |
| of which exchange-traded derivatives | 0 | 3 | 65 | 70 |
| of which securities financing transactions | 73 | 73 | 0 | 0 |
| Pre-funded default fund contributions | 0 | 19 | 0 | 19 |

# 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 33 – Transfers of financial assets and variable interest entities" (pages 334 to 337) in VI – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2017 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 2017.

A traditional securitization is a structure where an underlying pool of assets is sold to an SPE which pays for the assets by issuing tranched securities collateralized by the underlying asset pool. A synthetic securitization is a tranched 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 Ltd. (Alpine), a multi-seller commercial paper conduit administered by Credit Suisse and also provides liquidity to a couple of Asset Backed Commercial Paper (ABCP) programs managed by third party administrators.

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 Securitized Products 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.

At times, 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 (typically 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, ABS, CLOs, etc.) and the seniority each security has in the capital structure (i.e. senior, 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 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.).

Risk Management 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, CMBS 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 where the Group acts as sponsor increased CHF 1.1 billion compared to the end of 2Q17, primarily relating to new CDO/CLO securitizations.

### SEC1 – Securitization exposures in the banking book

| | Bank acts as originator | | | Bank acts as sponsor | | | Bank acts as investor | | |
|---|---|---|---|---|---|---|---|---|---|
| end of | Traditional | Synthetic | **Total** | Traditional | Synthetic | **Total** | Traditional | Synthetic | **Total** |
| **4Q17 (CHF million)** | | | | | | | | | |
| Commercial mortgages | 398 | 0 | 398 | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential mortgages | 0 | 0 | 0 | 0 | 0 | 0 | 126 | 0 | 126 |
| CDO/CLO | 4,239 | 34,841 | 39,080 | 2,918 | 0 | 2,918 | 5,821 | 0 | 5,821 |
| Other ABS | 8,814 | 0 | 8,814 | 0 | 0 | 0 | 8,564 | 0 | 8,564 |
| **Total** | **13,451** | **34,841** | **48,292** | **2,918** | **0** | **2,918** | **14,511** | **0** | **14,511** |
| of which retained interests | – | – | **29,104** | – | – | **146** | – | – | **12,061** |
| **2Q17 (CHF million)** | | | | | | | | | |
| Commercial mortgages | 455 | 0 | 455 | 0 | 0 | 0 | 0 | 0 | 0 |
| CDO/CLO | 4,155 | 36,691 | 40,846 | 1,818 | 0 | 1,818 | 4,218 | 0 | 4,218 |
| Other ABS | 7,267 | 319 | 7,586 | 0 | 0 | 0 | 9,534 | 0 | 9,534 |
| **Total** | **11,877** | **37,010** | **48,887** | **1,818** | **0** | **1,818** | **13,752** | **0** | **13,752** |
| of which retained interests | – | – | **31,135** | – | – | **109** | – | – | **12,447** |

## SECURITIZATION EXPOSURES IN THE TRADING BOOK

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

### SEC2 – Securitization exposures in the trading book

| | Bank acts as originator | | | Bank acts as sponsor | | | Bank acts as investor | | |
|---|---|---|---|---|---|---|---|---|---|
| end of | Traditional | Synthetic | **Total** | Traditional | Synthetic | **Total** | Traditional | Synthetic | **Total** |
| **4Q17 (CHF million)** | | | | | | | | | |
| Commercial mortgages | 107 | 0 | 107 | 0 | 0 | 0 | 1,387 | 386 | 1,773 |
| Residential mortgages | 100 | 0 | 100 | 0 | 0 | 0 | 3,032 | 7 | 3,039 |
| Other ABS | 0 | 0 | 0 | 0 | 0 | 0 | 1,158 | 0 | 1,158 |
| CDO/CLO | 0 | 0 | 0 | 0 | 0 | 0 | 300 | 80 | 380 |
| Nth-to-default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 365 | 365 |
| **Total** | **207** | **0** | **207** | **0** | **0** | **0** | **5,877** | **838** | **6,715** |
| **2Q17 (CHF million)** | | | | | | | | | |
| Commercial mortgages | 47 | 326 | 373 | 0 | 0 | 0 | 1,148 | 96 | 1,244 |
| Residential mortgages | 180 | 3 | 183 | 0 | 0 | 0 | 2,955 | 7 | 2,962 |
| Other ABS | 0 | 0 | 0 | 0 | 0 | 0 | 480 | 0 | 480 |
| CDO/CLO | 0 | 10 | 10 | 0 | 0 | 0 | 257 | 10 | 267 |
| Nth-to-default | 0 | 616 | 616 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **227** | **955** | **1,182** | **0** | **0** | **0** | **4,840** | **113** | **4,953** |

Securitization exposures in the trading book where the Group acts as originator decreased CHF 1.0 billion compared to the end of 2Q17. The decrease was primarily related to the transfer of nth-to-default and commercial mortgages securitizations from the trading book where the Group acts as originator to the trading book where the Group acts as investor.

## 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 60) in Market risk for capital charges related to securitization positions in the trading book.

### SEC3 – Securitization exposures in the banking book and associated regulatory capital requirements – Credit Suisse acting as originator or as sponsor

| | Exposure value (by RW band) | | | | |
|---|---|---|---|---|---|
| end of | <=20% RW | >20% to 50% RW | >50% to 100% RW | >100% to <1250% RW | 1250% RW |
| **4Q17 (CHF million)** | | | | | |
| **Total exposures** | **28,497** | **128** | **394** | **72** | **159** |
| Traditional securitization | 4,411 | 128 | 84 | 38 | 111 |
| of which securitization | 4,411 | 128 | 84 | 38 | 111 |
| of which retail underlying | 425 | 0 | 28 | 19 | 103 |
| of which wholesale | 3,986 | 128 | 56 | 19 | 8 |
| Synthetic securitization | 24,086 | 0 | 310 | 34 | 48 |
| of which securitization | 24,086 | 0 | 310 | 34 | 48 |
| of which wholesale | 24,086 | 0 | 310 | 34 | 48 |
| **2Q17 (CHF million)** | | | | | |
| **Total exposures** | **30,757** | **73** | **120** | **157** | **137** |
| Traditional securitization | 4,189 | 73 | 50 | 127 | 62 |
| of which securitization | 4,189 | 73 | 50 | 127 | 62 |
| of which retail underlying | 287 | 0 | 17 | 15 | 48 |
| of which wholesale | 3,902 | 73 | 33 | 112 | 14 |
| Synthetic securitization | 26,568 | 0 | 70 | 30 | 75 |
| of which securitization | 26,568 | 0 | 70 | 30 | 75 |
| of which retail underlying | 224 | 0 | 0 | 2 | 0 |
| of which wholesale | 26,344 | 0 | 70 | 28 | 75 |

### SEC4 – Securitization exposures in the banking book and associated regulatory capital requirements – Credit Suisse acting as investor

| | Exposure value (by RW band) | | | | |
|---|---|---|---|---|---|
| end of | <=20% RW | >20% to 50% RW | >50% to 100% RW | >100% to <1250% RW | 1250% RW |
| **4Q17 (CHF million)** | | | | | |
| **Total exposures** | **6,632** | **1,616** | **3,512** | **299** | **2** |
| Traditional securitization | 6,632 | 1,616 | 3,512 | 299 | 2 |
| of which securitization | 6,632 | 1,616 | 3,512 | 299 | 2 |
| of which retail underlying | 3,366 | 1,604 | 3,433 | 281 | 0 |
| of which wholesale | 3,266 | 12 | 79 | 18 | 2 |
| **2Q17 (CHF million)** | | | | | |
| **Total exposures** | **7,080** | **2,277** | **2,848** | **239** | **3** |
| Traditional securitization | 7,080 | 2,277 | 2,848 | 239 | 3 |
| of which securitization | 7,080 | 2,277 | 2,848 | 239 | 3 |
| of which retail underlying | 4,422 | 2,045 | 2,848 | 220 | 0 |
| of which wholesale | 2,658 | 232 | 0 | 19 | 3 |

| | Exposure value (by regulatory approach) | | | | RWA (by regulatory approach) | | | | Capital charge after cap | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | IRB RBA | IRB SFA | SA/SSFA | 1250% RW | IRB RBA | IRB SFA | SA/SSFA | 1250% RW | IRB RBA | IRB SFA | SA/SSFA | 1250% RW |
| | **610** | **28,481** | **0** | **159** | **391** | **3,097** | **0** | **1,990** | **31** | **248** | **0** | **159** |
| | 610 | 4,052 | 0 | 111 | 391 | 472 | 0 | 1,385 | 31 | 38 | 0 | 111 |
| | 610 | 4,052 | 0 | 111 | 391 | 472 | 0 | 1,385 | 31 | 38 | 0 | 111 |
| | 472 | 0 | 0 | 103 | 203 | 0 | 0 | 1,289 | 16 | 0 | 0 | 103 |
| | 138 | 4,052 | 0 | 8 | 188 | 472 | 0 | 96 | 15 | 38 | 0 | 8 |
| | 0 | 24,429 | 0 | 48 | 0 | 2,625 | 0 | 605 | 0 | 210 | 0 | 48 |
| | 0 | 24,429 | 0 | 48 | 0 | 2,625 | 0 | 605 | 0 | 210 | 0 | 48 |
| | 0 | 24,429 | 0 | 48 | 0 | 2,625 | 0 | 605 | 0 | 210 | 0 | 48 |
| | **414** | **30,693** | **0** | **137** | **197** | **3,640** | **0** | **1,709** | **16** | **291** | **0** | **137** |
| | 414 | 4,025 | 0 | 62 | 197 | 551 | 0 | 772 | 16 | 44 | 0 | 62 |
| | 414 | 4,025 | 0 | 62 | 197 | 551 | 0 | 772 | 16 | 44 | 0 | 62 |
| | 319 | 0 | 0 | 48 | 150 | 0 | 0 | 603 | 12 | 0 | 0 | 48 |
| | 95 | 4,025 | 0 | 14 | 47 | 551 | 0 | 169 | 4 | 44 | 0 | 14 |
| | 0 | 26,668 | 0 | 75 | 0 | 3,089 | 0 | 937 | 0 | 247 | 0 | 75 |
| | 0 | 26,668 | 0 | 75 | 0 | 3,089 | 0 | 937 | 0 | 247 | 0 | 75 |
| | 0 | 226 | 0 | 0 | 0 | 71 | 0 | 0 | 0 | 6 | 0 | 0 |
| | 0 | 26,442 | 0 | 75 | 0 | 3,018 | 0 | 937 | 0 | 241 | 0 | 75 |

| | Exposure value (by regulatory approach) | | | | RWA (by regulatory approach) | | | | Capital charge after cap | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | IRB RBA | IRB SFA | SA/SSFA | 1250% RW | IRB RBA | IRB SFA | SA/SSFA | 1250% RW | IRB RBA | IRB SFA | SA/SSFA | 1250% RW |
| | **2,266** | **2,783** | **7,010** | **2** | **724** | **195** | **4,309** | **25** | **58** | **16** | **344** | **2** |
| | 2,266 | 2,783 | 7,010 | 2 | 724 | 195 | 4,309 | 25 | 58 | 16 | 344 | 2 |
| | 2,266 | 2,783 | 7,010 | 2 | 724 | 195 | 4,309 | 25 | 58 | 16 | 344 | 2 |
| | 1,674 | 0 | 7,010 | 0 | 538 | 0 | 4,309 | 0 | 43 | 0 | 344 | 0 |
| | 592 | 2,783 | 0 | 2 | 186 | 195 | 0 | 25 | 15 | 16 | 0 | 2 |
| | **3,086** | **2,282** | **7,076** | **3** | **632** | **227** | **4,075** | **35** | **50** | **18** | **326** | **3** |
| | 3,086 | 2,282 | 7,076 | 3 | 632 | 227 | 4,075 | 35 | 50 | 18 | 326 | 3 |
| | 3,086 | 2,282 | 7,076 | 3 | 632 | 227 | 4,075 | 35 | 50 | 18 | 326 | 3 |
| | 2,459 | 0 | 7,076 | 0 | 483 | 0 | 4,075 | 0 | 38 | 0 | 326 | 0 |
| | 627 | 2,282 | 0 | 3 | 149 | 227 | 0 | 35 | 12 | 18 | 0 | 3 |

# 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, 2017 was 82%. In line with regulatory requirements, the SMM is used for the specific risk of securitization exposures.

▸ Refer to "Regulatory capital treatment of securitization structures" (pages 56 to 57) 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 151 to 154) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk coverage and management in the Credit Suisse Annual Report 2017 for information on our risk management objectives and policies for market risk.

▸ Refer to "Note 1 – Summary of significant accounting policies" (pages 263 to 264) and "Note 31 – Derivatives and hedging activities" (pages 324 to 327) in VI – Consolidated financial statements – Credit Suisse Group in the Credit Suisse Annual Report 2017 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.

## MARKET RISK UNDER STANDARDIZED APPROACH

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

### MR1 – Market risk under standardized approach

| end of | 4Q17 | 2Q17 |
|---|---|---|
| **Risk-weighted assets (CHF million)** | | |
| **Options** | | |
| Securitization | 3,765 | 3,597 |
| **Total risk-weighted assets** | **3,765** | **3,597** |

## MARKET RISK UNDER INTERNAL MODEL APPROACH

### General

The market risk internal model approach (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.

### MRB – 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 default and migration risk (excl. securitizations and correlation trades) |

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

## MRB – IMA – Risk-weighted assets

| end of 4Q17 | CHF billion | in % |
|---|---|---|
| **Risk-weighted assets** | | |
| Regulatory VaR | 2.3 | 13 |
| Stressed VaR | 5.5 | 31 |
| RNIV | 7.8 | 45 |
| IRC | 1.9 | 11 |
| **Total risk-weighted assets** | **17.5** | **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 by the regulator.

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 differ 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 (consolidated and parent company), Credit Suisse (Schweiz) AG, Neue Aargauer Bank AG and Credit Suisse (Hong Kong) Ltd. The model used for the Credit Suisse Holdings (USA), Credit Suisse Capital LLC, Credit Suisse International and Credit Suisse Securities (Europe) Limited is similar but is based on a straight percentile rather than expected shortfall.

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 and its entities uses a two-year lookback 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 and its entities uses an actual 10 day return calculated over a 1 year historical observation period with no exponential weighting applied, except of Credit Suisse Holdings (USA) where stressed VaR uses regulatory VaR time weighting parameters. 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, 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 151 to 154) and "Market risk review" (pages 165 to 169) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management in the Credit Suisse Annual Report 2017 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. Credit Suisse has 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 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 current IRC regulatory rules.

The IRC portfolio model is a Merton-type portfolio model designed to calculate the cumulative loss at the 99.9% confidence level based on aggregated exposures that are obtained from individual transactions according to an aggregation model. 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 either based on the A-IRB reference data sets used for the PD and LGD estimation (migration matrix including PDs, LGDs, LGD correlation and volatility), or on other internal or external data qualifying under the IRB criteria, such as 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.

### RWA flow statements of market risk exposures under an IMA

The following table presents the 4Q17 flow statement explaining variations in the market risk RWA determined under an internal model approach.

Market risk RWA under an IMA of CHF 17.5 billion increased CHF 2.1 billion compared to the end of 3Q17, primarily due movement in risk levels.

## MR2 – Risk-weighted assets flow statements of market risk exposures under an IMA

| 4Q17 | Regulatory VaR | Stressed VaR | IRC | Other [1] | Total RWA |
|---|---|---|---|---|---|
| CHF million | | | | | |
| **Risk-weighted assets at beginning of period** | **2,409** | **4,497** | **1,856** | **6,635** | **15,397** |
| Regulatory adjustment | (428) | (740) | (184) | 61 | (1,291) |
| **Risk-weighted assets at beginning of period (end of day)** | **1,981** | **3,757** | **1,672** | **6,696** | **14,106** |
| Movement in risk levels | 669 | 2,261 | (1,805) | 1,431 | 2,556 |
| Model and parameter updates | 298 | (167) | 0 | 0 | 131 |
| Methodology and policy changes | 0 | (543) | 1,477 | (12) | 922 |
| Foreign exchange impact | 32 | 57 | 21 | 67 | 177 |
| **Risk-weighted assets at end of period (end of day)** | **2,980** | **5,365** | **1,365** | **8,182** | **17,892** |
| Regulatory adjustment | (672) | 133 | 545 | (373) | (367) |
| **Risk-weighted assets at end of period** | **2,308** | **5,498** | **1,910** | **7,809** | **17,525** |

[1] Risks not in VaR.

The following table presents the definitions of the RWA flow statements components for market risk.

## Definitions of risk-weighted assets movement components related to market risk

| Description | Definition |
|---|---|
| **RWA as of the end of the previous and current reporting periods** | Represents RWA at quarter-end |
| **Regulatory adjustment** | Indicates the difference between RWA and RWA (end of day) at beginning and end of period |
| **RWA as of the previous and current quarters end (end of day)** | For a given component (e.g. VaR) it refers to the RWA that would be computed if the snapshot quarter end figure of the component determines the quarter end RWA, as opposed to a 60-day average for regulatory |
| **Movement in risk levels** | Represents movements due to position changes |
| **Model and parameter updates** | Represents movements arising from updates to model parameters and model changes |
| **Methodology and policy changes** | Represents movements due to methodology changes in calculations driven by regulatory policy changes, including both revisions to existing regulations and new regulations |
| **Acquisitions and disposals** | Represents changes in book sizes due to acquisitions and disposals of entities |
| **Foreign exchange impact** | Represents changes in exchange rates of the transaction currencies compared to the Swiss franc |
| **Other** | Represents changes that cannot be attributed to any other category |

### 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.

## MR3 – Regulatory VaR, stressed VaR and Incremental Risk Charge

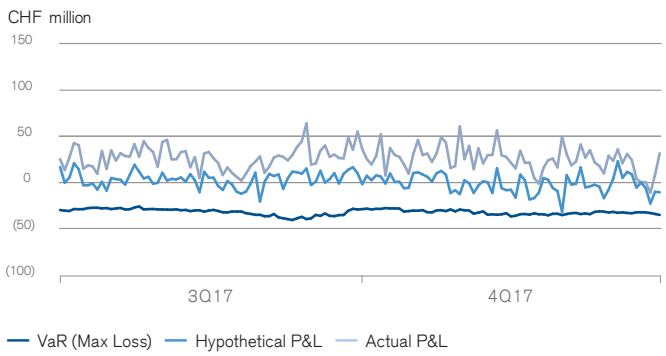
| in / end of | **2H17** | 1H17 |
|---|---|---|
| **CHF million** | | |
| **Regulatory VaR (10 day 99%)** | | |
| Maximum value | 92 | 104 |
| Average value | 63 | 58 |
| Minimum value | 42 | 37 |
| Period end | 79 | 61 |
| **Stressed VaR (10 day 99%)** | | |
| Maximum value | 265 | 205 |
| Average value | 132 | 120 |
| Minimum value | 91 | 86 |
| Period end | 143 | 107 |
| **IRC (99.9%)** | | |
| Maximum value | 208 | 272 |
| Average value | 150 | 177 |
| Minimum value | 102 | 131 |
| Period end | 109 | 131 |

During 2H17, IRC decrease was mainly driven by increased credit protection in Global Markets.

### 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.

## MR4 – Backtesting VaR vs Actual/Hypothetical 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 a subset of actual daily trading revenues, also referred to as "hypothetical" trading revenues under the Basel framework. These hypothetical trading revenues are defined on a consistent basis with the regulatory VaR model and thereby exclude non-market elements such as fees, commissions, gains and losses from intra-day trading, as well as cancellations and terminations.

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 6-month period through ending December 31, 2017, we had no backtesting exceptions in our regulatory VaR model calculated using the subset of actual daily trading revenues.

Since there were fewer than five backtesting exceptions in the rolling 12-month period through the end of 4Q17, in line with Bank for International Settlements (BIS) industry guidelines, the VaR model is deemed to be statistically valid.

# 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 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.

## 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" (page 168) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Risk management – Risk review and results in the Credit Suisse Annual Report 2017 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 | | |
|---|---|---|---|
| end of 4Q17 | Financial statements | Regulatory scope of consolidation | Reference to composition of capital |
| **Assets (CHF million)** | | | |
| Cash and due from banks | 109,815 | 109,457 | |
| Interest-bearing deposits with banks | 726 | 1,146 | |
| Central bank funds sold, securities purchased under resale agreements and securities borrowing transactions | 115,346 | 108,325 | |
| Securities received as collateral, at fair value | 38,074 | 38,074 | |
| Trading assets, at fair value | 156,334 | 150,812 | |
| Investment securities | 2,191 | 1,810 | |
| Other investments | 5,964 | 5,799 | |
| Net loans | 279,149 | 279,859 | |
| Premises and equipment | 4,686 | 4,752 | |
| Goodwill | 4,742 | 4,747 | a |
| Other intangible assets | 223 | 223 | |
| of which other intangible assets (excluding mortgage servicing rights) | 65 | 66 | b |
| Brokerage receivables | 46,968 | 46,968 | |
| Other assets | 32,071 | 31,167 | |
| of which deferred tax assets related to net operating losses | 2,213 | 2,213 | c |
| of which deferred tax assets from temporary differences | 3,309 | 2,950 | d |
| of which defined-benefit pension fund net assets | 2,170 | 2,170 | e |
| **Total assets** | **796,289** | **783,139** | |

## Balance sheet (continued)

| end of 4Q17 | Balance sheet | | |
|---|---|---|---|
| | Financial statements | Regulatory scope of consolidation | Reference to composition of capital |
| **Liabilities and equity (CHF million)** | | | |
| Due to banks | 15,413 | 16,004 | |
| Customer deposits | 361,162 | 361,255 | |
| Central bank funds purchased, securities sold under repurchase agreements and securities lending transactions | 26,496 | 26,496 | |
| Obligation to return securities received as collateral, at fair value | 38,074 | 38,074 | |
| Trading liabilities, at fair value | 39,119 | 39,161 | |
| Short-term borrowings | 25,889 | 19,293 | |
| Long-term debt | 173,032 | 171,989 | |
| Brokerage payables | 43,303 | 43,303 | |
| Other liabilities | 31,612 | 25,451 | |
| **Total liabilities** | **754,100** | **741,026** | |
| of which additional tier 1 instruments, fully eligible | 13,204 | 13,204 | g |
| of which additional tier 1 instruments subject to phase-out | 2,778 | 2,778 | h |
| of which tier 2 instruments, fully eligible | 4,127 | 4,127 | i |
| of which tier 2 instruments subject to phase-out | 3,930 | 3,930 | j |
| Common shares | 102 | 103 | |
| Additional paid-in capital | 35,668 | 35,668 | |
| Retained earnings | 24,973 | 24,940 | |
| Treasury shares, at cost | (103) | (100) | |
| Accumulated other comprehensive income/(loss) | (18,738) | (18,710) | |
| **Total shareholders' equity** [1] | **41,902** | **41,901** | |
| Noncontrolling interests [2] | 287 | 212 | |
| **Total equity** | **42,189** | **42,113** | |
| **Total liabilities and equity** | **796,289** | **783,139** | |

[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 common equity tier 1 (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 | 4Q17 |
|---|---|
| **Eligible capital (CHF million)** | |
| **Total shareholders' equity (US GAAP)** | **41,902** |
| Regulatory adjustments | (576) [1] |
| Adjustments subject to phase-in | (4,615) [2] |
| **CET1 capital** | **36,711** |
| Additional tier 1 instruments | 12,438 [3] |
| Additional tier 1 instruments subject to phase-out | 2,778 [4] |
| Deductions from additional tier 1 capital | (445) [5] |
| **Additional tier 1 capital** | **14,771** |
| **Tier 1 capital** | **51,482** |
| Tier 2 instruments | 4,127 [6] |
| Tier 2 instruments subject to phase-out | 1,138 |
| Deductions from tier 2 capital | (51) |
| **Tier 2 capital** | **5,214** |
| **Total eligible capital** | **56,696** |

[1] Includes regulatory adjustments not subject to phase-in, including a cumulative dividend accrual.
[2] Reflects 80% phase-in deductions, including goodwill, other intangible assets and certain deferred tax assets, and 20% 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 7.6 billion consists of capital instruments with a capital ratio write-down trigger of 7% and CHF 4.8 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 20% of goodwill and other intangible assets (CHF 1.0 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 low-trigger capital instruments with a capital ratio write-down trigger of 5%.

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, 2017. 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 4Q17 | 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 | – | | – | – | 508 | (508) |
| Common share capital issued by subsidiaries and held by third parties | – | | – | – | 44 | (44) |
| Goodwill | 4,747 | a | (7) [3] | 4,740 | (3,792) | (948) [4] |
| Other intangible assets (excluding mortgage-servicing rights) | 66 | b | (6) [5] | 60 | (48) | (12) [4] |
| Deferred tax assets that rely on future profitability (excluding temporary differences) | 2,213 | c | (1) | 2,212 | (1,770) | (442) [6] |
| Shortfall of provisions to expected losses | – | | 503 | 503 | (402) | (101) [7] |
| Gains/(losses) due to changes in own credit on fair-valued liabilities | – | | (2,690) | (2,690) | 2,152 | 538 [8] |
| Defined-benefit pension assets | 2,170 | e | (498) [5] | 1,672 | (1,337) | (335) [6] |
| Investments in own shares | – | | – | – | (13) | (3) [4] |
| Other adjustments [9] | – | | – | – | 43 | 11 [4] |
| Amounts above 10% threshold | 2,950 | | (2,950) | 0 | 0 | 0 |
| of which deferred tax assets from temporary differences | 2,950 | d | (2,950) [10] | 0 | 0 | 0 [6] |
| **Adjustments subject to phase-in to CET1 capital** | | | | | **(4,615)** | **(1,844)** |

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 80% phase-in deductions, including goodwill, other intangible assets and certain deferred tax assets, and 20% 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 558 million related to debt instruments deducted from additional tier 1 capital.

[9] Includes cash flow hedge reserve.

[10] Includes threshold adjustments of CHF (3,531) million and an aggregate of CHF 580 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 4Q17 | Balance sheet | Reference to balance sheet [1] | Regulatory adjustments | Total | Transition amount |
|---|---|---|---|---|---|
| **Additional tier 1 capital (CHF million)** | | | | | |
| Additional tier 1 instruments [2] | 13,204 | g | (766) [3] | 12,438 | 12,438 |
| Additional tier 1 instruments subject to phase-out [2] | 2,778 | h | – | 2,778 | 2,778 |
| **Total additional tier 1 instruments** | | | | | **15,216** |
| **Deductions from additional tier 1 capital** | | | | | |
| Goodwill | | | | | (948) [4] |
| Other intangible assets (excluding mortgage-servicing rights) | | | | | (12) [4] |
| Shortfall of provisions to expected losses | | | | | (51) |
| Gains/(losses) due to changes in own credit on fair-valued financial liabilities | | | | | 558 |
| Investments in own shares | | | | | (3) |
| Other deductions | | | | | 11 |
| **Deductions from additional tier 1 capital** | | | | | **(445)** |
| **Additional tier 1 capital** | | | | | **14,771** |
| **Tier 2 capital (CHF million)** | | | | | |
| Tier 2 instruments | 4,127 | i | – | 4,127 | 4,127 |
| Tier 2 instruments subject to phase-out | 3,930 | j | (2,792) [5] | 1,138 | 1,138 |
| **Total tier 2 instruments** | | | | | **5,265** |
| **Deductions from tier 2 capital** | | | | | |
| Shortfall of provisions to expected losses | | | | | (51) |
| **Deductions from tier 2 capital** | | | | | **(51)** |
| **Tier 2 capital** | | | | | **5,214** |

[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 | 4Q17 |
|---|---|
| **Risk-weighted assets related to amounts subject to phase-in (CHF million)** | |
| Adjustment for accounting treatment of pension plans | 647 |
| Defined-benefit pension assets | 335 |
| Deferred tax assets | 44 |
| **Risk-weighted assets related to amounts subject to phase-in** | **1,026** |
| **Amounts below the thresholds for deduction (before risk weighting) (CHF million)** | |
| **Non-significant investments in BFI entities** | **3,302** |
| Significant investments in BFI entities | 752 |
| Mortgage servicing rights | 135 [1] |
| Deferred tax assets arising from temporary differences | 3,531 [1] |
| **Applicable caps on the inclusion of provisions in tier 2 (CHF million)** | |
| Cap on inclusion of provisions in tier 2 under standardized approach | 98 |
| Cap for inclusion of provisions in tier 2 under internal ratings-based approach | 852 |

[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.

▸ Refer to "Swiss requirements" (pages 120 to 122) in III – Treasury, Risk, Balance sheet and Off-balance sheet in the Credit Suisse Annual Report 2017 for further information on Swiss capital requirements.

### Swiss capital requirements and metrics

| | | Phase-in | | Look-through |
|---|---|---|---|---|
| end of 4Q17 | CHF million | in % of RWA | CHF million | in % of RWA |
| **Swiss risk-weighted assets** | | | | |
| Swiss risk-weighted assets | 273,436 | – | 272,265 | – |
| **Risk-based capital requirements (going-concern) based on Swiss capital ratios** | | | | |
| Total | 33,293 | 12.176 | 39,414 | 14.476 |
| of which CET1: minimum | 15,859 | 5.8 | 12,252 | 4.5 |
| of which CET1: buffer | 8,750 | 3.2 | 14,975 | 5.5 |
| of which CET1: countercyclical buffers | 481 | 0.176 | 480 | 0.176 |
| of which additional tier 1: minimum | 6,016 | 2.2 | 9,529 | 3.5 |
| of which additional tier 1: buffer | 2,187 | 0.8 | 2,178 | 0.8 |
| **Swiss eligible capital (going-concern)** | | | | |
| Swiss CET1 capital and additional tier 1 capital [1] | 53,131 | 19.4 | 47,102 | 17.3 |
| of which CET1 capital [2] | 36,567 | 13.4 | 34,665 | 12.7 |
| of which additional tier 1 high-trigger capital instruments | 7,574 | 2.8 | 7,574 | 2.8 |
| of which additional tier 1 low-trigger capital instruments [3] | 4,863 | 1.8 | 4,863 | 1.8 |
| of which tier 2 low-trigger capital instruments [4] | 4,127 | 1.5 | 0 | 0.0 |
| **Risk-based requirement for additional total loss-absorbing capacity (gone-concern) based on Swiss capital ratios** | | | | |
| Total | 14,580 [5] | 5.332 [5] | 31,365 [6] | 11.52 [6] |
| **Eligible additional total loss-absorbing capacity (gone-concern)** | | | | |
| Total | 35,712 [7] | 13.1 | 35,226 | 12.9 |
| of which bail-in instruments | 31,099 | 11.4 | 31,099 | 11.4 |

[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] The total loss-absorbing capacity (gone concern) requirement of 6.2% was reduced by 0.868%, or CHF 2,373 million, reflecting rebates in accordance with article 133 of the CAO.
[6] Corrected since March 23, 2018.
[7] Includes CHF 4,613 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

| | | Phase-in | | Look-through |
|---|---|---|---|---|
| end of 4Q17 | CHF million | in % of LRD | CHF million | in % of LRD |
| **Leverage exposure** | | | | |
| Leverage ratio denominator | 919,053 | – | 916,525 | – |
| **Unweighted capital requirements (going-concern) based on Swiss leverage ratio** | | | | |
| Total | 32,166 | 3.5 | 45,826 | 5.0 |
| of which CET1: minimum | 19,300 | 2.1 | 13,748 | 1.5 |
| of which CET1: buffer | 4,595 | 0.5 | 18,330 | 2.0 |
| of which additional tier 1: minimum | 8,271 | 0.9 | 13,748 | 1.5 |
| **Swiss eligible capital (going-concern)** | | | | |
| Swiss CET1 capital and additional tier 1 capital [1] | 53,131 | 5.8 | 47,102 | 5.1 |
| of which CET1 capital [2] | 36,567 | 4.0 | 34,665 | 3.8 |
| of which additional tier 1 high-trigger capital instruments | 7,574 | 0.8 | 7,574 | 0.8 |
| of which additional tier 1 low-trigger capital instruments [3] | 4,863 | 0.5 | 4,863 | 0.5 |
| of which tier 2 low-trigger capital instruments [4] | 4,127 | 0.4 | 0 | 0.0 |
| **Unweighted requirements for additional total loss-absorbing capacity (gone-concern) based on Swiss leverage ratio** | | | | |
| Total | 15,808 [5] | 1.72 [5] | 37,395 [6] | 4.08 [6] |
| **Eligible additional total loss-absorbing capacity (gone-concern)** | | | | |
| Total | 35,712 [7] | 3.9 | 35,226 | 3.8 |
| of which bail-in instruments | 31,099 | 3.4 | 31,099 | 3.4 |

[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] The total loss-absorbing capacity (gone concern) requirement of 2.0% was reduced by 0.28%, or CHF 2,573 million, reflecting rebates in accordance with article 133 of the CAO.
[6] Corrected since March 23, 2018.
[7] Includes CHF 4,613 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.

## LEVERAGE METRICS

Beginning in 1Q15, Credit Suisse adopted the BIS leverage ratio framework, as issued by the BCBS and implemented in Switzerland by FINMA.

▸ Refer to "Leverage metrics" (page 131) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Capital management in the Credit Suisse Annual Report 2017 for further information on leverage metrics.

### Reconciliation of consolidated assets to leverage exposure – Phase-in

| end of | 4Q17 |
|---|---|
| **Reconciliation of consolidated assets to leverage exposure (CHF million)** | |
| Total consolidated assets as per published financial statements | 796,289 |
| Adjustment for investments in banking, financial, insurance or commercial entities that are consolidated for accounting purposes but outside the scope of regulatory consolidation [1] | (11,873) |
| Adjustments for derivatives financial instruments | 85,210 |
| Adjustments for SFTs (i.e. repos and similar secured lending) | (27,138) |
| Adjustments for off-balance sheet items (i.e. conversion to credit equivalent amounts of off-balance sheet exposures) | 76,565 |
| **Total leverage exposure** | **919,053** |

[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 | 4Q17 |
|---|---|
| **Reconciliation of consolidated assets to leverage exposure (CHF million)** | |
| On-balance sheet items (excluding derivatives and SFTs, but including collateral) | 597,592 |
| Asset amounts deducted from Basel III tier 1 capital | (7,505) |
| **Total on-balance sheet exposures** | **590,087** |
| **Reconciliation of consolidated assets to leverage exposure (CHF million)** | |
| Replacement cost associated with all derivatives transactions (i.e. net of eligible cash variation margin) | 25,218 |
| Add-on amounts for PFE associated with all derivatives transactions | 85,161 |
| Gross-up for derivatives collateral provided where deducted from the balance sheet assets pursuant to the operative accounting framework | 23,335 |
| Deductions of receivables assets for cash variation margin provided in derivatives transactions | (22,326) |
| Exempted CCP leg of client-cleared trade exposures | (15,233) |
| Adjusted effective notional amount of all written credit derivatives | 197,420 |
| Adjusted effective notional offsets and add-on deductions for written credit derivatives | (188,695) |
| **Derivative Exposures** | **104,880** |
| **Securities financing transaction exposures (CHF million)** | |
| Gross SFT assets (with no recognition of netting), after adjusting for sale accounting transactions | 170,386 |
| Netted amounts of cash payables and cash receivables of gross SFT assets | (33,801) |
| Counterparty credit risk exposure for SFT assets | 10,936 |
| Agent transaction exposures | 0 |
| **Securities financing transaction exposures** | **147,521** |
| **Other off-balance sheet exposures (CHF million)** | |
| Off-balance sheet exposure at gross notional amount | 242,212 |
| Adjustments for conversion to credit equivalent amounts | (165,647) |
| **Other off-balance sheet exposures** | **76,565** |
| **Tier 1 capital (CHF million)** | |
| **Tier 1 capital** | **51,482** |
| **Leverage exposure (CHF million)** | |
| **Total leverage exposure** | **919,053** |
| **Leverage ratio (%)** | |
| **Basel III leverage ratio** | **5.6** |

## LIQUIDITY COVERAGE RATIO

Our calculation methodology for the liquidity coverage ratio is prescribed by FINMA. For disclosure purposes our LCR is calculated using a three-month average which, beginning in 1Q17, is measured using daily calculations during the quarter rather than the month-end metrics used before. This change in the LCR averaging methodology resulted from updated FINMA requirements that became effective January 1, 2017.

▸ Refer to "Liquidity metrics" (pages 112 to 113) in III – Treasury, Risk, Balance sheet and Off-balance sheet – Liquidity and funding management in the Credit Suisse Annual Report 2017 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 4Q17 | Unweighted value [1] | Weighted value [2] |
|---|---|---|
| **High Quality Liquid Assets (CHF million)** | | |
| **High quality liquid assets** | **–** | **166,077** |
| **Cash outflows (CHF million)** | | |
| Retail deposits and deposits from small business customers | 156,650 | 20,108 |
| of which less stable deposits | 156,650 | 20,108 |
| Unsecured wholesale funding | 215,585 | 87,899 |
| of which operational deposits (all counterparties) and deposits in networks of cooperative banks | 36,052 | 9,013 |
| of which non-operational deposits (all counterparties) | 105,329 | 63,630 |
| of which unsecured debt | 14,995 | 14,995 |
| Secured wholesale funding | – | 65,525 |
| Additional requirements | 178,952 | 37,435 |
| of which outflows related to derivative exposures and other collateral requirements | 80,514 | 17,407 |
| of which outflows related to loss of funding on debt products | 2,036 | 2,036 |
| of which credit and liquidity facilities | 96,402 | 17,992 |
| Other contractual funding obligations | 70,679 | 70,679 |
| Other contingent funding obligations | 234,961 | 6,644 |
| **Total cash outflows** | **–** | **288,290** |
| **Cash inflows (CHF million)** | | |
| Secured lending | 139,158 | 92,585 |
| Inflows from fully performing exposures | 67,875 | 33,624 |
| Other cash inflows | 72,228 | 72,228 |
| **Total cash inflows** | **279,261** | **198,437** |
| **Liquidity cover ratio** | | |
| High quality liquid assets (CHF million) | – | 166,077 |
| Net cash outflows (CHF million) | – | 89,853 |
| **Liquidity coverage ratio (%)** | **–** | **185** |

Calculated using a three-month average, which is calculated on a daily basis.

[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 Capital Adequacy Ordinance (CAO) for non-systemically relevant financial institutions.

### Key metrics for non-systemically relevant financial institutions

| end of 4Q17 | Phase-in |
|---|---|
| **CHF million, except where indicated** | |
| Minimum required capital (8% of risk-weighted assets) | 21,875 |
| Swiss total eligible capital | 56,552 |
| of which Swiss CET1 capital | 36,567 |
| of which Swiss tier 1 capital | 51,338 |
| Swiss risk-weighted assets | 273,436 |
| Swiss CET1 ratio (%) | 13.4 |
| Swiss tier 1 ratio (%) | 18.8 |
| Swiss total capital ratio (%) | 20.7 |
| Countercyclical buffers (%) | 0.176 |
| Swiss CET1 ratio requirement (%) [1] | 3.876 |
| Swiss tier 1 ratio requirement (%) [1] | 5.876 |
| Swiss total capital ratio requirement (%) [1] | 8.476 |
| Swiss leverage ratio based on tier 1 capital (%) | 5.6 |
| Leverage exposure | 919,053 |
| Liquidity coverage ratio (%) [2] | 185 |
| Numerator: total high quality liquid assets | 166,077 |
| Denominator: net cash outflows | 89,853 |

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, which is calculated on a daily basis.

# List of abbreviations

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

**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, ambitions, targets 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.

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, ambitions, targets, 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 2018 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 us, sovereign issuers, structured credit products or other credit-related exposures;
- the ability to achieve our strategic goals, including those related to cost efficiency, income/(loss) before taxes, capital ratios and return on regulatory capital, leverage exposure threshold, risk-weighted assets threshold, return on tangible equity, and other targets, objectives 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 cyber attacks 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 or tax standards, policies or practices in countries in which we conduct our operations;
- the potential effects of proposed changes in our legal entity structure;
- competition or changes in our competitive position 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 2017.

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