

Basel III Pillar 3 Report

Market discipline



Basel III Pillar 3 Report at 31 December 2016
16 February 2017 / Banque Cantonale Vaudoise / Version 1.0

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This document is a translation of the original French document entitled “Bâle III - Pilier 3 – Rapport au 31 décembre 2016.” Only the French text is authoritative.

1. Objective and scope of this report

The objective of this report is to provide in-depth information on risk management at BCV Group to investors, analysts, ratings agencies and supervisory bodies. In particular, it describes the Bank's capital adequacy, its risk-assessment methods and the level of risk taken at BCV. This document was prepared in accordance with the Pillar 3 disclosure requirements set forth under the Basel III Accord, together with Circular 2008/22 "Capital adequacy disclosure – banks" published by the Swiss Financial Market Supervisory Authority (FINMA).¹

1.1 Disclosure policy

For ease of access, this report is available in the investor relations section of BCV's website. It has been updated on a half-yearly basis ever since BCV became subject to Basel II on 1 January 2009. It is published within two months following the end of the first half of the financial year and within four months following the end of the financial year, in accordance with Swiss regulations (FINMA Circular 2008/22, margin numbers 53–55).

This version of the report corresponds to the closing of accounts on 31 December 2016. The description of the Bank's governance, methods and processes reflects the situation at 31 December 2016; subsequent changes are not included.

The Bank's external auditor verifies, as a general rule every three years, compliance with financial disclosure requirements based on FINMA Circular 2013/3 "Auditing," and states its opinion in the prudential audit report it sends to FINMA. This Pillar 3 report is audited by the external auditor. The data contained in the Bank's Pillar 3 reports are calculated in accordance with the Basel III Accord regulatory capital requirements. This calculation process was audited during FINMA's IRB approval process and is subject to oversight as part of the regulatory supervision process. Furthermore, BCV's Internal Audit Department periodically reviews the process for calculating capital requirements (Basel III Accord, §443).

The appendix to this report contains information that is useful for understanding this document, including a description of business segments and a list of abbreviations.

The figures contained in the tables have each been properly rounded depending on the number of significant digits used for the table; this may result in discrepancies between listed column and row totals and the sum of individual column or row items.

1.2 Scope

The parent company within BCV Group is Banque Cantonale Vaudoise, a corporation organized under public law with its headquarters in Lausanne. The parent company has a branch in Guernsey.

The companies that the Group is required to include in its regulatory reporting include companies over which BCV has control and companies in which it has significant influence over operations. These companies are fully consolidated. Significant influence is generally recognized by the Bank when it makes a profit from or bears the risks of a company's operations.

Companies in which BCV has significant influence but no outright control (holdings of 20%-50%) are accounted for using the equity method.

The following companies are not included in the scope of consolidation:

- Holdings of no material significance in terms of financial reporting and risk;
- Significant holdings not held for strategic purposes and intended to be sold or liquidated within 12 months.

¹The correspondence between the tables in this Pillar 3 report and those in the Basel Accord is provided in the appendix (section 5.4.1).

Table 1: Group companies included in the supervisory review
at 31 December 2016, BCV Group

Fully consolidated BCV Group companies		Capital in millions	Shareholding as %
Private banks:			
Piguet Galland & Cie SA, Yverdon-les-Bains (Switzerland)	CHF	24.4	99.7
Fund-management companies:			
Gérifonds SA, Lausanne (Switzerland)	CHF	2.9	100.0
Gérifonds (Luxembourg) SA, Luxembourg (Luxembourg)	EUR	0.1	100.0
Société pour la gestion de placements collectifs GEP SA, Lausanne (Switzerland)	CHF	1.5	100.0

The scope of consolidation did not change relative to end-2015.

Companies taken into account for calculating capital requirements are the same as those included in the Group's consolidated accounts. All these companies are fully consolidated in the financial statements. No company is currently accounted for using the equity method. The Group has no subsidiaries in the field of insurance.

There are no restrictions that could hinder the transfer of money or capital within the Group.

The main non-consolidated holdings and their treatment are listed in Table 2 below (see also section 4.5.2 below).

Table 2: Main risk-weighted, non-consolidated holdings in financial companies
at 31 December 2016, BCV Group

Company	Shareholding as %
Central Mortgage-Bond Institution of Swiss Cantonal Banks SA, Zurich (Switzerland) ¹	14
Aduno Holding SA, Zurich (Switzerland)	5
Banque Cantonale du Jura SA, Porrentruy (Switzerland)	5
Caleas SA, Zurich (Switzerland)	5
TWINT SA, Zurich (Switzerland)	4
Swiss Bankers Prepaid Services SA, Grosshöchstetten (Switzerland)	3
SIX Group SA, Zurich (Switzerland)	2

¹According to CAO Art. 40, if threshold 3 is not reached, a 250% risk weighting is applied to shareholdings of more than 10% in financial companies

In 2016, BCV acquired a 4% stake in TWINT SA, a newly created company that brings together the Swiss mobile payment systems Paymit and TWINT.

2. Capital structure

BCV Group's regulatory capital is composed almost entirely of Common Equity Tier 1 (CET1) capital, with a marginal amount of Tier 2 (T2) capital. Regulatory capital is based on the Group's financial statements, which are drawn up in accordance with the Swiss accounting rules for banks of 27 March 2014 (FINMA Circular 2015/1).

CET1 capital comprises paid-in capital, disclosed reserves and minority interests. At 31 December 2016, BCV's share capital amounted to CHF 86,061,900 and consisted of 8,606,190 fully paid-in registered shares with a par value of CHF 10. CET1 is adjusted for regulatory deductions such as goodwill, the shortfall of provisions to regulatory expected loss and the sectoral countercyclical capital buffer for mortgage loans. BCV has not issued any capital instruments that meet the criteria for inclusion in Additional Tier 1 (AT1) capital. In particular, BCV has no authorized or conditional capital, and has not issued any dividend-right certificates. There are no outstanding convertible bonds or options issued by the Bank involving the BCV share.

Tier 2 capital comprises reserves on debt and equity securities carried under financial investments and stated at lower of cost or market, subject to a limit of 45% of unrealized gains, and general provisions allocated under the International Standard Approach. BCV has not issued any capital instruments that meet the criteria for inclusion in T2.

Table 3: Eligible capital
in CHF millions, BCV Group

	December 2016	December 2015
Common Equity Tier 1 (CET1) capital¹	2,957	2,924
Instruments and reserves	3,136	3,113
- of which share capital	86	86
- of which disclosed reserves	3,049	3,027
Regulatory adjustments	-57	-75
- of which goodwill	-16	-23
- of which shortfall of provisions to regulatory expected loss	-41	-53
Countercyclical buffer	-122	-113
Additional Tier 1 (AT1) capital	-	-
Instruments	-	-
Regulatory adjustments	-	-
Tier 2 (T2) capital	22	19
Compulsory reserves in equities and general provisions	22	19
Regulatory adjustments	-	-
Total eligible capital¹	2,979	2,943

¹ After countercyclical buffer, which was 2% of risk-weighted assets relating to residential property financing.

3. Capital adequacy

BCV monitors its capital adequacy in accordance with Pillars 1 and 2 of the Basel III Accord.

The capital ratio is a key part of the Pillar 1 capital-adequacy monitoring process.² Since 1 January 2013, capital adequacy has been determined in accordance with the standards in the Basel III Accord. The proposed regulatory relief during the transition period has not been applied. BCV chose not to make use of the regulatory relief offered as part of Basel III implementation because its impact would have been minimal for the Bank.

The Executive Board monitors the capital ratio and its components monthly for the parent company. Both the Executive Board and the Board of Directors do so every quarter for the parent company and every six months for the Group as a whole. Important decisions regarding the Bank's business development and operations are analyzed in terms of their impact on the capital ratio. The impact that a worsening economic environment would have on the Bank's capital ratio is also analyzed each year using cyclical stress tests (Basel III Accord, §435).

FINMA monitors the parent company's capital adequacy each quarter and the Group's capital adequacy every six months using the Common Reporting framework (COREP).

Capital-adequacy monitoring under Pillar 2 of the Basel III Accord is carried out at two levels:

1. Regulatory requirements: For the capital ratio, which takes into account the countercyclical buffer, the requirement for BCV, under Articles 42 and 43 of the Capital Adequacy Ordinance (CAO), is 12%. This requirement comprises the absolute minimum requirement (8%) and the capital buffer for a category 3 bank (4%). Given the current environment of extremely low interest rates and BCV's exposure to interest-rate risk as determined by FINMA, FINMA has recommended a temporary requirement of 13% for the Bank.
2. Stress testing (Basel III Accord, §434): The capital ratio must be high enough to absorb the stresses that the Bank calculates annually using extreme scenarios for credit, market, operational, business and strategic risks.

²The capital ratio is equal to the ratio of eligible capital less the countercyclical buffer to risk-weighted assets.

Table 4: Capital adequacy
in CHF millions, BCV Group

	December 2016	December 2015
Eligible capital¹	2,979	2,943
Core Equity Tier 1 (CET1) capital	2,957	2,924
Additional Tier 1 (AT1) capital	-	-
Tier 2 (T2) capital	22	19
Risk-weighted assets	17,602	16,589
Credit risk ²	14,754	13,777
Non-counterparty-related assets	647	660
Market risk	413	363
Operational risk	1,788	1,789
Minimum capital requirement³	1,408	1,327
Credit risk ²	1,180	1,102
Non-counterparty-related assets	52	53
Market risk	33	29
Operational risk	143	143
Equity ratios		
CET1 ratio	16.8%	17.6%
T1 ratio	16.8%	17.6%
Total capital ratio	16.9%	17.7%

¹After countercyclical buffer, which was 2% of risk-weighted assets relating to residential property financing.

²Including the credit value adjustment (CVA) and central counterparty requirements.

³Equal to 8% of risk-weighted assets.

The Swiss Federal Council approved the Swiss National Bank's proposal for a countercyclical buffer. After taking the buffer into account, BCV's total capital ratio was 16.9% (17.6% excluding the buffer). This figure was above the minimum regulatory requirement of 13%. The CET1 capital ratio was 16.8% (17.5% excluding the buffer), which was also above the FINMA requirement of 8.8%. The difference between the total capital ratio and the CET1 is due to the fact that T2 capital comprises reserves on debt and equity securities carried under financial investments and stated at lower of cost or market, subject to a limit of 45% of unrealized gains.

The leverage ratio fell from 6.7% to 6.6% in 2016 following a rise in total assets, particularly deposits with the Swiss National Bank (see tables in section 5.2 for further details).

Table 5: Credit-risk-weighted assets, by asset category
in CHF millions, BCV Group

Asset category	December 2016	December 2015
Residential retail	3,088	2,712
Other retail	654	648
Corporate	4,089	4,086
Specialized lending	4,842	4,527
Sovereigns	0	10
Other institutions	323	343
Banks	862	748
Central counterparties	29	33
Equity securities ¹	747	532
Credit value adjustment (CVA)	118	139
Total	14,754	13,777

¹Including shareholdings of more than 10% in financial companies, with a 250% risk weighting.

In accordance with the Bank's business activities, the majority (84%) of the Bank's risk-weighted assets are associated with credit risk. Corporate lending (excluding banks) accounts for 61% of credit-risk-weighted assets, due in particular to the large amount of specialized lending (e.g., trade finance and income-producing real estate).

Table 6: Credit-risk-weighted assets, by approach applied
in CHF millions, at 31 December 2016, BCV Group

Asset category	International Standard Approach (SA-BIS)	IRB Approach	Total
Residential retail	-	3,088	3,088
Other retail	257	397	654
Corporate	2,547	1,542	4,089
Specialized lending	-	4,842	4,842
Sovereigns	0	-	0
Other institutions	151	172	323
Banks	133	730	862
Central counterparties	-	29	29
Equity securities ¹	-	747	747
Credit value adjustment (CVA)	1	117	118
Total	3,089	11,665	14,754

¹Including shareholdings of more than 10% in financial companies, with a 250% risk weighting.

The International Standard Approach (SA-BIS) is applied to 21% of risk-weighted assets (outside the scope of the IRB approach). These exposures are essentially to counterparties (in particular large corporates) for which a compatible IRB model is not yet in place or for which the Bank does not intend to put in place a rating model (Mortgage-Bond Bank of the Swiss Mortgage Institutions, Central Mortgage-Bond Institution, Swiss Government, foreign governments, multilateral development banks).

4. Risk exposure and assessment

The strategic framework for risk exposure (risk appetite), risk-assessment principles, risk reporting, as well as other operational guidelines relating to risk management are defined in the Bank's Risk Management Policy and Strategy (RMPS), an internal framework document that is reviewed and approved each year by the Board of Directors.

This section of the report sets out the Bank's RMPS principles and provides details of its risk profile using the structure and tables required by FINMA for Pillar 3 disclosure.

4.1 Risk-management objectives and governance

Risk-management objectives

BCV manages all its risks in an integrated and consistent way, using a process that encompasses all of the Bank's activities. The overall goals are to ensure that:

- BCV's risk exposure is evaluated, monitored and reported in a manner that is appropriate to the economic and regulatory environment.
- BCV's risk-taking capacity is in line with its risk profile.
- BCV earns optimal returns on the risks that it takes and hence on the equity capital committed.

Governance

All risks are managed according to the same basic principles of governance and organization. The main responsibilities can be summarized as follows:

- The Board of Directors establishes the Bank's policy for managing risk and decides the strategy the Bank will pursue in taking on risk.
- The Board of Directors' Audit & Risk Committee ensures that the risk management policy set by the Board of Directors is implemented and operational.
- The Executive Board is responsible for ensuring that the risk-management procedures are implemented and operational, and for monitoring the Bank's risk profile. The Executive Board monitors strategic and business risk and supervises the Executive Board Risk Management Committee (EBRMC) in monitoring and reporting these risks. The EBRMC is chaired by the Chief Financial Officer (CFO), and includes the CEO, other division heads, and the head of the Risk Management Department.
- Division heads are responsible for conducting and monitoring the activities of their divisions, regardless of whether the division has a front-line, steering or business-support role. They have initial responsibility for overseeing, identifying and managing the strategic, business, credit, market and operational risks arising from the activities of their divisions.
- The CFO also assumes the role of Chief Risk Officer. The CFO puts forward risk-management policy and strategy, monitors the Bank's aggregate risk profile, is responsible for capital adequacy, and helps foster a culture of risk management among staff, with the support of the Risk Management Department, which reports to the CFO.
- The Chief Credit Officer (CCO) is responsible for analyzing risk for all types of credit-risk exposure assumed by the Bank and, up to the limit of his approval authority (see below), for credit decisions and for monitoring risk exposures on a counterparty basis.

Risk Management

Risk Management's mission is: to develop and continually improve the Bank's methods and principles for managing credit, market and operational risk; to monitor the Bank's risk profile; and to oversee and execute risk reporting. Risk Management ensures that the Bank's internal control system is properly implemented and in keeping with the Bank's needs; it is also in charge of submitting all risk reports to the Bank's governing bodies. Finally, it is responsible for the overnight monitoring of market risk for BCV's trading floor.

4.2 Classification of risks and risk-assessment principles

Classification of risks

The Bank looks at three aspects for all types of risk:

- First, the existence of a risk factor, i.e., a source of uncertainty relative to the Bank's interests (e.g., the uncertain financial situation of one of the Bank's counterparties, or an equity position on the trading book with a fluctuating price);
- Second, the occurrence of a risk event, which is a situation that has an adverse effect on the Bank's interests and that is caused by the deterioration of a risk factor (e.g., if one of the Bank's counterparties does not meet its financial obligations, or if a share price falls);
- Third, the assessment of the negative impact that the risk event would have on the Bank's interests (e.g., the need to record a loan impairment charge or a loss on a security).

Throughout the Bank, four categories of risk are used to classify risk events:

- Strategic and business risk. Strategic risk arises from economic or regulatory changes that have an adverse effect on the Bank's strategic choices; business risk is the result of competitive changes that have an adverse effect on business decisions for a given strategy.
- Credit risk. This arises from the possibility that a counterparty may default. Credit risk exists before and during unwinding of a transaction.
- Market risk. This arises from potential adverse changes in market parameters – particularly prices and implied volatility – and other market effects (e.g., correlation between asset prices and market liquidity). Liquidity risk, both in terms of the structural funding of activities and short-term liquidity management, is also deemed to be a component of market risk.
- Operational risk. This arises from a possible inadequacy or failure relating to processes, people and/or information systems within and outside the Bank. Operational risk includes the risk of non-compliance, i.e., the risk of the Bank breaching legal requirements, standards and regulations.

For all risk types, the Bank seeks to protect itself against three types of potential impact:

- The financial impact, that is, a decrease in the Bank's net profit and/or a drop in the book or economic value of the Bank's capital;
- The regulatory impact, that is, inquiries, sanctions, increased monitoring or a restriction on banking activities;
- The reputational impact, that is, the image the Bank projects to the outside world.

Risk assessment

Throughout the Bank's businesses and portfolios and for every position and transaction, the Bank assesses and monitors its risk profile, i.e., its exposure to strategic, business, credit, market and operational risks. The Bank assesses the potential financial, regulatory and reputational impact of these risks.

Risk assessment generally involves analyzing the following:

- *Risk exposure*
This involves determining whether the Bank is exposed to certain risks as a result of its activities or operational processes.

- *Risk factors and events*
This involves identifying relevant risk factors and determining potential risk events. For strategic and business risk, this includes all economic and regulatory factors that may affect the Bank's business activities and its operational processes. For credit, market and operational risk, the relevant risk factors and risk events are defined according to the nature of the Bank's activities.
- *Impact of risks*
This involves determining the potential financial, regulatory and reputational impact. For risks with a potential financial impact, this means defining *loss metrics* and *risk metrics* and determining *capital requirements*.

Loss metrics, which are used to determine the potential financial impact, are calculated in accordance with the guidelines set out in the RMPS; they are developed for each risk category set out above. Generally speaking, the Bank uses effective loss, expected loss and accounting loss to measure loss. Which risk metrics are applied depends on the relevant risk factors and the risk categories in question. These metrics reflect the methods and tools currently available to the Bank. The Bank continually improves and implements the risk metrics to make them more integrated and consistent across the Bank's various activities and risk categories. In terms of capital requirements, the Bank monitors its capital situation in accordance with the FINMA framework.

4.3 Credit risk

Strategy and processes

Guidelines for taking on credit risk

The Bank's lending activities are focused on Vaud Canton; lending does however take place to a lesser extent in other parts of Switzerland and other countries for specific client segments and products. Through its lending activities, the Bank aims to contribute to the development of all areas of the private-sector economy, to mortgage lending and to the financing of public-sector entities within the Canton.

Lending at BCV is based on the principle that a borrower must be able to fully repay any loan within a given period, or that the Bank may be released from any commitments it may have in regard to counterparties, while receiving fair compensation for the risks incurred and the work undertaken.

The Bank applies a differentiated pricing policy according to the estimated degree of risk. Where preferential terms are requested due to the extent of the Bank's business relationship with the counterparty or business group, the overall return on the business relationship is taken into consideration.

The Bank does not engage in pledge financing or name lending. The lending decision takes into account the solvency of the counterparty, the project's earnings capacity and the management's capabilities; these factors take precedence over collateral value or reputation.

The Bank avoids financing or supporting illegal or immoral activities through its lending facilities. The Bank also avoids facilitating, through its lending facilities, activities that could entail a risk of money laundering, insider trading, corruption, or activities that would breach in any other way the Swiss banks' code of conduct with regard to the exercise of due diligence. The Bank avoids operations that may damage its reputation or image.

Standards and procedures for lending and loan renewals

Before taking on credit risk, the Bank conducts an analysis of the nature and complexity of lending commitments, using the appropriate internal methods for that type of transaction. BCV will not grant, increase or renew loans to debtors until it has assessed solvency, i.e., until it has determined the appropriate internal counterparty default rating using established methods. Risks relating to transactions and the return on commitments are also analyzed. It is in this context that the collateral for the commitment is identified and evaluated.

For all lending decisions, the Bank studies the economic background, the nature of and the reasons for the transaction, as well as the relationship between the parties involved. The Bank seeks to obtain a detailed view of the economic and personal situation of counterparties, and, as necessary, of the beneficial owners, the guarantors or the beneficiaries of guarantees. The information obtained is carefully verified.

The Bank develops, reviews and uses standard criteria for lending decisions. For financing single-family homes and income-producing real estate, these criteria were chosen, in particular, for their reliability and clarity.

Contractual documentation for standard lending operations is drawn up using models and/or guidelines that have been validated by the Bank's legal department. For some lending operations, the Bank's legal department or, if necessary, external experts may be called upon. Contractual provisions ensure, in particular, that the funds are used in accordance with the stated purpose of the lending facility and that the Bank obtains any requested financial information within the stated deadlines. For medium- and long-term lending commitments, the contract is written in such a way as to ensure that the Bank's position as lender is not subordinated to that of other creditors without its agreement, in terms of both collateral and the counterparty's position within a business group. For long-term commitments that cannot be terminated at any time based on the Bank's General Conditions, or for which the Bank cannot call in additional collateral at any time, the Bank adds a termination clause to hedge against the increased risk.

An application is prepared for all new loans. The application clearly states the reasons, conditions and contractual terms associated with the risk taken, and in particular the credit limit granted to the counterparty or business group. These applications are submitted for approval to the competent body according to a defined delegation chain.

Reexamination of lending commitments and collateral

Lending commitments are reviewed to assess any change in the counterparty's solvency or the value of the collateral, and to determine whether the commitments should be maintained at the existing level or reduced. The Bank uses an internal timetable to ensure that a periodic review is conducted of lending commitments associated with a business group together with the contractual terms. The timetable varies depending on the client and loan type. Commitments involving a higher risk of loss are subject to more frequent and more in-depth reviews. A similar timetable is also used to review the level of collateral.

In addition to these regular reviews, the Bank uses a system of alerts under which specific commitments are reviewed outside of the normal timetable if any deterioration is detected. These alerts could be triggered and a review required, for example, if payment deadlines are missed or if there is a delay in the submission of information required to properly monitor lending commitments.

Decisions made on the basis of these reviews are subject to a delegation chain similar to the one used to assess whether to grant a new line of credit.

Limits, portfolio monitoring and special measures

Within the credit portfolio, global risk limits are defined, mainly for the purpose of tallying up exposures that taken together could have a major impact on the Bank's net profit and economic capital. These limits are defined and monitored:

- For the nominal exposure, the expected loss and the capital requirement for various client segments and for activities outside Vaud Canton and outside Switzerland.
- For the amount and term of the lending commitments in each foreign country in which the Bank

takes on credit risk. The limits are determined through an internal analysis of the financial and settlement risks associated with the financing in place in the various countries.

- For the amount of aggregate positions for a given business group, and in certain cases for a given transaction, in order to monitor concentration risk.

If necessary, in addition to setting and monitoring these limits, the Bank analyzes specific portfolios that are deemed to be exposed to potential or actual adverse conditions. These analyses may lead to proactive measures for a sub-grouping of the counterparties in question in order to enhance credit-risk monitoring.

Furthermore, in case of extraordinary events, such as a significant decline in the local or broader property market, the dates on which collateral is reviewed may be moved forward for groups of collateral identified in accordance with various criteria (by region, property type, age of existing valuation, etc.) to avoid a situation in which the Bank's information systems contain obsolete and overestimated amounts for the market value of properties.

Monitoring and treating counterparties reputed to be in financial difficulty and counterparties in default

Counterparties that present a particularly high risk of default but are nevertheless considered to be performing are said to be “reputed to be in financial difficulty” (RD). These counterparties, along with counterparties that are “in default” (ID), are subject to closer monitoring.

Lending commitments to RD or ID counterparties are treated by the Bank individually, quickly and with the necessary rigor, in accordance with ethical and compliance-related rules. These positions must generally be made sound over the course of three to four years. Where this strategy cannot be applied, the Bank takes the appropriate measures to minimize its losses.

Structure and organization

Responsibilities in the credit process

In processing credit operations, the Bank as a general rule separates its client-facing divisions (Corporate Banking, Retail Banking, Private Banking and Asset Management & Trading), which are responsible for advising, selling, selecting, pre-analyzing and pricing the transactions, from the Credit Management Division, whose departments are in charge of the other phases of the lending process, such as analysis, granting loans, arranging the financing and monitoring credit limits. In addition to the principle of separation, rules exist to avoid potential conflicts of interest between counterparties, on the one hand, and analysts and specialists, on the other.

Delegation chain for credit-related decisions

The decision-making process involves approving or reviewing a position and validating the internal counterparty default rating as well as any overrides. To determine the competent body, the Bank applies a differentiated delegation chain that ensures that large and high-risk commitments are dealt with at the highest level, guaranteeing that Management is appropriately involved in taking on credit risk.

The competent body depends on the nature of the commitments and the level of credit risk of the business group to which the counterparty belongs. Decision-making authority is attributed individually or to credit committees, in accordance with a set of approval limits for each type of commitment (e.g., loans and advances to customers, interbank lending, and loans to employees and members of the governing bodies). These limits, which are different for credit decisions and reviews of existing commitments, depend on the internal counterparty default rating, the nature, amount and term of the lending commitment, and the level and quality of the collateral for the financing. In addition, should certain lending criteria not be met, any decision to grant or increase financing for single-family homes and income-producing real estate would have to be made higher up the credit-decision-making chain. For each type of lending commitment, there is a distinct set of approval limits for decisions relating to short-term overruns or overdrafts.

The Board of Directors is at the top of the decision-making hierarchy and systematically reviews the most important credit-related decisions. Immediately below the Board of Directors are the Executive

Board's Credit Committee (EBCC) and the Chief Credit Officer (CCO), who heads the Credit Management Division. The EBCC and the CCO have widespread lending authority, which encompasses all of the Bank's activities. For lower amounts, lending authority is allocated according to the activity, beginning with the sector-specific credit committees. Lower down still, the analysts in the Credit Management Division, with different levels of authority, have certain powers that are specific to their field. Finally, the front line has some lending authority. It is limited to fully secured lending commitments in a limited amount, temporary overdrafts or overruns, and certain employee loans.

Lending commitments to counterparties "reputed to be in financial difficulty" (RD) or "in default" (ID) are subject to a separate delegation chain. There is an additional set of approval limits for decisions relating to taking on credit risk abroad.

Decisions taken at a given approval level are checked *a posteriori* by the level above, through a full or selective review of lending decisions deemed to be significant.

Responsibility for identifying and monitoring provisioned loans

Any entity within the Bank that is involved in the lending process may suggest that a counterparty be included in the RD and ID categories on the basis of criteria that are defined in the same way for all of the Bank's activities. Entities with lending authority are authorized to decide whether to include a client in these categories.

A specialized department within the Credit Management Division monitors these commitments. It is separate from the front-line units that generate lending commitments. Once lending commitments are sound again, they are monitored by the front line.

Internal documentation and regulations

The guidelines for lending activities are set out in the Bank's Credit Policy. In particular, it sets out the basic principle for how authority for granting and reviewing loans is allocated. The delegation chain is then explained in detail in the Bank's Lending Policy Rule Book. Together with the Technical Standards (technical criteria and limits for lending), these documents form the framework for the Bank's lending activities, which is established in accordance with the Bank's Risk Management Policy and Strategy.

The Executive Board defines and develops the Credit Policy, upon the recommendation of the CCO, and submits it to the Board of Directors (BoD) for approval. The BoD reviews the Credit Policy periodically. All those involved in the lending process are responsible for monitoring the Credit Policy and ensuring that it is adhered to. The CCO oversees its application.

The Lending Policy Rule Book sets out the rules and guidelines for decisions concerning the Bank's credit risk at the parent company level (delegation chain). It is established in accordance with the Bank's by-laws and Credit Policy.

The EBCC develops and submits the Lending Policy Rule Book and its updates to the BoD.

The Technical Standards define the type of collateral recognized by the Bank and, for each type of collateral, the loan-to-value ratio required for a loan to be considered secured. The Technical Standards are subject to validation by the BoD.

At the operational level, lending activities are structured around a series of internal directives that provide details of the guidelines set forth in the framework documents.

Risk assessment

Risk event

A credit-risk event is a default by a counterparty: the Bank considers a counterparty to be in default when the counterparty is past due more than 90 days on any material credit obligation to the Bank or when the Bank considers that the counterparty is unlikely to pay its credit obligations to the Bank in full.

Risk exposure

The Bank considers all credit-risk exposures that arise from its activities, including its activities as a custodian bank, with the following counterparties or groups of counterparties:

- Retail and private banking clients;
- Corporates, excluding trade finance;
- Trade finance;
- Fund-management companies;
- Public-sector entities (municipalities, and regional, local and national governments);
- Bank counterparties.

For any counterparty, exposure to credit risk on the trading book and banking book (both on and off the balance sheet) occurs in the following forms:

- Exposure in the form of a financial claim (mortgage loans, fixed-term advances, current accounts with credit limits, overdrafts, investments and current accounts held by the Bank with other banks);
- Off-balance-sheet exposure resulting from undrawn portions of notified limits, contingent liabilities (guarantees) issued by the Bank on behalf of the counterparty, guarantees or other forms of commitment (letters of credit, avalized drafts) received from the counterparty as collateral or for which the Bank takes over the risk;
- Exposure resulting from forward contracts and OTC derivatives, taking into account netting agreements and collateral management agreements;
- Exposure in terms of shares and other equity securities (including equity derivatives) for which the counterparty is the issuer (on the banking book and net positions on the banking book);
- Exposure resulting from repos/reverse repos and securities lending/borrowing transactions;
- Settlement exposure, especially on currency transactions. It should be noted that when positions are unwound through a simultaneous settlement system, such as CLS (Continuous Linked Settlement), settlement risk is not considered.

The methods defined determine the amount of exposure by category.

Loss metrics

The Bank uses two different loss metrics:

- *Expected loss*: The expected loss is determined on the basis of the probability of default and the loss given default for positions not relating to trade finance, and on the basis of slotting criteria for trade-finance positions. A general description of these methods is provided below.
- *Book loss or a loan impairment charge*: Most loan impairment charges are the result of a bottom-up calculation, position by position, following the discovery of RD and ID counterparties and an analysis of the corresponding exposure. These charges reflect the best *a priori* estimate of the loss on specific exposures. The amount of such charges is generally determined using a parameter-based method in which the provisioning ratio is determined and applied to credit-risk exposure. This method is different from that used to calculate the expected loss on performing loans. In some cases, for large commitments or for special or complex situations, the amount of the loan impairment charge is based on a scenario analysis. The Bank also allocates provisions for country risks, which are created whenever there is a major credit risk on commitments that are neither RD nor ID, for reasons relating to adverse situations in a country associated with the commitment.

For performing loans not relating to trade finance, the expected loss is determined on the basis of the probability of default and the loss given default.

- *A counterparty's probability of default, and rating default risk*

Each counterparty is assigned an internal counterparty default rating depending on its probability of default. Throughout the Bank (parent company), there are seven main internal ratings (B1 to B7) and 17 sub-ratings (B1.1 to B7).

The ratings B1 to B5.2 are used for counterparties that are neither RD nor ID; B5.3 and B6 are used for counterparties that are RD, which are also considered performing. Counterparties rated B7 are ID or non-performing. Loan impairment charges may be recognized for ID and RD counterparties.

A default rating method is used to assign an internal rating to each performing counterparty. Counterparties (individuals, companies, banks, etc.) are distinguished by factors that may affect their solvency, the nature of available explanatory data and the level of loss-risk they represent. Rating methods are segmented into groups of counterparties so that counterparties that are deemed similar according to these analytical factors are handled in the same way.

For each rating segment the default rating method for performing clients comprises a "score" and an "analyst's assessment." Considered together, the score and the analyst's assessment make up the method used to assign an internal rating to each performing counterparty.

- For the score component of the rating method, an internal rating is identified using one of the following three procedures: applying a calculation function for the probability of default calibrated statistically or based on an expert's assessment, assigning the counterparty to a default probability slot, or transferring a counterparty from one rating to another in accordance with a system of rules. The Bank also employs standards and methods to recognize the impact on the probability of default of factors such as the business group or government support at a local, regional or national level.
- The "analyst's assessment" component of the rating method defines the guidelines to be followed by an expert when analyzing the counterparty's debt quality, alongside the score. The competent body sets and approves the internal rating that is eventually determined as well as the override, if necessary.

Specific criteria are defined for the purpose of identifying RD counterparties. A counterparty is deemed RD when one of the following two conditions is met:

- The Bank believes there to be a high risk that part of its exposure to credit risk on the counterparty will not be recovered.
- A significant breach of the contract on any of the forms of credit extended to the counterparty by the Bank has occurred and has not been remedied without a temporary or definitive exemption being granted.

- *Loss given default*

To calculate the loss given default, the Bank takes into account the expected exposure at the time of default, the expected coverage ratio at the time of default, the nature of the collateral, and the rate of loss on secured and unsecured parts. The internal models used are calibrated so that the loss given default produced by the calibrated model corresponds to an effective loss that takes into account discounted values of all cash flows paid and collected by the Bank after the default, including fees associated with managing the loans of counterparties in default and with recovering loans.

A risk-management slot is allocated to performing loans relating to trade finance in order to estimate the expected loss. The slot assignment is based on a structured analysis of the counterparty (i.e., the sponsor) and of the transaction. It meets the supervisory slotting criteria for specialized lending in annex 4 of the International Convergence of Capital Measurement and Capital Standards: a Revised Framework (Basel II Accord).

Risk metrics

The Bank's main credit-risk metrics are:

- The expected loss (see above);
- Loss under stress scenarios. The Bank applies cyclical stress tests and global stress tests:
 - Cyclical stress tests for credit risk indicate the extent of the change in capital requirements in the event of an economic slowdown. They are based on changes in two key credit-risk variables, which are probability of default and loss given default.
 - Global stress tests are part of the broad approach for estimating (by risk category) the impact of a number of stress scenarios on the Bank's net profit in order to assess capital adequacy. For credit risk, this allows the need for new provisions to be estimated for each stress scenario, should it occur. The stress scenarios are defined for the entire lending portfolio on the basis of historical observations (for example, the property market correction in the early 1990s) and macroeconomic analyses.

Unless otherwise indicated, credit-risk metrics address a risk horizon of 12 months.

Capital requirements for credit risk

For a large proportion of credit-risk exposures, the Bank determines its regulatory capital requirements (Pillar 1) using the Internal Ratings-Based Foundation approach (IRB-F). For exposures outside the scope of the IRB-F approach, capital requirements are determined using the International Standard Approach (SA-BIS).

Risk reduction

For interbank activities, the Bank applies the following risk-reduction measures in particular:

- Insofar as the counterparty is a member/third-party participant of CLS (Continuous Linked Settlement), the Bank takes the necessary steps to ensure that the unwinding of transactions can take place through CLS.
- In principle, the Bank handles OTC derivative transactions only on the basis of ISDA netting agreements or an equivalent agreement.
- For its main bank counterparties in terms of pre-settlement exposure, the Bank takes the necessary measures to ensure that OTC derivative transactions can be carried out in accordance with a credit support annex (CSA) for collateral management. Alternatively, blocked cash deposits can be set up as a risk mitigant for OTC derivative exposure.

For customer lending activities, the Bank seeks to appropriately secure exposures through the use of collateral.

Various types of collateral are recognized. They include:

- Pledges on real estate (primarily mortgage deeds on various types of real estate);
- Pledges on financial assets (mainly cash and securities accounts);
- Guarantees (mainly loan guarantees and bank guarantees).

The valuation of collateral recognized by the Bank is based on the principle of market value, and is carried out as often as appropriate for the type of collateral. Pledges on real estate and financial assets are valued as follows:

- The valuation of pledged real estate is carried out using methods appropriate to the type of real estate: models are used for standard real estate like houses and apartments, while other types of properties, like hotels, are appraised. The frequency at which real estate is valued depends on the type of property, as do the standard loan-to-value ratios for the loans secured by this collateral.

- Securities portfolios and other financial assets pledged as collateral for lombard loans are valued daily. Loan-to-value ratios are defined by type (shares, debt securities, fund units, fiduciary accounts, precious metals, structured products), country of domicile, currency risk, the liquidity of the security, the counterparty's default risk and the residual term for debt securities, together with portfolio diversification.

Table 7: Credit-risk exposure by type of exposure and region
in CHF millions, BCV Group³

Region	Situation at 31 December 2016						Total at 31 Dec. 2015
	On-balance-sheet loans and advances	Guarantees issued by the Bank	Undrawn credit limits	Derivatives	Debt securities	Total	
Vaud Canton	24,599	175	2,939	117	5	27,835	27,191
Rest of Switzerland	4,477	425	1,676	471	2,305	9,354	9,890
European Union and North America	1,170	110	106	672	879	2,938	3,196
Rest of world	977	719	32	20	-	1,748	1,539
Unattributed	592	448	-	6	-	1,046	736
Total	31,815	1,878	4,753	1,286	3,189	42,921	42,551

The majority of client and bank exposures are found in Vaud Canton (65%).⁴ 75% of loans to customers (excluding bank exposures) are in Vaud Canton. This type of exposure is composed primarily of lending volumes on the balance sheet including mortgage loans and various financing in the form of current accounts (e.g., loans for construction, operational, investment or cash-management purposes).

Client and bank exposures in the rest of Switzerland (excluding Vaud Canton), which amount to 22%

³Excluding derivatives and futures traded by BCV clients on organized markets whose settlement is guaranteed by a central counterparty (see Table 28).

⁴Unless otherwise stated, exposures are measured as follows in this section:

- On-balance-sheet loans and advances, and guarantees issued by the Bank: amounts drawn down plus interest and fees due
- Undrawn credit limits: difference between the amount of the limit and the amount drawn down
- OTC derivatives: mark-to-market value plus regulatory add-on after netting and collateral management agreements have been taken into account
- Debt securities: balance-sheet value

of total exposures, comprise mainly large-corporate financing, often in the form of syndicated loans, and investments with the Mortgage-Bond Bank of the Swiss Mortgage Institutions and the Central Mortgage-Bond Institution. Exposures in the European Union arise mainly from cash-management and trading operations, whereas exposures in the rest of the world are a result of trade-finance activities.

Table 8: Credit-risk exposure by type of counterparty
in CHF millions, BCV Group⁵

Situation at 31 December 2016							Total at 31 Dec. 2015
Type of counterparty	On-balance-sheet loans and advances	Guarantees issued by the Bank	Undrawn credit limits	Derivatives	Debt securities	Total	
Retail	9,857	34	280	0	-	10,171	9,580
Private banking	7,236	5	326	7	-	7,574	7,290
SMEs	3,522	89	831	7	-	4,448	4,648
Real-estate professionals	5,944	6	446	4	-	6,399	6,431
Large corporates	1,671	248	1,825	154	76	3,973	3,904
Public-sector entities	756	3	1,045	18	863	2,684	2,848
Trade finance	1,061	799	-	11	-	1,871	1,503
Banks	1,769	695	-	1,086	2,251	5,800	6,349
Total	31,815	1,878	4,753	1,286	3,189	42,921	42,551

The Bank distinguishes among eight types of counterparty depending on legal status, the client's main activity and the intensity of the business relationship.⁶

A large proportion of the Bank's exposures (41%) represents lending to retail and private banking clients in the form of mortgages and lombard loans.

Companies account for 39% of exposures, which is divided among SMEs, real-estate professionals, large corporates and trade-finance counterparties.

⁵Excluding derivatives and futures traded by BCV clients on organized markets whose settlement is guaranteed by a central counterparty (see Table 28).

⁶The counterparty types are described in the appendix in section 5.4.2.

Public-sector exposures mainly consist of limits granted to the Swiss Government, to municipalities and to the Vaud Cantonal Government. Public-sector exposures also include debt securities issued by the Swiss Government, other Swiss cantonal governments and other national governments.

Exposures to bank counterparties represented 14% of total exposures at 31 December 2016. Debt securities issued by banks include investments with the Mortgage-Bond Bank of the Swiss Mortgage Institutions and the Central Mortgage-Bond Institution amounting to CHF 1.8bn.

Table 9: Breakdown of exposures by residual contractual maturity
in CHF millions, BCV Group⁷

Situation at 31 December 2016							Total at 31 Dec. 2015
Maturity	On-balance-sheet loans and advances	Guarantees issued by the Bank	Undrawn credit limits	Derivatives	Debt securities	Total	
Parent company	30,915	1,854	4,753	1,282	3,189	41,993	41,661
No maturity	25,964	-	2,375	-	-	28,339	28,552
Less than 1 year	3,571	1,605	1,571	758	331	7,837	8,200
1 to 5 years	704	218	515	270	1,331	3,037	2,338
More than 5 years	676	32	292	254	1,526	2,780	2,572
Subsidiaries	900	23	-	4	-	928	890
Group total	31,815	1,878	4,753	1,286	3,189	42,921	42,551

For a large proportion (67%) of the Bank's exposures, there is no contractual maturity for repayment. This is the case for all mortgage loans and for some credit limits. Most mortgage loans are currently fixed-rate loans, which means there are maturity dates on which the interest rate can be renewed. At the maturity dates, most fixed-rate loans are renewed with new interest rates. For tax reasons, it is rare for clients residing in Switzerland to fully pay down their mortgage loan.

Guarantees issued by the Bank and OTC derivatives mostly have a maturity of less than one year. Debt securities are mainly financial investments with maturities of more than one year.

⁷Excluding derivatives and futures traded by BCV clients on organized markets whose settlement is guaranteed by a central counterparty (see Table 28). For subsidiaries, the item "on-balance-sheet loans and advances" also includes debt securities.

Table 10: Provisionsin CHF millions, at 31 December 2016 and 31 December 2015, BCV Group⁸

Type of counterparty	Impaired loans				Provisions for latent risks	
	Total commitments		Credit-risk provisions		2016	2015
	2016	2015	2016	2015		
Parent company	293	332	80	72	1	7
SMEs	98	135	23	25	0	1
Retail	53	57	9	8	0	0
Real-estate professionals	30	32	1	3	0	0
Trade finance	35	28	33	22	0	6
Private banking	68	64	12	11	0	0
Banks	0	0	0	0	0	0
Large corporates	10	16	3	3	0	0
Subsidiaries	20	8	2	1	0	0
Total	313	340	83	73	1	7

Impaired loans amounted to CHF 313m and accounted for 0.8% of credit limits. A provision of CHF 83m exists for these loans; this represents an average provisioning ratio of 26%, which reflects the high quality of the collateral provided on these loans (see Table 25). Provisions are determined individually for each impaired loan, taking into account the liquidation value of collateral and the characteristics of the counterparty. Provisions for latent risks cover high-risk loans to counterparties reputed to be in financial difficulty, together with country risk. Provisions for country risk (CHF 0.1m at 31 December 2016) cover non-impaired exposures in countries where the financial or settlement risk rating is below a given threshold.

⁸ As of end-2015, impaired loans consist of loans to counterparties in default (ID); prior to this date, they also included loans to counterparties reputed to be in financial difficulty (RD). Total impaired lending commitments include impaired loans with provisions of zero. With the exception of OTC derivatives, total lending commitments are measured in accordance with the definition provided in footnote 5 (page 19). For OTC derivatives, the exposure is equal to the mark-to-market value plus the add-on calculated using the internal method. For subsidiaries, net impaired lending commitments is used (i.e., excluding impaired loans with provisions of zero).

Table 11: Charge-offs and change in provisions
in CHF millions, at 31 December 2016 and 31 December 2015, BCV Group⁹

Type of counterparty	Change in provisions		Charge-offs ¹	
	2016	2015	2016	2015
Parent company	2	1	+8	+6
SMEs	-2	-3	+0	-4
Retail	-0	-2	-1	-1
Real-estate professionals	-2	-0	-2	-3
Trade finance	+6	+17	+12	+17
Private banking	+0	+1	-1	-1
Banks	-0	+0	+0	+0
Large corporates	+0	-11	+1	-2
Subsidiaries	+1	-1	+0	-0
Total	+3	0	+9	+6

¹Excluding recoveries of CHF 5.6m in 2016 and CHF 6.2m in 2015

Provisions rose by CHF 3m in 2016, with an increase in Trade Finance provisions partially offset by a decrease in provisions for SMEs and real-estate professionals (see Table 13). The 2016 income statement shows new provisions of CHF 9m (excluding recoveries of CHF 5.6m).

⁹Total lending commitments, with the exception of OTC derivatives, are measured in accordance with the definition provided in footnote 5 (page 19). For OTC derivatives, the exposure is equal to the mark-to-market value plus the add-on calculated using the internal method.

Table 12: Impaired loans by region
in CHF millions, at 31 December 2016, BCV Group

Region	Impaired loans		Provisions for latent risks
	Total commitments	Credit-risk provisions	
Parent company	293	80	1
Vaud Canton	195	38	1
Rest of Switzerland	50	9	-
European Union and North America	7	3	-
Rest of world	32	26	0
Unattributed ¹	9	3	-
Subsidiaries	20	2	-
Total	313	83	1

¹Small exposures that are grouped together and located mainly in Vaud Canton

67% of the parent company's impaired loans are linked to exposures in Vaud Canton and 84% to exposures in Switzerland as a whole.

Table 13: Change in credit-risk provisions
in CHF millions, BCV Group

	Credit-risk provisions	Provisions for latent risks	Total
Amount at 31 December 2015	73	7	80
Used provisions	-11	0	-11
New overdue interest	5	0	5
New provisions charged to the income statement	27	0	27
Releases of provisions to income statement	-12	-6	-18
Amount at 31 December 2016	83	1	83

Provisions increased by CHF 3m to CHF 83m at end-2016. This mainly reflects additional provisions being recognized in Trade Finance, offset by releases of provisions on SMEs and real-estate professionals.

Table 14: Exposure by approach appliedin CHF millions, at 31 December 2016, BCV Group¹⁰

	SA-BIS		IRB		Total	
	Drawn	Undrawn	Drawn	Undrawn	Drawn	Undrawn
Residential retail	-	-	16,760	-	16,760	-
Other retail	678	236	1,187	-	1,865	236
Corporates	4,091	1,775	2,498	527	6,588	2,302
Specialized lending	-	-	7,449	376	7,449	376
Sovereigns	832	52	-	-	832	52
Other institutions	668	500	862	578	1,530	1,078
Banks	698	-	3,155	-	3,854	-
Total	6,968	2,563	31,910	1,481	38,878	4,044

The capital requirement is determined using the IRB-F approach for a large proportion (78%) of the Bank's lending exposures. The other exposures are outside the scope of this approach and are determined using the International Standard Approach (SA-BIS). Two main types of exposure are outside the scope of the IRB-F approach:

- Firstly, counterparties for which the Bank does not intend to put in place a rating model. These counterparties include the Swiss Government, Swiss cantonal governments, the Mortgage-Bond Bank of the Swiss Mortgage Institutions, the Central Mortgage-Bond Institution, counterparties with no loan agreement (i.e., for overdrafts) as well as exposures at the Bank's subsidiaries.
- Secondly, counterparties for which the Bank uses an internal rating model that does not yet meet the IRB requirements. This refers in particular to large corporates.

¹⁰Excluding derivatives and futures traded by BCV clients on organized markets whose settlement is guaranteed by a central counterparty (see Table 28).

4.3.1 The Standard Approach and the IRB approach for specialized lending

International Standard Approach (SA-BIS)

FINMA defines the risk weightings to be applied for exposures treated using the SA-BIS by type of counterparty (Capital Adequacy Ordinance, appendix 2). In this case, FINMA authorizes the use of external ratings (CAO, Article 64) provided that:

1. The ratings are supplied by ratings agencies recognized by FINMA.
2. External ratings are applied systematically by the Bank using a precise and specific approach.
3. Where the Bank uses external ratings to determine the risk weightings for a category of positions, the entire category must in principle be weighted through the use of external ratings.

The Bank uses, where available, Standard & Poor's ratings to determine the risk weightings of almost all counterparties for which the SA-BIS is applied. These counterparties are essentially large corporates and counterparties for debt securities in the financial investments portfolio. For corporate clients with no external rating, a weighting of 100% ("no rating") is used.

Corporate clients make up 60% of the portfolio that is subject to the SA-BIS. This category includes large corporates for which a compatible IRB default rating model is not yet in operation, and bonds from the Central Mortgage-Bond Institution and the Mortgage-Bond Bank of the Swiss Mortgage Institutions (weighting = 20%). The category "Sovereigns, central banks and other institutions" is composed primarily of exposure to the Swiss Government (weighting = 0%), multilateral development banks recognized by FINMA (weighting = 0%) and several Swiss cantonal governments (weighting = 20%).

Table 15: Portfolio subject to the International Standard Approach (SA-BIS)
in CHF millions, at 31 December 2016, BCV Group¹¹

	Retail banking clients		Corporate clients		Sovereigns, central banks and other institutions		Banks		Total	
Risk weighting	Total lending commitments	Commitments less collateral	Total lending commitments	Commitments less collateral	Total lending commitments	Commitments less collateral	Total lending commitments	Commitments less collateral	Total lending commitments	Commitments less collateral
0%	0	0	148	23	932	832	295	194	1,375	1,049
20%	-	-	1,828	1,828	609	609	320	320	2,756	2,756
35%	415	415	276	276	-	-	-	-	690	690
50%	-	-	51	51	58	58	5	5	114	114
75%	111	56	17	17	-	-	-	-	128	73
100%	146	70	2,033	2,027	0	0	66	66	2,246	2,164
150%	0	0	13	13	-	-	-	-	13	13
Total	671	541	4,367	4,235	1,599	1,499	686	584	7,322	6,860

¹¹Commitments represent exposures after the CCF is applied and the substitution effect is taken into account.

Table 16: Use of external ratings in the International Standard Approach (SA-BIS)
in CHF millions, at 31 December 2016, BGV Group¹²

Risk weighting	Retail banking clients		Corporate clients		Sovereigns, central banks and other institutions		Banks		Total	
	Standard & Poor's	No rating	Standard & Poor's	No rating	Standard & Poor's	No rating	Standard & Poor's	No rating	Standard & Poor's	No rating
0%	-	0	-	148	340	591	-	295	340	1,035
20%	-	-	69	1,759	16	592	239	81	324	2,432
35%	-	415	-	276	-	-	-	-	-	690
50%	-	-	51	-	-	58	-	5	51	63
75%	-	111	-	17	-	-	-	-	-	128
100%	-	146	13	2,020	-	0	-	66	13	2,232
150%	-	0	13	0	-	-	-	-	13	0
Total	-	671	147	4,220	357	1,243	239	447	742	6,580

¹²Positions classified as “no rating” are those with counterparties that are not rated by S&P or whose rating is not used to calculate the risk weighting (e.g., the Swiss Government).

Slotting approach for specialized lending

The Bank uses slotting criteria for the financing of real-estate professionals (“income-producing real estate”) and trade-finance transactions (“commodities financing”). For these two categories, FINMA has authorized the Bank to assign preferential risk weights to “strong” and “good” exposures (Basel III Accord, §277).

For real-estate professionals, the slots are determined on the basis of the probability of default (PD), loss given default (LGD) and exposure at default (EAD) models that are internally applied to each credit exposure in the real-estate professionals category. A specific mechanism used to calculate capital requirements has been set up to determine the PD of real-estate professionals in order to reduce the sensitivity of regulatory capital to the business cycle.

For trade finance, the slotting is based on a structured analysis of the counterparty (i.e., the sponsor) and of the transaction. It meets the supervisory slotting criteria for specialized lending in annex 4 of the International Convergence of Capital Measurement and Capital Standards: a Revised Framework (Basel II Accord).

Table 17: Portfolios subject to the slotting method under the IRB approach
in CHF millions, at 31 December 2016 and 31 December 2015, BCV Group¹³

	Total		Income-producing real estate		Financing of commodities and commodity derivatives	
Slot	2016	2015	2016	2015	2016	2015
Strong	4,298	3,871	3,514	3,269	784	602
Good	2,816	2,551	2,008	1,983	807	568
Satisfactory	381	464	136	171	245	292
Weak	2	1	1	1	1	0
Defaulted	35	54	5	14	29	40
Total	7,531	6,941	5,665	5,438	1,867	1,502

An overwhelming proportion (97%) of real-estate exposure can be found in the strong and good slots. This underscores the fact that this exposure is mainly associated with financing for real-estate investors that is for the most part secured by properties.

Similarly, 85% of trade-finance transactions are in the strong and good slots, as they are secured by recognized collateral (especially cash and merchandise).

¹³ Commitments represent exposures after application of the CCF.

4.3.2 IRB approach (excluding specialized lending)

BCV obtained approval from FINMA to use the Basel IRB Foundation approach (IRB-F) to determine regulatory capital requirements for credit risk beginning on 1 January 2009.

Structure of IRB rating systems

The rating system for default risk is composed of a series of rating models. In all cases, the aim is to assess the one-year probability of default, in the form of an internal counterparty default rating. The following models are used for the categories for which the Bank obtained IRB-F approval (they are named for the population to which they apply):

- Individuals (statistical score);
- BCV staff (default probability pool);
- Private banking (default probability pool);
- SMEs (several statistical scores, depending on the nature of the client);
- Municipalities in Vaud Canton (expert-based scores);
- Real-estate professionals (several expert-based scores, depending on the nature of the client);
- Banks (statistical score, integrated into a global analytical approach);
- Joint and several co-debtors (approach based on the transfer of the internal counterparty default rating).

The Bank has also defined and implemented a system of rules governing the transmission of internal ratings for other types of counterparties that are related in terms of credit risk. The scores are accompanied by the analyst assessment rules.

All these models, with the exception of the rating model for bank counterparties, generate an estimate of the probability of default without using external ratings. When assessing default risk, the rating model used for bank counterparties takes into account, among other factors, the ratings issued by the main ratings agencies (Moody's, Fitch and Standard & Poor's).

Internal LGD and EAD models are used to calculate regulatory capital requirements for retail portfolios.

Use of ratings

In addition to being used to calculate regulatory capital requirements under the IRB-F approach, internal ratings are used for numerous purposes (in the front, middle and back offices). Here are the main uses:

- Decision-making support when credit facilities and other commitments are granted or renewed;
- Defining lending authority and the intensity of monitoring;
- Setting risk-adjusted prices;
- Creating provisions;
- Monitoring the performance of business units;
- Analyzing risk on the lending book;
- Strategic planning.

The scope of application of certain models for internal needs goes significantly beyond the scope of the corresponding IRB-F approval. Internal LGD/EAD models are used to estimate the expected loss on most of the Bank's credit portfolios and not only on the retail portfolios. Furthermore, internal rating models for default risk are used for a number of portfolios for which the Bank has not obtained IRB-F approval, such as large corporates.

Managing and integrating the reduction in credit risk

The principles used to recognize and value collateral are the same for the portfolios for which BCV has obtained IRB-F approval for calculating regulatory capital requirements as for the rest of its lending portfolio.

Rating system's control mechanism

The rating system's control mechanism obeys the principles of the Bank's internal control system. It is composed of three levels of internal oversight. The first two levels are under the responsibility of the Executive Board, while the third level falls under the Board of Directors:

- Level 1: operational and managerial oversight of business activities, in accordance with the chain of command.
- Level 2: monitoring the appropriateness and effectiveness of level 1 by independent entities.
- Level 3: periodic independent review of levels 1 and 2 by the Internal Audit Department.

For the rating models (PD, LGD and EAD), or other models affecting the assessment of credit risk, three steps are defined. The objectives and responsibilities for each step are as follows:

Step 1: initial validation

Key components of the initial validation include monitoring the following: the logic of the design; the quality of the data; the selection of variables; the modeling process; the development of results; documentation; programming; and implementation.

Preparatory work for the initial validation is conducted within the Risk Management Department by the units responsible for developing the models as part of their development and improvement work. Operational and managerial oversight of this work (level 1) is also done by these units, under the supervision and responsibility of the head of the Risk Management Department.

The Validation of Rating Models unit, under the CFO's responsibility, challenges and monitors in both qualitative and quantitative terms the development and improvement work and the initial validation, (level 2 oversight) and issues an opinion for purposes of the initial validation by the Executive Board's Risk Management Committee (EBRMC).

The EBRMC is responsible for the initial validation of a new model or an improved model, and, by extension, for authorizing its implementation.

Step 2: monitoring the use of models

This refers to the application of models in the Bank's credit and piloting processes.

For the credit process, analysts from the Credit Management Division and the front office are responsible for using the models and thus for calculating the estimators produced by the models. Analysts and the front office are also responsible for ensuring that the estimators are appropriately used in the context of credit decisions (decisions to grant credit as well as pricing decisions). These activities are subject to operational and managerial oversight which is defined by the analysts and the front office (level 1).

For piloting needs, various departments use the estimators produced by these models in the lending process. The Risk Management Department in particular uses rating models to analyze and monitor risk on the loan book and to calculate capital requirements.

Step 3: ongoing validation

Key components of ongoing validation include ensuring appropriate use of the models and compliance with structural and design-related hypotheses, and backtesting performance (precision and discriminating capacity).

Preparatory work for ongoing validation is conducted by the units responsible for developing the models. These units also propose any necessary measures to be taken in response to the results obtained. Operational and managerial oversight of this work (level 1) is carried out by these units, under the supervision and responsibility of the head of the Risk Management Department.

As during the initial validation, the Validation of Rating Models unit, under the supervision and responsibility of the CFO, challenges and monitors in both qualitative and quantitative terms the ongoing validation (level 2) and issues an opinion on the results of the ongoing validation and the measures proposed, for ongoing validation by the EBRMC.

The EBRMC is responsible for deciding on the ongoing validation for a given model together with possible measures to be taken in this regard. It is therefore also responsible for authorizing the model's continued use, including constraints and measures to be taken.

Operational principle behind model validation

The core principle underlying the activities of the Validation of Rating Models unit is "close, but independent." Proximity is achieved by involving the unit in the entire process, starting with the initial steps taken by the design teams, both through regular support and regular discussions. Independence is achieved through the use of operational principles overseen by the EBRMC itself.

The auditors' role

For the three steps defined above, the Internal Audit Department and external auditors' work is set out in their respective audit programs and involves assessing the organization, processes and methods of levels 1 and 2 of the internal control system.

The segmentation of the Bank's default rating system into groups of counterparties is adapted to the Bank's risk management needs and to its business activities. Within the Bank, both the initial and ongoing model validations are conducted according to these groups. The validation process is distinct from the asset categorization set forth under Basel III.

In order to assess credit facilities and other commitments associated with the various models, the table below shows the correspondence between the scope of application of the default rating models and the Bank's asset categories, for exposures handled under the IRB approach.

Table 18: Exposure (after CCF) by Basel Accord asset category and by counterparty rating modelin CHF millions, at 31 December 2016, BCV Group (IRB scope)¹⁴

BCV model	Basel Accord asset category						Total
	Residential retail	Other retail	Corporates	Specialized lending	Other institutions	Banks	
Individuals¹	14,220	540	160	-	-	-	14,920
SMEs	914	530	1,831	-	214	-	3,489
Real-estate professionals	-	5	-	5,665	-	-	5,670
Trade finance	-	-	-	1,867	-	-	1,867
Vaud municipalities	-	-	-	-	566	-	566
Transmission	1,625	93	524	-	76	-	2,317
Banks	-	0	-	-	-	1,954	1,954
Total	16,759	1,169	2,514	7,531	856	1,954	30,783

¹⁴Including BCV staff and private banking clients

¹⁴Excluding derivatives and futures traded by BCV clients on organized markets whose settlement is guaranteed by a central counterparty (see Table 28). In Tables 18 to 21, exposures correspond to the credit equivalent following application of the credit conversion factors (CCF) and after taking into account the substitution effect.

Table 19: Exposure (after CCF) to risk in the “corporate, bank, and other institution” portfolio in CHF millions, at 31 December 2016 and 31 December 2015, BCV Group, IRB scope

Internal counterparty default rating	Exposure		Average risk weighting	
	2016	2015	2016	2015
B1.1	148	327	12%	14%
B1.2	334	316	11%	11%
B1.3	1,601	1,893	17%	16%
B2.1	1,009	842	25%	25%
B2.2	284	334	43%	43%
B3.1	446	574	54%	50%
B3.2	274	247	63%	62%
B3.3	510	389	76%	75%
B3.4	157	194	84%	83%
B4.1	102	132	95%	93%
B4.2	91	98	93%	97%
B4.3	148	109	122%	122%
B5.1	15	21	129%	121%
B5.2	121	77	156%	156%
B5.3	4	5	183%	186%
B6	-	-	-	-
B7	82	105	87%	90%
Total	5,324	5,664	43%	40%

The average risk weighting on this portfolio (43%)¹⁵ is affected by bank counterparties, which are primarily rated B1.1 to B1.3. Corporate exposures are generally rated B3, implying a higher average risk weighting (59%).

The average risk weighting for B1.2-rated counterparties is below that of B1.1-rated counterparties because the former are slightly better secured and, consequently, the average LGD and the capital requirements are lower.

The average risk weighting for exposures to counterparties in default (rated B7) is below the average risk weighting of some non-impaired counterparties (rated B5.2 and B5.3, for example), because the capital requirement is calculated on the basis of the credit exposure less provisions set aside for the position.

¹⁵Calculated from the average risk weighting for each internal counterparty default rating, weighted according to exposure.

Table 20: Exposure (after CCF) to risk in the “residential retail” portfolio
in CHF millions, at 31 December 2016 and 31 December 2015, BCV Group, IRB scope

Internal counterparty default rating	Exposure		Average risk weighting	
	2016	2015	2016	2015
B1.1	-	-	-	-
B1.2	1	1	1%	3%
B1.3	1,983	2,076	2%	2%
B2.1	4,714	4,540	6%	6%
B2.2	3,486	3,275	12%	10%
B3.1	2,776	2,583	21%	18%
B3.2	1,284	1,392	28%	25%
B3.3	978	954	35%	32%
B3.4	490	464	45%	41%
B4.1	398	343	56%	51%
B4.2	213	241	68%	63%
B4.3	217	174	86%	73%
B5.1	46	92	100%	103%
B5.2	58	40	131%	93%
B5.3	1	3	131%	182%
B6	8	14	163%	181%
B7	106	116	147%	131%
Total	16,759	16,308	18%	17%

Exposure in the “residential retail” portfolio is made up of mortgage loans that are for the most part secured by properties (mainly single-family homes). The resulting average risk weighting was 18%.

Table 21: Exposure (after CCF) to risk in the “other retail” portfolio
in CHF millions, at 31 December 2016 and 31 December 2015, BCV Group, IRB scope

Internal counterparty default rating	Exposure		Average risk weighting	
	2016	2015	2016	2015
B1.1	-	-	-	-
B1.2	0	0	1%	1%
B1.3	10	15	5%	5%
B2.1	517	514	4%	5%
B2.2	90	81	27%	23%
B3.1	139	133	41%	41%
B3.2	71	71	56%	60%
B3.3	96	89	70%	71%
B3.4	62	66	75%	83%
B4.1	55	67	79%	83%
B4.2	35	38	92%	96%
B4.3	25	21	83%	101%
B5.1	12	9	79%	80%
B5.2	10	10	79%	91%
B5.3	0	1	116%	131%
B6	2	4	163%	158%
B7	44	41	49%	41%
Total	1,169	1,159	34%	36%

The “other retail” portfolio is smaller than the previous two portfolios in terms of volume. It is composed of lombard loans to retail and private banking clients (generally B2.1 rating for private banking clients) and to SMEs that meet the criteria to be handled as retail clients. These SMEs are rated B3, and exposure to them is generally not well secured, which leads to a relatively high average risk weighting for this portfolio (34%).

Table 22: New provisions within the IRB scope
in CHF millions, at 31 December 2016, BCV Group, IRB scope

Portfolio	New provisions	
	2016	Long-term annual average (2003-2016)
Corporates, sovereigns, banks	2	7
Residential retail	1	3
Other retail	1	3
Total	4	13

New provisions recognized in 2016 relative to IRB scope exposures were below the long-term annual average.

Table 23: Internal estimates and observed losses within the IRB scope
in CHF millions, at 31 December 2016, BCV Group, IRB scope¹⁶

Portfolio	Average annual expected loss (in CHF millions)	Average annual observed loss (in CHF millions)	Average annual probability of default	Average annual observed default rate	Average LGD	Average observed loss rate
Corporates, sovereigns, banks	9	3	0.9%	0.7%	45%	18%
Residential retail	6	1	0.4%	0.2%	13%	4%
Other retail	6	2	0.9%	0.9%	45%	15%
Total	21	7	0.6%	0.4%	28%	11%

¹⁶Expected loss is determined by applying PD, LGD and EAD models to non-impaired exposures at the start of the year. The observed losses on each counterparty that entered into default during the year are determined on the basis of the effective losses for counterparties that have been closed out and on the basis of the provisions created for counterparties that have not been closed out. The average LGD is equal to the estimated LGD at the beginning of the year for counterparties that went into default during the year. The observed loss rate is determined for counterparties that went into default during the year, on the basis of effective losses (closed out) and provisions (not closed out).

Within the IRB scope, the annual observed losses in the period analyzed (2003 to 2016) are lower than the average annual expected losses. The difference is due mainly to an overestimate of the observed loss rate by the LGD model during this unique period, in which economic growth was generally on the rise and the property market was favorable to the sale of property collateral (6% annual rise in prices for single-family homes between 2003 and 2014).

4.3.3 Standard and IRB approaches: Risk reduction

Risk-reduction approaches and procedures are described in section 4.3.

Table 24: Risk-reduction technique: International Standard Approach (SA-BIS)
in CHF millions, at 31 December 2016, BCV Group

Portfolio	Initial exposure (after CCF and provisions)	Substitution effect		Exposure after substitution effect	Secured amounts			Unsecured amounts
		Outflows	Inflows		Financial collateral	Property- related collateral	Other eligible collateral	
Retail	671	-0	0	671	130	443	-	98
Corporates	4,553	-186	0	4,367	131	675	-	3,561
National, cantonal and municipal governments	1,041	-	558	1,599	100	-	-	1,499
Banks	807	-121	0	686	101	-	-	584
Total	7,071	-307	558	7,322	462	1,118	-	5,743

The impact of risk-reduction measures is low in the scope of the SA-BIS. This is due to the predominance of exposure to large corporates and Swiss federal and cantonal governments, which are generally not secured.

Table 25: Risk-reduction technique: IRB approach

in CHF millions, at 31 December 2016, BGV Group, excluding specialized lending

Portfolio	Initial exposure (after CCF)	Substitution effect		Exposure after substitution effect	Secured amounts			Unsecured amounts
		Outflows	Inflows		Financial collateral	Property- related collateral	Other eligible collateral	
Residential retail	16,759	-	-	16,759	13	16,606	4	136
Other retail	1,168	-	0	1,168	565	123	20	460
Corporates – excluding specialized lending	3,091	-326	-	2,766	41	527	-	2,198
National, cantonal and municipal governments	535	-	69	605	30	37	-	537
Banks	3,711	-	5	3,716	1,781	-	-	1,935
Total	25,264	-326	75	25,013	2,430	17,293	24	5,267

IRB-eligible collateral reduces the total exposure by CHF 19,747m (–79%) after the substitution effect. Property-related collateral associated with mortgage loans is predominant. This concentration is heightened by the fact that most pledged real estate is in Vaud Canton. Property-market stress simulations are regularly carried out in order to take into account the increased risk of loss stemming from a drop in property prices.

4.3.4 Derivatives

Non-centrally cleared OTC derivatives

Limits for OTC derivatives (including forward contracts) that are not centrally cleared (cleared bilaterally) are mainly granted to bank counterparties in order to carry out trading operations and interest-rate risk hedging transactions. They are also granted to companies or public-sector entities so that they can hedge typically against exchange-rate and interest-rate risk.

These limits are granted according to the lending process and lending authority described in section 4.3. They are monitored daily on an individual basis.

Credit-risk exposure is measured according to the principle of "positive mark-to-market value plus add-on." The add-on is determined by type of underlying and by maturity, on the basis of internal models.

Where the Bank has entered into an ISDA netting agreement with the counterparty, contracts with negative mark-to-market values can be taken into account to reduce credit-risk exposure.

Where the Bank has entered into a CSA collateral management agreement with the counterparty, credit-risk exposure is determined according to the same principle, taking into account the amount of the cash collateral and based on a reduced add-on, in order to take into consideration the frequency of revaluation and the option to make margin calls.

When calculating capital requirements, exposures are determined according to the current exposure method (Basel II Accord, annex IV, figures 91ff), taking account of regulatory add-ons as well as netting and collateral management agreements. Capital requirements are determined according to the appropriate approach (IRB or International Standard Approach), which since 1 January 2013 includes the credit value adjustment (CVA).

Table 26: Counterparty-risk exposure (non-centrally cleared OTC derivatives)
in CHF millions, at 31 December 2016, BCV Group

	Parent company		National, cantonal and municipal governments	Individuals	Parent co. total	Subsidiaries	Group total
	Banks	Corporates					
Positive mark- to-market value	648	70	5	4	726	8	734
Netting	-293	-16	-4	-1	-314	-	-314
Exposure after netting effects	355	53	1	3	412	-	412
Cash collateral	-242	-15	-	-	-256	-	-256
Net exposure	114	39	1	3	156	8	164
Exposure at default (EAD)¹	1,073	175	18	7	1,273	14	1,288

¹Exposure at default before netting and collateral agreements. This line item is not the total of the lines above it.

The majority of the net exposure (69%) is the result of derivative operations with bank counterparties. Risk-reduction measures (i.e., netting and cash collateral agreements) reduced the exposure by around 80%.

Table 27: Regulatory EAD for non-centrally cleared OTC derivatives

in CHF millions, at 31 December 2016, BCV parent company, EAD (mark-to-market value plus regulatory add-on)

Underlying assets	EAD before netting and collateral agreements	Impact of netting and collateral	EAD after netting and collateral
Equities	110	-37	73
Fixed income	360	-319	41
Forex	744	-417	327
Gold and other precious metals	60	-50	10
Other	0	-0	-
Total	1,273	-823	450

Forex and fixed-income derivatives account for 87% of total regulatory EAD. Fixed-income derivatives are mainly swaps entered into to hedge against the Bank's interest-rate risk. The Bank enters into CSA collateral management agreements with its main OTC-derivative counterparties in order to reduce credit risk.

Centrally cleared derivatives

Centrally cleared derivatives include exchange-traded derivatives (ETDs) and OTC derivatives cleared by a central counterparty.

Exchange-traded derivatives whose settlement is guaranteed by a central counterparty (see Table 28, row 4) mainly relate to transactions on behalf of clients (investment funds, banks, companies, individuals). Nostro positions make up around 15% of the total exposure to central counterparties. The contracts traded are mainly options and futures on equities and major indexes. The major organized markets are Eurex, the Chicago Mercantile Exchange, and LIFFE.

OTC derivatives cleared by a central counterparty are interest-rate swaps used to manage the Bank's interest-rate risk and cleared by Eurex (see Table 28, row 3)

Capital requirements for these positions have been calculated since Basel III came into force on 1 January 2013.

Table 28: Regulatory EAD for centrally cleared derivatives

in CHF millions, at 31 December 2016, BCV Group, EAD (mark-to-market value plus regulatory add-on +/- value of collateral after regulatory haircuts)

	Exposure at default (EAD)	Risk-weighted assets (RWA)
1 Exposures to qualified central counterparties (QCCPs) (total)		14.1
2 Exposures for trades at QCCPs (excluding initial margin and default fund contributions)	16.2	4.7
3 of which OTC derivatives	0.1	0.0
4 of which exchange-traded derivatives	16.0	4.7
7 Segregated initial margin	110.9	9.1
9 Pre-funded default fund contributions	6.6	0.3

4.4 Non-counterparty-related assets

The notion of non-counterparty-related risk refers to a risk of loss arising from changes in asset values or from the liquidation of assets not linked to a counterparty (e.g., buildings and other tangible fixed assets).

Tangible fixed assets are carried at cost, with the exception of software developed by the Bank for in-house use, which is carried at production cost. Tangible fixed assets are depreciated on a straight-line basis over their estimated useful lives within the following limits: a maximum of 50 years for real estate, a maximum of ten years for technical facilities, and a maximum of five years for machinery, furniture, fittings and computer hardware and software.

Asset values are reviewed annually. If there is a decline in value or a change in the useful life, the carrying value of the asset concerned is written down and the residual value is depreciated over the remaining estimated useful life of the asset.

Available-for-sale real estate acquired in connection with credit operations and carried under financial investments is also included in non-counterparty-related assets; it is valued at the lower of cost or market.

Table 29: Risk-weighted non-counterparty-related assets
in CHF millions, BCV Group

	at 31 December 2016			
	Balance-sheet position	Risk weighting	Risk-weighted assets	Risk-weighted assets at 31 December 2015
Real estate	440	100%	440	475
Other tangible fixed assets and other assets	207	100%	207	185
Assets in offset account	0	0%	0	0
Total	647		647	660

4.5 Market risk

4.5.1 Market risk on the trading book

Strategy and process

All trading activities are managed within the Asset Management & Trading Division. A distinction is made between the trading portfolio, which includes all the trading departments' positions, and the financial management nostro portfolio, which is composed of the nostro positions managed by the Asset Management Department.

The Trading Department carries out market transactions in equities, fixed-income instruments, forex and precious metals on behalf of internal and external counterparties. It has also acquired expertise in structured products. The Trading Department is active along the entire structured product value chain, from issuing to market-making. Since BCV completely withdrew from proprietary equity-derivative trading at the end of 2009, the Trading Department has focused primarily on customer-driven transactions.

The Asset Management Department is responsible for the financial management nostro portfolio. While this portfolio used to focus on providing a return, it was given a new role under the Bank's new strategy and significantly reduced in 2009 and early 2010. It is now used to assist in the creation of new Asset Management funds, while keeping risk-taking at a minimum. This portfolio may be invested in stocks, bonds, simple derivatives, structured products, funds, and funds of funds. All of these positions (apart from those in funds and funds of funds) are on recognized exchanges or representative markets.

Structure and organization

All new Asset Management & Trading products and instruments must be approved by the Division's Product and Instrument Committee (PIC). This committee is chaired by the Executive Board member in charge of the Asset Management & Trading Division and includes the Division's department heads, the head of the Risk Management Department (right of veto) and the head of the Back Office Department (right of veto). The process ensures that before a product is launched, all requirements have been met in the areas of risk management, ALM, treasury management, back offices, legal, compliance, tax and IT.

For all trading positions, the overnight monitoring of market risk is under the responsibility of the Market Risk Unit within the Risk Management Department. The Market Risk Unit also defines the risk control measures and monitors the appropriateness of risk control for new trading products.

Risk assessment

Various techniques are used to measure risk exposure on the Asset Management & Trading Division's trading portfolio:

- Historical overnight Value-at-Risk (VaR) with a one-day time horizon and a confidence level of 99%;
- Analysis of potential losses using static stress tests;
- Sensitivity metrics such as delta, gamma, vega, theta and rho.

Limit utilization is controlled and reported daily by the Market Risk Unit.

Various techniques are used to measure risk on the Asset Management & Trading Division's financial management nostro portfolio:

- Historical VaR with a six-month time horizon and a confidence level of 99%;
- Analysis of potential losses using static stress tests and dynamic six-month stress tests.

Market-risk-weighted assets correspond to the minimum capital requirements multiplied by 12.5. Minimum capital requirements for market risk on BCV's trading book are determined in accordance with the Standard Approach (CAO, Article 84) without the use of in-house models. For options trading, the calculation is based on the delta-plus method: the market value of the underlying is multiplied by the delta for the options positions. This method also takes gamma and vega into account. Hedge-fund positions in the financial management nostro portfolio are not included in the capital-requirement calculations for the trading book. Instead, these positions are included in the Bank's financial investment portfolio and treated as equity securities.

Risk-weighted assets related to interest-rate risk represented the largest proportion of risk-weighted assets at the end of 2016. Currency swaps for customer-driven forex trading and bond positions for interest-rate operations accounted for a large proportion of the risk-weighted assets exposed to interest-rate risk at 31 December 2016. Risk-weighted assets for equity risk result primarily from nostro positions managed by the Asset Management Department.

Table 30: Risk-weighted assets by type of underlying (Standard Approach)
in CHF millions, BCV Group

	December 2016	December 2015
Interest-rate risk	185	166
Equity risk	65	55
Exchange-rate risk	163	142
Commodity risk	0	0
Total	413	363

4.5.2 Risk on equity securities on the banking book

Equity securities on the banking book are recorded on the balance sheet in the line items Financial investments and Non-consolidated holdings.

Strategy and processes

Financial investments are composed of strategic holdings with a long time horizon that are acquired in accordance with the Bank's strategy. The Bank defined an upper limit of CHF 200m for these equity securities and, in principle, does not invest directly in private-equity positions.

The authority to acquire and change long-term holdings is held by the Executive Board for holdings of up to CHF 20m and the Board of Directors for larger amounts. The Board of Directors has responsibility for setting up and selling subsidiaries.

Risk assessment

Equity securities included in Financial investments are mainly listed or unlisted shares and fund units that are not held for trading purposes or for long-term investment. They are valued at lower of cost or market.

The "Non-consolidated holdings" line item comprises corporate equity securities, which are held as long-term investments irrespective of voting rights. It also includes the Group's infrastructure-related holdings, particularly joint ventures. They are stated at cost, less any required impairment.

Capital requirements are determined for both equity securities recorded under Financial investments and those entered under Non-consolidated holdings. A 250% risk weighting is applied to shareholdings of more than 10% in financial companies, while the simple risk-weight method is applied to all other equity securities included in Financial investments and Non-consolidated holdings.

Table 31: Risk-weighted assets for equity securities on the banking book
in CHF millions, BCV Group

	At 31 December 2016					Risk-weighted assets at 31 December 2015
	Balance-sheet position	Commitments relating to equity securities	Total	Risk weighting	Risk-weighted assets	
Equity securities carried under Financial investments						
Listed shares	22	-	22	300%	70	74
Unlisted shares	6	0	6	400%	27	35
Private equity	-	-	-	400%	-	3
Total	28	0	28		97	113
Equity securities carried under Non-consolidated holdings						
Unlisted shares	16	1	17	400%	71	48
Shareholdings of >10% in financial companies	54	177	231	250%	579	372
Total	70	178	248		650	420
Total shareholdings	99	178	277		747	532

Total Non-consolidated holdings of more than 10% in financial companies increased by CHF 82m to CHF 231m, primarily due to the Central Mortgage-Bond Institution's capital increase, to which all cantonal banks subscribed in proportion to their existing holdings.

Table 32: Reserves on equity securities carried under Financial investments, valued at lower of cost or market
in CHF millions, at 31 December 2016, BCV Group

	Reserves			Profit or loss on disposals in 2016	
	Book value	Fair value	31 Dec. 2016	31 Dec. 2015	Change
Listed shares	22	71	49	40	+9
Unlisted shares	6	7	0	-	-
Private equity	-	-	-	-	-
Total	28	78	49	40	+9

4.5.3 Interest-rate risk on the banking book

Strategy and processes

The Board of Directors establishes the Bank's principles for managing risk and decides on the risk strategy it will pursue, which includes the target profile for interest-rate risk on the banking book (IRRBB). The target interest-rate risk profile is defined in the Financial Strategy and reviewed annually as part of the Risk Management Policy and Strategy (RMPS). The process for defining the IRRBB target profile is guided by limits approved by the Board of Directors in the form of equity duration.

Structure and organization

The Executive Board is responsible for organizing and implementing IRRBB management. The Executive Board delegates management of this type of risk to its Asset and Liability Management Committee (ALCO). This committee meets monthly. It is chaired by the CEO and comprises four other Executive Board members, including the CFO.

Within the Finance & Risks Division, IRRBB management is centralized by the ALM & Financial Management (ALM-FM) Department, which reports directly to the CFO. This department is responsible for:

- Defining and maintaining the models and principles used to manage IRRBB as part of the Bank's Financial Strategy. These models and principles are approved by the Executive Board's Risk Management Committee and by the Board of Directors.
- Producing monthly reports on IRRBB management and presenting them to the ALCO. This report is also presented to the Executive Board and the Board of Directors each quarter.

Risk assessment

The ALM-FM Department continuously manages interest-rate risk for the parent company's entire banking book.

Interest-rate risks from trading activities represent market risks and are outside the scope of IRRBB.

Interest-rate risk relating to the activities of Piguet Galland & Cie SA is managed independently by its Executive Board under the supervision of BCV Group.

Each quarter, the interest-rate position for the entire Group is determined by the ALM-FM Department, in accordance with the approach used by the parent company. It is then presented to the ALCO, the Executive Board and the Board of Directors.

At 31 December 2016, in terms of sensitivity, the parent company's IRRBB accounted for 98% of the Group's IRRBB position.

Within the parent company, interest-rate risk positions are consolidated through a fund transfer pricing process to systematically hedge business activities against interest-rate risk. For this, interest-rate reset frequencies are determined on the basis of the transactions' contractual features. For non-maturing products such as variable-rate loans, savings, sight accounts and debit accounts, interest-rate reset frequencies are determined using replicating models. These models take into consideration clients' historical behavior in terms of refinancing and funding requirements. Options positions are converted into their delta equivalent in terms of interest-rate positions. The assumptions and modeling processes used in the replicating models are reviewed annually by the ALM-FM and approved by ALCO.

Risk positions are measured on a monthly basis using two types of indicators:

- Static indicators, which measure the sensitivity of the net current value of the banking book, including:
 - The current value of equity capital;
 - The sensitivity of the economic value of equity capital to an interest-rate change of 100bp;
 - The duration of equity capital;
 - The VaR of the net current value of equity capital;
 - Key rate durations.
- Dynamic indicators, which measure the sensitivity of the net interest margin to different interest-rate scenarios. These indicators simulate the net interest margin over the following three years based on seven interest-rate scenarios. Each scenario takes into account changes in the balance sheet and in client behavior. These simulations also include calculations of the value and duration of equity capital at future dates.

Risk reduction

The hedging products that are most commonly used are interest-rate swaps. Options positions on the banking book are systematically hedged through market transactions.

Table 33: Duration

in CHF millions, the parent company, impact of a 100bp rate hike over the entire yield curve on the economic value of equity capital

	Interest-rate terms					Total
	Less than 3 months	3-12 months	1-4 years	4-7 years	More than 7 years	
At 31 December 2016	0.1	19.9	34.0	-307.8	-117.3	-371.2
At 31 December 2015	-2.4	21.3	48.4	-325.3	-145.1	-403.1

As the Bank is essentially exposed to rises in interest rates, only rate increases are simulated.

4.5.4 Liquidity risk

Strategy and process

The Board of Directors sets out the principles for managing liquidity risk and the target liquidity risk profile. The target liquidity-risk profile is expressed in the form of internal limits for the liquidity coverage ratio (LCR) and for other metrics used to analyze the balance sheet's structure. These internal limits are reviewed annually.

Structure and organization

The Executive Board delegates responsibility for managing liquidity risk to the ALCO, which does so in accordance with the principles set out by the Board of Directors. Every month, ALCO monitors liquidity risk via the monthly ALCO report. The reports are also submitted to the Executive Board and the Board of Directors every quarter.

Within the Finance & Risks Division, the ALM-FM Department, which includes ALM and Treasury, is responsible for the centralized and operational management of liquidity risk.

- Treasury manages the parent company's liquidity position on a daily basis and ensures that the internal LCR limit is complied with. Treasury is also the counterparty for Group subsidiaries when managing their liquidity positions.
- ALM submits proposals to the ALCO concerning strategic balance-sheet management (e.g., long-term borrowings and financial investments) and draws up the ALCO reports;
- ALM is also in charge of determining and maintaining liquidity-risk management principles and models. The principles are approved by the ALCO and the Board of Directors, while models are approved by the EBRMC.

Risk assessment

There are two types of liquidity-risk metrics:

- Static metrics, which calculate the risk on a given date in order to assess the risk level instantaneously and monitor changes over time;
- Dynamic metrics, which calculate the risk on future dates in order to anticipate changes in the risk level. Dynamic metrics are determined by simulating changes in balance-sheet items over the next three years.

The following metrics are calculated both statically and dynamically and analyzed by the ALCO in order to assess the Bank's liquidity position and the robustness of its balance sheet:

- Basel III liquidity ratios (LCR and NSFR);
- The net funding requirements of the Bank's business lines;
- The long-term funding plan.

Other static indicators are also monitored by the ALCO:

- Maturities distribution/concentration for long-term borrowings;
- Funding costs on the interbank and bond markets.

In addition to these risk metrics, stress tests are conducted to quantify the impact that different adverse scenarios would have on the Bank's liquidity position over a given time. These stress tests are the starting point for setting internal limits.

Funding structure

BCV is funded primarily by client deposits. These account for 66% of total liabilities and shareholders' equity and come in the form of savings, sight deposits, time deposits and medium-term notes.

Long-term borrowings account for 16% of total liabilities and shareholders' equity. Most long-term borrowings are mortgage-backed bonds issued through the Central Mortgage-Bond Institution, which represents a stable source of long-term funding. Other long-term borrowings (e.g., structured products and bonds) are made for diversification purposes.

Unsecured amounts due to banks make up 2% of total liabilities and shareholders' equity. Secured amounts due to banks (i.e., repurchase agreements) account for 4%.

The remaining items are shareholders' equity (8%) and other liabilities (3%).

Liquidity coverage ratio (LCR)

The LCR is an international regulatory standard set out in the Basel III Accord. It became mandatory on 1 January 2015. The LCR ensures that a bank has enough liquidity to withstand a 30-calendar-day liquidity stress scenario. It is the ratio between the amount of high-quality liquid assets (HQLA) available and potential net cash outflows over a 30-day period. The term net cash outflows is defined as the total potential cash outflows (such as withdrawals from sight deposits and non-renewals of borrowings with a maturity of less than 30 days) less the total potential cash inflows (such as the repayment of receivables with a maturity of less than 30 days) in a stress situation. For banks that, like BCV, are not systemically important, the minimum requirement for the LCR was 70% for 2016. It will be increased by 10% each year, reaching 100% by 2019.

Table 34: LCR breakdown

in CHF millions, BCV Group, average risk-weighted amounts

	Q4 2016 ¹	Q3 2016 ¹	31 December 2015
HQLAs	7,874	7,425	7,452
Net cash outflows	6,937	6,985	6,718
Cash outflows	8,585	9,505	8,439
Cash inflows	1,648	2,520	1,631
LCR	113%	106%	111%

¹Simple average of figures at month-end

The LCR on a consolidated basis incorporating all BCV Group currencies increased by approximately 2 percentage points from end-2015 to reach an average of 113% in Q4 2016, mainly because of a rise in cash and cash equivalents.

The Bank's SIC account makes up 64% of the Bank's HQLAs. The remaining HQLAs are primarily Swiss-issued securities that have a credit rating of between AAA and AA- (Central Mortgage-Bond Institution, the Mortgage-Bond Bank, the Swiss government and cantonal governments) and that are eligible as collateral for SNB open-market transactions.

Outflows from retail and corporate client deposits account for 90% of total cash outflows. This reflects the fact that client deposits are the Bank's primary source of funding and also therefore the primary source of potential fund outflows in the event of a liquidity run.

Other cash outflows relate mainly to:

- Derivatives maturing within 30 days and margin calls relating to credit support annexes;
- The undrawn part of credit facilities granted to clients;
- Contingent liabilities (e.g., guarantees and letters of credit).

Loans to clients and due from banks maturing within 30 days account for over 90% of cash inflows. The remaining cash inflows primarily come from derivatives maturing within 30 days.

The LCR in Swiss francs is higher than the LCR for all currencies combined, as almost all HQLAs are denominated in Swiss francs (cash deposited at the SNB). Conversely, the LCR in euros and US dollars is lower than the LCR for all currencies combined.

4.6 Operational risk

Strategy and processes

Exposures to operational risks result from the Bank carrying out its activities and are not actively sought after.

The aim of operational-risk management is to mitigate operational-risk factors by identifying areas of improvement and strengthening the Bank's operational and management control system. In particular, the Bank aims to reduce its exposure to:

- The erroneous or malicious behavior of employees, suppliers, bank counterparties, customers or other parties external to the Bank;
- Inadequate IT systems (applications, interfaces and hardware) or communication systems (telephone, fax, email, social media, etc.);
- Inadequate infrastructure;
- Inadequate organization in terms of the conceptual framework (methods, processes, corporate structure, etc.) or the organizational framework (rules, policies, directives and manuals);
- External factors, such as the risks of natural disasters, pandemic and social unrest.

Structure and organization

The Operational Risk Unit within the Finance & Risks Division's Risk Management Department is in charge of conducting periodic analyses to monitor the Bank's operational-risk profile (general self-assessments or specific analyses) and gathering and analyzing information on operational incidents that have occurred. This unit develops the methods used for managing operational risk and submits them for approval to the Executive Board's Risk Management Committee. The unit is also responsible for implementing these methods. In addition, the Operational Risk Unit contributes to creating and implementing assessment methods and tools for the Bank's internal control system.

Operational risk reviews and analysis of operational incidents

Periodic reviews are carried out in order to anticipate the main operational risks. These reviews are supplemented by ad-hoc analyses if new threats arise, if FINMA submits a specific request or if a major risk event occurs in another bank. The aim of these reviews is to reveal possible improvements to operational and managerial controls.

In addition to anticipating risks, the Bank exhaustively and systematically gathers information on and analyzes the main operational incidents arising from the Bank's activities. These incidents are recorded in a dedicated operational-risk-management system and analyzed on a monthly basis in order to improve internal controls. Whenever possible, the Bank manages major operational incidents according to pre-defined action plans.

The Risk Management Department forms part of the level 2 oversight of the internal control system. As such, the Department conducts regular reviews of how operational risks are detected, the measures in place for mitigating operational risks and the related controls. These reviews are conducted as part of the annual review of main risks and of the internal control system.

Since the Basel II Accord came into force, the Bank has determined its regulatory capital requirements for operational risk in accordance with the Standard Approach (CAO, Article 93). Under this approach, the Bank allocates income to the eight business segments set forth by the regulator.

Table 35: Capital requirements for operational risks
in CHF millions, BCV Group

Business segments	Weighting	at 31 December 2016		Risk-weighted assets at 31 December 2015
		Average operating income	Risk-weighted assets	
Corporate finance/advisory	18%	12	26	25
Trading	18%	146	329	308
Private clients	12%	270	406	410
Corporate clients	15%	341	640	631
Payment and settlement	18%	40	90	86
Deposits and fiduciary deposits	15%	45	85	92
Institutional asset management	12%	107	160	177
Brokerage	12%	35	53	60
Total			1,788	1,789

Internal control system

The Bank's internal control system (ICS) was developed in accordance with the recommendations of the Committee of Sponsoring Organizations of the Treadway Commission (COSO) and the Basel Committee, and pursuant to FINMA Circular 2008/24 and Swiss auditing standard No. 890.

The ICS is an integrated bank-wide system covering all functions and all hierarchical levels. In addition to the Bank's front-line activities, the system also applies to business-support, steering and monitoring functions as well as to external service providers, particularly those falling under the scope of FINMA Circular 2008/7 on outsourcing.

BCV works continually to foster a culture of oversight among its staff so that each employee understands his or her role in the ICS. Oversight is thus part of employee performance assessment and skills development.

In accordance with the disclosure and reporting requirements set forth in FINMA Circular 2008/24, the Bank carries out a review at least annually of key risks and controls, with a particular focus on operational risks related to execution. The Bank keeps detailed records of these risks and controls for each department and identifies the main areas of potential improvement.

Each year, following the review, the Bank assesses its operational ICS and submits a report to the governing bodies. It also submits an annual assessment of its ICS for the financial accounts in order to meet the requirements of Swiss auditing standard No. 890.

5. APPENDIX

5.1 Additional information on eligible capital

5.1.1 Breakdown of regulatory capital

This table fulfills the requirement to disclose the breakdown of regulatory capital (Composition of capital disclosure requirements, Basel Committee, June 2012, §4, section 1 and FINMA Circular 2008/22, margin number 38).

Table 36: Breakdown of regulatory capital
in CHF millions, BCV Group, at 31 December 2016

Common Equity Tier 1 capital (CET1)			Ref. ¹
1	Directly issued qualifying common share (and equivalent for non-joint stock companies) capital plus related stock surplus	67	c + i
2	Retained earnings including the reserves for general banking risks, earnings carried forward and profit for the period	2,950	b + g + l - m
3	Capital reserve and currency translation reserve (+/-)	119	e + h - f
5	Minority interests	0	j - n
6	= Common Equity Tier 1 capital before regulatory adjustments	3,136	

Common Equity Tier 1 capital: regulatory adjustments			Ref. ¹
8	Goodwill (net of related tax liability)	16	a
12	IRB shortfall of provisions to expected losses	41	
18	Non-qualifying investments (max. 10%) in financial companies (amount exceeding threshold 1) (CET1 securities)	0	
19	Significant investments in the common stock of financial companies (amount exceeding threshold 2) (CET1 securities)	0	
22	Amount exceeding threshold 3 (15%)	0	
26	Expected loss for equity positions under the PD-LGD approach	0	
27	Deductions for AT1 exceeding available AT1	0	
28	= Total regulatory adjustments to CET1	57	
29	= Net Common Equity Tier 1 capital (net CET1)	3,079	

Additional Tier 1 capital (AT1)			Ref. ¹
36	= Additional Tier 1 capital before regulatory adjustments	0	

Additional Tier 1 capital : regulatory adjustments			Ref. ¹
43	= Total regulatory adjustments to AT1	0	
44	= Net Additional T1 capital (net AT1)	0	
45	Tier 1 capital (net Tier 1)	3,079	

Tier 2 capital (T2)		
46	Directly issued qualifying Tier 2 instruments plus related stock surplus	0
48	Tier 2 instruments issued by subsidiaries and held by third parties	0
50	Provisions	22
51	= Tier 2 capital before regulatory adjustments	22

Tier 2 capital: regulatory adjustments		
52	Net investments in own Tier 2 instruments	0
57	= Total regulatory adjustments to T2	0
58	= Net Tier 2 capital (net T2)	22
59	= Total regulatory capital (net T1 & T2)	3,101
60	Total risk-weighted assets	17,602

Capital ratios		
61	CET1 ratio (No. 29 as a % of risk-weighted assets)	17.5%
62	T1 ratio (No. 45 as a % of risk-weighted assets)	17.5%
63	Total capital ratio (No. 59 as a % of risk-weighted assets)	17.6%
64	Minimum CET1 capital requirement under Basel rules (minimum CET1 requirement plus capital buffer and countercyclical buffer and G-SIB buffer) (as a % percentage of risk-weighted assets)	7.7%
65	<i>of which capital buffer requirement (as a % percentage of risk-weighted assets)</i>	2.5%
66	<i>of which countercyclical buffer requirement (as a % percentage of risk-weighted assets)</i>	0.7%
67	<i>of which G-SIB buffer requirement (as a % percentage of risk-weighted assets)</i>	–
68	Common Equity Tier 1 available to meet buffers (as a percentage of risk-weighted assets)	14.1%
68a	CET1 requirement under Annex 8 CAO after countercyclical buffer (as a percentage of risk-weighted assets)	8.5%
68b	Available CET1 (as a percentage of risk-weighted assets)	17.5%
68c	T1 requirement under Annex 8 CAO after countercyclical buffer (as a percentage of risk-weighted assets)	10.3%
68d	Available T1 (as a percentage of risk-weighted assets)	17.5%
68e	Total capital requirement under Annex 8 CAO after countercyclical buffer (as a percentage of risk-weighted assets)	12.7%
68f	Available total capital (as a percentage of risk-weighted assets)	17.6%

Amounts below the thresholds for deduction (before risk weighting)		
72	Non-significant investments in the capital of other financials	30
73	Significant investments in the common stock of financials (CET1)	231
74	Mortgage servicing rights	0
75	Deferred tax assets	0

Applicable caps on the inclusion of provisions in Tier 2		
76	Provisions eligible for inclusion in Tier 2 in respect of exposures subject to standardized approach (prior to application of cap)	
77	Cap on inclusion of provisions in Tier 2 under standardized approach	
78	Provisions eligible for inclusion in Tier 2 in respect of exposures subject to internal ratings-based approach (prior to application of cap)	
79	Cap for inclusion of provisions in Tier 2 under internal ratings-based approach	

5.1.2 Reconciliation requirements

This table fulfills the requirement to provide a full reconciliation of all regulatory capital elements back to the published financial statements (Composition of capital disclosure requirements, Basel Committee, June 2012, §4, section 2; FINMA Circular 2008/22, margin number 38; and FINMA Circular 2016/1, Appendix 2, Table 1).

Table 37: Financial statements
in CHF millions, BCV Group, at 31 December 2016

Balance sheet in the published financial statements	31 December 2016	Ref. ¹
Assets		
Cash and cash equivalents	7,496	
Due from banks	1,373	
Reverse repurchase agreements	306	
Loans and advances to customers	4,812	
Mortgage loans	25,037	
Trading portfolio assets	153	
Positive mark-to-market values of derivative financial instruments	281	
Other financial assets at fair value	630	
Financial investments	3,234	
Accrued income and prepaid expenses	107	
Non-consolidated holdings	70	
Tangible fixed assets	517	
Intangible assets	16	
<i>of which goodwill</i>	16	a
Other assets	54	
<i>of which deferred tax credits dependent on future revenues</i>	–	
<i>of which deferred tax credits resulting from temporary differences</i>	–	
Total assets	44,085	
Liabilities		
Due to banks	1,070	
Repurchase agreements	1,791	
Customer deposits	29,245	
Negative mark-to-market values of derivative financial instruments	244	
Other financial liabilities at fair value	771	
Medium-term notes	21	
Bonds and mortgage-backed bonds	7,267	
Accrued expenses and deferred income	184	
Other liabilities	56	
Provisions	16	
<i>of which deferred tax relating to goodwill</i>	–	
<i>of which deferred tax relating to unrealized gains</i>	2	

Balance sheet in the published financial statements	31 December 2016	Ref. ¹
<i>of which deferred tax relating to the reserves for general banking risks</i>	–	
Total liabilities	40,666	
<i>of which subordinated liabilities eligible as Tier 2 capital (T2)</i>	–	
<i>of which subordinated liabilities eligible as additional Tier 1 capital (AT1)</i>	–	
Capital		
Reserves for general banking risks	701	b
Share capital	86	
<i>of which recognized as CET1</i>	86	c
<i>of which recognized as AT1</i>	–	d
Capital reserve	207	e
<i>of which scheduled for distribution</i>	86	f
Retained earnings	2,137	g
Currency translation reserve	-2	h
Treasury shares	-19	i
Minority interests in equity	0	
<i>of which recognized as CET1</i>	–	j
<i>of which recognized as AT1</i>	–	k
Net profit	310	l
<i>of which scheduled for distribution</i>	198	m
<i>of which minority interests</i>	0	n
Shareholders' equity	3,420	
Total liabilities and shareholders' equity	44,085	

¹References to eligible equity capital (Table 36)

5.1.3 Main features of regulatory capital instruments

This table fulfills the requirement to provide a description of the main features of regulatory capital instruments issued (Composition of capital disclosure requirements, Basel Committee, June 2012, §4, section 3; FINMA Circular 2008/22, margin number 23; and FINMA Circular 2016/1, Appendix 2, Table 45).

Table 38: Main features of regulatory capital instruments issued
at 31 December 2016

Ref	Main features	BCV registered share
1	Issuer	BANQUE CANTONALE VAUDOISE: Founded by decree on 19 December 1845 by the Vaud Cantonal Parliament as a corporation organized under public law
2	Unique identifier	ISIN code: CH 0015251710
3	Law governing the instrument	Vaud Cantonal Act Governing the Organization of BCV and the BCV Articles of Association the Swiss Code of Obligations, for the remainder

Ref	Main features	BCV registered share
	Regulatory treatment	
4	Transitional Basel III rules	Not applicable
5	Post-transitional Basel III rules	Ordinary shares included under T1
6	Eligible at solo/group/group & solo	Group & solo
7	Instrument type (types to be specified by each jurisdiction)	Equity security
8	Amount recognized in regulatory capital (currency in thousands, as of most recent reporting date)	CHF 86,062
9	Par value of instrument (in currency)	CHF 10
10	Accounting classification	Share capital
11	Original date of issuance	31 December 1995
12	Perpetual or dated	Perpetual
13	Original maturity date	No maturity date
14	Issuer call subject to prior supervisory approval	No
15	Optional call date(s), amount	Not applicable
16	Subsequent call dates, if applicable	Not applicable
	Coupons / dividends	
17	Fixed or variable dividend/coupon	Variable
18	Coupon rate and index, if applicable	Not applicable
19	Existence of a dividend suspension mechanism	Not applicable
20	Fully discretionary, partially discretionary or mandatory	Fully discretionary
21	Existence of step up or other incentive to redeem	No
22	Noncumulative or cumulative	Noncumulative
23	Convertible or non-convertible	Non-convertible
24	If convertible, conversion trigger(s)	Not applicable
25	If convertible, fully or partially	Not applicable
26	If convertible, conversion rate	Not applicable
27	If convertible, mandatory or optional conversion	Not applicable
28	If convertible, specify instrument type convertible into	Not applicable
29	If convertible, specify issuer of instrument it converts into	Not applicable
30	Write-down feature	No
31	If write-down, write-down trigger(s)	Not applicable
32	If write-down, full or partial	Not applicable
33	If write-down, permanent or temporary	Not applicable
34	If temporary write-down, description of write-up mechanism	Not applicable
35	Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	Not applicable
36	Non-compliant transitioned features	No
37	If yes, specify non-compliant features	Not applicable

5.2 Leverage ratio

Table 39: Comparison of on-balance-sheet assets and total leverage-ratio exposures
in CHF millions, BCV Group

Item	31 December 2016	31 Dec. 2015
1 Total consolidated assets as per published financial statements	44,085	43,417
2 Adjustment for investments in banking, financial, insurance or commercial entities that are consolidated for accounting purposes but outside the scope of regulatory consolidation (margin numbers 6 and 7 FINMA Circular 2015/3) and adjustments for assets deducted from Tier 1 capital (margin numbers 16 and 17 FINMA Circular 2015/3)	-57	-75
3 Adjustment for fiduciary assets recognized on the balance sheet pursuant to the operative accounting framework but excluded from the leverage ratio exposure measure (margin number 15 FINMA Circular 2015/3)	-	-
4 Adjustments for derivative financial instruments (margin numbers 21 to 51 FINMA Circular 2015/3)	51	-28
5 Adjustments for securities financing transactions (margin numbers 52 to 73 FINMA Circular 2015/3)	4	2
6 Adjustments for off-balance-sheet items (margin numbers 74 to 76 FINMA Circular 2015/3)	2,229	1,729
7 Other adjustments	-	-
8 Leverage-ratio exposure	46,313	45,045

The difference between total assets as per the financial statements and the leverage-ratio exposure mainly reflects off-balance-sheet transactions (CHF 2,229m at 31 December 2016).

Table 40: Common leverage-ratio disclosures
in CHF millions, BCV Group

Item	31 Dec. 2016	31 Dec. 2015
On-balance-sheet exposures		
1 On-balance-sheet exposures (excluding derivatives and SFTs, but including collateral) (margin numbers 14 and 15 FINMA circular 2015/3)	41,710	41,086
2 Asset amounts deducted in determined Tier 1 capital (margin numbers 7, 16 and 17 FINMA circular 2015/3)	-57	-75
3 Total on-balance-sheet leverage-ratio exposures (excluding derivatives and SFTs)	41,653	41,011
Derivative exposures		
4 Replacement cost associated with all derivatives transactions including those for CCPs and taking account of received margins and netting agreements (margin numbers 22, 23, 34 and 35 FINMA circular 2015/3)	90	258
5 Add-on amounts for all derivatives transactions (margin numbers 22, 23, 25, 34 and 35 FINMA circular 2015/3)	391	356
6 Gross-up for derivatives collateral provided where deducted from the balance-sheet assets (margin number 27 FINMA circular 2015/3)	-	-
7 Deductions of receivables assets for cash variation margin provided in derivatives transactions (margin number 36 FINMA circular 2015/3)	-149	-298
8 Exempted QCCP leg of client-cleared trade exposures (margin number 39 FINMA circular 2015/3)	-	-
9 Adjusted effective notional amount of written credit derivatives (margin number 43 FINMA circular 2015/3)	-	-
10 Adjusted effective notional offsets (margin numbers 44 to 50 FINMA circular 2015/3) and add-on deductions for written credit derivatives (margin number 51 FINMA circular 2015/3)	-	-
11 Total derivative exposures	332	316
Securities financing transaction exposures (SFT)		
12 Gross SFT assets (with no recognition of netting), after adjusting for sale accounting transactions (margin number 69 FINMA circular 2015/3), and after adjusting for the positions stated in margin number 58 FINMA circular 2015/3	2,094	1,987
13 Netted amounts of cash payables and cash receivables of gross SFT assets (margin numbers 59 to 62 FINMA circular 2015/3)	-	-
14 CCR exposure for SFT assets (margin numbers 63 to 68 FINMA circular 2015/3)	4	2
15 Agent transaction exposures (margin numbers 70 to 73 FINMA circular 2015/3)	-	-
16 Total SFT exposures	2,099	1,989
Other off-balance-sheet exposures		
17 Off-balance sheet exposure at gross notional amount, i.e., before conversion to credit-equivalent amounts	6,619	5,945
18 Adjustments for conversion to credit-equivalent amounts (margin numbers 75 and 76 FINMA circular 2015/3)	-4,391	-4,216
19 Total off-balance-sheet exposures	2,229	1,729
Capital and total exposures		
20 Tier 1 (margin number 5 FINMA circular 2015/3)	3,079	3,038
21 Total exposures	46,313	45,045
Leverage ratio		
22 Leverage ratio (margin numbers 3 and 4 FINMA circular 2015/3)	6.6%	6.7%

The difference between total assets as per the financial statements and on-balance-sheet exposures (line 1 of Table 40) reflects repos (CHF 2,094m at 31 December 2016) and derivative positions (CHF 281m at 31 December 2016).

5.3 Liquidity coverage ratio

The table below meets the LCR disclosure requirements set out in margin number 46 of FINMA Circular 2008/22 and FINMA Circular 2016/1, Appendix 2, Table 48.

Table 41: Common LCR disclosures
in CHF millions, BCV Group

		Q3 2016 ¹		Q4 2016 ¹	
		Unweighted values	Risk-weighted values	Unweighted values	Risk-weighted values
Stock of HQLAs					
1	Total HQLAs		7,425		7,874
Cash outflows					
2	Retail deposits	18,710	1,692	18,769	1,697
3	of which stable deposits	5,987	299	5,987	299
4	of which less stable deposits	12,724	1,393	12,782	1,397
5	Unsecured corporate and wholesale funding	11,125	6,898	10,619	6,063
6	of which operational deposits (all counterparties) and deposits with the centralized institution by cooperative banks in an institutional network	1,181	295	1,192	298
7	of which non-operational deposits (all counterparties)	9,888	6,546	9,370	5,708
8	of which unsecured debt issuance	56	56	57	57
9	Secured corporate and wholesale funding and collateral swaps		276		79
10	Other cash outflows	1,962	556	2,076	655
11	of which cash outflows relating to derivatives and other transactions	636	211	616	222
12	of which cash outflows resulting from the loss of funding on asset-backed securities, covered bonds and other structured financing instruments, asset-backed commercial paper, special purpose entities (conduits), securities investment vehicles and other such financing facilities	-	-	-	-
13	of which cash outflows relating to committed credit and liquidity facilities	1,326	345	1,460	434
14	Other contractual funding obligations	34	13	34	19
15	Other contingent funding obligations	1,404	70	1,440	72
16	= Total cash outflows		9,505		8,585
17	Secured financing transactions (e.g., reverse repos)	151	-	34	14
18	Cash inflows from non-impaired receivables	2,963	2,446	2,137	1,525
19	Other cash inflows	74	74	109	109
20	= Total cash inflows	3,188	2,520	2,280	1,648
Net values					
21	Total HQLAs		7,425		7,874
22	Net cash outflows		6,985		6,937
23	Liquidity coverage ratio (as a %)		106%		113%

¹Simple average of figures at month-end

5.4 Table of correspondence, analytical classifications and abbreviations

5.4.1 Table of correspondence

Part 4 of the Basel II Accord defines the minimum disclosure requirements. The relationship between the tables in the Accord and those in this report is described below:

Table 42: Table of correspondence

Subject	Basel Accord ¹	FINMA circulars ²	BCV's Pillar 3 report
Scope of application	Table 1, letter (a)		Section 1.2
	Table 1, letter (b)		Section 1.2, tables 1 and 2
	Table 1, letter (c)		Section 1.2
	Table 1, letter (d)		Section 1.2
	Table 1, letter (e)		Section 1.2
	Table 1, letter (f)		Section 1.2
Capital structure	Table 2, letter (a)		Section 2
	Table 2, letter (b)		Section 2, table 3
	Table 2, letter (c)		Section 2, table 3
	Table 2, letter (d)		Section 2, table 3
	Table 2, letter (e)		Section 2, table 3
	Annexes 1 to 3 ³	Tables 1,2 and 45	Section 5.1, tables 36, 37 and 38
Capital adequacy	Table 3, letter (a)		Section 3
	Table 3, letter (b)		Section 3, tables 4, 5 and 6
	Table 3, letter (c)		Section 3, table 4
	Table 3, letter (d)		Section 3, table 4
	Table 3, letter (e)		Section 3, table 4
	Table 3, letter (f)		Section 3, table 4
	Table 1 ⁴	Table 46	Section 5.2, table 39
	Table 2 ⁴	Table 47	Section 5.2, table 40
Credit risk	Table 4, letter (a)		Section 4.3
	Table 4, letter (b)		Section 4.3, table 7
	Table 4, letter (c)		Section 4.3, table 7
	Table 4, letter (d)		Section 4.3, table 8
	Table 4, letter (e)		Section 4.3, table 9
	Table 4, letter (f)		Section 4.3, tables 10 and 11
	Table 4, letter (g)		Section 4.3, table 12
	Table 4, letter (h)		Section 4.3, table 13
	Table 4, letter (i)		Section 4.3, table 14
	Table 5, letter (a)		Section 4.3.1
	Table 5, letter (b)		Section 4.3.1, tables 15, 16, 17 and 31
	Table 6, letter (a)		Section 4.3.2
	Table 6, letter (b)		Section 4.3.2
	Table 6, letter (c)		Section 4.3.2
	Table 6, letter (d)		Section 4.3.2, tables 19, 20 and 21
	Table 6, letter (e)		Section 4.3.2, table 22
	Table 6, letter (f)		Section 4.3.2, table 23
	Table 7, letter (a)		Section 4.3
	Table 7, letter (b)		Section 4.3.3, tables 24 and 25
	Table 7, letter (c)		No credit derivatives
	Table 8, letter (a)		Section 4.3
	Table 8, letter (b)	Table 31	Section 4.3.4, tables 26, 27 and 28
	Table 8, letter (c)		No credit derivatives
	Table 8, letter (d)		No estimate of alpha factor

	Table 9	No securitization
Market risk	Table 10, letter (a)	Section 4.5.1
	Table 10, letter (b)	Section 4.5.1, table 30
	Table 11	No internal model
Operational risk	Table 12, letter (a)	Section 4.6, table 35
	Table 12, letter (b)	No advanced approach
	Table 12, letter (c)	No advanced approach
Equities	Table 13, letter (a)	Section 4.5.2
	Table 13, letter (b)	Section 4.5.2, table 32
	Table 13, letter (c)	Section 4.5.2, table 32
	Table 13, letter (d)	Section 4.5.2, table 32
	Table 13, letter (e)	Section 4.5.2, table 32
	Table 13, letter (f)	Section 4.5.2, table 31
Interest-rate risk on the banking book	Table 14, letter (a)	Section 4.5.3
	Table 14, letter (b)	Section 4.5.3, table 33
Liquidity risk	Annex 1 ⁵	Table 48 Sections 4.5.4 and 5.3, table 41

¹Unless stated otherwise, table numbers refer to Chapter 4 of the Basel II Accord

²Unless stated otherwise, table numbers refer to FINMA Circular 2016/1, Appendix 2

³Composition of Capital Disclosure Requirements, Basel Committee, June 2012

⁴Basel III Leverage Ratio Framework and Disclosure Requirements, Basel Committee, January 2014

⁵Liquidity Coverage Ratio Disclosure Standards, Basel Committee, January 2014

5.4.2 Analytical classifications

This section describes the different analytical classifications used in this document that are not already defined within the framework of the Basel III Accord.

Table 43: Type of counterparty

Type of counterparty	Description
Retail	Individuals or groups of co-debtors with up to CHF 250,000 in assets and income of less than CHF 250,000 and a mortgage loan of up to CHF 1.2m
Private banking	Individuals or groups of co-debtors who meet at least one of the following criteria: assets or income above CHF 250,000, or a mortgage loan above CHF 1.2m
SMEs	Small and medium-sized businesses, excluding real-estate professionals and trade-finance counterparties, that employ up to 150 people, are not listed on the stock exchange and have annual revenues of below CHF 50m
Real-estate professionals	Individuals or entities whose main professional activity involves buying and selling real estate or real-estate development, management or rental
Large corporates	Companies that meet at least one of the following criteria (excluding trade-finance counterparties): • more than 150 employees; • annual revenues of at least CHF 50m; or • listed on the stock exchange
Public-sector entities	Swiss national, cantonal and municipal governments
Trade finance	Non-bank counterparties involved in trade-finance activities
Banks	Bank counterparties, including central counterparties since 1 January 2013

Table 44: Basel III Accord asset categories (IRB)

Asset category	Description
Residential retail	Mortgage-backed exposure to individuals or to companies that meet the retail criteria
Other retail	Other exposure to individuals or to companies that meet the retail criteria
Corporates	Companies that do not meet the retail criteria The Mortgage-Bond Bank of the Swiss Mortgage Institutions and the Central Mortgage-Bond Institution
Specialized lending	Real-estate financing for counterparties rated with the “real-estate professionals” rating model, together with trade-finance operations
Sovereigns	The Swiss national government, BIS, central banks, multilateral development banks eligible for a 0% risk weighting, and foreign governments
Other institutions	Cantonal governments and municipal authorities
Banks	Bank counterparties

Table 45: Counterparty rating model (scope of IRB-F approach)

BCV rating model	Description
Individuals	Combines the following rating models, which are applied to individuals or co-debtors without commercial financing: • Private banking: counterparties with at least CHF 300,000 in assets at BCV or who are financed solely through lombard loans • BCV employees: counterparties employed by BCV Group • Individuals model: counterparties not included in the above groupings
SMEs	Corporate and other counterparties with commercial lending commitments that are outside the scope of the models for real-estate professionals, large corporates and trade finance
Real-estate professionals	Individuals or entities that are mainly active in real-estate development or investment for their own account
Trade finance	Transactions carried out to finance international commodities trading
Vaud municipalities	Municipal authorities in Vaud Canton
Transmission	Counterparty whose rating was transferred from another counterparty under a system of rules
Banks	Bank counterparties

5.4.3 List of abbreviations

ALCO	Asset and Liabilities Management Committee
ALM	Asset and Liability Management
ALM-FM	The Bank's ALM and Financial Management Department
BCV	Banque Cantonale Vaudoise
BIS	Bank for International Settlements
BoD	Board of Directors
CAO	Ordinance of 1 June 2012 concerning capital adequacy and risk diversification for banks and securities traders (known as the "Capital Adequacy Ordinance," CAO)
CCF	Credit conversion factor
CCO	Chief Credit Officer
CCR	Counterparty credit risk
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CLS	Continuous linked settlement
COREP	Common Reporting framework for Basel III Pillar 1
CRO	Chief Risk Officer
CSA	Credit Support Annex, an optional annex for ISDA netting agreements
CVA	Credit value adjustment: capital requirement aimed at covering the risk of loss in market value as a result of deterioration in the counterparty's credit quality.
EAD	Exposure at default
EBCC	Executive Board Credit Committee
EBRMC	Executive Board Risk Management Committee
ETD	Exchange-traded derivative
FINMA	Swiss Financial Market Supervisory Authority
HQLA	High-quality liquid assets

ICS	Internal control system
ID	BCV's "in default" provisioning category
IRB-F	Internal Ratings-Based Foundation approach
IRRBB	Interest-rate risk on the banking book
ISDA	International Swaps and Derivatives Association
LCR	Liquidity coverage ratio
LGD	Loss given default
NSFR	Net stable funding ratio
OTC	Over the counter
PC	Parent company
PD	Probability of default
PIC	Product and Instrument Committee
PSE	Public-sector entities
QCCP	Qualified central counterparty
RD	BCV's "reputed to be in financial difficulty" provisioning category
RMPS	BCV's Risk Management Policy and Strategy
SFT	Securities financing transaction
SNB	Swiss National Bank
SA-BIS	International Standard Approach in accordance with the CAO
VaR	Value at risk

5.5 Parent-company disclosures

When capital and liquidity requirements are calculated at group level, the group is generally only required to provide consolidated disclosures (known as the disclosure exemption).

Under FINMA Circular 2016/1, the Bank is nevertheless required to disclose the following parent-company figures.

Table 46: Main parent-company figures
in CHF millions, at 31 December 2016

Indicator	Amount
1 Minimal capital based on risk-weighted requirements	1,372
2 Eligible capital	2,966
3 of which CET1	2,944
4 of which Tier 1 capital (T1)	2,944
5 Risk-weighted assets (RWAs)	17,150
6 CET1 ratio (CET1 as a % of RWAs) ¹	17.2%
7 T1 ratio (T1 capital as a % of RWAs) ¹	17.2%
8 Total capital ratio (as a % of RWAs) ¹	17.3%
9 Countercyclical buffer (as a % of RWAs)	0.7%
10 Target CET1 ratio (as a %) pursuant to Annex 8 CAO after countercyclical buffer	8.5%
11 Target T1 ratio (as a %) pursuant to Annex 8 CAO after countercyclical buffer	10.3%
12 Target total capital ratio (as a %) pursuant to Annex 8 CAO after countercyclical buffer	12.7%
13 Basel III leverage ratio (T1 capital as a % of total exposures)	6.5%
14 Total exposures	45,353
15 Q4 2016 LCR ²	112.0%
16 LCR numerator: stock of HQLAs	7,686
17 LCR denominator: net cash outflows	6,869
18 Q3 2016 LCR ²	103.0%
19 LCR numerator: stock of HQLAs	7,226
20 LCR denominator: net cash outflows	7,026
21 Q2 2016 LCR ²	102.0%
22 LCR numerator: stock of HQLAs	7,351
23 LCR denominator: net cash outflows	7,176
24 Q1 2016 LCR ²	111.0%
25 LCR numerator: stock of HQLAs	7,671
26 LCR denominator: net cash outflows	6,908

¹ Does not include the countercyclical buffer

² The quarterly LCR is calculated by dividing the average HQLAs over the period by the average net outflows over the period