



COMISIÓN
PARA EL MERCADO
FINANCIERO

NORMATIVE STUDY SERIES

BASEL III IMPLEMENTATION IN CHILE: CLOSING EVALUATION

December 2020

www.cmfchile.cl

Basel III implementation in Chile: closing evaluation

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ABSTRACT

The last amendment to the General Banking Act was made in January 2019, introducing flexibility so that, through regulations, the regulator can adopt the regulatory standards in force at the international level. For the Chilean case, this implied going from a restricted Basel I to Basel III, with the consequent challenges of adaptation for an adequate implementation, considering the country's own institutional framework and the characteristics of the Chilean economy.

This study synthesizes the regulatory implementation of Basel III in Chile, focusing on the differences with respect to the international standard. It also develops an estimate of the global impact of the regulations. Finally, pending issues and implementation and oversight challenges are identified.

RESUMEN

La última modificación a la Ley General de Bancos (LGB) se realizó en enero de 2019, introduciendo flexibilidad para que, por la vía normativa, el regulador pueda adoptar los estándares vigentes a nivel internacional. Para el caso chileno, esto implicó pasar desde un marco de Basilea I restringido a Basilea III, con los consecuentes desafíos de adaptación para una adecuada implementación, en atención a la institucionalidad propia del país y a las características de la economía chilena.

Este estudio sintetiza la implementación normativa de Basilea III en Chile, con foco en las diferencias respecto del estándar internacional. Asimismo, desarrolla una estimación del impacto global de la normativa. Finalmente, se identifican los temas pendientes y los desafíos de implementación y fiscalización.

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1. Introduction

The relevance of banks for the functioning of the economy, as well as the origin of its financing (deposits and bonds) make economic authorities concern for the stability of these institutions. The 2008 sub-prime crisis highlighted the risks affecting the banking industry and the associated high cost to the economy when they are not properly managed and mitigated. After that crisis the Basel Committee on Banking Supervision (hereafter the Basel Committee, the Committee or the BCBS) revised its capital adequacy framework in order to correct the shortcomings detected in terms of quality and quantity of capital and risk coverage, a process that ended in December 2017, with the publication of the final version of the Basel III Capital Accord.

These standards strengthen the solvency of banks, improving competitiveness both locally and internationally, facilitating access to new sources of financing, more diversified, at lower cost or longer term, thus contributing to a greater stability of the system. It is worth remembering that many jurisdictions in the region (including Argentina, Brazil, Mexico, Peru and Colombia) are already in the process of transition to these standards.

The harmonization of requirements between subsidiaries of foreign banks and local banks is also positive, making it possible to eliminate regulatory asymmetries in our jurisdiction. Many foreign banks established in Chile already apply Basel III in their countries of origin and extend this application to their subsidiaries. While these banks may use the argument of greater resilience in the face of stress events to their advantage, they may also face competitive disadvantages by applying more demanding standards.

Finally, the internationalization process of Chilean banks also requires raising capital standard. The host regulator, especially when it comes to a G20 economy, could require the foreign bank's regulator to apply similar rules to avoid potential regulatory arbitrage and to ensure a common language. Along these lines and considering the advances in the implementation of Basel III in the world, it is reasonable to migrate to Basel III to facilitate the internationalization of banking and coordination between regulators.

This document is built on a similar publication in 2018, of the ex-Superintendence of Banks and Financial Institutions, and summarizes the process of regulatory implementation of Basel III in Chile, the challenges involved and the issues that were postponed for later stages.

2. Evolution of capital standards in the Basel framework and in Chile

International standards have the advantage of providing a common way of quantifying risks

and defining the necessary resources to face them. This characteristic becomes even more important when it comes to internationally active banks, which can take advantage of regulatory asymmetries to the detriment of the efforts of jurisdictions with more stringent regulations.

In this context, in 1988 the Basel Committee created an international standard framework for capital regulation (Basel I), which has evolved over time until its most recent version (Basel III). These standards have consolidated, and compliance has become a regulatory requirement in G20's economies (table 1). Many other jurisdictions that are not part of the Committee have also decided to adopt these standards, either due to financial stability considerations, market access or harmonization with international regulation, showing different degrees of progress in their implementation.

The first capital accord of the Basel Committee (published in 1988 and known as Basel I), was the international community's response to the banking crises of the mid-1980s, which were triggered by low levels of capitalization, as well as failures in the management and supervision of banks. Basel I solved a basic problem, the lack of comparability of capital requirements between jurisdictions, a situation that gave room for regulatory arbitrage and competition problems.

The solution was simple and standardized. In July 1988, the Committee published an internationally comparable indicator to measure the level of capital relative to assets. Thus, the Basel capital adequacy indicator (or Cooke index) was born, which determined that capital should be greater than 8% of credit risk weighted assets (CRWA). By the end of 1992 this indicator had been implemented not only in the G20, but in all countries with internationally active banks.

Table 1: Basel III implementation in BCBS member jurisdictions

Basel capital framework		Deadline	In force	Issued	In consultation	NA
Capital	Counter cyclical buffer	Jan.16	18	0	1	0
	Non centrally cleared derivatives margin calls	Sep.16	11	0	3	5
	CCP requirements	Jan.17	9	4	3	3
	Capital investment funds	Jan.17	10	1	4	4
	SA-CCR	Jan.17	11	4	3	1
	Securitization framework	Jan.18	13	0	1	5
	TLAC	Jan.19	10	0	4	5
	Revised standard model for credit risk	Jan.23	0	1	3	15
	Revised internal model for credit risk	Jan.23	0	1	1	17

	Revised CVA framework	Jan.23	0	0	1	18
	Revised standard model for market risk	Jan.23	0	0	1	18
	Revised standard model for operational risk	Jan.23	0	2	2	15
	Output floor	Jan.23	1	1	0	17
Leverage (revised)		Jan.23	2	2	2	13
Systemic banks	G-SIB buffer	Jan.16	10	9	0	0
	D-SIB buffer	Jan.16	17	-	1	1
	Leverage buffer D-SIB	Jan.23	2	1	0	16
IRBB		2018	12	1	4	2
Liquidity	Intraday monitoring	Jan.15	14	1	0	4
	LCR	Jan.15	19	0	0	0
	NSFR	Jan.18	12	2	5	0
Large exposures (supervisory framework)		Jan.19	12	2	4	1
Pillar 3 (revised requirements)		Dec.16	12	1	2	4
New information market risk		Jan.23	0	1	0	18

Source: Own elaboration based on BCBS (2020).

One of the main characteristics of Basel I was its simplicity, although precisely this characteristic motivated growing criticism regarding its lack of sensitivity to risk, which, for example, implied the same level of risk for all corporate exposures, regardless of their size or credit rating.

In January 1996, the Committee added capital requirements for market risk into Basel I, which were in force by the end of 1997. Banks could also use internal models (risk valuation methodologies) to measure capital requirements associated with market risk. The trend since then has been to sacrifice simplicity in favor of risk sensitivity, defining more complex standards and allowing for a greater use of internal models, under the assumption that banks themselves have more appropriate tools than the regulator to model and determine their capital charges. In 1999, the Committee consulted on modifications to the capital standard, which ended in July 2004 with the publication of what is known as Basel II, which offered a more comprehensive framework for banks' risks, based on 3 pillars: minimum capital (pillar 1), the supervisory review process and the self-assessment of capital adequacy (pillar 2), and market transparency and discipline (pillar 3).

Basel II included operational risk, revised credit and market risk standards (mainly for the banking book) and facilitated the use of internal models. Additionally, it made more flexible the forms of admissible regulatory quasi-capital. The new rules generated new problems, since international comparability was lost, given the wide variance available for the numerator and denominator of the indicator. As the level of convergence was lower, many supervisory resources were diverted to the validation and approval of internal models, to

the detriment of the other two pillars. This, added to long years of low global interest rates and the proliferation of instruments and vehicles that moved bank exposures off balance, promoted a phenomenon of greater leverage in international active banks, which culminated in the global financial crisis of 2007- 08.

In response, in 2010 the international community announced higher and stricter capital standards. That same year, the Committee published the Basel III capital framework, which took charge of (i) improving the quality and quantity of available capital to face the risks of banking activity and reduce the banks' room for maneuver through the introduction of more strict rules for the use of internal models (Pillar 1), (ii) introduce new liquidity standards, (iii) strengthen the guiding principles for risk management (Pillar 2) and (iv) strengthen market discipline through new disclosure requirements (Pillar 3).

Basel III reduces the participation of hybrid capital, improves risk coverage and sets up limits to the saving of capital charges associated with the use of internal models, by setting a regulatory floor of 72.5% in relation to the revised standard models. Additionally, it incorporates a leverage ratio that acts as a back-up for risk-based capital measures, designed to prevent excess leverage in the banking system and to provide greater protection against model risk and measurement errors. It also establishes capital discounts, filtering the part that can effectively be used to absorb losses. Finally, Basel III introduces macroprudential elements to contain the risks derived from the economic cycle and from the presence of systemically important entities (too-big-to-fail or too-complex-to-fail).

The Basel capital framework distinguishes two levels of capital, according to their capacity for loss absorption. Tier 1 capital (T1) constitutes working capital (going concern), made up of basic capital (CET1) and additional tier 1 capital (AT1). Tier 2 capital is that to be used in the liquidation of a bank (gone concern), consisting mainly of subordinated bonds and voluntary provisions. Regulatory capital is equal to the sum of Tier 1 and Tier 2 capital. As mentioned before, an essential element in Basel III is the greater relative importance of higher quality capital since, in addition to higher floors, it adds on a series of buffers exclusively constituted with CET1, correcting one of the main deficiencies of the Basel II capital framework, which opened up more space for hybrid capital (table 2).

Table 2: Capital components in the Basel capital framework

Capital component	Basel I	Basel II	Basel III
CET1	≥4% RWA Paid in capital plus reserves	≥4% RWA Paid in capital plus reserves	≥4,5% RWA Common shares that meet the 14 Basel III criteria (table 1 in the annex) plus declared reserves
T1	-	-	≥6% RWA AT1 admits hybrid capital instruments that satisfy the 15 Basel III criteria (table 1 in the annex)
T2	≤ CET1 Asset revaluation reserves (discount 55%), general provisions ≤1.25% RWA, perpetual hybrid capital instruments, term subordinated bonds ≤50% CET1	≤ CET1 Asset revaluation reserves (discount 55%), undeclared reserves, general provisions ≤1.25% RWA, perpetual hybrid capital instruments, term subordinated bonds ≤50% CET1.	General provisions ≤1.25% RWA (standard model) or 0.625% RWA (internal model), instruments that meet the 9 criteria of Basel III (perpetual hybrid capital instruments, not eligible as AT1, or term subordinated bonds, table 1 in the annex)
T3	-	≤2,5 CET1 related to market risk plus subordinated bonds	-
General buffers	-	-	Conservation: 2,5% RWA Counter cyclical 0-2,5% RWA
Specific buffers	-	Pilar 2 (with no cup)	Pilar 2 (with no cup) DSIB: 1-3,5% RWA

Sources: Cayazzo et al (2018).

In Chile, the General Banking Act (GBA) of 1960 established a limit for liabilities with third parties equal to 20 times the basic capital of the bank, thus limiting its growth and risks. The post-local crisis modifications introduced in law in 1986 focused on matters such as credit limits and the bank resolution process, without modifying the leverage ratio of liabilities.

In 1997, Law No. 19,528 adopted the recommendations of the Basel Committee regarding credit risk, without introducing capital charges for market risk. Regarding the composition of capital, it allowed the accounting of hybrid instruments (subordinated bonds and voluntary provisions) with certain limits. In addition, it added a new leverage ratio, this time measured in terms of assets, which established that basic capital cannot be less than 3% of a bank's total assets. In retrospect, this measure was innovative for the time, as the Basel Committee introduced the same index only in 2010, as part of the Basel III accord.

Law No. 19,528 also introduced other innovative aspects for the time, such as an equity surcharge for banks that achieved a significant market share as a result of a merger process (similar to a systemic charge) and an effective equity buffer of 2% of the APR, result of the

incentive to be classified in solvency level A². Another element introduced by the 1997 law was the classification by management of banks, a very relevant and distinctive aspect of the risk-based supervision mechanism existing in Chile³.

In 2005, the Central Bank of Chile, in use of its legal powers (Article 35 No. 6 of its Constitutional Organic Law), in order to close the growing regulatory gap introduced a rule that indirectly regulates market risk in banking⁴, defining a standard based on the local calibration of the 1996 Basel I VaR method (Chapter III.B.2.2 of the Compendium of Financial Standards of the Central Bank). Likewise, in 1999 it issued regulations to measure and control liquidity risk, by introducing limits to temporary cash mismatches at 30 and 90 days, both based on basic capital, which was revised in 2014 to include the new standard of Basel III liquidity (Chapter III.B.2.1).

More recently, Law No. 21,130 modified the local supervisory infrastructure, merging the former supervisor authorities of securities and insurance and banking into the current Commission for the Financial Market (CMF). The transitory articles of the law established a period of 18 months from said merger for the regulations that implement the new capital standard to be issued and entered into force, a process that culminated on December 1, 2020.

3. Regulatory capital

Basel III increases the quality and quantity of capital that banks must hold to sustain the risk of their operations. In Chile, this implies an important challenge, as it means covering the regulatory gap from a partial Basel I to Basel III.

3.1 Capital quality

Regulatory capital (RC), or “*patrimonio efectivo*” in Chilean law, is defined in articles 66, 55 and 55bis of the GBA and chapter 21-1 of the Updated Compilation of Standards (“*Recopilación Actualizada de Normas*”, hereafter RAN, CMF 2020d), and it is made up of basic capital (common equity tier 1 capital or CET1), additional tier 1 capital (AT1) and tier 2 capital (T2). CET1 corresponds to subscribed and paid in shares plus other items that are part of the banks' accounting equity, with a floor of 4.5% of RWA (Table 2)⁵. AT1 is a new concept of capital in Chile, defined in chapter 21-2 of the RAN (CMF 2020a), and

² Article 35 bis and title V of the GBA, respectively.

³ This evaluation is described in greater detail in Chapter 1-13 RAN.

⁴ $RC \geq (0,08 \times CRWA) + ERM$, where RC=regulatory capital, CRWA= credit risk weighted assets y ERM=exposure to interest rate risk in the investment book and currency risk for the total balance.

⁵ The previous GBA already established an implicit floor of 4,5% RWA for CET1 that the new law made explicit: $CET1 + T2 \geq 8\% \times RWA$ y $T2 \leq 50\% \times CET1 + 1,25\% \times RWZ \Rightarrow CET1 \geq 4,5\% \times RWA$.

corresponds to preferred shares and perpetual bonds (without a fixed maturity term), subordinated to T2 and subject to capitalization, depreciation and appreciation or expiration, depending on the issuance conditions (table 3). The GBA imposes a floor of 6% of RWA for Tier 1 capital (CET1 + AT1), in line with Basel III. Thus, the introduction of AT1 capital implies substituting T2 capital for AT1, improving the quality of regulatory capital⁶.

T2 is made up of fixed-term bonds, subordinated to other obligations, for up to 50% of CET1⁷, plus voluntary provisions (which exceeds specific ones) for up to 1.25% of CRWA, net of required provisions, when banks use standardized methodologies to calculate the denominator, or 0.625%, in case of using their own methodologies. The main characteristics of these instruments are defined in chapter 21-3 of the RAN (CMF 2020a). The issuance clauses are expected to include conversion mechanisms in shares like those of AT1 instruments, with triggers at the point of no return (PoNV for its acronym in English, table 3). The LGB imposes a floor of 8% of the RWA for regulatory capital (T1 + T2). In the absence of hybrid capital, the previous floors must be constituted with CET1.

Table 3: Loss absorption mechanisms for AT1 instruments established by the GBA

Type of instrument	Going concern	Gone concern	Description
Preferred shares	Conversion	Conversion	AT1 instruments require a going-concern trigger and by law, the conversion of preferred shares is prior to or simultaneous with the capitalization, expiration or depreciation of perpetual convertible bonds.
Perpetual convertible bonds			
Case 1	Depreciation	Conversion	Depreciation is subsequent or simultaneous to the absorption of losses of preferred shares (going-concern trigger lower than or equal to the trigger in preferred shares).
Case 2	Depreciation	Expiration	Depreciation is subsequent or simultaneous to the absorption of losses of preferred shares (going-concern trigger lower than or equal to the trigger in preferred shares).
Case 3	Conversion	Conversion/ Expiration	Conversion mechanism cannot be solely PONV trigger since AT1 needs going-concern trigger. This alternative competes with preferred shares.
Case 4	Expiration	-	It cannot be a PONV trigger as an AT1 needs a going-concern trigger.
Subordinated bonds	-	Conversion	Loss absorption in the gone-concern trigger is simultaneous to loss absorption of perpetual convertible bonds.

Source: CMF.

The differences between local regulations and Basel III provisions on the constitution and accounting of hybrid capital are summarized in Table 4.

⁶ During the first 5 years from the implementation of the standard.

⁷ Limits as a fraction of CET1 previously existed in the GBA and although they are not part of the Basel III standard, they are widely used by the main international risk classifiers.

Table 4: Differences between local regulations and Basel III provisions on the constitution and accounting of hybrid capital

AT1	Bonos subordinados
<ul style="list-style-type: none"> • Issues of bank subsidiaries abroad are discounted from effective equity (despite compliance with criteria). • Cancellation of coupon / dividend payments is not completely discretionary (objective and exceptional situations). • Cancellation of coupon / dividend payments does not require supervisor authorization *. • Failure to comply with the buffers requires cancellation of payment only on preferred and common shares, not on perpetual convertible bonds • Depreciation is total at \$ 10 (there is no partial depreciation). • Revaluation is not at the sole discretion of the issuer. • The optional redemption originated by regulatory, tax or other modifications is not allowed when the instrument ceases to qualify as effective equity prior to 5 years from the date of issue (by mandate of the GBA). • There is no sequential loss absorption in a PoNV (in Chile it is immediate and simultaneous) *. • Instruments cannot have clauses that make it difficult to absorb losses in the event of forced liquidation (arbitrary allocation of liabilities in the event of a bank split). 	<ul style="list-style-type: none"> • Issues of bank subsidiaries abroad are discounted from effective equity (despite compliance with criteria). • Article 55 of the GBA establishes that subordinated bonds cannot be repurchased. • Instruments cannot have clauses that make it difficult to absorb losses in the event of forced liquidation (arbitrary allocation of liabilities in the event of a bank split). • Regarding the loss absorption mechanism, Basel establishes that the first best in liquidation is that the instruments constituting capital must either expire or be transformed into shares (reducing the mass of debts with third parties), and as second best, lower priority among other debt (subject to conditions). Local regulations establish the conversion into shares, or by default the lowest priority, with no room for expiration.

* These are not explicit requirements of the Basel III framework, but they are minimum requirements established in international jurisdictions, used to facilitate the implementation of the criteria determined by the Basel Committee.
Source: Own elaboration.

A set of accounting and prudential deductions is applied to these generic concepts of T1 and T2, which allow for a more harmonious measurement across jurisdictions with different accounting and tax standards, eliminating items that do not have the effective capacity to absorb unexpected losses, such as goodwill, other intangible assets and deferred tax net assets. Participations over 10% of a bank's CET1 are also discounted from investments in institutions that do not consolidate accounting, separated into significant and non-significant investments. These investments refer to holdings of regulatory capital instruments, or their equivalent, of other banks or financial institutions, the deduction of which is made in order to limit contagion effects in the impairment of the value of assets that could be generated in an event of financial stress. All the above is defined in Chapter 21-1 of the RAN and summarized in Table 5.

Table 5: CET 1 deductions

Account	Deductions on excess participation (*)
Non-controlling excess interest	Depends on excess regulatory capital in the subsidiary
Goodwill	Total
Intangibles	Total
Cash flow hedge reserve	Total
Insufficiency of provisions for expected loss	Total
Gains from the sale of assets to securitization companies or to securitized loan investment funds	Total
Accumulated gains or losses due to variations in the issuer's own credit risk of financial liabilities valued at fair value	Total
Defined benefit pension plan assets	Total
Investments in own instruments	Total
Deferred tax assets not due to temporarily differences	Total
Significant excess investments	10% - in case of investments in AT1 and T2 instruments, deduction is total
Non-significant excess investments	10%
Excess temporary net deferred taxes	10%
Combined excess (significant investments and temporary deferred taxes)	15%

(*) Excess measured based on the participation of the item in the amount of CET1.

Source: Own elaboration based on Chapter 21-1 RAN.

Some differences regarding the international standard follows. According to Basel III, if a capital instrument does not meet the criteria to be recognized as such, but it does so for a lower level of capital, then it can be recognized in the latter. However, this is not allowed under local law. Furthermore, since AT1 or T2 capital instruments issued by the subsidiaries are not recognized, the adjustment of the excess of non-controlling interest does not apply for these cases. Capital requirement for Total Loss Absorption Capacity (TLAC) does not apply in our regulation, but it does for globally important systemic banks (G-SIB). Finally, the standard only allows the recognition of the non-controlling interest associated with subsidiaries with supervision based on bank-type risk. However, in Chile there are other types of subsidiaries (Sociedades de Apoyo al Giro) that give rise to non-controlling interest. Considering this particularity, banks can consider minority participation but only due to the regulatory requirement of the subsidiary, in line with Basel III.

The deduction of net assets for deferred taxes is relevant under the current accounting regime for the constitution of provisions, which considers the expected loss instead of the effective loss. This item must be discounted, since it depends on future and uncertain profits. Banco del Estado de Chile represents a special case, given its higher tax rate being a state-owned company (+40%). A contingent guarantee from the Chilean State, committing the reimbursement of the positive amounts of deferred taxes due to

temporary differences corresponding to the surcharge tax of public companies (+40%) in the event of forced liquidation, would exempt this bank from this additional discount, assimilating it to the rest of the commercial banks in the system. This solution has not only been implemented in other jurisdictions, such as Brazil, Spain and Italy, but it is explicitly accepted by the Basel Committee⁸. This guarantee, in practice, is equivalent to a reallocation of contingent resources of the State for the payment of the State guarantee to the deposits of the bank of its property (Cayazzo et al 2018), and it can only be considered to the extent that it is formally approved in the organic law of the bank or as a permanent item of the budget law.

The regulatory limits established in the GBA will be measured at a global consolidated level (the bank and all its subsidiaries that consolidate, both in Chile and abroad) and at a local consolidated level (the bank and all its subsidiaries that consolidate in Chile). This definition follows current European regulations (Regulation 575/2013), which makes it possible to ensure that regulatory capital is appropriately distributed between the parent company and subsidiaries in other jurisdictions, avoiding over-leveraging⁹. The combination of both requirements will ensure that the bank's positions are prudently leveraged in all jurisdictions where it operates (as the host supervisor will also require local limits). Additionally, the CMF will monitor the bank's capital at the individual level (without subsidiaries) which, if it is too low, could lead to capital requirements under pillar 2. Considering that the implementation of the new level of local consolidation would traduce into operational costs, their compliance and disclosure were postponed to December 1, 2022.

For a similar reason, banks are not allowed to consider AT1 or T2 instruments issued by subsidiaries in the consolidated regulatory capital. Although the review of international regulations shows that the general practice is to authorize the accounting of these instruments (subject to discounts), legal arguments would restrict their issuance to banks, and the hybrids instruments issued by affiliates must be totally discounted from the capital of the parent bank (global consolidation). This does not create problems of compliance with the Basel standard, as it is stricter, and banks with issues in foreign subsidiaries will have 10 years to replace this component of the regulatory capital.

Finally, considering an economic cycle more weakened by the COVID-19 pandemic and, the costs that the implementation of these discounts to capital means, their

⁸ The frequently asked questions document of the Basel Committee (BCBS, 2017) specifies that, in jurisdictions where the government reimburses the positive amounts of deferred taxes for temporary differences of a bank in the event of resolution, this discount does not apply, using a RWA of 100% of the guaranteed net assets.

⁹ For the measurement of the local consolidated regulatory capital, the investment in the foreign subsidiary must be discounted directly from the final value of the ordinary capital level 1 and the risk-weighted assets.

implementation was postponed until December 1, 2022. The first discount will be 15%, 30% in December 1, 2023, 65% in December 1, 2024, and 100% in December 1, 2025. Additionally, in December 1, 2022 subordinated bonds of subsidiaries or those that do not comply with the new regulatory requirements will be recognized for up to 90%, a rate that will decrease by 10% annually, until reaching 0% on December 1, 2031 (Table 6).

Table 6: Graduality in capital adjustments and phase-out of subordinated bonds not computable in the regulatory capital

Chile	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Capital deductions	0%	0%	15%	30%	65%	100%						
Phase-out (*)	100%	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%	0%

(*) Amount recognized in the regulatory capital of affiliate issues.

Source: CMF.

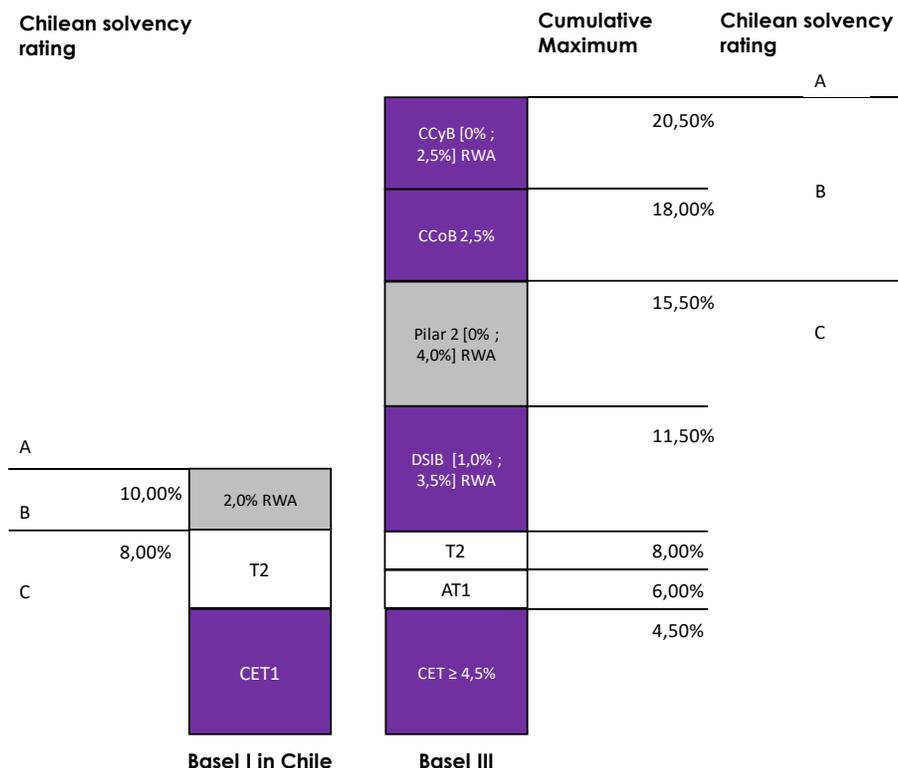
3.2 Capital quantity

Unlike the previous regime, the minimum regulatory capital will not be the same for all banks in the system, but it will depend on their systemic importance (systemic charge) and their business strategy and risk management objectives (pillar 2). CET1 buffers are added over and above this bank-specific minimum, in order to face stress situations: the conservation buffer and the counter-cyclical buffer.

With this, the solvency classification of a bank will no longer be static, as in the previous regime (Figure 1). To be at level A of solvency, a bank needs to satisfy its specific capital requirements and the conservation and counter-cyclical buffers in full. Although the use of buffers is permitted in situations of general or idiosyncratic stress, their use will impact on a lower solvency rating (B) and will restrict profit distribution. When a bank does not meet its specific capital requirements, it will be classified at level C and must undergo a regularization plan (article 112 of the GBA)¹⁰.

¹⁰ The surcharge of article 51 is maintained for banks that do not have the minimum paid-in capital established by the GBA (around 30 million dollars, in practice, an entry barrier), which translates into 2% of CET1 on RWA if the paid in capital is less than 75% of the minimum, and 1% otherwise.

Figure 1: Solvency rating



(*) Purple bars represent requirements that are constituted only with CET1; light gray bars, with hybrid capital; and dark gray, with both. The figure shows maximum accumulated levels which does not correspond to the actual charge that banks will face.

Source: CMF.

3.2.1 Systemic capital charge

A systemic capital charge is applied to institutions defined to have systemic importance, according to the methodology established in Chapter 21-11 RAN (CMF 2020i).

Based on the dimensions that determine whether a bank is systemic, and which have been included in the methodology for banks of global systemic importance (G-SIB, BCBS 2013), the principles for the identification of banks of domestic systemic importance (D-SIB, BCBS 2013) and the factors established in the GBA, the identification is based on an index of systemic importance, built from a weighted average of variables that reflect the local impact of the financial deterioration or eventual insolvency of each bank, as shown indicated in Table 7.

Table 7: Systemic importance index

Factor (weight)	Meaning	Sub-factor
Size (30%)	“too big to fail”	Assets at local consolidated level
Local interconnectedness (30%)	“too interconnected to fail”	Assets and liabilities in the local financial system
Local substitutability (importance / infrastructure) (20%)	“business units difficult to replace”	Payment activities, deposits, placements
Complexity (20%)	“too complex organization or services”	Notional bilateral OTC derivatives, inter-jurisdictional assets and liabilities, assets available for sale and trading, management of third-party assets / assets in custody

Source: Own elaboration based on Chapter 21-11 RAN.

Systemic charges must be established exclusively with CET1 and will be determined by the CMF, with the prior favorable agreement of the Board of the Central Bank, within the range indicated in Table 8 and in proportion to the systemic score obtained.

Table 8: Systemically important banks' capital charge

Systemic level	Systemic index score (puntos base)	Capital charge range (% RWA)	Leverage range (percentage of total assets)
I	[1000,1300[1,00-1,25	[3%, 3%+50% systemic capital charge]
II	[1300,1800[1,25-1,75	
III	[1800,2000[1,75-2,50	[3%,5%]
IV	≥2000	2,50-3,50	

Source: Own elaboration based on Chapter 21-11 RAN.

The ranges of capital charges allow the CMF and the Central Bank (based on expert judgment) to avoid abrupt jumps in capital requirements, especially when it is estimated that a higher score may be due to a transitory phenomenon. The rank of charges maintains an exponential relationship with the score, so that the higher the score, the greater the value and the dispersion of the rank. This aims to generate appropriate RWA incentives so that banks do not become too big or complex to fail and manage their capital and their degree of concentration in the different lines of business, as well as their global participation in the local banking industry, in order to internalize the costs of its possible failure on the financial system. In accordance with the GBA, the minimum charge starts at 1% of the RWA and the maximum could reach 3.5% of RWA.

In addition to the systemic charge, the LGB allows the Commission to impose one or more of the following measures, by founded resolution and with the prior agreement of the Board of the Central Bank of Chile:

- a) Add up to 2.0 percentage points to the basic capital over total assets, net of required provisions, above the general minimum requirement of 3% referred to in article 66 of the GBA. Table 8 shows the limits established in Chapter 21-11, which are consistent with what was determined by the Basel Committee on higher leverage requirements for G-SIBs. Thus, for example, for a systemically important bank at Tier I, whose systemic capital charge has been set at 1%, a leverage requirement could be defined between 3% and 3.5%.
- b) Determine that the technical reserve referred to in article 65 of the GBA for deposits and demand accounts is applicable if they exceed one and a half times their regulatory capital. This faculty is inherited from the GBA of 1997.
- c) Establish the reduction to 20% of the regulatory capital the margin of interbank loans, established in article 84, number 1, independent of the guarantees provided. This faculty is also inherited from the GBA of 1997.

The Commission will evaluate the use of one or more of these additional measures, in justified cases, when it considers that the additional basic capital requirement in Table 4 should be supplemented and when the stability of the Chilean financial system so requires. Such could be the case, for example, for a bank with a systemically important index at levels III or IV.

3.2.2 Pillar 2

The second pillar of the Basel capital framework seeks to ensure that banks maintain capital at a level consistent with their risk profile and business model, and to encourage the development and use of appropriate processes for monitoring and managing the risks they face.

The Basel Committee identifies four Basic Principles for the Supervisory Review Process, which remain in force in the Basel III framework (BCBS, 2006a, 2009a and 2012). Principle 1 places on the banks themselves the responsibility to develop an internal capital adequacy assessment process (ICAAP), which takes into account the risks they have decided to take on and defines a strategy to sustain an adequate capital level, even under stress scenarios. The bank must demonstrate to the supervisor that it has developed a comprehensive ICAAP, for which principles 2, 3 and 4 establish the guidelines of the supervisory evaluation and review process (SREP), which as a basis includes the power of the authority to require banks to maintain capital above the regulatory minimum and to intervene promptly, in order to prevent it from falling below this minimum.

The document “Core Principles for Effective Banking Supervision” (BCBS 2006a and 2012) elaborates on the SREP and establishes 29 principles that deal with the powers,

responsibilities and functions of the supervisor (1 to 13) and the specific prudential regulations and requirements (14 to 29, annex 1). In particular, principle 16 establishes that “if justified, the supervisor has the power to impose a specific capital requirement and / or limits on any significant exposure to risk, also applicable to risks that in its opinion have not been adequately transferred or covered by transactions carried out by the bank ”.

The level of additional capital required by the supervisor is, by definition, specific to the condition of the bank and can be revised based on the evolution of the entity. For this reason, calibration is usually done on a case-by-case basis and compliance may be required gradually, depending on the size of the adjustment to arrive at the target coefficient.

In terms of traditional risks (credit, market and operational) the results of stress tests conducted by the bank itself could determine the need to operate with a regulatory capital above the minimum. Likewise, the use of credit risk mitigants exposes banks to other residual risks, such as legal and liquidity risk that must be adequately covered through pillar 2. On the other hand, there are risks that are not covered within the Pillar 1 and that are exclusively dealt with within Pillar 2, such as credit concentration risk, interest rate risk in the banking book or the provision of implicit guarantees that give rise to the risk of “step-in” or financial support to related entities that they do not consolidate with the bank (for example, off-balance-sheet investment vehicles).

A complementary tool for detecting capital misalignments is supervisor-led stress tests, which measure a bank's resilience under generalized financial stress scenarios. The document “Principles for sound stress testing practices and supervision” (BCBS 2009b and 2018) describes 21 basic principles for an adequate application of stress tests in banking, among them that: (i) stress tests should evaluate bank resilience in negative but plausible scenarios, (ii) they should facilitate the discussion between the regulator and the banks to take mitigating measures, such as capital increases, and (iii) there should be comparability and consistency in the results achieved by the regulator and banks. Regarding the construction of stress scenarios, it is common to define a base scenario (essentially a projection) and an adverse one, which follows the criteria of the regulator. Depending on what the regulations of each country establish, the results of these stress tests may or may not be disclosed to the public, and they may be used for micro-prudential, macro-prudential purposes or both.

Additionally, Chapter 21-13 RAN (CMF 2020j) defines the regulatory capital self-assessment process, which must include definitions in, at least, the following elements:

- 1) Business model and medium-term strategy
- 2) Risk appetite framework and its relationship with the internal objective of

regulatory capital and business plan

- 3) Inherent risk profile
- 4) Corporate governance, risk management and control (mitigators)
- 5) Analysis of capital strength
- 6) Internal control

The Internal Capital Adequacy Assessment Report (ICAAP or IAPE in local regulation), which must be prepared by banks and presented to the supervisor in April of each year, must be structured following the same 6 elements above and include an introductory chapter, with an executive summary of the main conclusions of the process, and a closing chapter, with a future action program that assesses gaps and proposes correction strategies. Banks must also complete a summary table of the ICAAP, which summarizes the main indicators resulting from the process.

The ICAAP for 2021 will be based only on credit risk and the one for 2022, on the risks of pillar 1. Both reports will have a simplified format. Only from 2023 the report will be required to have all sections, also considering the risks not included in pillar 1.

The regulations also include an annex with a methodological guide for interest rate risk in the banking book. A guide for the measurement of concentration risks was not included, pending further evidence and international consensus. For this and the other risks in which reference measures are not proposed, banks must develop internal methodologies.

If it is determined that a bank requires a higher level of regulatory capital to face its risks, the Commission may impose, through a founded resolution and with the favorable vote of at least four Commissioners, an additional capital requirement commensurate with the risk assessment carried out, which may not exceed 4% of the bank's risk-weighted assets, net of required provisions¹¹. Said resolution will also contain the composition of the capital requirement, in terms of CET1, AT1 and T2, and the period of implementation of this requirement.

3.2.3 Conservation and countercyclical capital buffers

The conservation buffer (CCoB) is a general and permanent requirement of CET1 for the equivalent of 2.5% of RWA net of required provisions. The counter-cyclical buffer (CCyB) is also a general requirement, but its value can vary between 0% and 2.5% of RWA net of required provisions, also constituted only with CET1. In these cases, CET1 corresponds to the value after applying the regulatory discounts defined in Chapter 21-1 RAN, while the

¹¹ It should be noted that this limit is located above the median of the charges set in Europe.

compliance and supervision mechanism for buffers is established in Chapter 21-12 RAN (CMF 2020e). The value of CET1 used for its fulfillment is that exceeding the minimum capital requirements established in articles 51, 66, 66 quater and 66 quinqués of the GBA. Likewise, when the AT1 and T2 type capital requirements are fully or partially satisfied with CET1 capital, these amounts must be discounted from the available CET1. Finally, if dividend payments approved by the shareholders' meeting exceeds the amount provisioned for such purpose, the difference must be discounted from the available CET1, so that it does not imply a possible breach of the buffers.

Due to its macro-prudential nature, the Central Bank of Chile (BCCh) activates the CCyB, depending on credit conditions or other variables that indicate that an additional relevant risk taking is being generated by the industry. The agreement of the Board of the Central Bank requires a prior favorable report from the CMF and will explicitly define the term of implementation of this requirement, which may not be less than 6 months from its publication. The CMF will oversee its compliance as of its total validity; therefore, proportional compliance will not be required during the implementation period. The deactivation of the additional requirement of CCyB will also be a decision of the Central Bank, with the prior favorable report of the Commission. It should be noted that some jurisdictions consider an equilibrium level for the CCyB strictly greater than zero.

Under normal conditions, all banks must keep both buffers active, but under stress conditions, either idiosyncratic or systemic, they can be used (totally or partially) without generating early regularization measures. In this case, the bank will calculate the compliance tranche in which the sum of both requirements is found, in accordance with Table 9. When there is a deficit greater than zero, the controlling shareholders may not buy back shares of the bank unless they are authorized by the CMF, and the bank will have a restriction on the distribution of dividends proportional to the deficit. In this case, a limitation should be considered with respect to the consolidated and audited income for the year as of December of the previous year. This value is chosen since it is a legal requirement that the shareholders' meeting approve a dividend distribution on audited financial statements, which corresponds to the consolidated level of the bank. Furthermore, the difference in profit for the year at different levels of consolidation is low, since there are few transactions between the bank and its subsidiaries that impact results.

Table 9: CCoB and CCyB

Deficit	Limit on profits distribution
a) lower than or equal to 25% of the required level	60%
b) greater than 25% and lower than or equal to 50% of the required level	40%
c) greater than 50% and lower than or equal to 75% of the required level	20%
d) greater than 75% of the required level	0%

Source: CMF.

Buffers are designed to cope with idiosyncratic or systemic stress situations, building safeguards in periods of greater risk-taking, and absorbing the materialization of these in periods of stress. This seeks to increase the resilience of the banking system and to mitigate a pro-cyclical behavior. In case of deficit, banks must make all efforts to reconstitute the capital buffer, in proportion to the capital deficit. In those periods where the counter-cyclical cushion is triggered, more conservative credit policies are also expected. Likewise, the bank's board of directors should review the convenience of suspending the payment of bonuses for performance and other benefits of senior management that are associated with the profitability of the business, at least in the same proportion as indicated in the previous table, while maintaining the deficit. Distributions that do not harm the bank's CET1 capital level, for example, the payment of dividends on shares, will not be subject to these restrictions.

Buffers should be measured at two levels, as well as the minimum capital requirements (local and global consolidation), hence, restrictions will be determined by the consolidated measure that generates the lower value. This practice is common internationally, particularly in Europe, where issues of equity instruments are considered triggers at the consolidated and individual level.

The additional CCoB capital requirement will have a gradual phase in period, starting at 0.625% on December 1, 2021, growing by the same amount on December 1 each year, until reaching 2.5% on December 1 in 2024. For the maximum-CCyB capital requirement applies the same phase in program.

Additionally, and for monitoring purposes, each bank must estimate and report to the Commission its requirement against international countercyclical buffers, which is considered by the BCBS, but not locally. To do this, it must add the countercyclical requirement applied by the authority of each country with which it has exposure, including Chile, multiplied by its relative weight in the total credit risk weighted assets, as indicated in the following formula:

International counter cyclical charge

$$= \sum_{i=1}^n \text{Counter cyclical charge}_i \cdot \frac{CRWA_i}{CRWA_{total}},$$

where:

- *i* refers to the jurisdiction to which the bank has exposure,
- *Counter cyclical charge_i* refers to the counter-cyclical charge of jurisdiction *i*,
- *CRWA_i* refers to credit risk weighted assets associated to jurisdiction *i*,
- *CRWA total* refers to total credit risk-weighted assets, and
- *n* corresponds to the total number of jurisdictions with which the bank has exposures.

To identify the geographic location of exposures and, therefore, the value of *CRWA_i*, banks should adhere to the following criteria:

- All exposures must be assigned to the jurisdiction of the counterparty, be it a debtor or issuer of a financial instrument. If an exposure has more than one counterparty, located in different jurisdictions, the exposure will be assigned to the jurisdiction of the counterparty with the largest participation in the exposure. In case of having the same participation, the jurisdiction that carries a higher charge against the countercyclical charge should be considered.
- Regardless of the place of loan granting, the jurisdiction of the counterpart will be understood as the country where the natural or legal person resides or has its registered office. In the case of loans to branches, the jurisdiction of residence of the parent company should be considered.
- In the case of exposures called specialized loans, the jurisdiction will correspond to that of the country where the income is generated.
- In the case of exposures to securitized instruments, the geographic location of the underlying assets must be considered.
- In the case of exposures generated by subsidiaries or branches abroad, the bank may assign their location as geographic location, if the following requirements are met: (i) the

size of the exposure is less than 2% of the total assets of the subsidiary or branch, and (ii) the bank cannot identify, without incurring a disproportionate effort, the country of the counterpart based on the internal and / or external information it has.

The values *counter cyclical charge_i* will correspond to those published by the BCBS and in force on the date of the estimation. The date of implementation of the charges will be that determined by the authority of each jurisdiction, thus respecting the principle of reciprocity.

Finally, regarding the differences with Basel III in this matter, they are the following:

- In case of operating within the buffer, the Basel III standard establishes that the elements subject to restriction in distributions are dividends, share buybacks, discretionary payments in other Tier 1 capital instruments and discretionary bonus payments to staff. However, in our case restrictions are established in article 56 of the GBA, applying only on dividends and share buybacks.
- The Basel III standard establishes that the CCyB is specific to each bank, defined as the weighted average of the CCyB capital charges for each jurisdiction based on its CRWA exposure. However, the local application only considers the buffer set by the Central Bank as a single charge, ignoring the reciprocity concept required by the Committee.

4. Risk Weighted Assets

The 1986 GBA explicitly defined the weights to be used for credit risk capital charges. The 2019 amendment adds market and operational risk-weighted assets to the denominator (RWA) of the capital adequacy ratio. Additionally, the CMF can establish standardized methodologies (ME), via a general rule and with the prior agreement of the Central Bank of Chile, for each of the relevant risks (credit, market and operational). This provides greater flexibility to the legal framework to adopt future revisions to international standards, while safeguarding the legal certainty of equity requirements for shareholders (determined by law and not by regulation).

The supervisor may also authorize the use of internal methodologies (MI) to determine risk-weighted assets. These methodologies must be developed according to the objective guidelines that the CMF indicates by regulation, with the prior favorable agreement of the Board of the Central Bank (Table 10).

Table 10: Risk Weighted Assets Regulations

Risk	Standard methodology	Internal methodology
Credit	RAN 21-6	RAN 21-6 (foundational approach only, extended to retail portfolios)
Market	RAN 21-7	Not available. Their inclusion will be evaluated in the future.
Operational	RAN 21-8	It does not apply under Basel III.

Source: Own elaboration.

It should be noted that the Basel Committee on Banking Supervision has made clear its expectation that “the Basel Framework, which encompasses the Basel III standards, will be fully implemented”. However, “since the Basel Framework comprises minimum standards, jurisdictions are free to apply more conservative requirements. Many Committee and BCG¹² jurisdictions have followed this approach. A proportionate framework must also consider supervisory capacity and resources, particularly when more complex standards are implemented”. Additionally, and very important, is the statement that “there is no expectation, even for internationally active banks, that they should use internally modeled approaches¹³.”

4.1 Credit risk

The standard model establishes the reference framework for calculating credit risk weighted assets (**CRWA**). It is implemented through matrices defined by counterparty and risk factors that determine the credit risk weight (**CRW**) for each exposure.

The **CRWA** are calculated using the formula:

$$CRWA = CRW \cdot EAD \cdot (1 - EL),$$

where **EAD** is the exposure at default (effective + contingent) and **EL** is the expected loss (provision of assets).

As an example, a choice of the basic standard method for the commercial portfolio (BCBS, 2017) is determined by the matrix in Table 11. **Table 11:** RWA assignment example

Commercial loans	RWA
Investment grade	65%
SME	85%
Other	100%

Source: BCBS (2017).

Thus, for a placement of USD 100 million without guarantees to an investment grade

¹² Basel Consultative Group primarily comprised of non-BCBS jurisdictions.

¹³ Joint BCBS-BCG statement on proportionality, 26 November 2019.

company, for which the bank provides for USD 0.51 million, using the formula above the RWAC would be USD 64.7 million.

On the other hand, the methods based on internal ratings (IRB, for its acronym in English) allow the bank itself to estimate the risk parameters of its portfolios, prior approbation of the supervisor, from which they can calculate CRWA using the formula (simplified):

$$CRWA = 12.5 \cdot LGD \cdot \left(\underbrace{N \left[\left(\frac{1}{1 - R(PD)} \right)^{0.5} G(PD) + \left(\frac{R(PD)}{1 - R(PD)} \right)^{0.5} G(99.9\%) \right]}_{VaR} - PD \right) \cdot EAD$$

where LGD is the loss given default, PD is the probability of default, R(.) is the correlation function, N(.) is the standardized cumulative normal distribution and G(.) is its inverse function, such that N (G(x)) = x.

IRB methods can be foundational (F-IRB) or advanced (A-IRB), differing in the parameters that the bank can estimate. Under the foundational or basic model, the bank can only estimate PD, while in the advanced model, a greater number of parameters are allowed depending on the portfolio.

An important innovation in Basel III is that the estimation of each parameter is subject to a parameter floor and the aggregate result of the RWAs resulting from the use of internal models (for credit, operational and market risk) is also subject to one floor (output floor), equal to 72.5% of the RWA obtained under the standard methods.

In the same example above, the bank estimates the following parameters: PD = 3%, LGD = 17%, which generate a provision of USD 0.51 million. As the LGD parameter floor for an unhedged corporate exposure is 25%, formula (2) is calculated using PD = 3%, LGD = 25%, so the risk-weighted assets would be USD 61 million < 64, 7 million.

To determine the capital requirement for credit risk under standardized methodologies in the Chilean banking (CMF 2020g), the portfolio classification of the simplified standard model of Basel III is used. When available local information was enough to do so, credit risk weights were calibrated by portfolio using the previous equation and estimates of the risk parameters for the Chilean banking system. In this case, the highest CRW between the locally calibrated and the one proposed by the Basel ME was considered. For all the rest, the Basel standard is maintained. With this, sensitivity to risk and compliance with international convergence assessments is ensured, making use of the supervisor's discretion established by the Basel framework. The proposal for the standardized method

is summarized in Table 12.

Table 12: Implementation of the Simplified Standard Method for the calculation of CRWA

Portfolio	Local regulation
Sovereigns and Central Banks	Basel III simplified standard model, using the risk rating agency that assigns a higher CRW (when there is more than one rating). As a rule, the bank should review external ratings with conservative criteria for their use, established in its internal policies, and excluding implicit sovereign support. To the local state in local currency, for Chile and for subsidiaries where the issuer's regulation establishes so, CRW = 0%.
International institutions and Multilateral Development Banks (MDBs)	Basel III simplified standard model that uses external rating for MDBs that are not listed by the BIS, with one exception: when an MDB is not rated, the weight will be 100% and not 50%, in order to discourage regulatory arbitrage.
Public sector entities (PSE)	Basel III simplified standard model that uses the PSE rating directly.
Interbank exposures	Basel III standard matrix that uses the external rating of banks. Additionally, to reflect sovereign risk, a floor is applied to the CRW equivalent to that of the sovereign of the country where the counterparty operates. In addition to banks, this treatment includes exposures whose counterparts are Savings and Loans Cooperatives supervised by the CMF.
Secured and Mortgage Bonds	Basel III standard method that assigns a CRW based on the rating of the issue, when there is an external rating of the bond. Otherwise, the CRW is defined based on the issuer's rating. This treatment includes mortgage bonds, by virtue of article 69 number 2 of the GBA.
Business	Simplified standard method of Basel III, defining SMEs as those with sales of less than UF 100,000 in a calendar year, and "investment grade companies" as those with individual investment grade evaluation, with an individual rating greater than or equal to A3, in accordance with the provisions of Chapter B1 of the Compendium of Accounting Standards of the CMF.
Specialized loans	Basel III standard model.
Retail	Basel III standard model, defining the category "regulatory retail" for aggregate exposures below CLF 20,000. Within this portfolio are commercial loans (which includes leasing and factoring, and excludes exposures with mortgage guarantee) with a CRW of 75%, consumer loans with a CRW of 75% for people with low indebtedness (Pulgar et al, 2020) and 100% otherwise, and student credits with a CRW of 100%.
Home mortgages: payment does NOT depend on the income flow of the property	The concept of "debtor-inhabitant" is assimilated to debtors who have a maximum of 2 mortgage loans. The weighting is increased to 50% for credits with $80% < LTV \leq 90%$; and to 70% for those with $90% < LTV \leq 100%$.
Home mortgages: payment depends on the income flow of the property	Basel III standard model.
Commercial mortgages: payment does NOT depend on the income flow of the property	Basel III standard model.

Commercial mortgages: payment depends on the income flow of the property	Basel III standard model.
Land acquisition and the promotion of construction	Basel III standard model.
Securitized instruments	Basel III standard model.
Investment funds	Basel III standard model.
Equity instruments and subordinated debt	Basel III standard model for consolidating subsidiaries.
Currency mismatch exposures	For unhedged retail or home mortgage exposures where the borrower's primary source of income currency does not match the loan currency, the CRW should be weighted by 1.5, with a maximum weight of 150%. In the case of wholesale exposures, the currency mismatch criterion should be captured within the individual classification.
Off-balance sheet items	To the Basel III standard model is added a contingent conversion factor of 15% for Credits for higher studies (CAE).
Default exposures	Exposure in default is one that satisfies the criteria defined in Chapter B-1 of the Accounting Compendium of the CMF. To the unsecured part, net of specific provisions, it is assigned a CRW of 150% when specific provisions are less than 20% of the exposure, and 100% otherwise. For exposures guaranteed with residential real estate whose counterpart has less than 3 mortgages, the CRW will be 100%, regardless of the percentage of provisions made.

Source: Own elaboration based on RAN 21-6.

An SME debtor that posts a mortgage guarantee for its credit (which is the case for almost two-thirds of bank exposures in this segment) will obtain, under the standard model, an average CRW of 58%. Whether not having a home equity and classified as a group, then the SMR will have group treatment with a CRW of 75%. It will be assigned in the group portfolio, if it has simple products, its aggregate exposure is less than UF 20,000 and represents less than 0.2% of total. Finally, if the SME is classified individually, the CRW will be 85%.

In Chile, in the case of internal methodologies, banks may request authorization to use the foundational approach exclusively, that is, only the estimation of PD will be allowed. The CMF will provide the rest of the risk parameters and the floors for the PD (PD parameter floors). Additionally, a floor of 72.5% of total RWAs is established under the standardized method (credit, market and operational) for RWAs under internal models (credit plus the market and operational standard).

In the future, when the implementation of these models has matured, the Commission may review these regulations and decide, with a favorable agreement from the Board of the Central Bank, whether to allow the use of the advanced approach.

Banks can use techniques to mitigate credit risk (Table 13). To obtain a reduction in regulatory capital by virtue of these, all documentation used in secured transactions, bilateral compensation agreements or through a CCP, personal and real guarantees, must be binding on all parties and have legal force in all relevant jurisdictions. Banks must corroborate the above and have substantiated legal reports, issued by the bank's prosecutor's office and external auditors, as well as carry out the necessary follow-up in order to guarantee its continuous compliance.

Table 13: Using mitigators for CRWA calculation

Portfolio	Local regulation
Bilateral compensation agreements	In the event that a set of derivative contracts has been entered into with a counterparty under the protection of a bilateral compensation contract recognized by the Board of the Central Bank, the mitigating effect of the counterparty risk attributable to the compensation may be applied in the calculation of the "credit equivalent" (Chapter 21-6 RAN) for that set of derivative instruments.
Compensation arrangements through a CCP	The instructions set out in Chapter 21-6 RAN should be considered, depending on whether the bank is a direct participant or a customer of a direct participant of a CCP.
Guarantees and endorsements	Hedges may be considered only if they are legally constituted and while all the conditions that allow their eventual execution or settlement in favor of the creditor bank are met.
Financial guarantees	Only the simple approach is considered, where the risk weight of the counterparty is replaced by the weight of the collateral instrument that fully or partially guarantees the exposure.
Balance sheet compensation	Entities that have exposures in financial instruments on their own names on behalf of third parties and that are within the consolidation perimeter of the bank, may offset active and passive exposures when: (a) they are duly protected by a legal mandate to determine that the compensation of balance is required in each of the relevant jurisdictions; (b) is able to determine at all times those assets and liabilities that are subject to compensation.
Guarantees constituted in favor of third parties under the protection of a master agreement	In the case of operations with derivatives entered into under the protection of a bilateral compensation framework contract, in which the net fair value of the compensated positions is negative, this amount may be deducted from the guarantees established under the contract, if the guarantees comply with certain conditions.

Source: Own elaboration based on RAN 21-6.

In accordance with the provisions on the first paragraph of the first transitory article of Law 21,130, this regulation will be in force on December 1, 2020. However, until December 2021, previous regulation will continue to apply (chapter 12-1 RAN), in order to give banks and the supervisor enough time to implement the new portfolio segmentation scheme and the new associated reports. Nevertheless, the new treatment for repos will be applicable.

4.2 Operational Risk

The Basel Committee standard for calculating the capital charge (ORC) corresponds to the multiplication of two components:

$$ORC = BIC \cdot ILM$$

The BIC is the component of the business indicator (Business Indicator Component) that measures the size of the bank's operations and the ILM (Internal Loss Multiplier) is a multiplier that depends on the bank's historical operating losses. In this way, the operational risk increases with the income declared by a bank. On the other hand, banks that historically have had higher operational risk losses are more vulnerable to experiencing this type of loss in the future.

The BIC is calculated from the business indicator (BI), as a proxy of the net financial income of a bank, which corresponds to the sum of three components:

$$BI = ILDC + FC + SC$$

ILDC is the interest, leasing and dividend component, FC is the financial component and SC is the services component, defined in turn by the following formulas:

$$ILDC = \min\{|\overline{II} - \overline{IE}|, 2.25\% \cdot \overline{IEA}\} + \overline{DI},$$

$$FC = |\overline{TB}| + |\overline{BB}|,$$

$$SC = \max\{\overline{OOI}, \overline{OOE}\} + \max\{\overline{FI}, \overline{FE}\},$$

where II is interest income, IE is interest expense, IEA is interest-bearing assets; DI dividend income, TB net trading book income, BB net banking book income, OOI other operating income, OOE other operating expenses, FI commission income and FE commission expense. The top bar denotes the moving average of the last three years and the side bars denote the absolute value. The IEA is calculated with balance sheet information and the others, with information from the income statements of the last 12 months.

Once the BI is obtained, the BIC is calculated as the weighted sum of the value of the BI in different tranches by the marginal coefficients (α_i) defined in Table 14, increasing in the tranche to which the BI belongs.

The tranches considered for the calculation of the BIC are equal to the standard Basel model, expressed in Chilean inflation based monetary units (UF) and applying exchange rate adjustments with confidence margins, to avoid that exchange fluctuations alter the classification of the banks within each tranche¹⁴. Finally, banks located in tranche 1 that

¹⁴ Local regulation eliminates tranche 3 of the Basel standard, since it is irrelevant for the Chilean case due to the size of local banks.

choose to do so can use the ILM for the ORC calculation, if they comply with the information treatment requirements described in chapter 21-8 RAN (CMF 2020h).

Table 14: Operational risk charges

BI segment	BI interval in millions of UF	Marginal coefficients for the computation of <i>BIC</i> (α_i)	Capital charge	
			Meets criteria (*)	Does not meet criteria
1	BI ≤ 25	0,12	BIC BIC*ILM (optional)	BIC
2	BI > 25	0,15	BIC*ILM	BIC

(*) It reduces capital when the information on operating losses is of good quality, which creates incentives for banks to reduce operating losses. It requires a minimum of 5 years of data, which satisfy the information quality criteria. Deficiencies can be penalized through pillar 2. The gathering of information on operational losses is mandatory for all banks.

Source: CMF.

The second component of the ORC is the ILM, which serves as a scale factor that adjusts the benchmark capital requirement based on the bank's operating loss experience. This component is proportional to the fraction represented by a measure of stressed historical losses (LC) with respect to the BIC, and is calculated from the following formula:

$$ILM = \ln \left(e(1) - 1 + \left(\frac{LC}{BIC} \right)^{0.8} \right),$$

where $\ln(.)$ represents the natural logarithm function, $e(.)$ the exponential function and LC the operating loss component, which is equal to 15 times the average of the bank's historical net annual operating losses, with information from the last 10 years to the date of calculation.

All banks must prepare the operational loss record database, in accordance with the criteria established in Chapter 21-8 RAN and the CMF's Information Systems Handbook. The operational risk charge for banks with a BI in tranche 1 will by default be equal to the BIC (ORC = BIC). However, these banks may choose to use information on their operational losses for the calculation of ORWA if they comply with the same conditions established for banks in tranche 2¹⁵. Once the information on operational losses has been used for the calculation of ORWA, and in order to avoid regulatory arbitrage, banks may not stop using it without authorization from the Commission. If these criteria are not met, the operational risk charge will be equal to the BIC. It should also be remembered that additional charges

¹⁵ Based on information from the Monthly Statements of Situation and complementary information requested from local banks, it is preliminarily estimated that between 2009 and 2018, 95% of the observations would correspond to ILM values lower than 1, which shows that there would be incentives to use ILM and improve operational loss management.

may always be established as a result of the supervisory evaluation process (pillar 2).

Banks that have been operating for less than 1 year do not have enough information to calculate the BIC, so they will determine their ORWA as 10.5% of the CRWA, in accordance with the standardized calculation rules of credit risk-weighted assets that establish the CMF. This because internal estimates place the average ratio of ORWA and CRWA for the local banking industry at 10.5% (Figure 2). Banks that have been operating for more than 1 year and less than 3, to calculate the operational risk charge must use the BIC, calculated with available historical information (BIC requires 3 years of financial statement information).

Banks with more than 3 and less than 5 years of operation do not have a database of operational losses that meets the general and specific criteria previously described. Therefore, for these banks the operational risk charge will be equal to the BIC, that is, $ORC = BIC$ (Table 15).

Table 15: ORWA according to years of operation of the bank (*)

Tranche	< 1 year	1-5 years	> 5 years	
			Meets criteria	Does not meet criteria
1	$10.5\% \cdot RWAC$	$12,5 \cdot BIC$	$12,5 \cdot BIC$ $12,5 \cdot BIC \cdot ILM$ (optional)	$12,5 \cdot BIC$
2	$10.5\% \cdot RWAC$	$12,5 \cdot BIC$	$12,5 \cdot BIC \cdot ILM$	$12,5 \cdot BIC$

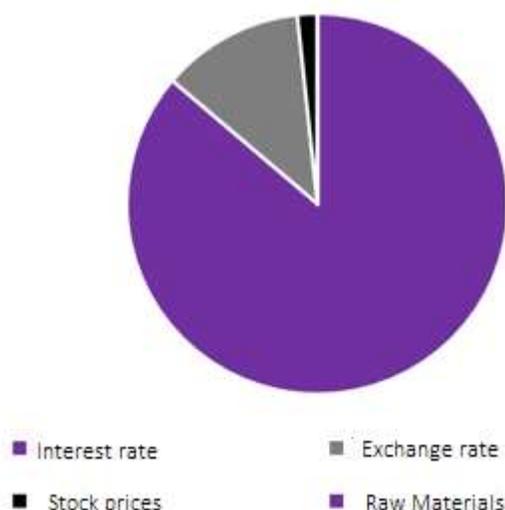
(*) $RWAO = 12,5 \cdot ORC$. The collection of information on operational losses is mandatory for all banks.

Source: CMF.

4.3 Market risk

Market risk is defined as the potential loss in the value of a portfolio of financial instruments, caused by the variation in market prices that may occur in a sufficient period of time to sell or hedge the risk factor(s) that originate those fluctuation. In general, these potential losses are caused by a variation in: i) exchange rates (currencies), ii) interest rates, iii) stock prices and iv) prices of raw materials (commodities). In the local economy, the main market risk is interest rate risk (figure 2).

Figure 2: MRWA in Chile by risk category



Source: Own elaboration based on the application of the simplified standard model (SSM) calibrated for the Chilean banking system at December 2018.

Unlike credit risk losses, which materialize over a long period of time, market risk losses can instantly affect an institution. The relative importance of market risk to other risks will depend on the nature of the institution. For banks of a commercial nature, which characterize most of the Chilean banking system, market risk represents around 20% of RWA.

The regulation (CMF 2020f) considers the simplified standard method (SSM) for the calculation of market risk weighted assets (Table 16).

Table 16: MRWA by risk category

Interest rate risk
It must be measured for all instruments in the trading book whose value is affected by the variation in market interest rates. MRWAs are calculated as the sum of MRWAs for specific risk and MRWAs for general risk.
The specific risk applies to exposures linked to an issuer and includes the risks of credit spread and default. Positions in derivatives whose underlying instruments does not have an issuer are exempt from this charge. For the measurement, the compensation between active and passive positions is allowed, if they are instruments that correspond to the same issue series.
The general risk must assign the market value of each instrument in thirteen time-bands, considering both asset and liability positions, by type of currency and rate (fixed or floating). Currencies: national non-adjustable (CLP) and adjustable (UF, IVP, UTM or IPC), foreign (MX). Fixed rate instruments are assigned to bands based on their residual maturity, and floating rate instruments are based on the next rate recalculation period. Derivatives, except for options, must be decomposed according to their underlying instruments and assigned to the corresponding time bands.
Currency
Net currency positions should be considered across the entire balance sheet, including gold. The net position in each currency must be calculated by adding: (1) the effective or spot net position, (2) the net position in derivatives, which includes all amounts to be received minus all amounts to pay, except those associated with options, (3) guarantees in foreign currency, (4) any other balance position that may generate gains or losses in foreign currencies; and (5) the net weighted delta position for the total positions in options in foreign currencies, when applicable.

The bank may exclude from the calculation of the currency risk charge those structural positions, in accordance with the internal risk management policies it has for these purposes. The codes of the currencies used for baskets 1 and 2 correspond to the international standard ISO 4217.

Raw Materials

To calculate the charge for commodity risk, all positions except for options must be included: spot, forward, and in derivatives on raw materials. In addition, delta net weighted positions are included for commodity options, where applicable.

Active and passive positions in the same raw material are offset, or when they are substitutes (that is, if they present a minimum correlation of 0.9 between their price series, for at least one year). To estimate the capital charge, the net position is calculated for each raw material expressed in its standard unit of measurement and then converted to local currency using spot rates. A 15% charge applies to this. An additional charge of 3% is applied to the gross position in each commodity (the sum of active and passive positions, in absolute value).

Stock price risk

It applies to all positions in convertible shares, commitments to buy or sell shares, equity indices and derivatives that have any of the above instruments as their underlying instruments, which must be separated into the respective underlying instruments, except for options, which receive the treatment determined by the bank.

The MRWAs are calculated as the sum of the MRWAs for specific risk of each issue and the MRWAs for general risk.

The specific risk charge is calculated as the gross exposure multiplied by 11%.

The general risk charge is calculated as the net exposure multiplied by 11%. On top of this there is a 2% charge to net positions in stock indices and futures related arbitrage strategies.

Options: Any of the following 3 methods is allowed

Simplified method

Positions and their underlying instruments are treated separately, incorporating specific risk and general market risk for the estimation of the charge, which is determined as the lower value between:

1. The market value of the associated underlying instrument, multiplied by the respective market risk weight, according to the risk class to which the position corresponds; and
2. The market value of the option.

Plain vanilla options cannot use this method.

Delta plus

The weighted delta position corresponds to the market value of the underlying instrument, multiplied by the corresponding delta factor, which measures the change in the value of the option in response to a unit change in the price of the underlying instruments of each option. This position is assigned to the corresponding risk category and is subject to general market risk charges.

Additionally, the bank must calculate the gamma risk charge. The individual gamma impacts of the options are added together to obtain a net gamma impact for each underlying instrument. Only negative net gamma impacts will be included in the calculation of the gamma risk charge (which corresponds to the sum of their absolute values).

Scenario method

The bank must evaluate the changes in the value of the options and their hedging positions, considering a matrix of changes in the underlying price or rate vs changes in the volatility of the underlying instrument. Each point in the matrix should reflect the change in value of the option from a base value. For each individual underlying instrument, as defined in the delta plus method, an independent matrix must be established.

For those banks that have a significant portfolio in interest rate options and at the discretion of the CMF, a reduction to a minimum of 6 time-bands will be allowed for the construction of the scenarios. Each new time-band may be made up of a maximum of 3 original bands. The assumed change in the rate will be the maximum among the bands that compose it.

Variation range:

- 1) options in foreign currencies $\pm 8\%$ or $\pm 12\%$, depending on the basket
- 2) options on raw materials $\pm 15\%$.
- 3) Stock options and stock indices, $\pm 11\%$.

For all categories, at least 7 observations (including the current value) must be used to divide the proposed range into equivalently spaced intervals.

The second dimension of this matrix corresponds to the change in the volatility of the underlying instruments. A single change in the price volatility or rate of the underlying instrument equal to $+25\%$ and -25% , is considered enough for most cases.

The market risk charge will be the maximum loss contained in the matrix.

Investment funds classified in the trading book

The bank can use the constituent approach, decomposing the exposure into its underlying, as if it had invested directly in them. The individualized underlying instruments are assigned to the respective risk classes according to the simplified standard model.

Banks can also use the internal regulations method, considering that the fund invests the maximum allowed by the internal regulations in the riskiest assets and, progressively, in the least risky ones. If the application of more than one MRW to any given exposure is possible, the most conservative one shall be used. MRWAs for exposures with derivatives must be calculated by decomposing the derivative into its underlying instruments, which must be assigned to the respective risk class of the SSM. When the market value of the derivatives portfolio is unknown, the exposure should be estimated conservatively.

Securizations classified in the trading book

Symmetric with that of credit risk, of chapter 21-6 RAN.

Source: Own elaboration based on RAN 21-7.

The use of the simplified standard model is appropriate in Chilean banking, due to: i) the characteristics of the local financial market, ii) the traditional profile of banks, with a focus on loans, iii) the size of banks compared to those that operate in the jurisdictions that belong to the Committee and, finally, iv) the implementation schedule of the standard method (not simplified) for the member jurisdictions of the Committee.

Regarding the implementation of the standard model and the requirements for the use of internal models, we will wait to have the results of its implementation in other jurisdictions. Meanwhile, the local system will strengthen its infrastructure in order to evaluate in the future whether it is appropriate to implement and supervise more sophisticated models. Due to the postponement of the principles for the use of internal models, and considering that the amplifying factors that are introduced in the simplified standard model are intended to make this model conservative with respect to internal models, at the moment the regulations do not implement these factors.

5. Leverage

The General Banking Act of Chile introduced a leverage ratio limit in 1997, inspired by the Prompt Corrective Action regulation in the United States. Thus, local leverage regulation was more than a decade ahead of that promoted by the Basel Committee, which after the subprime crisis introduced a limit for the ratio between T1 capital and total assets (BCBS 2010a), which seeks to complement risk-based capital requirements, and facilitate comparability between data from different jurisdictions.

The GBA maintains the 3% leverage ratio, defined as the ratio of core capital (CET1) to the bank's total assets, and allows for a higher leverage requirement (up to 50%) for systemically important banks (Table 7). Therefore, the local regulation presents a more conservative definition than that of Basel III, by defining the numerator in terms of CET1, to which the deductions referred to in Chapter 21-30 RAN (CMF 2020c) must be applied.

Regarding total assets (denominator of the leverage ratio), local regulation adopts the recommendation of the Basel Committee (BCBS, 2017) to deduct from the denominator of the leverage ratio any item deducted from Tier 1 capital, to avoid "penalizing twice" the maintenance of assets with little loss absorption capacity. Additionally, the exposure with derivatives (credit equivalent) is added and the fair value of the derivative is deducted, as instructed in section 2.3 of Chapter 21-6 RAN. For computation purposes, credit risk mitigation techniques referred to in numeral 5.1 and 5.2 of the same Chapter may be considered, when there are recognized bilateral compensation mechanisms. The amounts corresponding to the exposures of contingent credits are also added, calculated as indicated in Annex N ° 4 of Chapter 21-6 RAN, minus the provisions constituted on these operations. Finally, the assets generated by the intermediation of financial instruments in their own name on behalf of third parties, which are within the bank's consolidation perimeter, are subtracted according to the instructions of number 5.5 of Chapter 21-6 RAN.

6. Pillar 3

Pillar 3 of the Basel capital framework seeks to promote market discipline and financial transparency through the disclosure of meaningful and timely information, which operates as a complement to the requirements of pillars 1 and 2.

The Committee considers important to promote market discipline through significant disclosure of the key risks borne by banks (BCBS, 2015), reducing information asymmetries and improving the comparability and consistency of the information provided by the different entities within the same jurisdiction and between jurisdictions.

Among the current information that banks disclose, there are the essential facts (Chapter 18-10 RAN), conditions of issuance of public offerings (Chapter 2-21 RAN), financial statements, balance sheets (Article 16 of the GBA and Compendium of Accounting Standards) and certain publications in newspapers or other media (election of directors, among others). Additionally, Chapter 18-9 RAN requires the disclosure of legal background information, for example, that related to the board of directors and general manager, background information on the institution's assets, financial and situation statements, information that must be available to the public at home headquarters and in each of the bank's branches in the country.

Under Pillar 3, banks must publish a consolidated and independent document, which must offer readers an easily accessible set of prudential parameters. This document may be attached to or form part of the bank's financial statements for the corresponding period,

but the most important thing is that it must be easily identifiable by readers. This new report will complement currently available public information, generating a better ordering and standardization of dissemination frequency and comparability between national and international banking institutions.

The legal basis for this requirement is established by the provisions of numeral 8 of article 5 of Decree Law No. 3,538, of 1980, and in articles 14 and 16 of the GBA, which allow the Commission to order, through regulations of general application, the publication of data that, in his opinion, are necessary for the information of the public.

Chapter 21-20 of the RAN (CMF 2020b) establishes the type and criteria of information to be disclosed, adoption of the Basel III disclosure principles, the forms and tables to be used, periodicity of the information, among other aspects, at local consolidated and global consolidated level. The foregoing, in accordance with the guidelines established by the BCBS in its latest update of the Pillar 3 framework (BCBS, 2019) and in accordance with the provisions of the local banking regulations of Pillar 1 and 2, allowing market agents to access to key information on banks' regulatory capital and risk exposures.

Due adherence to these guidelines will be observed in the management evaluation carried out by the CMF to the banks in the field of corporate governance and board of directors' evaluation, in accordance with the provisions of Chapter 1-13 RAN.

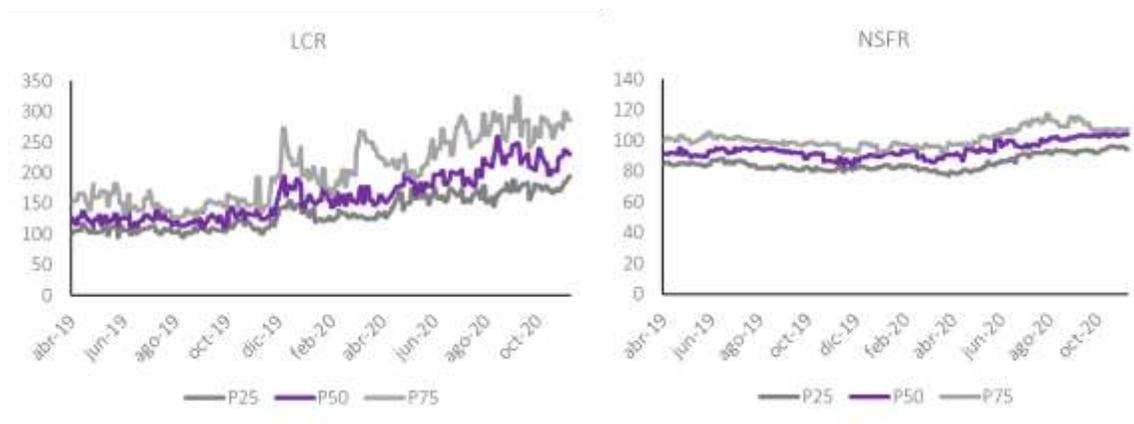
7. Liquidity

Liquidity, understood as the ability to obtain funds from assets to meet obligations in a timely manner and at a reasonable cost, is essential for the viability of a bank. An idiosyncratic problem can be the trigger for a systemic stress event, which could involve the banking sector or the financial system, compromising the payment chain and affecting some sectors or the real economy.

The Basel Committee has published four documents, two of which establish quantitative tools to measure the liquidity situation of a bank - the 30-day liquidity coverage ratio or LCR, and the net stable financing ratio or NSFR-, while that the remainder correspond to regulatory guidelines on the administration and supervision of this risk. These documents constitute the regulatory floor in the G20 and, in practice, the international standards of management, measurement and disclosure of the banking liquidity situation. In Chile, the regulations on the measurement, management and publication of aspects related to liquidity were issued in Chapter III.B.2.1 of the Financial Regulatory Compendium of the Central Bank and Chapter 12-20 RAN of the CMF, and are currently in force: the LCR in a transitory phase of implementation and the NSFR as a monitoring tool. At present, most

banks show levels over and above the minimum established for the LCR and are already in a high level of compliance with the NSFR (figure 3).

Figure 3: Liquidity indicators in Chilean banks, local consolidation (percentiles, values in percentages)



Source: Own elaboration based on CMF information.

8. Quantitative impact analysis

8.1 Additional capital requirements

This section presents an estimate of the joint impact of the implementation of Basel III standards in Chile, considering the final version of the standards issued by the Commission. The impact is evaluated in terms of additional regulatory capital requirements to meet the new requirements.

Individual information as of December 2019 is used, reported by banks through the normative files of the Information Systems Handbook of the CMF, from which the consolidated positions by bank and for the system are constructed. This ensures consistent assumptions and comparable calculations across the industry. Figures are expressed in millions of dollars, using the year-end exchange rate.

Chapter 21-1 RAN deductions apply to basic capital. In the case of deferred taxes, a tax rate of 27% is assumed for all banks, that is, it is assumed that Banco Estado has an explicit guarantee from the sovereign for the net deferred tax assets associated with its tax surcharge as public enterprise (+40%).

The reference level varies by bank, and includes the systemic requirement, where applicable, and the conservation buffer. By now it is assumed that the charges for pillar 2 are equal to 0% of the RWA for all institutions. Once the systemic charge is covered, the bank uses the available capital to meet the conservation buffer. For the counter-cyclical

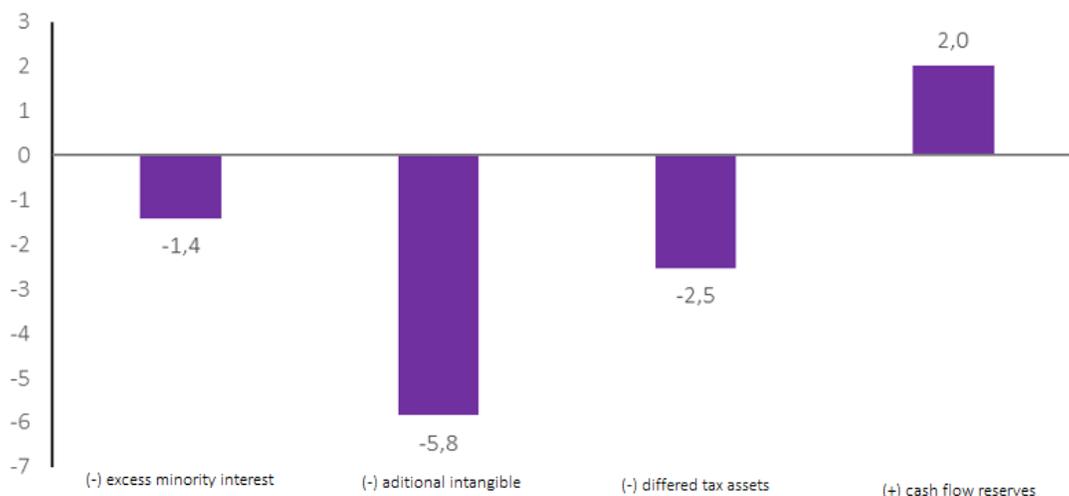
buffer, a level equal to 0% of the RWA is assumed. The methodological assumptions for the calculation of RWAs are described in the normative reports associated with Chapters 21-6, 21-7 and 21-8 of the RAN.

On average, credit risk weighted assets are reduced by approximately 26%, however, the inclusion of market and operational risk partially offset this decrease. Considering the 3 risks, RWAs decrease by 9%, which is equivalent to savings for USD 1,430 million in the denominator¹⁶.

Regulatory capital decreased 6.5% at the system level, with heterogeneous effects between banks. Those that present a greater amount of intangible assets other than goodwill, deferred taxes and subsidiaries with high non-controlling interest and with low regulatory requirements, are the most affected.

By capital component, CET1 decreases by 7.8% (figure 4). In particular, the additional intangible asset that is deducted produces a decrease of 5.8% in CET1. This is followed by deferred taxes, with an impact of 2.5% and, finally, the excess of minority interest, with 1.4%. These impacts are mitigated with the adjustment of the reserve for derivatives to hedge cash flows, which, having a negative balance as of December 2019, adds to CET1 for a value that amounts to 2.0% of the initial stock.

Figure 4: Breakdown of the impact on CET1 (percentage impact on initial stock)

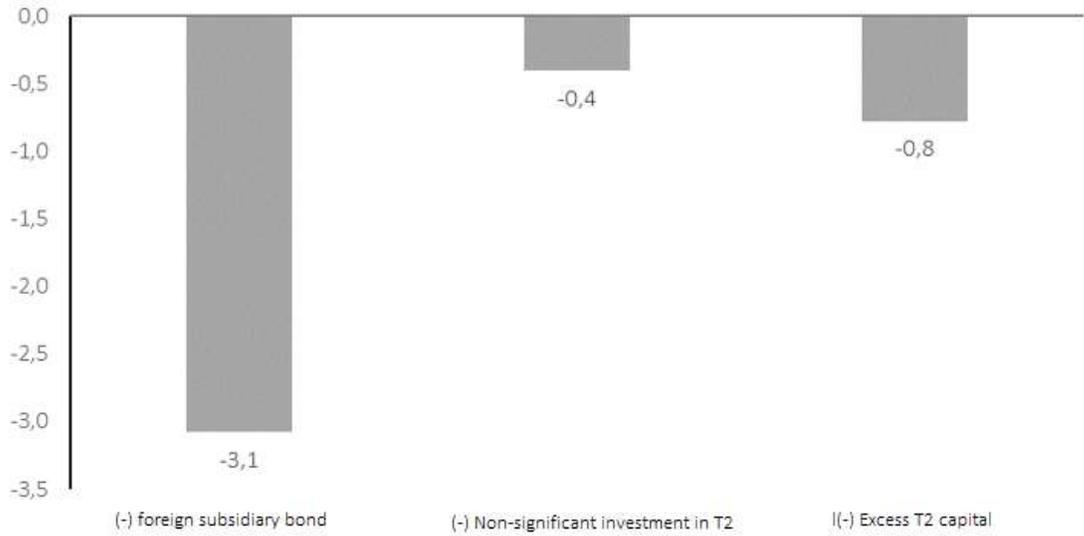


Source: Own elaboration.

On the other hand, capital T2 decreased by 4.3%. The greatest impact occurs from subordinated bonds issued by subsidiaries abroad, which are no longer recognized in the consolidated regulatory capital (figure 5).

¹⁶ It was estimated as 8% of the difference in total RWAs. Capital adjustments were not considered.

Figure 5: Breakdown of the impact on capital T2 (percentage impact on initial stock)



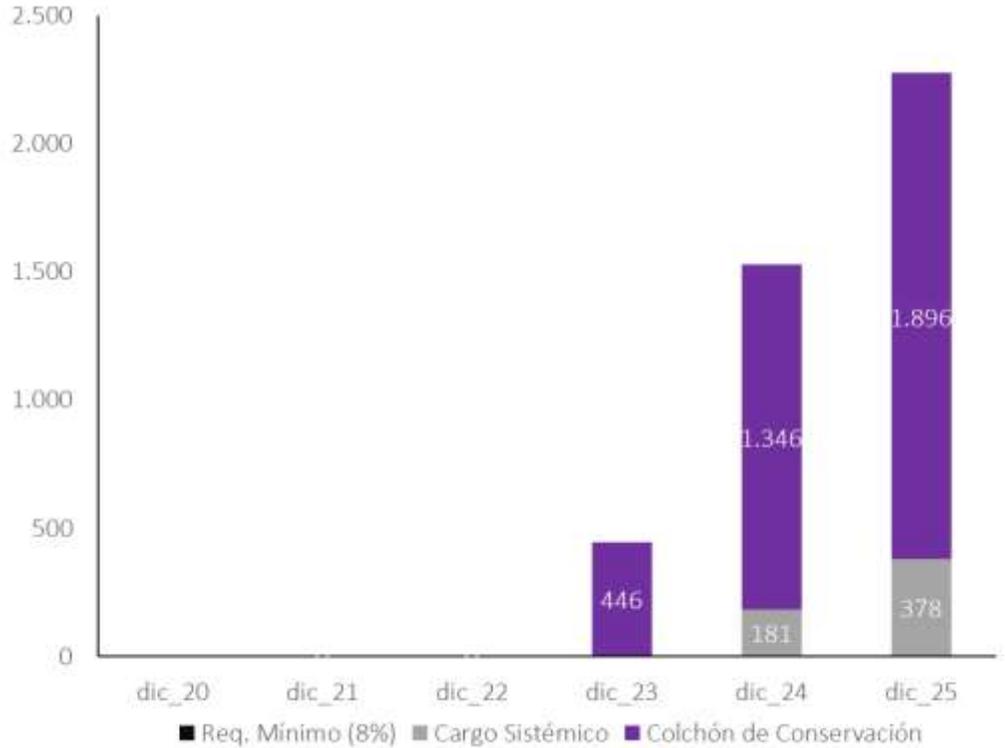
Source: Own elaboration.

As can be seen in figure 6, the full implementation of the Basel III capital framework (as of December 2025) would imply additional capital requirements of \$ 2,274 million in the banking system. This value is equivalent to 6.8% of the regulatory capital in force at the estimation date, calculated with the new Basel standards.

When disaggregating the additional capital requirements, it can be observed that, in the first place, meeting the minimum requirement of 8% would not generate additional capital requirements. Fulfilling the systemic charge would require \$ 378 million, for only one of the 6 institutions rated as systemically important. Finally, compliance with the conservation buffer would require an additional 1,896 million dollars, for 5 institutions. Although this cushion does not constitute a minimum legal operating requirement, it does determine the profit distribution capacity that banks can carry out and their solvency rating, as explained above.

The additional capital requirements would be activated as of December 2023. Figure 7 shows the type of capital that must be constituted to comply with the new requirements. A relevant fraction would correspond to CET1, since both the conservation buffer and the systemic charge must be satisfied exclusively with this type of capital. The AT1 instruments allow meeting the minimum level 1 capital requirement of 6% of the RWA, and since they are not issued, they correspond to the largest fraction of the capital that should be issued to satisfy the minimum requirements. Finally, Tier 2 capital, which helps meet the 8% RWA minimum, would not have additional associated requirements.

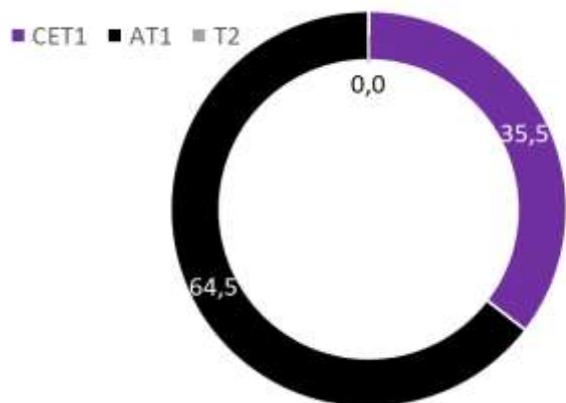
Figure 6: Additional capital requirements
(figures in millions of dollars, exchange rate \$ 744.62)



Source: Own elaboration.

Figure 7: Distribution of total capital requirements by type of instrument

(percentage)



Source: Own elaboration.

It is important to note that the previously estimated impact ignores the portfolio reallocations that banks could carry out (RWA reduction), which could attenuate previous estimates.

The impact exercises carried out previously (Ministry of Finance in 2016; Cayazzo et al.

2018) did not have precise definitions on the regulatory framework, so they are not directly comparable. Additionally, the capital objective in previous years was anchored at 10.5% (8% general legal minimum + 2.5% conservation buffer) and did not consider the systemic charge. With these clarifications in mind, the impact has decreased substantially (Table 17).

Table 17: Capital required to reach 10.5% of RWA
(millions of dollars)

	Dec.2014	Apr.16	Dec.2018	Dec.2019
Without systemic charge	2.400	2.700	3.000	1.022
With systemic charge	-	-	-	2.274

Source: Own elaboration. Previous estimates consider the results of the Ministry of Finance in 2016 and Cayazzo et al. 2018.

The lower value would be explained by capital savings in the final version of the standard model for calculating credit risk weighted assets, lower discounts to regulatory capital in relation to those initially estimated, since in recent years banks have adjusted their capital management to meet the new requirements, for example, by increasing the participation in subsidiaries whose non-controlling interest could not be charged as capital. Finally, the adjustments to the leverage standard do not generate additional capital requirements.

Pillar 2

The charges for pillar 2 are not automatic, as they depend on the analysis presented by the bank and the judgment of the supervisory process. If banks have enough mitigators for these risks, there may not even be charges for Pillar 2.

8.2 Net benefit from the adoption of Basel III standards

An evaluation of net benefits requires estimating the lower cost of a systemic crisis versus the higher cost of capital (equation below). As an example, the European Commission estimates the net benefit between 0.3% and 0.8% of GDP.

In Chile, it is estimated that the probability of a systemic crisis falls by 85 basis points thanks to the introduction of Basel III standards (Beas, 2020), considering the capital scenario where the systemic charge and the conservation buffer are met.

$$beneficio\ neto = costo\ crisis \cdot \nabla pr(crisis\ sistémica) - costo\ mayor\ capital$$

To estimate the costs or losses associated with a systemic banking crisis event, the

evidence collected by Laeven and Valencia (2018) is considered for a large sample of countries. In particular, the average loss associated with crises that occurred in South America, including Chile, is 35.3% of GDP. Then, the gross benefit reaches 0.3% of GDP.

To calculate the cost of regulatory implementation, we consider the negative effect on gross domestic product that an increase in the cost of financing for banks would cause. For this, estimates from BCBS (2010b) and Angelini et al (2015) are considered. These studies find that, because of the increase in the cost of credit, an increase of 1 percentage point in the capital ratio decreases the annual GDP by 0.09%. Based on the capital needs estimated in the previous section (2,274 million dollars in the scenario in which the systemic charge and the conservation buffer are active), multiplied by 0.09%, we obtain an annual decrease in GDP of approximately 0.08%.

Therefore, as a result of an increase of 2,274 million dollars associated with the additional capital requirements, a net benefit of 0.22% of GDP is obtained, which is equivalent to 622 million dollars, taking as a reference 2019. This estimate is like that determined by the European Commission, of 0.3%, when the higher capital requirements are evaluated at 10.5% of the RWA (i.e., without systemic charges) and omitting TLAC/MREL requirements. Finally, in a review of the literature conducted by BCBS (2019), the average benefit in various studies reaches approximately 0.7%. This higher value is fundamentally explained because the crisis costs used are higher, given that the impact of these events is broader in developed countries, as documented by Laeven and Valencia (2018). Additionally, these evaluations consider additional capital requirements for resolution mechanisms (TLAC/MREL), an aspect that is not considered in our legislation. However, the result found here shows that the implementation of the Basel III standards generates a significant net benefit, comparable to those in other latitudes.

9. Pending challenges

The regulatory implementation of the Basel III capital framework has required an important coordination effort by the CMF with the Central Bank, the Ministry of Finance, the taxing authority, the Superintendence of Pensions and various market players, in addition to those audited by this rule.

The first regulatory phase incorporated the issues considered a priority by the Commission to comply with the substance of international standards, within the framework of the Regulatory Consistency Assessment Program (RCAP, Table 18).

Table 18: Self-assessment of compliance with international standards

Concept	Level	Justification
Scope of application	NC	Capital adequacy is only required to banks and their subsidiaries. The GBA does not contemplate capital requirements for the bank holding company. Another legal body, related to financial conglomerates, should take care of this issue. However, the new supervisory perimeter of the CMF has made it possible to implement a conglomerate supervision model.
Minimum requirements and transitional provisions	C	The minimum capital requirements are in line with Basel III. The transitional provisions consider a gradual implementation of 5 years. While in the case of capital instruments that do not meet the requirements, a progressive reduction over a period of 10 years is considered.
Pillar 1-Definition of capital	C	The definition of regulatory capital is aligned with Basel III, both in terms of level and in the main discounts. Locally, issues from bank subsidiaries are not considered (super compliant).
Pillar 1-Standard approaches to credit, market and operational risk	C	The regulation includes simplified standard approaches to calculate capital requirements for credit, market and operational risk. When national discretion was used, the resulting approach is the most conservative (super compliant).
Pillar 1-Approach to internal models of credit, market and operational risk	C	For credit risk, the use of the foundational approach is allowed, after approbation of the supervisor. The use of internal models for operational and market risk is not allowed.
Pillar 1- Securitization framework	C	Exposures to securitized instruments follow the approach based on external classifications, though they are not material in Chile.
Pillar 1- Investment fund framework	C	For investments made by non-bank subsidiaries, the Basel III standard is followed.
Pillar 1- Investment fund framework	C	The Basel III standard is followed, both for DvP and non-DvP operations.
Pillar 1- Capital buffers - capital conservation	C	The capital conservation buffer is consistent with Basel III in terms of its amount, composition, constitution period, and restitution conditions.
Pillar 1- Capital buffers - countercyclical	C	The local countercyclical capital buffer is consistent with Basel III in terms of its amount, composition, way of triggering, constitution period, and restitution conditions. It does not consider other jurisdiction CCyB charges.
Pilar 1-Capital buffers	LC	When the bank operates within the levels of the buffers, the restrictions apply on the distribution of profits and repurchase of shares but exclude restrictions on executive bonuses and coupon payments on perpetual bonds. Furthermore, operating within the buffers impacts on the institution's solvency rating.
Additional capital requirements on systemically important domestic banks	C	Capital charges for systemic banks are consistent with Basel III in terms of their amount, composition and period of incorporation. In Chile, the charge is a requirement, unlike in Basel where it constitutes part of the capital buffer.

Pillar 2- Legal and regulatory framework for the supervisory review process	C	The risk-based supervisory framework applied by the CMF has been recognized as one of the strengths of the Chilean financial system in the 2004 and 2011 FSAPs. The GBA also grants the supervisor the power to require additional capital for uncovered risks, with a limit of 4% of RWAs.
Pillar 3-disclosure requirements	C	Consistent with the Basel III templates

C: compliant. LC: largely compliant. NC: non-compliant.

Source: Own elaboration.

The implementation of the new capital standard implies significant challenges, both for the supervisor and for supervised entities. First, the new credit risk treatment framework implies several adjustments, such as restricting the banking book and adopting new portfolio definitions, which will also affect the way in which provisions should be made in the future. In effect, the Commission had made progress in the implementation of standard methodologies for the constitution of provisions for credit risk for mortgage and group commercial portfolio, which should be reviewed to make them consistent. The incorporation of internal methodologies (founding method) will also allow progress in this convergence.

Specific matters in the treatment of derivatives were not covered in this first phase, given the temporary restrictions imposed by law for this regulatory phase. In particular, the calculation of the credit equivalent for these instruments maintains the use of the CEM methodology, although the new Basel standard considers the use of the SA-CCR methodology. These issues will be addressed in the future regulatory agenda of the CMF.

For market risk, although the constitution of capital charges is new, the methodology used does not differ substantially from that implemented by the Central Bank in Chapter III.B2.2 of the Compendium of Financial Regulations. The advisability of incorporating the Basel III standard method or the use of internal models should be reviewed in the future, once the new framework is consolidated.

Charges for operational risk have significant challenges in the preparation of new databases that, in any case, will allow adjusting capital requirements, including savings for those banks that demonstrate good management.

The higher capital requirements associated with conservation and countercyclical buffers and systemic charges are accompanied by the possibility of issuing new hybrid capital instruments, substituting funds from the general capital requirement of 8% of the RWA. Chilean banks with international ratings have high ratings in the international context, which should ensure some appetite for these instruments. For smaller banks, regulatory changes will be required so that institutional investors can absorb these issues. Interpretative details of the taxing authority will also be required, regarding the treatment

of these new instruments.

Pillar 2 consolidates the supervisory powers long used in the framework of provisions for credit risk. Its implementation considers a gradual progress in the subjects covered, in order to ensure a correct understanding and development of skills of the supervisor and those evaluated. Pillar 3, postponed to 2023 due to its high administrative burden, will constitute an important step towards greater market discipline, also part of the mandate of the CMF.

The limits to large exposures were not addressed in this first regulatory phase, because there was no clear convergence between the local and international framework. In general, it is estimated that the local framework tends to be stricter, even when limits are measured based on total regulatory capital and not only on T1. The main differences are summarized in Table 19.

Table 19: Basel vs GBA

Basel standard (LEX)	GBA – Article 84 number 1	Main differences
Limits		
<ul style="list-style-type: none"> • Net exposure / T1 ≤ 25% • Net exposure / T1 ≤ 15% when exposure is between GSIB / DSIB 	<ul style="list-style-type: none"> • Net exposure / RC ≤ 10% and gross / RC ≤ 30% • Net exposure / RC ≤ 15% and gross / RC ≤ 30% (DFL 164) • Gross exposure / RC ≤ 30% Interbank and business groups (excluding banks) 	<ul style="list-style-type: none"> • Local regulation identifies individual limits, public works (DFL 164), interbank and groups. Basel III distinguishes individual and group limits. • Net exposure in Basel discounts capital adjustments, specific provisions and guarantees. Local regulation does not discount capital adjustments and specific provisions. • Except for interbank limit, local net exposure is lower than in Basel III (10% < 25%). • Denominator in Basel III is T1 vs RC in Chile (T1 < RC). • Local limit restricts the use of guarantees (maximum 20% covered), Basel III does not limit them.
Exposure		

Those included in the CRWA and MRWA standards: on and off-balance sheet positions, the banking and trading book, and those belonging to the counterparty risk framework (derivatives).

Art 84 introduces credit limits, RAN 12-3 expands the definition to direct (effective and contingent) and indirect (guarantee) debt, as well as investments in fixed income securities, derivative operations, leasing contracts, among others. Art 85 introduces the concept of complementary debt.

Bill does not consider indirect (guarantee) and complementary debt (this is captured in business group criteria)

Eligible guarantees

Eligible collateral used to mitigate credit risk in the MRWA standard model

Movable or immovable guarantees; collateral, bills of exchange, promissory notes; documents from the Central Bank or the State of Chile; low-risk public offerings of financial instruments; bills of lading; low risk letters of credit.

- Basel III does not accept movable or immovable guarantees.
- Basel III admits issues of sovereigns and central banks of other countries, deposits in cash and gold, and in general, any other type of instrument in which the issuer is rated as investment grade.

Source: Own elaboration.

Glossary

RWA	Risk Weighted Assets
CRWA	Credit Risk Weighted Assets
MRWA	Market Risk Weighted Assets
ORWA	Operational Risk Weighted Assets
AT1	Additional Tier 1 Capital
BCCh	Central Bank of Chile
BCBS	Basel Committee on Banking Supervision
BIC	Business Indicator Component
BI	Business Indicator
MDB	Multilateral Development Banks
CEM	Current Method Exposure
CET1	Core Tier 1 Capital
CMF	Comisión para el Mercado Financiero
CCoB	Conservation buffer
CCyB	Countercyclical buffer
CVA	Credit Valued Adjustment
D-SIB	Domestic Systemically Important Bank
DvP	Delivery versus Payment
EAD	Exposure at Default
CCP	Central Counterparty Clearing House
GBA	General Banking Act
G-SIB	Global Systemically Important Bank
IAPE	<i>Informe de Autoevaluación del Patrimonio Efectivo</i>

ICAAP	Internal Capital Adequacy Assessment Process
ILM	Internal Loss Multiplier
IRB	Internal Risk Based Model
LCR	Liquidity Coverage Ratio
NSFR	Nest Stable Funding Ratio
ORC	Operational Risk Charge
PoNV	Point of Non-Viability
RC	Regulatory Capital
CRW	Credit Risk Weight
MREL	Minimum amount of equity and subordinated debt a firm must maintain to support an effective resolution
MRW	Market Risk Weight
ORW	Operational Risk Weight
PSE	Public Sector Entity
RAN	<i>Recopilación Actualizada de Normas</i>
SA-CCR	Standardized Approach - Counterparty Credit Risk
SME	Small to Medium Enterprises
SREP	Supervisory Review Process
SSM	Simplified Standard Method
SVS	Superintendencia de Valores y Seguros
TLAC	Total loss-absorbing capacity
T1	Level 1 capital
T2	Level 2 capital

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Annex

Table A1: Classification criteria for regulatory capital under Basel III

CET1	AT1	T2
1. Represents the most subordinate collection right in the event of bank liquidation.	1. Be subscribed and paid in.	
2. It incorporates a right over the residual assets in proportion to its participation in the issued capital, once all the highest priority rights have been addressed after the liquidation process (that is, it incorporates an unlimited and variable right, not a fixed or limited one).	2. Be subordinate to depositors, creditors in general and other subordinated debt of the bank.	2. Be subordinate to depositors and general creditors of the bank (excludes shareholders and holders of AT1 instruments)
3. The principal is perpetual and will not be returned, outside the case of liquidation (and except for discretionary buybacks or other means of effective capital reduction in a discretionary manner authorized by the relevant legislation).	3. Not be insured or covered by guarantees from the issuer or a related entity, nor be the subject of any other agreement that legally or economically improves their priority over depositors and general creditors of the bank.	
4. The bank refrains from creating, on the occasion of the issue, any expectation that the instrument will be subject to repurchase, redemption or redemption, and the legal or contractual terms do not have any clause that could give rise to such expectation.	4. Be perpetual, that is, without an expiration date or clauses for escalating remuneration (step-up) or other incentives for early amortization.	4. Regarding maturity, the instruments issued must: (a) Have a minimum original maturity term of not less than five years. (b) Recognition in regulatory capital in the five years prior to maturity will be reduced using the straight-line amortization method (20% each year). (c) It must not have step-up clauses or other incentives for its early repayment.
5. Profit distributions are charged against distributable items (retained earnings and / or other reserves). The level of distributions is not in any way linked or tied to the amount paid at the time of issuance nor is it subject to a stipulated limit (with the exception that a bank will not be able to pay distributions whose amount exceeds the accumulated amount in distributable items)	5. It may be redeemable at the initiative of the issuer after a minimum of five years and to exercise a purchase option, the bank (a) must receive prior authorization from the supervisor and (b) not generate expectations that it will exercise the purchase option (1). (c) The bank shall not exercise the purchase option, unless (i) it substitutes the amortized instrument with capital of equal or higher quality and such substitution is made under conditions that are sustainable for the bank's income-generating capacity (2); or (ii) demonstrates that its capital position far exceeds the minimum capital requirements after exercising the call option (3). (d) The use of fiscal or regulatory events is permitted within the first five years of an equity instrument, but supervisors will only allow the bank to exercise such a call if, in their opinion, the bank was not in a position to anticipate the event in broadcast.	
6. There are no conditions that require distributions. Therefore, failure to pay these does not constitute a case of default.	6. Any return of principal (for example, by repurchase or redemption) will require prior authorization from the supervisor and the bank should not assume or create in the market the expectation that such authorization will be obtained.	6. The investor will have no right to accelerate the return of expected future payments (coupon or principal), except in the event of bankruptcy and liquidation.

<p>7. Distributions are only paid after all legal and contractual obligations have been satisfied and after making payments on higher priority equity instruments. This means that there are no preferred distributions, particularly in relation to other items of capital classified as of the highest quality.</p>	<p>7. Discretion in relation to the dividend / coupon payment: a) the bank may at any time decide, at its sole discretion, to suppress payments for distributions or distributions of results (5), b) the foregoing shall not constitute a case of default, c) the bank must have full access to these funds to meet the maturity of other obligations, d) the suppression of payments for distributions or distributions will not impose restrictions on the bank, except in relation to distributions to the holders of ordinary shares.</p>	
<p>8. It is the issued capital that bears the losses in the first place, as well as the proportionally higher percentage of these as they occur. Within the highest quality capital, each instrument absorbs losses while the institution is in operation or in a “going concern” mode in an equitable way (pari passu) and proportional to all the others.</p>	<p>8. The payment of dividends / coupons will be made out of distributable items.</p>	
<p>9. The amount issued and paid is considered own resources (that is, it is not considered an obligation with third parties) for the purposes of determining accounting insolvency.</p>	<p>9. The instrument cannot incorporate a credit-sensitive dividend, that is, a dividend / coupon that is periodically readjusted based, in whole or in part, on the creditworthiness of the bank.</p>	<p>7. The instrument cannot incorporate a credit-sensitive dividend, that is, a dividend / coupon that is readjusted periodically depending on, in whole or in part, the creditworthiness of the bank.</p>
<p>10. The amount issued and paid is classified as own resources in accordance with the applicable accounting standards.</p>	<p>10. The instrument cannot contribute to the fact that the liabilities exceed the assets, if this balance test is part of the national legislation on insolvency.</p>	
<p>11. The amount has been directly subscribed and disbursed and the bank cannot, directly or indirectly, have financed the purchase of the instrument.</p>	<p>11. Instruments considered liabilities, for accounting purposes, may absorb losses in principal through of (i) the conversion into ordinary shares reached a pre-set target trigger or trigger point, or of (ii) a depreciation mechanism that assigns losses to the instrument when a pre-set trigger point is reached. The depreciation will have the following effects: (a) reduce the obligation of the instrument in liquidation, (b) reduce the amount returned when a purchase option is exercised; and (c) reduce all or part of the coupon or dividend payments on the instrument.</p>	
<p>12. The amount disbursed is not insured or covered by guarantees from the issuer or a related entity,</p>	<p>12. / 8. The instrument may not be purchased by the bank or by any related party, related by ownership or management, nor may its purchase be directly or indirectly financed by the bank.</p>	

nor is it the subject of any other agreement that improves legally or economically the priority of the corresponding right.		
13. It is only issued with the approbation of the owners of the issuing bank, either directly granted by them or, if permitted by law, granted by the Board of Directors or by other persons duly authorized by the holders.	13. The instrument may not have characteristics that make recapitalization difficult, such as provisions that require the issuer to compensate the investor if a new instrument is issued at a lower price for a specified period of time.	
14. It is reflected clearly and separately in the bank's statement of financial position.	14. The aggregate amount that must be amortized / converted for all instruments classified as liabilities upon meeting the activation level, must be at least the amount necessary to immediately return the bank's level 1 common capital ratio to the activation level. or, if not possible, the full principal value of the instruments.	
	15. / 9. If the instrument is not issued by a bank or consolidated banking group (for example, a specialized management company or SPV), the proceeds from the sale of the issue must remain fully available, and without any limitation, upon bank or banking group, such that all other criteria for inclusion in Tier 1 or Tier 2 capital are met or exceeded.	

(1) The option to redeem the instrument after five years, but before the beginning of the amortization period, will not be considered an incentive to redeem as long as the bank does not do anything that generates the expectation that it will exercise the purchase option at that time . (2) Substitute issues may be simultaneous, but not subsequent, to the amortization of the instrument. (3) "Minimum" refers to the minimum requirement required by the regulator, which may be higher than the minimum requirement of the First Pillar of Basel III. (4) An instrumental entity is an entity incorporated to do business with clients with the intention of making a profit for itself. (5) A consequence of the full discretion to suppress distributions or distributions of results at any time is that clauses that in certain circumstances require paying dividends (dividend pushers) are prohibited. Nor are clauses that require the bank to make distributions or payments in kind.

Source: BIS (2010a).

Table A2: Basel III implementation schedule in Chile

Topic	Public consultation	Formal opinion BCCh	Publication of regulation	Enforcement	Implementation
SIB methodology	12.aug-26.sep.19	yes	02.nov.20	1.dec.20	Gradual Complete enforcement at December 2025
Adjustments to RAN 12-14 (35 bis)	12.aug-26.sep.19	no			
AT1 definitions	27.mar-27.may 20	yes	24.nov.20		
Subordinated debt (adjustments)	27.mar-27.may 20	no			
Capital deductions	19.nov.19-17.jan.20	no	9.oct.20		
Leverage (adjustments)	27.mar-27.may 20	no	5.oct.20		
CCOB, CCyB implementation	27.jan-31-mar.20	no	28.sep.20		
Pilar 2	08.may-15.jul.20	no	14.sep.20	In force	Immediate *
RAN 1-13 (adjustments)	08.may-15.jul.20	no			
Standard model for operational risk	13.sep-25.oct.19	yes	1.dec.20	Differed to 1.dec.21 (transitory dispositions)	Immediate since in force
Standard model for credit risk	27.jan-15.apr.20	yes			
Internal model for credit risk					
Standard model for market risk	24.jul-31.aug.20	yes			
Internal model for market risk (n/a)					
Pilar 3	05.oct-05.nov 2020	no		2023	Gradual
Large exposures	Basel framework is not fully compatible with the current legal framework. In Chile there are individual credit limits, with related parties and business groups (art 84 LGB)				

* First ICAAP in April 2021.