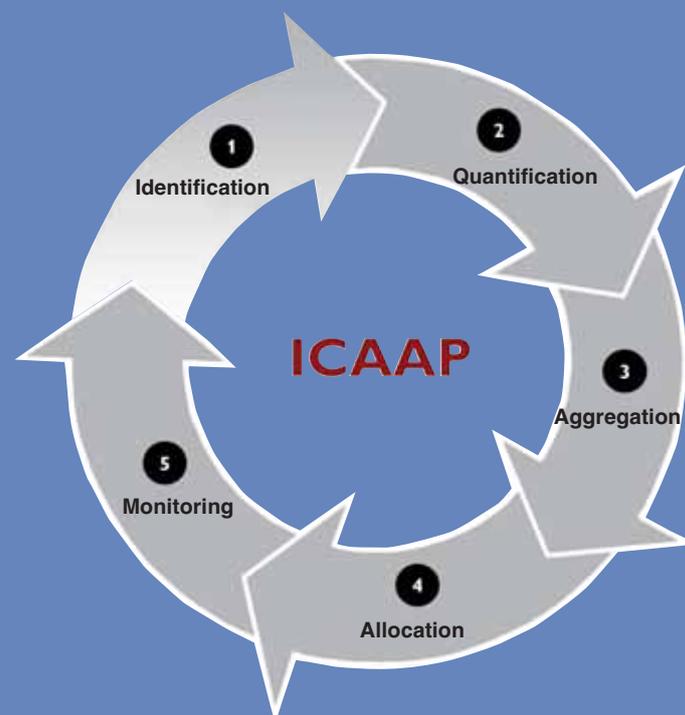


GUIDELINES ON

Bank-Wide Risk Management Internal Capital Adequacy Assessment Process



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Preface

The dynamic growth of financial markets and the increased use of complex bank products have brought about substantial changes in the business environment faced by credit institutions today. These challenges require functioning systems for the limitation and targeted control of each institution's risk situation.

In addition to describing methods for calculating regulatory capital requirements, the new regulatory capital framework (Basel II) also places increased emphasis on risk management and integrated bank-wide management. Banks are required to employ suitable procedures and systems in order to ensure their capital adequacy in the long term with due attention to all material risks. In the international discussion, the corresponding procedures are referred to collectively as the ICAAP (Internal Capital Adequacy Assessment Process).

These guidelines is designed to assist practitioners in the implementation of an ICAAP. In this context, the selection and suitability of methods depends heavily on the complexity and scale of each individual institution's business activities. In this guideline, these circumstances are emphasized specifically in line with the principle of proportionality.

The purpose of this publication is to develop mutual understanding between supervisory authorities and banks with regard to practical ICAAP implementation. We sincerely hope that the ICAAP guideline provides practitioners as well as the interested public with interesting and useful reading on this subject.

Vienna, February 2006



Josef Christl
Member of the Governing Board
Oesterreichische Nationalbank




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1 Introduction

The three-pillar model of Basel II places increased emphasis on risk management in addition to providing guidelines for the calculation of capital requirements and defining extended disclosure requirements. Banks are thus faced with the challenge of developing internal procedures and systems in order to ensure that they possess adequate capital resources in the long term with due attention to all material risks. In the international discussion, these procedures are referred to collectively as the ICAAP (Internal Capital Adequacy Assessment Process). In developing its ICAAP, the bank is required to consider quantitative as well as qualitative criteria such as the establishment of suitable processes.

Banks should be able to demonstrate that they have implemented the methods and systems necessary in order to ensure their capital adequacy. For their part, the competent supervisory authorities are required to assess these procedures and to impose supervisory measures as necessary.

On the basis of supervisory requirements, this guideline explains possible procedures and methods to assist practitioners in the implementation of an ICAAP. Although this guideline is intended for credit institutions and investment firms alike, the term “credit institution” (or simply “bank”) is used throughout the document for the sake of simplicity.

2 Basic Structure of the Internal Capital Adequacy Assessment Process (ICAAP)

2.1 Supervisory Background

On November 15, 2005, the Basel Committee on Banking Supervision issued the revised framework of the Basel II capital accord of June 26, 2004. This publication is a revision of the original capital accord finalized in 1988 (“Basel I”) and is intended to enable banks to assess the risks involved in lending more precisely and to ensure more risk-sensitive capital requirements. The overarching goal of the new regulatory capital framework is to enhance the stability of the international financial system.

2.1.1 ICAAP in the Basel II Capital Accord

While the Basel I framework was confined to the minimum capital requirements for banks in order to ensure the stability of the financial system, the Basel II accord expands this approach to include two additional areas, namely the supervisory review process and increased disclosure requirements for banks. According to Basel II, the stability of the financial market therefore rests on the following three pillars, which are designed to reinforce each other (cf. Chart 1: Three-Pillar Architecture of Basel II):

Pillar 1: Minimum Capital Requirements – a largely new, risk-adequate calculation of capital requirements which (for the first time) explicitly includes operational risk in addition to market and credit risk.

Pillar 2: Supervisory Review Process (SRP) – the establishment of suitable risk management systems in banks and their review by the supervisory authority.

Pillar 3: Market Discipline – increased transparency due to expanded disclosure requirements for banks.

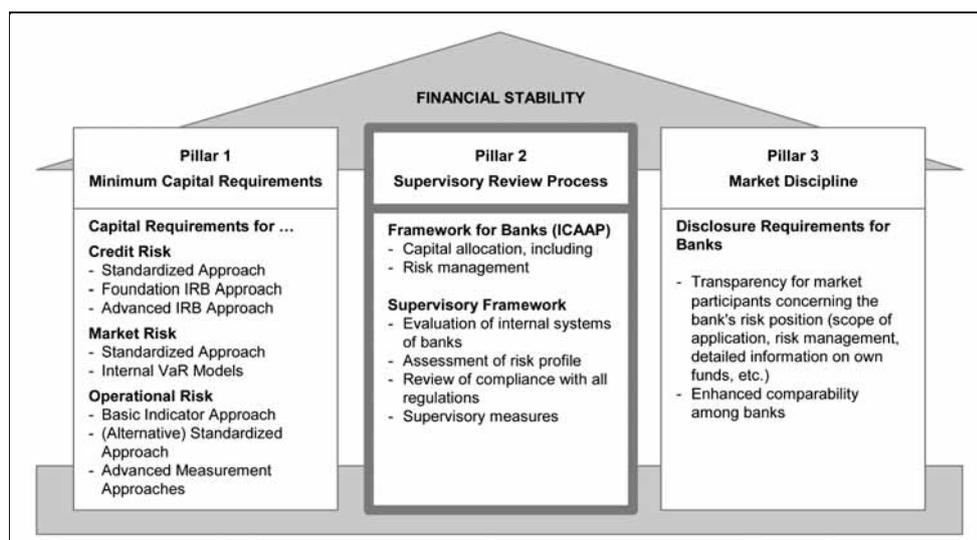


Chart 1: Three-Pillar Architecture of Basel II

On the one hand, Pillar 2 (Supervisory Review Process) requires banks to implement a process for assessing their capital adequacy in relation to their risk profiles as well as a strategy for maintaining their capital levels – i.e. the Internal Capital Adequacy Assessment Process (ICAAP).

On the other hand, Pillar 2 also requires the supervisory authorities to subject all banks to an evaluation process and to impose any necessary supervisory measures on this basis.

The Basel Committee has defined the following four basic principles for the supervisory review process:

Principle 1:

Banks should have a process for assessing their overall capital adequacy in relation to their risk profile and a strategy for maintaining their capital levels.

Principle 2:

Supervisors should review and evaluate banks' internal capital adequacy assessments and strategies, as well as their ability to monitor and ensure their compliance with regulatory capital ratios. Supervisors should take appropriate supervisory action if they are not satisfied with the result of this process.

Principle 3:

Supervisors should expect banks to operate above the minimum regulatory capital ratios and should have the ability to require banks to hold capital in excess of the minimum.

Principle 4:

Supervisors should seek to intervene at an early stage to prevent capital from falling below the minimum levels required to support the risk characteristics of a particular bank and should require rapid remedial action if capital is not maintained or restored.

2.1.2 Definitions

On the basis of supervisory sources, the components of Pillar 2 are defined more precisely below.

ICAAP – Internal Capital Adequacy Assessment Process

The ICAAP comprises all of a bank's procedures and measures designed to ensure the following:

- the appropriate identification and measurement of risks;
- an appropriate level of internal capital in relation to the bank's risk profile; and
- the application and further development of suitable risk management systems.

SRP – Supervisory Review Process

The abbreviation SRP refers to the supervisory review process, which covers all of the processes and measures defined in the principles listed above. Essentially, these include the review and evaluation of the institution's ICAAP, the performance of an independent assessment of the institution's risk profile, and if necessary taking prudential measures and other supervisory actions.

2.1.3 Supervisory Basis for Implementation in Austria

At the European level, the Basel Committee's revised framework, which was published as a recommendation, is being incorporated into existing directives in order to make the framework compulsory for credit institutions and investment firms operating within the EU. The requirements of Basel II are in part reflected in the recast EU Directive 2000/12/EC, which will serve as the basis

for implementation in national law.¹ In Austria, the legal framework is defined by the Austrian Banking Act (BWG) as well as the relevant FMA regulations.

With regard to Pillar 2, the following requirements of the recast EU Directive 2000/12/EC are particularly relevant:

- sound corporate management with a clear organizational structure and responsibilities;
- effective procedures for determining, controlling, monitoring and reporting current and future risks as well as appropriate internal control mechanisms;
- adequate rules, procedures and mechanisms with regard to the nature, scale and complexity of the bank's business activities;
- comprehensive strategies and procedures for continuous evaluation and regular review of the amount, composition and distribution of internal capital which is considered adequate to cover current risks and any future risks in both quantitative and qualitative terms.

Moreover, the EU Directive 2000/12/EC sets forth the duties of supervisory authorities, calling for evaluations of the banks' internal processes and strategies as well as their risk profiles.

In cases where the directive is violated, supervisory measures – which may also include requiring banks to hold additional capital – must be imposed.

The SRP requirements and supervisory requirements apply *mutatis mutandis* to the supervision of investment firms (cf. Article 37 of Directive 93/6/EEC on the capital adequacy of investment firms and credit institutions).

In order to support the consistent implementation of Community directives and to foster the convergence of supervisory practices in the European Union, the Committee of European Banking Supervisors (CEBS), which consists of high-level EU representatives from the competent supervisory authorities, has published – amongst others – a guidance on the application of the supervisory review process under Pillar 2 of Basel II.

2.2 Motivation and Necessity from a Business Perspective

Risk is a significant aspect of business activities in a market economy. As risk taking or transformation of risks constitutes a major characteristic of the banking business, it is especially important for banks to address risk management issues. The necessity from a business perspective has arisen from developments on the financial markets and the increasing complexity of the banking business. These circumstances call for functioning systems which support the limitation and control of the banks' risk situation.

Therefore, the implementation of an ICAAP is not rooted exclusively in supervisory considerations, rather it should be in the best interest of all stakeholders of an institution. The owners are inherently interested in the continued existence of the bank as they expect a reasonable return on their investment and wish to avoid capital losses. Furthermore, the bank's employees, customers and lenders also have an interest in its survival. The individual interests of these groups do not have to be completely congruent; however, all parties should be interested in ensuring that the institution does not take on risk positions which might endanger its continued existence. The main motive for introducing

¹ EU Directive 93/6/EEC has also been adapted to reflect the new requirements under Basel II.

the ICAAP can therefore be seen in ensuring a viable risk position by dealing with risks in the appropriate manner. In particular, it is important to detect developments which may endanger the institution as early as possible in order to enable the bank to take suitable countermeasures. In this respect, introducing an ICAAP serves the interests of all the internal and external stakeholders of a bank.

In this context, two problems arise: First, when calculating the bank's risk-bearing capacity, it is necessary to determine the extent to which a bank can afford to take certain risks at all. For this purpose, the bank needs to ensure that the available risk coverage capital is sufficient at all times to cover the risks taken. In the second step, the bank must review the extent to which risks are worth assuming, that is, it is necessary to analyze the opportunities arising from risk taking (evaluation of the risk/return ratio).

The main objective of the ICAAP is to secure the institution's risk-bearing capacity. Comprehensive risk/return management follows as a second – and desirable – step.

The ICAAP thus constitutes a comprehensive package which delivers significant benefits from a business perspective.

2.3 Basic ICAAP Requirements

Based on supervisory requirements and the benefits from a business perspective, the basic requirements to be taken into account in the development of an ICAAP are outlined below. In this process, banks can also rely on existing systems, procedures and processes.

- **Securing capital adequacy:** Banks should define a risk strategy which contains descriptions of its risk policy instruments and objectives. The explicit formulation of such a risk strategy aids in the early detection of deviations from the planned course and in initiating the corresponding countermeasures in a timely manner. In general, forward-looking aspects with regard to potential risks as well as changes in business strategies should be taken into account (forward-looking perspective).
- **ICAAP as an internal management tool:** The ICAAP should form an integral part of the institution's management and decision-making process.
- **Obligation of banks / proportionality:** Banks are generally required to maintain an ICAAP if they fall within the scope of application under the EU Directive 2000/12/EC (cf. Chapter 3.2.1, ICAAP at Various Levels within a Group). This requirement applies to banks which conduct complex business activities (involving a higher risk level in individual transactions) as well as small regional banks which engage in less complex activities. In line with the proportionality principle, this gives rise to different requirements regarding the adequacy of systems and methods. In an assessment based on risk indicators, each bank should determine the risks to which it is exposed and then make a general choice of implementation methods on that basis.
- **Responsibility of the management:** The overall responsibility for the ICAAP is assigned to the institution's management, which must ensure that the bank's risk-bearing capacity is secured and that all material risks are measured and limited.

- **Assessment of all material risks:** The ICAAP focuses on ensuring bank-specific (“internal”) capital adequacy from a business perspective. For this purpose, all of a bank’s material risks must be assessed. Therefore, the focus is laid on those risks which are (or could be) significant for the individual bank.
- **Processes and internal review procedures:** Merely designing risk assessment and control methods is not sufficient to secure a bank’s risk-bearing capacity. It is only in the implementation of appropriate processes and reviews that the ICAAP is actually brought to bear. This ensures that every employee knows which steps to take in various situations. For the sake of improving risk management on an ongoing basis, the development of an ICAAP should be regarded not as a one-time project but as a continuous development process. In this way, input from ongoing experience can be used to develop simpler methods into a more complex system with enhanced control functions.

In this guideline, we present methods and procedures for the actual implementation of all the ICAAP elements mentioned above. The emphasis is mainly placed on pragmatic solutions which are also suitable for smaller, less complex institutions.

3 General Framework

3.1 Principle of Proportionality

Banks are required to apply the ICAAP regardless of their size and complexity. However, the ICAAP's specific design is determined according to the principle of proportionality. In this context, it is necessary to note that there is no generally accepted definition of proportionality, rather, it is the bank's responsibility to assess the adequacy of its ICAAP methods, systems and processes. This will primarily depend on the nature (i.e. risk level and complexity) and scale of the bank's business activities. Smaller banks which mainly engage in low-risk transactions might be able to fulfill the requirements in an appropriate manner using simple methods based on ICAAP principles. For banks which conduct highly complex business activities or handle high transaction volumes, it may be necessary to employ more complex systems in order to meet the ICAAP requirements.

The decision as to which systems are useful and appropriate in which areas for each bank should be made on the basis of the bank's specific risk structure. Based on indicators, the bank itself should identify the areas in which it should employ more complex risk measurement and management methods as well as the areas in which simpler methods would suffice.

3.1.1 Indicators for Specifying Risk Structure

The indicators described below for specifying a bank's risk structure provide guidance for banks in determining which types of risk are more and which are less significant.

These risk indicators are provided as suggestions and have been selected with a view to enabling a bank to carry out a self-assessment using simple methods and/or supervisory reporting data. The more significant a risk is considered on the basis of such risk indicators, the better the bank's risk measurement and management procedures should be (in line with the principle of proportionality).

The institution's management is responsible for assessing risk indicators. However, the management should also be able to justify this assessment vis-à-vis the supervisory authority. Each bank is responsible for defining risk management methods and systems which are appropriate to its own needs. At the same time, the bank must not disregard any other applicable regulations. In particular, the requirements for IRB banks and banks which submit trading book reports according to the CAD should be noted here. As a general rule for all banks, supervisory procedures must also be integrated into the bank's internal risk management.

At the overall bank level, for example, the following indicators might be used for an initial specification of the bank's risk structure:

- risk level of transactions;
- complexity of transactions;
- size of bank;
- scale of business activities;
- significance of new markets and new transactions (e.g. international business lines and trading activities, expansive activities abroad).

The bank's assessment of its specific risk profile based on these overarching risk indicators should be further differentiated to reflect individual risk types. As a result, a bank may have to use more or less sophisticated risk measurement procedures for each type of risk. The bank's assessment of risk indicators should also be reflected in its risk policies. This means, for example, that a bank which considers country risks to be immaterial will subsequently avoid taking on material country risks, that is, the bank will keep activities such as proprietary transactions in foreign securities, interbank trading with international counterparties or loans to foreign borrowers to a minimum. Possible indicators for the most significant risk types are described below.

Credit Risk Indicators

The structure of the bank's credit portfolio provides initial indications of its risk appetite. A large share of loans in a certain asset class (e.g. exposures to corporates) may point to increased risk. In addition, the presence of complex financing transactions such as specialized lending (project, object and commodities finance etc.) may also indicate a larger risk appetite. For a rough initial assessment, a bank can use the asset classes defined in the EU Directive 2000/12/EC to examine the distribution of its credit portfolio.²

A bank can use credit assessments (e.g. ratings) to measure the share of borrowers with poor creditworthiness in its portfolio; this provides an indication of default risk. The amount of available collateral – and thus the unsecured volume – also plays a role in this context. The lower the unsecured volume is, the lower the risk generally is; this relationship is also reflected in future supervisory regulations for calculating capital requirements. In this context, however, the type and quality of collateral are decisive; this can be assessed by asking the following questions: To what extent is the retention or liquidation of the collateral legally enforceable? How will the value of the collateral develop? Is there any correlation between the value of the collateral and the creditworthiness of the debtor?

A close inspection of the credit portfolio will provide further insights with regard to any existing concentration risks. In order to assess the size structure or granularity of its portfolio, the bank can also assess the size and number of large exposures (under Article 27 BWG). The bank should also consider the distribution of exposures among industries (e.g. construction business, transport, tourism, etc.) in assessing its risk situation. If a bank conducts extensive operations abroad (share of foreign assets), it is appropriate to take a closer look at the risks associated with those activities as well (e.g. country and transfer risks). The share of foreign currency loans in a bank's credit portfolio can also point to concentration risks. If the share of foreign currency loans is very high, exchange rate fluctuations can have adverse effects on the credit quality of the borrowers. If the foreign currency loans are serviced using a repayment vehicle which is heavily exposed to market risks, this indicates an additional source of risk which should be monitored accordingly and controlled as necessary.

² Cf. the segmentation requirements in the EU Directive 2000/12/EC or the descriptions in the OeNB/FMA Guidelines on Credit Risk Management, "Rating Models and Validation" and "Credit Approval Process and Credit Risk Management".

Equity Risk Indicators (Participations)

The share of equity investments in total assets or required capital can provide a first indication of how significant a bank's equity investments are. Another risk indicator can be found in the equity investments to be deducted from own funds under the Austrian Banking Act (BWG).³ If a considerable share of eligible capital is already tied up in equity investments, then a bank should also be in a position to perform a well-founded assessment of the economic risks associated with these investments.

The country of the investee companies also constitutes a risk indicator. An equity investment abroad can harbor additional risks, for example due to a different legal framework or other political influences. The industry and business areas in which the investee companies operate can also be used for an initial assessment of the risk involved. The size structure of these investments is also relevant, with the main question being whether a bank holds a large number of relatively small investments (i.e. a highly diversified portfolio) or whether concentration risks exist. The existence of unconditional letters of comfort, on the other hand, indicates a practically unlimited potential for loss. The liquidity of equity investments may also serve as a risk indicator: If equity investments are illiquid, it may not be possible for the bank to sell its share.

Market Risks in the Trading Book, Foreign Exchange Risks at the Overall Bank Level

One risk indicator in the trading book can be derived from the sizes and types of trading portfolios as well as the resulting capital requirements. If supervisory limits are exceeded, the relevant provisions of the Austrian Banking Act apply. Another indicator of trading risks is the organization and design of trading operations. If traders are granted significant powers (own limits, risk capital) or if parts of their remuneration are based on trading performance, this will generally encourage riskier behavior.

A bank can determine its sensitivity to foreign exchange fluctuations on the basis of its open foreign exchange positions and (in the broadest sense) open term positions. The influence of foreign exchange fluctuations on the default probability of borrowers was already discussed in the section on credit risk indicators above in connection with foreign currency loans.

Interest Rate Risks in the Banking Book

The results reported in interest rate risk statistics (part of regulatory reporting requirements) constitute an essential indicator of the level of interest rate risk in the banking book. In these reports, the effects of a 200 basis point interest rate shock on the present value (fair value balance sheet) of the bank are examined. If this method demonstrates that material interest rate risks exist in the banking book, it is advisable to use more sophisticated risk measurement methods. In particular, a precise quantification of risks in terms of their effects on the income statement would appear useful.

Another risk indicator can be found in the bank's proprietary transactions both on and off the balance sheet. In accordance with the proportionality principle, the corresponding requirements increase in line with the scale of deriva-

³ Article 23 paragraph 13 items 3 and 4 BWG.

tives trading activities. Even in cases where a bank primarily uses derivatives to hedge other transactions or portfolios, the effectiveness of hedging transactions (i.e. hedge effectiveness) should be examined in order to avoid undesirable side effects. In the case of on-balance-sheet proprietary transactions, the need for more precise risk control grows along with the scale and complexity of the positions held (e.g. alternative investments, structured bonds).

Liquidity Risk Indicators

Banks can assess the significance of liquidity risks by comparing liquid or easily liquidated balance-sheet assets with short-term liabilities. For an initial assessment of liquidity risks, banks can rely on residual maturity statistics or liquidity as specified under Article 25 BWG. If, for example, short-term liabilities approach the level of liquid or easily liquidated balance-sheet assets, this can point to a higher level of liquidity risk. When assessing the significance of liquidity risks, a bank must also address the question of whether it is also required to provide liquidity for other banks in cases of need (e.g. as the central institution in a group). In such cases, liquidity management will also have to meet higher requirements.

Operational Risk Indicators

Two important indicators of operational risk are the size and complexity of a bank. As the number of employees, business partners, customers, branches, systems and processes at a bank increases, its risk potential also tends to rise.

Another risk indicator in this category is process intensity, for example, the number of transactions and volumes handled in payments processing, loan processing, securities operations and proprietary trading. Failures (e.g. due to overloaded systems) can bring about severe economic losses in banks with high levels of process intensity. The number of lawsuits filed against a bank can also serve as an indicator of operational risks. A large number of lawsuits suggests that there are substantial sources of risk within the bank, such as inadequate system security or insufficient care in processes and control mechanisms.

In cases where business operations (e.g. the processing activities mentioned above) are outsourced, the bank cannot automatically assume that operational risks have been eliminated completely. This is because a bank's dependence on an outsourcing service provider means that risks incurred by the latter can have negative repercussions for the bank. Therefore, the content and quality of the service level agreement as well as the quality (e.g. ISO certification) and creditworthiness of the outsourcing service provider can also serve as risk indicators in this context.

Indicators for Other Risks

Other risks which are not discussed explicitly in this guideline can also be significant for a bank. A definition of other risks can be found in Chapter 4.2, Assessment of all Material Risks. The category of other risks may also include risks in addition to the ones mentioned in that chapter. As other risks are not a highly standardized category, banks are well advised to define their own indicators as a basis for assessing the significance of this risk category.

3.1.2 Application of the Proportionality Principle to the Banking Market in Austria

Risk Indicator Levels on the Austrian Banking Market

The principle of proportionality accounts for the fact that different requirements will be appropriate for banks which conduct business activities of low complexity and low risk levels as compared to large, internationally active banks with complex business structures. Using several risk types as examples, this chapter discusses how the proportionality principle might be applied to the Austrian banking market.

Credit risk is the most important risk category for most Austrian banks, a fact which is evidenced by the loss provisions in Austrian banks' income statements. A consistent classification of risks is therefore a first step toward enhancing a bank's internal risk management system. In institutions with more complex business models, the various subtypes of credit risk will also be relevant.

A number of Austrian banks are characterized by high levels of international activity.⁴ The separate measurement of country risks is all the more important in cases where the country in question demonstrates a higher level of risk (lower rating, political instability, etc.).

Concentration risks appear in various forms. For example, foreign currency loans in Austria account for an average share of 20% of total assets, with significant differences appearing between the east and west of Austria. Furthermore, regional banks and banks which focus on certain professional groups may depend heavily on specific industries.

Securitization risk from the originator's perspective (i.e. sale of risks using securitization programs) affects only a few institutions in Austria. On the other hand, investing in securitization programs (e.g. asset-backed securities) is becoming increasingly popular. In addition to default risk, which can be captured effectively by means of an external rating, it may also be necessary to take additional risks into account in this context (e.g. operational risks).

Compared to credit risks, market risks in the trading book play a less prominent role overall. On average, only 3-4% of required capital could be attributed to the trading book between 2002 and 2005. For relatively small-scale trading activities (e.g. with a strong focus on brokerage trading and manageable exposures in money market trading), the risk management system will not have to be as sophisticated as in the case of intensive trading activities in various complex instruments and markets.

As regards interest rate risk in the banking book, a number of banks in Austria are evidently willing to take substantial risks in this area. If considerable potential present value losses arise in the supervisory stress test scenario (200 basis point interest rate shock), a more sophisticated risk measurement system would be more appropriate for the bank. In addition, numerous banks conduct predominantly floating-rate business (especially index-linked) and thus report relatively low figures in their interest rate risk statistics. Nevertheless, relatively high P&L risk can result from an overhang of floating-rate items on one side of

⁴ Cf. Financial Stability Report.

the balance sheet or from differing interest reset practices for floating-rate positions; this risk should be managed accordingly.

In the banking book, other market risks may also be relevant in addition to interest rate risk. In general, Austrian banks are fairly cautious about positions in individual stocks in the banking book. However, banks should be particularly aware of the risks of individual positions held in funds (e.g. equities, derivatives). For large derivatives portfolios, it should also be possible to value the positions and depict their risk levels accurately. In this context, the risk calculations of third parties (e.g. investment fund management companies) can be used if they are reliable and comprehensible.

The significance of operational risks must not be underestimated in Austria either. For example, disruptions or breakdowns in IT systems, or criminal acts committed by people inside or outside the bank (robbery, fraud) can generate losses for banks.

Based on an evaluation of indicators for each type of risk, the bank's management can construct an overall risk profile for the bank. Using this assessment, the management can then determine the requirements which an adequate risk management system must fulfill for the ICAAP as well as the risk types on which the bank may need to focus.

Risk Indicator Levels at Sample Institutions

This chapter presents several examples of how a bank's risk indicators might look.

Risk Indicator	Risk Subtype	Bank A	Bank B	Bank C	Bank D
General risk indicators (e.g. size)		small	small	medium	large
Specific risks					
	Credit risk				
	Equity risk				
	Concentration risk				
	- Foreign currency loans				
	- Industries				
	- Size classes				
	- Country risks				
Market risks					
Interest rate risk in the banking book					
Operational risks					
Liquidity risks					
Other risks					

	High significance
	Medium significance
	Low significance

Chart 2: Possible Risk Indicator Levels

For Bank A, the risk types mentioned above would have little significance under the proportionality principle. The bank shows a low level of complexity and low risk levels. Besides, Bank A does not have any trading positions. For the purpose of measuring its risks and calculating its internal capital needs, Bank A could calculate its capital requirements using the Standardized Approach (or the Basic Indicator Approach in the case of operational risk).

In terms of its total assets and number of employees, Bank B is comparable to Bank A, but Bank B's transactions show a markedly higher risk level. In addition, concentration risks exist with regard to size classes (e.g. several relatively large

loans to medium-sized businesses), borrowers in the same industry and foreign currency loans. In this bank, methods which go beyond the Standardized Approach should be employed and/or adequate qualitative measures (monitoring/reporting) should be set. Furthermore, Bank B should pay more attention to concentration risks, for example by adhering to suitable individual borrower limits based on creditworthiness or by implementing the FMA minimum standards for foreign currency loans. In this example, using more advanced systems would also be sensible in other areas, such as interest rate risk in the banking book.

Bank C shows high credit exposures to SMEs and has also granted a number of relatively large loans. This results in a certain degree of concentration risk. In addition, the bank is exposed to relatively high interest rate risks. In fact, Bank D has large exposures to almost all risk types. The bank's size and structure can be described as complex, and country risks are also an issue. It would make sense to use more advanced techniques (e.g. a VaR model) for interest rate risk at Banks C and D; Bank D should also use a more sophisticated model for market risk. Due to the higher risk level and the existing complexity with regard to credit risk, the bank should use adequate risk-sensitive techniques (e.g. based on the IRB approach or a credit portfolio model).

The individual institutions in this example have to define the scale and type of risk management system which is appropriate to their activities, with due attention to applicable supervisory requirements. The choice of suitable risk measurement procedures to determine risks and internal capital needs plays a decisive role in this context. Moreover, the proportionality concept also has effects on process and organizational design: Institutions which demonstrate a high level of complexity or a large risk appetite have to fulfill more comprehensive requirements.

Given the large number of small and very small banks in Austria, it may be useful for institutions to cooperate in risk management (e.g. systems or IT), as has been the case in some fields already. This type of cooperation includes sectoral arrangements which enable risk measurement and risk reduction. However, it is necessary to note that in any case the bank's management still bears the ultimate responsibility for the ICAAP. In particular, this means that even the smallest banks will have to appoint an employee to analyze and evaluate the information (reports, etc.) provided under outsourcing arrangements and to incorporate this information into the bank's control procedures. Furthermore, it is important to remember that the size of a bank is not the only decisive factor in ICAAP requirements. Small institutions can also demonstrate a relatively large risk appetite due to the structure of their business activities, and this will require them to deploy more advanced risk management systems. However, it is equally possible that a larger bank in which a certain risk type is not significant (or only of limited significance) will only use the standard procedures for calculating minimum capital requirements for that specific risk type in the ICAAP.

3.2 Levels of Application within Groups

3.2.1 ICAAP at Various Levels within a Group

In general, three different levels of application can be distinguished for ICAAP requirements⁵ within a banking group:

- (1) individual institution level;
- (2) consolidated level;
- (3) subconsolidated level.

In these cases the provisions of the EU Directive 2000/12/EC depend on the status of the respective institution within the banking group, that is, the level of ICAAP application as well as the scope of consolidation for ICAAP fulfillment may change depending on whether the credit institution is a parent undertaking or a subsidiary. In the provisions regarding the ICAAP, a *national perspective* was chosen. Whether a given bank is treated as an individual institution or as a consolidating (or consolidated) institution therefore depends on its status within the respective Member State.

The three charts below provide schematic diagrams of various configurations from the Austrian perspective.

ad (1): Individual Institution Level

Credit institutions which are treated as individual institutions are required to fulfill the obligations arising from the ICAAP provisions on an individual basis (cf. Chart 3: Fulfillment of ICAAP Requirements (Individual Basis)).

The following are considered individual institutions:

- “actual” individual institutions;
- credit institutions excluded from the scope of consolidation;⁶
- credit institutions which are neither subordinate nor superordinate to another institution *at the domestic level*.

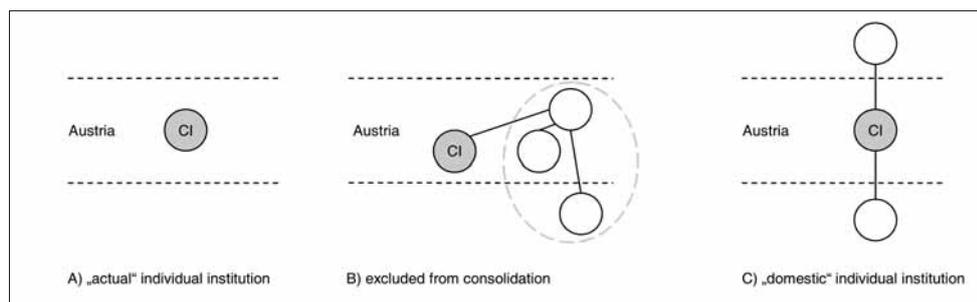


Chart 3: Fulfillment of ICAAP Requirements (Individual Basis)

Credit institutions which are parent undertakings or subsidiaries in the Member State where they are authorized and supervised (i.e. Austria for the purposes of this guideline) are exempt from the ICAAP requirements on an individual basis. This means that if a subordinate or superordinate credit or financial

⁵ The scope of ICAAP application (Article 123 of the EU Directive 2002/12/EC) is governed by Articles 68 to 73 of the Directive. These articles apply *mutatis mutandis* to investment firms (cf. Article 2 of the EU Directive 93/6/EEC [CAD]).

⁶ Cf. Article 73 of the EU Directive 2000/12/EC.

institution exists within Austria, the ICAAP requirements no longer have to be fulfilled at the level of the individual institution.

At this point, it is important to reiterate that the mere fact that a credit institution is a parent or subsidiary institution from the group perspective (across national borders) does not necessarily imply an exemption from ICAAP requirements at the individual institution level. The sole deciding factor is whether the institution has subordinate or superordinate institutions *within the Member State* where it is authorized and supervised.

ad (2): Consolidated Level

If a bank has subordinate or superordinate institutions within Austria, it is generally exempt from ICAAP requirements on an individual basis. In such cases, the national parent credit institution⁷ alone is responsible for fulfilling the requirements on the basis of its consolidated financial situation.

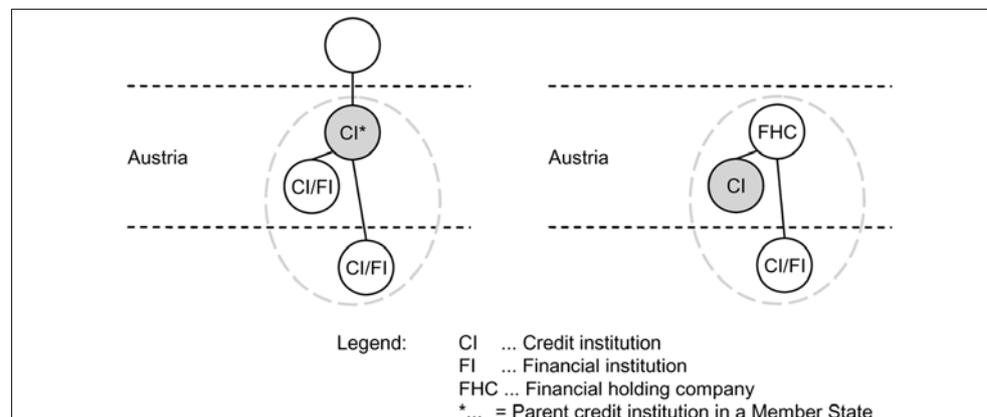


Chart 4: Fulfillment of ICAAP Requirements (Consolidated Level)

If the parent institution is a financial holding company, then that credit institution which is controlled by the holding company and required to consolidate under Articles 125 and 126 must fulfill the requirements on the basis of the financial holding company's consolidated financial situation (cf. Chart 4: Fulfillment of ICAAP Requirements (Consolidated Level)).

The "top" credit institution in a Member State is thus required to fulfill ICAAP obligations on the basis of its consolidated financial situation.⁸ On the other hand, for the fulfillment of ICAAP requirements on a consolidated basis it is of no consequence where the subsidiary is located. This means that even if the subsidiary is incorporated abroad, the parent institution is still required to fulfill ICAAP requirements on the basis of its consolidated financial situation. The difference lies in the fact that the existence of a domestic subsidiary renders the parent institution exempt from fulfilling ICAAP requirements on an individual basis. Therefore, it is again important to emphasize that the existence of a parent credit or financial institution only brings about an exemption (i.e. from

⁷ The Directive uses the term "parent credit institution in a Member State" (cf. definition in Article 4 item 14 of the Directive) to denote parent institutions which are not subsidiaries of other credit institutions or financial holding companies authorized or set up in the same Member State.

⁸ The form and extent of consolidation are defined in Article 133 of the EU Directive 2000/12/EC.

ICAAP requirements on an individual basis) if that institution is authorized and supervised within the same Member State.⁹

ad (3): Subconsolidated Level

Finally, subsidiary credit institutions (or their parent undertaking, where it is a financial holding company) which have a credit/financial institution or asset management company as a subsidiary in a third country (i.e. a country outside of the EU) or hold a participation in such an undertaking have to implement an ICAAP on a subconsolidated basis (cf. Chart 5: Fulfillment of ICAAP Requirements (Subconsolidated Level)).

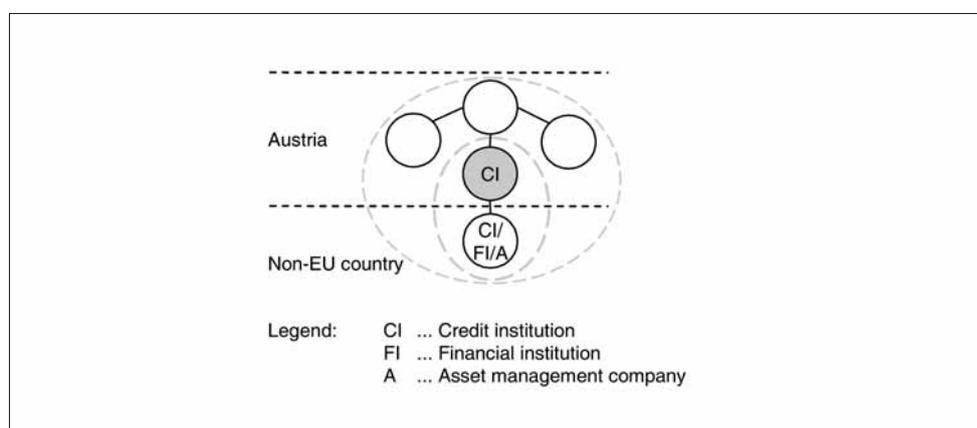


Chart 5: Fulfillment of ICAAP Requirements (Subconsolidated Level)

Therefore, subsidiary institutions are subject to the ICAAP requirements only in those cases where they have subsidiaries or hold a participation (if it is a credit/financial institution or asset management company) in a third country.¹⁰ In such cases, the subsidiary credit institution must fulfill the provisions of Article 123 for the subgroup, whereas the national parent institution (as described under item 2) has to fulfill them for all of its subordinate companies within the banking group.

In summary, the following basic rules (from the Austrian perspective) can be stated regarding the levels of ICAAP application:

- The treatment of a credit institution as a parent undertaking or a subsidiary depends on its status within Austria.
- A credit institution which is either a parent undertaking or a subsidiary in Austria is exempt from the ICAAP requirements on an individual basis.
- Credit institutions which have the status of a parent credit institution in Austria are required to fulfill the ICAAP requirements on the basis of their consolidated financial situation.
- Subsidiary credit institutions in Austria are only subject to ICAAP requirements (at the subconsolidated level) if they (or their parent financial holding company) have a subsidiary (credit/financial institution, asset management company) in a third country or hold a participation in such an undertaking.

⁹ For the sake of completing the example in chart 4 (left-hand side): A parent undertaking (if it is a credit institution) which is registered in another Member State and has no subordinate or superordinate national institutions is required to fulfill ICAAP requirements on both an individual and a consolidated basis.

¹⁰ This also applies in those cases where a financial holding company is the parent of a subsidiary in a third country.

The possible levels of ICAAP application can be illustrated using the following (simplified) example of a newly established bank:

Upon incorporation, the bank is considered an individual institution, meaning that no superordinate parent institution exists at this time. As a result, the bank is required to introduce sound, effective and comprehensive strategies and procedures on its own in order to ensure internal capital adequacy. If this bank is then taken over by a foreign bank, the situation of the Austrian bank remains unchanged with regard to the ICAAP (the original bank is still treated as an individual institution within Austria). On the other hand, if the bank is taken over by an Austrian bank, the former is then exempted from ICAAP requirements. The new parent institution is then responsible for fulfilling ICAAP requirements on the basis of its consolidated financial situation and for integrating its new subsidiary into its risk calculations.

If the original individual institution is not taken over but establishes a subsidiary of its own in Austria, or if the individual institution takes over another bank in Austria, then the original institution must include the subsidiary in its capital adequacy assessment and thus apply the ICAAP not on an individual basis but on the basis of its consolidated financial situation (as a national parent credit institution).

If one of the Austrian subsidiary credit institutions then finds another subsidiary (credit institution, financial institution, asset management company) in a third country or takes a sufficiently large stake in such an undertaking, then this new part of the group also has to be treated separately (subconsolidation). The respective parent credit institution of the new non-EU subsidiary is then subject to ICAAP requirements on a subconsolidated basis. This is the only case in which a subsidiary credit institution in a Member State (Austria) is also subject to ICAAP requirements.

3.2.2 Possible Methods of ICAAP Implementation at the Consolidated Level

The provisions regarding the ICAAP state that credit institutions should have in place sound, effective and complete strategies and processes with which they can continually evaluate the amount of internal capital they deem appropriate to cover their risks and with which they can maintain this capital at a sufficiently high level. As described in the previous chapter, the relevant national parent credit institution is responsible for observing these requirements on a consolidated basis. As a result, the parent credit institution should be in a position to aggregate, assess and (where necessary) control the material risks of the individual institutions belonging to the group; this also applies to the parent's own risks. Two implementation methods – complete involvement and supplying risk information – can be used for the purpose of ensuring capital adequacy as well as orderly business organization in the overall group:

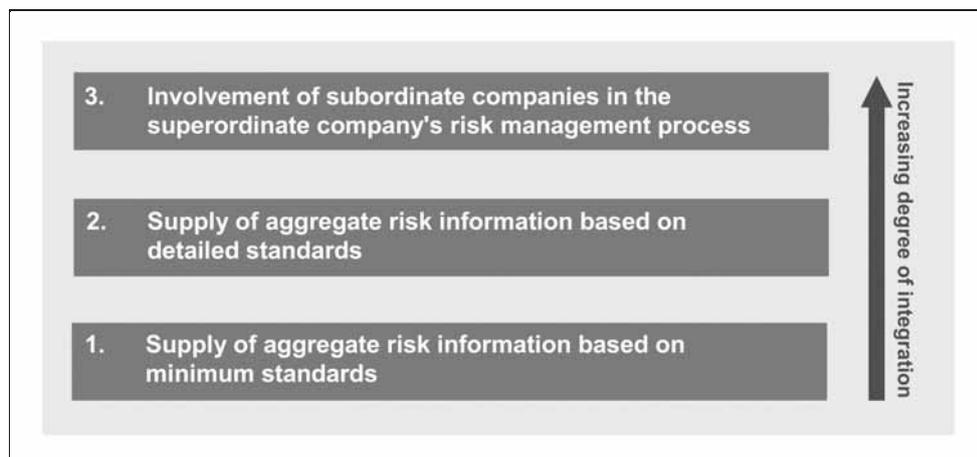


Chart 6: Possible Methods of ICAAP Implementation at the Consolidated Level

The basic solution involves risk control based on reports submitted by subordinate companies. In this method, the superordinate company has its subordinates report on their material risks in aggregate form on a predefined regular cycle. Here we can differentiate various levels of standardization: For example, a low level of standardization in the supply of risk information might be used in an initial stage of integration (e.g. in the case of newly acquired subsidiaries). However, superordinate institutions should make efforts to improve the level of integration and standardization in reporting. It is therefore advisable to regard data provision based on minimum standardization (or based on the methods and formats of the subordinate companies) as an initial, temporary solution. Such a method should only be deployed over a longer period of time in cases where legal regulations do not allow full implementation of the appropriate standards. In a more advanced integration scenario, the superordinate institution will set detailed and harmonized requirements for risk control procedures at subordinate institutions. In this way, it is easier to ensure that risk systems and risk evaluation procedures are consistent with those of the superordinate company.

The direct involvement of subordinate companies in the parent's risk management process is the second, more comprehensive method of ensuring adequate risk capital at the group level. In this scenario, the risk-bearing positions and transactions of the companies involved are incorporated into the parent's risk monitoring and management. This procedure is also known as the "look-through" approach, and it allows very precise assessment and control of potential risk from the group perspective. Due to the increased effort involved in connecting the individual risk control systems of subordinate companies, applying this method is only realistic for more significant companies within the group. For example, it makes sense to apply the look-through approach in the case of special agreements (e.g. letters of comfort) where the risk to the superordinate company is not automatically limited to the book value or market value of the subordinate company.

Against this backdrop, it may be useful to rank the relevant companies according to their significance for the group's risk position. Depending on each company's weight and the available intervention possibilities, the method used can be determined in the process of group-wide management. However, these control and monitoring methods do not have to be defined uniformly for all

companies; they may be differentiated according to certain characteristics such as risk types. For example, a company with a high level of credit risk might be incorporated into the superordinate company's risk management process with regard to credit risk, but for market risk it might submit aggregate figures based on predefined standards.

In addition to defining methods for the execution of group control, it is also very important to assign responsibilities for group-related requirements. Here the following principles should be observed:

The management of the superordinate company is responsible for all essential elements of the group's risk management. The management can only fulfill this responsibility if it is in a position to evaluate risks on a consolidated basis and to initiate the necessary control measures.

To this end, the processes and related tasks, competences and communication channels in group-wide risk management must be defined clearly and coordinated (in terms of materiality for the group's risk position, consolidation methods, etc.).

3.3 Responsibility of the Credit Institution for the ICAAP

In general, every credit institution is required to implement an ICAAP within the scope of application discussed in Chapter 3.2, Levels of Application within Groups.

Therefore, it is the duty of every credit institution to employ suitable measures and processes in its ICAAP. In this context, credit institutions are free to use their own definitions and processes. However, they will be required to demonstrate to the supervisory authority that the ICAAP is both complete and appropriate for the risks arising from their business activities and environment.

The ICAAP not only has to be applied for supervisory purposes; rather, it should be an integral part of risk management.

3.3.1 Responsibility of the Management

Due to the central importance of the ICAAP for bank management, the responsibility for its definition, design and ongoing development is assigned to senior management. Under current legislation in Austria, the managers' responsibility is set forth in Article 39 of the Austrian Banking Act.

In this context, the ICAAP should not be treated as an isolated process but incorporated into the credit institution's strategic and operations management as a component of corporate management.

The parameters essential to the ICAAP are determined in the strategic management process. Here the management has to define the cornerstones of its ICAAP, including the credit institution's risk strategy and risk policy principles. In this process, it is also important to establish clear and transparent reporting lines and to define the corresponding responsibilities.

Within the framework of operations management, the ICAAP forms part of ongoing risk management, which refers to all activities aimed at systematically handling risks within a credit institution. The general conditions set out in the bank's risk strategy are operationalized in risk management. The steps necessary in this process are discussed in Chapter 4.5.2, The ICAAP Risk Management Process. The results and reports generated by the ICAAP should serve as a basis

for management decisions and bank control. The management must make its decisions independently and on the basis of the information necessary for evaluating all relevant factors.

Specifically, managers must perform the following tasks in the ICAAP:

- definition of corporate objectives and risk strategies, definition of the bank's risk profile, and establishment of the corresponding procedures and processes, including documentation;
- definition of strategies and procedures for adherence to capital requirements (establishment of a limit system) and for risk-based capital allocation;
- dissemination of information on these strategies and procedures to the employees concerned;
- establishment of a suitable internal control system, especially with regard to the ICAAP (for more information, see Chapter 4.5.4, Functions of the Internal Control System in the ICAAP);
- functional and organizational segregation of responsibilities, and management of conflicts of interest;
- ensuring that employees have the necessary qualifications;
- regular (at least annual) review of systems, procedures and processes, and adaptation as necessary.

3.3.2 Outsourcing ICAAP Tasks

Parts of the ICAAP can be outsourced to third parties. Outsourcing refers to the provision of goods and services by parties outside the institution which is subject to supervision; the provider may also be a credit or financial institution. With regard to outsourcing, the following essential points must be observed:

- The management's responsibility for the ICAAP cannot be outsourced (i.e. it remains unaffected by outsourcing);
- It is necessary to ensure that the credit institution has or retains access to all relevant information within the framework of the ICAAP;
- Activities and functions which are outsourced are still subject to supervision by the competent authority (FMA). Therefore, outsourcing must not present any kind of obstacle to the FMA's performance of its supervisory duties;
- Outsourcing agreements are to be concluded entirely in writing, unless there already is a regulation either by law or statute;
- It is also necessary to note that outsourcing activities can generate additional risks (especially operational risks). In order to minimize these risks, either the division of tasks should be clearly defined (e.g. within sectoral structures) or the bank should conclude appropriate service level agreements (SLAs) with the outsourcing service provider.

Additional outsourcing-related considerations can be found in the Consultation Paper on High Level Principles on Outsourcing (CP02) published by the Committee of European Banking Supervisors (CEBS) in April 2004.

3.4 Documentation Requirements

The ICAAP has to be designed in a transparent and comprehensible manner. This will not only aid employees in understanding, accepting and applying the defined procedures, it will also make it easier for the bank to review the adequacy of its methods and rules regularly and to enhance them on an ongoing basis.

For this reason, it is advisable to draw up formal written documentation (allowing for already existing forms of documentation and definitions that comply with the requirements) on all essential elements of the ICAAP.

In creating the required documentation, the bank should ensure that the depth and scope of its explanations are tailored to the relevant target group. It is therefore sensible to use various levels of detail in the actual implementation of documentation requirements. For illustration purposes, a sample scenario with three levels is described below (cf. also Chart 7: Fulfillment of Documentation Requirements).

At the top level, it is advisable to articulate the bank's fundamental strategic attitude toward risk management. This will reflect the institution's basic orientation and guide all ICAAP-related decisions. The bank's basic strategic attitude can be documented in the form of a risk strategy. The essential components of such a strategy include risk policy principles, statements as to the bank's risk appetite, a description of the bank's fundamental orientation with regard to individual risk types, and comments on the future development of the bank's business divisions. The risk strategy should be approved by the entire management board of the bank. Accordingly, a concise description with a high level of aggregation is recommended. As the bank's risk strategy contains fundamental statements, it should cover a fairly long time horizon (for a detailed discussion of possible contents, see Chapter 4.1, Strategy for Ensuring Capital Adequacy).

At the next level down, the bank should provide a more detailed explanation of the methods and instruments employed for risk control and management. In practice, such a document is frequently referred to as the bank's risk manual. Essentially, the risk manual contains a description of the risk management process, definitions of all relevant risk types, explanations of evaluation, control and monitoring procedures for risk positions (separate for each risk type), and a discussion of the process of launching new products or entering new markets. Due to the relatively high level of detail in this document, it may be helpful to assign primary responsibility for the risk manual to the executive in charge of risk management. In general, the depth of these explanations also implies that it will be necessary to revise at least certain parts of the document on a regular basis. For this reason, it is advisable to label the document's sections with the last revision date as well as the name of the organizational unit responsible.

At the third level in our example, the bank should provide a summary of other documentation on risk management. This might include specific work instructions or manuals for certain IT applications. Accordingly, the documents at the bottom level will tend to contain the highest level of detail and undergo revisions most frequently.

Ensuring that documentation is complete and up to date is a crucial task in the creation and maintenance process. Moreover, banks should ensure that documents are written and stored systematically and in a way which is comprehensible to competent third parties. Not all of a bank's documentation will have to be rewritten in the course of implementing the ICAAP requirements. Instead, the documentation can be based on existing guidelines and regulations. However, documentation should be updated in line with any adaptations or extensions of internal risk management resulting from ICAAP implementation and systematically reorganized as necessary.

Responsibility	Subject of Documentation	Significance and Level of Detail
Management (board)	<p>Basic strategic attitude toward risk management</p> <ul style="list-style-type: none"> ▶ Possible document: Risk strategy ▶ Sample contents: <ul style="list-style-type: none"> • Risk policy principles • Risk appetite • Basic orientation of risk types • Planned development of business areas • Basic structure of risk management 	<p>Strategic significance</p> <p>Level of detail and frequency of revisions</p>
Chief risk officer	<p>Design of risk management system</p> <ul style="list-style-type: none"> ▶ Possible document: Risk manual ▶ Sample contents: <ul style="list-style-type: none"> • Structural organization of risk management • Risk assessment, control and monitoring tools (for each risk type) • Risk management process • Process for new products and markets 	
Division/department	<p>Other documentation requirements</p> <ul style="list-style-type: none"> ▶ Possible documents: Structured collection of individual documents ▶ Sample contents: <ul style="list-style-type: none"> • Work instructions • IT user manuals 	

Chart 7: Fulfillment of Documentation Requirements

The scope and level of detail of documentation should be proportionate to the size, complexity and risk levels of the specific institution. If, for example, an institution's self-assessment shows that it is consistently exposed to low risk, this will be reflected in fairly lean documentation requirements.

Structured documentation contributes to the transparency of the institution's ICAAP and thus allows the management board to assess the design of the credit institution's internal ICAAP more effectively. Moreover, both new and more experienced employees in the risk management field can derive their work instructions from the credit institution's documentation. Furthermore, documentation also supports the internal audit unit in reviewing the institution's ICAAP. Finally, complete documentation of all significant processes and rules is also invaluable for the purpose of demonstrating the adequacy of the institution's ICAAP vis-à-vis the supervisory authority.

4 ICAAP Components

4.1 Strategy for Ensuring Capital Adequacy

In designing an ICAAP, the bank must address core issues and define general strategic conditions for the organization based on its fundamental attitude toward risk and risk management. The result of this process is the institution's risk strategy,¹¹ which should be documented in writing. The scope and level of detail of this strategy depend on the size, complexity and risk levels of the specific institution, but a concise strategic outline should be preferred over an excessively long description.¹² The chart below shows the basic relationships between the bank's fundamental risk attitude and its risk strategy.

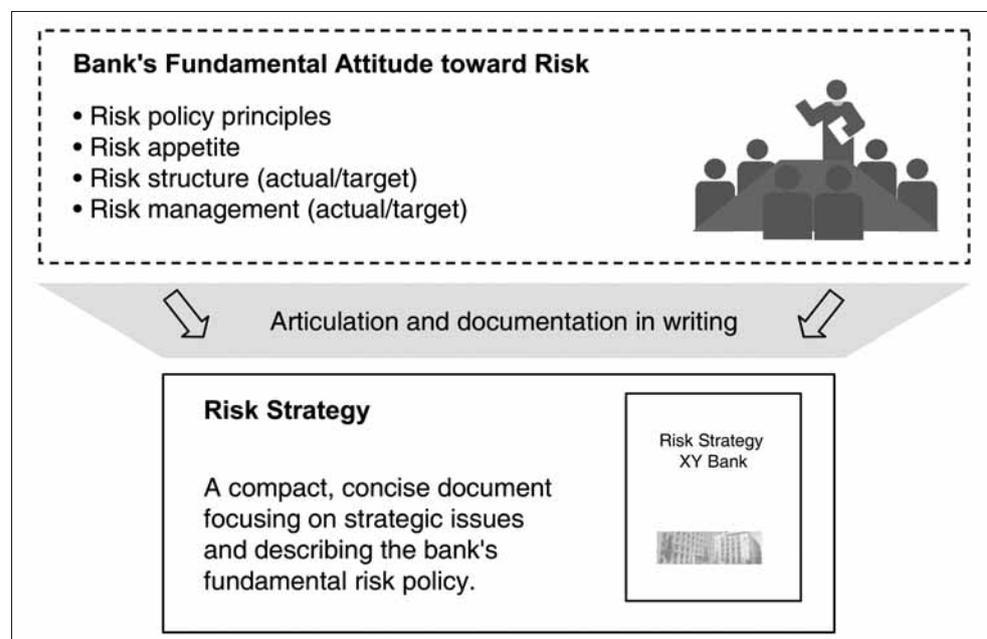


Chart 8: Relationships between Risk Strategy and Fundamental Risk Attitude

Every bank is characterized by a fundamental attitude toward risk and risk management. This basic attitude manifests itself in the bank's risk policy principles, its risk appetite, its (current and planned) risk structure as well as the structure and positioning of risk management within the institution. These elements already exist in every bank, for example in the existing risks on the bank's books, in the existing organization or in the instruments used for risk management. Likewise, in many cases risk-related opinions and principles as well as the bank's risk appetite are already in place. However, they are often not articulated explicitly but "stored" in the minds of the relevant employees.

The purpose of explicitly formulating a risk strategy is to create a transparent and consensual general framework for the ICAAP and for internal risk management, thus securing the organization's objectives in the long term. This does not mean defining abstract requirements which are remote from day-to-day operations. Articulating the bank's fundamental attitude toward risk prevents contra-

¹¹ In this guideline, the terms "risk strategy" and "risk policy" are used synonymously.

¹² Cf. Chapter 3.4, Documentation Requirements.

dictions, intransparency or personnel-related imbalances from arising in the bank's handling of risks. The risk strategy must be approved by the management and updated periodically (and at other times as necessary). The individual elements of such a strategy are described below.

Example: Risk Strategy Elements in a New Strategic Business Project

If, for example, a bank wishes to expand into the field of commercial real estate financing, its risk strategy should define the internal risk management framework for this new project. For example, the possible occurrence of concentration risks in the field of commercial real estate financing should be incorporated into strategic considerations (e.g.: Is there a danger of increased industry concentration? Will risk assessment results depend heavily on the real estate market?). Aspects such as securing the required know-how must also be taken into consideration in the bank's risk strategy (e.g.: Does the bank already have sufficient know-how on real estate valuation, or how can the bank gain this expertise?).

The next central issue in the bank's risk strategy is the amount of risk capital which should be made available for the commercial real estate unit. The allocated risk capital can then be used to set the corresponding limits (e.g. for specific regions, industries, individual transaction limits) for this line of business or its sub-units. In addition, a required return can be defined for the risk capital allocated; this target may itself become the basis for strategic pricing considerations in the new business unit. Finally, the new unit has to be integrated into the bank's set of risk control instruments and its ongoing risk management process, so that risks and limits can be monitored and any necessary control measures can be taken.

In this way, the bank's risk (sub-)strategy ensures from the outset that the implementation and control of the new business project is consistent with the bank's strategic risk objectives.

The risk strategy for the commercial real estate financing unit thus defines the framework for internal risk management and ensures that the implementation and details are consistent with strategic objectives.

4.1.1 Risk Policy Principles

The bank's risk strategy is based on its risk policy principles, which include all central rules of conduct for handling risks within the bank. These principles form the basis for a maximum of uniformity in the employees' understanding of the bank's risk management goals throughout the organization.

Risk policy principles must be defined by the management and should be reviewed regularly and adapted whenever necessary. The following examples might be included in a bank's risk policy principles (in practice, these would be replaced or supplemented with additional principles which suit the specific institution):

- The management and all employees feel committed to the bank's risk policy principles and make their day-to-day decisions according to these guidelines.
- The bank's risk management is organized in such a way as to prevent conflicts of interest among employees and organizational units.
- With regard to material risk types (which in some cases may endanger the bank's existence), the bank aims to practice risk management at a level which is at least on par with other institutions of similar structure and size (best-practice approach).
- In the case of an unclear risk situation or doubts with respect to methodology, the principle of prudence shall take precedence.

- Risk management and the ICAAP are primarily based on the going concern objective. Additional requirements – especially those of a supervisory nature – generally must be fulfilled by maintaining the appropriate cushions.
- In general, the institution focuses its exposures only on lines of business in which it possesses the expertise necessary to evaluate specific risks.
- The introduction of new business lines or products is generally preceded by a suitable analysis of business-specific risks.

If the risk policy principles are known throughout the bank, employees will be able to deduce which course of action complies with the principles in many specific cases. If, for example, the company's risk policy principles require adherence to the principle of prudence in all cases of doubt, many questions of interpretation in the implementation and realization of risk management systems can be resolved without the need for extensive inquiries or coordination.¹³

In addition to the overall bank perspective, it is often helpful to establish certain principles for specific risk types, for example in a credit risk policy, market risk policy or liquidity risk policy. In the case of credit risk, for example, the bank could stipulate that loans should not be granted to borrowers of poor credit quality on the basis of collateral alone, or that each individual transaction must be assigned a rating.

4.1.2 Risk Appetite

Apart from risk policy principles, the bank's risk appetite is another influencing factor in its fundamental risk attitude. Risk appetite is defined as the bank's willingness to take on financial risks as quantified by the appropriate indicators (i.e. as a measure of the bank's risk-seeking behavior). The definition of a suitable risk appetite is a basic operational prerequisite for the bank to set consistent risk limits.

In this context, the following factors (expressed here in general terms) must be observed:

- How much risk can the bank take on (and especially: which supervisory constraints have to be observed)?
- How much risk does the bank want to take on (and at what rate of return)?
- How much capital is necessary to cover the specific risks involved (capital planning)?¹⁴

The last point, capital planning, is one of the core tasks in the definition of a bank's risk appetite. The bank's capital planning should clearly reflect its current capital needs, planned capital consumption, targeted future capital level given its intended risk appetite, and rough plans for external and internal sources of capital. The following aspects of capital planning should not be neglected:

- Dependency of capital planning on stages in the business cycle (especially relevant to credit risk);
- International legislation: In capital planning for internationally active banks, differences between national legal frameworks (e.g. tax law, contract law, etc.) must also be taken into account.

¹³ For example, this could play a role in handling correlations in risk aggregation or in the limitation of allocated risk coverage capital to those components which will certainly be available even in cases of crisis.

¹⁴ Here the term "capital" is intentionally not specified, that is, the distinction between regulatory (own funds) and internal capital is not yet drawn at this point.

In this context, the management's primary task is to strike a balance between the interests of equity investors, lenders and supervisory authorities, which define requirements for the minimum capital to be maintained. A targeted external rating and the (indirectly related) confidence level for loss probability (as specified by rating agencies) can also play an essential role here.

In the next step, the challenge is to transpose this risk appetite – defined at the highest level of management – onto risk types and business lines (or operational sub-units) in an appropriate manner. In this way, the bank can define its target risk structure and at the same time enable decentralized risk responsibility and decision-making in individual lines of business or operational units.

4.1.3 Actual and Target Risk Structure

Based on the defined risk appetite, an overview of the bank's actual risk structure can provide a starting point for defining its target risk structure. The bank's actual risk structure might include the current relative significance of various risk types at the overall bank level (credit risk, market risks in the trading book, interest rate risk in the banking book, etc.) and the distribution of risk concentrations among individual risk types.

An analysis of the bank's actual risk structure can point out areas where imbalances between risk types exist or where changes are necessary due to other risk concentrations, and where the bank's risk structure is difficult to change and thus requires a long-term development plan.

Therefore, the actual risk structure highlights a potential need for action and provides a framework for the bank's further development toward its target risk structure.

The bank should base the future development of its risk structure on its planned business structure and business strategy, as this is the only means of creating the necessary consistency between business and risk strategies. The significance of a bank's business structure becomes obvious when we compare institutions characterized by homogeneous business structures (e.g. specialized banks such as vehicle financing or mobile telephone banks) with institutions that use heterogeneous business structures (e.g. large universal banks), as such comparisons point to relatively homogeneous or heterogeneous risk structures.

Therefore, the bank's target risk structure is ultimately derived from its defined risk appetite and its target business structure. This makes it possible to set the appropriate limits in the ensuing step.

The steps in developing a suitable risk policy – from defining the bank's risk appetite as a primary determinant of risk strategy to setting the appropriate individual limits – can be summarized broadly as follows:

1. Formulation of the bank's overall risk appetite in the form of high-level principles;
2. Definition of limits (initially aggregated for the overall bank) on the basis of the bank's articulated risk appetite and its (possibly rough) target risk structure;
3. Assignment of limits to individual risk categories and lines of business (or operational sub-units);
4. Validation of the expected utilization of individual limits and additional requirements and the consistent adjustment of limits;

5. Implementation of limits in actual operations.

A detailed discussion of limit-setting can be found in Chapter 4.4.2, Risk Limitation as Economic Capital Budgeting. At this point, it is important to ensure that the considerations and motives underlying the bank's risk structure and limits are adequately reflected in the risk strategy.

4.1.4 Basic Structure of Risk Management

The target risk structures and risk targets defined in a bank's risk policy principles (e.g. based on a best-practice approach) give rise to requirements for the actual design of risk management in the ICAAP. These objectives can affect the process of risk management as well as its organization.¹⁵

The general requirements for efficient risk management are defined by the bank's risk strategy and include the following:

- structural and process organization;
- distribution of responsibilities and reporting lines to be observed;
- internal control mechanisms and internal auditing;
- design of risk management and control processes;
- adherence to legal requirements; and
- recruiting and retaining key employees.

In particular, articulated risk policy principles and risk targets will also enable the bank to derive a methodological focus for ex post risk control in the risk management process (cf. Chapter 4.5.2.5, Risk Monitoring and Ex Post Control).

For example, with regard to credit risk the bank might employ the following examples of ex post risk control methods with differing levels of priority and intensity in order to reach its defined risk targets (here in the form of a target credit risk structure):

- **Risk avoidance:** In lending operations, for example, the bank might consistently reject credit exposures with poor creditworthiness on the basis of required risk/return ratios or by defining risk-sensitive business focuses (products, markets, industries, etc.);
- **Risk mitigation/limitation:** In particular, the bank can demand collateral and/or apply CRM techniques and adhere to the defined credit risk limits as derived above;
- **Risk diversification:** By diversifying its portfolio, the bank can hedge its dependence on specific developments and thus reduce its risk. Should the bank's portfolio fall below the desired degree of diversification, the bank will need to take suitable measures, such as shifting risk away from individual exposures;
- **Risk transfer:** In the case of credit risk, for example, the bank can use guarantees and credit derivatives (i.e. CRM techniques without the provision of collateral) and/or securitize its own exposures.

Not all methods have to be attributed the same level of importance at every bank. Rather, it is left to the discretion of the individual bank to focus on those methods which best suit its business strategy.

¹⁵ These two aspects are discussed in detail in Chapter 4.5.2, The ICAAP Risk Management Process, and Chapter 4.5.3, Risk Management Organization in the ICAAP.

Excursus: Assessing the Risk/Return Ratio

Principles of a Return-Oriented Risk Policy

Risk-taking is not an end in itself; rather it should always be assessed in relation to its potential returns. Under a return-oriented risk policy, risks should only be taken in cases where the appropriate return can be generated, that is, where risks and opportunities are balanced in the transaction. For this purpose, the risks involved in potential transactions are compared with their potential returns.

While risk-bearing capacity analysis must be used to ensure that a bank can afford to cover any losses which may be incurred, risk/return analysis is used to determine whether risk assumption is worthwhile for the bank.

The concept of risk-adjusted indicators can be especially helpful to senior management and employees in evaluating the risk/return ratio for individual transactions, business lines and the overall bank.

Risk-Adjusted Performance Indicators

RORAC (Return on Risk-Adjusted Capital), RAROC (Risk-Adjusted Return on Capital) and RARORAC (Risk-Adjusted Return on Risk-Adjusted Capital) as well as Economic Value Added (EVA) are the indicators most commonly used in risk-adjusted control. As these indicators are closely interrelated, only RORAC is described in detail here.

RORAC places the income arising from a risky position in relation to the potential risks involved. In simplified terms, RORAC represents the ratio of net income to risk capital. Net income is taken to mean income minus refinancing costs, operating costs, and expected losses (e.g. in loans).¹⁶ Risk capital refers to the amount required to cover unexpected losses. Risk capital can either be calculated using a value at risk concept or using simplified methods (e.g. those described in this guideline).

$$\text{RORAC} = \frac{\text{Net income}}{\text{Risk capital}}$$

The ratio shows which potential risk positions yield the best risk/return profile in terms of the expected return and the risk capital required (for a definition of capital types, see Chapter 4.3, Definition of Internal Capital).

The basic idea of comparing risk and return can then be transposed onto the bank as a whole. This performance indicator can thus be applied to individual transactions as well as entire business lines. For example, the bank can compare the risk and return involved in granting loans to large customers of varying credit quality. Likewise, the bank might also compare corporate customer business to retail customer business in terms of risk and return. In general, it is the individual bank to decide on the appropriate control indicators for pricing.

The benefits of calculating RORAC can be demonstrated using a simple example:

Assume that an investor has EUR 1,000 to invest. The investment horizon is one year, after which the investor will sell the position. Two investment options are available: Equity 1 and Equity 2. It is now necessary to compare these two alternatives.

Equity 1 is expected to yield an annual return of 4% and Equity 2 an annual return of 10%. This translates into expected income of EUR 40 (Equity 1) or EUR 100 (Equity 2).¹⁷

If only the expected return from these two investment alternatives is compared, then it immediately becomes clear that Equity 2 offers better prospects. From a purely return-oriented perspective, the investor would decide to invest the EUR 1,000 in Equity 2.

¹⁶ In contrast to the calculation of RAROC and EVA, the cost of equity is not deducted from net income here.

¹⁷ No costs are included in this calculation.

However, this perspective does not account for the risk involved in each investment. Once the expected income from each alternative is known, it is necessary to calculate the risk involved. Based on a one-year time horizon, the risk associated with Equity 1 is 2%, meaning that Equity 1 would tie up EUR 20 in risk capital. For Equity 2, the risk comes to 20%, that is, the investor's EUR 1,000 may only be worth EUR 800 after one year. Therefore, the investment would tie up EUR 200 in risk capital.

Using the RORAC figures for Equity 1 and Equity 2, we can now assess the risk/return ratio of each investment. Here it becomes clear that although Equity 2 offers a higher potential return, its risk is disproportionately high. The RORAC for Equity 1 is markedly higher, meaning that the risk/return ratio is better in this investment.

$$\text{RORAC of Equity 1} = \frac{40}{20} = 200\%$$

$$\text{RORAC of Equity 2} = \frac{100}{200} = 50\%$$

As this example shows, risk-adjusted indicators offer a highly effective means of comparing various investment alternatives. As a result, banks and investors have been using these indicators for quite some time.¹⁸ For banks, this means that the RORAC concept shows sound potential applications in the management of proprietary holdings and trading activities.

The risk/return ratio and its methodological deployment using risk-adjusted indicators is a useful and desirable form of integrated risk control and capital management. In the first step, however, banks should regard the representation, assessment and maintenance of risk-bearing capacity as a higher priority in the ICAAP.

4.2 Assessment of All Material Risks

An essential prerequisite for analyzing the risk-bearing capacity is to assess all of a bank's material risks and aggregate them into the bank's overall risk position. The sections that follow describe useful procedures for this purpose. In this process, we begin by classifying the various risk types. This covers the risk types included in the calculation of minimum capital requirements (credit risk, market risk and operational risk) as well as those which are not accounted for completely (e.g. concentration risks) or at all (e.g. interest rate risk in the banking book, strategic risk) in that process. On this basis, we suggest various assessment methods for each risk type in line with the proportionality principle. Finally, methods of aggregating risk are also discussed.

4.2.1 Classification of Risks

In this guideline, the term risk is defined as the danger of an adverse deviation in the actual result from an expected result. In formal terms, this interpretation of risk can be expressed as a probability distribution, with future results fluctuating around an expected level. The possibility of a positive deviation is referred to as an opportunity, while the reverse situation is understood as risk in the narrower sense.

Accordingly, attaining a defined target is not considered a risk, although this may also be associated with negative financial effects. In order to make this point clear, we can examine a bank's lending business. Credit defaults obviously reduce the bank's profits. However, if the bank has been able to derive an expected value

¹⁸ Investment funds are often evaluated on the basis of risk/return ratios, among other indicators. In this area, the Sharpe Ratio is used frequently.

from experience over time, defaulted loans in that exact amount do not have to be considered risks; rather, they can be integrated directly into the ICAAP by way of pricing and the definition of coverage capital. The actual risk to the bank thus consists in the danger that the result will deviate negatively from the expected value due to random fluctuations.

The purpose of assessing risks is to depict the significance and effects of risks taken on the bank. In the first step, a bank can use risk indicators to assess which of its risks are actually material. In the second step, the bank should quantify its risks wherever possible.¹⁹ Finally, the bank can calculate the internal capital required to cover its risks.

In order to ensure that risks are consciously handled and systematically managed in line with the ICAAP, it is especially important to distinguish between relevant risk categories. In this respect, this guideline relies on the risk classifications specified by banking supervisors.²⁰ The risk classification chosen is meant to assist the bank (cf. Chart 9: Classification of Risks) in assessing the areas where it might be able to rely on supervisory risk measurement approaches (i.e. pre-defined methods of calculating minimum capital requirements) and where additional risk measurement methods would be appropriate.

Credit risk refers to the negative consequences associated with defaults or the non-fulfillment of concluded contracts in lending operations due to a deterioration in the counterparty's credit quality. The category of credit risk can be subdivided into the specific risk types of counterparty risk, equity risk (participations), securitization risk and concentration risk. In addition, another type of credit risk exists: the residual risk resulting from the use of credit risk mitigation techniques. This type of credit risk does not arise due to a deterioration of the counterparty's creditworthiness, but from an insufficient ability to realize the collateral taken. This may result from the possibility that the legal mechanism by which the collateral was pledged or transferred does not guarantee that the bank has the right²¹ to liquidate or seize the collateral. Another possibility is that the collateral will not turn out to be as valuable as expected.

Market risk generally refers to risks which result from price changes on the money and capital markets. Therefore, this type of risk arises due to fluctuations in market prices (e.g. share prices), exchange rates, interest rates and commodities prices. Accordingly, market risks are further classified as equity price risk, foreign exchange risk, interest rate risk and commodities risk.

As defined in the Austrian Banking Act (BWG), market risks include foreign exchange risk and risks in the trading book. In addition, interest rate risk in the banking book is indicated as a separate category.²²

Operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people or systems, or from external events.²³ This definition does not include strategic risk and reputation risk.

¹⁹ Risk quantification typically measures the degree of risk, which is expressed as the product of the loss amount (in monetary units) and its respective probability of occurrence.

²⁰ Similar classifications can be found in the EU Directive 2000/12/EC and in the CEBS "Guidelines on the Application of the Supervisory Review Process under Pillar 2".

²¹ Legal risks are generally seen as a component of operational risk (cf. definition of operational risks). However, those legal risks which arise from transactions intended to mitigate credit risk are defined explicitly as a subtype of credit risk (residual risks arising from credit risk mitigation techniques).

²² From an economic standpoint, other market risks also exist in the banking book (e.g. equity price risk).

²³ This definition of operational risks can be found in the EU Directive 2000/12/EC, cf. Article 4 item 22.

Liquidity risks can be categorized as term liquidity risk, withdrawal/call risk, structural liquidity risk (funding liquidity risk) and market liquidity risk. Term liquidity risk refers to an unexpected prolongation of the capital commitment period in lending transactions. Withdrawal/call risk is the risk that more credit lines will be drawn or more deposits withdrawn than expected. This brings about the risk that the bank will no longer be able to meet its payment obligations without constraints. Structural liquidity risk arises when the necessary funding transactions cannot be carried out (or only on less favorable terms). Market liquidity risk arises when positions can only be liquidated immediately at a discount.²⁴

The category of other risks comprises those risk types for which no (or only rudimentary) quantification methods exist. In particular, strategic risk, reputation risk, capital risk and earnings risk are placed in this category.

The chart below provides an overview of risk types:

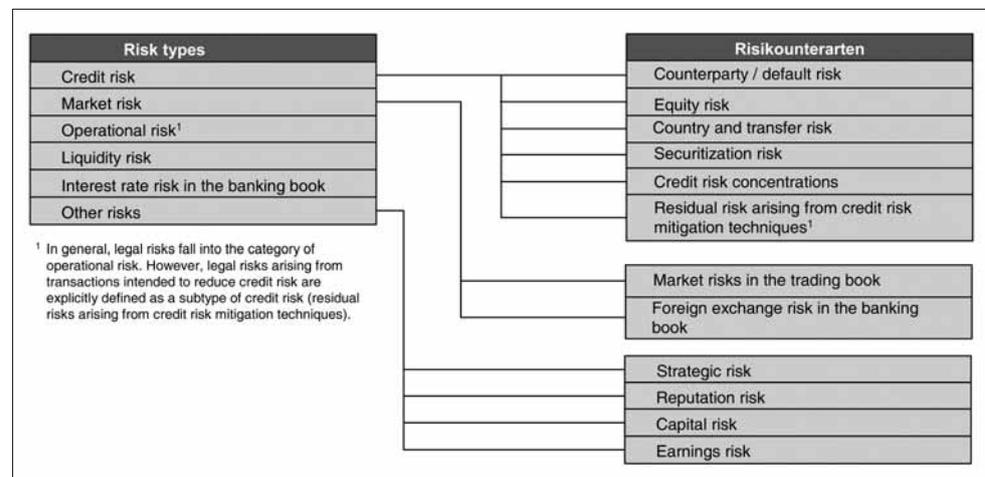


Chart 9: Classification of Risks

In its specific ICAAP, a bank may also use a different categorization, but the institution should be able to demonstrate that its risk classification is appropriate to its situation and that all material risks are captured.

Several of the risk types presented here (e.g. market and credit risk) can be quantified relatively effectively, meaning that standards for the assessment of these risks have established themselves on the market. There are also risk types (e.g. operational risk) which can basically be quantified at present, but the methods used for this purpose are still in the development or implementation stage at many banks. Finally, there are also risk types for which no quantification methods exist (yet), especially in the category of other risks.

Below we will discuss widely used risk measurement methods which banks can use within the framework of the ICAAP. In line with the proportionality principle, we begin by covering the simpler methods and explaining their application. In this context, we also rely on the standard methods of calculating minimum capital requirements. These methods may be sufficient for those banks whose self-assessment indicates low levels of risk.

²⁴ Due to their similarity, market liquidity risk and market risk are discussed together in this guideline.

On the basis of the simpler methods, we also explain the cases in which it may be useful for a bank to use more advanced risk measurement procedures. In addition, it is necessary to point out that – especially due to technical developments – a number of pragmatic solutions beyond the supervisory (minimum) standards are available; these solutions enable banks to improve risk measurement substantially with reasonable effort. Thanks to the improved accuracy of control, the benefits of these more advanced solutions often offset the required implementation costs even after a short time. However, it is ultimately the responsibility of the individual bank to define suitable internal measurement methods in line with its own risk assessment (see Chapter 3.1.1, Indicators for Specifying Risk Structure). The sections below are intended to provide guidance in this area.

4.2.2 Credit Risks

In this chapter, we present methods of accounting for the following types of credit risk for ICAAP purposes:

- Counterparty/default risk;
- Equity risk (participation risk);
- Credit risk concentrations (including, for example, large exposures, country and transfer risk, industry risk and indirect credit risk concentrations arising from credit risk mitigation techniques).

Credit risks resulting from transactions intended to reduce credit risk (also referred to as residual risks arising from the use of credit risk mitigation techniques) are discussed along with counterparty or default risk due to the close links between these risk types.

Securitization risk can be regarded as yet another dimension of credit risk. Banks in which securitization programs reach a substantial level should refer to the relevant FMA/OeNB guidelines publication.²⁵

4.2.2.1 Counterparty/Default Risk

Various methods can be employed to assess counterparty or default risk in the ICAAP. In the simplest case, the methodology of the Standardized Approach (as applied in the calculation of minimum capital requirements) can be used to determine counterparty risk. In this method, risk weights are defined for certain types of credit exposures primarily on the basis of credit assessments provided by rating agencies. The default risk is then equated to the resulting capital requirements (cf. Chart 10: Calculating Credit Risk using the Standardized Approach).

In the calculation of capital requirements, various credit risk mitigation techniques can be used in order to limit credit risk. Under the Standardized Approach, these include financial collateral, certain forms of physical collateral as well as guarantees and credit derivatives.

In addition, other types of collateral can also be used for the purpose of internal control in the ICAAP. However, this requires that the bank can demonstrate that recognized collateral is actually valuable and that the bank has suitable

²⁵ See the volume “Best Practices in Risk Management for Securitized Products” from the OeNB/FMA series of guidelines on credit risk.

strategies and methods of controlling and monitoring any residual risks. In this context, it is necessary to ensure that agreements regarding the provision of collateral can be enforced legally, and that the borrower's credit quality and the value of the collateral do not show significant positive correlations.²⁶ Moreover, the collateral should be subjected to regular revaluation.

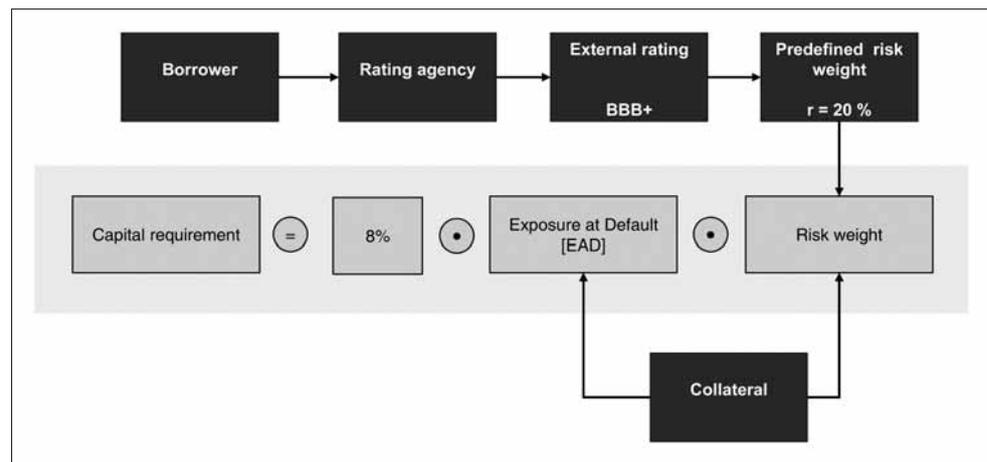


Chart 10: Calculating Credit Risk using the Standardized Approach

The requirements for risk-based application of the Standardized Approach²⁷ are the availability of external ratings for the borrowers in the portfolio as well as calculations of exposure at default (EAD). This may be a problem for those banks whose borrower portfolio mainly consists of small and medium-sized enterprises which do not have external ratings. In such cases, it is possible to use predefined risk weights for unrated exposures in the Standardized Approach, but then the assigned risk weight is calculated exclusively on the basis of the asset class and does not take account of the borrower's actual creditworthiness. Banks which plan to use the Standardized Approach for ICAAP purposes should thus be aware that a more risk-adequate assessment of their credit risks will generally only be possible if external ratings are available for the bank's credit portfolio. If no such ratings exist for a majority of the portfolio, then it will not be possible to assess those exposures in a risk-based manner under the Standardized Approach. In those cases, it is advisable to maintain additional capital cushions due to the omission of creditworthiness, which is an essential risk driver.

Another characteristic of the Standardized Approach is that it does not differentiate between expected and unexpected loss. Expected losses should be calculated as standard risk costs in the credit approval process. The actual credit risk, which refers to a potential "surprise loss", thus only comprises the unexpected loss beyond the expected loss assumed in the calculation of standard risk costs. In order to ensure that these data can be compared and aggregated with other risks (e.g. market risks), it is advisable to use unexpected loss as the uniform basis for risk measurement.

²⁶ For information on the general legal conditions for substantiating and enforcing credit collateral under the Austrian legal framework, please refer to the OeNB/FMA guideline on credit risk mitigation techniques.

²⁷ That is, high-risk transactions also have to be supported with more capital than low-risk transactions in the ICAAP.

Regardless of whether a distinction is drawn between expected and unexpected loss, the most important decision criterion in selecting suitable risk quantification methods should be their risk orientation (i.e. increased risk requires increased capital).

The Internal Ratings Based (IRB) Approach in the EU Directive 2000/12/EC offers an assessment method which largely fulfills this requirement. In this approach, the unexpected loss of an exposure is calculated on the basis of a bank's internal ratings. The supervisory capital requirements per credit exposure are then determined according to the bank's internal rating categories. In the IRB Approach, the following risk parameters have to be calculated for each loan:²⁸

- Probability of default (PD): This reflects the probability that a counterparty will default within one year.
- Loss given default (LGD): This parameter indicates the amount of the loss expressed as a percentage of the amount outstanding at the time when the counterparty defaults. Collateral plays a crucial role in LGD estimation.
- Exposure at default (EAD): This refers to the credit amount outstanding at the time of default.
- The effective maturity (M) of the exposure.

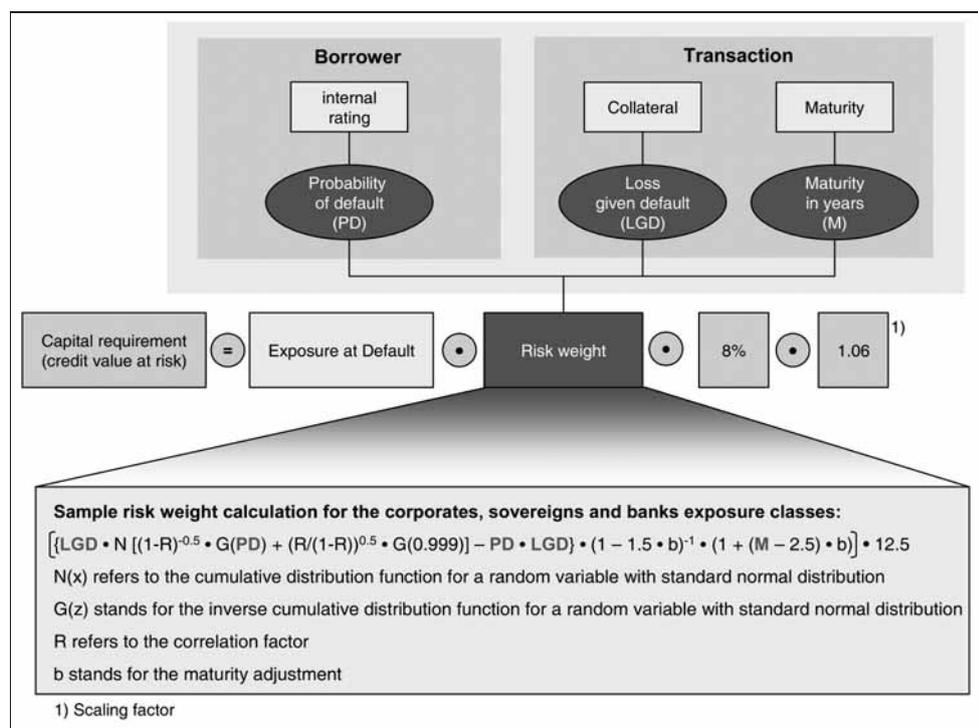


Chart 11: Calculating Credit Risk using the IRB Approach

One essential prerequisite for calculating unexpected loss is the availability of default probabilities (PDs). As it is also possible to rely on predefined supervisory values for the other risk parameters (LGD, EAD, M), the bank's internal

²⁸ Cf. EU Directive 2000/12/EC, Article 4 items 25 and 27, Annex VII Part 3, and Part 2 Section 1.3.

calculation of default probabilities constitutes the central indicator in calculating a simple credit value at risk under the IRB Approach.

PDs are assigned to individual borrowers on the basis of the bank's internal credit assessments or ratings. Already under current Austrian Banking Act (cf. Article 39 BWG), due diligence obligations require institutions to classify the creditworthiness of existing and potential counterparties. However, in many cases banks do not convert these credit assessments into one-year probabilities of default. For banks whose internal rating grades are not linked to PDs, these probabilities can still be calculated with reasonable effort. For this purpose, it is advisable to map existing rating grades onto "master scales", which assign a specific probability of default to each rating. In this way, the default probabilities required under the IRB Approach can be determined on the basis of the assigned rating grades for all borrowers.

In the Standardized Approach, the exposure at default (EAD) is calculated using the balance sheet value of the exposure.²⁹ In contrast to the Standardized Approach, however, the IRB Approach uses the amount before value adjustments (i.e. the exposure amount before any specific loan loss provisions or partial write-offs).³⁰

The effective maturity (M) of a loan can be calculated using predefined supervisory formulas based on the underlying transactions. On the other hand (and this method is especially recommended for smaller banks), it is also possible to use predefined supervisory values (for most exposures, the predefined value is 2.5 years).

Credit Risk Models Based on IRB Approaches ("IRB Models")

Using the parameters mentioned above (PD, EAD, LGD, M), it is possible to use the risk weight function³¹ prescribed by the supervisor to calculate unexpected loss in the form of a simplified credit value at risk.³² The value at risk indicates a position's estimated value loss which will not be exceeded over a defined period of time at a given confidence level. As this calculation can be performed using a formula with few input parameters, using the IRB calculation model as a basis may also be of interest to banks which do not use the IRB Approach in their calculation of capital requirements.

Therefore, the calculation of internal default probabilities is a basic prerequisite for applying the IRB model in internal risk management at every bank. As regards the calculation of the other parameters, three subtypes of the IRB Approach can be differentiated for ICAAP purposes. The accuracy of the individual methods increases along with the use of internal estimates for the required risk parameters.

²⁹ For exceptions, see Annex VII Part 3 of the EU Directive 2000/12/EC.

³⁰ As risk is measured using unexpected loss, any value adjustments must be deducted from the risk cover as realized losses. In this way, it is possible to ensure the consistent calculation of risks as well as risk cover. Cf. also Chapter 4.3, Definition of Internal Capital.

³¹ In principle, multiple risk weight functions exist, depending on the class to which the credit exposure is assigned. For the sake of simplicity, a bank can reasonably confine itself to the risk weight function for corporates, sovereigns and banks for internal risk management (see the EU Directive 2000/12/EC, Annex VII Part 1 Section 1.1). In this case, the risk of all the bank's exposures – regardless of which asset class they are assigned to – is calculated using this single function.

³² In the calculation of credit value at risk, a time period of one year and a confidence level of 99.9% are assumed.

- Basic IRB model: Internal estimation of PD, use of predefined supervisory values for other risk parameters;
- IRB model with simplified LGD estimation: Internal estimation of PD and LGD (without formal adherence to the minimum requirements for LGD estimation), use of predefined supervisory values for effective maturity;³³
- Advanced IRB model: Internal estimation of all risk parameters with due attention to minimum supervisory requirements.

Another input parameter in the calculation of credit risk under the IRB Approach is the expected loss given default (LGD). In contrast to the probability of default, this parameter is not based on an assessment of the counterparty but on the specific transaction. In this context, loss is defined as economic loss, meaning that the proceeds from collateral realization are also taken into account (minus the direct and indirect costs of realization).

The simplest method of calculating LGD is to use the supervisory values predefined for the Foundation IRB Approach. In contrast, the most advanced method involves internal LGD estimates based directly on the minimum supervisory requirements. However, as these internal LGD estimates involve considerable effort, simplified methods may also be used for ICAAP purposes. For example, the bank might base its estimates on the degree of collateralization. This method borrows from the formal estimation of LGD in the Advanced IRB Approach. However, the main difference lies in the fact that this estimate is based not on data histories spanning many years with precisely calculated economic losses, but more pragmatically on the ratio of the outstanding exposure amount to the value of the available collateral. For the purpose of estimation, specific realization rates are assumed for individual collateral types. Although internal LGD estimation methods for ICAAP purposes do not have to meet the formal requirements of the Advanced IRB Approach, they should at least be based on reliable assumptions and reflect reality as accurately as possible. For example, auction proceeds from the recent past might be used for estimation purposes.

Here it becomes clear that (with a few simplifications) it is possible to employ a ratings-based approach to assessing credit risks for ICAAP purposes with far less effort than the formal introduction of the IRB Approach to calculating minimum capital requirements would require. In this way, it is possible to create the conditions necessary to calculate unexpected loss for credit risks in the form of credit value at risk. The calculations required for this purpose can even be carried out with simple spreadsheet programs.

The methods presented, which are based on the IRB Approach, rely on the assumption that the banks' credit portfolios show the highest possible degree of diversification and granularity. In practice, however, the credit portfolios at many banks show concentrations in the form of high loan volumes to individual borrowers, groups of connected clients or industries (see also Chapter 4.2.2.3, Credit Risk Concentrations). As a result, using an IRB model can create a lack of precision in quantification and even lead to substantial underestimates of risk. For this reason, banks should control and limit concentration risks by means of appropriate structural limits and borrower limits based on creditworthiness.

³³ These explanations only refer to application within the framework of the ICAAP.

Moreover, for the purposes of the institution's specific ICAAP, credit portfolio models can provide a useful methodological basis for larger institutions with a substantial share of credit risk in their overall risk structure. Due to the effort required for design and introduction, however, many smaller institutions will probably have to view this method more as a desirable goal in the future development of their credit risk assessment procedures.

4.2.2.2 Equity Risk (Participations)

The supervisory Standardized Approach is the simplest measurement method in the case of equity risks (participations) as well. Especially for equity investments, banks should generally review whether the existing risks should be considered material before choosing suitable methods of risk quantification. For this purpose, the bank can use the indicators mentioned in Chapter 3.1.1, Indicators for Specifying Risk Structure. Assessing whether risks are material is highly important because using the Standardized Approach can lead to vast underestimates or overestimates of risk due to the different characteristics of equity investments as a result of the undifferentiated treatment of equity investments in this approach. As a result, the Standardized Approach does not seem suitable for assessing equity risks if the bank holds material equity risks in its portfolio.

Due to the heterogeneity of equity investments, if material risks exist it is advisable to differentiate equity investments by type when selecting the appropriate quantification methods. In this context, we differentiate between market-valued and "debt-like" equity investments.

For illiquid and/or debt-like equity investments, it is advisable to use measurement methods which are similar to those applied to credit risks. As in the case of credit risk, banks can again apply the methods of the IRB Approach.³⁴ The easiest approach is the simple risk weighting method, in which predefined risk weights are assigned to certain types of equity investments. These weights range from 190% to 370%. In contrast to the Standardized Approach, this method accounts for the fact that as a rule equity investments are accompanied by higher risks than conventional loans, but it does not constitute a truly risk-based assessment. Risk is calculated solely on the basis of the type of equity investment, meaning that credit quality is not taken into account.

In the PD/LGD method, default risk is basically calculated as in the general IRB model: On the basis of the risk parameters PD, LGD, EAD³⁵ and M, a predefined risk weighting function is used to calculate unexpected loss. The main difference from the general IRB Approach lies in the fact that the risk parameters (PD and LGD) must not fall below certain limits. This accounts for the fact that equity investments tend to show higher levels of risk. The advantage of the PD/LGD approach is its risk-adequate assessment on the basis of creditworthiness. Consequently, this approach is recommended for all institutions which hold substantial debt-like equity investments in their portfolios.

³⁴ See the EU Directive 2000/12/EC, Annex VII Part 1 Sections 1.3.1 and 1.3.2.

³⁵ Both the book value and the market value of the equity investment can generally be used as the assessment base for ICAAP purposes. In this context, it is important to ensure that the definition of risk cover corresponds to the valuation approach used. For example, hidden reserves from equity investments cannot be used to calculate risk cover if only book values are used in risk measurement.

Like the IRB formula, the PD/LGD method can be deployed with relatively simple tools (e.g. spreadsheet programs). Besides default probabilities, the only other prerequisite for using this method is access to the institution's current list of equity investments as well as the accompanying valuation approaches (market or book values).

For market-valued equity investments, risk measurement can be based on market risk calculation methods. This can be especially useful in the case of exchange-traded equity investments (equities), equity funds, index funds and (equity) certificates, as these methods enable more risk-adequate assessments.³⁶ For the sake of completeness, it is also necessary to mention risk quantification for market-valued equity investments using the IRB Approach based on internal models.³⁷ However, this is a highly involved method which appears more suitable for large banks.

4.2.2.3 Credit Risk Concentrations

Credit risk concentrations may involve large exposures to groups of connected clients. These groups refer to companies which are legally or economically connected in such a way that a majority of the individual borrowers in the group would encounter repayment problems³⁸ if a single one of them encountered financial difficulties. At the same time, credit risk concentrations can also include significant exposures to groups of borrowers whose default probabilities depend on the same factors (e.g. loans to customers whose financial strength depends on the same products or services, or loans to customers from the same region).

Credit risk concentrations can generate such large losses that the risk-bearing capacity and continued existence of the bank might be endangered. In the past, bank insolvencies have often been attributed to the effects of credit risk concentrations. Accordingly, this risk deserves increased attention.

Various forms of credit risk concentrations can be distinguished in this context. The most important ones are as follows:

- **Large exposures to individual clients or groups of connected clients:** The difficulty in assessing this form of credit risk concentration lies primarily in identifying connected clients. It is not sufficient to consider only those groups which prepare consolidated balance sheets. Instead, the bank must examine its individual borrowers for economic dependencies. Mutual guarantees, joint property or the same management can serve as signs that counterparties are connected to one another.
- **Large exposures to clients of poor credit quality:** This form of credit risk concentration refers to concentrations in a bank's lower rating grades. In the ICAAP, banks should define the maximum risk they are willing and able to take on in each rating grade. In line with the principle of risk orientation (i.e.

³⁶ A description of various market valuation methods can be found in Chapter 4.2.3, Market Risks in the Trading Book, Foreign Exchange Risks at the Overall Bank Level.

³⁷ See the EU Directive 2000/12/EC, Annex VII Part 1 Section 1.3.3.

³⁸ In the worst case, all of the borrowers in the group would default.

increased risk requires increased capital), correspondingly lower exposure limits should be specified for the lower rating grades in particular. Even a “medium-sized” loan volume can create problems in these rating grades (cf. Chapter 4.4.2, Risk Limitation as Economic Capital Budgeting).

- **Countries:** In the case of country or transfer risk, the risk needs not necessarily arise from the counterparty’s actual default; rather, the danger is that the counterparty will not be able to meet its obligations because the relevant central bank does not make the required foreign exchange available. Country risk thus refers to the inability or unwillingness of a country to provide foreign exchange for interest and principal payments. In addition to transfer risk, economic or political developments in a country can also have a direct impact on the borrowers’ creditworthiness. As a result, increased lending to borrowers in a given country can lead to correspondingly high losses for the institution if country risks are realized.
- **Industries:** Industry risk refers to loans granted to customers whose creditworthiness depends on the same products or services.³⁹ The risk connections within an industry are less pronounced than in the case of a group of connected clients or a country, but a specific industry crisis can still bring about a marked increase in default rates in that industry as well as dependent industries.
- **Risk arising from foreign currency loans and foreign currency loans with repayment vehicles:** This form of credit risk concentration is particularly widespread in Austria.⁴⁰ Foreign currency loans are granted to non-banks and are at least partly denominated in currencies other than the euro. Foreign currency loans with repayment vehicles are also granted to non-banks, and repayment is supported by one or more financial products in which the borrower’s payments serve to form capital which is later used (at least in part) to repay the loan (i.e. repayment vehicles). In this form of concentration, classic foreign exchange risk is borne by the customer. Therefore, the borrower’s ability to repay (creditworthiness) may be severely impaired by unfavorable developments in the exchange rate.⁴¹ If a bank holds large parts of its assets in the form of foreign currency loans, default rates may rise drastically in extreme cases.
- **Indirect credit risk concentrations arising from credit risk mitigation techniques:** This risk refers to concentrations which mainly originate from the increased use of only one type of collateral at a given bank. Examples of this might include securing loans primarily with commercially used real estate or the use of a single guarantor for a majority of loans.

In the ICAAP, banks should introduce effective internal strategies, systems and reviews to identify, assess, control and monitor any substantial credit risk concentrations. The basic idea in this context is that increasing loan diversification will serve to reduce such concentrations. In this context, banks can rely on two

³⁹ Industry risk is especially challenging for banks because in many cases there are no clear delineations between industries.

⁴⁰ Cf. Chapter 4.5.5, References to FMA Minimum Standards.

⁴¹ In certain cases, a foreign currency loan can also have a positive impact on creditworthiness, for example when the borrower collects revenues in the same currency.

possible methods of limiting credit risk concentrations: the strict limitation of concentration risks or limitation by way of increased monitoring (see Chapter 4.4.2, Risk Limitation as Economic Capital Budgeting).

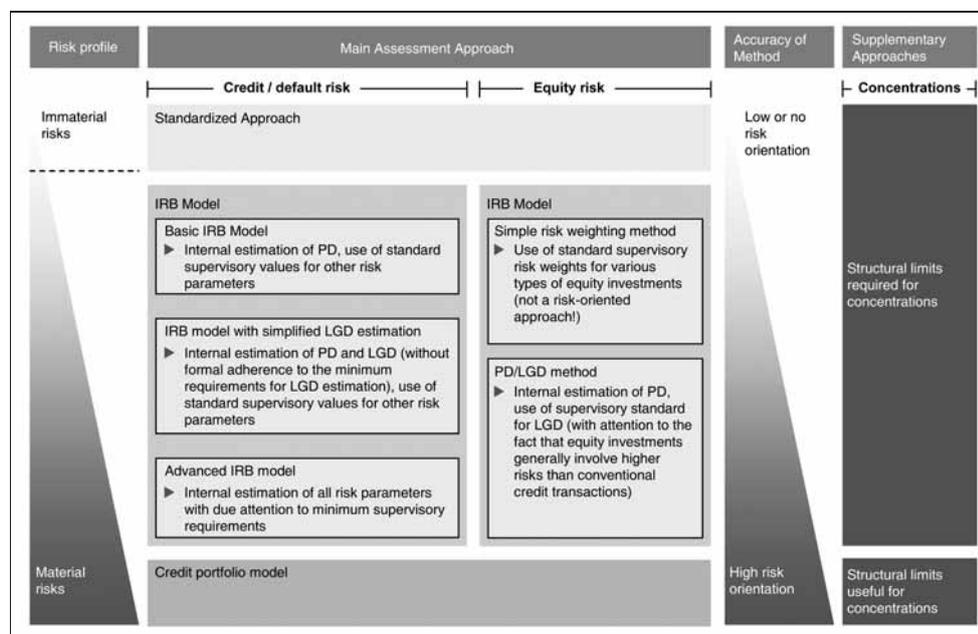


Chart 12: Overview of Possible Approaches to Assessing Credit Risks

Procedures to limit concentration risks are especially recommended for banks which have no (or only insufficient) means of measuring concentrations due to the methods they use to assess credit risks. The methods actually used should be chosen according to the relevant type of concentration. A strict limitation⁴² of concentration risks is particularly suitable when the individual exposures in a group of similar exposures show high positive correlations with one another. For all other types of correlations (e.g. industries), increased monitoring can be used for limitation purposes.

⁴² In this context, the limit can be derived directly from the bank's risk-bearing capacity, cf. Chapter 4.4, Securing Risk-Bearing Capacity.

4.2.3 Market Risks in the Trading Book, Foreign Exchange Risks at the Overall Bank Level

In line with the proportionality concept, an evolutionary process in risk measurement also emerges in the case of market risk in the trading book, foreign exchange risk at the overall bank level and interest rate risk in the banking book. This means that the higher a bank's risk appetite and the more complex its risk structure is, the more sophisticated its methods of risk measurement should be.

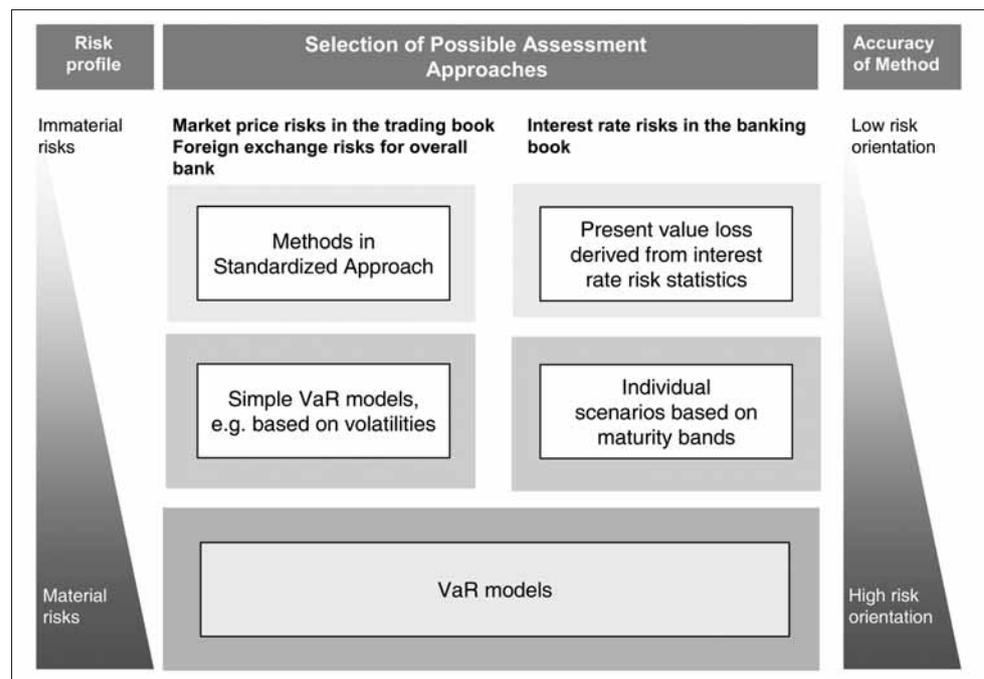


Chart 13: Overview of Assessment Methods for Market Risk in the Trading Book, Foreign Exchange Risks at the Overall Bank Level, and Interest Rate Risks in the Banking Book

Market Risks in the Trading Book

For the purpose of measuring risk in the trading book, banks can use the standard supervisory methods for calculating capital requirements. The advantage of this approach is that the figures are already available from the bank's calculation of capital requirements. The disadvantage of the standard method is that this means of risk measurement only partly reflects economic risks. The larger and more complex a bank's trading positions become, however, the less closely the calculated capital requirements reflect the actual risk level. Especially in large, highly diversified portfolios and in the case of exotic derivatives or other complex products, economic risk can deviate markedly from the calculated capital requirements. In such a case, the bank should make efforts to improve the quality of risk measurement in the ICAAP. This can usually be achieved using a VaR model. However, we will first describe a pragmatic approach which can be regarded as a sort of precursor to the VaR model.

In the simplest solution, the bank can use historical data to derive volatilities (standard deviations) for a defined holding period and then rescale those volatilities to the desired confidence level. This will allow the bank to derive a probability-based risk value. For example, the bank can derive the risk of a stock from

its historical margin of fluctuation and scale the risk to a desired confidence level. A different method must be applied in the case of interest-bearing instruments. Based on classic valuation methods (sensitivity measures) such as modified duration or PVBP (present value of a basis point), a bank can first calculate the sensitivity of the position's present value to changes in market interest rates. However, a statement as to the probability of the interest rate change is still missing. The bank can make this estimate using a probability-based scenario derived from historical market data (e.g. an interest rate increase of 100 basis points).

However, this pragmatic method is only suitable for relatively short holding periods or for a rough indication of risk. Sensitivity measures (e.g. modified duration) assume an immediate change in interest rates and disregard the effects of the time horizon. For a rough estimate of risk, it is also possible to derive a price volatility from an interest volatility.⁴³

In order to ensure comprehensive, probability-based risk measurement across all risk classes, it is advisable to use VaR models. The advantages of these models include the ability to aggregate individual risks and the greater ease of scalability (i.e. changes in the time horizon or confidence level). For banks which have a high risk profile with regard to the size and type of trading portfolios, using a VaR model is appropriate for internal risk measurement.

The most commonly used VaR methods are the variance-covariance approach, historical simulation and Monte Carlo simulation. The advantages, disadvantages and applicability of the individual models depend on the bank's portfolio structure, among other factors. This requires special attention in the selection of a suitable model in cases where a bank holds relatively large quantities of nonlinear derivatives (e.g. options) in its trading portfolio.⁴⁴

In market risk measurement, any existing market liquidity risks should also be taken into account. Market liquidity risks arise when a position cannot be sold within a desired time period or only at a discount (market impact). This is especially the case with securities/derivatives in illiquid markets, or when a bank holds such large positions that they cannot be sold easily. These market liquidity risks can be accounted for by extending the holding period in risk measurements (e.g. the holding period for VaR) or by applying expected values derived from experience. In this context, a bank should follow the principles of prudent valuation as specified in the EU Directive 93/6/EEC (Capital Adequacy Directive).

Foreign Exchange Risks in the Banking Book and Trading Book

Foreign exchange risks arise for a bank when exposures or liabilities are accepted in a foreign currency and are not offset by a corresponding position or derivative transaction. In an initial step, this risk can also be calculated using the supervisory capital requirements under Article 26 BWG. In this context, it is advisable – in analogy to risks in the trading book – to use a probability-based risk measurement method (VaR model) if material foreign exchange risks are involved. In order to calculate a simple value at risk, the open foreign exchange position in

⁴³ Cf. OeNB Guidelines on Market Risk, Volume 4: Provisions for Option Risks, Chapter 2.5.3.

⁴⁴ Cf. De Raaij and Raunig, A Comparison of Value at Risk Approaches and Their Implications for Regulators, OeNB Focus on Austria 4/1998; and Steiner et al., Value-at-Risk-Schätzung bei Optionen, p. 69 f.

each currency can be multiplied by the annualized volatility. The appropriate scaling can be performed to attain the desired confidence level.

4.2.4 Interest Rate Risks in the Banking Book

Interest rate risks are generally the most significant category of market risks for banks which do not maintain a trading book. Accordingly, the measurement of interest rate risks is very important for positions in the banking book. For the purpose of integration into the ICAAP, risk calculations should be based on a present value perspective. Guidelines for risk calculations from a present value perspective have been published by the Basel Committee (among others).⁴⁵ Considering risks under commercial regulations (P&L risk) is also necessary and useful in assets and liabilities management as well as for budgeting purposes.

In order to calculate economic risk, banks which have not yet implemented more advanced systems can also rely on the results reported in interest rate risk statistics. The 200 basis point interest rate shift assumed in this context is an extreme scenario in interest rate developments. However, the advantage of using interest rate risk statistics lies in the fact that banks without their own systems can use the results reported in interest rate risk statistics for the ICAAP with minimal additional effort. In the standard method, however, this merely provides a rough estimate of interest rate risk. Interest rate risk statistics do not include the effects of inversions in the yield curve or basis risk, and they overestimate the risks arising from linear positions (e.g. a fixed-income federal government bond). Instead of the 200 basis point interest rate shock, however, banks can consider various other interest rate scenarios. The quality of risk measurement increases if the bank is also able to calculate the probability with which the assumed scenario (e.g. an interest rate increase of 200 basis points) will occur. However, such an approach still tends to depict present value risk inaccurately, as the shortening of the effective maturity during the scenario is not taken into account.

The disadvantages mentioned above can largely be avoided by using a suitable value at risk approach. In such an approach, the present values of cash flows arising from interest rate commitments are calculated for all interest-bearing instruments in the banking book (assets, liabilities, off-balance-sheet items). The change in present value is derived by simulating market scenarios and revaluating the positions. In this process, the holding period and confidence level can be set according to the institution's requirements.

There are also other market risks in addition to interest rate risks in the banking book. If these risks have not been captured elsewhere, for example in equity risk measurements, then a market risk-based measurement should be performed. This may be appropriate for equities (cf. Chapter 4.2.2.2, Equity Risk), as risk measurements based on capital requirement calculations might be too imprecise. In order to calculate a risk-based value nonetheless, in the case of equities or index certificates it is possible to rely on historical volatilities (i.e. fluctuation margins, in analogy to the procedure described for risks in the trading book). As an alternative, it is also possible to calculate the volatilities of mar-

⁴⁵ Basel Committee on Banking Supervision (2004), Principles for the Management and Supervision of Interest Rate Risk.

ket indices only. In this context, the bank can use beta factors, which express the relationship between the index's fluctuation margin and that of the respective equity. Ultimately, using VaR models is also the optimum solution for other market risks in the banking book for the ICAAP, as this approach enables sound comparisons with other risk types.

4.2.5 Liquidity Risks

Liquidity risks can be categorized as term liquidity risk, withdrawal/call risk, structural liquidity risk (funding liquidity risks) and market liquidity risk. As market liquidity risk was already discussed in connection with measuring market risk, this chapter will deal with methods of measuring the other types of liquidity risk.

We will first describe term liquidity risk and withdrawal/call risk. A bank can assess its liquidity situation by comparing its payment obligations to its incoming payments. Liquidity risk can already arise due to a mismatch between incoming and outgoing payments. In addition, there may also be unexpected delays in repayments (term liquidity risk) or unexpectedly high payment outflows (withdrawal/call risk).

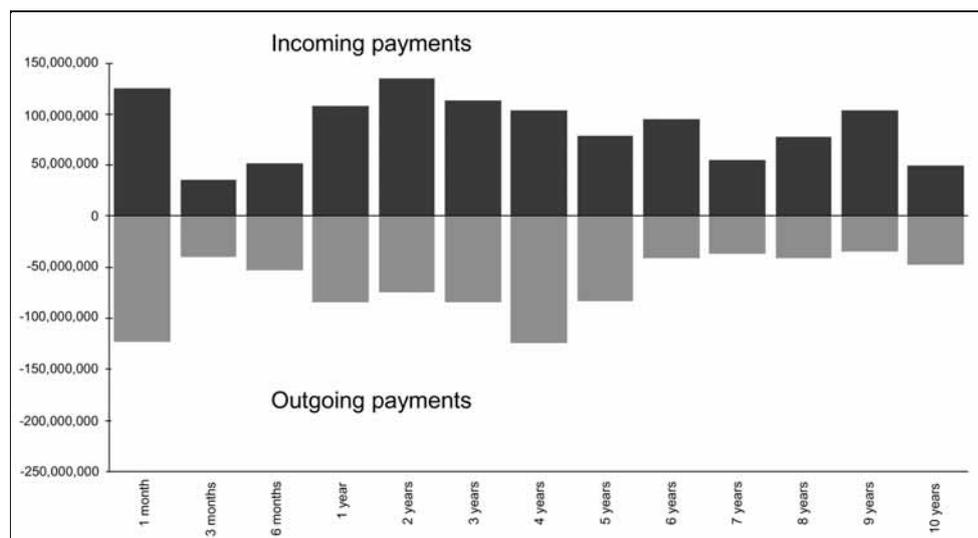


Chart 14: Liquidity/Funding Matrix

It is important to measure the liquidation period for assets and consider planned as well as potential outflows. With regard to the liquidity of assets and capital commitment assumptions, predefined supervisory values can also be applied. In the simplest case, banks can rely on the data reported for residual maturity statistics for the purpose of measuring liquidity risks. In order to measure and simulate liquidity risk, a bank can use its own assumptions and scenarios as long as these are appropriate and justifiable. The bank can assess its liquidity situation by comparing the maturities of short-term accounts receivable and short-term accounts payable (cf. Chart 14: Liquidity/Funding Matrix). The bank must maintain sufficient liquid funds in order to ensure that appropriate cover is available for future imbalances between payment inflows and outflows.

In the ICAAP, term liquidity risk and withdrawal/call risk do not necessarily have to be supported with internal capital. Instead, this risk can be limited by calculating adequate indicators and taking process-related measures.

For the purpose of controlling liquidity risk, a bank should establish adequate internal guidelines as well as administrative, accounting and review procedures. A credit institution can control liquidity risks by organizing its maturity structure for receivables and payables as well as interest resetting and prepayment options appropriately. In the case of a liquidity shortage, emergency plans which enable effective and timely countermeasures should also be available. In the simplest case, a liquidity plan for a bank within a group or association might provide for support from the central institution. However, the central institution must be aware of its function as the provider of liquidity and thus also be able to assess how much liquidity it can make available and what measures have to be taken if – in the worst-case scenario – multiple institutions require funds at the same time. The bank’s management bears responsibility for ensuring that liquidity management methods are organized properly.

Aside from risks in the short-term perspective, structural liquidity risk (funding liquidity risk) is also a factor. This type of liquidity risk refers to the fact that the cost of liquidity for the purpose of closing liquidity gaps can change if refinancing becomes more expensive due to a decline in the bank’s creditworthiness. If the bank’s credit quality deteriorates, refinancing can become more expensive regardless of interest levels; this can be observed in the expansion of credit spreads on the money and capital markets. In such cases, a bank will have to pay more for refinancing in the future due to the decline in its creditworthiness. Structural liquidity risk is calculated by assuming a rating migration⁴⁶ and the resulting effects on credit spreads. The risk capital need results from the present-value cost difference between refinancing on current terms and refinancing after the simulated rating migration.

Structural liquidity risk is especially significant when a bank refinances to a great extent on the money and capital markets, or with other banks (interbank market).

4.2.6 Operational Risks

A bank can use various methods to assess operational risks. In the ICAAP, the Basic Indicator Approach (for the calculation of minimum capital requirements) is the simplest method of quantifying operational risks. In this approach, a risk weight of 15% is applied to a single indicator, specifically the average gross income (i.e. the sum of net interest income and net non-interest income) over the last three years. The risk is equated to the resulting capital requirements.⁴⁷

For banks, the advantage of applying the Basic Indicator Approach primarily lies in its simplicity. However, there is no immediate causal relationship between a bank’s operational risks and its operating income. In order to come to a better assessment of its own risk profile, a bank would be well advised not to rely on the Basic Indicator Approach alone to capture risks. For example, a more specific

⁴⁶ In simplified terms, this means the following: If, for example, the probability that a bank’s rating will not fall below BBB is 99.9%, this migration can be used in the ICAAP.

⁴⁷ For a precise definition, see Annex X Part 1 of the EU Directive 2000/12/EC.

calculation of a bank's risk situation can be performed by means of a systematic internal survey of realized operational risks using a loss database.

Under the Standardized Approach, operational risk is also calculated exclusively on the basis of the risk indicator described above. However, in this case the indicator is not calculated for the bank as a whole, but individually for specific business lines as defined by the supervisory authority (retail, corporate, trading, etc.). Accordingly, the Standardized Approach includes not only a risk weight of 15%, but specific risk weights defined for each business line. This means that applying the Standardized Approach basically involves the same problems as applying the Basic Indicator Approach. However, a number of process-related guidelines on limiting operational risks are provided as prerequisites for using the Standardized Approach to calculate capital requirements. In any case, these are well suited for internal use for ICAAP purposes.

Finally, banks can also develop internal methods of quantifying operational risk (referred to as Advanced Measurement Approaches⁴⁸). Such methods are desirable because they aptly reflect the bank's risk profile, but their design and implementation involve high levels of effort. For this reason, many banks should view such methods more as a desirable goal in the future development of methods for evaluating operational risks.

In general, all banks should pay due attention to the guideline on managing operational risk⁴⁹ in their ICAAP, regardless of the approach used. The publication contains guidelines and methods for the conscious handling of operational risks; this information is not only applicable to the calculation methods for capital requirements but also to internal procedures related to the ICAAP. In particular, the guideline presents suitable procedures by which the bank can reduce individual operational risks using organizational security and review measures.

4.2.7 Other Risks

With regard to other risks, the supervisory authority only provides indications of possible risk subtypes without systematically classifying these risks. As a result, the banks themselves are responsible for classifying their specific risks in this category. In this regard, banks are required to analyze which types of other risks are relevant to their operations by carrying out a self-assessment allowing for idiosyncratic circumstances (cf. Chapter 3.1, Principle of Proportionality). In this assessment, institutions should at least consider the following potential forms of other risks and review their significance (materiality) within the institution:

- **Strategic risk:** Strategic risk refers to negative effects on capital and earnings due to business policy decisions, changes in the economic environment, deficient or insufficient implementation of decisions, or a failure to adapt to changes in the economic environment.
- **Reputation risk:** Reputation risks refer to the potential adverse effects which can arise from bank's reputation deviating negatively from its expected

⁴⁸ The quantification models for operational risk using internal methods are currently in the development stage. For a description of suitable models, see the OeNB/FMA guidelines "Operational Risk Management".

⁴⁹ Cf. OeNB/FMA 2005. In addition, many suggestions on the conscious handling of operational risks can be found in "Sound Practices for the Management and Supervision of Operational Risk" published by the Basel Committee on Banking Supervision.

level. A bank's reputation refers to its image in the eyes of the interested public (capital investors/lenders, employees, customers, etc.) with regard to competence, integrity and reliability.

- **Capital risk:** Capital risk results from an imbalanced internal capital structure in relation to the nature and size of the bank, or from difficulties with raising additional risk coverage capital quickly if necessary.
- **Earnings risk:** Earnings risk arises due to the inadequate diversification of a bank's earnings structure or its inability to attain a sufficient and lasting level of profitability.

Should banks come to the conclusion that any of the other risks listed are not potentially material in their case, they should be able to justify this to the supervisory authority.

Banks can introduce procedures for the management of other risks in separate stages. Due to the lack of available quantitative measurement methods, other risks can also be measured and controlled by exclusively qualitative means. The bank should justify qualitative risk assessments for the various subtypes of other risks and document these appropriately. Here it is helpful to draw up a set of rules for handling other risks.⁵⁰ These rules should describe specific methods and processes with which the bank can reduce the probability that other risks will materialize. In addition, the bank should analyze the causes behind significant realized losses in order to develop effective countermeasures on the basis of these insights. In order to incorporate these risks into its risk management, the bank can maintain a capital cushion for other risks in its internal limit system; the size of this cushion should correlate with the qualitative risk assessments.

If a bank has installed appropriate procedures to quantify several other risks, the thus calculated risk figures can replace the existing capital cushion and be integrated into the bank's internal limit system.

4.2.8 Defining Specific Assessment Procedures for All Material Risks

Based on the suggested methods of assessing risks, banks can define the way in which each relevant risk type is accounted for in the ICAAP. For this purpose, the bank should evaluate which risks must be integrated into risk-bearing capacity analyses for the ICAAP and which risks are not material. In addition, it is necessary to decide on the assessment methods for all material risks (e.g. standard methods used in calculating minimum capital requirements, internal methods, capital cushions). The bank should also formally document each of these decisions. A systematic risk categorization can be drawn up in the form of a table, for example. The Chart below shows an excerpt from a sample table for an institution's specific incorporation of the relevant risk types in the ICAAP.

⁵⁰ Cf. Chapter 4.1, Strategy for Ensuring Capital Adequacy.

Risk Type	Risk Subtype	Risk Level	Justification (if immaterial)	Risk Assessment Procedure Used	...
Credit risk	Counterparty / default risk	very high		Foundation IRB Approach	
	Equity risk	immaterial	Equity investments as share of total assets < 0.5%	Foundation IRB Approach	
	Country / transfer risk	medium		Strict limitation (structural limit)	
	Securitization risk	immaterial	No involvement in securitization programs (neither as originator nor as investor)	Not considered	
	Credit risk concentrations	high		Strict limitation (structural limit) and increased monitoring	
	Residual risk from credit risk mitigation techniques	medium		Qualitative assessment, process-based reduction of risk (use of standard contracts, "four eyes" principle, regular revaluation of collateral, etc.)	
Market risk	Market risks in the trading book	low		Standard supervisory methods	
	Foreign exchange risks in the banking book	medium		Standard supervisory methods	
Interest rate risks in the banking book		high		Value-at-risk model	
Operational risk		medium		Basic Indicator Approach	
Liquidity risk		low		Qualitative measures	
Other risks	Strategic risk	medium		Cushion	
	Reputation risk	low		Cushion	
	Capital risk	medium		Cushion	
	Earnings risk	medium		Cushion	

Chart 15: Sample Incorporation of an Institution's Relevant Risk Types in the ICAAP

4.2.9 Aggregation of Risks

4.2.9.1 Aggregation at Institution Level

The discussion of banking risks up to this point has been confined to individual risk types. However, overall bank risk is a combination of all the risk types which are relevant to the individual bank. Therefore, the overall risk position of the bank has to be calculated by means of aggregation.

For banks which rely heavily on the basic methods of calculating minimum capital requirements in their assessment of individual risk types, aggregation can be performed by simply adding the risks calculated (including credit risks, market risks and operational risks). Other material risk types should then be accounted for by establishing sufficient capital cushions, or the bank can demonstrate that the other risk types are not material. A further refinement of this method would be a separate assessment of additional material risk types. In this case, overall risk is calculated by adding the individual risks calculated for the minimum capital requirements and the other relevant risk types (assessed separately). Both methods can also be used simultaneously: For certain risks (e.g. interest rate risk in the banking book), the degree of risk might be quantified more precisely, while a general capital cushion is maintained for additional risks (e.g. other risks).

For the purpose of aggregating individual risk positions, it is advisable to use measurement methods which yield comparable assessment results for various risk types. One such method is value at risk (VaR). In this method, the main prerequisite for meaningful aggregation is that the same probability (or the same confidence level) and the same holding period are assumed in the measurement of each risk type. For ICAAP purposes, for example, – especially for the case of liquidation⁵¹ – a VaR-compliant calculation of the overall bank's risk based on a

⁵¹ For more information on the various hedging objectives, see also Chapter 4.3.2, Suitability of Equity Capital Types for Various Hedging Objectives.

one-year risk horizon⁵² and a confidence level of 99.9% seems appropriate, as this holding period and probability are also assumed for credit risks under the IRB Approach. In any case, the chosen time horizon and confidence level should be plausibly justified vis-à-vis the supervisory authority by the credit institution.

Banks which are able to calculate a VaR for credit and market risks but do not have a sufficient data set to calculate VaR for operational risks can use a simplified approach in which they determine operational risks using the Basic Indicator Approach or the Standardized Approach and then substitute the resulting risk with a VaR based on a 99.9% confidence level and a one-year holding period (consistent with the confidence level and holding period for credit risk measurement under the EU Directive 2000/12/EC). In practice, VaR methods or suitable heuristics are only difficult to find for the category of other risks. For this reason, capital cushions for other risks should also be included when the VaR concept is applied.

Any interdependencies or correlations between the risk types should be accounted for in the aggregation of VaR values for individual risk categories into a VaR for the overall bank. In line with the principle of prudence, it is advisable to assume a completely positive correlation at first, that is, to add up the individual risk types. This leads to a conservative aggregation of risks, which has to be chosen if there is no well-founded evidence to support a different level of correlation. Due to diversification effects, values which deviate from a completely positive correlation will reduce the resulting overall bank risk. Banks which plan to apply lower correlation coefficients should be able to demonstrate that the lower values are appropriate, given the composition of the bank's own portfolio. For example, the use of lower correlations based only on the development of worldwide credit spreads and general interest rates will not be sufficient. Even if the required evidence is available, it is always appropriate to perform additional scenario analyses in the form of stress tests which assume a completely positive correlation. In principle, the correct application of more complex procedures is permissible (e.g. copulas).⁵³

4.2.9.2 Aggregation at Group Level

In Chapter 3.2, Levels of Application within Groups of Institutions, we already mentioned that banks may also be required to apply the ICAAP at the subconsolidated or consolidated level. In such cases, the institution responsible for consolidation should be in a position to aggregate, assess and (as necessary) control the material risks of all companies which have an impact on risk in the group – including its own risks.

ICAAP requirements are to be fulfilled at the consolidated or subconsolidated level on the basis of the regulatory scope of consolidation (Article 30 BWG), the definition of which, however, primarily relies on the place of incorporation and the focus of activities of the relevant companies. The risk profile of

⁵² Even for risk types to which shorter holding periods are applied in the assessment process (such as market risk under Article 26 (b) BWG), it makes sense to adapt figures to a one-year horizon (cf. Chapter 4.4.1, Linking Potential Risks to Risk Coverage Capital).

⁵³ As a replacement for simple correlations in the statistical evaluation of affiliation effects between risk types, the concept of copulas has also been under development for several years; this method enables more precise modeling of the dependencies between risk types, but it also requires more intensive technical effort.

the individual companies, on the other hand, does not play a role in determining the regulatory scope of consolidation.

In order to ensure that all material risks are taken into account at group level, it may be useful to expand the regulatory scope of consolidation to include an economic perspective. Starting with the companies included in the regulatory scope of consolidation, the perspective is broadened to encompass those companies which make a significant contribution to the overall economic risk of the group. Every company which generates material risks from the group's perspective should be included in the calculation of the group's overall risk position. This can even mean that it may be reasonable to integrate risks originating in companies with which the group has no capital or management interrelationships relevant to consolidation. On the basis of business relationships alone, a company might be considered to have an impact on the overall risk position of the group. One example of such a situation is the integration of an independent outsourcing provider into the calculation of operational risk at the group level.

The bank's internal evaluation of the relevant companies' risk profiles can thus make it necessary to add companies to the regulatory scope of consolidation. For internal risk management purposes, it is important that no material risks are disregarded only because a relevant company is not included in the regulatory scope of consolidation.

As regards the actual aggregation of risks at the group level, the same requirements apply as in the merging of all relevant risks at the individual institution level. Accordingly, the methodological recommendations mentioned for aggregation at the individual institution level – i.e. assuming conservative correlations as well as defining uniform confidence levels and holding periods – also apply to the group level.

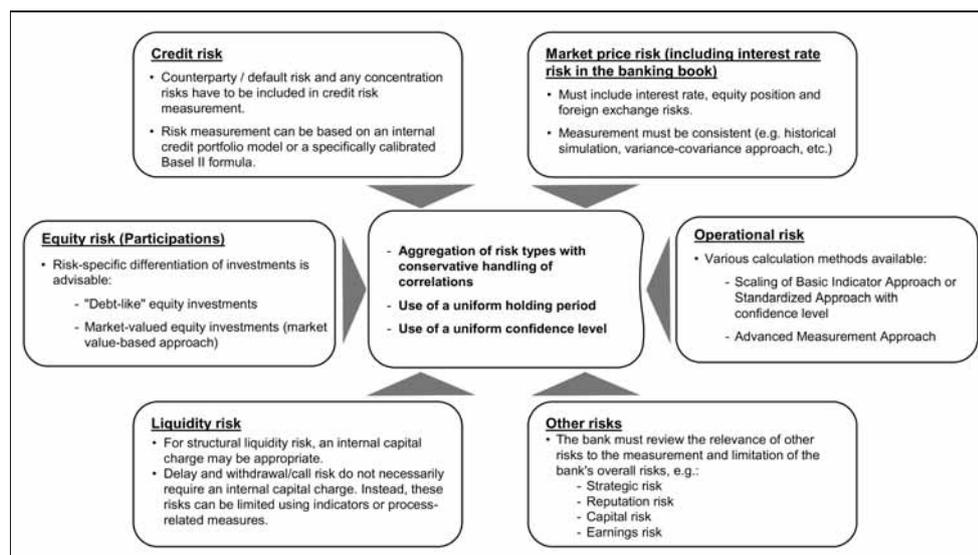


Chart 16: Aggregation of All Material Risks

4.3 Definition of Internal Capital

4.3.1 Classification and Composition of Equity Capital Types

Once all material risks have been evaluated and aggregated to yield the overall bank's risk position, the question arises as to what amounts and what types of risk coverage capital are available. In this context, the EU Directive 2000/12/EC explicitly mentions the assessment of internal capital. In this chapter, we first define specific types of equity capital. Essentially, we can distinguish between balance sheet equity, market value- and net asset value-based equity, and regulatory capital. We then discuss the uses and suitability of these capital definitions in relation to the relevant hedging objectives. On that basis, we describe a procedure by which banks can quantify and classify risk coverage capital.

4.3.1.1 Balance Sheet Equity

Balance sheet equity corresponds to the (nominal) equivalent value of capital invested in the bank by its owners (shareholders, cooperative members, associations). Balance sheet equity is thus equal to the book value of equity.

According to the Austrian Banking Act (BWG), the book value of equity comprises the following positions (in simplified terms):

Subscribed capital	
+ Capital reserves	
+ Profit reserves	
+ Liability reserves	
+/- Profit/loss for the year	
= Balance sheet equity	

Chart 17: Composition of Balance Sheet Equity

Retained earnings increase balance sheet equity, while earnings distributions, capital repayments and losses bring about a reduction.

Balance sheet equity depends on the accounting policies used by the respective bank. The provisions of the Austrian Commercial Code (HGB) and IAS/IFRS are especially relevant in this context. The valuation requirements under IAS/IFRS, which focus heavily on the valuation of assets at their market values (see, for example, the requirements for the valuation of financial instruments under IAS 39), also have an effect on equity accounting.

Especially as it neglects hidden reserves, balance sheet equity only provides a rough picture of the coverage capital actually available. This problem is only partly offset by the use of IAS/IFRS standards.

4.3.1.2 Net Asset Value of Equity

The net asset value of equity equals the book value of equity plus hidden reserves. Assets (e.g. securities) are valued at their market values. This calculation only includes transactions for which agreements have already been concluded, that is, valuation does not include business which is yet to be acquired.

If market values are not available for individual positions, then it is necessary to use valuation methods (e.g. by discounting cash flows) or to obtain expert valuation reports (e.g. for real estate) in order to calculate market values. Spe-

cifically, this may be necessary in the case of illiquid or non-exchange-traded securities, equity investments and receivables from customer transactions. In net asset value calculations, all value-reducing factors which might arise in the reversal of hidden reserves have to be deducted (realization risk). For example, in customer transactions all (present-value) costs – operating costs, risk costs for risky transactions, costs of equity – have to be deducted from the calculated present value of payments (principal and interest) in order to obtain a sustainable net asset value.

The net asset value provides a suitable indicator for use in a bank's internal risk management. On the one hand, this method also accounts for the bank's hidden reserves, and on the other hand it offers a conservative assessment because the measurement of risk cover is based exclusively on the sustainable assets of the bank.

4.3.1.3 Total Market Value of Equity

In contrast to the net asset value, the total market value of equity is calculated with attention to the bank's expected future performance. Future performance can be incorporated using projected earnings for the current business year, or the value added by transactions to be concluded in the future in the form of projected earnings (goodwill). In the case of exchange-listed banks, the total market value of equity is equal to market capitalization (shareholder value). For unlisted institutions, the total market value of equity can be calculated using internal methods (e.g. valuation of projected earnings using the present value method). The problem with using the total market value approach to determine risk coverage capital is that the current total market value will hardly be sustainable if risks materialize.

4.3.1.4 Regulatory Capital

The concept of regulatory capital distinguishes the available risk coverage capital by quality. According to Article 23 BWG, the following capital components can be distinguished:

- Core capital (tier 1 capital);
- Tier 2 capital, especially supplementary capital and long-term subordinated capital; and,
- Short-term subordinated capital (tier 3 capital).

Core capital is distinguished by the fact that its components are available immediately without limitations and for an indefinite period of time. In general, core capital equals the book value of equity. Compared to core capital, supplementary capital is of lower quality, for example because it is only subordinated or must be repaid in the long term. Short-term subordinated capital (tier 3 capital) consists of certain short-term subordinated liabilities with an original maturity of more than two years. The total of these components equals the bank's own funds in the amount recognized under Article 23 BWG. These funds serve to fulfill the requirements set forth in Article 22 BWG. In the course of implementing the new regulations on capital requirements (EU Directive 2000/12/EC), the essential characteristics of own funds will largely remain unchanged. Supervisory provisions require banks to examine these capital resources within the ICAAP framework (allowing for the 8% own funds requirements in capital planning).

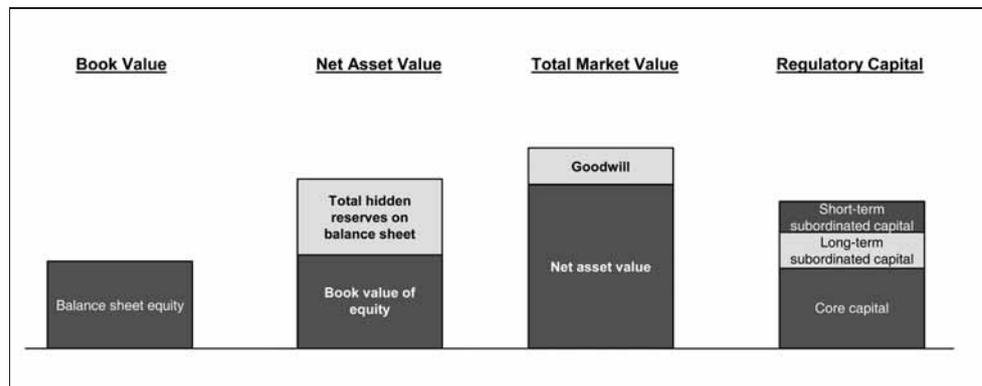


Chart 18: Categorization of Equity Capital

4.3.2 Suitability of Equity Capital Types for Various Hedging Objectives

The suitability of each capital type for use in the ICAAP depends heavily on the bank's hedging objectives. In this context, the following general objectives can be distinguished (cf. Chart 19: Overview of Hedging Objectives for Risk-Bearing Capacity).

In the going concern perspective the bank can define individually what the term "going concern" means. Typically, a zero result or even the consumption of an unneeded share of uncommitted equity is considered acceptable for a going concern. In this context, the minimum regulatory capital requirement must be regarded as the absolute bottom limit for the going concern objective. In addition, it is advisable to set up an early warning level in the assessment of an institution's risk-bearing capacity; this level is reached before the bank's operation as a going concern is endangered.

The hedging objective at the early warning level is to ensure that relatively small risks which are highly likely to materialize can be absorbed without requiring changes in the nature and scale of the bank's business activities or in its risk strategy. The early warning level can be defined individually by each bank, but it will depend heavily on the bank's ability to access risk coverage capital quickly and inconspicuously (i.e. without attracting excessive public attention). Liquid or easily liquidated risk coverage capital is available for the purpose of covering such risks. Reaching the early warning level could prompt the bank to rethink its risk appetite and to take initial remedial actions. A bank can implement such an early warning system using a "traffic lights" model. The light remains green as long as the early warning level is not reached. If, for example, 80% of the going concern level is reached, the early warning level is triggered (yellow). If the light turns red, the going concern is in jeopardy.

The hedging objective of the going concern perspective is to enable the bank to absorb negative events and to continue operation as a going concern. This hedging objective places great emphasis on the concerns of the bank's employees and of the owners or equity investors (shareholders, cooperative members, etc.), who have an obvious interest in the continued existence of the bank. Under the going concern approach, the potential risk which is relatively likely

not to be exceeded (e.g. 95% probability) is compared with the coverage capital defined (or available) for the going concern.⁵⁴ As in practice the going concern is often linked to accounting ratios (e.g. maintenance of a minimum core capital ratio for a good rating, attainment of a positive annual result), the hedging objective can also be addressed using a separate P&L control procedure (cf. Excursus – Securing the Going Concern under the P&L Perspective). In both the economic and P&L-based methods, however, supervisory regulations also have to be taken into consideration in the going concern perspective.

The hedging objective in the liquidation scenario (worst-case scenario) in the ICAAP is to protect the interests of lenders (e.g. bond holders, savings investors). These parties provide debt capital which – in contrast to equity – cannot be regarded as risk capital. Therefore, the level of hedging must be higher in order to enable repayment of the debt. In this context, the bank's overall economic risk which is likely not to be exceeded (e.g. 99.9% probability) is compared to all sustainable risk coverage capital, i.e. the net asset value.

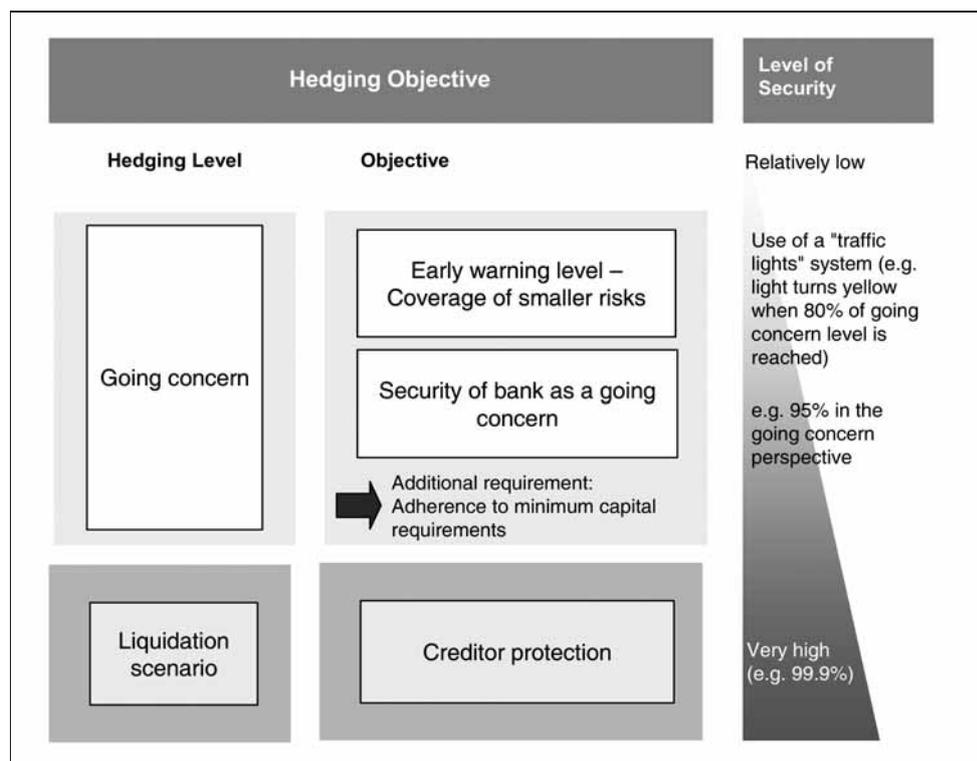


Chart 19: Overview of Hedging Objectives for Risk-Bearing Capacity

In the chapters that follow, we will discuss how risk coverage capital can be classified according to the hedging objectives mentioned above.

4.3.3 Classification of Risk Coverage Capital

For the actual calculation of risk-bearing capacity, it is advisable to analyze risk cover with regard to availability, liquidity, publicity effects and supervisory treatment, and to assign these resources to their respective hedging levels (early

⁵⁴ Cf. FMA/OeNB, New Quantitative Models of Banking Supervision.

warning level, going concern, liquidation). Even more precise classifications of risk coverage capital can be found in the literature and in practice. However, as these subdivisions are often merged into two or three levels for the purpose of fulfilling hedging objectives, those methods largely match the explanations given here.⁵⁵

Coverage Capital for the Going Concern

For the early warning level, a bank typically has easily accessible coverage capital at its disposal which can be used to cover losses quickly and with little publicity. This capital might include parts of hidden reserves or profits already realized in the course of the current business year. Should a bank wish to include projected earnings in its risk coverage capital, then it is necessary to account for the sustainability of this coverage capital. Projected earnings themselves are in part risky and therefore not sustainably available as risk coverage capital.

Once the coverage capital for the early warning level is used up, additional coverage capital is available to protect the bank as a going concern. This includes additional sustainable hidden reserves which can be accessed easily and any capital beyond the minimum level defined by the bank.⁵⁶

Excursus: Securing the Going Concern under the P&L Perspective

In current practice, fulfilling the going-concern hedging objective is defined explicitly on the basis of the P&L. In particular, internal groups such as management and external groups such as rating agencies and investors focus heavily on P&L-based indicators. Therefore, it makes sense to be able to maintain the bank as a going concern by means of a separate control loop based on P&L indicators.

In this context, it is necessary to consider the fact that especially in risk measurement there are differences between accounting ratios (P&L) and economic ratios. For example, in the case of interest rate risks, P&L risks (e.g. declining interest margins) and economic risks (e.g. present value loss) may diverge from one another. The risk of changes in the value of hidden reserves might not be visible in P&L risk. For example, a bank might enter an equity investment in the balance sheet at its book value, but hidden reserves may exist in the equity investment due to its valuation. If the hidden reserves are reduced to zero when risks are realized, this would signify an economic loss, but it would not be reflected in the P&L. In the case of credit risks as well, only that amount which exceeds the planned loss provisions for the remainder of the current year would be input to the risk-bearing capacity analysis as a P&L risk. In addition, the time horizon for risk measurement is shortened. At the beginning of the year, the risk that a planned annual result will not be reached is naturally higher.

For P&L risk cover, it is only possible to include the coverage capital which is available during the relevant period (i.e. the current business year). In particular, it is necessary to ensure that hidden reserves are also reversible during the relevant period. For this reason, coverage capital can only include that amount which also remains available as a hidden reserve in the case of a crisis, after due consideration of a risk deduction (lump sum or calculation with a probability-based risk measurement model). The following example should clarify this point:

If we assume that a bank has acquired a bond for EUR 100, its current market value is EUR 110, and the interest rate risk for the rest of the year (value at risk) comes to EUR 4, then EUR 6 (EUR 110 - EUR 100 - EUR 4) can be assigned to P&L risk cover.

⁵⁵ Cf. Schierenbeck, H., *Ertragsorientiertes Bankmanagement*, Vol. 2, p. 30 ff.

⁵⁶ However, it is necessary to consider regulatory requirements when calculating the bank's minimum capital, as the going concern requirement will be violated at the latest when capital falls below minimum regulatory requirements.

If this coverage capital is insufficient, then the bank's minimum profit as well as capital components above the regulatory minimum are also available. If these risk cover assets are tapped, then a negative annual result is usually inevitable, but the bank can still continue to operate. Additional risk cover assets are not available under this perspective, as accessing them would either endanger the bank's business activities (required capital) or they cannot be accessed within the relevant period (hidden reserves which are difficult to reverse). The approach presented here is a desirable additional development for risk-bearing capacity analysis and can be used by banks to fulfill the going concern condition in the ICAAP.

Coverage Capital for Liquidation

The risk cover for a liquidation scenario is meant to secure the claims of the bank's creditors. For this purpose, basically all coverage capital is available, including that which is not accessible for fulfillment of the going concern condition. Specifically, this includes minimum capital (core capital), sustainable hidden reserves which are difficult to access or cannot be accessed during the relevant period, and supplementary capital. For the purposes of the liquidation scenario, equity capital is used up first. Only in extreme emergencies will the banks also tap subordinated capital components. Such capital components must be analyzed carefully in light of their use and assessment as risk cover, as non-repayment already has to be classified as default in the broad sense. In particular, these include certain components of tier 2 capital (i.e. the liability sum surcharge, participation capital, supplementary and subordinated capital) and of tier 3 capital.

If these risk cover assets are ultimately used up in their entirety, the creditor's claims can no longer be satisfied. Should the losses also exceed risk cover assets in the liquidation scenario, this would constitute a default which would harm investors and require the intervention of a deposit insurance organization.

It is the bank's responsibility to identify and categorize its individual types of coverage capital. In this context, it is crucial to estimate coverage capital and its availability accurately, and to bring it into line with the bank's defined hedging objectives. This will put the bank in a position to evaluate its risk-bearing capacity. The next chapter discusses how this risk-bearing capacity can be secured.

4.4 Securing Risk-Bearing Capacity

4.4.1 Linking Potential Risks to Risk Coverage Capital

A bank's risk-bearing capacity can only be secured on a sustainable basis if it is reasonably probable that the available risk coverage capital will exceed the risks taken at all times. The basis for evaluating a bank's risk-bearing capacity is the quantification of material risks and of coverage capital (cf. Chapter 4.2, Assessment of All Material Risks, and Chapter 4.3, Definition of Internal Capital). In the following, we will explain how a bank can derive statements about its risk-bearing capacity from a comparison of risks and coverage capital.

When calculating its risk-bearing capacity, the bank must ensure that its methods of calculating risks and its definition of internal capital are consistent with one another. In the simplest case, a bank which uses the basic methods to measure credit, market and operational risk (i.e. standard methods for the calculation of minimum capital requirements) can use their regulatory capital

as risk cover. However, relying exclusively on standard methods for calculating minimum capital requirements is generally insufficient for ICAAP purposes, as those methods do not cover all of a bank's material risks (cf. Chapter 4.2, Valuation of All Material Risks). Two methods can be used to account for additional material risks: In the first method, those material risks which are not covered by the risk types used in calculating minimum capital requirements (such as interest rate risks in the banking book or strategic risks) are covered by maintaining a capital cushion. In the second method, additional material risks are quantified separately and added to the bank's capital requirements. These methods can also be employed simultaneously: In this case, the institution's specific degree of risk would be quantified more precisely for certain risks (e.g. for interest rate risk in the banking book), while only a general capital cushion would be calculated for other risks. As the calculation of risks and the definition of internal capital are based on the methods used for calculating minimum capital requirements in the basic solution presented, it makes sense to use these methods in risk-bearing capacity analyses as well. In this context, banks should implement control based on an internal capital target⁵⁷ specifically defined for the institution above the eight percent requirement if it is not possible to demonstrate that all material risks are already covered by the calculation methods for minimum capital requirements.

With this basic solution, it is only possible to derive rather vague statements on risk-bearing capacity. In accordance with the proportionality principle, such a solution is therefore only advisable for smaller banks with low risks.

Conversely, banks with more complex, riskier structures should use more sophisticated methods of evaluating their risk-bearing capacity. In the first step, the bank should use uniform risk quantification methods (e.g. value at risk) in order to meet the prerequisites for a consistent aggregation of risks. In the second step, it is advisable to design the bank's risk-bearing capacity analysis in such a way that statements can be made as to the probability with which the bank will be able to fulfill the risk-bearing capacity condition within a measured time horizon. Against this backdrop, advanced methods involve calculating the risks a bank can take without endangering the hedging objective pursued. In the control process, therefore, the following condition has to be fulfilled:

$$p [\text{RC} > \text{potential losses}] \geq x$$

where

p = probability
 RC = risk cover
 x = confidence level in percent

This condition in risk-bearing capacity analysis can be defined on the basis of the relevant hedging objective (cf. Chart 20: Comparison of Risk Coverage Capital and Risks Taken and Chapter 4.3.2, Suitability of Equity Capital Types for Various Hedging Objectives).

⁵⁷ For information on defining institution-specific capital targets, cf. Chapter 4.1, Strategy for Ensuring Capital Adequacy.

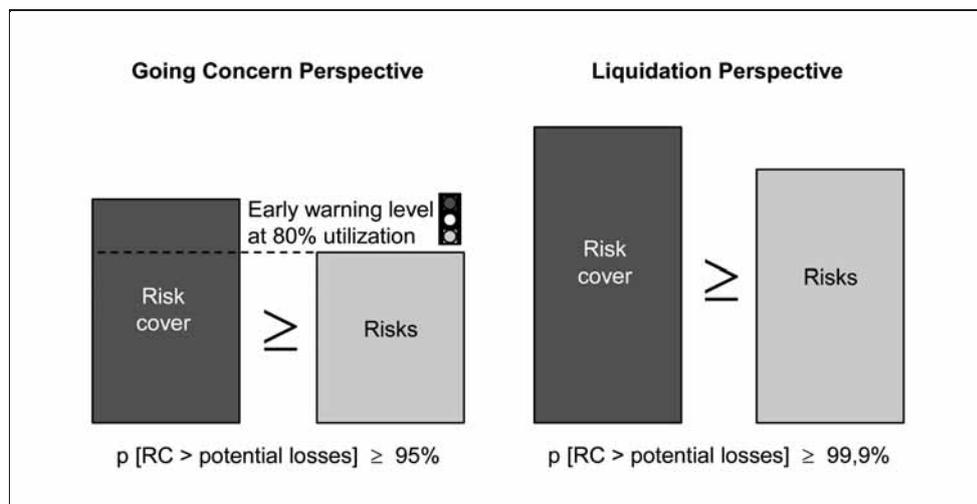


Chart 20: Comparison of Risk Coverage Capital and Risks Taken

The certainty or confidence level (x) can be interpreted as the probability that the available risk coverage capital will be sufficient to cover any risks realized during the holding period in question. A confidence level of 99% with a time horizon of one year indicates (in mathematical terms) that the bank's risk-bearing capacity will be guaranteed in 99 out of 100 years.⁵⁸ The confidence level selected should thus be regarded in direct connection with the relevant hedging objective. Accordingly, a confidence level of 99.9% would signify (again in mathematical terms) that the risk-bearing capacity condition will be violated in one year out of 1,000.

In addition to the confidence level, the time horizon must also be defined for the hedging objective. The following arguments support the use of a one-year horizon:

- Risk measurements for operational risk and credit risk also assume a one-year horizon in the process of calculating minimum capital requirements.
- Most of a bank's credit risk positions can only be changed with great difficulty in the short term.
- Budgeting and capital allocation are also generally carried out in an annual cycle and cover one year. Even if a shorter holding period is assumed in risk measurement, e.g. for trading portfolios, it makes sense to adjust to a one-year horizon with regard to the ICAAP. The following example should clarify this point: A bank uses a holding period of ten days in risk calculations for its trading portfolios, and processes this value in its risk-bearing capacity analysis for the ICAAP. Now let us assume that the risks are actually realized on the tenth day. This would mean that no further risk capital will be available for trading activities for the remainder of the year. This dilemma can be resolved through the appropriate risk budgeting on an annual basis by incorporating the maximum annual risk budget (annual loss limit) in the ICAAP.

⁵⁸ For each rating from known agencies, a master scale exists which contains a clear mapping of assigned ratings (e.g. BBB) to the corresponding default probabilities. A default probability can be determined on the basis of a rating and an understanding of the master scale.

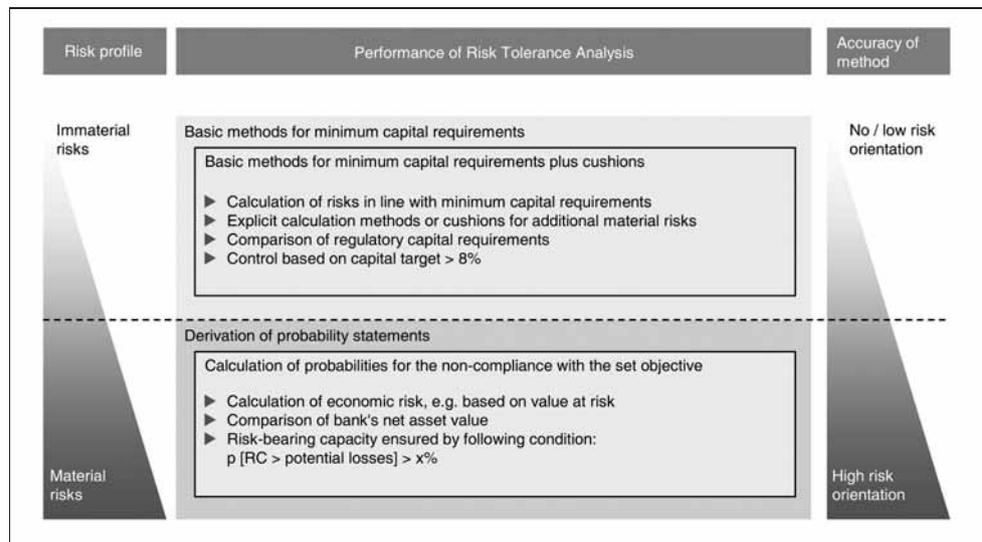


Chart 21: Possible Methods of Ensuring Risk-Bearing Capacity

4.4.2 Risk Limitation as Economic Capital Budgeting

A bank's risk-bearing capacity can only be secured to a sufficient extent if risks can be limited effectively. The requirement of maintaining risk-bearing capacity (as described in the previous chapter) already constitutes a limitation of risk at the overall bank level.

In the planning process, risk capital is allocated to individual control units (cf. Chapter 4.5.2, The ICAAP Risk Management Process). In the allocation of risk capital, it is advisable not to allocate 100% of the bank's risk coverage capital, but to retain a certain share of capital at the overall bank level. This is recommended for the following reasons:

- The bank can provide capital cushions for risks which cannot be quantified (or only with great difficulty).
- An available capital budget is maintained in order to ensure that the bank remains flexible even in cases where shortages occur in individual limits.
- The decentralized control units can utilize a larger portion of their limits.

The more a control unit (e.g. treasury department) can utilize its limits for risk-related reasons, the easier it generally is to attain income targets. The risk capital made available for operational risks is not well suited for allocation to control units. Operational risk can hardly be decentralized in such a way that a control unit could take conscious measures to assume a specific risk position.⁵⁹ From a risk perspective, therefore, decentralized limitation is not necessarily appropriate in this case. The coverage capital which is then still available is distributed among the individual business divisions, such as corporate business (credit risk), retail business (credit risk) and treasury (market risks, especially interest rate risk in the banking book). The number of levels at which the risk capital is distributed depends heavily on the bank's business model as well as its structure and complexity; this decision is to be made by the management in the process of articulating the bank's risk strategy.

⁵⁹ In order to determine return requirements for the provision of risk capital, however, the overall volume of operational risks can still be divided among individual business lines.

In general practice, a business portfolio already exists when banks perform such a risk capital allocation process. The majority of risks will be found in lending operations and can therefore hardly be changed quickly and/or with reasonable effort. Therefore, it is advisable to begin with existing business in this allocation process. However, the allocation rules for target structures can be used for planned new business in order to steer the bank toward its target structure.

Risk capital should be allocated by assigning limits. For the control units, these limits define a clear framework or boundaries within which they can operate. At the same time, when risk capital is allocated by means of limits, the control units also assume responsibility for observing these limits. The bank can then secure its risk-bearing capacity by monitoring and analyzing limit utilization. Moreover, it is also possible to analyze the extent to which control units use their risk capital.

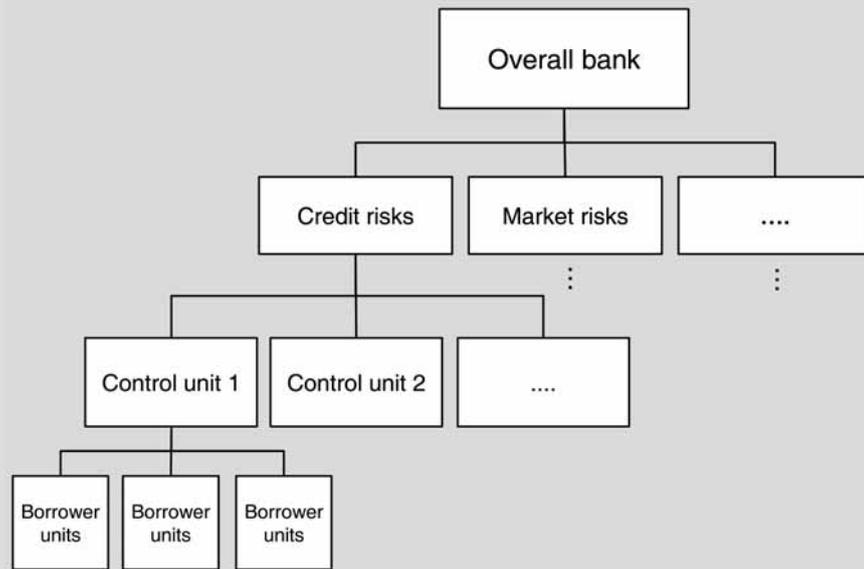
The following principles should be observed when designing a limit system within a bank:

- No risk without a limit (= provision of risk capital): This means that limits are also applied to the units responsible for risk taking (e.g. committees or the management if it controls individual equity investments directly).
- Illiquid risks (especially credit risks) have to be limited consistently where they originate (market units).
- A uniform definition of risk capital must be selected and used in allocation throughout the entire bank.
- The limit should reflect the risk level of each transaction or portfolio.
- Structural limits or volume limits based on creditworthiness can limit concentration risks effectively in areas where a (useful) risk-based limit cannot be calculated. Structural limits should be derived consistently and applied to the most significant types of concentration risks. In its ICAAP, each institution should review whether creditworthiness-based limits might be appropriate for certain groups of connected clients. Institution-specific maximum limits can, for example, be derived on the basis of internal rating grades and risk-bearing capacity (see excursus below). Moreover, additional structural limits (e.g. for countries or foreign currency loans), should be defined on the basis of the institution's specific portfolio.
- Overall, it is advisable to adhere to the motto "as many as necessary, as few as possible" with regard to limits in order to ensure sufficient risk hedging for the bank and at the same time to optimize risk management efforts.

A limit system which is tailored to the bank's specific circumstances is an important prerequisite for maintaining risk-bearing capacity. However, this can only be ensured if the limits (or risks) are monitored and the appropriate countermeasures are taken once risks begin to approach their defined limits (cf. Chapter 4.5, Processes and Internal Control Mechanisms).

Excursus: Example of Limit Allocation

The overall bank limit is first defined on the basis of the bank’s risk-bearing capacity and risk appetite. This limit is then broken down at the level of risk types (e.g. market risk, credit risk) with a view to allocating the bank’s risk capital to these individual risk types. Then the allocation is further specified at the level of control units. However, for the purpose of allocation at the lower levels it may be helpful or easier for the bank to apply volume limits (e.g. for individual borrowers) or sensitivity limits (e.g. PVBP limits in bond trading) instead of a VaR limit. This can help promote acceptance among sales employees and enhance practicability, for example. Here it is important that the bank can ensure that superordinate limits or ultimately the overall bank limit are observed when volume or sensitivity limits are exhausted.



Excursus: Deriving Creditworthiness-Based Limits from Risk-Bearing Capacity

>Creditworthiness-based limits can be derived from risk-bearing capacity using a two-stage procedure. In the first step, the management must define an anchor point. This refers to the maximum unsecured volume for a country or a group of connected clients and must not be exceeded. The bank is only willing to risk this maximum unsecured volume for customers of the highest credit quality, and this volume also represents the maximum risk capital amount which a single customer can tie up. In the case of customers with lower creditworthiness, the same risk capital is already tied up by a substantially lower volume.

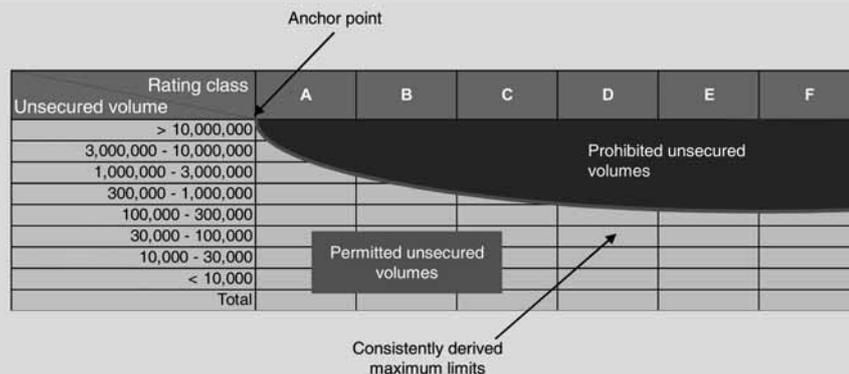


Chart 22: Deriving Creditworthiness-Based Limits from Risk-Bearing Capacity

In the second step, the bank can calculate the actual limits for each country or group of connected clients. Based on the defined anchor point for the maximum risk capital per group of connected clients or country, it is also possible to calculate consistent limits for borrowers of lower credit quality.

These supplementary procedures in credit risk assessment should be carried out in the ICAAP in order to reflect concentration effects accurately.

4.4.3 Using Stress Tests

Stress tests show the effects of events which can not (or not sufficiently) be accounted for in “normal” risk measurements (e.g. with VaR methods). Banks are repeatedly confronted with these exceptional scenarios: market crashes, country crises, critical political events or major bankruptcies are just a few examples. For situations of this kind, the assumptions of the usual assessment methods do not appear sufficient, which can lead to substantial underestimates of risk. For this reason, it is important for a bank to define relevant stress scenarios. For example, massive fluctuations on international financial markets will have a different effect on a bank with high market risks than on a regional bank which primarily focuses on customer business. Nevertheless, it is necessary to account for the fact that these shocks can also have a noticeable impact on banks operating in more remote segments. After a market crisis, interest in funds and equities diminishes, which in turn brings about a decline in fee and commission income for many banks (even those which only operate regionally). For this reason, it may be helpful to define relevant stress scenarios for all of a bank’s material risk types and to analyze the effect the simultaneous occurrence of such exceptional situations would have on the bank’s risk-bearing capacity. The institution’s specific business focuses can be taken into account by assigning different weights, for example. Banks which assume correlations in their ICAAP calculations should not assume any diversification effects in their stress scenarios. Moreover, tests prescribed by supervisory authorities also have to be integrated into the design of relevant stress scenarios (e.g. when certain methods are used to calculate capital requirements or large exposures).⁶⁰

A bank can depict the effects of stress scenarios within the framework of risk-bearing capacity analysis. In this context, the bank should consider stress scenarios on the risk side as well as the effects of exceptional situations on the capital side. The results of the stress tests provide indications which may be helpful in identifying any existing weaknesses. This information can be used to develop countermeasures such as introducing security checks and access authorizations in order to reduce operational risks, or drawing up general emergency plans.

4.5 Processes and Internal Control Mechanisms

4.5.1 Incorporating the ICAAP into Bank Management

4.5.1.1 ICAAP as a Dimension of Strategic Management

The ICAAP should be integrated into the strategic management of the bank with the specific aim of enhancing awareness of the fact that strategic decisions involve

⁶⁰ Cf. OeNB Guidelines on Market Risk, Volume 5: Stress Testing (1999); or FMA/OeNB Guidelines on Credit Risk Management, Volume 2: Rating Models and Validation, Section 6.4 (2004).

risks which have to be offset with risk coverage capital. In this way, the bank can make efforts to improve its definition of business strategies, and thus also its handling and management of strategic risks. Therefore, strategic decisions such as the expansion of treasury operations, the definition of business lines (corporate customers, specialized lending) or entry into new markets must always be evaluated in light of their effects on the bank's risk situation and risk-bearing capacity. If, for example, a bank expands into markets abroad, this can give rise to additional risks (e.g. foreign exchange risks, legal risks).

This mutual process results in the bank's risk strategy, which should include all general conditions relevant to the ICAAP (see Chapter 4.1, Strategy for Ensuring Capital Adequacy). In this context, it is important to ensure that strategic requirements are put into practice and observed in day-to-day operations by the bank's operations risk management.

4.5.1.2 ICAAP as a Dimension of Operations Management

In contrast to the strategic risks discussed in the previous chapter, operations risks can be characterized as follows: Operations risks are more detailed and concrete, and they are characterized by a shorter action horizon. Within the framework of operations management, the task of the ICAAP is to control the risks taken and to ensure a sufficient level of internal capital. In general, a bank cannot prevent risks taken from being realized, at least in some cases. Therefore, in their risk-bearing capacity analyses banks should ensure that the risk coverage capital available is always sufficient to cover the risks taken. Afterwards, it is necessary to check whether the expected results were actually attained.

4.5.2 The ICAAP Risk Management Process

The process of risk management can be subdivided into five stages (see Chart 23: Stages of the Integrated Risk Management/ICAAP Process). In this context, it is important to note that this is not a strictly sequential process, but a control cycle which involves feedback and feedforward loops. In addition, it makes sense to apply a parallel quality assurance and control process to all stages of the risk management process.

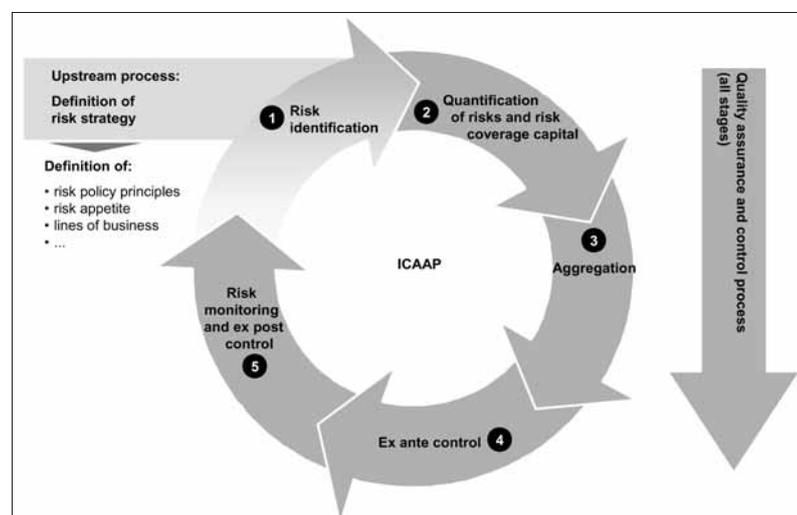


Chart 23: Stages of the Integrated Risk Management/ICAAP Process

4.5.2.1 Risk Identification

The purpose of this initial stage in the risk management process is to record (in a structured form) as many risks as possible which might hinder the bank in attaining its goals. This is an especially important task because it sets the stage for the remainder of the risk management process, and the bank can only control risks if they are identified in this step.

A bank can evaluate independently which risks are relevant to its situation, for example on the basis of the risks described in Chapter 4.2, Valuation of All Material Risks. The bank should also record and document the results of the risk identification process. This can be done, for example by compiling a risk manual (see Chapter 3.4, Documentation Requirements). The next step is to find and define suitable risk measurement methods for the risks identified. In the process of identifying risks, the bank should also define which data will be necessary for risk quantification and how these data can be provided.

In addition, this process should be designed in such a way that changes in existing risks as well as the emergence of new risks can also be taken into account. Especially when launching activities in new types or lines of business, the bank may be confronted with risks which previously bore little or no significance.

4.5.2.2 Quantifying Risks and Coverage Capital

The second task in the risk management process is risk quantification. This step is necessary in order to create an objective basis for decision-making in control units and the overall bank. Without risk quantification, the bank cannot make statements regarding its risk-bearing capacity within the framework of the ICAAP. Moreover, risk quantification is absolutely essential for evaluating the success of individual control units in terms of risk.

Likewise, the bank also has to quantify its risk cover. Economic risk cover is not a static value. On the one hand, the bank's risk cover will change due to the bank's earnings in the course of the business year. On the other hand, hidden reserves (e.g. in securities, equity investments) are also prone to fluctuations in value. The balance sheet and regulatory components of risk cover can be derived directly from reporting data. Additional components such as hidden reserves in customer business or in equity investments may have to be queried from other systems or sources (see Chapter 4.3, Definition of Internal Capital). In addition, it is absolutely necessary to account for additional supervisory requirements (e.g. planning capital requirements and available capital).

4.5.2.3 Aggregation

Once they have been identified and quantified, individual risks also have to be aggregated to determine the bank's overall risk in the ICAAP. In this process, it is necessary to ensure that no risks are omitted or captured incompletely. At the same time, it is also important to ensure that risks are not recorded redundantly and that individual risks can be aggregated (cf. Chapter 4.2.9, Aggregation of Risks).

The more complex a bank's structure is, the more demanding and involved the aggregation process becomes. Process design (e.g. for data provision, risk measurement, data transfer), assigned responsibilities and data quality are crucial

in this context. For this reason, a clearly documented, comprehensible process is also necessary for aggregation. In this overall perspective, it is very important to take account of any assumptions regarding interdependencies among individual risks.

The insights gained in the process of risk measurement must be made available to decision makers in a timely fashion, as they will require up-to-date information on the bank's risk situation in order to take the appropriate measures to manage the bank's risks.

Along with risks, the available risk cover should also be aggregated. Risk management decisions can then be made by comparing the bank's risk cover with its risks. In order to ensure its risk-bearing capacity, the bank should make its specific risk profile transparent and understandable.

4.5.2.4 Ex Ante Control

In the planning process, an operational limit is defined for each individual control unit. These limits should be embedded in the bank's structure in such a way that a limit exists for each control unit which can take on risks. In this way, the bank can limit or prevent certain risky transactions for the sake of risk avoidance. This is especially useful for those risks which can only be mitigated with great difficulty. For credit risk, this might involve imposing limits at the point of sale, where the risks originate. In the process of ex ante control, emergency plans should also be drawn up for extreme stress scenarios.

In pricing, the determination of the risk premium on the basis of the borrower's creditworthiness is also an important instrument for ex ante control.

Excursus: Risk-Adjusted Pricing

Risk-adjusted pricing means that the lending terms offered to a customer are based on the level of risk involved. This method has a positive effect on the bank's risk-bearing capacity.

<i>Interest margin contribution</i>	
<i>+ Income from fees and commissions</i>	
<i>– Standard risk costs</i>	
<i>– Operating costs</i>	
<i>= Contribution margin before cost of capital</i>	
<i>– Cost of capital</i>	
<i>= Contribution margin after cost of capital</i>	

In order to derive a transaction's contribution margin, it is necessary to deduct operating costs, standard risk costs (which should equal the expected loss) and the cost of capital from the sum of the interest margin contribution and income from fees and commissions. The standard risk costs or expected loss of a loan should be included in pricing because it already has to be anticipated in calculations in order for the transaction to have even a chance of being profitable. If the attainable margins are insufficient to cover the expected loss, this will yield a negative contribution margin. In the long term, generating negative contribution margins will consume the bank's capital and thus endanger its risk-bearing capacity.

The cost of capital represents a form of remuneration for the risk capital made available to cover unexpected losses. These "costs" arise from the fact that the owners of the bank require compensation for their risks. As a general rule, the lower a customer's creditworthiness is, the

higher

the capital charge should be for a risky transaction. Higher risk thus logically leads to higher risk capital costs.

If the interest margin contribution contains the appropriate premiums for both expected loss and unexpected loss (i.e. because the bank uses risk-adjusted pricing), the bank can assume ex ante that it will see positive contribution margins. This helps secure the bank's risk-bearing capacity.

In contrast, non-risk-adjusted pricing can cause a steady deterioration in the quality of the credit portfolio. This is linked to the fact that when a bank uses terms and conditions which are not adjusted for creditworthiness, customers in good credit standing are systematically placed at a disadvantage compared to customers with poor creditworthiness. The customer with high creditworthiness will therefore be inclined to switch to a competing bank. On the other hand, customers with poor creditworthiness are given an incentive to accept these terms, which are relatively favorable for them. The bank's credit portfolio would thus gradually accumulate exposures to customers with low creditworthiness, while the more reliable customers would slowly disappear. This process, which is also referred to as "adverse selection", has a negative effect not only on the bank's income situation but also on its risk-bearing capacity.

Risk-adjusted pricing therefore allows the bank to use pricing in order to maintain its risk-bearing capacity as required in the ICAAP. The bank's risk-bearing capacity is not even endangered when loans are granted to customers in poor credit standing, as the increased risk is covered by the adjusted terms. However, the market mechanism of risk-adjusted pricing also has its limitations, as this technique cannot sufficiently account for concentration risks. For this reason, it is helpful to define additional structural limits in addition to adjusting terms and conditions for creditworthiness. Structural limits refer to explicit exposure limits for each internal rating grade from the bank's risk-bearing capacity. As soon as one of these limits is reached, no further loans can be granted to customers in the corresponding rating grade, regardless of whether the customer is willing to pay a higher risk premium.

4.5.2.5 Risk Monitoring and Ex Post Control

Risk Monitoring

Risk monitoring refers to the process of ensuring that a bank's risk profile remains in line with its risk preferences at all times. This control information can be derived from a regular comparison of the bank's target and actual situation. In the ICAAP, the target situation is defined by the limits assigned by the bank. In this context, the bank should also set up a standardized procedure for dealing with increasing levels of limit utilization and limit overruns. Limit utilization can be monitored using a "traffic lights" system. If the light changes to yellow in a given area (e.g. because the limits defined for the early warning level are reached), the bank can already initiate control measures. In addition, it is advisable to define a standardized procedure for cases where the light turns red, meaning that the bank's risk-bearing capacity is in jeopardy.

While target/actual comparisons primarily monitor adherence to defined limits in the case of quantifiable risks, the main objective in the case of non-quantifiable risks is to monitor process-related requirements or qualitative limits. Banks should also consistently monitor risk positions in a management process for risks which are not (or not easily) quantifiable.

The bank can then include the results of this monitoring process in (internal) risk reports. Therefore, a crucial element of effective internal ICAAP reporting is the procurement and preparation of all information regarding the risk positions of individual business divisions and the overall bank, and regarding risk

cover assets. ICAAP reports should be compiled regularly and prepared with the recipients in mind (i.e. decision-makers in business divisions and the bank's management). In connection with the ICAAP, it is advisable to provide the following information:

- Economic risks for the bank as a whole and broken down by risk type;
- Economic risk cover and utilization of overall bank limits;
- Current solvency ratio;
- Risk profile and limit utilization of top-level control units;
- Overview of control units or risk types which have exceeded their limits;
- Overview of structural limits (size classes, countries, rating grades, industries, etc.) and the corresponding levels of utilization;
- Development of risk status compared to the previous period;
- Results of stress tests and scenario analyses;
- Proposed measures in cases where limits or risk-bearing capacity are exceeded;
- P&L risk for the bank as a whole and broken down by risk type;
- P&L risk cover (as necessary).

Internal Reporting

Information should be prepared in a regular reporting cycle, both ex ante as a basis for decisions and ex post for review purposes. Moreover, ad hoc reports should be provided in cases where risks are realized suddenly or unexpectedly. Ex post analyses involve analyzing deviations from projected figures in order to derive a basis for decisions on future control measures.

The design of the risk reporting system can only be well-founded if the bank has precise ideas of the demands it has to meet. With regard to the introduction of a reporting system, the following success factors can be identified:

- Expediency: Reports should provide all essential information. In the ICAAP, this refers specifically to the comparison of the bank's overall risks with its risk cover.
- Acceptance: User acceptance of the information provided is decisive for the implementation of organizational rules and for the use of reporting. For this reason, the risk report's scope and level of detail should be defined with due attention to the needs of the target group.
- Transparency: The risk report should contain clear, comprehensible and accurate information.
- Completeness: Reports should cover all material risks and types of risk coverage capital as well as supervisory aspects (i.e. adherence to capital requirements).
- Comparability and aggregability: The format of the report should be designed as uniformly as possible in order to be able to merge the various risk types and business units into a complete overview of the bank's risk situation.
- Timeliness: The reporting system should be designed in such a way that gaps between target and actual risk positions can be reported as quickly as possible in order to enable the appropriate countermeasures to be taken in due time.
- Feasibility: The targeted reporting solution should be feasible within the institution's structural and process organization.

- **Continuity:** Reports should be compiled at regular intervals, and their content should be presented in a consistent format.
- **Economy:** Considerable resources are required in order to procure and prepare reporting information. Therefore, the bank should also focus on maximizing the economy of the reporting system – as long as no critical risk information is lost as a result.

With regard to reporting hierarchies, levels of detail, media and time intervals, the risk reporting system should be designed with attention to the factors indicated above and in light of the size, complexity and risk level of the institution (proportionality principle). A bank will generally not have to develop an entirely new reporting system for ICAAP purposes. In particular, the management should not be presented with another isolated report containing information which partly overlaps with other reports. Instead, the bank should base its system on existing risk reporting procedures, supplementing them as necessary with components which explicitly address the bank's risk-bearing capacity. It is also a good idea to include a management summary in order to define the focus of each report.

Ex Post Control

Reporting forms an important basis for the measures taken in the ex post control stage. The objective of this stage is to exercise an active influence on risk positions determined in the previous stages of risk identification and risk measurement. The bank's risks have to be brought into line with its risk targets and preferences. In order to attain these objectives, the bank can basically choose among the following alternatives:

- **Risk mitigation or risk transfer:** The aim of risk mitigation is to reduce the effects of risks which may be realized in the future. Risk mitigation measures might include requesting collateral (e.g. for loans), diversifying risks or using conventional insurance. Risk transfer refers to shifting exposures to third parties. This can involve selling the risk position or using hedging transactions (e.g. swaps, forward foreign exchange contracts).
- **Reallocating risk capital** (i.e. increasing limits): This is only possible if other control units have not exhausted their limits or the bank can access additional capital cushions in its risk cover. Reallocation may be useful in cases where a control unit presents attractive business opportunities which justify increasing its allocated limit. The bank's risk-bearing capacity represents the maximum limit for reallocation.
- **Increasing risk coverage capital:** The bank can also control its risk cover to a certain degree. Banks can increase their risk coverage capital if they can raise additional capital (e.g. by carrying out a capital increase, issuing cooperative shares, hybrid capital). In practice, such actions are taken primarily in connection with a bank's strategic measures, for example before taking over another bank or expanding into new markets. For the purposes of operations risk management, such measures are generally too time-consuming and cost-intensive. However, for the sake of emergency planning it is advisable to discuss the bank's general options for increasing risk coverage capital with the bank's equity investors.

Ex post control can be seen as the last step in the risk management process and at the same time as the trigger for a new process.

4.5.2.6 Quality Assurance and Control Process

Quality assurance and control form a process which runs in parallel to the five processes described above. In this process, it is necessary in particular to ensure that consistent methods and procedures are used to quantify risks and coverage capital. Moreover, the bank should ensure the security and quality of data as well as the reliability of systems. Here the bank should review the processes and responsibilities in risk management (data generation, risk measurement, the derivation of control measures, risk monitoring, etc.) and seek to prevent conflicts of interest. In addition, the bank should verify that the necessary levels of know-how and resources are available.

The function of the quality assurance and control process must also be understood as a continuous learning process. For example, losses incurred in the past due to the omission of relevant risks, inaccurate risk assessments or the selection of incorrect control measures can provide input for the improvement of future risk-related decisions (back-testing).

4.5.3 Risk Management Organization in the ICAAP

In the previous chapter, we discussed the stages of the risk management process and thus focused on risk management workflow; this chapter deals with issues related to structural organization for the purpose of designing effective risk management structures.

4.5.3.1 Structural Organization

As risk management is understood as a process (see previous chapter), risk management tasks – and thus also ICAAP-related tasks – can be handled by various organizational units. For example, risks and risk coverage capital are often quantified by a dedicated organizational unit. This organizational unit is typically referred to as “risk control”. Risk control measures are often decided upon by a committee (asset and liabilities management, investment committee, credit committee, etc.). In turn, these control measures might be implemented by the treasury department or trading department in the case of market risks. In this case, it is important to ensure that risk capital is provided (i.e. that a limit exists) for every decision in which risks are taken. This also applies to the actions of a committee or other decision-making body, thus also making it possible to review responsibilities.

The actual organizational design of the process is highly significant in light of the multi-layered nature of the risk management process. In this context, it is necessary to ensure that tasks, competences and responsibilities are defined clearly. In designing this organizational structure, the bank must also ensure that tasks which are incompatible with one another are carried out by different organizational units. In this context, the management is responsible for preventing conflicts of interest. In many cases, this clearly calls for a thorough and consistent segregation of those functions and organizational units which actively take and control risks from those units which measure, check and report on risks.

4.5.3.2 Risk Control as a Separate Function in Risk Management

The risk control unit performs important risk management functions by providing information for control and steering decisions and by defining risk-related methods at the highest level. The purpose of risk control is to measure, analyze, monitor and report on risks. This also implies a delineation from the broader term “risk management”: The risk control unit is dedicated exclusively to providing information and proposals, thus it cannot take risk positions itself.

As a result, the risk control unit is responsible for critical operational tasks in the ICAAP. Specifically, these include the adaptation and expansion of the corporate planning system as well as information provision and reviews, coordination and integration of subsystems into an overall system, documentation of the risk management system, risk reporting and the timely provision of management information.

Risk control therefore narrows the gap between information needs and the available information, and provides advice and support to the employees responsible for corporate divisions and processes. The risk control unit may also act as an advisor to the company’s management by recommending risk control measures (e.g. proposing limits differentiated by risk types and business units).

4.5.4 Functions of the Internal Control System in the ICAAP

In order to implement the requirements regarding processes and control mechanisms, the bank can rely on various ideas and publications at the national and international level with regard to designing internal control systems in ICAAP development.

The internal control system is not explicitly mentioned in the Austrian Banking Act (BWG); however, Article 39 (internal control procedures) and Article 42 BWG (Internal Audit) as well as Article 16 (Filing and Documentation Requirements) and Article 18 WAG (Governance) can be regarded as legal bases. Here it is also necessary to mention Article 82 AktG and Article 22 paragraph 1 GmbHG, under which the management is responsible for ensuring that the company maintains an internal control system which fulfills its requirements.

Fundamentals of the Internal Control System

In the ICAAP, banks are required not only to have strategies and processes in place for continuously assessing and maintaining the adequacy of their internal capital, but also to carry out regular internal reviews of these strategies and processes. This is meant to ensure the adequacy and completeness of the ICAAP on an ongoing basis. In essence, these requirements refer to a bank’s internal control system, which is explained briefly in this chapter.

Principles of the Internal Control System

Every bank is required to have a functioning internal control system, which also includes parts of risk management.

The management bears the overall responsibility for developing a strong and effective internal control system which covers all of the bank’s divisions and activities. In this context, the internal control system should fulfill the following specific requirements within the bank:

- Effective and efficient operations and business units;
- Adequate control of risks;
- Adequate management;
- The reliability of all financial and non-financial information which is reported or disclosed both internally and externally;
- Compliance with relevant laws and other regulations as well as internal policies and procedures.

In order to fulfill these obligations appropriately, all managers are responsible for ensuring that the human and material resources made available for the internal control system are sufficient (in qualitative as well as quantitative terms) at all times.

Implementation of the Internal Control System

In setting up its internal control system, the bank must ensure a strict segregation of duties and assignment of authority in addition to a clear, transparent and documented decision-making process in order to ensure congruency with internal decisions and workflows. Moreover, control mechanisms (such as the segregation of functions and the “four eyes” principle) must be appropriate to the bank’s business activities. The functions of risk control, internal audit and compliance can be regarded as instruments for fulfilling the requirement with regard to the internal control system within the institution.

Risk Control Function

The risk control function should be defined and implemented for the purpose of monitoring and reviewing all risks identified by the bank in its risk assessment. For further details, see Chapter 4.5.3.2, Risk Control as a Separate Function in Risk Management. Reports should be directed not only at the management but also at all other relevant staff.

Compliance Function

The compliance function, which is primarily an instrument for the management, is to identify and assess actual or potential deviations from laws, regulations, codes and standards as well as internal guidelines, and to report such violations to the head of the relevant organizational unit and to the relevant member of senior management (in severe cases to the entire management) as necessary.

In addition, the compliance unit can assist the management in remaining up to date regarding the current state of relevant existing and proposed regulations, as well as assessing the possible impact of changes in the legal environment on the bank. In the ICAAP, the compliance unit should verify that new products, transaction types and procedures comply with current and future regulations. Another important task of compliance is to create a compliance culture in the company and to train employees with regard to existing or changing regulations as a proactive contribution to minimizing the bank’s compliance risk.

Internal Audit Function

Internal auditing is a management instrument especially for process-independent monitoring of the bank’s risk management system and ensuring an adequate level of quality in internal controls. In this context, the two other control func-

tions mentioned here – risk control and compliance – should be subjected to regular reviews by the internal audit unit. Moreover, the internal audit unit is responsible for evaluating the adequacy of existing principles and procedures on an ongoing basis.

With regard to the ICAAP, this unit should thus review ongoing ICAAP application, monitor adherence to controls in place within the ICAAP, report any shortcomings identified to the management, and review the resolution of such shortcomings in the course of follow-up procedures.

Independence of Functions of the Internal Control System

In order to enable the functions of risk control, internal audit and compliance units to fulfill their duties properly and thus to ensure an effective internal control system, these units should be independent of the business lines they monitor and segregated from each other.⁶¹

4.5.5 References to FMA Minimum Standards

The minimum standards published by the Austrian Financial Market Authority provide additional guidance for ICAAP implementation. In response to international as well as national developments, the FMA provides Austrian banks with recommendations on key issue areas on the basis of the Austrian Banking Act. These recommendations are published in the form of minimum standards, which do not constitute legally binding FMA regulations. However, with particular reference to the due diligence obligations set forth under Article 39 BWG, the FMA expects banks to adhere to these minimum standards in their business activities. To date, the FMA has published four minimum standards for credit institutions (see References).

A number of ICAAP topics are also addressed in these publications, thus the FMA's recommendations may also provide banks with an orientation aid for ICAAP implementation. Specifically, the topics covered in these standards include the following:

Especially in Austria, increased credit risk exists in many banks due to foreign currency loans and loans with repayment vehicles; this additional risk must be accounted for in the ICAAP.

In this context, the FMA released minimum standards for granting and managing foreign currency loans as well as loans with repayment vehicles. These two sets of minimum standards essentially contain recommendations for proper approval procedures as well as risk management and control with regard to these two forms of financing.

The FMA's Minimum Standards for the Credit Business provide guidance on credit risks, especially risk policies and strategies, risk control, documentation requirements for processes and methods, valuation and measurement methods (including risk-bearing capacity), the treatment of new types of transactions, and responsibilities. The purpose of these minimum standards is to foster the development of risk management at Austrian banks.

⁶¹ On the compatibility of simultaneously fulfilling compliance and internal audit duties, see the FMA bulletin of March 30, 2004, on the compatibility of internal audit/money laundering oversight/compliance monitoring.

In the ICAAP, internal auditing plays an especially important role within the framework of the internal control system. The FMA's Minimum Standards for Internal Auditing contain general guidelines on organization, duties and the status of the internal auditing unit based on Article 42 BWG.

5 ICAAP Implementation

5.1 Steps in the Implementation Process

Before the bank can begin designing its ICAAP, it must first define its relevant target state. In order to do so, the following steps are required:



Chart 24: Steps in the ICAAP Implementation Process

Definition of Institution-Specific Requirements (Target State)

In the first step, the bank should draw up a catalog of requirements based on supervisory sources, especially the EU Directive 2000/12/EC and the guidelines published by the FMA/OeNB⁶². In this context, this document should also be taken into account.

In the second step, these requirements have to be specified for the individual bank. In the course of a self-assessment, the bank should identify its material risks, from which it can then derive its risk profile. The requirements with regard to ICAAP methods are to be defined in light of the bank's risk profile. Typically, the introduction of new methods begins with relatively simple, robust solutions which are then developed and refined on an ongoing basis.

The full catalog of requirements then represents the target state for ICAAP purposes and defines requirements with regard to methods, procedures, processes and organization. Therefore, drawing up the catalog of requirements also calls for preliminary strategic considerations and steering decisions with regard to the ICAAP to be implemented.

Gap Analysis (Target/Actual Comparison)

Once the target state has been defined, the bank should analyze those requirements which are currently not (or not completely) fulfilled. In this process, the bank should survey the current state of methods, processes and organization in its internal risk management system. Furthermore, possible interfaces to existing and planned project activities should be discussed. Typical interfaces include the implementation of the EU Directive 2000/12/EC with regard to calculating capital requirements, or activities aimed at fulfilling the minimum standards for the credit business.

The relevant organizational units should analyze their current state, as the respective experts in each field will be best able to assess the bank's implementation status. In this process, the individual topics should be assigned to the respective employees in charge.

Gaps in implementation can then be identified by comparing the requirements with the current state. This comparison of target and actual states could

⁶² Additional requirements can be derived from the recommendations of the Basel Committee on Banking Supervision (e.g. Sound Practices for Managing Liquidity in Banking Organisations).

be carried out in the course of a workshop attended by the organizational units concerned. The results should be documented and conveyed to the units responsible (project team, management). The bank can then assess the significance and consequences of the gaps identified as well as identify the necessary actions on this basis. These gaps and areas where corrective action is necessary should be documented.

Implementation Planning

In implementation planning, the first step is to prioritize the required measures. In this way, a clear ranking can be defined in order to deploy implementation resources effectively. In the next step, the measures identified are to be combined in individual work packages and coordinated with the organizational units concerned. In this process, the bank should also define who is responsible for handling topics which have not yet been addressed. In addition, it is also necessary to cover those activities to be handled in separate projects. In the third step, the bank should set binding deadlines and responsibilities with due attention to the capacity available within the organization.

Implementation

The bank might first develop and/or adapt its methodological plans. Next, the bank can fulfill organizational and IT requirements (e.g. risk measurement and the limit system) as required by the ICAAP. The process-related aspects and responsibilities within the ICAAP can then be defined and documented. This might involve quantifying and aggregating risks and coverage capital, monitoring limits or taking measures in the ex post control process. The bank can also define upstream activities such as the generation and provision of data at this stage. The ICAAP is integrated into the bank's strategic and operational control mechanisms (e.g. annual budgeting and planning on the basis of risk indicators and coverage capital). Once implementation is completed, the bank should have at its disposal adequate methods, processes and systems to ensure its risk-bearing capacity.

5.2 Critical Success Factors in ICAAP Implementation

The following factors are crucial in the actual implementation of an ICAAP:

- Early detection of gaps in fulfillment;
- Selection of methods;
- Master plan and project management;
- Communication;
- Know-how and resources;
- Data quality;
- Suitable IT systems.

Early Detection of Gaps in Fulfillment

A bank should make efforts to detect gaps in its fulfillment of requirements as early as possible so that it can take the appropriate measures in a timely and economical manner. Closing these gaps quickly mainly serves to improve the bank's internal risk management and thus also enhances the bank's ability to ensure its

risk-bearing capacity; this should be done regardless of the Directive's entry into force.

Selection of Methods

The bank should determine the methods and procedures which best suit its needs, as these determine the validity of the ICAAP as well as the required implementation resources. In the course of selecting methods, the bank should not only consider its current risk profile but also anticipate planned developments in individual risk types. If it is already clear now that trading will be expanded heavily in the coming years, then it makes sense to introduce more advanced procedures from the outset when designing the ICAAP.

Master Plan and Project Management

The bank should develop a master implementation plan which covers planning, budgeting and a prioritization of all ICAAP implementation tasks. This master plan forms the basis for requesting internal and external capacities and may well involve planning resources over a period of several years. For example, implementation might already be well underway for the most important risk type while measures for other risk types are still being planned.

Once it reaches a certain scale, the master plan should be transformed into a detailed project plan, which serves to reduce complexity and create transparency with regard to the current bank's implementation status. It is also important to set binding deadlines and responsibilities on the basis of this plan. A project management team should then monitor and control the performance of individual tasks. In this context, it is advisable to appoint a project manager to coordinate activities and monitor results. Project management should seek to prevent any conflicts of interest between the organizational units involved in implementation and to maintain a wholistic view of the project.

Communication

The need for and advantages of an ICAAP have to be clearly communicated to the bank's employees. The fundamental concept behind the ICAAP should not only be communicated to the upper hierarchical levels of a bank, but to all relevant organizational units. Market units (e.g. sales, treasury, etc.) in particular may be affected by the measures required in ICAAP introduction. A newly designed limit allocation system or any necessary adaptations to the bank's organizational structure are more likely to be supported by the employees if they are informed about the need for these measures in a transparent and understandable manner. Insufficient communication in implementation projects often results in low levels of identification or even rejection and demotivation. By applying an appropriate communication policy and setting a good example, the bank's management level can generate the employee acceptance necessary for successful implementation of the ICAAP.

Know-How and Resources

One major objective of the ICAAP is to foster the development of internal risk management. For this reason, expertise in this area is a critical success factor in the introduction of an ICAAP. The implementation and application of the ICAAP

in ongoing control pose a considerable challenge for the employees involved. This means that the bank's staff will increasingly become one of the most important success factors due to the changing environment and the resulting need for adaptation. In addition, it is also important for the bank to have the necessary resources (employees, systems) at its disposal in the ICAAP implementation process. Resource requirements will depend on the bank's size and risk profile as well as the difference between the current status and the defined requirements.

Data Quality

Data quality (completeness, availability) is especially important because it determines the reliability and accuracy of calculated results (e.g. risk indicators, coverage capital). The process of data quality assurance begins with accurate data capture and goes as far as ensuring data availability in the ICAAP.

Suitable IT Systems

Especially for risk management, it is necessary and worthwhile to ensure timely automated evaluations due to the large data quantities involved and the sometimes complex calculation algorithms used. In its ICAAP, the bank can rely on existing risk management systems (risk measurement, limit monitoring) if they meet the defined requirements. Potential expansions and new acquisitions in the IT field should be considered with due attention to the existing system landscape. Here it is important to note that maintaining and updating the historically grown IT structures of many banks can require enormous resources. Moreover, the lack of uniform data pools can create considerable difficulties in evaluation systems (e.g. inconsistent values).

Finally, the pressure to address strategic options regarding the design and deployment of information technology is also compounded by the increasing strategic significance of information technology as well as the existing problems banks are experiencing in this area.

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List of Abbreviations

AktG	Austrian Stock Corporation Act (Aktiengesetz)
AL-CO	Asset and Liability Committee
BWG	Austrian Banking Act (Bankwesengesetz)
CAD	Capital Adequacy Directive (Directive 93/6/EEC on the capital adequacy of investment firms and credit institutions)
CEBS	Committee of European Banking Supervisors
CRM	Credit risk mitigation
EAD	Exposure at default
EL	Expected loss
EU Directive 2000/12/EC	Directive 2000/12/EC of the European Parliament and of the Council of 20 March 2000 relating to the taking up and pursuit of the business of credit institutions
HGB	Austrian Commercial Code (Handelsgesetzbuch)
GmbHG	Austrian Limited Liability Company Act (Gesetz betreffend die Gesellschaften mit beschränkter Haftung)
IAS/IFRS	International Accounting Standards / International Financial Reporting Standards
IRB Approach	Internal Ratings Based Approach
SME	Small and medium-sized entity
LGD	Loss given default
PD	Probability of default
PVBP	Present value of a basis point
RAROC, RARORAC	Risk-adjusted return on (risk-adjusted) capital
RC	Risk cover
RORAC	Return on risk-adjusted capital
SRP	Supervisory Review Process
WAG	Austrian Securities Supervision Act (Wertpapieraufsichtsgesetz)
VaR	Value at risk