



finalyse

**REGULATORY BRIEF  
SUMMER 2023**

# Contents



## Our purpose

Our aim is to support our clients incorporating changes and innovations in valuation, risk and compliance. We share the ambition to contribute to a sustainable and resilient financial system. Facing these extraordinary challenges is what drives us every day.

## Regulatory Brief

The RegBrief provides a catalogue of policy updates impacting the financial industry. Emphasis is made on risk management, reporting and disclosure. It further covers legislation on governance, accounting and trading, as well as information on the current business environment.

Note: The Cross-Sector chapter includes regulatory updates that may affect multiple industries.

Data: from 1 April 2023 – to 30 July 2023

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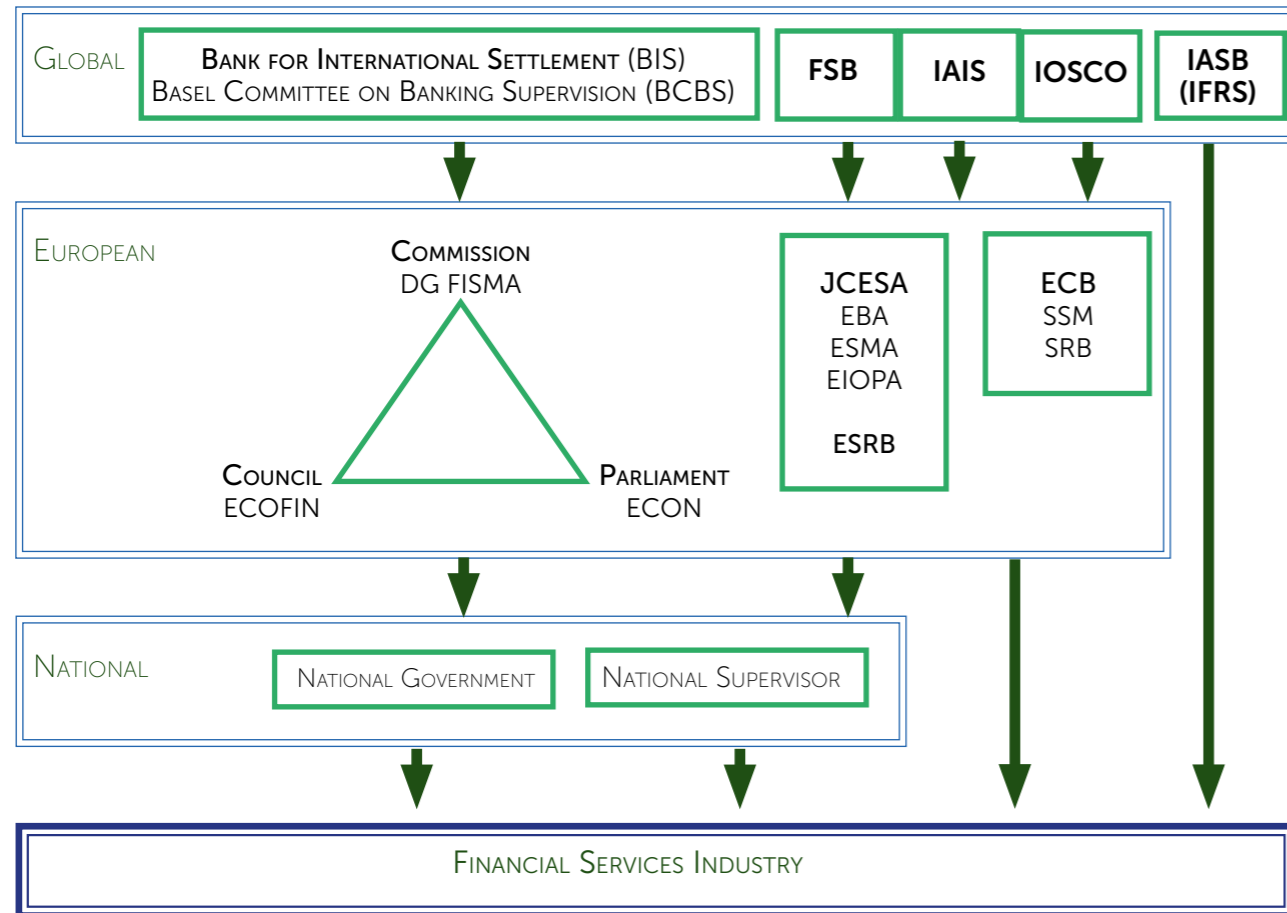
## Abbreviations

AIFMD	Alternative Investment Fund Managers Directive	ECB	European Central Bank
AMA	Advanced Measurement Approach	ECL	Expected Credit Loss
AML	Anti-Money Laundering	EDIS	European Deposit Insurance Scheme
AT1	Additional Tier 1	EEA	European Economic Area
BCBS	Basel Committee on Banking Supervision	EEAP	European Electronic Access Point
BIS	Bank of International Settlements	EFTA	European Free Trade Association
BMR	Benchmarks Regulation	EIOPA	European Insurance & Occupational Pensions Authority
BRRD	Bank Recovery and Resolution Directive	ELTIF	European Long-Term Investment Fund
CCP	Central Counterparty	EMIR	European Markets Infrastructure Regulation
CET 1	Common Equity Tier 1	ESMA	European Securities & Markets Authority
CFR	Core Funding Ratio	ESRB	European Systemic Risk Board
CMU	Capital Markets Union	EU	European Union
Council	Council of the European Union	EuSEF	European Social Entrepreneurship Fund
CPMI	Committee on Payments & Market Infrastructures	EuVECA	European Venture Capital Fund
CRA	Credit Rating Agencies (Regulation)	FINREP	Financial Reporting
CRD	Capital Requirements Directive	FICOD	Financial Conglomerates Directive
CRR	Capital Requirements Regulation	FRTB	Fundamental Review of the Trading Book
CSD	Central Securities Depository	FSB	Financial Stability Board
CTP	Consolidated Tape Provider	FX	Foreign Exchange
CVA	Credit Valuation Adjustment	GAAP	Generally Accepted Accounting Principles
DGS	Deposit Guarantee Scheme	G-SIB	Global Systemically Important Bank
DPM	Data Point Model	G-SII	Global Systemically Important Institution
EBA	European Banking Authority	IAS	International Accounting Standards
ECAI	External Credit Assessment Institution	IASB	International Accounting Standards Board

## Abbreviations

IBIP	Insurance-Based Investment Product	NCA	National Competent Authority
ICAAP	Internal Capital Adequacy Assessment-Process	NPL	Non-Performing Loan
IDD	Insurance Distribution Directive	NSFR	Net Stable Funding Ratio
IFRS	International Financial Reporting Standards	OSII	Other Systemically Important Institution
ILAAP	Internal Liquidity Adequacy Assessment Process	PAD	Payment Accounts Directive
IORP	Institutions for Occupational Retirement Provision (Directive)	Parl	European Parliament
IOSCO	International Organisation of Securities Commissions	PD	Probability of Default
IRB	Internal Rating Based Approach	PRIIPs	Packaged Retail and Insurance-Based Investment Products (Regulation)
IRRBB	Interest Rate Risk in the Banking Book	PSD	Payment Services Directive
ITS	Implementing Technical Standards	REFIT	Regulatory Fitness & Performance Programme
JCESA	Joint Committee of European Supervisory Authorities	RTS	Regulatory Technical Standards
KID	Key Information Document	RWA	Risk-Weighted Asset
LCR	Liquidity Coverage Ratio	SFT(R)	Securities Financing Transaction (Regulation)
LEI	Legal Entity Identifier	SI	Systematic Internaliser
LGD	Loss Given Default	SMA	Standardized Measurement Approach
LR	Leverage Ratio	SREP	Supervisory Review & Evaluation Process
LSI	Less Significant Institution	SRM	Single Resolution Mechanism
MCD	Mortgage Credit Directive	SSM	Single Supervisory Mechanism
MiFID	Markets in Financial Instruments Directive	STC	Simple, Transparent & Comparable (Securitisation)
MiFIR	Markets in Financial Instruments Regulation	TLAC	Total-Loss Absorbing Capacity
MMF	Money Market Fund	TR	Trade Repository
MS	Member States	UCITS	Undertakings for Collective Investment in Transferable Securities
		UPI	Unique Product Identifier
		UTI	Unique Transaction Identifier

## Institutional Framework



The international organisations on the top row set global standards for their respective members. These global norms are not binding, but have to be further translated in national (European) legislation.

European legislation is proposed by the Commission and, after political negotiations, voted in the European Parliament and the Council of Ministers. Adopted regulations and decisions are directly applicable to EU member states, while directives have to be translated into national law before they apply. The technical details are fine-tuned by the supervisory authorities: EBA, ESMA and EIOPA.

Finally, where necessary, national governments and supervisors translate and supplement the international and European policies for the domestic market.

## Regulatory Calendar

### 2023 Q3

#### Stress Test

EBA 2023 Stress Test Final submission

Document release: July 2023

#### Stress Test

EBA 2023 Stress Test results publication

Document release: July 2023

### 2023 Q4

#### Sustainable Finance

Thematic Review

To manage C&E risks with an institution-wide approach covering business strategy, governance, risk appetite & risk management

Application date: 31 Dec 2024

### 2024 Q2

#### EMIR

RTS

Minimum Details of the Data to be Reported - EMIR REFIT

Application date: 29 Apr 2024

### 2024 Q3

#### MiCA

Regulation

Most of the provisions of MiCA

Application date: TBD

### 2024 Q4

#### Sustainable Finance

Thematic Review

To be aligned with supervisory expectations, including integration of C&E risks in stress testing framework and ICAAP

Application date: 31 Dec 2024

### 2025 Q1

#### CRR

Most of CRR 3 provisions are intended to come into force

Application date: 01 Jan 2025

This Regulatory Calendar provides a snapshot on the most important regulatory events of this and the coming years. To see detailed calendar, please consult specific industry section of this RegBrief.

## Explanatory Note & Legend

### SCOPE

Regulatory updates include EU legislation, international standards and other relevant publications from the European authorities. They are gathered from official publications and institutions' official communication channels.

### STATUS

Updates are labelled with a symbol which indicates the status of the regulation at the time of publication:



*Consultation:* The first circle is filled when an official draft is open for public consultation.



*Pending:* The second circle is filled when a final proposal needs to be adopted by a vote or non-objection.



*Effective:* The third circle is filled when a regulation is final and adopted. There might be a certain delay until it applies.



*Informative:* This symbol indicates purely informative documents, such as briefings and reports.

## Trending Topics

### 1. BANKING PACKAGE - CRR/CRD



The banking institutions are waiting for the closure of the lengthy legislative process that surrounds the adoption of CRR 3 and CRD VI. At this stage there is a lack of clarity to what extent will the final banking package differ from what was proposed by the commission in October 2021. On the 27th of June the Council and the Parliament announced a "provisional agreement" indicating the whilst there is a progress, the negotiations are not yet done.

However, the banking package is expected to take force in 2025. Given the size of the requirements, there already is a shortage of time for the implementation by 2025 and we don't have the final version yet. To some extent this may be mitigated by banks already working to implement the Basel standards. However, in some respects, such as reporting, this approach is not possible.

Simultaneously in 2023 some aspects of the CRR 2 came into force regarding the use of the internal models and some components of FRTB. The regulators however are deprioritising supervision of the compliance with these rules. The internal models for the market risk are not very much used and the CRR 2 FRTB framework is incomplete as it needs to be complemented by the provisions in the new banking package.

### 2. INSURANCE



The IFRS 17 accounting standard together with IFRS 9 is in force in the EU as of first of January 2023 with most insurers more or less having already implemented those standards.

As of now, the insurers are waiting for the release of the (originally 2020) Solvency 2 review. The Commission has adopted its proposal on 22nd of September 2022 but the legislative process of adopting the release is still underway, but markedly delayed.

Meanwhile on the international front the IAIS has issued a public consultation regarding its Insurance Capital Standards (ICS). The observation period is coming to an end and the IAIS seeks to gather all information.

Climate risk will feature in more and more risk, reporting and disclosure activities bringing its own set of challenges, chiefly related to data gathering and model building. Stress testing is at the forefront of EIOPA's agenda right now where climate-risk should be added to the stress testing framework this year (with the climate risk stress test for the insurers likely for the next year). The IFRS have released a new set of standards regarding the disclosures of Climate Risks.

### 3. EMIR REFIT



Last October, a number of EMIR – related technical standards were published. As a result, as of April 2024, the reporting requirements under Article 9 of EMIR will once more be changed. The major changes can be described as:

1. Prohibition of using the proprietary formats for reporting to trade repositories. As of April 2024, only ISO 20022 XML will be acceptable format.
2. Closer alignment of the formats of the reports with global guidance developed by CPMI-IOSCO on the definition, format and usage of key OTC derivatives data elements reported to trade repositories.
3. Reports should now cover 3 tables where the third table focuses on the collateral related reports with some more fields being added.
4. More clarifications related to the mandatory delegation of the reporting for NFCs-.
5. Clarification about submitting information to NCAs for significant reporting issues.
6. Clarification of the controls that trade repositories are required to perform.

A photograph of the Aurora Borealis (Northern Lights) in shades of green and blue, dancing over a dark, snow-covered landscape under a starry night sky.

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# Banking

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# Banking Regulatory Timeline

## 2023 Q3

### CRR

Report  
CRD V/CRR II Basel III monitoring report

Document release: tbd

Consultation Paper  
Revised guide to the Internal Models

Consultation end: 15 Sep 2023

### CRD

Report  
On the application of waivers for remuneration requirements

Document release: tbd

Report  
on High earner (annual, CRD and IFD)

Document release: tbd

### Stress test

EBA 2023 Stress Test Final submission

Document release: Jul 2023

EBA 2023 Stress Test results publication

Document release: Jul 2023

### Resolution framework

RTS  
Review of the RTS on independent valuers

Document release: tbd

ITS  
On Resolution Reporting

Document release: tbd

## 2023 Q4

### CRR

Regulation  
Changes in LGD and conversion factors models for stand-alone rating systems for exposures to Corporates

Application date: tbd

Delegated Regulation  
Methodology for the Calculation of Liabilities Arising From Derivatives

Application date: 01 Oct 2023

ITS  
Preparation of 2023 benchmarking portfolios – update of ITS

Document release: tbd

RTS  
On the assessment methodology for the IMA (CP)

Document release: tbd

RTS  
On extraordinary circumstances for being permitted to continue using the IMA (CP)

Document release: tbd

RTS  
On material extensions and changes under the IMA (CP)

Document release: tbd

RTS  
On extraordinary circumstances for being permitted to limit the backtesting add-on (CP)

Document release: tbd

Guidelines  
On the meaning of exceptional circumstances for the reclassification of a position (CP)

Document release: tbd

Report  
Annual report on the impact and phase in of the LCR

Document release: tbd

Report  
Annual report on the impact and phase in of the NSFR

Document release: tbd

CRD  
Policy Initiative  
2024 European Supervisory Examination Programme

Document release: tbd

Report  
On the application of gender-neutral remuneration policies by institutions and Investment Firms

Document release: tbd

National Regulation  
CRD related provisions for resolution of GSIs with a multiple-point-of-entry resolution strategy

Document release: 15 Nov 2023

Resolution framework  
Policy  
The end of phase-in for SRB bank resolution policy: Expectations for Banks

Application date: tbd

Report  
Monitoring the build-up of MREL resources in the EU

Document release: tbd

Report  
2024 European Resolution Examination Programme

Document release: tbd

IFRS9  
Report  
Potential follow up report on IFRS 9 implementation

Document release: tbd

# Banking Regulatory Timeline

## 2024 Q1

NPL Directive  
Directive  
Directive on Credit Servicers and Credit Purchasers

Document release: 01 Jan 2024

Resolution framework  
Guidelines  
On institutions and resolution authorities on improving banks' resolvability

Application date: 01 Jan 2024

Regulation  
Some provisions for resolution of GSIs with a multiple-point-of-entry resolution strategy

Application date: 01 Jan 2024

Guidelines  
On Resolvability Testing

Application date: 01 Jan 2024

## 2024 Q2

CRR  
Guidelines  
Phase-in requirements for addressing data gaps in the monitoring of already existing credit facilities

Application date: 30 Jun 2024

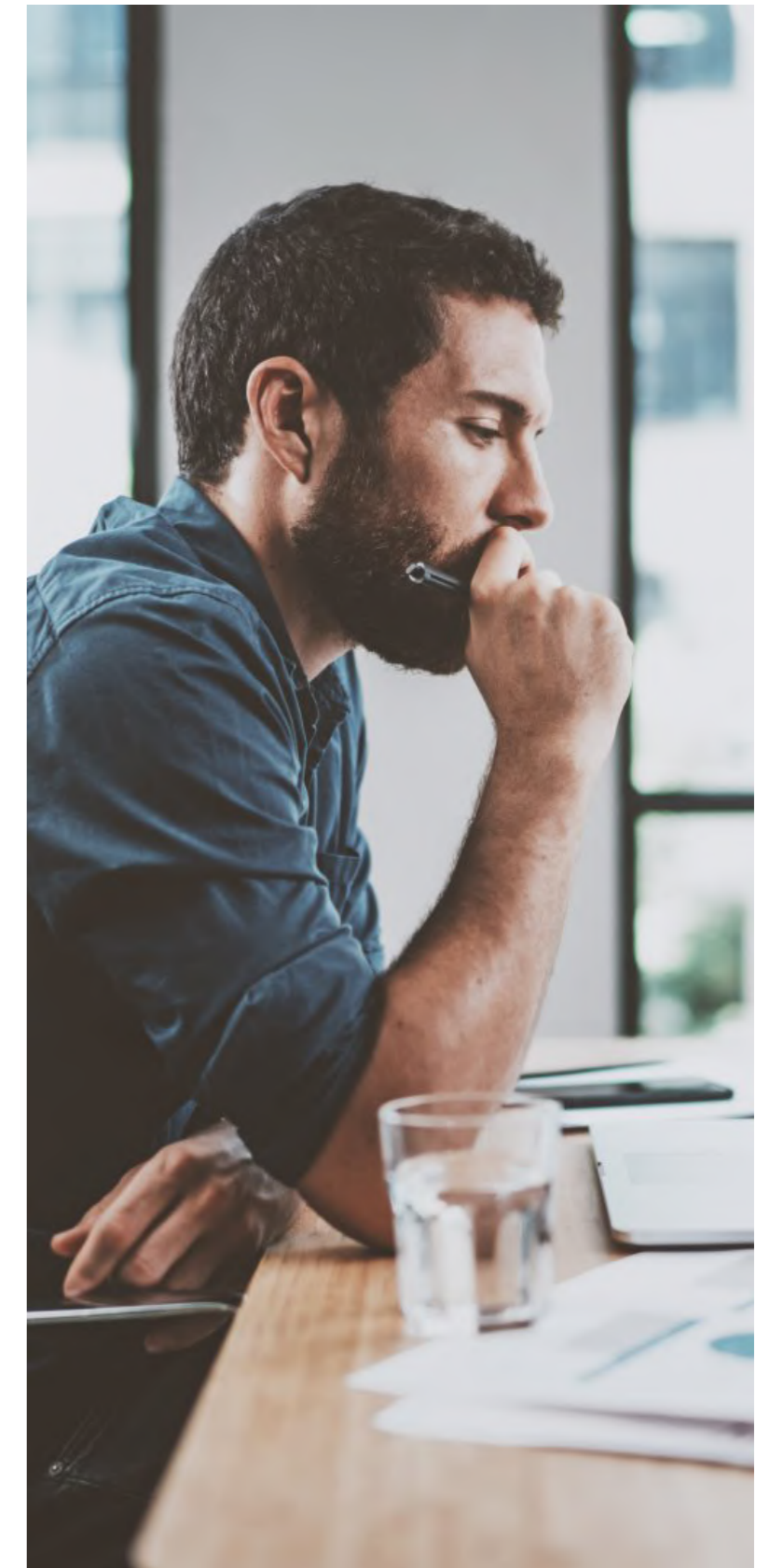
## 2025 Q1

CRR  
Regulation  
Most of CRR 3 provisions are intended to come into force

Application date: 01 Jan 2025

Basel  
Standards  
prudential treatment of banks' exposures to cryptoassets

Application date: 01 Jan 2025



**ARTICLE**

# FINALYSE PHYSICAL RISK PROTOTYPE - A CASE STUDY ON FLUVIAL FLOOD RISK FOR RESIDENTIAL REAL ESTATE EXPOSURES IN BELGIUM, FRANCE AND THE NETHERLANDS

*Written by Laurens Vanweddigen, Senior Consultant*

Following the adoption of the Paris Agreement on climate change and the UN 2030 Agenda for Sustainable Development in 2015, governments are trying to make strides to transition to low-carbon and more circular economies on a global scale. On the European front, the European Green Deal sets out the objective of making Europe the first climate-neutral continent by 2050. The financial sector is expected to play a key role in this respect.

Since 2019, the European Central Bank (ECB) has identified climate-related risks as a key risk driver in the SSM Risk Map for the euro area banking system<sup>[1]</sup>. The ECB is of the view that institutions should take a strategic, forward-looking and comprehensive approach to considering climate-related and environmental risks (C&E risks).

This article will focus on physical risks, such as physical damages caused by climate change and environmental degradation, which can have a significant impact on the real economy and the financial system.

Physical risks need to be carefully assessed by the financial institutions, which are required to develop proper methodologies and action plans to integrate them in their Risk Management Framework.

The objective of this article is to present a practical implementation of a physical risk assessment using the recently developed Finalyse Flood Risk Prototype. Following the ECB requirements<sup>[2]</sup> on the identification of C&E risks, Finalyse developed a prototype to demonstrate how banks should quantify their physical risks focusing - in a first stage - on the physical risk assessments for flooding.

After a brief overview of the regulatory background - which led to the methodological assumptions underlying the development of the Flood Risk Prototype - the discussion will concentrate on the technical functionalities of the tool and an application of the prototype on an actual portfolio will be presented in order to quantify the impact of fluvial flood risk on the capital requirements of financial institutions.

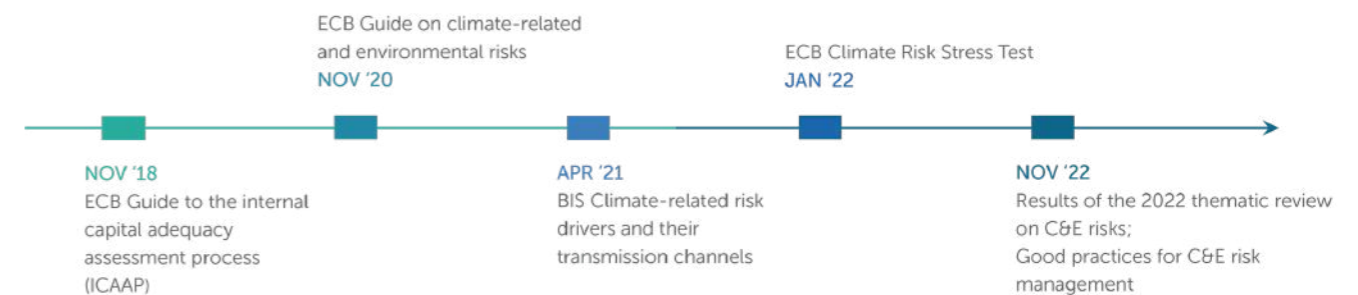
**REGULATORY BACKGROUND**

In November 2020, the ECB published the Guide on climate-related and environmental risks (hereinafter, the Guide), providing an overview of 13 recommendations related to Strategy, Governance, Risk management and Disclosures on C&E risks.

The Guide describes how the ECB expects institutions to consider climate-related and environmental risks – as drivers of existing categories of risk – when formulating and implementing their business strategy, governance and risk management frameworks. It

further explains how the ECB expects institutions to become more transparent by enhancing their climate-related and environmental disclosures and financial institutions are expected to fully comply with them. Since then, an increasing number of national regulators and supervisors have also formulated similar expectations.

Furthering its purpose to develop a supervisory approach to manage and disclose climate-related and environmental risks, in 2022, the ECB launched the thematic review, which involved conducting deep dives into the institutions' climate-related and environmental strategies.



The results of the 2022 Thematic review on C&E risks<sup>[3]</sup> showed that, despite a global improvement of the banking sector's response to C&E risks, implemented practices do not always reach the desired level of soundness, comprehensiveness, or effectiveness. However, the ECB sees reasonable that banks can be fully compliant with all the expectations by the end of 2024 at the latest.

**Supervisory expectation on Physical Risk Assessment**

In the context of developing a comprehensive approach for the assessment and quantification of the impact stemming from climate-related risks on institutions' business environment, relevant indications can be directly found in the ECB Guide on C&E risks.

ASSESSMENT LEVEL	<b>Expectation 1.1</b> When scanning their business environment, institutions are expected to identify risks arising from climate change and environmental degradation at the level of key sectors, geographic areas and related to products and services they are active in or are considering becoming active in.	
TIME HORIZON	<b>Expectation 1.2</b> Institutions are expected to understand how climate-related and environmental risks affect their business environment in the short, medium and long term to inform their business strategy process.	<b>Expectation 2.1</b> Institutions are expected to determine which climate-related and environmental risks impact their business strategy in the short, medium and long term, for example by using (stress) scenario analyses.
DOCUMENTATION and MATERIALITY	<b>Expectation 7.1</b> Institutions are expected to have a holistic and well-documented view of the impact of climate-related and environmental risks on existing risk categories.	<b>Expectation 7.2</b> Institutions are expected to comprehensively include climate-related and environmental risks in their assessment of materiality for all of their business areas in the short, medium and long-term under various scenarios.

The ECB defines the expected level of granularity of the physical risk assessment ("key sectors, geographical areas and related to product and services"), the time horizon – which should cover short, medium and long term perspectives

- and specifies that the quantification of the impact should be led by the internal definition of materiality to ensure that the relevant risk inventory is kept up to date accordingly to the institutions' exposures.



## Ranking of Physical Risk Assessment Methods

A further significant step in the ECB definition of a physical risk assessment framework has been made with the publication of the “Good practices for C&E risk management” in November 2022.

The Report illustrates different ways for significant institutions to align their practices with the supervisory expectations set out in the Guide.

For the purpose of this article, we will primarily focus on two aspects of the good practices reported in the paper: (i) the expected materiality assessment and (ii) the physical risk assessment methods.

### The Expected Materiality Assessment

The ECB designs a three-step approach through which institutions can develop a well-informed understanding of all relevant C&E risk drivers and assess the ways in which these could affect the prudential risks they are exposed to.

Good practices in materiality assessment

Section	Topic	Description	Expectation
Identification of risk drivers	Transmission channels	Mapping out risk drivers to identify transmission channels	1, 7.1
Identification of exposures	Materiality assessments	Risk assessment methods to assess materiality of exposures	7.2, 7.3
Determination of materiality	Materiality thresholds	Setting materiality threshold and follow-up actions	1, 7.2

Source: ECB Good practices for C&E risk management

By means of a risk identification process, institutions should assess which risk drivers are – or are likely to be – material in view of their exposures. Institutions can leverage qualitative and quantitative approaches to assess the level of risk against a predetermined materiality threshold. As outlined above, institutions should use their internal definition of materiality in order to ensure that the risk inventory is kept up to date<sup>41</sup>.

The final outcome of the materiality assessment is meant to help institutions define the required follow-up actions for integration of C&E risks in the risk management framework.

### Physical Risk Assessment Methods

Depending on the type of exposure and risk driver in scope, the ECB noted that institutions deploy different qualitative and quantitative approaches to assess the materiality of the risks. They typically use qualitative approaches supplemented by proxy-based quantitative information. More advanced institutions use scenario analyses to assess the impact on either probability of default (e.g. through changes in client revenues/costs) or loss given default (e.g. through changes in the value of collateral) for exposures with credit risk or loss estimates

for exposures with market risk and operational risk.

Following an increasing level of complexity, the report outlines four types of Physical Risk Analysis:

1. Exposure analysis: identification of physical risk drivers by sector based on the work of an international climate research agency. Following this approach, institutions assign a sensitivity score from very low to very high to each sector taking into consideration the vulnerability of the specific economic activities (e.g. power generation) to a physical vulnerability (e.g. drought).
2. Sensitivity analysis: development of several stress scenarios to assess and quantify the impact on profit and loss (P&L) of extreme weather events (i.e. droughts, heatwaves, floods). A sensitivity based simulation is performed to model the impact of shocks on individual positions, aggregating the results to determine the impact on P&L and solvency position at portfolio level.
3. Business continuity analysis: identification of relevant physical risk events affecting institutions’ personnel, data, services and facilities, and using of forward-looking flood, drought and wildfire maps from external data providers.

4. Collateral analysis: performing of a location-specific risk analysis to quantify physical risks using geospatial mapping and local geographical characteristics (e.g. building type, the type of surrounding terrain, the features of the construction, (public) transport routes). Using natural hazard maps (e.g. for floods, droughts and wildfires), the model constructs vulnerability curves for building type clusters at postal code level. This allows institutions to calculate risk estimates, also taking into account any general hazard protection and/or building-specific mitigation that may be in place. These risk estimates are translated into expected damages and losses to the collateral portfolio.

The Finalyse Flood Risk Prototype has been built accordingly to the ECB expectations outlined above and embraces the highest level of complexity within the Physical Risk Analysis “good practices”, by performing a collateral analysis with global coverage of the major climate-related extreme-weather hazards (Further details about the technical features of the tool will be provided later in the article). The current version of the prototype supports only river flood risk, yet further hazard types are being added.

## PHYSICAL RISK ASSESSMENT

### Overview

As the climate is changing, extreme events are becoming more frequent and more severe. Their importance varies across geographies and time horizons, between different industry sectors and individual borrowers.

Therefore, it is becoming crucial to define a sound approach that allows financial institutions to assess how fixed assets can be impacted by those events and to which extent this impact could further lead to changes in output and asset values, and disrupt supply chains.

Physical risks can be broken down in three key parameters to differentiate how assets are exposed to this new category of risk:

1. Frequency: event-based/chronic
2. Severity: the potential impact of a hazard (dependent upon the hazard type)
3. Geographic coverage: the zone or area that is affected by the hazard

The Task Force on Climate-related Financial Disclosures (TCFD) distinguishes two types of physical climate risks: acute and chronic. Acute physical risks arise from changes in event-driven hazards, such as an increased severity of cyclones, hurricanes or floods. Chronic physical risks refer to longer-term, incremental shifts in climate patterns that may cause sea level rise or chronic heat waves.

The potential impact stemming from both acute and chronic events depends on the input scenarios chosen by the institution to make forward-looking and probabilistic assessments, according to a specific return period (i.e. the time horizon required so that climate change risk factors can fully materialize).

A common practice is to leverage on the scenarios prepared by The Network of Central Banks and Supervisors for Greening the Financial System (NGFS). Scenarios were first published in June 2020 and updated a year later. There are three main advantages of those scenarios:

1. Scenarios were specifically designed to address the needs of prudential authorities and central banks to assess the resilience of the financial sector.
2. Scenarios allow for some degree of comparability across jurisdictions because are publicly available and can be employed by multiple authorities.
3. Entities can avoid having to duplicate expertise and financial resources to develop their own scenarios.

As above outlined, institutions are required to use a proportionality and materiality approach when defining their physical risk assessment and need to identify the best balance in terms of spatial coverage and resolution of the datasets, which will largely depend on the type of climate event under analysis.

### Finalyse Flood Risk Prototype - Technical features

The Finalyse Flood Risk Prototype is an highly customizable tool designed to help banks in assessing and quantifying the impact of the fluvial flood risks on their exposures.

The tool is based on a probabilistic natural catastrophe impact model with averted damage

calculation.

### Methodological framework

According to the IPCC<sup>[5]</sup>, natural risks emerge through the interplay of climate and weather-related hazards, the exposure of goods or people to this hazard, and the specific vulnera-

$$physical\ risk = probability \times severity$$

Where x represents a convolution of the respective distributions of probability and severity.

$$severity = exposure * f_{imp} (hazard\ intensity)$$

This function is the so-called "impact function" which parametrizes to what extent an exposure (in the flood risk case, the property value) will be affected by a specific hazard.

Using the methodological approach described above, the Finalyse Flood Prototype is able to link the geo-spatial attributes (i.e. lat/long) of each exposures to the historical hazard maps, combine them with a set of forward-looking and probabilistic models in order to predict the future impact of the extreme-weather event. Each phase of this process will be detailed in the following sections.

### Process Flow

In order to perform an end-to-end physical risk assessment exercise, the Finalyse Flood Risk Prototype follows four main steps:

1. Input definition: identification of the portfolio of exposures under analysis (in currency amounts) and related geo-localization attributes.
2. Hazard customization: the prototype provides historical data or model simulations and transforms them, if necessary, in order to construct a coherent event database. Stochastic events can be generated taking into account the frequency and main intensity characteristics (such as local water depth in

bility of exposed people, infrastructure and environment.

Following this approach, physical risk can be quantified as the combination of the probability of a climate and weather-related hazard effect and its magnitude:

The severity of an hazard event can be seen as the combination between the exposure and a function of the intensity of the hazard.

the case of floods) of historical events, producing an ensemble of probabilistic events for each historical event category. This means that the features of the prototype are highly customizable according to the needs of the exercise to be performed.

3. Impact function implementation: the impact can be defined as the combined effect of hazard events on a set of exposures mediated by a set of impact functions. By computing the impact for each event (historical and synthetic) and for each exposure value at each geographical location, the impact function provides different risk measures (e.g. % damage as a function of meters of flooding) at the desired return period.
4. Output: The final output of the Flood Risk Prototype consists of a dataset at exposure level reporting the most important information (e.g. country, year, long/lat, etc..) and including the impact output (e.g. the percentage of damage of the property). The impact is eventually transferred to the credit risk parameters - by computing the impact on the Standardised Approach RWA calculation through the change in the LTV of the collateral - in order to quantify the amount of loss.

The following paragraphs will be devoted to deep dive into the two crucial phases of the prototype process flow: hazard customization and

impact function.

### HAZARD CUSTOMIZATION

The river flood hazard is used to describe the extreme-weather event both in terms of probability of occurrence as well as physical intensity.

In order to design a flood risk assessment, the prototype allows a high level of customization of the main hazard features, namely:

1. Granularity level of hazard maps (e.g. Country)
2. Climate Scenario (e.g RCP 2.6, RCP 6.0 and RCP 8.5);
3. Time horizon
4. Intensity at a given resolution level

The river flood risk is expressed as flood depth in meters and flooded area fraction with a footprints worldwide at 150 arcsec (approx 4 kilo-

meters at equator) resolution (different resolutions can be set, depending on the needs).

Data are available for each (flood exposed) country worldwide and both as historical versions and a selection of IPCC representative concentration pathways (RCP) emission scenarios for selected future time periods.

Developed as part of the IPCC AR6, the Shared Socioeconomic Pathways (SSPs) are five different scenarios of socioeconomic changes up to 2100 and allow multi-disciplinary analysis within climate change research. Each SSP can be associated with one or more RCP (Representative Concentration Pathway) scenarios, which correspond radiative forcing levels in the year 2100 (expressed as W/m<sup>2</sup>) ranging from 2.6 to 8.5 which correspond to estimated rises in global temperatures of 2 degrees to above 4 degrees Celsius respectively by 2100. The prototype contains the following SSP-RCP scenarios:

Scenario	Temperature range (2080-2100)	Scenario Narrative
SSP1-RCP2.6	1.3°C-2.4°C	Sustainability- "Taking the green road": A limited growth in consumption & population is combined with a high degree of international cooperation on environmental policymaking & rapid advancements in technology.
SSP4-RCP6.0	1.4°C-3.1°C	Inequality- "A road divided": A scenario that consists of inequality within & across regions, based on high population growth in low-income regions with declining population elsewhere and different economic growth patterns across regions. This leads to vast differences in regional demands for energy and food.
SSP5-RCP8.5	3.3°C-5.7°C	Fossil-fuelled development- "Taking the Highway": A scenario that combines rapid economic & population growth with high energy consumption based on fossil fuels. Little attention is given to global environmental policies.

Finalyse Flood Risk Prototype leverages the above using model outputs of the Intersectoral Impact Model Intercomparison Project (ISIMIP), which is an international initiative of researchers contributing harmonized global and regional climate model simulation datasets under different SSP-RCP scenarios as outlined above. It provides a simulations protocol so that different models can be compared easily given their common naming convention.

The prototype is based on ISIMIP2b model out-

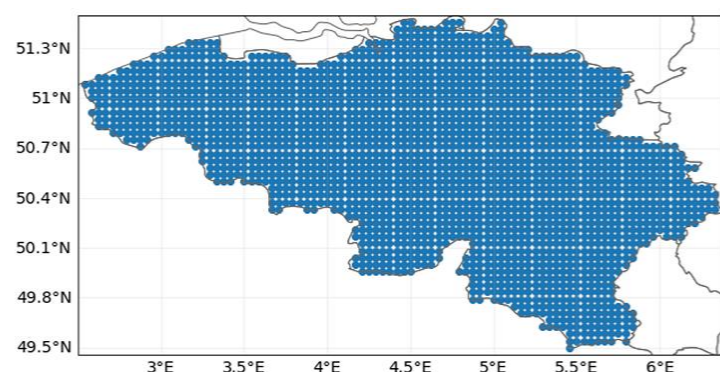
puts, which combines 6 global hydrological models (GHMs) together with 4 global circulation models (GCMs). The hydrological models use the variables of the circulation models as inputs. In this process, variables such as precipitation, wind speed, humidity and daily temperatures stemming from the GCMs are converted into a total river runoff (m<sup>3</sup>/s). The critical element for fluvial flood risk is surface water runoff or river discharge (water that does not trickle down into the soil). This surface water runoff is finally translated into the key component:



An overview of all the different hydrological and circulation models is presented in the Annex. A detailed description can be retrieved through the ISIMIP2b protocol.<sup>[6]</sup>

The prototype will provide for each combination of RCP Scenario, GCM and GHM the maximum

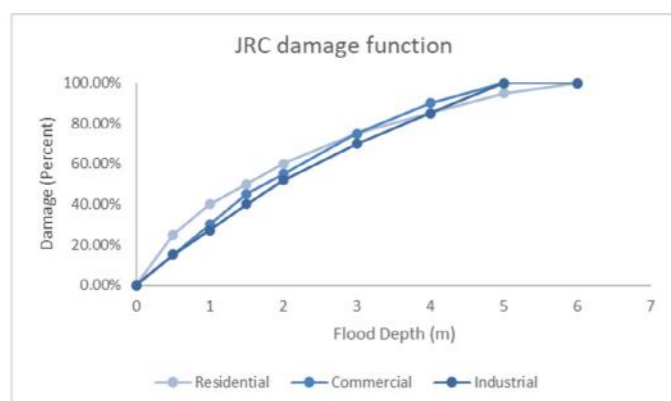
intensity (flood depth, expressed in height (m)) per year for a given location. This will be done at a resolution of 150 arcseconds, which corresponds for the geographical coverage of our prototype to grids of 5km x 3km. The midpoints of these grids are called centroids and can be visualised as per below (example for Belgium).



### IMPACT FUNCTION

Once different flood depths have been established, a specific damage function to different types of real estate classes is created for the prototype. This is based on the methodology outlined by the Joint Research Committee (JRC) of the European Commission (Huizinga et al. (2017)).<sup>[7]</sup>

The output are so-called flood depth-damage curves which plot the maximum damage in percent terms of different asset classes for different regions. Below a graphical depiction is provided for Europe for commercial, residential and industrial assets. These values are based on regression analysis using construction data across different countries. These damage functions can be tailored further depending on specific building material and/or expert judgement.



### FINALYSE FLOOD RISK PROTOTYPE - A PRACTICAL CASE

Having defined in the previous paragraph both the methodological and technical framework of the tool, the following section will show a practical implementation of the flood risk assessment created via the Finalyse Flood Risk Prototype.

#### Simplified portfolio view

For the purposes of demonstrating the capabilities of the prototype, we will only consider the exposure class of commercial and residential real estate mortgage loans (CRRE). Given the total amount outstanding of EUR 4.1 trillion in mortgage loans,

LTV ≤ 50%	50% < LTV ≤ 60%	60% < LTV ≤ 80%	80% < LTV ≤ 90%	90% < LTV ≤ 100%	LTV > 100%
20%	25%	30%	40%	50%	70%

The mechanism driving changes in LTV ratios will be changes in the collateral value caused by damages of river floods.

We will start from the following simplifying assumptions:

- All exposures have a loan-to-value ratio (LTV ratio) of 70%.
- Mortgage loans are treated as bullet loans: no intermediate payments made.
- Maturity date is beyond the projected time intervals as shown in the next paragraph.
- No discount rates are used.
- Static balance sheet assumption – portfolio remains constant throughout the entire projected time range.

As we assume the loan value to remain constant over time, the only imposed change is through the property value. We will focus on Belgium, the Netherlands and France during two time intervals

which amounts to 33.5% of total lending towards households and non-financial companies CRRE can be viewed as one of the most important loan segments for banking in Europe<sup>[8]</sup>.

The aim of the exercise is to see the impact of fluvial flood risk on capital requirements for financial institutions through the impact on their risk-weighted assets (RWA).

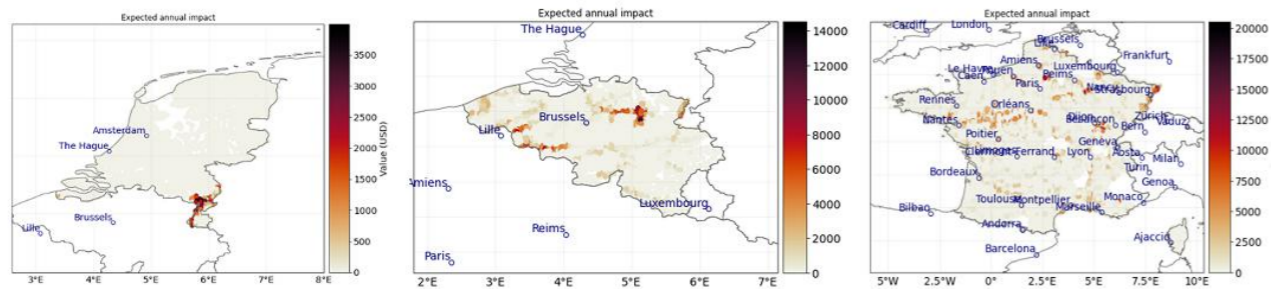
We will consider the Basel III Calculation of RWA for credit risk Standardised Approach, individual exposures (CRE20), in which RWA is calculated using fixed risk weights. For regulatory RRE exposures not dependent on cash flow generated by the property the following risk weights are applicable. The damages in absolute values can be for

(2030-2050 and 2050-2070) while taking into account the SSP1-RCP2.6, SSP4-RCP6.0 and SSP5-RCP8.5 climate scenarios for the purposes of the prototype. The following chapter will provide more details on the underlying climate scenarios.

### Exposures mapping and impact calculation

Using real estate exposures located at different communes in Belgium, France and the Netherlands we can finally combine the longitude and latitude coordinates of the centroids with the geolocations of the exposures and the damage functions. Note that the exposure values were randomized with values between EUR 100.000 and EUR 200.000.

This will yield the below output for the three countries in which the annual expected impact is provided.



$$EI_j = \sum_i x_{i,j} * \frac{1}{24}$$

The application of the damage function on the different exposures, using the flood risk hazard maps under the different climate pathways and for the different return periods, results in a set of changes in the exposure values (due to the impact of river flood risk) and related changes in the RWA – via risk weights.

This can be seen clearly in the formula below, in which the percentage change in RWA is expressed as the RWA after damages caused by flooding divided by the original RWA (based on our assumption of an LTV of 70%).

malized in the following manner, in which subscripts i and j denote the event and location (longitude and latitude) respectively:

$$x_{i,j} = e_j * d(h_{i,j}|v_j)$$

The damage in absolute value terms can be expressed as function of the original exposure value **e** at location **j**, multiplied with the damage function **d**. The damage function takes into account hazard intensities for event **i** at location **j** given the specific vulnerability of the asset class **v** at location **j**.

depth for year 2055 simulated by the Community Water Model using the GFDL-ESM2M as its global circulation model.

The above definition of damages can also be seen as the severity of the risk. On the other hand we can deduct a frequency function, which is obtained from the impact exceedance curve. In the below **T(x)** is the return period, so 1/500 would result in a flood event that occurs once every 500 years.

Finally, an event can be described as a combination of projection years, hydrological models and circulation models. An example of an event is the flood

$$v(x) = \frac{1}{T(x)} = * d(h_{i,j}|v_j)$$

For the purpose of the case study we assume that the financial institution will consider the expected annual impact (EAI) over a time horizon of 20 years, which corresponds to a typical mortgage loan term. This can be expressed as below.

$$EAI_j = \mathbb{E}[X] = \sum_i x_{i,j} * p(x_{i,j})$$

Since the events all have an equal probability of occurring, the formula can be simplified to

$$EAI_j = \sum_i x_{i,j} * \frac{1}{480}$$

and we consider the total amount of damages incurred over the lifetime of the mortgage loan, so we end up with the expected impact EI for a property **j** based on the following formula

$$\Delta RWA = \frac{RWA_{flood}}{RWA_{orig}} = \frac{\sum_i exposure_i * rw_i}{30\% * \sum_i exposure_i}$$

As the flood events lead to an increase in LTV, for some properties the risk weights will increase to 40% to even 70% depending on how large the annual expected damage is over our 20 year horizon.

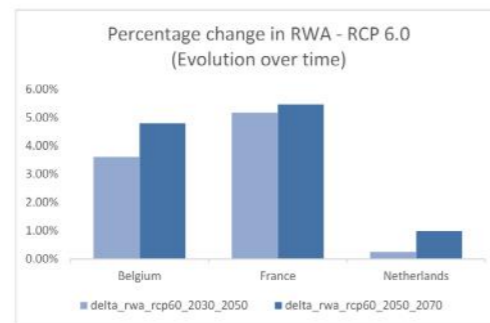
The following table shows the results obtained through the application of the Finalyse Flood Risk Prototype on the exposures - as described above - for the time horizon 2030-2050:

Country	Scenario	Property Value € Mln	Property value after damage € Mln	% Delta in Property value	RWA (orig)	RWA 2030-2050	% Delta in RWA
BE	rcp2.6	1.245,61	1.223,48	-1,78%	261,58	268,57	2,67%
	rcp6.0	1.245,61	1.216,49	-2,34%	261,58	271,03	3,62%
	rcp8.5	1.245,61	1.195,68	-4,01%	261,58	280,79	7,34%
FR	rcp2.6	10.110,57	9.908,47	-2,00%	2.123,19	2.184,89	2,91%
	rcp6.0	10.110,57	9.814,08	-2,93%	2.123,19	2.233,06	5,17%
	rcp8.5	10.110,57	9.679,67	-4,26%	2.123,19	2.294,93	8,09%
NL	rcp2.6	626,19	625,40	-0,13%	131,50	131,50	0,00%
	rcp6.0	626,19	624,73	-0,23%	131,50	131,83	0,25%
	rcp8.5	626,19	620,07	-0,98%	131,50	134,08	1,97%

The impact on the RWA is increasing with the severity of each scenario - in terms of energy consumption based on fossil fuels - and it's also coherent with the level of flood-sensitivity of the country.

time, we can clearly observe an increase of our delta RWA over time in the different countries. This is shown in the graph below for RCP6.0 and highlights the aggravating effects of physical risk on capital requirements over time.

If we consider the impacts in over a longer period of



One should take into account the counterintuitive results for Netherlands, a country that is considered prone to flood risk. This has to do with the fact that in our current exercise we disregard coastal flooding and only look at fluvial flood (or river flood) risk.

One possible explanation might be the fact that the Dutch government already started in 2006 with their so-called program "Ruimte voor de Rivier", in which exposed parts for other main river networks such as the Rhine, Waal, IJssel and Lek were improved by providing more control areas which could catch excess river water in a controlled manner. These rivers are also fed by rain and melting water coming from the Alps through the Rhine River basin, opposed to the Meuse which is routed from France and Belgium and finally Netherlands through the more mountainous region of the Ardennes.

Since we the output relies on hydrological models, improvements in the river routing infrastructure can be taken into account which might explain the relatively low increase for the Netherlands in terms of RWA.

## CONCLUSION

In November 2020, the ECB published the supervisory expectations regarding the effective management of C&E risks. Later, in November 2022, the ECB published the results of its thematic review – carried out during 2022 – and a compendium of good practices observed in some banks.

Following the publication of those two papers, Finalyse developed a prototype to demonstrate how banks should quantify their physical risks using geospatial mapping and local geographical characteristics while

matching the ECB requirements (in terms of assessment level, time horizon, documentation and materiality). In a first stage, focus has been set on physical risk assessments for flooding.

The Finalyse Flood Risk prototype is now ready and offers a practical implementation of a forward-looking flood risk assessment using the ISIMIP2b simulation round of flood discharge in combination with the CLIMADA engine. The tool is therefore capable of producing an expected annual impact (expressed in currency value) at a 150 arcsec (~5km) resolution for different climate scenarios at future dates. The tool includes functionalities to geo-localise the exposures and therefore simulate expected future damages caused by floods.

The article showed a practical implementation of the Finalyse Flood Risk Prototype considering the exposure class of commercial and residential real estate mortgage loans (CRRE).

The aim of the exercise has been to assess the impact of fluvial flood risk on capital requirements for financial institutions through their Common Equity Tier 1 (CET1) Ratio - via impact on RWA.

The Finalyse Flood Risk prototype makes use of tools and methodologies that are not strictly limited to flooding. The tool will be consequently progressively enhanced to reflect more hazard types and geo-spatial coverages.

## ANNEX

Overview of Global Circulation Models (GCMs) and Global Hydrological Models (GHMs)

GHM	GCM
CWatM (Community Water Model)	IPSL-CM5A-LR / GFDL-ESM2M / MIROC5 / HadGEM2-ES
CLM45 (Community Land Model)	IPSL-CM5A-LR / GFDL-ESM2M / MIROC5 / HadGEM2-ES
H08	IPSL-CM5A-LR / GFDL-ESM2M / MIROC5 / HadGEM2-ES
LPJML	IPSL-CM5A-LR / GFDL-ESM2M / MIROC5 / HadGEM2-ES
Matsiro	IPSL-CM5A-LR / GFDL-ESM2M / MIROC5 / HadGEM2-ES
Watergap2	IPSL-CM5A-LR / GFDL-ESM2M / MIROC5 / HadGEM2-ES

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- See par 2 for further details about the regulatory background.
- For further details see "[Walking the talk: Banks gearing up to manage risks from climate change and environmental degradation](#)" – ECB, Nov 22.
- See par 59 of the ECB Guide to the internal capital adequacy assessment process (ICAAP)
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- ISIMIP2b Simulation Protocol (January 2021): retrieved from [https://www.isimip.org/documents/564/ISIMIP2b\\_protocol\\_210131\\_noEnergy\\_IV\\_JS-1\\_IV\\_pmp-1.pdf](https://www.isimip.org/documents/564/ISIMIP2b_protocol_210131_noEnergy_IV_JS-1_IV_pmp-1.pdf)
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## ARTICLE

# INTEGRATION OF TRANSITION RISKS INTO PD

*Written by Christophe Caers, Senior Consultant; Maciej Smółko, Senior Consultant; David Boavida, Consultant and Jaydeep Sengupta, Consultant.*

Since the publication of the ECB Guidelines on Climate-Related and Environmental (C&E) risks, banks have been incentivised to continue researching possible ways of integrating C&E risks into their risk management frameworks. At present, risk management functions have been focused on the usage of a stress testing framework to measure their potential exposures under the assumption of one or more transition scenarios. Another point of attention has been the integration of C&E risks into client-acceptance frameworks where new and existing clients are assessed based on their Climate (and often Social & Governance) related performance to align bank portfolios with targets.

As part of Expectation 8<sup>1</sup> the ECB's "Guide on climate-related and environmental risks", banks are expected to consider C&E risks in all stages of the credit process. Although stress testing approaches, granting criteria, and measurements of industry and geography concentrations have partly addressed this issue, direct integration into prudential risk models remains challenging. There are several reasons for this. Banks have only recently started collecting relevant data related to C&E risks and therefore do not have a substantial history that can be relied on to construct statistical models. Moreover, due to the acceleration in terms of both weather events and new climate-policy, the historical relationship between C&E drivers and risk measures is likely not representative of the current or future behaviour.

To address this topic, Finalyse presents a pragmatic approach to incorporate climate risk into a PD model. The conceptual framework leverages on a bank's ability to apply appropriate adjustments during the model development phase of a credit risk model. These adjustments allow certain aspects of the model to be adjusted if there is evidence of representativeness issues. As such, the concept of appropriate adjustments could be used in the setting of C&E risks. Historical data is unable to account for the velocity of current policy adjustments, increases in carbon price and change in global climate. Therefore, the current and past economic cycles are not representative of the inherent risk related to the transition to a sustainable economy. Especially in the context of carbon intensive industries, historical default rates are not representative of the expected risk in the following years and decades. As such, an appropriate adjustment could be applied on the calibration

target of those segments with heightened sensitivity to C&E risks.

This article will guide you through a conceptual framework and data-driven implementation of the proposal above.

## SEGMENTATION

The first step of our approach is to split the portfolio into two segments. One with high C&E risk vulnerability and other with limited C&E risk vulnerability. To achieve that, a data- and/or regulatory-driven segmentation approach needs to be defined.

According to EBA's report on "Mapping climate risk: main findings from the EU-wide exercise on climate risk"<sup>2</sup> bank's corporate exposures are classified according to two data classification approaches: the Climate Policy Relevant Sectors (CPRS) methodology and greenhouse gas (GHG) emission-based approaches.

Both approaches allow exposures to be compared and replicated across institutions and sectors consistently. Also, they serve as a starting point on the development of methodologies mapping the standard EU classification of economic

activities (i.e., the NACE) into categories that are relevant for climate transition risks.

## Climate Policy Relevant Sectors

The CPRS method is a sector-based classification approach developed by Battiston et al. (2017) which provides a standardised and actionable classification of economic activities that could be impacted by a disorderly low-carbon transition. These sectors are identified by evaluating their i) direct and indirect contribution to GHG emissions, ii) relevance for climate policy implementation, iii) role in the energy value chain (technology) and iv) business model (input substitutability of fossil fuel).

In its essence, it reclassifies NACE classes (4-digit level) into CPRS categories, where exposures to CPRS 1-6 are defined as potentially affected by climate transition risks. These categories, in its most aggregate level, consist of the following:

- 
1. Fossil Fuel
  2. Utility
  3. Energy-intensive
  4. Buildings
  5. Transportation
  6. Agriculture
  7. Finance
  8. Others

Figure 1: CPRS main categories

Even though one limitation may arise when companies operate in multiple business lines and thus, a NACE code won't capture all the transition risk. The advantage of the CPRS approach lies in its applicability to a large amount of financial assets and comparability across portfolios. Consequently, it is widely used by practitioners and policy makers (EBA, ECB, EIOPA) to assess investor's exposure to climate risk.

Additionally, not only are CPRS fully compatible with the EU Taxonomy of sustainable activities, but they also allow the mapping of financial investments into the Integrated Assessment Models' (IAM) variables provided in the Network for Greening the Financial Sectors (NGFS) scenarios. Also, they complement the current EU Taxonomy by covering both low- and high-carbon sectors.

On the EBA's "Mapping climate risk: main findings from the EU-wide exercise on climate risk" 98% of the €2.3 trillion of exposures collected were classified, since there were NACE codes available for 98% of the data.

Another advantage is that it enables to extend and go beyond the notion of "carbon stranded assets".

### GHG Emissions

This approach consists of mapping the GHG emission intensity of obligors, and then grading sectors' transition risk based on their carbon intensities. The transition-sensitive sectors are termed "high transition risk sectors (HTRS)".

To calculate the GHG emission intensity of obligors, their total GHG emissions are divided by their annual consolidated revenues. The obligors can then be classified into NACE level 4 classes. This classification helps create a distribution of banks' exposures based on their emission intensity. This distribution is then used to build different buckets of GHG emission intensity ranges, based on the percentiles of individual companies' data, or to define a cut-off point that splits the sectors into HTRS and non-HTRS.

However, the coverage and accuracy of the data poses some challenges when comparing results with this approach. Additionally, unlike the CPRS methodology, this approach focuses only on identifying large emitters and not capturing other variables/effects crucial to assess the exposure to transition risks.

### Other Approaches

While the preferred approach in the proposed framework is the CPRS method, other ways to segment the data according to its vulnerability to climate transition risk were studied.

An essential feature of the EU Taxonomy is that

$$PD_{Carbon\ stressed} = f(Company\ fundamentals_{Carbon\ stressed})$$

activities not categorized as "green", are not necessarily detrimental. Thus, while evaluating the alignment of financial markets and investors' portfolios with the Taxonomy is fundamental to assess their progress towards green, it is insufficient when it comes to determining their vulnerability to climate transition risk.

In a recent paper by Alessi and Battiston (2021)<sup>3</sup>, the authors propose an advancement to the CPRS method. To better evaluate the exposures to activities that will necessarily be adversely impacted by the low-carbon transition the authors developed Transition-Exposure Coefficients (TECs). These range from 0, for sectors that don't need to transition, to 100%, for activities that will need to be abandoned going forward. The approach leverages on the CPRS classification to assign a TEC to each NACE sector with the objective to identify the sectors that are highly exposed to transition risk and thus, to potential losses.

As mentioned, the scope of the paper is limited to the CPRS as they allow a simple binary segmentation. However, it is important to note that the framework hereby described can possibly be extended by incorporating the TECs.

### METHODOLOGY

To provide a comprehensive understanding of the model framework, it is important to delve into its foundation and methodology. This section aims to achieve that, by exploring the underlying principles and techniques that form the basis of the model.

Our objective is to calculate the Probability of Default (PD) for each company as well as the corresponding Stressed PDs considering the impact of transition risk through carbon cost imposition. Carbon Stressed PD is the result of re-evaluating the risk profile of a counterparty based on the impacted fundamentals based on the existing internal rating models.

Following are the overarching stages undertaken in formulating the methodological framework for the model.

#### Data Collection:

1. Financial statements of 9,000+ companies

#### Feature Selection:

1. Asset Size
2. Net Income
3. Revenue
4. Carbon Emissions
5. Gross Profit

#### Pseudo Actual Default Flag Creation:

1. Weighted scoring based on profitability & asset size along with random factor
2. Assignment of Default Flag based on industry standard threshold

#### Applying Carbon Cost Pass Through (CPT) methodology into financial statement:

1. Estimation of financial variables through CPT model for varying elasticity, carbon cost and

### Carbon Cost Pass Through (CPT) methodology

Cost pass-through is a pricing strategy where a business passes on the costs of producing or acquiring a product or service to the customer by increasing the price. This approach is often used by businesses that face volatile input costs, such as raw materials or labour, which can fluctuate based on market conditions or other factors.

The cost pass-through methodology involves analysing the costs associated with producing or acquiring a product or service, and determining how much of those costs can be passed on to the customer. This analysis typically involves considering factors such as the level of competition in the market, the elasticity of demand for the product or service, and the overall price sensitivity of customers. Once the analysis is com-

plete, the business can adjust its pricing strategy to reflect the costs it incurs. For example, if a company sees a significant increase in the cost of raw materials, it may choose to raise its prices to maintain its profit margins. Alternatively, if the company wants to stay competitive in the market, it may choose to absorb some of the increased costs and only pass on a portion to customers.

#### Training the PD model:

1. Implementation platform: Python
2. Considered models: Logistic Regression, Decision Tree, Support Vector Machines, Naive Bayes Approach, Random Forest, XGBoost
3. Performance testing on validation dataset

### Pseudo Actual Default Flag Creation

As a first step, all the companies are ranked by their asset size and profit ratio respectively. Final rank is equal to the sum of asset rank and profit rank.

During the second step, a pseudo actual PD is assigned based on a Fibonacci function which follows a general business intuition, i.e., more assets and larger profit indicate lower default risk. Furthermore, the pseudo actual PD is combined with a random component, to factor in the idiosyncratic impact of the individual organizations.

In the final step a Pseudo Default event is assigned to the respective company based on the following formula:

$$DE = \begin{cases} 0, & \text{Combined PD} < \text{Business Threshold} \\ 1, & \text{Combined PD} > \text{Business Threshold} \end{cases}$$

CPT allows companies to transfer some of the increasing carbon costs to their clients, providing a financial cushion. For the short-term stress test, the balance sheet of the counterparty can be considered fixed, as the increase in carbon price will mainly manifest itself through the income statement. To develop a robust CPT methodology, typically there are three questions that organizations must address.

1. To what extent will costs increase due to the carbon tax?
2. To what extent will the company be able to transfer these costs to the consumer?
3. How will a new equilibrium be obtained based on micro-economic interactions?

The extent to which costs will increase due to a carbon tax depends on various factors, such as the initial tax rate, the sectors and industries affected, the level of carbon emissions reduction required, and the responsiveness of businesses and consumers to the tax.

In general, a carbon tax is designed to increase the cost of goods and services that are produced

with high levels of greenhouse gas emissions, such as fossil fuels. However, the actual impact of a carbon tax on costs will depend on the specific design of the tax policy, including any provisions for exemptions, rebates, or offsets. Overall, the impact of a carbon tax on costs is a complex issue that depends on many factors and will vary from industry to industry and from country to country. However, a well-designed carbon tax can provide a powerful incentive for businesses and consumers to reduce their greenhouse gas emissions and transition to cleaner and more sustainable energy sources over time. The following is an illustration of a simplified approach to calculate carbon cost.

$$\text{Change in cost due to carbon taxes} = \text{Carbon emissions (tCO}_2\text{)} * (\text{Carbon Tax } \text{€}/\text{tCO}_2\text{)}$$

Question 2 and 3 need to be considered jointly as the ability of the company to (partly) transfer the increased carbon costs to the consumer will be dependent on the elasticity of the market in which it operates. The company will have to strategically set their price to shift to cost towards

the end-consumer while considering a decrease in demand based on the existing price-elasticity. Exogenous cost-pass-through allows sold quantity/revenues to be re-estimated to match with the empirical pass-through rate.

$$\begin{cases} \Delta \text{Revenues} = \text{CarbonCosts} * \text{CostPassThrough} \\ \text{CarbonCosts} = f(Q(P, \epsilon), \text{CarbonPrice}) \\ Q = f(P, \epsilon) \end{cases}$$

The approach assumes that both the cost-pass-through rate and price elasticity can be estimated in a market equilibrium. The following illustration depicts the Impact of

CPT for a particular organisation having carbon emission of 26,993,000 T, Elasticity 30%, Max price increase (delta): 10% and CO2 price: 258.79 USD/KT.

Income Statement (Before Impact)		Income Statement (After Impact)		Income Statement (After Impact)	
Revenue	21,065.00	Revenue	21,065.00	Revenue	22,476.36
Carbon cost	0.00	Carbon cost	6,964.19	Carbon cost	6,775.95
Other costs	18,541.00	Other costs	18,541.00	Other costs	18,039.64
Net Income	2,524.00	Net Income	-4,440.19	Net Income	-2,339.24

CPT model is applied on all key financial variables of the companies. This allows us to generate stress financial variables for each company which will eventually be used for calculating carbon stressed PDs.

### Training the PD model

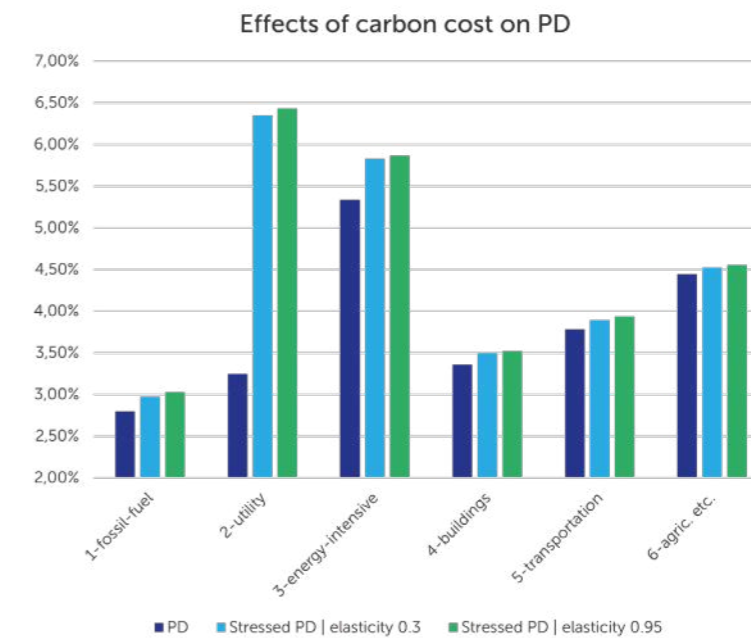
Initially, we performed various pre-processing steps on the data, including removing missing data and outliers and standardizing the data. The remaining data is split into training and test subsets. Then we considered several classification models such as Logistic Regression, Decision Tree, Support Vector Machines, Naive Bayes Approach, Random Forest, XGBoost. Subsequently, we trained and evaluated each model using the training and test data using various performance metrics. Finally, based on results and nature of the objective we chose logistic model to predict the baseline & carbon stressed PD respectively.

The ensuing section shall encompass a detailed analysis and contemplation of the outcomes.

### RESULTS

When the Profit & Loss results stressed with additional carbon price are applied to the same model as discussed in the above section, the probability of default (PD) increased across all Climate Policy Relevant Sectors (CPRS). This finding highlights the pervasive, expected impact of rising carbon pricing on some corporates' financial stability.

The model takes into consideration that companies with higher elasticity of demand experience greater difficulty in passing on these costs to customers, resulting in a larger financial effect and a higher PD. Cost pass-through, a mechanism that allows businesses to pass on some of the rising carbon prices to their customers, can provide a financial buffer.



However, it is important to note that for a significant percentage of companies, carbon costs, even when multiplied by a relatively high carbon price of 259 USD, do not constitute a substantial portion of their revenues. Consequently, these costs do not considerably increase their PD. This observation suggests that the impact of carbon pricing on PD may vary depending on the size of the company, its industry, and its exposure to carbon-intensive operations.

The implementation of carbon pricing has the greatest impact on utility firms; however, this conclusion could be influenced by the specific dataset utilized in the analysis. Some traditionally carbon intensive companies recorded highest profits in 2022, so the results may not be representative for whole sectors. More inquiry is required to corroborate these findings across multiple businesses and datasets to provide a more thorough knowledge of the impact of carbon taxes on diverse sectors.



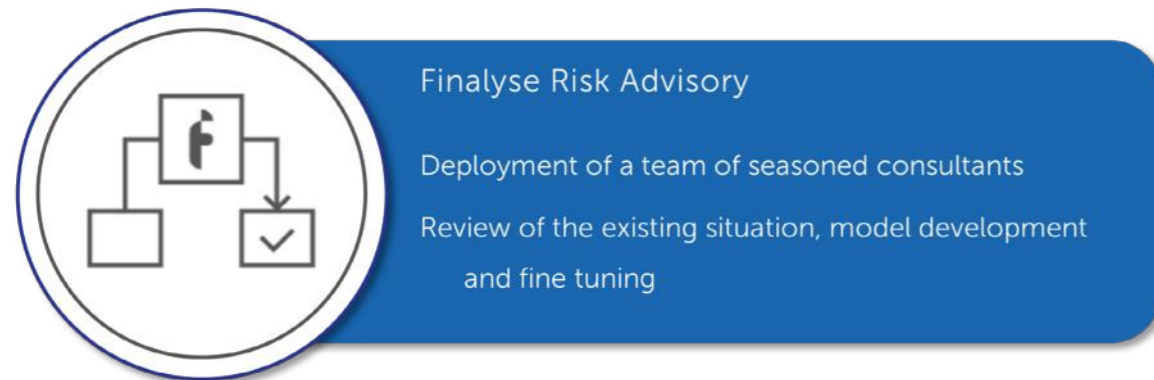
Further research in this area might validate the additional impact of elasticity on the relationship between carbon costs and the probability of default. Furthermore, the maximum price increase capacity set utilized in the model can be defined more dynamically, ensuring a more robust examination of the factors impacting probability of default. Incorporating Scope 3 emissions and mechanism simulating lagging market dynamics into the model may aid in capturing the indirect and long-term implications of carbon pricing on enterprises' future P&L and PD.

### CONCLUSION

Integrating transition risks into risk factors shows a significant change in obligors' financial health.

This article highlights one of the approaches for financial institutions to coalesce climate risk into their risk estimation operation aligning with recent regulatory guidance. As discussed above the approach can be further modified based on the financial institution's own portfolio. The results also outline foundation for setting up climate risk stress testing and transition risk identification method.

Finalyse Climate Risk Management team is a trusted & reliable partner that helps you establish the climate risk modelling practice. We understand the complexities involved and have the strong expertise to guide you through the process.



### REFERENCES

1. Guide on climate-related and environmental risks (ECB, 2020).
2. Mapping climate risk: Main findings from the EU-wide pilot exercise, EBA Report, 2021 (EBA/Rep/2021/11).
3. Alessi, L. and Battiston, S., Two sides of the same coin: Green Taxonomy alignment versus transition risk in financial portfolios, Working Papers in Economics and Finance 2021/14, European Commission – Joint Research Centre, 2021, JRC128099.



## Supervision

### CRR/CRD Council (Press Release)

*Provisional Agreement on the Implementation of Basel III reforms*

The Council of the EU has announced that a provisional agreement has been reached on the implementation of Basel III reforms through amendments to the CRR and the CRD IV. The agreement has been reached 'ad referendum' and is therefore provisional as it still requires confirmation by the Council and the Parliament before it can formally be adopted. The new rules amending the CRR are expected to apply from 1 January 2025, with certain elements of the regulation phasing in over the coming years along the FRTB reporting framework.

Release date: 2023-06-27

[consilium.europa.eu](https://consilium.europa.eu)



### CRD IV EBA (ITS)

*Supervisory Disclosures*

The EBA has published a final report on the draft ITS amending ITS as regards the format, structure, contents list and annual application date of the information to be disclosed by NCAs in accordance with the CRD IV. The supervisory disclosure framework provides qualitative information regarding the laws, regulations, administrative rules and general guidance adopted by NCAs in the field of prudential regulation and supervision, as well as quantitative information on aggregate statistical data on key aspects of the implementation of the prudential framework in their jurisdiction.

Release date: 2023-06-22

[EBA/ITS/2023/02](https://eba.europa.eu/eba/its/2023/02)



### BRRD EBA (Guidelines)

*Resolvability Testing*

The EBA has published final guidelines amending its guidelines on improving resolvability for institutions and resolution authorities under the BRRD. The guidelines:

- Introduce a self-assessment by resolution entities of their resolvability,
- Require authorities to develop a multi-annual testing programme for each resolution entity,
- Introduce a master playbook for the most complex institutions.

Release date: 2023-06-13

Application Date: 2024-01-01

[EBA/GL/2023/05](https://eba.europa.eu/eba/gl/2023/05)



### Supervision BCBS (Press Release)

*Recent Market Developments and Policy Initiatives*

The BIS has issued a press release concerning the BCBS meeting held on 6 June 2023. The BCBS took stock of recent market developments and risks to the global banking system. The Basel Committee has:

- Agreed to consult on revisions to the Core Principles for Effective Banking Supervision. A consultation paper will be published next month.
- Assessed certain elements of the prudential treatment of banks' exposures to cryptoassets.
- Took stock of the work concerning the development of a Pillar 3 framework requiring disclosure of bank exposures to climate-related financial risks.

Release date: 2023-06-07

[p230606](https://bis.org/press/p230606)



## Supervision

### CRR EBA (Report)

*Excluding Transactions with Third Country NFC' from CVA Risk*

The EBA has published a peer review report on excluding transactions with non-financial counterparties established in a third country from CVA risk. The EBA peer review analysed the effectiveness of NCAs supervisory practices regarding their assessment of CVA risk of the institutions under their supervision with a view to strengthening consistency and effectiveness of supervision in this area. The peer review found that the NCAs assessed CVA risk sufficiently although some elements of such an assessment were missing.

Release date: 2023-05-30

[EBA/REP/2023/15](https://eba.europa.eu/eba/rep/2023/15)



### SSM Regulation ECB (Manual)

*Asset Quality Review Manual*

The ECB has published a manual with information necessary to execute Phase 2 of the asset quality review. The ECB and NCAs carry out AQRs of banks in accordance with the SSM Regulation. Following completion of the AQR, joint supervisory teams comprising of the ECB and NCAs will write a letter to the bank outlining qualitative and quantitative findings in any area where it is found to be outside of accounting principles or supervisory requirements and the required remedial action the bank is expected to take.

Release date: 2023-05-16

[061b0b5fd0](https://www.ecb.europa.eu/press/pr/2023/061b0b5fd0)



### SRMR/BRRDD SRB (Press Release)

*MREL Dashboard Q4 2022*

The SRB has issued a press release stating that it was maintaining its policy on the calibration of the MREL with minimal changes this year. The press release adds that the only change concerns the scope of entities subject to internal MREL which was previously announced. The SRB reduces the size threshold for credit institutions considered as 'Relevant Legal Entities' from EUR 10bn to EUR 5bn, keeping the other thresholds unchanged, from now on.

Release date: 2023-05-15

[srb.europa.eu](https://srb.europa.eu)



### CRR/CRD EBA (Press Release)

*Information Notes – CRR 3 and CRD VI*

The Council of the EU published information notes which set out the initial positions of the three institutions prior to commencement of trilogues on CRR 3 and CRD IV.

Release date: 2023-05-05

[2021/0342 \(COD\)](https://www.ecb.europa.eu/press/pr/2021/0342/cod)



# Supervision

## CRD EBA (Report)

*Convergence of Supervisory Practices in 2022*

The EBA has published its annual report on convergence of supervisory practices in 2022. In accordance with the CRD IV, the EBA reports annually to the European Parliament and Council on the degree of convergence of supervisory practices. The report describes the effects of the different tools the EBA is using to ensure convergence in supervisory practices.

Release date: 2023-05-04

[EBA/REP/2023/11](#)



## Supervision Commission (Report)

*Report on the Single Supervisory Mechanism*

The Commission has published a report to the European Parliament and the Council on the single supervisory mechanism. The SSM was established as a key first step towards EU Banking Union to ensure high-quality supervision of credit institutions in the EU, implement the EU's policy on prudential supervision of credit institutions in a logical and effective manner, and to apply the single rulebook consistently.

Release date: 2023-04-18

[COM\(2023\) 212 final](#)



## SREP ECB (Report)

*Assessment of the Supervisory Review and Evaluation Process*

The ECB has published a report containing the results of an external assessment of the SREP, which includes recommendations to make the SREP more efficient and effective. The report of the assessment was drafted by a group of independent experts.

Release date: 2023-04-17

[pr230417](#)



# Risk Management

## CRR ECB (Consultation Paper)

*Revised Guide to Internal Models*

The ECB has launched a consultation on its revised guide to internal models. The revisions to the guide include:

- Clarification on how banks should go about including material climate-related and environmental risks in their models.
- Clarification for banks that wish to revert to the standardised approach for calculating their risk-weighted assets.
- Updates to the market risk chapter, detailing how to measure default risk in trading book positions. Clarification on counterparty credit risk.

Release date: 2023-06-22

Consultation End: 2023-09-15

[230622\\_guide](#)



## CRR EBA (Report)

*Monitoring of LCR and NSFR Implementation in the EU*

The EBA has published a report on the monitoring of the implementation of the LCR and NSFR in the EU. The EBA has already published two monitoring reports which aim to foster a higher degree of harmonisation in the implementation of the LCR in the areas where divergent practices have been observed, partly due to insufficient clarity on the regulatory provisions and providing guidance to supervisors and institutions on certain areas, such as outflows applied to certain categories of deposits.

Release date: 2023-06-15

[EBA/REP/2023/19](#)



## MREL SRB (Technical Guide)

*Liquidity in Resolution data Guidance*

The SRB has issued new guidance on liquidity in resolution data for EU banks under its direct remit. The guidance focuses on three objectives, these are that SRB banks have:

- Internal frameworks, governance and management information systems are set up to meet the data expectations set out in the guidance.
- Developed the capabilities to report a predefined set of data points on their liquidity situation.
- Put in place remedial actions to mitigate any deficiencies in their capabilities to provide these data points at the requested level of consolidation.

Release date: 2023-06-15

[FP-05-22-344-EN-N](#)



## CRR ECB (Sound Practices)

*Sound Practices in Counterparty Credit Risk Governance and Management*

The ECB has published a document following a targeted review of governance and risk management of CCR at 23 institutions that were materially active in derivatives and securities financing transactions with non-banking counterparties. The document provides a collection of good practices in CCR governance and management that were observed during the execution of the review and an assessment of the convergence towards those practices, accounting for the proportionality principle.

Release date: 2023-06-02

[202306.en](#)



## Risk Management

### STS Securitisation ESAs (RTS)

*ESG Disclosures for STS Securitisations*

The ESAs have jointly submitted to the European Commission Draft RTS on the ESG impact disclosure for STS securitisations under the Securitisation Regulation. These final draft RTS aim to help market participants make informed decisions about the sustainability impact of their investments. The key proposals included in the technical standards specify ESG disclosures which would apply to STS securitisations where the underlying exposures are residential loans, auto loans and leases.

Release date: 2023-05-25

[JC 2023 13](#)



### DGS Directive EBA (Guidelines)

*Methods for Calculating Contributions to Deposit Guarantee Schemes Under the DGS Directive*

The EBA has published a final report on revised guidelines on methods for calculating contributions to deposit guarantee schemes under the DGS Directive. The report is dated 21 February 2023. The revised guidelines, which replace the existing guidelines, improve the method on how to calculate contributions in a risk-sensitive way and to meet the target level of the DGS fund.

Release date: 2023-05-15

Application Date: 2023-07-03

[EBA/GL/2023/02](#)



## Risk Management

### CRR Commission (RTS)

*Estimating Default Probabilities and Losses Given Default*

The European Commission has published a Commission Delegated Regulation supplementing the CRR with regard to RTS specifying the requirements for the internal methodology or external sources used under the internal draft risk model for estimating default probabilities and losses given default. The final draft RTS specify the requirements that an institution's internal methodology or external sources are to fulfil for estimating PDs and LGDs in accordance with the CRR.

Release date: 2023-04-21

[C\(2023\) 2571](#)



### CRR Commission (Delegated Regulation)

*Calculation of the Own funds Requirements for Market Risk for Non-Trading Book Positions*

The European Commission published Commission Delegated Regulation supplementing the CRR on the calculation of the own funds requirements for market risk for non-trading book positions subject to foreign exchange risk or commodity risk and the treatment for those positions for the purposes of the regulatory back-testing requirements and the profit and loss attribution requirement under the alternative internal model approach.

Release date: 2023-04-21

[C\(2023\) 2585](#)



### Stress Testing EBA (Opinion)

*Supervisory Shock scenarios, common modelling and parametric assumptions*

The EBA has published an opinion in response to an earlier letter from the European Commission which notified the ESAs that it would be adopting, with amendments, the final draft RTS specifying supervisory shock scenarios, common modelling and parametric assumptions and what constitutes a large decline for the calculation of the economic value of equity and of the net interest outcome in accordance with the CRD IV.

Release date: 2023-04-27

[EBA/Op/2023/03](#)



### Securitisation Framework EBA (RTS)

*Determination of the Exposure Value of SES in Synthetic Securitisations*

The EBA has published a report containing final draft RTS that specify how originator institutions are to determine the exposure value referred to in the CRR, taking into account the relevant losses expected to be covered by the synthetic excess spread.

Release date: 2023-04-25

[EBA/RTS/2023/02](#)



### Securitisation Framework EBA (Consultation Paper)

*STS Criteria for on-Balance-Sheet Securitisation*

The EBA has published a Consultation Paper on guidelines on the STS criteria for on-balance-sheet securitisation under the Securitisation Regulation. The main objective of the guidelines is to provide a single point of consistent interpretation of those criteria and ensure a common understanding of them by the originators, original lenders, securitisation special purpose entities, investors, competent authorities and third party verification agents verifying STS compliance in accordance with the Securitisation Regulation, throughout the EU.

Release date: 2023-04-21

Consultation End: 2023-07-07

[EBA/CP/2023/09](#)



### CRR Commission (RTS)

*Permission to Reduce Own Funds*

The Official Journal of the European Union has published a Commission Delegated Regulation laying down regulatory technical standards amending Delegated Regulation as regards the prior permission to reduce own funds and the requirements related to eligible liabilities instruments.

Release date: 2023-04-19

Application Date: 2023-05-08

[\(EU\) 2023/827](#)



## Market Environment

### CRR EBA (ITS)

#### Updated list of Correlated Currencies

The EBA has published the 2023 update of the list of closely correlated currencies, originally published in December 2013. The list is part of the ITS that were drafted for calculating the capital requirements for foreign-exchange risk according to the standardised rules. The list was updated according to the procedure and methodology laid down in the ITS and submitted to the European Commission for endorsement.

Release date: 2023-06-09

[eba.europa.eu](https://eba.europa.eu)



### CRR ESAs (Consultation Paper)

#### Mapping of ECAIs' Credit Assessments

The ESAa have published a Consultation Paper containing draft ITS amending Implementing Regulation on the mapping of External Credit Assessment Institutions credit assessments under the CRR. The proposed amendments reflect the outcome of a monitoring exercise on the adequacy of existing mappings, namely those to the credit quality steps and allocation for four ECAIs and the introduction of new credit rating scaled for seven ECAIs as well as the withdrawal of the registration of one ECAI.

Release date: 2023-05-25  
Consultation End: 2023-06-26

[JC /CP/2023 15](https://www.jcra.europa.eu/JC/CP/2023_15)



### CRR EBA (ITS)

#### Supervisory Benchmarking for the 2024 exercise

The EBA has published final draft ITS on supervisory benchmarking for the 2024 exercise. The EBA benchmarking exercise ensures consistent monitoring of the variability of own funds requirements resulting from the application of internal models, as well as of the impact of several supervisory and regulatory measures, which influence the capital requirements and solvency ratios in the EU. As such, the exercise forms the basis of both the supervisory assessment and the horizontal analysis of the outcome of those internal models.

Release date: 2023-06-05

[EBA/CP/2023/01](https://www.eba.europa.eu/eba/CP/2023/01)



### CRR 2 EBA (Report)

#### Eligible Liabilities Issued by G-SIIs and O-SIIs

The EBA has issued a report on the holdings by EU banks of the MREL instruments issued by the most systemic European banks. The report is issued in response to the mandate under the CRR II. The EBA is mandated to report to the European Commission the amounts and distribution of holdings of eligible liabilities instruments among institutions identified as global systemically important institutions or other systemically important institutions and on potential impediments to resolution and the risk of contagion in relation to those holdings.

Release date: 2023-05-16

[EBA/REP/2023/13](https://www.eba.europa.eu/eba/REP/2023/13)



## Climate Risk

### Market Trends ECB (Report)

#### Institutions' Climate-Related and Environmental Risks Disclosures

The ECB has published a report containing the results of its third review of the disclosure of climate-related and environmental risks among significant institutions and a selected number of less significant institutions. The review was conducted by the ECB and Member State competent authorities and covered 103 SIs and 28 LSIs. In addition, the disclosures of 12 global systematically important banks established outside the EU were benchmarked against the disclosures of the EU banks within the scope of the assessment.

Release date: 2023-04-21

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## Reporting & Disclosure

### CRR/BRRD EBA (Consultation Paper)

#### Resubmission of Historical Data Under the EBA Reporting Framework

The EBA has published a consultation paper on draft guidelines on the resubmission of historical data under the EBA reporting framework. The proposed guidelines set out a common approach to the resubmission by financial institutions of historical data to Member State competent and resolution authorities in case there are errors, inaccuracies or other changes in the data reported in accordance with the supervisory and resolution reporting framework developed by the EBA.

Release date: 2023-04-18

Consultation End: 2023-07-31

[EBA/CP/2023/06](https://www.eba.europa.eu/eba/CP/2023/06)



**ARTICLE**

# DEEP DIVE INTO CRR3 - REAL ESTATE IN THE REVISED STANDARDISED APPROACH

Written by *Maël Kerbaul, Senior Consultant; and Abishek Chopra, Principal Consultant.*

With less than two years to its implementation, Basel IV represents each day a more pressing concern for banks. The 3rd Capital Requirements Regulation (CRR3) is planned to enter into force on January 1st, 2025. CRR3 is the EU translation of the last revision of the Basel standards for banking supervision released in 2017 and commonly referred to as Basel IV (although the Basel Committee continues to name it Basel III). This revision intends to address the shortcomings of the previous pre-crisis package, in particular to “restore credibility in the calculation of RWA’s and improve the comparability of banks’ capital ratios.”

To reduce the variability of the banks’ risk weighted assets and restore confidence in the risk models, the revised regulation will largely constrain the use of internal models. One of the most impactful features of CRR3 is the introduction of an Output Floor limiting the benefits of using internal models to 72.5% of the RWA’s resulting from the Standardised Approach calculation, after a phase-in period of five years. This represents a fundamental change in the way banks will consider their regulatory capital with the Standardised Approach becoming an inescapable cornerstone.

The key revisions to the Credit Risk Framework were already described in a previous article: [Finalyse: CRR III changes and the impact on credit risk modelling](#). We will focus here on the impacts and the challenges induced by the necessity of using the revised Standardised Approach in particular for exposures covered by Real Estate.

Please note that, at the time of writing, the regulatory process is still ongoing between the EU Parliament and Council. The final version of CRR3 is expected only around the end of 2023. This article is based on the Commission proposal published in October 2021 and still subject to revisions.

**General and Income-Producing Real-Estate**

In the revised Standardised Approach, CRR3 keeps the distinction between residential and commercial real estate and creates a new distinction based on the income streams generated by the property. Income-generating

real estate mortgages (IPRE) receive a special treatment. These loans are considered more risky as the repayment materially depends on the cash flows generated, while general real estate (GRE) loans repayment rather depends on the borrower ability to repay. This makes 4 types of exposure secured by immovable property (Art. 124-2):

- **General Residential:** where the exposure satisfies any of the four below conditions:
  - obligor’s primary residence
  - exposure to individual secured by income-producing residential housing unit and the total exposure of the institution to that individual does not exceed 4 immovable properties
  - associations or cooperative providing primary residence to their members
  - public companies or regulated not-for-profit associations offering long-term housing
- **Income-producing Residential:** all other residential properties that do not meet the criteria above
- **General Commercial:** where the repayment is not materially dependent on cash flows generated

by the property

- **Income-producing Commercial:** where the repayment is materially dependent on cash flows generated by the property

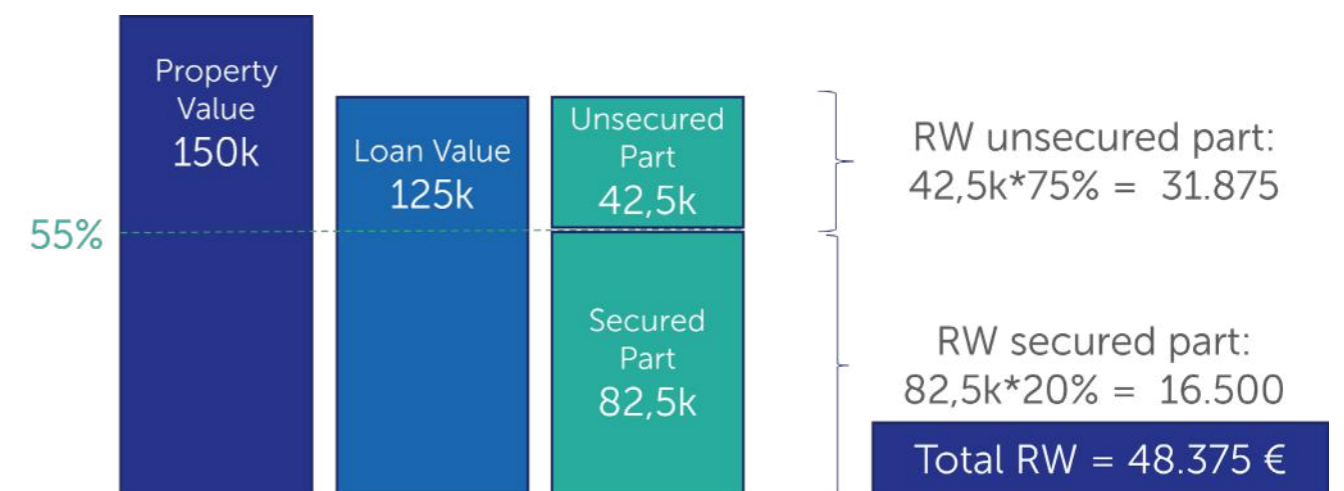
**Loan-Splitting and Whole Loan approaches**

CRR3 introduces a more risk sensitive approach based on Loan-to-Value ratio (LTV) instead of the existing single risk weight. Two methods are foreseen for computing the risk weights: a **loan-splitting approach** and a **whole loan approach**. Both methods are conditioned to the respect of a list of operational requirements (see below). The loan-splitting approach can be used only for GRE. The whole loan approach is to be used for IPRE and can also be used for GRE upon conditions regarding loss rates for similar exposures in the previous year (Art. 125 & 126).

In the **loan-splitting approach**, 55% of the property value is recognized as a security over the loans. The risk weight for the secured part of the loan is 20% for RRE and 60% for CRE. The remaining part of the loan is treated as an exposure that is not secured by an immovable property.

	LTV <= 55% (secured part)	LTV > 55% (unsecured part)
General RRE	20%	Unsecured RW
General CRE	60%	Unsecured RW

*Example 1 – Loan-splitting approach: General RRE loan to an individual borrower of 125.000€ respecting the operational requirements secured by a property valued 150.000€. The secured part of the loan represents 55%\*150.000 = 82.500€. The unsecured part of the loan represents 125.000 - 82.500 = 42.500€. The risk weight of 20% applies to the secured part and the unsecured risk weight (75% for retail exposure as per Art. 123) applies to the unsecured part, leading to a RWA = 82.500\*20% + 42.500\*75% = 48.375€*



In the **whole loan approach**, variable risk weights are applied based on LTV buckets:

LTV bands	< 50%	50% to 60%	60% to 80%	80% to 90%	90% to 100%	>100%
Residential Real Estate	30%	35%	45%	60%	75%	105%
Commercial Real Estate	70%		90%	110%		

**Example 2 – Whole loan approach:** Income producing CRE respecting the operational requirements with a total limit of 600.000€ of which 500.000€ drawn and 100.000€ undrawn commitment, secured by a property valued 850.000€.

$LTV = 600.000/850.000 = 71\%$ . The resulting risk weight is 90% leading to a  $RWA = 90\% * 500.000$  (drawn part) +  $90\% * 100.000 * CCF 40\%$  [1] (undrawn part) = 486.000€

For the specific case of land acquisition, development and construction exposures (ADC), a fixed risk weight of 150% is applied. It can be reduced to 100% for residential properties respecting certain conditions (Art. 126a).

### Operational Requirements

The **operational requirements** listed below must be respected when using the loan-splitting or whole loan approaches. If any of the requirements is not met, the unsecured risk weight of the obligor is applied for GRE and a fixed risk weight of 150% for IPRE (Art. 124-1 to 4).

1. The property securing the exposure must be **fully completed**, or under construction with strict conditions (plan approved by authorities, not more than 4 housing units and primary residence of the obligor).
2. The institution must have a **first lien** over the property, or the first lien and any sequentially lower ranking lien on the property. Junior liens might be recognized in certain jurisdictions if legally enforceable and constitute an effective credit risk mitigant upon certain conditions.
3. The **value of the property** must not materially depend on the performance of the borrower.
4. **Proper documentation** on the ability of the borrower to repay and on the valuation of the property.
5. The **collateral valuations rules** set in Articles 208 & 229 are respected (independent and prudent valuation).

### Loan-to-Value Ratio

The LTV ratio becomes a central element in the calculation of the RWA for Real Estate. It represents the amount of the loan divided by the value of the property.

The valuation of the property evolves under CRR3 toward a more stable method to reduce the cyclical effect of the real estate market. The current requirement for frequent monitoring is kept but upwards adjustments beyond the property value at origination are limited to the historical average over the last three years for CRE and over the last six years for RRE. These limitations do not apply if permanent modifications unequivocally increase the property value, such as improving the property energy efficiency. (Art. 208)

The value of the loan includes the outstanding loan amount and any undrawn commitments (with no CCF applied unlike for EAD calculation), gross of any provision and risk mitigants – except pledged deposit accounts. (Art. 124-5)

### Treatment of properties with multiple liens

A new feature of CRR3 is the treatment of liens on a same property securing multiple loans. When senior or junior liens are held by different institutions, that can lead to complex cases that we try

to illustrate through concrete examples.

#### 1. All liens held by the institution

This scenario is the most straightforward. In the case an institution grants multiple loans secured by a same property and there is no intermediate lien on that property held by another institution, the different loans should be considered as a single exposure and their amounts added up to calculate the LTV ratio. (Art. 124-5)

#### 2. Liens held by different institutions

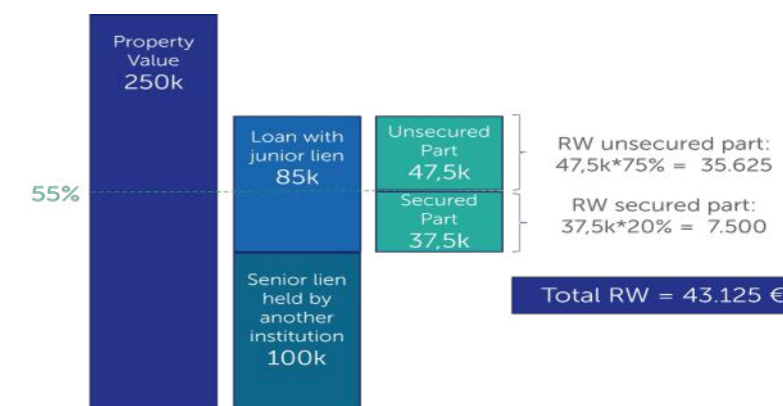
##### a) Whole loan approach (Art. 124-5c)

In the case another institution holds a senior lien and a junior lien is held by the institution, for calculating the LTV ratio for the junior lien, its loan amount must include all other loans with liens of equal or higher ranking. If there is insufficient information on the ranking of other liens, they are considered as pari passu with the junior lien held by the institution.

The "base" risk weight corresponding to that LTV must then be multiplied by 1.25 (unless it corresponds to the lowest LTV bucket, then the multiplier is not applied). The resulting risk-weight after the application of the 1.25 multiplier is capped to the risk weight of the counterparty for GRE and to 150% for IPRE (i.e. the risk weights that would apply if the operational requirements would not met). This capped risk weight is then applied to

#### Example 4 – Loan-splitting approach with multiple liens

General RRE loan of 85.000€ to an individual borrower respecting the operational requirements and secured by a junior lien over a property valued 250.000€ at origination. Another institution holds a senior lien on the same property for an amount of 100.000€. The secured part of the loan is calculated as  $\max(55\% * 250.000 - 100.000 ; 0) = 37.500€$ . The unsecured part of the loan is  $85.000 - 37.500 = 47.500€$ . The 20% risk weight applies to the secured part and the risk weight of the counterparty (75% for an individual) to the unsecured part, leading to a  $RWA = 37.500 * 20\% + 47.500 * 75\% = 43.125€$



the amount of the junior lien.

#### Example 3 – Whole loan approach with multiple liens:

Income producing CRE loan of 300.000€ respecting the operational requirements and secured by a property valued 950.000€. Another institution holds a pari passu lien on the same property for an amount of 400.000€.

$LTV = (300.000 + 400.000) / 950.000 = 74\%$ . The resulting "base" risk weight is 90%. The 1.25 multiplier is applied leading to a risk weight of  $90\% * 1.25 = 112.5\%$  and a  $RWA = 300.000 * 112.5\% = 337.500€$

##### b) Loan-splitting approach (Art. 125-1 and 126-1)

When applying the loan-splitting approach, the part of the exposure up to 55% of the property value should be reduced by the amount of any senior or pari passu liens not held by the institution.

In other words: when the institution holds a junior lien and there are senior or pari passu liens not held by the institution, when the value of all liens exceeds 55% of the property value, the amount of the junior lien held by the institution that is eligible for the 20% risk weight is calculated as:  $\max(55\% \text{ of the property value} - \text{amount of the senior or pari passu liens} ; 0)$ . When the value of all liens does not exceed 55%, the 20% risk weight is applied to the junior lien exposure.

## Technical Challenges: Extra Data Sourcing

Beside the adaptation of the new models to CRR3 and the necessity to run both internal and SA models in parallel for the IRB banks, the increased sophistication of the revised SA induces a significant increase of the volume of data needed.

In particular, the calculation of the risk weighted assets for exposures covered by Real Estate under the SA requires the sourcing of many new inputs:

- Elements enabling the distinction GRE/IPRE (identification of the obligor's primary residence, number of housing units financed by the institution for an individual obligor...)
- Flags describing the fulfilment of the operational requirements from Art. 124-4 (might be gathered in a single flag to keep the data model simple)
- LTV based on the new rules for property

## How Finalyse can help

Finalyse has demonstrated proven success in several projects across different geographies for Basel IV and CRR III preparedness. Our seasoned experts will assist in your detailed gap assessment, critical data element identification, impact analysis from technical and business perspectives, descriptive business requirements for implementation at all stages of Basel IV preparedness.

Finalyse implements RWA calculators from different vendors (SAS, Moody's, etc.) and developed an inhouse simulator for computing SA calculations for your entire portfolio to anticipate the impact of the Output Floor.

Please find our service offering for Basel IV/CRR3 implementation here: [Finalyse: CRR III & Basel IV](#)

## References

[1] The levels of the Credit Conversion Factor (CCF) for off-balance sheets items like undrawn amounts have been reviewed in the Commission's proposal in line with BIV and become more granular with two new levels of 40% and 10%. The level of 0% for unconditionally cancellable commitments will be removed after a transition period from 2029 to 2032, although an exception exists to maintain a 0% CCF for certain contractual arrangements for enterprises including SME's.

valuation

- Full liens structure for the properties securing the loans
- Nature of the off-balance sheet commitments as per the new CRR3 definition that differs from the accounting norms

Banks will also need to assess the quality of their data and potentially conduct remediation plans in order to benefit from more favorable rules and reduce their own funds consumption.

These data analyses must be conducted as soon as possible in parallel with the modelling and strategic reflections to limit the impact of the new capital rules from 2025 onwards.

In a previous article [Basel IV: data from a bank's perspective](#) we developed more in detail these data sourcing challenges.





## ARTICLE

# CREDIT RISK ANALYSIS WITH MACHINE LEARNING

Written by *Prashant Dimri, Consultant.*

Statistical techniques have been used in building credit models. Below are some of the most common techniques like regression, linear programming, logistic regression, k-nearest neighbor, random forest trees etc.

**Linear regression** is a method describing the relationship between a response variable and independent variables by a linear relationship. It assumes a straight-line relationship between dependent and independent variable. It is used to predict the continuous variables like age, income, amount etc. It is estimated by a technique called ordinary least square (OLS), which is about identifying the line that minimize the sum of square differences between points on the estimated line and actual values of independent variable.

**Logistic regression** has long been one of the most widely used statistical techniques. The method differs from linear regression in the sense that the dependent variable in logistic regression is of dichotomous (0/1) form. Logistic equation is estimated by a technique known as maximum likelihood estimation (MLE), such that joint probabilities of observing the actual event is maximized or sum of log likelihood is maximized.

**Clustering** is when segmentation on the dataset is done such that homogenous clusters are made i.e. objects within a group are similar to each other and different from the object in another group and next credit scoring can be done on each homogeneous segment.

**K-Nearest Neighbor (KNN)** determines in which group data-points will fall into by determining how close a data-point is to a group, that is it will fall into that group which is closest to it.

**Random Forest** is a combination of tree predictors where the values of a random vector of each tree are sampled independently and have the same distribution for all the trees in the forest.

## Performance Evaluation Criteria

Below are some of the criteria in evaluating performance.

**Confusion matrix** - It looks at how often the model has correctly predicted an event. The average correct classification rate measures the percentage of good and bad credit ratings in a dataset.

There is an estimated misclassification cost in which lenders reject loans applications which is actually good (so-called false negatives) or accept a loan application which is actually bad (so-called false positives) lead to misclassification. As a result, it leads to Type 1 and Type 2 error. Sensitivity is also called as recall which is true positive divided by true positive plus false negative whereas specificity (also called as precision) is the ratio of true positive to true positive plus false positive.

		Predicted Class	
		Class 0	Class 1
Actual Class	Class 0	True negative	False positive
	Class 1	False negative	True positive

*Class 0= Non-default, Class1=Default*

*True negative - When obligor has not predicted default and in actual not defaulted also.*

*False negative - When obligor has predicted not default but in actual has defaulted.*

*False positive - When obligor has predicted defaulted but in actual has not defaulted.*

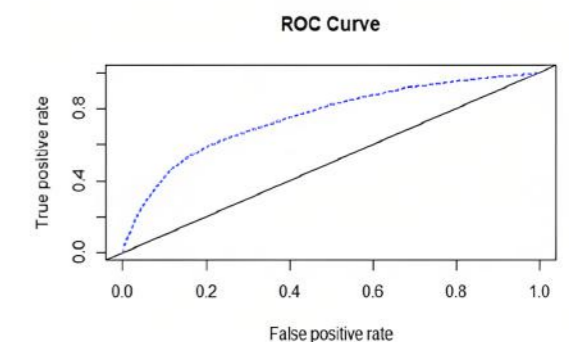
*True positive - When obligor has predicted default and in actual has defaulted also.*

**Receiver Operating Characteristic (ROC)** - has long been used to detect true and false rates of classification. It is a graph of sensitivity (true positive) on y-axis and specificity (false positive) on the x-axis. Sensitivity represents bad customer classified as bad and specificity represent good customer classified as bad.

The closer the curve to the y-axis (the true positive) the better the model is. The so-called Area under the curve (AUC) in the ROC plot serves as a better performer than overall accuracy as the latter is based on a specific cut-off point while ROC takes all the cut-off point and thus plot sensitivity and specificity plot.

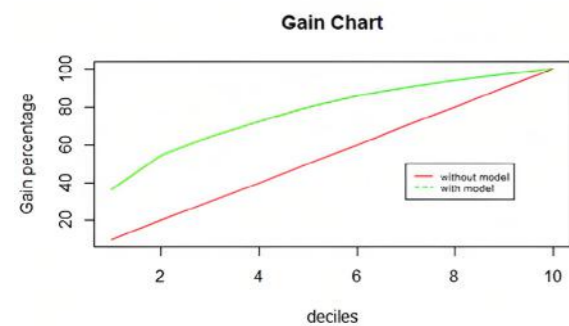
Thus, in short, when we compare the overall accuracy, we are measuring the accuracy based on some cut-offs point which concludes that accuracy varies for a different cut-off point. By default, the cut-off point is 50%.

Below is the diagram of ROC curve. In conclusion, the higher the AUC (area under the curve), the better the model is.



**Gain chart** - It is used to determine how much better one can do with predictive models than without. In this, validation sample is scored (predictive probability) and then ranked in descending order by predictive probability. The ranked file is then split into deciles such that an equal number of observations are there in each decile and then the cumulative number of actual events are taken with a conclusion that the predictive outcome should come higher than the observed outcome for better model accuracy.

In other words, the higher the percentage of observations in the first few deciles, the better the predictive power of the model.



**Important statistical tests to be looked into for checking the model performance**

**P-value in regression (Probability of null hypothesis)**

P-value is important metric to determine statistical significance of any variable, All the independent variables with P value of less than 5% (rejecting the null hypothesis) are statistically significant and are included in the model. In other words, the independent variables have an influence on the dependent variable and the rest of the variables which are not included in the model are having P-value greater than 5% and are deemed insignificant and does not have influence on the dependent variable.

**R-square and Adjusted R-square**

R-square explains what proportion of variance in dependent variable is being explained by independent variable. Higher the R-square, the better the model is. The disadvantage of using R-square is as more independent variables get added, R square will go up irrespective whether the variable is significant or not.

So, adjusted R-square is being used as it will go up only if significant variable is added to the model.

There are some regression assumptions

1. Model is linear in relationship between dependent and independent variable.
2. The errors are independent from one another i.e., they are not correlated to one another.
3. The expected value of the errors is always zero i.e. average of errors is zero
4. Independent variables are not correlated with each other.
5. Residuals have constant variance.

If all the above conditions are met, then it is called as BLUE (Best linear unbiased estimator) model.

**Homoscedasticity** - It is when residuals should have constant variance i.e., it should not show any pattern, if the model is not homoscedastic then it will get biased and will affect the performance of the model.

**Multicollinearity** - There should not be any correlation between independent variables because if 2 independent variables are highly correlated with each other, then they both are having the influence on the dependent variable and that may affect the performance of the model. It's VIF (Variance inflation factor) which is being used as a measure gauge multicollinearity and should be less than 3 for better models.

**Stationarity testing** - It is a test to check that the mean and variance of the time series should be constant over time.



**Comparison of models using different algorithms**

Using R tool, using 4 algorithms - Logistic regression, Random Forest, clustering and KNN, models got developed and compared with each other using the above performance evaluation metrics based on a sample banking dataset containing bureau and demographic fields.

**Data**

Data taken is a sample of anonymous banking data with 150000 datapoints with 11 variables. Demographic variables are like 'Age' and 'Number of dependents' whereas credit bureau variables like - 'Revolving utilization of unsecured loan', 'Number of 30.59 days past due not worse', 'Debt ratio', 'Monthly income', 'Number of open credit lines or loans', and 'Number real estate loans or lines.

**Training and testing dataset**

For building models, it is important to have training and testing (validation) dataset. If there is one single dataset, by a thumb rule, it should be divided to at least 70:30 ratio. 70% in training and 30% in testing dataset. The result of the model is applied on the testing dataset to check upon how well the accuracy of the model or in other words how well the model is performing on unseen data.

**Logistic model**

Two iterations of the Logistic Regression model were done as in the first iteration some of the variables were statistically insignificant, thus retaining only those variables which were statistically significant (i.e. those variables with P - Values less than 5% namely - 'number of 30\_59dayspastduenot worse', 'number of open credit lines and loans', 'number of dependents', 'monthly income' and 'age') and doing the iteration second time to check for statistically insignificant variable if any. There is no statistically insignificant variable was found in the second iteration with the help 'glm' function in R as shown below.

Coefficients:				
	Estimate	Std. Error	z value	Pr (< z )
(Intercept)	-1.802991	0.084297	-21.389	< 2e-16 ***
NumberOfTime30.59DaysPastDueNotWorse	1.014009	0.015124	67.047	< 2e-16 ***
NumberOfOpenCreditLinesAndLoans	-0.026735	0.002843	-9.405	< 2e-16 ***
Number Of Dependents	0.060666	0.011063	5.484	4.16e-08 ***
monthly Income	0.368350	0.075812	4.859	1.18e-06 ***
age	-0.028723	0.001022	-28.102	< 2e-16 ***

The accuracy in the test dataset and area under the ROC curve as shown in Figure 1 are found to be 72.8% and 75.4% respectively, whereas the accuracy in the training dataset is 74%. The Gain Chart showings that the first decile has 36.5% of good customers and reaching above 50% in the second decile that is 54.4%. Thus, concluding that the higher the percentage of observations in the

first few deciles, the better the predictive power of the model is as mentioned earlier as well in the above section.

The confusion matrix shows 30036 as True Negative (TN), 1871 as True Positive (TP), 10867 as False Negative (FN) and 1049 as False Positive (FP) as shown in Table 3 below.

		Predicted Class	
		Class 0	Class 1
Actual Class	Class 0	30036 (TN)	1049 (FP)
	Class 1	10867 (FN)	1871 (TP)

Here, the recall is 14.6%.

The AUC with only demographic and credit bureau variables considered separately and examined, come out to be 63.69% and 71.6% respectively, indicating credit bureau variables explaining dependent variable more than demographic variables.

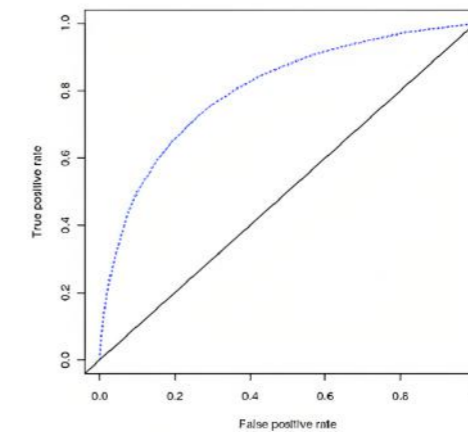
The top 5 factors influencing the dependent variable are- 'Number Of 30.59 Days Past Due Not Worse', 'Monthly Income', 'Number of Dependents', 'age' and 'Number of open credit lines or loans.

The incorporation of variables changes the performance of the model

Variables	AUC (Area under the curve)
Number of 30.59 days past due not worse	68.3 %
Number of 30.59 past due not worse+ number of open credit lines or loans	71.1 %
Number of 30.59 past due not worse+ number of open credit lines or loans+ number of dependents	71.1 %
Number of 30.59 past due not worse+ number of open credit lines or loans+ number of dependents+ monthly income	71.8 %
Number of 30.59 past due not worse+ number of open credit lines or loans+ number of dependents+ monthly income +age	75.4 %

## Random Forest

The area under the curve of ROC curve was found to be 80% as shown in Figure below with 93.3% accuracy in the test dataset and 95% accuracy in the training dataset.



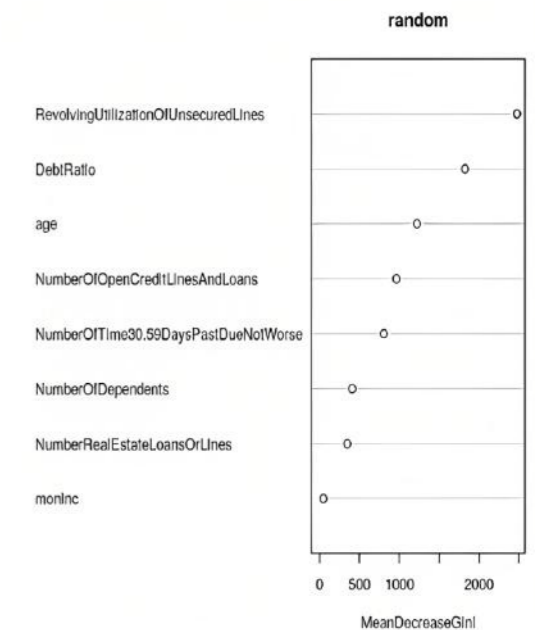
The confusion matrix in Table below shows that 183 are True Positives (TP), 40726 are True Negatives (TN), 166 as False Negatives (FN), and 2748 as False positives (FP) –

		Predicted Class	
		Class 0	Class 1
Actual Class	Class 0	40726 (TN)	2748 (FP)
	Class 1	166 (FN)	183 (TP)

Here, the recall is 52.4% which is far better than logistic regression.

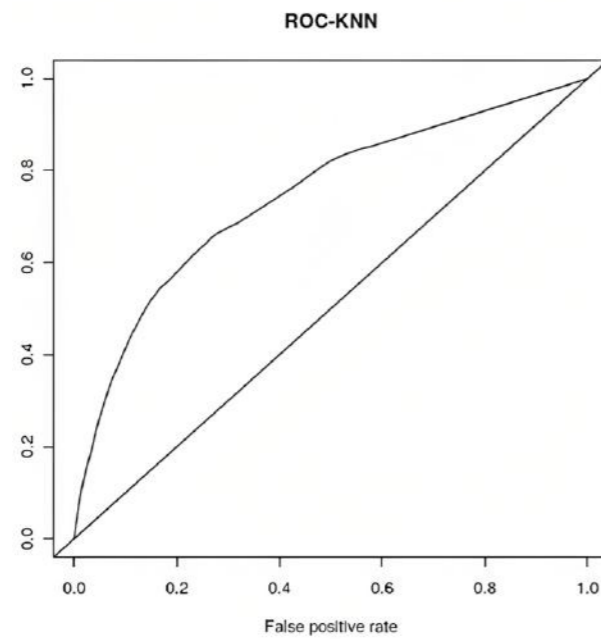
The top 5 Important variables in random forest which influence the dependent variable are ranked in descending order namely- 'Revolutionising utilisation of unsecured lines or loans', 'debt ratio', 'age', 'number of 30\_59 days past due. The below figure is giving the importance of variables based on mean decrease gini. Higher the value of mean decrease gini, more important the variable is in the model.

Variables like 'revolutionising utilisation of unsecured lines or loans' and 'debt ratio' were found to be the most important variables by the random forest method even though they are not statistically significant in logistic regression due to the latter's limited ability to handle non-linear relationships (it is, after all a form of generalised linear model). So, a tree-based approach is a better one for handling variables with a non-linear relationship with the dependent variable.



### K- nearest neighbor

The AUC of ROC curve was found to be 74% as shown in figure below with accuracy of 93.13%, with K=23.



Confusion Matrix is shown in the table below.

		Predicted Class	
		Class 0	Class 1
Actual Class	Class 0	40862(TN)	2749 (FP)
	Class 1	71 (FN)	41 (TP)

Here recall is 36.6% which is better than logistic regression.

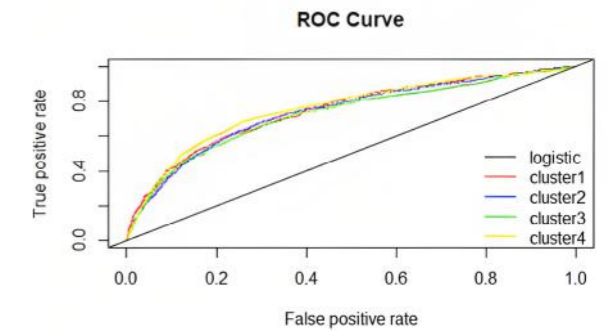
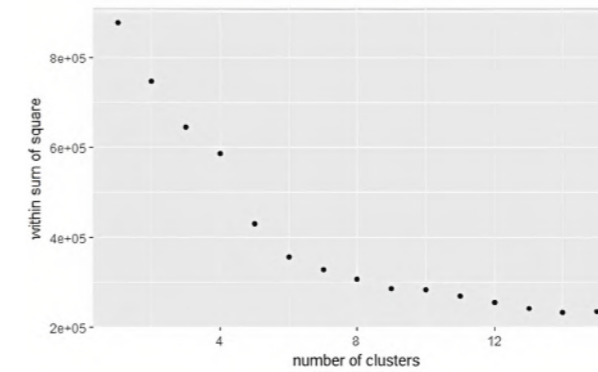
### Clustering

With the help of the K-means technique, clustering is done with the help of those variables which are statistically significant on normalized data. Clustering is done keeping in mind that the within cluster sum of squares should be as small as possible and between cluster sum of squares is maxima.

Hence, four clusters are made as up to 4 clus-

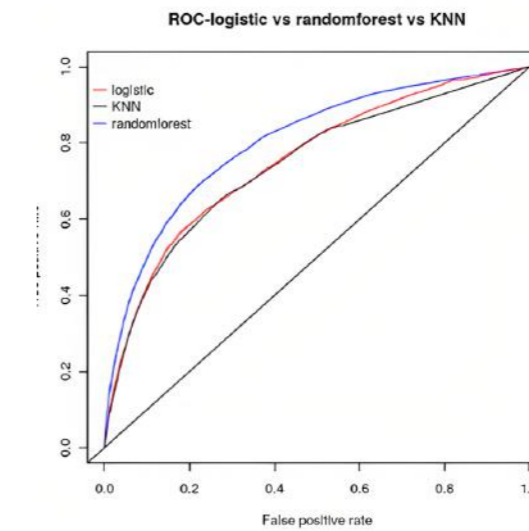
ters as there is a good amount of fall in the within cluster sum of square as shown in Figure below, after which a logistic regression technique is applied on each cluster to check upon whether the performance of the model can be increased.

The AUC of cluster1, cluster2, cluster3 and cluster4 are coming out to be- 74.6%, 73.80%, 72.60% and 75.80% as shown in figure below Thus, it shows that the performance is not increasing beyond 75% with clustering.



### Conclusion

We have seen that the performance of the model has increased in the case of random forest over logistic regression, logistic regression after clustering and KNN. The accuracy for random forest, logistic regression and KNN in the test dataset are 93.3%, 72.8% and 93.13% respectively. AUC for random forest is 80% while that of logistic regression and KNN are around 75%, thus showing an increase of 5% improvement in performance of random forest over logistic regression and KNN as shown in Figure below.



This may be due to as logistic regression is analogous to linear regression is analogous to linear relationship, so it's not a perfect technique to have a good result for independent variables having non-relationship with dependent variable. So, for this, the tree-based approach is a better approach, here random forest is used which works better in handling influence of non-relationship of independent variable on dependent variables.

The area under the curve (AUC) is taken into consideration over the accuracy in determining the performance of the model as AUC takes all the cut-off point into consideration while the accuracy is based on a specific cut-off point, so the accuracy varies with different cut-off points. Performance did not increase beyond 75% even with a combination of clustering and logistic regression. On comparing random forest, logistic regression and KNN based on the recall, it tells that the recall of random forest is higher than the recall of other two techniques and the recall of KNN is higher than the recall of logistic regression.

Finally, it concludes random forest is best applied technique followed by KNN and logistic regression. Results could have been better with more data.



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# Insurance

- p. 58 *Insurance Regulatory Timeline*
- p. 60 *Supervision*
- p. 61 *Market Environment*
- p. 62 *Risk Management*
- pp. 64-76 *Insurance Capital Standard: A Closer Look*

# Insurance Regulatory Timeline

## 2023 Q3

### ICS

Public Consultation  
On ICS as a PCR, including  
consultation on GAAP Plus  
Document release: 21 Sep 2023

### Insurance Supervision

Public Consultation  
On revised ICP 14 (Valuation)  
Document release: tbd

Regulatory Review  
Liquidity monitoring exercise  
Document release: tbd

Public Consultation  
On revised ICP 17 (Capital  
Adequacy)  
Document release: tbd

### IORP

Report  
Peer Review on supervisory  
practices with respect to the  
application of the  
prudent person rule for IORPs  
Document release: tbd

## 2023 Q4

### Solvency II

Report  
Reassessment of the natural  
catastrophe risk standard  
formula capital charges  
Document release: tbd

### Insurance Supervision

Regulatory Review  
Methodology to produce the  
scenarios to be used in the  
prudent  
deterministic valuation  
Document release: tbd

### Insurance Distribution Directive

Report  
On the application of the IDD  
Document release: tbd

### IORP

Technical Advice  
On the scheduled review of  
the IORP II Directive  
Document release: tbd

Report  
IORPs Risk Dashboard  
Document release: tbd

## 2024 Q4

### Solvency II

Draft RTS  
The reassessment of the  
Natural Catastrophe risk  
standard formula capital  
charges  
Document release: tbd

International Standards  
Planned adoption of ICS  
Document release: 24 Dec 2024

## Supervision

### Supervision EIOPA (Press Release)

*First Joint Mystery Shopping Exercise*

The EIOPA has announced that it will coordinate the first joint mystery shopping exercise on sales of insurance. The exercise will be conducted in 8 Member States and will follow a common methodology and criteria developed by EIOPA and its Members. Mystery shopping is a technique that involves the use of trained “mystery shoppers” acting as potential customers. It allows the experience of customers in practice to be assessed. It would typically involve physical visits to distributors’ premises but also can be done via digital channels, phone calls or similar methods.

*Release date: 2023-06-28*

[eiopa.europa.eu](https://eiopa.europa.eu)



### Supervision EIOPA (Report)

*2022 Annual Report*

The EIOPA has published its Annual Report 2022, setting out its activities and achievements of the past year. 2022 was a year of uncertainties in Europe: the outbreak of a war waged by Russia on Ukraine, the resulting energy crisis and rising inflation have had far-reaching impacts on citizens and businesses in Europe. These global developments informed the way in which EIOPA worked to meet its strategic objectives.

*Release date: 2023-06-14*

[eiopa.europa.eu](https://eiopa.europa.eu)



### Solvency 2 EIOPA (Press Release)

*Ultimate Forward Rate for 2024*

The EIOPA has published the calculation of the Ultimate Forward Rate for 2024. As of 1 January 2024, the applicable UFR for the euro will be 3.30%. The details of the calculation of the UFR for 2024 are available in the report on the calculation of the Ultimate Forward Rate for 2024.

*Release date: 2023-04-27*

[EIOPA-BoS-23/127](https://eiopa.europa.eu)



### ICS IAIS (Report)

*Implementation of the Holistic Framework Insurance Standards*

The IAIS has published its report on the targeted jurisdictional assessment of the implementation of the Holistic Framework supervisory material. The Holistic Framework recognises that systemic risk may arise not only from the distress or disorderly failure of an individual insurer, but also from insurers’ collective exposures and activities at a sector-wide level. It consists of an integrated set of macroprudential supervisory policy measures, a Global Monitoring Exercise and – as a key element – implementation assessment activities.

*Release date: 2023-04-04*

[iaisweb.org](https://iaisweb.org)



## Market Environment

### Market Trends EIOPA (Report)

*June 2023 Financial Stability Report*

The EIOPA has published its June 2023 Financial Stability Report which takes stock of the key developments and risks in the European insurance and occupational pensions sectors. EIOPA notes that the European economy is currently experiencing a new period of high uncertainty and elevated financial stability risk. Persistent inflation, the fraught geopolitical landscape and rising financing costs – also in the wake of the recent financial turmoil – pose challenges to growth prospects in Europe and the business conditions of financial institutions. Despite the challenging environment, insurers and pension funds have remained resilient.

*Release date: 2023-06-22*

[EIOPA-BoS-23/209](https://eiopa.europa.eu)



### Market Trends EIOPA (Risk Dashboard)

*EIOPA Risk Dashboard May 2023*

The EIOPA has published today its Risk Dashboard based on Q4 2022 Solvency II data. The analysis shows that insurers’ exposures to macro and market risks are currently the main concern for the insurance sector, while all other risk categories are at medium levels. Risks related to the macro-economic environment continue to be the most relevant for the insurance sector. While forecasts for global GDP growth have ticked up slightly and unemployment remains low, projected consumer prices are in the higher range of previous assessments. Fiscal balances have deteriorated. The credit-to-GDP gap slightly increased and central banks keep tightening monetary policy.

*Release date: 2023-05-15*

[eiopa.europa.eu](https://eiopa.europa.eu)



### Market Trends EIOPA/ECB (Discussion Paper)

*Increased Uptake of Climate Catastrophe Insurance*

The EIOPA and the ECB have published a joint discussion paper on how to better insure households and businesses in the European Union against climate-related natural catastrophes such as floods or wildfires. The policy options set out in the paper are aimed at boosting the uptake and efficiency of climate catastrophe insurance while creating incentives to adapt to and reduce climate risks.

*Release date: 2023-04-24*

*Consultation End: 2023-05-22*

[c0adae58b7](https://eiopa.europa.eu)



# Risk Management

## ICS

IAIS (Consultation Paper)

*Preparation for Adoption of the ICS*

The IAIS has launched the fourth and final public consultation on the ICS before its planned adoption in December 2024. The ICS as a PCR will provide a consolidated, risk-based measure of capital adequacy for Internationally Active Insurance Groups. Group-wide supervisors will use the ICS as a binding requirement, at the group level, for IAIGs headquartered in their jurisdictions.

*Release date: 2023-06-23*  
*Consultation End: 2023-09-21*

[iaisweb.org](https://iaisweb.org)



## Solvency 2

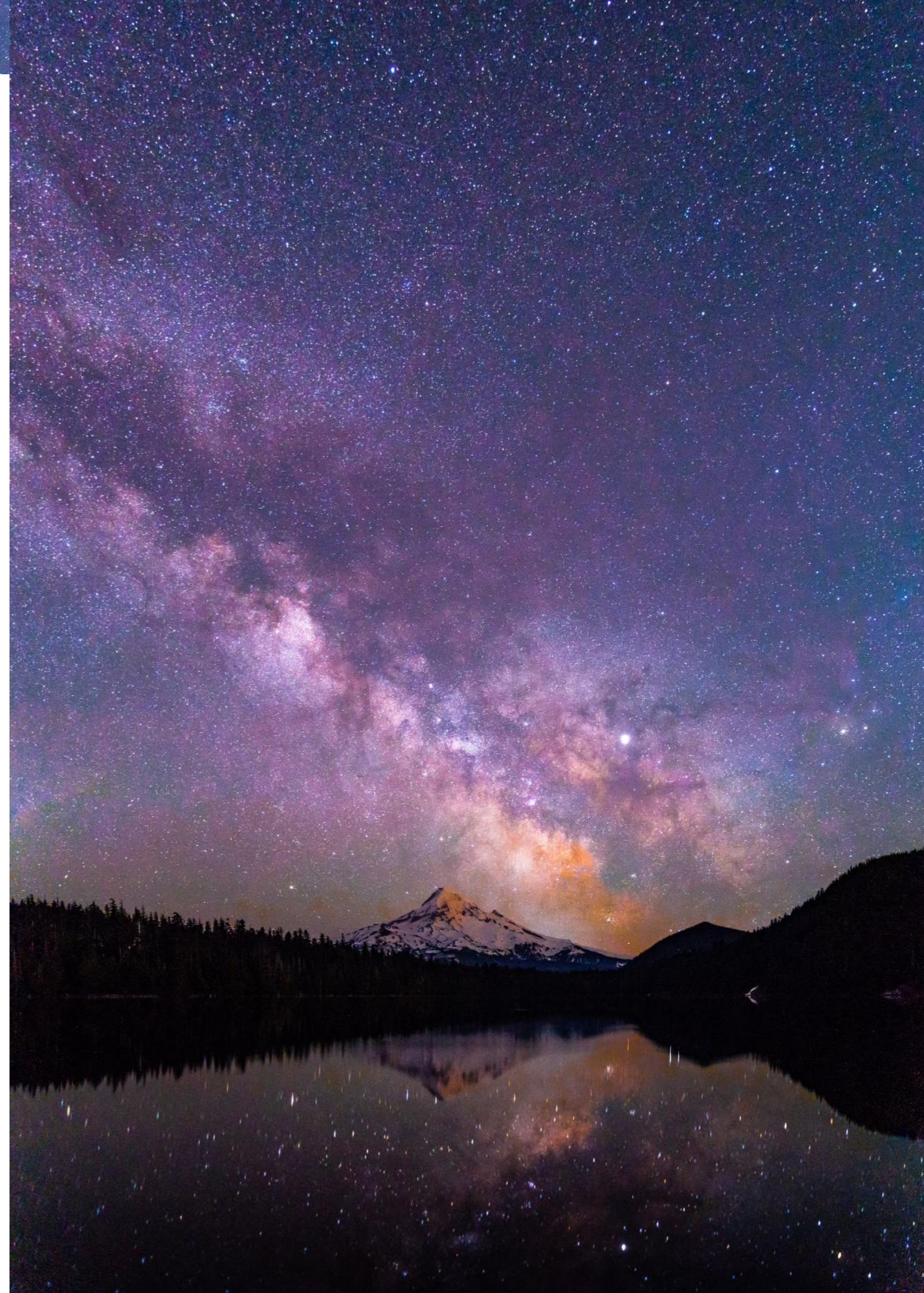
EIOPA (Report)

*Results of study on market and credit risk modelling*

The EIOPA has published the results of its comparative study on the modelling of market and credit risk in internal models based on year-end 2021 data. The overall results show moderate to significant dispersion in some asset model outputs. Although this dispersion may in part be attributable to certain model and business specificities that supervisors are conscious of, it also indicates the need for continued supervisory attention, including at the European level.

*Release date: 2023-04-03*

[EIOPA-BoS/23-113](https://www.eiopa.europa.eu/eiopa-bos/23-113)





**ARTICLE**

# INSURANCE CAPITAL STANDARD: A CLOSER LOOK

Written by *Seán Burke, Finalyse Senior Consultant*

*Francis Furey, Finalyse Principal Consultant*

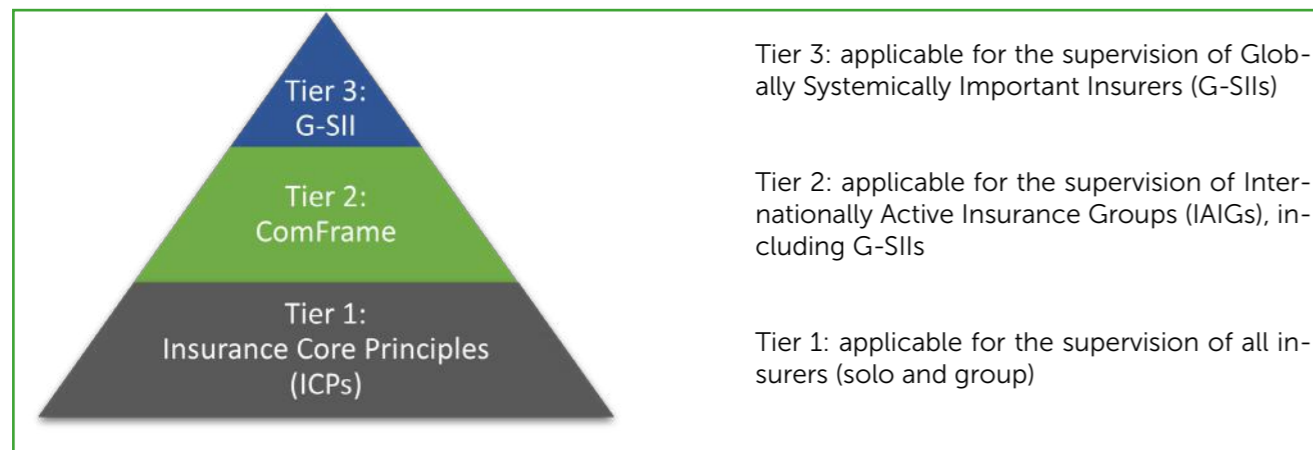
## Introduction

The Insurance Capital Standard (ICS) is a consolidated group-wide capital standard for IAIGs (Internationally Active Insurance Groups). It is being developed by the International Association of Insurance Supervisors (IAIS) and their main objective is to establish a common regulatory framework that achieves comparable outcomes across jurisdictions. The ICS will provide a common language for supervisory discussions of IAIG solvency and enhance global convergence among group capital standards.<sup>1</sup>

In this article we provide an overview of the principles and concepts outlined in the ICS reference documentation issued by IAIS. We focus on the following key points:

1. Global supervisory framework
2. ICS Principles and Guidelines
3. Market Adjusted Valuation
4. Qualifying Capital Resources
5. Capital Requirement – Standard Method

Our previous article on this topic<sup>2</sup>, published in



*Tiers of Global Supervisory Framework*

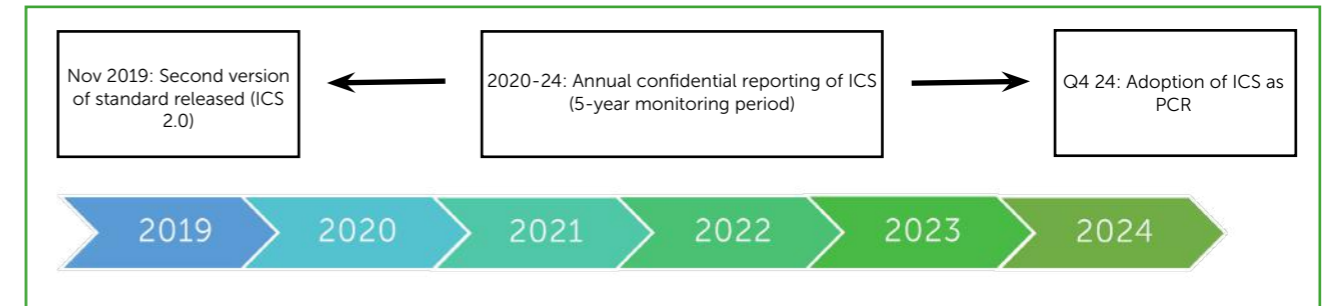
November 2020, covers the history of ICS and the qualifying criteria for IAIGs.

## 1. Global supervisory framework

Before delving into the ICS, it is important to understand where the standard fits into the overall regulatory landscape. The IAIS has developed a set of principles, standards, and other supporting material for the supervision of the insurance sector. This global supervisory framework is based on a three-tiered approach. Tier 1 consists of the Insurance Core Principles (ICPs). The ICPs seek to encourage the maintenance of consistently high supervisory standards in IAIS member jurisdictions. ICP14 (Valuation) and ICP17 (Capital) relate to ICS. The Common Framework for the Supervision of IAIGs (ComFrame) builds on ICPs and consists of quantitative and qualitative supervisory requirements tailored to the international activity and size of IAIGs. The ICS will be one of the quantitative components of ComFrame. See below an illustration of the tiers of global supervision.

The ICS roll-out is currently in the 4<sup>th</sup> year of its 5-year monitoring period. The timeline below highlights key milestones in the IAIS' workplan over this period.

Following the end of the monitoring period in Q4 2024, the intention is for ICS to be implemented as a group-wide prescribed capital requirement.



*ICS Implementation Timeline*

## 2. ICS Principles and Guidelines

The IAIS has published a list of ten ICS Principles<sup>4</sup>, which set out the over-arching goals and objectives of the ICS framework. These touch on themes such as policyholder protection, capital adequacy, cross-jurisdiction comparability, and transparency of results.

There are also four "General Guiding Principles", which are explicit principles to be followed when producing the ICS results. These are:

- Substance over Form – Insurance liabilities are allocated to the segment that best reflects the nature of the underlying risks rather than the legal form of the contract.
- Proportionality Principle – Calculations and valuations are subject to the proportionality principle. Where the use of a specific factor

or rule leads to a significant increase in complexity, IAIGs can use a simplified calculation if it can be shown that it doesn't materially affect the figure produced.

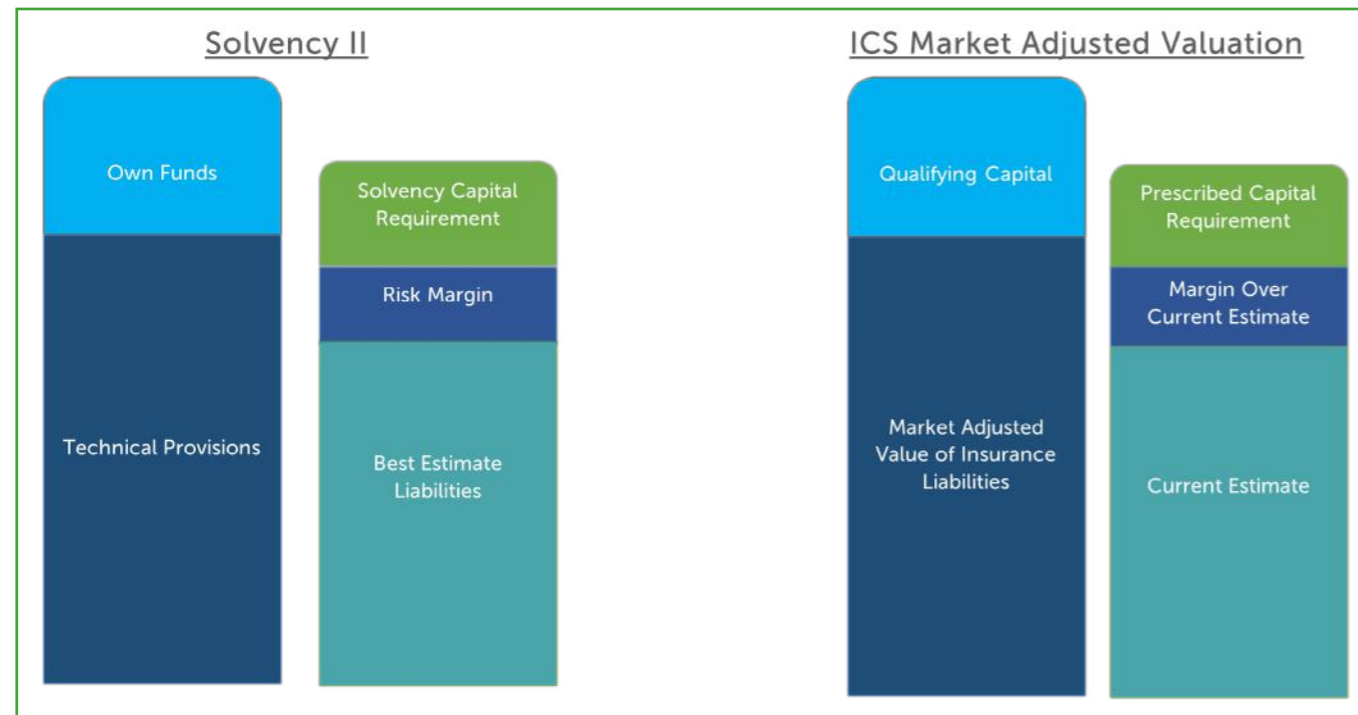
- Look-Through Approach – This approach is used to assess the risk inherent in collective investment funds and other indirect exposures. When a full look-through is not possible, a partial look-through may be applied, along the lines provided by the Basel III framework. When no look-through is possible, the investment is considered as unlisted equity for the purpose of calculating the ICS risk charges.
- ICS Rating Categories – The IAIS have developed a mapping between ICS Rating Categories and credit rating agency ratings.

ICS RC	S&P	Moody's	Fitch
1.	AAA	Aaa	AAA
2.	AA/A-1	Aa/P-1	AA/F1
3.	A/A-2	A/P-2	A/F2
4.	BBB/A-3	Baa/P-3	BBB/F3
5.	BB	BB	BB
6.	B/B	B/B	B/B
7.	CCC/C & lower	Caa & lower	CCC/C & lower

### 3. Market Adjusted Valuation

ICS consists of 3 technical components: market adjusted valuation, qualifying capital resources and a standard method for the ICS capital requirement. The building blocks of the ICS market

adjusted valuation are comparable to those in the Solvency II balance sheet. This is illustrated at a high level below. It is important to note that the components are not directly equitable due to subtle differences in the methodologies used, some of which we will discuss later.



Balance Sheet: Solvency II vs ICS

MAV insurance liabilities are the sum of the current estimate (CE) and a margin over the current estimate (MOCE). The CE is equal to the probability-weighted average of the present values of the future cash-flows associated with insurance liabilities, discounted using an adjusted yield curve.

The adjusted yield curve is based on:

- a) Risk adjusted liquid interest rate swaps or government bonds (risk-free yield curve); and
- b) An adjustment.

The adjustment to the yield curve is determined using the "Three-Bucket Approach". This classifies liabilities into the Top Bucket, the Middle Bucket, and the General Bucket, depending on the nature of the liabilities and the assets backing these liabilities. A different adjustment is determined for each bucket:

- The adjustment for the Top Bucket (e.g., life and disability annuities) is based on the average spread above the risk-free yield curve of the eligible assets backing the portfolio of liabilities.
- The Middle Bucket (e.g., life insurance with no surrender option) spread adjustment is a group-wide adjustment calculated using the Weighted Average of Multiple Portfolios (WAMP) approach based on the eligible assets backing the Middle Bucket liabilities.
- The spread adjustment for the General Bucket (e.g., non-life insurance products) is provided by the IAIS, based on a representative portfolio that reflects the assets typically held by IAIGs in a particular currency.

The MOCE is a margin added to the current estimate, which covers the inherent uncertainty in

the cash flows related to insurance obligations. The MOCE is calculated as a percentile of the normal distribution characterised by a mean equal to the CE of life (and non-life) obligations, and a 99.5% percentile equal to the risk charge. The 85<sup>th</sup> percentile is used to compute the life component of the MOCE and the 65<sup>th</sup> percentile is used for the non-life component.

### 4. Qualifying Capital Resources

Qualifying capital resources are determined on a consolidated basis for all financial activities. The ICS identifies two tiers of capital:

- Tier 1 capital resources comprise financial instruments that absorb losses on a going concern basis and in winding-up; and
- Tier 2 capital resources comprise financial instruments that absorb losses only in winding-up.

Financial instruments are classified into those two tiers based on consideration of several criteria, focused on five key principles.

### 5. Capital Requirement – Standard Method

The ICS capital requirement is based on the potential adverse change in the IAIG's qualify-

ing capital resources resulting from unexpected changes of specified risks. The target criterion is a 99.5% Value at Risk (VaR) measure over a one-year time horizon. The reference ICS coverage ratio is calculated as:

$$\text{ICS Ratio} = \frac{\text{Qualifying capital resources}}{\text{ICS capital requirement}}$$

The categories of risk included in the standard method are:

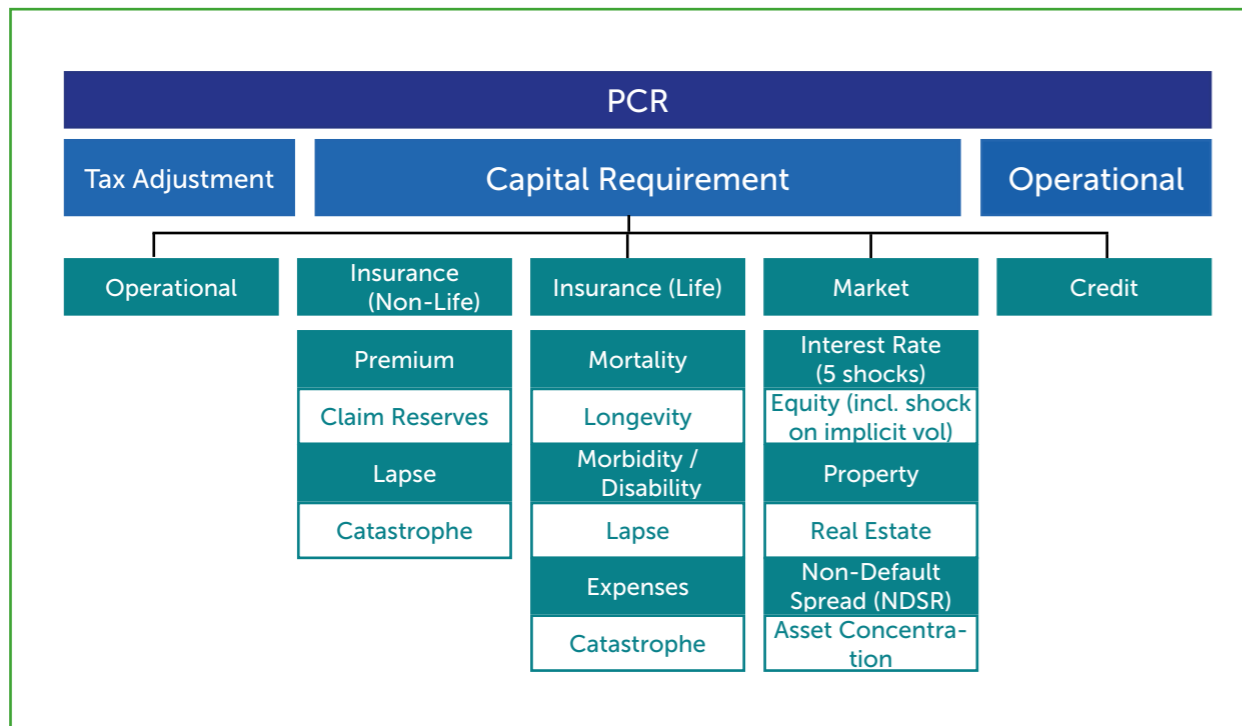
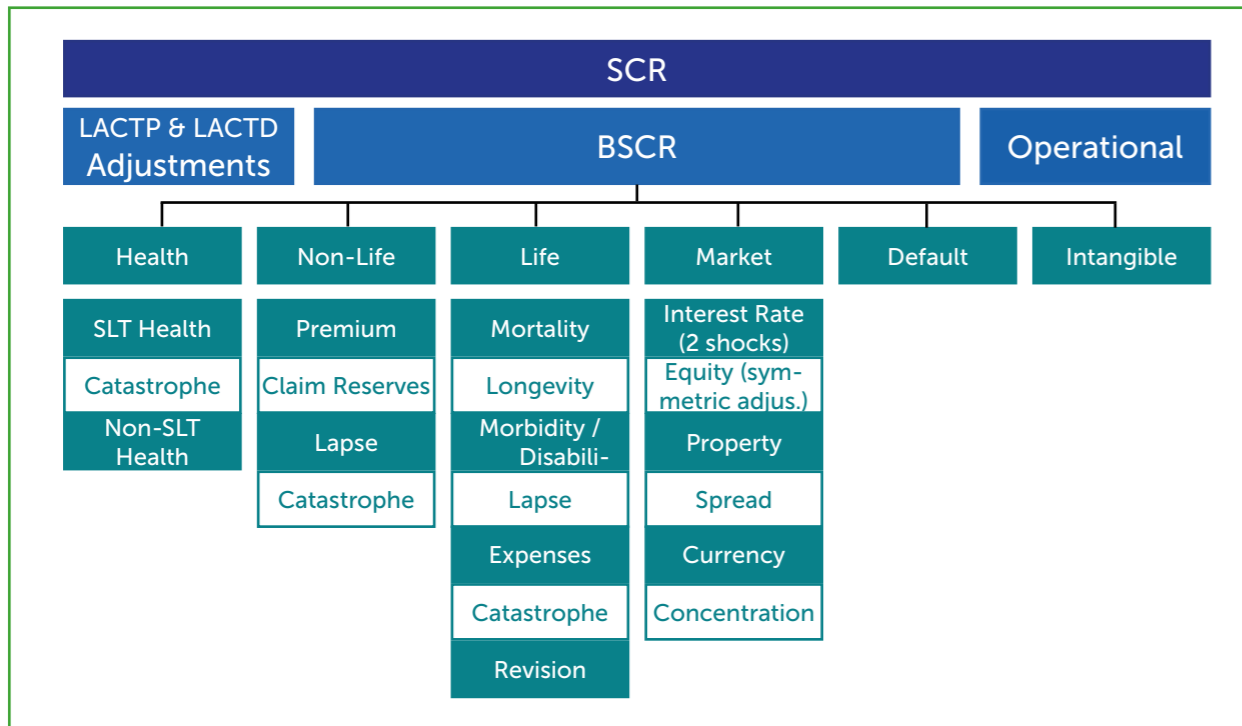
- Insurance risk
- Market risk
- Credit risk
- Operational risk

Risks are measured using two approaches: a stress approach and a factor-based approach. The stress approach is a dynamic calculation that looks at the IAIG's current balance sheet pre-stress and the balance sheet post-stress. The risk charge for each individual risk can be quantified as the decrease in the capital resources in the stressed balance sheet. The factor-based approach is determined by applying factors to specific exposure measures.

The Prescribed Capital Requirement (PCR) under ICS is similar in many ways to the SCR under Solvency II, in respect of its calculations and its categorisation of risks. Under ICS an adjustment is made to the capital requirement to allow for the impact of management actions on future discretionary benefits (FDB). This is like the Loss absorbing Capacity of Technical Provisions (LACTP) adjustment made under Solvency II.



Capital Requirement: Solvency II vs ICS



The individual risk charges are combined in a way that recognises risk diversification, using correlation matrices. For the life insurance segment, a geographical segmentation is used to calculate the risk charge. We can take a closer look at the mortality risk charge to illustrate this. The prescribed stress for the mortality risk would consist of an increase

of x% in mortality rates at all ages for policies where an increase in mortality leads to a decrease in the net asset value. The risk charge is then calculated as the change in net asset value after applying the prescribed stress. The stress factors for mortality risk are given below:

Mortality risk stress factors	
Region	X%
EEA	12.5%
USA/Canada	12.5%
China	12.5%
Japan	10%
Other developed markets	12.5%
Other emerging markets	12.5%

Most of the prescribed stress factors are more stringent under the Solvency II regime. For example, the SII mortality shock is +15% compared to +12.5% for the EEA region under ICS. The ICS risk map does not include a Health module. This risk is implicitly allowed for in the premium and claim reserve risk segments of the non-life module.

The interest rate risk charge is notable in that it is based on a combination of five stresses, as opposed to two stresses under Solvency II (interest rate up and interest rate down). The five stresses for the ICS interest rate risk charge are as follows:

- A mean-reversion scenario;
- A level up scenario;
- A level down scenario;
- A twist up-to-down scenario; and
- A twist down-to-up scenario.

Catastrophe risk under ICS can be described as the risk of adverse movement in the value of capital resources due to unexpected changes in the occurrence of low frequency and high severity events. It is a risk that affects both life and non-life business. IAIS offers closed formulae for disaster risks. An exception to this is natural disasters, where stochastic models may be used to calculate loss amounts.

The methodology used to calculate the interest rate charge under ICS can be described in 5 steps:

When calculating the market risk charges, the following impacts are considered:

- The direct impacts of the prescribed stress scenarios on the value of the assets and liabilities; and
- The indirect impacts linked to potential changes in policyholder behaviour following the prescribed stress scenarios.

**Step 1:** Calculate the change in NAV for each currency using the Mean Reversion (MR) stressed interest rate curve. The full impact of the change in NAV for this stress is considered in the total risk charge.

**Step 2:** Calculate the change in NAV for each currency using the other 4 stressed interest rate curves provided by IAIS.

**Step 3:** The change in NAV for the 4 stresses determined in Step 2 is aggregated using

20,000 simulations (provided by IAIS) for all currencies.

**Step 4:** Determine the combined risk charge for these 4 stresses (in Step 3) at the 99.5% quantile assuming a Standard Normal distribution.

**Step 5:** The total interest rate risk charge is the calculated by combining the risk charges for MR (Step 1) and the four other stresses (Step 4).

The equity risk charge is calculated as the change in net asset value following the occurrence of a stress scenario that impacts the level and volatility of the fair value of equities. This volatility scenario includes an instantaneous decrease by 35% of the market prices of all listed shares in developed markets and an instantaneous decrease by 48% of the market prices in emerging markets. Thanks to a larger number of asset classes and shock scenarios, ICS will estimate more precisely the capital requirements for companies. This precision will in theory imply a lower market PCR compared to its SCR equivalent.

## Conclusion / Next Steps

During the five-year ICS monitoring period (2020-2024), the IAIS annually collects and analyses confidential data from volunteer insurance groups, with the objective of finalising

ICS for implementation as a prescribed capital requirement by the end of the monitoring period. In mid-2023, the IAIS will reach a critical stage on the road to finalising the ICS with the launch of the public consultation on ICS as a PCR. The IAIS will also undertake an economic impact assessment of the ICS, starting in Q3 2023, following stakeholder input. The IAIS remains on track to finalise the ICS by end-2024.

The IAIS has produced supplementary information throughout the monitoring period on topics such as yield curves and technical specifications to assist companies with their implementation. IAIGs based in USA are developing an Aggregation Method which, if deemed comparable, will be considered an outcome-equivalent approach for implementation of the ICS as a PCR. Assessment of whether the AM provides comparable outcomes to the ICS will begin in Q3 2023.

In Europe, EIOPA has publicly stated its commitment to the ICS development. Interestingly, some ICS aspects were considered as proposals for the Solvency II 2020 review. We have outlined above the similarities between the two regulatory frameworks, so it raises the question whether Solvency II can gain ICS equivalence at some stage in the future. However, in the short term, IAIGs will need to find optimal and innovative ways to incorporate the ICS calibration into their current operating environment.

## How Finalyse can help clients?

### ICS reporting support:

- Perform ICS impact assessment (as part of monitoring exercise or separately).
- Support in submitting the ICS pack.
- Support in responding to group-wide supervisor on any queries.
- Monitor regulatory developments and communicate specific issues to your business.
- Prepare internal training material on ICS calibration and comparison to Solvency II.

### Strategic support:

- Strategic support in understanding the ICS figures for your business including on the long-term business strategy.

### BAU Implementation:

- Design BAU process.
- Implement ICS reporting into BAU processes and improving the quality of submissions.

## Contacts



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Yannis is a qualified actuary with experience in risk management, actuarial modelling and capital management for insurers. He has acquired in-depth knowledge of the insurance sector through the performance of key roles such as CRO and Head of Actuarial Function. He is a subject matter expert in the fields of Solvency II, Risk Appetite Frameworks, Balance Sheet Valuation and ORSA projection models.



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Francis is an actuary with 15 years of experience within the life and non-life (re)insurance industry. His expertise covers the areas of financial reporting, prudential regulation and actuarial modelling. Francis has worked in both industry and consulting with extensive exposure to domestic and international clients and a keen eye on new regulatory developments.



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Seán is a qualified actuary with expertise in the areas of financial reporting and actuarial modelling for life insurers. He has strong modelling expertise in Prophet and DCS, having been involved in several migration projects and model updates in his previous roles. Seán has a keen interest in the EU regulatory landscape, in particular the Solvency II and ICS frameworks..



## Appendix

### List of Insurance Core Principles (ICPs)

ICP No.	ICP Name	ICP No.	ICP Name
1.	Objectives, powers and responsibilities of the supervisor	14.	Valuation
2.	Supervisor	15.	Investments
3.	Information sharing & confidentiality requirements	16.	Enterprise risk management for solvency purposes
4.	Licensing	17.	Capital adequacy
5.	Suitability of persons	18.	Intermediaries
6.	Change of control & portfolio transfers	19.	Conduct of business
7.	Corporate governance	20.	Public disclosure
8.	Risk management & internal controls	21.	Countering fraud in insurance
9.	Supervisory review & reporting	22.	Anti-money laundering & combating the financing of terrorism
10.	Preventative measures, corrective measures & sanctions	23.	Group-wide supervision
11.	*	24.	Macroprudential supervision
12.	Exit from the market resolution	25.	Supervisory cooperation & coordination
13.	Reinsurance & other forms of risk transfer		

\*ICP11 has been withdrawn

### The ICS Principles

1. The ICS is a consolidated group-wide standard with a globally comparable risk-based measure of capital adequacy for IAIGs and G-SIIs.
2. The main objectives of the ICS are protection of policyholders and to contribute to financial stability.
3. One of the purposes of the ICS is the foundation for Higher Loss Absorbency (HLA) for G-SIIs.
4. The ICS reflects all material risks to which an IAIG is exposed.
5. The ICS aims at comparability of outcomes across jurisdictions and therefore provides increased mutual understanding and greater confidence in cross-border analysis of IAIGs among group-wide and host supervisors.
6. The ICS promotes sound risk management by IAIGs and G-SIIs.
7. The ICS promotes prudentially sound behaviour while minimising inappropriate pro-cyclical behaviour by supervisors and IAIGs.
8. The ICS strikes an appropriate balance between risk sensitivity and simplicity.
9. The ICS is transparent, particularly about the disclosure of final results.
10. The capital requirement in the ICS is based on appropriate target criteria which underlie the calibration.

### Key Principles for tiering in capital resources

Key Principles	Tier 1 Unlimited	Tier 1 Limited	Tier 2 Paid-Up
Loss absorbing capacity	Absorbs losses on a going-concern basis and in winding-up.	Absorbs losses on a going-concern basis and in winding-up	Absorbs losses in winding-up
Level of subordination	Most subordinated i.e., the first to absorb losses	Subordinated to policy holders, other non-subordinated creditors, and holders of Tier 2 capital	Subordinated to policy holders and other non-subordinated creditors
Availability to absorb losses	Fully paid-up	Fully paid-up	Fully paid-up
Permanence	Perpetual	Perpetual	Sufficiently long initial maturity
Absence of both encumbrances and mandatory serving costs	IAIG has full discretion to cancel distributions	IAIG has full discretion to cancel distributions	Neither undermined nor rendered ineffective by encumbrances

### ICS correlation matrices

Life risk correlation matrix					
	Mortality	Longevity	Morbidity/Disability	Lapse	Expense
Mortality	100%	-25%	25%	0%	25%
Longevity	17.5%	100%	0%	25%	25%
Morbidity/Disability	-25%	0%	100%	0%	50%
Lapse	0%	25%	0%	100%	50%
Expense	25%	25%	50%	50%	100%



Market risk correlation matrix							
	Interest rate	NDSR Up	NDSR Down	Equity	Real estate	Currency	Asset concentration
Interest rate	100%	25%	25%	25%	25%	25%	0%
NDSR Up	25%	100%	100%	75%	50%	25%	0%
NDSR Down	25%	100%	100%	0%	0%	25%	0%
Equity	25%	75%	0%	100%	50%	25%	0%
Real estate	25%	50%	0%	50%	100%	25%	0%
Currency	25%	25%	25%	25%	25%	100%	0%
Asset Concentration	0%	0%	0%	0%	0%	0%	100%

#### Geographical segmentation of risk charges

Longevity risk stress factors	
Region	X%
EEA	12.5%
USA/Canada	12.5%
China	12.5%
Japan	10%
Other developed markets	12.5%
Other emerging markets	12.5%

Lapse risk stress factors	
Region	X%
EEA	40%
USA/Canada	40%
China	40%
Japan	20%
Other developed markets	40%
Other emerging markets	40%

Morbidity/Disability risk stress factors- Japan		
Category (i)	Short-term	Long-term
1	20%	8%
2	25%	8%
3	20%	10%
4	Inception rate stress=25% Recovery rate stress= 20%	Inception rate stress=20% Recovery rate stress= 20%

Morbidity/Disability risk stress factors- other locations		
Category (i)	Short-term	Long-term
1	20%	8%
2	25%	20%
3	20%	12%
4	Inception rate stress=25% Recovery rate stress= 20%	Inception rate stress=20% Recovery rate stress= 20%

Expense risk stress factors		
Region	X%	Y% (expense inflation)
EEA	6%	1%
USA/Canada	6%	1%
China	8%	Year 1- 10: 3% Year 11-20: 2% Year 21 onwards: 1%
Japan	6%	1%
Other developed markets	8%	Year 1- 10: 2% Year 11-20: 1%
Other emerging markets	8%	Year 1- 10: 3% Year 11-20: 2% Year 21 onwards: 1%

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# Asset Management

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- p. 84 *Governance*
- p. 85 *Market Environment*
- p. 85 *Risk Management*



# Asset Management Regulatory Timeline

## 2023 Q3

### MiCA

RTS  
White paper consultation paper (CP)  
Document release: tbd

RTS  
On information to be submitted in an information to be submitted in an application for authorisation to issue ARTs (CP)  
Document release: tbd

ITS  
On information to be submitted in an application for authorisation to issue ARTs (CP)  
Document release: tbd

Guidelines  
Suitability members of the management body and qualifying holdings  
Document release: tbd

RTS  
On use of ARTs as a means of payment (CP)  
Document release: tbd

RTS  
Up to 10 other RTS' and 3 guidelines  
Document release: tbd

## 2023 Q4

### MiCA

ITS  
On use of ARTs as a means of payment (MiCA) (CP)  
Document release: tbd

## 2024 Q1

### EMIR

RTS  
Deferred Date of Application for Non-centrally Cleared OTC Derivatives Which are Single-Stock Equity Options or Index Options  
Application date: 04 Jan 2024

## 2024 Q2

### EMIR

ITS  
Formats, Frequency and Methods and Arrangements for Reporting  
Application date: 29 Apr 2024

RTS  
Procedures for the Reconciliation of Data Between Trade Repositories  
Application date: 29 Apr 2024

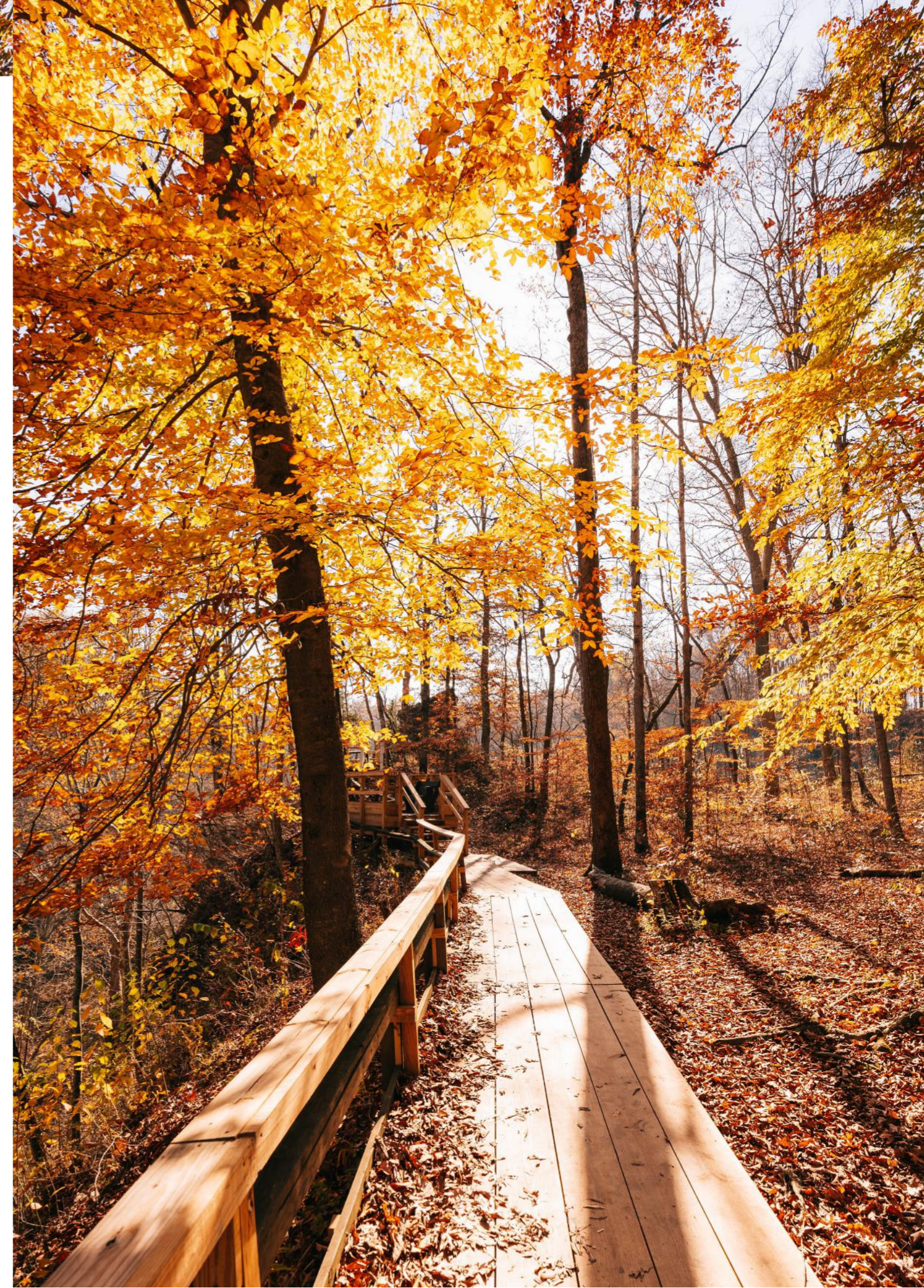
RTS  
Minimum Details of the Data to be Reported - EMIR REFIT  
Application date: 29 Apr 2024

## 2024 Q3

### MiCA

Report  
On potential ways of regulating NFTs  
Document release: tbd

Regulation  
Most of the provisions of MiCA  
Application date: tbd



## Supervision

### UCITS ESMA (Q&As)

*Updated Q&As on UCITS Directive*

The ESMA has published the following updated Q&As on the application of the UCITS Directive – The Q&As have been updated to include the following questions:

Question 8: Management of AIFs and pension schemes by UCITS management companies.

Question 9: De-notification of marketing arrangements for UCITS.

Question 10: Scope of activities passported by UCITS management companies.

*Release date: 2023-06-14*

[ESMA34-43-392](#)



### AIMFD ESMA (Q&As)

*Updated Q&As on AIFMD*

The ESMA has published the following updated Q&As on the application of the AIFMD – The Q&As have been updated to include new sections on:

- Notification of AIFs.
- Notification of AIFMs.
- Calculation of leverage.

*Release date: 2023-06-14*

[ESMA34-32-352](#)



## Supervision

### AIMFD ESMA (Q&As)

*Q&As on AIFMD*

The ESMA has updated the Q&As on the application of the AIFMD. A new Q&A on marketing has been added covering whether non-EU alternative investment fund managers are allowed to carry out pre-marketing activities pursuant to the AIFMD.

*Release date: 2023-05-26*

[ESMA34-32-352](#)



### Supervision ESMA (Public Statement)

*Provision of Unregulated Products and/or Services*

The ESMA has published a statement highlighting the risks arising from the provision of unregulated products and/or services by investment firms. ESMA is concerned that the practice of investment firms offering products and services that are not regulated gives rise to both investor protection and prudential risks. Therefore the statement sets out some of the risks that may arise and the issues that investment firms should pay particular attention to when providing unregulated products and/or services. The statement does not consider detailed risks arising from specific products and services.

*Release date: 2023-05-25*

[ESMA35-36-2813](#)



### UCITS ESMA (Report)

*Peer Review on ETFs and Other UCITS Issues*

The ESMA has issued a follow-up peer review report which provides an update on the action that NCAs have taken to address the issues that were identified in the 2018 peer review on the guidelines on exchange traded funds and other UCITS issues. During the follow-up peer review ESMA:

- Assessed whether three NCAs had improved their practices based on the peer review findings; and
- Enquired on the supervisory work carried out by four NCAs in relation to the attribution of revenues and costs derived from securities lending by UCITS, also in light of the findings of a Better Finance research paper published after the peer review.

*Release date: 2023-06-05*

[ESMA42-111-7570](#)



### MiFIR ESMA (Press Release)

*Transparency Calculations to Start Applying*

The ESMA has announced that the amended RTS 1 and 2, under MiFIR, will start applying on 5 June 2023. Some of the amendments will have an impact on the transparency calculations for equity, equity-like and non-equity instruments.

*Release date: 2023-05-31*

*Application Date: 2023-06-05*

[esma.europa.eu](#)



### ELTIF ESMA (Consultation Paper)

*New Requirements of the Revised ELTIF Regulation*

The ESMA has published a Consultation Paper on draft RTS under the revised ELTIF Regulation. The draft RTS specify the way the new requirements of the revised ELTIF Regulation, in particular on the redemption policy and matching mechanisms, will apply.

*Release date: 2023-05-23*

*Consultation End: 2023-24-08*

[ESMA34-1300023242-124](#)



## Supervision

### AIFMD/UCITS ESMA (Opinion)

*Legislative Amendments to Prevent Undue Costs in Funds*

The ESMA has published an Opinion to the European Commission with suggested clarifications of the legislative provisions under the UCITS Directive and the AIFM Directive relating to the notion of "undue costs". The Opinion follows a Common Supervisory Action on the supervision of costs and fees of UCITS across the EU/EEA which ESMA launched in January 2021.

*Release date: 2023-05-17*

[esma.europa.eu](https://esma.europa.eu)



### IFD/IFR Commission (RTS)

*Specific Liquidity Measurement of Investment Firms*

The European Commission has published Commission Delegated Regulation supplementing the IFD with regard to RTSs for the specific liquidity measurement of investment firms under that Directive. The technical standards under the draft Delegated Regulation have been developed in accordance with IFD and were the subject of an earlier consultation by the EBA. The draft technical standards set out comprehensive elements that may raise major concerns about investment firms' liquidity risk and that the competent authorities must consider when assessing the materiality of those risks.

*Release date: 2023-05-17*

[C\(2023\) 3157](#)



## Governance

### Crowdfunding Regulation EBA (Communication)

*Credit Scoring, Pricing and risk Management Policies of Crowdfunding Projects*

The EBA has published an opinion on the European Commission's amendments to the final draft technical standards on requirements on credit scoring of crowdfunding projects, pricing of crowdfunding offers, and risk management policies and procedures supplementing the EU Crowdfunding Regulation. In its opinion, the EBA recognises the importance of treating personal data in accordance with the 'storage limitation' principles established under the GDPR and, therefore, accepts the proposed amendment.

*Release date: 2023-06-14*

[EBA/Op/2023/04](#)



### IFR EBA (RTS)

*Prudential Consolidation of an Investment Firm Group*

The EBA has issued a final report containing draft RTS on the scope and methods for consolidation of an investment firm group under the IFR. The final report follows a consultation paper that the EBA published in June 2020 which included draft RTS on the prudential consolidation of investment firm groups. The draft RTS seek to ensure that prudential consolidation is carried out in a harmonised and consistent way.

*Release date: 2023-05-12*

[EBA/RTS/2023/03](#)



## Market Environment

### MiFIR ESMA (Letter)

*Transparency Regime for Single Name-CDS and Standardised OTC-Derivatives*

The ESMA has published a letter to the European Commission, the European Parliament and the Council of the EU concerning the MiFIR review and the current lack of transparency in the EU for OTC derivatives, notably single-name CDS. While MiFIR introduced trade transparency requirements for OTC-derivatives, including single name CDS, the actual transparency provided on trading activity in these instruments remains limited.

*Release date: 2023-06-02*

[ESMA74-1658524332-687](#)



### Market Trends IOSCO (Recommendation)

*Implementation of the IOSCO Principles for Exchange Traded Funds*

The IOSCO has published Good Practices Relating to the Implementation of the IOSCO Principles for ETFs. The good practices can be broadly categorised under four themes that encompass the full life cycle of ETF products:

- Product structuring
- Disclosure requirements
- Liquidity provisions
- Volatility control mechanisms

*Release date: 2023-05-12*

[FR/07/23](#)



## Risk Management

### IFR Commission (RTS)

*Measurement of Risks not Sufficiently Covered by the Own Funds Requirements*

The European Commission published the RTS specifying the measurement of risks or elements of risks not covered or not sufficiently covered by the own funds requirements set out in parts three and four of IFR and the indicative qualitative metrics for the amounts of additional own funds. The provisions of the delegated act relate to the determination of additional capital requirements for risks or elements of risk that are not covered or not sufficiently covered by part three or part four of the IFR to ensure the harmonised application of those requirements across the EU.

*Release date: 2023-05-25*

[C\(2023\) 3282](#)





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## Cross sector

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# Cross-sector Regulatory Timeline

## 2023 Q3

### Risk Analysis

Report  
Annual risk assessment report on the European banking system

Document release: tbd

### Sustainable Finance

Report  
Annual report under Article 18 SFDR

Document release: tbd

## 2023 Q4

### Risk Analysis

Policy Agenda  
Work on financial education with a focus on inflation, interest rates and sustainability

Document release: tbd

Report  
2023 EU-wide Transparency exercise

Document release: tbd

### Sustainable Finance

Report  
Final report on greenwashing risks and supervision of sustainable finance policies

Document release: tbd

Thematic review  
To manage C&E risks with an institution-wide approach covering business strategy, governance, risk appetite & risk management

Document release: 31 Dec 2023

### Securitisation Framework

Guidelines  
Monitoring report on capital treatment of NPE securitisation

Document release: tbd

## 2024 Q1

### Sustainable Finance

Delegated Regulation  
The EU Taxonomy Delegated Acts are expected to apply as of:

Application date: Jan 2024

## 2024 Q4

### Sustainable Finance

Thematic review  
To be aligned with supervisory expectations, including integration of C&E risks in stress testing framework and ICAAP

Application date: 31 Dec 2024

## 2025 Q1

### Sustainable Finance

Delegated Regulation  
The Commission to include crypto-asset mining in the economic activities that contribute to climate change mitigation

Application date: 1 Jan 2025



## ARTICLE

# EMIR REFIT Reporting

By *Alvin Mehmeti, Senior Consultant*

The revised reporting requirements for derivatives under EMIR as of April 2024 are outlined below.

A set of requirements known as European Market Infrastructure Regulation (EMIR) took effect on August 16, 2012, with the intention of enhancing the transparency and reducing the risks in the OTC derivatives markets. Any organization that is a counterparty to a derivative contract is subject to this regulation. Examples include but are not limited to: forward contracts for foreign exchange, interest rate swaps (IRS), other swaps, futures and options on securities and commodities, regardless of whether they are traded bilaterally or on trading exchanges, and regardless of the volume.

The EMIR has subsequently been several times amended to improve data quality and align EU legislation with IOSCO standards.

There are two categories of counterparties in EMIR:

- Financial Counterparties (FC), including banks, investment managers, insurance providers, and CSDs.
- Any entities that are neither central counterparties nor financial counterparties are referred to as non-financial. A further distinction for nonfinancial counterparties is based on whether their OTC positions above (NFC+) or below (NFC-) a designated clearing threshold.

In accordance with the EMIR framework, CCPs that have been authorized (for European CCPs) or recognized (for non-EU CCPs) must clear specific classes of OTC derivatives.

EMIR envisions two potential methods for determining the pertinent types of OTC derivatives:

- According to EMIR Article 5(2), the determination of the classes to be subject to the clearing duty will be made based on the classes that have previously been cleared by authorized or recognized CCPs. This method is known as the "bottom-up" approach.
- According to EMIR Article 5(3), with which ESMA will independently identify classes that ought to be subject to the clearing obligation but for which no CCP has yet been granted authorization. This method is outlined as "top-down" approach.

## WHAT ARE THE MAJOR CHANGES?

### ESMA guidelines and technical documentation

The EMIR will be enhanced by new technical standards that will be in effect as of April 29, 2024, as well as guidelines regarding the reporting of derivatives as required by Article 9 of EMIR that was made available on [ESMA's website](#).

These guidelines consist of:

1. The final report on the EMIR reporting guidelines.
2. The EMIR validation requirements that trade repositories must follow, as well as the templates for notifying NCAs of serious reporting errors.
3. The XML EMIR Report XSD schemas from Trade Repositories (incoming and outgoing)

### Technical Standards

The following documents, collectively referred to as the "Technical Standards," were published in the Official Journal of the European Union on October 7, 2022, and will be applicable as of April 29, 2024:

- RTS [2022/1855](#), which repeals RTS 148/2013 and specifies the minimum detailed requirements for data to be transmitted to trade repositories and the acceptable types of reports.
- ITS [2022/1860](#), repealing ITS 1247/2012 with regard to the requirements for reporting standards, formats, frequency, and arrangements.
- RTS [2022/1856](#), revising RTS 151/2013 on the process for obtaining derivatives' details as well as the operational and technological setup for that access.
- RTS [2022/1858](#), which outlines the procedures for data reconciliation between trade repositories and the steps that the trade repository must take to verify that the reporting counterparty or submitting entity complied with the reporting requirements and that the data reported was accurate and complete.

### How do these changes impact on the current rules?

To ensure consistency of the language and

format throughout the whole reporting chain, XML schemas will now be necessary for communication between reporting entities, trade repositories, and authorities. This corresponds to the SFTR reporting requirement. XML ISO 20022's end-to-end reporting is anticipated to significantly improve data quality and uniformity by decreasing the requirement for data cleansing and normalization and facilitating their use for both authorities and reporting entities. To comply with this new criterion, report-submitting entities that utilize formats other than ISO 20022 XML will need to redesign their reporting process.

In addition to the format changes, the report's content has also been altered. In particular, the global guidance created by CPMI-IOSCO on the definition, format, and usage of key OTC derivatives data elements reported to trade repositories, including the Unique Transaction Identifier (UTI), the Unique Product Identifier (UPI), and other crucial data elements, is what has led to most of the changes. The validation rules and the annexes to the RTS 2022/1855 and ITS 2022/1860 provide for:

- Changes in the format of the reports that must be submitted, which now include three tables with the third table focusing on reports related to collaterals, show how important it is to provide accurate and timely information on collateral exchanges between counterparties in order to reduce the risk associated with derivative contracts.
- A derivative must be recognized using ISO 23897 Unique Transaction Identification (UTI) when it is reported at the transactional level or the positional level, respectively. The LEI (Legal Entity Identifier) of the entity that generated the UTI must be included in the UTI, followed by a code of up to 32 characters that is exclusive to the level of the generating entity. Unique Trade Identifier is what UTI stands for. It designates a certain trade and is produced in accordance with guidelines offered by ESMA. This is necessary to guarantee that reported deals are correctly identified by both counterparties.
- Several additional data fields related to lifecycle events, i.e., fields "Event type" and "Event date" as well as enabling report linking with fields "Prior UTI" and "Subsequent position UTI".
- Changes to the values that must be disclosed in a number of data fields, such as

- "Collateralization category," in order to make the contents of the derivative contracts more understandable.

**Reporting of lifecycle events:**

To provide more detail about the sort of business

event that is triggering a particular report, ESMA included Event Type because the Action Type column by itself is insufficient to describe the business event. Here is how action types and event types are combined:

Action Type		Event Type										
		TRADE	STEP-IN	PTRR	EARLY TERMINATION	CLEARING	EXERCISE	ALLOCATION	CREDIT EVENT	INCLUSION IN POSITION	CORPORATE EVENT	UPDATE
NEW	T	T,P	T,P		T	T	T		P	T,P		
MODIFY	T,P	T,P	T,P	T,P		T,P	T	T,P	P	T,P	T,P	P
CORRECT												T,P
TERMINATE		T,P	T,P	T,P	T	T,P	T	T,P	T,P	T,P		
ERROR												T,P
REVIVE												T,P
VALUATION												T,P
MARGIN UPDATE												T,P
POSITION COMPONENT												T

Figure 1: ESMA Final Report, Guidelines for reporting under EMIR

Introduction of action type 'Revive', that can be used to reopen derivatives that have been accidentally terminated (with action type "Terminate"), cancelled (with action type "Error"), or have achieved their maturity date (but have been wrongly reported).

Moreover, if the action type "Position component"

was accidentally reported, "Revive" can be used after it. In this situation, the revived derivative will be regarded as outstanding at the trade level, subject to the expiration date. It would need to be reversed individually (by erroring or changing such position, respectively) if the counterparty reported a new position or a modification of a position.

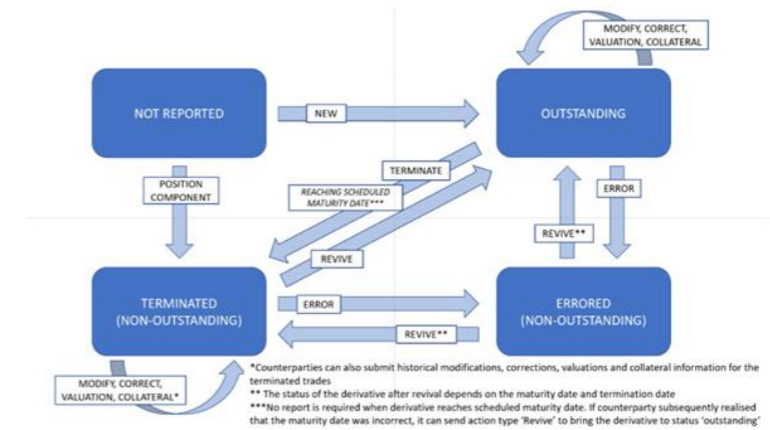


Figure 2- Source: ESMA Final Report, Guidelines for reporting under EMIR

**How should outstanding contracts that were submitted before April 29, 2024, be treated?**

Due to the considerable modifications made as well as the effort required to synchronize the IT infrastructure, the revised Technical Standards will be in force as of 29 April 2024. All reports that counterparties submit to trade repositories after that date must therefore adhere to the modified standards. This is applicable to any changes and terminations reported on existing derivatives after the new reporting start date, regardless of when the modified or terminated derivative was concluded. It also applies to reports on derivatives concluded after that date.

However, outstanding contracts that were submitted to the trade repositories before April 29, 2024, and which do not call for any modifications or termination reports, will be given an extended transition period of 180 calendar days. It's not necessary to update derivative contracts that mature during this transition period.

**Informing competent authorities in case of significant reporting issues**

In accordance with ITS 2022/1860's Article 9(1), enterprises in charge of reporting are now required to alert the appropriate authorities in the event of notable reporting problems. The rules specify the conditions under which a problem is regarded significant and is required to be reported to the NCAs.

Moreover, ESMA has made available a template

for NCAs that have chosen to use it for filing these notices part of the validation rules excel that is provided in ESMA's website.

All involved stakeholders are expected to make sure that they are prepared to:

1. Quickly Identify any reporting issues
2. Determine whether these reporting issues fall under the purview of Article 9(1) of ITS 2022/1860 and are in accordance with the guidelines
3. Promptly carry out the necessary notification

**Introduction of UPI**

The Unique Product Identifies (UPI) is a new field that will be in effect starting from 29 April 2024.

Several requirements, including uniqueness, persistence, consistency, neutrality, dependability, open source, scalability, accessibility, availability at a fair cost basis, and adequate governance framework, are met by the product identity (UPI) used in derivatives reporting.

The necessary jurisdictions must implement a global UPI for OTC data to be aggregated globally. ESMA is adhering to the IOSCO UPI technical guidance's guiding principles.

Moreover, ESMA continues to take the following stance: Any derivatives admitted to trading or transacted on a trading venue or a systematic internalizer will only need to be identified with an ISIN, while all other derivatives will need to be identified with a UPI only.



## CONCLUSION

At a first glance, EMIR Refit appears to be a full year away. Nonetheless, anecdotal data reveals that most of the institutions affected are not aware of the difficulties that lie ahead of them. In fact, they need to start getting ready right away by performing the necessary impact evaluations. As part of that preparation, a trade and transaction reporting solution is needed that is independent of jurisdictions, natively supports ISO 20022, and has capabilities for managing, resolving, and simulating UPI transactions. Institutions in charge of new trade-state, transaction activity, and reconciliation reports will also require a high level of expertise and specialized instruments to manage reconciliation. To comply with the Refit standards, they will also need to update their control frameworks.

For ESMA to fulfill its oversight duties and advance stability and transparency in the securities markets, high-quality data is a requirement. It therefore establishes quality and harmonization standards to guarantee the consistency, accuracy, and completeness of data utilized for regulatory purposes.

Finalyse's goal is to provide our customers with the opportunity to be EMIR compliant with the least amount of expense and effort while still utilizing our knowledge of reporting under European regulatory standards. We have a lot of previous experience assisting institutions with meeting reporting-related standards.

For more information about our services please visit [Finalyse Reporting Services](#).





## Supervision

### MiFID/MiFIR Parliament (Press Release)

#### Strengthening Market Data Transparency

The European Parliament and the Council has issued a press release stating that they had reached provisional agreement on changes to the EU's trading rules. The provisional agreement relates to the European Commission's legislative proposal for a review of the MiFIR and MiFID II which was published in November 2021. The provisional agreement establishes EU-level 'consolidated tapes' or centralised data feeds for different kinds of assets, bringing together market data provided by platforms on which financial instruments are traded in the EU.

Release date: 2023-06-29

[consilium.europa.eu](https://consilium.europa.eu)



### Supervision FSB (Consultation Paper)

#### Third-Party Risk Management and Oversight

The FSB has published a consultative document on enhancing third-party risk management and oversight: a toolkit for financial institutions and financial authorities. The toolkit has been developed against a backdrop of digitalisation of the financial services sector and growing reliance of financial institutions on third-party service providers for a range of services, some of which support their critical operations.

Release date: 2023-06-22  
Consultation End: 2023-08-22

[P220623](https://p220623)



### CSDR Council (Press Release)

#### CSDR Council and Parliament Reach Agreement

The Council of the EU announced that it has reached a provisional agreement with the European Parliament on proposed changes to the rules on CSDs. The amendments to the CSDR are intended to reduce the financial and regulatory burden on CSDs and improve their ability to operate across borders, while also strengthening financial stability.

Release date: 2023-06-27

[consilium.europa.eu](https://consilium.europa.eu)



### EMIR Council (Report)

#### Progress Report on EMIR Review

The Council of the EU has published a progress report on the EMIR review package. The progress report sets out the view of the presidency regarding the state of play of the work of the Council Working Party. It highlights the possible compromises it believes are within reach and it strives to illustrate the main positions and arguments of Member States in areas where further work is required.

Release date: 2023-06-21

[2022/0403 \(COD\)](https://2022/0403)



## Supervision

### DORA ESAs (Consultation Paper)

#### First Part of DORA RTS & ITS

The ESAs have launched a public consultation on a first batch of RTS and ITS under the DORA. This includes:

- Draft RTS on ICT risk management framework and RTS on simplified ICT risk management framework;
- Draft RTS on criteria for the classification of ICT-related incidents;
- Draft ITS to establish the templates for the register of information; and
- Draft RTS to specify the policy on ICT services performed by ICT third-party providers.

Release date: 2023-06-19

Consultation End: 2023-09-11

[esma.europa.eu](https://esma.europa.eu)



### EMIR ESAs (Letter)

#### Bilateral Margining Framework and Equity Options

The ESAs have published a letter to the Commission on the EMIR bilateral margining framework and equity options. In the letter the ESAs explain that in March 2016 they delivered on their mandate to develop draft RTS on the Bilateral Margin RTS. The Bilateral Margin RTS include a deferred date of application for non-centrally cleared OTC derivatives which are single-stock equity options or index options. This deferred date of application has been subsequently extended, together with an exemption for intragroup derivative contracts, and is currently set to expire on 4 January 2024.

Release date: 2023-06-13

[ESA 2023 11](https://ESA202311)



### Supervision Commission (Letter)

#### Review of the Eligible Assets Directive

The Commission has published a letter, formally requesting technical advice on the review of the Eligible Assets Directive. The letter sets forth that, the Commission mandates ESMA to carry out an assessment of the implementation of the Eligible Assets Directive in the Member States, to analyse whether any divergences have arisen in this area and to provide the Commission with a set of recommendations on how the Eligible Assets Directive should be revised to keep it in line with market developments.

Release date: 2023-06-16

[2023/5536037](https://2023/5536037)



### EMIR ESMA (Guidelines)

#### Temporary Restrictions in the Case of a Significant Non-Default Event

The ESMA has published guidelines specifying the circumstances for temporary restrictions in the case of a significant non-default event in accordance with the EMIR. Which mandates ESMA to draft guidelines further specifying the circumstances in which the NCA may require a CCP to refrain from undertaking any of the restricted actions referred to in EMIR, for a period specified by the NCA, that cannot exceed five years. However, the NCA shall not restrict a CCP from undertaking any of the restricted actions, if the CCP is legally obliged to undertake that action.

Release date: 2023-06-02

[ESMA91-372-1704](https://ESMA91-372-1704)



## Supervision

### CCPRRR

#### EBA (Guidelines)

*Circumstances Under Which a CCP is Deemed Failing or Likely to Fail*

The ESMA has published guidelines on the application of the circumstances under which a CCP is deemed to be failing or likely to fail. The circumstances under which a CCP is deemed to be failing or likely to fail is one of the three cumulative conditions set out in the CCPRRR for triggering a resolution action.

*Release date: 2023-06-01*

*Application Date: 2023-08-01*

[ESMA91-372-2070](#)



### Benchmarks Regulation

#### ESMA (RTS)

*Application for Authorisation and Registration Under the BMR*

The ESMA has published a final report on the review of the RTS on the information to be provided in an application for authorisation and registration under the BMR. The final report sets forth the background information on why ESMA sought to review the RTS, the feedback received to its earlier consultation last November and its final proposals for amending the technical standards. Based on the feedback received to the consultation paper ESMA has not amended its proposals and they remain identical to that consulted on.

*Release date: 2023-05-30*

[ESMA81-393-644](#)



## Supervision

### Commission (Press Release)

*EU Retail Investment Strategy Package*

The Commission has published its Retail Investment legislative package with the aim of empowering retail investors to take more informed investment decisions that would better correspond to their investment needs and objectives. The legislative package will amend a large number of legal texts in particular:

- MiFID II
- AIFMD
- UCITS Directive
- IDD
- Solvency II
- PRIIPs

*Release date: 2023-05-24*

[ip\\_23\\_2868](#)



## Supervision

### Supervision

#### FSB (Report)

*The Financial Stability Aspects of Commodities Markets*

"The FSB has published a report on the financial stability aspects of commodities markets. The report presents an overview of a few globally traded commodities markets that are of particular economic importance at the current juncture (crude oil, natural gas, and wheat) and examines their vulnerabilities, focussing on the mechanisms through which any further stresses in these markets could propagate more broadly through the financial system. The report also identifies a number of data gaps that hamper the assessment of vulnerabilities and transmission channels in the commodities sector.

*Release date: 2023-02-20*

[FSB/P200223](#)



### MICA Regulation

#### Council (Press Release)

*Council has Adopted MiCA*

The Council of the EU has issued a press release announcing that it had adopted the Regulation on markets in crypto-assets. The Council adopted its negotiating mandate on MiCA on 24 November 2021. Trilogues between the co-legislators started on 31 March 2022 and ended in a provisional agreement reached on 30 June 2022. The formal adoption of the Regulation on 16 May 2023 is the final step in the legislative process.

*Release date: 2023-05-16*

[consilium.europa.eu](#)



### Market Trends

#### IOSCO (Consultation Paper)

*Policy Recommendation for Crypto and Digital Asset Markets*

The IOSCO has published a consultation report containing 18 proposed recommendations intended to help IOSCO members apply IOSCO's Objectives and Principles for Securities Regulation. The proposed recommendations cover:

- Conflicts of interest arising from vertical integration of activities and functions
- Market manipulation, insider trading and fraud
- Cross-border risks and regulatory cooperation
- Custody and client asset protection
- Operational and technological risk
- Retail access, suitability, and distribution

*Release date: 2023-05-18*

*Consultation End: 2023-07-31*

[IOSCOPD734](#)



## Supervision

### Benchmarks Regulation ESMA (Technical Guide)

*EURIBOR Fallback Trigger Events and €STR-Based EURIBOR Fallback Rates*

The ESMA has published guidance produced by the Working Group on Euro Risk-Free Rates, for corporate lending products for implementing the recommendations on EURIBOR fallback trigger events and €STR-based EURIBOR fallback rates. The guidance is aligned with, and does not change, the May 2021 recommendations and has therefore not been subject to consultation. It highlights the key recommendations, including loan conventions, in respect of corporate lending products contained within the May 2021 recommendations.

Release date: 2023-05-05

[EUR\\_RFR\\_WG](#)



### Supervision ESMA (Letter)

*Q&As pursuant to the Founding Regulations of the ESAs*

The ESMA has published a letter from the European Commission on the Q&As pursuant to the founding Regulations of the ESAs. The aim of these Q&As is to help financial market participants apply the Regulation, especially in the context of the requirements of the regulatory technical standards in place since January 2023. These Q&As also contribute to clarifying the interaction between the SFDR and the different pieces of the sustainable finance framework.

Release date: 2023-04-14

[esma.europa.eu](#)



### EMIR Commission (RTS)

*Cleared Transactions Submitted by CCPs for Settlement*

The European Commission published Commission Delegated Regulation on amending the RTS as regards the penalty mechanism for settlement fails relating to cleared transactions submitted by CCPs for settlement.

Release date: 2023-04-19

[C\(2023\) 2484 final](#)



### Supervision IOSCO (Work Programme)

*IOSCO Board Priorities - Work Programme*

The Board of the IOSCO has published its 2023 – 2024 Work Programme. The proposed priority work streams in it are organised under the five themes:

- Strengthening financial resilience
- Supporting market effectiveness.
- Protecting investors.
- Addressing new risks in sustainability and fin-tech.
- Promoting regulatory cooperation and effectiveness.

Release date: 2023-04-05

[IOSCOPD731](#)



## Market Environment

### DORA ESAS (Discussion Paper)

*DORA Criticality Criteria*

The ESAs have published a joint Discussion Paper on criteria for critical ICT third-party service providers and oversight fees. This Discussion Paper was published in light of the mandate given to them under the DORA which sets out four high-level criteria that the ESAs will use for the purpose of designating critical ICT third-party service providers. The Commission invites the ESAs to specify the designation criteria for critical ICT third-party service providers, including to provide sets of qualitative and quantitative indicators for each of the four criteria, which, if applicable should be accompanied by minimum thresholds triggering such indicators.

Release date: 2023-05-26

Consultation End: 2023-06-23

[JC SC DOR-23-54](#)



### Market Trends ESMA (Report)

*2022 CSA on Valuation*

The ESMA has published a final report on the 2022 Common Supervisory Action on valuation. The appropriateness of valuation policies and procedures; Valuation under stressed market conditions; independence of the valuation function and use of third-party valuers; Early detection mechanisms for valuation errors and transparency to investors; Early detection mechanisms for valuation errors and transparency to investors.

Release date: 2023-05-24

[ESMA34-45-1802](#)



### Market Trends ESRB (Report)

*Crypto Assets and Decentralised Finance*

The ERSB has issued a report which considers the role of financial stability and macroprudential policy for cryptoassets, their service providers and decentralised finance applications. The report also covers the systemic implications of the cryptoasset market, its service providers and DeFi applications in the EU. The report concludes that while the past year has been turbulent for cryptoassets and DeFi, systemic implications have not materialised. The evidence so far shows that the cryptoasset world has few links with, and provides few services to, the traditional financial sector and the real economy.

Release date: 2023-05-25

[c74fa66621](#)



## Market Environment

### Market Trends BIS (Report)

*Margin Dynamics in Centrally Cleared Commodities Markets in 2022*

The BCBS, the CPMI and IOSCO have published a joint report on margin dynamics in centrally cleared commodities markets in 2022. The report looks at the dynamics of CCPs' margin models, the use of discretion and its effect on margin procyclicality, and the other ways in which CCPs adapted their risk management during this period. It also investigates market participants' preparedness to meet margin calls during these stress events based on the level of transparency and predictability of these margin practices.

Release date: 2023-05-24

[publ/d550](#)



### EMIR ESMA (Press Release)

*Four new Third Country CCPs Recognised by ESMA*

The ESMA has announced that it had recognised four new third country CCPs, under the EMIR, bringing the total number of TC-CCPs recognised by ESMA to 39. The newly recognised TC-CCPs are:

- Bursa Malaysia Derivatives Clearing Berhad (Malaysia)
- Taiwan Futures Exchange Corporation (Taiwan)
- Camara de Riesgo Central de Cotraparte de Colombia S.A. (Colombia)
- Tel-Aviv Stock Exchange Clearing House Ltd (Israel)

Release date: 2023-05-02

[esma.europa.eu](#)



### Benchmarks Regulation ICMA (Recommendation)

*Updated Version of the SFTR Reporting Recommendations*

The International Capital Market Association (ICMA) published the ninth update to its recommendations for reporting under SFTR. These ICMA recommendations for reporting under the SFTR have been created to support ICMA members in their efforts to implement and apply the complex SFTR reporting requirements. They offer help to interpret the regulatory reporting framework specified by the ESMA and the FCA, and set out best practice recommendations to provide additional clarity and address ambiguities in the official guidance.

Release date: 2023-04-06

[icmagroup.org](#)



## Market Environment

### Market Trends ESAs (Report)

*Risks and Vulnerabilities in the EU Financial System*

The ESAs have issued their Spring 2023 Joint Committee Report on risks and vulnerabilities in the EU financial system. While noting that EU financial markets remained broadly stable despite the challenging macro environment and recent market pressure in the banking sector, the three Authorities are calling on national supervisors, financial institutions and market participants to remain vigilant in the face of mounting risks.

Release date: 2023-04-25

[JC 2023 07](#)



### Market Trends ESMA (Report)

*Quality and use of Transaction Data*

The ESMA has published the 2022 report on quality and use of transaction data. The report highlights the increased use of transaction data by EU financial regulatory authorities in their day-to-day supervision and identifies significant quality improvements following a new approach to data monitoring. In addition, it sets out how ESMA, together with the NCAs, the ECB and the ESRB, has incorporated key insights from its data monitoring in several internal work streams.

Release date: 2023-04-19

[ESMA74-427-719](#)



### SFTR Council (Press Release)

*Council has Adopted MiCA*

The Council of the EU has issued a press release announcing that it had adopted the Regulation on markets in crypto-assets. The Council adopted its negotiating mandate on MiCA on 24 November 2021. Trilogues between the co-legislators started on 31 March 2022 and ended in a provisional agreement reached on 30 June 2022. The formal adoption of the Regulation on 16 May 2023 is the final step in the legislative process.

Release date: 2023-05-16

[icmagroup.org](#)



## Climate Risk

### IFRS ISSB (Standards)

*Global Sustainability Disclosure Standards*

The ISSB has published its inaugural standards. The standards fully incorporate the recommendations of the TCFD and are designed to ensure that companies provide sustainability-related information alongside financial statements. These are: IFRS S1 3 - disclosure requirements on the sustainability-related risks and opportunities they face over the short, medium and long term. IFRS S2 which sets out specific climate-related disclosures and is designated to be used with IFRS S1.

*Release date: 2023-06-26*

[ifrs.org](https://www.ifrs.org)



### Climate Risk Commission (Press Release)

*Sustainable Finance Package*

The Commission has published a sustainable finance package. The package contains measures to build on and strengthen the foundations of the EU sustainable finance framework. The aim of the package is to ensure that the EU sustainable finance framework continues to support companies and the financial sector, while encouraging the private funding of transition projects and technologies. Specifically, the Commission is adding additional activities to the EU Taxonomy and proposing new rules for ESG rating providers, which will increase transparency on the market for sustainable investments.

*Release date: 2023-06-13*

[ip\\_23\\_3192](https://ip.23.3192)



### SFTR ESMA (Q&As)

*Q&As on SFTR Data Reporting*

The ESMA has published updated Q&As on the Securities Financing Transactions Regulation data reporting. ESMA has now added a Q&A on 'Reporting of SFTs concluded by IORPs and pension funds'.

*Release date: 2023-06-07*

[ESMA74-362-893](https://www.esma.europa.eu/press-rel/2023/362-893)



### Climate Risk ESAs (Report)

*Advice on Greenwashing*

The ESAs have published their Progress Reports on Greenwashing in the financial sector. In these reports, the ESAs put forward a common high-level understanding of greenwashing applicable to market participants across their respective remits – banking, insurance and pensions and financial markets.

*Release date: 2023-06-01*

[EIOPA-BoS-23/157](https://www.eiopa.europa.eu/press-rel/2023/157)



## Climate Risk

### Climate Risk ESAs (Report)

*Progress Report on Greenwashing*

The ESAs have published their progress reports on greenwashing in the financial sector. In these reports, the ESAs put forward a common high-level understanding of greenwashing applicable to market participants across their respective remits – banking, insurance and pensions, and financial markets. The ESMA report sets out:

- Risk areas;
- The causes of greenwashing; and
- Preliminary remediation actions.

*Release date: 2023-05-31*

[ESMA30-1668416927-2498](https://www.esma.europa.eu/press-rel/2023/1668416927-2498)



### Market Trends FSB (Report)

*Climate-related Financial Risk Factors in Compensation Frameworks*

The FSB has published a report on climate-related financial risk factors in compensation frameworks. The impact of climate change on the financial system is becoming a strategic priority for financial institutions and regulators. In turn, financial institutions are increasingly adopting climate-related metrics in compensation frameworks and many jurisdictions have incorporated or plan to incorporate rules or guidance in regulatory and supervisory frameworks.

*Release date: 2023-04-21*

[P204023](https://www.fsb.europa.eu/press-rel/2023/204023)



### Climate Risk NGFS (Report)

*Stock-Take on Transition Plans*

The NGFS has published a report taking stock on financial institutions' transition plans and their relevance to micro-prudential authorities. Building on the conclusions of the previous NGFS report on 'capturing risk differentials from climate-related risks' which emphasised the importance of a forward-looking approach to assess climate-related risks, the NGFS took stock of the available frameworks and literature on transition plans from external bodies and an analysis on the current state of play in the regulatory landscape as it relates to transition plans among NGFS members.

*Release date: 2023-05-31*

[ngfs.net](https://www.ngfs.net)



### Taxonomy Regulation Commission (Consultation Paper)

*New set of EU Taxonomy Criteria*

The European Commission has issued a call for feedback on a proposed Delegated Regulation containing a new set of EU Taxonomy criteria for economic activities making a substantial contribution to one or more of the following environmental objectives: sustainable use and protection of water and marine resources, transition to a circular economy, pollution prevention and control and protection and restoration of biodiversity and ecosystems.

*Release date: 2023-04-05*

*Consultation End: 2023-05-03*

[ec.europa.eu](https://ec.europa.eu)



## Reporting & Disclosure

### Supervision

#### EBA/EIOPA (Press Release)

##### *Data Point Modelling Standard 2.0*

The EBA and EIOPA have published Data Point Modelling Standard 2.0 to foster collaboration and harmonisation in the field of supervisory reporting. The DPM Standard 2.0 issued today enhances the methodology that is at the core of the EBA and EIOPA's reporting process, creating a fully consistent approach for modelling reporting requirements. The new DPM supports the whole reporting life-cycle, from data definition to data exploration, and aims to reap the benefits of stronger collaboration and higher harmonisation while also improving the digital processing of regulatory data required by the authorities.

Release date: 2023-06-13

[eiopa.europa.eu](https://eiopa.europa.eu)



### MiFIR

#### ESMA (Press Release)

##### *Annual Transparency Calculation for Non-Equity Instruments, Bond Liquidity Data and Quarterly SI Calculations*

The ESMA has published the results of its annual transparency calculation for non-equity instruments, the quarterly liquidity assessment of bonds and the quarterly systemic internaliser calculations under MiFID II and MiFIR. The results for the liquid and illiquid sub-classes will be published in XML format from 29 April 2023. The transparency requirements based on the results of the annual transparency calculations for non-equity instruments apply from 1 June 2023 until 31 May 2024.

Release date: 2023-05-02

[esma.europa.eu](https://esma.europa.eu)



### EMIR

#### ECB (Opinion)

##### *Excessive Exposures to Third-Country Central Counterparties*

The ECB has published an opinion in response to the European Commission's proposal for a regulation amending EMIR, CRR and MMF regulation as regards excessive exposures to third-country CCPs and improve the efficiency of Union clearing markets, along with a proposal for a directive as regards the treatment of concentration risk to CCPs and the counterparty risk on centrally cleared derivative transactions. In its opinion, the ECB sets out general and specific observations on the proposal. This includes that the ECB supports the package proposed by the Commission.

Release date: 2023-04-27

[CON/2023/11](https://con/2023/11)



### SFDR

#### ESAs (Consultation Paper)

##### *Sustainability Disclosures Under SFDR*

The ESAs have published a joint Consultation Paper setting out proposed amendments to the disclosure framework under the SFDR. The ESAs are proposing changes to the SFDR Delegated Regulation, aimed at addressing issues that have emerged since the introduction of the SFDR. Further technical revisions to the SFDR Delegated Regulation are also proposed.

Release date: 2023-04-12

Consultation End: 2023-07-04

[JC 2023 09](https://jcr/2023/09)



## Risk Management

### CCPRRR

#### ESMA (Guidelines)

##### *Guidelines on CCPRRR*

The ESMA has published two final reports containing guidelines on the Regulation on a framework for the recovery and resolution of central counterparties. The final reports follow the publication of Commission Delegated Regulations on the content of resolution plans and on resolution colleges. The guidelines cover the: Written arrangements and procedures for the functioning of resolution colleges; and Summary of resolution plans.

Release date: 2023-06-23

[esma.europa.eu](https://esma.europa.eu)



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