MOODY'S ANALYTICS | SUMMIT 2023

Credit Portfolio Management & Balance Sheet

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Agenda

1. Capital management – Basel IV intro and implications for the South Africa
2. Liquidity Management – CPM & ALM Integration, Funding Concentrations & HQLA
3. Credit Portfolio management - Portfolio strategy , Scenario Analysis
4. Guardians of the balance sheet – Limits and Pricing

Greater integration of CPM

Changing Market Conditions

Organisations lack internal capability to gather portfolio risk dimensions to gain insight on “what do we need to worry about?”

Rising Asset Risk

More Elevated Cost of risk, Loan loss provision and growing operating expenses deteriorating with further uncertainty ahead

Technology wave

CEO/CTO priorities - Cost of ownership reduction and integration of platforms by cloud migration due to increasing gap between leader and laggards

Strategic Planning

Financial organizations are required to implement strategies in order to project their level of risk and capital requirements under a “rapid” business scenario analysis approach.

Capital & Liquidity Constraints

Tighter regulations ahead drive need to restructure balance sheet to achieve target ratios, capital efficiency and drive profits

1

Basel IV implication for South Africa

Final Basel 3 (aka Basel IV): key changes and opportunities

Key Changes

New Data Requirements

Introduction of output floor

Review of capital allocation

Disclosure requirements expanding to ESG/ Climate

Impact

Changes in the regulatory calculations introduce **new data requirements**, namely:
External ratings for corporate, bank exposures;
Turnover for corporates (large/mid-sized/ SMEs);
current LTV for Real Estate; and granular **collateral/guarantee data** for exposures previously computed under IRB.
SEC – ERBA requiring external credit ratings

Opportunities

Incentive for Financial Organizations to work closely with ratings agency to cover previously unrated firms with **credit ratings**.

Final Basel 3 (aka Basel IV): key changes and opportunities

Key Changes

New Data Requirements

Introduction of output floor

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Disclosure requirements expanding to ESG/ Climate

Impact

The output floor requires IRB banks to **run Standardized & IRB calculations in parallel**

Demands significant computational resources. Banks' desire to optimize RWA will likely entail **additional computational needs** to simulate the impacts and potential trade-off decisions within their portfolios.

Opportunities

Opportunities for **comparability of capital requirements across Banks.**

Acceleration of **Digital Transformation** with a focus on **computation** in a cost-efficient manner

Final Basel 3 (aka Basel IV): key changes and opportunities

Key Changes

New Data Requirements

Introduction of output floor

Review of capital allocation

Disclosure requirements expanding to ESG/ Climate

Impact

The new capital requirements will likely lead to a **review of banks' capital allocations in search of capital efficiency,** and decisions to exit or consolidate certain businesses.

These decisions will have **important impacts** across their activities, from **origination** to **portfolio and balance sheet management**.

The interdependencies of these functions will need to be considered and their **effects on revenue and profitability.**

Opportunities

A revived interest in risk/return aware capital measures including forms of **internal capital.**

Need for Interconnected solutions to help banks leverage analytics and data to bridge needs in lending, risk, and finance to understand potential business changes.

Final Basel 3 (aka Basel IV): key changes and opportunities

Key Changes	Impact	Opportunities
New Data Requirements Introduction of output floor Review of capital allocation **Disclosure requirements expanding to ESG/ Climate**	Banks will be subject to **increased regulatory reporting requirements** as they will have to disclose their RWA under both the standardized and IRB approaches. Additionally, increasingly more jurisdictions are defining **ESG and Climate reporting and disclosure requirements** (EBA Pillar 2 forecasting, Pillar 3 disclosures, ESG taxonomy; Climate & ESG disclosures across many countries) which will need to be embedded within banks' reporting frameworks.	**New ESG/Climate data** and analytics to calculate and report on disclosures. Changes in regulatory reporting create opportunities for banks to change regulatory calculation and **reporting solutions**.

Are we back to where we started ?

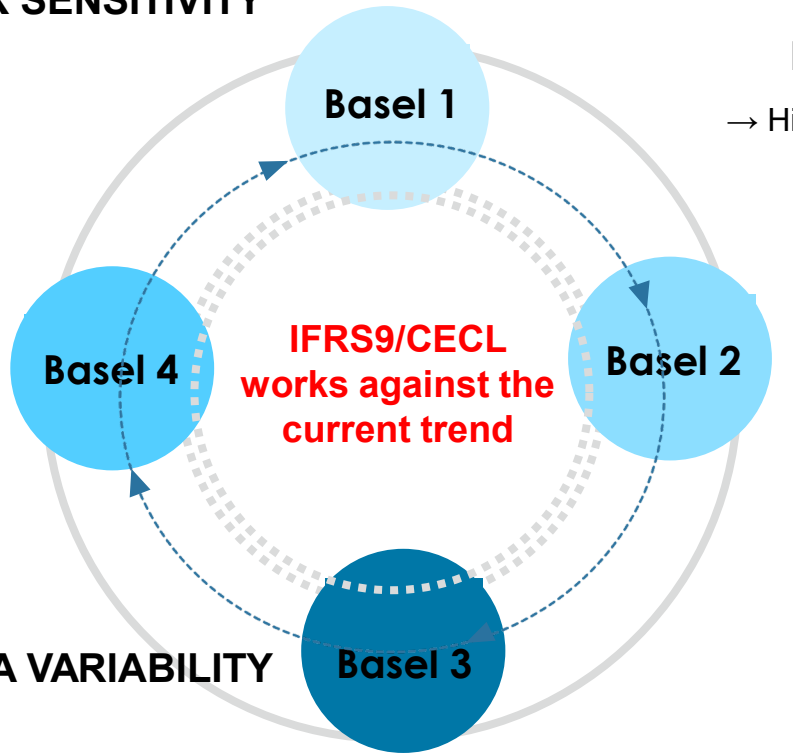
1 **Capital Management**
Practices to be revised due to consumption and re-allocation of capital

2 **Portfolio Composition**
Disproportionate capital impact for assets with lower underlying risk. Challenge in portfolio composition

3 **Product Structure**
Finding the right balance between output floor response and risk reduction focus under IRB approaches that remain in place

4 **Operations**
Additional impacts across institutions relying on local subsidiaries - Optimizing the legal entities structure remains a challenge

REDUCED RISK SENSITIVITY



REDUCED RWA VARIABILITY

RISK SENSITIVITY

→ Higher Risk → Higher Capital

CAPITAL EFFICIENY

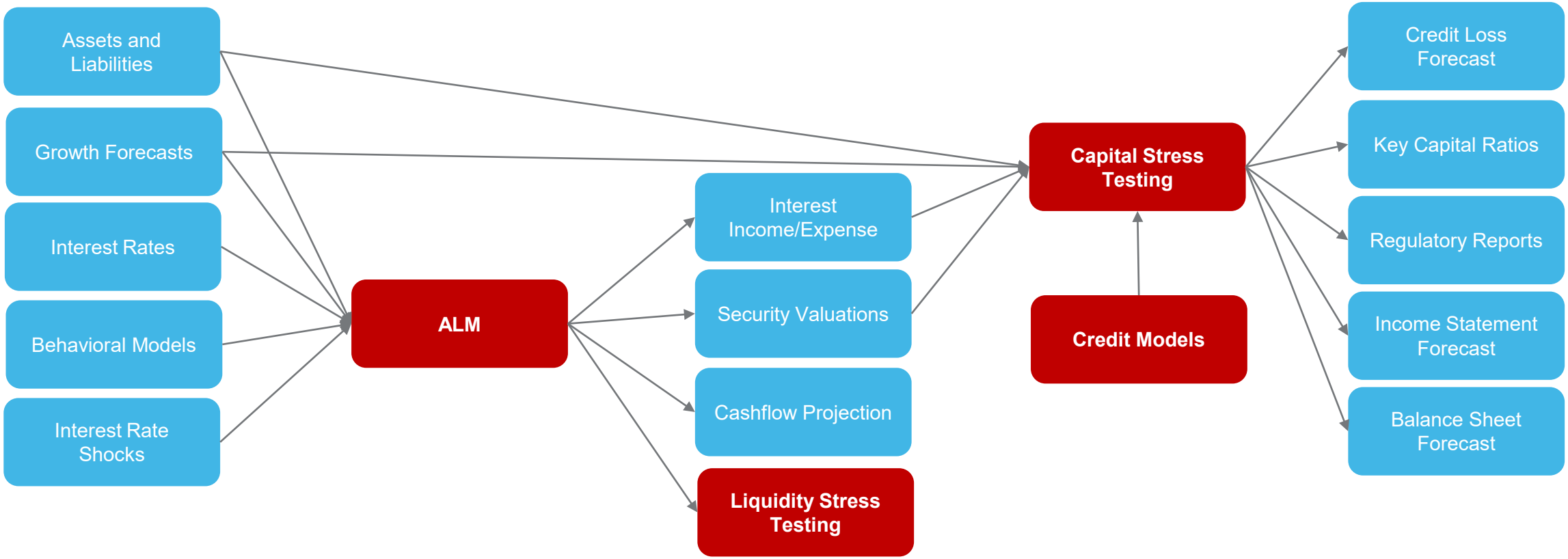
1. Increased Risk Capture (e.g. CVA, AVC)
2. Quality & Quantity of Capital

2

Liquidity Management, addressing concentrations, buffers and High-quality liquid assets

Back to the Future

- While Regulatory capital remains the top binding constraint, **Liquidity ratios** are becoming also more binding reflecting the challenging period as well as significant **liquidity requirements met by organizations throughout the pandemic**.
- **Limit settings** based on distressed conditions are critical to set Risk Appetite for liquidity positions.
- Recent US and European market events now require further **interconnection between Credit models, ALM and Capital stress testing**



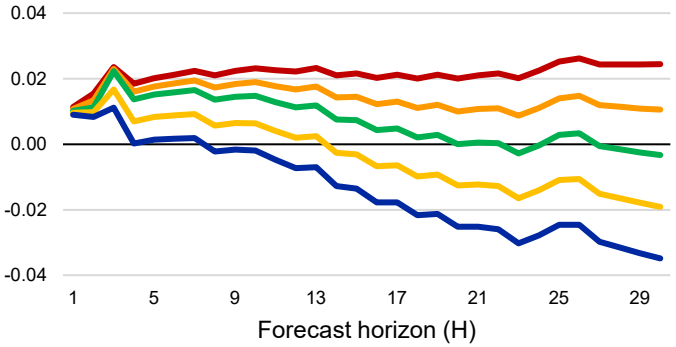
The Liquidity facets

Linking CPM and ALM under stress

CREDIT PORTFOLIO MODEL
SCENARIO ANALYSIS

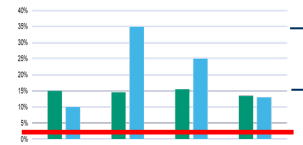
Generated Credit Monte Carlo Paths

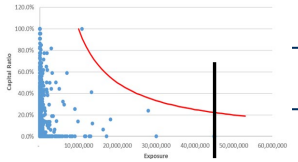
Credit Portfolio Simulated Monte Carlo Trials Values & Losses



Instrument Level Outputs

Asset Return
Credit Risk metric



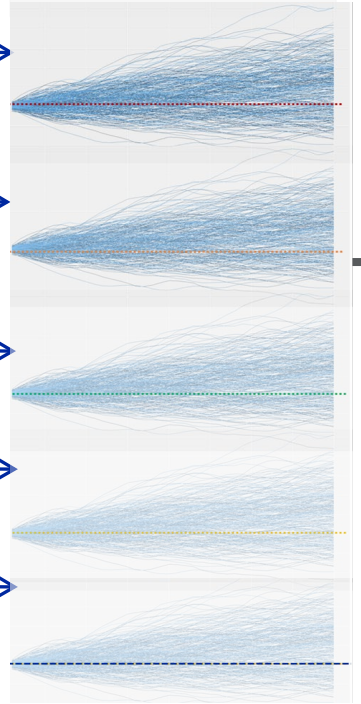


Limits

Name Risk Based Limits

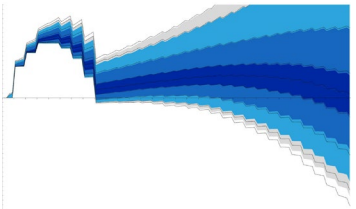
ALM MODEL

Cash Flows Generation Under distressed conditions

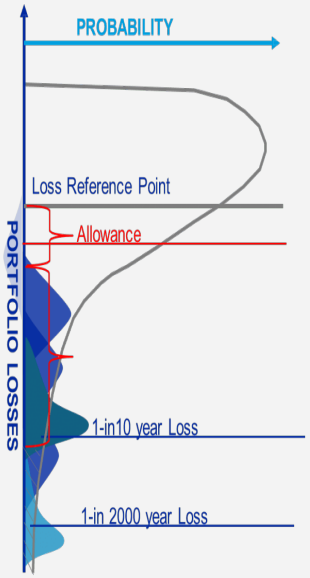


Survival Horizon HQLA/Reserve and Cash flows gaps

Stressed Cash Balance



CAPITAL & EARNINGS

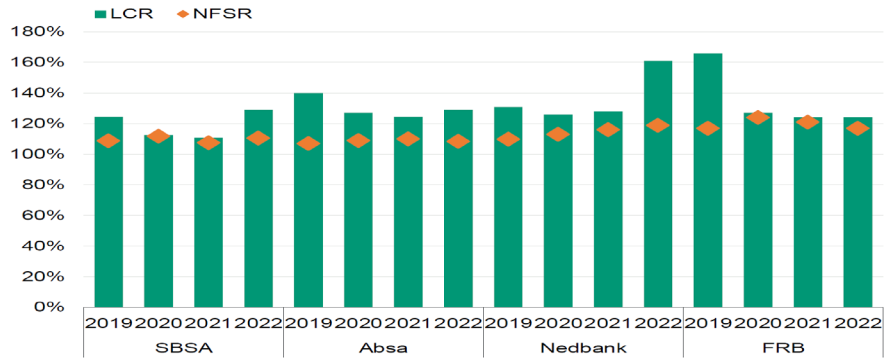


South Africa Funding and Liquidity Structures

- Stable Funding and Liquidity Structures, although a dependence on wholesale funding which remains a structural issue

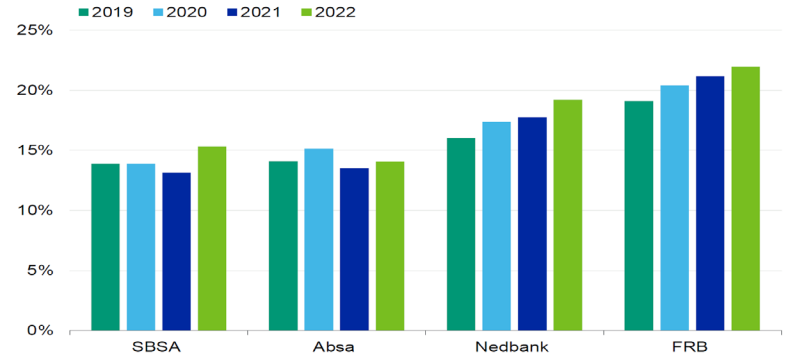
- Reliance on wholesale funding is a structural risk for the banks as these types of deposits are more confidence sensitive and more concentrated than retail deposits.

Funding and liquidity remains broadly stable



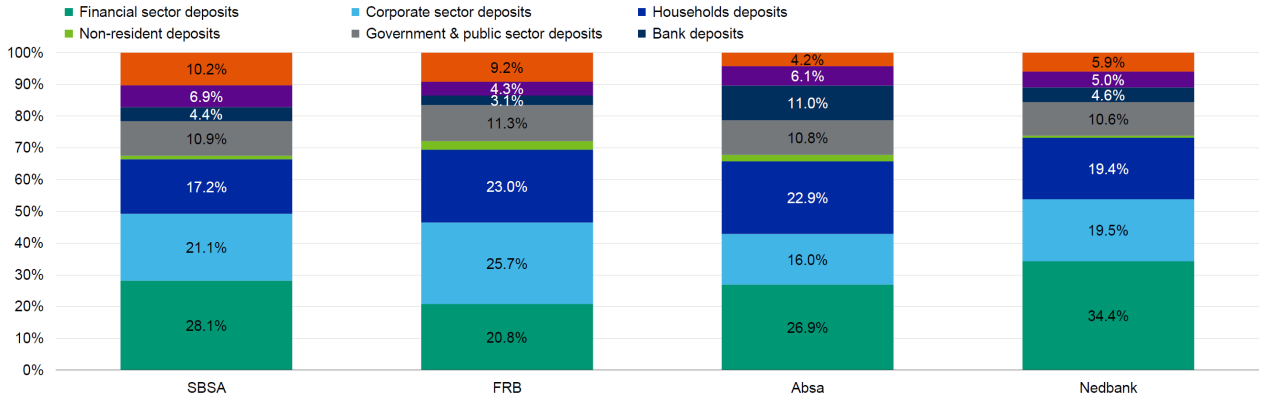
Sources: Banks' financial statements and Moody's Investors Service

South African banks liquidity buffers are adequate
HQLAs/total assets



Sources: Banks' financial statements and Moody's Investors Service

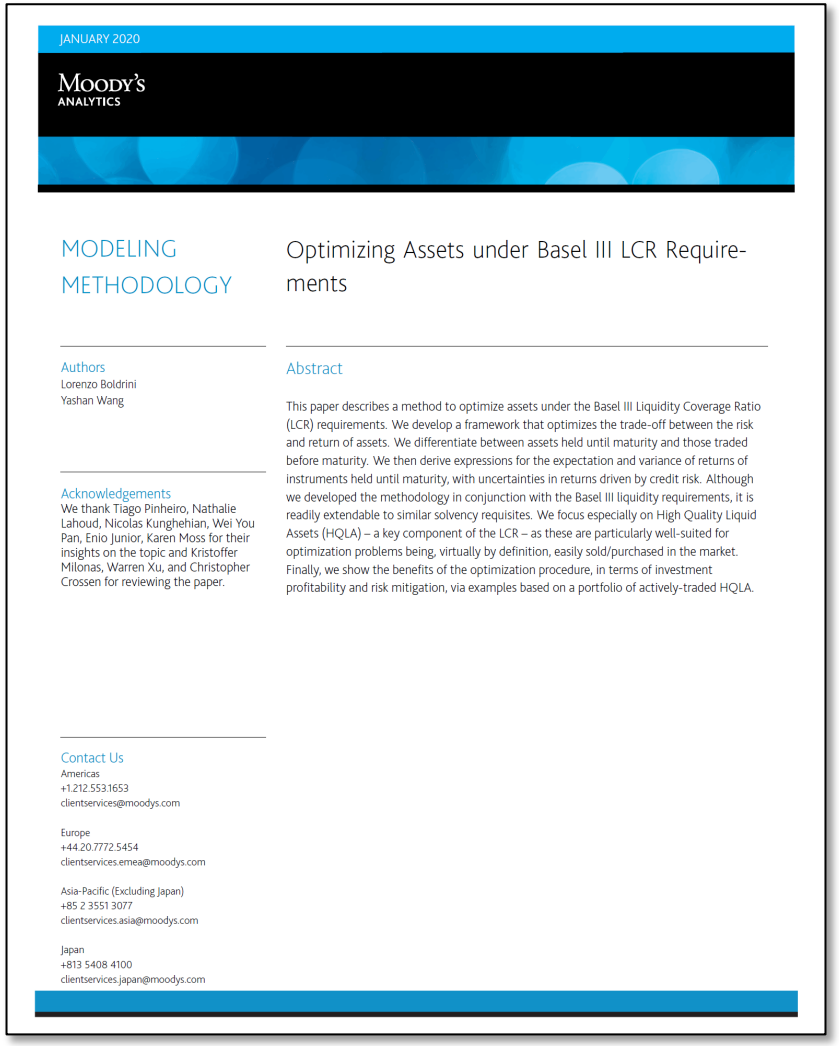
South African banks funding profile as of December 2022
% of total funding



Sources: South African Reserve Bank (BA900) and Moody's Investors Service

HQLA Optimization

- The two liquidity ratios mean a stronger integration between credit and liquidity risk management, reflecting the **interdependency between credit and liquidity metrics**. Additionally, their calculation requires credit and liquidity risk information.
- As a consequence, institutions must analyze their cash flow, credit, and other supplementary data **under stressed scenarios to facilitate the calculation and ratios parameters.**
- Banks must also perform **an optimization analysis of the high-quality liquid assets (HQLA)** that can be included in the liquidity ratios calculations and the cost of the carry/transferability of those assets. This is known as the HQLA optimization process.



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MOODY'S ANALYTICS

MODELING METHODOLOGY

Optimizing Assets under Basel III LCR Requirements

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Abstract

This paper describes a method to optimize assets under the Basel III Liquidity Coverage Ratio (LCR) requirements. We develop a framework that optimizes the trade-off between the risk and return of assets. We differentiate between assets held until maturity and those traded before maturity. We then derive expressions for the expectation and variance of returns of instruments held until maturity, with uncertainties in returns driven by credit risk. Although we developed the methodology in conjunction with the Basel III liquidity requirements, it is readily extendable to similar solvency requisites. We focus especially on High Quality Liquid Assets (HQLA) – a key component of the LCR – as these are particularly well-suited for optimization problems being, virtually by definition, easily sold/purchased in the market. Finally, we show the benefits of the optimization procedure, in terms of investment profitability and risk mitigation, via examples based on a portfolio of actively-traded HQLA.

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Credit Portfolio Management – Strategy and Scenario Analysis

Back to future

If you could go back in time, what would you do differently?

Data and platform capabilities allow greater consistency and collaboration

IFRS9 models have evolved financial reporting modelling to be forward looking

COVID uncovered staleness in rating and PD model reviews

Basel Regulation

Capital allocation from top of the house equity / capital supply by risk sensitive measure or incorporate bottom-up normative perspectives

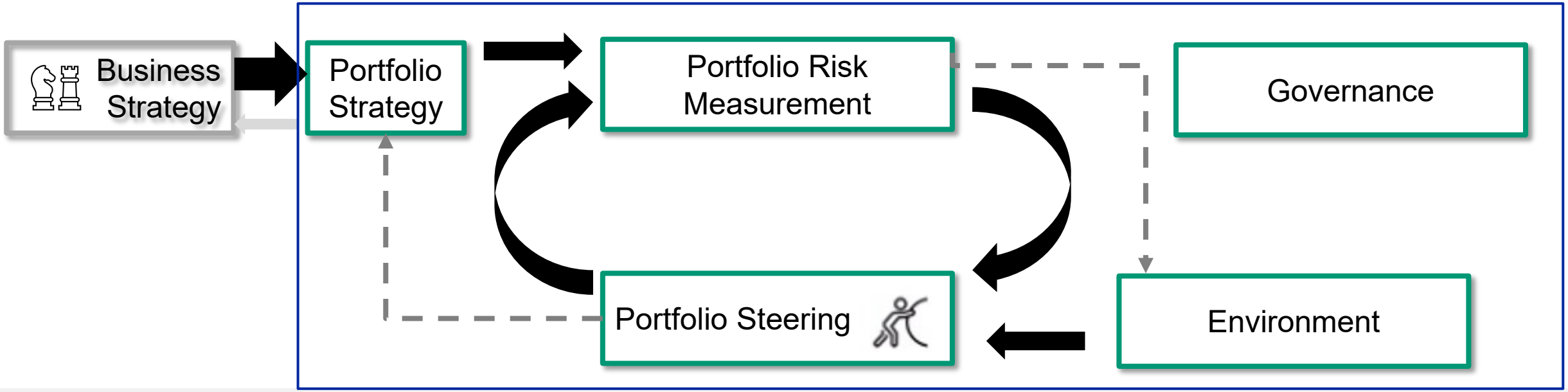
Price on Normative alone , blend or Economic only

Incorporate provision staging dynamics

Scenario analysis , inform risk allocation for business generation granularity

Strategic Portfolio Management

Portfolio Management is a Pro-business initiative



- Business sectors
- Risk appetite
- Limit setting
- Growth targets areas

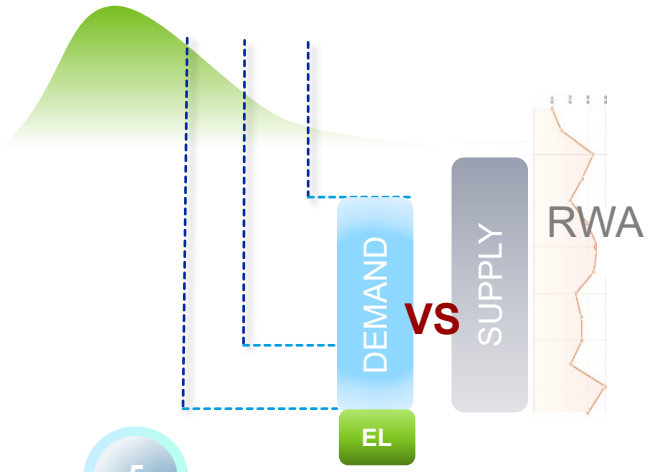
- Risk measures
- Concentration analysis
- What-ifs and optimization

- Scenario based planning
- Climate scenarios
- New emerging risk (Cyber , Liquidity etc.)

Assessing and Shaping a collection of assets as an aggregate to align it with objectives

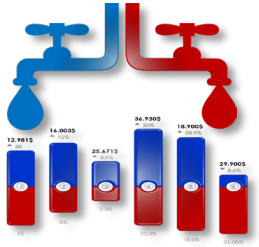
Portfolio Risk Measurements

1 Capital at Risk



5 Capital Supply

2 Provisions volatility

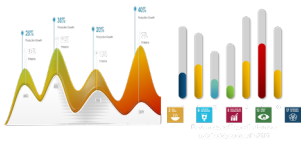


6 Liquidity Risk

3 Integrated Market Risk & Credit risk

7 Stress Testing

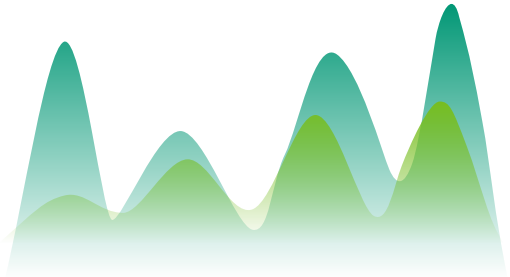
4 Climate & ESG Portfolio Assessment & Forecasting



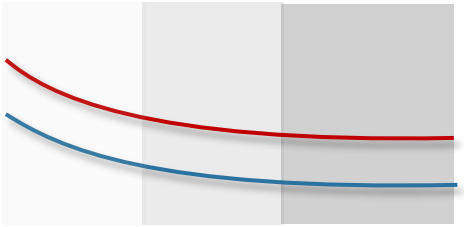
Economic

8 ESG and Climate

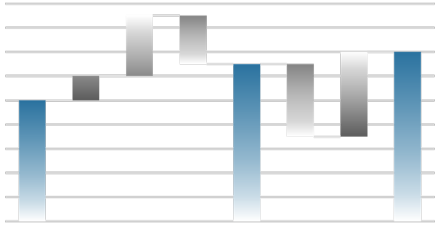
Normative



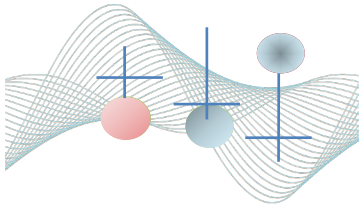
9 Risk and Capital Planning



10 Limit Setting



11 Pricing

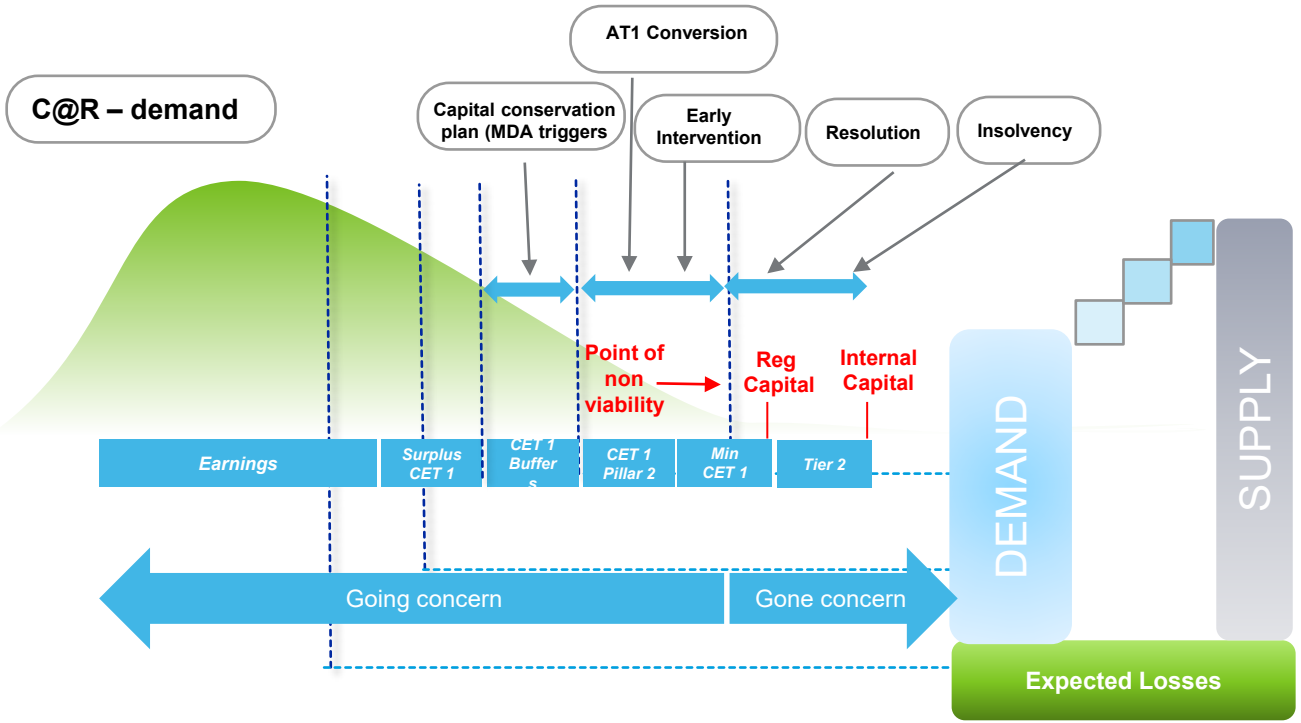


12 Portfolio Optimization

Business

Consistent view of Capital

Capital at risk organized into trigger that align with oversight

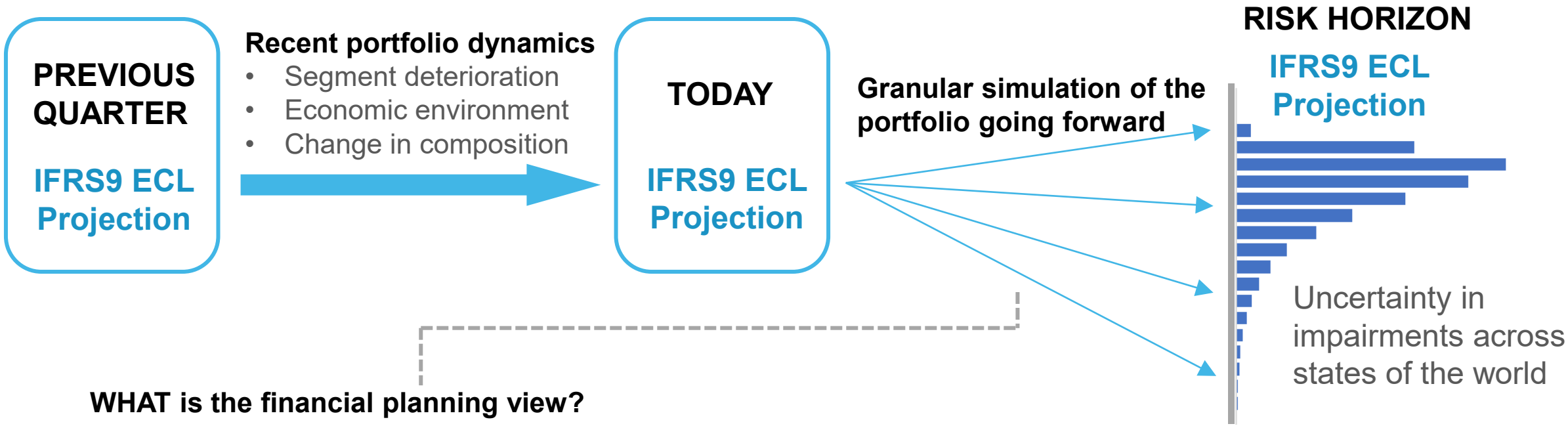


Alignment of both capitals is going to be distorted under Basel 4. Allocation of Capital and provision constrains to segment levels empower business functions to manage and understand their portfolio risks and associated risk appetite.

Analysing risk against internal capital and regulatory capital view and provisions contributors leads to more comprehensive analysis.

- » **Universal view** across organisation
- » Capital calculation under various lenses – **Capital Stacks** concept.
- » Multiple capital **what-if simulations** under IRB, Standardized, Economic capital.
- » Inclusion of Leverage Ratios, Liquidity Buffers, CET 1 buffers as constraints in portfolio steering

Portfolio effect on Provisions



WHAT is the financial planning view?

- Simulating **possible impairment P&L going forward**, while accounting for portfolio composition—names, mortgage pools, industries & sectors, geographical areas.

WHY bring the financial planning view into the portfolio analysis?

- Better **interpretability** of the portfolio analysis through metrics relevant to a financial institution's planning.
- Understanding **risk & concentration** at the name, country, industry level. Borrowers in related industries are more likely to deteriorate in credit quality at the same time, raising the likelihood of high impairments in the future.
- Steering the portfolio based on **profitability** measures that incorporate the institution's financial planning view.

Environment scanning – Scenario analysis

Risk, Stress Testing, Portfolio Actions

Analyze your portfolio under multiple periods

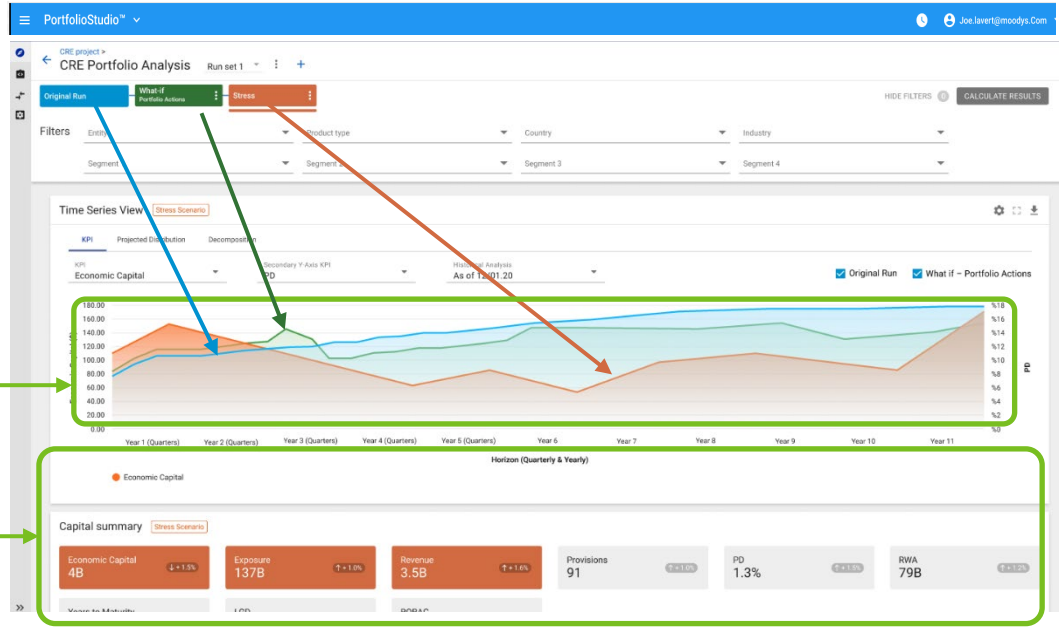
Predict ahead and account for upcoming risks:

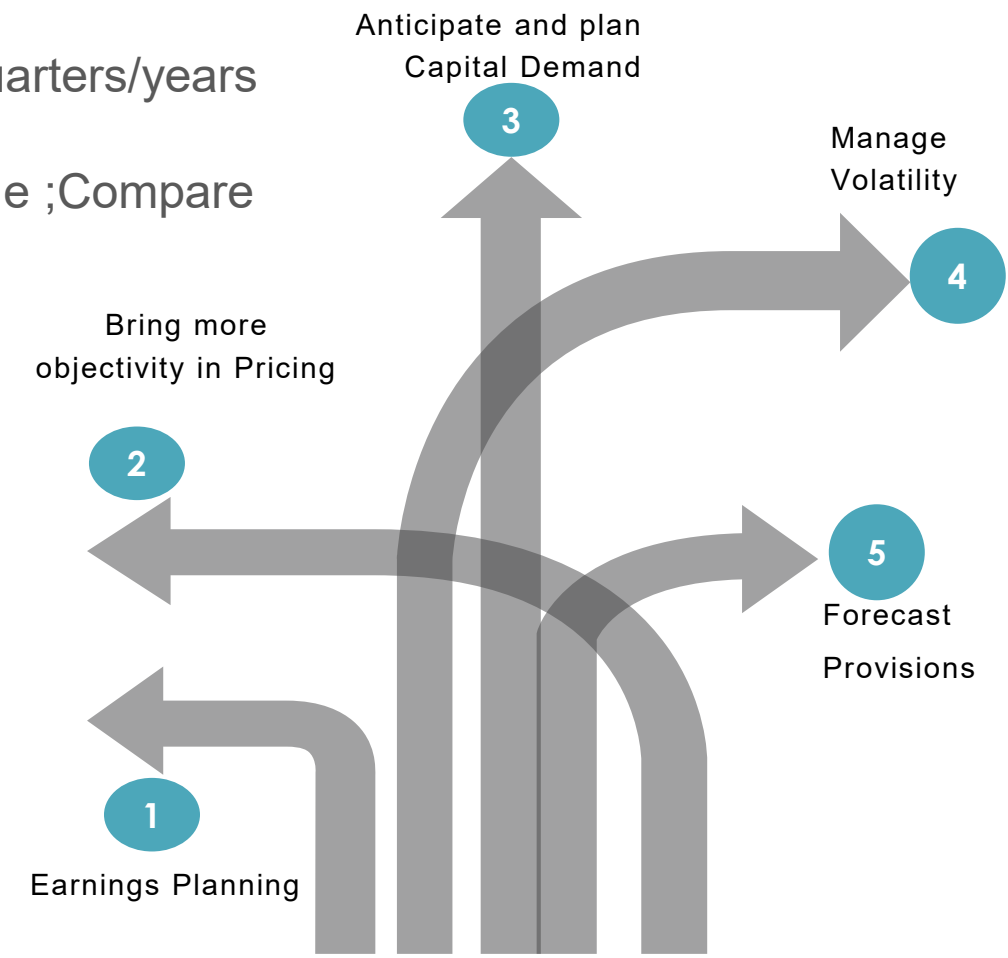
- » Breakdown effects of stresses and portfolio actions over a set of quarters/years in one go
- » Forecast segments that are set to outperform: Compare side by side ;Compare between years

Examination of actions and stresses

Multi Period

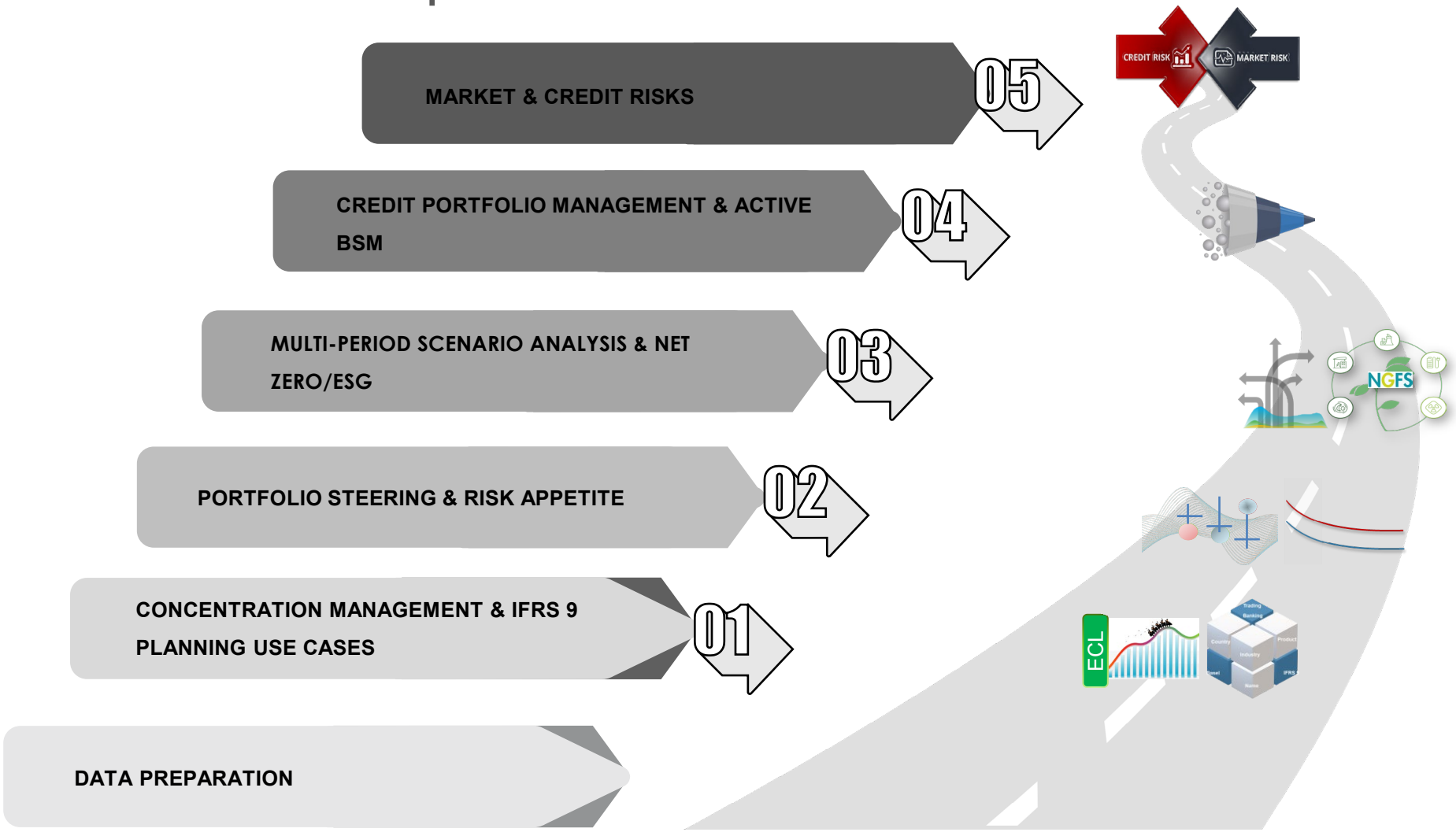
List of KPIs and changes





Use Cases Roadmap

Phased Roadmap



Credit Portfolio Management 2.0

STRATEGIC DECISION ENABLING SOLUTION

Combine ***portfolio analytics*** and decision-enabling tools to provide a ***consistent view of risk, across economic, accounting and regulatory views.***

BUSINESS GROWTH CAPACITY SIMPLIFIED COMMUNICATION

Communicate ***business growth capacity and pricing strategy*** to internal teams by ***setting limits*** and targets that reflect risk appetite and business constraints.

RESOURCE EFFICIENT

Hosting, managing, and maintenance of the solution reduces ***total cost of ownership***. Faster client ***deployment and on-boarding*** to support customer satisfaction

INNOVATIVE TECHNOLOGY

Portfolio expertise developed with the latest market technologies and coupled with the power of native SaaS to enable ***digital transformation and process streamlining.***

DEPLOYMENT ACROSS ORG

Agile ***persona driven workflow*** stage approach serving stakeholder's needs with ***clear collaboration*** gathering data and sharing content .

COMPETITIVE ADVANTAGE

Align business, pricing strategies and growth so that they align better with a more ***efficient use of capital***

INTEGRATED LENDING RISK & FINANCE ECOSYSTEM

Ecosystem of applications for lending, risk, finance and reporting, thus customers can ***share data and results consistently across applications***.

4

Guardians of the Balance Sheet

Credit Portfolio Management

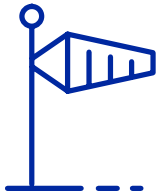
Credit Portfolio Managers are adapting to foggy conditions and increasing changes in businesses and strategy

- Multiple risk measurements
- Alignment challenges across Org
- Clarity of vision required
- Clearer messaging

- Business are there to make revenue as always , increasing dimension risk assessment leads to healthy debate on why the most favourable dimension should have more voice

01

- Losses and impairments offer less debate , but return over risk can be prone to gamification.



02

- Portfolio Managers serve as enablers to take opportunities of new business , while steering business to sustainable

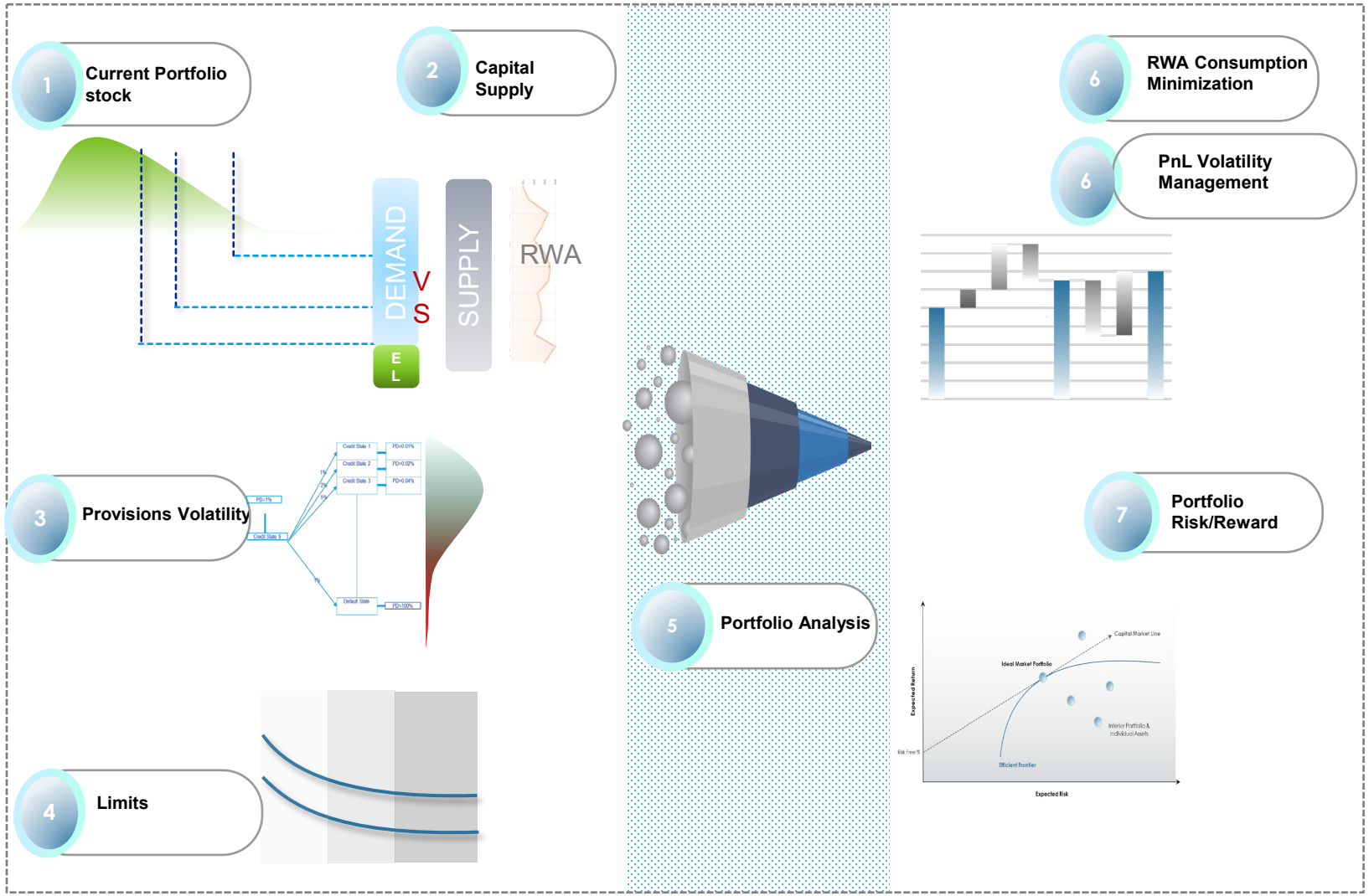
03

- How do we avoid Board getting nervous over losses, earnings at risk views and ultimately regulator and market views being unfavourable

04

Credit Portfolio Management eco-system

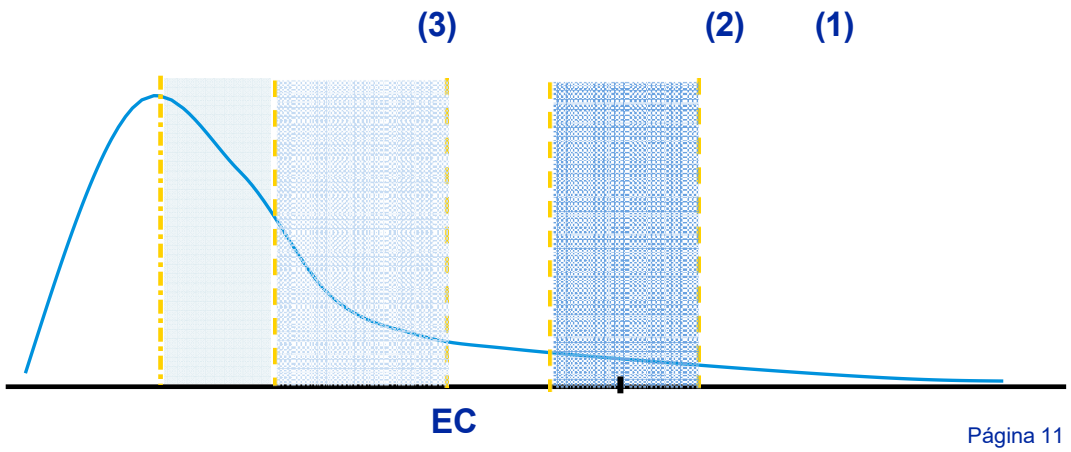
- Credit portfolio management (CPM) must have an **efficient use and deployment of capital (asset allocation/rebalancing)**.
- CPM is fundamental in **supporting the way the business is run and its importance as a "guardian" is only going to increase.**
- Credit portfolio managers and will have to seek the right levels of transactions approval – all in line with the risk appetite and policy of the bank, all the while optimizing their portfolio.

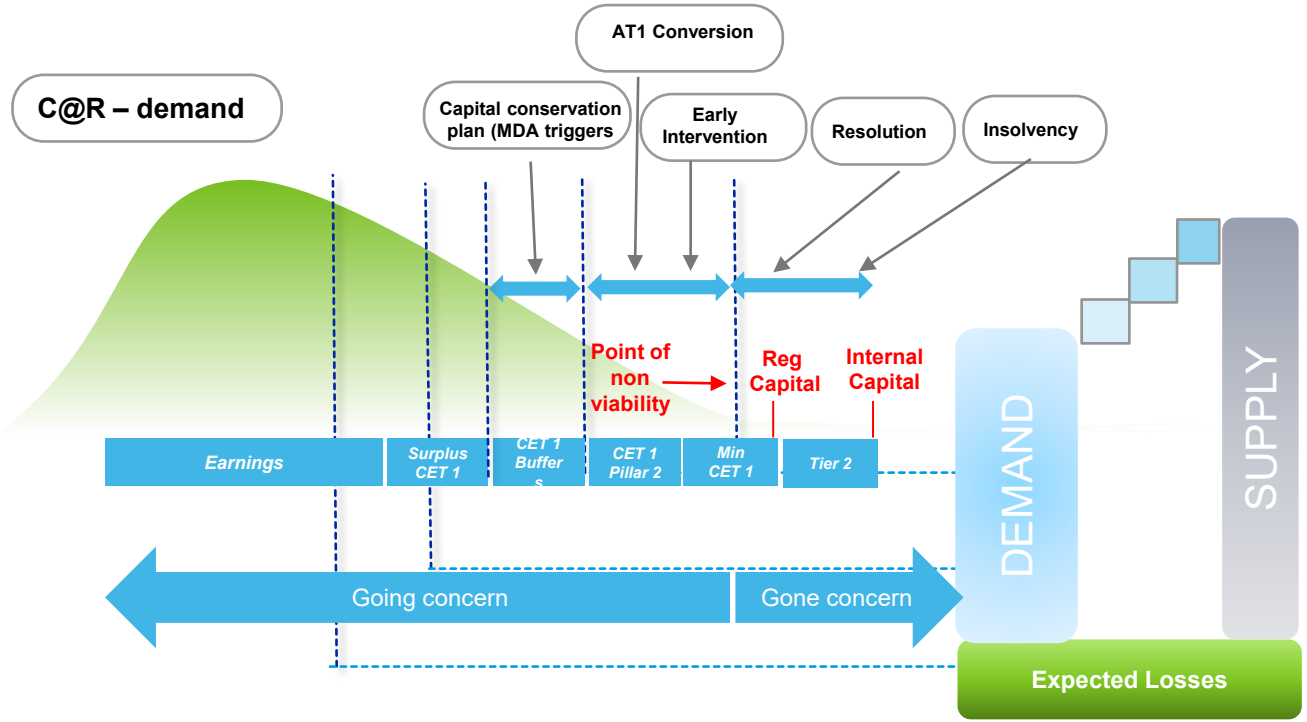


Higher Definition in Objectives

"News Headline allocation": Allocation according to (1) or (2). How much is your Board of Directors able to lose before losing their nerves?

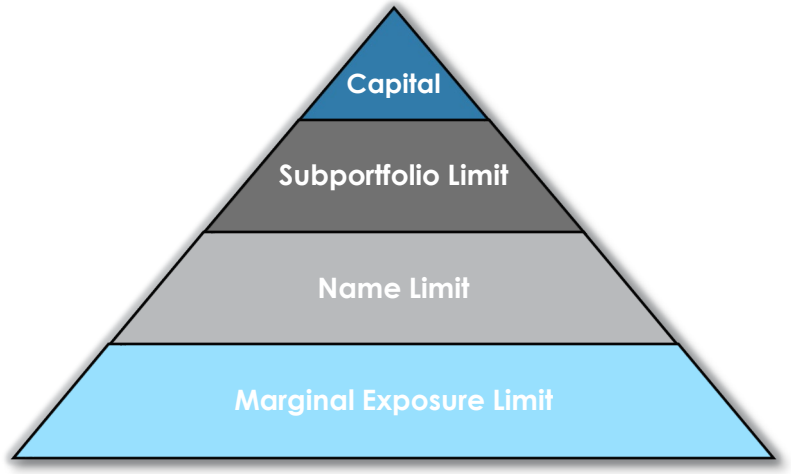
"Bankruptcy allocation" Allocation according to (3): Which of your clients is able to make your company close?

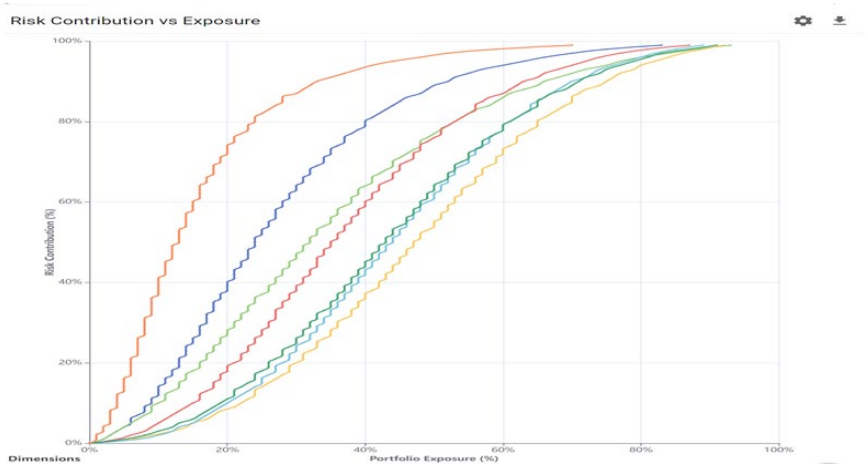




Limits – Risk Appetite Allocation

Traditional approaches vary in quantitative and qualitative aspects





Defining risk limits and threshold is an effective way to embed risk appetite and triggers of breaches into
day to business. Monitor and track health of metrics reported to senior management.

- Liquidity gap
- Earnings at Risk – IFRS 9 Financial planning view
- Capital allocation /concentration by segment / business lines
- Capital adequacy confidence levels
- RWA / Regulatory capital allocations

Risk-based pricing framework can inform all the stakeholders well in time

This customer's in a high risk grade

Risk Manager

I know upfront the amount, price and terms I can get!!

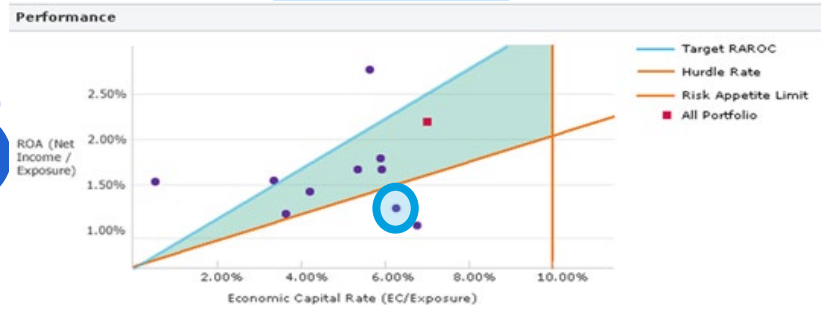
Customer

Exposure meets bank's risk appetite, but not the hurdle rate

Approvers / Committees

My portfolio return is just above 2%. Portfolio risk is 7%. Need to increase return / reduce risk

Marketing / Relationship Manager



Exposure meets the risk appetite policy

Credit Compliance

Bank

RAROC is 15%

Pricing Evolutions

- Risk Based Pricing requires organizations to revisit their current lending practices.
- Indeed, scenarios will impact both the return measure (expected return lower under adverse scenario) and the risk measure (capital allocation will change depending on characteristics as well as rest of the portfolio).
- It is the right time to test incorporating new features in risk-based pricing :
  - Forward looking metrics;
  - Inclusion of IFRS 9 impacts eg ECL and adjusted Concentration premiums;
  - Climate Change Based impacts (later on)
- CPM is a pro-business initiative drive sustainable growth within risk appetite

Recent Publications

MOODY'S ANALYTICS

WHITEPAPER
28 FEBRUARY, 2023

Basel IV and the Butterfly Effect: A Lesson in Unintended Consequences

INTRODUCTION

How did we get here?

MODELING METHODOLOGY

JANUARY 2020

Optimizing Assets under Basel III LCR Requirements

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Abstract

Acknowledgements

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How to Leverage Concentration Analysis to Identify Opportunities

Highly granular multi-factor modelling helps ensure o
future funding

Unlocking Business Opportunities with ICAAP

Internal Capital Adequacy Assessment Process (ICAAP) is one of the top priorities of ECB banking supervision. Compliance is demanding for the world's largest banks – but even more so for small to medium-sized institutions. Given the time and effort demanded by ICAAP, doesn't it make sense to go beyond compliance and get some genuine business value out of the exercise? The ECB itself has offered some constructive advice on how to move forward.

The evolution of ICAAP

Private Debt:
How Much is Too Much in a Credit Portfolio?

Introduction

CASE STUDY

About

AUTHOR

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Industry-level analysis of risk vs return

Questions and Comments

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