

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

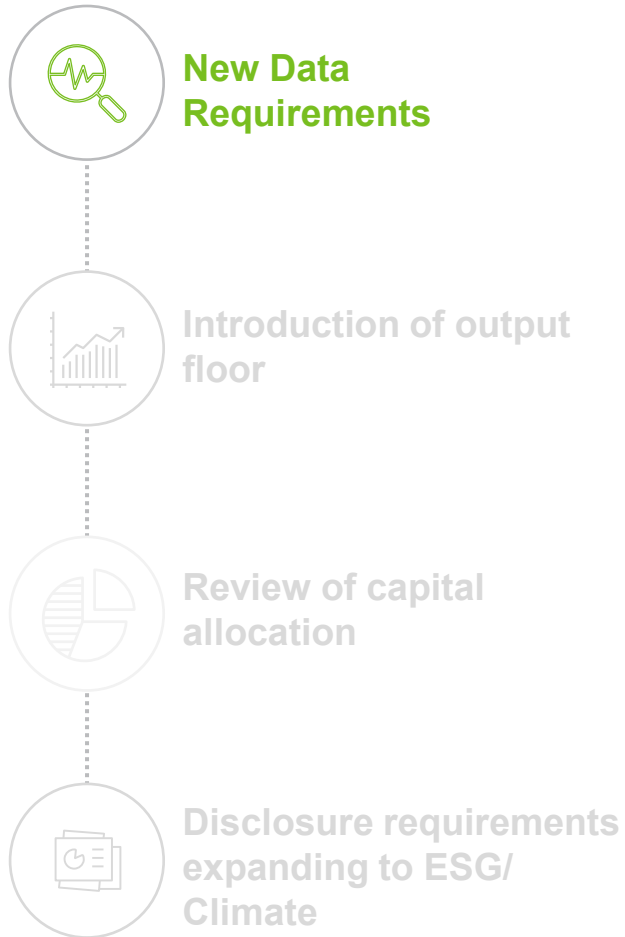
Tighter regulations ahead drive need to restructure balance sheet to achieve target ratios, capital efficiency and drive profits

1

Basel IV implication for South Africa

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

Key Changes



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.

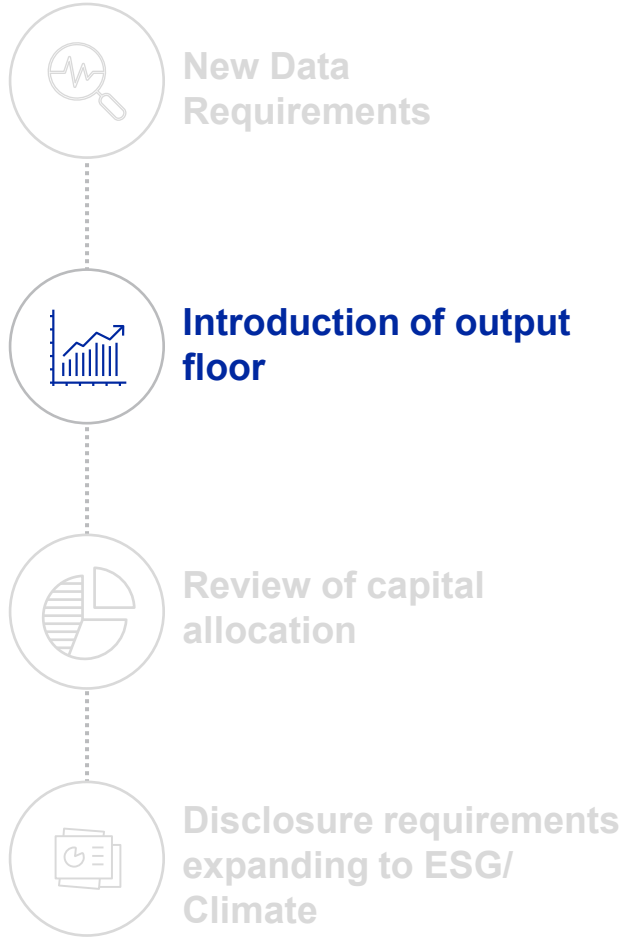
SEC – ERBA requiring external credit ratings

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



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.

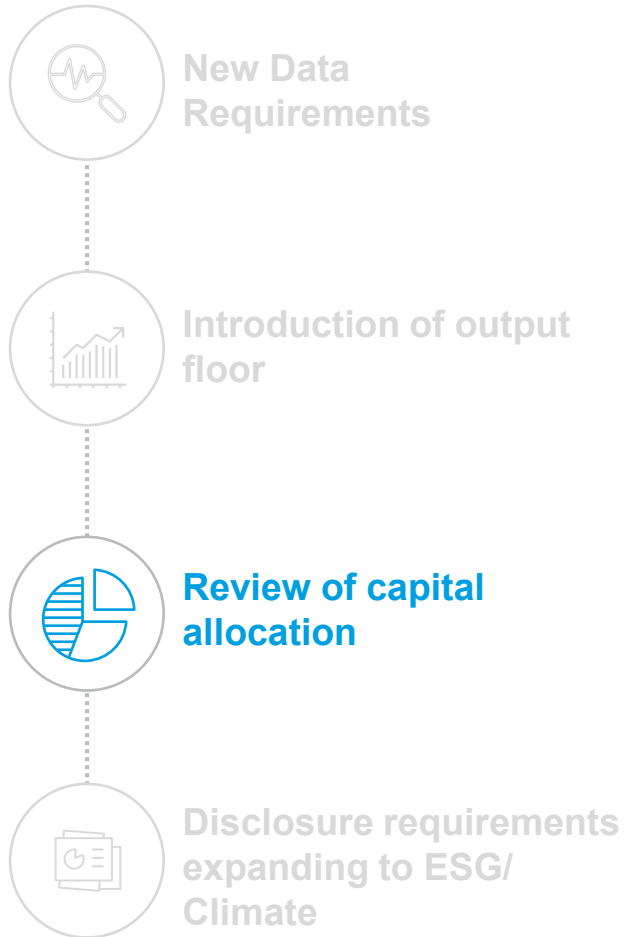
Opportunities

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



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**.

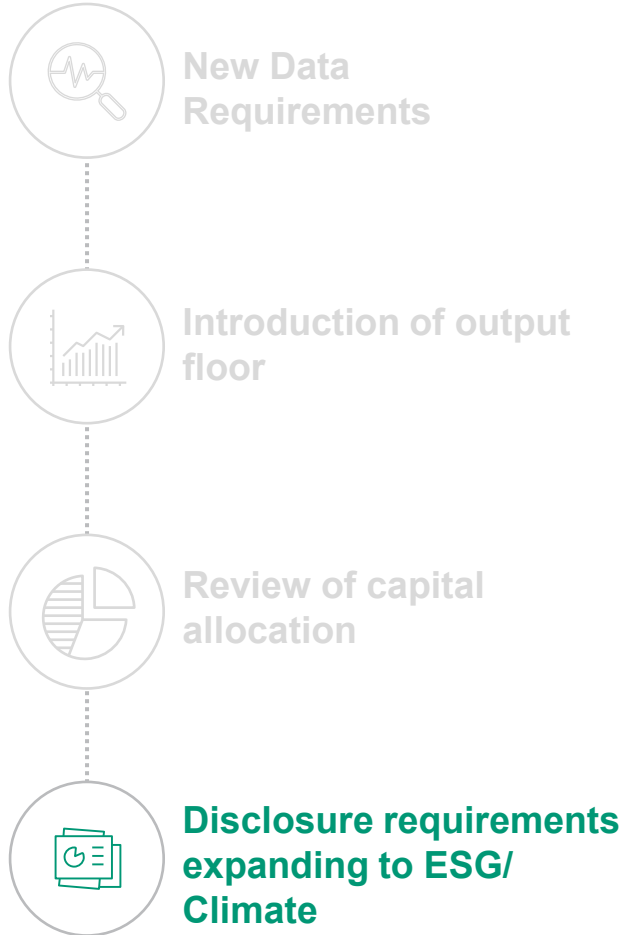
Need for Interconnected solutions to help banks leverage analytics and data to bridge needs in lending, risk, and finance to understand potential business changes.

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

Key Changes

Impact

Opportunities



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

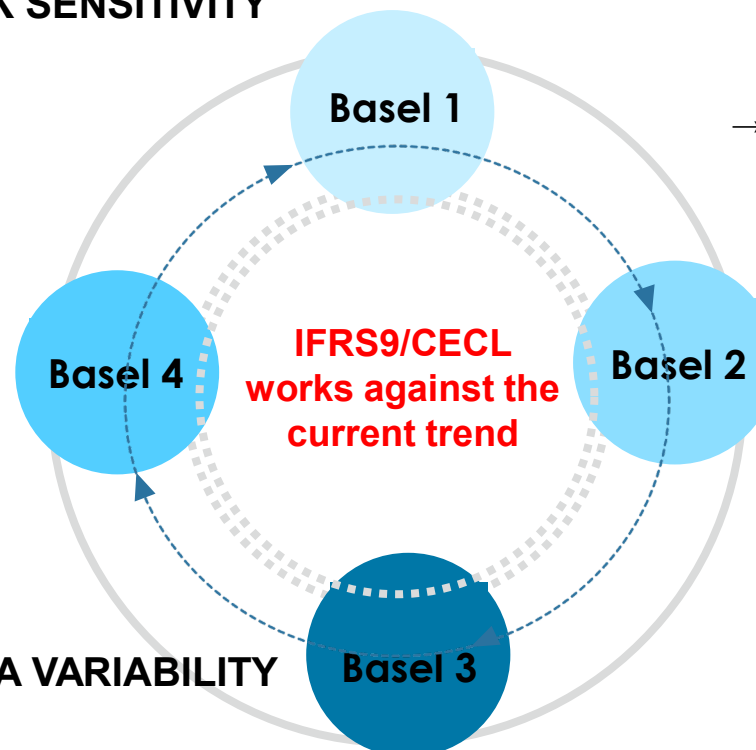
Finding the right balance between output floor response and risk reduction focus under IRB approaches that remain in place

4

Operations

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

REDUCED RISK SENSITIVITY



RISK SENSITIVITY

→ Higher Risk → Higher Capital

CAPITAL EFFICIENCY

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

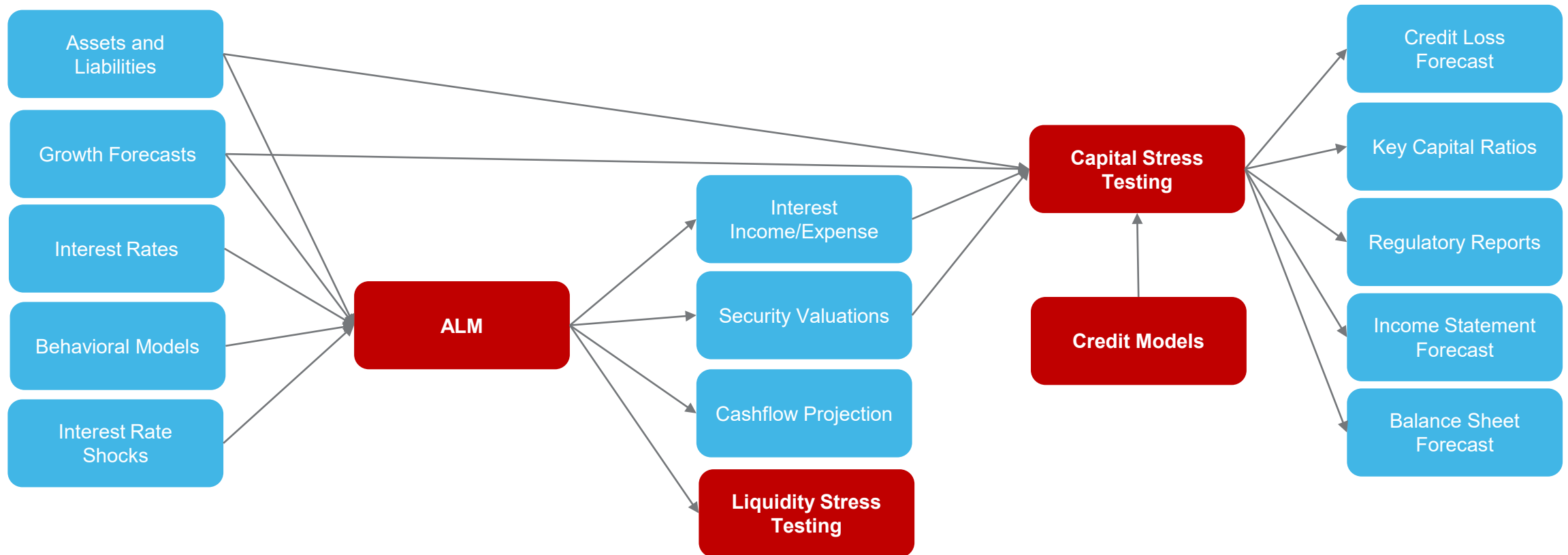
REDUCED RWA VARIABILITY

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**



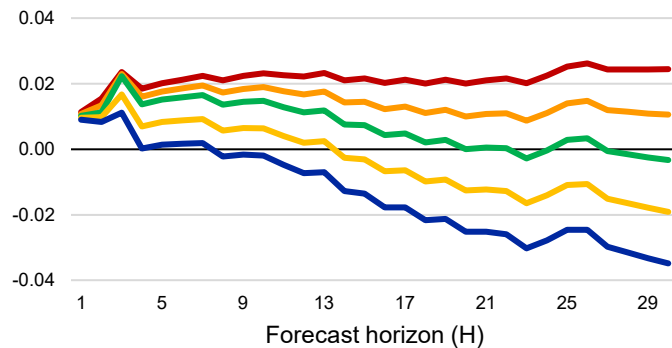
The Liquidity facets

Linking CPM and ALM under stress

CREDIT PORTFOLIO MODEL SCENARIO ANALYSIS

Generated Credit Monte Carlo Paths

Credit Portfolio
Simulated Monte
Carlo Trials Values &
Losses

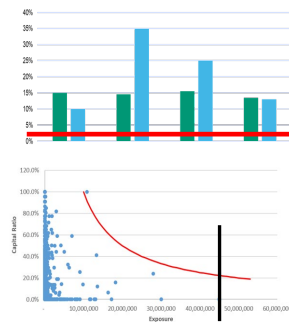


Instrument Level Outputs

Asset Return
Credit Risk metric

Limits

Name Risk
Based
Limits



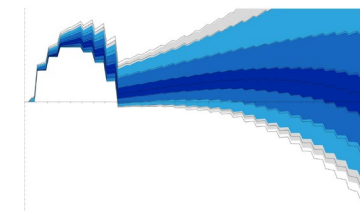
ALM MODEL

Cash Flows
Generation
Under distressed
conditions

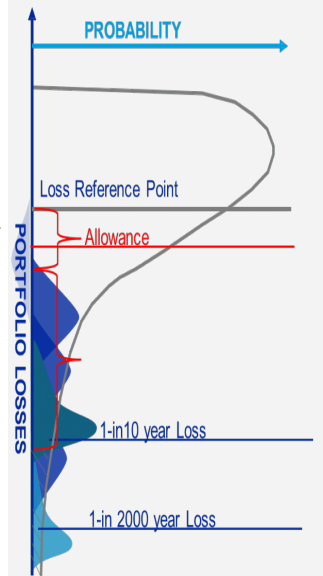
Survival Horizon HQLA/Reserve and Cash flows gaps



Stressed Cash Balance

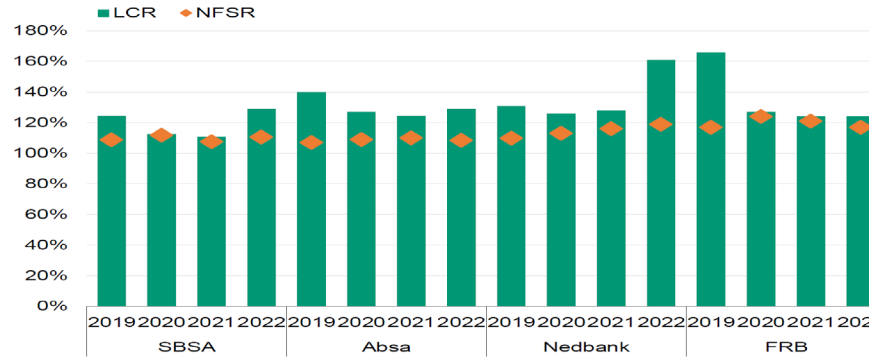


CAPITAL & EARNINGS



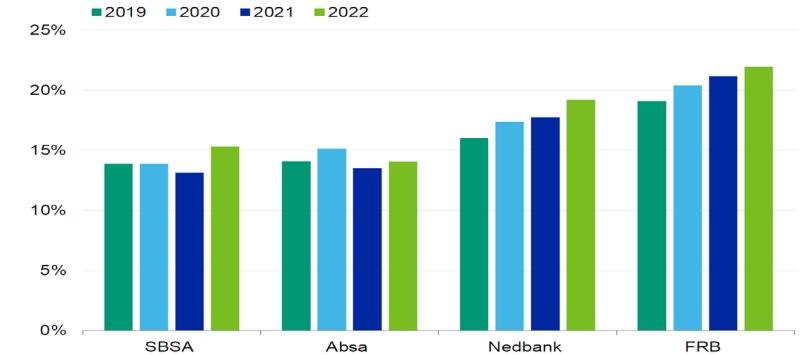
South Africa Funding and Liquidity Structures

Funding and liquidity remains broadly stable



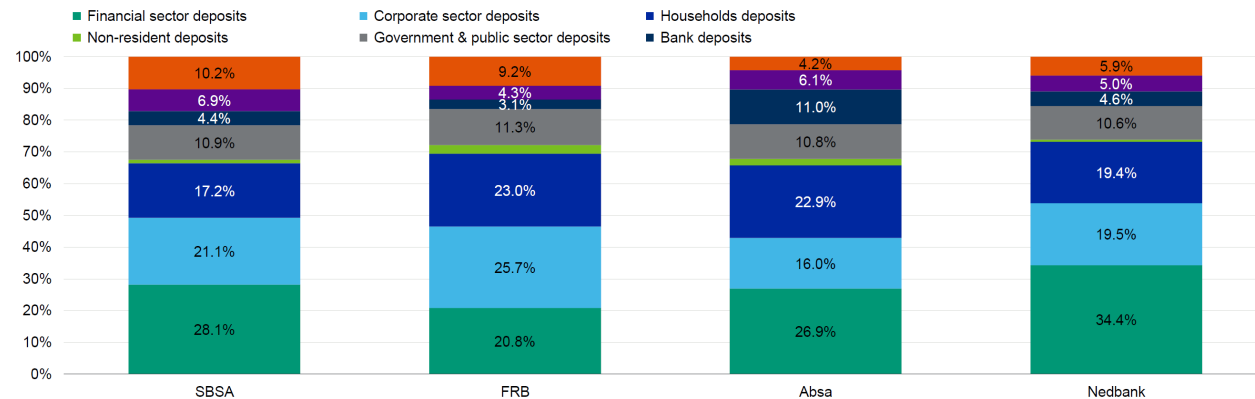
Sources: Banks' financial statements and Moody's Investors Service

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



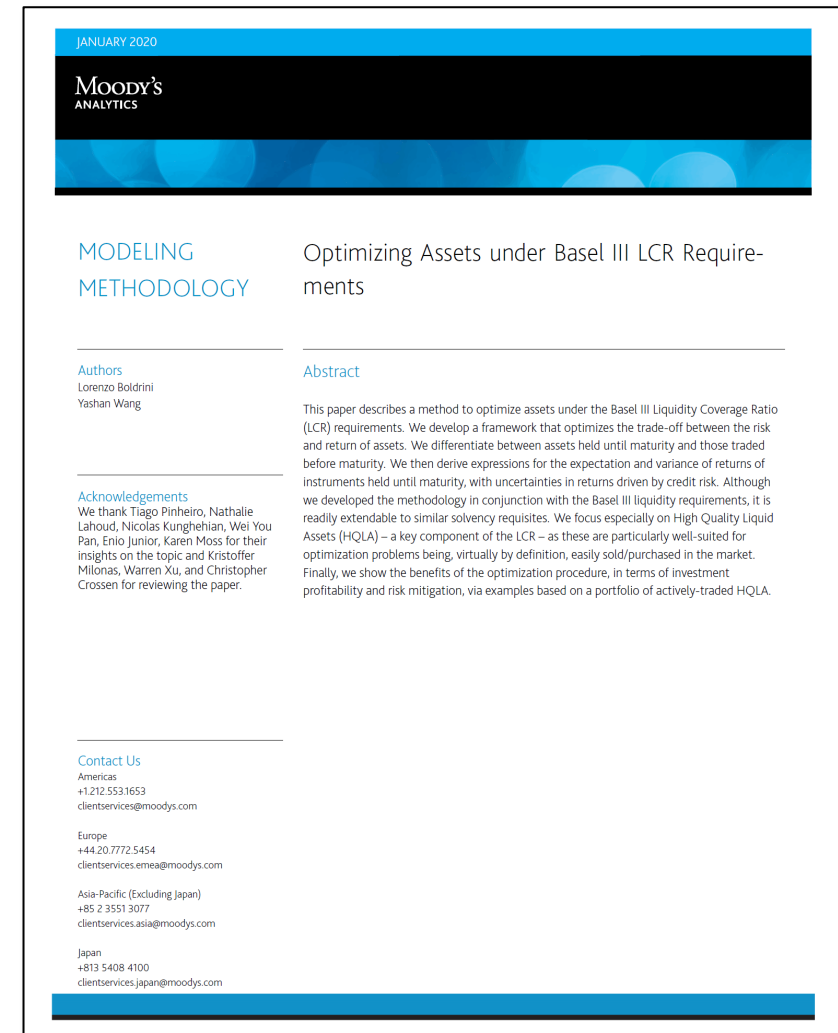
Sources: South African Reserve Bank (BA900) and Moody's Investors Service

» 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.

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.



3

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

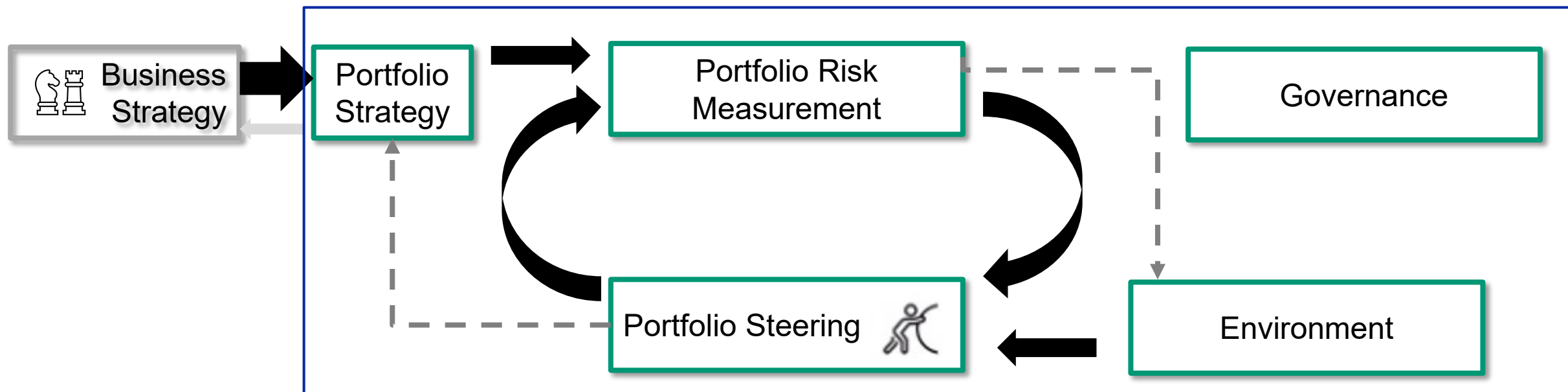
Price on Normative alone , blend or Economic only

Incorporate provision staging dynamics

Scenario analysis , inform risk allocation for business generation granularity

Strategic Portfolio Management

Portfolio Management is a Pro-business initiative



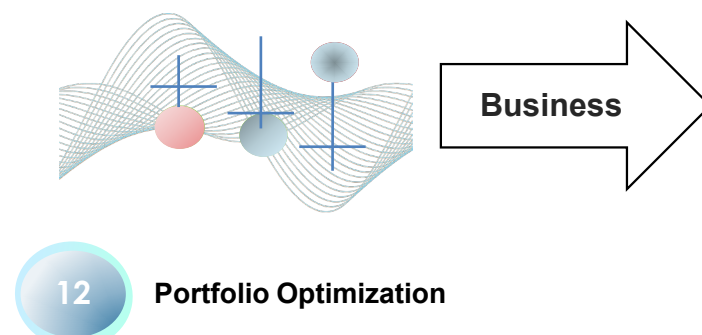
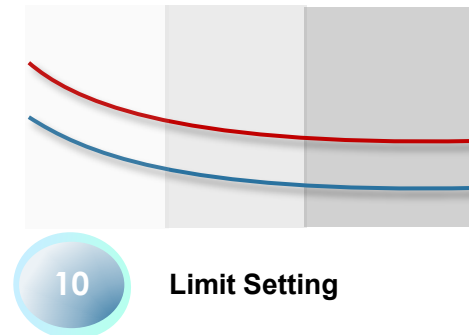
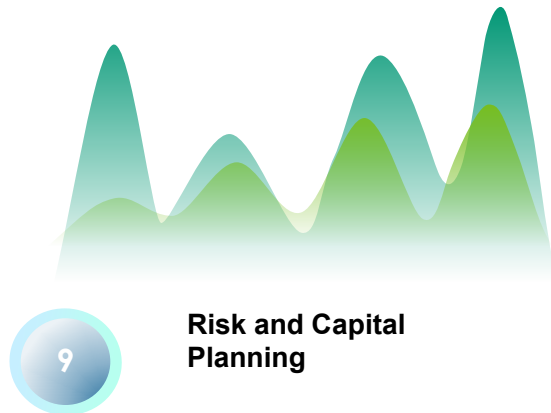
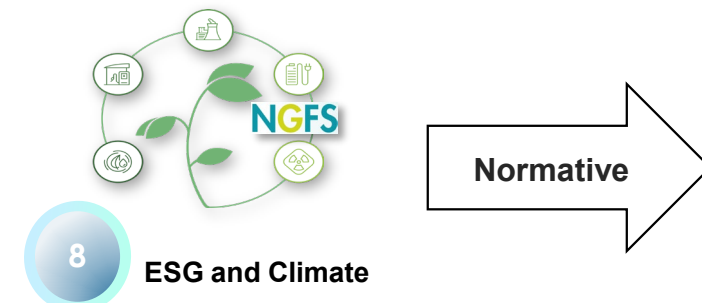
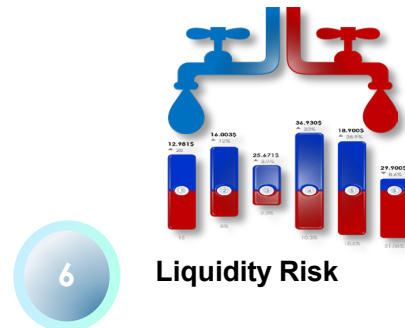
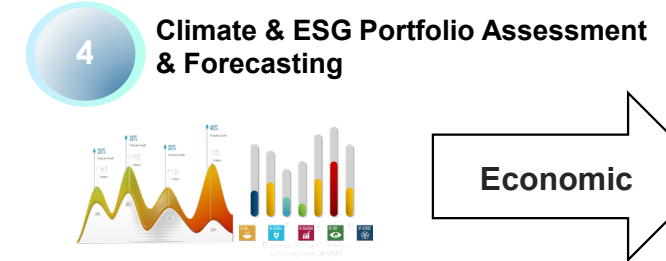
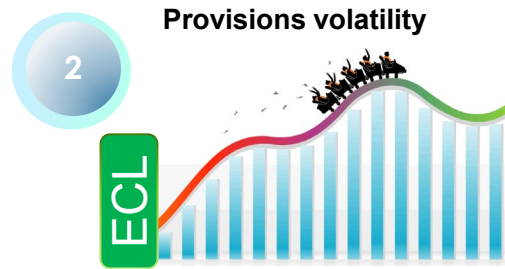
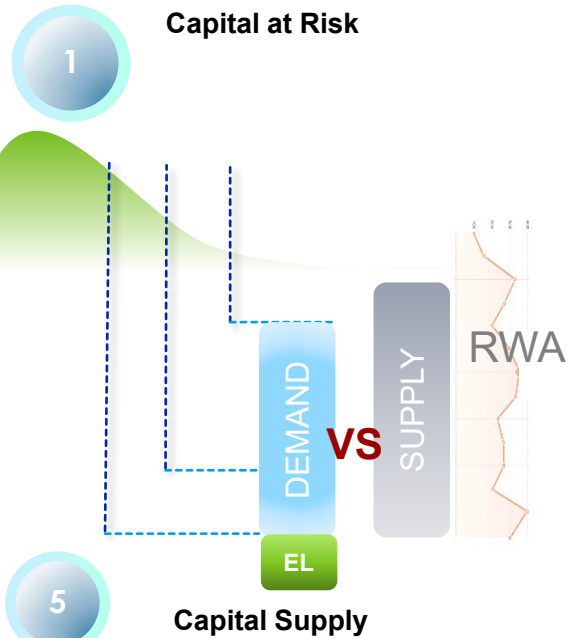
- Business sectors
- Risk appetite
- Limit setting
- Growth targets areas

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

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

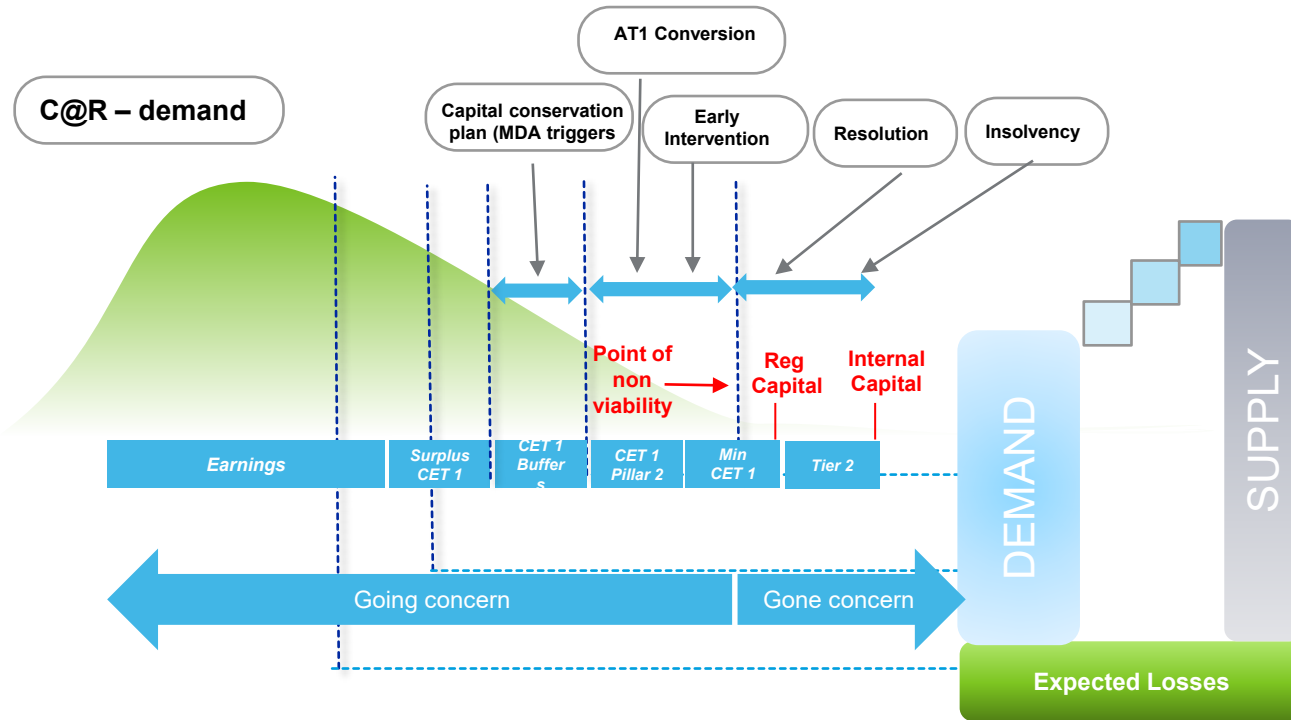
Assessing and Shaping a collection of assets as an aggregate to align it with objectives

Portfolio Risk Measurements



Consistent view of Capital

Capital at risk organized into trigger that align with oversight

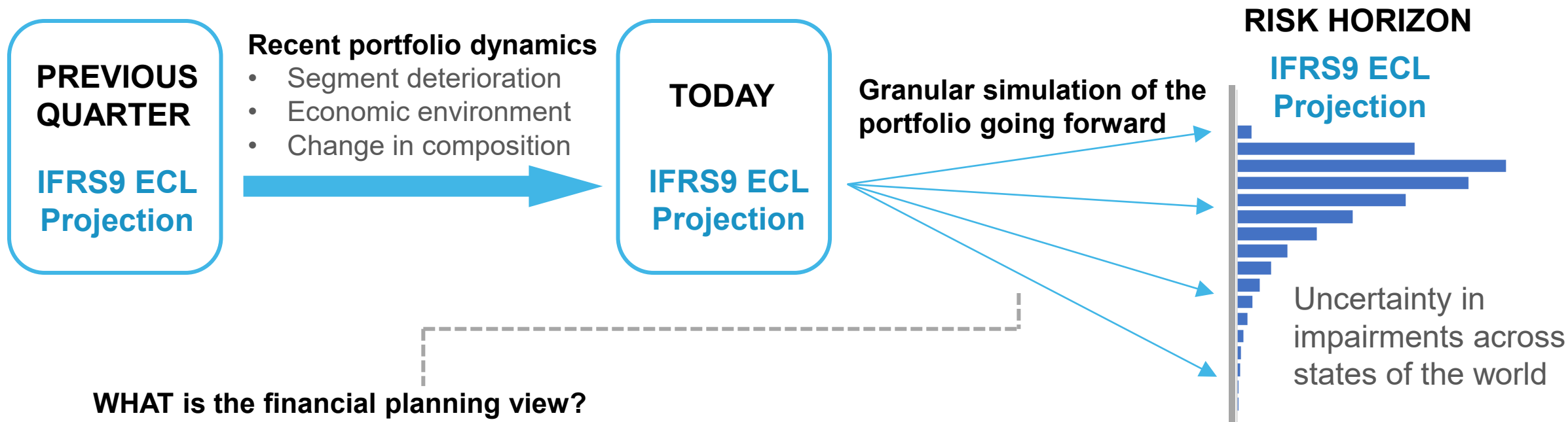


Alignment of both capitals is going to be distorted under Basel 4. Allocation of Capital and provision constrains to segment levels empower business functions to manage and understand their portfolio risks and associated risk appetite.

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

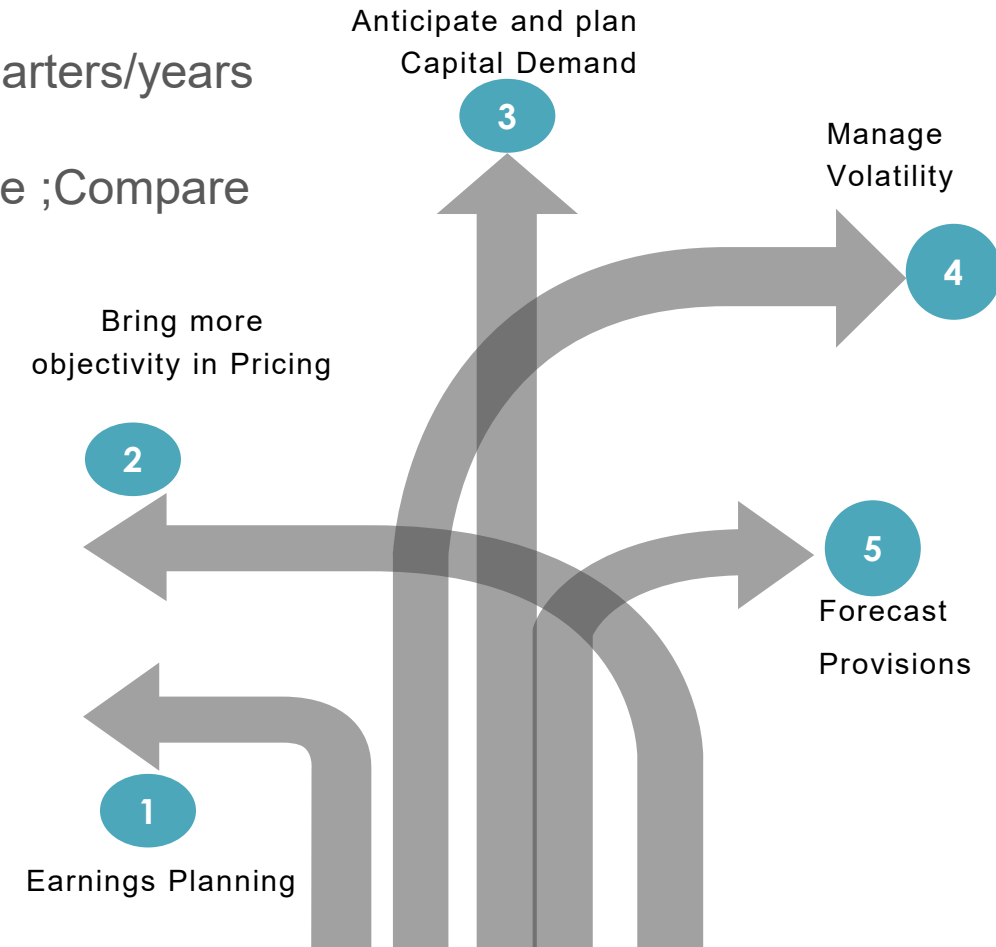
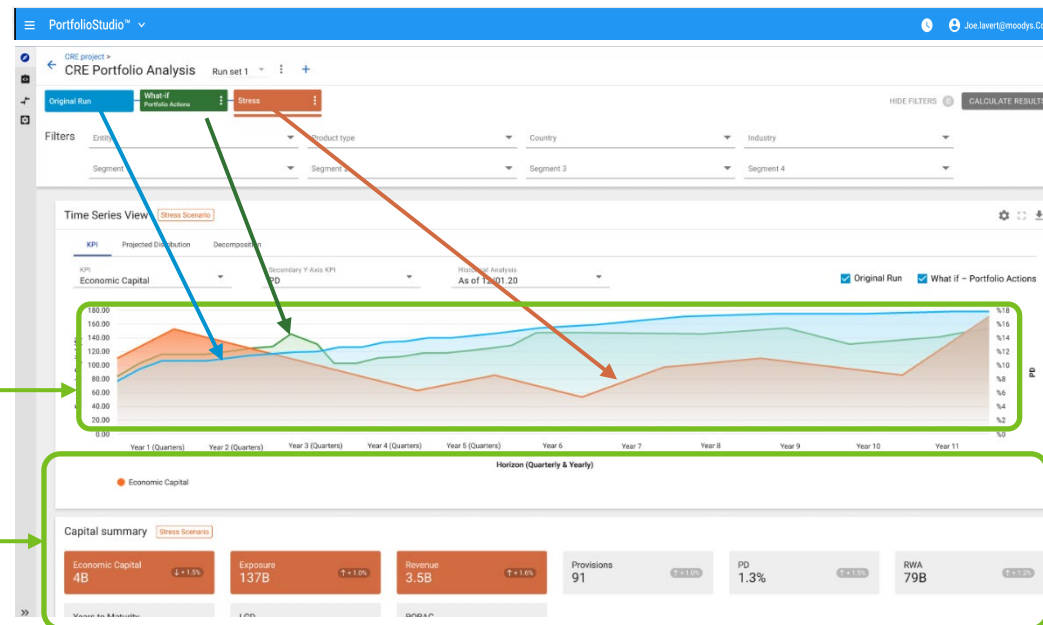
Predict ahead and account for upcoming risks:

- » 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

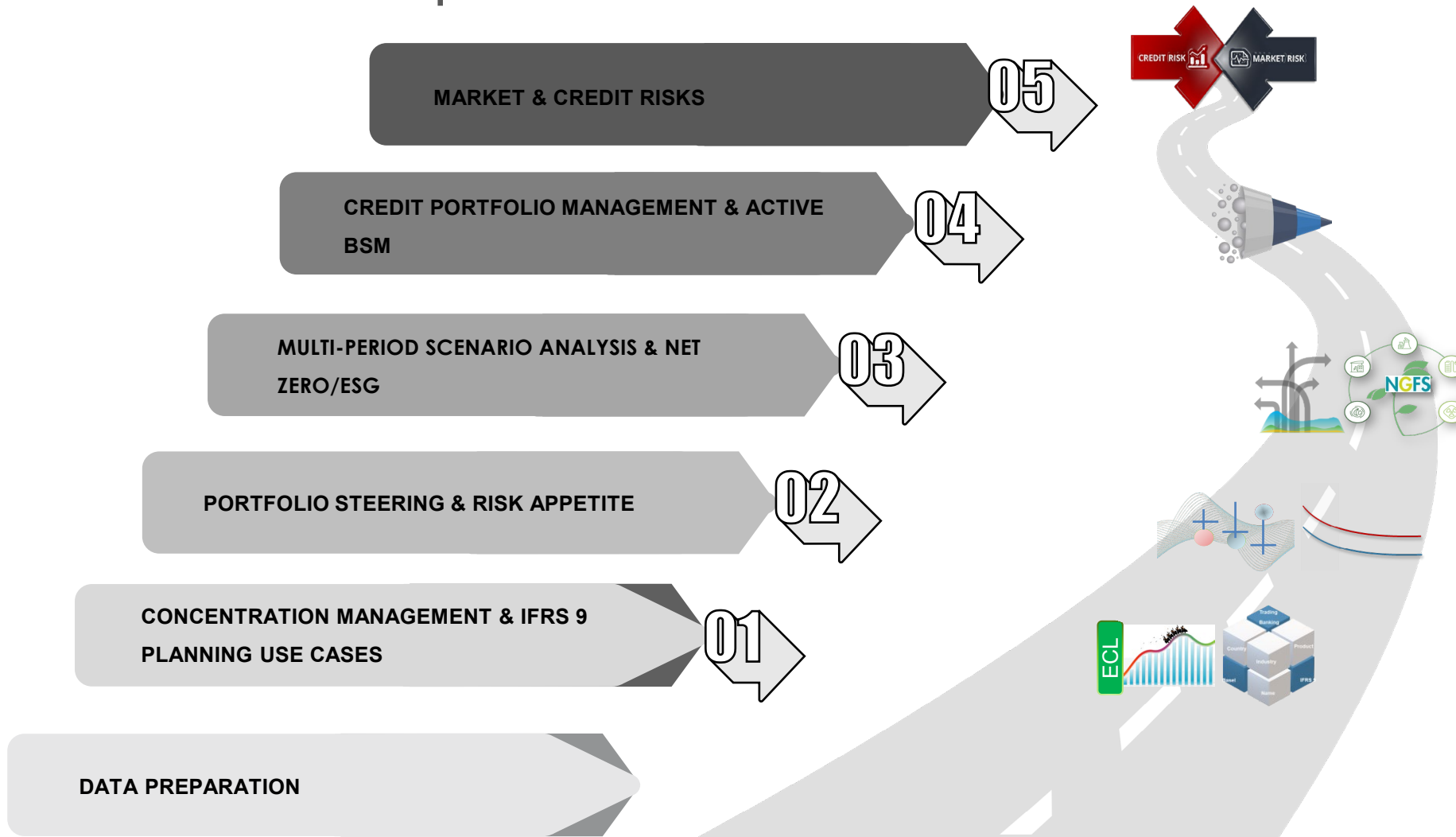
Multi Period

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

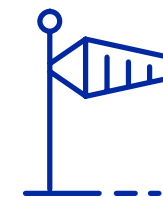
- » Multiple risk measurements
- » Alignment challenges across Org
- » Clarity of vision required
- » Clearer messaging

- » 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

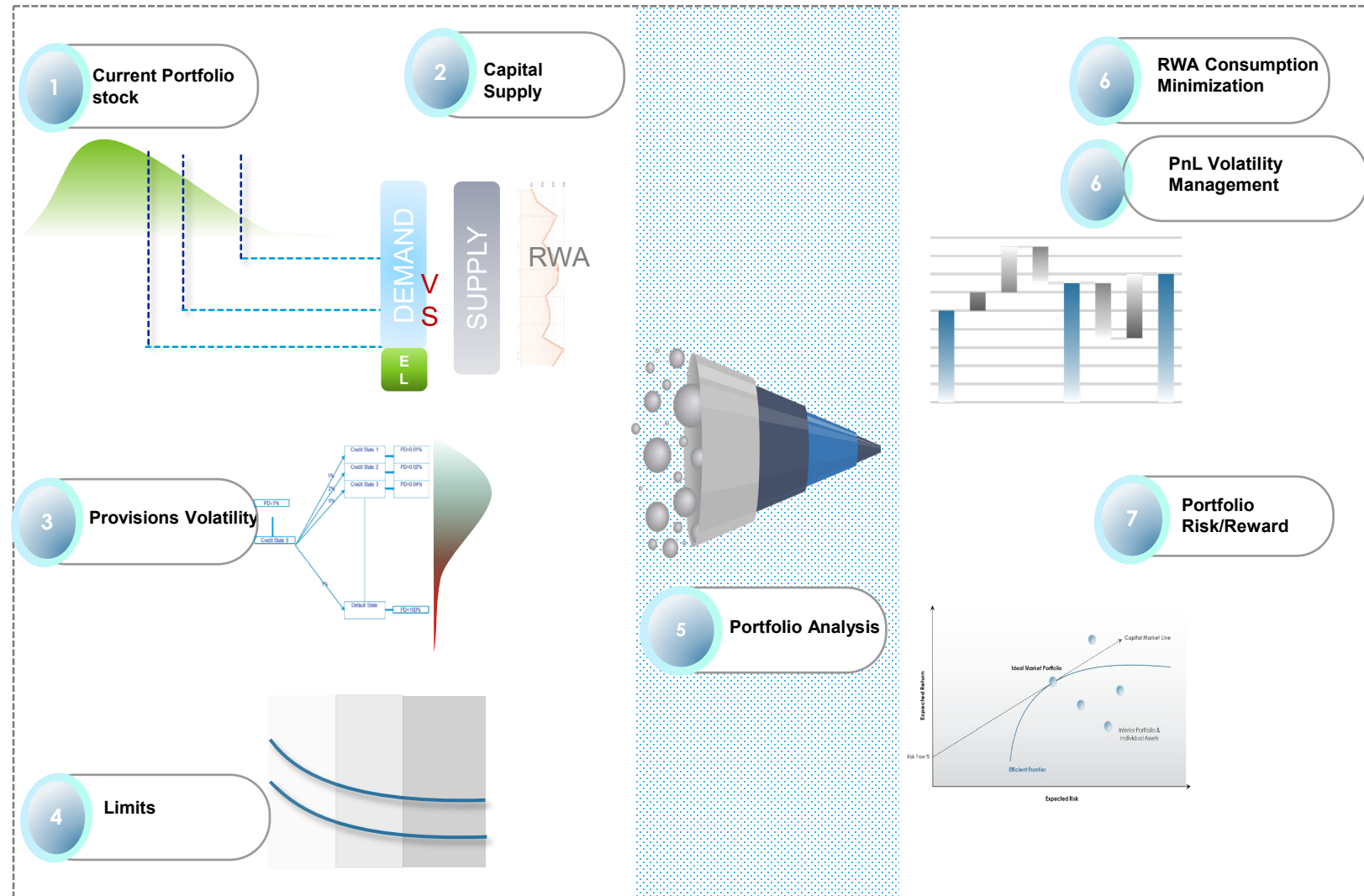
- » How do we avoid Board getting nervous over losses, earnings at risk views and ultimately regulator and market views being unfavourable



04

Credit Portfolio Management eco-system

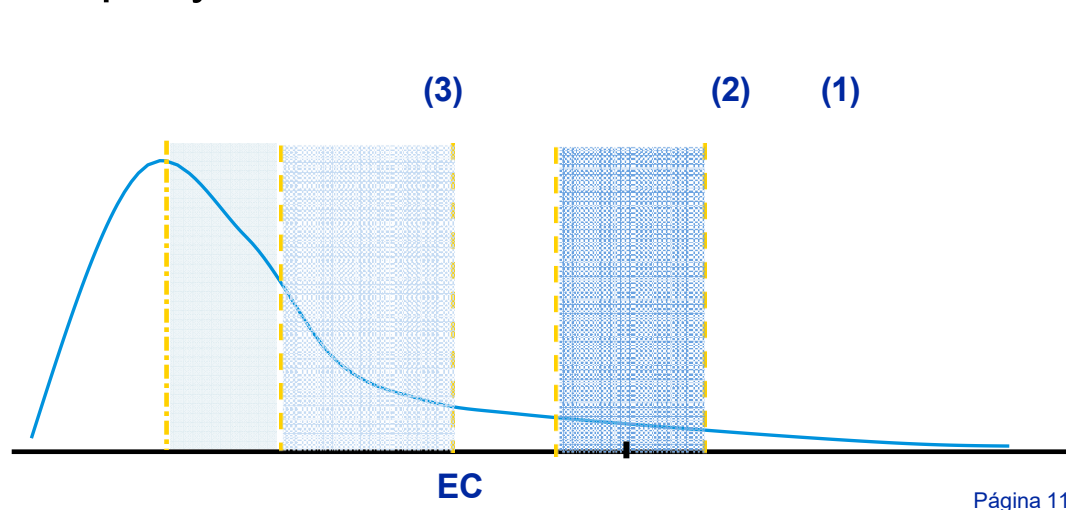
- » Credit portfolio management (CPM) must have an **efficient use and deployment of capital** (asset allocation/rebalancing).
- » CPM is fundamental in **supporting the way the business is run** and its importance as a “guardian” is only going to increase.
- » Credit portfolio managers will have to 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.



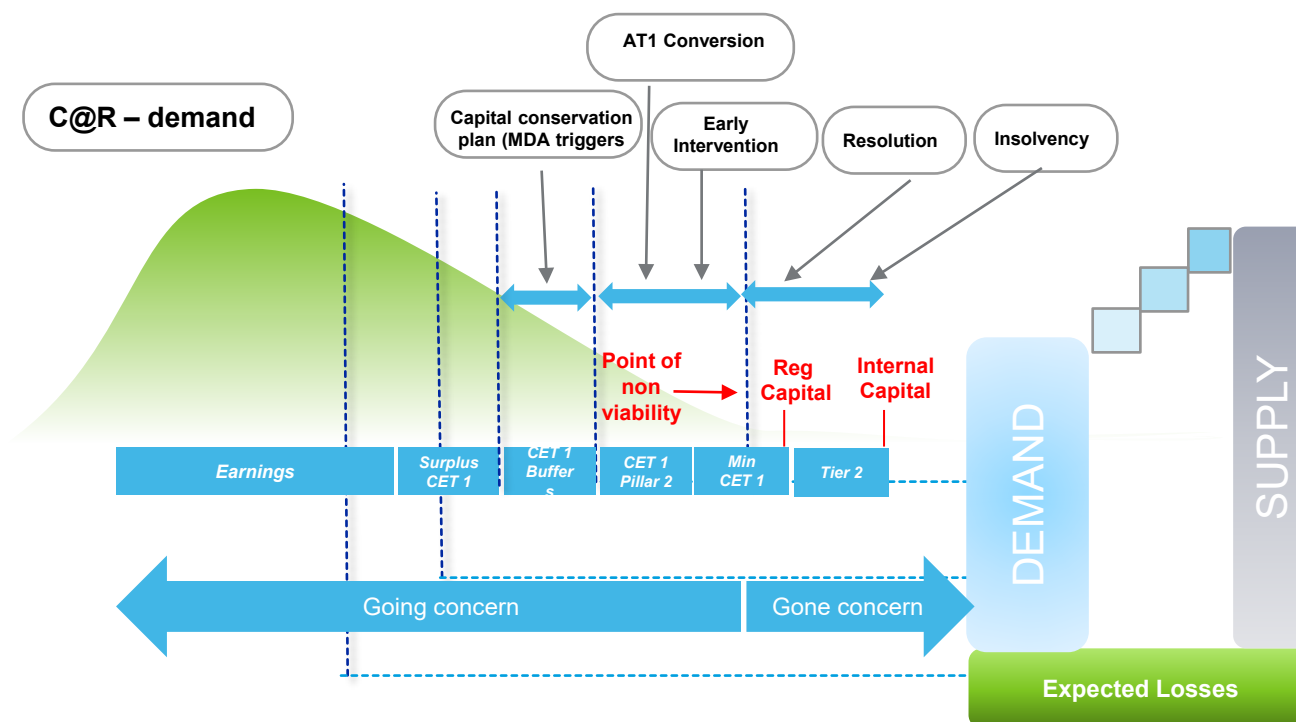
Higher Definition in Objectives

“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?

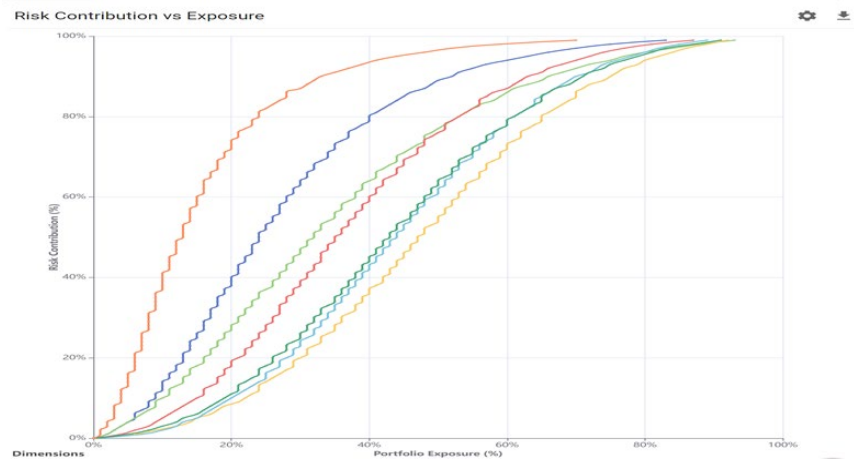
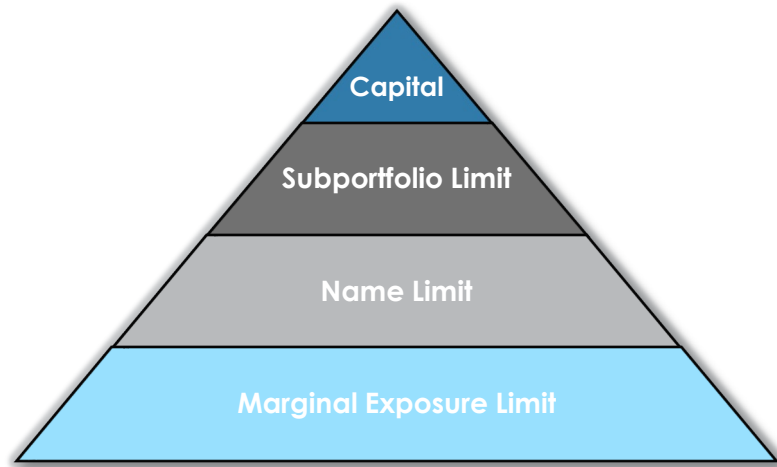


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Limits – Risk Appetite Allocation

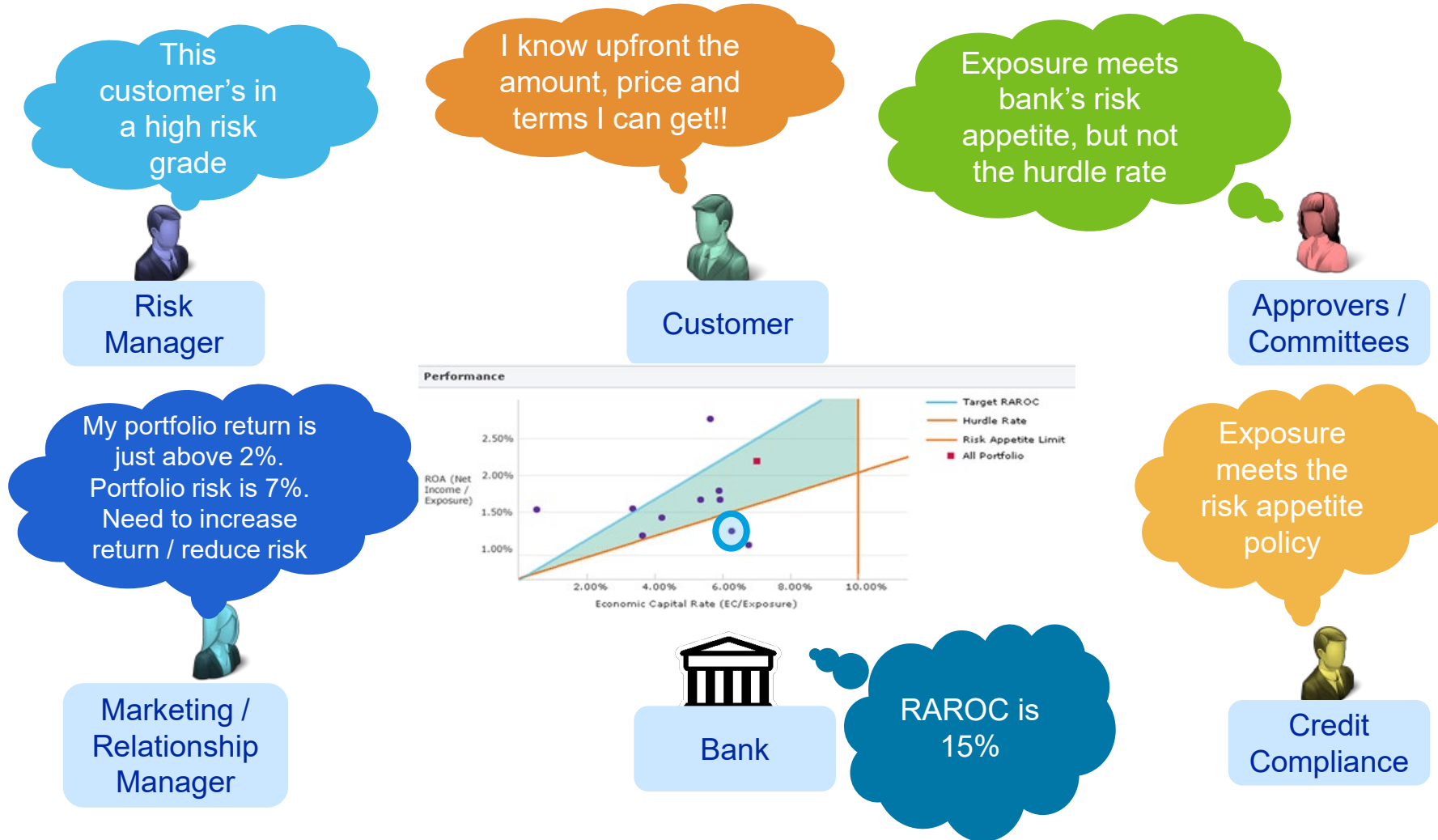
Traditional approaches vary in quantitative and qualitative aspects



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



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

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WHITEPAPER
28 FEBRUARY, 2023

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

INTRODUCTION
Finalized Basel III (also known as Basel IV) increases banks' regulatory capital. At the same time, the banking industry faces a decrease in pro- can ease the regulatory burden and enables the discovery of paths to this white paper we interpret Basel IV through its historical context, to analyze consequences on stability of the financial system. We derive banks to design a capital portfolio management framework to meet t

How did we get here?
One of the most important and biggest risks faced by traditional banks is the bank's assets, will not be repaid: credit risk or the risk of unexpected risks, the regulator imposes a capital buffer. When things go bad, the losses. When the capital is gone, the bank collapses, which is not an individual bank but for the financial system. This is what happened in with cheap credit and lax lending standards that fueled a housing bubble, the banks were left holding trillions of dollars of worthless investment mortgages.

Basel I defines the capital requirements for the larger banks. They need 8%, i.e. \$8 dollars for every \$100 loaned. However, each loan could be according to the so-called "standardized approach" (SA), for example be risk weighted at 90%, giving a capital buffer of 7.2 (\$8 out of \$100 bank assets were classified and grouped into five categories for risk we

In Europe, this standardized approach was adopted for all banks, but it it disincentivized certain types of lending and lacked the sophisticated diverse types of risk and asset classes. In 2004, Basel II allowed an internal approach to calculate credit risk, alongside the standardized approach introduced measures to quantify and provide for operational and mar

MOODY'S ANALYTICS BASEL IV AND THE BUTTERFLY EFFECT: A LESSON IN UNINTENDED CONSEQUENCES

JANUARY 2020

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MODELING
METHODOLOGY

Optimizing Assets under Basel III LCR Requirements

Authors
Lorenzo Boldrin
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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. A comprehensive correlation strategy allows for growth strategy market (at the macro level) or which specific loan or investment correlated with the risk profile of your current portfolio hence opportunities for growth.

Acknowledgements
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How to Leverage Concentration Analysis to Identify Opportunities




Highly granular multi-factor modelling helps ensure of future funding

Empirically, we know that default and delinquency rates tend to increase during downturns. Following the 2008 crash, we saw very high rates of default and delinquency in commercial real estate sectors. In a downturn, the default rate is higher than expected loss for loans in similar distressed situations. Correlations with each other or to the economic changes in the framework can capture correlation effects both within and across asset classes.

A correlation framework allows for true portfolio risk assessment. It captures asset class correlations; this means that given the same risk, a portfolio can further differentiation between business opportunities. And a comprehensive correlation strategy allows for growth strategy market (at the macro level) or which specific loan or investment correlated with the risk profile of your current portfolio hence opportunities for growth.

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Unlocking Business Opportunities with ICAAP

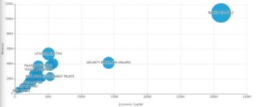


Internal Capital Adequacy Assessment Process (ICAAP) is one of the top priorities of ECB banking supervision. Compliance is demanding for the world's largest banks – but even more so for small to medium-sized institutions. Given the time and effort demanded by ICAAP, doesn't it make sense to go beyond 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
ICAAP consists in designing and implementing a risk-adjusted management framework to ensure that the bank constantly meets its regulatory capital requirements and manages risks beyond those captured in Pillar 1 (e.g. concentration risk, migration risk, fraud or rogue trading, liquidity risk etc.) This process is documented into an ICAAP report that needs to be approved by the board before being submitted to the regulator for review. Stress testing to establish ICAAP became a more significant aspect of Pillar 2 after the 2008 financial crisis.

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



Introduction
The growth in private debt markets has implications for credit quality and portfolio risk that have not yet been tested in an economic downturn. Private debt offers attractive returns, can provide a hedge against rising inflation, and may help diversify a portfolio. It has recently seen aggressive expansion by new market entrants, such as insurers and pension funds. These benefits, however, must be weighed against the downside, which includes illiquidity and often higher credit risk.

Today, in the fourth quarter of 2022, the global economy is slowing and may be headed for recession. Rising interest rates have boosted returns but place additional pressure on a borrower's debt servicing. It is critical for lenders and portfolio managers to understand the performance of their portfolio under a variety of conditions, and to ensure that they hold adequate capital against these outcomes. A well-constructed portfolio analysis provides an estimate of portfolio losses under various downside scenarios and can reveal hidden pockets of risk that may not be readily apparent when viewing an exposure or portfolio segment in isolation. Diligent risk analysis can also justify expansion into a new segment by identifying better investment or hedging opportunities to increase profits while managing risk.

This report shows how to analyze and manage a portfolio of public and private corporate credit exposures. For example: Is there a segment that contributes excessively to portfolio risk? What is the risk contribution of the private debt portfolio? Is the return on a particular segment worthwhile given the risk? The key finding in this study is that private debt contributes materially to tail losses but that, when managed within a robust risk framework, provides opportunity for growth and can improve the portfolio's overall risk-adjusted return.

Industry-level analysis of risk vs return

CASE STUDY

About
This case study uses Moody's Analytics PortfolioStudio™ to analyze the credit risk of a sample portfolio of corporate bonds and private debt holdings. The analysis yields important insights about credit losses in downside scenarios, portfolio concentrations, and the risk-return payoff. Using this sample portfolio, we find that further expansion into private debt can improve the portfolio's overall risk-adjusted return.

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Questions and Comments

The background of the slide is a blurred photograph of a racetrack. The track surface is dark asphalt, and the surrounding areas are green grass and white barriers. The image is taken from a low angle, looking down the length of the track, which recedes into the distance. The sky above is a mix of blue and white, with large, fluffy clouds. The overall effect is one of high speed and forward motion.

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