ICPAK Financial Services Seminar

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With you today

A manager at KPMG Advisory Services with over 7 years of experience in providing enterprise wide and financial risks advisory services and solutions. Providing executive and staff trainings, risk function transformation projects, risk management gap analysis, risk maturity assessments, development and implementation of risk strategies and appetite statements, risk frameworks, risk assessment and quantification, stress and scenario analysis, risk monitoring and reporting.

Qualifications and associations:

- Accredited trainer, GARP, CPA, Actuarial science postgrad, PRINCE 2 Practitioner

What we will cover

Risk types for our discussion

- Concentration risk
- Credit risk
- Market dynamic risk
- Reserving risk
- Capitalization risk

1. Definition and general understanding
2. How they arise
3. How to model and quantify these for financial institutions
4. How to manage these risks
5. What controls need to be put in place
6. Take home and wrap up
7. Q&A

Introduction

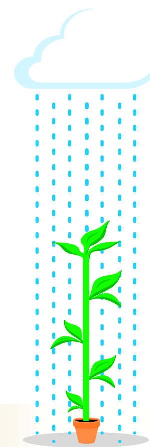
Risk and risk management

“Risk is the effect of uncertainty on objectives.” Can be positive, negative or both or can address, create or result into opportunities/threats. Uncertainty is look at positively in finance, there is always a possibility of better results….the question then remains, how to we manage these to attain the desired risk reward trade off?

Risk that may HINDER the achievement of objectives

Threat

Opportunity



Risk that may HELP in the achievement of objectives

Concentration Risk

Definition and General Understanding:

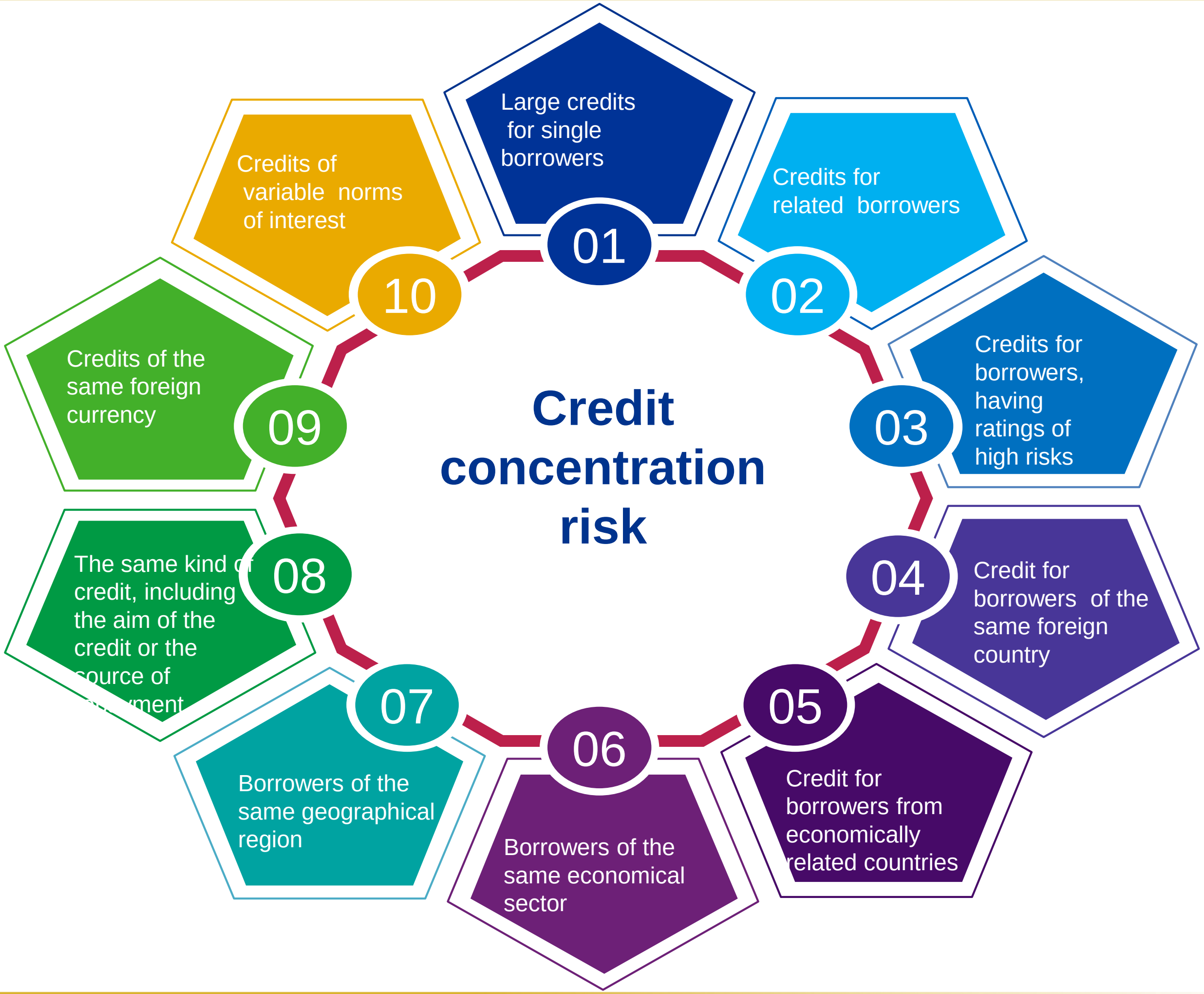
Concentration risk:

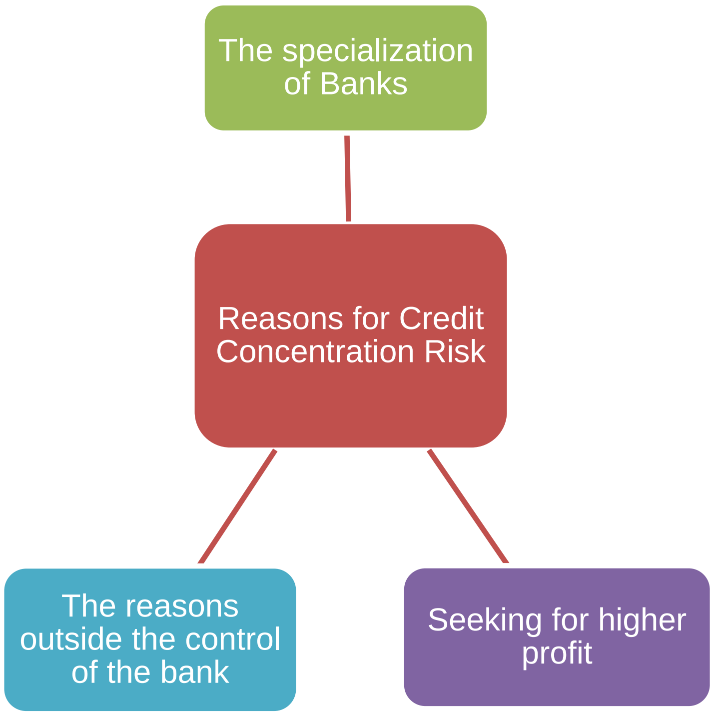
can hence be defined as any single (direct and/or indirect) exposure or group of exposures with the potential to produce losses large enough to threaten an institution's health or its ability to maintain its core business.

1. large (possibly connected) individual exposures - the definition of connected for these purposes needs to be sufficiently broad to capture exposures which are connected through, for example, common ownership/management/ guarantors.
2. significant exposures to groups of counterparts whose likelihood of default is driven by common underlying factors, for example:

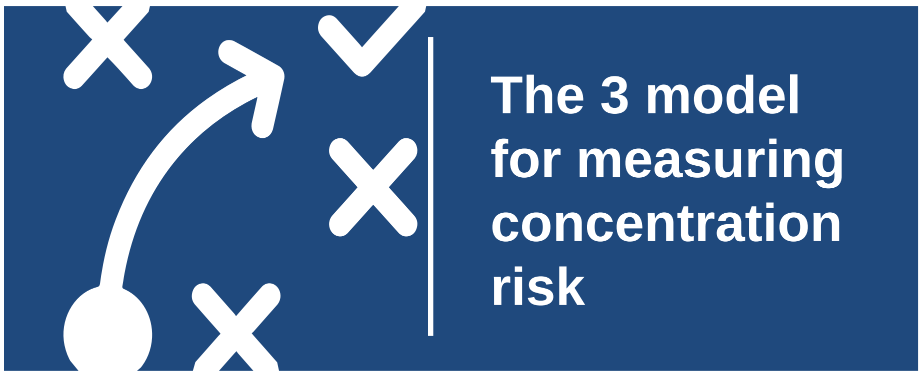
- economic sector,
- geographical location,
- currency,

Sources / How it comes about





Modelling and Measurement of Concentration Risk



The 3 model for measuring concentration risk

- Herfindahl-Hirschman Index (HHI):
- Gini Coefficient:
- Multi-factor Models:

Application for either can be regulatory driven or the option of the lender

Management of and Requisite Controls

What mitigation and controls should be put in place to respond to credit concentration risk?

It is important for lenders to

- Ascertain the composition of each portfolio (individual large credit from individual borrowers or sectors/industries, regions etc)
- assess the value of the portfolio
- components thereof and their proportions in the portfolio
- what other variables needs to be factors.

Having noticed that loan concentration resides in one of segments, they should try to diversify the portfolio or apply other measures to control concentration risk.

Management of and Requisite Controls

What mitigation and controls should be put in place to respond to credit concentration risk?

1. Define a Concentration-Management Policy
2. Detail out a Concentration -Management Strategy
3. Strict Concentration limits at place depending on portfolio
4. Periodic Concentration Reporting
5. Stress Testing

Credit Risk

Definition and General Understanding:

Definition: Credit risk is the risk to a bank's earnings or capital base arising from the failure of a bank borrower or counterparty to meet its obligations in accordance with agreed terms.

Its effect is measured by the cost of replacing cash flows if the other party defaults. For most lenders, loans are the largest and main source of credit risk. Other pockets of credit risk both on and off the balance sheet include investment portfolio, overdrafts, and letters of credit

Sources / How it comes about

The major sources of credit risk are:

Default probability and recovery

- Interest rate risk
- Time: credit risk is carried throughout the life of the facility
- Debtors and creditors – mismatch in credit days
- Internal pressure: conflicting roles i.e sales versus Risk
- Credit policy: may not capture changing business environments
- New markets, new products
- New/alternative channels

Types of credit risk

a) Credit default Risk:
b) Concentration Risk
c) Country Risk
d) Asset Risk
e) Supplier Risk

General Understanding:

	Standardized Approach	Foundation-IRB	Advanced -IRB
Probability of Default	Not required	Internal	Internal
Loss Given Default	Not required	Regulatory	Internal
Credit Conversion Factor	Regulatory	Regulatory	Internal
Maturity adjustment and Currency adjustment	Regulatory	Regulatory	Internal
Risk-weighted assets	Regulatory	Internal	Internal

Increasing complexity and data requirement →

Decreasing regulatory dependency

Basel III provides a 'tailored' or 'evolutionary' approach to banks that are sensitive to their credit risk profiles

Modelling and Measurement of Credit Risk: Scorecard Models (1/2)

Application Scorecard	Behavioral Scorecard

• Uses application variables for analysis and development of scores
 	
• Application variables are the variables known at the time of sourcing the loan
 	
• Developed on product level
 	
• Score are developed for each borrower
 	
• Examples of variables used:
  • Salary
  • Age
  • Region
  • Gender
  • Bureau Score (CRBs)
 	
• Application credit scores of customers are used for early detection of high-risk accounts. Detection enables the organization to make the right decision about whether to accept or reject the application;
	• Uses behavioral variables for analysis and development of scores
	
	• Behavioral variables are the variables developed over time due to transactional activities of the borrower
	
	• Developed on product level
	
	• Score are developed for each borrower
	
	• Examples:
	  • DPD based variables
	  • Transactional Information (Cheque Bounces, Post dated cheques)
	  • Monthly and Quarterly balances
	
	• Behavioural scoring enables a bank to constantly monitor accounts and manage the customer based on the stage in the loan / relationship life cycle

Modelling and Measurement of Credit Risk: Scorecard Models (2/2)

Application Scorecard Development

Work Stream

Scorecard Development

Scorecard calibration and validation

Scorecard documentation and Delivery of Scorecard

Approach

- Statistical Model
- Expert Judgment Model
- Hybrid Model

Management of and Requisite Controls

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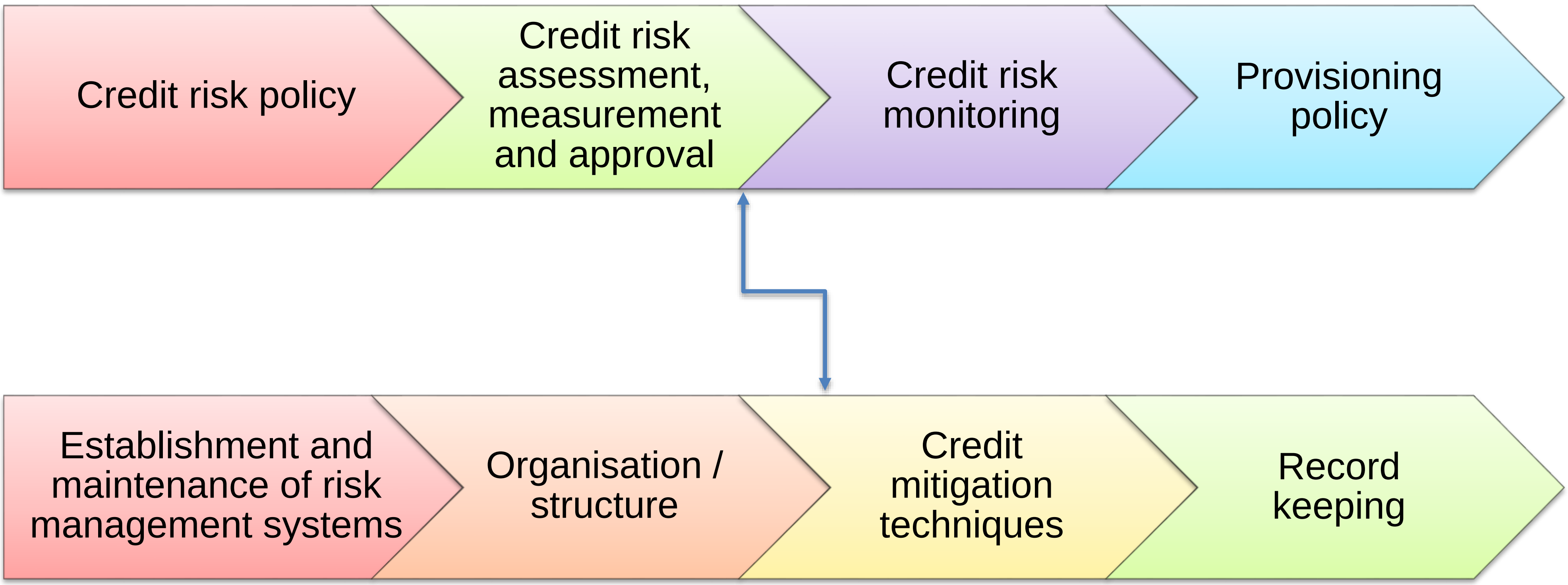
What mitigation and controls should be put in place to respond to credit risk?

1. Define a Credit Policy and have Standardized Credit Packages
2. Loan Approval Authority with Experienced Underwriting/ Decision Making
3. Well Managed Credit Rating Systems
4. Periodic reporting of Loan Performance and review
5. Stress Testing

What are regulators looking for in a credit risk framework



Market Dynamic Risks

Market Dynamics Risks

Market dynamics 1

Forces that impact the prices and behaviors of producers and consumers e.g. preference for certain channels like apps and online banking etc.

Market dynamics risks 2

Risks which result from changes in behaviors of producers and consumers

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Causes of MDRs

Market dynamics risks may be caused by:

1. Emergence of new information
2. Convenience – Speed and accessibility
3. Competition – better options
4. Peer pressure – change in taste
5. Change in Consumer perception
6. Changes in costs

Modeling & Quantification

The following factors need to be considered while modelling market dynamics risks:

1. Data – from experience
2. Client feedback
3. Advanced social media monitoring
4. Use of appropriate tools
5. Monitoring trends in other sectors / jurisdictions
6. Be open minded / no fixed expectation

What next?

What mitigation and controls should be put in place to respond to market dynamics risks?

1. Develop and implement risk based strategic planning and marketing
2. Listen to your clients and monitor their sentiments - on costs, convenience
3. Utilize existing and emerging risk information to make decisions
4. Subject your models through independent quality assurance
5. Change is the only constant – move with the times

Reserving risk

Definition and general umderstanding:

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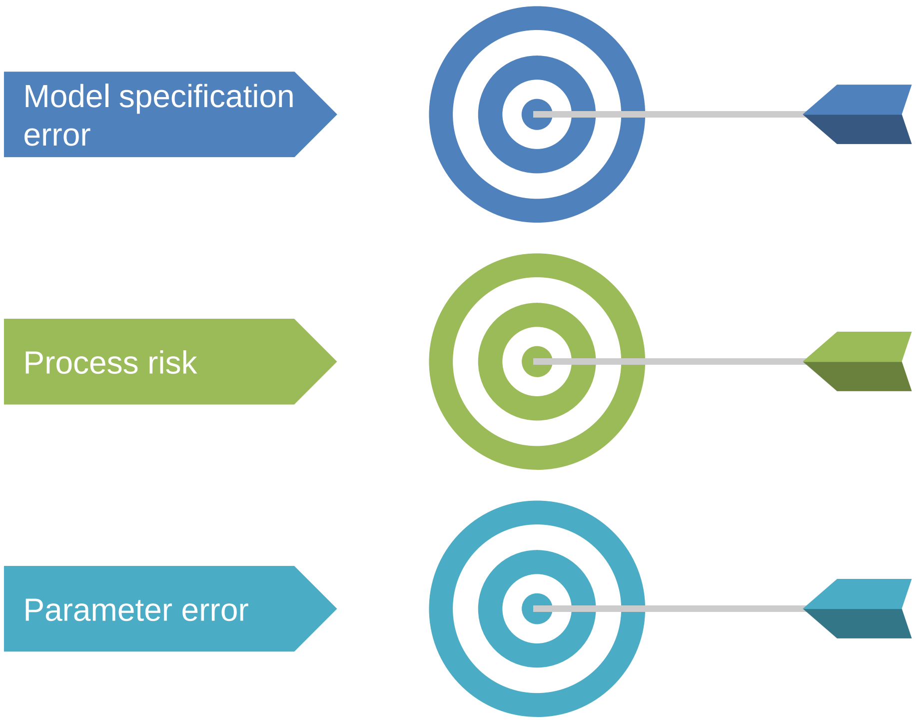
What is Reserve Risk

Reserve risk is the uncertainty in the estimation of the required reserve. It is related to the difference between the required reserve and the estimated reserve.

Sources / How it comes about

What causes reserve risk?



Modelling and measurement of reserving risk

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Analytical Approach

- Mack's model
- Overdispersed Poisson Model

Empirical Approach

- Assume a model for the data
- Fit the data to the model to obtain a set of parameters
- Derive the fitted data using these parameters
- Subtract the fitted from actual to get a set of residuals
- Create many sets of pseudo data using the residuals
- Project every set of pseudo data to derive a range of possible outcomes

Modelling and measurement of reserving risk

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- Inconsistencies in models
- Common misconceptions in reserving
- Data scaling issues
- Inconsistencies in data
- Inconsistencies in parameters

Management of and requisite controls

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Maker Checker

Let one person carry out the reserving and have a senior person within the team review

Model Governance

Develop and implement a robust model governance framework

Internal House Keeping

Carry out extensive data clean up internally

Restrictions

Put in place restrictions on who can authorize changes in the reserving process

Training

Carry out additional training to the reserving team to upskill the team.

Capitalisation risk

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Capitalization 1

Types of capital: Regulatory capital, accounting capital for bridging difference between assets and liabilities – to meet short and long term obligations
Risk based and economic capital: To meet the risk profiles relevant for each financial institution and subsequently modelling losses in the event of extreme scenarios

Capitalization risks 2

Risks associated with the process of capitalization – could be over or under capitalization i.e. maintaining that delicate balance and also types and sources of risks

Management of and requisite controls

The following are common components of a desirable capital models

Management oversight of the process

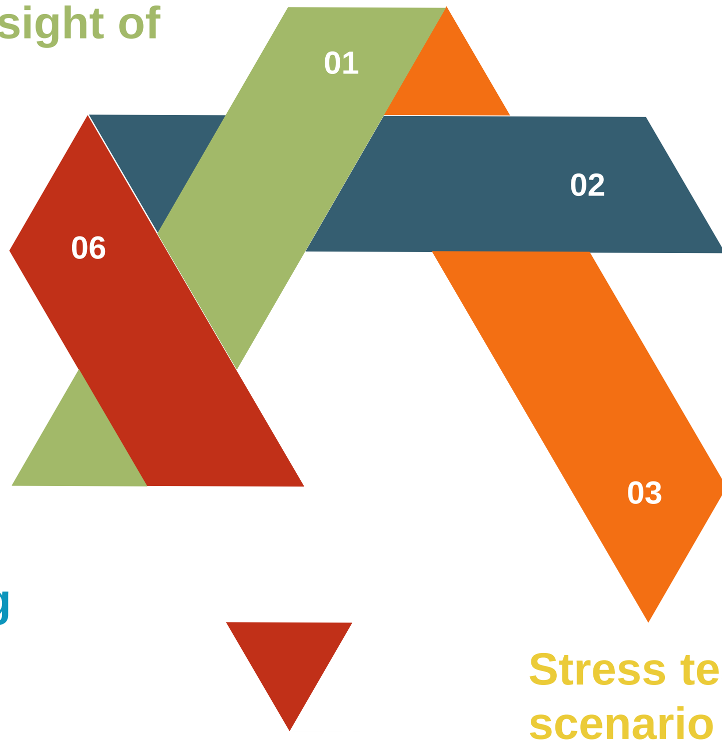
Sound capital assessment and planning

Comprehensive assessment of risks affecting the different types of capital

Stress testing, sensitivity and scenario analysis

Proactive monitoring and reporting

Quality assurance and internal control review



Wrap up

Thank you

Q&A