

Institute of Actuaries of India

3rd Seminar on Enterprise Risk Management

Analytical framework for Risk Management

Mumbai

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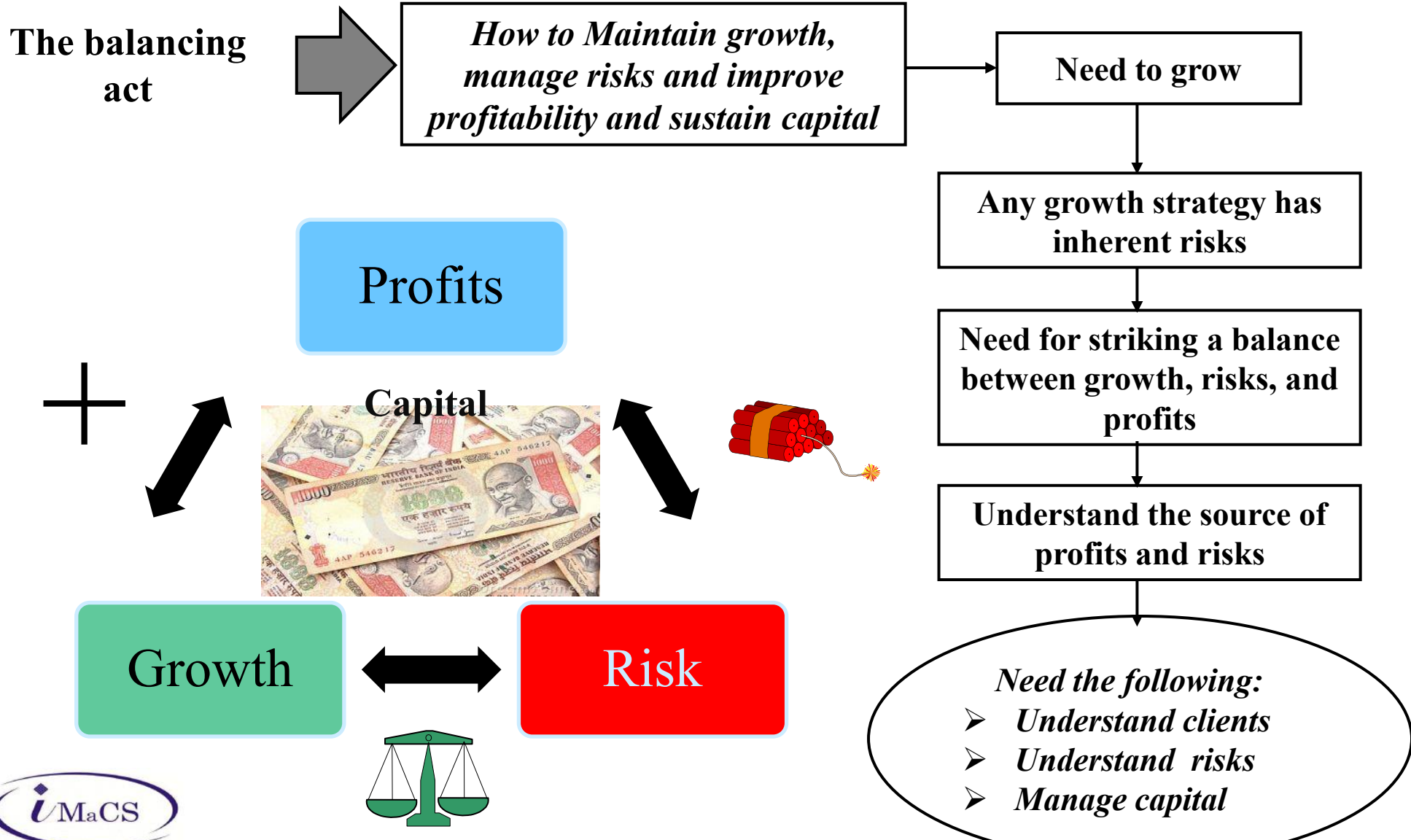
ICRA Management Consulting Services Limited

Coverage

This presentation will cover the typical analytical framework adopted in evaluating the risk management practices. The risks covered are:

- ❑ Asset Liability Management Risk & Liquidity Risk
- ❑ Credit Risk
- ❑ Operational Risk

Financially sustainability is a balancing act among Growth, Risk, Profits and Capital



Need to manage stakeholder expectations through Enterprise Risk Management

Manage stakeholder expectations; Risk adjusted returns on capital; Financial resilience for expansion; capital planning

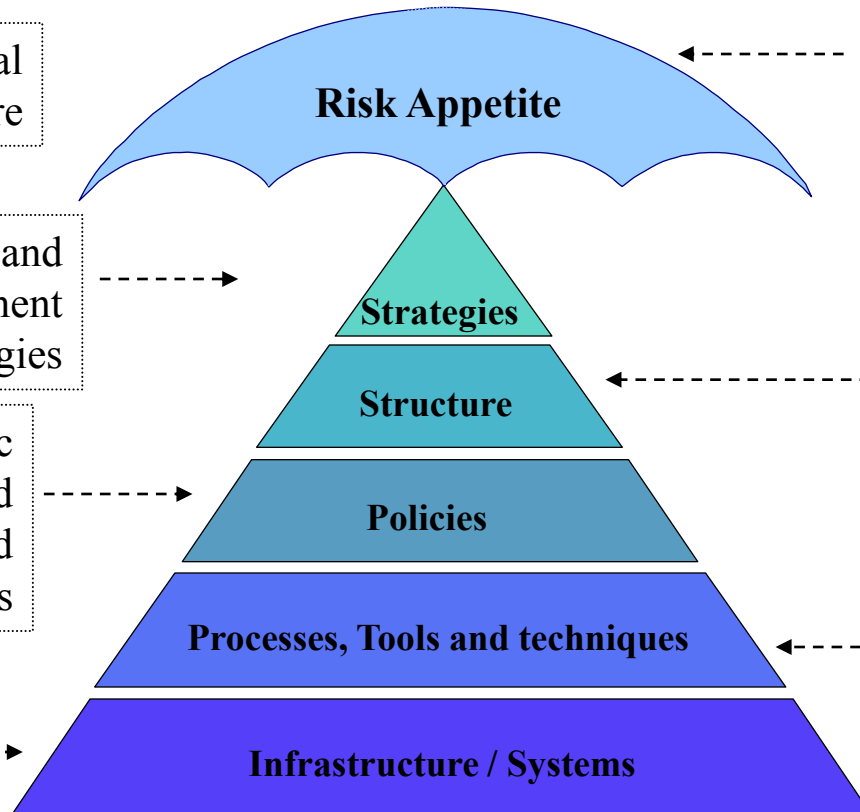


Risk based Capital Management Architecture

Enterprise wide and disaggregated risk management and mitigation strategies

ERM and risk specific policies; risk appetite aligned investment, business and operational policies

Enable application and underlying infrastructure



- Target credit Rating
- Stakeholder aspirations
- Board policy
- Business strategy
- Tolerance to loss
- Key risk threshold metrics

- Organisation structure
- Division and distribution of roles/functions between departments and centralized control functions

- Documented prudential guidelines
- Use of quantitative techniques of risk modelling, analytics, stress testing, scenario analysis
- Risk capital estimation
- Risk monitoring and reporting

Analytical Framework

Risk Governance

Risk Management Practices

Regulatory Compliance

System Assessment

Reporting

Risk Governance

- ❑ Applying principles of corporate governance to ensure that the activities are aligned to:
 - ❖ Strategy
 - ❖ Risk appetite
 - ❖ Long term viability

- ❑ Governance concerns
 - ❖ Board
 - ❖ Senior Management
 - ❖ Risk Management function
 - ❖ The process of collecting, collating and communicating risk information

Key Requirements

- ❑ Have an independent risk management function with
 - ❖ Sufficient authority
 - ❖ Stature
 - ❖ Independence
 - ❖ Resources and
 - ❖ Access to the board

- ❑ Clear segregation of front, middle and back office functions

- ❑ Responsible for identifying, measuring, monitoring, controlling or mitigating, and reporting on risk exposures

Board's Responsibility

- ❑ Approve and monitor the overall strategy

- ❑ Oversee
 - ❖ Overall risk strategy, including its risk tolerance/appetite;
 - ❖ Policies for risk, risk management and compliance;
 - ❖ Internal control system

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Risk Management Practices

- Risk Identification
- Risk Measurement
- Risk Monitoring
- Risk Mitigation
- Risk Reporting

ALM & LIQUIDITY RISK

Liquidity Risk Management

IRDA on liquidity risk

- ❑ The Insurer should have a Cash Management System to provide the funds available for investment considering the settlement obligations and subscription and redemption of units etc. **to preempt any leveraged position or liquidity risk.**

Liquidity Risk Management – Solvency II

Definition: The risk that insurance and reinsurance undertakings are unable to realise investments and other assets in order to settle financial obligations when they fall due.

- ❑ All investments held by (re)insurance undertakings must be invested, managed and monitored in the best interest of policyholders, adequately match investments and liabilities, and pay due attention to financial risks, such as **liquidity** and concentration risk
- ❑ All assets, in particular those covering the Minimum Capital Requirement and Solvency Capital Requirement, shall be invested in such a manner as to ensure security, quality, **liquidity** and profitability of the portfolio as a whole
- ❑ Have in place an effective risk management system comprising strategies, processes and reporting procedures necessary to monitor, manage and report, on a continuous basis the risks – including **liquidity risk**

Types of Risk[@]

Liquidation value risk

Risk that unexpected timing or amounts of needed cash may require the liquidation of assets when market conditions could result in loss of realised value

Affiliated investment risk

Risk that an investment in a member company of the conglomerate or group may be difficult to sell, or that affiliates may create a drain on the financial or operating resources from the insurer

Capital funding risk

Risk that the insurer will not be able to obtain sufficient outside funding, as its assets are illiquid, at the time it needs it (for example, to meet an unanticipated large claim)

[@] International Association of Insurance Supervisors – Guidance paper on investment risk management

Liquidity risk management framework

Levels of liquidity management

Day to day cash management

- ❑ Commonly done by Treasury / ALCO

Ongoing cash flow management

- ❑ Manage cash needs for 6-24 months
- ❑ Tools: restructuring portfolio, diversifying, selling more or fewer of certain products, changing investment strategy

Testing and scenario analysis

- ❑ Stress liquidity risk focused on catastrophic risk
- ❑ Ability to meet demands of many policyholders in a short period

Liquidity Risk Management

Risk Identification

Risk Measurement

Risk Monitoring

Risk Mitigation

Reporting

Performed as part of ALM Management by ALCO

Risk Identification

Sources of Risk

- Claims by a single or a few contract holders that control large sums of money
- While liquidating assets, market not able to absorb the volume other than at unfavorable prices
- Banks may be unwilling to lend to an insurer
 - Following an insurance risk event
 - Credit rating downgrade
- Lack of diversity in either the liability or the asset portfolio when analysed by product, geography, industry or creditor
 - Concentration of illiquid assets, such as real estate or thinly traded securities
- Mismatch between the term of the liabilities and their underlying assets
- Negative publicity
- Reports of problems of other insurers or similar lines of business
- Economic downturn
- Abnormally volatile or stressed markets

Risk Measurement and Monitoring

Liquidity Risk Measurement Tools

Cash flow modeling

Under normal business conditions and under stress scenarios

Assess cash flow deficits, surpluses

Compare with contingent funding

Assess probability of requiring immediate access to liquidity

Take steps to ensure sufficient cash and short-term liquid assets on hand to meet unexpected, but not highly unlikely, liquidity requirements

Liquidity ratios (liquidity adjusted assets / liquidity adjusted liabilities)

Under normal business conditions

Assess **minimum level of required liquidity**: normal expected amount of liquidity that would be required to meet the demands of the underlying liability portfolio

Liquidity ratio to be used in the insurer's investment policies

Minimum level of required liquidity

+

Appropriate margin to cover unexpected liquidity requirements

Risk Mitigation

- Drawing cash early under reinsurance policies
- Borrow short term such as through bank lines of credit or commercial paper
- Formal credit lines should be established to mitigate that risk
- Have a liquidity contingency plan to be implemented in the event that its usual liquidity management is unable to meet demands
- Diversifying assets - by issuer, industry, region and asset class
- Diversifying liabilities - by market, product, channel, etc
- Maintain a comfortable ratio of the fair value of assets that could be sold within 30 days (cash, short-term securities, marketable bonds) to the surrender value of liabilities
- Assess liquidity risk BU wise and explore inter-BU synergies (matching cash inflows and outflows)

Risk Reporting

Reports covering cash inflows, outflows, stressed cash flows, level of liquid assets held

Under normal and stressed conditions

Cash inflows

- Expected premium income
- Investment income
- Repayment of interest and principal by debtors
- Reinsurance claims received

Cash outflows

- Liability payments
- Investments
- Expenses – selling and general expenses
- Reinsurance premia

Level of existing liquid assets held by the insurer

- Terms and conditions of existing credit lines for insurers
- Reinsurance contracts

Liquidity of assets → average number of days required to liquidate that security based on the daily volume of market transactions

CREDIT RISK

Credit risk components

- ❑ Primarily counterparty risk in investment instruments
- ❑ Credit Rating - initial rating and changes
- ❑ Rating migration, recovery rates
- ❑ Independent assessment through risk models
- ❑ Industry research
- ❑ Concentration and tenure limits

OPERATIONAL RISK

Operational Risk Management

IRDA on Operational risk

- Solvency II framework proposes two approaches for quantifying exposures to operational risk: a standard formula approach building on the elements of the base SCR or the use of the internal model. The standard formula approach suggests a capital charge for operational risk not exceeding 30% of the base SCR
- The “Rule of Thumb” approach recommended for Life Insurance Companies in India is to set the EC for operational risk equal to one per cent of the technical provisions

Solvency II on OR

- **Internal Event Analysis** comprises of comprehensive internal (operational) incident data collection and analysis. Events could then be categorized using regulatory guidelines on event definitions and classification across various levels.

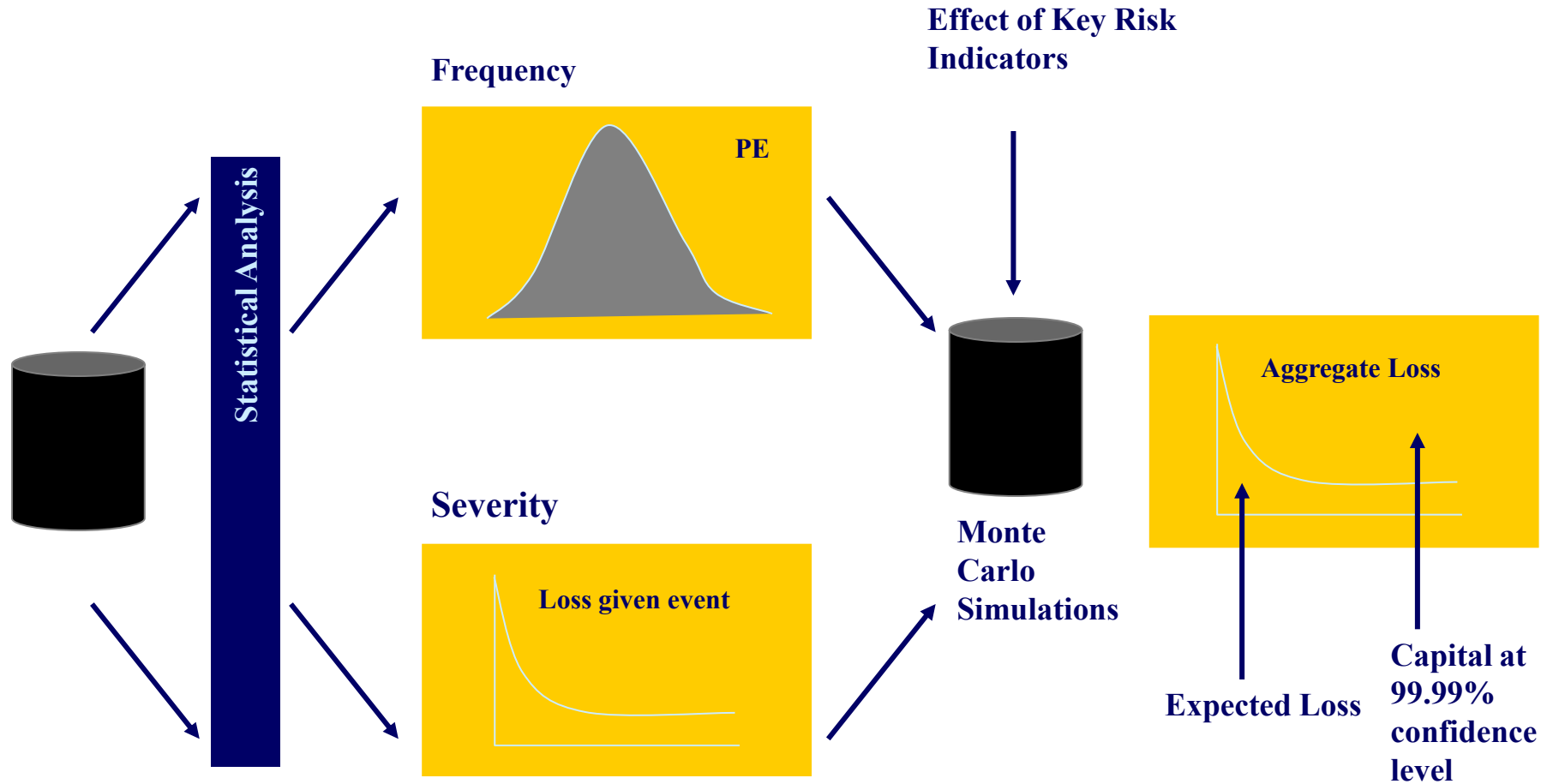
Solvency II Loss Event Classification

Event Type Category (Level-1)	Definition	Categories (Level -2)
Internal Fraud	Losses due to acts of a type intended to defraud, misappropriate property or circumvent regulations, the law or company policy, which involves at least one internal party	Unauthorised Activity
		Theft and Fraud
External fraud	Losses due to acts of a type intended to defraud, misappropriate property or circumvent the law, by a third party	Theft and Fraud
		Systems Security
Employment Practices and Workplace Safety	Losses arising from acts inconsistent with employment, health or safety laws or agreements, from payment of personal injury claims, or from diversity / discrimination events	Employee Relations
		Safe Environment
		Diversity & Discrimination
Clients, Products & Business Practices	Losses arising from an unintentional or negligent failure to meet a professional obligation to specific clients, or from the nature or design of a product.	Suitability, Disclosure & Fiduciary
		Improper Business Practices
		Product Flaws
		Selection, Sponsorship & Exposure
Business disruption and system failures	Losses arising from disruption of business or system failures	Systems
Execution, Delivery & Process Management	Losses from failed transaction processing or process management, from relations with trade counterparties and vendors	Transaction Capture, Execution & Maintenance
		Monitoring and Reporting
		Customer Intake and Documentation
		Trade Counterparties
		Vendors & Suppliers

Operational Risk Management Framework



Frequency and Severity



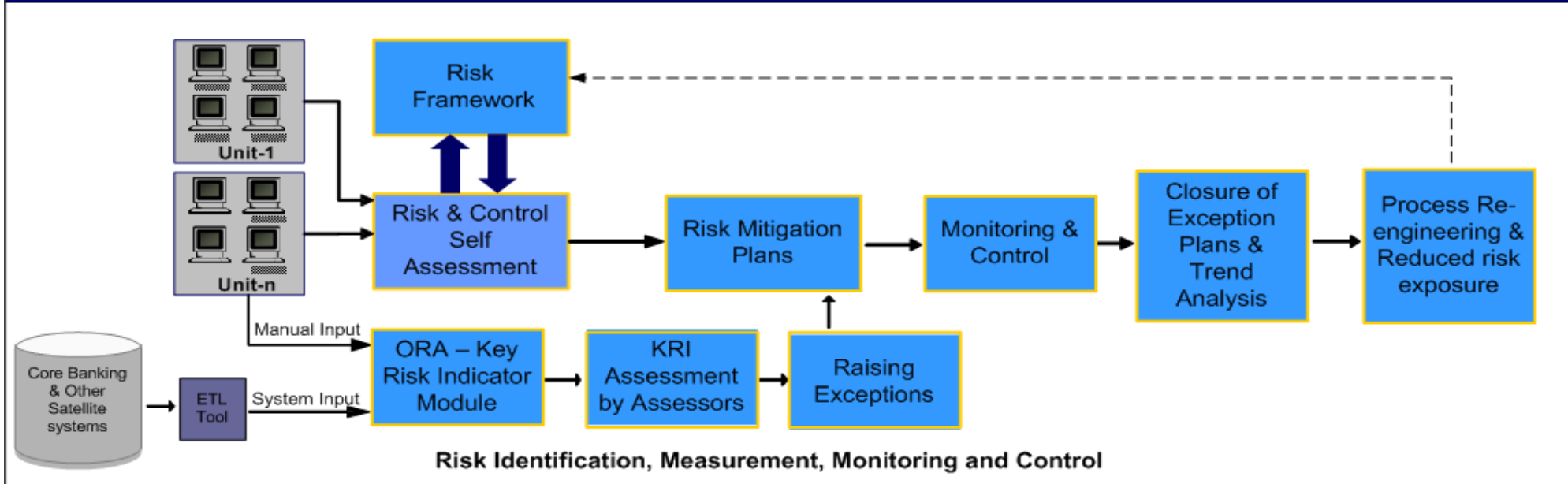
Risk Identification

Sample Key Risk Indicators (KRI) sheet

No.	Division	Business Unit	Name of KRI	Description	Review Period	Observed Measures	Threshold Limit	Loss Event Type
1	Investments Management Team	Back Office	Non-sending of Deal confirmations to Counter-party	Number of cases where deal confirmations were not sent on the same day to the counterparties for all the trades done for the day	Monthly	Number of Instances	Defined Number	High, Medium or Low
2	Investments Management Team	Middle Office	Maturity tracking errors for reinvestment	Number of cases where intimation was not sent to Front office one day prior to maturity for reinvestment	Monthly	Number of Instances	Defined Number	High, Medium or Low
3	Investments Management Team	Back Office	Incomplete Reconciliation prior to NAV Computation	Number of times reconciliation statement was not completed prior to daily NAV computation.	Monthly	Number of Instances	Defined Number	High, Medium or Low
4	Investments Management Team	Front Office	Errors in updation of brokers in the empanelled list	Number of cases where Broker updation has been done with errors or updation done without clearance from Back office.	Monthly	Number of Instances	Defined Number	High, Medium or Low
5	Investments Management Team	Front Office & Back Office	Non-escalation in case of non-compliance of Broker documentation and criteria	Number of cases where escalation was not done on Broker documentation or other such criteria being non-compliant or incomplete.	Monthly	Number of Instances	Defined Number	High, Medium or Low
6	Investments Management Team	Front Office & Back Office	Errors in updation of Security Master in Mfund	Number of Cases where Updations or changes were made in Security Master of Mfund system without prior approval from Fund Manager and CIO.	Monthly	Number of Instances	Defined Number	High, Medium or Low

Capturing Information, Monitoring and Mitigation

Operational Risk Framework



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Regulatory Compliance

- ❑ Compliance with Regulatory guidelines
- ❑ Compliance with quasi regulations such as Accounting standards
- ❑ Compliance with laid down policies and procedures
- ❑ Addressing audit issues

Gap Analysis

- Policy
- Data
- Documentation
- Reporting

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Review of Systems

- ❑ Understanding the systems, their working and inter relationships
- ❑ Review of investment and risk management systems
- ❑ Focus on integrity and business continuity

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Reporting

- Regulatory reporting
- Reports to Board
- Reports to senior management

Understanding risk

“Without numbers, there are no odds and no probabilities; without odds and probabilities, the only way to deal with risk is to appeal to the Gods and the fates”.

Source: ‘Against the Gods’ by Peter L Bernstein

Without numbers, risk is wholly a matter of gut

TYPICAL LINES OF ENQUIRY OF ANALYSTS

Analyst's views...1

- Financial Risk profile
 - ❖ Capital Adequacy
 - ❖ Profitability
 - ❖ Asset Liability Management & Liquidity
 - ❖ Investment Strategy and performance
 - ❖ Risk mitigation measures

Analyst's views...2

□ Business Risk profile

- ❖ Industry competitiveness
- ❖ Positioning of the company
- ❖ Business Franchise
- ❖ Product mix and ability to launch new products
- ❖ Distribution strength, cost and performance
- ❖ Customer service
- ❖ Operating efficiency (cost of operations)

Analyst's views...3

□ Management Risk profile

❖ Management quality

- Experience
- Vision and Strategy
- Risk Appetite
- Risk management and control systems

❖ Financial strength and Rating of the parent

❖ Strategic interest of the promoter

Thank You

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